

Blue Marble Brewing Co.



OPERATION AND SERVICE MANUAL

for

Brewpack 500

from

Switchback Group



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Thank you for your purchase of equipment from Switchback Group. Switchback Group equipment is designed and produced to provide years of dependable, reliable, low-cost performance and service. As with all fine equipment, good care and maintenance are required to insure the maximum utilization and productivity of the machinery.

The following paragraphs outline the general maintenance, lubrication, troubleshooting and adjustment procedures for your Switchback Group Brewpack 500.

Switchback Group

BREWPACK 500

AUTOMATIC CONTINUOUS MOTION CARTONER

INTRODUCTION

SWITCHBACK GROUP (SBG) is a full service engineering and custom system fabricator specializing in the design, manufacture, integration , and installation of packaging systems including continuous motion cartoners, intermittent motion cartoners, conventional end load, servo top load, and wraparound style case packers. Additional items include case erectors, (tape and glue), case sealers, (tape and glue), rotary pick and place devices, carton and tray forming, labeling, along with custom conveyance systems.

SBG packaging equipment can be designed and manufactured as a separate stand-alone model or can be tied together as a fully integrated system. Careful attention is given in providing as assortment of machine to machine interlocks that allow proper shut down in the event of an emergency or excessive line back-up. SBG also prides itself on its incorporation of robust mechanical components and its use of cam motion in critical areas of machine timing.

IMPORTANT

All SBG equipment is designed for operator safety. However, it is important to follow specific instructions indicated in this manual and other manuals on auxiliary equipment. Failure to observe these procedures can result in injury to personnel and damage to the equipment. Satisfactory operation of the equipment depends on proper application, correct installation, and adequate maintenance. In addition, modifications to the equipment may result in less than satisfactory performance.

Note: SBG reserves the right to make alterations in designs may be necessary to meet customer or product requirements. For this reason, illustrations and particulars in this manual may not conform in every detail to models in current production.

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Switchback Group

BREWPACK 500

AUTOMATIC CONTINUOUS MOTION CARTONER

MACHINE INTRODUCTION

The **SWITCHBACK GROUP** Brewpack 500 Continuous Motion Cartoner offers quiet performance and proven reliability in an affordable and versatile package. It is easily adaptable to a wide range of products.

Some of the features of the Brewpack 500 include Kevlar reinforced drive belts in place of roller chain. This offers quiet and maintenance free operation to some of the more critical mechanical drives found on the machine, a Rotary carton erector, a Powered magazine for increased blank staging, Pressurized Hot melt System or Tuck Closure, Hand Crank Adjustments and an easy changeover "Infeed Flight System".

The frame construction is made up of a tubular weldments and heavy plate materials. This gives a unique foundation for other mechanisms and special attachments. This type of construction absorbs typical vibration and noise.

Each Infeed Flight System is uniquely designed for the customer's specific needs.

SAFETY

This cartoner is equipped to operate in an automatic mode with multiple speed options. It is also equipped with a safety system and full perimeter guarding to prevent the operator from entering the working area while the cartoner is in operation.

For your safety, you should **NEVER** bypass the perimeter guarding or enter the working area while the cartoner is operating.

EQUIPMENT SAFETY FEATURES

- **Main Power Disconnect**
 - The main power disconnect is supplied on the door of the main electrical enclosure. This device is used to disable the power of the machine, rendering it safe for all maintenance and repairs. The disconnect is capable of accepting a lockable device, (Lock Out/ Tag Out), to insure that the power remains off, preventing accidental power implementation.
 - **WARNING** - The main power disconnect may not remove power to those devices or wires that have been added to the machine by an end user. Caution should always be taken to insure that all power is removed prior to cabinet entry.
- **EMERGENCY STOP BUTTONS**
 - These buttons are used to lock out the drive circuit while clearing a jam or when making adjustments. Press an Emergency Stop Button down disable the drive controls. When down, the machine cannot be started.
- **GUARD INTERLOCKS**
 - Special guard switches have been fitted to the guard doors. If a door is opened while the machine is running, the machine will stop operating and will not start operating again until the guard door is closed and the machine is reset. The use of the doors to stop the machine during operation will act as an emergency stop, but is not recommended as a standard practice as this will decrease the doors life.
 - Do not operate the machine without perimeter guards in their proper place.
 - Do not defeat the electrical guard interlock system.
- **LIGHT CURTAIN**
 - The light curtain should be tested daily to insure that it is offering protection to plant personnel.
 - Do not defeat the electrical guard interlock system.
- **Overload (slip) Clutch**
 - The machines drive train is fitted with an overload slip clutch. This device is used to protect the main drive motor in the event a jam occurs. This clutch has an adjustable tensioning unit. The software is looking for the home flag in a timely manner. If the flag does not arrive in time, the machine will not run and will indicate that the flight conveyor index took too long. The flight conveyor will not be at home when this message shows up on the HMI. It will be necessary to put the cartoner in TEST mode and touch the "Home" button for the flight conveyor to get the flight conveyor in the correct position.
- **Maintenance**
 - Lockout devices should be attached to both the power and air disconnects prior to working on the machine. They should be used to prevent electric shock as well as avoid accidental start-ups while the machine is under repair.
 - Only qualified personnel should be allowed to operate or maintain this equipment. The entire manual should be read before operating or maintaining this machine.

SECTION I - - - SAFETY GUIDELINES

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Figure S-1 - Electrical Lockout/Tag Out Point



Figure S-2 - Pneumatic Lockout/Tag Out Point

Safety is the most important part of running this machine. Proper “Lockout/Tag Out” procedures should be used for any mechanical adjustments. This is the best way to insure safety for the operators and maintenance personnel.

SECTION I - - - SAFETY GUIDELINES

SECTION I - SAFETY GUIDELINES

SAFETY PRECAUTIONS

Safety Guidelines

All operating, maintenance and supervisory personnel must be thoroughly trained on the proper operation and the safety features of the machine. The owner of the machine is responsible for initiating and conducting ongoing training on the proper use of the safety features presented in this manual as well as company policies and local, state and federal requirements.

Under no circumstance should any safety feature be bypassed or otherwise disabled.

The major safety devices are:

Manually Operated Air Dump Valve

This valve is located beside the blank feed assembly. Rotate the handle to disconnect the machine from the air supply and to dump all entrapped air. The valve must be in the off position and a lock-out device attached, (Figure S-2), during all change overs or maintenance operations. Rotate the handle to reconnect the air supply.

Primary Electrical Disconnect

This device is located on the side of the main control cabinet. Rotate the handle down to disconnect all electrical power to the machine. The disconnect must be off (down) and a lock-out device attached, (Figure S-1), during all change over or maintenance operations.

NOTE: If more than one person will be working on the machine then group lock-out devices must be used.

Any modification to the electrical controls should be installed and wired by a qualified electrician in accordance with the National Electrical Code.

DANGER:

DO NOT ALTER EMERGENCY STOP SENSORS OR CIRCUITS.

DANGER:

ALL ASSOCIATED EQUIPMENT SHALL HAVE A READILY ACCESSIBLE DISCONNECTS THAT CAN BE LOCKED IN THE OFF POSITION.

SECTION I - - - SAFETY GUIDELINES

System Start-up:

DANGER:

PERSONAL INJURY MAY RESULT IF THE FOLLOWING PROCEDURE IS NOT FOLLOWED.

Before the **Brewpack Jr** cartoner is started, the system should be checked to assure that a dangerous situation does not exist. All drive guards and perimeter guarding **MUST** be in place before machine operation.

Emergency Stop Push Buttons

These are mushroom head detented push buttons. When any of the EMERGENCY STOP push buttons is pressed, a master control relay (MCR) de-energizes, removing control power to all output devices, including the electrical air dump valve. The EMERGENCY STOP push buttons provide a means of quickly removing all sources (electrical and pneumatic) of energy. Electrical power is **NOT** removed from control panels or input devices (switches, photo electric or proximity devices, etc.). The EMERGENCY STOP push buttons **DO NOT** ensure that the machine is safe. The emergency stop circuit relies on the proper operation of several components; see Preventative Maintenance section.

Safety Guards

The machine is equipped with guards to prevent access of moving parts of the machine. Guards that can be opened by a handle are equipped with an interlock switch that performs the same functions as the EMERGENCY STOP push buttons. Guards that do not have interlock switches are bolted on and require tools for removal.

DANGER:

DO NOT OPERATE THE MACHINE WITHOUT ALL GUARDS IN PLACE.

NEVER DEFEAT THE GUARD INTERLOCK SWITCHES

Electrical Air Dump Valve

The valve disconnects the air supply and dumps air in the machine whenever an EMERGENCY STOP push button is pressed or a guard door is opened. Proper operation of this device is essential; see Preventive Maintenance section.

Master Control Relay (MCR)

This electrical device removes all electrical control power to all output devices (servos, solenoids, etc.) When an EMERGENCY STOP push button is pressed or a guard door is opened. Also power is not restored when all interlocks are made until the MCR RESET push button is pressed.

SECTION I - - - SAFETY GUIDELINES

Hot Melt

The hot melt glue system typically operates at a 350-degree temperature setting. Never troubleshoot the glue system in a way that allows glue to be sprayed at personnel working in the vicinity of the machine. Use caution when refilling the hot melt hopper as severe burns can occur. Remember that glue is designed to stick to the surfaces that it is directed at. The hot melt glue will adhere to the skin of a person very firmly and can cause severe burns. Use caution when working around any of the glue hoses, guns, or mounting brackets as these surfaces can be extremely hot.

Hands out of Machine

Never put your hands or any part of your body into any portion of the machine when it is running. Always stop the machine before attempting to work on any portion of the base or infeed. Keep in mind that this machine can and will start any time even if there is not an operator present.

Chain Drives and Rotating Shaft Dangers

Chain drives are one of the most dangerous areas of the machine. Tremendous forces are generated at the area where the chain wraps around the drive and take up sprockets. Never attempt to clear a jam from these areas when the machine is operating. Do not operate any chain drive without a proper guard in place. Use caution around rotating line shafts even though there appears to be little chance of someone getting hurt. Loose clothing wrapped around a line shaft has been known to cause severe injuries.

Programmed Stop

The **Brewpack Jr** cartoner is designed with a programmed stop feature that allows the machine to continue its operation for a short interval before coming to a complete halt. This cycle usually takes a few seconds to complete.

Good Housekeeping

It is good practice to keep the area around the machine as clean as possible. This helps prevent the accidents that are waiting to happen and does much to improve the morale of the machine operator

Common Sense

The items listed above are some areas of the machine that require special attention to safety. There are many other sections of the machine that can cause injury to personnel operating the machine. Always report any safety conditions to your immediate supervisor if you suspect an unsafe condition at any portion of the machine. Consult with the Packaging Technologies Parts Adminstrating Department to order safety items for your machine. Safety is everyones responsibility and should never be taken lightly.

SECTION I - - - SAFETY GUIDELINES

TYPICAL LOCKOUT PROCEDURE

Developing a lockout or tag-out policy and procedure is the responsibility of the Owner/Employer. The following guideline is provided for reference in developing a lockout or tag-out procedure. This procedure may be used when there are limited numbers or types of machines or equipment or when there is a single power source.

Purpose

A lockout/tag-out procedure establishes the minimum requirement for the lockout or tag-out of a machine system and devices. It is used to ensure that the machine or equipment is isolated from all potentially hazardous energy during maintenance activities where the unexpected energizing, start-up or release of stored energy could cause injury or damage to the machinery.

Responsibility

Appropriate employees must be instructed in the safety significance of the lockout or tag-out procedure. Each new or transferred employee, and other employees, whose work operations are, or may be, in the area shall be instructed in the purpose and use of the lockout or tag-out procedure. Departments and job titles of those who are responsible for implementing and following this procedure should be listed here.

Preparation for Lockout or Tag-Out

Make a survey to locate and identify all isolating devices to be certain which switch(s), or other energy isolating devices, apply to the equipment to be locked or tagged out. More than one energy source (electrical, mechanical, or others) may be involved. Types and locations of energy isolating means, such as disconnects, valves, switches, etc. should be listed here.

Sequence of Lockout/Tag-Out

1. Notify all affected employees that a lockout or tag-out system is going to be utilized and the reasoning behind it. The authorized employee shall know the type and magnitude of energy that the machine or equipment utilizes and shall understand the hazards involved.
2. If the machine or equipment is operating, stop it by the normal shut down procedure (depress stop button, open toggle switch, etc.)
3. Operate the switch, valve, or other energy isolating device(s) so that the equipment is isolated from its energy source(s). Stored energy, (such as that in springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc.), must be dissipated or restrained by methods such as positioning, blocking, bleeding down, etc.
4. Lockout and/or tag-out the energy isolating devices with assigned individual lock(s) or tag(s) (Method(s) Selected; i.e., lockout tags, additional safety measures, etc.)
5. After ensuring that no personnel are exposed, and as a check on having disconnected the energy sources, operate the push button or other normal operating controls to make certain the equipment will not operate (type(s) of equipment checked to ensure disconnections). After ensuring that no personnel are exposed, and as a check on having disconnected the energy sources, operate the push button or other normal operating controls to make certain the equipment will not operate (type(s) of equipment checked to ensure disconnections).

SECTION I - - - SAFETY GUIDELINES

CAUTION:

RETURN THE CONTROL(S) TO A NEUTRAL OR OFF POSITION AFTER THE TEST.

6. The equipment is now locked out or tagged out.

Restarting Machinery

1. After maintenance or repair has been complete, the equipment has been reassembled, and tools have been removed, check the area around the equipment to be sure that all guards and safety devices are in place.
2. Check to make sure that all personnel are in the clear, then remove all lockout or tag-out devices. Operate the energy isolating devices to restore energy to the machine or equipment.

INSTALLATION

When the Brewpack 500 is put into place it needs to have the leveling feet adjusted so that it is level and stable. The machine needs to have a stable platform for longevity.

Many of the moving parts have been secured for shipping. Cut any zip ties off and cut or unwrap the shrink wrap. The pneumatic slides are secured by moving one of the stroke limiting shaft collars up tight against the slide housing. Loosen the locking screw and move the slide so that the other limiting shaft collar reaches the extend position and tighten the locking screw when the shaft collar is against the slide housing.

Make sure that all moving parts move freely and that there is no wobble or other indication that riding in a truck has created an undesirable condition.

Install clean dry air to the machines air inlet that is mounted on the side of the infeed conveyor. The Brewpack 500 needs between 80 and 100PSI to maximize performance. It is factory tested at 80PSI.

Turn off all of the circuit breakers in the main electrical enclosure and install the appropriate incoming power to the machine. Check the voltage across all three legs to verify three phase power. When voltage is verified move all of the circuit breakers to the on position. This machine is 480VAC, 3 phase, 60 Hz, with a 30Amp disconnect.

When the HMI is booted up, press the reset button. The message area at the top right of the HMI should indicate that the machine is resetting. The dump valve will now allow air into the system. The servo loader should move to the retracted position.

Check all of the guard doors and E-stops. When the machine has been reset open a guard door and make certain the machine air and control power have been disabled. The HMI message area should indicate the # of the guard door that is opened. Each guard door and E-Stop are shown in the message window and graphically represented on the main screen of the HMI. When the door safety switches have been verified, check the E-stops by pressing them one at a time and making certain that the machine air and control power are disabled. Each E-stop is also identified on the HMI.

Check the operation of the individual components by pressing the buttons on the "Infeed/Magazine" and "Packer" screens. These functions of these buttons are identified on pages 69 to 71.

Cycle the machine in test mode by pressing the start button after the machine has been reset to verify that there are no obstructions and that everything moves smoothly.

Put the machine in auto mode and press the start button. The Brewpack 500 should cycle smoothly and quietly. Watch and listen to the machine for a couple of minutes to confirm smooth operation. The Vacuum will need to be selected on and off in order to make the cartoner run. Do not put cartons in the magazine until testing for interference.

With blanks in the magazine and product on the infeed conveyor the Brewpack 500 is now ready for automatic operation.

SECTION II - - - OPERATOR INSTRUCTION

Daily Start-up

1. Make sure that the infeed and base machine are clear of product and cases from the previous shift operation, or check that cases and products still on the machine are of the correct type.
2. Perform any necessary housekeeping chores around the machine. Verify that all machine guarding is in place and that all guard doors are closed.
3. Verify that the air filter has been drained.
4. Load the blank feed magazine with a fresh supply of blanks of the correct case size, or check that the blanks already loaded are of the correct type.
5. Turn on the air supply to the machine and verify that the air pressure is at least 80 psi. Moisture free dry air is required to insure proper operation.
6. Verify that the downstream processing equipment is in a **Ready to Run** state.
7. Turn on the machines electrical power source. In cases where the Hot Melt Unit has been wired to a timer the power may already be on.
8. Depress the MCR RESET button.
9. Make certain that the glue is up to operating temperature and that all machine assemblies are at "Home" position.
10. Enable the Vacuum and Glue
11. Press the Start button with the machine in Auto Mode.

CAUTION:

**VERIFY THAT ALL MACHINE GUARDING IS IN PLACE AND
THAT ALL GUARD DOORS ARE CLOSED.**

SECTION II - - - OPERATOR INSTRUCTIONS

Status Indicating Lights

A three color light is provided on the top of the main electrical enclosure to display the status of the machine at a glance. The relationship between colors and status is as follows:

Steady Green Light: Indicates machine cycling properly in automatic mode.

Flashing Yellow Light: Indicates warning message present, machine resetting, and machine paused.

WARNING: **When in “Pause” status the machine can start cycling at any time, and without notice, upon arrival of product from the upstream equipment.**

Flashing Red Light: Error that prohibits successful completion of requirements, (this will also cause an audible alarm to sound if your machine has a stack light). With lack of control power due to E-Stop being pressed or guard door other than gantry doors being opened, (The audible alarm will not function).

SECTION II - - - OPERATOR INSTRUCTIONS

Normal Running Operations

While running check that:

1. There is no hot melt build-up. This causes problems at the compression station, or just before it.
2. After clean-up check electrical plugs on the hot melt unit to assure they are not loose or disconnected. When passing by the hot melt tank check for blinking lights.
3. The minor flaps are tucked in.
4. The major flap is being tucked in.
5. The leading edge of the major flaps are not bent.
6. The level of hot melt is okay.
7. The cases on the palletizer conveyor are properly folded, glued and square.

CAUTION:

DO NOT MOVE OR ADJUST ANYTHING UNLESS YOU KNOW WHAT YOU ARE DOING.

IF YOU GET A JAM IN THE MACHINE, TRY TO DETERMINE WHAT CAUSED THE JAM. IF IT IS FREQUENT, NOTIFY A MECHANIC.

SECTION II - - - OPERATOR INSTRUCTIONS

Daily Shut Down

1. Make sure the upstream processing equipment is stopped so that no more products are coming to the infeed.
2. Disable the Vacuum from the Main Screen. Product will be loaded into that last case that is erected. The case will move downstream and get folded and glued before discharging onto the exit conveyor.
3. Turn off the air supply to the machine.
4. Turn off the machines electrical power source. In cases where the hot melt has been wired to a timer, the power may be left on.
5. Clear the infeed and base machine of any leftover product and cases left in the machine.
6. Perform any necessary housekeeping chores around the machine.

Short Term Stop

1. Make sure the upstream processing equipment is stopped, or can be stopped, without having trouble on the equipment itself and the product conveyor.
2. Press the INFEED STOP, and the EMERGENCY STOP push button, and the machine will stop cycling.
3. After the programmed break, press the START BASE and START INFEED push buttons. Press the LOWERATOR RETRACT (RESET) push button so that a blank is pulled down from the hopper.
4. Press the JOG push button and the machine will operate continuously again.

If your company requires that some operations be performed on the machine during these breaks, refer to the Daily Shut Down and Daily Start Up procedures to avoid unsafe situations.

SECTION II - - - OPERATOR INSTRUCTIONS

Safety Precautions

1. Base Machine

To remove jams from the machine, press the EMERGENCY STOP push button. Allow the machine to complete its present cycle before opening any guard doors. Clear the jammed cases from the machine and return the guard doors to their closed positions. The machine is now safe to restart.

Operator Duties

The operator must be thoroughly familiar with the operation sequence of this machine.

1. The primary duty of the operator is to supply blanks to the magazine. Blanks are normally supplied on pallets. As the blanks are placed into the magazine, they should be inspected for cutting scrap and damage. The Blank Magazine and Feed are designed to accept blanks even if they are warped. Warping can occur during manufacturing, handling, storage, weather changes, etc.
2. On rare occasions it may be necessary for the operator to manipulate the blanks by bending flaps, etc.
3. The secondary duty of the operator is to keep the hot melt glue tank filled with glue at an appropriate level. It is better to add a small amount of hot melt to the tank at one time so that it will not cool the tank.
4. The temperature in the hot melt tank is 350 degrees Fahrenheit; always use caution when refilling the tank since severe burns can occur.
5. The compactness of the machine permits the operator to become an auxiliary inspector of incoming product checking for loose labels, dented cans, etc.

Cleaning The Machine

It is important to keep the machine clean to insure trouble free operation. If there is beer splashed in the machine it needs to be cleaned immediately. The infeed conveyor can be hosed down. If the hose washes the flight conveyor on the bottom side, the flight conveyor can be hosed down too, (make certain to lubricate the flight chain after washing, (we use CRC wire rope and chain lube)). Every other part of the machine should be wiped down with a damp rag. We recommend using a garden type home sprayer filled with water, (sanitizer), to spray the area before wiping it down.

DESCRIPTION OF OPERATION

Select the desired product from the RECIPE screen which is accessed from the button bar on the bottom of the HMI, (to see the product choices available press the right or left arrow at the top of the tooling screen), and load the appropriate flat carton blanks in the magazine making sure the top leading edge of the carton is sitting on the magazine deck and facing in towards the machine.

Make certain that the Magazine, Vacuum, and Glue buttons are all green, (indicating that they are in run condition. A yellow button indicates that the function has been disabled).

The Brewpack 500 will load cans into cartons in a variety of sizes and load patterns, (the pack size must be between 2x2 and 3x5). The most common size is the 12oz can and either the 6 or 12 pack configuration.

The product arrives to the infeed conveyor of the Brewpack 500 in either a single file configuration or crowd feed. It does not matter how it arrives but if it is single file the line of cans should arrive at the longest infeed guide so they may “waterfall” down to the shorter lane guides.

Controlling the amount of pressure on the infeed conveyors is very important. Even though there is a recirculating conveyor on the infeed it is necessary to have an “infeed conveyor full” limit switch that will shut off the conveyor directly feeding the Brewpack 500. If the back pressure is too great the cans will form bridges that may need manual intervention to remove. The ideal situation is when the conveyor feeding the Brewpack 500 runs less product than the Brewpack 500 takes away. This will keep all back pressure off the incoming cans.

The product comes into the machine and fills the available lanes. When all of the appropriate lane full sensors have been made, (dependent on which product is selected from the tooling screen on the HMI), and a “carton @ load” has been confirmed, the load gates will sequence to fill the carton

The rotary erector will “pick” a blank from the pick zone in the magazine, and move it past the prebreak vacuum which will momentarily “grab” the blank to slightly open it. With too little prebreak vacuum the blank may not open which will allow it to “L” clip, (fold backward in the shape of an L. Too much time in prebreak vacuum will possibly distort the blank and/or move it causing a mis-load. It is necessary to have 1-1/2 to 3” of blanks in the “pick zone” of the magazine. The pressure is necessary to allow the vacuum cups to pick a carton every cycle. There is a photo-eye controlling the magazine feed motor that looks down on the blanks in the pick zone. When this eye is unsatisfied the motor runs slowly until the eye is once again satisfied.

After product has been loaded the carton moves down the conveyor and gets the flaps conditioned to be able to close the carton.

There is a glue photo- eye that confirms that a carton is present. This enables the glue to be applied onto the carton as it moves past the glue guns. The glue pattern is controlled from the Cam Settings button on the button bar at the right side of the almost all screens. The first value in line of reading, (left to right), is the value of the glue starting point for the leading edge of the carton. If glue is shooting too soon and getting on the leading panel of the carton this value should be made greater, (the save button will flash when a value has been changed and must be pressed to save the new value in to the system). The second value turns the glue off. Numbers in the second set of on off values indicates that the minor flaps are being glued. If the second set of values are 0's, nothing will happen. The same is true of the second glue gun values. There are multiple gun values available in case the end user changes the style of carton and needs more guns for different glue configurations. After the carton is glued it moves to the compression station to have the flaps closed and locked in position.

After compression the carton is now finished and is moved out of the machine to a customer provided object, (conveyor, table etc...).

MAGAZINE/CARTON ERECTION

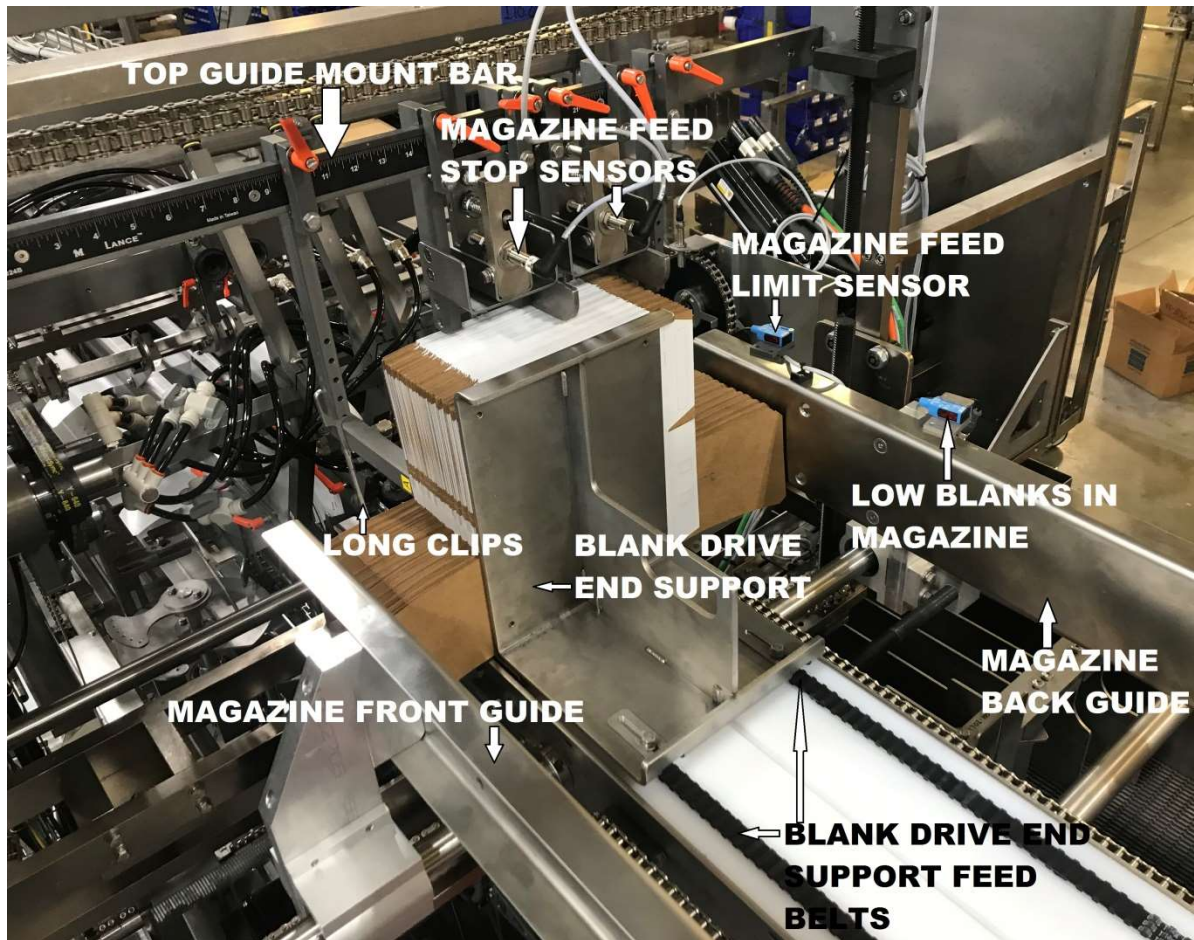


Figure 1 - Blanks in Magazine

The blanks must be loaded in the orientation shown in Figure 2. If they are loaded backwards, or upside down the carton will not erect. There are two photo-eyes on the magazine back guide rail. The upstream eye alerts the operator when the magazine is low by flashing a yellow light on the stacklight tower and a message on the HMI saying magazine low. The downstream eye stops the belts from advancing to keep the blank drive end support from crashing into the top guide items.

There are also 4 blank present/feed stop sensors at the pick end of the magazine. The feed belts will start running when all 4 sensors do not see product, and stop feeding when either of the lower sensors see product present. The feed belts move very slowly so they should not overfill and put too much pressure on the blanks at the "pick zone". If blanks are not presented properly to the pick zone the machine will attempt to pull blanks until the "blank erected" photo eye does not see blanks for four consecutive cycles. The machine will stop and the alarm on the stacklight will sound.

The stainless pieces just above the blanks in Figure 1 are the magazine top guides. The magazine clips are attached to the end of them. The height of the top guide should be such that there is about 1/8" clearance between the top of the blanks and the bottom of the stainless guides. There is also 1/8" total clearance between the back rail, front rail, and the blanks.



Figure 2 - Magazine Top View



Figure 3 - Odometers and Cranks

The magazine deck adjustment is used to position the score of the blank in relation to the pick arm vacuum cup, (Figure 5). This adjustment moves independently from the erector magazine frame adjustment which is used to position the vacuum cup at the bottom of its cycle to a point that is equal to the height of the carton.

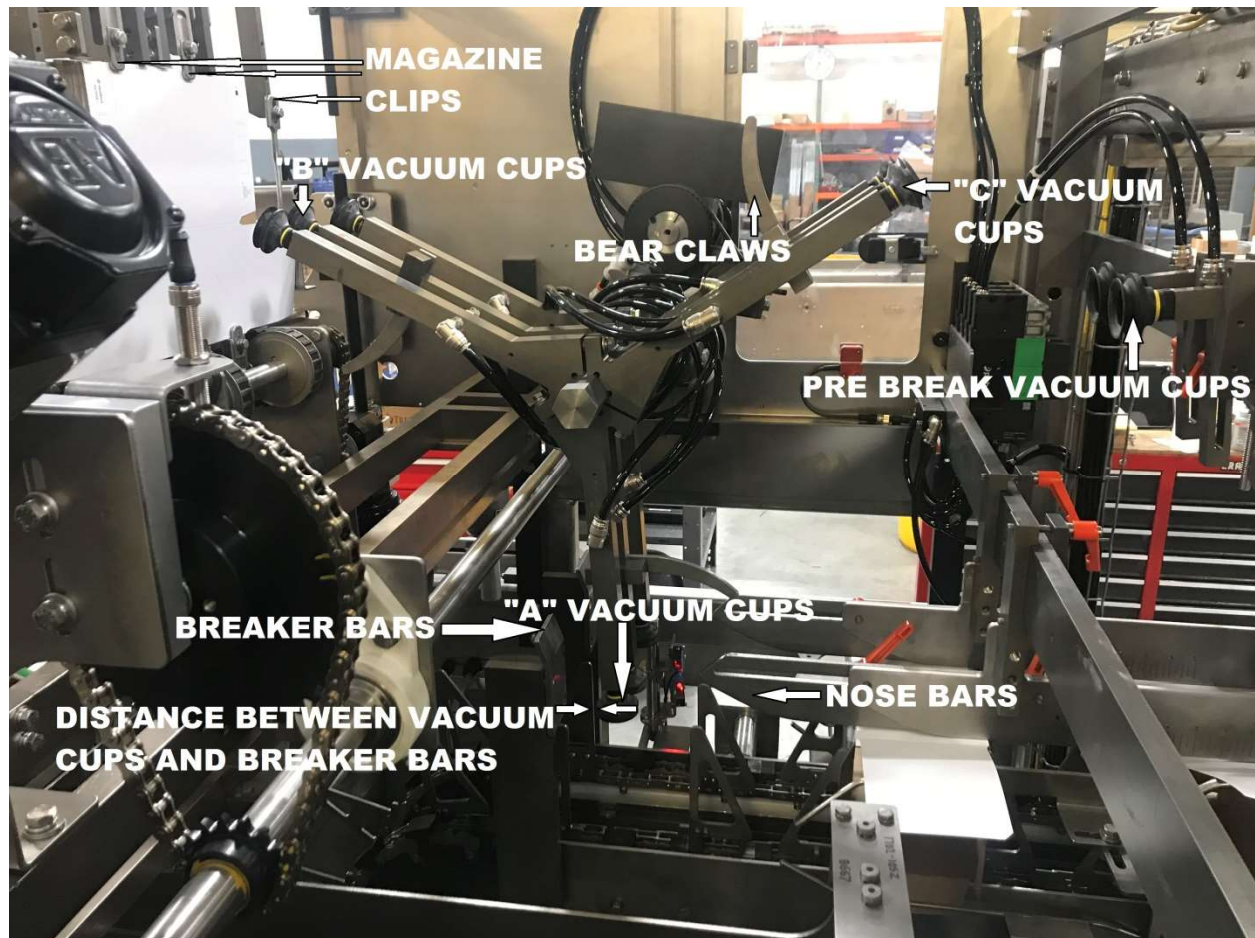


Figure 4 - Pick Arms

The pick arms are the square bars with vacuum cups on either end. They may have blank placement enhancers that look like “bear claws” that are sometimes used for running 12 and 15 packs. These should be positioned so they are contacting the top face of the carton during placement. In the vertical position the back side of the vacuum cup should be the same distance away from the front face of the back lug as it was from the score line when picking the blank from the magazine, (see the score line distance in Figure 5).

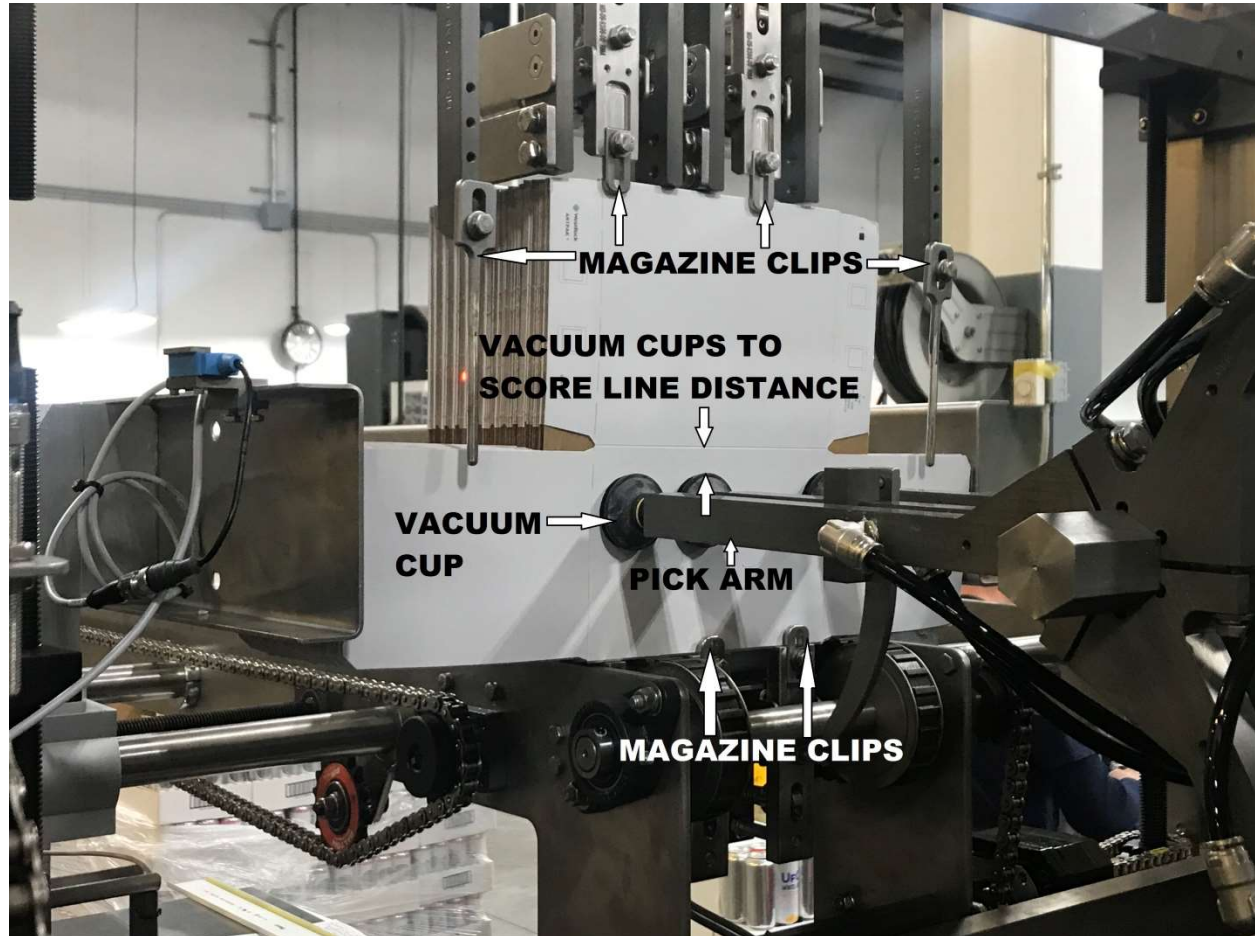


Figure 5 - Magazine Clips

Setting the magazine clips is an important part of the setup. There are no numbers to follow. These are set differently for each blank based on product dimensions, blank thickness, blank material, (corrugate or chipboard), etc. If the carton is not pulling out of the magazine there is too much engagement between the magazine clips and the carton. If more than one blank is pulled there may be too little, or too much engagement. The clips may be positioned on the minor/major flaps as long as they are not too close the body of the blank. In this instance the top of the finished carton may be torn by the stress of pulling the blank out of this clip. The solution is to move the clip closer to the outside edge of the minor/major flap, or to move it on to the main body of the blank. It is also important to have the position of the top of the vacuum cups the same distance below the score line as the distance from the vacuum cup to the pusher lug when the pick arms are straight up and down.



Figure 6 - Vacuum Pre Break Position

The vacuum pre break cups are the two that are mounted to the large aluminum plate in the photo above. Contrary to intuition they should not be lined up directly across from the vacuum pick arms. In the offset position as shown in Figure 6, the carton will open slightly to make full opening and placing in the flight lugs more consistent. When they are placed directly in line with the pick arms the blank tends to stay flat and the vacuum will make a “Popping” sound. When cartons are not pre opened they tend to not open into the lugs and they may tumble through the machine causing a jam.



Figure 7 – Prebreak Vacuum Cups

The prebreak vacuum cups have the ability to move up and down. This is necessary so that a 6 pack carton as well as a 24 pack carton can be opened. The Pick arm vacuum cups are grabbing the top surface of the blank. The prebreak vacuum cups need to be positioned so they grab the bottom face of the carton.

The pre-break vacuum is designed to open the blank to allow it to erect into the flight lugs. The timing of this vacuum is important since if the vacuum is not on long enough the carton will not erect properly, and with too much time it will pull the blank off the pick arms. This timing is controlled from the Cam Settings Screen, (Figure 87), located from the Recipe Data button. There is a cam for pick arm A, and one for pick arm B. The numbers for both on and off will typically be 180 degrees apart, but there have been instances when it was necessary to turn off a vacuum at a different time than 180 degrees apart to make the system run more smoothly.

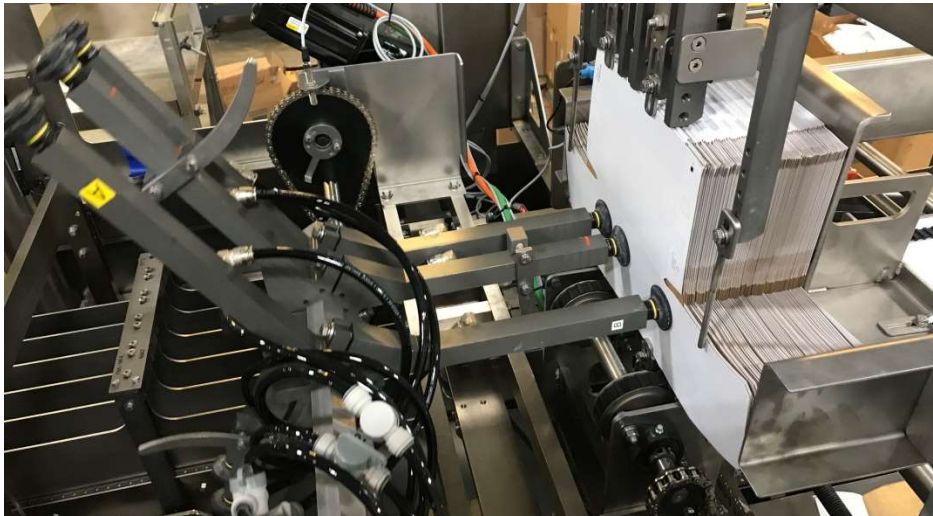


Figure 8 - Carton Erect Sequence #1



Figure 9 - Carton Erect Sequence #2



Figure 10 - Carton Erect Sequence #3

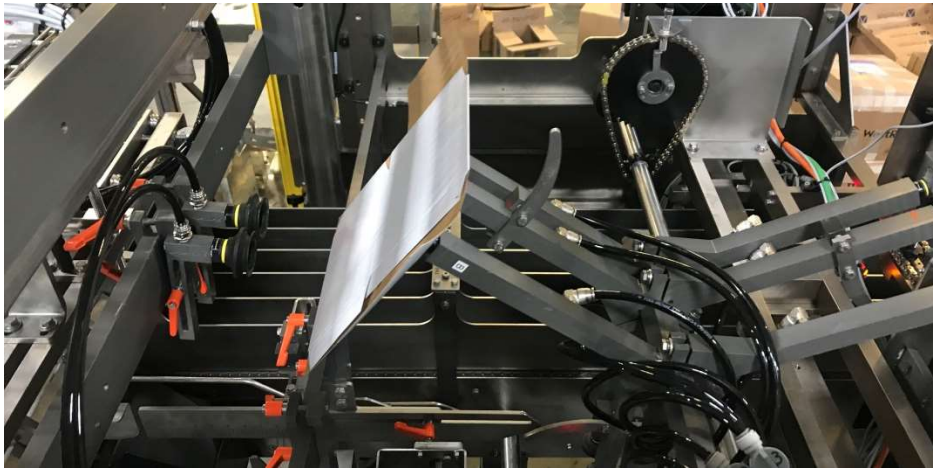


Figure 11 - Carton Erect Sequence #4



Figure 12 - Carton Erect Sequence #5

It is important that the blank is not pulled open too much. There is a possibility of damaging the blank with pucker marks from the vacuum cup. It is also possible to create an “L” clip blank. This is a blank that is not opened and goes through the machine in the shape of an “L”, instead of going through in the shape of a rectangle. Opening the blank too much creates a situation where the blank pulls back together when the vacuum cups let go. If it is stretched too far, this pulling back together coincides with the blank hitting the breaker bars, (Figure 15), and bending into the shape of an “L” instead of the shape shown in Figure 18.

The blank arrives at the breaker bars and slides down them until it reaches the bottom corner of the trailing flight lug, (Figure 18). It then slides past the nose bar, (with about 1/8”-1/4” clearance between the end of the nose bar and the erecting carton), and down the leading Flight lug until the vacuum turns off and rotates away, (beginning to happen in Figure 19). The purpose of the nose bars is to gently guide the blank to a position where it is firmly nested in the lugs and on the chain. When the blank is opened and placed into the lugs it wants to pop up when the vacuum arms release control. The chain is moving at this time and when the forming carton pops up it is gently guided back down by the nose bar. The nose bars are slotted for adjustment so they can be set to the required clearance between the blank and the nose bar during the placement operation. There should be 1/8” clearance between the top of the carton and the bottom of the overhead guides including the nose bars.



Figure 13 - Carton Erect Sequence #6

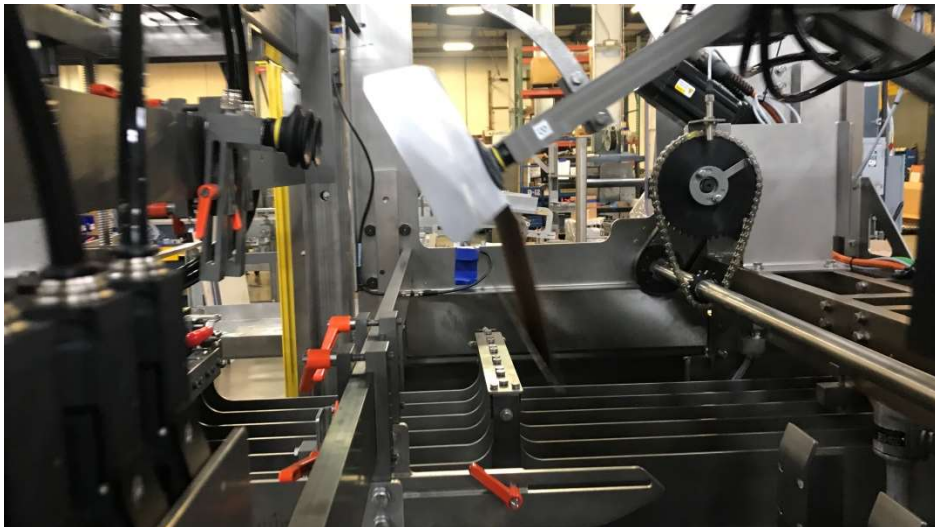


Figure 14 - Carton Erect Sequence #7



Figure 15 - Carton Erect Sequence #8

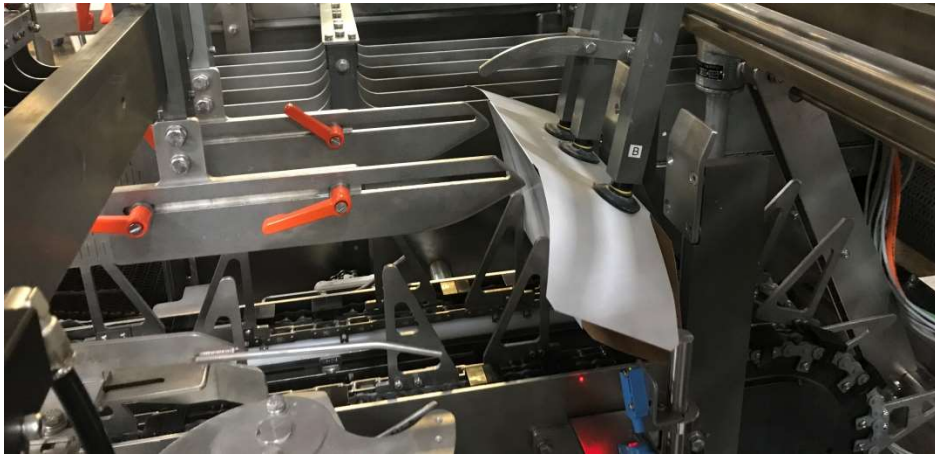


Figure 16 - Carton Erect Sequence #9

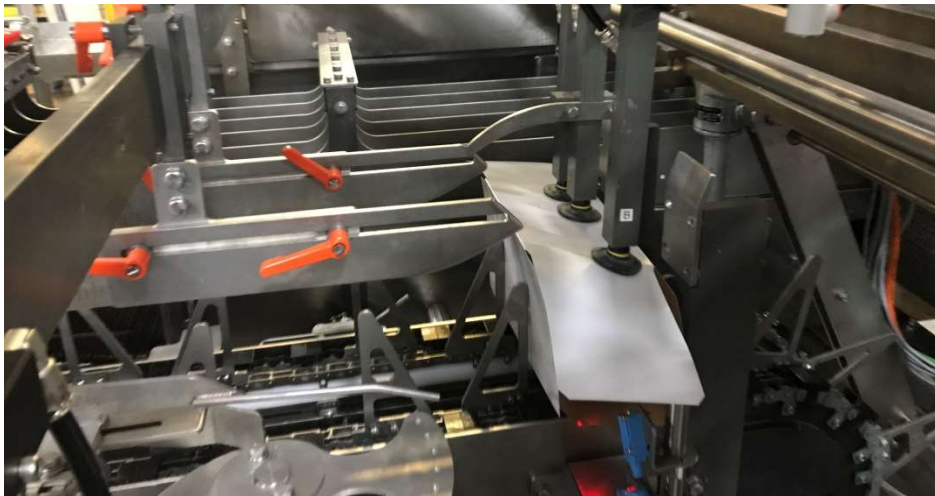


Figure 17 - Carton Erect Sequence #10



Figure 18 - Carton Erect Sequence #11

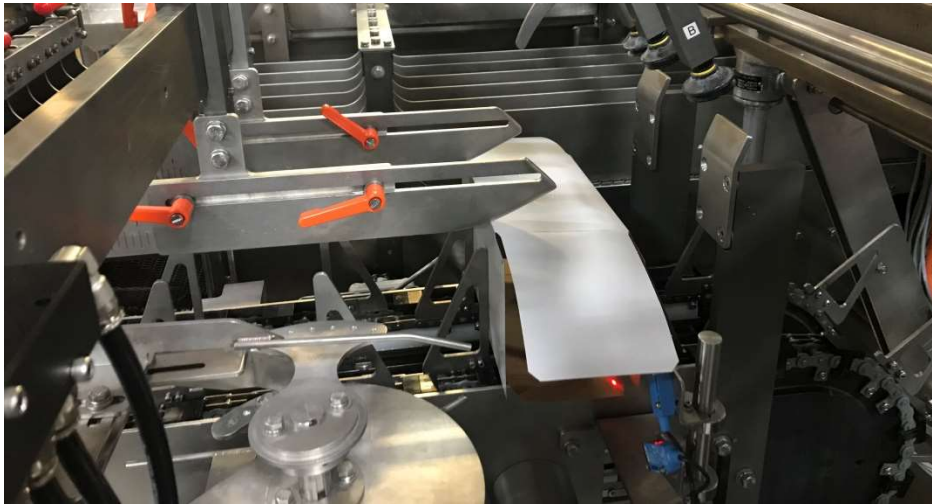


Figure 19 - Carton Erect Sequence #12



Figure 20 - Carton Erect Sequence #13 , (Stock Photo)

Figure 20 shows the “carton erected properly” photo eyes. These photo eyes confirm that the carton is erected properly as it sees both the top and bottom of the carton. They take a “snap shot” at encoder position zero. If both eyes are made the PLC indicates carton erected and tracks it so cans may be loaded at the proper time. If only one of these photo eyes sees a blank, It is not considered a properly erected blank and cans will not be released for this position. **NOTE: THE PHOTO EYES TAKE A SNAP SHOT, NOT A VIDEO. IT DOESN'T MATTER IF THE BLANK IS ERECTED INTO A CARTON. IT ONLY MATTERS IF BOTH OF THESE PHOTO EYES ARE BEING MADE AT THE PICK CHECK POSITION.**

FLAP FOLDING



Figure 21 - Carton Erected, (Stock Photo)

Once the carton is erected, the minor flaps need to be sequenced. On the load side the bottom major flap needs to be folded down, The minor flaps are left alone since the large radius of the cans will allow easy entry into the carton. On the non-load side of the carton both minor flaps need to be plowed/tucked in to prepare for glue.



Figure 22 - Flap Sequence #1 – Major Flaps Being Controlled, (Stock Photo)



Figure 23 - Flap Sequence #2 – Leading Minor Flap Being Plowed, (Stock Photo)



Figure 24 - Flap Sequence #3 – Leading Minor Flap Being Plowed Further, (Stock Photo)

It is important that the plow hits down low, (or up high. Low is better since the bottom of the carton is always the bottom of the carton regardless of how tall the carton is. If the tucker is up high, the height has to be changed when going from 12oz to 16oz cartons), and hit as close to the outside edge of the carton, (or as far away from the hinge), as possible to prevent the front and rear end walls from paneling, (collapsing in, or out, because the flap did not fold on the score, but buckled the end wall).



Figure 25 - Flap Sequence #4 – Trailing Minor Flap Ready To Be Plowed, (Stock Photo)



Figure 26 - Flap Sequence #5 –Non Load Side Upstream Minor Getting Plowed Closed, (Stock Photo)



Figure 27 - Flap Sequence #6 –Non Load Side Upstream Minor Getting Plowed Closed, (Stock Photo)



Figure 28 - Flap Sequence #7 –Non Load Side Upstream Minor Getting Tucked Closed, (Stock Photo)

All of the rotary flap tuckers for the minor flaps, should be set offset to each other. We typically want the bottom flap tucker to hit the minor flap 10-30 degrees before the top flap tucker. This is to help us in the effort to not “panel” the wall of the carton. Paneling happens when there is too much pressure and the wall bows in, (or out). Any pressure near the center of a bowed wall, or having the flap tuckers hit at the same time will encourage more bow. The result is that the face will pucker and collapse creating a carton that may not be able to accept the appropriate number of cans, (which may cause can breakage). The counter to paneled walls is to hit the minor flap on the outside edge of the flap as low, (or high), as you can reliably go. Hitting this flap at the extreme edges first will allow most of the paneled walls to have the minor flaps tucked properly as the panel gets “popped” out when the first tucker hits. The second tucker can be mounted closer to the center of the carton and it is the one that will hold the minor flap in place as the carton begins moving downstream. Too much pressure from the overhead guides will cause the walls to panel. Having the flight lugs too close together will also cause the walls to panel.



Figure 29 - Flap Sequence #8 – Wedge Moving By Load Side Downstream Minor Flap, (Opposite Hand)



Figure 30 - Flap Sequence #9 – Wedge Moved By Load Side Downstream Minor Flap, (Opposite Hand)



Figure 31 - Flap Sequence #10 – Wedge Moving Up To Load Side Upstream Minor Flap, (Opposite Hand)



Figure 32 - Flap Sequence #11 – Wedge Moved Up To Load Side Upstream Minor Flap, (Opposite Hand)

The flaps on the wedge side of the carton should not be touched by the wedges. The downstream side goes untouched because there is a clearance angle on the wedges. The upstream minor flap has the wedge rotate around to come up and barely miss it, or barely touch it.

INFEED



Figure 33 - Infeed Conveyor

The infeed conveyor has a recirculating feature that allows extra cans to slide off the cans in line for the infeed lanes and be brought back around to the upstream portion of the infeed conveyor. It also is equipped with an adjustable lane guide in order to close off lanes that are not being used, an E-Stop, a product bump which acts as an anti-bridging device, and an infeed too full proximity sensor, (Figure 36). This proximity sensor can be placed in multiple locations in order to optimize infeed performance. It will enable an output that is connected to the conveyor feeding the Brewpack 500 to send a signal to stop the incoming conveyor so that excessive pressure is not applied to the cans. Excessive back pressure may cause the cans to tip, bridge, or get dented in the patterning area.

The infeed conveyor is made up of 2 conveyors;

- The infeed conveyor that sends cans down to the infeed lane dividers.
- The recirculating conveyor that helps relieve infeed pressure by allowing extra cans to slide to the right and be returned back to the upstream portion of the AC infeed conveyor.
- There is an infeed full photo-eye that can control a dry contact relay to which control wires from the conveyor feeding the cartoner may be attached. This relay can be used to control the incoming conveyor so that excessive pressure is not applied to the cans. The photo eye may be moved to many locations in order to optimize its performance.

The infeed conveyor can is also part of the pass through system with the first two lanes having a removable section of lanes guides. With the lane guides removed and the “pass through” insert installed. This is explained along with changing the infeed lane guides for different diameter cans in the Changeover section of the manual, (pages 79-104).

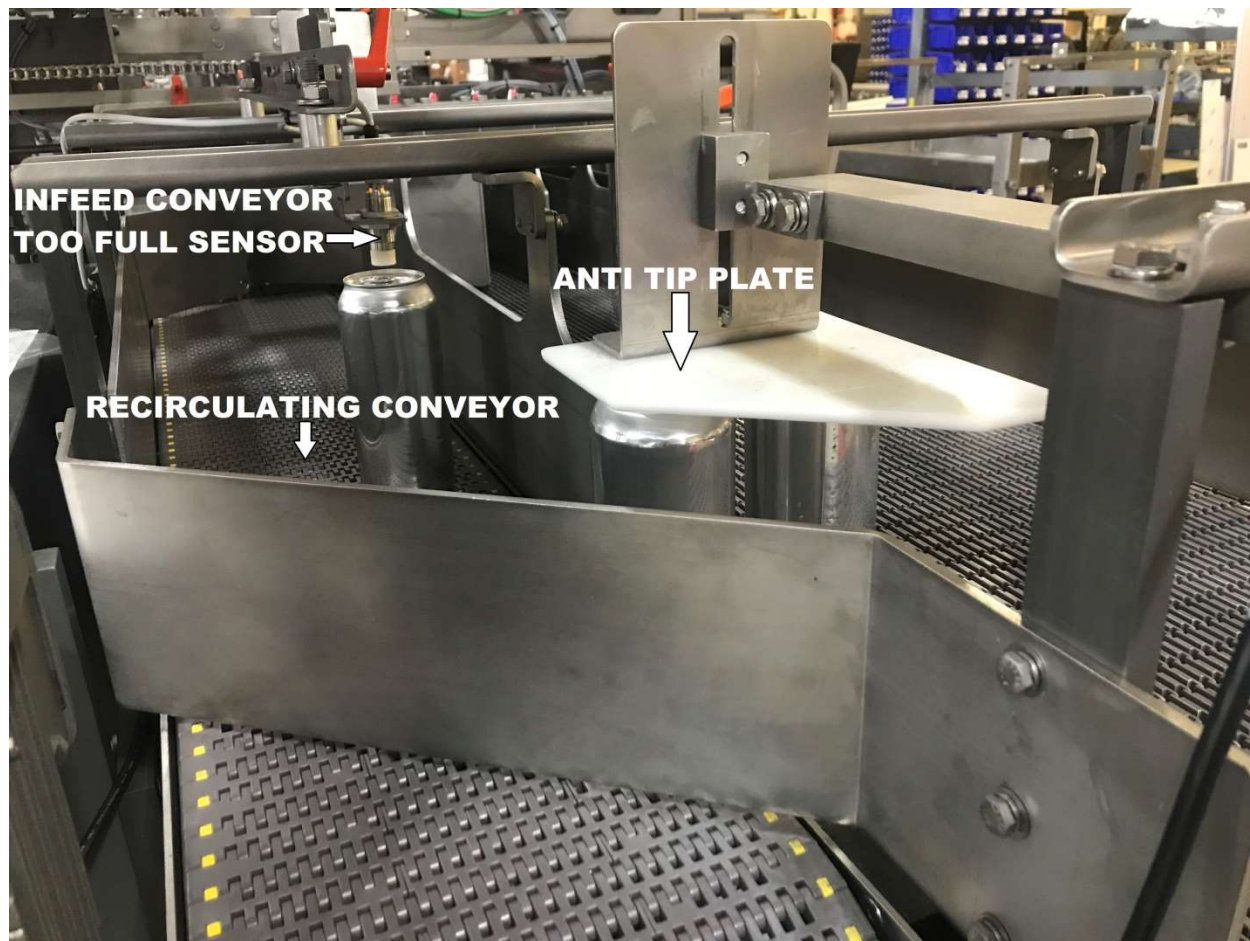


Figure 34 - Infeed Conveyor Labeled

As cans arrive on the infeed conveyor they are sorted by the lane dividers into individual lanes. Once a lane is filled the cans slide left to fill the next lane, and continue until each open lane has cans in it. There is a set of analog sensors on the infeed conveyor that are used in a distance sensing mode. The sensors are both “Infeed Lanes Low” sensors and can down sensors, (Figure 35). The flight conveyor will not move unless all of the required lanes are filled enough for all of the sensors to see product. The “Can Down” function is tied in with a timer. If the value the sensor reports is less than the Can Low value on the Configuration Screen, (Figure 37), the conveyor is seen as being empty. If the value is larger than the Can High value the can is seen as standing up. If the value is reported between the Can Low, and Can High value the can is seen as laying down. Once the timer value for a down can is met the machine will stop and flag a down can error message. The operator can enter the light curtain, (which will break the safety circuit), stand the downed can up, reset the machine power, and run the machine.

When starting the machine up from empty the machine will run at the “Prime” rate of speed until all of the required Lanes are shown as being full. The Prime speed automatically turns off when all of the lanes are full so the conveyors will run at normal speed.

When the run is ending the Lanes Low sensors will stop the machine. To run the lanes empty, first balance the lanes with the same amount of cans in each lane. Put the machine in Purge Mode, (from the Main screen), and then push the start button. The infeed conveyor and the flight conveyor will run at the purge rates. This will allow the cans the best chance to get into the wedges without getting broken. Purge Mode will need to be manually turned off.

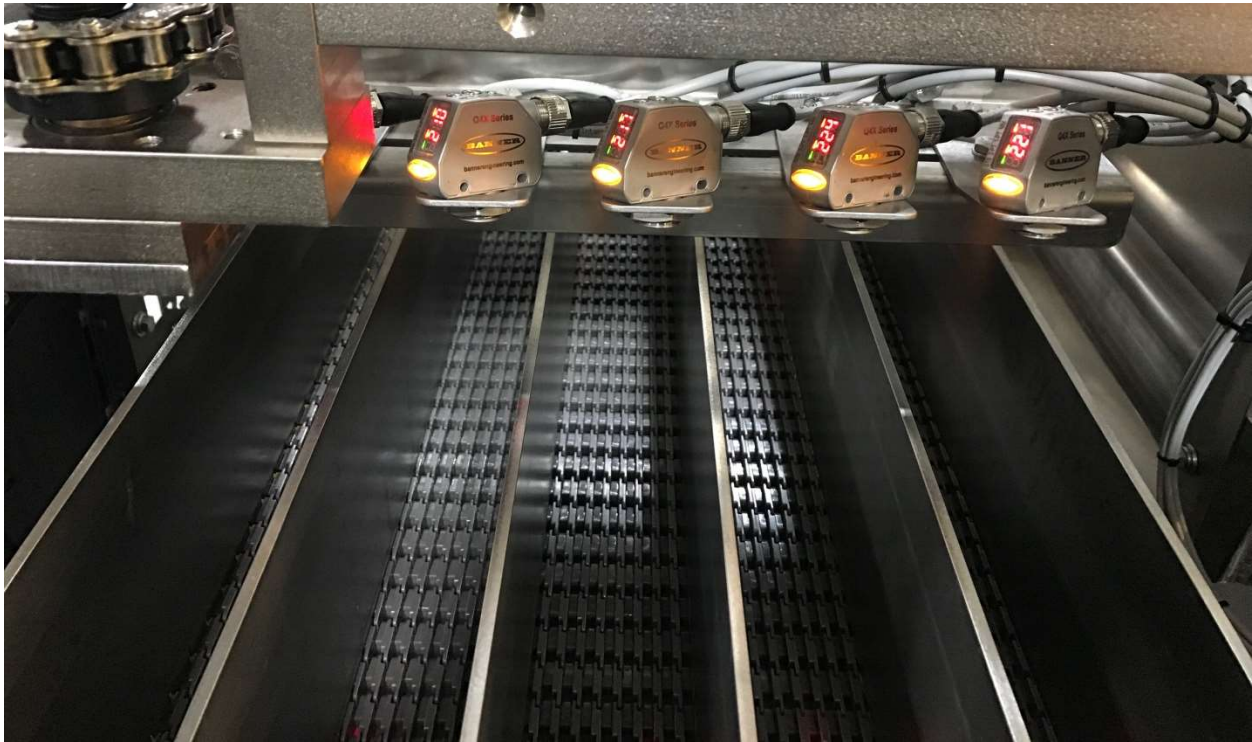


Figure 35 – Infeed Lane Sensors



Figure 36 – Infeed Lane Sensors – Top View, Side To Side Adjustment

When changing can diameters it may be necessary to slide the sensors side to side to keep them in a position to see the cans properly

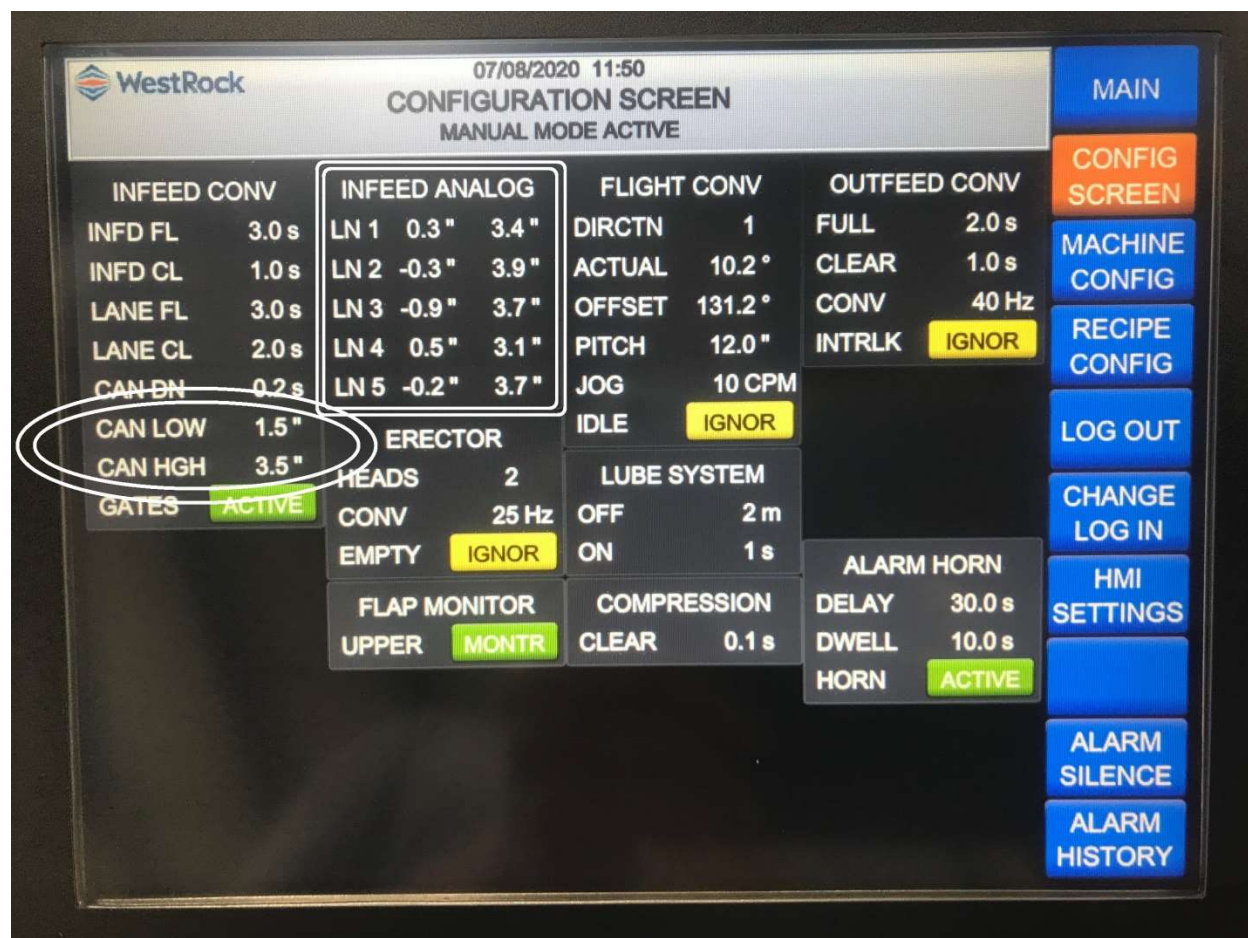


Figure 37 – Infeed Sensor Setup Area, (Stock Photo)

The infeed lanes full/empty or cans down sensors, (Figures 35, 36). If the sensors indicate all lanes are not full the vacuum will be disabled and the product in the machine will be run out. The machine will continue to run and the vacuum will be enabled when all of the infeed lane sensors are satisfied. If one of the sensors indicates a down can, the "Can Down In Lane X" message will appear and the machine will stop running. The operator can enter the light curtain, (which will break the safety circuit), stand the downed can up, reset the machine power, and run the machine.

To set the down can sensors, (items in square);

- Place a piece of paper/carton flap under the sensor.
- Input 0.0" in the right hand field. This will create a value in the left hand field.
- Place the value in the left hand field into the right hand field. The left hand field should now read 0.0".
- Repeat for the next four sensors.

The Can Low/Can High values indicate the window that the sensors should flag a down can. The values in the oval indicate that the sensors should ignore any reading below 1.5" and above 3.5". All sizes of down cans, (Slim, Slek, and Standard), fall between these values when laying down.

COLLATION/LOADING

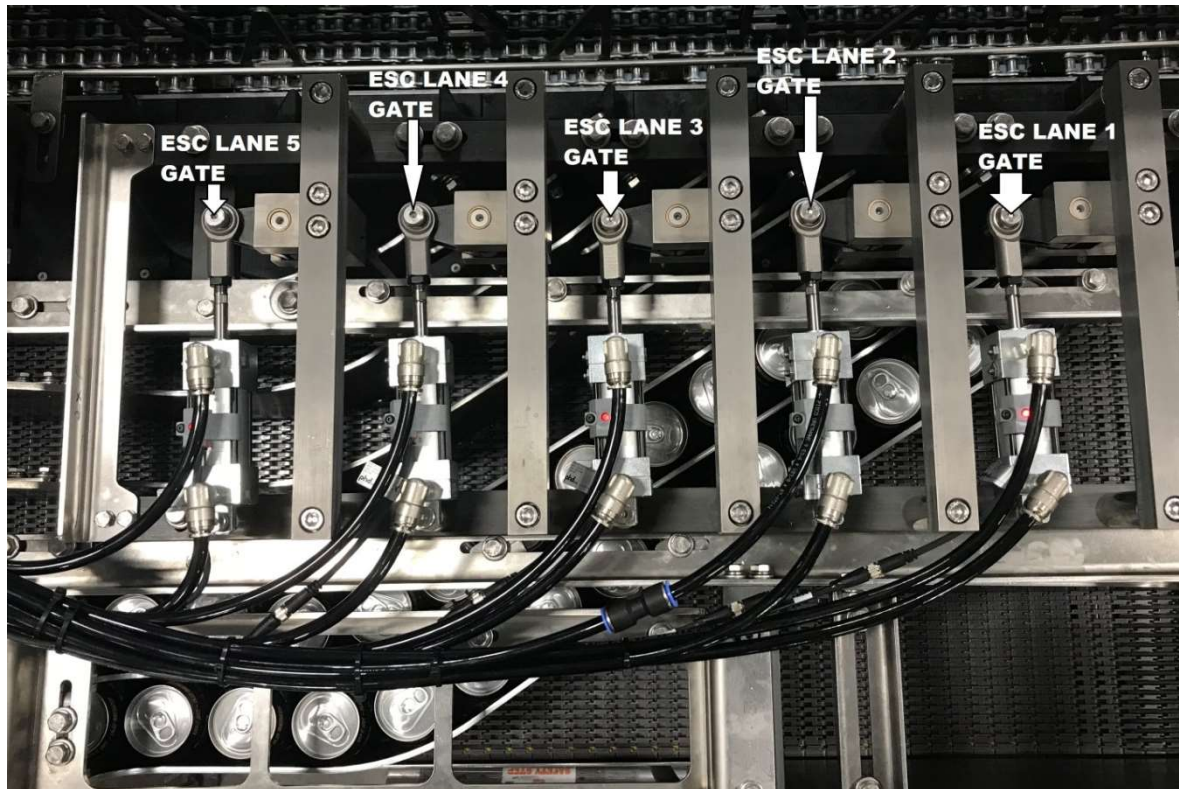


Figure 38 - Infeed Escapement Gates

The cans on the infeed lanes move downstream until they are held up by the infeed gates, (Figure 38). The two downstream lanes, (Figure 28), will always have cans in them since two lane product, (4, 6, 8 packs), are the smallest pattern that can be made. The machine knows where the erected cartons are and a shift register will open the escapement gates in sequence to allow cans to fill the wedge, (Figure 39), that lines up with the carton. The gates open, (and close), from left to right in the photo above. Once they open, they will stay open as long as cartons are continuously picked and erected. The infeed gates open so that the cans run into the upstream flat on the wedges, (Figure 39). They close in time to keep the nose on the bucket wedge from piercing the can not being loaded.

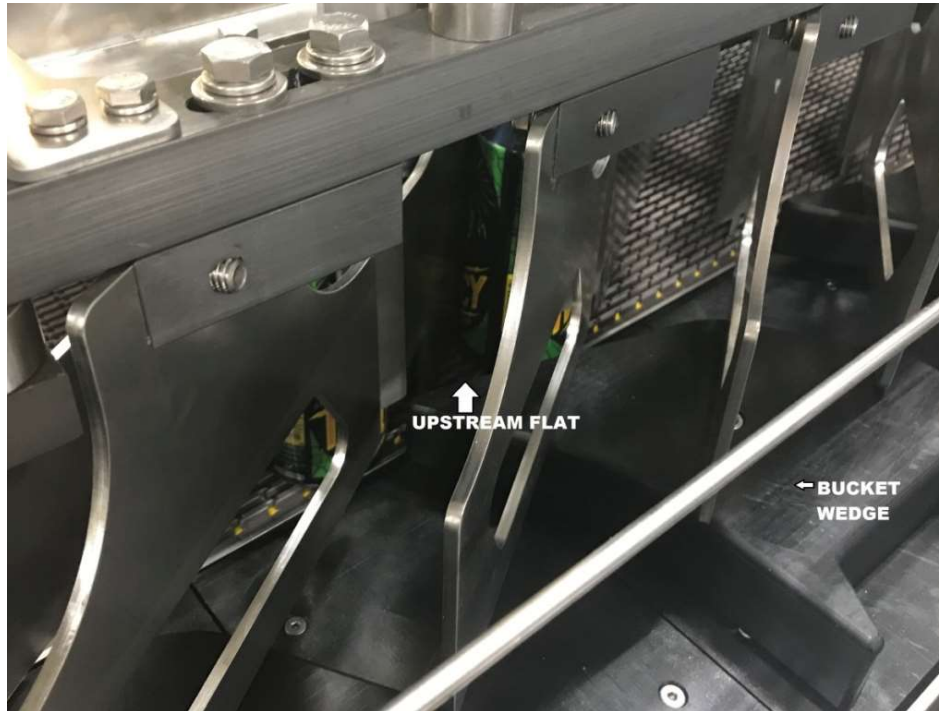


Figure 39 - Bucket Conveyor Wedge At Infeed Lane

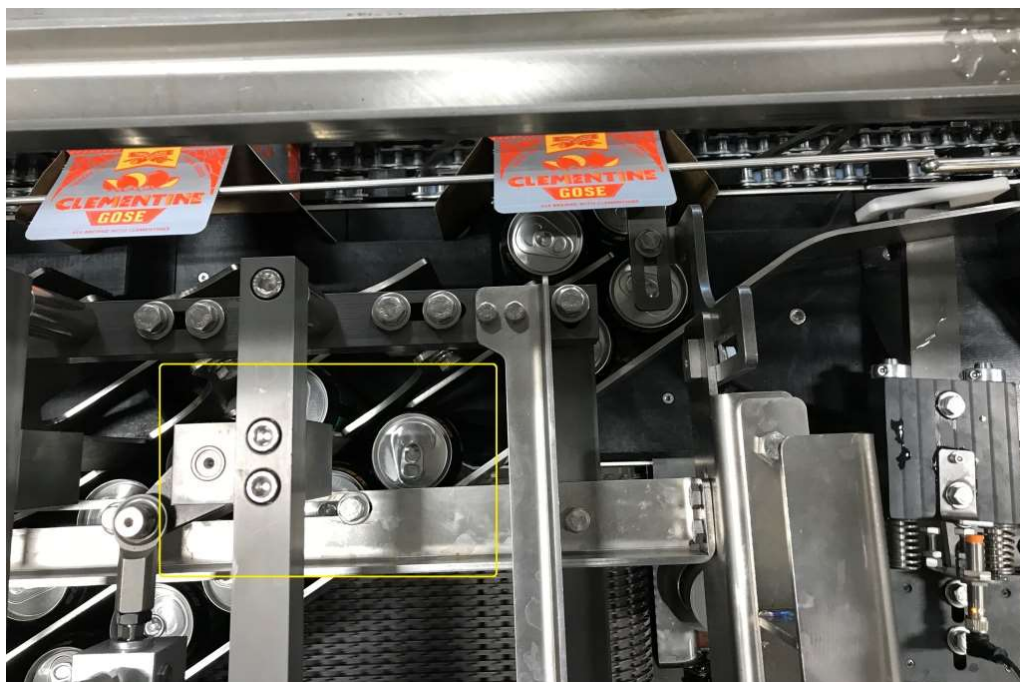


Figure 40 - Load Sequence #1 – Bucket Wedge Allows Pattern To Begin Loading, (opposite hand)

For the entire load sequence we are looking at the pattern of cans that is highlighted by the yellow box in Figure 36. The bucket wedge tip has cleared these cans and the infeed conveyor is moving them against the back of the bucket wedges. The pattern will continue moving towards the carton while filling the bucket. The tip of the next bucket wedge will interrupt the line of cans to create the next pattern.



Figure 41 - Load Sequence #2 –Lane 1 Gate Open



Figure 42 - Load Sequence #3 –Pattern Proceeding Into Bucket



Figure 43 - Load Sequence #4 –Pattern Proceeding Into Bucket



Figure 44 - Load Sequence #5 –Pattern In Bucket, Next Pattern Collating



Figure 45 - Load Sequence #6 –Pattern In Bucket, Moving Into Carton



Figure 46 - Load Sequence #7 –Pattern Moving Into Carton



Figure 47 - Load Sequence #8 –Pattern Moving Into Carton



Figure 48 - Load Sequence #9 –Pattern Moving Into Carton



Figure 49 - Load Sequence #10 –Pattern Moving Into Carton, (Stock Photo)



Figure 50 - Load Sequence #11 –Pattern Getting Plowed Into Carton, (Stock Photo)

The lane dividers push the cans most of the way into the carton. The minor flaps prevent them from being pushed completely into the carton. The final push is accomplished by the rotary oscillating can pusher.



Figure 51 - Load Sequence #12 –Pattern Getting Plowed Into Carton, (Stock Photo)



Figure 52 - Load Sequence #13 –Pattern Getting Pushed Into Carton, (Opposite Hand)



Figure 53 - Load Sequence #14 –Can Pusher Extended, (Opposite Hand)



Figure 54 - Load Sequence #15 –Pattern In Carton, (Opposite Hand)

FORMING



Figure 55 - Forming Sequence #1 – Leading Minor Flaps Being Plowed



Figure 56 - Forming Sequence #2 – Leading Minor Flaps Being Plowed



Figure 57 - Forming Sequence #3 – Leading Minor Flaps Plowed Trailing Minors Getting Tucked



Figure 58 - Forming Sequence #4 – Minor Flaps Plowed/Tucked In



Figure 59 - Forming Sequence #5 –Bottom Majors Being Plowed Up



Figure 60 - Forming Sequence 6 –Bottom Majors Being Plowed Up

GLUE AND COMPRESSION



Figure 61 - Glue and Compression Sequence 1 - Carton Glue Starting



Figure 62 - G&C Sequence 2 – Carton Glue Ending



Figure 63 - G&C Sequence 3 – Top Major Flap Plowing Down



Figure 64 - G&C Sequence 4 – Top Major Flap Plowing Down

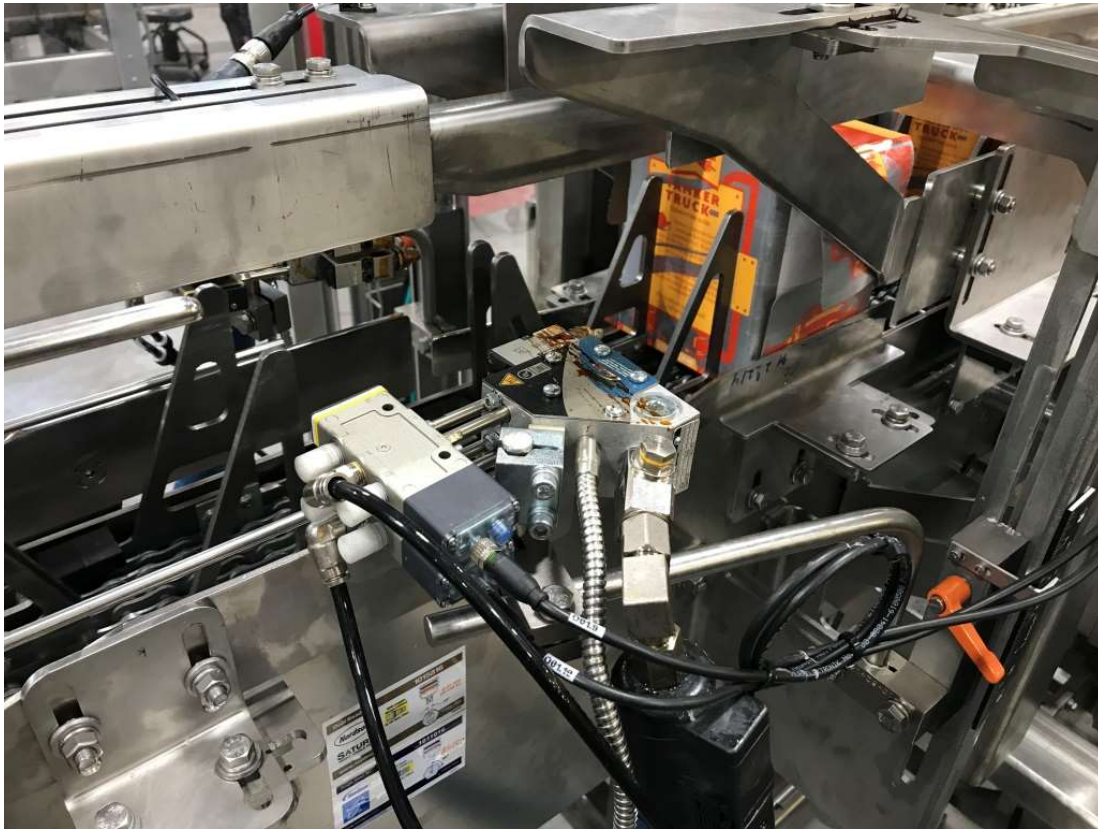


Figure 65 - G&C Sequence 5 – Top Flap Plowed Down



Figure 66 - G&C Sequence 6 – Carton in Compression



Figure 67 - G&C Sequence 7 – Carton in Compression, End View



Figure 68 - G&C Sequence 8 – Carton On Take Away Belt

The discharge rollers provide a semi-frictionless surface for the carton to move on as it leaves the machine. The take away belts move faster than the flight chains and get the carton out of the way of the rear flight lugs which can damage the carton as they move around the end of the conveyor. The take away belts have an adjustable bracket that will allow the belts to move closer together or farther apart. The belts should be close enough together that they move the carton, but not so close that they stall the belt by jamming against the adjustable bracket.

MISCELLANEOUS ITEMS

The overhead guides in the load zone are designed to be retracted in the event of a poorly erected, or loaded carton. The overhead guides are controlled by a cylinder. When the doors are opened the guide may be manually lifted up, (Figure 69), which will allow easier product removal. The overhead guides must be down before the machine will be able to run. If they are not put down the machine will not run and a message will appear that indicates the overhead guides are not down. The stationary overhead guide should be set so that it is just above the erected blank. If it is too loose the majors on the load side of the carton may not be properly controlled. If it is too tight it will leave marks on the carton



Figure 69 – Overhead Guide Cylinder and Actuator Switch



There are three pick vacuum generators on the system. One of them is for the “A” pick arm and vacuum cups, One of them is for the “B” pick arm and vacuum cups the other one is for the “C” pick arm and vacuum cups, and one pre-break vacuum generator. These are fairly simple systems. The filters should be cleaned on a weekly basis. If one of the arms is not picking well, check the air fitting coming out of the filter unit to see if it has carton dust built up in it. The machine needs two vacuum generators because the vacuum is held on for longer than 180 degrees.

Figure 70 - Vacuum Generators

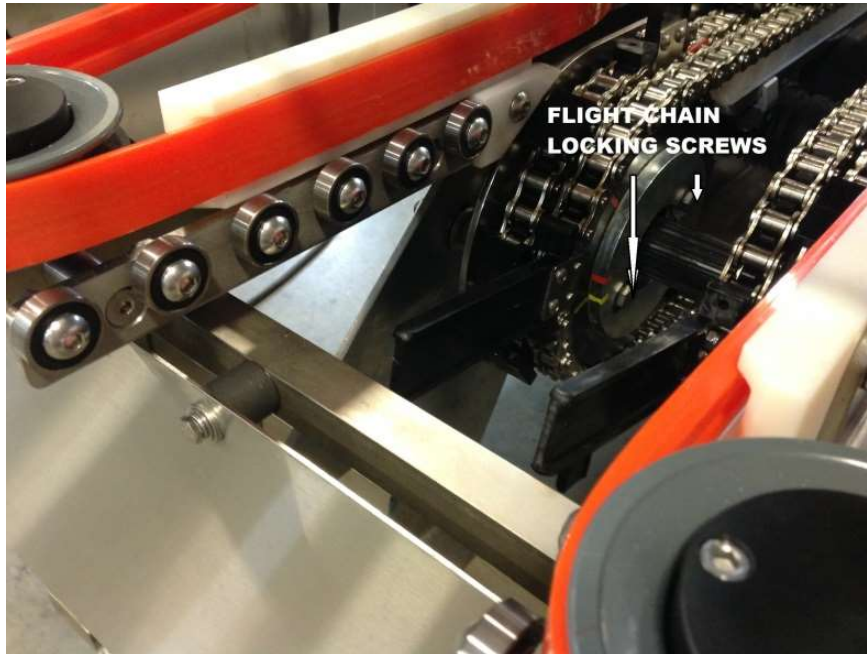


Figure 71 - Screws to Loosen to Adjust the Inside Lugs, (Stock Photo)

The rear lugs are the registration lugs and should not be moved. They are in a set location so that the blank slides along them and into position as it is pulled out of the magazine by the vacuum pick arms and rotated down to load. The position of these lugs relative to the rotary is critical. To adjust the distance between the short and tall lugs so that cartons of different widths can be run the short lugs are adjusted. This is accomplished by loosening the two hex screws on the inside of flight chain drive sprockets,

(located at the exit end of the machine), that lock down the clamp plate that is in the center of the machine, (see figure 71), and physically moving the lugs by pushing/pulling on them. The best place to get the lugs to move is on the radius where the drive sprockets are. The inside lugs should be adjusted so that there is minimal contact, (scuff fit), between the carton and the lugs. If the carton wants to bow, then the lugs are probably too close together. To adjust the position of the registration, (tall), lugs the hex screws on the outside of the flight chain drive sprockets need to be loosened, although serious thought should be given before adjusting the outside, (Registration), lugs since these are factory set for lining up the lugs with all of the various stations.

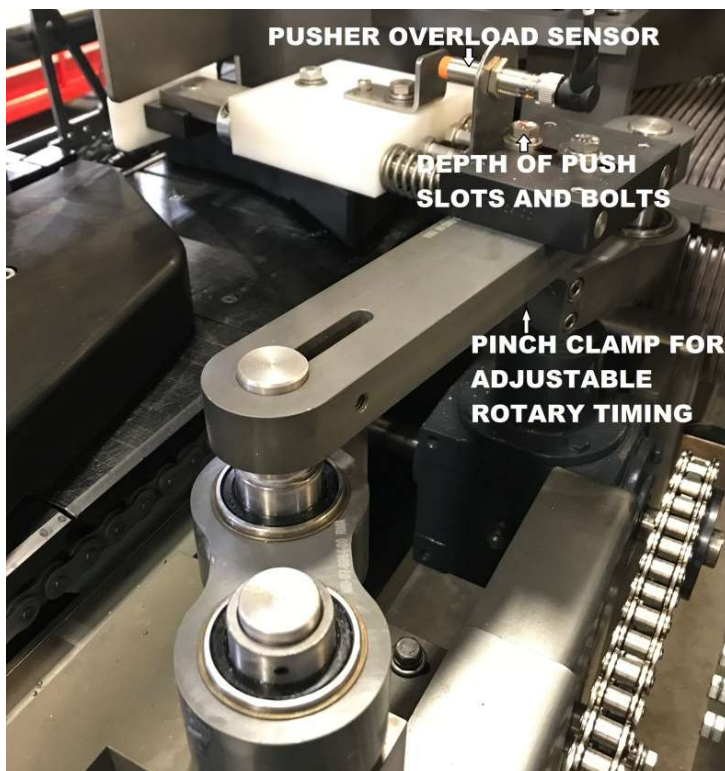


Figure 72 - Final Can Push Adjustment, (Opposite Hand)

The final can pusher needs to get in between the minor flaps and get out without damaging either the upstream or the downstream minor flap. The timing between the flight chain and the can pusher happens at the top shaft of the gearbox shown in Figure 72. To adjust loosen the socket head cap screw that pinches the clamp to the gearbox shaft. Move the arm to the desired position and re-tighten the pinch clamp screw. The depth of push adjustment happens with the slots shown in Figure 72.

The proximity sensor shown in Figure 72 is a normally closed sensor. When the can pusher encounters too much resistance the springs give way and the overload flag forces the sensor to change states. This will stop the cartoner immediately. There is a mechanical stop below the sensor that will keep the sensor from being damaged by the flag.



Figure 73 - Strongback Adjustment, (Stock Photo)

The strongbacks consist of the framing that the chains, flight lugs, and all of the associated items mount on. The side nearest the loading area is permanently mounted. The other is adjusted by placing the crank on the strongback adjustment shaft and turning it clockwise to spread the chains further apart, or CCW to move the chains closer together. The strongback should be moved until the bottom major flaps fold over the side of the flight chains, (the chains with the plastic clips on them). Final position of the strongback is based on appearance of the final product. **NOTE: DO NOT MOVE THE STRONGBACK UNTIL THE STOP POSITION COMPRESSION PLATES HAVE BEEN UNLOCKED.**

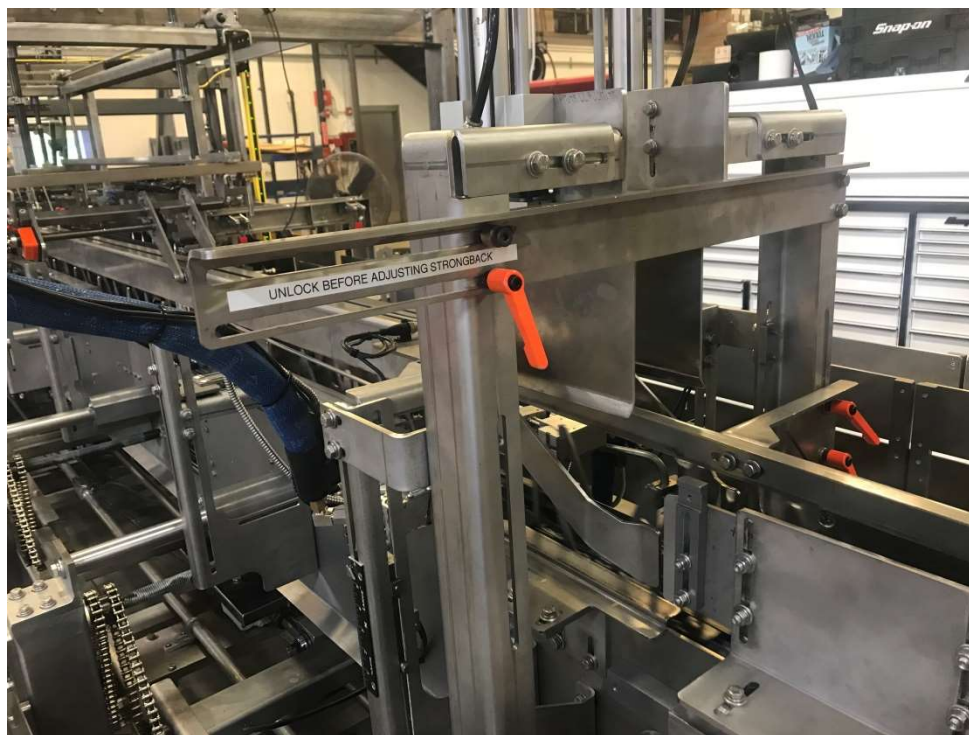


Figure 74 - Stop Compression Plates Locking Handle

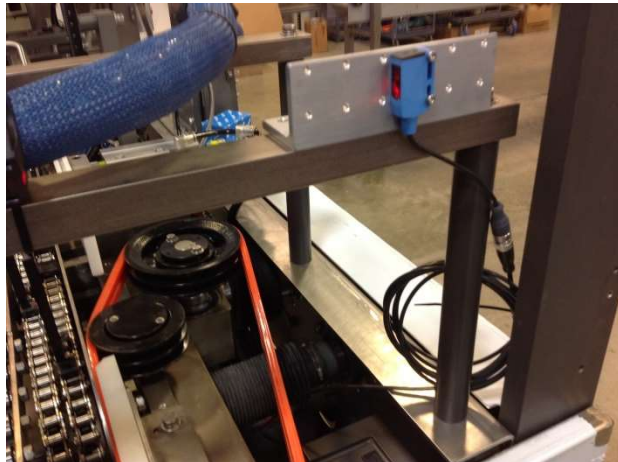


Figure 75 - Discharge Conveyor Full, (Stock Photo)

This photo-eye which is provided with a universal mounting bracket that the customer can mount wherever they desire will temporarily stop the Brewpack 200 from running. It will complete the current cycle and will employ a normal stop sequence after the photo-eye has been blocked for the amount of time determined by the value on the configuration screen. When the photo-eye has been cleared by a time value that is also on the configuration screen, the Brewpack 500 will resume the run cycle as long as the machine status has not been changed by a "stop" command or taken out of "run" mode.

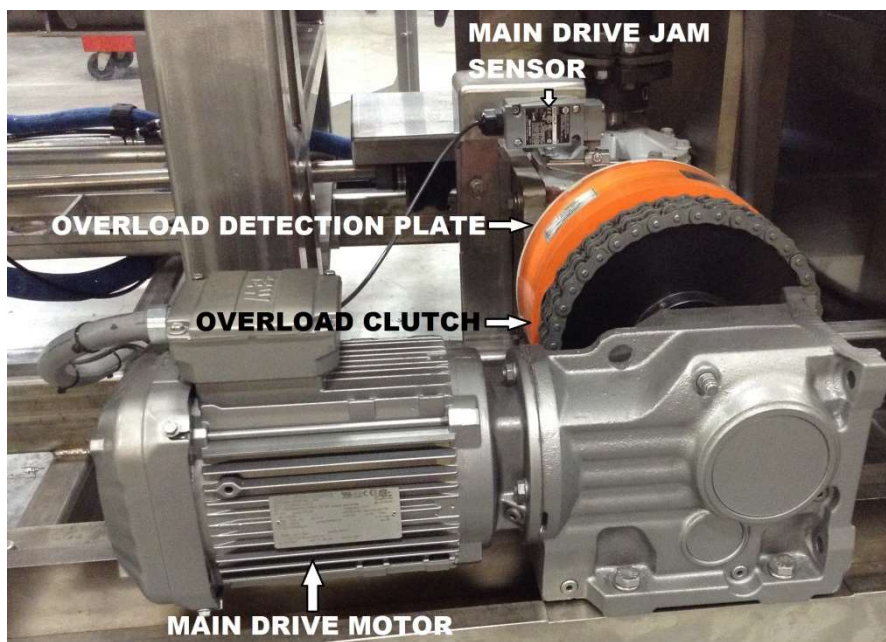


Figure 76 - Main Drive Motor, (Stock Photo)

The main drive motor is responsible for all motion except for infeed, recirculating, and pass thru conveyors. The overload clutch is set so that it will not disengage during normal starting and stopping. If there is a jam in the machine the white overload plate will pop out and move the indicator arm on the micro-switch. This will shut the motor off.

The operator should clear the machine of the issue that disengaged the clutch.

To reengage the clutch;

- Turn control power on by pressing the Reset button on the pendant
- Put the machine in Jog mode, Choose Reverse, or leave in standard Forward jog
- Press both the Start and Reset button at the same time. This will allow the motor to turn
- When the clutch reengages you will hear a loud KaChunk sound as the clutch plate kicks back in. it will take a little while to get the clutch reengaged since it shuts the motor off quickly. The clutch drive shaft will have to make almost a complete revolution to reengage the clutch at the jog rate.
- You may now put the machine into run mode.

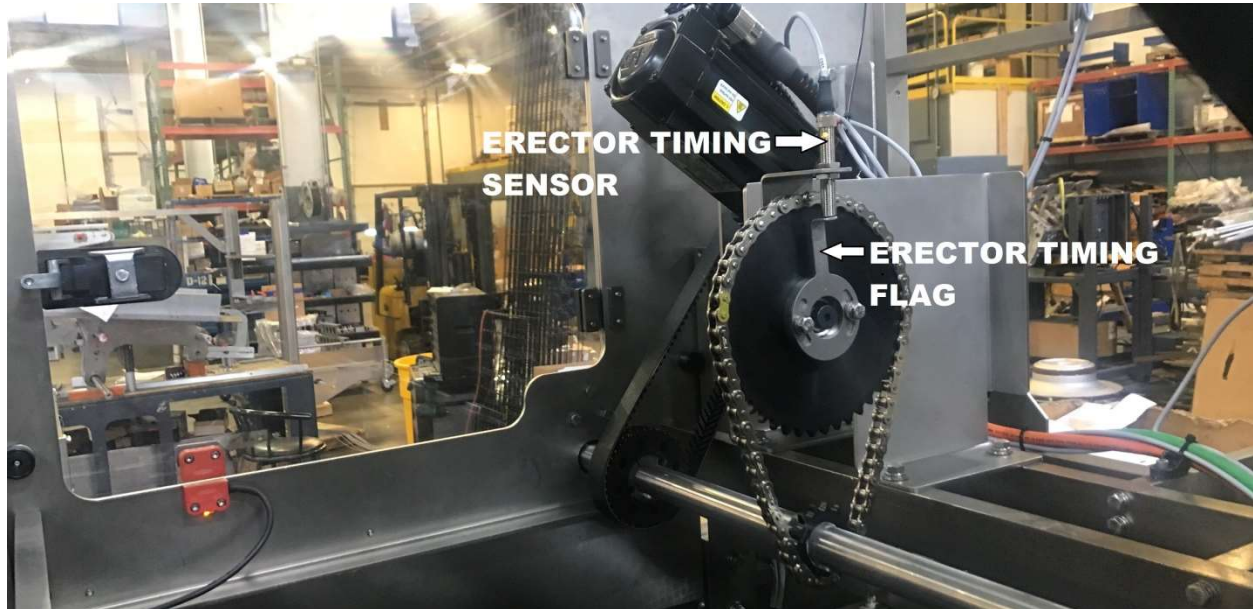


Figure 77 - Timing Point For Rotary Erector

The timing between the rotary erector and the flight chains is accomplished using electronic gearing. The initial timing happens with the flight conveyor homing itself and then the rotary erector homing itself, (timing items shown in Figure 77). Once the homing process is complete the two servos are locked together as shown in figure 90. Once homing is complete the two are locked together until the machine is powered down or the erector is manually moved without moving the flight conveyor. If the erector is jogged the erector must be homed before automatic operation. This is accomplished by pushing the Home button on the Packer Screen, Figure xxx).



Figure 78 - Discharge Belts

The discharge belts are geared so that they run a little faster than the flight conveyor. This is so that the carton gets pulled away from the flight conveyor before the flight lugs have a chance to damage the carton as they move around the drive sprocket. As the discharge belts stretch they can be re-tensioned by loosening the locking screws and moving the idler end downstream until the desired belt tension is reached.

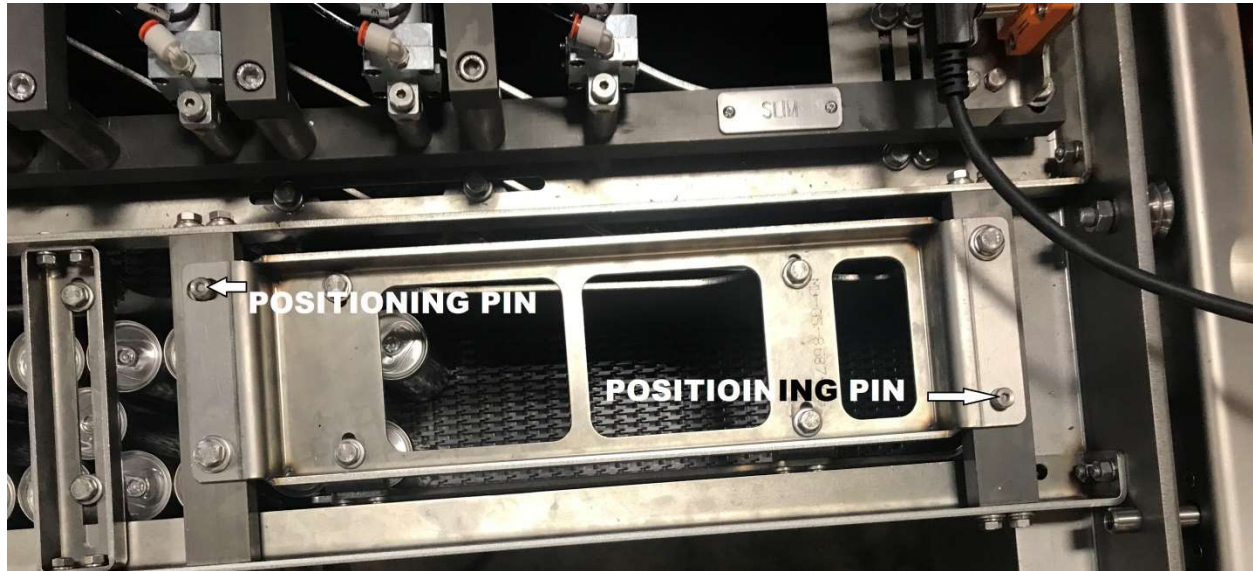


Figure 79 - Directional Point For Pass Thru Conveyor, (opposite hand)

Figure 79 shows the directional frame for the pass thru conveyor. To change this assembly to run in Normal mode you must remove the fasteners on the same bent surface as the positioning pins. Then lift the assembly straight up and replace with the pass thru frame that has straight lane guides on it.

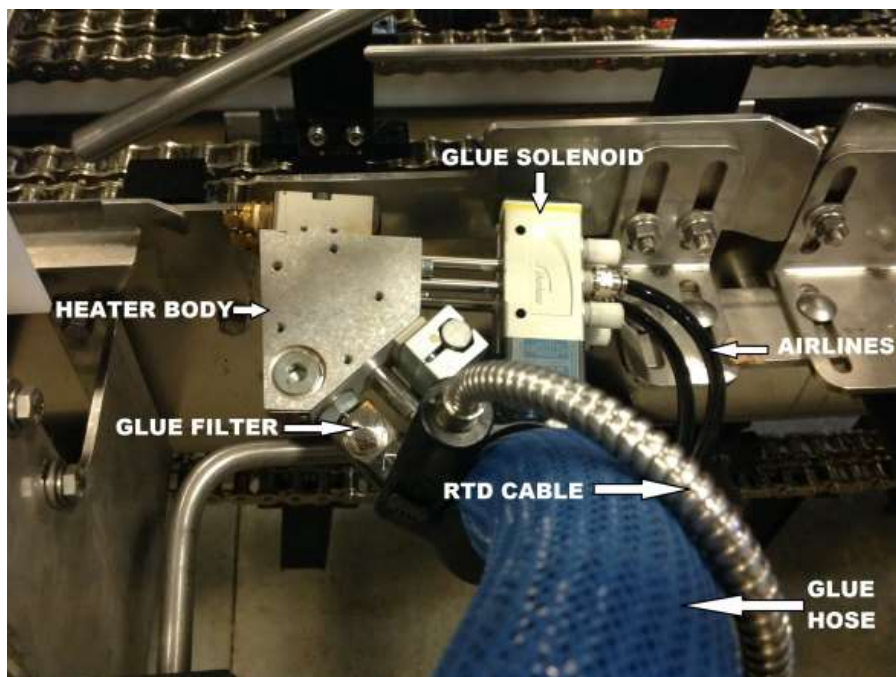


Figure 80 - Glue Gun

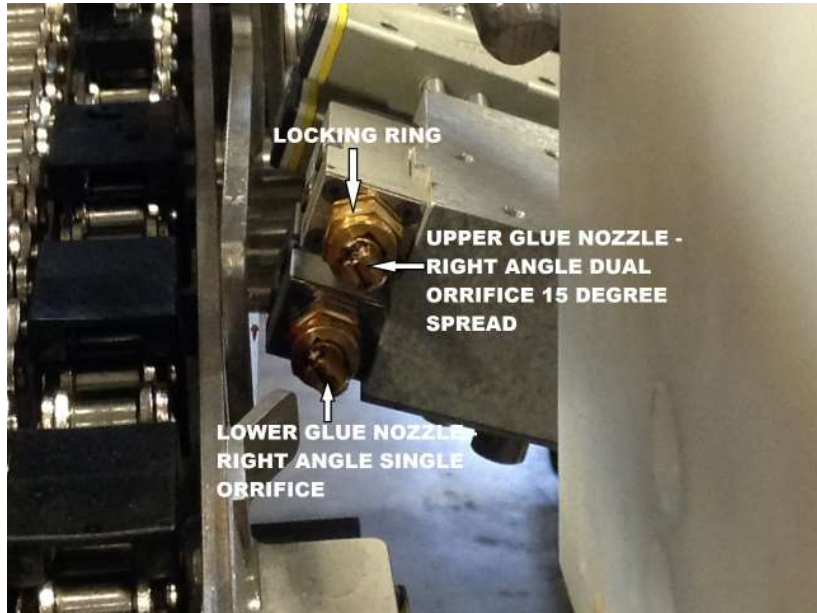


Figure 81 - Glue Nozzles



Figure 82 – Spray Glue Unit

The glue unit melts the glue and keeps it at the selected temperatures in the tank, hoses, and guns. The pressure for applying glue is created pneumatically from the hot melt unit shown in Figure 82. The regulator at the back of the hot melt unit is the only determining factor in the pressure of the gluestream. The amount of glue being applied is a blend of the glue pressure and the nozzle diameter. The *Brewpack 500* typically uses .012 diameter nozzles for chipboard. Nozzles for corrugate are typically .018. It is good to run the system using the least amount of glue possible. Excessive glue can cause many issues including making a mess, leaking out on the carton exterior, taking too long to cool, having the flaps move after compression, and excessive glue cost.

***Brewpack 500* is shipped with the Hot Melt system manuals when available. If they have not been shipped to us they may be found online at enordsonmanuals.com or on the electronic manual supplied with this machine. Please read thoroughly before operation.**



Figure 83 - Encoder Location



Figure 84 - Encoder

The encoder is used to line up electrical zero with mechanical zero. In order to do this first jog the machine to mechanical zero, (Figure xx). Then go to the Configuration Screen and insert zero into the “Encoder Offset For Mastering” window. This will change the Actual Encoder Position Value. Now take the new Actual Encoder Position value and insert it into the Encoder Offset For Mastering window. The new Actual Encoder Position should now be zero.

PENDANT



Figure 85 - Operator Control Panel

This consists of four pushbuttons and an HMI.

- A) **Start** – is a green flush pushbutton. As long as the safety circuit is complete and the control relays are energized this button will start the machine running with a push when the machine is in RUN mode, or the machine will move at jog speed when the machine is in TEST mode as long as the START button is held down.
- B) **Stop** – is a red, raised pushbutton that will stop the machine in a controlled fashion.
- C) **Reset** – is a black, flush mount pushbutton that will energize the master control relays as long as the safety circuit is complete, (guard doors closed, E-stops pulled out). When there is a “MAIN DRIVE JAM” warning on the HMI, pressing this button at the same time that the “Start” button is pushed, (while the machine is in test mode), will allow the main drive to run. It will take almost a full revolution of the main motor output shaft to allow the clutch to find its detented home position. You will know when the clutch is seated as it will make a loud KaChunk sound. Make certain that you have cleared the jam, or understand the reason that the machine drive “jammed” before putting the machine back in AUTO to run product.
- D) **Emergency Stop**– is a red, mushroom button that will de-energize the master control relays so the machine will stop and remain unable to move until the E-stop button is pulled out and the reset button pushed.
- E) **HMI** - Human Machine Interface described below.



Figure 86 - Remote Pendant Location



Figure 87 - Remote push buttons

The push buttons above that are located on the main electrical enclosure at the exit end of the machine perform the same functions as those on the main control station.

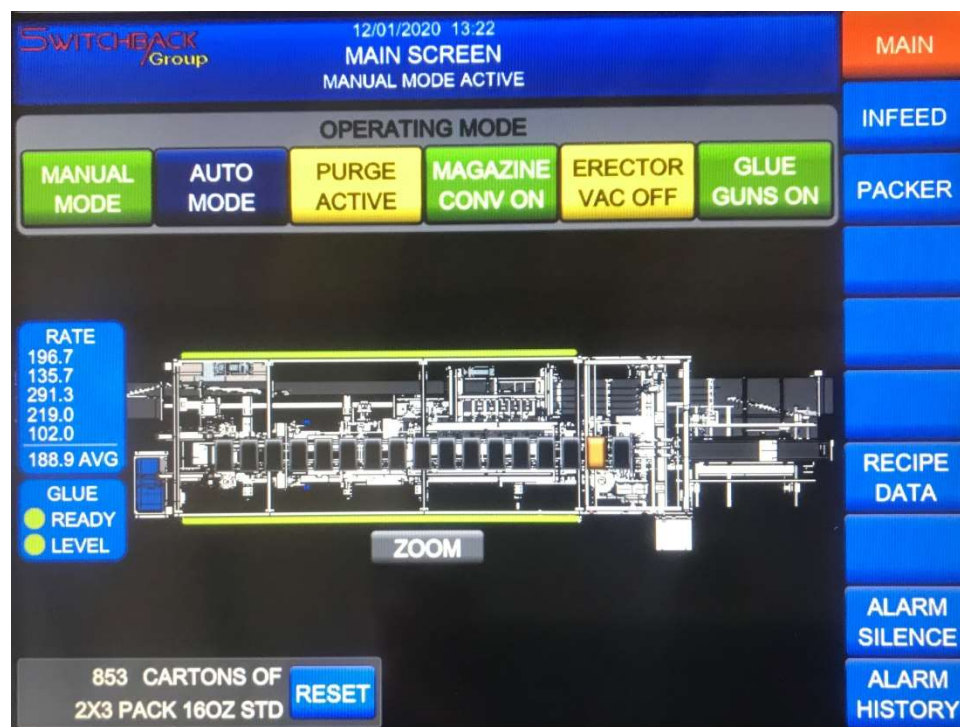


Figure 88 - Main Screen

From the main screen the operator may choose;

- **Manual Mode** - In this mode all manual functions will work. The machine may be jogged at a much reduced speed than that of the Auto mode by pressing and holding the Start button. This can be useful when diagnosing problems or setting up the machine.
- **Auto Mode** - This will select automatic operation and will begin when the “start” button is pushed and held for two seconds.
- **Purge Mode** - This button when active allows the machine to run without having all of the infeed sensors indicating cans present.
- **Magazine Conveyor** - This button will toggle the magazine conveyor feature between enabled and disabled.. Green indicates that the feature is active, while yellow indicates that the feature is disabled.
- **Magazine Vacuum** - This button will toggle the magazine vacuum feature between enabled and disabled. Green indicates that the feature is active, while yellow indicates that the feature is disabled.
- **Glue Guns** - This button will toggle the glue feature between enabled and disabled. Green indicates that the feature is active, while yellow indicates that the feature is disabled.
- **Rate** - This shows the rate of the last 5 cycles and an average of the last 5 cycles.
- **Glue Ready/Level** - These are indicators of the status of the glue system. The machine won’t run in run mode if glue is enabled and the glue system is not ready. In order to run when the glue system is not hot the glue must be disabled. This is only helpful when troubleshooting or setting up since production can’t be run without glue. The level indicator being red shows that the glue level is low. This will not stop the machine from running. It tells us to fill the hot melt tank.
- **Reset** - will reset the daily counter.
- **Graphic Icons** - Open doors or pressed E-Stops will be shown in their proper locations making it easier to identify why control power is off.
- **Zoom** - Touching this button will enlarge the machine icon making it easier to insert/remove a carton from the flight conveyor. Touching a carton location where a carton is shown will remove that carton and prohibit the cans from being released, (unless the can gates have already been opened. Zoom can be canceled touching the button again.
- **Screen Tabs** - These buttons will allow the user navigate between screens.

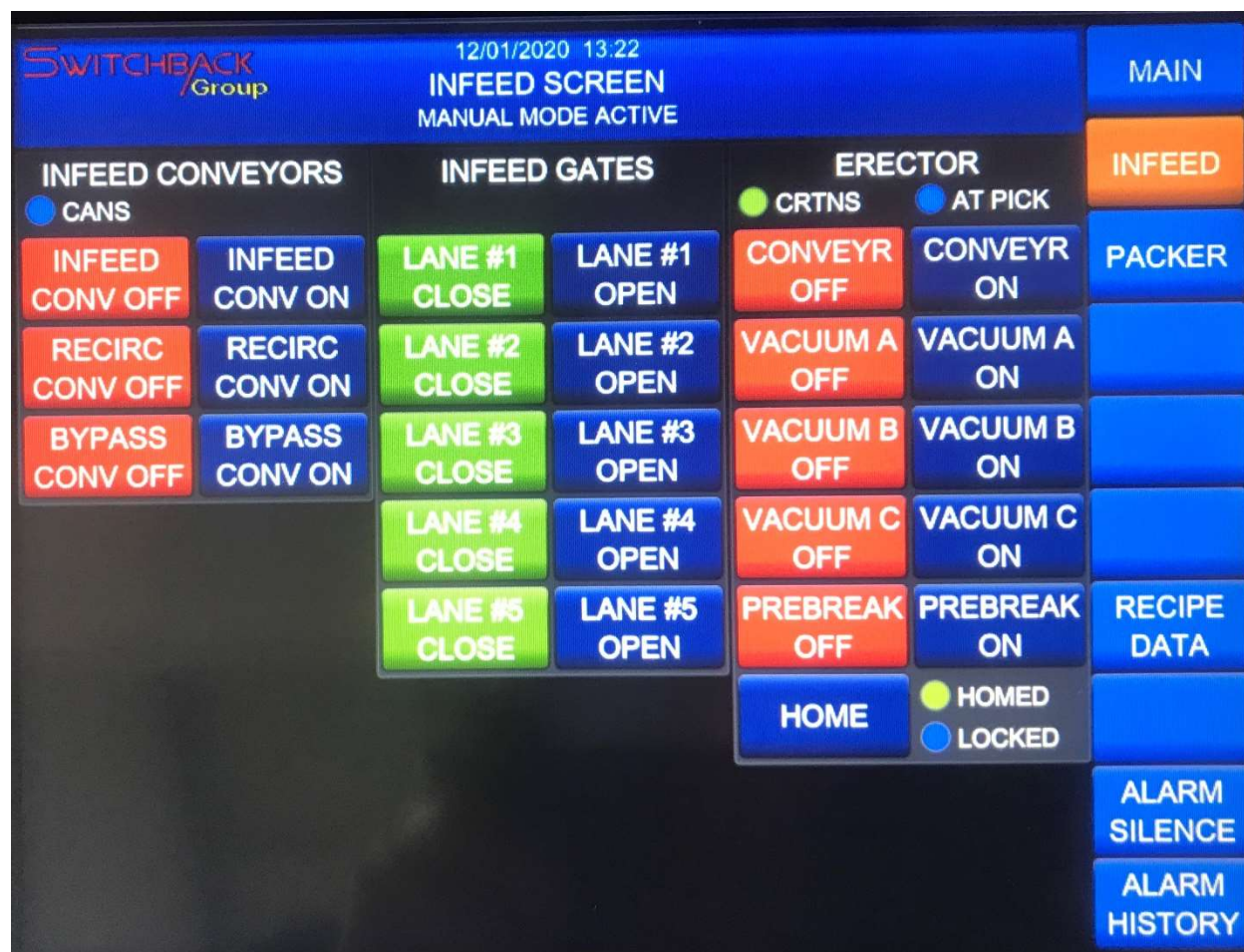


Figure 89 - Infeed/Magazine Screen

From the infeed screen when in test mode the operator may choose;

- Cans - This button will be green when all of the required infeed lanes required are full. It will be blue when one or more are showing a lack of product present.
- Infeed Conveyor On/Off - These buttons will turn the infeed conveyor on and off.
- Infeed Recirculating Conveyor On/Off- These buttons will turn the recirculating conveyor on and off.
- Infeed Bypass Conveyor On/Off - These buttons will turn the bypass conveyor on and off.
- Infeed Lane1-5 Lanes Open/Closed – These buttons will either open or close the lane gate for the lane that was chosen.
- Erector Cartons – This indicator light shows the status of the Magazine Conveyor Low photo eye.
- Erector At Pick – This indicator light shows the status of the Blanks In Pick Zone Low photo eye. When this photo
- Erector Conveyor On/Off - These buttons will turn the magazine conveyor on and off.
- Test Vacuum A On/Off - These buttons will turn the A vacuum on and off.
- Test Vacuum B On/Off - These buttons will turn the B vacuum on and off.
- Test Vacuum Pre Break On/Off - These buttons will turn the pre break vacuum on and off.
- Home – Touching this button will send the erector, (and flight conveyor), through a homing sequence.
- Erector Drive Homed – This indicator light turns green when the erector has been homed. The only time it will need to be rehomed is if the machine is shut down, or the erector has been moved independent of the flight conveyor.
- Locked – This button indicates the belief of the PLC that the electronic gearing is intact. If the Locked button is blue the erector should be homed before it is run.

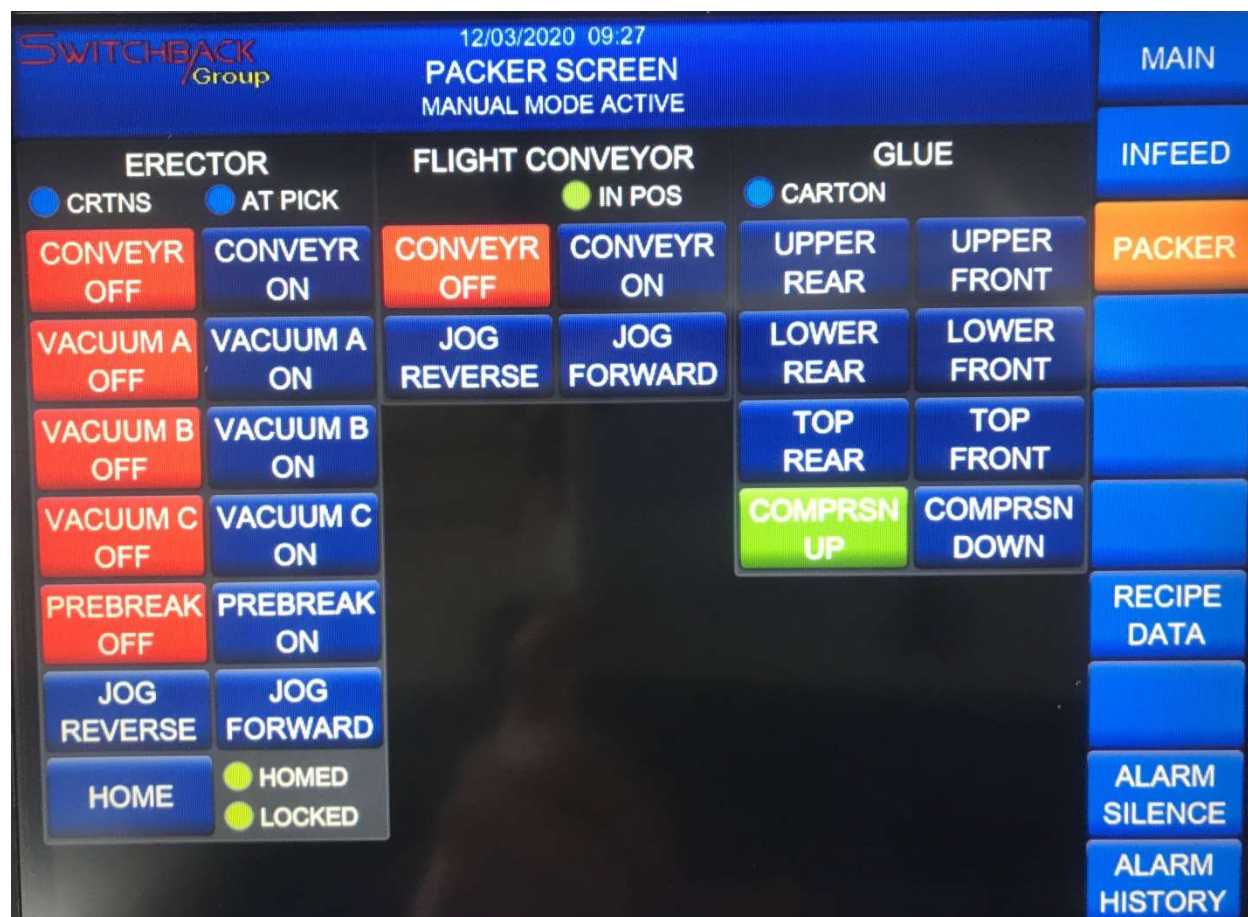


Figure 90 - Packer Screen

From the packer screen when in test mode the operator may choose;

- Erector Cartons – This indicator light shows the status of the Magazine Conveyor Low photo eye.
- Erector At Pick – This indicator light shows the status of the Blanks In Pick Zone Low photo eye. When this photo
- Erector Conveyor On/Off - These buttons will turn the magazine conveyor on and off.
- Test Vacuum A On/Off - These buttons will turn the A vacuum on and off.
- Test Vacuum B On/Off - These buttons will turn the B vacuum on and off.
- Test Vacuum Pre Break On/Off - These buttons will turn the pre break vacuum on and off.
- Home – Touching this button will send the erector, (and flight conveyor), through a homing sequence.
- Erector Drive Homed – This indicator light turns green when the erector has been homed. The only time it will need to be rehomed is if the machine is shut down, or the erector has been moved independent of the flight conveyor.
- Locked – This button indicates the belief of the PLC that the electronic gearing is intact. If the Locked button is blue the erector should be homed before it is run.
- Main Drive Jog Reverse - Touching this button will turn reverse green. Pressing the Start button while in test mode will cause the machine to run in reverse at the value of the jog speed from the Configuration screen as long as the Start button is being held. Once the Start button is released Jog Forward will be enabled. The Reverse button needs to be highlighted every single time the machine is run in reverse. It should only be moved a little in reverse to clear a jam, etc. The machine was designed to run forward.
- Flight Conveyor In Position – This button indicates that the flight conveyor is at the Home position.
- Flight Conveyor On/Off – These buttons will turn the conveyor/erector on or off when pushed.

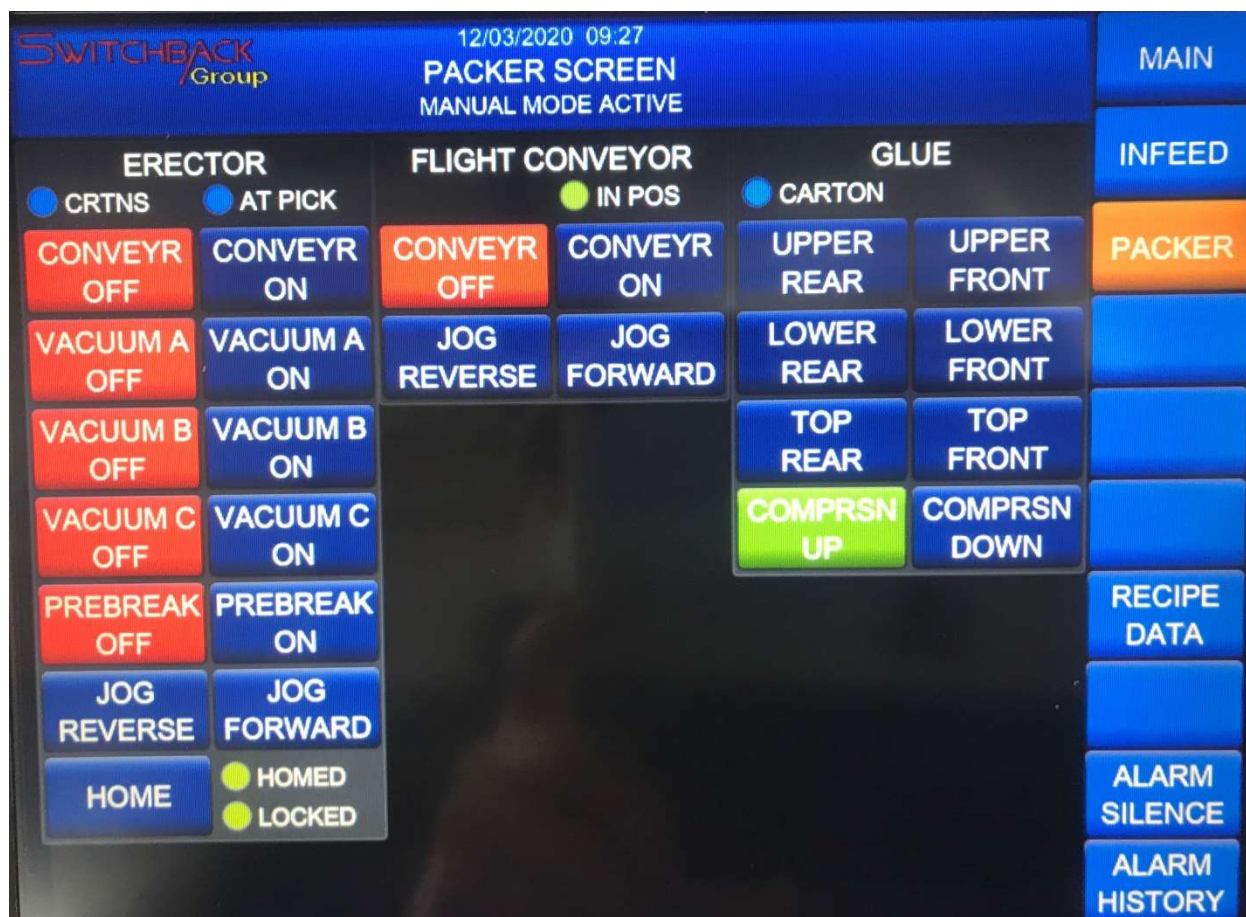


Figure 91 - Packer Screen

From the packer screen when in test mode the operator may choose;

- Flight Conveyor Jog forward/Reverse – Touching these buttons will move the flight conveyor in the direction indicated at the jog rate of seed as long as the button is being held. Reverse should be used sparingly since the system is designed to primarily run forward.
- Glue-Carton – This indicator light shows the status of the carton present for glue sensor.
- Glue Guns - The top four glue gun buttons will turn the corresponding glue gun on when it is being touched. The front guns are on the side of the flight conveyor that the cans come into the carton. There may only be two guns depending on the type of minor flap closing on your product, but there are accommodations on the setup screens for six guns. The Top Glue buttons are there for customers that want to run a half flap carton as well as full flap cartons. The software for the extra two glue guns is present. To use the two extra guns it will be necessary to purchase glue hoses, glue guns, and mounting bracketry and to install 24 volt control wiring to a terminal strip position. The wiring from the terminal strip to the PLC and the programming already exists.
- Compress Up/Down - These buttons will move the compression cylinders down and up.



Figure 92 - Common Buttons

- **Recipe Name** – The recipe names can be changed. Touching the name of the recipe, (red and white arrow), will bring up a keypad from which the new name may be entered. New recipes may also be created and used from this menu.
- **Log In** - Touching this button, (right side red arrow), brings up a touchpad allowing for password entry. Recipe values cannot be changed without password authorization.
- **Log Out** – Touching this button, (left side red arrow), ends the ability to change values without re-entering the password after touching the login button.
- **Recipe Arrows** – Touching these arrows, (black and white arrows), will allow you to move between different recipe screens, or move to an unused recipe in order to create a new recipe.
- **Button Bar** – The buttons between the green arrows make up the button bar. Touching the Main button will bring up a set of button including the manual function screens. From there, touching the recipe button brings up a new set of buttons for the recipe screens.
- **Save** – This button, (yellow arrow), will flash yellow when a value has been changed. This needs to be touched to store the changed value. If you put a value in that you are not certain of you can scroll to a different menu before saving the new value and when you come back the original value will be restored. You must be logged in to save a value.
- **Use** – The button with the gray and black arrow that reads “Caution in Use” will read “Use” if it is not in use. The machine must have control power, and be in test mode in order to change recipes. If these conditions are met simply scroll to the recipe that is desired and press the USE button. It will change to yellow and read “Caution in Use”.
- **Value Buttons** - Any value can be changed simply by touching the value, (it may be necessary to touch areas near the value). This will make a keypad pop up. To change a value, input the new value on the keypad and press ENTER. This will cause the SAVE button to flash yellow. If you are logged in pressing the SAVE button will send the new value to the PLC. If you are not logged in you must log in in order to change the value and may do so after logging in.



Figure 93 - Recipe – Infeed Data Screen

- Infeed Prime – This value controls the speed of the infeed conveyor when any of the required infeed lanes are not seeing product present.
- Infeed Run – This value controls the speed of the infeed conveyor with product present in all required lanes.
- Infeed Purge – This value controls the speed of the infeed conveyor in Purge Mode.
- Recirculation – This value controls the speed of the recirculating conveyor when running automatically.
- Bypass – This value controls The speed of the bypass conveyor. If there is a value other than zero in this field the erector and flight conveyor will not move.
- Lanes 1-5 Open/Close – These values determine when the lane dividers open and close. They should open so that the cans hit the back side of the bucket wedges as they move by the individual lanes. They should close soon enough to stop the next can from getting caught by the bucket wedge. With zeros in both on and off windows the lane gate will never open.

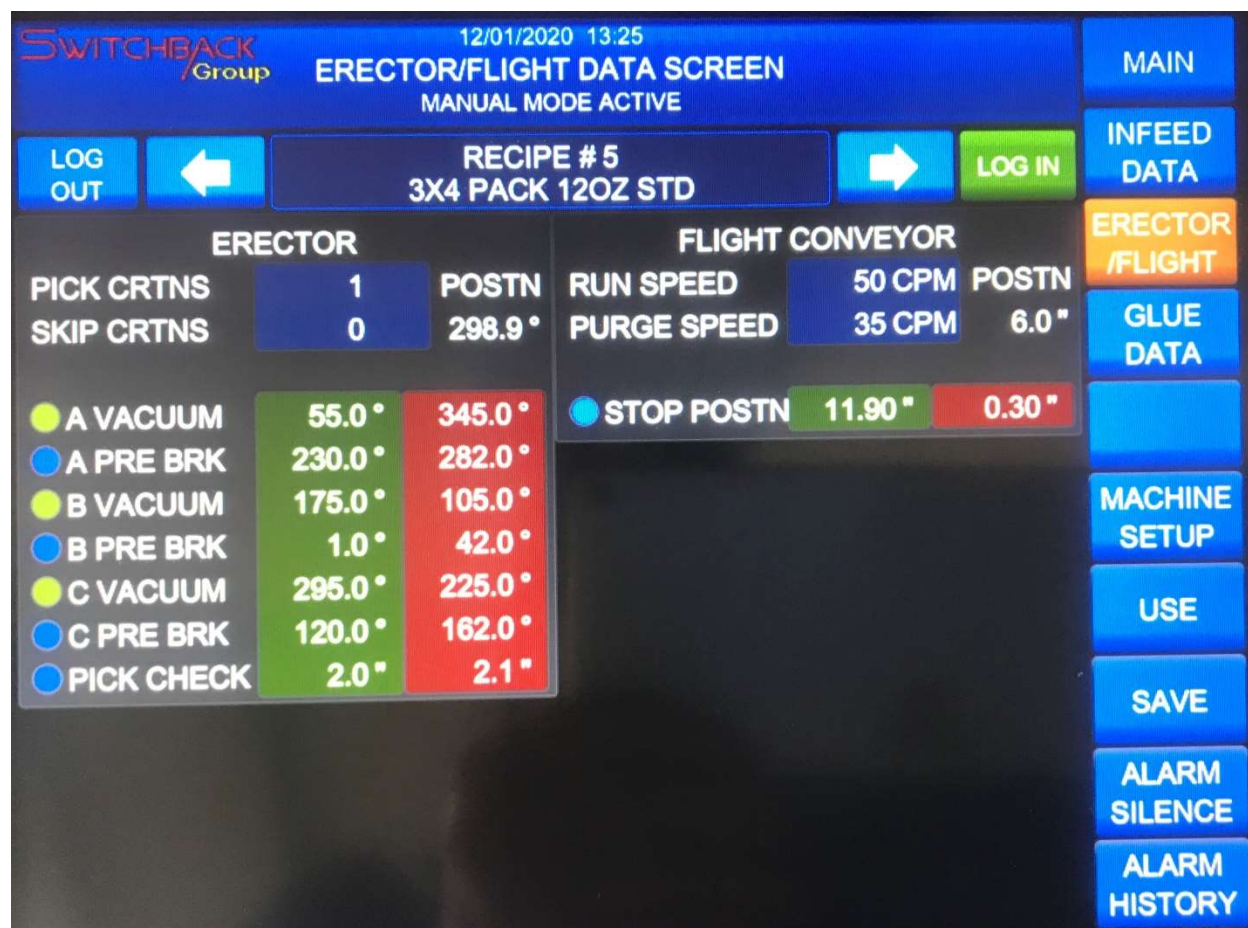


Figure 94 - Recipe – Erector/Flight Data Screen

- Pick/Skip Cartons – These values allow the user to fine tune the performance of the erector. With the configuration shown in Figure 94 every carton will be picked. If both values were 1, every other carton would be picked. Using these values may allow the machine to run faster than it needs to which may give the operator a chance to run more product by changing the values to 1 and 0.
- Erector Position – This value indicates the current position of the erector.
- Flight Conveyor Run Speed – This value determines the rate of production with all lugs filled.
- Flight Conveyor Purge Speed – This value determines the speed of the flight conveyor when running in Purge Mode. This value will typically be slower than run speed to allow the product to get into the wedge conveyor easier.
- Flight Conveyor Position – This value indicates the current position of the flight conveyor.
- Erector Vacuum A/B/C – These values indicate the positions, (in degrees), that the named vacuum turns on and off. The On value should be low enough so that the vacuum turns on early enough to pick the blank. It should turn off after the carton is placed but before it tries to pull the carton back upstream.
- Pre Break Vacuum - These values determine when the pre break vacuum turns on and off. The vacuum should come on soon enough for it to be activated when the vacuum cups reach the carton. The off value should be set so that it pulls the blank open to about 15 degrees. Opening too much or not at all may cause the blank to “L” clip when it reaches the lugs.
- Pick Check – This value determines when the carton properly erected photo eyes look for the erected carton.
- Stop Position - These values determine when the machine stops. The machine should stop at a point just before the flight conveyor reaches zero.



Figure 95 - Recipe – Glue Data Screen

- Front/Rear Upper/Lower Glue Trigger On – These values control the distance at which the first shot of glue is fired during the flight conveyor index, (as long as the carton present @ glue zone photo-eye has been made). If there is only one shot of glue, this will start it. If there are two shots of glue this will start the first and the second ON value will start the second. If the values for either On/Off pair are zeros, the guns will not shoot for that set of values.
- Front/Rear Upper/Lower Glue Trigger off – These values control the distance at which the first shot of glue is stopped during the flight conveyor index, (as long as the carton present @ glue zone photo-eye has been made). If there is only one shot of glue, this will stop it. If there are two shots of glue this will stop the first and the second OFF value will stop the second. If the values for either On/Off pair are zeros, the guns will not shoot for that set of values.
- Front/Rear Stitch – These values control a stitch pattern for the glue guns. If the values are zero a solid line of glue will be applied. On Time will control the length of the glue shot. OFF Time will control the space between glue.
- Compression – This value controls the minimum extend time for the stop compression cylinders.

12/01/2020 13:22			ALARM HISTORY SCREEN		MAIN
MANUAL MODE ACTIVE					CONFIG SCREEN
DATE/TIME	FAULT	DESCRIPTION			
12/01 12:45	112	INFEED CONVEYOR LANE 2 CAN DOWN			
12/01 12:11	410	FLIGHT CONVEYOR CAN PUSHER JAMMED			
12/01 11:16	411	FLIGHT CONVEYOR OVERHEAD RAIL NOT DOWN			
12/01 11:03	411	FLIGHT CONVEYOR OVERHEAD RAIL NOT DOWN			
12/01 10:13	111	INFEED CONVEYOR LANE 1 CAN DOWN			LOG IN
12/01 10:09	112	INFEED CONVEYOR LANE 2 CAN DOWN			
12/01 09:46	411	FLIGHT CONVEYOR OVERHEAD RAIL NOT DOWN			LOG OUT
12/01 09:42	411	FLIGHT CONVEYOR OVERHEAD RAIL NOT DOWN			
12/01 09:18	111	INFEED CONVEYOR LANE 1 CAN DOWN			CHANGE LOG IN
12/01 08:12	411	FLIGHT CONVEYOR OVERHEAD RAIL NOT DOWN			
12/01 08:07	411	FLIGHT CONVEYOR OVERHEAD RAIL NOT DOWN			
12/01 08:05	411	FLIGHT CONVEYOR OVERHEAD RAIL NOT DOWN			
12/01 08:02	411	FLIGHT CONVEYOR OVERHEAD RAIL NOT DOWN			
12/01 06:48	125	INFEED CONVEYOR LANE 5 GATE OPEN/CLOSE FAULT			
12/01 06:38	125	INFEED CONVEYOR LANE 5 GATE OPEN/CLOSE FAULT			
12/01 06:35	125	INFEED CONVEYOR LANE 5 GATE OPEN/CLOSE FAULT			
12/01 06:30	125	INFEED CONVEYOR LANE 5 GATE OPEN/CLOSE FAULT			ALARM SILENCE
11/30 16:48	500	GLUE UNIT NOT READY WHILE RUNNING			
11/30 16:40	111	INFEED CONVEYOR LANE 1 CAN DOWN			ALARM RESET
11/30 15:53	411	FLIGHT CONVEYOR OVERHEAD RAIL NOT DOWN			
11/30 15:49	411	FLIGHT CONVEYOR OVERHEAD RAIL NOT DOWN			

Figure 96 - Alarm Screen

The alarm screen shows a running log the last 17 incidents. This can be helpful when trying to find trends in the performance of the machine.

SWITCHBACK Group INFORMATION SCREEN GLUE UNIT NOT READY		MAIN
		INFEED/MAGAZN
		PACKER
Switchback Group 3778 Timberlake Drive Richfield, Ohio 44286 Phone: (330) 523-5200 Fax: (330) 523-5212 Email: dshepherd@switchbackgroup.com 000,000,078,607 CASES		RECIPE DATA
		SYSTEM STATUS

Figure 97 - Information Screen

The information screen is accessed by touching the Switchback Group logo in the upper left hand of any screen. It contains contact information and the non-resettable lifetime carton counter.



Figure 98 - Configuration Screen

This screen is password protected and is used by the manufacturer's technicians to setup the *Brewpack 500* for optimal performance. It is password protected since it is not desirable to have most operators making changes to critical adjustments. These values control speed and timing on different sequences for the *Brewpack 500*. If there is a need to make an adjustment in the machine performance, call the contact information for guidance and the password.

- Infeed Conveyor
 - Infeed Full – Delay after infeed full photo eye is made and the relay controlling upstream conveyor turning off.
 - Infeed Clear – Delay after infeed full photo eye is unmade and the relay controlling upstream conveyor turning on.
 - Lane Full - This controls the length of the delay between product at sensor and PLC acknowledging the product.
 - Lane Clear - This controls the length of the delay before the PLC acknowledges product not present.
 - Can down – delay before the machine faults for a down can.
 - Can Low – This value indicates a distance slightly shorter than a down can. The conveyor will be seen as empty with value that is less than this.
 - Can High – This value should be slightly larger than a down can. Any value higher than this will be seen as product present.
 - Gates – This button toggles between Active and Off. Active is the default condition with Off being available to keep the gates from releasing cans into cartons. This allows the technician to troubleshoot carton issues without vans being released.
- Infeed Analog – These values allow each sensor to be set so the conveyor is at 0.00". Instructions on how to do this are shown on page 41.
- Erector
 - Heads – This value informs the PLC how many heads are present so it does the proper math for erecting cartons.
 - Actual – This value shows the current position of the erector.
 - Offset – This value is an electronic offset for minor, repeatable adjustments to the angular position of the erector.
 - Conveyor – This value determines the speed of the magazine conveyor.
 - Empty – This button allows for running the magazine with, (ignore), or without, (active), a magazine empty sensor.
 - Homing – This value shows the step in the homing sequence that the erector servo has completed. Touching this value will bring up a pop-up screen which allows for a value to be placed in this field. This tool can be helpful if the servo motor is caught in a loop.



Figure 99 - Configuration Screen

- Upper Flap Monitor - This value toggles between Monitor, (if there is an upper flap detecting photo eye), and Ignore, (if only the bottom major flap present photo eye is the only sensor used).
- Flight Conveyor
 - Actual – This value shows the current position of the flight conveyor
 - Offset – This value is an electronic offset for minor, repeatable adjustments to the position of the flight conveyor.
 - Pitch – This value allows the PLC to do the proper math converting angular position to linear position.
 - Jog - This is the speed that the machine will run in test mode when the start button is pushed.
 - Idle – Ignore should be where this machine is run. Intermittent motion machines often use Monitor but continuous motion always uses Ignore.
 - Homing — This value shows the step in the homing sequence that the flight servo has completed. Touching this value will bring up a pop-up screen which allows for a value to be placed in this field. This tool can be helpful if the servo motor is caught in a loop.
- Lube System – These values only apply if the option was purchased.
- Compression Clear – This value determines how long the stop compression plates must be retracted before the machine can start running.
- Outfeed Conveyor
 - Full/Clear - These values control the performance of the outfeed full photo eye. In this case if the eye is blocked for 2 continuous seconds the cartoner will stop discharging parts and go into dwell mode. It will start running again once the photo eye has been clear for 2 seconds.
 - Conveyor - This value controls the speed of the discharge conveyor.
 - Outfeed Conveyor Interlock – This button toggles between Active and Ignore. Ignore allows the cartoner to be run as an independent machine regardless if any other machine in line is running. Active will monitor downstream running signals from the system.
- Alarm Horn Delay – This value controls how long after an alarm situation is present that the audible alarm sounds.
- Alarm Horn Dwell – This value controls the amount of time between audible alarm signals.
- Alarm Horn - This button toggles between Ignore and Active. When Active is selected the audible alarm will accompany the flashing lights and message. When Ignore is selected only the flashing lights and message will function.

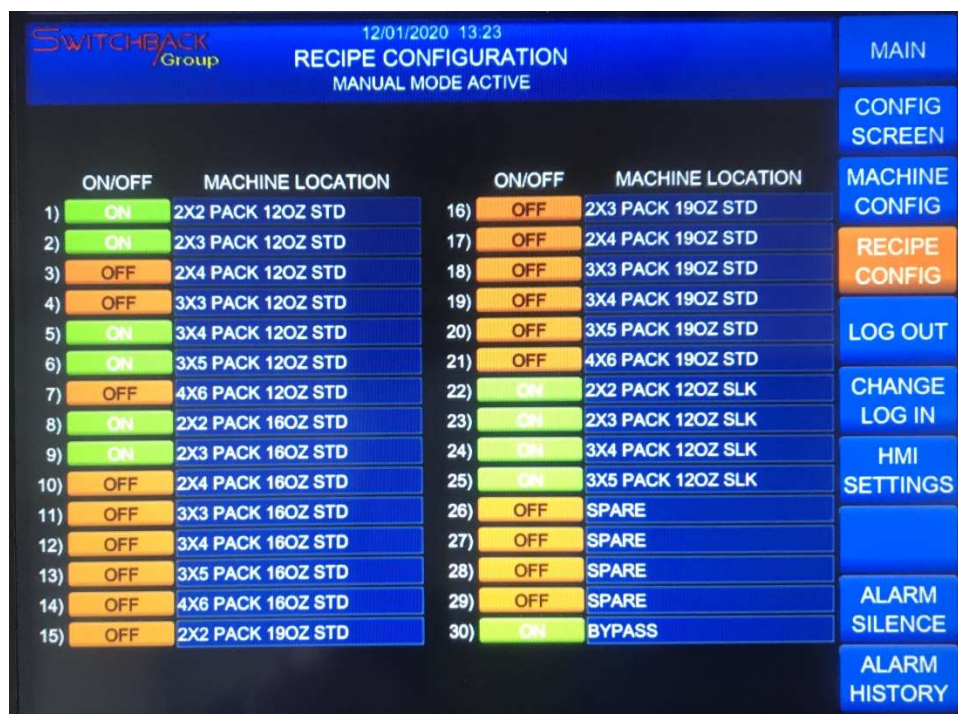


Figure 100 - Configuration Recipe Screen

There is a button on the configuration screen which allows us to enable the recipes that the customer will be using, or create names/recipes for additional recipes.

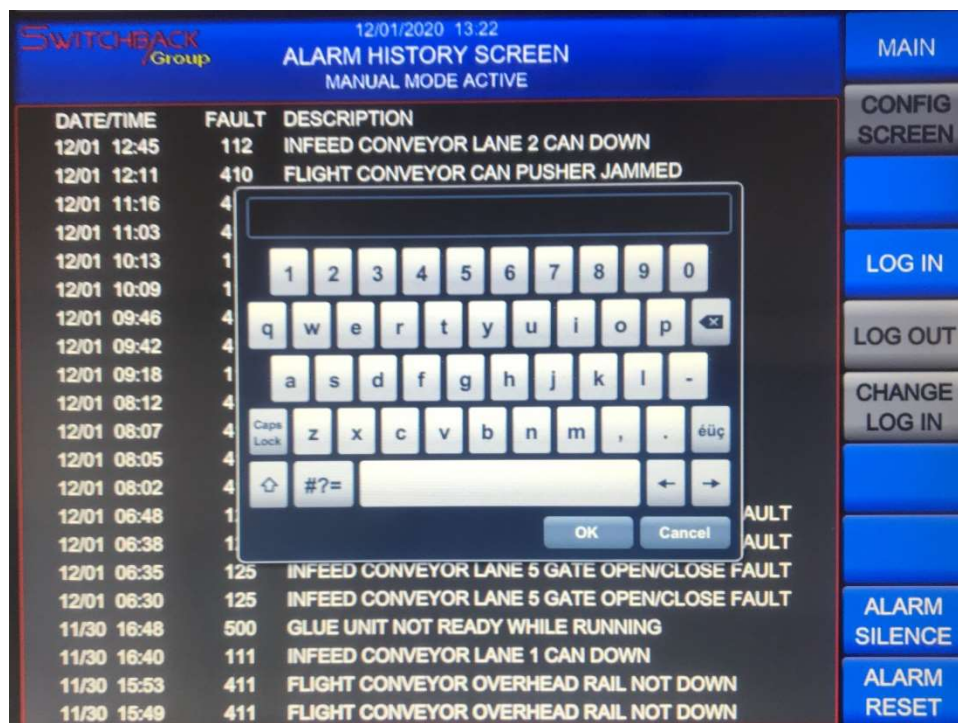


Figure 101 - Password Login Screen

When you touch the Log in button this is the screen that pops up. Enter the password and then press the ENTER button. If your password is accepted you will be able to change or save any recipe values, or change between recipes.

CHANGEOVER

This machine is designed to run a variety of sizes from a 4 pack to a 15 pack. Changing the machine from one size to another is something that will become simple with a little practice. Here are the steps to changing the machine from one size to another.



Figure 104 - C #1 – Infeed Lane Guide

Slide the guide to a position that will allow cans to get to lane 1 without holding back too many cans before the spring release allows the next lanes of cans in.

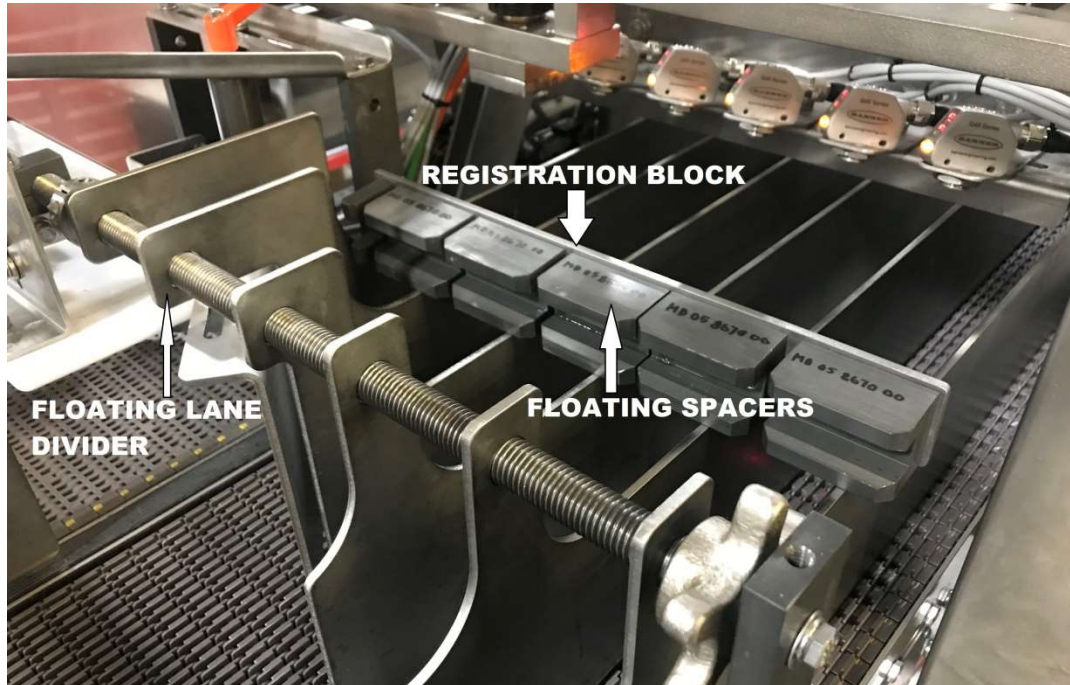


Figure 105 - C #2 – Infeed Lane Block

The infeed blocking plate allows cans to move down the desired lanes and assists in the recirculating of cans to help resist can bridging on the infeed conveyor. To move the lane blocking plate, loosen the adjustable locking handles shown in figure 105, slide the lane blocking plate left or right to the desired position and then retighten the locking handles. The infeed lanes too full sensor shown below should be set about $1/8'' - 1/4''$ above the height of the cans being run



Figure 105 - C #3 – Infeed Lanes Too Full Sensor



C106 - #4A - Infeed Lane Dividers Width Change #1

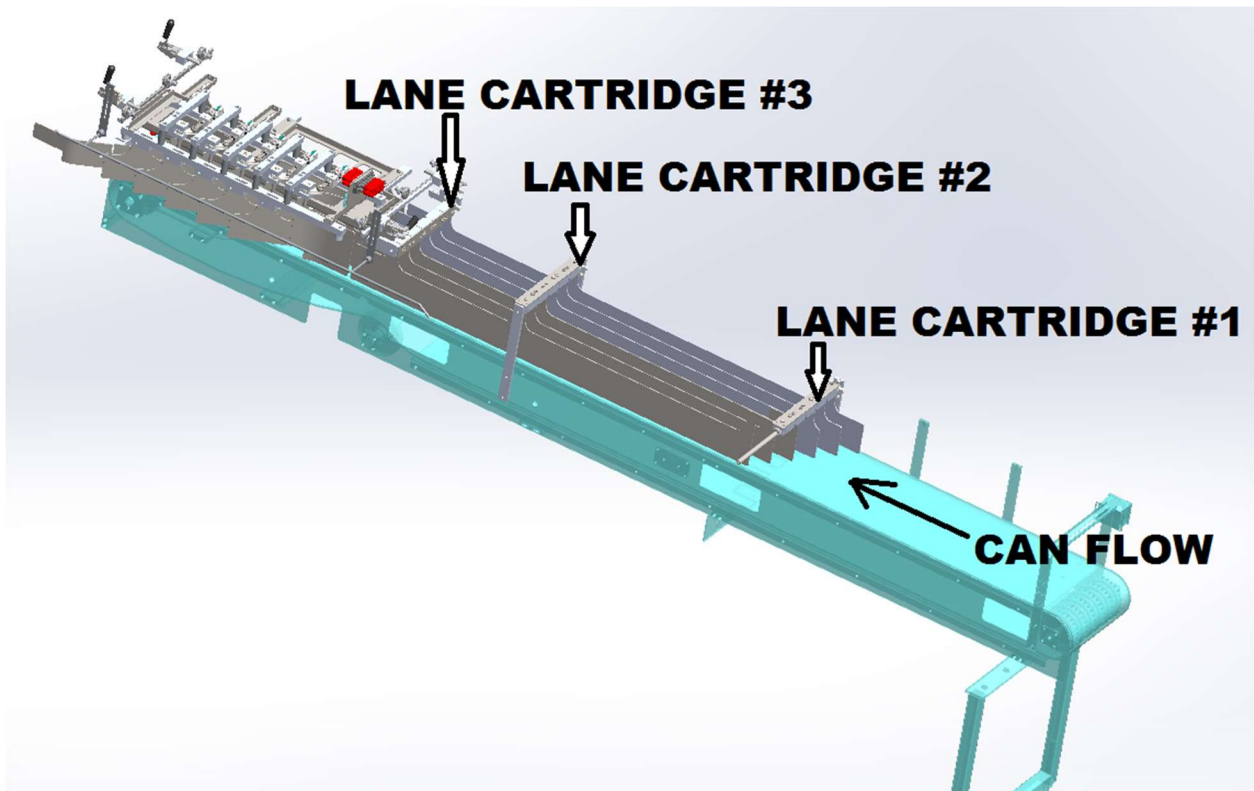
When changing out the lane dividers for running different diameter cans the first step is to loosen the lane divider locking knobs on all five, (3 for lanes, 2 for sensors), lane registration blocks, (Figures 104-109). Next remove the registration blocks. The lane dividers will still hang on the registration block mount shaft. The registration blocks have the product size engraved on the top of them, (Figure 108). The registration block should be mounted towards the flight conveyor since the master spacer needs to be oriented properly. Insert the new registration blocks, it may be necessary to wiggle the lane dividers to allow the registration blocks to seat. When all of the lane dividers are inserted in the proper orientation lock the locking knobs.



C107 - #4B - Infeed Lane Dividers Width Change #2



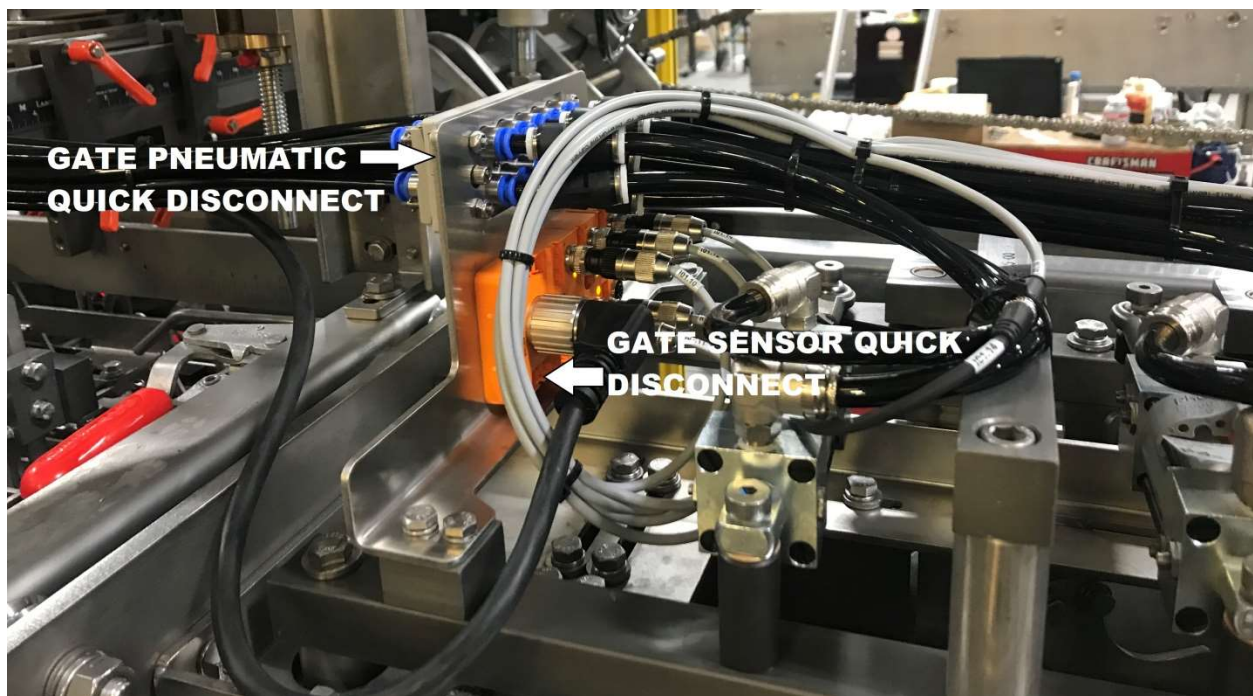
C108 - #4C - Infeed Lane Dividers – Registration Blocks



C109 - #4D - Infeed Lane Divider Spacer Locations



C110 - #5A - Infeed Lane Cartridge mounted In Position

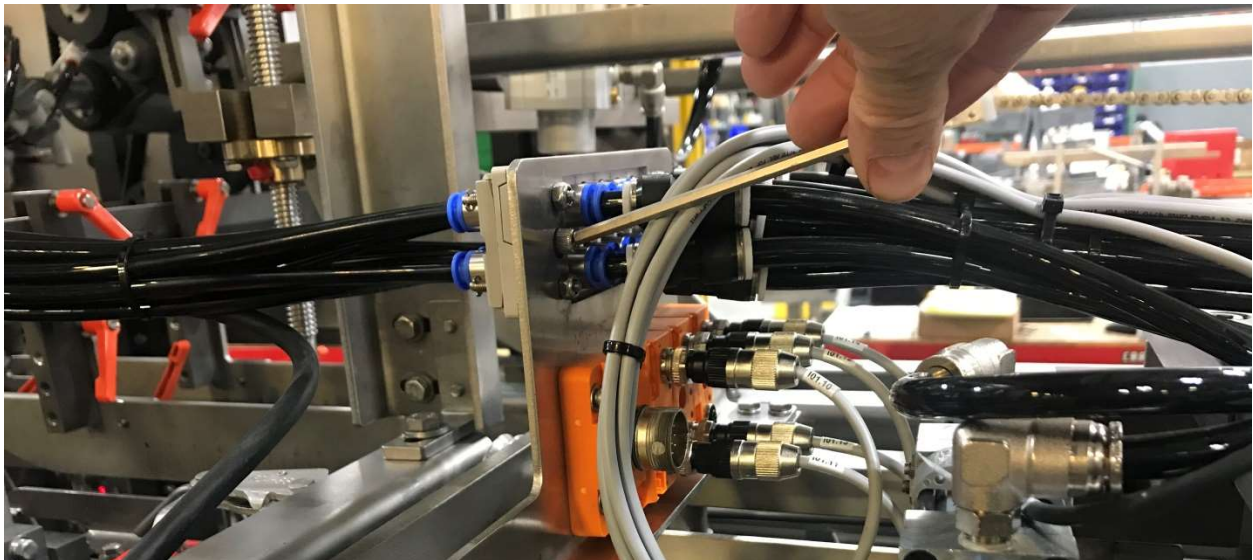


C111 - #5B - Infeed Lane Cartridge Quick Disconnects

When changing can diameters the infeed gate cartridge will need to be changed out. The first items to address are removing the sensor Quick Disconnect, (Figures 111-112), and pneumatic QD, (113-115) fittings. Place the cables that run back to the machine out of the way and then unlock the four registration/locking mechanisms, (Figures 116-119). With a lift cart pushed up against the infeed conveyor frame, (Figure 120), pull out on the cartridge to remove it from the machine, (Figures 121-123). Installing the new cartridge is a reversal of the removal process.



C112 - #5C - Infeed Lane Cartridge Sensor Quick Disconnect Removed



C113 - #5D - Infeed Lane Cartridge Pneumatic Quick Disconnect Being Unlocked



C114 - #5E - Infeed Lane Cartridge Pneumatic Quick Disconnect Being Removed



C115 - #5F - Infeed Lane Cartridge Pneumatic Quick Disconnect Removed



C116 - #5G - Infeed Lane Cartridge Upstream Locking Mechanism Engaged



C117 - #5H - Infeed Lane Cartridge Upstream Locking Mechanism Disengaged



C118 - #5I - Infeed Lane Cartridge Downstream Locking Mechanism Engaged



C119 - #5J - Infeed Lane Cartridge Downstream Locking Mechanism Disengaged



C120 - #5K - Cart In Place For Infeed Lane Cartridge Removal



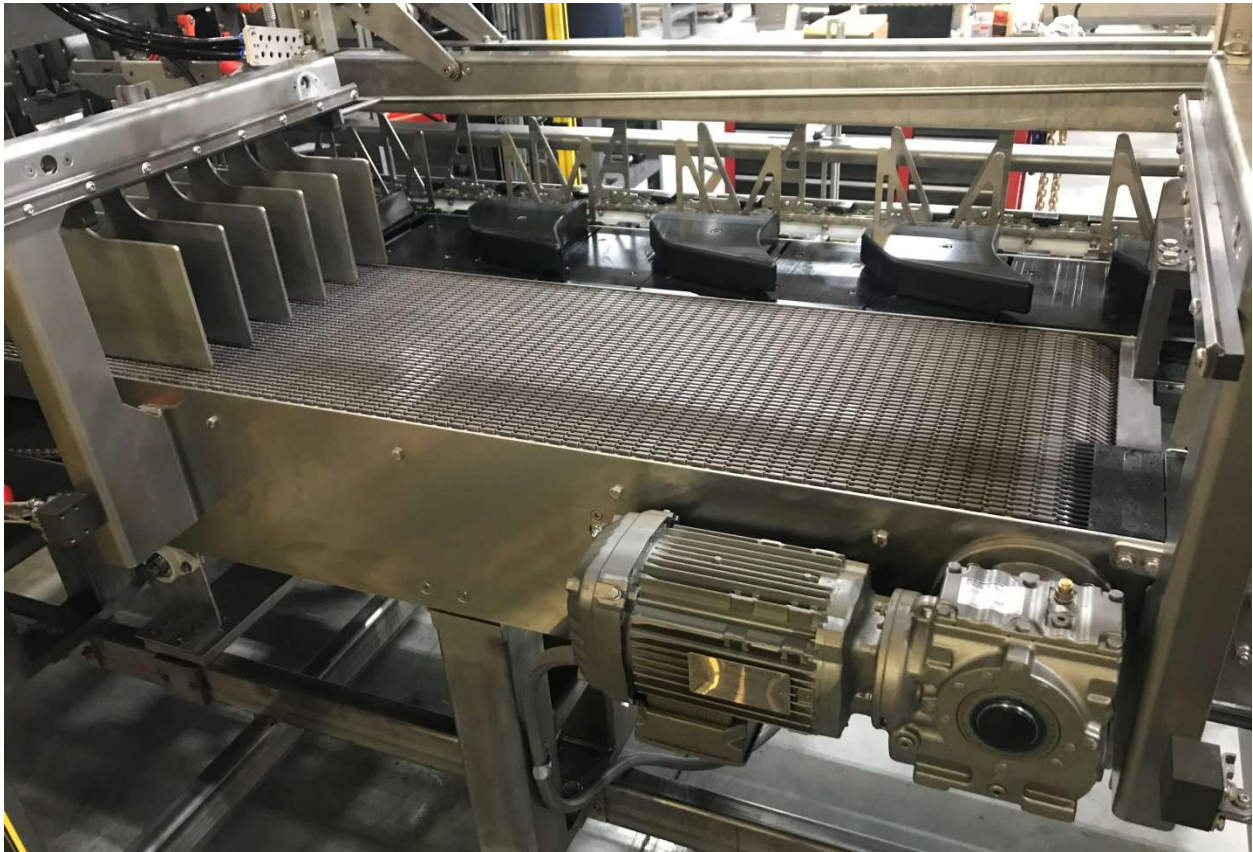
C121 - #5L - Cartridge Cart Locking Points Upstream Side,



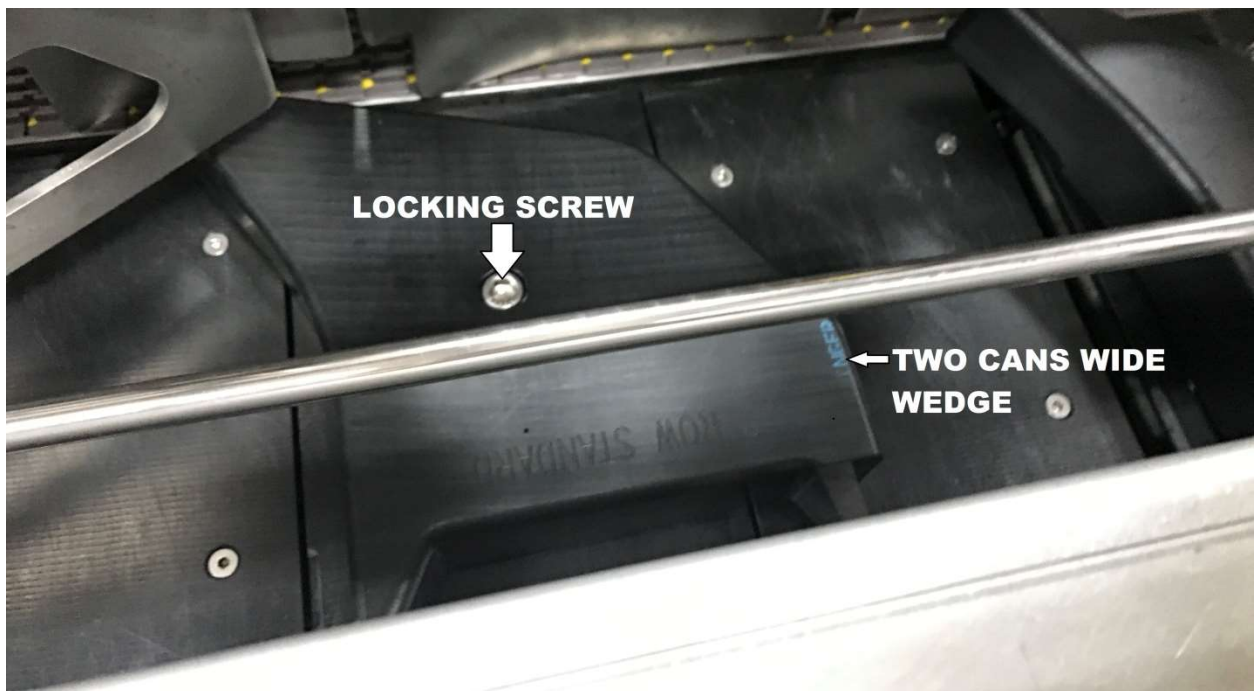
Downstream Side



C122 - #5M - Infeed Lane Cartridge On Cart, Locking Pin Being Inserted



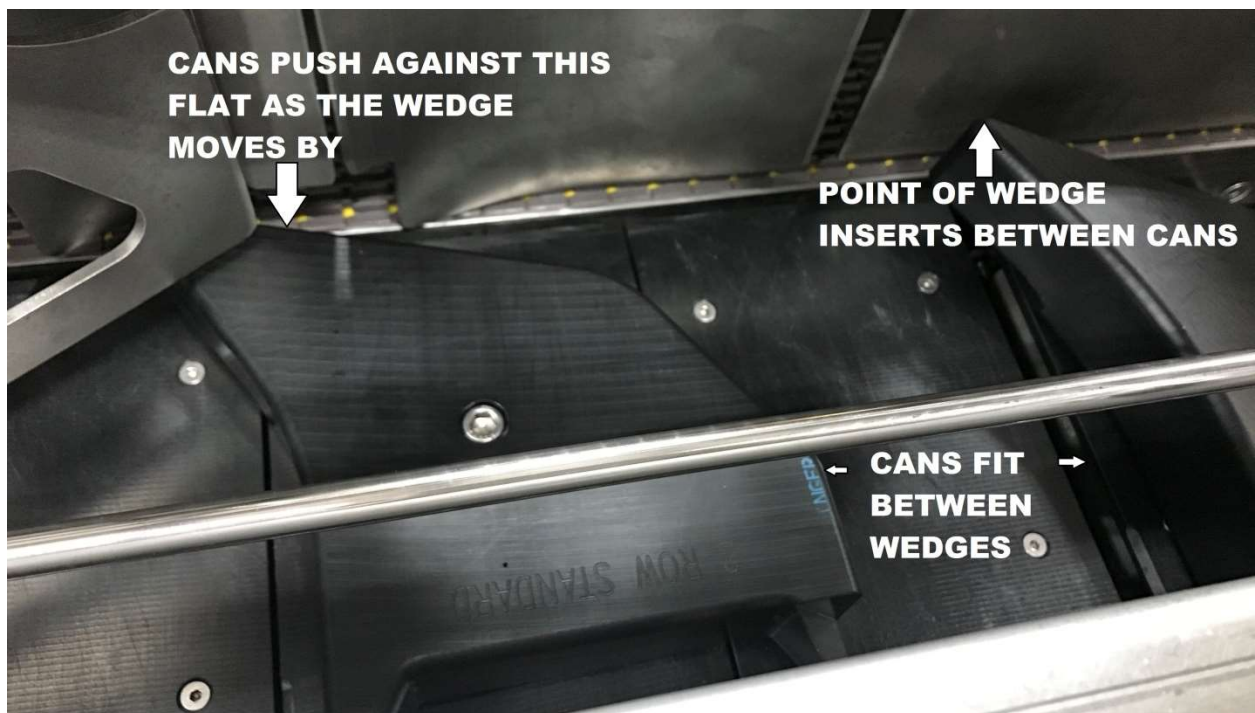
C123 - #5N - Infeed Lane Cartridge Removed



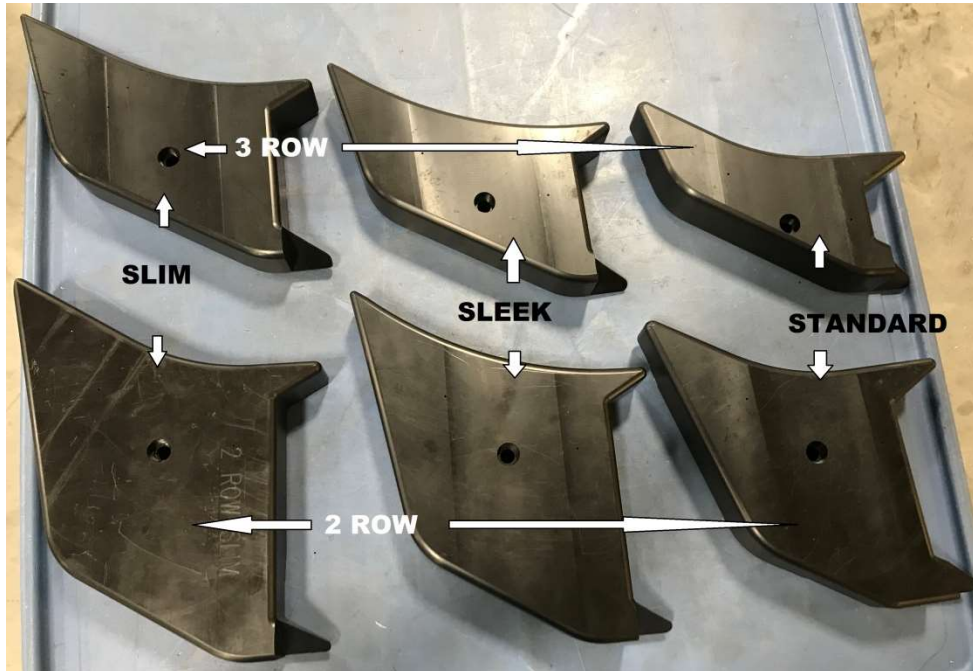
124 - #6A - Change Out Wedges - 2 Can Standard Wedge



125 - #6B – Change Out Wedges – Wedge Locating Plate,



126 - #6C – Change Out Wedges – 2 Can Slim



127 - #6D – Change Out Wedges, (Opposite Hand)

The can control wedges are used to guide the cans through the exist end of the lane guides and into the cartons. There are six sets of wedges, one for a two can wide pattern, one for a three can wide pattern of slim, sleek, and standard can diameter, (Figure 127). The same wedges are used for all can sizes. A 12 oz. 6 pack uses the same two can wide wedge that a 19.2 oz 6 pack would use.

To change the wedges there is a single screw that needs to be removed from each wedge, (Figure 124). Once remove the wedge will need to be lifted off of the two locating pins, (Figure 125). Replace the wedge with the desired wedge and replace the single retention screw.



128 - #6D – Change Out Can Pusher Push Plate

The can push plate is secured with 2 flat head screws. There are 6 different can push plates that match the d different wedges.



Figure 129 - C #7 – Magazine Top Guide Clips

The first step for blank set up in the magazine is moving the top guide clips to the proper position. The “C” clip should stay where it is since the outside edge of it is in line with the outside edge of the stationary strongback face which is in line with the score that must fold over that edge of the strongback. The “B” clip should be moved so that the blank is balanced on the white metering cam attached to the “B” clip. The “A” clip should be moved to the end of the body of the blank. The clips should not touch the folding flaps if possible. They should always be touching the main body of the blank.

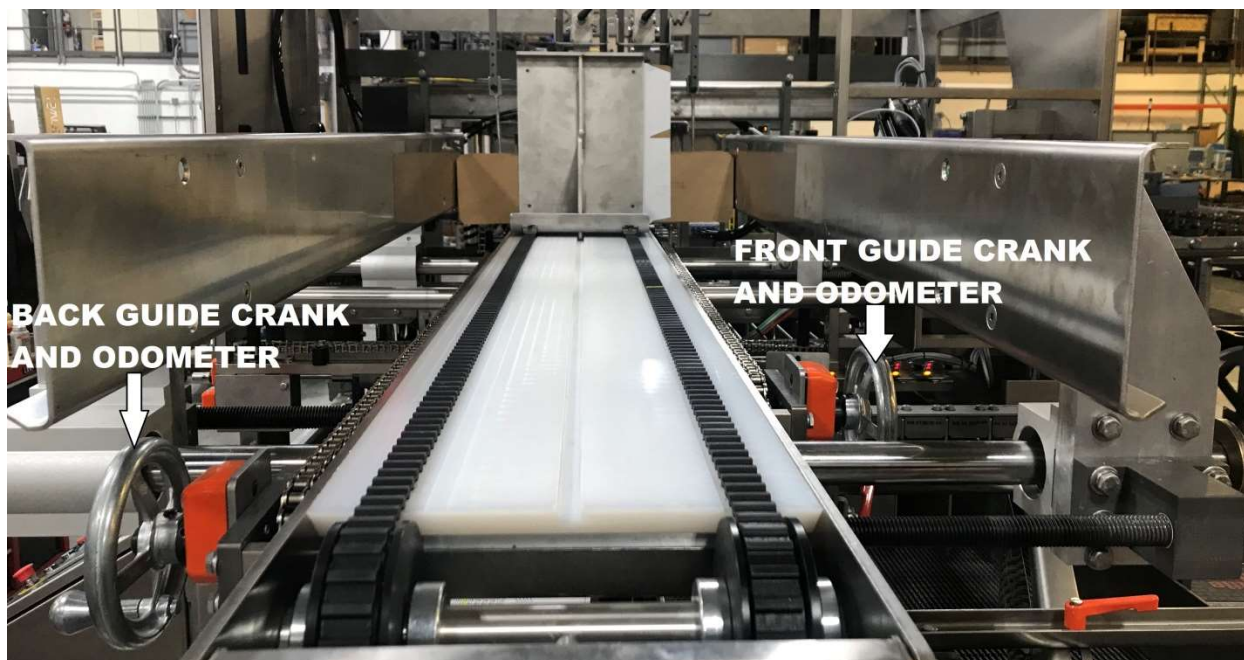


Figure 130 - C #8 – Front/Back Guide Adjustment

The front guide is adjusted by means of a slot. With a blank in place move the front guide, (Figure 130), until there is about 1/8” clearance between the front guide and the blank.



Figure 131 - C #9 – Magazine Top Guide

The top guide needs to be moved when changing between cans of different heights. All 12oz cans will run at odometer setting zero. Taller cans will require that the top guide mounting bracket is moved up.



Figure 132 - C #10 – Magazine Deck

Move the magazine deck to the required odometer value. The magazine deck only gets changed when changing the number of rows in the carton. 4 and 6 packs both have 2 rows so there will not be a deck height change when moving between these two products. When going to 12/15 packs the deck will need to be lowered since it has 3 rows of cans.

There should be 1/8" total clearance between the side guides and the blank. There is also 1/8" clearance between the magazine top guide and the top of the blank.



Figure 133 - C #11 – Rotary Housing Adjustment Crank

The next step is to adjust the rotary erector and the magazine to properly place blanks in the flight lugs. The erector housing is tied to the machine frame by two adjustable locking handles, (Figure 133 and left hand side above), that lock the mechanism in place once it has been adjusted. Loosen both adjustable locking handles and then adjust the rotary up for 16oz, or down for 12oz using the crank shown in Figure 133. The height should be set so that the vacuum arm just touches the top of the carton when it is in the flight lugs. An odometer is provided to make changing from one size to another simple and repeatable. Lock both handles when complete.



Figure 134 - C #12 – Strongback Adjustment Crank and Odometer

The strongbacks are the flight conveyor side plates that have all of the flap plows and glue guns attached to them. The strongback near the load chute is a stationary item that is locked in place. The strongback nearest the crank shown above is adjustable. Turning the crank counter clockwise will move the strongback closer together. Turning it clockwise will move them farther apart. **NOTE: THE STOP CLAMPS LOCKING HANDLE WILL NEED TO BE LOOSENED BEFORE MOVING THE STRONGBACK IS MOVED.**



Figure 135 - C #13-A – Nose Bars/Overhead Guide Width,

The nose bars and adjustable overhead guides should be set so that they hold the unfilled carton down in the flight lugs without providing drag on the carton or twisting the carton as it moves into the load station. The width adjustments are shown in Figure C #13. To move the nose bars horizontally unlock the adjustable locking handles and slide the nose bars to the desired position. The setup dimension is read from the right hand side of brackets to which the adjustable locking handles are mounted.



Figure 136 - C #13-B – Nose Bars/Overhead Guide Height

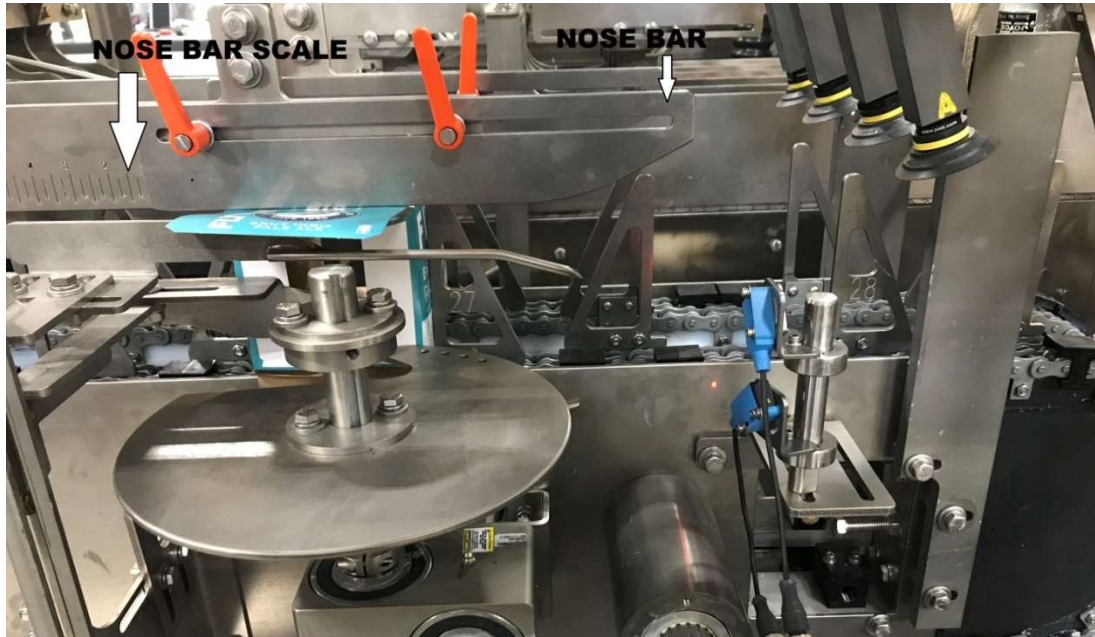


Figure 137 - C #14-A – Nose Bars Length

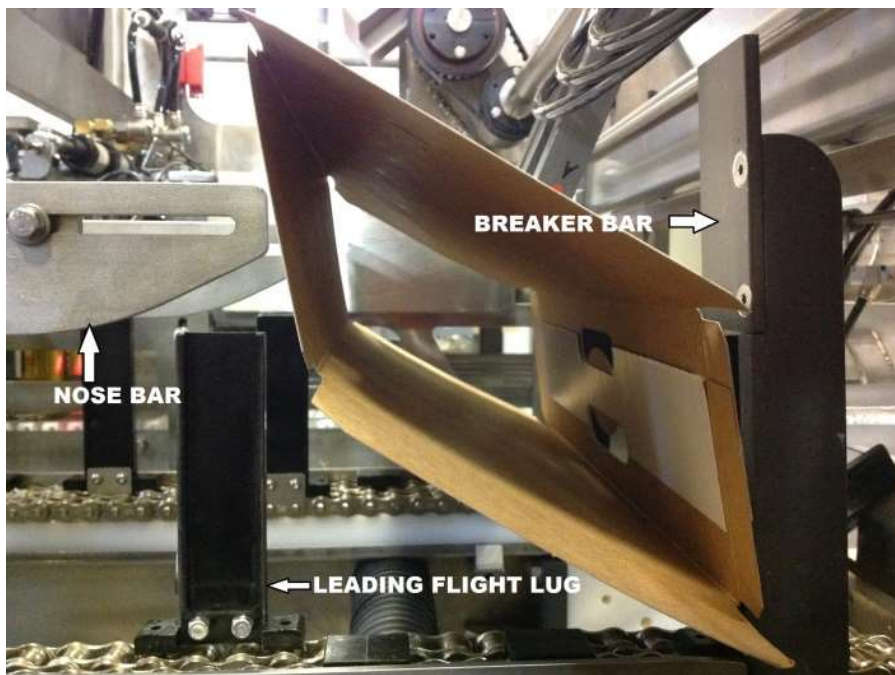


Figure 138 - C #14-B - Nose Bars

The blank arrives at the breaker bars and slides down them until it reaches the bottom corner of the trailing flight lug, (Figure 138). It then slides past the nose bar, (with about 1/8"–1/4" clearance), and down the leading Flight lug until the vacuum turns off and rotates away. The purpose of the nose bars is to gently guide the blank to a position where it is firmly nested in the lugs and on the chain. When the blank is opened and placed into the lugs it wants to pop up when the vacuum arms release control. The chain is moving at this time and when the forming carton pops up it is gently guided back down by the nose bar. The nose bars are slotted for adjustment so they can be set to the required clearance between the blank and the nose bar during the placement operation. There should be 1/8" clearance between the top of the carton and the bottom of the overhead guides including the nose bars.

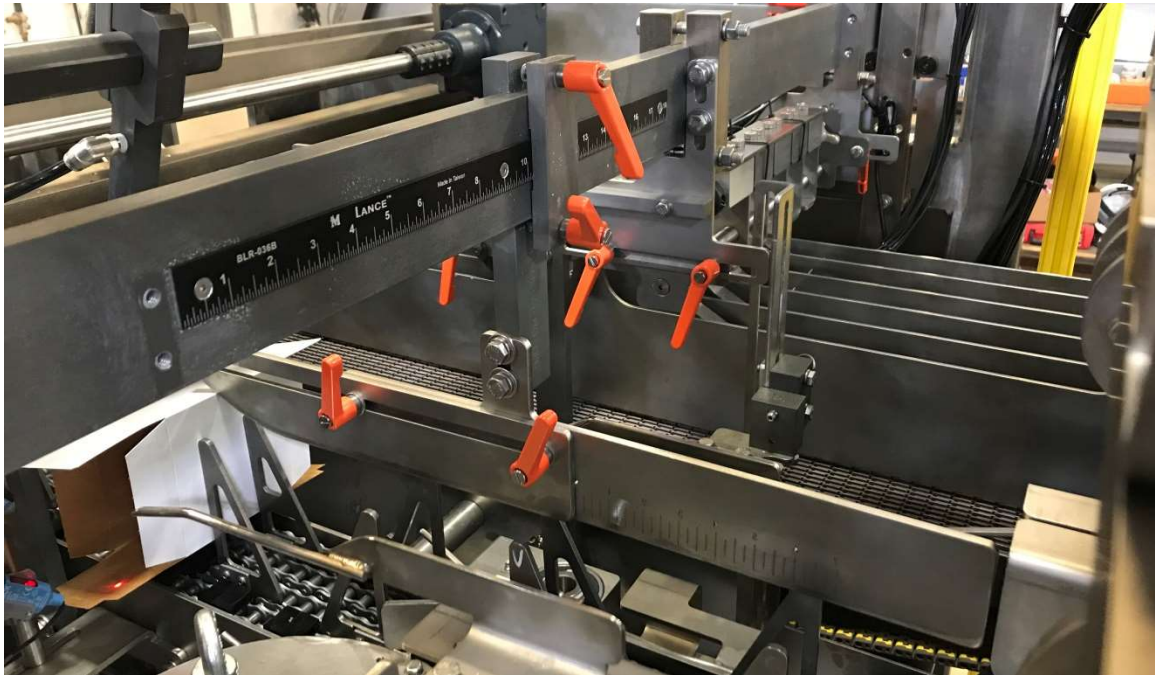


Figure 139 - C #15-C - Nose Bar Width Adjustment

There are normally two nose bars. When running slim/sleek 4 packs there is not enough room on the carton for more than 1 vacuum cup and nose bar.

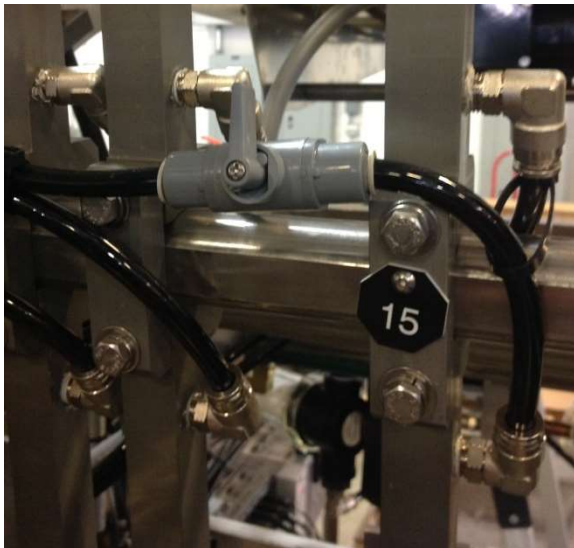


Figure 140 - C #16 – Third and Fourth Pick Arm Selector Valve, (stock photo)

When running 18 packs the fourth valve should be opened to allow vacuum to the fourth pick arm. When running 12 pack or less, this valve should be closed to prevent loss of vacuum from dropping blanks at the wrong time. The third pick arm valve is opened on both 18 and 12 packs. It is closed for both 6 and 4 packs. The pick arm location should be set so that it is not necessary to move the pick arms when changing between any product sizes.

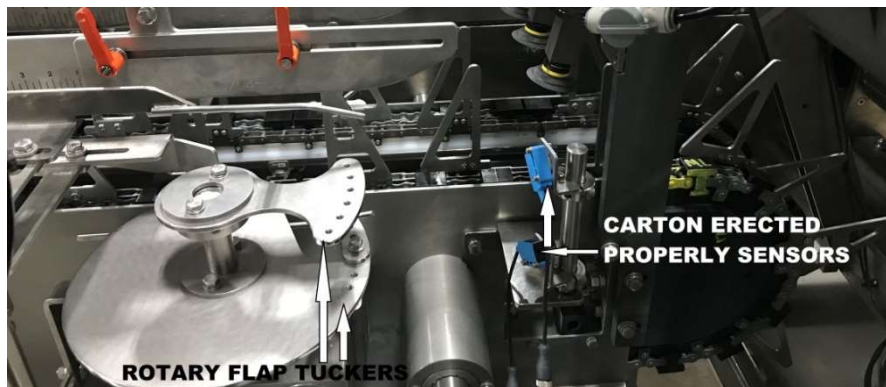


Figure 141 - C #17 – Upstream Rear Side Rotary Flap Tucker

All of the rotary flap tuckers for the minor flaps, should be set offset to each other. We typically want the bottom flap tucker to hit the minor flap 10-30 degrees before the top flap tucker. This is to help us in the effort to not “panel” the wall of the carton. Paneling happens when there is too much pressure and the wall bows in, (or out). Any pressure near the center of a bowed wall, or having the flap tuckers hit at the same time will encourage more bow. The result is that the face will pucker and collapse creating a carton that may not be able to accept the appropriate number of cans, (which may cause breakage). The counter to paneled walls is to hit the minor flap on the outside edge of the flap as low, (or high), as you can reliably go. Hitting this flap at the extreme edges first will allow most of the paneled walls to have the minor flaps tucked properly as the panel gets “popped” out when the first tucker hits. The second tucker can be mounted closer to the center of the carton and it is the one that will hold the minor flap in place as the carton begins moving downstream. Too much pressure from the overhead guides will cause the walls to panel. Having the flight lugs too close together will also cause the walls to panel.



Figure 142 - C #18 – Front Top Guide Plow

The top flap guide holds the top flap up on the entry side of the load. This prevents cans from catching it and tucking it back into the carton. Once the carton has been erected it moves down the flight conveyor and the lower major gets tucked under the tooling. The top major flap gets manipulated up over the top of the cans. The vertical adjustment and 12/16oz positions are shown in Figure 143. The vertical height is set so that a can being pushed under the assembly will not hit the assembly. The horizontal location is set so that the top flap is contained without twisting the carton. If the assembly is too far away from the carton the top flap will fall out of the guide. If the assembly is too close to the carton the top flap will “crash” into the assembly and twist the carton on the way to the load station. The downstream mounting of the top flap guide is attached to the overhead guides and moves up and down when the guides are moved up and down.

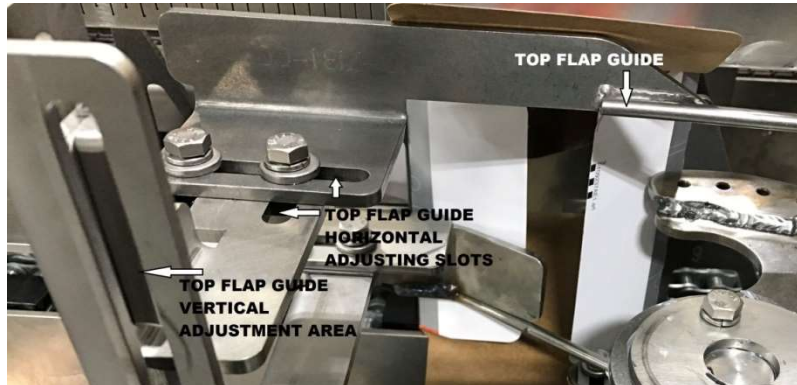


Figure 143 - C #19 – Rear Top Flap Guide/Bottom Plow, (Stock Photo)

When running 12oz cans the rear top flap guide is moved down so that the orange and yellow marks are lined up. It is moved up to the red mark when running 16oz cans.

It is important that the minor flap plow hits down low, (or up high. Low is better since the bottom of the carton is always the bottom of the carton regardless of how tall the carton is. If the tucker is up high, the height has to be changed when going from 12oz to 16oz cartons), and hit as close to the outside edge of the carton, (or as far away from the hinge), as possible to prevent the front and rear end walls from paneling, (collapsing in, or out, because the flap did not fold on the score, but buckled the end wall).



Figure 144A – C#19A - Carton Tipping Plow

The carton tipping plow is used to lift the non-load side of the carton and force the carton towards the wedge conveyor. This will cause the bottom of the carton to lower down under the wedge conveyor which takes away the tripping hazard for can coming into the carton. It should be as high as it can without hitting the top flap and be moved towards the carton enough to make the carton hesitate as it moves past the plow. Since the overhead guide is 1/8" higher than the top of the carton there is room for this slight carton "rotation".



Figure 145 - C #20-A – Glue Gun Locking Handle and Scale

The glue guns should not need to be moved as long as all cartons are the same style. The top nozzle may need to be rotated in order to get high enough on a 19.2oz carton. We try to aim the glue so the top glue is near the top of a 12oz carton. When running 16oz cartons this same glue position will be closer to the center but still in a good location for gluing the minor flaps to the top major flap.

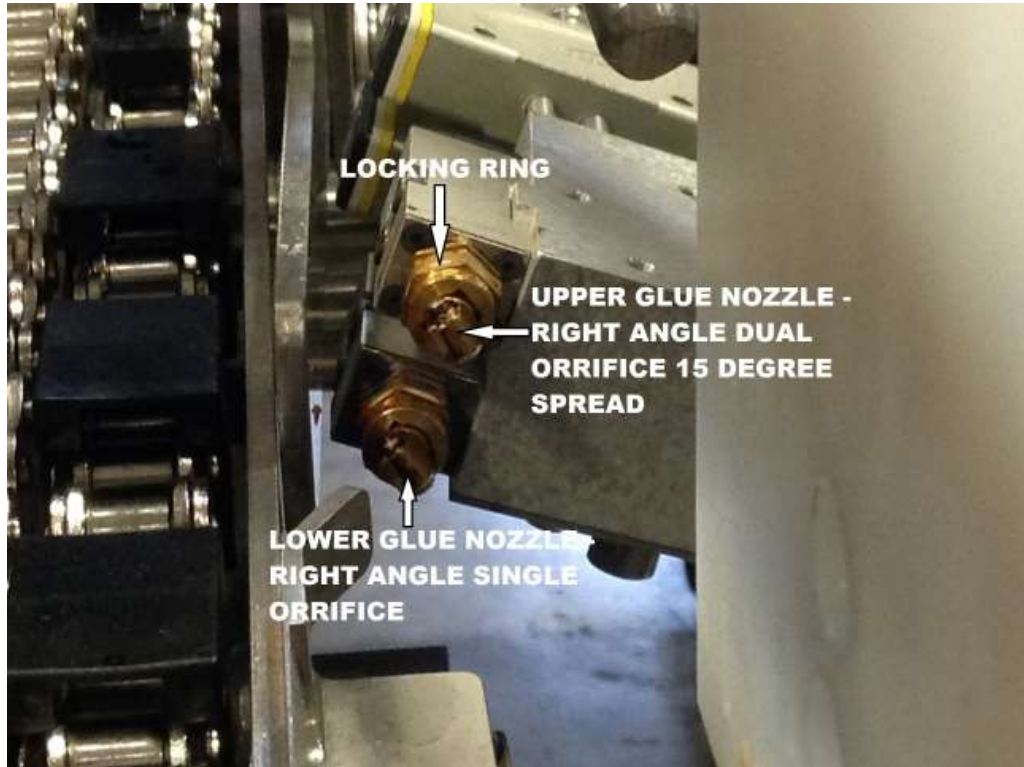


Figure 146 - C #20-B – Glue Nozzles

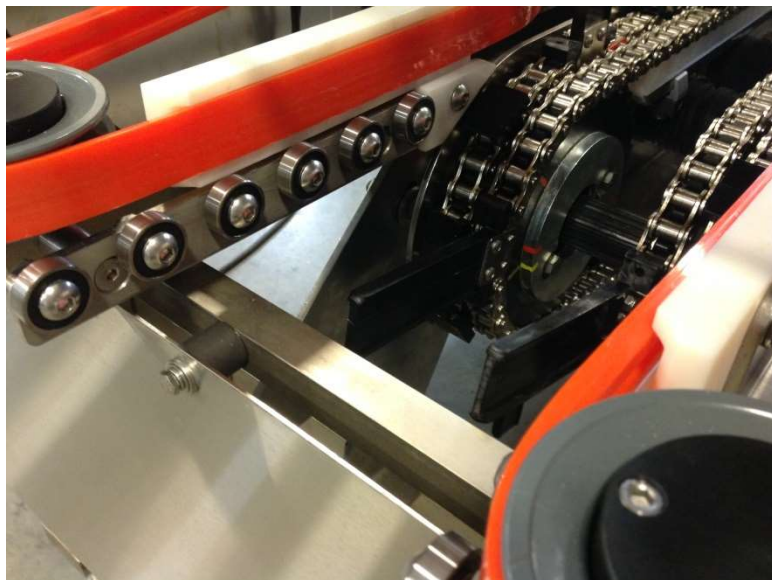


Figure 147 - Discharge Rollers and Speed Up Belts

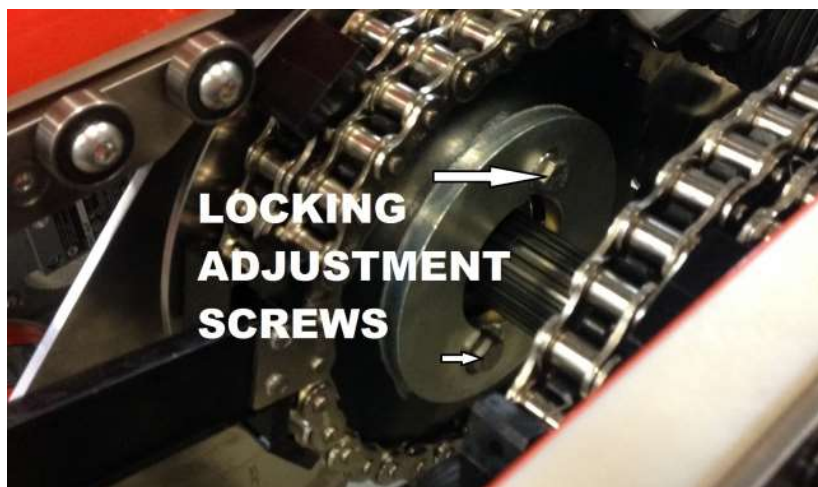


Figure 148 - C - #20-B - Flight Lug Adjustment Bolts

The distance between the lugs and chains will both need to be changed when going from 4/6 pack to 12/18, slim/sleek, and back. The first step when changing the flight lugs is to loosen the bolts shown in Figure 149. This will allow the entire lug chain to be moved for a different carton size. The inside chains are the only chains to be moved during a setup. The outside chains are the "Master" chains and they should almost never be moved. They are timed to the erector and the loader so very careful thought should be given before the outside chains are moved. The inside chains are moved during every product change to a different number of rows of cans. When the two bolts are loose the entire chain may be moved. The easiest place to move the chain is at the radius on either end. The lugs should be moved until a carton placed in between them has about 1/16" movement at the bottom of the lug. When both inside chains match position, tighten the bolts in Figure C-#17 by snugging all of the bolts first and then going around and making them progressively tighter until they are as tight as they need to be.



Figure 149 - C - #21 - Change to New Program

The last item is to change the menu to run either 4, 6, or 12 packs. The machine must be in TEST mode and have control power in order to change recipes.

Run 1 carton at a time until you are confident in the behavior of the product going through the machine. Once you are confident go into full automatic.

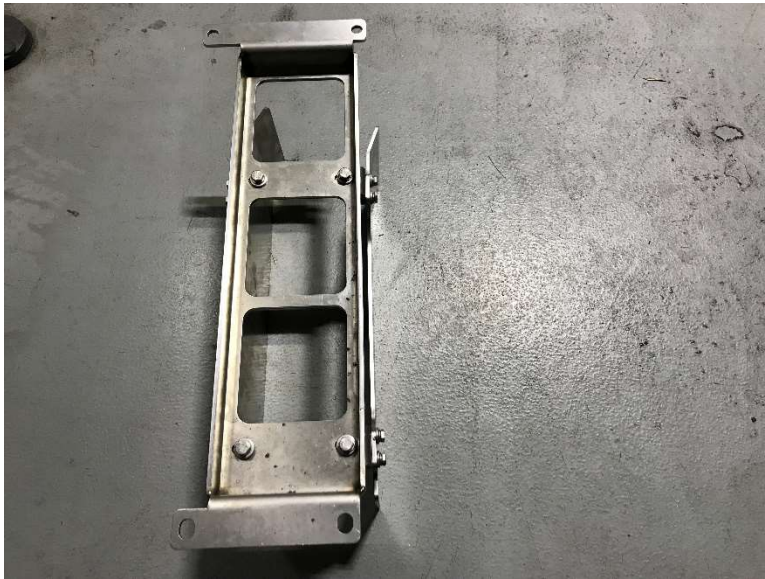


Figure 150 - Pass Thru Rails



Figure 151 - Rail Change Out Location

The non pass thru rails are shown in the photo directly above. When removing the standard rails a 7/16" wrench is needed to remove the fastener holding the rails down. The rails are then lifted straight up until they clear the locating pins, (one at each corner of the rail assembly). When the pass thru rail assembly is installed it is not necessary to use the hold down fastener since there is no force applied to the rails. They are only keeping the cans in line.

CHANGEOVER CHECKLIST

1. Move the infeed conveyor spring loaded guide for most effective operation.
2. Move the adjustable infeed lane guide to select the appropriate number of lanes.
3. Move the infeed lanes too full sensor down for 12oz or up for 16oz cans,
4. Change out the non- load side flap tucker assembly if necessary.
5. Change infeed lane divider spacers and gate cartridge if necessary
6. Change bucket conveyor wedges from 3 cans wide to 2 cans wide if necessary.
7. Change can pusher push plate if necessary.
8. Adjust top guide clips - only the left two clips to the scale dimensions
9. Adjust magazine front guide – odometer setting.
10. Adjust magazine back guide – odometer setting.
11. Adjust magazine top guide – only necessary when going between 16oz and 12oz.
12. Adjust magazine deck – go to odometer setting.
13. Raise or lower erector housing position if moving between 12 and 16oz cans.
14. Move strongbacks to appropriate odometer setting. **REMEMBER TO UNLOCK THE STOP POSITION**
COMPRESSION PLATES. Remove/Install center can support plate before moving the strongback.
15. Move the nose bars/overhead guides to the new “width” and vertical positions.
16. Move the nose bars to the new “stick out” position.
17. Enable or disable the second and/or third pick arm vacuum selector hand valve.
18. Raise/lower top flap plows on front side including carton tip plow if moving to different height cans.
19. Raise or lower top flap plows on rear side if moving between 12 an 16oz cans.
20. Rotate top gun glue nozzle if necessary.
21. Move flight lug position if moving between 4/6 packs and 12 packs.
22. Change the program to the new program.
The machine must have control power and be in TEST mode in order to change the recipe. To changing the recipe touch the RECIPE button on the button bar at the side of the screen. Using the arrows next to the recipe name, scroll to the desired recipe. Touch the USE button on the button bar. It should turn yellow and read IN USE. If it does not turn yellow the machine either does not have control power or be in TEST mode
23. Make slight adjustments to the rotary flap tuckers if necessary. When moving from 12oz to 16oz (or 16 to 12), it is sometimes necessary to make a very small adjustment to the flap tucker rotational position.

OBSERVATION ITEMS



Figure 152 – Vacuum Pick Arms, (stock photo)

The Vacuum pick arms should be located so that it is not necessary to move them. Be careful not to run an airline from the “A” fitting to the “B” fitting as this will allow air to leak through and will cause many confusing issues. The distance between the top edge of the vacuum cup and the score of the blank should be the same as the distance from the back of the vacuum cup and the front edge of the outside, (pushing), flight lugs. This distance is changeable by moving the magazine deck and top guide up or down.



Figure 153 – Pre-Break Vacuum Cups, (stock photo)

The vacuum pre-break vacuum cups need to be moved to a position to allow it to “fluff” the blank as it is being erected. It is important to make certain that the pick and prebreak vacuum cups are offset from each other, Figure (153). If they are inline they will fail to open the carton. The carton should also only be opened to about 15 degrees. If it is opened too far the blank will rebound and come to a closed condition as the blank reaches the breaker bars. This will often cause the blank to “L” clip, (form the shape of a reverse, upside down L), instead of opening.

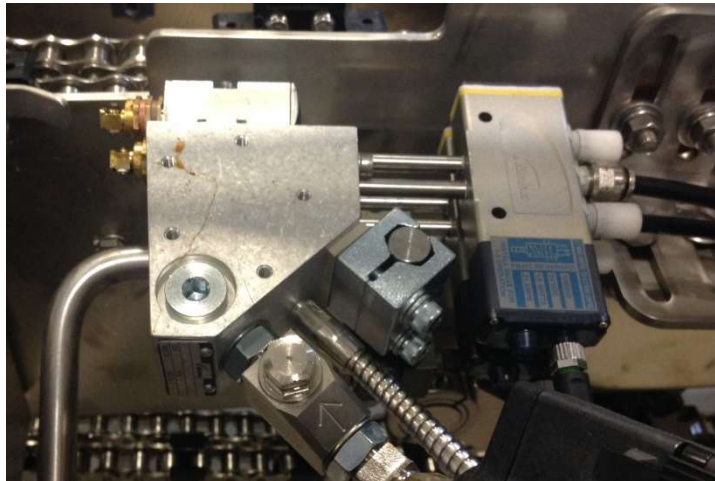


Figure 154 - Glue Gun Position

The glue guns are mounted down low enough so that the top glue on the trailing minor flap can still shoot under the top major flap as it is being folded down. The guns should be mounted as close to the carton as practical, (mounting them too close does not allow enough spread between the dots of glue from the top gun which has a dual orifice nozzle). There are several swivel points on the mounting brackets, (Figure 102), to allow for custom positioning of the glue guns. The nozzles also rotate, (Figure 154), to get spread between the bottom and top glue shots. To move them loosen the locking ring, rotate the nozzle using a small flat blade screwdriver and tighten the locking ring. The nozzle will rotate a little when tightening the locking ring. The front nozzles should be set a little low and “tightened up”. The rear nozzles should be set a little high and “tightened down”.

The glue is usually going to take several cartons before it is set properly. Pivoting the glue head will get the most “bang for the buck”. A vertical height change of $\frac{1}{2}$ ” will change the pattern by $\frac{1}{2}$ ”. Rotating the glue head $\frac{3}{16}$ ” may give the same $\frac{1}{2}$ ”. Moving the glue head and observing the pattern, then moving again until the desired position is reached will get easier with a little practice.

Run 1 carton at a time until you are confident in the behavior of the product going through the machine. Once you are confident go into full automatic.

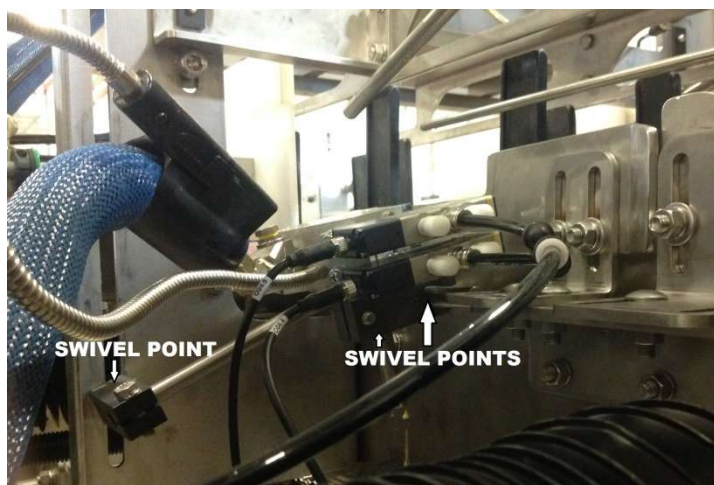


Figure 155 - Glue Gun Mounting Bracket Swivel Points, (stock photo)

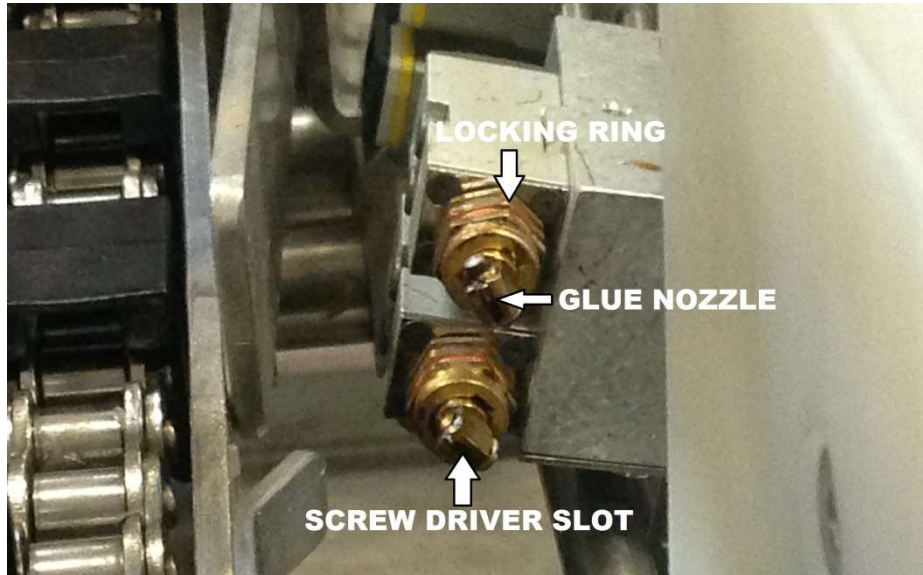


Figure 156 - Glue Nozzles

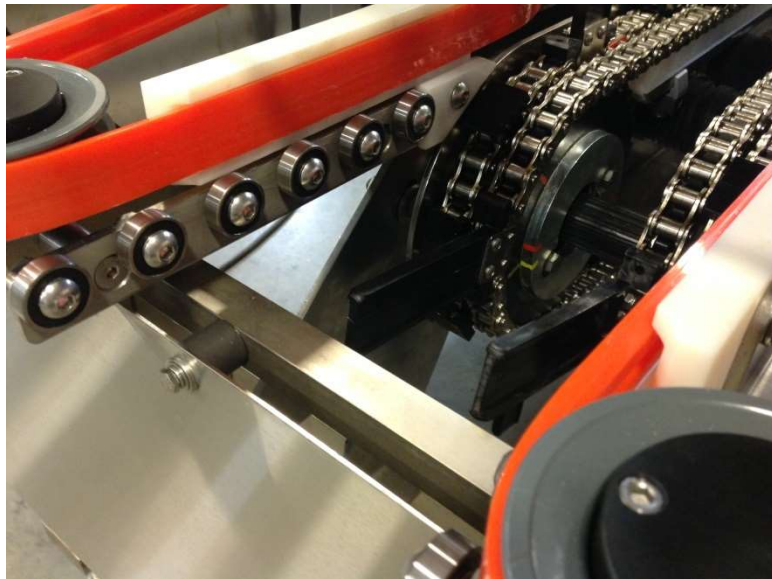


Figure 157 – Discharge Rollers and Speed Up Belts

The speed up belts accelerate the carton so the upstream lugs don't damage the carton as they rotate around the drive sprockets. The center support plates, (White plastic parts in Figure 157), have a slotted mounting bracket and can be moved closer to, or farther away from the carton. If they are set too loose the carton will not be pulled away from the flight lugs and the carton may be damaged. If they are set too tight, the carton will stall the belts and cause the clutch to kick out when the flight chains index.



Figure 158 – Machine Zero

Mechanical zero is when the upstream, (outside, pusher), lugs are lined up with the downstream edge of the zero plaque as shown in Figure 158. This is the mechanical location at which zero will be set if electrical zero somehow gets lost.



Figure 159 – Stacklight

The stacklight has 3 colors and an audible alarm. Red indicates an alarm, or lack of power. When a red light is present it is necessary to take some action to remove the alarm condition. It may be to remove a jam and reset the clutch, press the reset button to acknowledge a fault, press the reset button to reset the Master Control Relay, etc. A yellow light indicates an warning. Typical warnings are; glue low, Magazine low, discharge too full, infeed too full, infeed low, etc. A green light indicates that the machine is running in automatic mode.

INITIAL SETTINGS



Figure 160 – Original Settings Recipe #1 Infeed Data



Figure 161 – Original Settings Recipe #1 Erector/Flight Data



Figure 162 – Original Settings Recipe #1 Glue Data

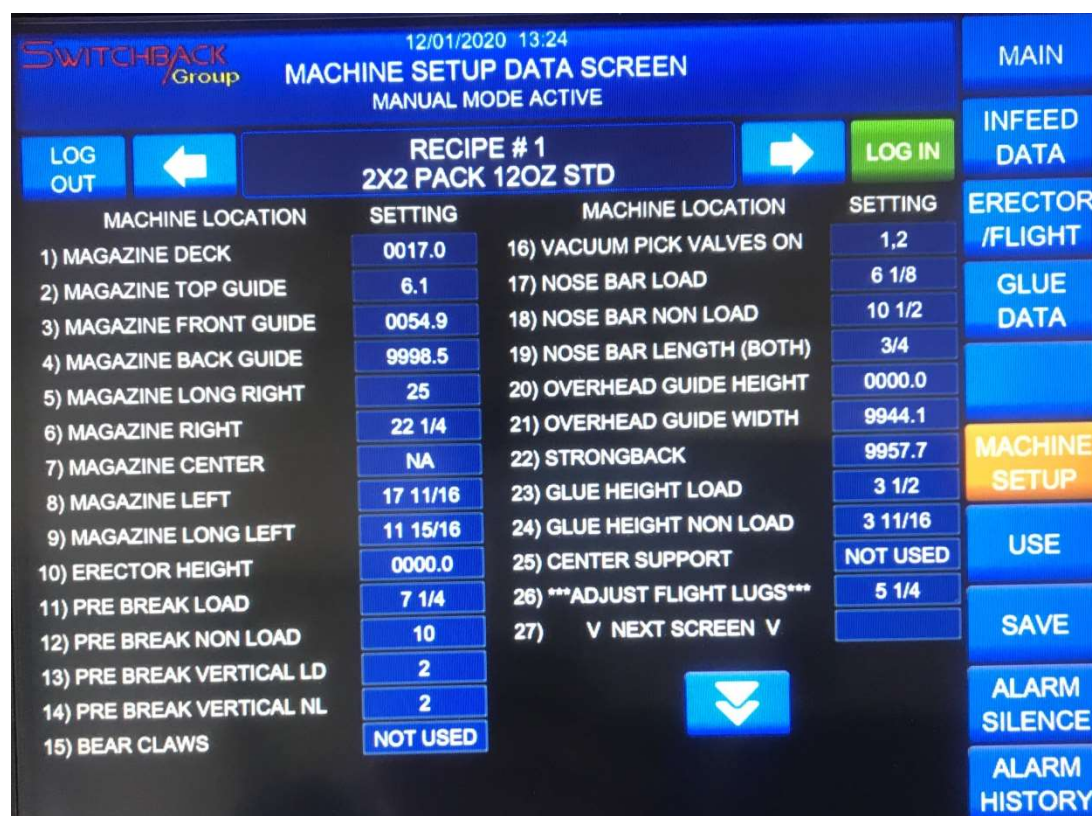


Figure 163 – Original Settings Recipe #1 Setup Data Page 1

12/01/2020 13:24
SWITCHBACK Group
MACHINE SETUP DATA SCREEN
 MANUAL MODE ACTIVE

LOG OUT ← **RECIPE # 1** → LOG IN

2X2 PACK 12OZ STD

MACHINE LOCATION	SETTING	MACHINE LOCATION	SETTING
		40)	
		41)	
		42)	
28) ^ PREVIOUS SCREEN ^		43)	
29) INFEED		44)	
30) LANE SPACERS	STD	45)	
31) LANES USED	2	46)	
32) INFEED FULL SENSOR HT	12oz STD	47)	
33) ANTI-TIP HT UPSTREAM	12oz STD	48)	
34) ANTI-TIP HT DOWNSTREAM	12oz STD	49)	
35) ESCAPEMENT	STD	50)	
36) WEDGES	2ROW STD	51)	
37) PUSHER PLATE	2ROW STD	52)	
38) **ADJUST LANE SENSORS**		53)	
39) BYPASS INSERT	NOT USED	54)	

MAIN
 INFEED DATA
 ERECTOR / FLIGHT
 GLUE DATA
MACHINE SETUP
 USE
 SAVE
 ALARM SILENCE
 ALARM HISTORY

Figure 164 – Original Settings Recipe #1 Setup Data Page 2

12/01/2020 13:24
SWITCHBACK Group
INFEED DATA SCREEN
 MANUAL MODE ACTIVE

LOG OUT ← **RECIPE # 2** → LOG IN

2X3 PACK 12OZ STD

INFEED CONVEYORS

INFD PRIME	40 Hz	RECIRCULTN	30 Hz
INFD RUN	40 Hz	BYPASS	0 Hz
INFD PURGE	40 Hz		

INFEED GATES

	OPEN	CLOSE	OPEN	CLOSE	FLIGHT
● LANE 1	9.30 "	7.00 "	5 CRTN	5 CRTN	6.00 "
● LANE 2	3.50 "	1.70 "	5 CRTN	5 CRTN	
● LANE 3	10.40 "	8.10 "	4 CRTN	4 CRTN	
● LANE 4	0.00 "	0.00 "	4 CRTN	4 CRTN	
● LANE 5	0.00 "	0.00 "	3 CRTN	3 CRTN	

MAIN
 INFEED DATA
 ERECTOR / FLIGHT
 GLUE DATA
MACHINE SETUP
 USE
 SAVE
 ALARM SILENCE
 ALARM HISTORY

Figure 165 – Original Settings Recipe #2 Infeed Data

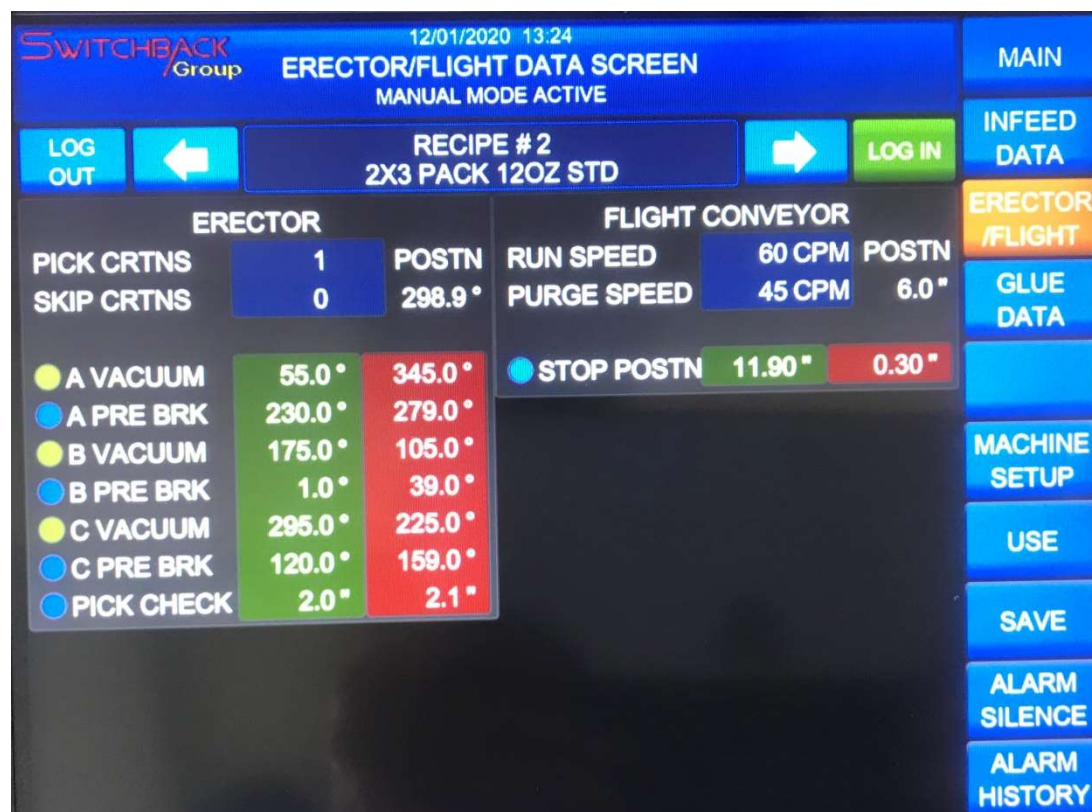


Figure 166 – Original Settings Recipe #2 Erector/Flight Data



Figure 167 – Original Settings Recipe #2 Glue Data

12/01/2020 13:25
SWITCHBACK Group
MACHINE SETUP DATA SCREEN
 MANUAL MODE ACTIVE

LOG OUT ← **RECIPE # 2** → LOG IN
2X3 PACK 12OZ STD

MACHINE LOCATION	SETTING	MACHINE LOCATION	SETTING
1) MAGAZINE DECK	20.1	16) VACUUM PICK VALVES ON	1, 2, 3
2) MAGAZINE TOP GUIDE	0000.0	17) NOSE BAR LOAD	6 1/8
3) MAGAZINE FRONT GUIDE	25.2	18) NOSE BAR NON LOAD	13 3/8
4) MAGAZINE BACK GUIDE	0000.0	19) NOSE BAR LENGTH (BOTH)	1/8
5) MAGAZINE LONG RIGHT	24 3/4	20) OVERHEAD GUIDE HEIGHT	0000.0
6) MAGAZINE RIGHT	19	21) OVERHEAD GUIDE WIDTH	9975.9
7) MAGAZINE CENTER	NA	22) STRONGBACK	9979.5
8) MAGAZINE LEFT	14 5/8	23) GLUE HEIGHT LOAD	3 13/16
9) MAGAZINE LONG LEFT	10 1/8	24) GLUE HEIGHT NON LOAD	3 13/16
10) ERECTOR HEIGHT	0000.0	25) CENTER SUPPORT	NOT USED
11) PRE BREAK LOAD	8 1/2	26) ***ADJUST FLIGHT LUGS***	5 3/16
12) PRE BREAK NON LOAD	11 1/4	27) V NEXT SCREEN V	
13) PRE BREAK VERTICAL LD	2 3/8		
14) PRE BREAK VERTICAL NL	2 3/8		
15) BEAR CLAWS	NOT USED		

MAIN
 INFEEED DATA
 ERECTOR /FLIGHT
 GLUE DATA
MACHINE SETUP
 USE
 SAVE
 ALARM SILENCE
 ALARM HISTORY

Figure 168 – Original Settings Recipe #2 Setup Data Page 1

12/01/2020 13:25
SWITCHBACK Group
MACHINE SETUP DATA SCREEN
 MANUAL MODE ACTIVE

LOG OUT ← **RECIPE # 2** → LOG IN
2X3 PACK 12OZ STD

MACHINE LOCATION	SETTING	MACHINE LOCATION	SETTING
28) ^ PREVIOUS SCREEN ^		40)	
29) INFEEED		41)	
30) LANE SPACERS	STD	42)	
31) LANES USED	3	43)	
32) INFEEED FULL SENSOR HT	12oz STD	44)	
33) ANTI-TIP HT UPSTREAM	12oz STD	45)	
34) ANTI-TIP HT DOWNSTREAM	12oz STD	46)	
35) ESCAPEMENT	STD	47)	
36) WEDGES	2ROW STD	48)	
37) PUSHER PLATE	2ROW STD	49)	
38) **ADJUST LANE SENSORS**		50)	
39) BYPASS INSERT	NOT USED	51)	
		52)	
		53)	
		54)	

MAIN
 INFEEED DATA
 ERECTOR /FLIGHT
 GLUE DATA
MACHINE SETUP
 USE
 SAVE
 ALARM SILENCE
 ALARM HISTORY

Figure 169 – Original Settings Recipe #2 Setup Data Page 2

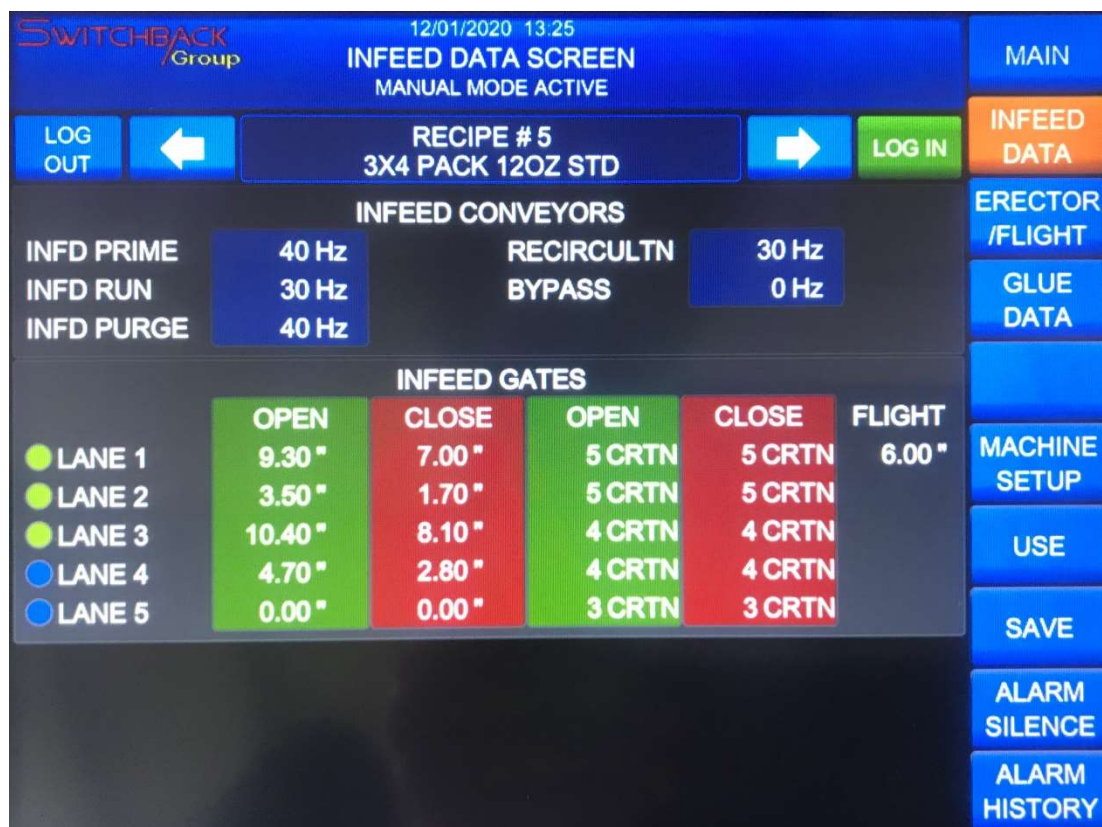


Figure 170 – Original Settings Recipe #5 Infeed Data



Figure 171 – Original Settings Recipe #5 Erector/Flight Data

12/01/2020 13:25
GLUE DATA SCREEN
 MANUAL MODE ACTIVE

LOG OUT ← **RECIPE # 5** → LOG IN
 3X4 PACK 12OZ STD

	ON	OFF	ON	OFF
● UPPER FRONT	2.50 "	3.00 "	8.70 "	9.30 "
● UPPER REAR	2.50 "	3.00 "	8.80 "	9.40 "
STITCH	0.00 s	0.00 s		
● LOWER FRONT	2.60 "	9.30 "	0.00 "	0.00 "
● LOWER REAR	2.60 "	9.30 "	0.00 "	0.00 "
STITCH	0.05 s	0.11 s		
● TOP FRONT	0.00 "	0.00 "	0.00 "	0.00 "
● TOP REAR	0.00 "	0.00 "	0.00 "	0.00 "
STITCH	0.00 s	0.00 s		
● COMPRESSN	2.50 s			

MAIN
 INFED DATA
 ERECTOR /FLIGHT
GLUE DATA
 MACHINE SETUP
 USE
 SAVE
 ALARM SILENCE
 ALARM HISTORY

Figure 172 – Original Settings Recipe #5 Glue Data

12/01/2020 13:25
MACHINE SETUP DATA SCREEN
 MANUAL MODE ACTIVE

LOG OUT ← **RECIPE # 5** → LOG IN
 3X4 PACK 12OZ STD

MACHINE LOCATION	SETTING	MACHINE LOCATION	SETTING
1) MAGAZINE DECK	0000.0	16) VACUUM PICK VALVES ON	1, 2, 3
2) MAGAZINE TOP GUIDE	0000.0	17) NOSE BAR LOAD	6 1/8
3) MAGAZINE FRONT GUIDE	0000.0	18) NOSE BAR NON LOAD	15 5/8
4) MAGAZINE BACK GUIDE	0000.0	19) NOSE BAR LENGTH (BOTH)	2 3/4
5) MAGAZINE LONG RIGHT	24 3/4	20) OVERHEAD GUIDE HEIGHT	0000.0
6) MAGAZINE RIGHT	19	21) OVERHEAD GUIDE WIDTH	0000.0
7) MAGAZINE CENTER	NA	22) STRONGBACK	0000.0
8) MAGAZINE LEFT	14 5/8	23) GLUE HEIGHT LOAD	3 13/16
9) MAGAZINE LONG LEFT	7	24) GLUE HEIGHT NON LOAD	3 15/16
10) ERECTOR HEIGHT	0000.0	25) CENTER SUPPORT	USED
11) PRE BREAK LOAD	8 1/2	26) ***ADJUST FLIGHT LUGS***	8
12) PRE BREAK NON LOAD	11 1/8	27) V NEXT SCREEN V	
13) PRE BREAK VERTICAL LD	1/2		
14) PRE BREAK VERTICAL NL	1/2		
15) BEAR CLAWS	1 inch		

MAIN
 INFED DATA
 ERECTOR /FLIGHT
 GLUE DATA
MACHINE SETUP
 USE
 SAVE
 ALARM SILENCE
 ALARM HISTORY

Figure 173 – Original Settings Recipe #5 Setup Data Page 1

12/01/2020 13:25
SWITCHBACK Group
MACHINE SETUP DATA SCREEN
 MANUAL MODE ACTIVE

LOG OUT ← **RECIPE # 5** → LOG IN

3X4 PACK 12OZ STD

MACHINE LOCATION	SETTING	MACHINE LOCATION	SETTING
28) ^ PREVIOUS SCREEN ^		40)	
29) INFEED		41)	
30) LANE SPACERS	STD	42)	
31) LANES USED	4	43)	
32) INFEED FULL SENSOR HT	12oz STD	44)	
33) ANTI-TIP HT UPSTREAM	12oz STD	45)	
34) ANTI-TIP HT DOWNSTREAM	12oz STD	46)	
35) ESCAPEMENT	STD	47)	
36) WEDGES	3ROW STD	48)	
37) PUSHER PLATE	3ROW STD	49)	
38) **ADJUST LANE SENSORS**		50)	
39) BYPASS INSERT	NOT USED	51)	
		52)	
		53)	
		54)	

MAIN
 INFEED DATA
 ERECTOR /FLIGHT
 GLUE DATA
MACHINE SETUP
 USE
 SAVE
 ALARM SILENCE
 ALARM HISTORY

Figure 174 – Original Settings Recipe #5 Setup Data Page 2

12/01/2020 13:26
SWITCHBACK Group
INFEED DATA SCREEN
 MANUAL MODE ACTIVE

LOG OUT ← **RECIPE # 8** → LOG IN

2X2 PACK 16OZ STD

INFEED CONVEYORS

INFD PRIME	43 Hz	RECIRCULTN	30 Hz
INFD RUN	43 Hz	BYPASS	0 Hz
INFD PURGE	60 Hz		

INFEED GATES

	OPEN	CLOSE	OPEN	CLOSE	FLIGHT
● LANE 1	9.30 "	7.00 "	5 CRTN	5 CRTN	6.00 "
● LANE 2	3.50 "	1.70 "	5 CRTN	5 CRTN	
● LANE 3	0.00 "	0.00 "	4 CRTN	4 CRTN	
● LANE 4	0.00 "	0.00 "	4 CRTN	4 CRTN	
● LANE 5	0.00 "	0.00 "	3 CRTN	3 CRTN	

MAIN
 INFEED DATA
 ERECTOR /FLIGHT
 GLUE DATA
MACHINE SETUP
 USE
 SAVE
 ALARM SILENCE
 ALARM HISTORY

Figure 175 – Original Settings Recipe #8 Infeed Data

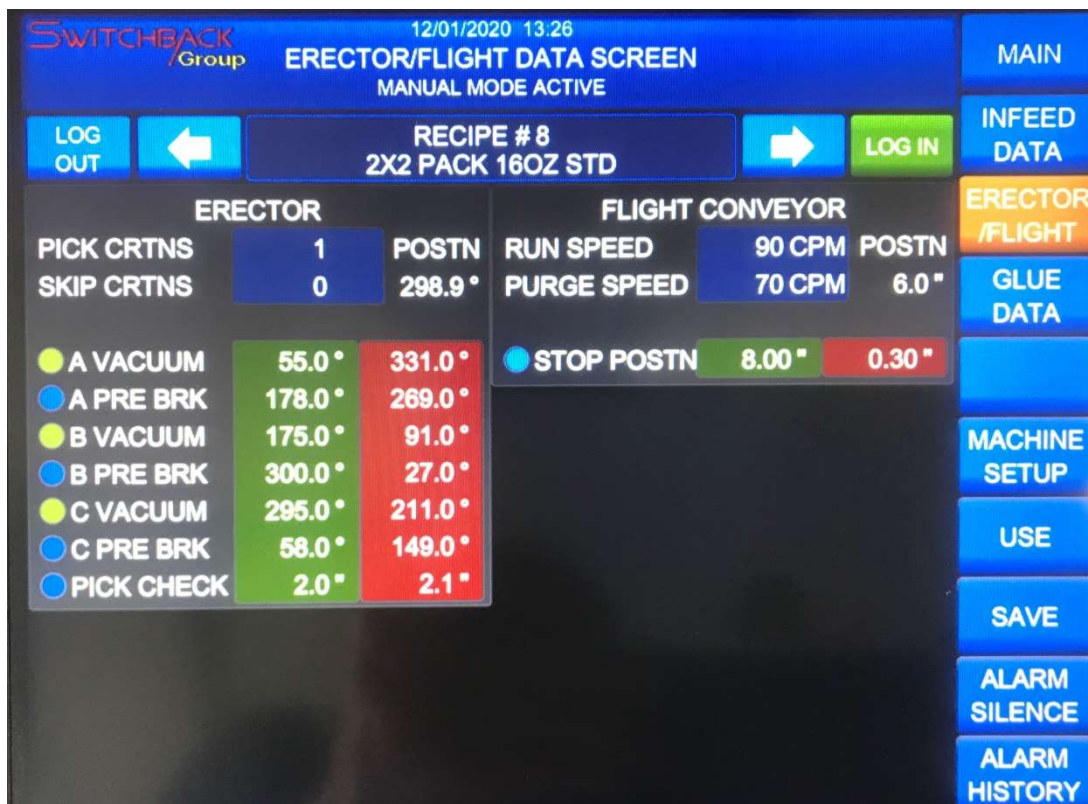


Figure 176 – Original Settings Recipe #8 Erector/Flight Data

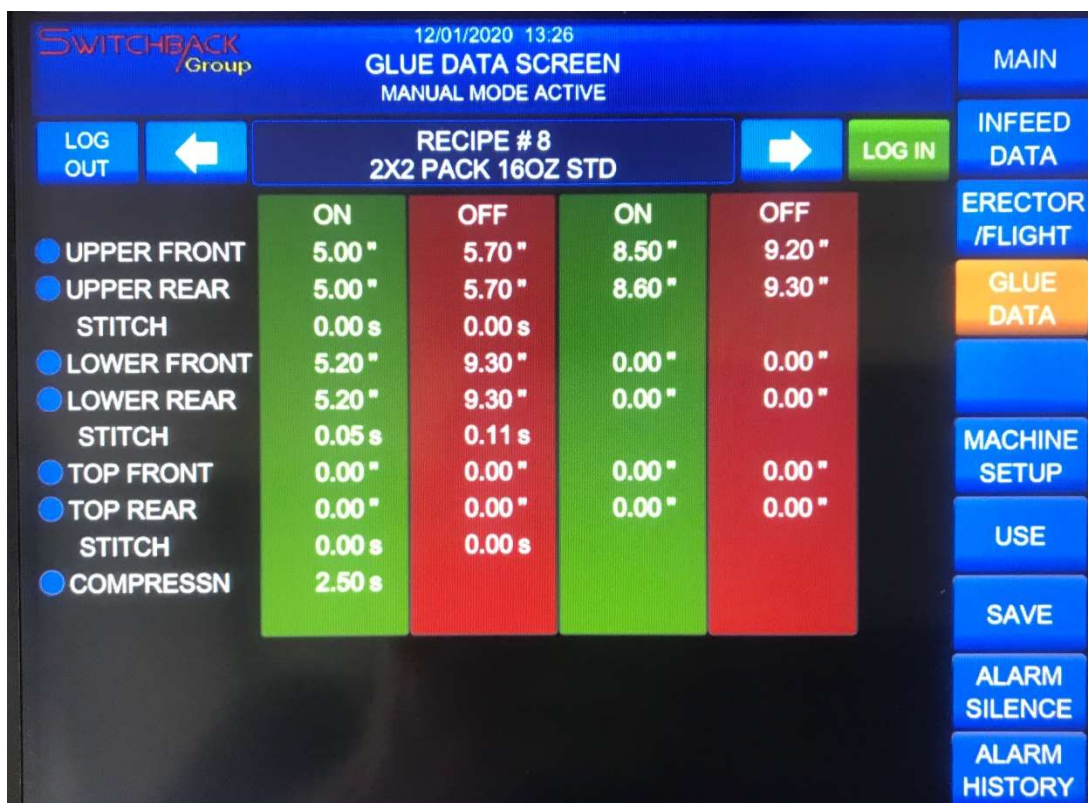


Figure 177 – Original Settings Recipe #8 Glue Data

12/01/2020 13:26
SWITCHBACK Group
MACHINE SETUP DATA SCREEN
 MANUAL MODE ACTIVE

LOG OUT ← **RECIPE # 8** → LOG IN
2X2 PACK 16OZ STD

MACHINE LOCATION	SETTING	MACHINE LOCATION	SETTING
1) MAGAZINE DECK	0017.0	16) VACUUM PICK VALVES ON	1, 2
2) MAGAZINE TOP GUIDE	9991.9	17) NOSE BAR LOAD	6 1/8
3) MAGAZINE FRONT GUIDE	0040.7	18) NOSE BAR NON LOAD	9 1/4
4) MAGAZINE BACK GUIDE	9983.3	19) NOSE BAR LENGTH (BOTH)	1 1/4
5) MAGAZINE LONG RIGHT	25	20) OVERHEAD GUIDE HEIGHT	0054.0
6) MAGAZINE RIGHT	22 1/4	21) OVERHEAD GUIDE WIDTH	9944.1
7) MAGAZINE CENTER	NA	22) STRONGBACK	9957.7
8) MAGAZINE LEFT	17 3/4	23) GLUE HEIGHT LOAD	3 1/2
9) MAGAZINE LONG LEFT	11 3/4	24) GLUE HEIGHT NON LOAD	3 11/16
10) ERECTOR HEIGHT	0030.1	25) CENTER SUPPORT	NOT USED
11) PRE BREAK LOAD	7 1/4	26) ***ADJUST FLIGHT LUGS***	5 1/4
12) PRE BREAK NON LOAD	10	27) V NEXT SCREEN V	
13) PRE BREAK VERTICAL LD	5/8		
14) PRE BREAK VERTICAL NL	5/8		
15) BEAR CLAWS	NOT USED		

MAIN
 INFED DATA
 ERECTOR /FLIGHT
 GLUE DATA
MACHINE SETUP
 USE
 SAVE
 ALARM SILENCE
 ALARM HISTORY

Figure 178 – Original Settings Recipe #8 Setup Data Page 1

12/01/2020 13:26
SWITCHBACK Group
MACHINE SETUP DATA SCREEN
 MANUAL MODE ACTIVE

LOG OUT ← **RECIPE # 8** → LOG IN
2X2 PACK 16OZ STD

MACHINE LOCATION	SETTING	MACHINE LOCATION	SETTING
		40)	
		41)	
		42)	
28) ^ PREVIOUS SCREEN ^		43)	
29) INFED		44)	
30) LANE SPACERS	STD	45)	
31) LANES USED	2	46)	
32) INFED FULL SENSOR HT	16oz STD	47)	
33) ANTI-TIP HT UPSTREAM	16oz STD	48)	
34) ANTI-TIP HT DOWNSTREAM	16oz STD	49)	
35) ESCAPEMENT	STD	50)	
36) WEDGES	2ROW STD	51)	
37) PUSHER PLATE	2ROW STD	52)	
38) **ADJUST LANE SENSORS**		53)	
39) BYPASS INSERT	NOT USED	54)	

MAIN
 INFED DATA
 ERECTOR /FLIGHT
 GLUE DATA
MACHINE SETUP
 USE
 SAVE
 ALARM SILENCE
 ALARM HISTORY

Figure 179 – Original Settings Recipe #8 Setup Data Page 2



Figure 180 – Original Settings Recipe #9 Infeed Data

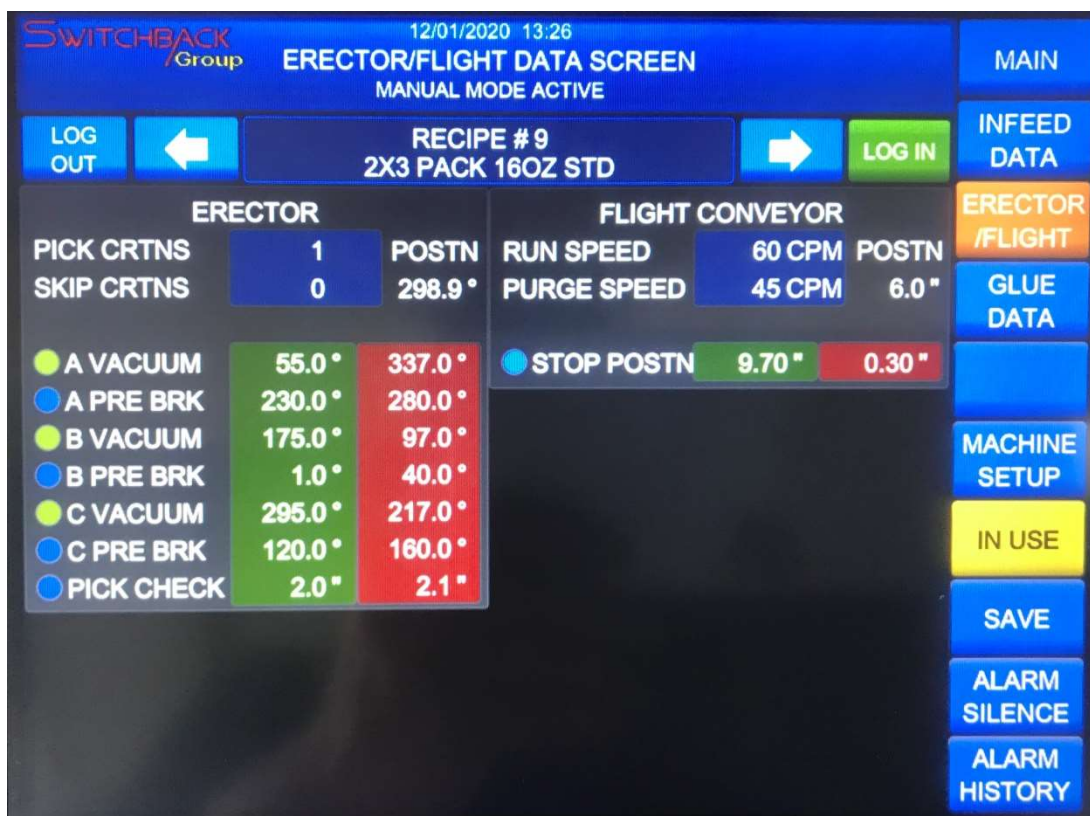


Figure 181 – Original Settings Recipe #9 Erector/Flight Data



Figure 182 – Original Settings Recipe #9 Glue Data



Figure 183 – Original Settings Recipe #9 Setup Data Page 1

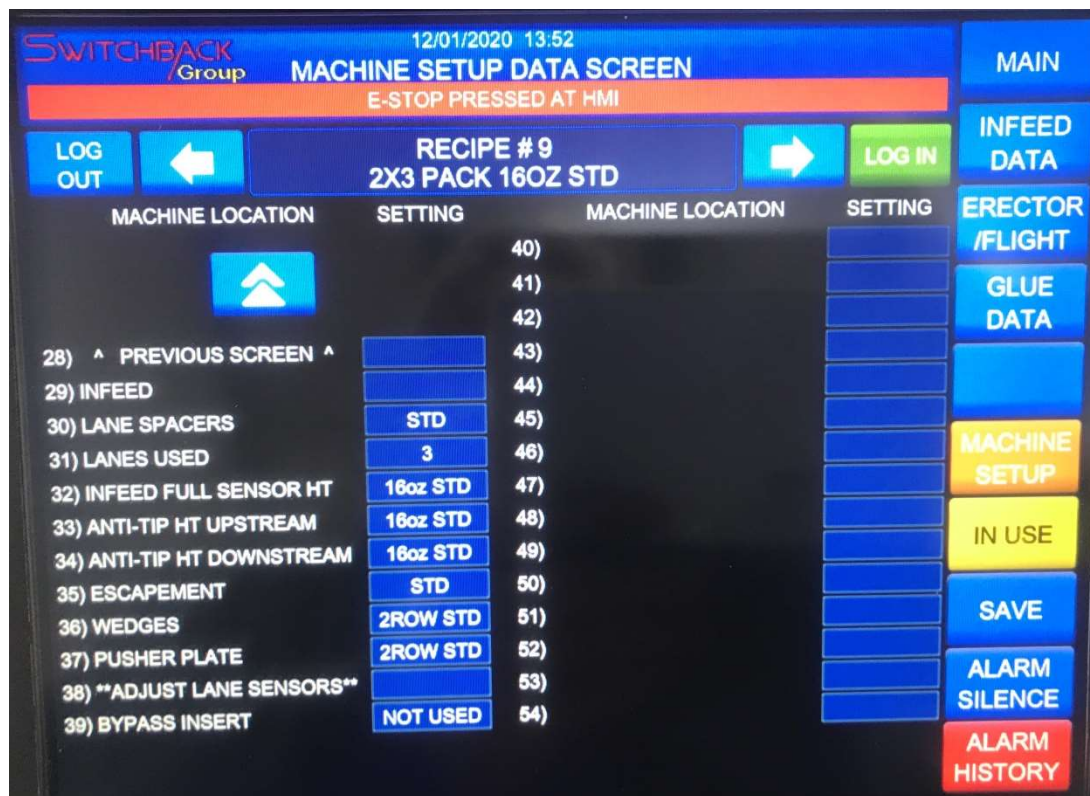


Figure 184 – Original Settings Recipe #9 Setup Data Page 2

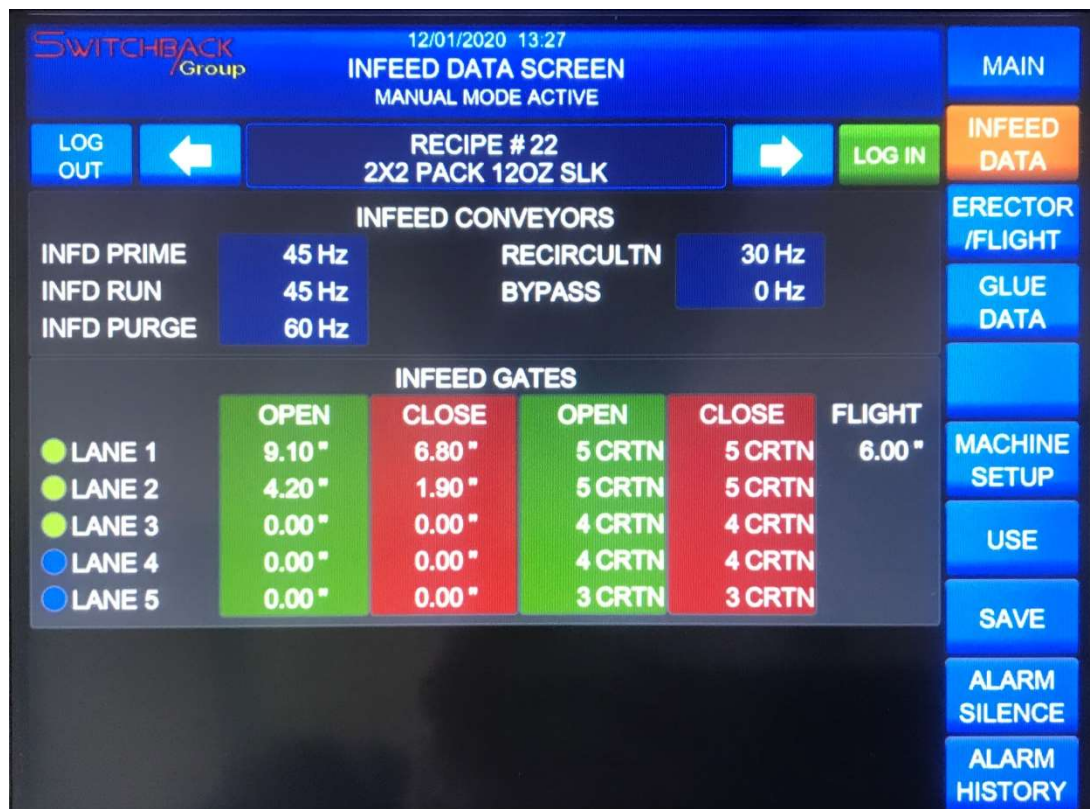


Figure 185 – Original Settings Recipe #22 Infeed Data



Figure 186 – Original Settings Recipe #22 Erector/Flight Data



Figure 187 – Original Settings Recipe #22 Glue Data

12/01/2020 13:27
SWITCHBACK Group
MACHINE SETUP DATA SCREEN
 MANUAL MODE ACTIVE

LOG OUT ← **RECIPE # 22** → LOG IN

2X2 PACK 12OZ SLK

MACHINE LOCATION	SETTING	MACHINE LOCATION	SETTING
1) MAGAZINE DECK	0021.3	16) VACUUM PICK VALVES ON	1,2
2) MAGAZINE TOP GUIDE	9993.3	17) NOSE BAR LOAD	6 1/8
3) MAGAZINE FRONT GUIDE	9989.7	18) NOSE BAR NON LOAD	10 1/2
4) MAGAZINE BACK GUIDE	0045.0	19) NOSE BAR LENGTH (BOTH)	1/2
5) MAGAZINE LONG RIGHT	25	20) OVERHEAD GUIDE HEIGHT	0056.0
6) MAGAZINE RIGHT	22 1/4	21) OVERHEAD GUIDE WIDTH	9940.0
7) MAGAZINE CENTER	NA	22) STRONGBACK	9953.3
8) MAGAZINE LEFT	17 3/4	23) GLUE HEIGHT LOAD	3 1/2
9) MAGAZINE LONG LEFT	12 1/4	24) GLUE HEIGHT NON LOAD	3 11/16
10) ERECTOR HEIGHT	0031.5	25) CENTER SUPPORT	NOT USED
11) PRE BREAK LOAD	7 1/4	26) ***ADJUST FLIGHT LUGS***	4 5/8
12) PRE BREAK NON LOAD	10	27) V NEXT SCREEN V	
13) PRE BREAK VERTICAL LD	3/4		
14) PRE BREAK VERTICAL NL	3/4		
15) BEAR CLAWS	NOT USED		

MAIN

INFEED DATA

ERECTOR /FLIGHT

GLUE DATA

MACHINE SETUP

USE

SAVE

ALARM SILENCE

ALARM HISTORY

Figure 188 – Original Settings Recipe #22 Setup Data Page 1

12/01/2020 13:27
SWITCHBACK Group
MACHINE SETUP DATA SCREEN
 MANUAL MODE ACTIVE

LOG OUT ← **RECIPE # 22** → LOG IN

2X2 PACK 12OZ SLK

MACHINE LOCATION	SETTING	MACHINE LOCATION	SETTING
		40)	
		41)	
		42)	
28) ^ PREVIOUS SCREEN ^		43)	
29) INFEED		44)	
30) LANE SPACERS	SLK	45)	
31) LANES USED	2	46)	
32) INFEED FULL SENSOR HT	12oz SLK	47)	
33) ANTI-TIP HT UPSTREAM	12oz SLK	48)	
34) ANTI-TIP HT DOWNSTREAM	12oz SLK	49)	
35) ESCAPEMENT	SLK	50)	
36) WEDGES	2ROW SLK	51)	
37) PUSHER PLATE	2ROW SLK	52)	
38) **ADJUST LANE SENSORS**		53)	
39) BYPASS INSERT	NOT USED	54)	

MAIN

INFEED DATA

ERECTOR /FLIGHT

GLUE DATA

MACHINE SETUP

USE

SAVE

ALARM SILENCE

ALARM HISTORY

Figure 189 – Original Settings Recipe #22 Setup Data Page 2

12/01/2020 13:27
SWITCHBACK Group
INFED DATA SCREEN
 MANUAL MODE ACTIVE

LOG OUT ← **RECIPE # 23** 2X3 PACK 12OZ SLK → LOG IN

INFED CONVEYORS

INFD PRIME	30 Hz	RECIRCULTN	25 Hz
INFD RUN	33 Hz	BYPASS	0 Hz
INFD PURGE	40 Hz		

INFED GATES

	OPEN	CLOSE	OPEN	CLOSE	FLIGHT
● LANE 1	8.80 "	6.40 "	5 CRTN	5 CRTN	6.00 "
● LANE 2	3.90 "	2.10 "	5 CRTN	5 CRTN	
● LANE 3	11.10 "	8.70 "	4 CRTN	4 CRTN	
● LANE 4	0.00 "	0.00 "	4 CRTN	4 CRTN	
● LANE 5	0.00 "	0.00 "	3 CRTN	3 CRTN	

MAIN
 INFED DATA
 ERECTOR / FLIGHT
 GLUE DATA
 MACHINE SETUP
 USE
 SAVE
 ALARM SILENCE
 ALARM HISTORY

Figure 190 – Original Settings Recipe #23 Infeed Data

12/01/2020 13:27
SWITCHBACK Group
ERECTOR/FLIGHT DATA SCREEN
 MANUAL MODE ACTIVE

LOG OUT ← **RECIPE # 23** 2X3 PACK 12OZ SLK → LOG IN

ERECTOR

PICK CRTNS	1	POSTN	
SKIP CRTNS	0	298.9 °	

FLIGHT CONVEYOR

RUN SPEED	60 CPM	POSTN	
PURGE SPEED	45 CPM	6.0 "	
● STOP POSTN	10.00 "	1.00 "	

● A VACUUM 55.0 ° 337.0 °
 ● A PRE BRK 230.0 ° 278.0 °
 ● B VACUUM 175.0 ° 97.0 °
 ● B PRE BRK 1.0 ° 38.0 °
 ● C VACUUM 295.0 ° 217.0 °
 ● C PRE BRK 120.0 ° 154.0 °
 ● PICK CHECK 2.0 " 2.1 "

MAIN
 INFED DATA
 ERECTOR / FLIGHT
 GLUE DATA
 MACHINE SETUP
 USE
 SAVE
 ALARM SILENCE
 ALARM HISTORY

Figure 191 – Original Settings Recipe #23 Erector/Flight Data

12/01/2020 13:27
GLUE DATA SCREEN
 MANUAL MODE ACTIVE

LOG OUT ← RECIPE # 23 2X3 PACK 12OZ SLK → LOG IN

	ON	OFF	ON	OFF
● UPPER FRONT	5.80 "	6.30 "	8.30 "	9.20 "
● UPPER REAR	5.70 "	6.20 "	8.40 "	9.10 "
● STITCH	0.00 s	0.00 s		
● LOWER FRONT	5.60 "	9.30 "	0.00 "	0.00 "
● LOWER REAR	5.60 "	9.30 "	0.00 "	0.00 "
● STITCH	0.00 s	0.00 s		
● TOP FRONT	0.00 "	0.00 "	0.00 "	0.00 "
● TOP REAR	0.00 "	0.00 "	0.00 "	0.00 "
● STITCH	0.00 s	0.00 s		
● COMPRESSN	2.50 s			

MAIN
 INFED DATA
 ERECTOR / FLIGHT
 GLUE DATA
 MACHINE SETUP
 USE
 SAVE
 ALARM SILENCE
 ALARM HISTORY

Figure 192 – Original Settings Recipe #23 Glue Data

12/01/2020 13:27
MACHINE SETUP DATA SCREEN
 MANUAL MODE ACTIVE

LOG OUT ← RECIPE # 23 2X3 PACK 12OZ SLK → LOG IN

MACHINE LOCATION	SETTING	MACHINE LOCATION	SETTING
1) MAGAZINE DECK	0020.5	16) VACUUM PICK VALVES ON	1, 2, 3
2) MAGAZINE TOP GUIDE	9994.5	17) NOSE BAR LOAD	6"
3) MAGAZINE FRONT GUIDE	0023.8	18) NOSE BAR NON LOAD	10-3/4
4) MAGAZINE BACK GUIDE	9985.6	19) NOSE BAR LENGTH (BOTH)	0
5) MAGAZINE LONG RIGHT	24-1/2	20) OVERHEAD GUIDE HEIGHT	0052.0
6) MAGAZINE RIGHT	22-1/4	21) OVERHEAD GUIDE WIDTH	9963.1
7) MAGAZINE CENTER	N/A	22) STRONGBACK	9970.8
8) MAGAZINE LEFT	17-1/4	23) GLUE HEIGHT LOAD	3-9/16
9) MAGAZINE LONG LEFT	10"	24) GLUE HEIGHT NON LOAD	3-11/16
10) ERECTOR HEIGHT	0031.5	25) CENTER SUPPORT	NOT USED
11) PRE BREAK LOAD	7"	26) ***ADJUST FLIGHT LUGS***	4 9/16
12) PRE BREAK NON LOAD	10"	27) V NEXT SCREEN V	
13) PRE BREAK VERTICAL LD	-1"		
14) PRE BREAK VERTICAL NL	-1"		
15) BEAR CLAWS	NOT USED		

MAIN
 INFED DATA
 ERECTOR / FLIGHT
 GLUE DATA
 MACHINE SETUP
 USE
 SAVE
 ALARM SILENCE
 ALARM HISTORY

Figure 193 – Original Settings Recipe #23 Setup Data Page 1

12/01/2020 13:27
SWITCHBACK Group
MACHINE SETUP DATA SCREEN
 MANUAL MODE ACTIVE

LOG OUT ← **RECIPE # 23** → LOG IN
2X3 PACK 12OZ SLK

MACHINE LOCATION	SETTING	MACHINE LOCATION	SETTING
28) ^ PREVIOUS SCREEN ^		40)	
29) INFEED		41)	
30) LANE SPACERS	SLK	42)	
31) LANES USED	3	43)	
32) INFEED FULL SENSOR HT	12oz SLK	44)	
33) ANTI-TIP HT UPSTREAM	12oz SLK	45)	
34) ANTI-TIP HT DOWNSTREAM	12oz SLK	46)	
35) ESCAPEMENT	SLK	47)	
36) WEDGES	3ROW SLK	48)	
37) PUSHER PLATE	3ROW SLK	49)	
38) **ADJUST LANE SENSORS**		50)	
39) BYPASS INSERT	NOT USED	51)	
		52)	
		53)	
		54)	

MAIN
 INFEED DATA
 ERECTOR / FLIGHT
 GLUE DATA
MACHINE SETUP
 USE
 SAVE
 ALARM SILENCE
 ALARM HISTORY

Figure 194 – Original Settings Recipe #23 Setup Data Page 2

12/01/2020 13:28
SWITCHBACK Group
INFEED DATA SCREEN
 MANUAL MODE ACTIVE

LOG OUT ← **RECIPE # 24** → LOG IN
3X4 PACK 12OZ SLK

INFEED CONVEYORS

INFD PRIME	33 Hz	RECIRCULTN	30 Hz
INFD RUN	30 Hz	BYPASS	0 Hz
INFD PURGE	40 Hz		

INFEED GATES

	OPEN	CLOSE	OPEN	CLOSE	FLIGHT
● LANE 1	9.10 "	6.80 "	5 CRTN	5 CRTN	6.00 "
● LANE 2	4.20 "	1.90 "	5 CRTN	5 CRTN	
● LANE 3	11.30 "	9.20 "	4 CRTN	4 CRTN	
● LANE 4	6.40 "	4.40 "	4 CRTN	4 CRTN	
● LANE 5	0.00 "	0.00 "	3 CRTN	3 CRTN	

MAIN
 INFEED DATA
 ERECTOR / FLIGHT
 GLUE DATA
MACHINE SETUP
 USE
 SAVE
 ALARM SILENCE
 ALARM HISTORY

Figure 195 – Original Settings Recipe #24 Infeed Data



Figure 196 – Original Settings Recipe #24 Erector/Flight Data



Figure 197 – Original Settings Recipe #24 Glue Data

12/01/2020 13:28
SWITCHBACK Group
MACHINE SETUP DATA SCREEN
 MANUAL MODE ACTIVE

LOG OUT ← **RECIPE # 24** → LOG IN

3X4 PACK 12OZ SLK

MACHINE LOCATION	SETTING	MACHINE LOCATION	SETTING
1) MAGAZINE DECK	0003.6	16) VACUUM PICK VALVES ON	1,3
2) MAGAZINE TOP GUIDE	9993.3	17) NOSE BAR LOAD	7 1/4
3) MAGAZINE FRONT GUIDE	9985.7	18) NOSE BAR NON LOAD	13 3/4
4) MAGAZINE BACK GUIDE	0003.6	19) NOSE BAR LENGTH (BOTH)	2 3/8
5) MAGAZINE LONG RIGHT	25	20) OVERHEAD GUIDE HEIGHT	0051.0
6) MAGAZINE RIGHT	22 1/4	21) OVERHEAD GUIDE WIDTH	9963.1
7) MAGAZINE CENTER	NA	22) STRONGBACK	9989.0
8) MAGAZINE LEFT	17 1/4	23) GLUE HEIGHT LOAD	3 1/2
9) MAGAZINE LONG LEFT	9 7/8	24) GLUE HEIGHT NON LOAD	3 11/16
10) ERECTOR HEIGHT	0031.5	25) CENTER SUPPORT	USED
11) PRE BREAK LOAD	7 1/4	26) ***ADJUST FLIGHT LUGS***	6 15/16
12) PRE BREAK NON LOAD	10	27) V NEXT SCREEN V	
13) PRE BREAK VERTICAL LD	-1 1/2		
14) PRE BREAK VERTICAL NL	-1 1/2		
15) BEAR CLAWS	NOT USED		

MAIN
 INFED DATA
 ERECTOR / FLIGHT
 GLUE DATA
MACHINE SETUP
 USE
 SAVE
 ALARM SILENCE
 ALARM HISTORY

Figure 198 – Original Settings Recipe #24 Setup Data Page 1

12/01/2020 13:28
SWITCHBACK Group
MACHINE SETUP DATA SCREEN
 MANUAL MODE ACTIVE

LOG OUT ← **RECIPE # 24** → LOG IN

3X4 PACK 12OZ SLK

MACHINE LOCATION	SETTING	MACHINE LOCATION	SETTING
		40)	
		41)	
		42)	
28) ^ PREVIOUS SCREEN ^		43)	
29) INFED		44)	
30) LANE SPACERS	SLK	45)	
31) LANES USED	4	46)	
32) INFED FULL SENSOR HT	12oz SLK	47)	
33) ANTI-TIP HT UPSTREAM	12oz SLK	48)	
34) ANTI-TIP HT DOWNSTREAM	12oz SLK	49)	
35) ESCAPEMENT	SLK	50)	
36) WEDGES	3ROW SLK	51)	
37) PUSHER PLATE	3ROW SLK	52)	
38) **ADJUST LANE SENSORS**		53)	
39) BYPASS INSERT	NOT USED	54)	

MAIN
 INFED DATA
 ERECTOR / FLIGHT
 GLUE DATA
MACHINE SETUP
 USE
 SAVE
 ALARM SILENCE
 ALARM HISTORY

Figure 199 – Original Settings Recipe #24 Setup Data Page 2

TROUBLE SHOOTING

Successfully trouble shooting the *Brewpack 200* or any other equipment is dependent upon having an understanding of the way that the equipment is supposed to be operating. By understanding the way that the equipment is designed to operate and with a recollection of the way it was operating when it was operating properly, the trouble shooter should take time to observe the operation of the equipment to determine:

1. What is occurring;
2. When it is occurring;
3. Where it is occurring;
4. To what extent it is occurring.

By observing the differences between the times the equipment is operating properly, or was operating properly, or the intended proper operation of the equipment and the way that it is actually operating at the time, at the place, and to the extent observed when it is running improperly, the trouble shooter can determine the differences and the changes that are resulting in those differences. Keep in mind that if the equipment operates properly and at some future time it does not operate properly, something must have changed. The key to trouble shooting is to find and correct that change. A good place to start is usually the last known, intentional change made to the equipment or to the packaging material.

NOTE: Observation of the equipment while jogging or while running at production speed is usually the best way to analyze any problems. Avoid making changes to the setup based upon guesswork rather than logic. "How is the condition that I am going to change causing the problem?" "How will the change solve the problem?" Both questions should be answered before making adjustments to the equipment.

If trial and error changes are required, think through them carefully, ***make only one change at a time***, and carefully observe the results. If that particular change does not solve the problem, ***reverse that change before making another trial and error change***.

SYSTEM MESSAGES

The top right of the HMI will display a variety of messages that include;

- **#1 - Manual Mode Active** - This indicates that the machine has been reset and is currently in test mode. Manual operation of machine functions is available in Test mode.
- **#2 - Auto Mode Active** - This indicates that the machine is in run mode, (auto), and by pressing the START button the machine will run.
- **#3 - System Running In Auto Mode** - This indicates that the machine is currently running in auto mode. If it is paused it is because the system is waiting for something downstream to start running. It will resume production when all conditions have been met.
- **#4 - System Running In Purge Mode** - This indicates that the machine is currently running in the Purge portion of Auto mode. If it is paused it is because the system is waiting for something downstream to start running. It will resume production when all conditions have been met.
- **#10 - System Resetting** - This message appears during the time period after the reset button has been pushed and before the system is ready to run.
- **#11 - Warning Lube Level Low** - The float in the lube tank has sunk to the low limit setting indicating that it is time to refill the unit with Food Grade Machine Oil, ISO Grade 46, SAE Grade 20 oil if the auto lube option has been purchased.
- **#12 - Warning Magazine Running Low** - This message indicates that blanks on the magazine are getting low and that unless the magazine is refilled cartoning will stop soon.
- **#13 - Warning Glue Level Low** - This message indicates that the hot melt tank needs to be refilled. This message will not stop the machine from running, (until the tank runs out of glue and the operator sees that cartons aren't sealed).
- **#14 - Warning Glue Not Ready** - This message indicates that the glue system is not up to temperature. As long as Glue is enabled from the Main Screen the machine will not run in Auto until the glue system gets up to operating temperature.
- **#15 - Purge Mode Enabled** - This message indicates that the purge mode has been enabled and the machine will run all of the cartons out of the machine.
- **#16 - Infeed Level Too Low** - This message indicates that one of the infeed low sensors is not satisfied. The vacuum will resume picking blanks when all of the sensors are satisfied.
- **#17 - Warning Infeed Too Full** - This message indicates that the infeed conveyor has too many cans on it. This controls an output that can be used in conjunction with a dry contact relay to stop cans from feeding our infeed conveyor.
- **#18 - Warning Outfeed Full** - This message indicates that cartons are not moving away from the exit end of the machine due to a jam at a turn, or downstream equipment is not running. The Case Packer will go into a "natural" stop condition when the timer for the discharge conveyor photo eye has timed out. When the downstream cartons clear the photo-eye the Cartoner will automatically restart after the photo eye timer clear value is reached.
- **#19 - Downstream Equipment Not Running** - This message indicates that the equipment following the cartoner is not running, (as long as it has been wired into the cartoner input), and will automatically send the machine into a "natural" stop condition. The cartoner will restart automatically when it receives the signal from the downstream equipment that it is safe to run.

- **#21-25 –Waiting For Cans In Lanes 1-5** - This message indicates that the infeed sensor in the lane called out does not have a can present. This message appears after 20 seconds have elapsed so as not to be a nuisance alarm. There is hierarchy of lanes and when one is satisfied another lane may be named.
- **#27 – Magazine Empty/Start Button Locked Out** – This message is for a machine with a sensor looking for a blank in the pick zone. The machine won't run if this sensor is not satisfied. Most machines do not have this sensor. This can be activated from the Configuration screen.
- **#30 - Control Power Off** - This indicates that the safety circuit is complete and the system only needs the "RESET" button to be pushed to power up.
- **#31-34 - E-Stop Pressed At HMI, Remote Panel, Infeed Area, Outfeed Area**– This indicates that the named E-Stop is pressed and has interrupted the safety circuit. In order to reset the system the named E-Stop should be pulled out. The message will now read Control Power Off and pressing the RESET button will allow the machine to power up.
- **#41-42 - DOOR 1-2 OPEN** – This message identifies the door that is currently open. If several doors are open it will identify one of them and when that door is closed it will identify another until all are closed.
- **#51 – Light Curtain Broken On The Front Side Of The Machine** – This message indicates that something is interfering with the front light curtain When there is no control power, or there is a fault with the light curtain.
- **#52 – Light Curtain Broken On The Rear Side Of The Machine** – This message indicates that something is interfering with the rear light curtain When there is no control power, or there is a fault with the light curtain.
- **#100 - Infeed Conveyor Drive Fault** - This indicates a fault with the flight conveyor drive. These are usually resettable by pushing the RESET button. If the RESET button does not make the message go away;
 - Check the message on the display for the drive for the cause of the fault
 - Verify that the motor is free to turn and not mechanically bound.
 - Verify the 3 phases of AC line have the correct power and the circuit breakers are intact.
 - Verify the electrical integrity of the motor and motor leads.
 - Verify that the main drive break is functioning.
- **#111-115 - Can Down Lane 1-5** – This message indicates that the infeed distance sensing laser sensors have seen a down can. The message will indicate which lane the down can is in. The machine will stop and will not be able to be started until a door is opened.
- **#121-125 - Infeed Conveyor Lanes 1-4 Gate Open/Close Fault** – This message indicates that the Named gate closed sensor was not made/unmade in a timely fashion. This could be an indication of a physical jam, flow control/air issue, or sensor location/integrity fault.
- **130 – Recirculating Conveyor Drive Fault** - This indicates a fault with the recirculating conveyor drive. These are usually resettable by pushing the RESET button. If the RESET button does not make the message go away;
 - Check the message on the display for the drive for the cause of the fault
 - Verify that the motor is free to turn and not mechanically bound.
 - Verify the 3 phases of AC line have the correct power and the circuit breakers are intact.
 - Verify the electrical integrity of the motor and motor leads.
 - Verify that the main drive break is functioning.

- **131 - Bypass Conveyor Drive Fault** - This indicates a fault with the bypass conveyor drive. These are usually resettable by pushing the RESET button. If the RESET button does not make the message go away;
 - Check the message on the display for the drive for the cause of the fault
 - Verify that the motor is free to turn and not mechanically bound.
 - Verify the 3 phases of AC line have the correct power and the circuit breakers are intact.
 - Verify the electrical integrity of the motor and motor leads.
 - Verify that the main drive break is functioning.
- **300 – Magazine Conveyor Drive Fault** - This indicates a fault with the flight conveyor drive. These are usually resettable by pushing the RESET button. If the RESET button does not make the message go away;
 - Check the message on the display for the drive for the cause of the fault
 - Verify that the motor is free to turn and not mechanically bound.
 - Verify the 3 phases of AC line have the correct power and the circuit breakers are intact.
 - Verify the electrical integrity of the motor and motor leads.
 - Verify that the main drive break is functioning.
- **#301 – Magazine Empty While Running Fault** – This message indicates that the photo eye checking for a blank in the magazine pick zone, (this is an option that is rarely used), does not see a blank.
- **#323 – Erector Pick Fault** - If vacuum on, (green), was selected from the Main screen and three consecutive cartons do not arrive in the load area, this error will alert the operator that there is an issue picking blanks from the magazine.
- **#400 – Flight Conveyor Servo Drive Fault** - The transfer horizontal servo drive has detected a fault. The fault may be reset by pressing the reset button. If it will not reset, check the message on the display of the drive for the cause of the fault. If the values for acceleration, deceleration, or speed are too high and the drive can't achieve the values it will indicate a fault. Check the message on the display for the drive for the cause of the fault;
 - Verify that the motor is free to turn and not mechanically bound.
 - Verify the 3 phases of AC lines have the correct power and the circuit breakers are intact.
 - Verify the electrical integrity of the motor and motor leads.
 - Verify that the main drive break is functioning.
- **#401 – Flight Conveyor Clutch Tripped** - If vacuum on, (green), was selected from the Main screen and three consecutive cartons do not arrive in the load area, this error will alert the operator that there is an issue picking blanks from the magazine.
- **#410 – Flight Conveyor Can Pusher Jammed** - This message indicates the sensor attached to the spring loaded can pusher has seen the "Jammed" flag. This is usually an indication of a down can in the carton. This can also be caused by incorrect sensor position, or a faulty sensor/ wiring.
- **#411 – Overhead Rail Not Down** - This Message indicates that the overhead guide is not down. A mis-located/faulty sensor/wiring can also cause this fault.
- **#500 – Glue Unit Not Ready While Running** – This message indicates that the status of the glue unit has changed to "Not Ready" during the current run. The machine will stop and will not run again with glue enabled until the status of the glue unit is "Ready".
- **#501 – Glue Compression Front Up/Down Fault** – This message indicates that the front glue compression cylinder did not reach its desired location in a timely manner. This could be an indication of a physical jam, flow control/air issue, or sensor location/integrity fault.
- **#502 – Glue Compression Rear Up/Down Fault** – This message indicates that the rear glue compression cylinder did not reach its desired location in a timely manner. This could be an indication of a physical jam, flow control/air issue, or sensor location/integrity fault.

- **#600 - Outfeed Conveyor Drive Fault** - This indicates a fault with the outfeed conveyor drive. These are usually resettable by pushing the RESET button. If the RESET button does not make the message go away;
 - Check the message on the display for the drive for the cause of the fault
 - Verify that the motor is free to turn and not mechanically bound.
 - Verify the 3 phases of AC line have the correct power and the circuit breakers are intact.
 - Verify the electrical integrity of the motor and motor leads.
 - Verify that the main drive break is functioning.
- **900 – System Air Pressure Too Low** – This message indicates that the air pressure sensor, (not all machines have this sensor), does not see the required amount of air in order to run reliably.
- **#934 – Light Curtain Broken On The Front Side Of The Machine** - This message indicates that something interfered with the front light curtain causing the machine to drop control power, or there is a fault with the light curtain.
- **#935 – Light Curtain Broken On The Rear Side Of The Machine** - This message indicates that something interfered with the rear light curtain causing the machine to drop control power, or there is a fault with the light curtain.

SECTION III - - - MAINTENANCE

General

Above all else, be certain that all those directly concerned with the maintenance, adjustment and or operation of the machine carefully read and fully understand the instruction manual supplied by the manufacturer.

Lubrication

If possible, appoint a single individual to have accountability for the proper machine lubrication.

The proper and timely lubrication of the machine and drives is fundamental to proper operation. Follow carefully the manufacture=s recommendations.

Excess or spilled lubricants should be wiped up to preclude possible product or package contamination. Over-lubrication of a machine, its drives and other components is hazardous and is to be avoided.

Variable Speed Controls

All variable speed motor controls, flow controls, shock absorbers, etc. should be checked periodically for proper setting. Such devices are subject to Acreep@ due to vibration or drift in electrical components.

Pneumatic Systems

Check operating air pressure frequently for correct setting. Excessive or low pressure may affect machine timing and cylinder life by changing flow control action.

Keep moisture traps drained and free of excessive condensate accumulations.

Check machine frequently for air leaks and correct them immediately when found.

Foreign materials removed from an air supply by the filter will eventually restrict the air flow. The filter element inside the transparent bowl of the air-line filter should be removed once a month, cleaned, and inspected in accordance with the manufacture=s recommendations.

Whenever moisture or other substances appear in the bowl, open the bleed valve while the air pressure is on and permit these contaminants to be blown out.

Regulators are equipped with a screen filter to prevent abrasive solids, such as rust, sand and pipe scale, from reaching the valve. Clean this screen regularly fro best performances of the regulator. The frequency of cleaning will depend upon the condition of the air supply. Most screens can be removed by removing the valve guide plug at the bottom of the regulator.

Chains

Chains must be kept under tension sufficient to maintain timed motions, to prevent a snapping effect upon starting or when going from light to a heavy load condition. A chain that is too tight produces an erratic motion. Correct tension is dependent upon the loading of the chain. Since a chain must be neither too tight or too loose, the best guide is experience. While gaining the experience, a workable rule of thumb is to establish a chain sag equivalent to 2% of the center distance. Check sprockets for proper alignment.

SECTION III - - - MAINTENANCE

Electrical Power

Power to machines should be check for proper voltage and frequency, particularly during voltage cut-backs such as a brown-out.

Indicators, Safeties

All devices provided for indication of trouble or proper operation should be maintained in proper working condition.

Guards and Covers

These are provided to prevent accidents and should always be carefully replaced if removed for maintenance.

Vacuum System

Examine the suction cups each day to make sure that they are in good condition. Stretch them and look for small holes that may have developed. Also check the edges for tearing, etc. If in doubt, replace them with new cups. A supply of these should be kept on hand.

Clean the vacuum line filters as often as necessary. Be careful not to damage the gasket, in as much as a damaged gasket would cause a serious leak in the vacuum system.

Check the suction hoses occasionally for leaks in the hose itself or at the fittings.

Clean all suction head air passages. Remove screw plugs to do so if necessary.

Glue Systems

Adhesive systems hot and cold must be kept free of contaminates. Pots, nozzles, filters and applicators must be checked and cleaned regularly.

Calibration of temperature monitors and controls should be verified.

Compression system should be free of adhesive build-up and improper alignment.

Spare Parts

Keep spare parts, as recommended by manufacturer, on hand and accessible should a quick change be required.

Housekeeping

A clean, well-maintained machine and work area invariably promote better operation through improved operator pride. Do not tolerate accumulations of materials, lubricants or product in or around machinery. It is not only unsightly and demoralizing, but in most cases highly hazardous.

PREVENTIVE MAINTAINENCE

CLEANING

It is extremely important to keep the machine as clean as possible. Carton dust and dried glue are extremely abrasive and can accelerate the wear of moving parts. The following operations should be performed every day.

- IMMEDIATELY - Wipe the machine down when there is an incident with beer spilling. Leaving beer to dry on the machine will make a sticky mess that will cause the system to function poorly. Use a cleaner that does not leave a sticky residue. Windex is one such type of cleaner
- Wipe down the entire machine. Do not hose down as the wash down option was not purchased and components will rust.
- Remove any loose or torn cartons and spilled product from the machine.
- Remove any dried glue from the machine. Pay particular attention to the following areas:
 - Glue Gun Mount Assembly
 - Compression Plates in the Folding/Compression Tooling Assemblies
- Remove any packaging materials stacked or stored around the machine.
- Empty the condensation bowl on the pneumatic compressed air filter.

LUBRICATION

The following items on the *Brewpack 500* require lubrication.

Monthly

- Infeed load Conveyors Flanged Bearing – 3 places each conveyor
- Cartoner Flanged Bearings – 3 places (only running bearings need lubricated. The adjusting bearings will be fine for life)

Quarterly

- Product Conveyor Drive Motor Gear Reducer

COMPONENTS

Inspect the following machine components as outlined below and repair/replace as necessary

Daily

- Check to insure that all safety guarding is in place.
- Check the emergency stop switches and barrier guard interlock switches for proper operation.
- Check for loose hardware and pneumatic tubing. Pay particular attention to the following components:
 - Product Conveyor Drive Motor
 - Product Conveyor Flanged Bearings
 - Pneumatic Cylinder Guide Rods Stop Plates
 - Lane Dividers

Monthly

- Check for excessive wear on all pneumatic air cylinders and guide rods.
- Check for excessive play in the pneumatic air cylinders and guide rods.
- Check the function of each of the pneumatic solenoid valves.
- Check the product conveyor belt for broken or missing belt links.
- Inspect the flight chains for signs of rust and lubricate if necessary.

ITEM	DESCRIPTION	WKLY	MNTLY	QRTLY	ANNUAL	2 YEARS	LUBRICANT
1	Infeed/Recirc/Pass Thru conveyors						
	Gearbox check oil level		X				Shell Omala F220
	Gearbox change oil					X	Shell Omala F220
	Flange Bearings		X				General Purpose Grease
2	Spicer Universal Joints			X			General Purpose Grease
3	Curtis Gearbox's						
	check oil level		X				
	change oil					X	AGMA 5 EP
4	Tolomatic Gearbox						Anderol 786 EP grease
	add small amount of grease				X		
5	Flight Chains						
	Drive end flange bearing		X				General Purpose Grease
	Flight Chains	X					CRC Chain and Wire Rope lubricant
	Drive Chains	X					CRC Chain and Wire Rope lubricant
6	Bucket Conveyor						
	Gearbox			X			Shell Omala F220
	Flange Bearing			X			General Purpose Grease
5	Erector						
	Gearbox			X			AGMA 5 EP
	Flange Bearing			X			General Purpose Grease
Note Chains:If chains are exposed to product spills they must be cleaned with warm water. Once the cleaning is complete they need to be lubricated.							

Figure 200 - Lubrication Schedule



Figure 201 - Electrical Lockout/Tag Out



Figure 202 - Pneumatic Lockout/Tag Out

Safety is the most important part of running this machine. Proper “Lockout/Tag Out” procedures should be used for any mechanical adjustments. This is the best way to insure safety for the operators and maintenance personnel.

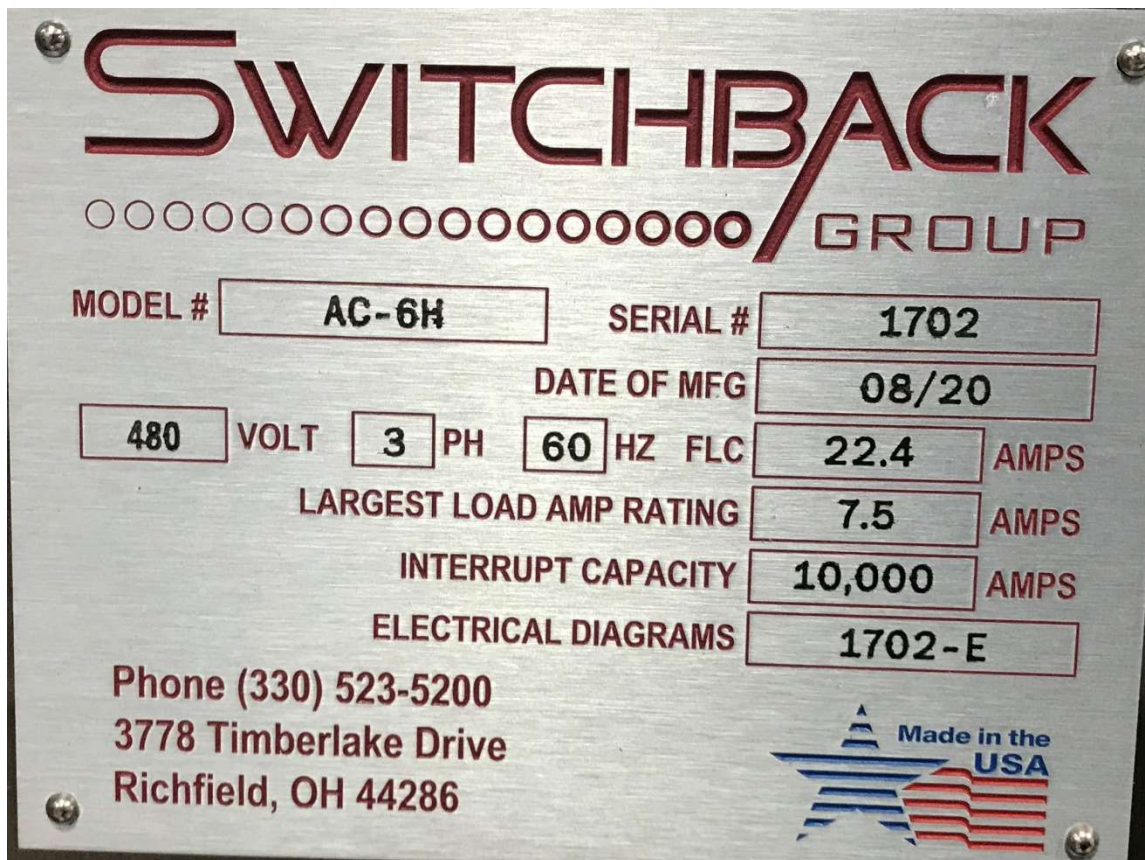


Figure 203 - Blue Marble Serial Number Tag

