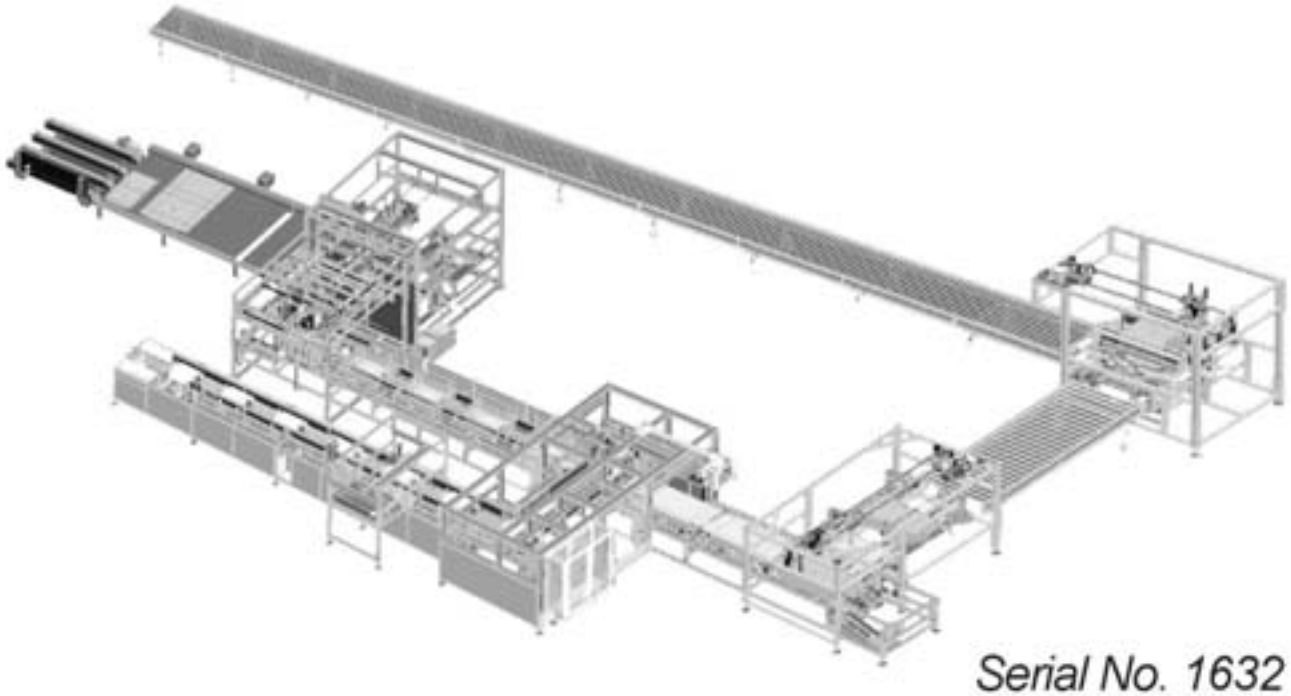
SMURFIT-STONE
Automated Packaging Systems

Machine Manual

for

Tray Packing System



Serial No. 1632

Smurfit-Stone Automated Packaging Systems 4364 34th Street Orlando, Florida 32811 800.338.6294 www.smurfit-stone.com

Overview

Company History

Stone Container Corporation began producing automated packaging systems in 1964, out of Chicago, Illinois. With the 1998 merger of another corrugated industry leader - Jefferson Smurfit Corporation - Smurfit-Stone quickly established itself as North America's premier packaging company.

Smurfit-Stone specializes in corrugated products, mill products, displays, RFID products - and at our Orlando, Florida location - Automated Packaging Systems.

Automated Packaging Systems

In 1979, Automated Packaging Systems moved to Orlando, Florida. This division designs and manufactures both standard and custom packaging equipment. This semi or fully automated equipment includes trayformers, case erectors, case packers and case sealers. In addition, we offer complete packaging solutions - such as our VPS and Meta systems.

Our Team

The Automated Packaging Systems division of Smurfit-Stone has some impressive credentials. On both the Application and the Design sides of the packaging industry, our Mechanical and Electrical Engineers have over 200 years of combined experience. Our Fabrication, Assembly and Production teams are comprised of personnel that can bring even the most complex design to life - without compromising performance or efficiency.

Our Product

All Smurfit-Stone systems are framed of heavy-duty, welded, tubular steel construction. We use the finest add-on features - including Allen Bradley controls, Easy Touch touch screens, Nordson adhesive systems and Lexan guard doors. Your system is designed and customized to meet your specific needs, to seamlessly fit into your existing flow, and to maximize productivity and output.

Smurfit-Stone Automated Packaging Systems has produced over 2,500 systems to date. The large majority of these are still in use today. We take our customer's needs seriously - and provide the support necessary to make certain that our designs have a long and productive life span.

Our Future

The future of Automated Packaging Systems is ever changing, but always bright. Our focus remains on our customers. For us, simply building a machine is not enough.

We provide the complete package - reducing waste, labor and material costs - while maximizing manufacturing efficiency, enhancing retail attraction, and boosting our customer's sales.

In addition, Smurfit-Stone is continually pursuing new and innovative concepts and approaches that may make our employees more highly skilled, our performance more efficient, and our product of even higher quality.

For more information about your own custom equipment needs,
contact Smurfit-Stone Automated Packaging Systems at
800-338-6294.

Table of Contents

Introduction

This manual is designed to assist with the installation, operation, maintenance, service and support of your machine –

Tray Packing System

The information contained herein is important for the smooth and efficient operation of the machine, and for the knowledge and safety of any personnel working on or around the machine. Please take the time to read this manual thoroughly.

This Manual

This manual is divided into seven sections:

Section Specifics

Overview

- *Company History*
- *Automated Packaging Systems*
- *Our Team*
- *Our Product*
- *Our Future*

Introduction

- *This Manual*
- *Safety*
- *Specifications*
- *System Overview*

Installation

- *Preliminary*
- *Arrival*
- *Set-Up*
- *Initial Adjustments*

Operation

- *Overview*
- *Sequence of Operation*
- *Operational Review*
- *Operator Controls*
- *Monitoring the Machine*
- *Changeover*

Maintenance

- *Maintenance Highlights*
- *Maintenance Recommendations*
- *Maintenance Review*
- *Troubleshooting Procedures*
- *Maintenance Checksheet*

Service

- *Support*
- *Ordering Repair Parts*

Appendix

- *Spare Parts List*
- *Changeover Matrix*
- *Fault Screen*
- *Computer Program*
- *Bill of Material*
- *Electrical Drawings*
- *Mechanical Drawings*
- *Glossary*
- *Index*

Safety

Safety should always be of the utmost concern. Please follow the guidelines in this manual, incorporated with the safety regulations of your company.

Throughout this manual, you will find two safety messages. Please pay particular attention to both messages as they appear in this manual.

CAUTION

appears where failure to observe its message could cause

Damage to the Equipment

WARNING

appears where failure to observe its message could cause

Damage to the Equipment and/or Injury to Personnel

NOTE: Satisfactory operation depends on correct installation, proper application, and adequate maintenance of your machine. Unauthorized modifications to the equipment may result in less than satisfactory performance, failure of the machine entirely, or compromised safety of personnel.

Should you require any information not found in this manual, or if you need additional support, please contact our Service Department at (800) 338-6294.

General Cautions and Warnings

WARNING – Do not operate this machine until you have been instructed in its SAFE use by your supervisor.

WARNING – Determine the location of all E-Stop buttons BEFORE operating this machine.

WARNING – Do not operate the machine without all guards in place.

WARNING – Maintenance and adjustments must not be done unless ALL electrical and air power have been disconnected.

WARNING – Observe extreme caution when switches are turned on. Operation may start automatically - after a time delay.

CAUTION – After a case size changeover, be sure that all machine adjustments have been properly made - before running cases for production.

OSHA requires all machine installations to have energy-isolating devices to the applicable types of energy the machine may employ. The customer must make sure that employees know how to perform a Hazardous Energy Lockout. OSHA 29 CFR 1910.147 states: “The employer shall establish a program consisting of energy control procedures, employee training and periodic inspections to ensure that before any employee performs any servicing or maintenance where unexpected energizing, start-up or release of stored energy could occur and cause injury, the machine or equipment shall be isolated from the energy source, and be rendered inoperative.”

Safety Decals

These *or similar* Safety Decals may be found on the machine. Make sure that you read and thoroughly understand the signs and related procedures - and identify hazard areas **before** operating the machine.

Warning - This decal appears in hazardous areas an operator or maintenance person may have to enter from time to time. These include areas not intended to support a person's weight, path of a moving part or assembly. Consider any moving part a hazard area even if it is not marked. Always perform lockout procedures before entering any hazard area.

Guards – Do not operate without guards in place. This decal appears on major guards that protect personnel from hazardous areas. Guards should be removed only after completing appropriate lockout procedures. Make sure all guards are installed before operating the machine.

Lockout Reminder - This decal is used to remind personnel to lockout the machine before servicing and/or maintaining.

High Voltage - This decal is used on electrical panels to warn of potential shock hazards. Only qualified personnel should enter electrical enclosures.

Pinch Point - This decal is located on the machine main frame where pinch points occur when guards are removed.

Auto Start – This machine starts automatically.

Burn Hazard – Used on Nordson Glue machine. Always use extreme care when working with the glue unit or any other area where a burn hazard may be displayed.

Operator and Employee Safety

- Whenever there is a problem, first stop the machine, and then solve the problem using only safe procedures. This may require that you stop and ask for help from properly trained.
- Operators and employees should always observe the following guidelines when the machine is in operation.
- Wear OSHA approved Eye Protection anytime you are working around or operating the machine.
- Wear OSHA approved Gloves anytime you are working around or operating the machine.
- Do not wear any loose articles of clothing around the machine.
- Do not wear Jewelry while operating or performing maintenance on the machine.
- Observe all Safety Decals and Procedures. These decals and procedures are for your protection and should be read, understood, and taken seriously. Be sure to read this Manual before starting the machine and keep it nearby in case the need arises to refer to it.

WARNING – Do not reach into the machine while it is in operation.

Compressed Air System

This machine utilizes compressed air as a control and motive force. Efficient operation of the machine is highly dependent on a reliable source of filtered, dry, un-lubricated air (minimum air flow 3/8" NPT). This machine is equipped with devices to filter and separate moisture, and control pressure. Only minimal regular maintenance is required for these devices.

The travel rate of the air cylinders and the response time of the air-controlled devices are affected by pressure and flow rate. If the pressure drops below 90 psi, the timing and operation of the machine will change, often resulting in jams. These changes can be subtle enough that low air pressure is never suspected as the cause. If the air pressure is regulated properly, this condition can be avoided.

Water Wash

WARNING!

DO NOT WATER WASH THIS MACHINE

Use clean, un-oiled, compressed air.
Minimum air pressure – 90 psi / 6 bar.

Equipment Safety Features

This machine has been equipped with safety features that will help to prevent injury to the Operator and damage to the equipment. Among these features may be Jam Detectors, Clear Access Doors, and Emergency Stop Buttons.

Hazardous Energy Lockout Safety

OSHA requires all machine installations to have energy isolating devices to the applicable types of energy the machine may employ. The customer must make sure that employees know how to perform a Hazardous Energy Lockout. OSHA 29 CFR 1910.147 states: "The employer shall establish a program consisting of energy control procedures, employee training, and periodic inspections to ensure that before any employee performs any servicing or maintenance where unexpected energizing, start-up, or release of stored energy could occur and cause injury, the machine or equipment shall be isolated from the energy source, and be rendered inoperative."

➔ The types of energy present in this machine include:

- Electrical Power
- Gravity
- Pneumatics

Lockout and Lockout Removal Procedures are followed by information about each form of energy that must be isolated before servicing and/or maintenance. All steps of the Lockout Procedures must be performed BEFORE servicing and/or maintaining the equipment, which is defined as the following: "Workplace activities such as constructing, installing, setting up, adjusting, modifying and maintaining and/or servicing the machine or equipment.

These activities include lubrication, cleaning or un-jamming of machines or equipment and making adjustments or tool changes, where the employee must be exposed to the unexpected energization or start-up of the equipment or release of hazardous energy."

Electrical Power

The Main Electrical Disconnect is on the Operator Side of the Main Frame and is labeled with an Electrical Lockout decal.

It is the Customer's responsibility to provide training of personnel on proper Electrical Lockout Procedures.

➔ Disable electrical power to the machine as follows:

- Locate the Main Electrical Disconnect and turn down to the OFF position.
- Insert a padlock through the hole provided in the handle and lock it in place. This prevents anyone from turning the power on while you are servicing the machine.
- Keep the padlock key in your possession until the service and/or maintenance is complete.
- Make sure the area is clear of any personnel, debris, tools, corrugated, etc. before removing the padlock and starting the machine.

➔ To verify electrical lockout, you can do the following:

- Look for indicator lights, motors, etc. that are still on.
- Pull the Emergency Stop button.
- Check for zero voltage with a volt-meter.

Gravity

Always lower all moving portions of the machine to their lowest position before locking the machine out electrically.

Removing any pins, bolts, or other parts could allow portions of the machine to lower further and pose a danger. Always take extreme caution around heavy machine parts.

➔ To verify that Gravity Hazards are reduced, you can do the following:

- Make sure all moving parts are in their lowest position.
- Make sure blocking is stable and secure.
- Apply weight to the blocked part to make sure it is stable and secure.
- If removing Pivot Points, remove them slowly and watch for movement or shifting.

Pneumatics

When the Main Electrical disconnect is turned off, the air in the pneumatic system bleeds off to atmosphere.

➔ Disable pneumatics to the machine as follows:

- Locate the FRL and turn the pneumatic disconnect to the OFF position.
- Insert a padlock through the hole provided in the handle and lock it in place. This prevents anyone from turning the power on while you are servicing the machine.
- Keep the padlock key in your possession until the servicing and/or maintenance is complete.
- Make sure the area is clear of any personnel, debris, tools, corrugated, etc. before removing the padlock and starting the machine.

➔ To verify there is no air pressure in the system, you can do the following:

- Check the pressure gauge at the Filter / Regulator.
- Manually actuate the solenoid valve.
- If removing fittings, remove them slowly to detect leaking air pressure.

Heat

Heat cannot be locked out. However, to reduce its hazards, do not handle machine components that may be hot until they have cooled to 100 degrees. The exception to this is the Hot Melt Glue System that requires some procedures to be performed when the unit is still hot enough to maintain hot melt adhesive in a semi-fluid state.

Specifications

This section contains the parameters and specifications to which your machine has been designed and manufactured.

Electrical Requirements

- Input Power: 480 V / 3 Phase / 60 Hz
- Low Voltage: 115 Volt power is obtained through a control transformer.
- Control Voltage: 24 VDC

Air Requirements

- Operating Pressure: 80 psi
- Line Pressure: 80 psi Minimum
- Maximum Free Air Consumption: 60 cu. ft / cycle

Product

- Fed Ex Boxes

Container Style

- D/C Wrap-around Tray

Container Dimension(s)

- See Changeover Matrix in the Appendix

Adhesive

- Nordson ProBlue 10 Glue System

PLC

- A/B Micrologix 1500

Production Speed

- 20 TPM

Additional

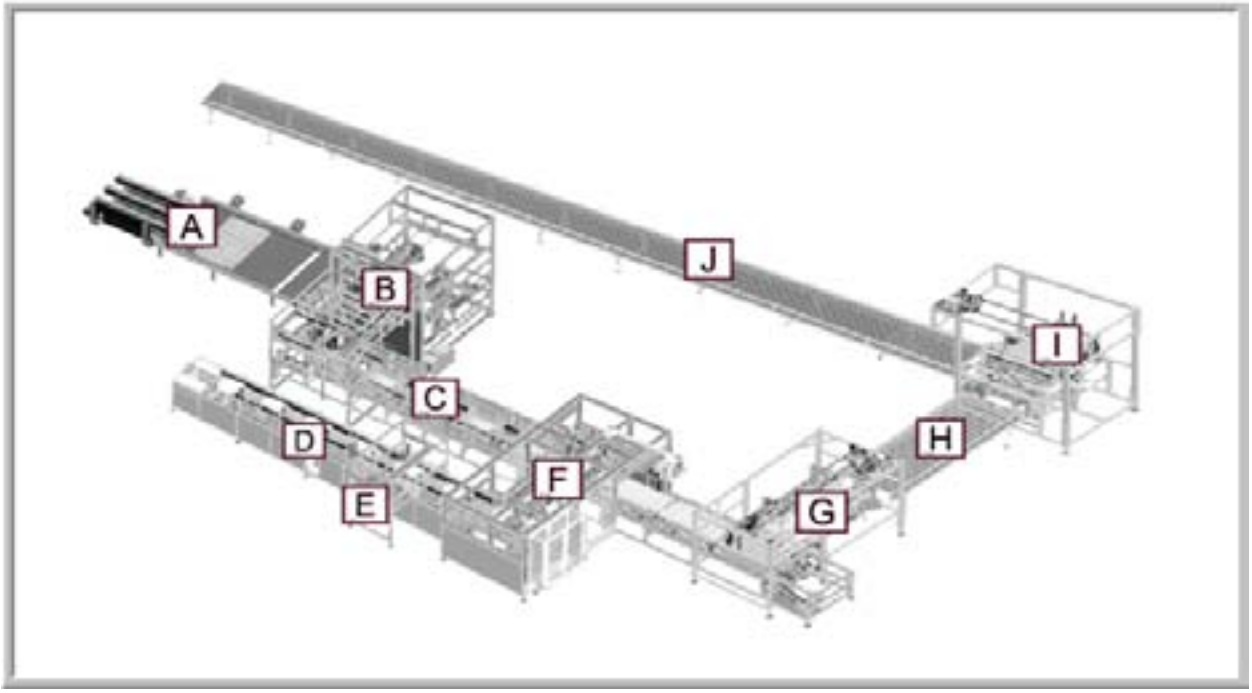
- Trayformer w/RA HCBF for 44” blank stack +/- 2” on stack skew
- Stack verification system / Product Loader / 3-Sided Sealer
- Case stacker with discharge conveyor
- Cluster Lubrication
- Additional stack lights on Trayformer, Loader, and 3-Sided Sealer
- Conveyor extension from stacker to Alliance Palletizer
- Spare Parts Kit

Machine Color

- Buff Enamel

System Overview

The following schematic will be used throughout this manual to aid in the understanding of the Tray Packing System.



Main Sections

A. Infeed & Roller Conveyor - Blanks are deposited here and fed into the Trayformer.
B. Tray Former - The Blank is transformed into a Tray.
C. Tray Index Conveyor - The Tray is indexed on this conveyor to the Loader.
D. Product Index Conveyor - The infeed area for the product that is to be loaded onto the Trays.
E. Pick & Place - Monitors and adjusts the amount of product to be loaded onto each Tray.
F. Loader - The product is loaded onto the Tray.
G. Sealer - The Tray is sealed into a fully-formed Box.
H. Transfer Conveyor - The Box is transferred to the Stacker.
I. Stacker - Boxes can be stacked from 1 to 5 high.
J. Discharge Conveyor - The finished Box is discharged from the system on this conveyor.

Installation

The following information is intended to assist with the installation process.

Smurfit-Stone Technicians will be on hand
to assist with the installation process.

Preliminary

Site Preparation

Decide on a satisfactory location for the machine. Whether integrated into a larger assembly line, or acting as a stand-alone unit, the following should be addressed:

- Plan for the machine to be moved – from the receiving area to the production area. Decide on which route the machine may be moved – considering clearances needed, elevation changes, cornering around turns, etc.
- Make certain the area will accommodate the overall size of the machine – and still allow for personnel to work comfortably around the machine.
- Make certain the area is level. If not, the machine may need to be shimmed or floor resurfacing may be needed.
- Make certain that the floor and greater area is free from debris, heavy grease or other items or substances that may compromise safety or compromise the firm placement of the machine.
- Make certain that the area is pre-serviced for all appropriate needs – such as pneumatics, electrical, adequate lighting, etc.
- If the machine is being installed into an existing system, consider any needs or alterations necessary so that the new machine will fit and flow with the existing structure.

Necessary Equipment

- At least one heavy-duty lift truck (forklift). This should have a minimum capacity of at least 5,000 lbs. In addition, extension forks should be available.

Arrival

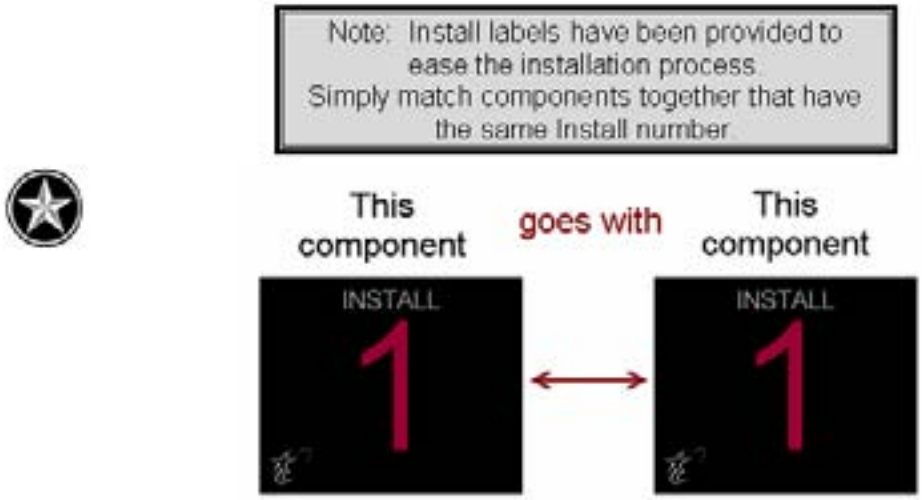
Receiving

- Inspect surfaces for evidence of dents, scratches, and other physical damage.
- Inspect pusher bars, drive chains, and driving mechanisms for proper positioning on idlers and sprockets.
- Open the Electrical Box and inspect all relays, fuses, etc.
- Check wire terminal connections for tightness.

Set-Up

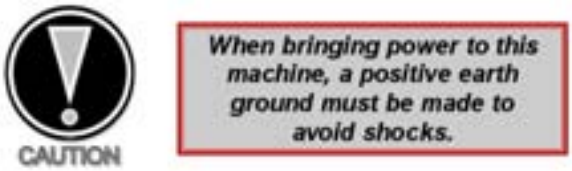
Installation Basics

- Remove all shipping brackets and shipping tape.
- Replace any parts that may have been removed for shipping.
- Place the machine in the desired location in your production line.
- Lock down all casters, if applicable.
- Once the machine has been placed in the desired location, make sure that it is level.
- Lubricate according to the lubrication instructions in this manual.



Finalizing

Read through the Smurfit-Stone Machine Manual, reference all included schematics, and consult any necessary vendor manuals for more detailed information on any additional setup that may be required. After that, your machine will be ready for normal operation and a long life of reliable production.



Initial Adjustments

Air Supply Connection

The Air Supply connection is made at the manual shut-off valve located on the incoming side of the Filter Regulator. The incoming line should have a minimum i.d. of 1/2" (13mm). The line pressure should be a minimum of 80 psi. The pressure regulator should be set at 70 psi.

Electrical Connections

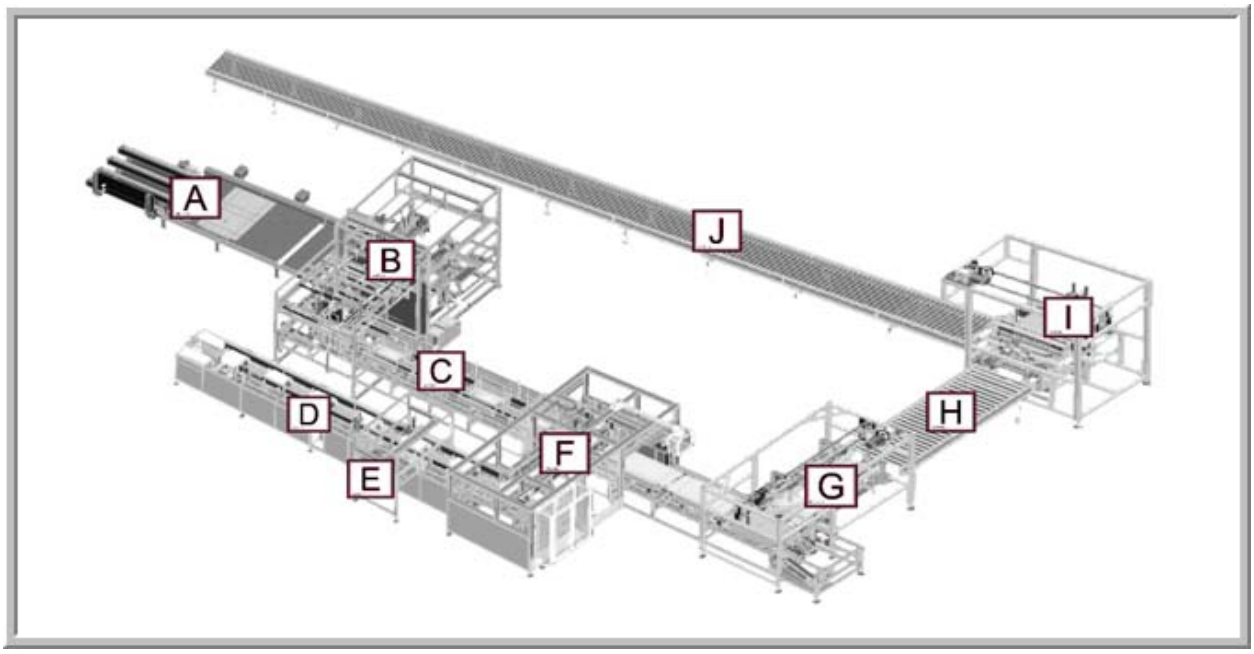
Power is brought directly to the Main Control Box. See wiring diagram for terminal connections. The 115 volt power is provided through a control transformer.

Operation

Overview

The Tray Packing System is designed to take a multi-flap, multi-scored Blank, form it into a Tray, load the customer's product, and seal this product into a solid, fully-formed Box.

➔ The following sections will use the System schematic and photographs to illustrate Operation.



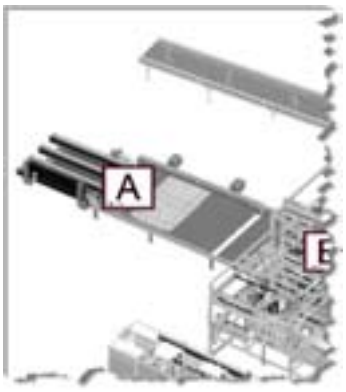
Section Labels will also be placed on the Machine.

Main Sections

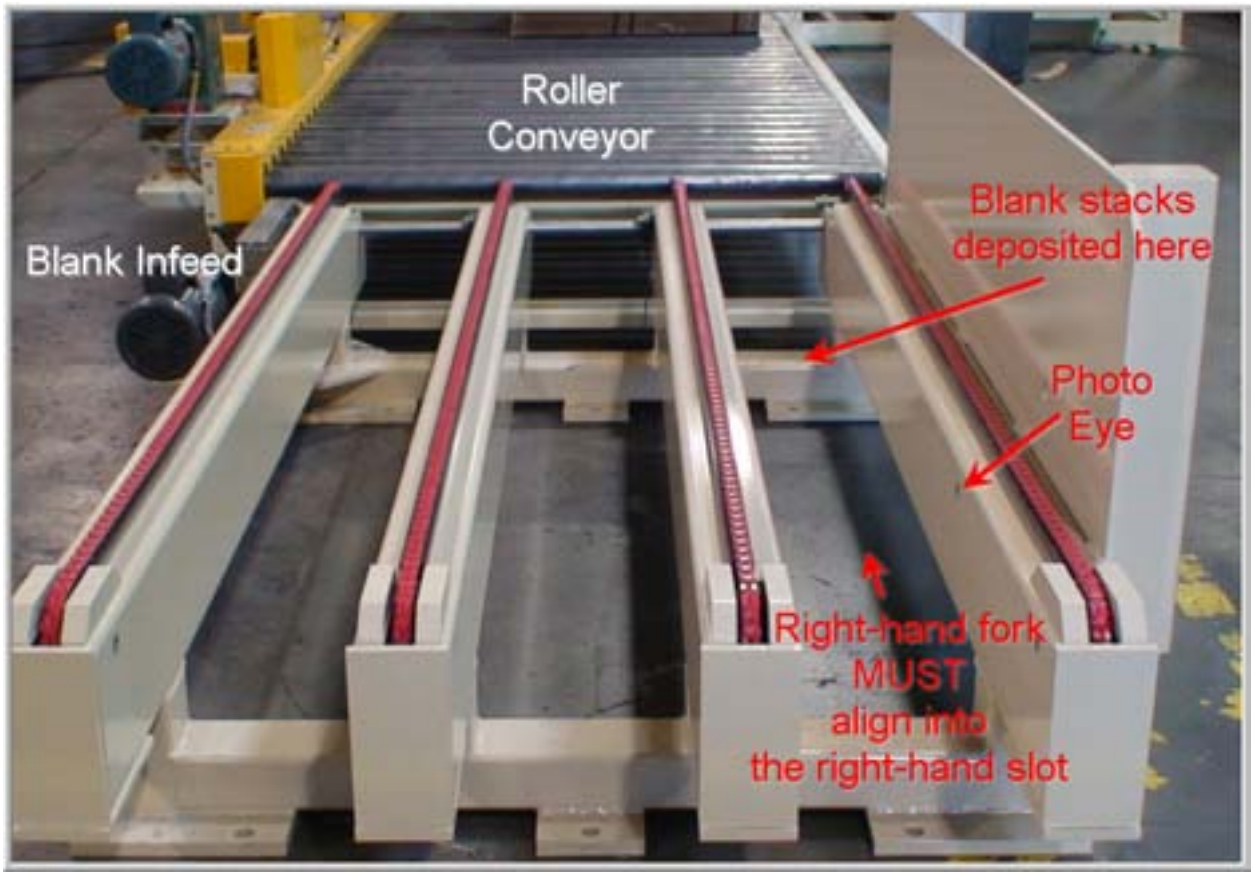
A. Infeed & Roller Conveyor - Blanks are deposited here and fed into the Trayformer.
B. Tray Former - The Blank is transformed into a Tray.
C. Tray Index Conveyor - The Tray is indexed on this conveyor to the Loader.
D. Product Index Conveyor - The infeed area for the product that is to be loaded onto the Trays.
E. Pick & Place - Monitors and adjusts the amount of product to be loaded onto each Tray.
F. Loader - The product is loaded onto the Tray.
G. Sealer - The Tray is sealed into a fully-formed Box.
H. Transfer Conveyor - The Box is transferred to the Stacker.
I. Stacker - Boxes can be stacked from 1 to 5 high.
J. Discharge Conveyor - The finished Box is discharged from the system on this conveyor.

Sequence of Operation

Section A – Infeed & Roller Conveyor

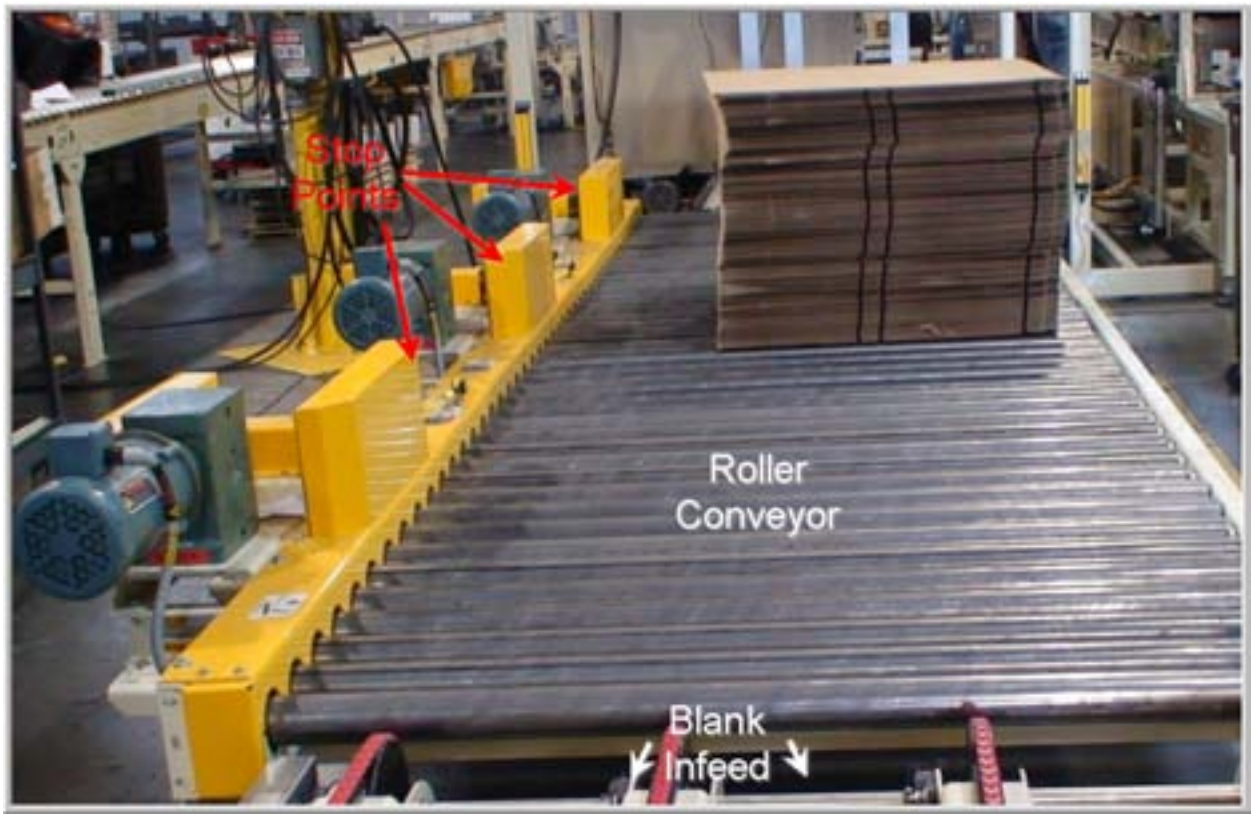


➔ Stacks of Blanks are loaded by forklift onto the Blank Infeed.



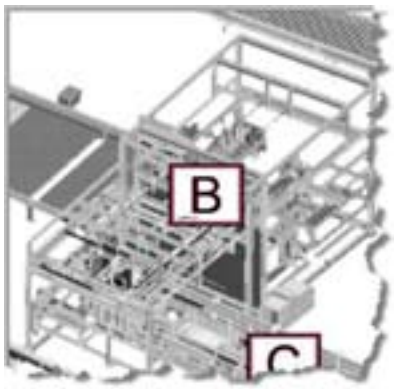
- This belt-drive Infeed area will then transfer the stack to the Roller Conveyor.
- Blank stacks deposited on the Blank Infeed should be kept as close to the right guide wall as possible.
- The Blank Infeed belts are activated by a Photo Eye sensor. The right-hand fork of the forklift MUST be placed in the right-hand slot of the Blank Infeed. This will trip the Photo Eye sensor and activate the belt drive.

➔ The Blank stacks are then transferred to the Roller Conveyor, where they await entry into Section B-Trayformer.



- The Roller Conveyor can hold up to 3 large stacks of Blanks.
- The rollers work in a progressive system.
- If the entire Conveyor is clear of stacks, the first stack from the Blank Infeed will roll to the farthest stop point, which is right before entry into the Trayformer.
- If the first stop point is occupied, the second stack of Blanks will roll to the second stop point, and so on.
- If the third, or closest, stop point is occupied, the Blank Infeed will not roll.
- When all stacks move forward, and the third stop point is available, the Blank Infeed will roll the next stack onto the Roller Conveyor.
- This design allows for smooth and uniform movement of stacks, and will not let the stacks bunch up on top of one another and potentially cause an issue.

Section B – Tray Former



➔ The X-Lift of the Tray Former then picks up one Blank stack at a time and moves it into position in the Tray Former.

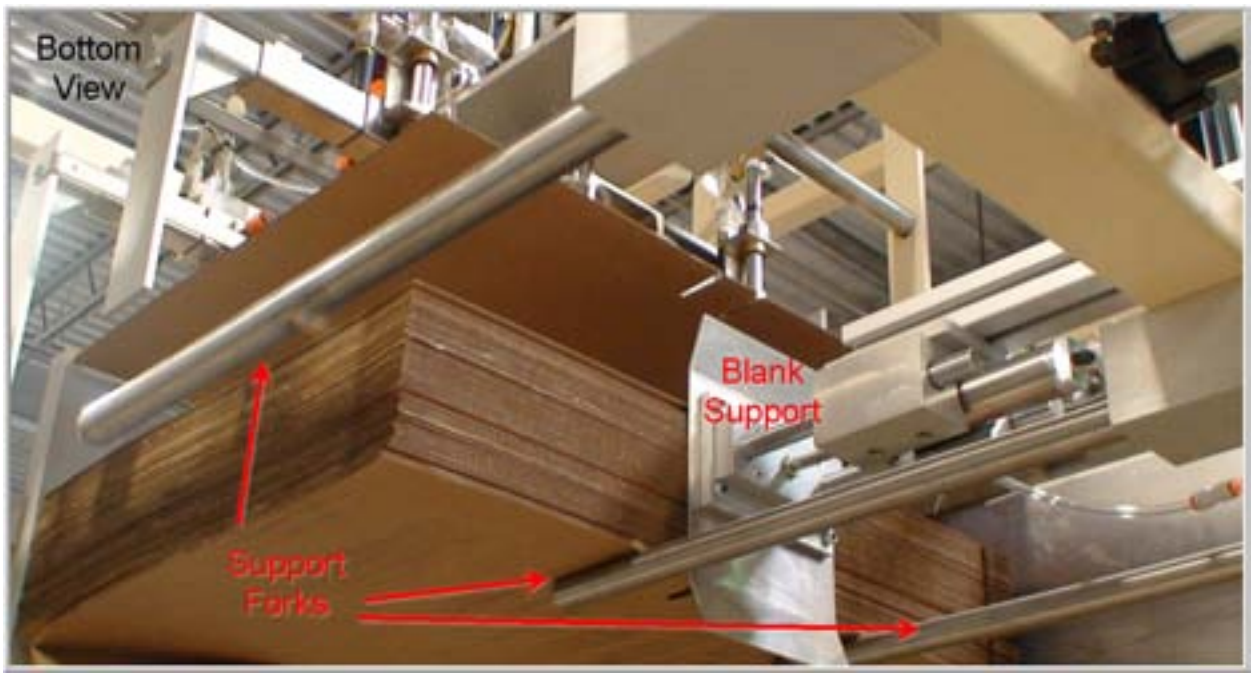
- The X-Lift is self-powered and able to hold a stack of blanks up to 44” in height.
- The X-Lift applies a constant upward force to the depleting stack of Blanks.
- This allows the top of the stack of Blanks to stay in a consistent position – which makes the System faster and more efficient.

➔ When the Blank stack gets to a height of 6", three Support Forks slip under the remainder of the stack.

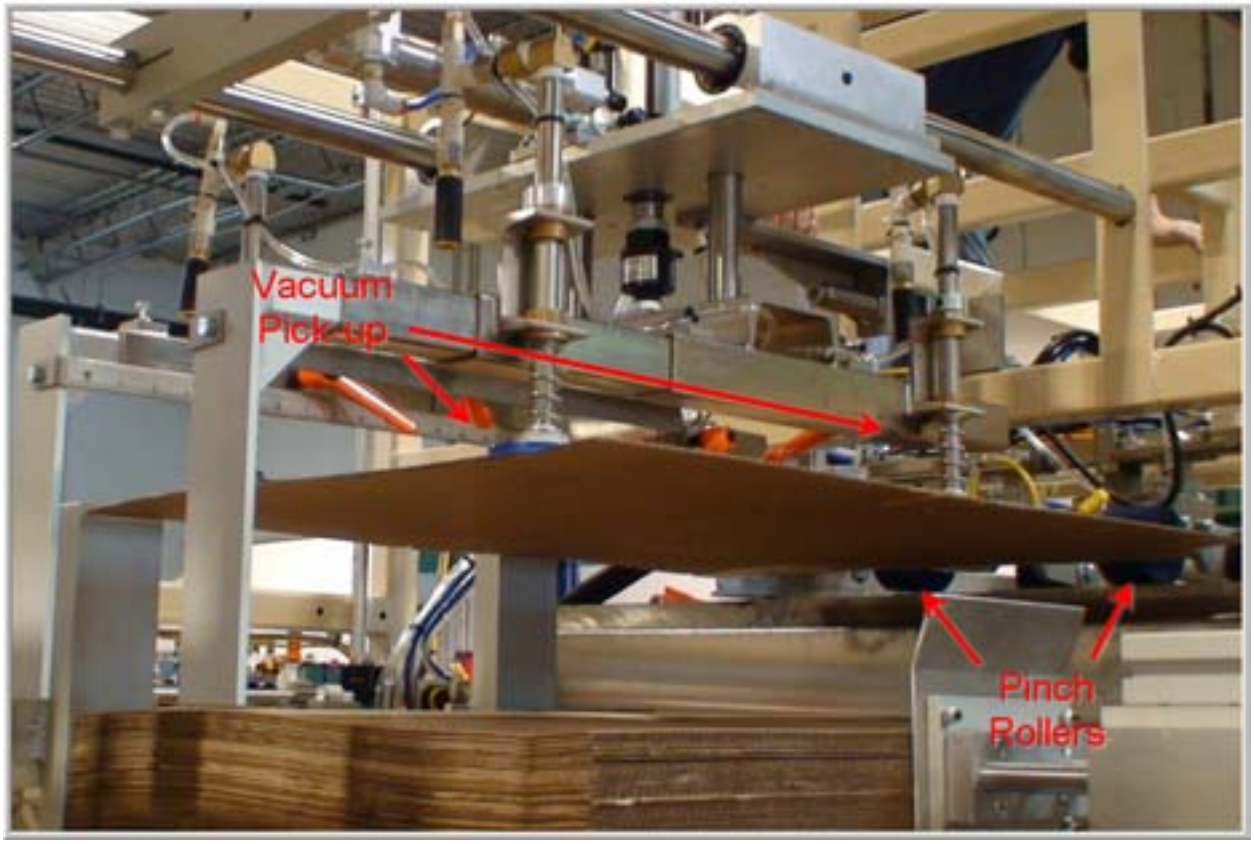
➔ While these Forks support the remaining stack, the X-Lift lowers and picks up the next full-sized stack from the Roller Conveyor.

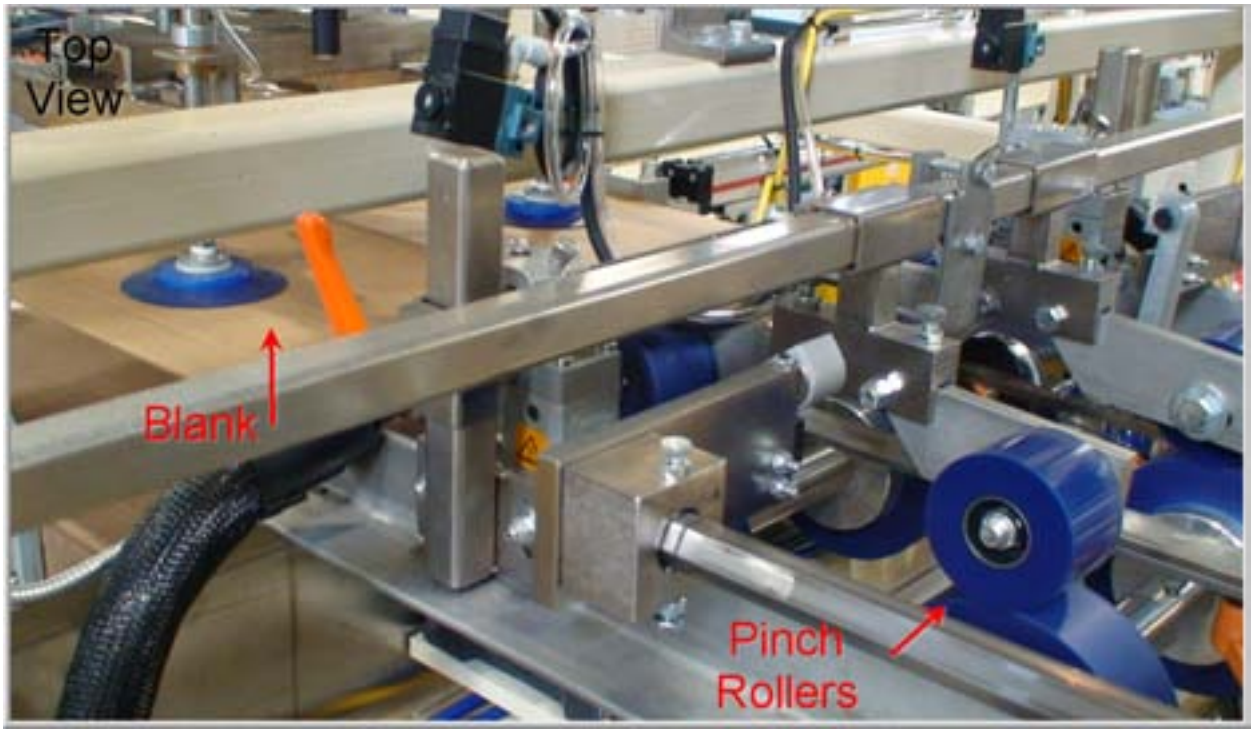
- This process also helps with production speed – keeping a constant flow of blanks in the Tray Former.

➔ Three Blank Support Plates (1 Rear & 2 Side) help keep the Blanks square and aligned properly for the Tray Former.



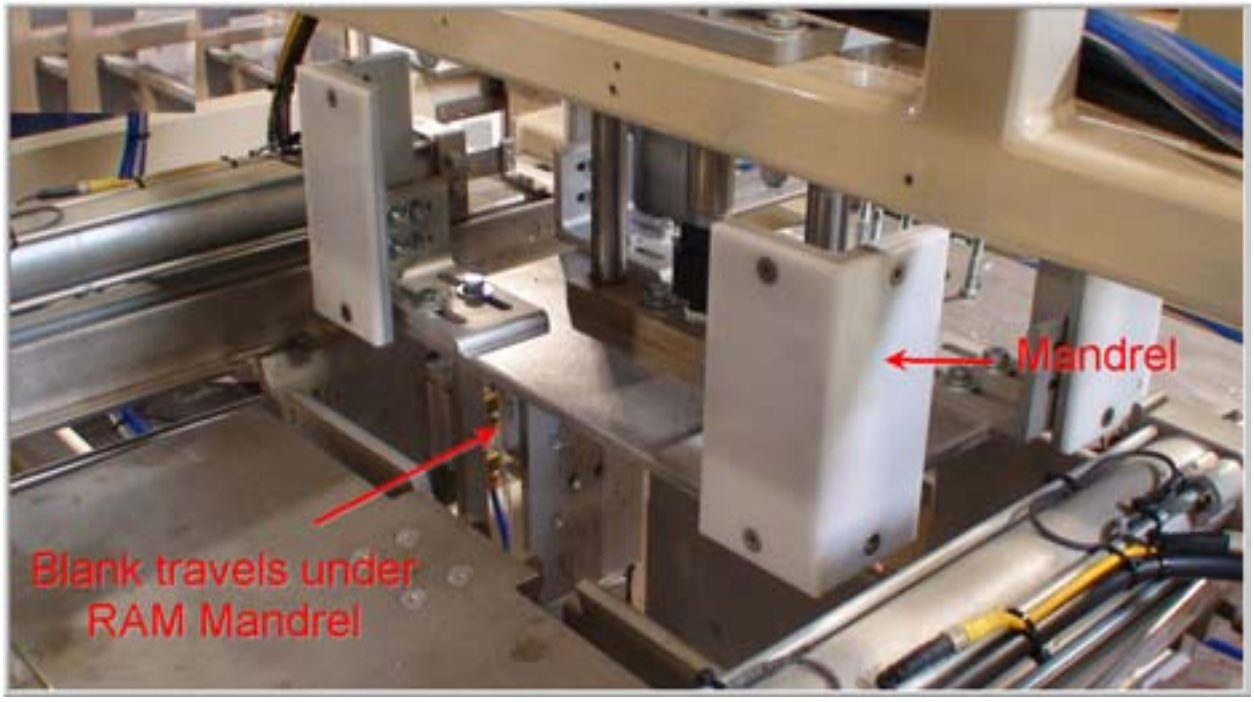
➔ In the main area of the Tray Former, Vacuum Cups pick up one Blank at a time, and feed the Blank, through Pinch Rollers, to the Compression Section.





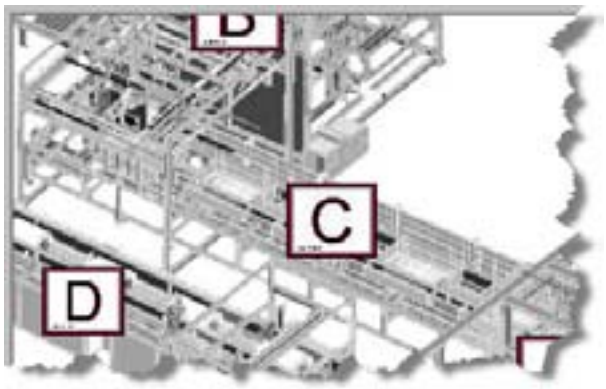
➔ As the Blank travels to the Compression Section, glue is applied to both Major Side Flaps.

➔ The Blank continues to move until it is positioned under a Servo-operated RAM Mandrel.

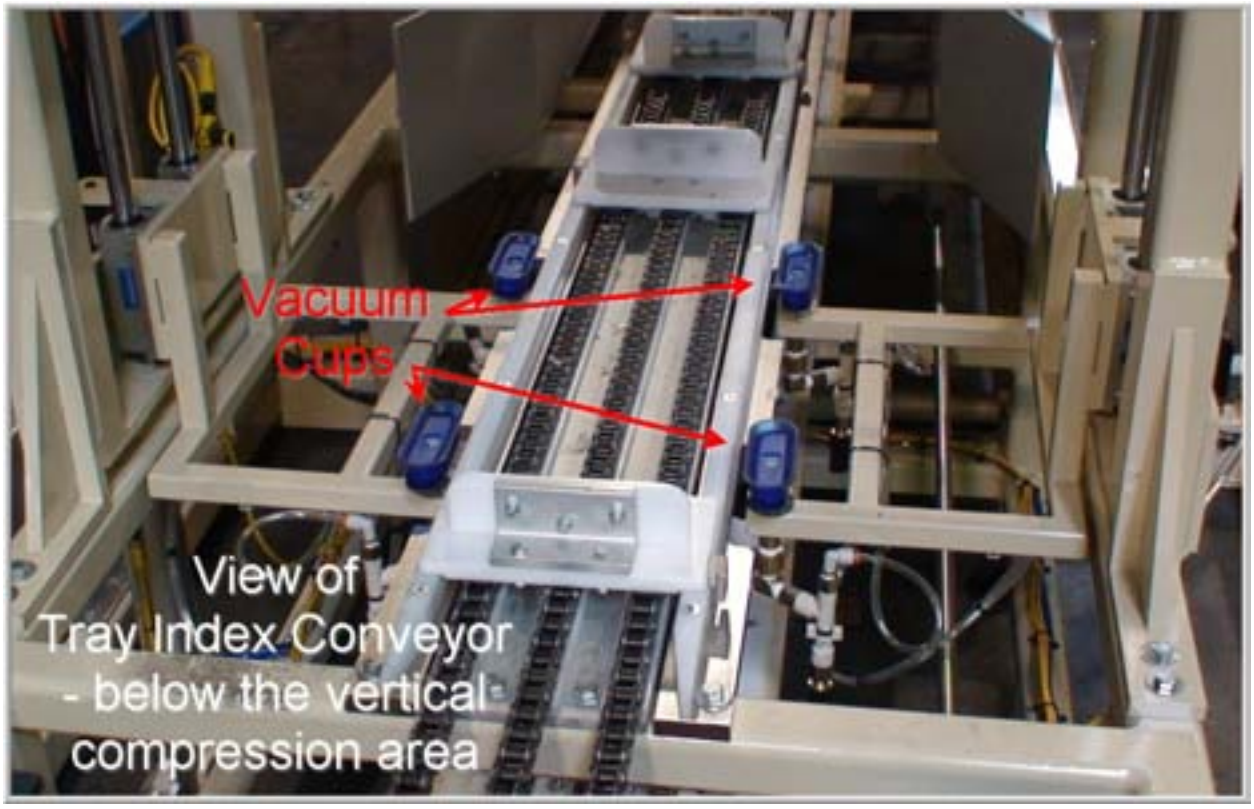


- ➔ The RAM drives the bottom of the Blank into a vertical compression area. As this takes place, two Fold Plates fold the Side Panels and the Lid of the Tray.
- ➔ The initial glue application is now sealed in the lower part of the vertical compression area.

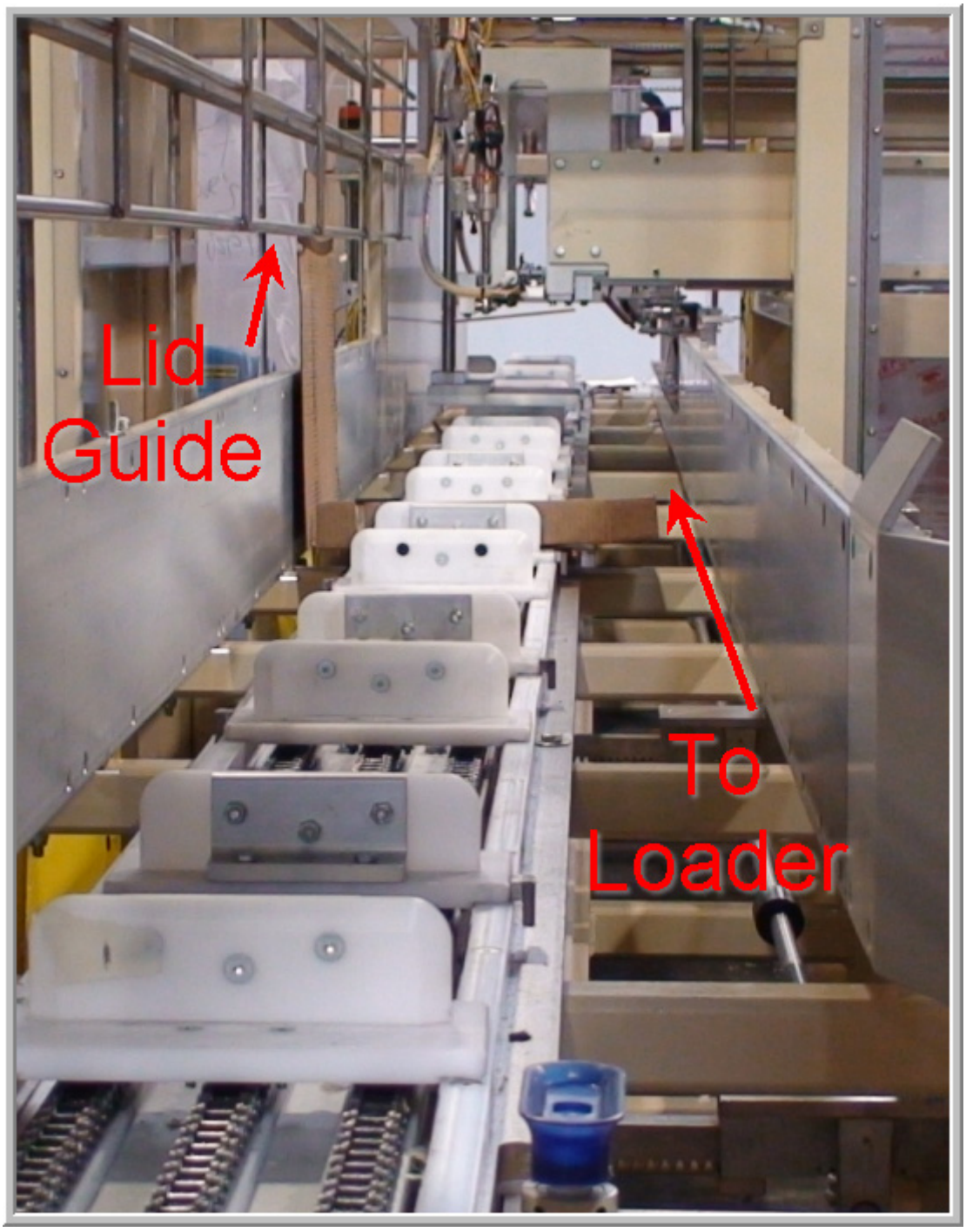
Section C – Part 1 - Tray Index Conveyor



➔ 4 Vacuum Cups rise from below the formed Tray, and bring it down into place on the Tray Index Conveyor.

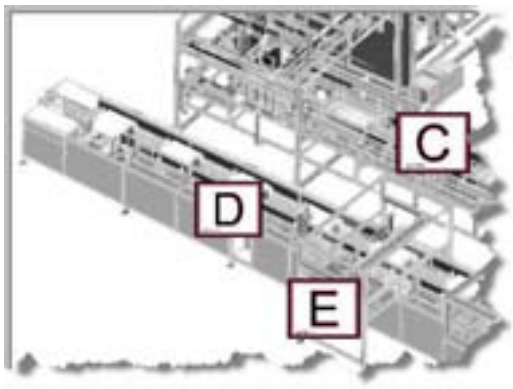


➔ From here, the Tray is indexed to the Loader (Section F).

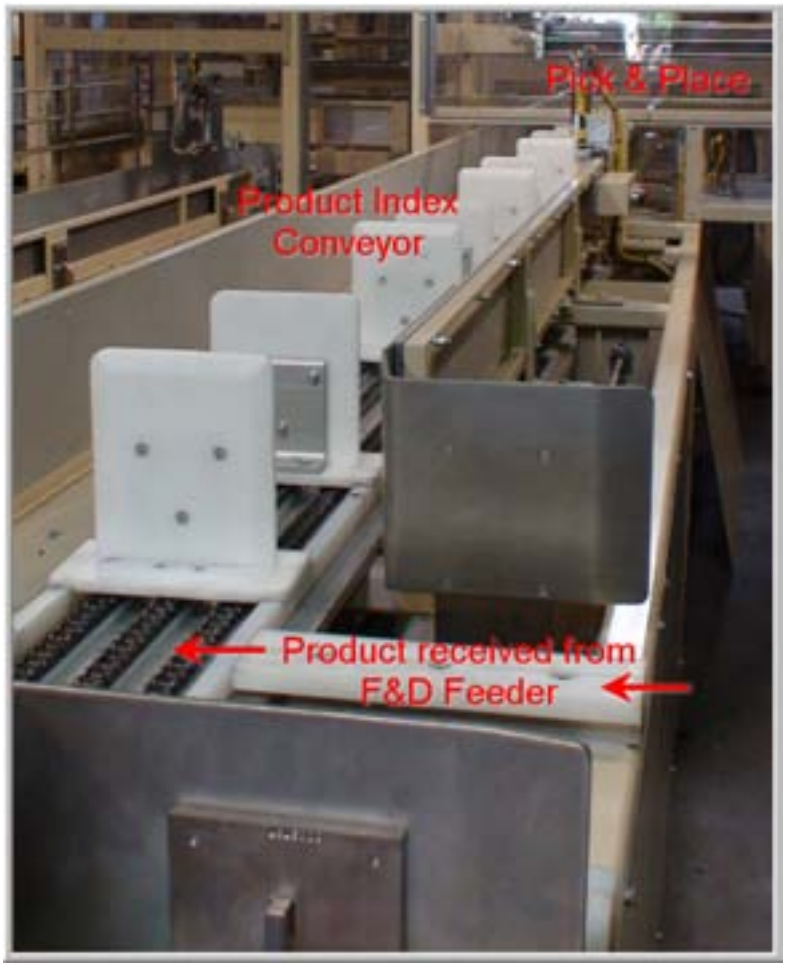


- The Tray Index Conveyor is able to adjust easily and automatically to differing Tray sizes.
- The Lid remains upright (for Product loading) by means of the Lid Guide – pictured on left in photo.
- Uses a Servo-driven motor.

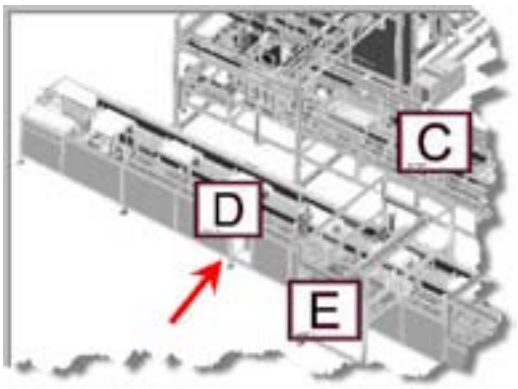
Section D – Part 1 - Product Index Conveyor



- ➔ The Product to be loaded into the Trays is received onto the Product Index Conveyor from the FnD Product Feeder (not part of the Tray Packing System).
- ➔ The FnD Feeder counts and stacks the Product, and then cross-pushes it onto the Product Index Conveyor.
- ➔ From this point, the Product is moved toward the Pick & Place (E) and then the Loader (F).

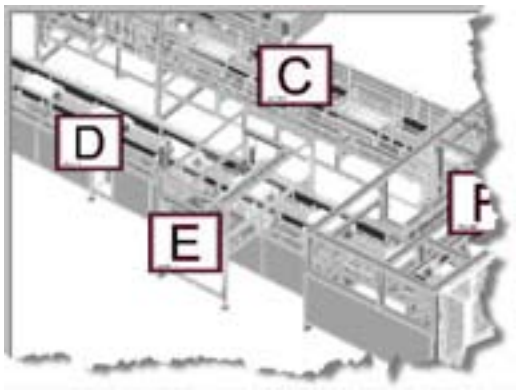


Section D – Part 2 - Manual Backup

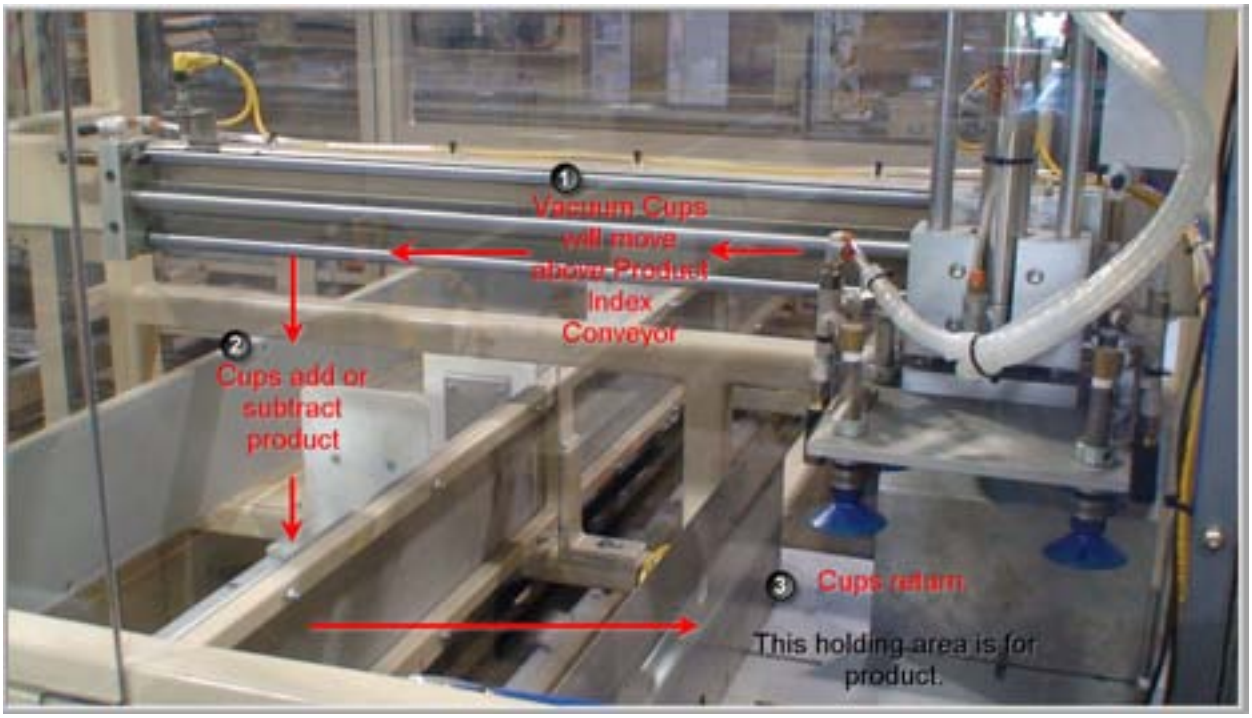


- ➔ The Manual Backup is located approximately 2/3 of the way down the Product Index Conveyor, on the outer side of the system.
- ➔ If the product over-supply from the FnD Feeder becomes too great, or there is build-up near the end of a shift, an Operator my manually place product into the Product Index Conveyor. The Operator can temporarily stop the conveyor, manually index an empty slot forward, and place a full product stack into that slot.
- ➔ The highlighted controls (noted below) are used for this process. The panel consists of:
  - **Auto Cycle ON/OFF** – Pushing this button will stop or start the Product Index Conveyor.
  - **Manual Index** – Pushing this button will move the conveyor forward, one slot at a time.
  - **E-Stop** – Stops the entire Tray Packing System.

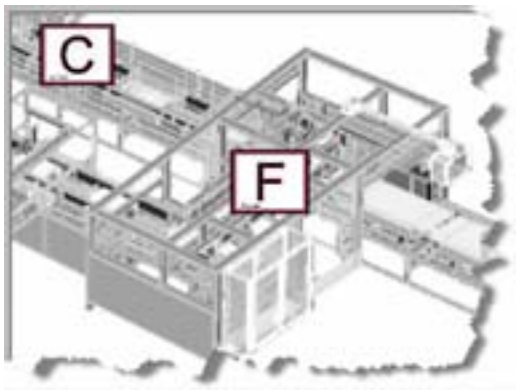
Section E – Pick & Place



- ➔ From the beginning of the Product Index Conveyor to the Loader, The Pick & Place station is positioned about 2/3 of the way down.
- ➔ The Pick & Place is the last checkpoint for ensuring that the Product stack is the correct height. If the Product count is not correct, the Pick & Place will adjust (add or subtract) the number that is appropriate for the Tray being used.
- ➔ From this point, the Product continues toward the Loader (F).

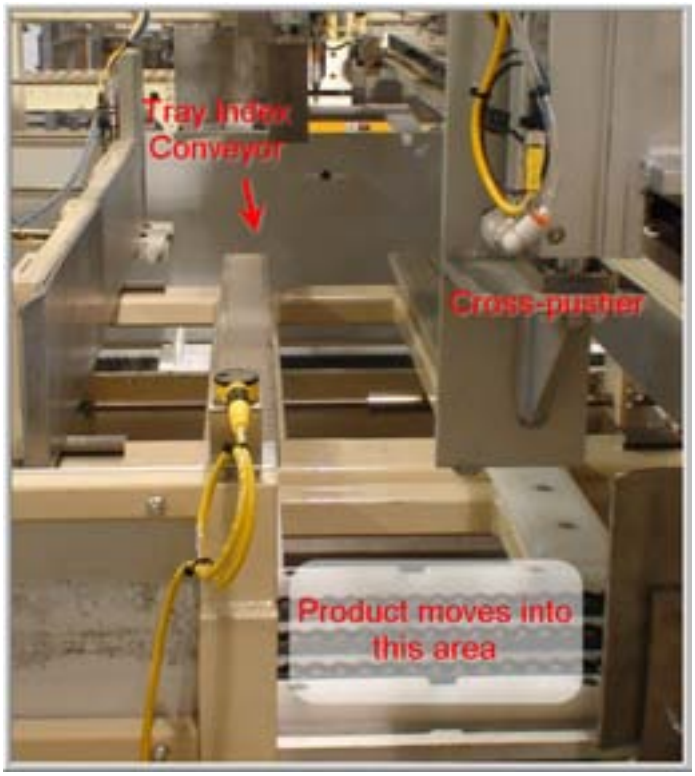


Section F – Loader



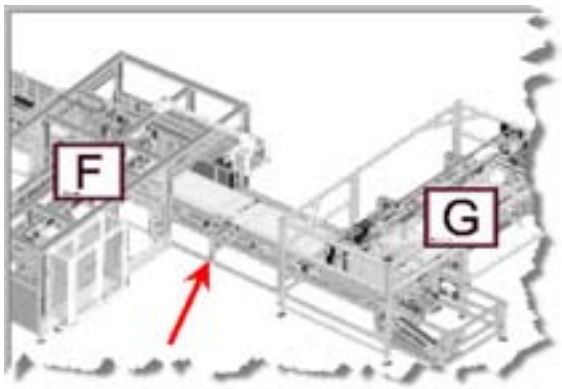
➔ The Loader is a combination of a Product Feeder and a Product Loader.

➔ The Product is moved into the Loader by way of the Product Index Conveyor (D). Then, in a very fast motion, the Product is cross-pushed to the awaiting Tray, which has arrived on the Tray Index Conveyor (C).



- As soon as the Product reaches the Loader, a 90° cross-pusher moves it to the other side of the Loader.
- For a moment, Bombay Doors hold the Product, then gently release it onto the Tray.
- A Back Guide helps to keep the Product in place, as it is being loaded into the Tray.

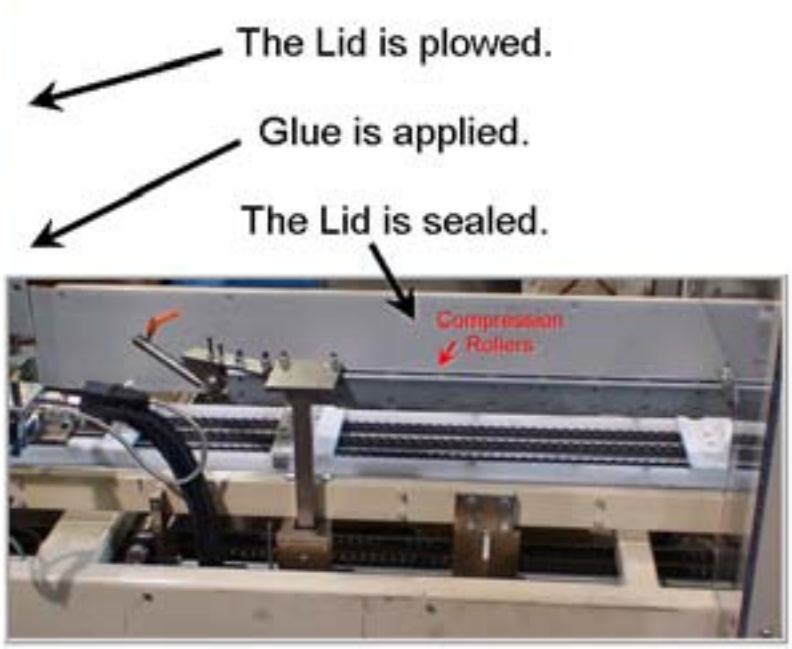
Section C – Part 2 – Tray Index Conveyor



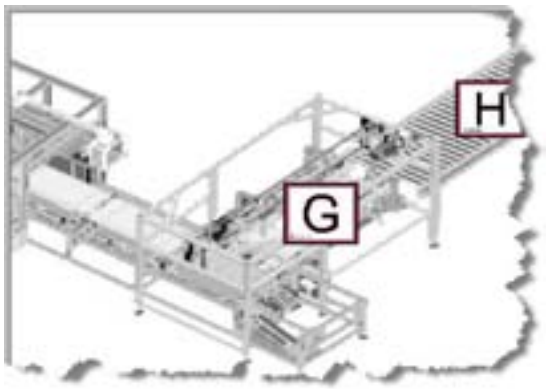
➔ The Tray Index Conveyor continues to move with the Product now loaded.

➔ Before the Tray reaches the Side Sealer (Section G), some critical processes take place:

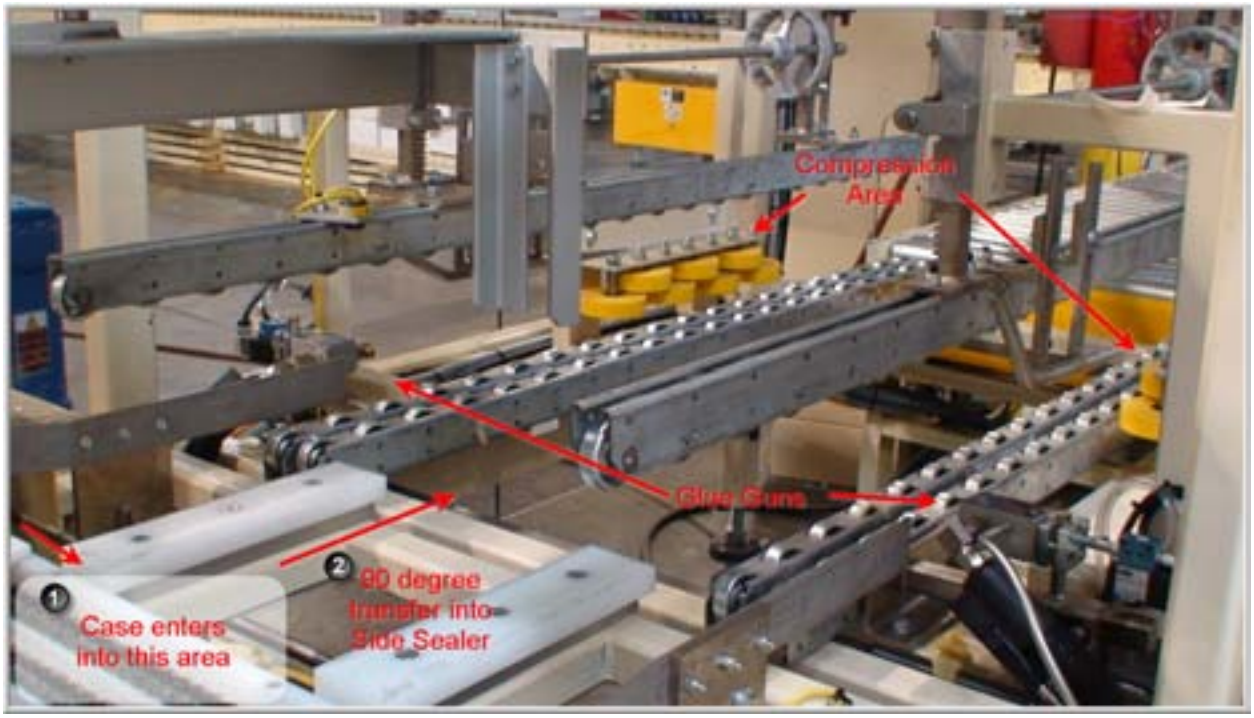
- The Lid is plowed down.
- Glue is applied to the Manufacturer's Flap.
- The Tray moves through Compression Rollers, where the Lid is sealed.



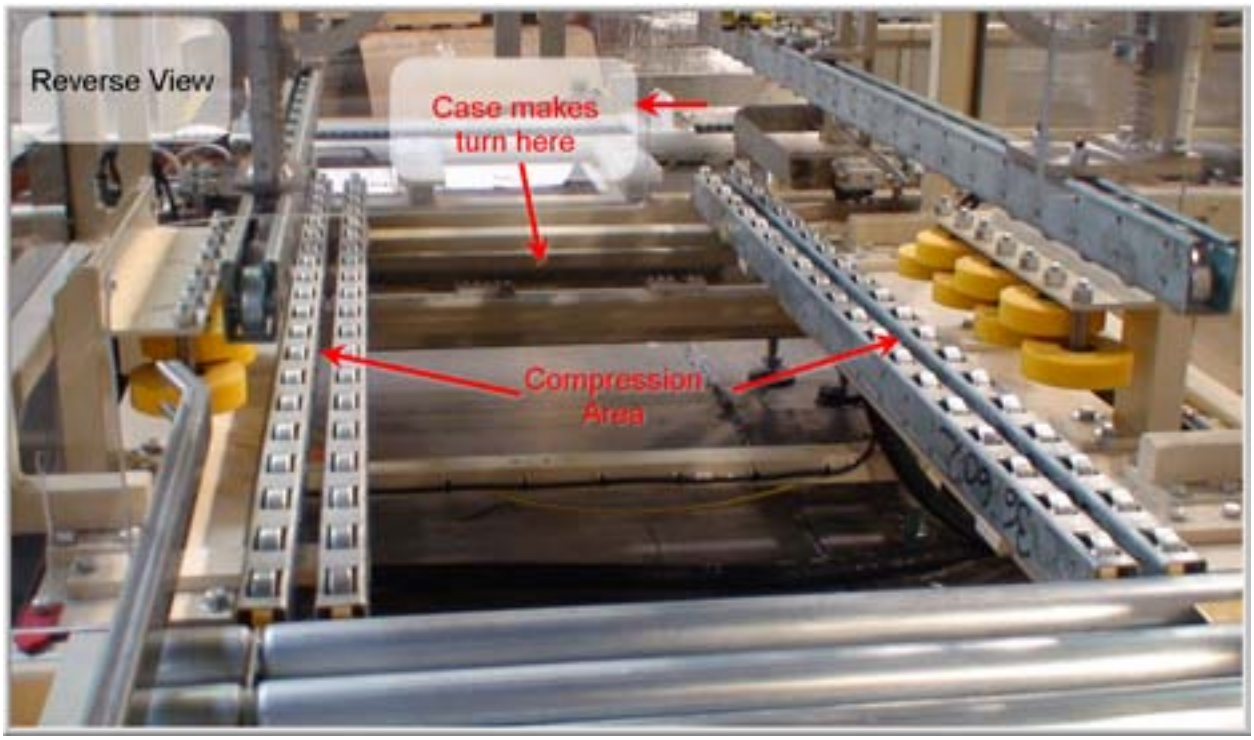
Section G – Sealer



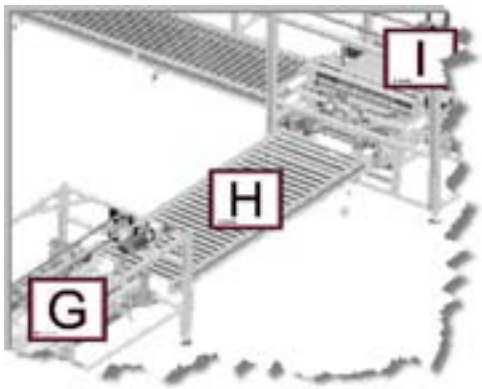
- ➔ The partially formed case now reaches the Sealer.
- ➔ As the Tray Packing System has reached a corner of its overall layout, the Case is transferred in a 90° direction.
- ➔ As the Side Flaps remain up, Glue is applied to the flat wall under the flaps.



- ➔ The Sides are plowed down, and the Case enters the Compression Area.
- ➔ Each Case sits in the Compression Area for one full cycle – which allows the Case to fully seal.
- ➔ The next Case then pushes the sealed Case onto the Transfer Conveyor (Section H).

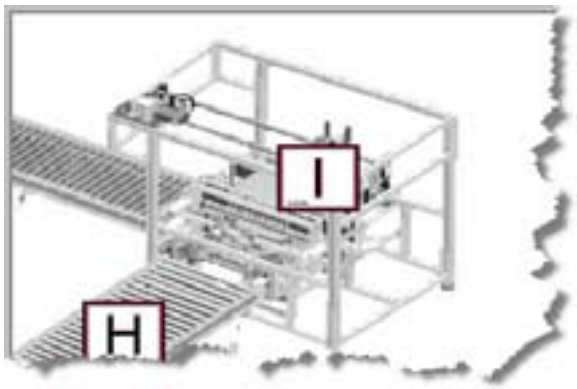


Section H – Transfer Conveyor



➔ The Transfer Conveyor helps to hold and move the finished Cases between the Sealer (Section G) and the Stacker (Section I).

Section I – Stacker



➔ The Stacker receives the Cases from the Transfer Conveyor (Section H).

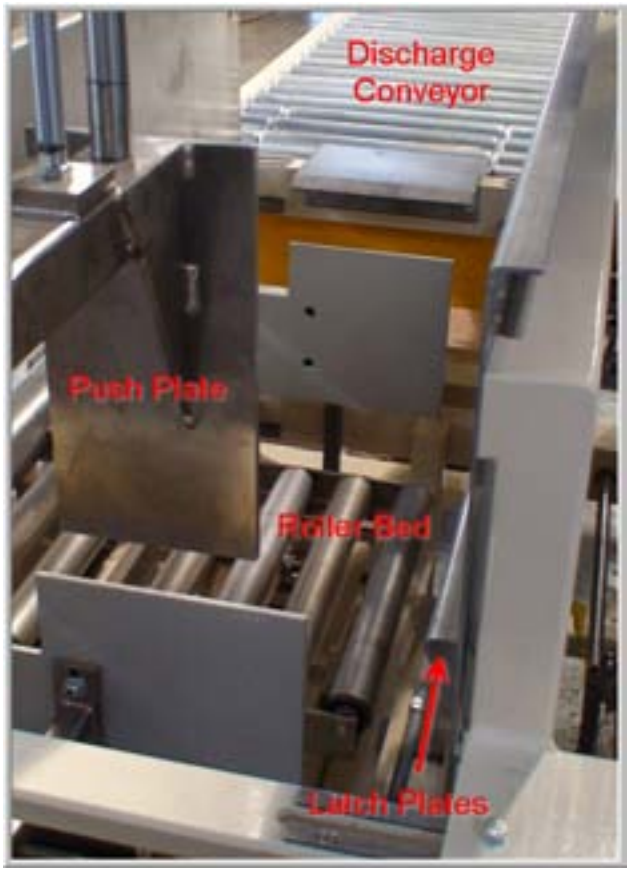
- Depending on what the Operator has pre-selected, the Stacker can stack anywhere from 2 to 5 Cases.

➔ The Case enters onto a gravity Roller Bed, with cylinders underneath. This Roller Bed can move up and down, and assists in creating stacks.

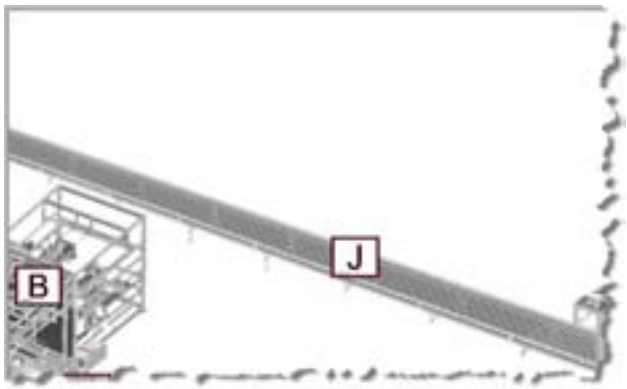
➔ As each Case enters, the Roller Bed raises the case. Latch Plates secure the upper stack, holding it in position. The Roller Bed than lowers, allowing another Case into the Stacker.

- This process is repeated until the desired stack number is achieved.

➔ Once the completed stack is achieved, a Push Plate moves the stack 90° onto the Discharge Conveyor (Section J).



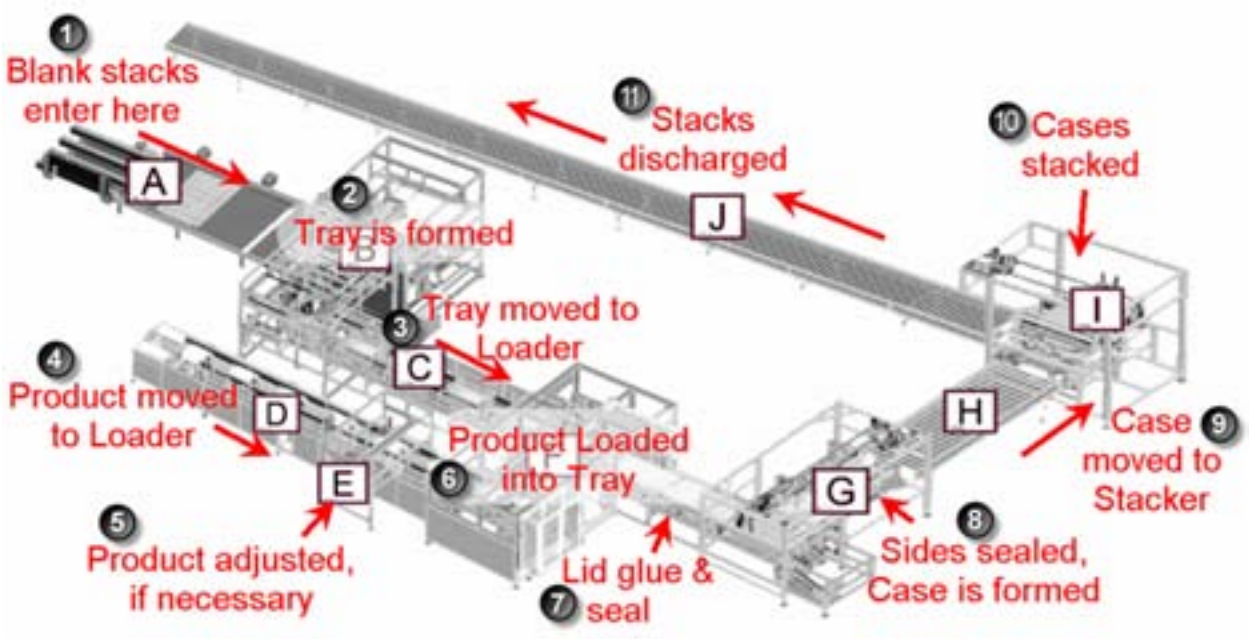
Section J – Discharge Conveyor



- ➔ The Case leaves the Stacker and moves onto the 50’ Discharge Conveyor.
- ➔ The Discharge Conveyor is a self-powered, decline discharge.
- ➔ Sensors are located on the conveyor to help maintain proper Case accumulation.

Operational Review

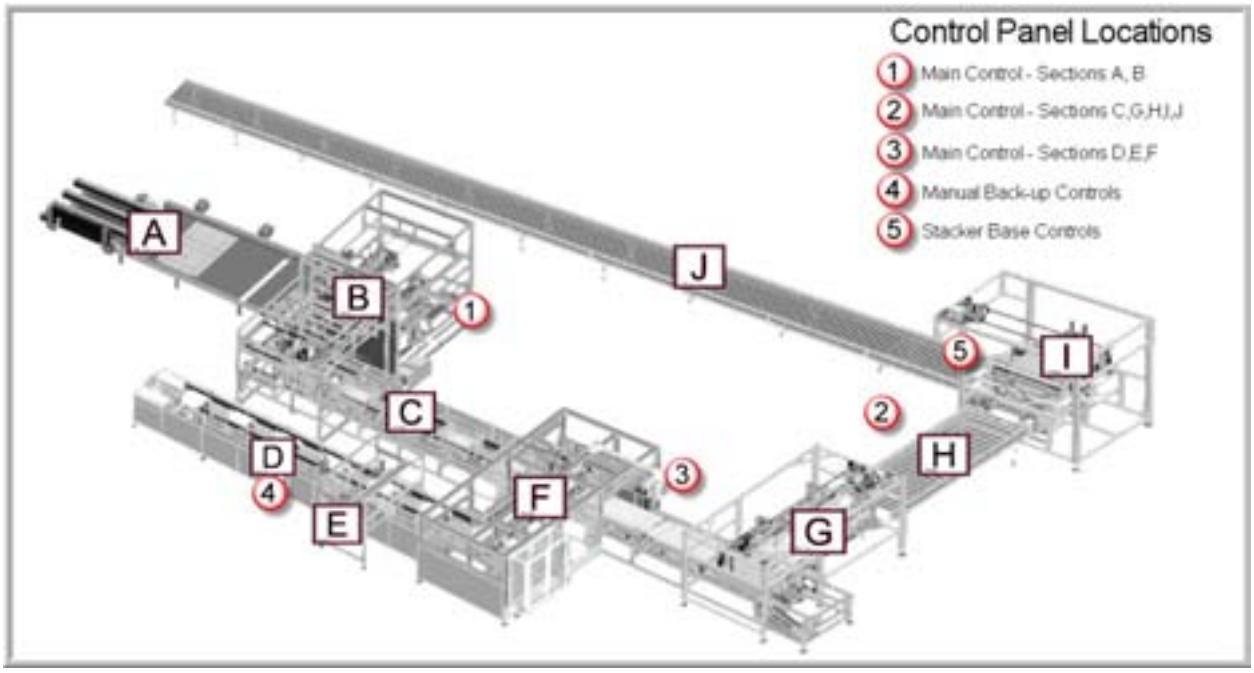
The following layout is a review of the operations performed by the Tray Packing System.



Operator Controls

Control Panels are the main interface between the Operator and the Tray Packing System. Almost all system control, settings and information can be accessed using Control Panels and Touch Screens (see later).

Control Panel Locations



Main Control – Sections A & B

Main Control – Sections C,G,H,I & J

Main Control – Sections D,E & F

Manual Backup Controls

Stacker Base Controls

Main Control Panel – Sections A & B

- **TOUCH SCREEN** – The Touch Screen is the primary interface between Operator and Machine. See the following section and the Appendix for more detail.
- **CONTROL POWER OFF / ON** - This Key Switch is used to supply operating power to this section of the Tray Packing System.
- **EMERGENCY STOP** – The Emergency Stop Push Button shuts down all control power to the machine when pushed. The air is dumped to all cylinders and power is removed from all outputs to the programmable controller.

➔ Be sure to pull out the E-Stops before running the machine.

Power should be off, the key removed, when performing adjustments on machine.

- **MAIN POWER** – This dial switch locks the electrical panel and supplies system power.
- **LOTO POWER** – Lockout/Tagout Power. Control Power is active, but motor control is disabled.

Main Control Panel – Sections C,G,H,I & J

- **TOUCH SCREEN** – The Touch Screen is the primary interface between Operator and Machine. See the following section and the Appendix for more detail.
- **CONTROL POWER OFF / ON** - This Key Switch is used to supply operating power to this section of the Tray Packing System.
- **EMERGENCY STOP** – The Emergency Stop Push Button shuts down all control power to the machine when pushed. The air is dumped to all cylinders and power is removed from all outputs to the programmable controller.

➔ Be sure to pull out the E-Stops before running the machine.

Power should be off, the key removed, when performing adjustments on machine.

- **MAIN POWER** – This dial switch locks the electrical panel and supplies system power.
- **LOTO POWER** – Lockout/Tagout Power. Control Power is active, but motor control is disabled.

Main Control Panel – Sections D,E & F

- **TOUCH SCREEN** – The Touch Screen is the primary interface between Operator and Machine. See the following section and the Appendix for more detail.
- **CONTROL POWER OFF / ON** - This Key Switch is used to supply operating power to this section of the Tray Packing System.
- **EMERGENCY STOP** – The Emergency Stop Push Button shuts down all control power to the machine when pushed. The air is dumped to all cylinders and power is removed from all outputs to the programmable controller.

➔ Be sure to pull out the E-Stops before running the machine.

Power should be off, the key removed, when performing adjustments on machine.

Manual Backup Controls

Manual Backup Controls are also described in the earlier section of this manual: Operation / Sequence of Operation / Section D – Part 2 – Manual Backup.

- **AUTO CYCLE ON/OFF –** Pushing this button will stop or start the Product Index Conveyor.
- **MANUAL INDEX –** Pushing this button will move the conveyor forward, one slot at a time.
- **E-STOP –** Stops the entire Tray Packing System.

Stacker Base Controls

- **STACKER ON/OFF –** Pushing this button will start or stop the operation of the Stacker.
- **KEY ON/OFF –** This On/Off Key supplies power to the Stacker.
- **E-STOP –** Stops the entire Tray Packing System.

Touch Screens

The primary interface between Operator and Machine.

➔ The Touch Screen can be used to:

- Monitor the machine
- Detail existing conditions and set-ups
- Inform the Operator of warning and/or fault messages

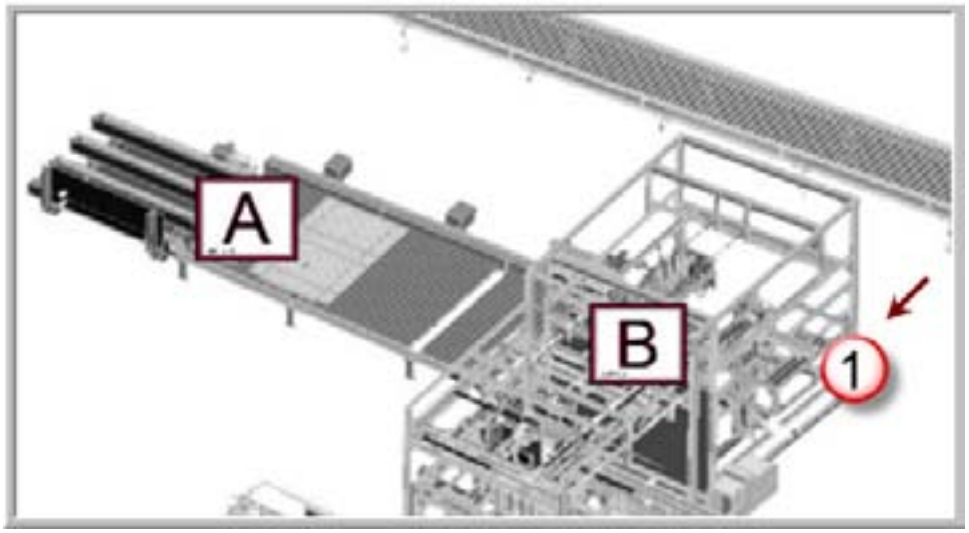
The Touch Screen is also a valuable tool when used for diagnosing problems with the machine when in Troubleshoot Mode.

Some buttons and areas of the Touch Screen will light up, or be visible or not visible depending on status of the machine.

Other buttons and areas will offer an option that can be initiated by pushing that area of the screen.

Some buttons toggle functions on and off, while other buttons are used to move to different screens.

Sections A & B



➔ The Touch Screen located at # 1 in the above diagram controls:

- ➔ A. Infeed & Roller Conveyor
- ➔ B. Tray Former

NOTE: The following Touch Screen sections are intended as a guide - covering main operations and common occurrences.

It is impossible to detail every possible scenario between machine operation and Touch Screen interface.

Main Menu

From the Main Menu, you can access all available sub-menus and all features of the Touch Screen.

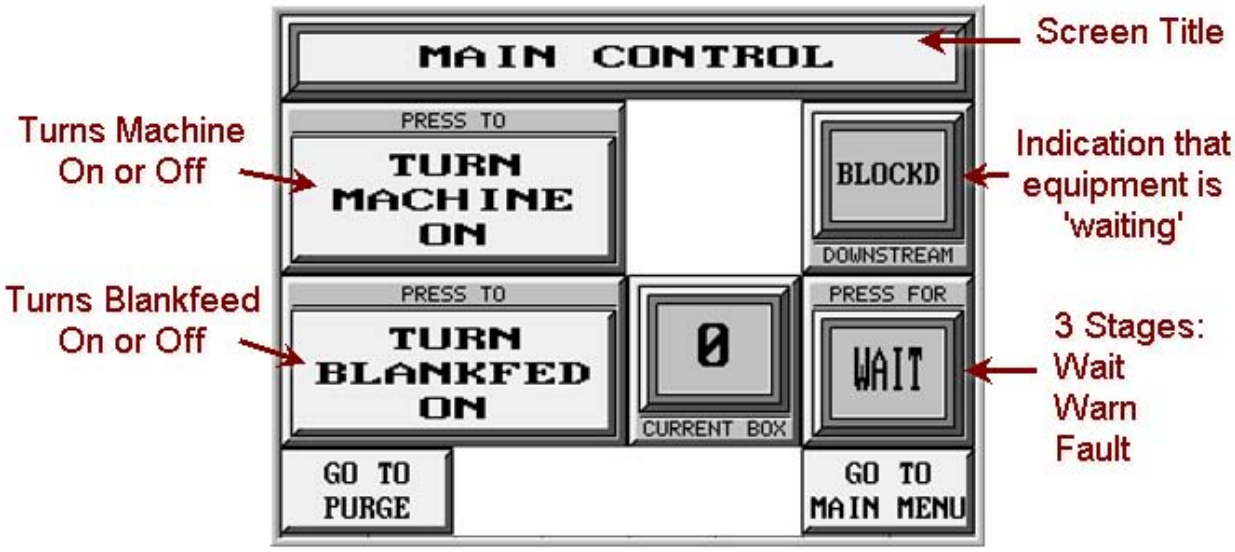
➔ For Sections A & B, the Main Menu consists of the following available sub-menus:

- Control
- Sequence
- Troubleshoot
- Lift Control
- Case Count
- Box Select
- Glue Test
- Alarms
- On / Off Line – This button, also password protected, will change the Machine status from On Line (ready for operation) to Off Line (pause mode).

You may also adjust the contrast of your screen. Simply touch the Adjust Contrast buttons at the lower right of the screen.

Control Screen

The Control Screen for Sections A & B provides control of the Tray Former and its related components.



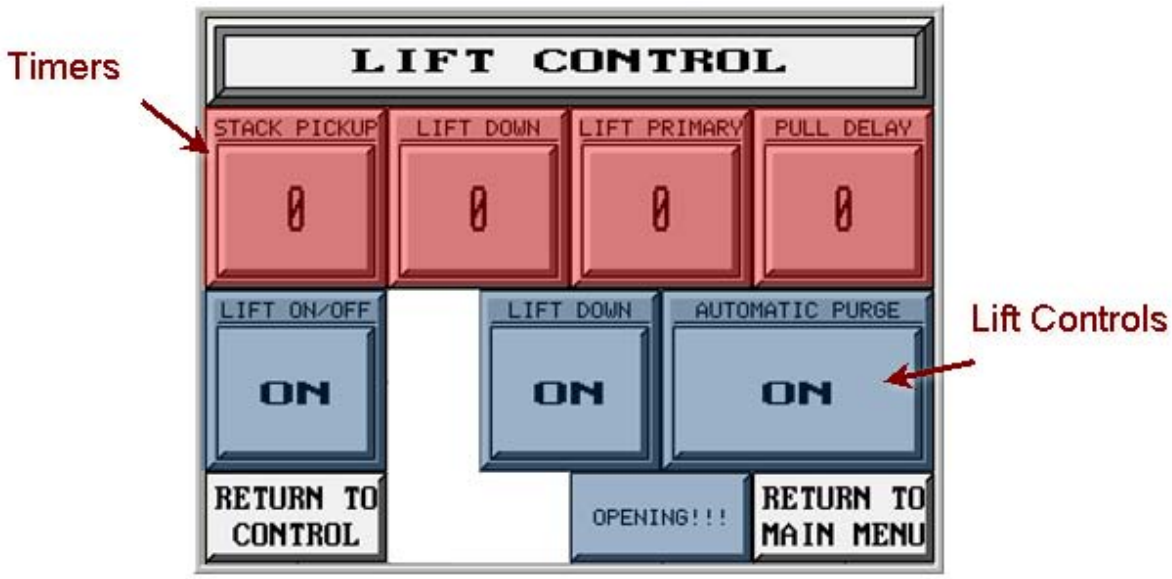
➔ The Control Screen consists of:

- MACHINE ON / OFF BUTTON - Press this to turn the machine ON or OFF.
- BLANKFEED ON / OFF BUTTON – Press this to start the Blankfeed and begin cycling Blanks.
- BLOCKD / CLEAR – This is an indicator. In this case, indicating that a downstream photo eye is blocked.
- WAIT / WARN / FAULT – An active button that can display 3 stages of Machine status.
  - WAIT – Machine operating properly.
  - WARN – Something is wrong and should be checked. Warnings may be ignored, but also may result in a later issue. The Operator must use their own judgment when interpreting warnings.
  - FAULT – An issue has caused the Machine to stop operation. Faults must be remedied immediately. When a Fault occurs, pressing this button will open the Alarm Message Screen, and give the Operator information on the issue that needs to be addressed.
- CURRENT BOX – Indicates the current Blank size running on the Machine. The Tray Packing System runs boxes numbered 1 through 7.
- GO TO MAIN MENU– Pressing this button will access the Main Menu Screen.
- GO TO PURGE – Pressing this button will access the Operator Purge Control. This process will stop Blankfeed, lower the X-Lift and back all Blanks from the Infeed Area.

For more detail on Faults- see the Fault Screen in the Appendix.

Lift Control Screen

This Control Screen provides control of the X-Lift System between Sections A & B.



➔ The Lift Control Screen consists of:

- STACK PICKUP – A timer that indicates the amount of time the puller solenoid remains on.
- LIFT DOWN – A timer that indicates the amount of time of delay after the lift down sensor is activated.
- LIFT PRIMARY – A timer that indicates the amount of time of delay of lift, after the primary eye beam has been broken.
- PULL DELAY – A timer that indicates the amount of time of delay until the blank is fed into the rollers of the Tray Former.

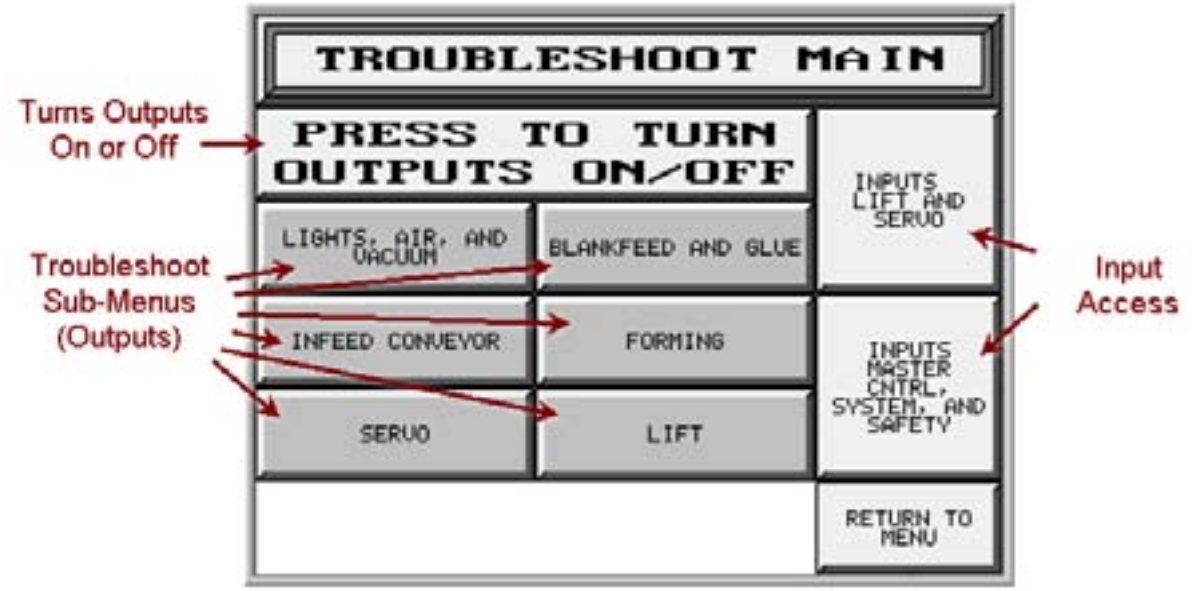
- LIFT ON/OFF – This button enables or disables lift movement.
- LIFT DOWN – This button moves the lift down, if enabled.
- AUTOMATIC PURGE – This is an automatic sequence designed to remove Blanks from the entire Infeed system. This will sequence each Blank stack out by reversing the motors, then waiting for the stack at the fork lift drop point to be removed. This will also remove Blanks that are on the Retaining Rods (see Sequence of Operation for detail on Retaining Rods).
- OPENING !!! – This button will 'open' the Retaining Rods and reset the system manually, after the manual removal of Blanks from the Retaining Rods.

Troubleshoot Screens

Troubleshoot Screens assist in identifying and resolving issues with the machine that may be interrupting normal production.

Troubleshoot Main Screen

➔ The Troubleshoot Main Screen displays access to all Troubleshoot sub-menus and Troubleshoot Inputs / Outputs.



➔ Terms:

- **Input** – A signal/communication from a Machine component, such as a Photo Eye, Proximity Switch, Reed Switch, etc.
- **Output** – A signal/communication from the Touch Screen/Program to a component, such as a Solenoid, VFD Motor, Servo Motor, etc.

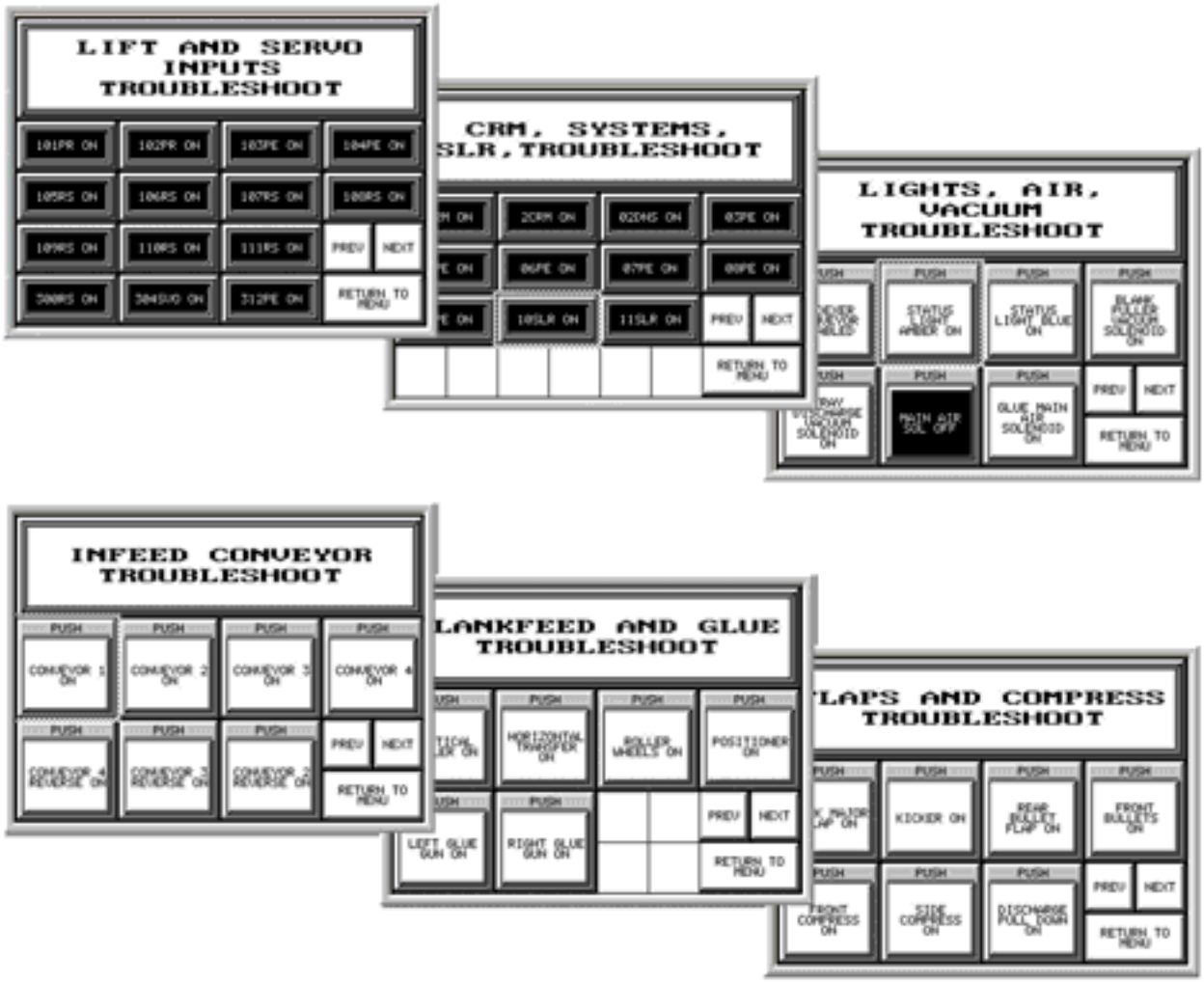
For more information on these and other terms, see the Glossary in the Appendix.

- Press to Turn Outputs On / Off – pressing this button will turn the Outputs (Troubleshoot Sub-Menus On or Off. If they are Off, the Sub-Menus WILL NOT display on this screen.
  - Machine MUST be OFF to turn Troubleshoot Outputs ON.

- Each Sub-Menu or Output will take the Operator to a different screen, displaying the details of that particular group. (see following)

Troubleshoot – Sub-Menus

Examples of Troubleshoot Sub-Menus (Outputs) are displayed below. This breakdown makes it easier to recognize an issue and find a solution.



*Not all pictured

- The use of these screens allows the Operator to observe the operation of each Input device and to individually turn On/Off each Output. This helps with diagnosing issues and making proper adjustments.

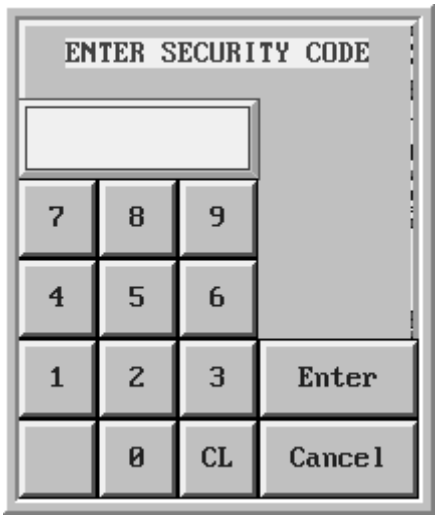
The numbers above (such as 115 PE) refer to numbering also found in the Electrical Schematics, the Computer Program and in part labels found on each corresponding item on the machine.

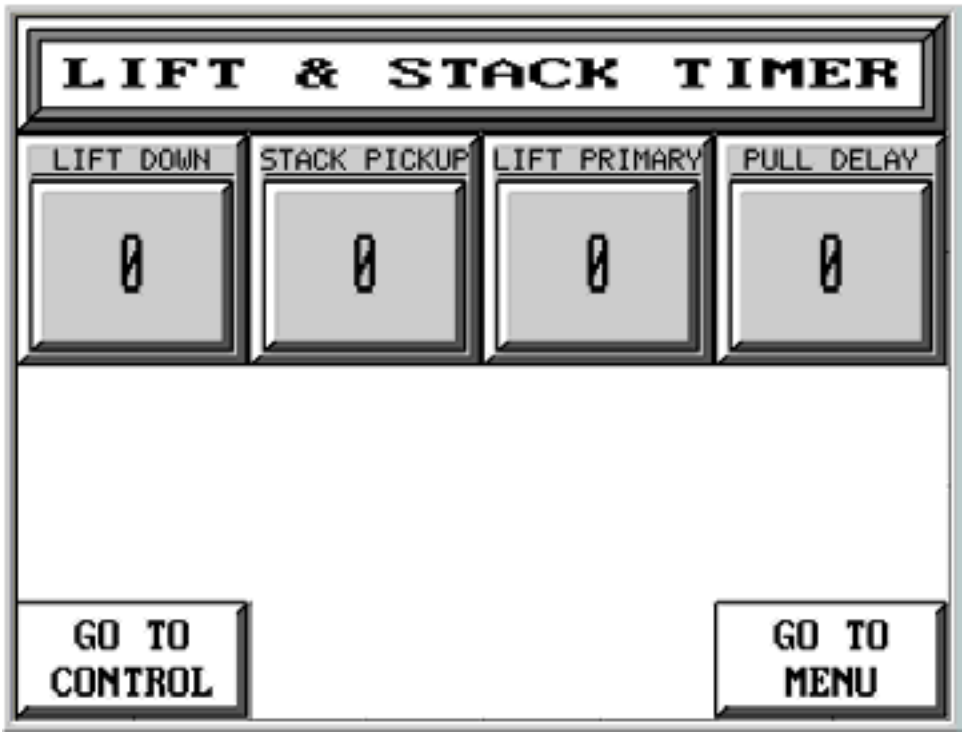
This makes for easier troubleshooting, maintenance and repair.

Timer Screen

This screen is protected by passcode entry. Only authorized personnel are able to access and adjust timers.

➘ Authorized Personnel – enter your passcode and touch the ENTER key.

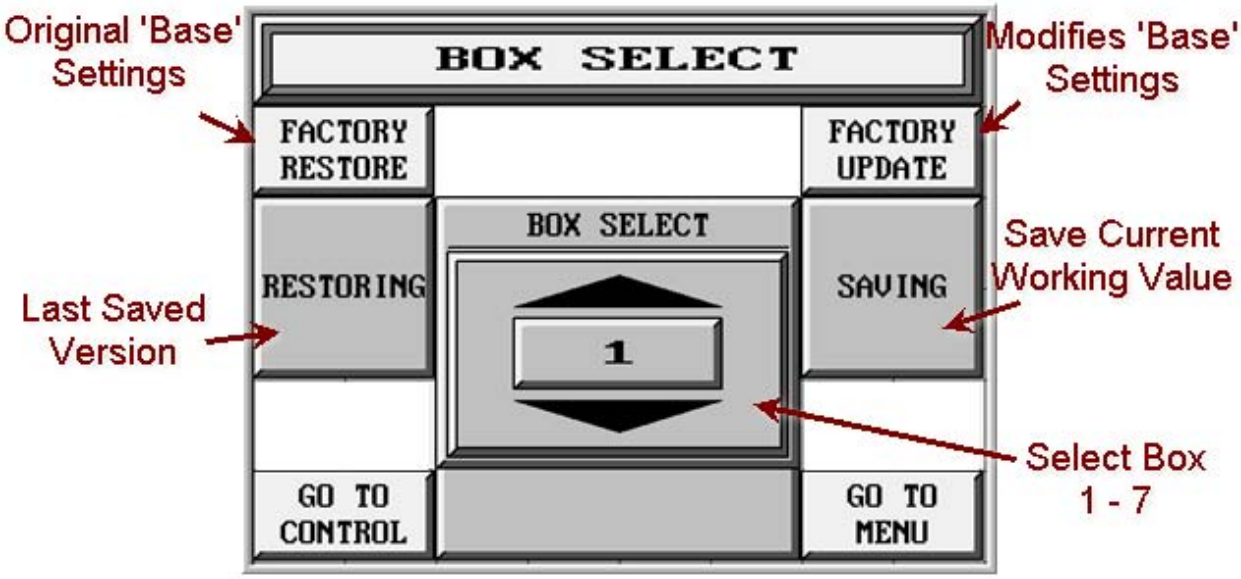




➔ Buttons on Timer Screens allow Authorized Personnel to adjust selected timers.

Change Box Screen

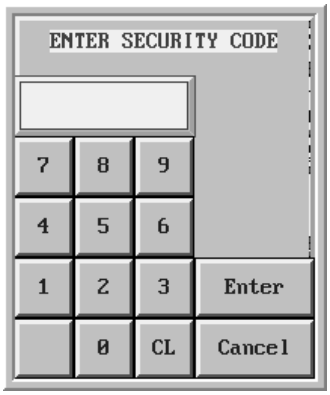
The Change Box Screen allows for the change of box settings, saving current values, and restoring working values. The Factory Restore and Factory Update areas are password protected and for Authorized Personnel only.



- FACTORY RESTORE – This will restore the currently selected Box to its original, factory 'base' settings.
- FACTORY UPDATE – This will overwrite factory settings for the currently selected Box.
- SAVING – Saves the current working values per Box, but does NOT overwrite factory settings.
- RESTORING – Restores the last saved version of the current Box.
- BOX SELECT – Use up and down arrow keys to toggle between Box numbers 1 – 7.
  - After pressing the Box Selection button, and using the up and down arrow keys, Box settings (from 1 to 7) may be selected.

➔ Factory Restore and Factory Update areas are for Authorized Personnel only.

➘ Authorized Personnel – enter your passcode and touch the ENTER key.



Alarm Screen

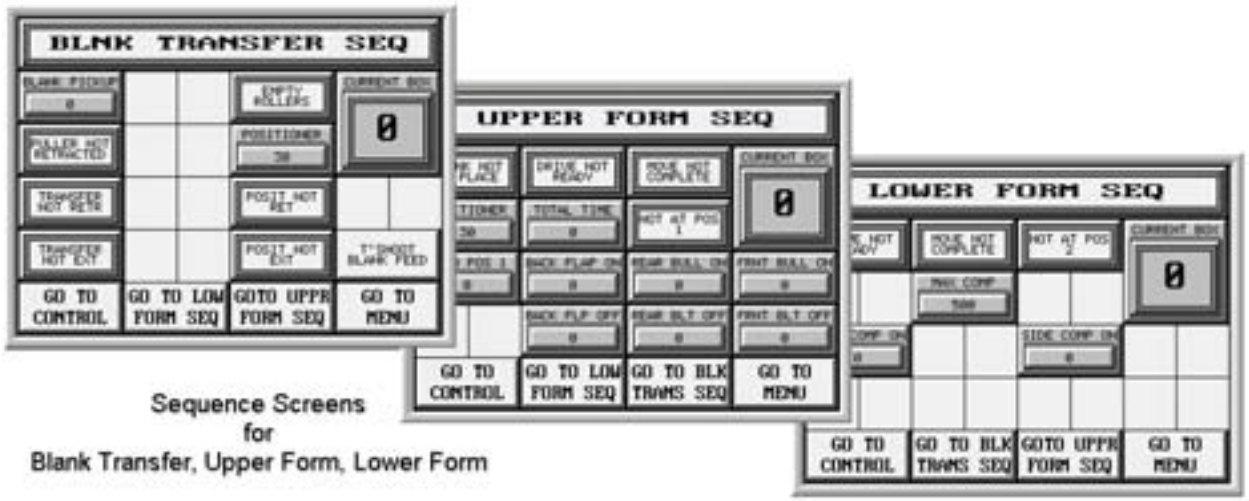
The Alarm Screen allows the Operator to view the Alarm function and to reset Alarm History.

Recurring Alarms of the same nature may indicate a more serious issue with the System.

Contact Maintenance if you recognize repeating patterns.

Sequence Screens

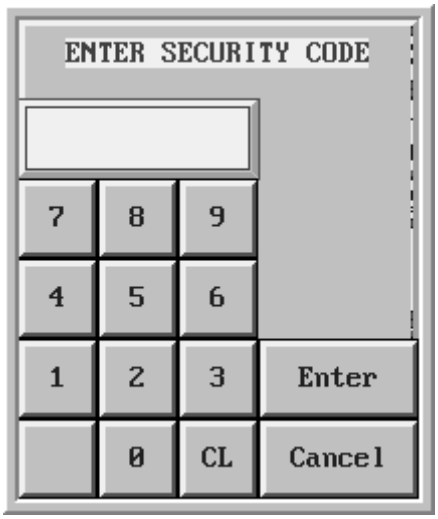
Sequence Screens (also password protected) are accessed through the Control Screen, and allow Authorized Personnel to adjust individual machine sequence components.



Sequence Screens
for
Blank Transfer, Upper Form, Lower Form

➔ Sequence Screens are for Authorized Personnel only.

➘ Authorized Personnel – enter your passcode and touch the ENTER key.



Blank Feed Troubleshoot Sequence

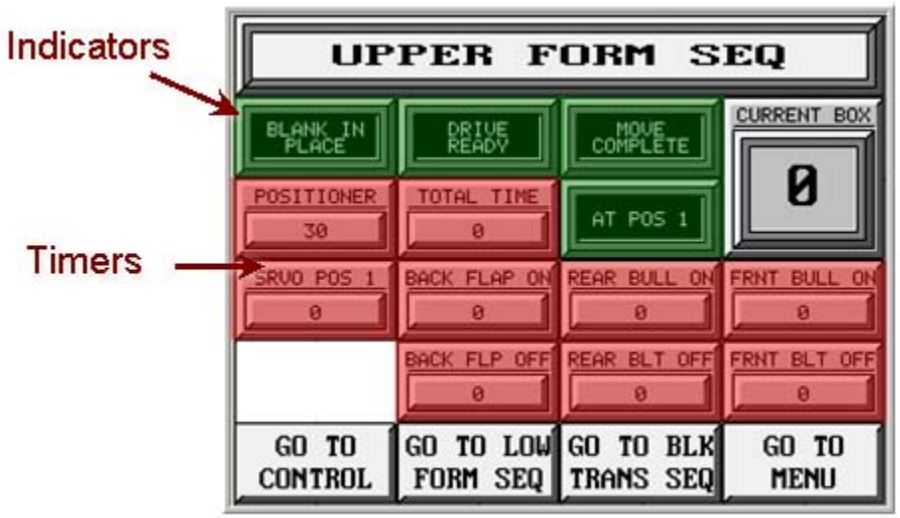
This screen displays indicators and timers for the Blank Feed area of the Tray Former.

➔ Used by Maintenance personnel to view conditions of inputs as to the proper function of the Tray Former.
➔ In general, Black indicates the item is functioning properly, White indicates an issue may need to be addressed.

- SERVO AT TOP/NOT – Indicates whether or not the Servo is in Top position.
- PULLER RETRACTED ON/OFF – Indicates that the sensor reading the Puller is retracted.
- H TRANSFER RETRACTED ON/OFF – Indicates the sensor reading of transfer is retracted.
- BLANK POSITION EXTENDED ON/OFF – Indicates the sensor reading of the Positioner.
- TRAY IN CONVEYOR/NOT – Indicates whether or not Tray is in conveyor.
    - ONLY for box # 7.
- CYCLE COMPLETED/NOT – Indicates whether or not System has completed making a Tray.
- BLANK IN ROLLERS/NOT – Indicates the sensor reading of the Rollers is blocked or not.
- CONVEYOR READY/NOT – Indicates the Tray Index Conveyor is waiting or not.
- 1^{ST} PASS ON/OFF – Indicates the System is waiting for initialization positions.
- 1^{ST} PUSH ON/OFF – Indicates the System is waiting for secondary initialization positions.
- STACK OK/LOW – Indicates whether or not the Blank stack is OK.
- BLANK PICKUP – A timer that indicates the duration that the Puller solenoid is ON.
- PULL DELAY – A timer that indicates the amount of time until a Blank is fed into the System.

Upper Form Sequence

The first of two screens for the Formation Section, this screen displays indicators and timers for the Upper Formation area of the Tray Former.

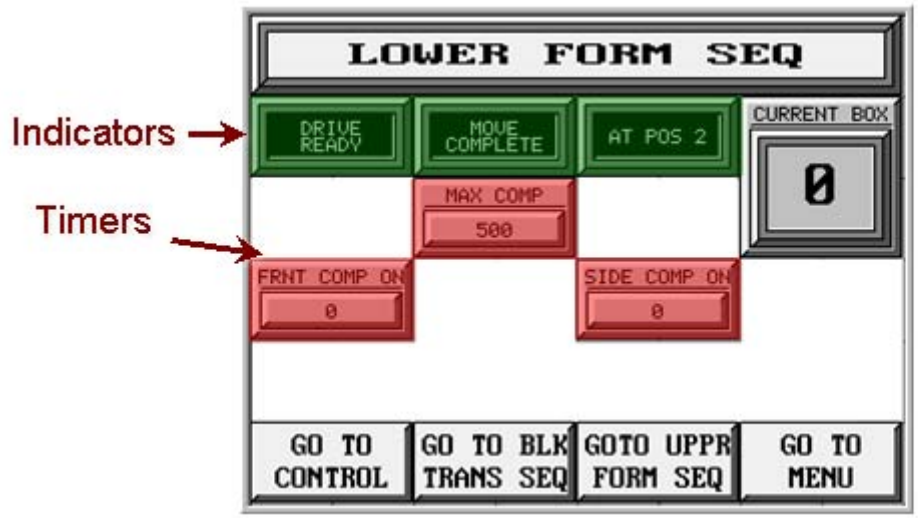


➔ Used by Maintenance personnel to view conditions of inputs as to the proper function of the Tray Former.
➔ In general, Black indicates the item is functioning properly, White indicates an issue may need to be addressed.

- BLANK IN PLACE/NOT – Indicates whether or not the Blank is in place.
- DRIVE READY/NOT – Indicates whether or not the Servo drive is ready.
- MOVE COMPLETE/NOT – Indicates whether or no the Servo had completely moved to current position.
- AT POS 1/NOT – Indicates whether or not the Servo is at position 1.
    - Position 1 is the upper forming position.
- POSITIONER – A timer that measures the time of a Blank from the glue timer to the forming position.
- TOTAL TIME – A timer that measures the total amount of time a full sequence takes. Starts when Blank is in place.
- SERVO POS 1 – A timer that measures the delay time until the Servo moves to position 1.
- BACK FLAP ON – A timer that measures the delay until the Back Flaps solenoid turns on.
- REAR BULLET ON – A timer that measures the delay until the Rear Bullet solenoid turns on.
- FRONT BULLET ON – A timer that measures the delay until the Front Bullet solenoid turns on.
- BACK FLAP OFF – A timer that measures the delay until the Back Flaps solenoid turns off.
- REAR BULLET OFF – A timer that measures the delay until the Rear Bullet solenoid turns off.
- FRONT BULLET OFF – A timer that measures the delay until the Front Bullet solenoid turns off.

Lower Form Sequence

The second of two screens for the Formation Section, this screen displays indicators and timers for the Lower Formation area of the Tray Former.



➔ Used by Maintenance personnel to view conditions of inputs as to the proper function of the Tray Former.

➔ In general, Black indicates the item is functioning properly, White indicates an issue may need to be addressed.

- DRIVE READY/NOT – Indicates whether or not the Servo drive is ready.
- MOVE COMPLETE/NOT – Indicates whether or no the Servo had completely moved to current position.
- AT POSITION 2/NOT – Indicates whether or not the Servo is at position 2.
    - Position 2 is the lower forming position.
- MAX COMPRESSION – A timer that measures the amount of time of the compression cycle.
- FRONT COMPRESSION – A timer that measures the amount of time from blank in place until the front compression solenoid turns on.
- SIDE COMPRESSION – A timer that measures the amount of time until the side compression solenoid turns on.

Servo Move Troubleshoot Sequence

This screen displays indicators for the Servo movement of the Tray Former.

➔ Used by Maintenance personnel to view conditions of inputs as to the proper function of the Tray Former.
➔ In general, Black indicates the item is functioning properly, White indicates an issue may need to be addressed.

- AT TOP POSITION/NOT – Indicates whether or not the Servo is at top position.
- BLANKS IN PLACE/NOT – Indicates whether or not the Blanks are in place.
- POSITIONER RETRACTED/NOT – Indicates whether or not the positioner is retracted.
- AT LOWER POSITION/NOT – Indicates whether or not the Servo is at the lower position.
- UP TIME DONE/NOT – Indicates whether or not the forming sequence timer has expired.
- HANDOFF ON/OFF – Indicates whether or not the Servo to Tray Index Conveyor pull-down conditions have been met.
- SERVO DELAY DONE/NOT – Indicates whether or not the Servo has moved back to top position, after the handoff has expired.

Glue Screens

Glue Test

The Glue Test Screen allows for individual testing of the Glue Guns in the Tray Former.

Glue Control

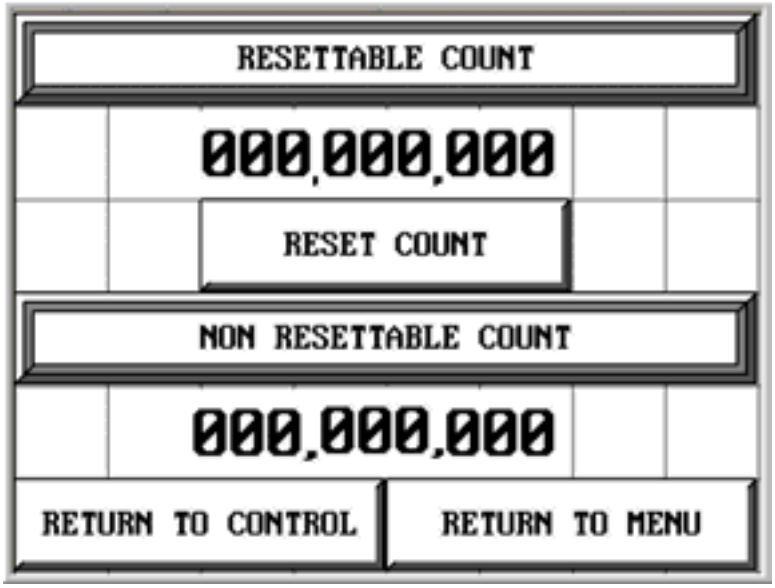
The Glue Control Screen allows for setting of Glue patterns or Glue timing.

➔ The main function of the Glue Control Screen is to turn the Glue Guns ON or OFF. Simply press the appropriate buttons on the Touch Screen.

➔ From this screen, Glue tests can be conducted and Glue patterns can be changed.

Case Count Screen

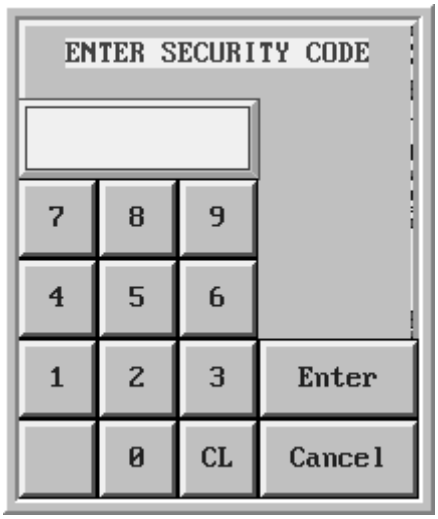
This screen displays two case counters that are capable of counting to 999,999,999.



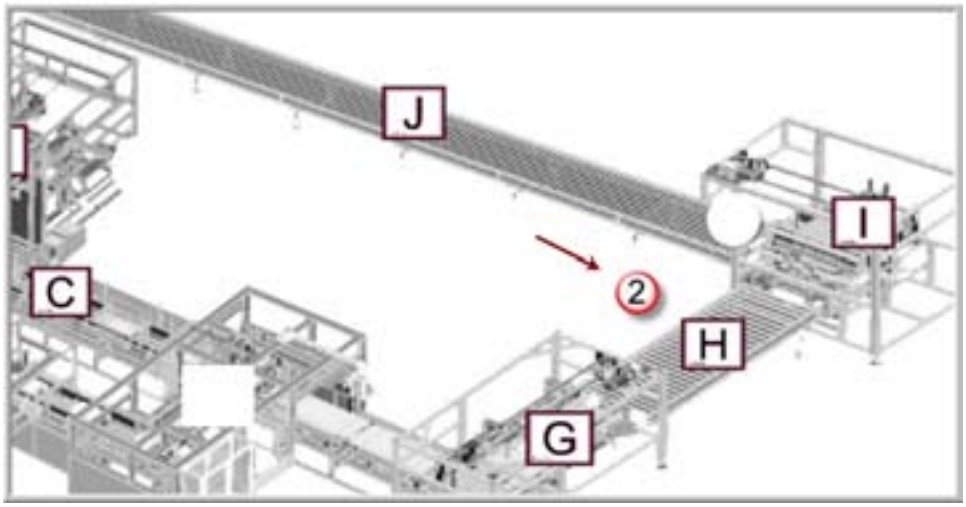
➔ One counter can be zeroed by pressing the RESET button on the screen. The other counter cannot be reset.

➔ The Resettable Count will prompt the Operator for their passcode.

➘ Authorized Personnel – enter your passcode and touch the ENTER key.



Sections C, G, H, I & J



➔ The Touch Screen located at # 2 in the above diagram controls:

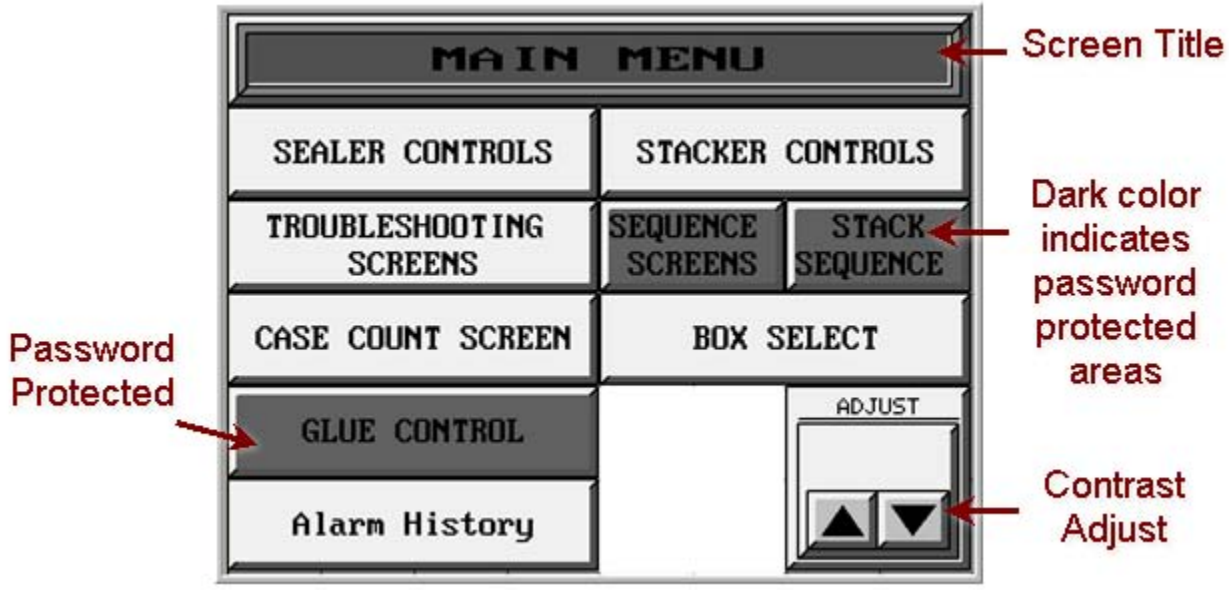
- ➔ C. Tray Index Conveyor
- ➔ G. Sealer
- ➔ H. Transfer Conveyor
- ➔ I. Stacker
- ➔ J. Discharge Conveyor

NOTE: The following Touch Screen sections are intended as a guide - covering main operations and common occurrences.

It is impossible to detail every possible scenario between machine operation and Touch Screen interface.

Main Menu

From the Main Menu, you can access all available sub-menus and all features of the Touch Screen.



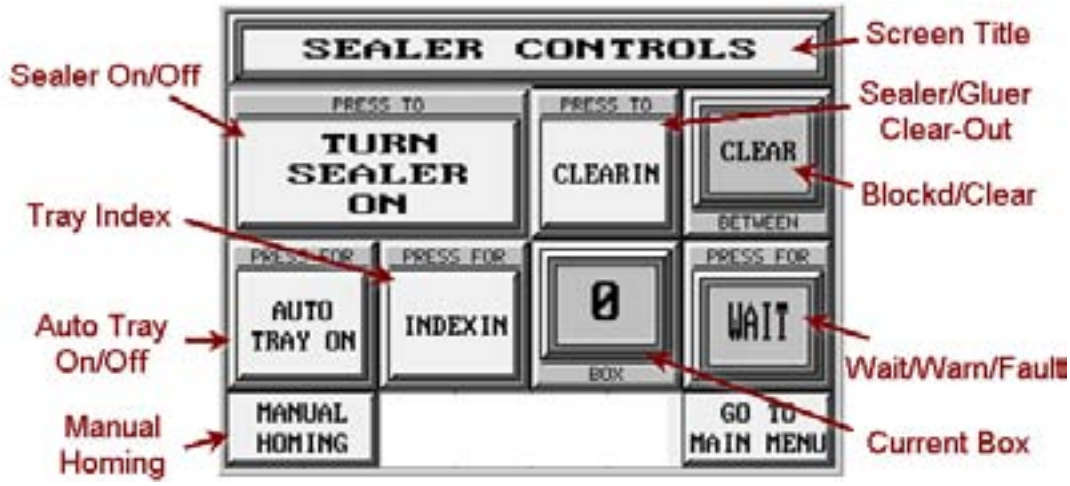
➔ For Sections C, G, H, I & J, the Main Menu consists of the following available sub-menus:

- Sealer Controls
- Stacker Controls
- Troubleshooting
- Sequence Screens – Sequence Screen for the Sealer.
- Stack Sequence
- Case Count
- Glue Control
- Box Select
- Alarm History

You may also adjust the contrast of your screen. Simply touch the Adjust Contrast buttons at the lower right of the screen.

Sealer Control Screen

The Sealer Control Screen provides control to the Side Sealer (Section G) and its related components.

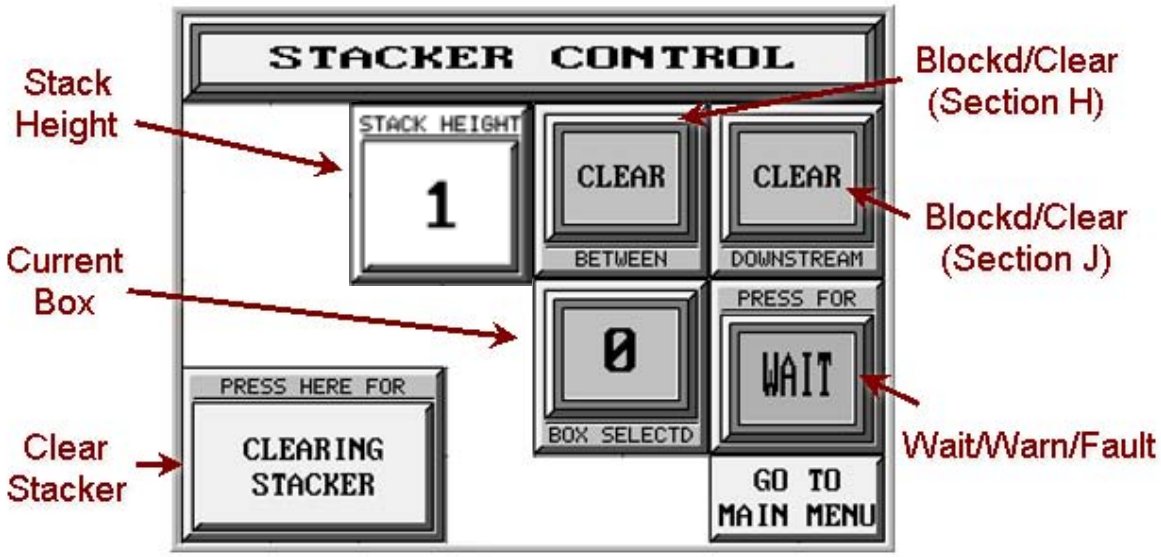


➔ The Sealer Control Screen consists of:

- SEALER ON/OFF BUTTON - Press this to turn the Side Sealer ON or OFF.
- MANUAL SEALER/GLUER CLEAR-OUT – Pressing this button will clear one (1) box from the Side Sealer.
- BLOCKD / CLEAR – This is an indicator that informs of blockage on Section H, Transfer Conveyor. A BLOCKD signal will stop the system until cleared.
- WAIT / WARN / FAULT – An active button that can display 3 stages of Machine status.
    - WAIT – Machine operating properly.
    - WARN – Something is wrong and should be checked. Warnings may be ignored, but also may result in a later issue. The Operator must use their own judgment when interpreting warnings.
    - FAULT – An issue has caused the Machine to stop operation. Faults must be remedied immediately. When a Fault occurs, pressing this button will open the Alarm Message Screen, and give the Operator information on the issue that needs to be addressed.
- CURRENT BOX – Indicates the current Blank size running on the Machine. The Tray Packing System runs boxes numbered 1 through 7.
- MANUAL TRAY INDEX – Pressing this button will manually index the Tray Index Conveyor (Section C) one position. It will also *turn OFF* the automatic conveyor movement.
    - The 'one position' indexing will occur, regardless of product loaded in the Loader.
    - If the Tray Former is ON, the product will load into a Tray on the Tray Index Conveyor.
- AUTO TRAY ON/OFF – Pressing this button will toggle automatic mode of the Tray Index Conveyor.
    - When returning the Tray Index Conveyor to automatic mode, its operation becomes fully automatic, and will begin moving Trays.
- MANUAL HOMING – Provides access to the Manual Tray Conveyor Homing & Setup Screen.
    - Manually aligns the Tray Index Conveyor's spacing to match the Side Sealer.
- GO TO MAIN MENU – Pressing this button will access the Main Menu Screen.

Stacker Control Screen

The Stacker Control Screen provides control to the Stacker (Section I) and its related components.



➔ The Stacker Control Screen consists of:

- STACK HEIGHT – Indicates the current stacking height of the Stacker (Section I). Pressing this button will allow the Operator to change the stack height.
- BLOCKD / CLEAR (BETWEEN) – This is an indicator that informs of blockage on Section H, Transfer Conveyor. A BLOCKD signal will stop the system until cleared.
- BLOCKD / CLEAR (DOWNSTREAM) - This is an indicator that informs of blockage on Section I, Discharge Conveyor. A BLOCKD signal will stop the system until cleared.
- WAIT / WARN / FAULT – An active button that can display 3 stages of Machine status.
  - WAIT – Machine operating properly.
  - WARN – Something is wrong and should be checked. Warnings may be ignored, but also may result in a later issue. The Operator must use their own judgment when interpreting warnings.
  - FAULT – An issue has caused the Machine to stop operation. Faults must be remedied immediately. When a Fault occurs, pressing this button will open the Alarm Message Screen, and give the Operator information on the issue that needs to be addressed.
- CURRENT BOX – Indicates the current Blank size running on the Machine. The Tray Packing System runs boxes numbered 1 through 7.
- GO TO MAIN MENU – Pressing this button will access the Main Menu Screen.
- CLEARING STACKER – Pressing this button will clear the current product load out of the Stacker.

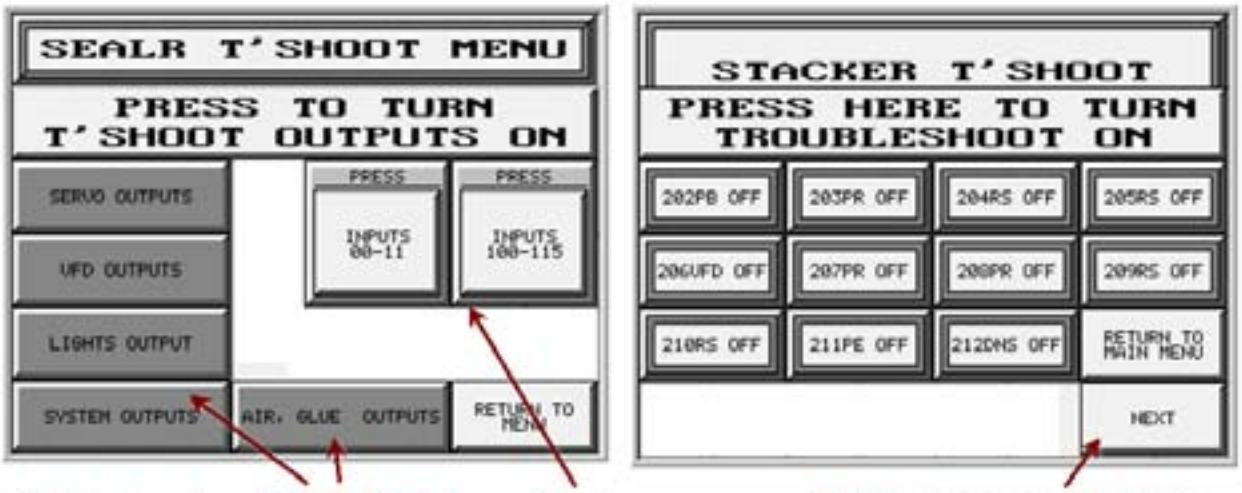
Troubleshoot Screens

Troubleshoot Screens assist in identifying and resolving issues with the machine that may be interrupting normal production.

Troubleshoot Intro Screen

- The Troubleshoot Intro Screen allows the Operator access to the Sealer Troubleshoot Section and the Stacker Troubleshoot Section.

Troubleshoot – Sealer & Stacker Main Menus



**NOTE: Inputs can be viewed at any time. Outputs are displayed ONLY when Machine is OFF.
Turning the Sealer OFF *does not* turn the Stacker OFF.
Turning the Stacker OFF *does not* turn the Sealer OFF.

➔ Terms:

- **Input** – A signal/communication from a Machine component, such as a Photo Eye, Proximity Switch, Reed Switch, etc.
- **Output** – A signal/communication from the Touch Screen/Program to a component, such as a Solenoid, VFD Motor, Servo Motor, etc.

For more information on these and other terms, see the Glossary in the Appendix.

➔ Sealer Troubleshoot Main Menu:

- Press to Turn Outputs On / Off – pressing this button will turn the Outputs (Troubleshoot Sub-Menus On or Off, and allow access when On. If they are Off, the Sub-Menus WILL NOT display on this screen.
  - Machine MUST be OFF to turn Troubleshoot Outputs ON.
- Each Sub-Menu or Output will take the Operator to a different screen, displaying the details of that particular group (Servo, VFD, Lights, System, Air, Glue). (see following)

➔ Stacker Troubleshoot Main Menu:

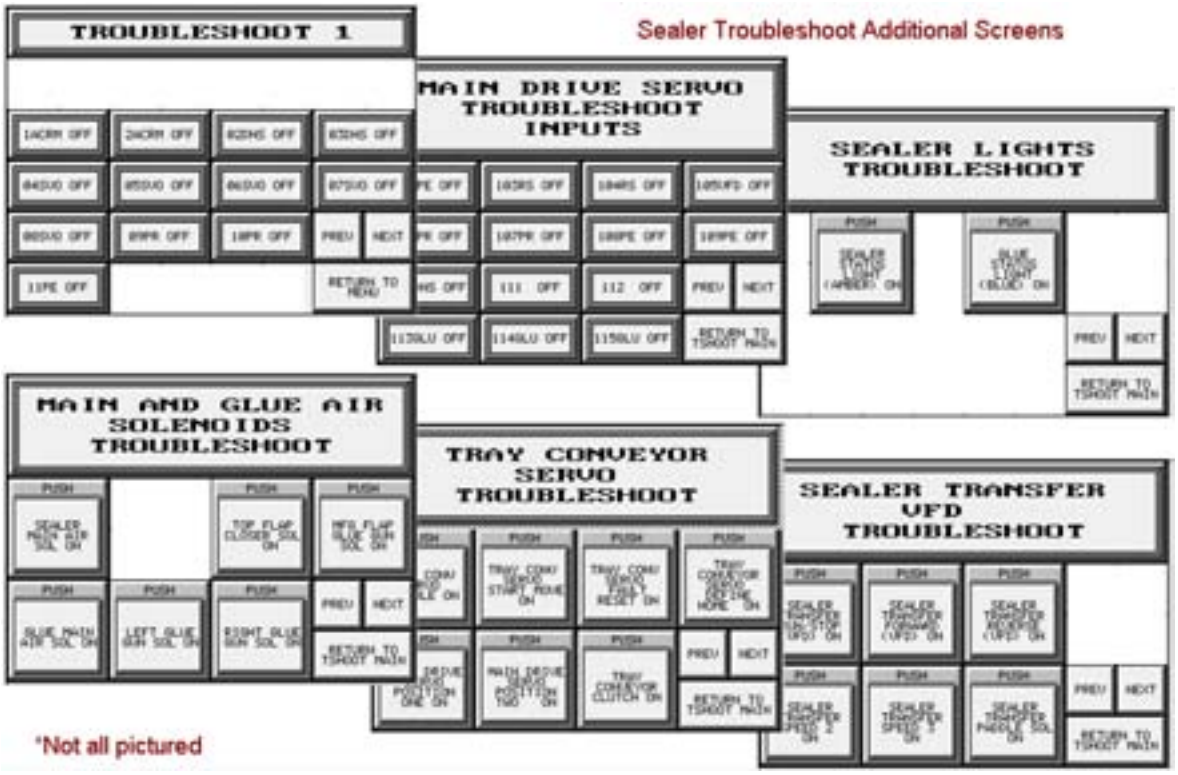
- When Troubleshoot is ON (Machine OFF), access to Outputs is allowed. The Next button will NOT appear until Outputs are on.
- A different setup than the Sealer Menu, the Stacker Troubleshoot items are accessed by using the 

keys.

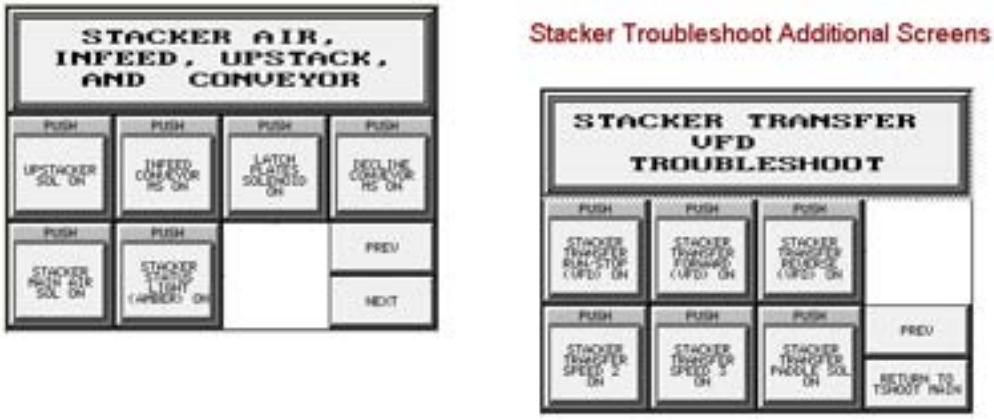
Troubleshoot – Additional Screens

Each troubleshoot section is broken down into main groupings. This makes it easier to recognize an issue and find a solution.

Sealer Troubleshoot Additional Screens



Stacker Troubleshoot Additional Screens

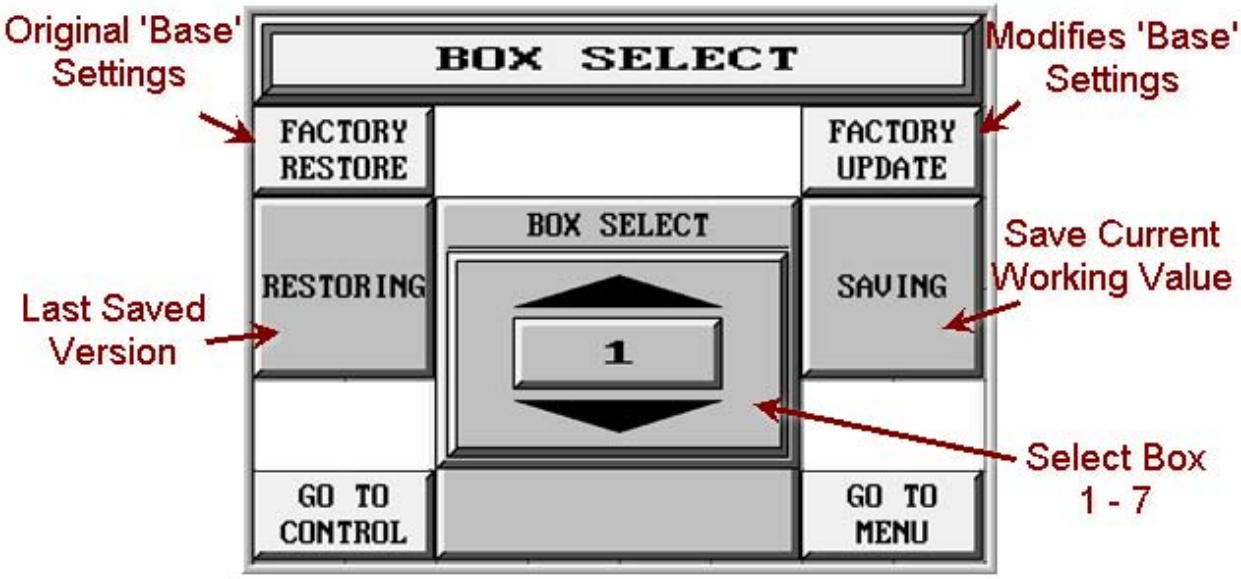


The numbers above (such as 1ACRM) refer to numbering also found in the Electrical Schematics, the Computer Program and in part labels found on each corresponding item on the machine.

This makes for easier troubleshooting, maintenance and repair.

Change Box Screen

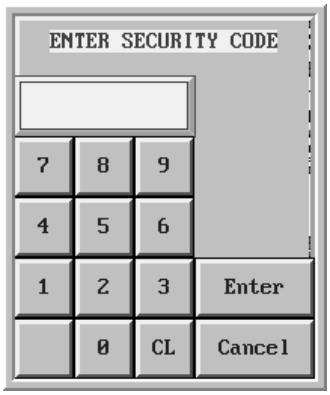
The Change Box Screen allows for the change of box settings, saving current values, and restoring working values. The Factory Restore and Factory Update areas are password protected and for Authorized Personnel only.



- FACTORY RESTORE – This will restore the currently selected Box to its original, factory 'base' settings.
- FACTORY UPDATE – This will overwrite factory settings for the currently selected Box.
- SAVING – Saves the current working values per Box, but does NOT overwrite factory settings.
- RESTORING – Restores the last saved version of the current Box.
- BOX SELECT – Use up and down arrow keys to toggle between Box numbers 1 – 7.
  - After pressing the Box Selection button, and using the up and down arrow keys, Box settings (from 1 to 7) may be selected.

➔ Factory Restore and Factory Update areas are for Authorized Personnel only.

➘ Authorized Personnel – enter your passcode and touch the ENTER key.



Alarm Screens

The Alarm Screens allow the Operator to reset the Alarm function and resolve Faults.

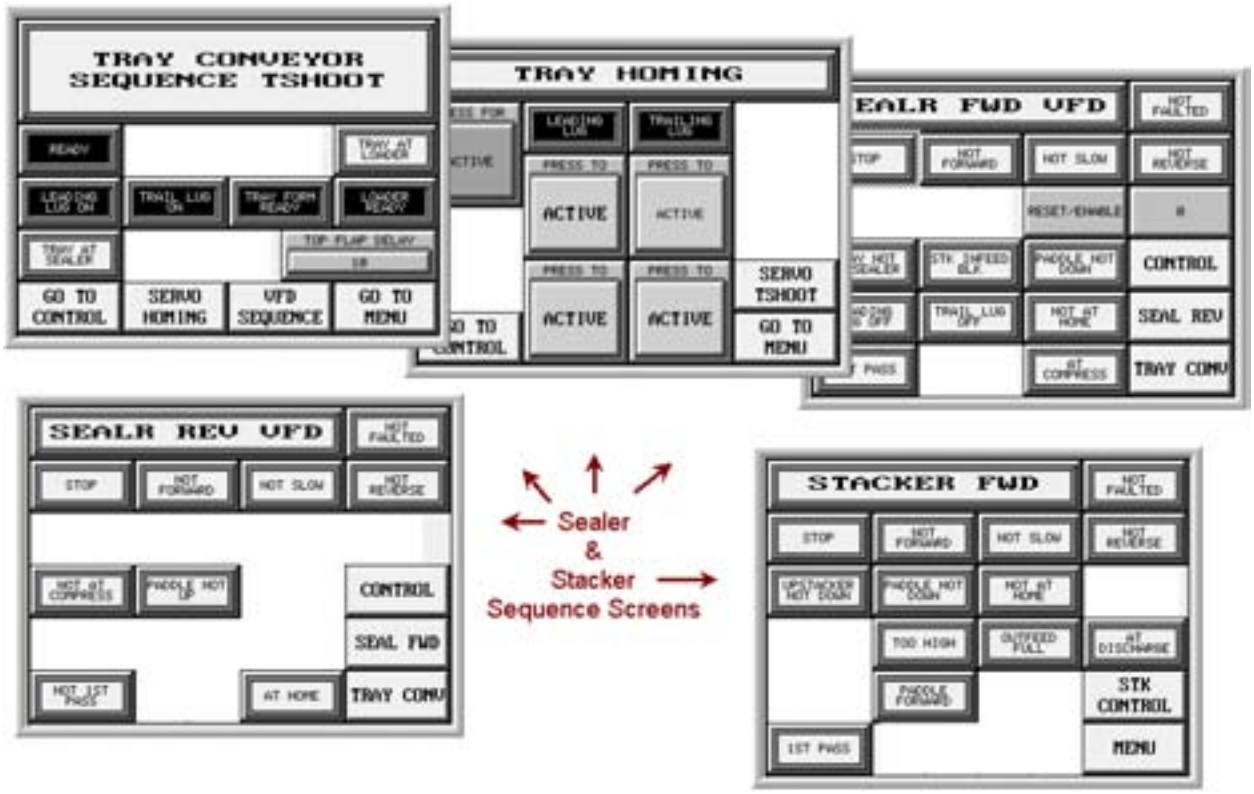
Sealer & Stacker Alarm Screens

Recurring Alarms of the same nature may indicate a more serious issue with the System.

Contact Maintenance if you recognize repeating patterns.

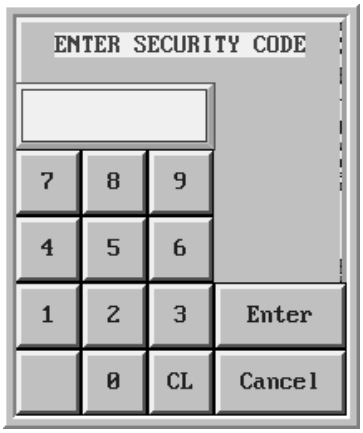
Sequence Screens

Sequence Screens (also password protected) are accessed through the Control Screen, and allow Authorized Personnel to adjust individual machine sequence components.



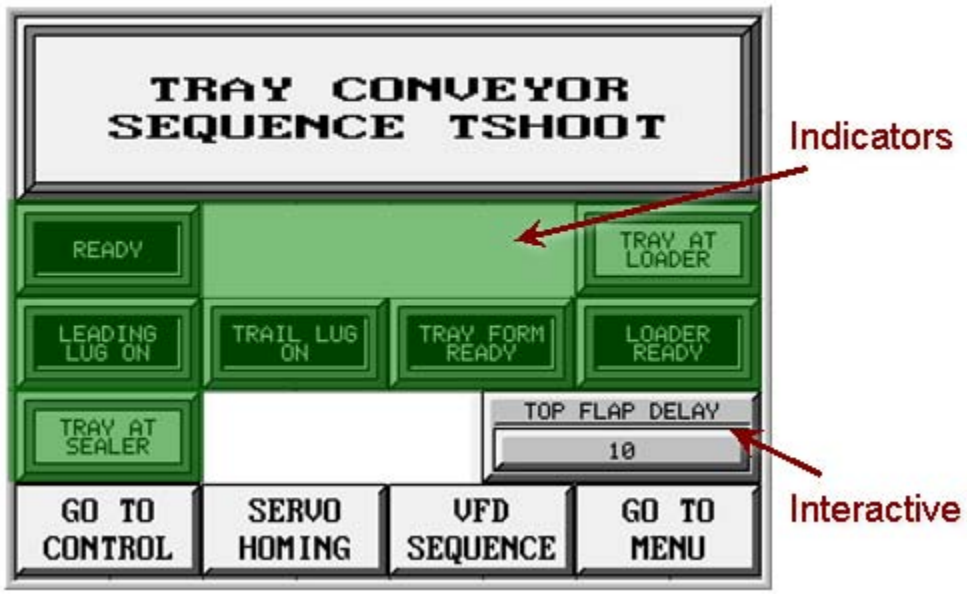
➔ Sequence Screens are for Authorized Personnel only.

➘ Authorized Personnel – enter your passcode and touch the ENTER key.



Tray Conveyor Sequence Troubleshoot

This screen displays inputs used to move the Tray Index Conveyor (Section C), and allows for adjustment to the Top Flap Delay.



➔ Used by Maintenance personnel to view conditions of inputs as to why the Tray Index Conveyor might not be functioning properly.
➔ In general, Black indicates the item is functioning properly, White indicates an issue may need to be addressed.

- READY – Indicates whether or not the Servo is functioning properly.
- LEAD LUG ON/OFF – Indicates whether or not the Lugs (Tray Pockets) are in proper position.
- TRAIL LUG ON/OFF – Indicates whether or not the Lugs (Tray Pockets) are in proper position.
- TRAY FORM READY – Indicates whether or not the Tray Former is on-line and Trays are loaded on the Tray Index Conveyor.
- LOADER READY – Indicates whether or not the Product in the Tray is ready to index.
- TRAY AT LOADER – If Trays are NOT at the Loader, they will automatically index until in position.
- TRAY AT SEALER – This indicates that the Tray Index Conveyor will not index until a blockage at the turn from Section C to Section G is removed.
- TOP FLAP DELAY – An interactive button, this will change the delay on the Top Flap Folder of the Tray Index Conveyor.
    - Measured in milliseconds, the delay represents the time from the folder in the ‘down’ position and how quickly it begins to raise up (how long it holds the ‘down’ position.)

Sealer FWD VFD Sequence

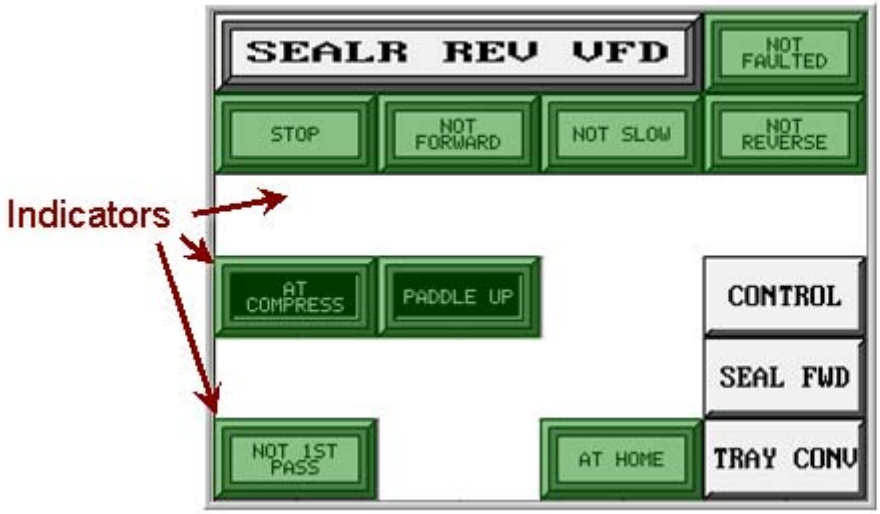
The first of two related sequence screens, this screen displays the status of the VFD Drive, the conditions for forward movement, and the Sealer Cycle Timer.

➔ Used by Maintenance personnel to view conditions of inputs as to the proper function of the Side Sealer.
➔ In general, Black indicates the item is functioning properly, White indicates an issue may need to be addressed.

- FAULT/NOT FAULTED – Indicates whether or not the VFD Motor is in Fault.
- RUN/STOP – Indicates whether or not the VFD drive is enabled.
- FORWARD/NOT – Indicates a forward move or not.
- SLOW/NOT – Indicates a slow movement or not.
- REVERSE/NOT – Indicates a reverse movement or not.
- TRAY AT SEALER – Indicates whether or not the Tray is in position between Sections C & G.
- STK INFEED CLR – Indicates whether or not the Transfer Conveyor (Section H) is blocked.
- PADDLE DOWN/NOT – Indicates whether or not the Paddle is down.
    - The Paddle is the metal push plate that moves Trays through the Side Sealer.
- LEAD LUG ON/OFF – Indicates whether or not the Lugs (Tray Pockets) are in proper position.
- TRAIL LUG ON/OFF – Indicates whether or not the Lugs (Tray Pockets) are in proper position.
- AT HOME/NOT – Indicates whether or not the Paddle is in the Home position.
    - Home position – Paddle positioned to accept Tray between Sections C & G.
- AT COMPRESS/NOT – Indicates whether or not the Paddle is in the Compression position.
    - Compression position – Paddle positioned at the release point of Tray in Side Sealer (at the Side Compression Rails).
- 1st PASS/NOT – Upon System initialization, this indicates whether or not the Paddle is being reset to the Home position.

Sealer REV VFD Sequence

The second of two related sequence screens, this screen displays the status of the VFD Drive, the conditions for reverse movement.

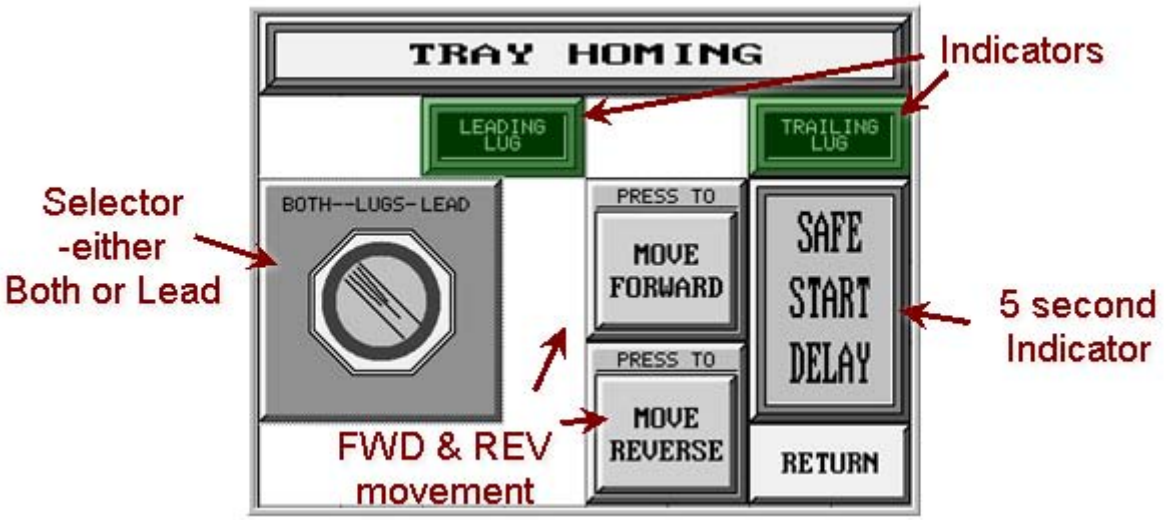


➔ Used by Maintenance personnel to view conditions of inputs as to the proper function of the Side Sealer.
➔ In general, Black indicates the item is functioning properly, White indicates an issue may need to be addressed.

- FAULT/NOT FAULTED – Indicates whether or not the VFD Motor is in Fault.
- RUN/STOP – Indicates whether or not the VFD drive is enabled.
- FORWARD/NOT – Indicates a forward move or not.
- SLOW/NOT – Indicates a slow movement or not.
- REVERSE/NOT – Indicates a reverse movement or not.
- PADDLE UP/NOT – Indicates whether or not the Paddle is up.
    - The Paddle is the metal push plate that moves Trays through the Side Sealer.
- AT HOME/NOT – Indicates whether or not the Paddle is in the Home position.
    - Home position – Paddle positioned to accept Tray between Sections C & G.
- AT COMPRESS/NOT – Indicates whether or not the Paddle is in the Compression position.
    - Compression position – Paddle positioned at the release point of Tray in Side Sealer (at the Side Compression Rails).
- 1st PASS/NOT – Upon System initialization, this indicates whether or not the Paddle is being reset to the Home position.

Tray Homing Screen

This screen is used to adjust the Tray Index Conveyor's leading and trailing Lug (Pocket) position.



➔ When first entering this screen, a 5-second Safe Start Delay indicator will display. During this time, the Tray Index Conveyor is initialized.

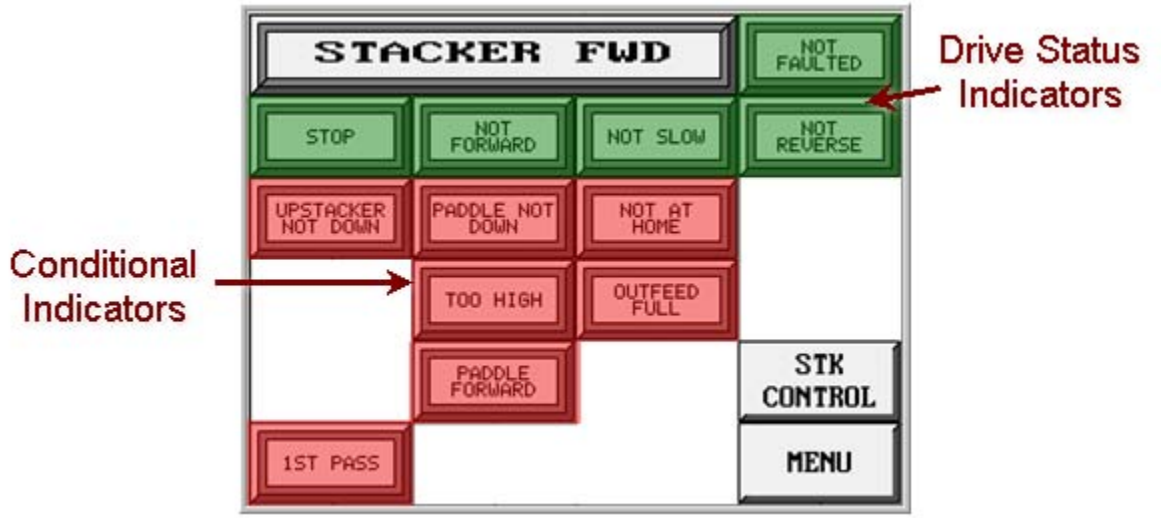
- BOTH—LUGS—LEAD – This selector switch toggles between moving both lugs at once, or moving the lead lug only.
    - To move the selector, simply touch this area of the screen. The selector will move back and forth from  to  .
- MOVE FORWARD/ACTIVE – Press to move selected lug forward.
- MOVE REVERSE/ACTIVE – Press to move selected lug in reverse.
- LEADING LUG/CLEAR – An indicator. When black, the alignment is in the proper position. White and 'Clear' means out of alignment.
- TRAILING LUG/CLEAR - An indicator. When black, the alignment is in the proper position. White and 'Clear' means out of alignment.

NOTE: Pressing and holding either MOVE button will move and align the lugs to the proper position.

To continue moving, simply release, then re-touch the MOVE button.

Stacker FWD Sequence

This screen displays the status of the VFD Drive, the Paddle alignment, and the forward movement of the Stacker.



➔ Drive Status Indicators:

- RUN/STOP – Indicates whether or not the VFD Drive is enabled.
- FORWARD/NOT – Indicates forward movement or not.
- SLOW/NOT – Indicates slow movement or not.
- REVERSE/NOT – Indicates reverse movement or not.
- FAULTED/NOT – Indicates whether or not the VFD is faulted or not.

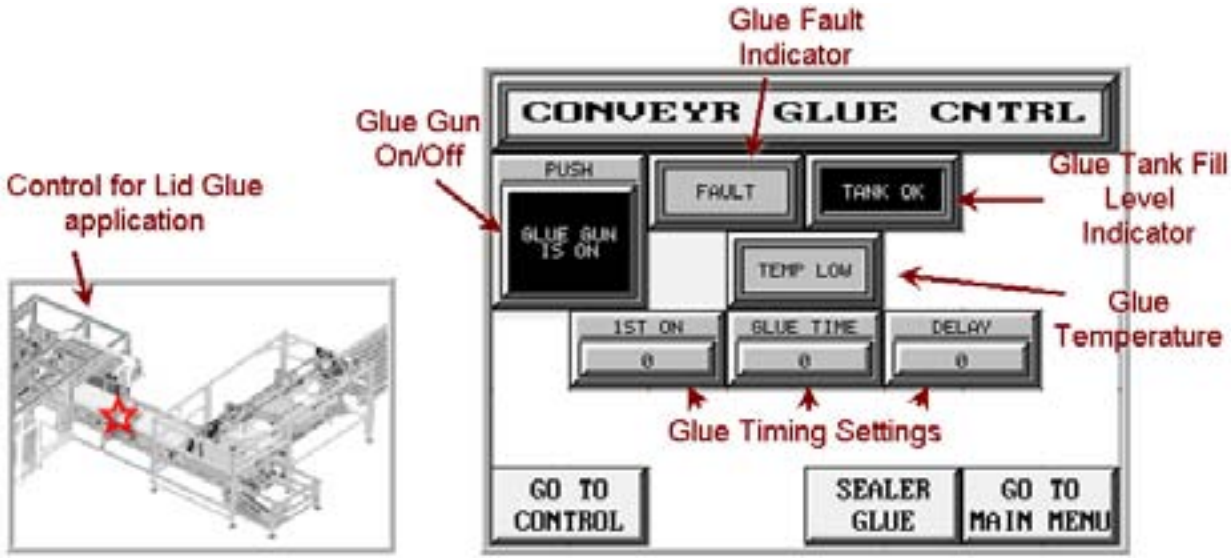
➔ Conditional Indicators:

- UPSTACKER DOWN/NOT – Indicates whether or not the stacking mechanism is down.
- PADDLE DOWN/NOT – Indicates whether or not the Paddle is down.
    - The Paddle is the metal push plate that moves Cases from the Stacker to the Discharge Conveyor.
- AT HOME/NOT – Indicates whether or not the Paddle is in the Home position.
    - The Paddle Home position is on the far side from the Discharge Conveyor, awaiting a stack of Cases to push onto the conveyor.
- TOO HIGH/NOT – Indicates whether or not the stack is too high.
- OUTFEED FULL/NOT – Indicates whether or not the Discharge Conveyor is full.
- PADDLE FORWARD/NOT – Indicates whether or not the Paddle is in the Forward position.
    - The Paddle Forward position is on the side closer to the Discharge Conveyor.
- 1st PASS/NOT – Upon System initialization, this indicates whether or not the Paddle is being reset to the Home position.

Glue Screens

Conveyor Glue Control

The Conveyor Glue Control allows access to the Glue functions of the Tray Index Conveyor (Section C).

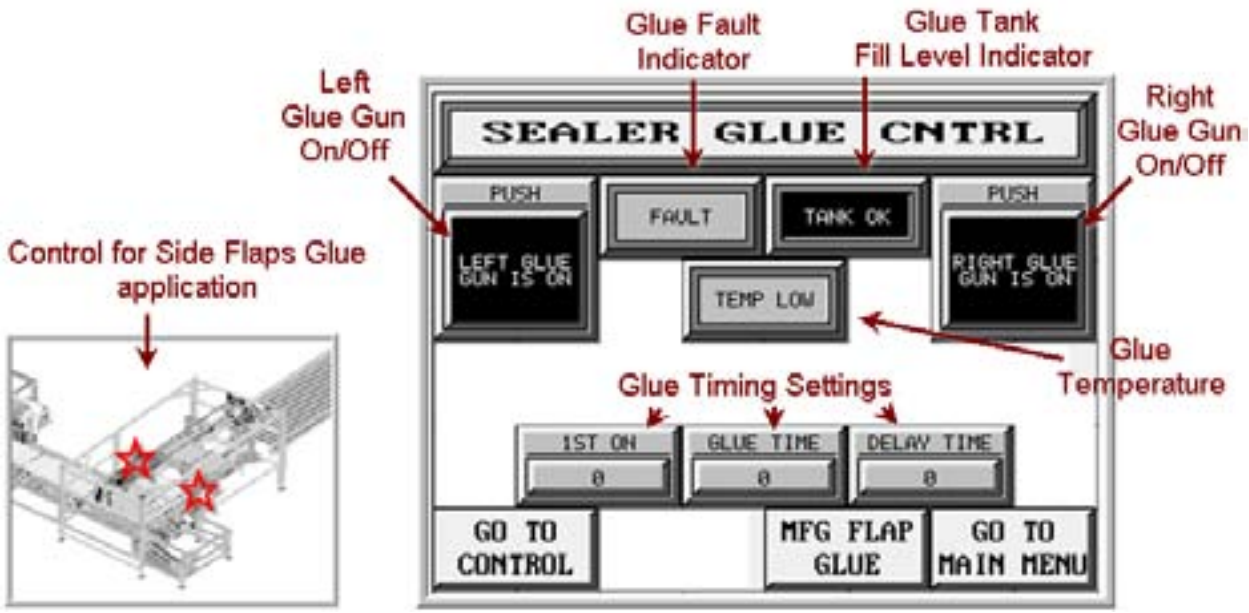


➔ Conveyor Glue Control:

- Controls and interacts with the Glue Tank, Glue Guns and various Glue Settings for the adhesive application to the Lid (Manufacturer's Flap) of the Case.
- Main Functions:
  - Turns Glue Guns ON or OFF.
  - Allows for Glue Timing Settings to be modified.
  - Displays Glue FAULT warnings.
  - Displays Glue Tank fill level (LOW or OK).
  - Displays Glue Tank temperature (LOW or OK).

Sealer Glue Control

The Sealer Glue Control allows access to the Glue functions of the Side Sealer (Section G).

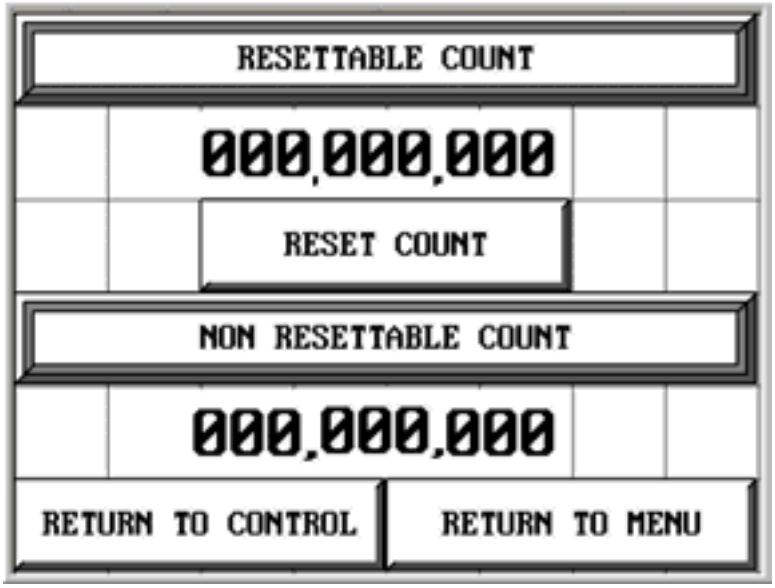


➔ Sealer Glue Control:

- Controls and interacts with the Glue Tank, Glue Guns and various Glue Settings for the adhesive application to the Side Flaps of the Case.
- Main Functions:
  - Turns Left & Right Glue Guns ON or OFF.
  - Allows for Glue Timing Settings to be modified.
  - Displays Glue FAULT warnings.
  - Displays Glue Tank fill level (LOW or OK).
  - Displays Glue Tank temperature (LOW or OK).

Case Count Screen

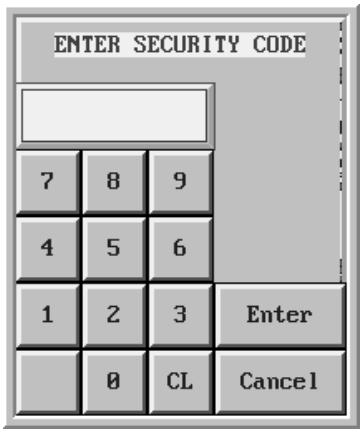
This screen displays two case counters that are capable of counting to 999,999,999.



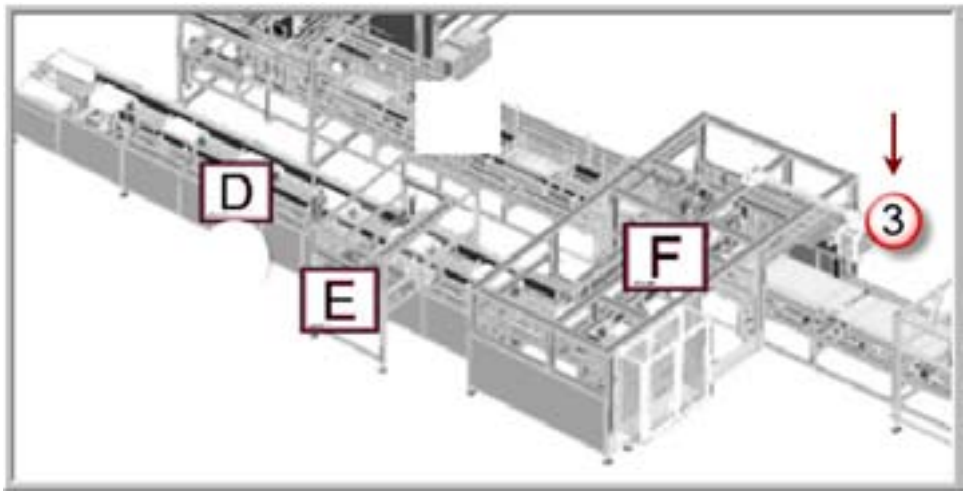
➔ One counter can be zeroed by pressing the RESET button on the screen. The other counter cannot be reset.

➔ The Resettable Count will prompt the Operator for their passcode.

➘ Authorized Personnel – enter your passcode and touch the ENTER key.



Sections D, E & F



➔ The Touch Screen labeled # 3 in the above diagram controls:

- ➔ D. Product Index Conveyor
- ➔ E. Pick & Place
- ➔ F. Loader

NOTE: The following Touch Screen sections are intended as a guide - covering main operations and common occurrences.

It is impossible to detail every possible scenario between machine operation and Touch Screen interface.

Main Menu

From the Main Menu, you can access all available sub-menus and all features of the Touch Screen.

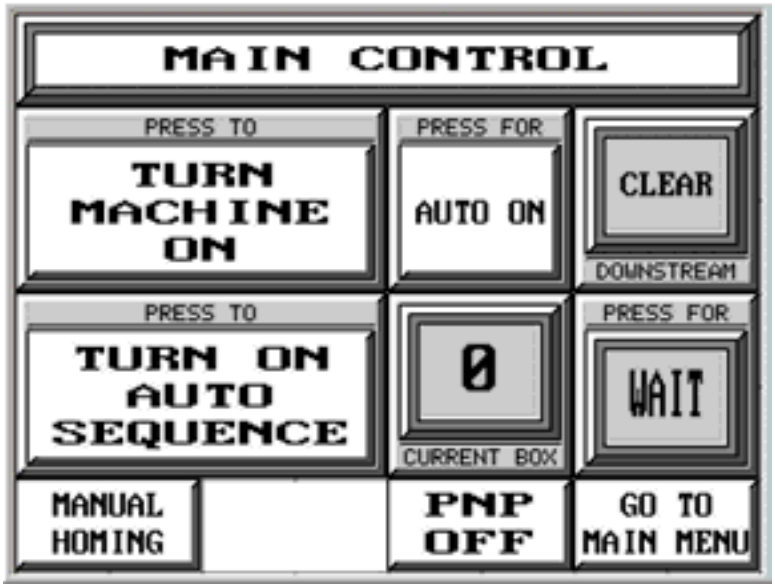
➔ For Sections D, E, & F, the Main Menu consists of the following available sub-menus:

- Main Control
- Sequences
- Troubleshooting
- Case Count
- Box Select
- Learn Measure
- Alarm History

You may also adjust the contrast of your screen. Simply touch the Adjust Contrast buttons at the lower right of the screen.

Control Screen

The Control Screen for Sections D, E, & F provides control of the Loader and its related components.



➔ The Control Screen consists of:

- MACHINE ON/OFF BUTTON - Press this to turn the machine ON or OFF.
- AUTO SEQUENCE ON/OFF BUTTON – Press this to start the Product Loader sequencing.
- AUTO ON / AUTO OFF – Press this for automatic Product Index Conveyor operation.
- BLOCKD / CLEAR – This is an indicator. In this case, indicating that a downstream photo eye is blocked.
- WAIT / WARN / FAULT – An active button that can display 3 stages of Machine status.
    - WAIT – Machine operating properly.
    - WARN – Something is wrong and should be checked. Warnings may be ignored, but also may result in a later issue. The Operator must use their own judgment when interpreting warnings.
    - FAULT – An issue has caused the Machine to stop operation. Faults must be remedied immediately. When a Fault occurs, pressing this button will open the Alarm Message Screen, and give the Operator information on the issue that needs to be addressed.
- CURRENT BOX – Indicates the current Box size running on the Machine. The Tray Packing System runs boxes numbered 1 through 7.
- GO TO MAIN MENU – Pressing this button will access the Main Menu Screen.
- PNP ON/OFF – Turns the Stack Adjustment System On or Off.
- MANUAL HOMING – When the System turns on, the Lugs (Pockets) of the conveyors are automatically aligned with the Loader, Side Sealer and related components. If adjustments are needed, press this button.

Troubleshoot Screens

Troubleshoot Screens assist in identifying and resolving issues with the machine that may be interrupting normal production.

Troubleshoot Main Screens

Troubleshoot Main Menus

➔ Terms:

- **Input** – A signal/communication from a Machine component, such as a Photo Eye, Proximity Switch, Reed Switch, etc.
- **Output** – A signal/communication from the Touch Screen/Program to a component, such as a Solenoid, VFD Motor, Servo Motor, etc.

For more information on these and other terms, see the Glossary in the Appendix.

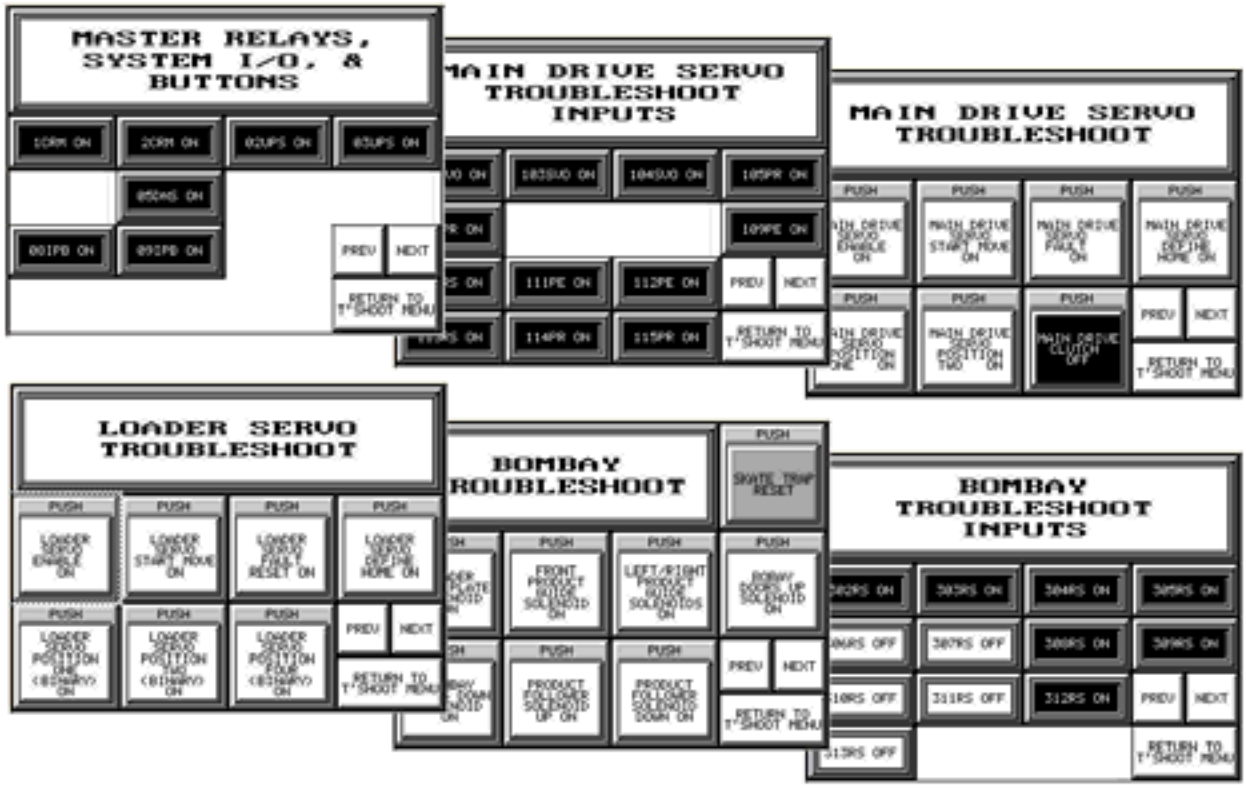
➔ Troubleshoot Main Menu:

- Press to Turn Outputs On / Off – pressing this button will turn the Outputs (Troubleshoot Sub-Menus On or Off, and allow access when On. If they are Off, the Sub-Menus WILL NOT display on this screen.
  - Machine MUST be OFF to turn Troubleshoot Outputs ON.

- Each Sub-Menu or Output will take the Operator to a different screen, displaying the details of that particular group (Conveyor Servo, Loader Servo, Bombay, Main Air, etc.). (see following)

Troubleshoot – Additional Screens

Each troubleshoot section is broken down into main categories. This makes it easier to recognize an issue and find a solution.



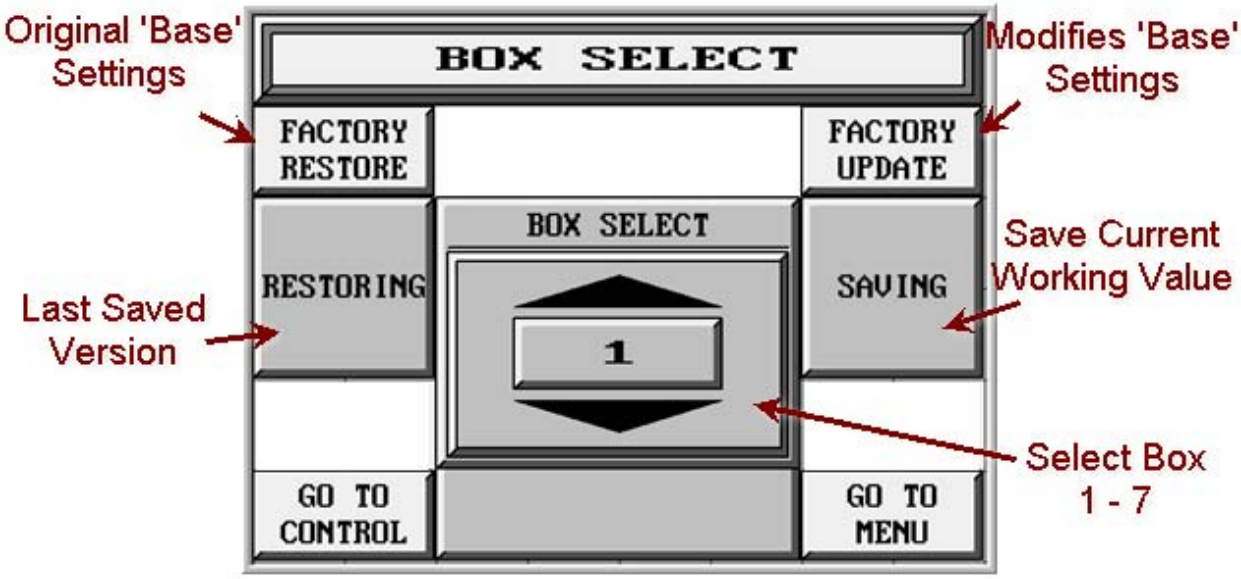
*Not all pictured

The numbers above (such as 1 CRM ON) refer to numbering also found in the Electrical Schematics, the Computer Program and in part labels found on each corresponding item on the machine.

This makes for easier troubleshooting, maintenance and repair.

Change Box Screen

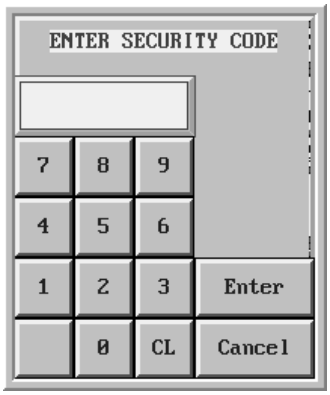
The Change Box Screen allows for the change of box settings, saving current values, and restoring working values. The Factory Restore and Factory Update areas are password protected and for Authorized Personnel only.



- FACTORY RESTORE – This will restore the currently selected Box to its original, factory 'base' settings.
- FACTORY UPDATE – This will overwrite factory settings for the currently selected Box.
- SAVING – Saves the current working values per Box, but does NOT overwrite factory settings.
- RESTORING – Restores the last saved version of the current Box.
- BOX SELECT – Use up and down arrow keys to toggle between Box numbers 1 – 7.
  - After pressing the Box Selection button, and using the up and down arrow keys, Box settings (from 1 to 7) may be selected.

➔ Factory Restore and Factory Update areas are for Authorized Personnel only.

➘ Authorized Personnel – enter your passcode and touch the ENTER key.



Alarm Screen

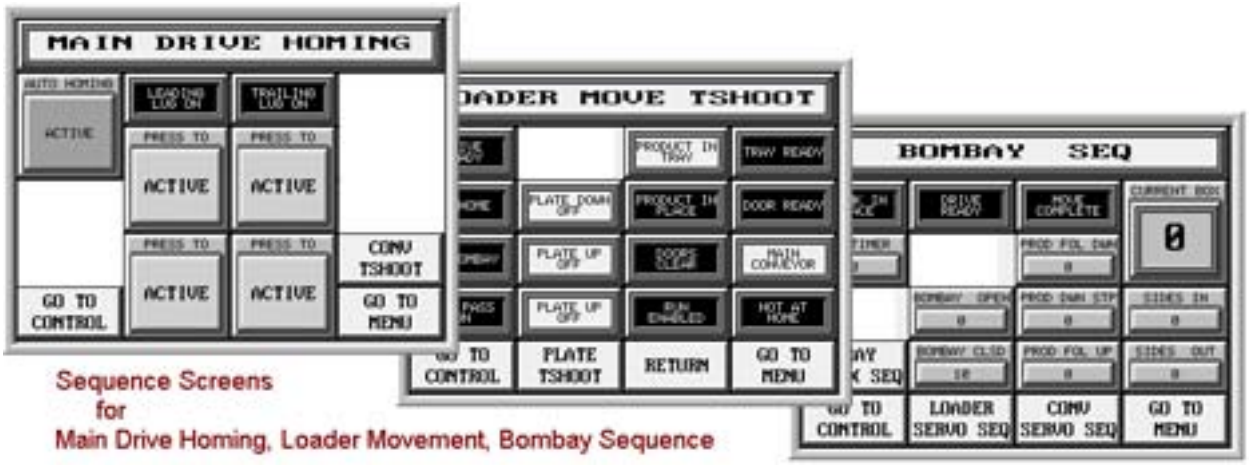
The Alarm Screen allows the Operator to reset the Alarm function and to view Alarm History.

Recurring Alarms of the same nature may indicate a more serious issue with the System.

Contact Maintenance if you recognize repeating patterns.

Sequence Screens

Sequence Screens (also password protected) are accessed through the Control Screen, and allow Authorized Personnel to adjust individual machine sequence components.

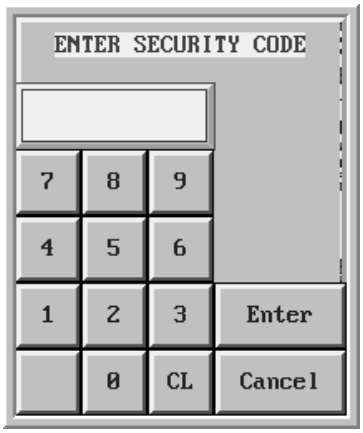


Sequence Screens
for
Main Drive Homing, Loader Movement, Bombay Sequence

Sequence Screens of this section follow a similar pattern to those described in the previous sections.

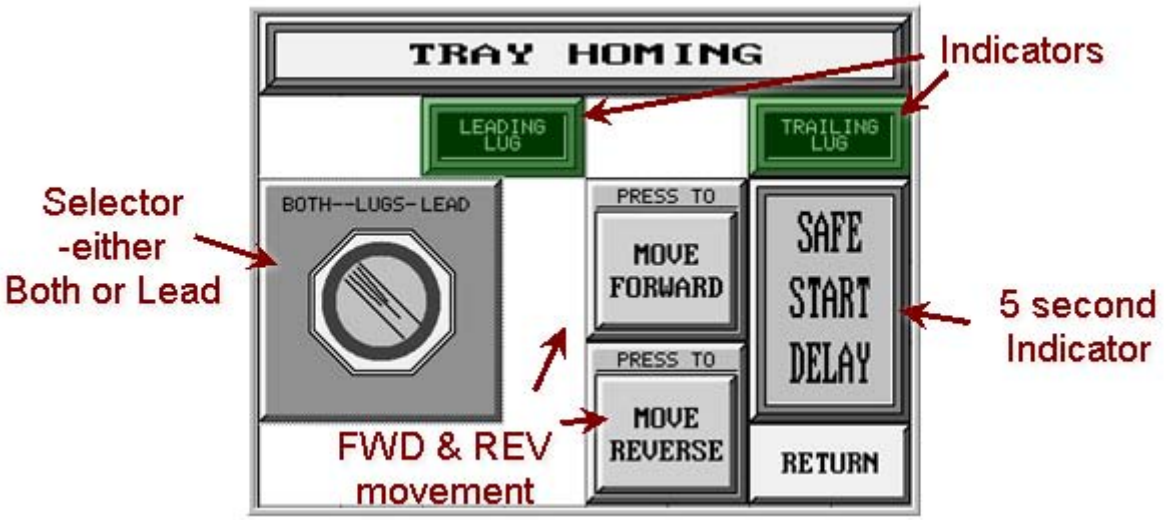
➔ Sequence Screens are for Authorized Personnel only.

➘ Authorized Personnel – enter your passcode and touch the ENTER key.



Product Homing Screen

This screen is used to adjust the Product Index Conveyor's leading and trailing Lug (Pocket) position.



➔ When first entering this screen, a 5-second Safe Start Delay indicator will display. During this time, the Product Index Conveyor is initialized.

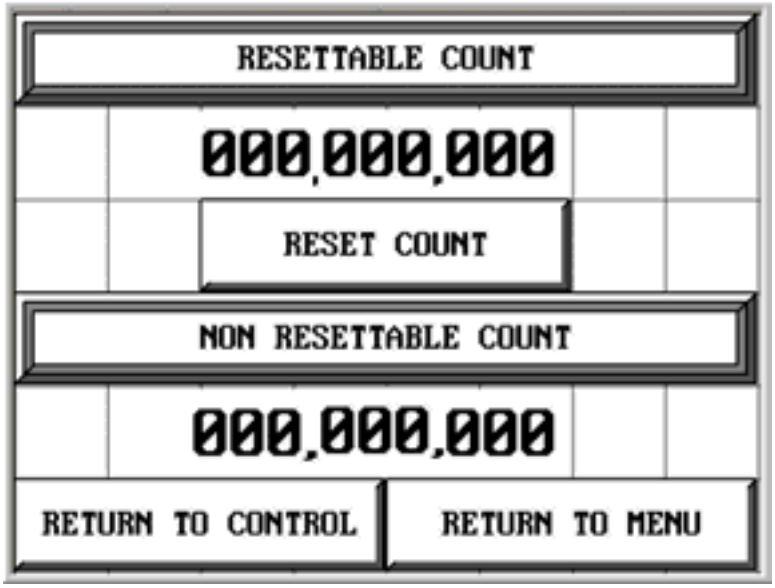
- BOTH—LUGS—LEAD – This selector switch toggles between moving both lugs at once, or moving the lead lug only.
    - To move the selector, simply touch this area of the screen. The selector will move back and forth from  to  .
- MOVE FORWARD/ACTIVE – Press to move selected lug forward.
- MOVE REVERSE/ACTIVE – Press to move selected lug in reverse.
- LEADING LUG/CLEAR – An indicator. When black, the alignment is in the proper position. White and 'Clear' means out of alignment.
- TRAILING LUG/CLEAR - An indicator. When black, the alignment is in the proper position. White and 'Clear' means out of alignment.

NOTE: Pressing and holding either MOVE button will move and align the lugs to the proper position.

To continue moving, simply release, then re-touch the MOVE button.

Case Count Screen

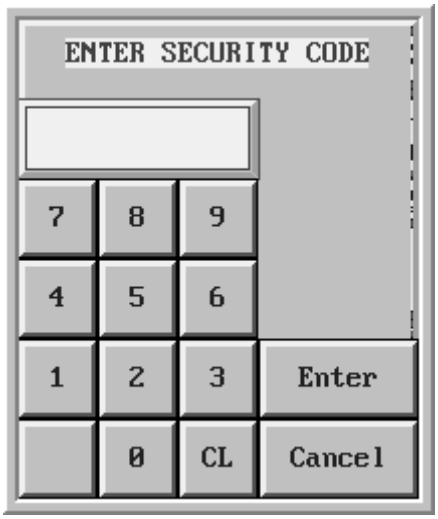
This screen displays two case counters that are capable of counting to 999,999,999.



➔ One counter can be zeroed by pressing the RESET button on the screen. The other counter cannot be reset.

➔ The Resettable Count will prompt the Operator for their passcode.

➘ Authorized Personnel – enter your passcode and touch the ENTER key.



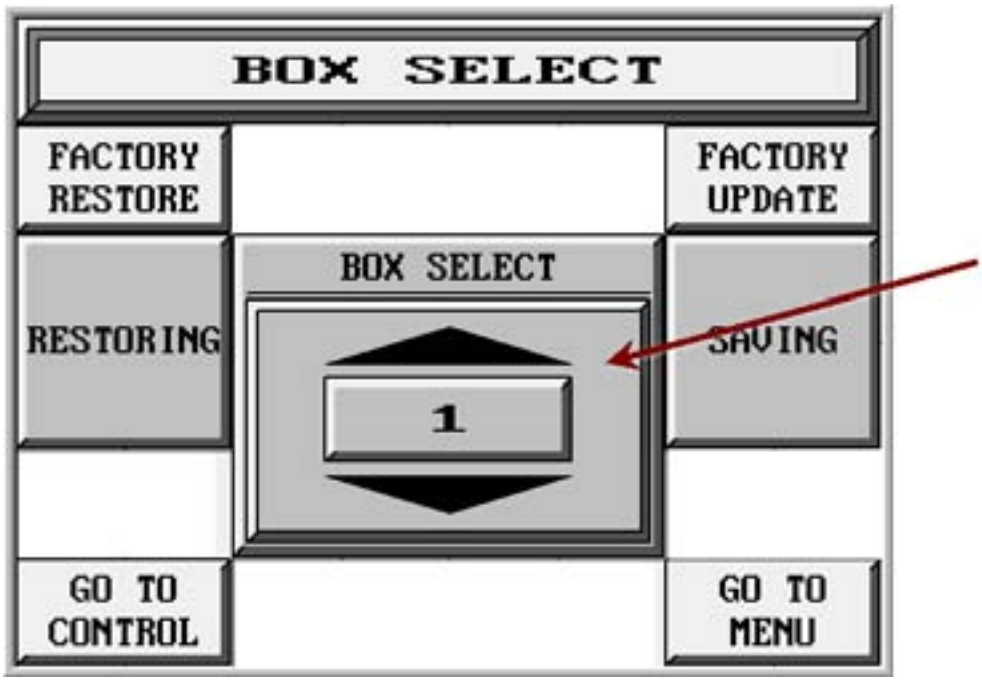
Touch Screen Examples

Change Box Size

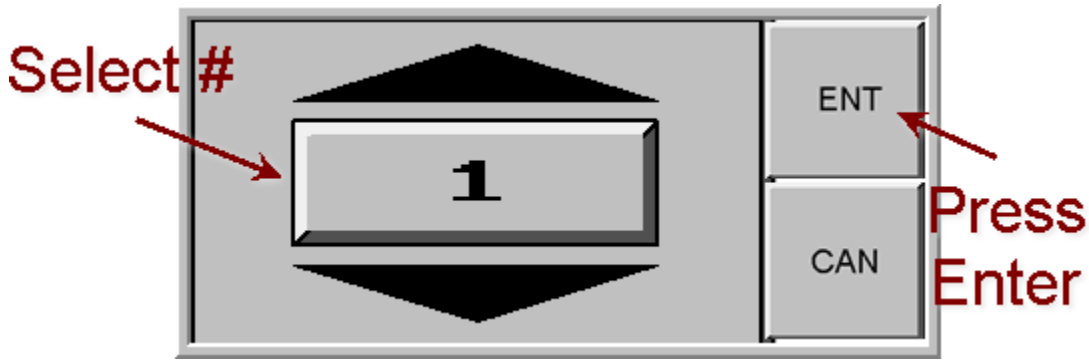
The following shows the general procedure for a Box Size Change on the System.

1. From the Main Menu, touch Box Select.

2 The Box Select Screen will appear. Touch the Up/Down Arrow – Box Select Button in the center of the screen.



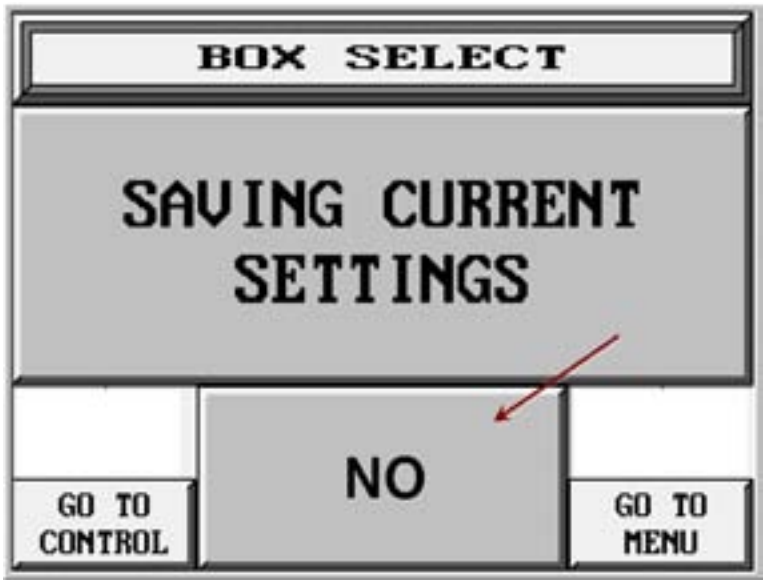
3 A pop-up screen will appear. Use the Up/Down arrows to select the desired box number.
Touch ENT (enter) when done.



4

The following message will appear.

Unless you wish to overwrite current box settings, select NO.



5

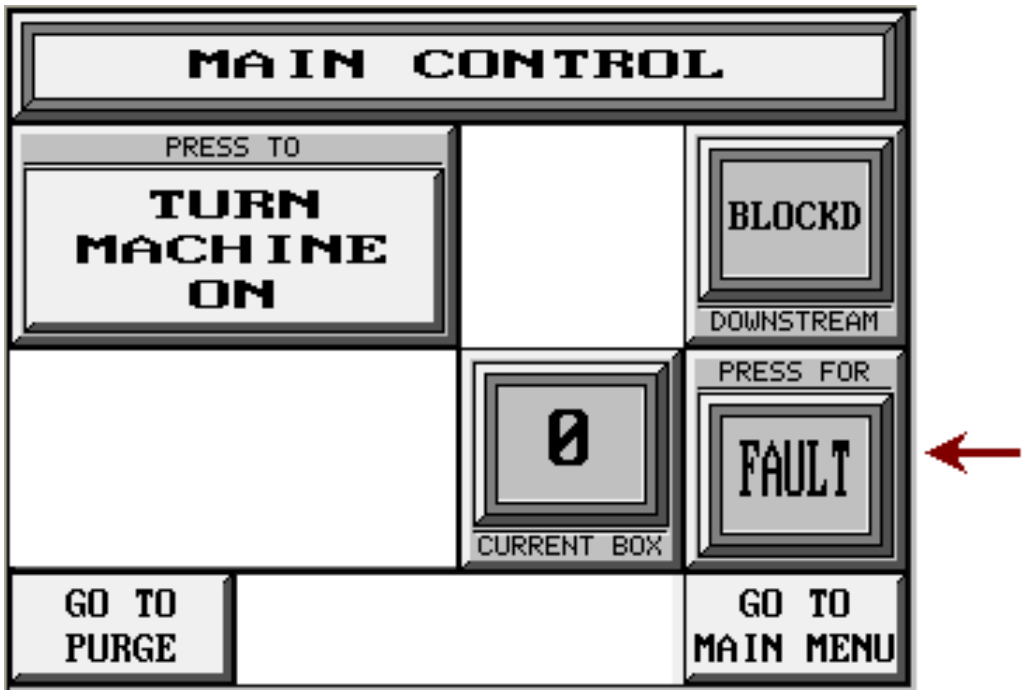
Go to the Control Menu and resume normal operation.

Fault Example – Blank in Rollers

The following is an example of a condition that may occur with the System. Though there are a number of possible issues that may occur with a machine of this size, the handling of most Faults will follow a similar pattern.

1

Situation: The Blank is mis-aligned at the top of the Tray Former Formation Section.



2

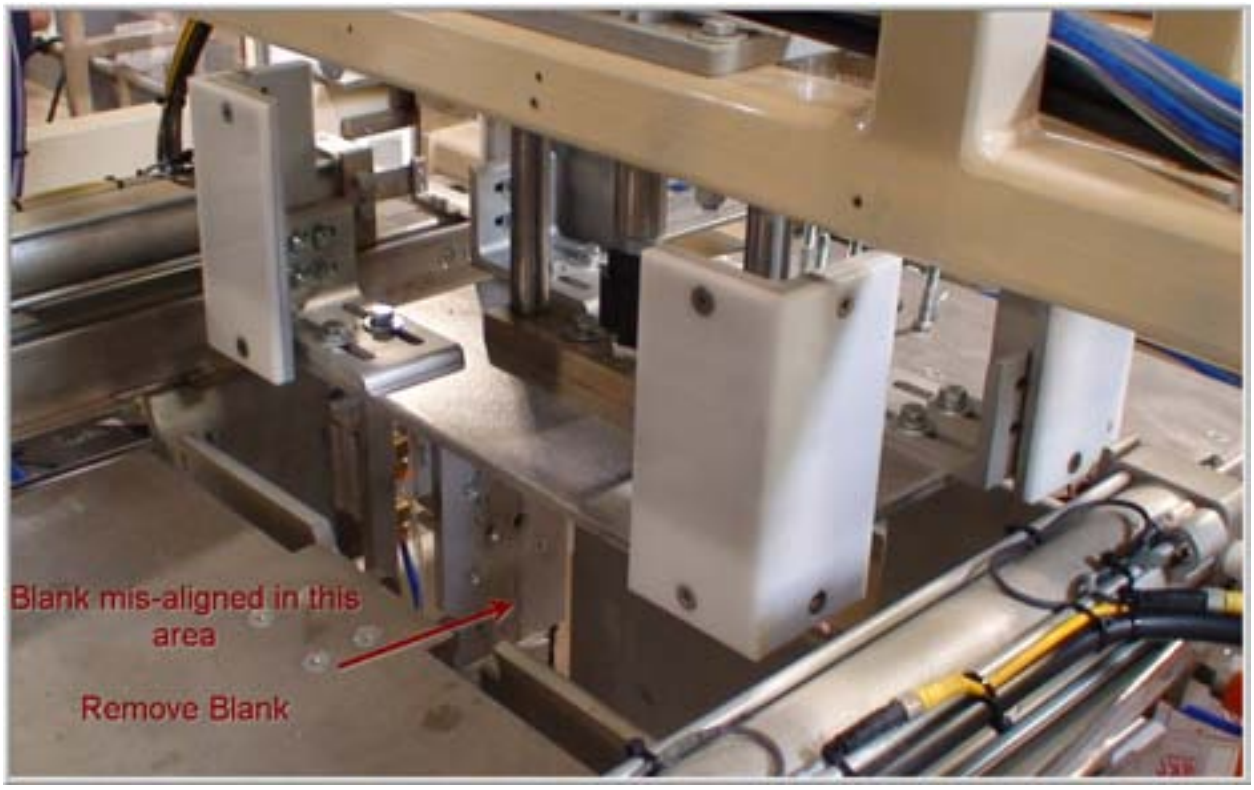
Evaluate Status: The System has shut down, the amber lights on the Status Tower are flashing, the Touch Screen indicates a Fault (displayed above).

3

Investigate: The flashing amber light indicates a Fault.
Press FAULT on the Touch Screen.
The following will appear:

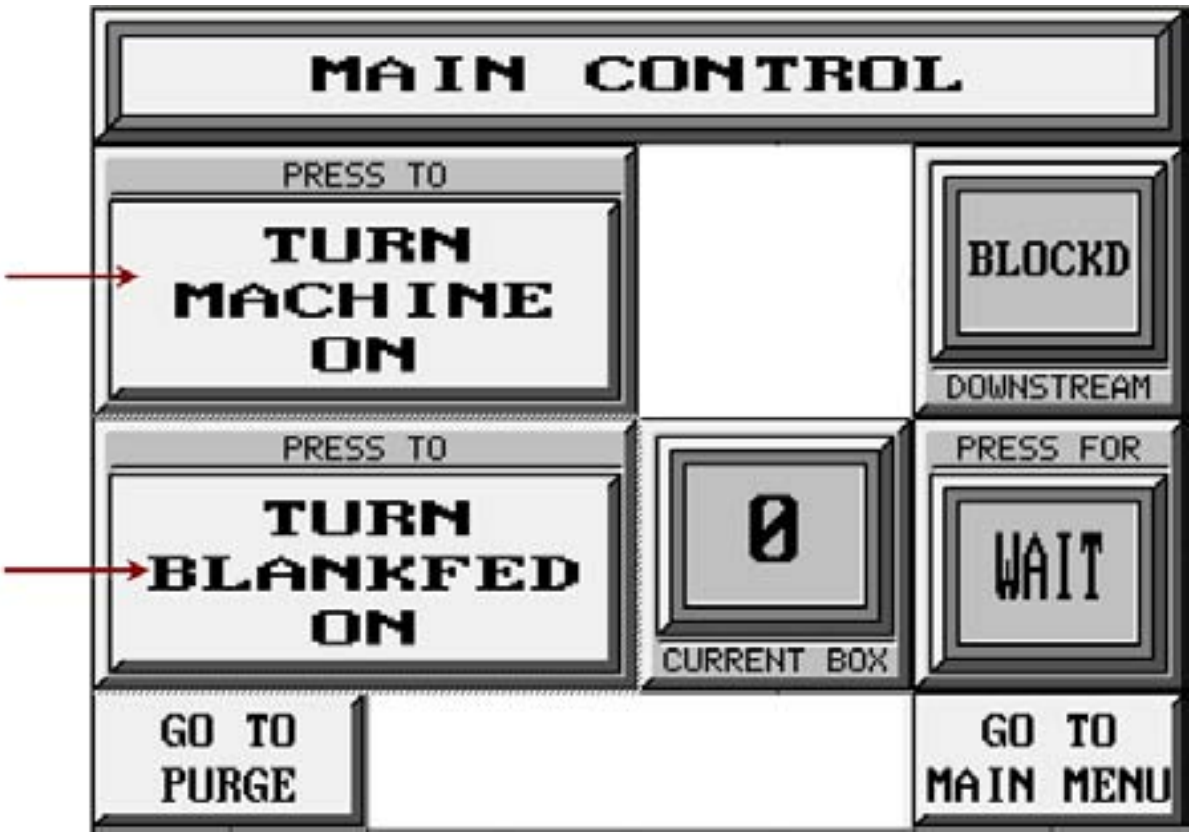
4

Resolve Issue: Find and resolve the issue with the Fault.
Clear the mis-aligned Blank from the Tray Former area.



5

Resume: Resume normal operation. At the Control Screen, press Machine ON, then Blankfeed ON.

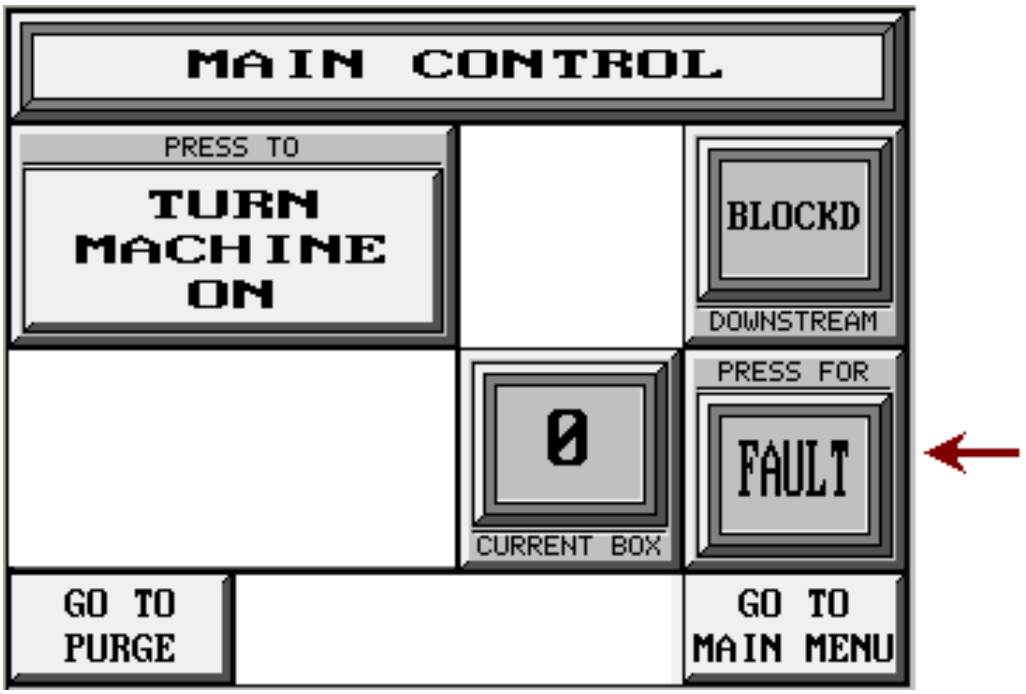


Fault Example – Glue System Faulted

The following is an example of a condition that may occur with the System. Though there are a number of possible issues that may occur with a machine of this size, the handling of most Faults will follow a similar pattern.

1

Situation: The Glue Unit either is off, not working properly or damaged - triggering a Fault indicator.



2

Evaluate Status: The System has shut down, the amber and blue lights on the Status Tower are flashing, the Touch Screen indicates a Fault (displayed above).

3

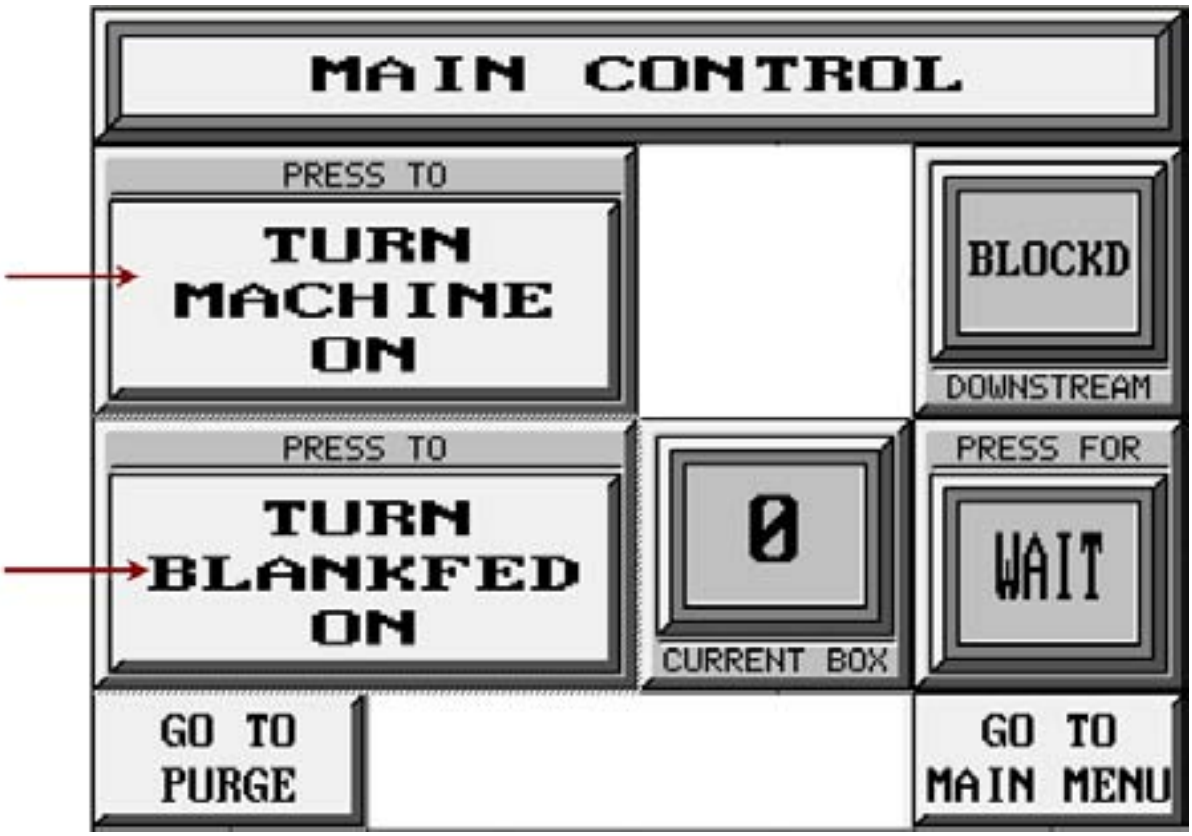
Investigate: The flashing amber light indicates a Fault, the flashing blue light is an indicator that there is an issue with the Glue System. Press FAULT on the Touch Screen. The following will appear:

4

Resolve Issue: Find and resolve the issue with the Glue System. If any questions arise, consult the Nordson manual or contact Maintenance personnel. Once resolved, press RESET ALARM on the Touch Screen.

5

Resume: Resume normal operation. At the Control Screen, press Machine ON, then Blankfeed ON.



Start-Up

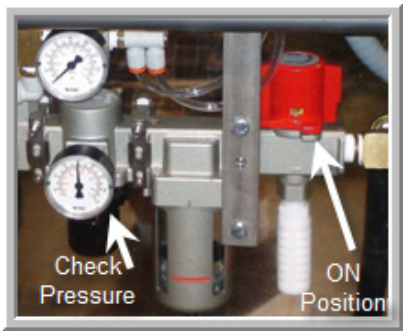
Follow this procedure to begin production mode.

1. Turn on the Glue Unit well ahead of the time desired for production. (See Nordson Manual for the Glue Unit's Operating Procedures). It will require approximately 30-45 minutes of melting time before quality production is possible.

Do not actuate the Glue Valve or operate the Pump until the Adhesive is completely melted.

2. Set the Electrical Safety Disconnect on all cabinets in the ON position.

3. Set the manual Air Shutoff Valves in the ON position. Check to see that the Main Air Pressure regulator is set at 80psi.



4. Ensure Blanks are ready and loaded in the Tray Former.

5. Set Power/E-Stop Off/On Keys to the ON position.

6. Pull out all E-Stops, if necessary.

➔ On Touch Screens:

7. Press Machine On/Off to start the machine (on all Touch Screens).

8. Press Blankfeed On/Off (Tray Former) to begin the cycling of blanks and production of trays.

9. Press Sequence On/Off (Loader).

10. Press Automatic Conveyor (Product Index Conveyor).
    - Ensure that the Inhibit button on the Product Index Conveyor Manual Controls is not enabled.

Shut Down

Follow this procedure to end production mode.

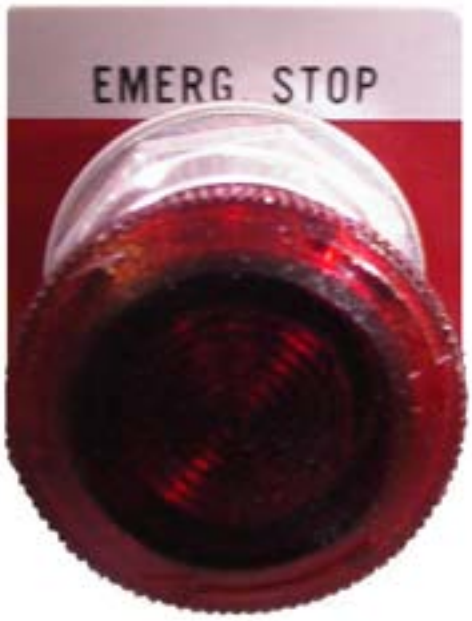
➔ On Touch Screen:

1. Press Machine On/Off on all Touch Screens.

➔ OR

2. Turn OFF all Power/E-stop Keys.

To immediately stop the machine, press any Emergency Stop (E-Stop) button.
Once pressed, E-Stop buttons remain in - until pulled out.



Monitoring the Machine

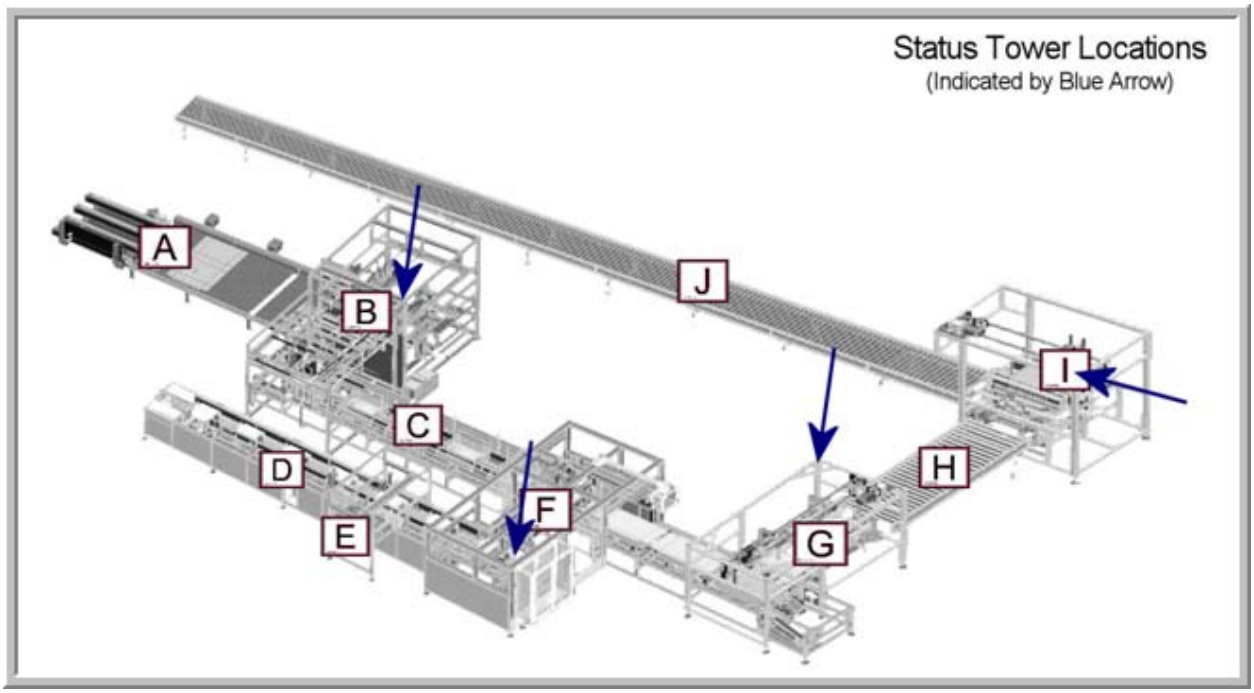
Operators must monitor this machine to ensure it runs smoothly. The following will assist in keeping track of any issues that may interrupt production.

Status Towers

The machine has been equipped with **Status Towers** to keep the Operators informed of the system's operating status.

Locations

The following indicates the locations of Status Towers on the Tray Packing System.



Types

This system has two types of Status Towers, but they serve the same basic function.

Status Tower labels and hard cards have been provided.
These should be applied to the machine close to the Towers or near the Touch Screen.

Meanings

WHITE – This light indicates whether the machine's power is on.

➔ If this light is lit, it signifies that the machine is on and is running.
➔ It will flash during the 3 second safe start-up.

BLUE - This light indicates the status of the Nordson Glue System.

➔ When the glue selector switch is in the on position and the system is ready for use the light will be on steady.
➔ The Light will flash sequentially should the glue system encounter any faults.

The number of flashes will indicate to the Operator the exact nature of the fault.

- **TWO FLASHES** – This indicates the glue is not up to temperature.
- **THREE FLASHES** – This indicates the glue unit tank is low on glue.
- **FOUR FLASHES** – This indicates the glue unit has a fault.

Refer to the Nordson Glue Manual for further information.

AMBER LIGHT –

- The Amber Light will be on steady if the downstream detector is blocked.
- The light will flash at a fast rate, if the magazine is empty.
- The light will flash at a slow rate, if the level of blanks in the magazine becomes low.
- The Amber Light will flash sequentially should the machine encounter any faults.

The number of flashes will indicate to the Operator the nature of the fault.

- **TWO FLASHES** – This indicates a Blank Pick-up Fault. This fault will occur when a blank has not been picked up and fed into the Erecting Section after three attempts. To clear this fault, the Operator must remove the blank that will not be picked up and fed, and then restart the machine.
- **THREE FLASHES** – This indicates an Erecting Fault and will happen when a case is not completely or properly erected. The machine will stop cycling to prevent damage to the case. The Operator must clear the case from the machine, and then restart the machine. If a case is not present, check the reflecting tape for dust debris.
- **FOUR FLASHES** – This indicates a Drive Fault and is usually caused by a case jamming somewhere in the path of the Walking Stick, loss of the machine counter Proximity Switch or motor over current. When this happens, the machine will stop cycling cases. The Operator should clear the machine of all cases (if jammed), troubleshoot the machine counter Proximity Switch, or check the motor and drive for binding.
- **FIVE FLASHES** – This indicates a Jam in the glue section or a Photo Eye mis-alignment. Clear cases from the machine and check Photo Eye, and then restart the machine.
- **SIX FLASHES** – This indicates a Ram Back Fault. This fault will occur when the Compression Ram does not fully retract prior to feeding a case into the compression section. When this happens, the operator should clear any cases from the machine, or check the function of the compression cylinder reed switch, and then restart the machine.
- **SEVEN FLASHES** – This indicates an Exit Safety Fault. Someone or something has entered the exit safety area, and to prevent injury, the machine will cease operation. To clear this fault, the Operator should press an E-Stop Push Button, ensure the Exit area is free of personnel and debris, and then pull out the E-Stop button and restart the machine.

RED – The Red Light will be on when an Emergency Stop Push Button is pressed, or if an Access Door is open.

The machine will not run if any E-Stops remain pressed in - or if any Access Doors are open.

Changeover

The following information is necessary when changing the machine to process different blank sizes.

For more detail
refer to the Changeover Matrix,
located in the Appendix.

➔ Several common components are used in most machine changeovers:

Crank Handle

Lock Handle

Lock Knob

Scale

Turn Wheel

Indicator

➔ The use of several of these – in any one changeover element – may be necessary.

Be certain to re-tighten any components that have been loosened – before resuming production.

IMPORTANT: Changeover indicators such as Left/Right, Front/Back, etc. are based on the FLOW of the Blank/Tray/Case through the Machine. Keep in mind the *direction of flow* when locating Changeover elements.

Changeover Highlights

The following materials are designed to simplify the Changeover process.

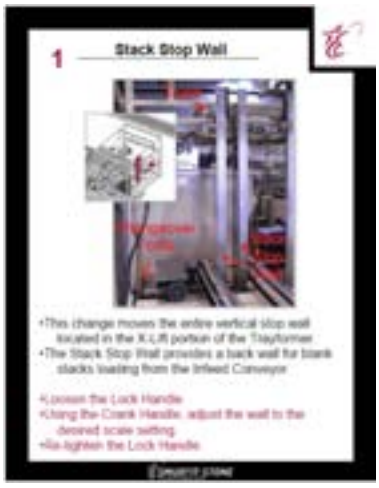
Machine Numbering

- Machine numbers have been provided to help identify Changeover areas.
- These have been placed AS CLOSE AS POSSIBLE to the Changeover item.

NOTE: The Changeover numbering system does not indicate an ordering or sequence that has to be followed. The numbering system is designed for locating items more easily.

Changeover Cards

- These can be placed in different parts of the Tray Packing System – to proved quick instruction on each Changeover element.



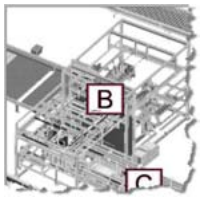
Legend

- The following Legend is used on Changeover cards to help identify Changeover areas.

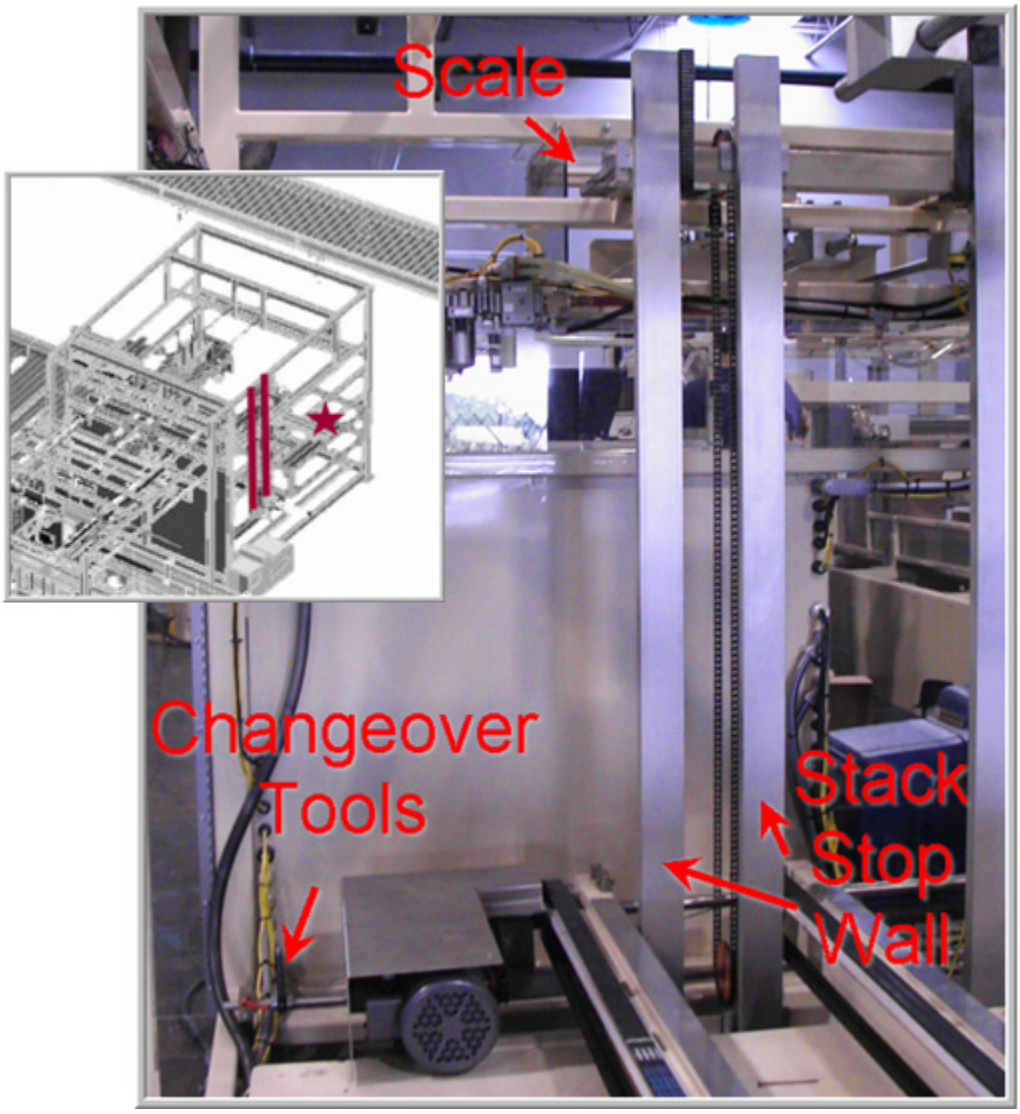
★ Location of Changeover Tools

/ Location of area / section being changed

Tray Former

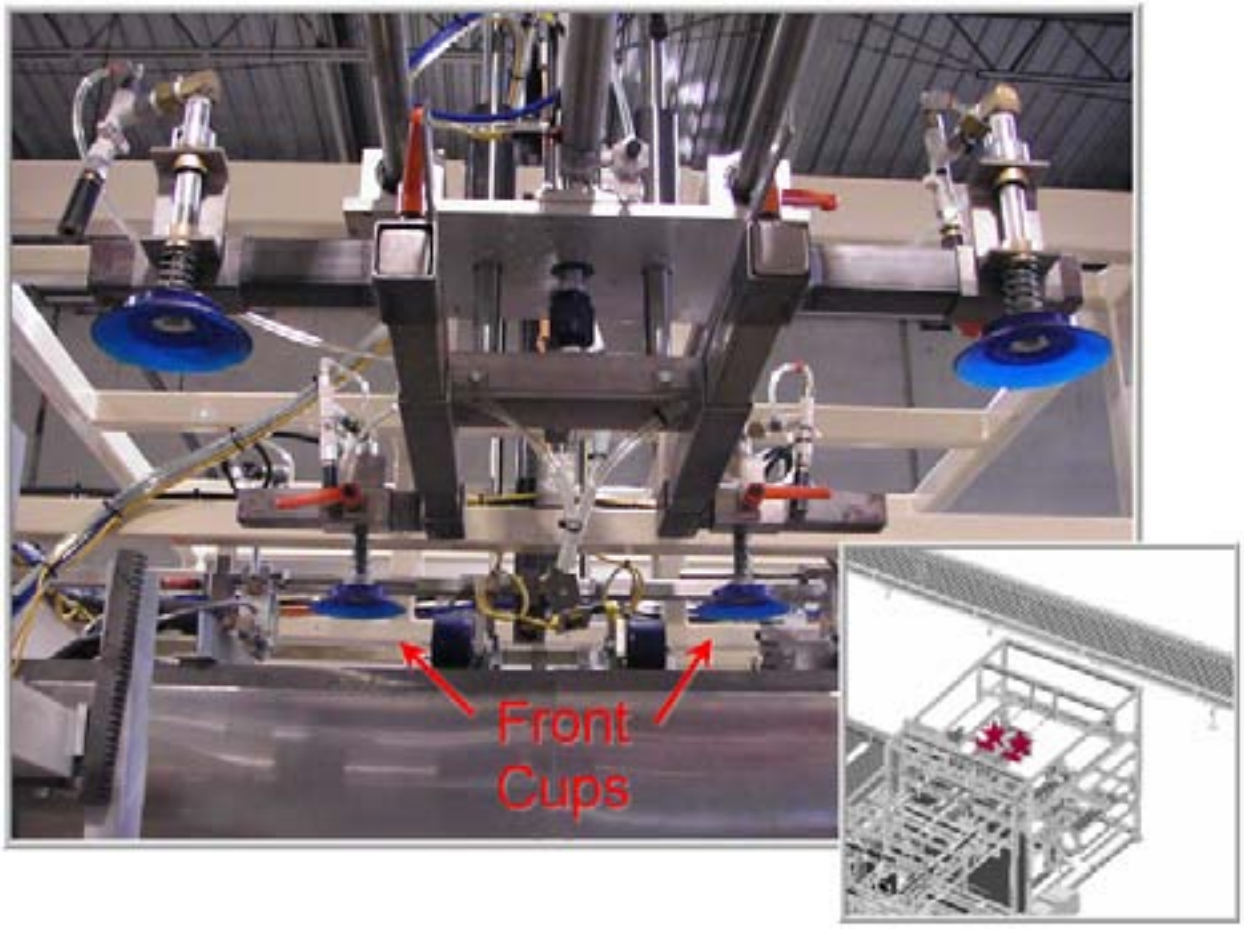


01 – Stack Stop Wall



- ➔ This change moves the entire vertical stop wall located in the X-Lift portion of the Trayformer.
- ➔ The Stack Stop Wall provides a back wall for blank stacks loading from the Infeed Conveyor.
- ➘ Loosen the Lock Handle.
- ➘ Using the Crank Handle, adjust the wall to the desired scale setting.
- ➘ Re-tighten the Lock Handle.

02 – Front Cups



➔ This change moves the front infeed vacuum cups on the Tray Former.

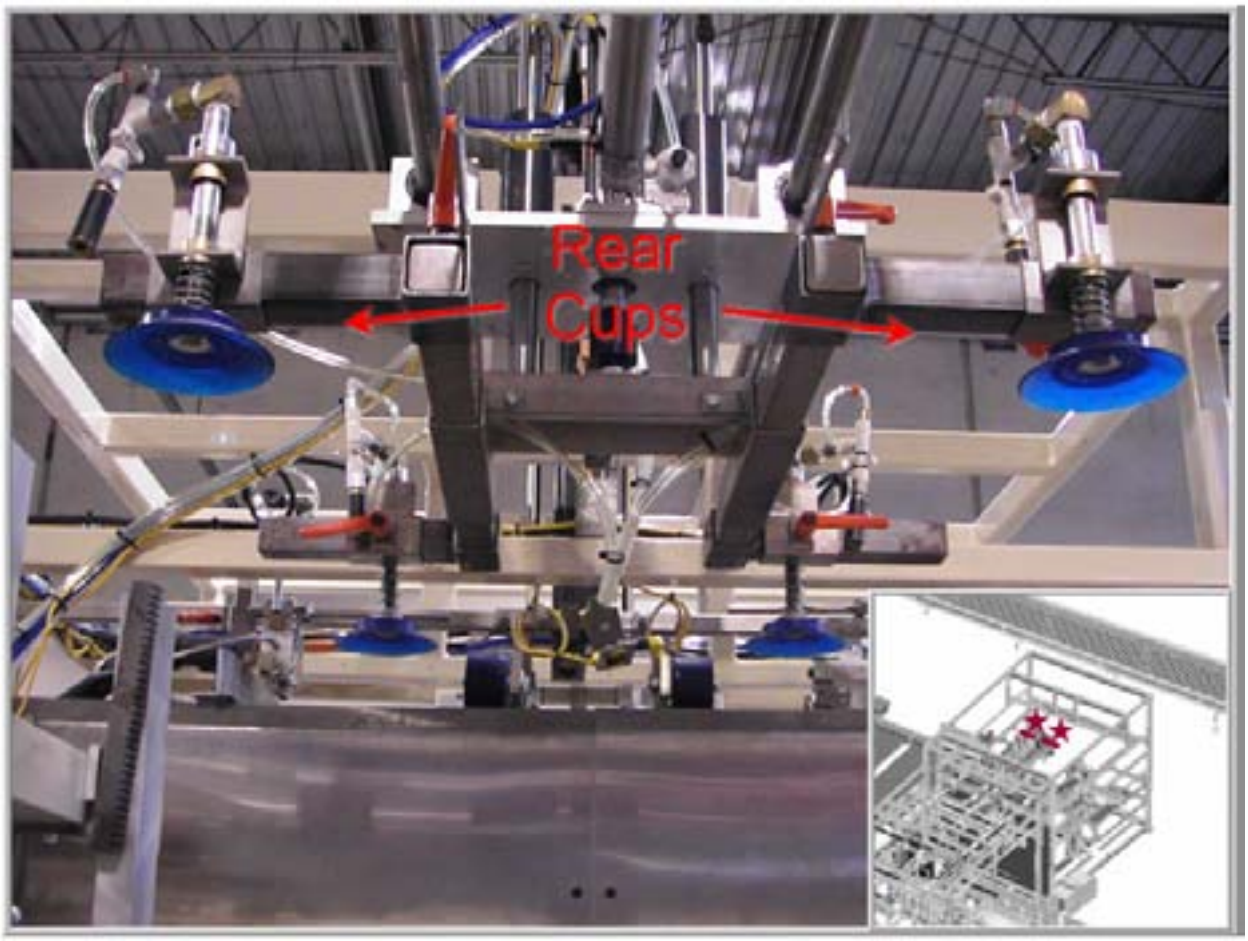
➔ The front cups are the set located closest to the Pinch Rollers.

➘ Loosen the Lock Handles.

➘ Slide and adjust the wall to the desired scale setting.

➘ Re-tighten the Lock Handles.

03 – Rear Cups



➔ The rear cups move in two sets of changes – Back/Forth & Right/Left.

➔ This change moves the rear infeed vacuum cups on the Tray Former.

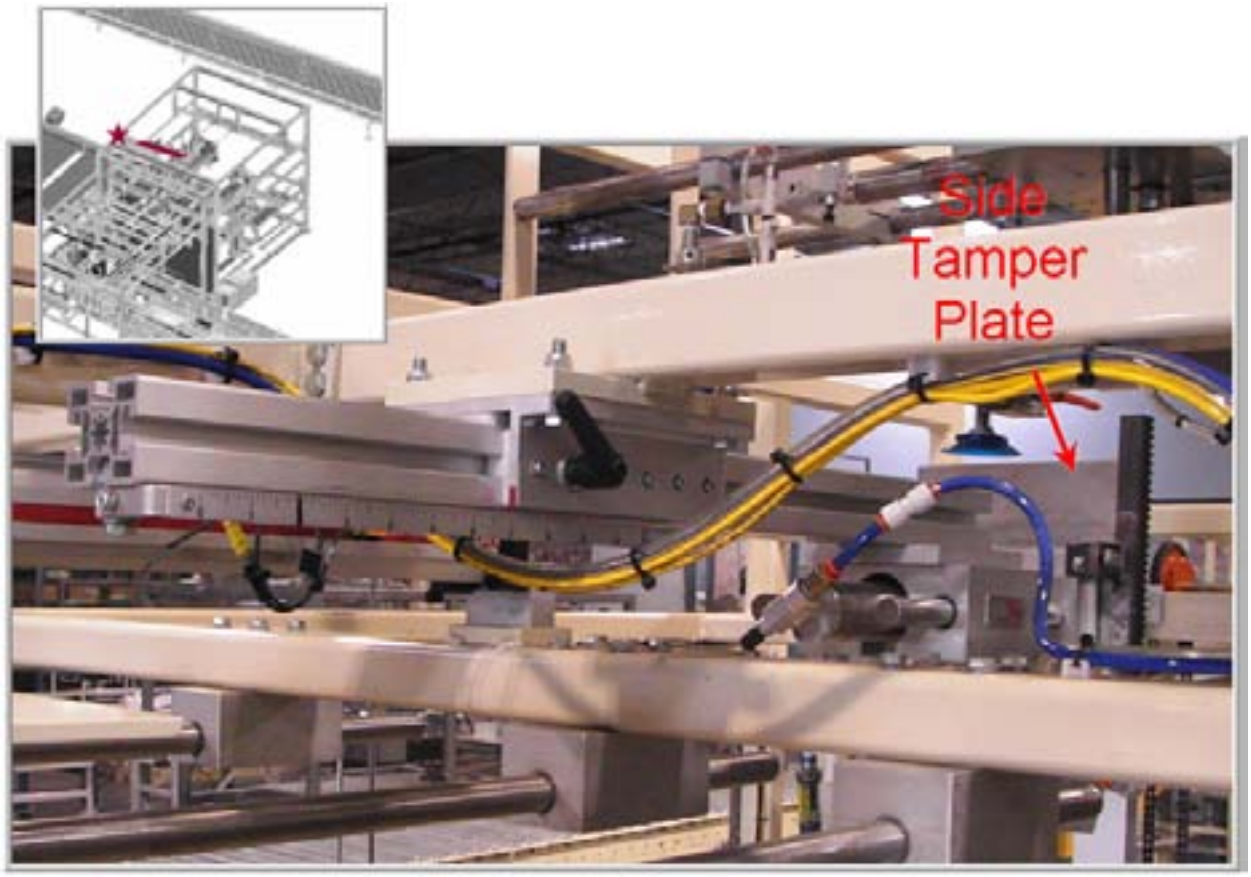
➔ The rear cups are the set located farthest to the Pinch Rollers.

➘ Loosen the Lock Handles.

➘ Slide and adjust the wall to the desired scale setting.

➘ Re-tighten the Lock Handles.

04 – Side Tamper



➔ This change moves the side tamper plate of the Tray Former.

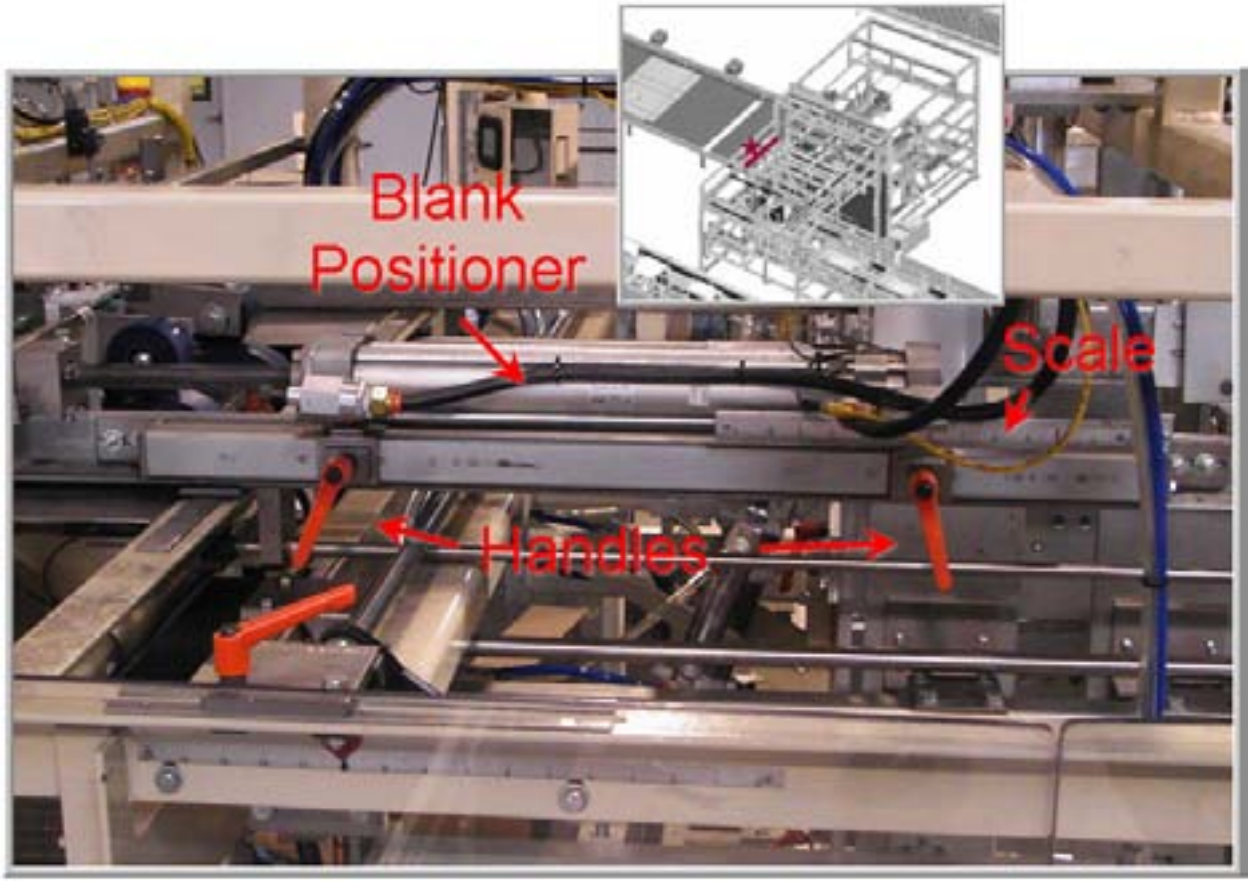
➔ The Side Tamper Plate provides a side wall to the blank stack awaiting infeed.

➘ Loosen the Lock Handle.

➘ Slide and adjust the wall to the desired scale setting.

➘ Re-tighten the Lock Handle.

05 – Blank Positioner



➔ This change adjusts the position of the blank positioner in the Tray Former.

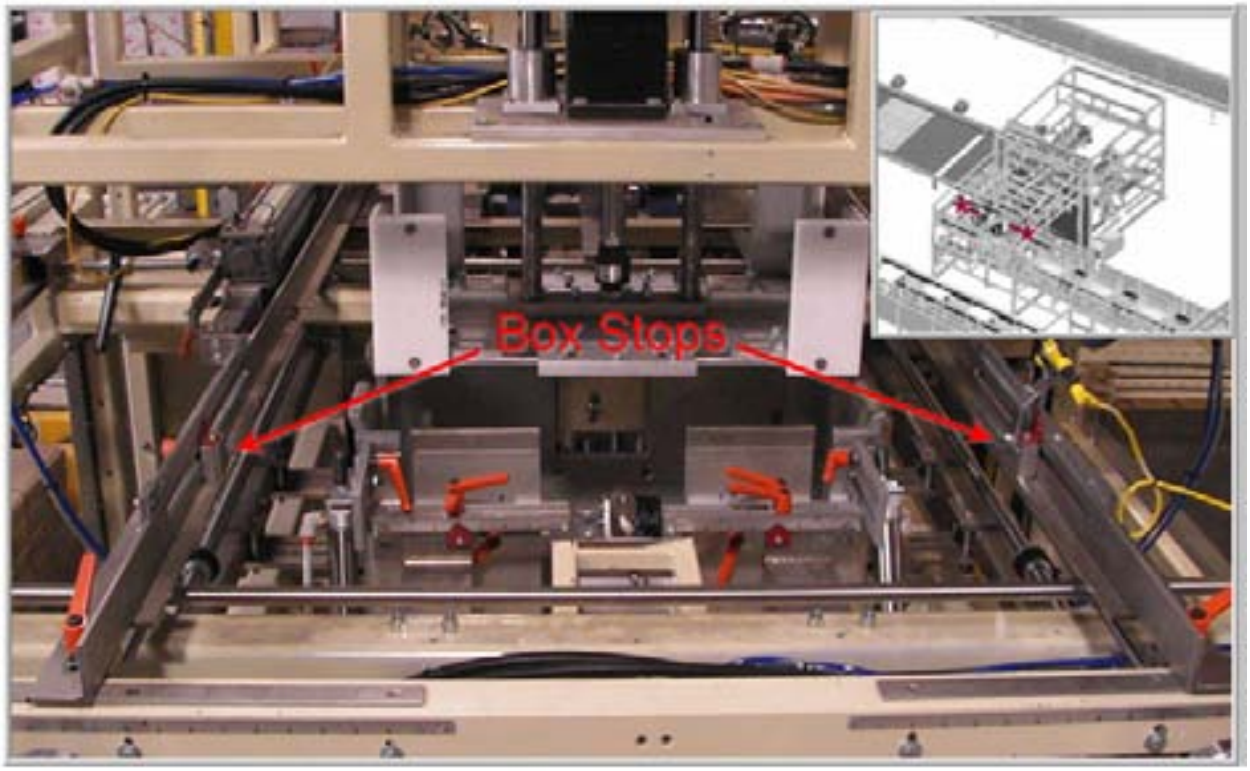
➔ The Blank Positioner helps align the blank before it enters the Mandrel Area of the Tray Former.

➘ Loosen the Lock Handles.

➘ Slide and adjust the wall to the desired scale setting.

➘ Re-tighten the Lock Handles.

06 – Box Stops



➔ This change adjusts the position of the box stops in the Tray Former.

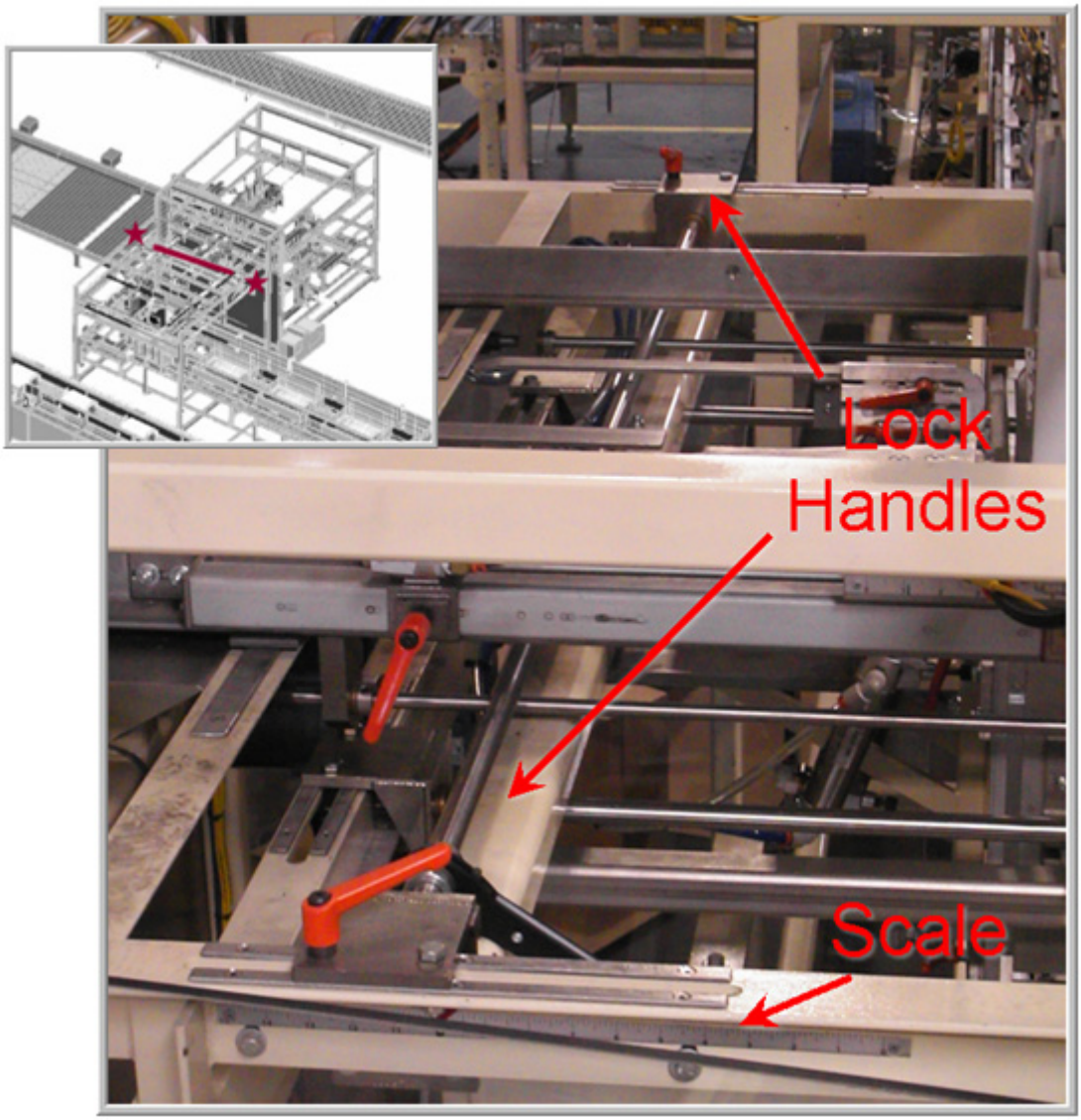
➔ Box Stops provide a stop ‘wall’ to the blank as it enters the Mandrel Area of the Tray Former. This helps the blank to be aligned in the proper position before the Mandrel begins formation.

➘ Loosen the Lock Handles.

➘ Slide and adjust to the desired scale settings.

➘ Re-tighten the Lock Handles.

07 – Rear Compression



➔ This change adjusts the rear compression mechanism in the Tray Former.

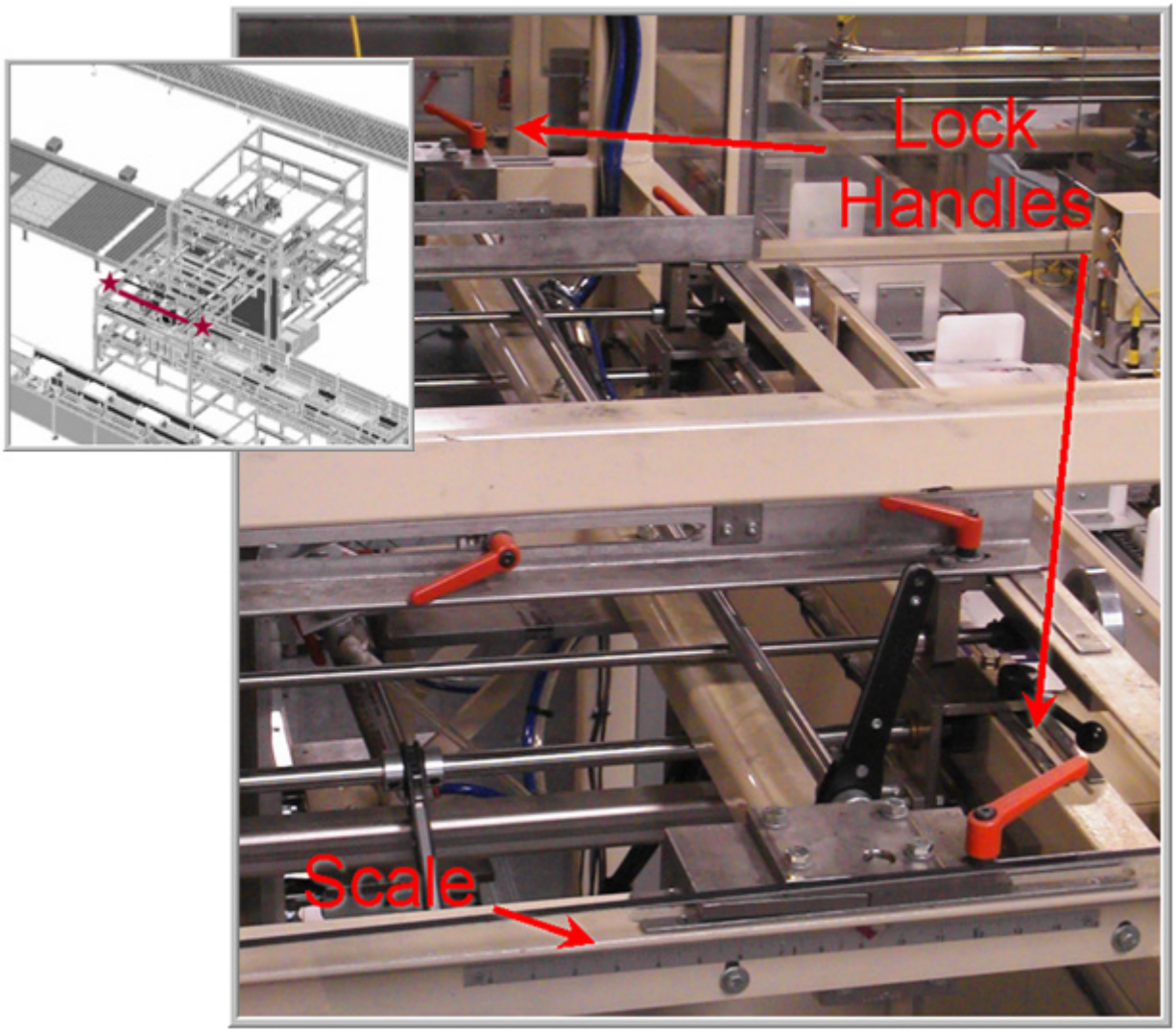
➔ The Rear Compression Changeover Tools are on either side of the Tray Former.

➘ Loosen the Lock Handles.

➘ Using the Crank Handle, adjust to the desired scale setting.

➘ Re-tighten the Lock Handles.

08 – Front Compression



➔ This change adjusts the front compression mechanism in the Tray Former.

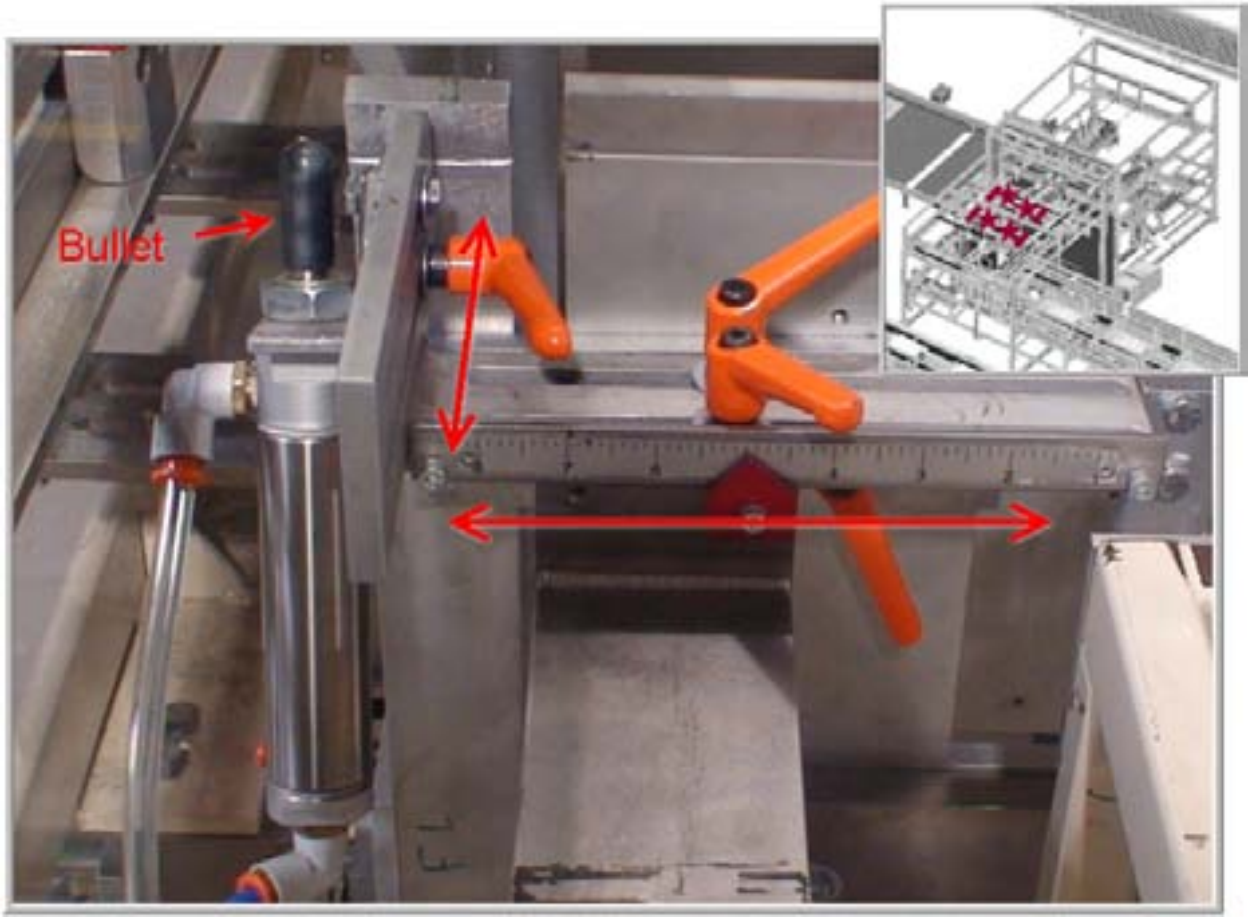
➔ The Front Compression Changeover Tools are on either side of the Tray Former.

➘ Loosen the Lock Handles.

➘ Using the Crank Handle, adjust to the desired scale setting.

➘ Re-tighten the Lock Handles.

09 – Rear Right Bullet



➔ Bullets provide Minor Flap folding in the Tray Former Section.

➔ Each Bullet has a Left/Right and a Front/Back adjustment that will need to be made.

➔ ALL 4 sets of Bullets and Changeover Tools are shown in the schematic above.

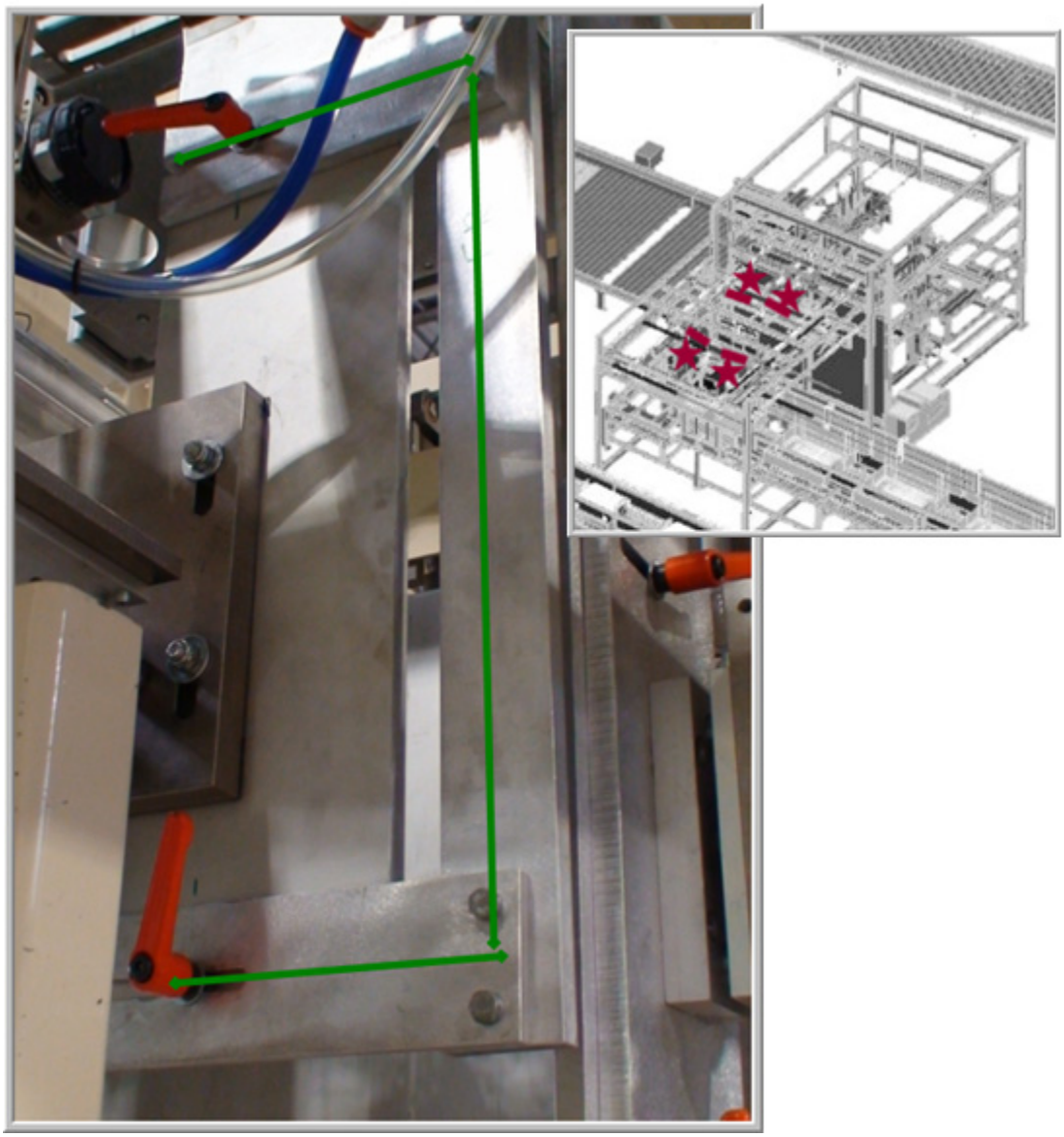
➘ Loosen the Lock Handles.

➘ Slide and adjust to the desired scale setting.

➘ Re-tighten the Lock Handles.

IMPORTANT: Changeover indicators such as Left/Right, Front/Back, etc. are based on the FLOW of the Blank/Tray/Case through the Machine. Keep in mind the *direction of flow* when locating Changeover elements.

10 – Rear Right Corner Extension



➔ Corner Extensions help provide support in the Tray Former Section.

➔ Each Corner Extension will be either OFF or Color Coded if ON.

➔ ALL 4 sets of Corner Extensions and Changeover Tools are shown in the schematic above.

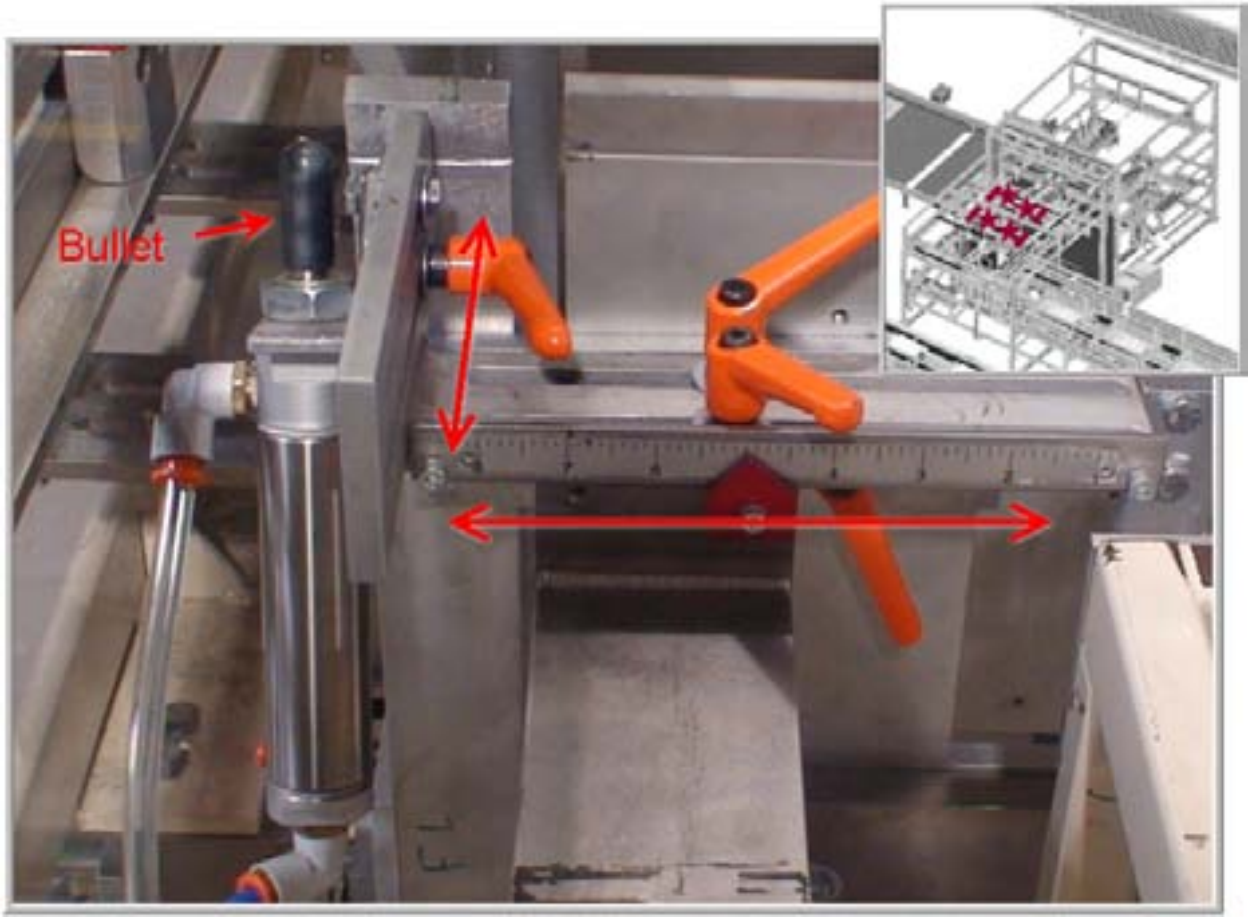
➘ Loosen the Lock Handles.

➘ Slide and adjust to the desired color setting.

➘ If necessary, removed or install entirely.

➘ Re-tighten the Lock Handles.

11 – Rear Left Bullet



➔ Bullets provide Minor Flap folding in the Tray Former Section.

➔ Each Bullet has a Left/Right and a Front/Back adjustment that will need to be made.

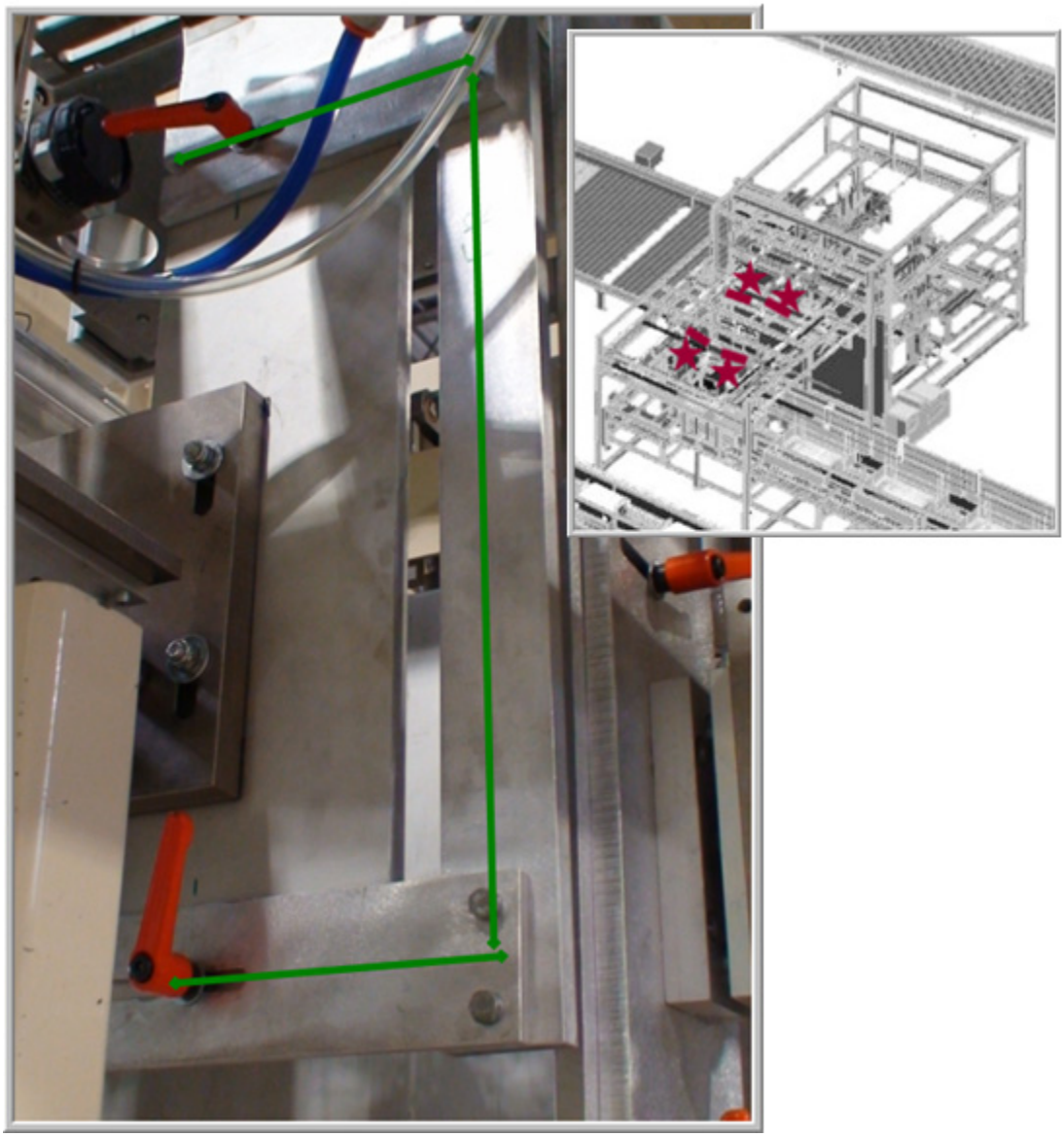
➔ ALL 4 sets of Bullets and Changeover Tools are shown in the schematic above.

➘ Loosen the Lock Handles.

➘ Slide and adjust to the desired scale setting.

➘ Re-tighten the Lock Handles.

12 – Rear Left Corner Extension



➔ Corner Extensions help provide support in the Tray Former Section.

➔ Each Corner Extension will be either OFF or Color Coded if ON.

➔ ALL 4 sets of Corner Extensions and Changeover Tools are shown in the schematic above.

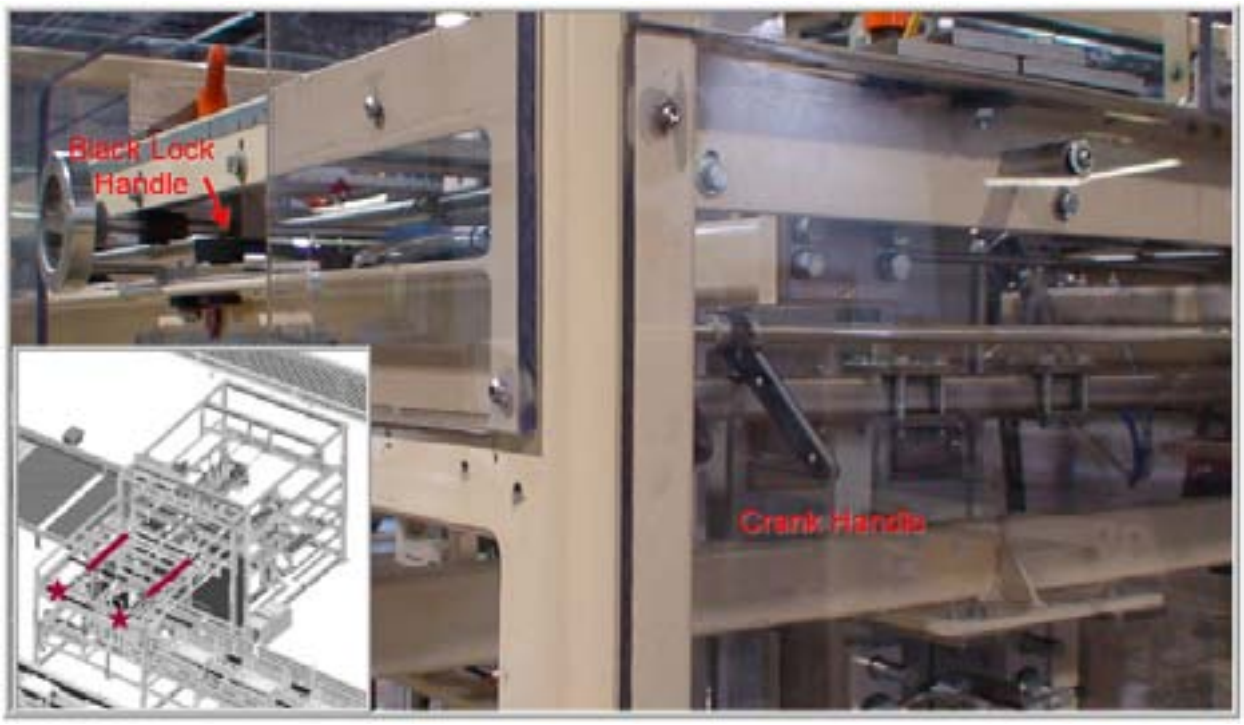
➘ Loosen the Lock Handles.

➘ Slide and adjust to the desired color setting.

➘ If necessary, removed or install entirely.

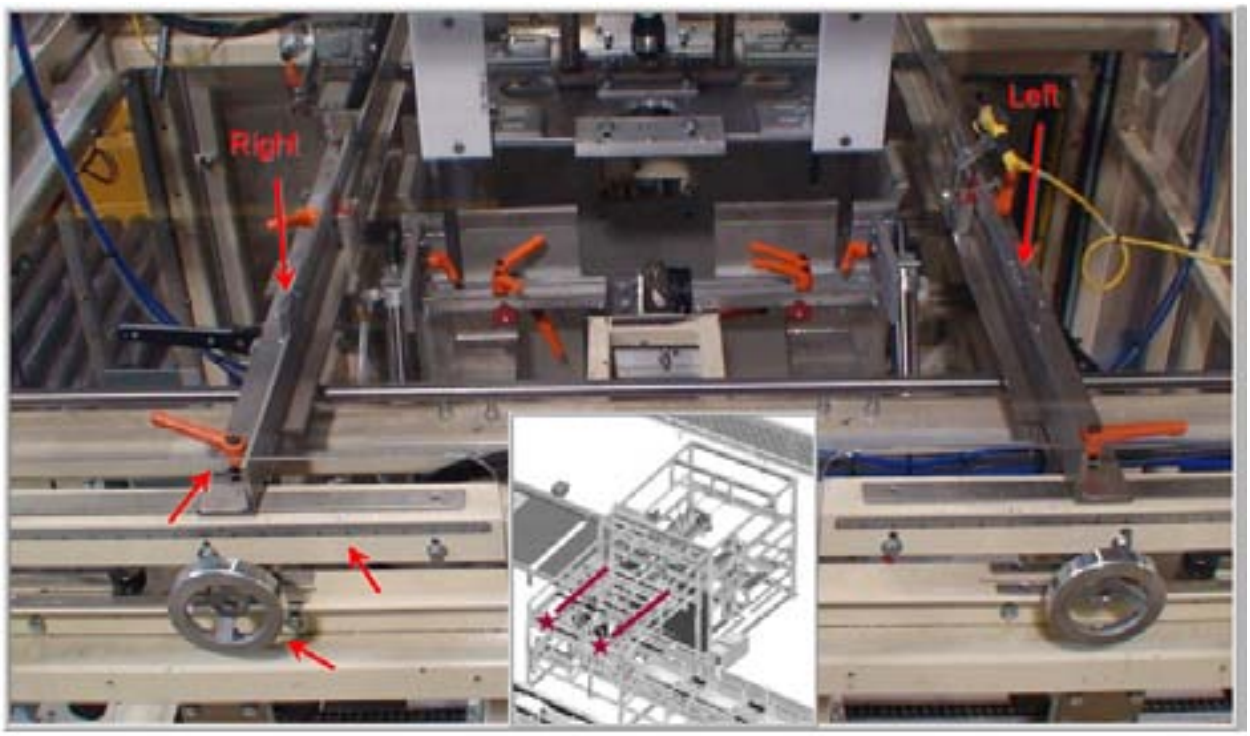
➘ Re-tighten the Lock Handles.

13 – Left & Right Compression



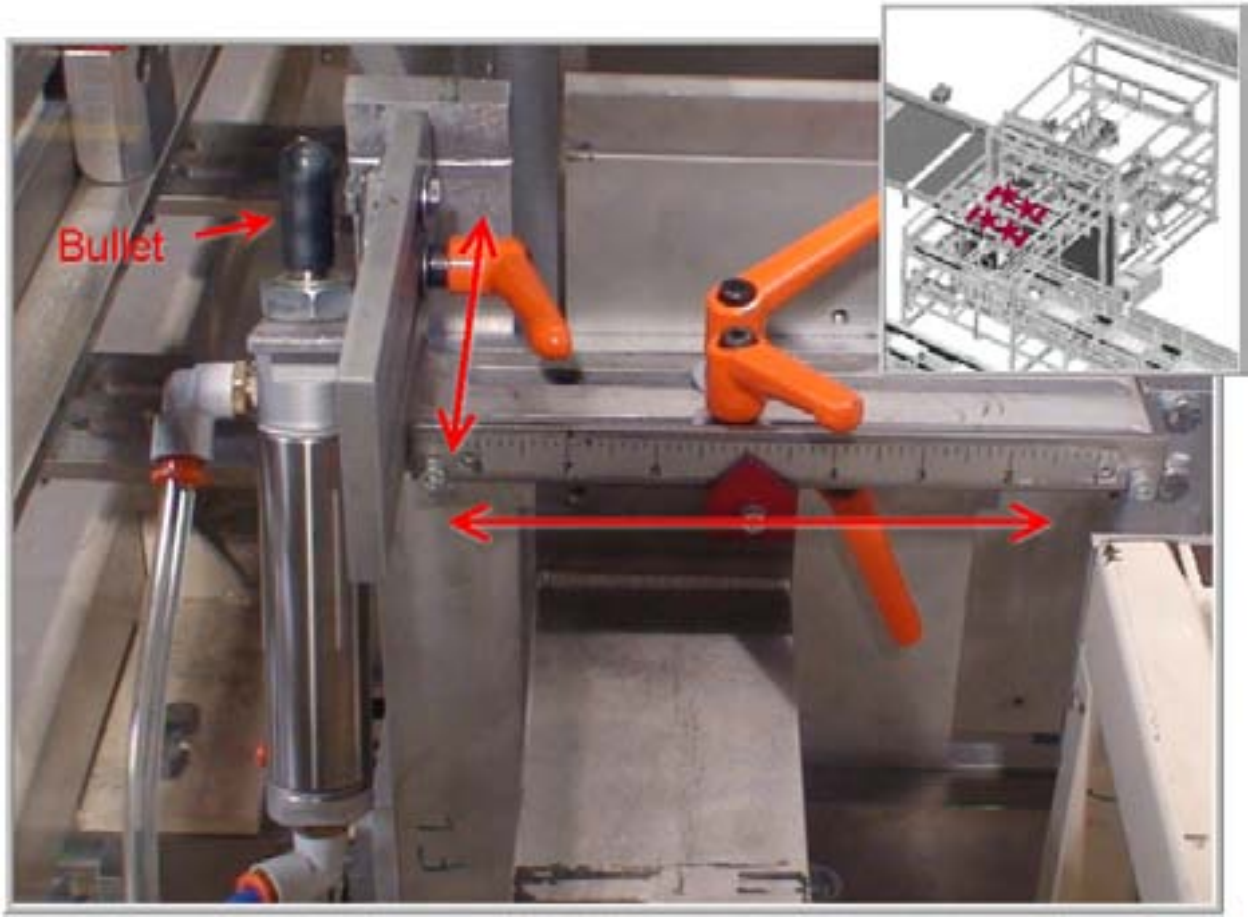
- ➔ The Compression Changeover adjusts the Left and Right Compression 'walls' of the Tray Former.
- ➔ Both the Left & Right sides will require adjustment.
- ➔ Both Left & Right elements are shown in the schematic above.
- ➘ Loosen the Lock Handle.
- ➘ Using the Crank Handle, adjust to the desired Scale setting (located below Lock Handle).
- ➘ Re-tighten the Lock Handle.

14 – Left & Right Guide Rail



- ➔ Guide Rails provide a 'track' for the Blank as it moves into the Tray Former.
- ➔ Both the Left & Right sides will require adjustment.
- ➔ Both Left & Right elements are shown in the schematic above.
- ➘ Loosen the Lock Handle.
- ➘ Using the Turn Wheel, adjust to the desired Scale setting (located below Lock Handle).
- ➘ Re-tighten the Lock Handle.

15 – Front Right Bullet



➔ Bullets provide Minor Flap folding in the Tray Former Section.

➔ Each Bullet has a Left/Right and a Front/Back adjustment that will need to be made.

➔ ALL 4 sets of Bullets and Changeover Tools are shown in the schematic above.

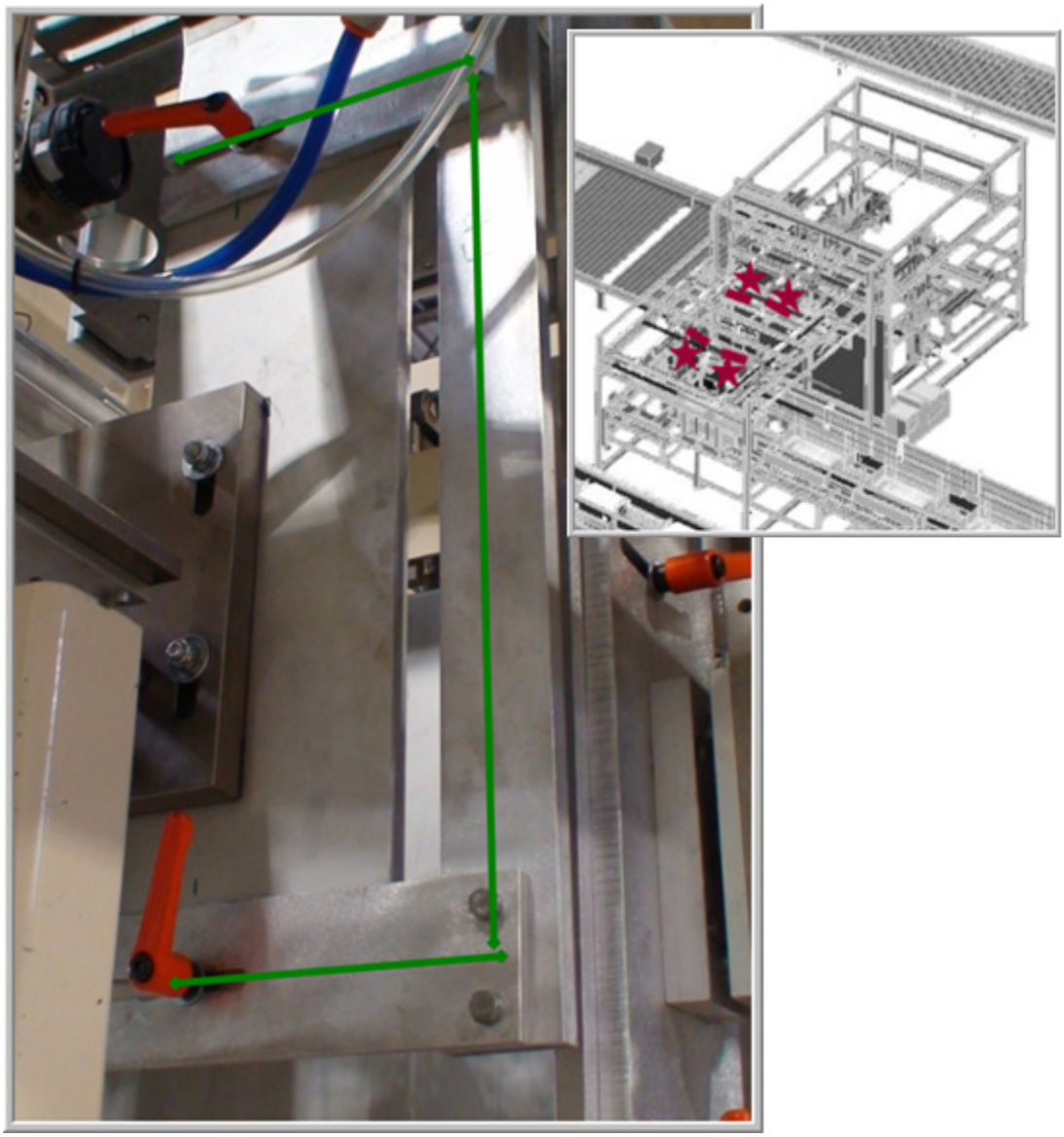
➘ Loosen the Lock Handles.

➘ Slide and adjust to the desired scale setting.

➘ Re-tighten the Lock Handles.

IMPORTANT: Changeover indicators such as Left/Right, Front/Back, etc. are based on the FLOW of the Blank/Tray/Case through the Machine. Keep in mind the *direction of flow* when locating Changeover elements.

16 – Front Right Corner Extension



➔ Corner Extensions help provide support in the Tray Former Section.

➔ Each Corner Extension will be either OFF or Color Coded if ON.

➔ ALL 4 sets of Corner Extensions and Changeover Tools are shown in the schematic above.

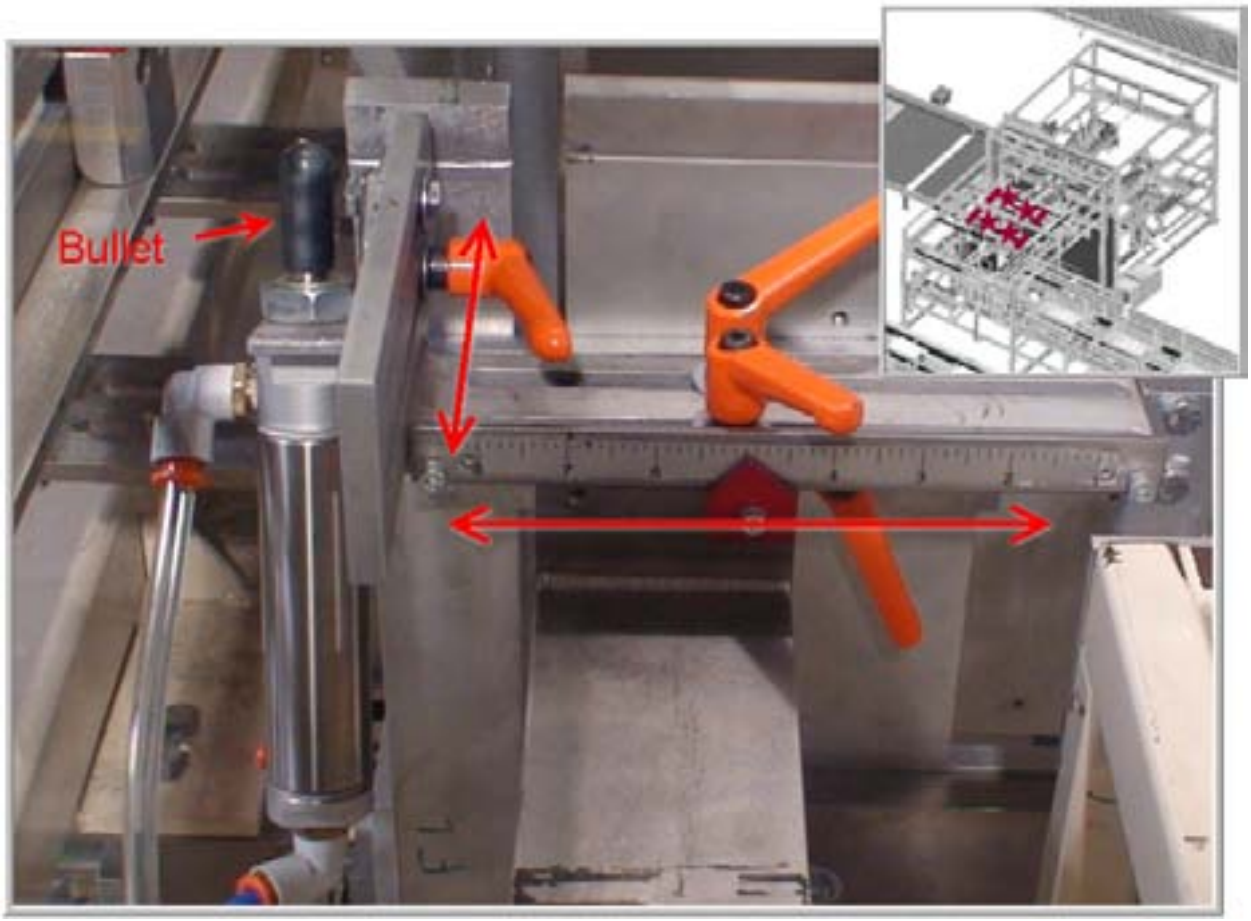
➘ Loosen the Lock Handles.

➘ Slide and adjust to the desired color setting.

➘ If necessary, removed or install entirely.

➘ Re-tighten the Lock Handles.

17 – Front Left Bullet



➔ Bullets provide Minor Flap folding in the Tray Former Section.

➔ Each Bullet has a Left/Right and a Front/Back adjustment that will need to be made.

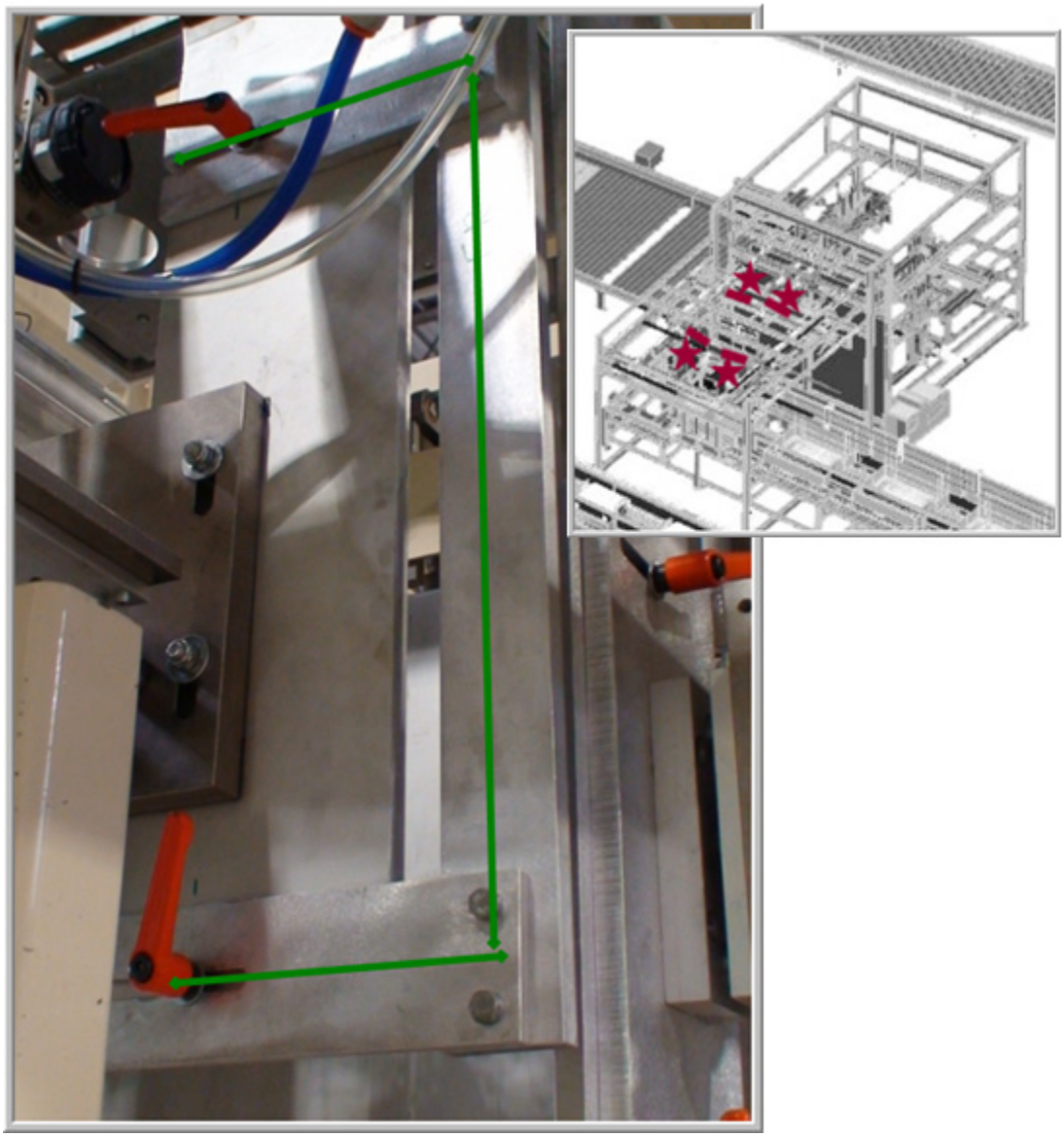
➔ ALL 4 sets of Bullets and Changeover Tools are shown in the schematic above.

➘ Loosen the Lock Handles.

➘ Slide and adjust to the desired scale setting.

➘ Re-tighten the Lock Handles.

18 – Front Left Corner Extension



➔ Corner Extensions help provide support in the Tray Former Section.

➔ Each Corner Extension will be either OFF or Color Coded if ON.

➔ ALL 4 sets of Corner Extensions and Changeover Tools are shown in the schematic above.

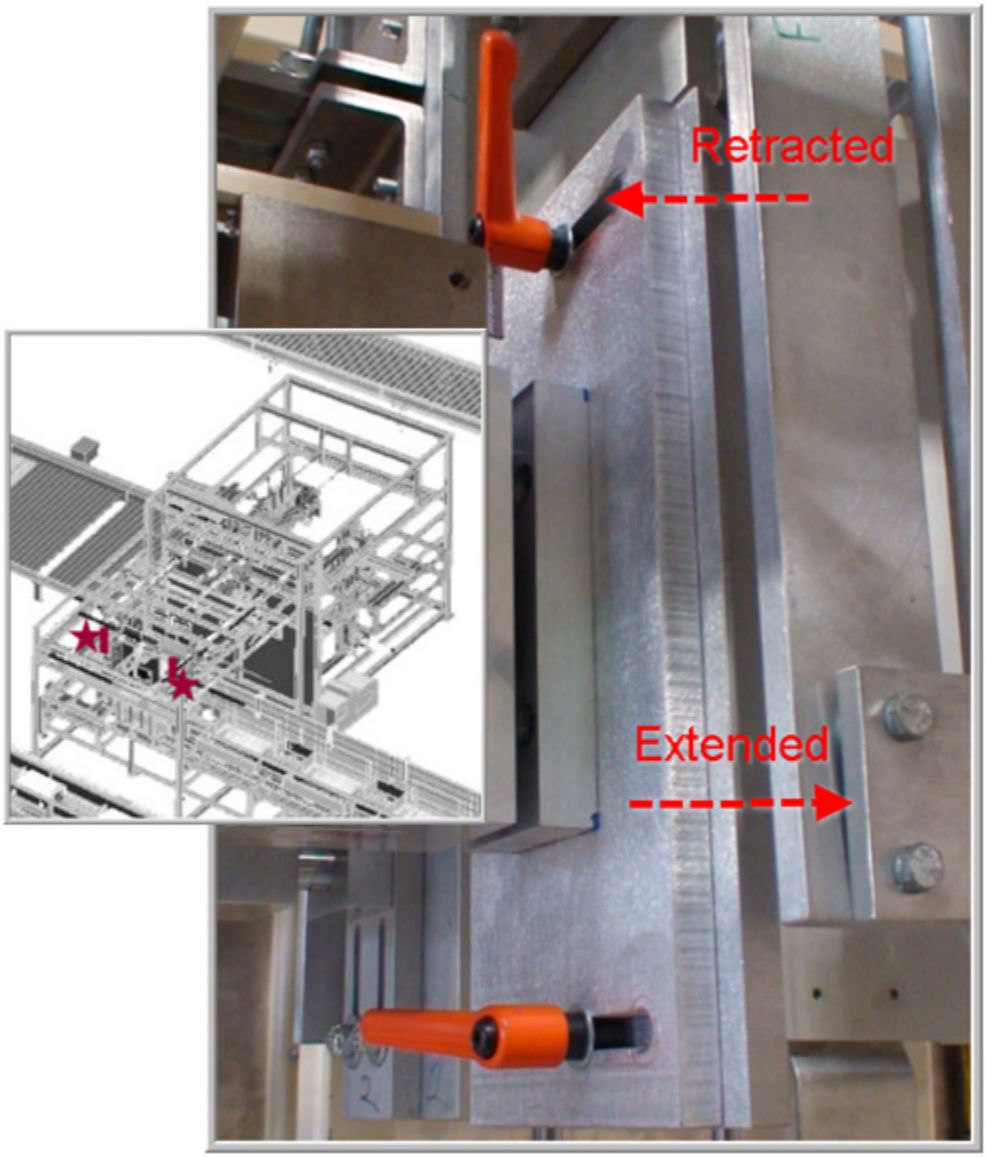
➘ Loosen the Lock Handles.

➘ Slide and adjust to the desired color setting.

➘ If necessary, removed or install entirely.

➘ Re-tighten the Lock Handles.

19 – Front Side Compression Extensions



➔ For larger Blank sizes, provides an extension in the Tray Forming section.

➔ Both Left and Right adjustments need to be made.

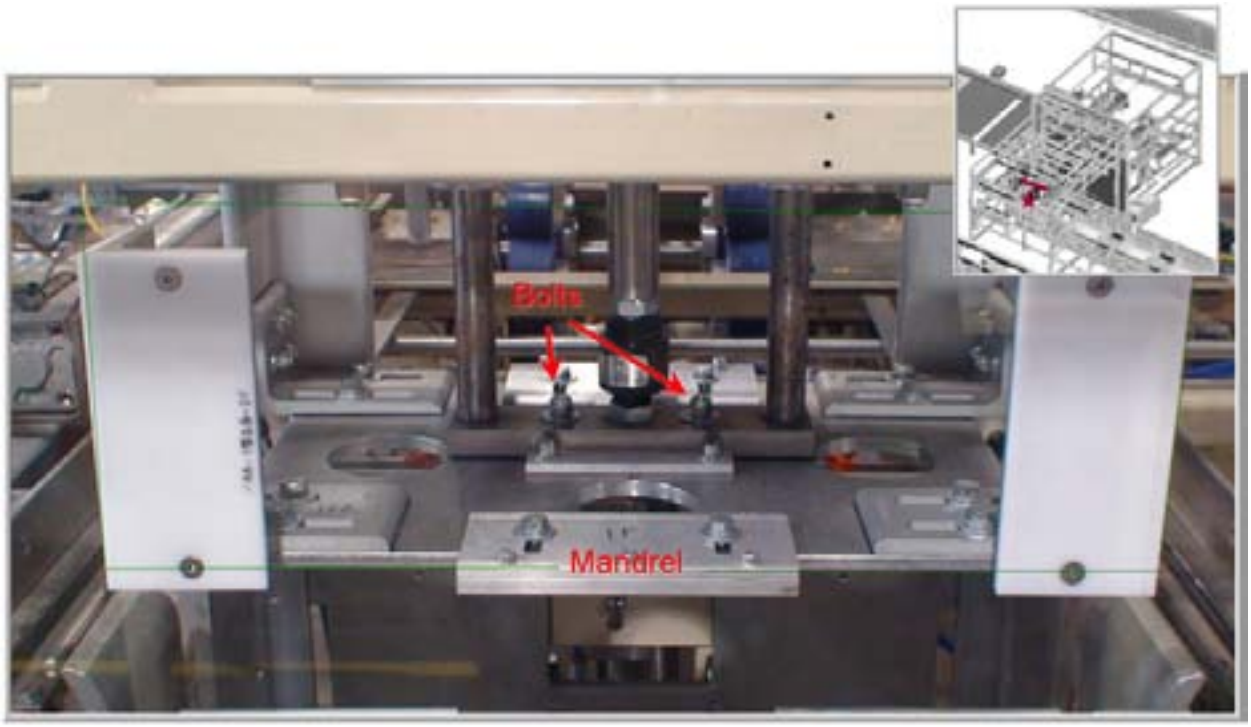
➔ Both Left and Right sets are shown in the schematic above.

➘ Loosen the Lock Handles.

➘ Slide and adjust to either the Retracted or Extended position.

➘ Re-tighten the Lock Handles.

20 – Mandrel



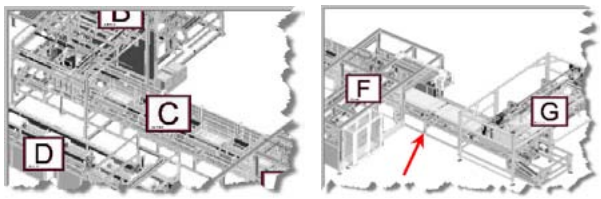
- ➔ The Mandrel is the central formation unit of the Tray Former.
- ➔ Changeover for the Mandrel is a full change-out process. The entire Mandrel is removed and replaced with the required one
- ➔ Mandrels are stamped with lettering to indicate the proper size
- ➘ Loosen and remove the two Nuts at the interior of the Mandrel.
- ➘ Remove the Mandrel and replace with the correct one.
- ➘ Replace and re-tighten the Nuts.

21 – Screen Box

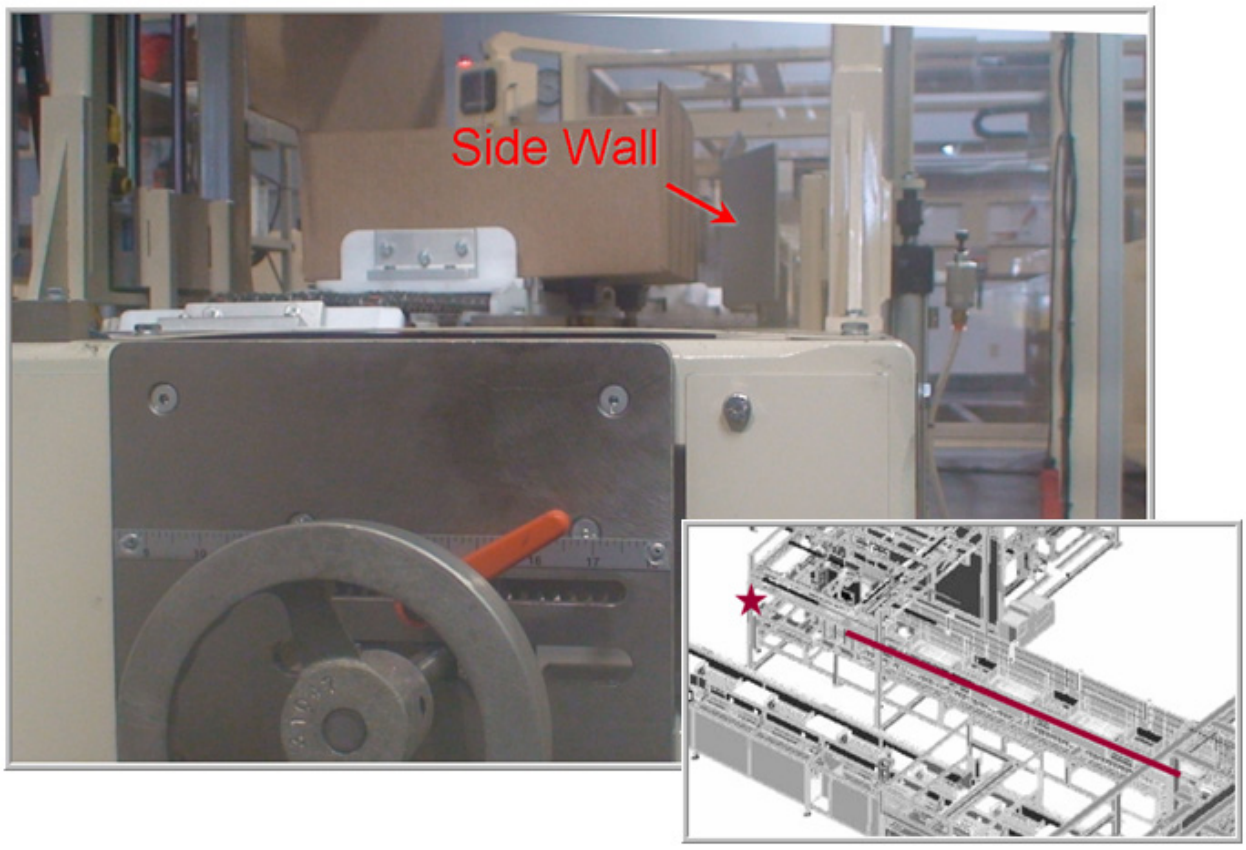
➔ This change involves selecting the appropriate box size on the Touch Screen.

- From the Main Menu, select Box Select.
- In the center of the screen, select the large, box number button.
- Use the up or down arrows to make the appropriate selection.
- Press ENT when finished.
- Press Back to Control.

Tray Index Conveyor



23 – Side Wall



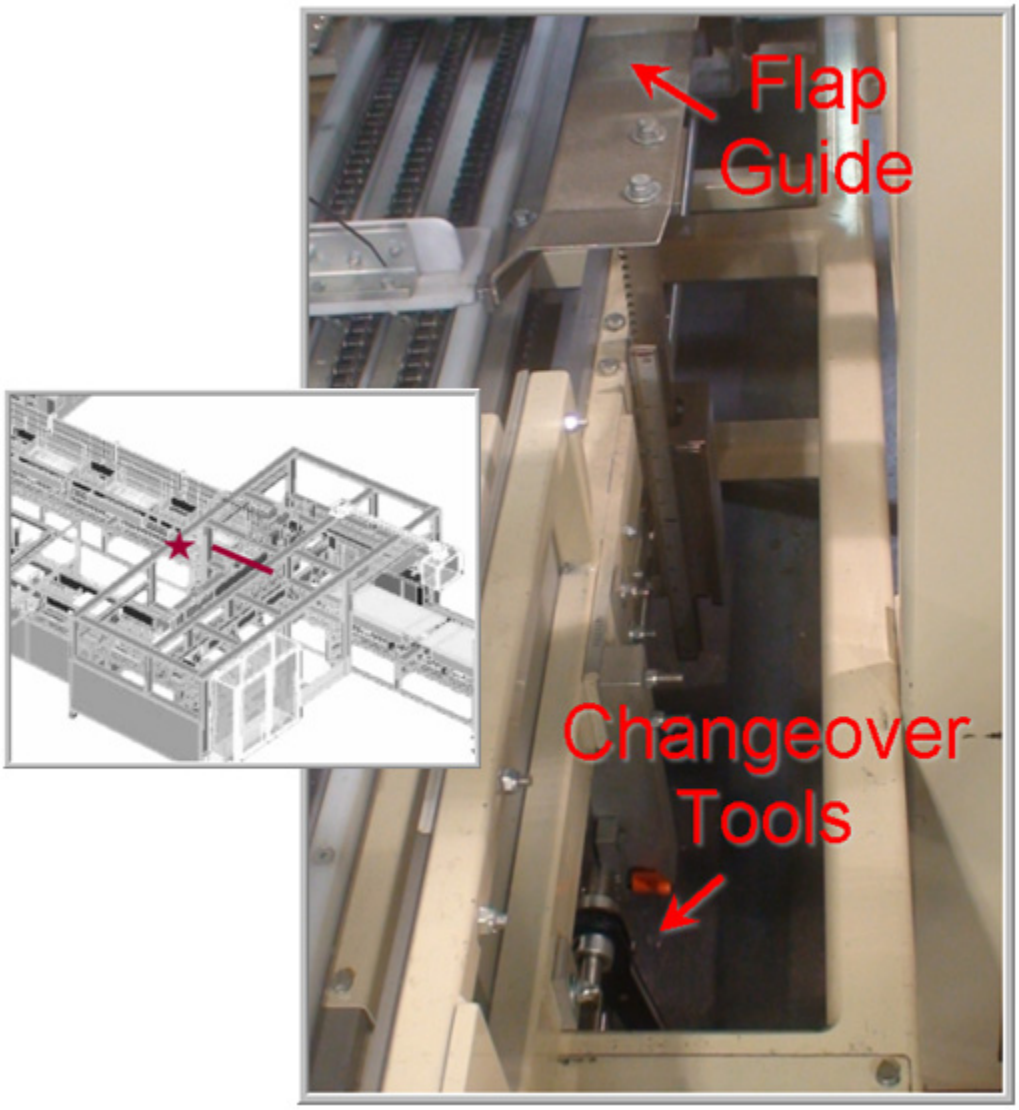
➔ This change moves the entire side wall of the Tray Index Conveyor.

➘ Loosen the Lock Handle.

➘ Using the Turn Wheel, slide and adjust the wall to the desired scale setting.

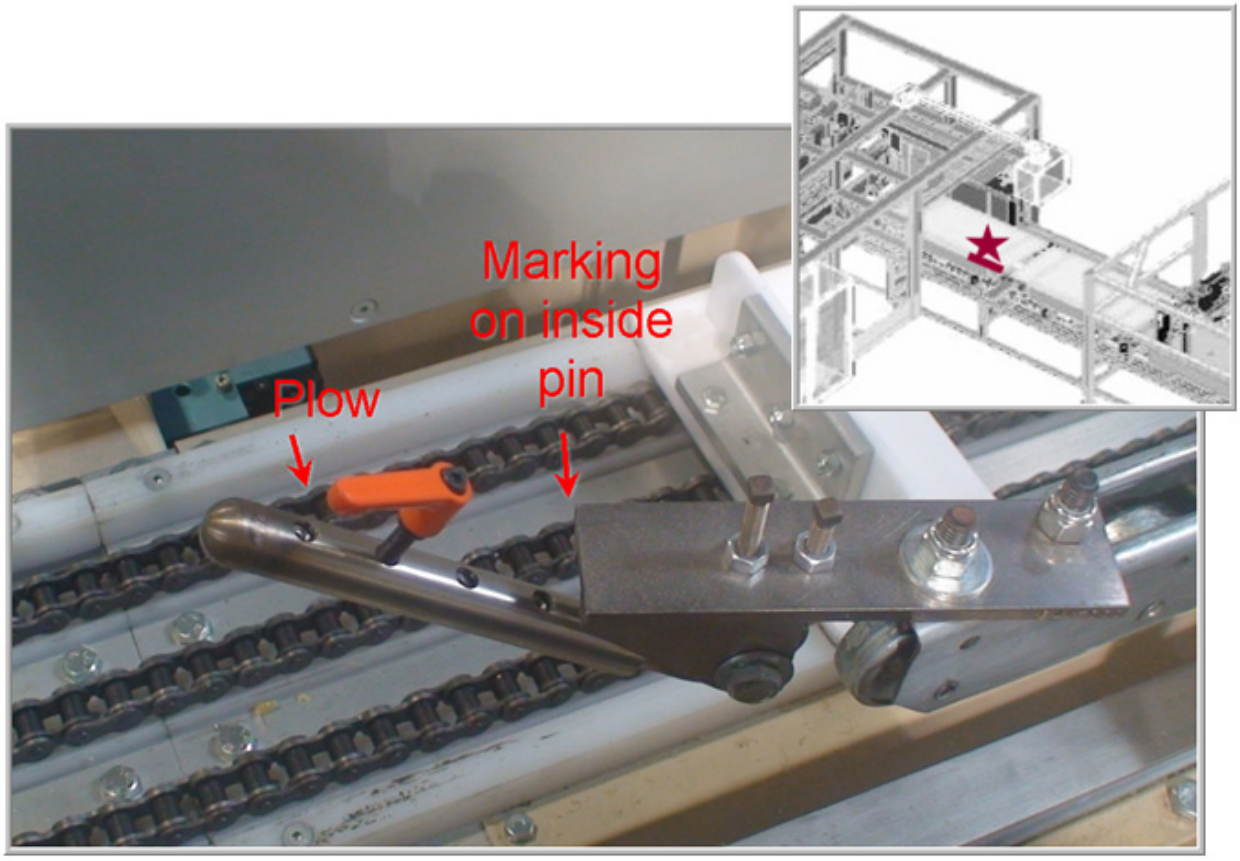
➘ Re-tighten the Lock Handle.

24 – Manufacturer's Flap Guide



- ➔ This change moves the guide that holds the Manufacturer's Flap in place during the loading process.
- ➔ Located at the point where the Tray Index Conveyor meets the Loader.
- ➘ Loosen the Lock Handle.
- ➘ Using the Crank Handle, adjust to the desired scale setting.
- ➘ Re-tighten the Lock Handle.

25 – Top Panel Plow



➔ This change involves adjusting the plow that folds the top panel of the box.

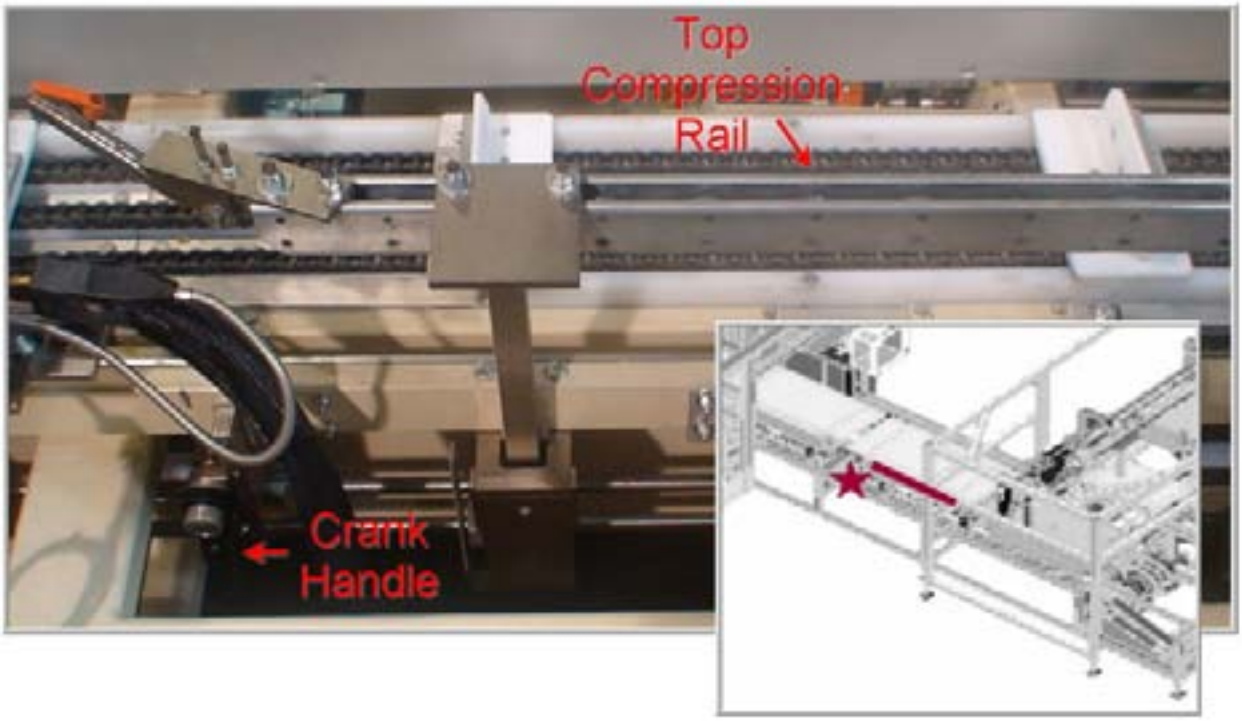
➔ Located on the Tray Index Conveyor – next to the Front Panel Plow.

➘ Loosen the Lock Handle.

➘ Adjust the plow to the markings on the inside pin.

➘ Re-tighten the Lock Handle.

26 – Top Compression

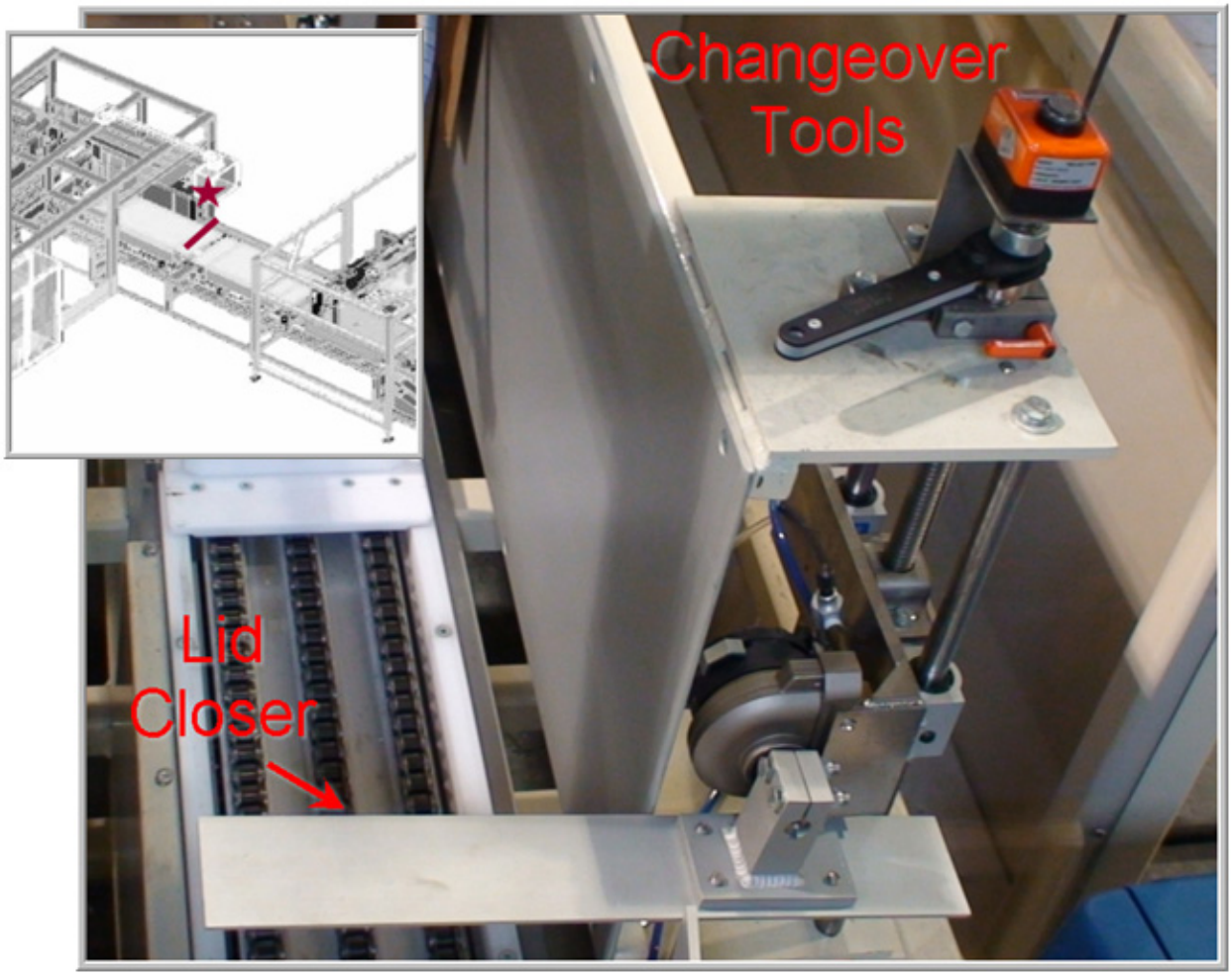


➔ This change involves the top compression rail of the Tray Index Conveyor.

➔ Located on the Tray Index Conveyor – immediately before the Sealer.

➘ Using the Crank Handle, adjust to the desired scale setting.

27 – Lid Closer



➔ This change involves adjusting the lid closer that folds the top lid of the box.

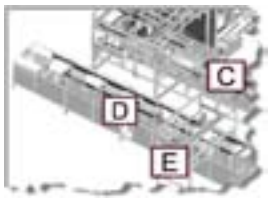
➔ Located on the Tray Index Conveyor – after exiting the Loader.

➘ Loosen the Lock Handle.

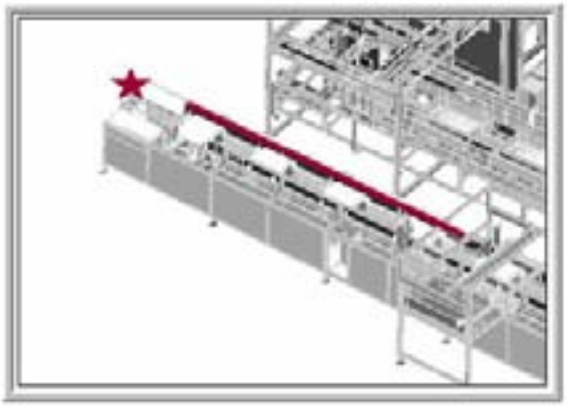
➘ Using the Crank Handle, adjust to the desired counter setting.

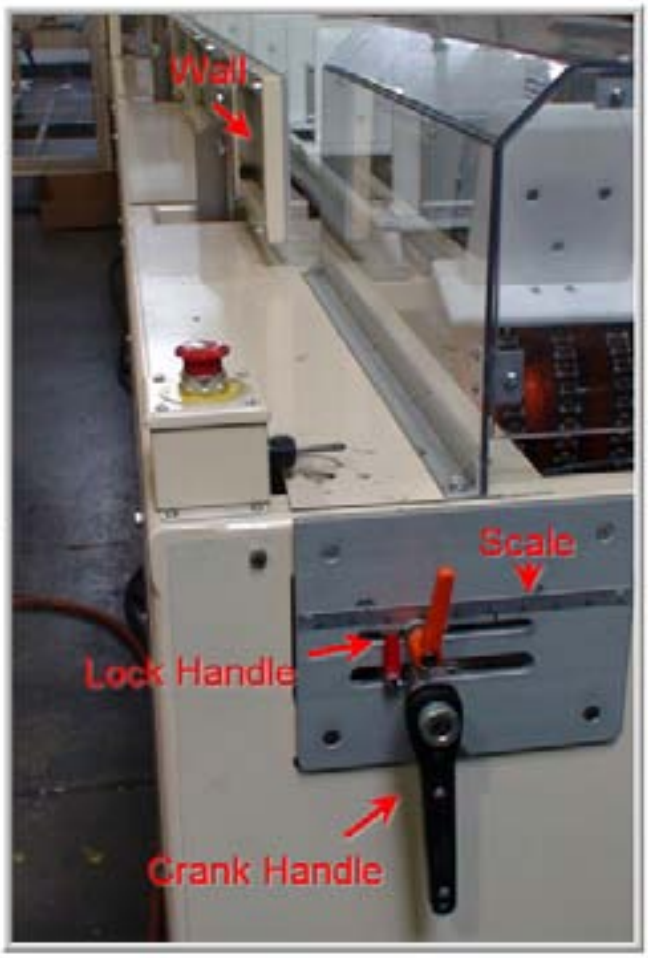
➘ Re-tighten the Lock Handle.

Product Conveyor



28 - Side Wall





➔ This change moves the entire conveyor wall, which runs the length of the Product Conveyor.

- Loosen the Lock Handle.
- Using the Crank Handle, adjust the wall to the desired scale setting.
- Re-tighten the Lock Handle.

29 – Load Pocket

➔ This change moves the left-hand pocket wall at the infeed area of the Product Conveyor.

➔ The Lock Handle, Crank Handle and Counter are located next to the Product Conveyor Control Station.

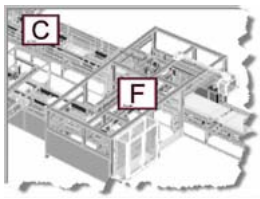
➘ Loosen the Lock Handle.

➘ Using the Crank Handle, adjust the pocket wall to the desired counter setting.

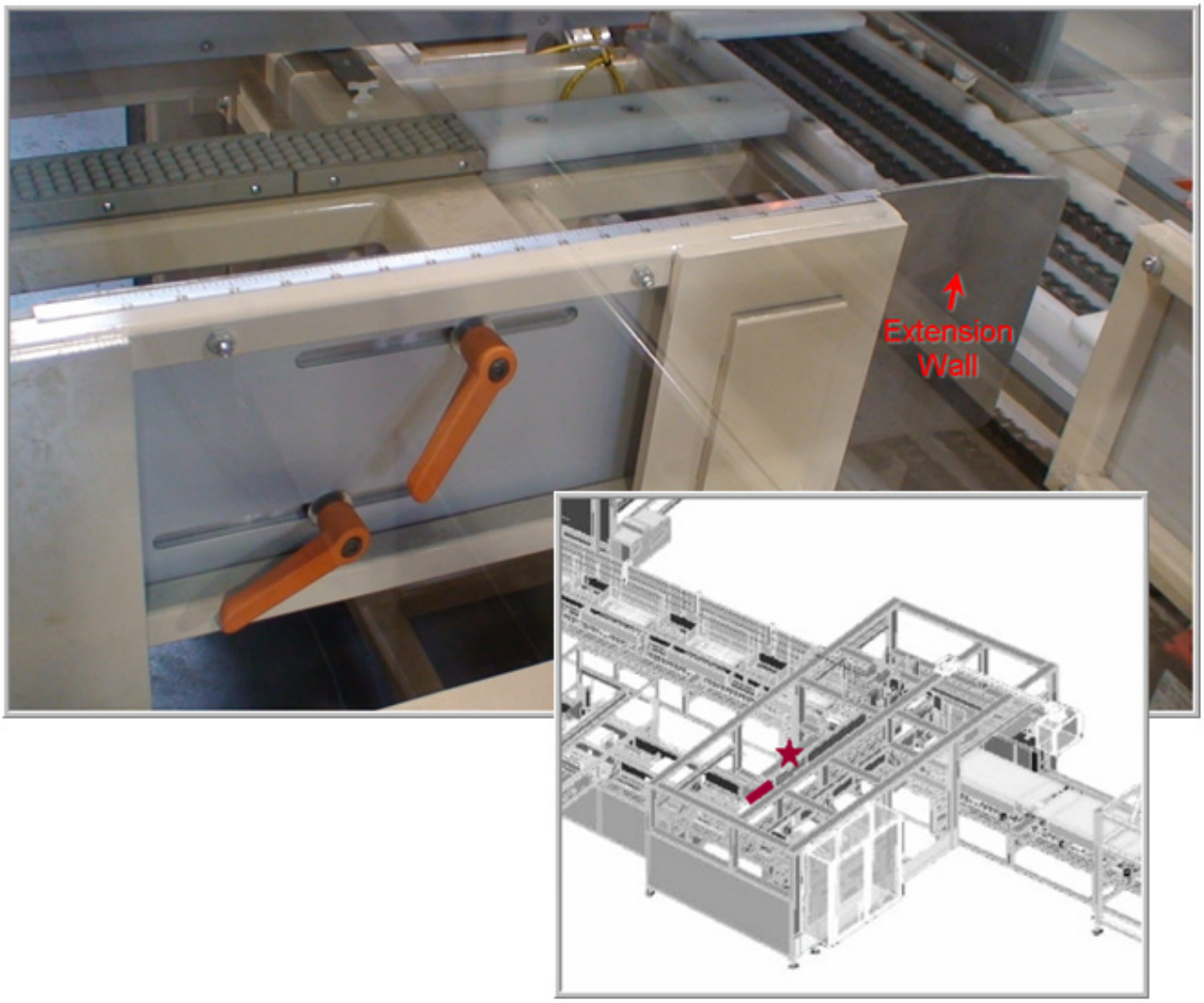
➘ Re-tighten the Lock Handle.

The white, product conveyor pockets will adjust to this change automatically.

Loader



30 – Extension Wall



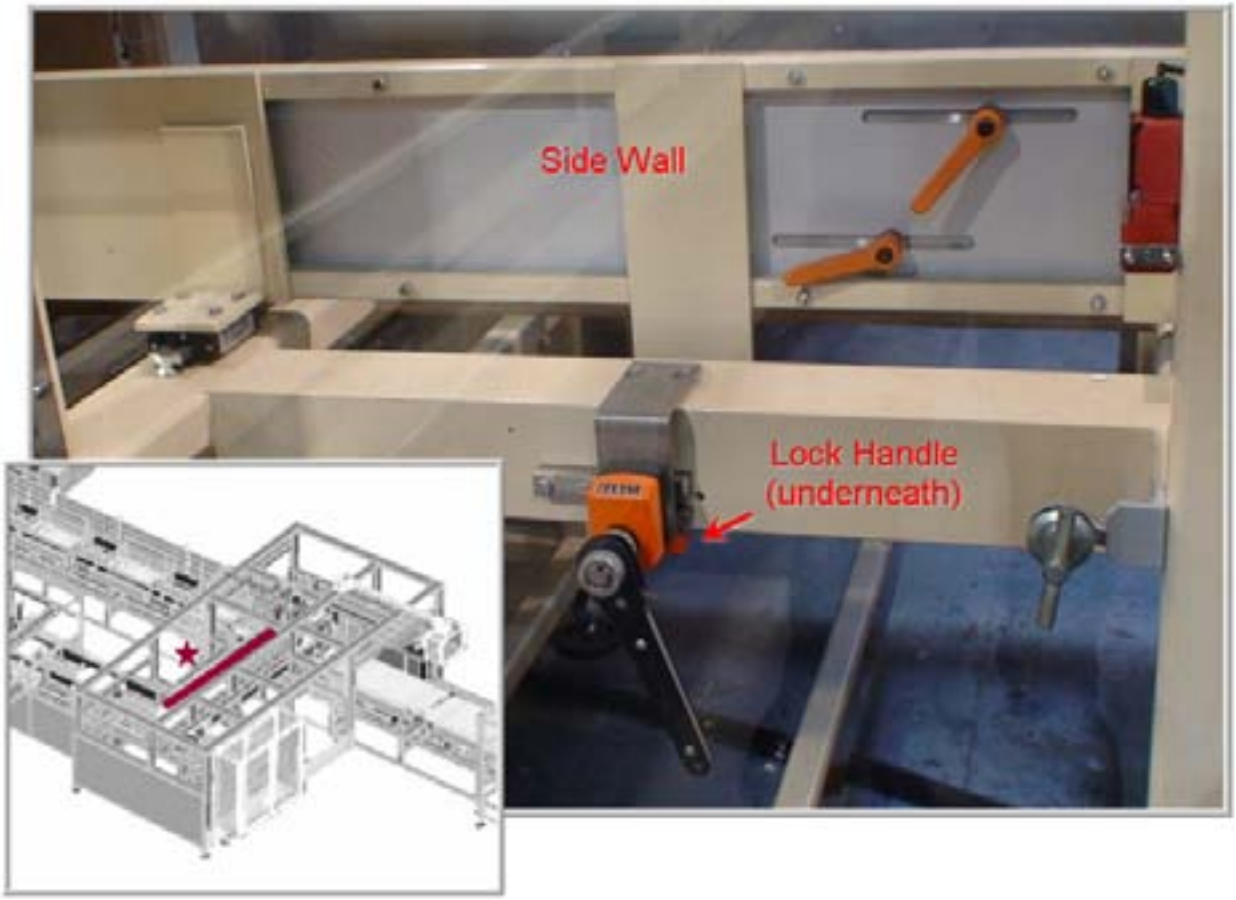
➔ This change moves the extension wall located in the Loader.

➘ Loosen the Lock Handle.

➘ Slide and adjust the wall to the desired scale setting.

➘ Re-tighten the Lock Handle.

31 – Side Wall



➔ This change moves the entire side wall of the Loader.

➘ Loosen the Lock Handle.

➘ Using the Crank Handle, adjust to the desired counter setting.

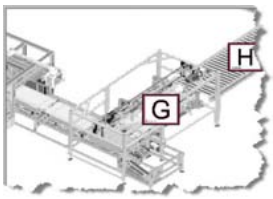
➘ Re-tighten the Lock Handle.

32 – Screen Box

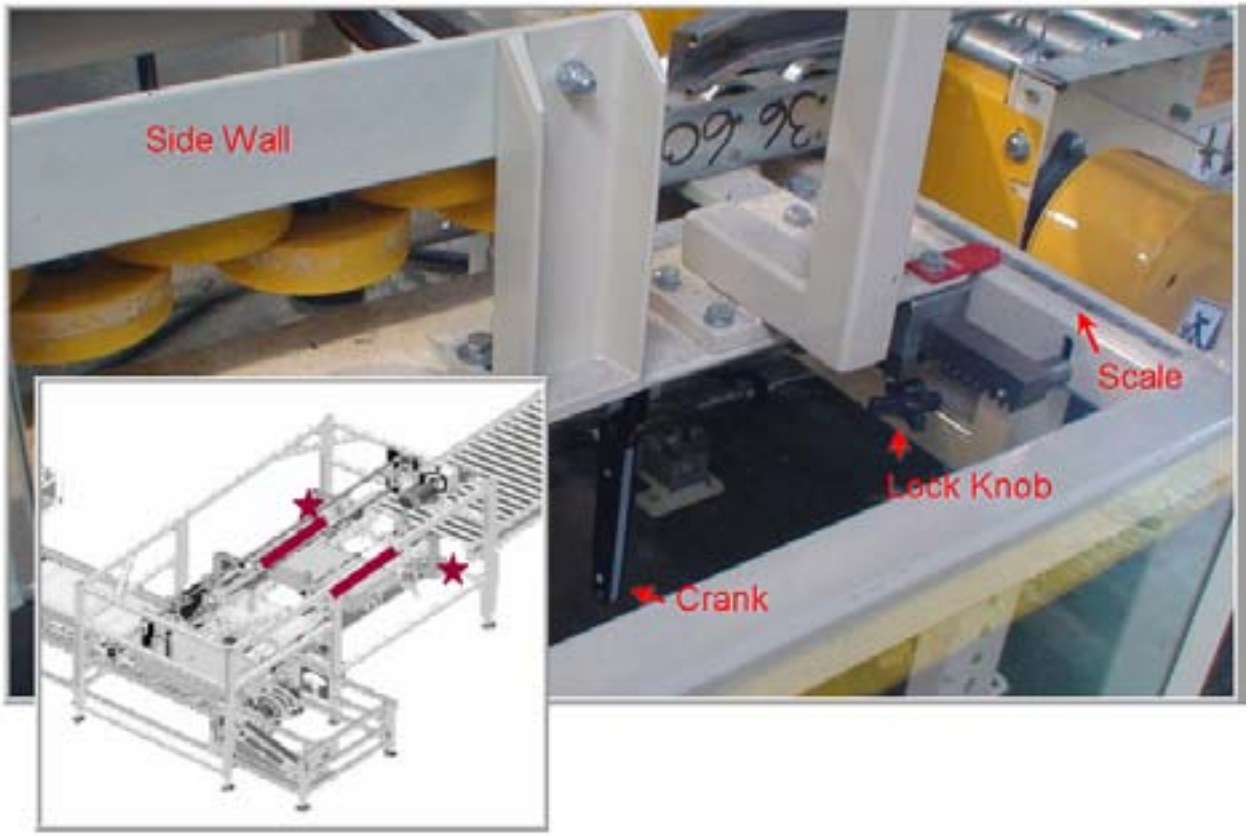
➔ This change involves selecting the appropriate box size on the Touch Screen.

- From the Main Menu, select Box Select.
- In the center of the screen, select the large, box number button.
- Use the up or down arrows to make the appropriate selection.
- Press ENT when finished.
- Press Back to Control.

Sealer

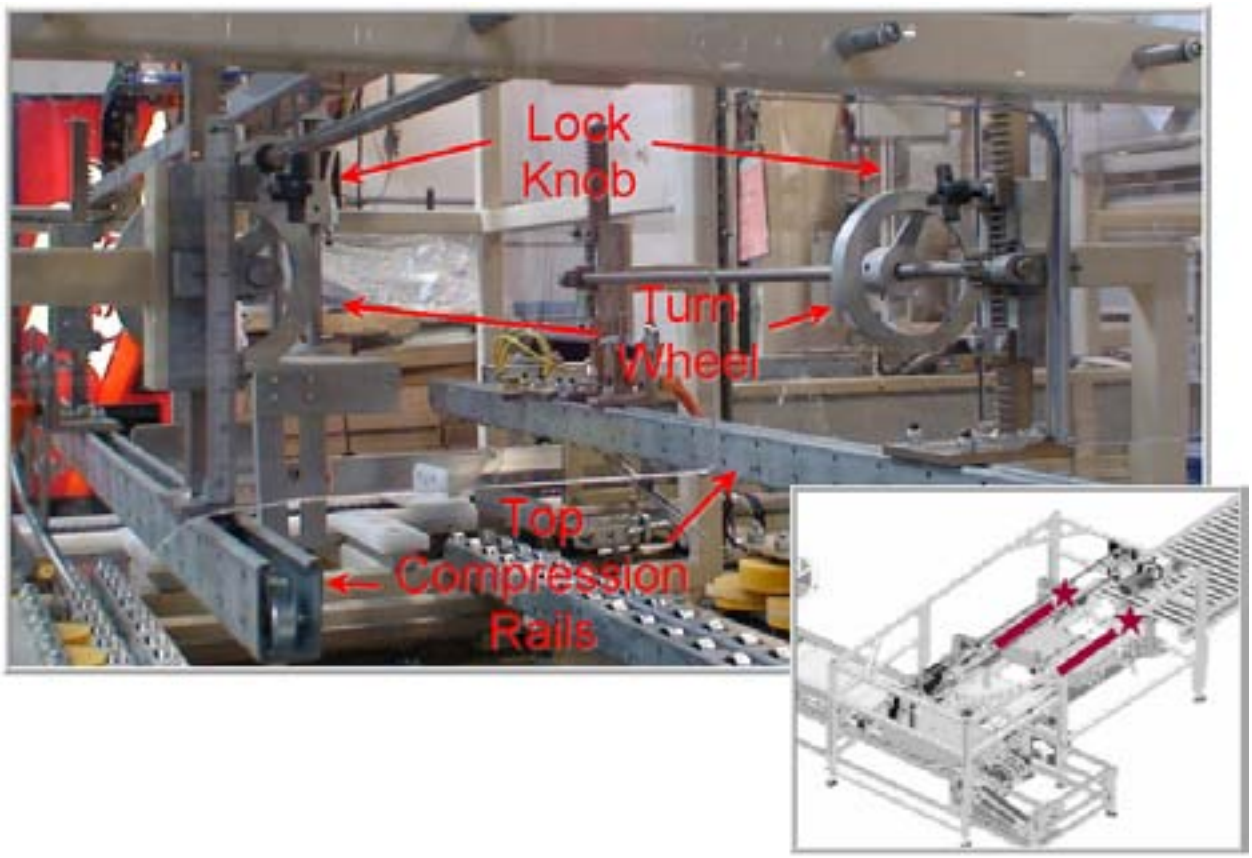


34 – Side Compression



- ➔ This change moves the entire side wall system of the Sealer – the frame, upper and lower wheel rails, and the yellow wheel rails.
- ➔ Changes MUST be done to both the LEFT and RIGHT sides.
- ➘ Loosen the Lock Knob.
- ➘ Using the Crank Handle, adjust to the desired scale setting.
- ➘ Re-tighten the Lock Knob.

35 - Top Compression



➔ This change moves the top compression rails of the Sealer up or down.

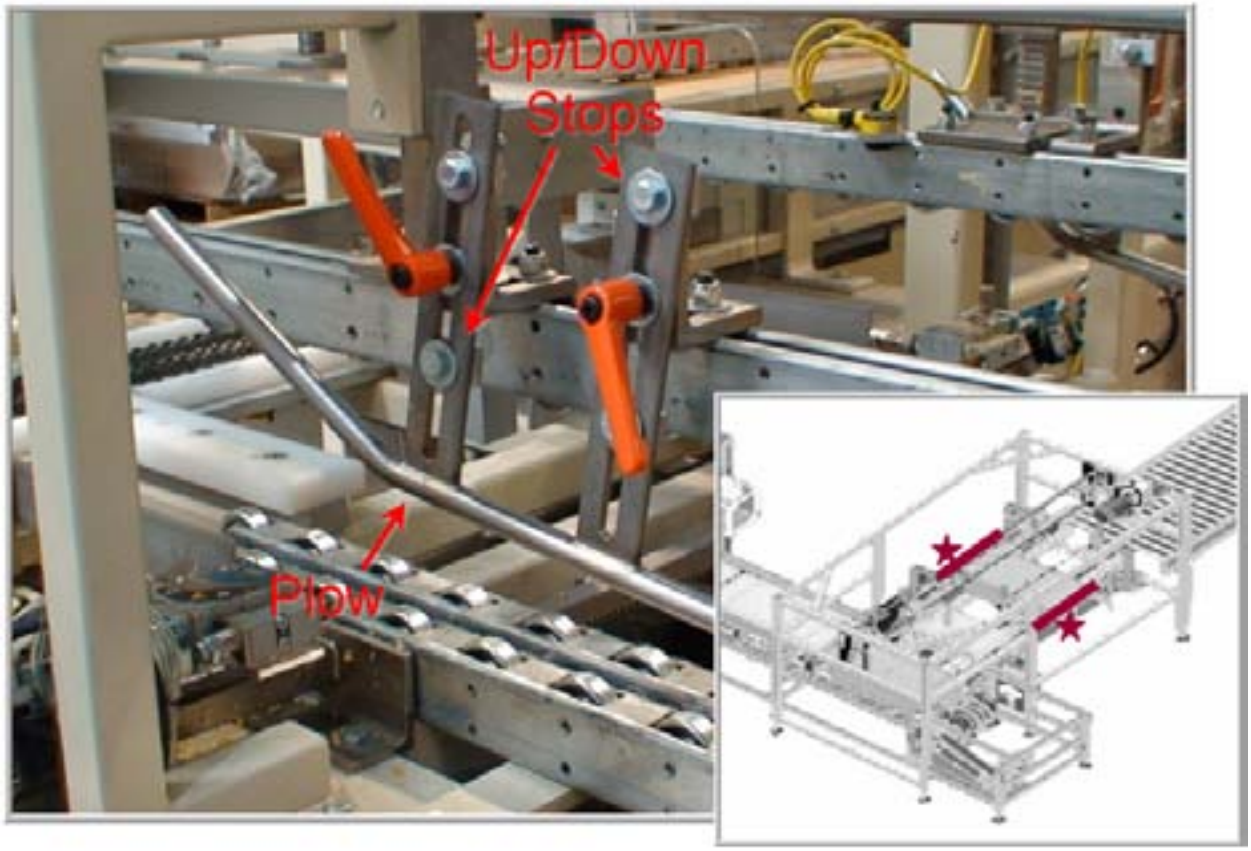
➔ Changes MUST be done to both the LEFT and RIGHT sides.

➘ Loosen the Lock Knob.

➘ Using the Turn Wheel, adjust to the desired scale setting.

➘ Re-tighten the Lock Knob.

36 – Top Plows



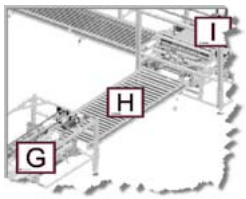
- ➔ This change moves the plows on each side of the Sealer up or down.
- ➔ Changes MUST be done to both the LEFT and RIGHT sides.
- ➔ STOPS are provided to set the UP and DOWN stop points.
- ➘ Loosen the Lock Handles.
- ➘ Slide to the UP or DOWN position.
- ➘ Re-tighten the Lock Handles.

37 – Screen Box

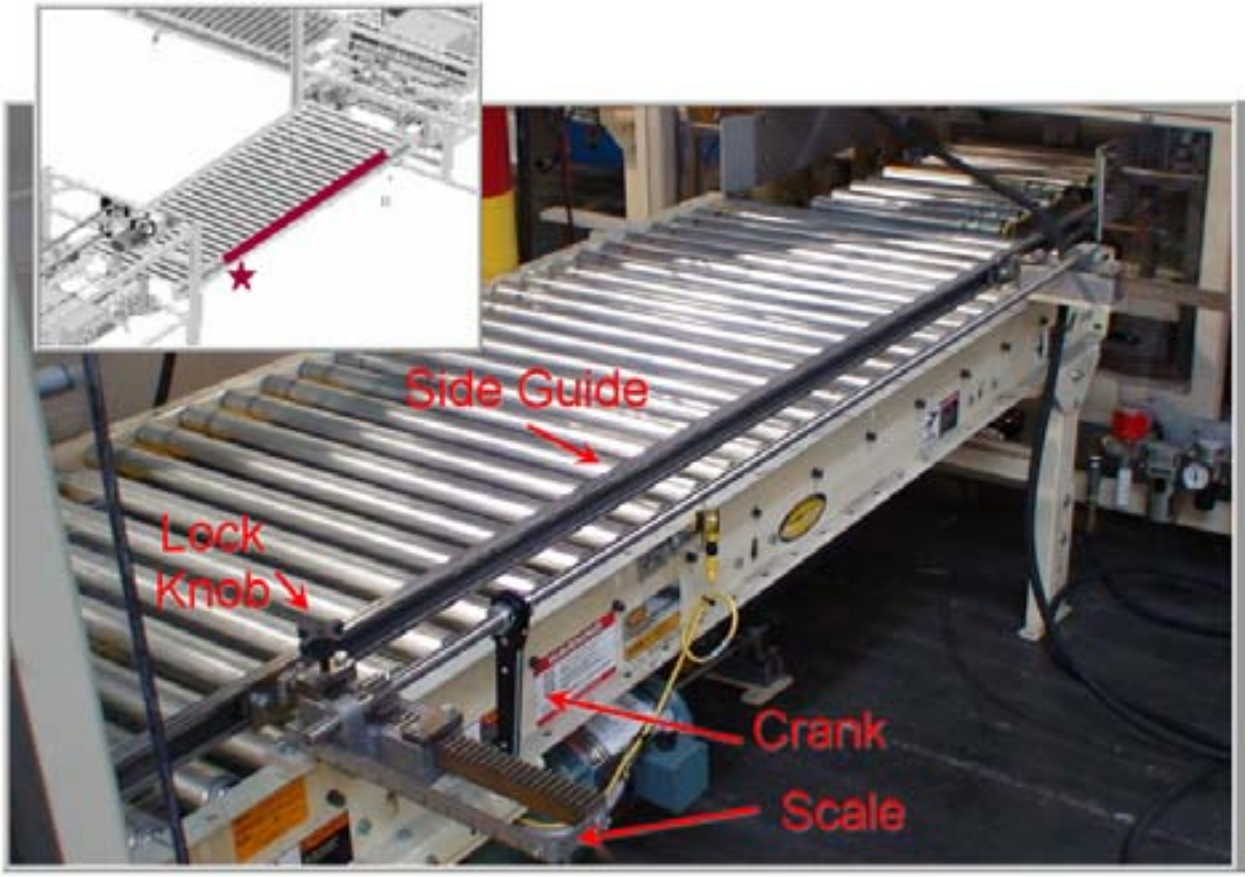
➔ This change involves selecting the appropriate box size on the Touch Screen.

- From the Main Menu, select Box Select.
- In the center of the screen, select the large, box number button.
- Use the up or down arrows to make the appropriate selection.
- Press ENT when finished.
- Press Back to Control.

Transfer Conveyor

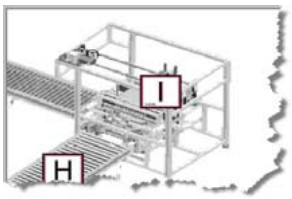


38 – Side Guide

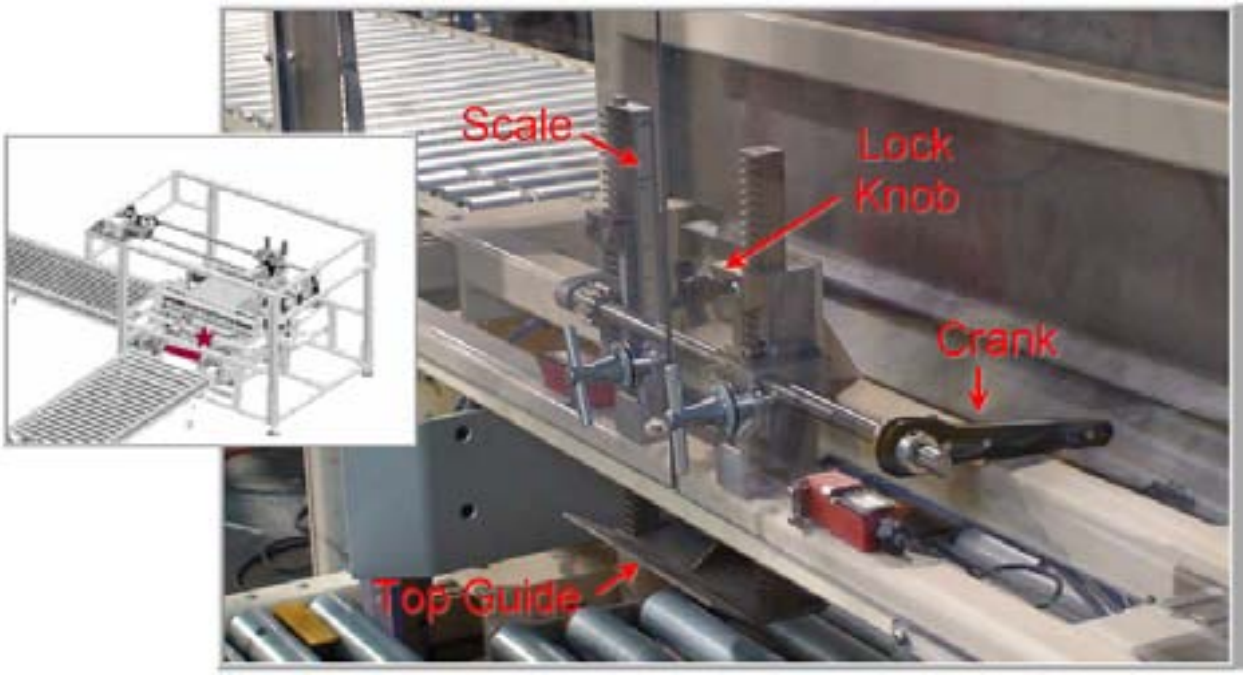


- ➔ This change moves the entire side guide rail on the Transfer Conveyor.
- ➔ Changes MUST be done to both the LEFT and RIGHT sides.
- ➘ Loosen the Lock Knob.
- ➘ Using the Crank Handle, adjust to the desired Scale setting.
- ➘ Re-tighten the Lock Knob.

Stacker



39 – Top Guide



➔ This change moves the top guide plate of the Stacker.

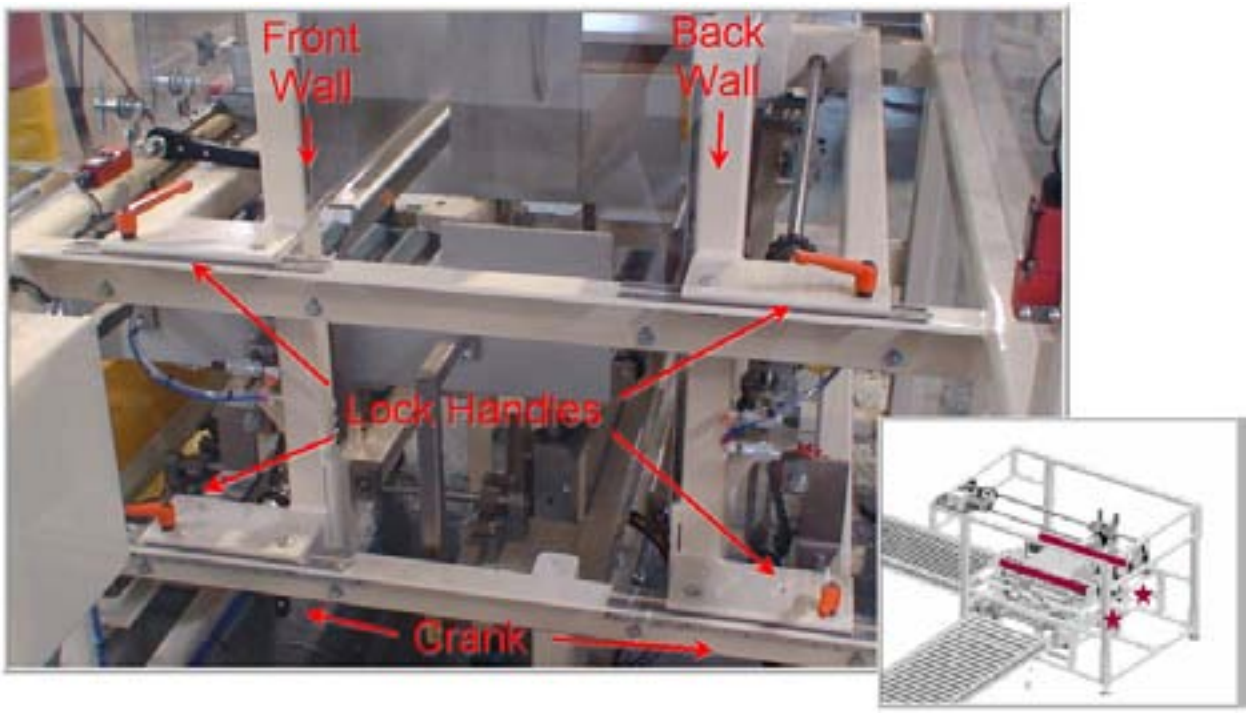
➔ The top guide plate helps keep the box down on the conveyor – as it enters the Stacker.

➘ Loosen the Lock Knob.

➘ Using the Crank Handle, adjust to the desired Scale setting.

➘ Re-tighten the Lock Knob.

40 – Front & Back Wall



➔ This change moves the entire vertical Front and Back Walls of the Stacker.

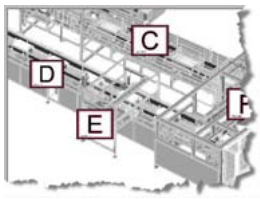
➔ BOTH Front and Back MUST be adjusted correctly.

➘ Loosen the Lock Handles.

➘ Using the Crank Handles, adjust to the desired Scale setting.

➘ Re-tighten the Lock Handles.

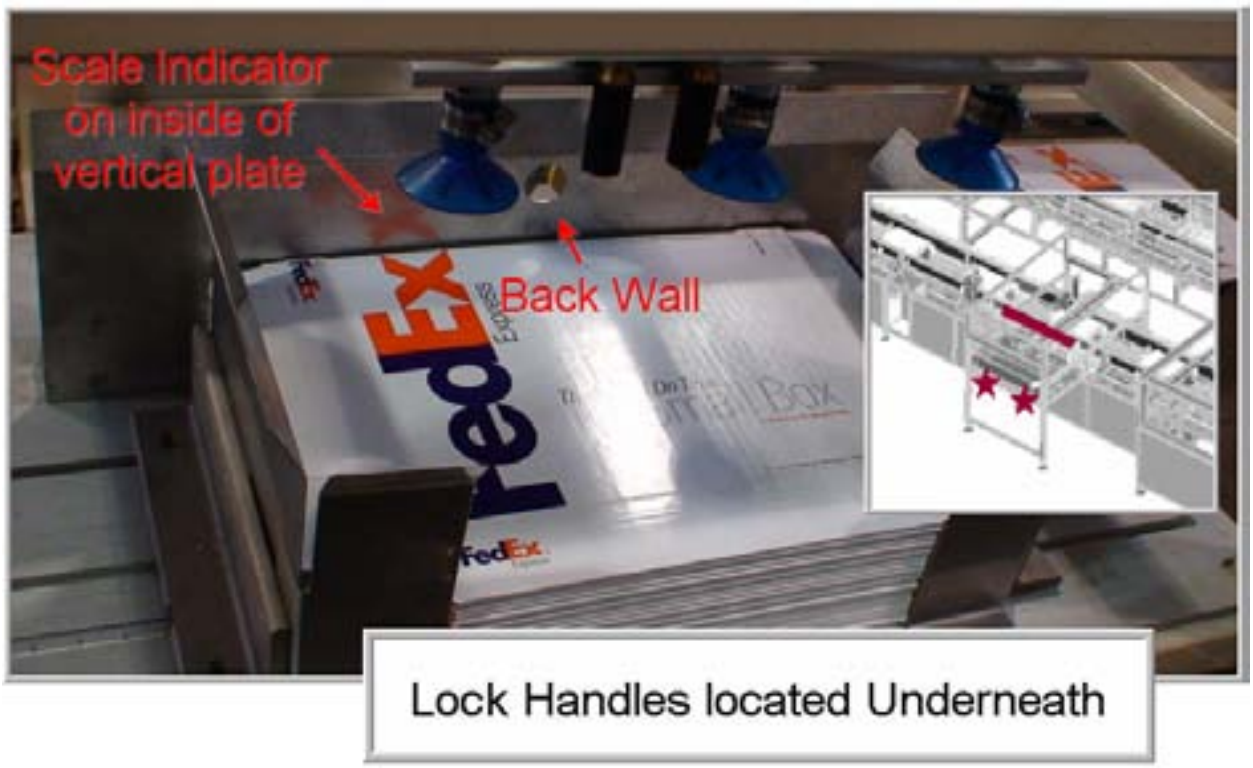
Pick & Place



41 – Side Wall

- ➔ This change moves the side walls of the Pick & Place Product Holder.
- ➔ LEFT and RIGHT walls MUST be adjusted correctly.
- ➘ Loosen the Lock Handles.
- ➘ Slide and adjust to the desired Scale setting.
- ➘ Re-tighten the Lock Handles.

42 – Back Wall



➔ This change moves the back wall of the Pick & Place Product Holder.

➘ Loosen the Lock Handles.

➘ Slide and adjust to the desired Scale setting.

➘ Re-tighten the Lock Handles.

Maintenance

Keep Safety in mind at ALL TIMES when performing machine maintenance.

See appropriate vendor manuals for more detail on individual machine components.

Maintenance Highlights

All Maintenance should be done BEFORE Machine start-up

Use common sense.

Practice safety.

Establish a regular routine.

Maintenance Recommendations

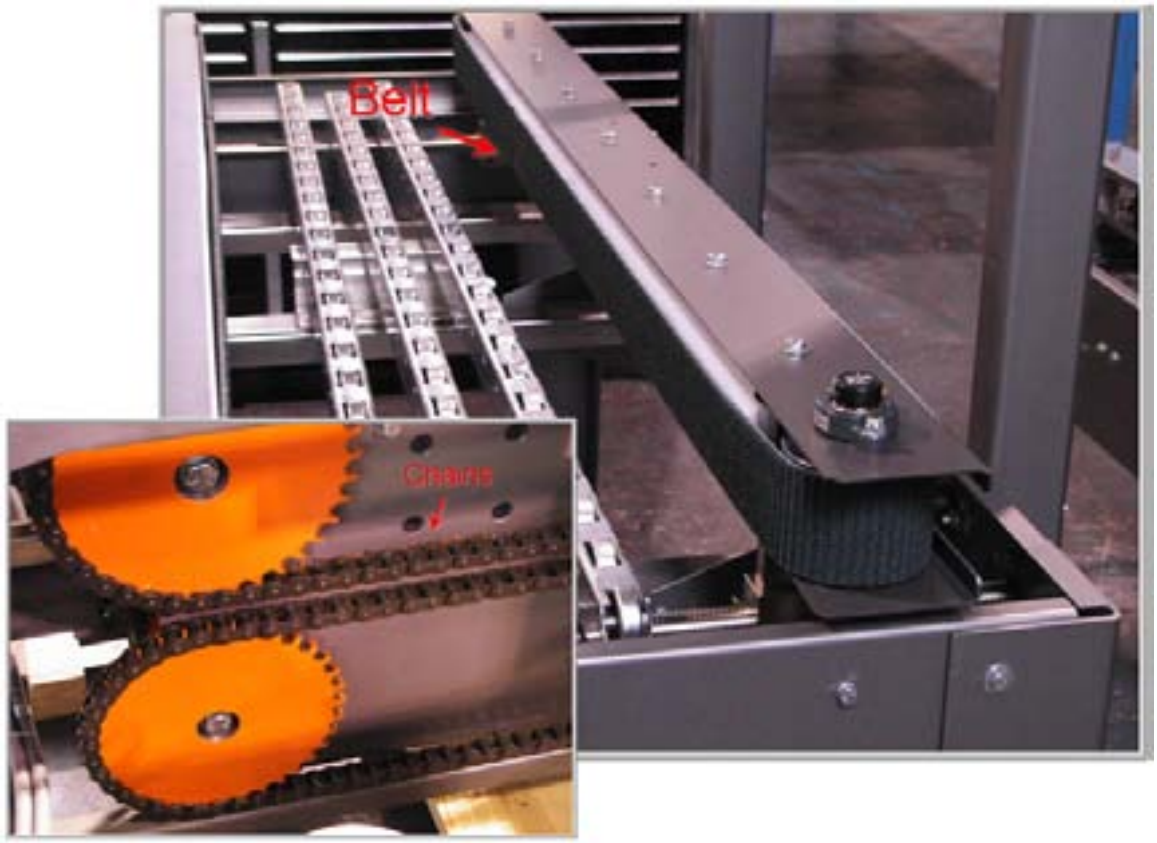
The following maintenance recommendations should be followed, to insure the long-term performance of the machine and its components.

Daily Maintenance

- Clear Machine and work area of dirt and debris.
  - Use a broom and dust pan to keep the work area clear.
  - Mop oily, sticky, and slick areas with water and soap. Allow to dry before working in Machine area.

➔ Check tension on all belts and chains.

- ➔ All belts and chains should be in good condition.
- ➔ Check for obvious signs of wear, such as fraying belts, dry rusty chains, etc.
- ➔ Unless noted – belts and chains should not be stressed to tight, but should not be too loose either.

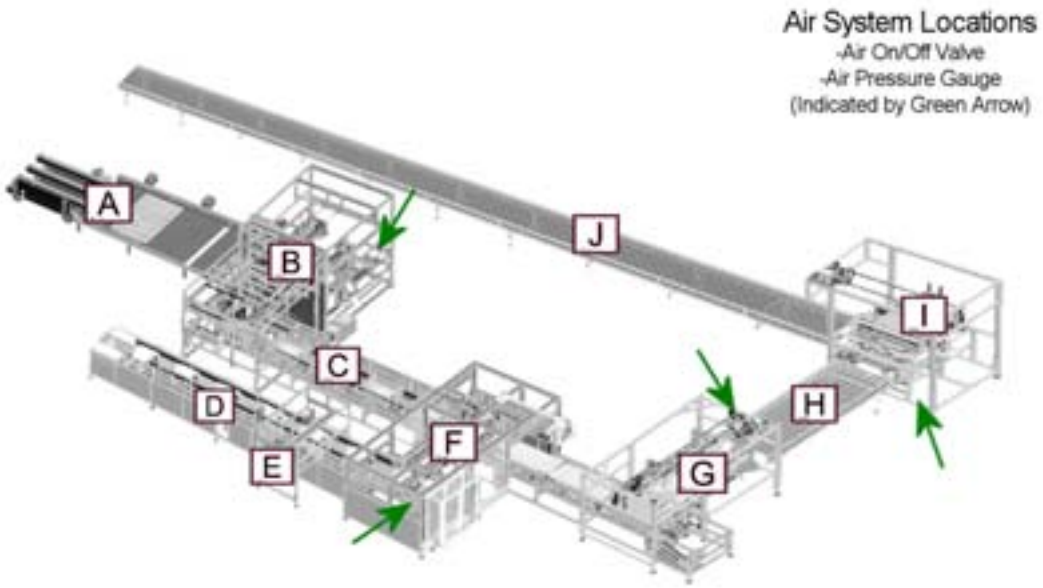


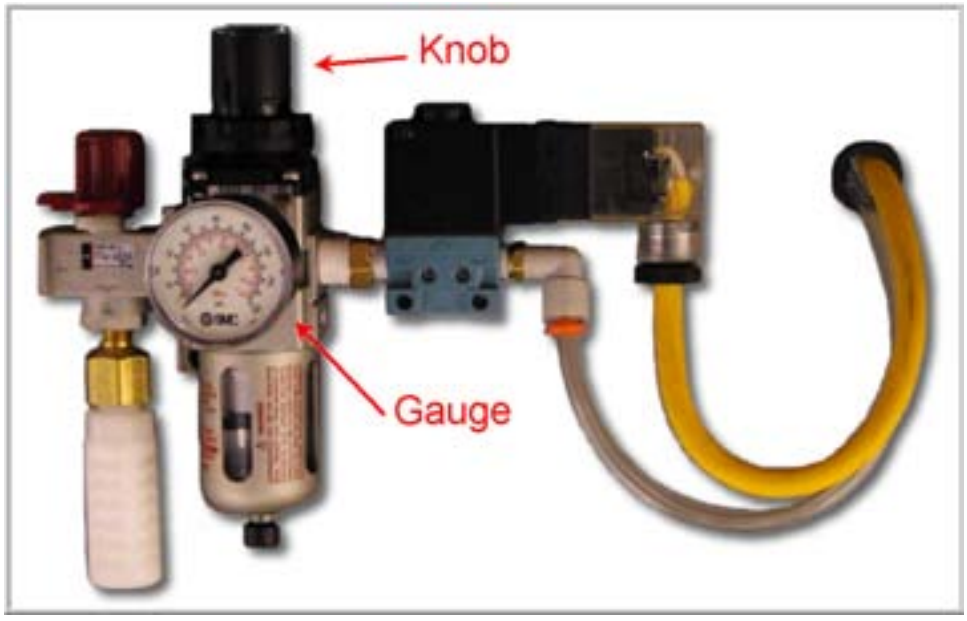
➔ Lubricate chains as needed.

- ➔ Use either SAE-10, low foaming, non-detergent oil; Teflon chain oil; or High temperature machine grease.

➔ Check for proper air pressure on regulator.

- ➔ The air pressure gauge should be set at the pressure indicated in the Specifications section of this manual.
- ➔ Use the dial knob on top of the regulator to adjust the pressure, if necessary.
- ➔ The dial knob may be located on the top or the bottom of the gauge.





See appropriate vendor manuals for more detail on individual machine components.

➔ Check air filter sediment bowl.

- ➔ Clean if needed.

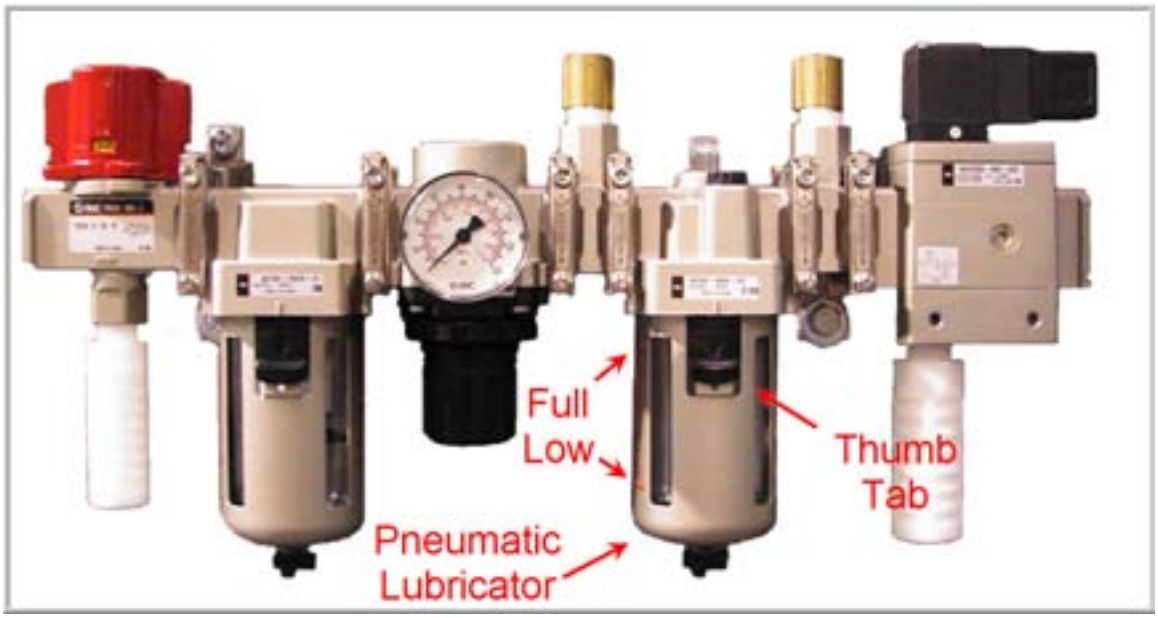
- ➔ Pull down on thumb tab.
- ➔ Rotate bowl and pull down to remove.
- ➔ Change white filter inside.

See appropriate vendor manuals for more detail on individual machine components.

➔ Check reservoir in pneumatic lubricator.

- ➔ Fill if needed.

- ➔ Pull down on thumb tab.
- ➔ Rotate bowl and pull down to remove.
- ➔ Re-fill with oil. (SAE-10, low-foaming, non-detergent)



See appropriate vendor manuals for more detail on individual machine components.

➔ Check glue unit for proper operation. (Glue Machines ONLY)

- ➔ Make sure glue unit is functioning properly.
- ➔ Desired temperature must be reached before production.

See the Nordson manual for more detail on glue unit maintenance.

CAUTION

Keep SAFETY in mind at ALL times – when working with the glue unit.

➔ Remove excessive glue from Machine. (Glue Machines ONLY)

- ➔ Glue build-up on machine areas is a common occurrence, especially on components that interact with the glue application process.

- ➔ Make sure glue is dry.
- ➔ Use putty knife, light wire brush (nozzles only), or related implement to remove glue.
- ➔ Spray heavy glue areas with silicone for easier clean up.

Nozzle

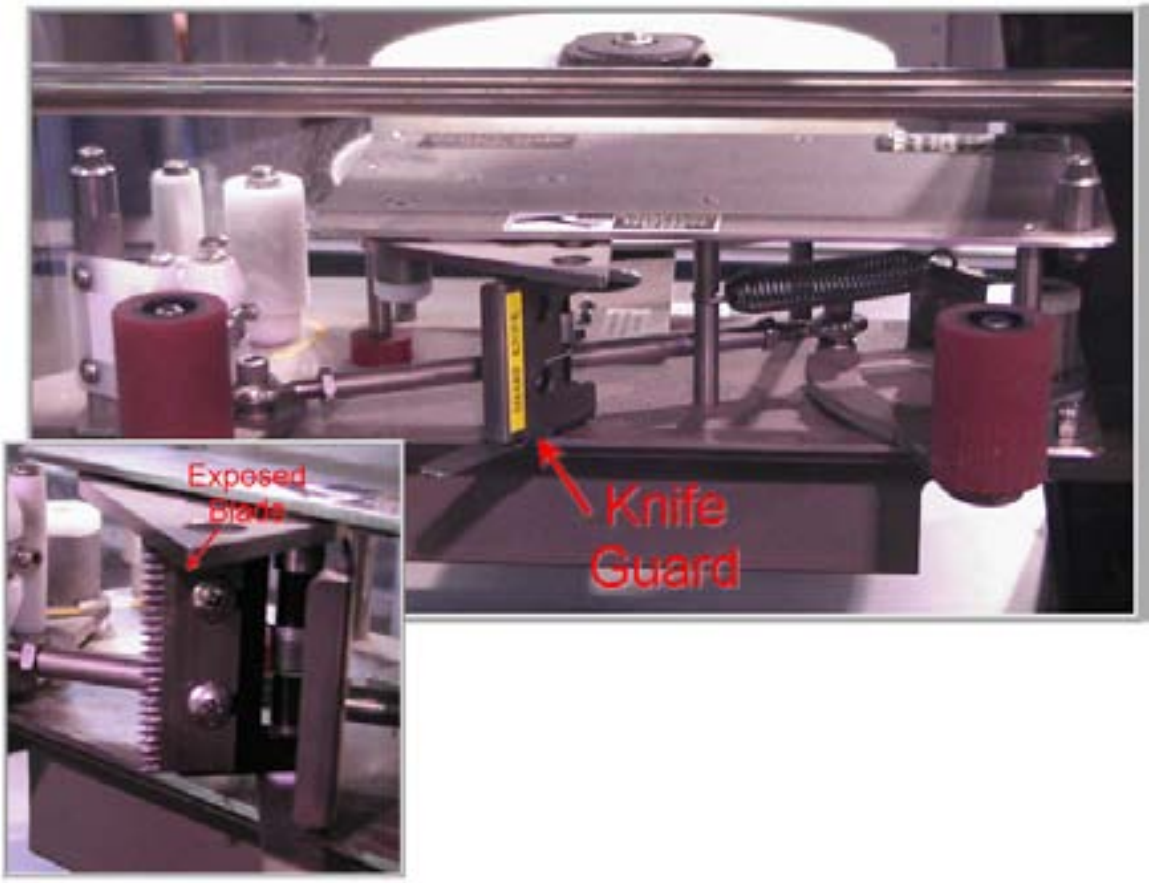
Build-up

See the Nordson manual for more detail on glue unit maintenance.

Keep SAFETY in mind at ALL times – when working with the glue unit.

➔ Remove adhesive build-up from tape knife. (Tape Machines ONLY)

- ➔ Carefully pull back the Knife guard.
- ➔ Use alcohol, acetone, or similar solution to clean.
- ➔ Light wire brush may be needed.



See the Dekka manual for more detail on tape unit maintenance.

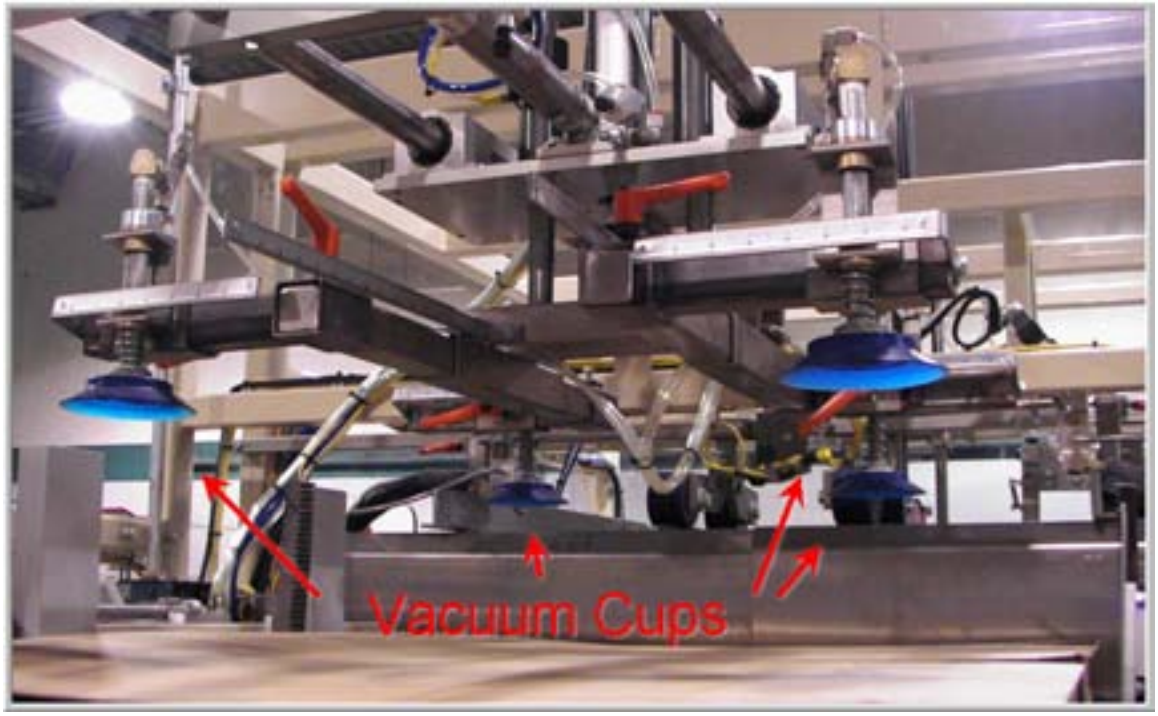
CAUTION

Keep SAFETY in mind at ALL times – when working with the tape knife.

Weekly Maintenance

- ➔ Check ALL vacuum cups for wear.
  - ➔ Clean or replace if necessary.

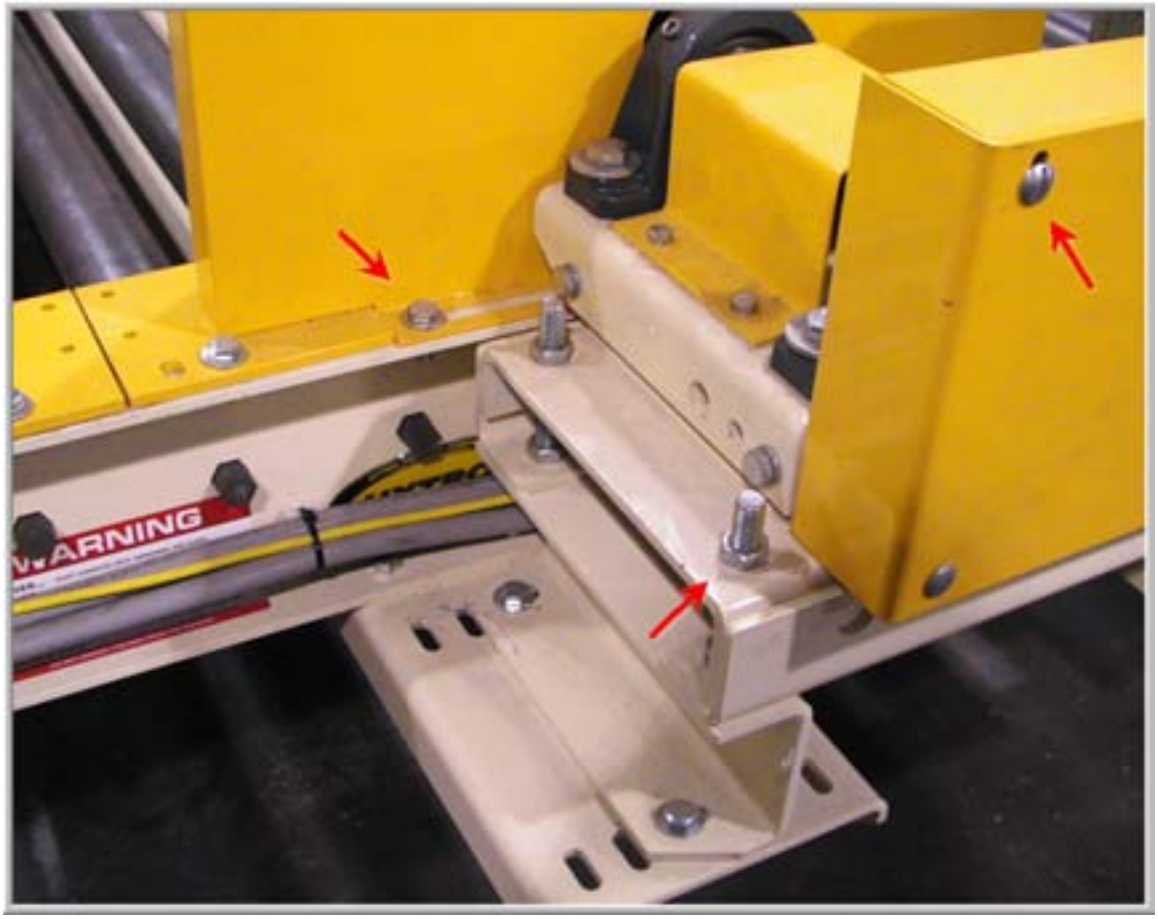
  - ➔ Like any soft plastic/rubber item, vacuum cups will wear over time.
  - ➔ Check for dried or cracked edges, holes, dust and dirt build-up.



See appropriate vendor manuals for more detail on individual machine components.

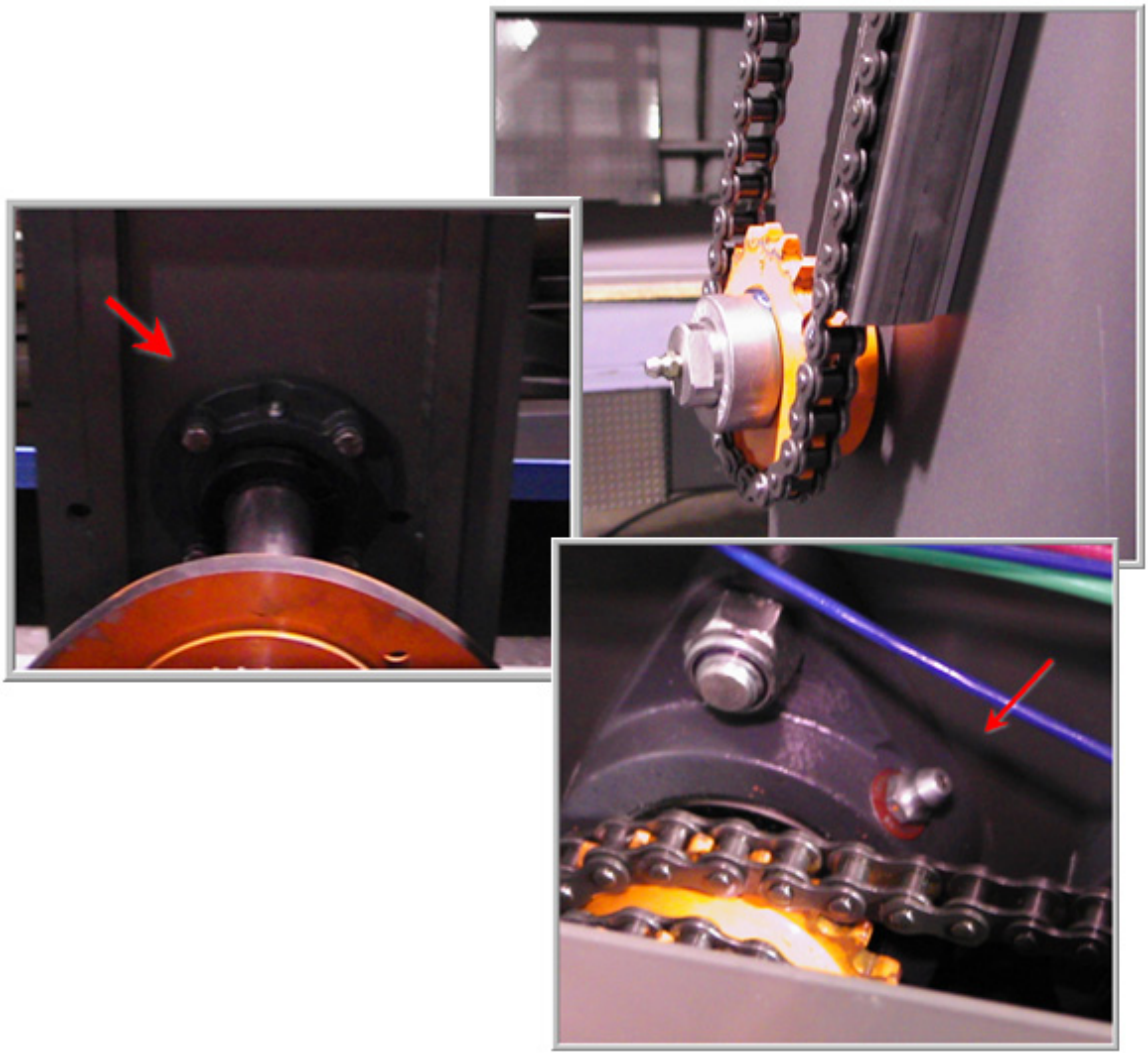
➔ Check for and tighten all loose nuts and bolts.

- ➔ Loose items of any sort can be extremely dangerous.
- ➔ Make certain to have a thorough routine of checking over the entire Machine.



➔ Check all lubrication points – bearings, sprockets, bushings, chains, etc.

➔ Lube, oil, or grease – as necessary.

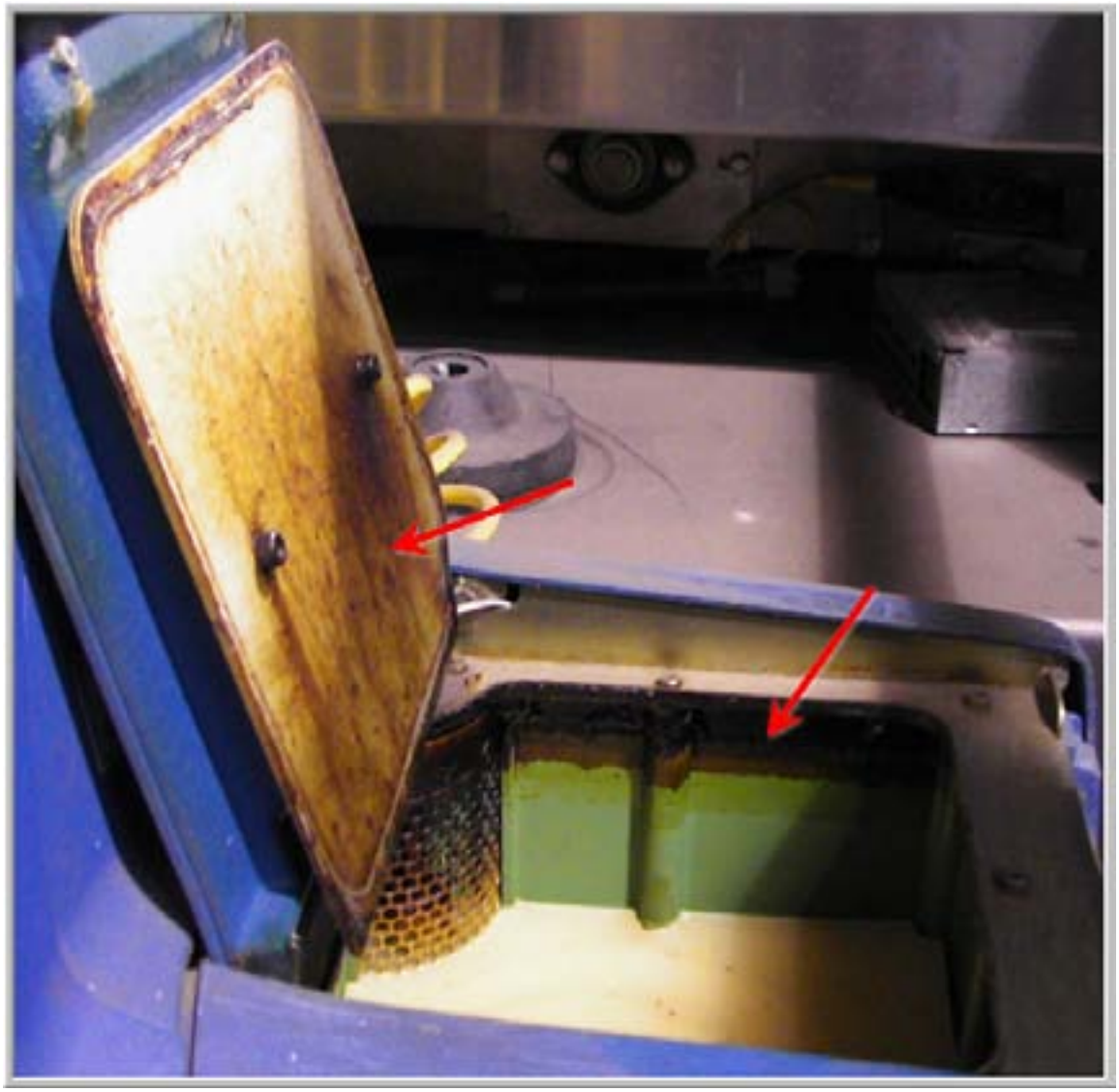


See appropriate vendor manuals for more detail on individual machine components.

➔ Remove charred build-up on glue unit. (Glue Machines ONLY)

➔ To prevent heavy build-up and potential clogging issues, clean glue tank build regularly.
➔ Use putty knife, light wire brush, cloth, etc to remove build-up.

Make certain the glue is fully cooled before cleaning the tank.

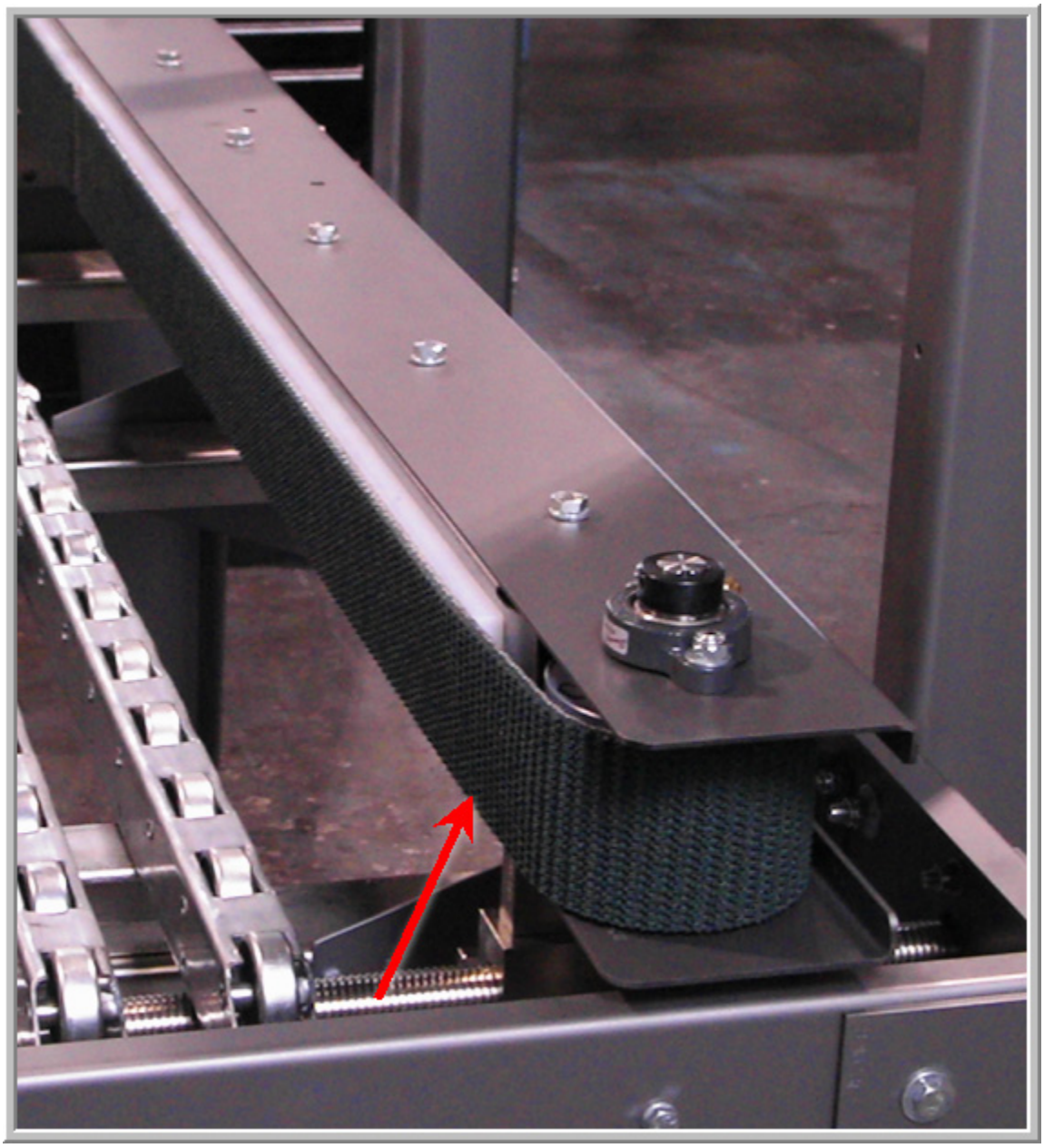


See the Nordson manual for more detail on glue unit maintenance.

Monthly Maintenance

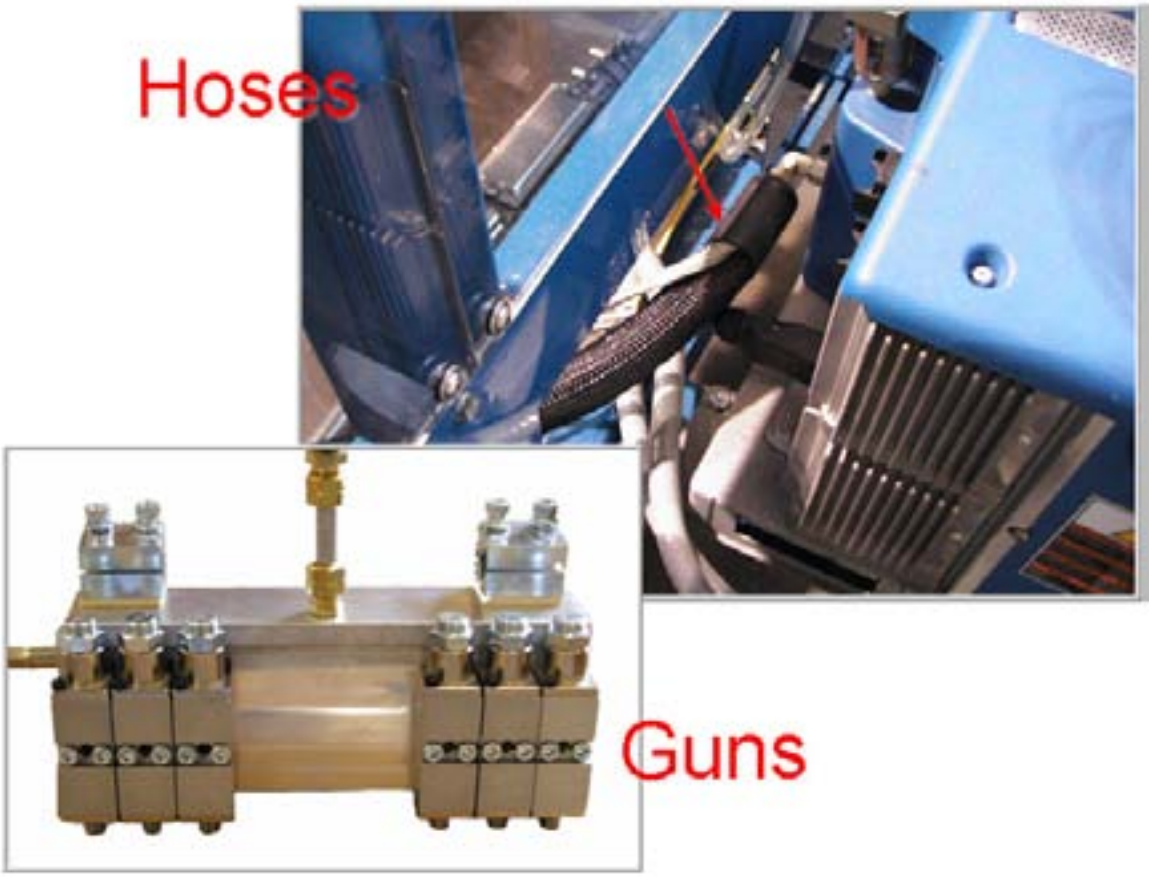
➔ Check belts for wear.

- ➔ Check for frayed edges, stretching, cracking, etc.
- ➔ Replace if necessary.



➔ Inspect glue hoses and glue guns. (Glue Machines ONLY)

- ➔ Inspect hoses for wear, cracking, holes, etc.
- ➔ Inspect glue guns for build-up, clogging, etc.
- ➔ Replace if necessary.



See the Nordson manual for more detail on glue unit maintenance.

➔ Check gear reducer oil level.

- ➔ The location and orientation of the unit(s) will vary by machine.
- ➔ Loosen and pull out the reservoir screw.
- ➔ Use thin implement – such as the handle of an Allen wrench – to dip and gauge oil.
- ➔ Fill if necessary.

See appropriate vendor manuals for more detail on individual machine components.

Maintenance Review

ITEM	INSPECTION	ACTION
DAILY		
Machine/Work Area	Dirt and Debris	Clear, Dust, Sweep, Mop
Belts and Chains	Tension	Adjust if needed
Chains	Lubrication	Lubricate if needed
Air Regulator	Proper Pressure	Adjust if needed
Air Sediment Bowl	Dirty Filter	Clean or replace
Pneumatic Lubricator	Fill Level	Fill if needed
Glue Unit	Proper Operation	Various
Machine	Glue Buildup	Remove
Tape Knife	Adhesive Buildup	Remove
WEEKLY		
Vacuum Cups	Wear	Clean or replace
Nuts, Bolts, Screws	Tightness	Tighten if necessary
Bearings, Sprockets, Bushings, etc	Lubrication	Lubricate if needed
Glue Unit	Buildup	Clean
MONTHLY		
Belts	Wear	Replace if needed
Glue Hoses/Glue Guns	Wear, Clogs, Leaks	Clean or replace if needed
Gear Reducer	Oil Level	Fill if needed
ADDITIONAL		
Magazine/Blank Infeed	Dust, Corrugated Pieces	Clean if needed
Motors/Bearings	Wear	Lubricate or replace if needed
Gear Box	Wear	Change Oil, replace if needed

Troubleshooting Procedures

NOTE: The following chart shows possible problems that MAY develop with this machine. For each problem, some of the most probable causes and their remedies are listed.

PROBLEM	POSSIBLE CAUSE	CORRECTION
Machine will not start	Disconnect is in the Off position	*Turn to the On position*
	E-Stop button(s) pressed in	*Ensure all E-Stops are pulled out*
	Motor's Protection Circuit Breaker tripped	*Reset breaker*
	Control Circuit Breaker tripped	*Reset breaker*
	Access Doors open	*Ensure all doors are closed before trying to start machine*
Machine will start, but after running one case, the machine shuts off	RAM back proximity switch mis-adjusted	*Re-adjust*
Magazine will not feed cases after Machine On button has been pressed	Air supply shut off	*Turn on Manual Hand Valve*
	Pick-up Bar Switch or Pick-up Up improperly set	*Re-adjust*
	Blankfeed On/Off button has not been pressed – to turn feeding of blanks on	*Press Blankfeed button*
	Pick-up Reed switch is improperly set	*Adjust Reed switch properly*
	Blankfeed home Reed switch is improperly set	*Adjust Reed switch properly*
Machine will not cycle	Case in position eye is blocked	*Adjust eye*
	Motor controller fuse blown	*Replace fuse*
Insufficient or no vacuum at cups	Clogged muffler	*Clean or replace*
	Clogged transducer	*Clean or replace*
	Vacuum vale defective	*Repair or replace*
	Leaking air line	*Tighten or replace fitting and/or line*
Walking Stick damages case	Case Guides for depth adjustment are to tight	*Loosen (See Case Size Changeover Procedure in Chapter One)*
	Upper Section is set too tight on case	*Adjust (See Case Size Changeover Procedure in Chapter One)*
Machine will not stop when Walking Stick actuates reset on every cycle	Erector Safety Eye is either blocked or not functioning properly	*Clean and/or replace Photo Eye*
Walking Stick bearings wear rapidly	Walking stick is not 90^{O} to Side Plate	*See item #1 of Cam Adjustment Procedure*

PROBLEM	POSSIBLE CAUSE	CORRECTION
Tape tears off half-way across case	Knurled roller hitting against knife guard bracket	*Enlarge knife guard stop*
Rear Minor Flaps will not fold properly	Case is too far forward	*Move Case Stop toward Infeed*
Knives will not cut	Knives are dull	*Replace knives*
	Tape tension is improper	*Adjust*
	Broken or loose spring on Knife Arm	*Replace or re-fasten*
Knife cut is too ragged	See "Knives will not cut"	*See "Knives will not cut"*
	Tape and/or adhesive residue near cutting edges	*Clean thoroughly*
Tape does not track properly	Tracking adjustment is not set properly	*Readjust*
	Tape supply not against Hub Shoulder	*Move to proper position*
	Tape roll has run out or is telescoping	*Install new tape supply*
Tape Tail too short; not picked up by leading panel	Tape tension too tight	*Adjust*
	Improper threading	*Re-thread*
	Binding knurled rollers	*Determine cause, remove, and clean*
	Tape fingers too close to tape slide	*Adjust*
Tape Tail length is okay, but tape falls away from roller	Tape finger too far from tape slide	*Adjust*
Glue Guns will not apply glue	Glue Off/On selector switch in Off position	*Turn to On position*
	Glue valve open contacts are defective	*Repair or replace*
	Fiber-optic sensitivity improperly set	*Repair or replace*
	Insufficient pump pressure	*Increase pressure setting at glue unit*
	Dirty or clogged nozzle	*Clean or replace if necessary*
	Faulty glue valve	*Repair or replace*

Maintenance Checksheet

The following checksheet can be printed and used to maintain a regular maintenance schedule.

Item	Inspection	Action	Initials	Date	Notes
DAILY					
Machine/Work Area	Dirt and Debris	Clear, Dust, Sweep, Mop			
Belts and Chains	Tension	Adjust if needed			
Chains	Lubrication	Lubricate if needed			
Air Regulator	Proper Pressure	Adjust if needed			
Air Sediment Bowl	Dirty Filter	Clean or replace			
Pneumatic Lubricator	Fill Level	Fill if needed			
Glue Unit	Proper Operation	Various			
Machine	Glue Buildup	Remove			
Tape Knife	Adhesive Buildup	Remove			
WEEKLY					
Vacuum Cups	Wear	Clean or replace			
Nuts, Bolts, Screws	Tightness	Tighten if necessary			
Bearings, Sprockets, Bushings, etc	Lubrication	Lubricate if needed			
Glue Unit	Buildup	Clean			
MONTHLY					
Belts	Wear	Replace if needed			
Glue Hoses/Glue Guns	Wear, Clogs, Leaks	Clean or replace if needed			
Gear Reducer	Oil Level	Fill if needed			
ADDITIONAL					
Magazine/Blank Infeed	Dust, Corrugated Pieces	Clean if needed			
Motors/Bearings	Wear	Lubricate or replace if needed			
Gear Box	Wear	Change Oil, replace if needed			

Service

Support

Our Service Department is geared toward taking care of any needs you may have – with regard to your machine.

Smurfit Stone Automated Packaging Systems
Service Department offers:

- 24/7 On-Call Telephone Support

- On Site Availability in 24 hours or less

- On Site Tech Support, Training and Preventative Maintenance

Ordering Repair Parts

NOTE: When ordering parts for your machine, please be sure to have the following information:

Serial Number of Machine: 1632

Machine Model: Tray Packing System

This information will ensure your receipt of the correct part for your specific machine. Although a machine may be standard, parts may vary because of an individual customer's application or specifications.

We suggest that when ordering parts, you have available the Spare Parts List for this machine (See Appendix). Upon request, your Parts Department will furnish you the cost of this kit.

Please write or call:

Smurfit-Stone
Automated Packaging Systems
4364 34th Street
Orlando, FL 32811

Telephone:
800-338-6294 8AM – 5PM EST Monday through Friday
800-613-8854 All other times

Fax: 407-843-8459

Appendix

The Appendix contains critical details for the successful installation, operation and maintenance of your machine.

Please be familiar with the following information.

Spare Parts List

The following is the
recommended Spare Parts List
for your machine.

Call 800.338.6294 – 8 to 5 EST,
Monday to Friday – to place an order.

Changeover Matrix

Fault Screen

The Fault Screen
is a listing of all faults
that may occur during the operation
of the machine.

The following section lists each fault,
a description of the conditions,
and a resolution.

Computer Program

The following is the Computer Program written for this machine.

A separate file version is located on the Manual CD included with this machine.

Bill of Material

The Bill of Material
is a comprehensive listing
of all components used in the
manufacture of this machine.

Electrical Drawings

The Electrical Drawings are the base schematics and diagrams of the electrical systems used to manufacture and operate this machine.

Mechanical Drawings

The Mechanical Drawings are the base schematics and diagrams of the mechanical systems used to manufacture and operate this machine.

Glossary

This Glossary is standard in all Smurfit-Stone Automated Packaging Systems manuals – as of April 2008.
Some of these terms may not apply to your particular machine.

A

Adhesive - Substance capable of adhering one surface to another.

B

Banded Unit - A package or palletized load that has a band or bands applied to it.

Bending - The ability of containerboard or combined board to be folded along score lines – without rupture of the surface fibers to the point of seriously weakening the structure.

Belt - An endless flexible band passing about two or more pulleys, used to transmit motion from one pulley to the other or others - or to convey materials and objects.

Bill of Material (BOM) - A comprehensive listing of all parts used in the manufacture of the machine.

Blank – A flat sheet of corrugated or solid fiberboard that has been cut, slotted and scored so that, when folded along the score lines and joined, it will take the form of a container.

Board – Abbreviation for various paperboards.

Box – A rigid container having closed faces and completely enclosing its contents.

Bulk – Goods or cargo not in packages, boxes, bags or other containers.

Bundle – A shipping unit of two or more articles or boxes wrapped or fastened together by suitable means.

C

Carton – A folding box made from boxboard.

Case – A box or receptacle, or a filled box.

Caster - A small wheel on a swivel, attached under the machine - to make it easier to move and/or adjust.

Changeover – The process of adapting the machine to accommodate and process differing box dimensions.

Chipboard - A paperboard usually made of recycled paper stock.

Circuit Breaker- A device to open or close and electric power circuit – either during normal power system operation – or during abnormal conditions. Used to protect equipment and surroundings from possible damage due to excess current. Abnormal conditions are usually the result of short circuits created by lightning, accidents, equipment deterioration, or sustained overloads.

Cold-setting Adhesive – Adhesive that sets below 86 degrees Fahrenheit, or commonly room temperature.

Compression Area – The area of a machine where the majority of box, case and tray formation takes place. In the compression area, the item is held momentarily (compressed), while the adhesive seal is full achieved.

Container - A receptacle used to contain or hold goods.

Controls - Devices used for regulating and guiding the functions of the machine.

Conveyor - The main transport bed of the machine, which supports the lower side of the blank, box, carton or container throughout the machine's production process.

D

Dimensions - The three measurements of a box, given in sequence – length, width, depth (inside).

Discharge - The area of the machine where the finished container is output. The end of the machine.

Dunnage - Any unwanted material (generally corrugated) which may clog or jam the smooth operation of the machine. Dunnage is used to protect corrugated blank shipments, but should be removed prior to machine production.

E

Energy - Any source of usable power. In this manual - Electrical, Heat, Pneumatic, and Gravity.

E-Stop - Also known as Emergency Stop. Large push buttons or cords that will immediately stop the machine for safety purposes. Must be pulled out to re-start the machine.

F

Fault - A condition in which the machine is not operating at acceptable, efficient status. Faults are generally indicated through the use of the status tower, the touch screen and E-Stops. Minor Faults will only interrupt the flow of certain processes. Major Faults will trigger the entire machine to stop.

Flaps - Extensions of the side wall panels that close a box. Usually defined by one scoreline and three edges.

Frame - The main physical structure of the machine – upon which the mechanics and precision components are built.

G

Glue - A synonym for adhesive.

Glue Station - The area of a machine where the adhesive is applied to the forming box, case or tray.

Glue Unit - The holding tank and main operating device for all Glue functions on the machine.

Glued - Adherence of one surface to another with sufficient bonding that an attempt to separate the joined areas will result in mutilation of surface fibers.

Guards - A safety barrier – usually made of sheet metal or Lexan (clear plastic) – and around more hazardous components of the machine.

H

Hot-melt Adhesive – Polymer adhesive, solid at room temperature, which is liquefied by heat (usually in range of 250 – 400 deg. F), applied molten and forms a bond by cooling and solidifying.

HMI - Human-Machine Interface. Another term for the Touch Screen or other controls that allow the operator control over machine function.

I

Infeed - The area of the machine where the blank is introduced. The beginning point.

Inner Packing - Materials or parts used to support, position or cushion an item within a shipping container, to support the corners or top of the container, or to fill voids.

J

Joint - The part of the box where the ends of the scored and slotted blank are fastened together by taping, stitching or gluing.

K

Knock-Down (KD), Knocked-Down (KD) or Knocked-Down Flat (KDF) – A flat, unopened box – where the manufacturer's joint is sealed.

L

Left Hand – A Knock-Down flat, where the longer panel appears on the left.

Lockout - Required on any major electrical apparatus by OSHA, lockout is the ability to physically shut off power and to padlock the main switch handle in the off position.

Lubrication - The application of an oil or grease-based substance, the purpose of which is to diminish friction between machine parts.

M

Machine - An apparatus consisting of interrelated parts of separate functions, but with a common, overall purpose. In this industry, a term applied to any of a variety of automated packaging systems.

Magazine - The area on the machine where blanks or flats are stacked and waiting for the initial phase of processing.

Major Fault - See Fault.

Mandrel - A ramming device, similar to a Ram Plate, but usually designed with a plate that has more depth, or has sides to it.

Mandrel Area - The area of a machine where the majority of formation takes place. In the machine process, located just before the compression area.

Minor Fault - See Fault.

N

NEMA - National Electrical Manufacturers Association

O

Operator - Any individual responsible for the management, command and control of the machine.

OSHA - Occupational, Safety and Health Administration

Overlap - A design feature wherein the top and/or bottom flaps of a box do not butt, but extend one over the other. The amount of overlap is measured from flap edge to flap edge.

P

Package - A small to moderate-sized container.

Panel - Used to define various items. May refer to the face or side of a box, and also may refer to a designated area of the machine – where specific items are placed (i.e. Electrical Panel, Control Panel).

Partitions - Slotted corrugated fiberboard or chipboard, which interlock and form separate cells within a box.

Photo Eye - A sensory device that assists in the monitoring of proper machine function. A sensor functioning as the 'eye' of the machine, giving specific inputs to determine a machine function. A *photoelectric sensor* is an optical control that detects a visible or invisible beam of light, and responds to a change in the received light intensity.

Pneumatic - A compressed-air system used to operate certain components and operations within the overall machine process.

Product - The outcome of the machine's overall function, or what is being packaged.

Proximity Switch – A sensory device that assists in the monitoring of proper machine function. This device, senses metal targets within its zone, giving specific inputs to determine a machine function.

PSI (psi) - Pounds per square inch. A measure of air pressure.

Push Button - A control device that, when pushed, initiates or halts some process on the machine.

R

Ram Plate - A flat, metal plate, usually used to drive and help form an area of a box, case or tray.

Reed Switch - A sensory device that assists in the monitoring of proper machine function. A Reed Switch is a type of proximity switch and reacts to a magnetic field generated by an outside source (i.e. cylinder magnet). The magnetic action opens or closes a set of contacts within the switch, giving inputs to determine a machine function.

Regular Slotted Container (RSC) – A box manufactured from a single sheet of corrugated board. This sheet is scored and slotted to permit ease of folding. Flaps extending from the side and end panels from the top and bottom of the box. All flaps are the same size from the edge of the sheet to the flap scorelines. The two outer flaps are one-half the container's width – so that they meet at the center of the box when folded.

Right Hand - A Knock-Down flat, where the longer panel appears on the right.

S

Selector Switch - A multi-position switch that can be set to control any one of several machine functions.

Score (Scoreline) – A well-defined impression or crease in corrugated or solid fiberboard – made to position or facilitate folds.

Seam - The junction created by any free edge of a container flap or panel – where it abuts or rests on another portion of the container.

Solenoid - An electrically energized coil of insulated wire that produces a magnetic field within the coil, and thus attracts a plunger or armature to a position within the coil. Solenoids are used in air valves to direct air flow, based on plunger positions – or in relays, to move a set of contacts.

Stacker - A device or part of the greater assembly that is designed to stack product, containers, or empty pallets.

Straps - A binding and containing material. May be used to secure the machine for shipping purposes.

T

Tape - A narrow strip of cloth, paper or plastic – coated with adhesive on one side – and used to seal or reinforce the joint or flaps of a box.

Tape Unit (Tape Machine, Taper) – The apparatus that applies the tape to the joint or flaps.

Touch Screen - A touch-sensitive screen used as the main interface between the operator and the machine.

U

United Inches - Sum of the external dimensions of a box – the length, width and depth.

W

Walking Stick - A vertical bar or stick that “walks” the product through the entire machine process.

Water Resistant – Any item that has a relatively high safeguard against damage or deterioration from water.

Wrap-around Blank – A scored and slotted sheet of corrugated fiberboard that is formed into a box by folding around its contents.

Index

SMURFIT-STONE
Automated Packaging Systems

4364 SW 34th Street
Orlando, Florida 32811

800.338.6294