Operation and Maintenance Manual for the

Model ZB20A Wraparound Case Packer

GPI EQUIPMENT

Thiele Technologies

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PREFACE

ABOUT THIS MANUAL

This manual provides operating and maintenance information, parts lists, and drawings for the Thiele Technologies, Inc. Model ZB20A Wraparound Case Packer.

The equipment is intended for use only as described in this document. Thiele Technologies, Inc. cannot be responsible for the improper functioning of features and parameters not described.

Liability for any personal injury or property damage caused by the use of this manual as it relates to the maintenance, operation, or repair of the equipment is in no way assumed by Thiele Technologies, Inc.

Accordingly, personnel using procedures not recommended or approved by Thiele Technologies, Inc. should ensure that personal safety and equipment integrity will not be jeopardized in the method selected.

Using This Manual

This manual is intended for use by personnel experienced in the use of complex packaging equipment. Maintenance personnel must have knowledge and experience working with electromechanical assemblies and components. Read and understand this manual before attempting to operate or perform routine service or maintenance on this equipment.

Photographs used in the manual may have been taken with certain guards or safety devices opened or removed. This in no way suggests that the machine is to be operated without these guards or safety devices in place!

This manual includes the following sections:

Safety First. Defines safety devices and describes the safety precautions to take while working on the machine.

Descriptions & Specifications. Describes the control functions of the machine and how to use them.

Installation Instructions. Describes the process of setting up and installing the machine.

Adjustments & Changeover. Contains the procedure to use when adjusting the components on the machine to run different sizes of product.

How to Operate the Machine. Describes the basic operations of the machine.

Options. Describes special options on the machine if there are any available.

Maintenance & Troubleshooting. Describes how to maintain, lubricate, and clean the machine as well as information regarding troubleshooting procedures that can be performed to clear fault messages and restart the machine. In addition, a troubleshooting guide is included that provides recovery procedures for common problems that can occur on the machine.

Parts & Service. Gives information on ordering spare parts and understanding the bill of materials.

Purchased Component Literature. Includes manufacturer's literature for machine components purchased by Thiele.

Revisions & Specials. Contains revisions to the machine or its software.

Recommended Spare Parts List. Contains the list of spare parts for this specific machine.

Assembly Drawings and Controls Prints. Contains both mechanical and electrical schematics and drawings for this specific machine.

Conventions

In this manual, the names of controls, references to other chapters of the manual, and fault messages are highlighted to help you separate these items from other text. In addition, symbol conventions are used to help you identify special information or warn you of possible dangers. The following conventions apply to this manual.

Convention	Definition
ALL CAPITAL LETTERS	Represent button names; either mechanical push-button on a control terminal or screen buttons on a computer terminal display. For example: “Press the EMERGENCY STOP button.”
Initial Capital Italicized	Represent screen names, screen messages, and other chapters in the manual. For example: “If the glue system is not up to temperature, the *Glue Not Ready* message scrolls through the display.” Or “Refer to Chapter 7, *Maintenance*, for more information.”

Paragraphs such as these shown below contain important information.

CAUTION

A message shown in a box such as this indicates important instructions that must be followed in order to prevent damage to systems or components of Thiele equipment.

WARNING

Failure to heed WARNINGs could result in serious personal injury or damage to the equipment.

Abbreviations/Acronyms Used in this Manual

AC	Alternating Current	MOV	Manually Operated Valve
AP	Air Pressure	MS	Motor Starter
AR	Air Regulator	O/L	Overload
BOM	Bill of Materials	PB	Pushbutton
CR	Control Relay	PE	Photoelectric Cell, Photoeye
DC	Direct Current	PLC	Programmable Logic Controller
E-Stop, ES, or Emerg. Stop	Emergency Stop	**PLμS**	Electro Cam Programmable Limit Switch
FCAC	Flow Control & Air Cylinder	PX	Proximity Switch
FS	Foot Switch	PS	Pressure Switch
ILF	Inline Feeder	SS	Selector Switch
LC	Light Curtain	SV	Solenoid Valve
LED	Light-emitting Diode	SW	Switch
LF	Lifeline	TD	Time Delay
LS	Limit Switch	TEMP SW	Temperature Switch
LV	Limit Valve	VS	Vacuum Switch

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Section 1
SAFETY FIRST

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SECTION 1

SAFETY FIRST

Introduction

This section of the manual emphasizes the importance of safety and how to incorporate safe practices when working on or around a machine. Take time to read this information before installing, operating or maintaining your machine.

The Safety section will be comprised of three main categories:

- Safety Precautions
- Safety Devices
- Safety Labels

The ***Safety Precautions*** category encompasses general safety information which should be followed every time a person is on or around the machine. All personnel working on or around the machine should follow these general safety precautions to avoid personal injury.

The ***Safety Devices*** category details the different safety devices which are located on or around the machine. All safety devices must be properly maintained and used in accordance with this manual to provide equipment that is safe to operate.

The ***Safety Labels*** category explains the different kinds of safety labels which can be found on various Thiele machinery. Safety labels alert personnel to potential hazards. Observing all safety labels is imperative to significantly reduce the chances of injury or damage to the machine.

Safety Precautions

The following pages list different precautions to take while working on or near the machinery. Read these precautions carefully and abide by the rules stringently to avoid personal injury or damage to equipment.

General Precautions

Observe the following general precautions whenever personnel is working on or around the machine:

1. Always obey and follow all safety labels.
2. NEVER attempt to defeat a safety interlock or safety feature.
3. DO NOT operate the machine if the parts are damaged, worn or missing.
4. DO NOT attempt to repair the machine while it is operating. **Be sure to know and follow your company's lockout/tagout procedures.** All maintenance and cleaning must be done when the machine is not running and when the power is completely stopped.
5. Perform the suggested routine service and maintenance procedures described in Section 7, *Maintenance & Troubleshooting*, to ensure the components on the machine continue to operate properly and safely.
6. Never work alone. It is important that another person is present and able to render aid if required.
7. Know the location of the nearest fire alarm and fire extinguisher, and know how to use them.
8. Know the location of the nearest first aid center and first aid personnel.

Electrical Precautions

The electrical components of the machine can be extremely dangerous due to the high voltage required for machine operation. In addition to locking out and tagging out power before performing any service or maintenance procedures, observe the following precautions:

1. Only qualified electricians who are familiar with industrial controls should perform repairs and troubleshooting procedures on the electrical system of the machine.

2. Keep away from live circuits. Do not replace components or make adjustments to electrical equipment while the main power is on.

3. Ensure that personnel working near electrical equipment are familiar with proper methods of cardiopulmonary resuscitation (CPR).

4. Always wear appropriate personal protective equipment (PPE) when working around electrical power and follow all NFPA 70E practices (safety standards for electrical workers).

Personal Safety Precautions

Being safe while working on or around machinery often involves personal choices and personal actions. Observe the following precautions to guard personal safety:

1. Always follow all safety labels. Injury or death may occur if safety instructions are not followed.
2. NEVER reach into the guarded areas of the machine while components are moving. Follow your company's lockout/tagout procedures before maintenance work is done.
3. Wear protection on the body, such as safety glasses, gloves and aprons, as required for the materials being used. The protective gear should be snug fitting with no loose strings or threads.
4. Avoid having long hair, loose clothing, rings, and loose jewelry such as bracelets and earrings in close proximity to the machine. These items could become tangled in moving parts of the machine or cause electrocution.
5. Remove any foreign objects that have fallen into the machine. Foreign objects could create additional hazards while the machine is operating. However, before removing any foreign objects, the power to the machine must be stopped. Your company's lockout/tagout procedures must be followed.
6. Remove any items that have fallen onto the floor around the machine. Tape, cover, or bridge any cords or objects that must remain on the floor so that no one trips over them.
7. Clean up spilled materials that can cause someone to slip or slide across the floor.
8. Avoid using flammable fluids or cleaners on or around machinery. When using cleaners and primers, be sure to use approved explosion-proof lights, blowers and other equipment.
9. Store minimum amounts of cleaners in special polyethylene bottles or safety cans. Discard soiled cleaning cloths into safety cans.
10. Be sure fire-fighting equipment is readily available and in working condition. Know the proper fire-fighting procedures for your facility.
11. Some areas of a machine are inherently more dangerous than others and functionality will dictate guarding. Extreme caution must be used near these areas to prevent serious injury or death. NEVER reach inside a protective guard unless all power and air has been stopped and all lockout/tagout procedures are followed.

Safety Warnings in Thiele Manuals

Some of the warnings below and other safety warnings appear throughout this manual. Observe all warnings in the Thiele manuals.

WARNING Do not operate this machine until you have been instructed in its safe use. Unsafe operation can cause severe injury or death.

WARNING Never attempt to defeat or override any safety device or safety interlocking device.

WARNING Determine the location of all EMERGENCY STOP devices before operation. These devices disable moving parts that can cause severe injury or death.

WARNING Disconnect and lock out all electrical and air power before making adjustments or performing any maintenance. This disables moving parts that can cause severe injury or death.

WARNING Be sure all guards are in place and secure before operating the machine. Guards provide protection from moving parts that can cause severe injury or death.

WARNING Observe extreme caution anytime air and electrical power are ON. The machinery may start automatically after a time delay. Moving parts can cause severe injury or death.

WARNING Disconnect and lock out electrical and air power before greasing, oiling, wiping, or repairing. Moving parts can cause severe injury or death.

WARNING Disconnect and lock out all electrical power before replacing electrical components. Electrical shock can cause severe injury or death.

Safety Devices

Safety devices are components and controls that are installed on and around the machine to ensure safety. The safety devices include:

- lockout/tagout
- main air disconnect
- emergency stop buttons
- lifelines
- machine guarding
- safety interlock devices

Lockout/Tagout

Each time service repair or maintenance work is done, workers should be confident there is no chance of accidental start-up of machinery. *It is crucial that your company's lockout/tagout procedures are closely followed.* Where multiple workers are servicing machinery, strict control measures should be in place to ensure that equipment cannot be started up before all work is completed and workers are clear of the machinery.

WARNING!

Servicing energized equipment can be hazardous! Severe injury or death can result from electrical shock, burn, compressed air discharge, or unintended actuation of controlled equipment. It is recommended practice to disconnect and lockout equipment from power sources and release stored energy, if present.

Thiele Technologies provides lockout capabilities on its packaging machinery for the two energy systems utilized to power its components, (1) the Electrical system and (2) the Pneumatic System. *However, specific implementation of a lockout/tagout compliance program is not the responsibility of Thiele Technologies.*

Lockout Procedure for Electrical Systems

The electrical panel for Thiele Technologies machinery is housed in an electrical cabinet with a lockout device (fused or circuit breaker protected) selected for the amperage requirements of each installation. The lockout device is located on the outside of the electrical panel. On the following pages are examples of main disconnect switches: *a rotary disconnect switch* and a *flanged disconnect switch* and the lockout procedures for each one. These are examples of the types of devices that can be found on electrical pannels.

WARNING!

To ensure a total electrical disconnect of your machine, be sure the main (plant) circuit supplying the individual packaging machine(s) energy is also locked out and tagged. If not, you will still have incoming power on the line side (hot) of the disconnect in the machine electrical cabinet.

Rotary Disconnect Switch

The rotary disconnect switch is found on electrical systems. It supplies or removes electrical power to the machine by disconnecting or connecting electrical energy. The switch is typically located on the outside of the high-voltage electrical enclosure. Power should always be disconnected from the machine and the switch should be locked out prior to any maintenance or troubleshooting procedures.

IMPORTANT!

It is your responsibility to know and follow your company's lock-out/tagout procedures.

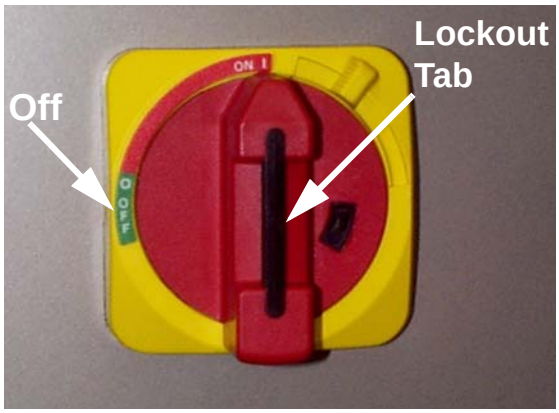


Figure 1-1 Rotary Disconnect Switch

Figure 1-2 Rotary Disconnect Switch (with longer handle)

To perform a lockout on the rotary disconnect switch, follow the steps below.

1. Turn the rotary disconnect switch to the OFF position.
2. Pull the lockout tab out.
3. Place a padlock on the lockout tab.
4. Use a tag to signal the machine is locked out. See See “Lockout/ Tagout Tags” on page 1-13 for examples of lockout tags.

IMPORTANT!

The operating handles or bars can only be locked in the OFF position.

After the servicing and/or maintenance are complete and equipment is ready for normal production operations, check the area around the machine or equipment to

- ensure that employees are in the clear,
- all tools have been removed from the machine or equipment,
- guards have been installed or restored, and
- panel doors are fully closed and properly secured.

After all checks are complete, perfom the following steps below.

1. Remove all lockout and tagout devices.
2. Return the switch to its ON position.
3. Check that the panel doors are fully closed and properly secured prior to energizing the machine.
4. Restore energy to the machine by operating the energy isolating devices.

Flanged Disconnect Switch

The flanged disconnect switch is found on electrical systems. It supplies or removes electrical power to the machine by disconnecting or connecting electrical energy. The switch is typically located on the outside of the high-voltage electrical enclosure. Power should always be disconnected from the machine and the switch should be locked out and tagged out prior to any maintenance or troubleshooting procedures.

IMPORTANT!

It is your responsibility to know and follow your company's lock-out/tagout procedures.

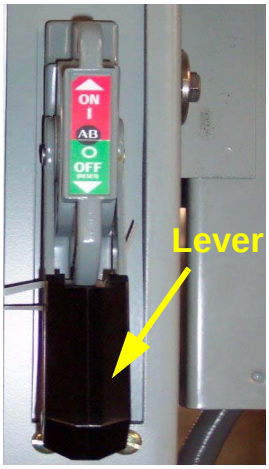


Figure 1-3 Flanged Disconnect Switch (front view)

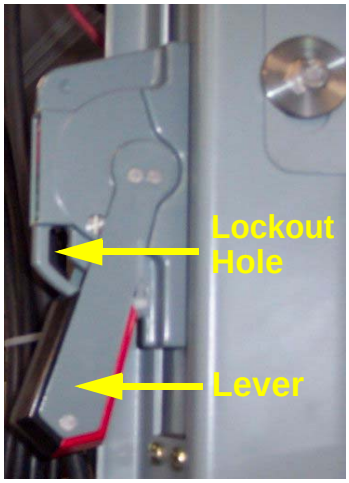


Figure 1-4 Flanged Disconnect Switch (side view)

To perform a lockout on the flanged disconnect switch, follow the steps below.

1. Pull the lever down to the OFF position.
2. Place a padlock in the lockout hole.
3. Use a tag to signal the machine is locked out. See See “Lockout/ Tagout Tags” on page 1-13 for examples of lockout tags.

IMPORTANT!

The operating lever can only be locked in the OFF position.

After the servicing and/or maintenance are complete and equipment is ready for normal production operations, check the area around the machine or equipment to

- ensure that employees are in the clear,
- all tools have been removed from the machine or equipment,
- guards have been installed or restored, and
- panel doors are fully closed and properly secured.

After all checks are complete, perfom the following steps below.

1. Remove all lockout and tagout devices.
2. Return the switch to its ON position.
3. Check that the panel doors are fully closed and properly secured prior to energizing the machine.
4. Restore energy to the machine by operating the energy isolating devices.

Lockout Procedure for Pneumatic Systems

The pneumatic system for Thiele machinery is normally equipped with a filter/regulator (F/R unit) or filter/regulator/lubricator (FRL unit) depending on the type of air cylinders specified. These units are furnished with a manually operated valve (MOV). Incoming air passes through a MOV which has a lockable feature. The MOV provides a means to lockout pneumatic power which prevents accidental start-ups while personnel are cleaning or servicing equipment. See “Manually Operated Valve” below for an example of this device and how to perform a lockout procedure.

WARNING!

High pressure air lines can cause injury if blown off. Always shut off the system main valve and lockout/tagout the valve while performing any service and/or maintenance to the system.

Manually Operated Valve

The manually operated valve (MOV) is found on pneumatic systems. To find a manually operated valve on your machine, refer to the pneumatic diagram in Section 12 of this manual. Power should always be disconnected from the machine and the valve should be locked out and tagged out prior to any maintenance or troubleshooting procedures.

IMPORTANT!

It is your responsibility to know and follow your company’s lock-out/tagout procedures.

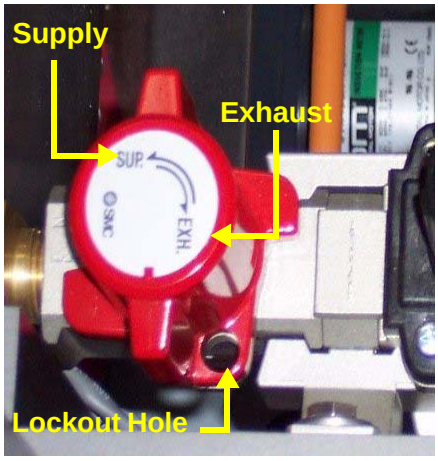


Figure 1-5 Manually Operated Valve

To perform a lockout on the manually operated valve, follow the steps below.

1. Turn the valve to its exhaust (OFF) position.
2. Place a padlock in the lockout hole.
3. Use a tag to signal the machine is locked out. See "Lockout/Tagout Tags" below for examples of tags.

After the servicing and/or maintenance are complete and equipment is ready for normal production operations, check the area around the machine or equipment to

- ensure that employees are in the clear.
- After all tools have been removed from the machine or equipment,
- guards have been installed or restored

After all checks are complete, perfom the following steps below.

1. Remove all lockout and tagout devices.
2. Return the switch to its ON position.
3. Restore energy to the machine by operating the energy isolating devices.

Lockout/Tagout Tags

Refer to the photos below for examples of different lockout/tagout tags that can be used to properly lockout and tagout a machine.

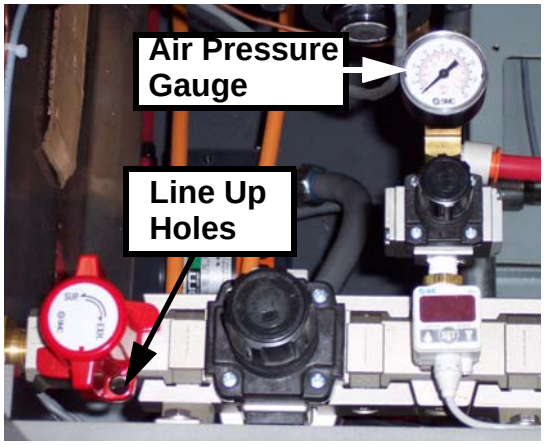
Main Air Disconnect

The main air disconnect supplies or removes air from the machine's pneumatic system. The main air disconnect style can vary for each machine, but typically looks like the one in the photo below.

For safety purposes, you need to lock out supply air to the machine before doing any maintenance or making any adjustments. You can lock out the supply air via the lock out holes on the shut-off valve. The air regulator is a relieving type. The pressure gauge drops to zero when the air is shut off.

Follow the procedure below to lock out supply air to the machine:

1. Turn the shut-off valve so the lockout holes on the valve line up with the holes on the lock out tab.
2. Insert a lock through the holes to lock the shut off valve in position.
3. Check that the air pressure gauge shows 0 psi.



4. Be sure all the air has been expelled before doing maintenance or making any adjustments to the machine.

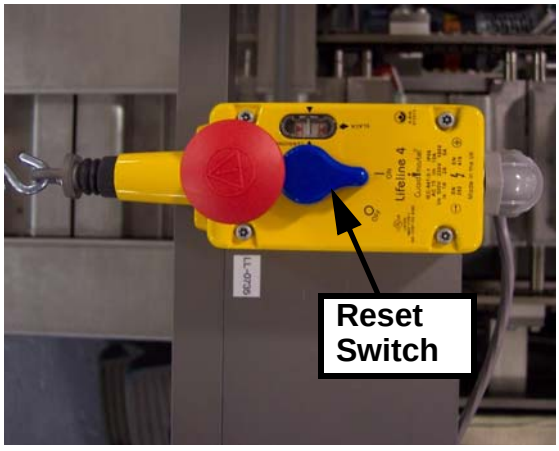
Emergency Stop Buttons

Emergency stop buttons shut down the operation of the machine immediately. These buttons are typically used when continued operation of the machine would cause injury to a person or damage to the equipment. When the button is pressed, the machine comes to an immediate stop, cutting all electrical power to the machine. When equipment operation may be safely resumed, the activated button must be pulled back out before the machine's controls can be enabled.

There are typically several Emergency Stop buttons located on a machine. Most often, an Emergency Stop button is located on the Operator Station. For other locations, refer to the installation drawing or electrical controls layout to find where the Emergency Stop buttons are located on your specific machine.

Lifelines

A lifeline is a safety device that is typically installed over a long infeed or open conveyor on a machine. When this line is pulled, the machine comes to a stop, cutting all electrical power from the machine.



There is also an Emergency Stop button connected to the lifeline. When this button is pressed, the machine comes to a stop, and all electrical power is cut from the machine. If either the lifeline or Emergency Stop button is activated, a reset switch next to the Emergency Stop button automatically switches to the OFF position. This switch must be turned back to the ON position before the machine can be restarted.

Machine Guarding

Machine guarding consists of guard doors with interlock safety switches and other fixed guarding around moving parts. These guards are provided to ensure the machine can be operated safely. Never operate a machine with a missing guards. It is extremely dangerous to operate the machine without the guards in place. Operating the machine without the guards in place could result in serious personal injury and/or damage to equipment.

If guards are not provided by Thiele Technologies, Inc. (due to customer specifications or the proposed machine interface), *it is the customer's responsibility to furnish and install the proper protective guards and shields to protect personnel and equipment.*

When operating the machine, observe the following precautions:

1. NEVER operate the machine when the guards are not in place.

2. NEVER defeat or disable the guard door interlocks. The machine is programmed so that when a guard is opened, the machine stops immediately and cannot be started again until the guard is closed and the control power is reset.

Safety Labels

The Safety Labels category will detail the different kinds of safety labels which can be found on various Thiele machinery. Each label will be displayed and a detailed description will be given for where each label should be placed for optimum exposure and safety.

Purpose

Thiele Technologies designs and manufactures its products so they are as safe as possible to operate. Any tool or machine can be dangerous when used improperly. Thiele Technologies utilizes safety labels to alert the operator to potentially hazardous areas. Observing all safety signs and hazard labels is imperative. This can significantly reduce the chances of injury.

IMPORTANT!

Thiele Technologies provides free replacements for our safety labels. If you discover missing or damaged safety labels, contact your supervisor for replacements.

Scope

Safety labels on Thiele Technologies products provide hazard and safety information about the machine. The safety labels are based on ANSI standard Z535.4-1991 for Product Safety Signs and Labels.

Safety labels are placed on Thiele Technologies machines to:

- communicate the need for safe operation
- warn the operator or observer of a potentially dangerous condition
- identify potentially dangerous areas of the machine
- advise the operator or observer of the nature and degree of the potential hazard which can cause injury

Signal Words and the Three Levels of Hazard Seriousness

Thiele safety labels address three levels of hazards based on the degree of seriousness. The signal words for these levels are:

- DANGER
- WARNING
- CAUTION

DANGER

DANGER indicates an imminently hazardous situation. Failure to follow all safety directives may result in severe injury or death. The key word DANGER is limited to the most extreme conditions.

WARNING

WARNING indicates a potentially serious hazardous situation. Failure to follow all safety directives may result in severe injury.

CAUTION

CAUTION indicates a potentially hazardous situation. Failure to follow all safety directives may result in minor or moderate injury. CAUTION may also be used to alert against unsafe practices.

One or more of the safety labels shown on the following pages may be found on Thiele machinery. The number and types of safety labels on each machine depends on the machine design and function.

DANGER Labels

DANGER labels alert the observer to the most serious hazard level. It denotes an imminently hazardous situation. Failure to follow all safety directives may result in severe injury or death.

Danger Hazardous Voltage Labels

The Danger Hazardous Voltage label alerts the operator to be careful around live electrical power. Look for these labels on all high voltage (50 volts and above) junction boxes and control enclosures. The power control stations and other areas that house live wiring have this label.

Always wear appropriate personal protective equipment (PPE) when working around electrical power. Disconnect and lockout electrical power before adjusting any component or before working on the machine.

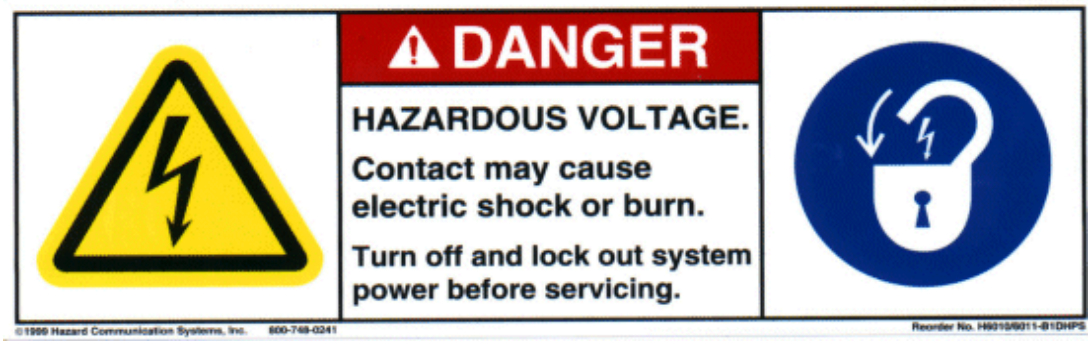


Figure 1-6 Danger Hazardous Voltage--ISO Lockout Label (P/N 600429)

Figure 1-7 Danger Hazardous Voltage--Arc Flash and Shock Label (P/N 600498)

Danger Hazardous Voltage-Stored Power Present Label

The Danger Hazardous Voltage-Stored Power Present label alerts the operator that residual power may be present.

Always wear appropriate personal protective equipment (PPE) when working around electrical power. Disconnect and lockout electrical power before adjusting any component or before working on the machine.

Figure 1-8 Danger Hazardous Voltage Label--Stored Power Present (P/N 600431)

Danger Hazardous Voltage-Multiple Power Sources Present

The Danger Hazardous Voltage-Multiple Power Sources Present label alerts the operator that more than one power source is present.

Always wear appropriate personal protective equipment (PPE) when working around electrical power. Disconnect and lockout electrical power before adjusting any component or before working on the machine.

Figure 1-9 Danger Hazardous Voltage Label--Multiple Power Sources (P/N 600428)

ISO Electrical Shock/Electrocution Danger Label

The ISO Electrical Shock/Electrocution danger label is an internationally approved icon that alerts the viewer of possible electrical shock or electrocution. Look for these labels on the exterior of all high voltage (50 volts and above) junction boxes and electrical enclosure. The power control stations and other areas that house live wiring have this label.

Always wear appropriate personal protective equipment (PPE) when working around electrical power. Disconnect and lockout electrical power before adjusting any component or before working on the machine.

Figure 1-10 ISO Electrical Shock/Electrocution Danger (P/N 600427)

Danger Crush Hazard Labels

The Danger Crush Hazard labels alerts personnel to an area where body parts and other objects could become crushed. Failure to follow these safety directives may cause severe injury or death.

Figure 1-11 Danger Moving Parts Can Crush and Cut (P/N 600420)

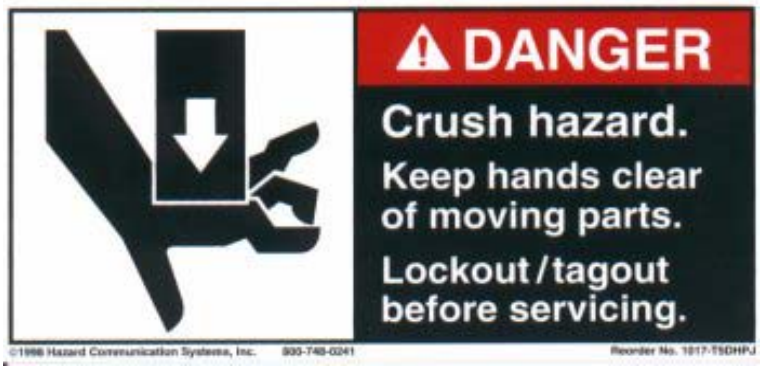


Figure 1-12 Danger Crush Hazard Label (P/N 600421)

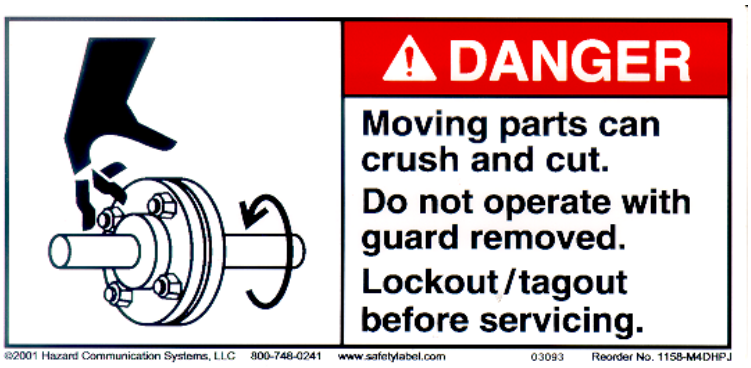


Figure 1-13 Danger Rotating Cut Crush Label (P/N 600510)

Danger Machine Moves Automatically

The Danger Machine Moves Automatically label alerts personnel that the machine can start at any time and warns to keep all objects and body parts clear of machine components.

Figure 1-14 Danger Machine Starts Automatically Label (P/N 600424)

Figure 1-15 Danger Entanglement Hazard Label (P/N 600572)

WARNING Labels

WARNING labels indicate a potentially serious hazardous situation. Severe injury or death could result by failing to heed a WARNING label.

Warning Read and Understand Operator's Manual Label

The Warning Read and Understand the Operator's Manual label offers general operation precautions. Look for this label on all Thiele Technologies machines that require an operator.

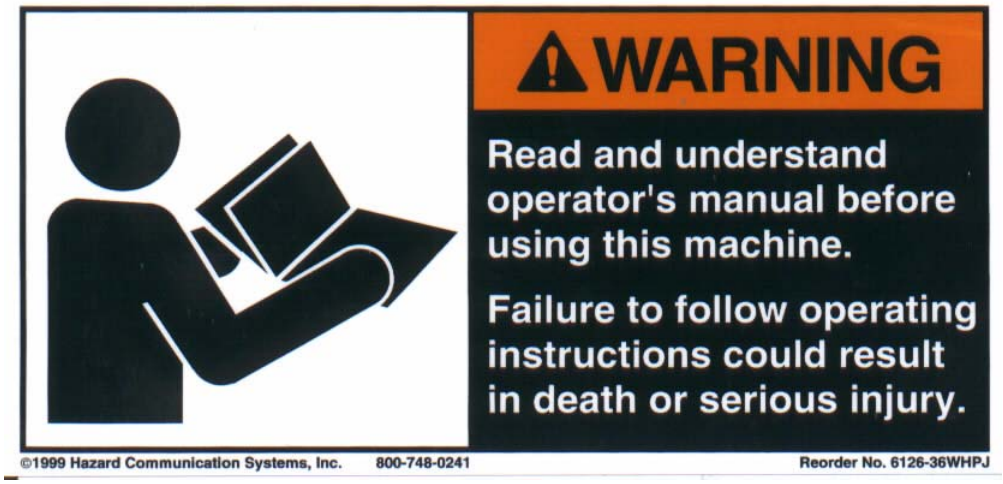


Figure 1-16 Read and Understand Operator's Manual (P/N 600425)

Know the function of all operator controls and switches before operating the machine. See the "How To Operate The Machine" section (Section 5) of this manual.

Guards Warning Labels

Guards protect personnel from gears, sprockets, pulleys and other moving components. All guards must be in place prior to operating the machine. All guards must be properly maintained and safety interlock switches functional prior to operating the machine.

Warning Replace Guard Before Operating Machine Label

The Warning Replace Guard Before Operating Machine label tells the user to replace all guards before operating the machine.

Figure 1-17 Warning Replace Guard Before Operating (P/N 600426)

Figure 1-18 Do Not Bypass this Interlock (P/N 600539)

Guards-Missing Warning Label

The Guards-Missing warning label tells the user that the guards have been removed. Replace all guards before operating the machine.

Figure 1-19 Stay Clear, Missing Guard Warning Label (P/N 600517)

Guards-In-Place Warning Label

The Guard-In-Place warning label identifies a pinch point that needs to be guarded. Be sure all guards are in place before operating the machine.

Figure 1-20 Guards-In-Place Warning Label (P/N 159062)

Pinch Point Warning Label

The Pinch Point warning label alerts personnel to an area where body parts and other objects could get caught and pinched. Stay clear of these areas.Avoid wearing loose clothing or any type of jewelry that could get caught in a pinch point.

Figure 1-21 Pinch Point Warning Label (P/N 600516)

Figure 1-22 Pinch Point Warning Label (P/N 600573)

Open Door Warning Label

Thiele machines are electrically interlocked so they shut off as soon as any access door opens. Keep the doors closed during operation. Never override any of the door safety interlocks.

Figure 1-23 Do Not Operate Without Guards Warning Label (P/N 600518)

ISO Hazard Identification Warning Label

The ISO Hazard Identification Warning label is an internationally approved icon that alerts the viewer of possible hazards. Look for these labels on the exterior of all high voltage (50 volts and above) junction boxes and electrical enclosures. The power control stations and other areas that house live wiring have this label.

Always wear appropriate personal protective equipment (PPE) when working around electrical power. Disconnect and lockout electrical power before adjusting any component or before working on the machine.

Figure 1-24 ISO Hazard Identification Warning Label (P/N 600512)

Figure 1-25 ISO Hazard Identification Warning Label (P/N 600513)

Unauthorized Modification Warning Label

The Unauthorized Modification label warns against altering the electrical system of a machine or its components inside any electrical enclosure. Failure to heed this warning may:

- create a safety hazard
- impair machine function
- void the machine warranty

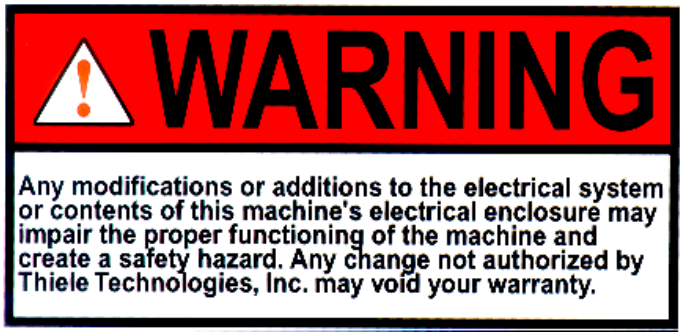


Figure 1-26 Unauthorized Modification Warning Label (P/N 147726)

CAUTION Labels

CAUTION labels indicate a potentially hazardous situation. Minor or moderate injury could result by failing to heed a CAUTION label.

Label Replacement Caution Label

Be sure to keep all labels easily visible. Contact Thiele Technologies immediately to replace damaged labels or to inquire about label placement. See See “Ordering Replacements” on page 1-35 for ordering information.

Figure 1-27 Label Replacement Caution Label (P/N 165424)

Caution Burn Hazard Label

The Caution Burn Hazard label identifies an excessively hot (above 140° Fahrenheit) area on the machine. Failure to heed this caution label could result in severe burns.

Figure 1-28 Caution Burn Hazard Label (P/N 600422)

Avoid touching areas that are designated HOT until you are sure they are cool.

Keep all clothing and tools away from designated hot areas. Always wear thermal insulated gloves when working on or around designated hot areas.

Do Not Weld Caution Label

The Do Not Weld label cautions against using welding equipment near electronic devices. This caution applies to all electronic equipment but is used especially to prevent damage to load cells on the scales, and to the computers (programmable logic controllers or PCs) that control the machines.

Figure 1-29 Do Not Weld Caution Label (P/N 600430)

Pick Up Caution Label

The pick up area is exposed. Be especially cautious around the moving components at the pick up areas. Stay clear of all moving parts.

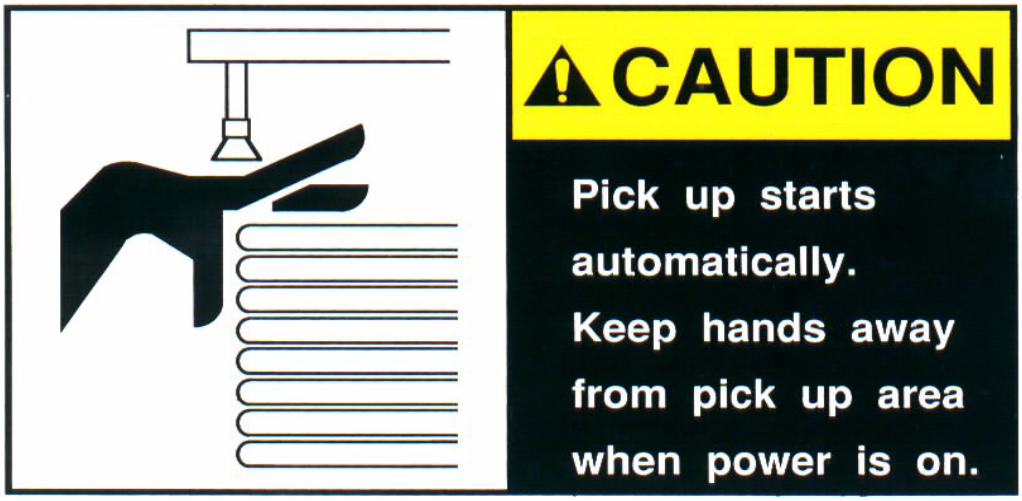


Figure 1-30 Pick Up Caution Label (P/N 159066)

Safety Label Installation and Maintenance

Safety labels require periodic maintenance to keep them visible and effective.

Ordering Replacements

Thiele will provide replacement safety labels for free.

To order new labels or to inquire about label placement, call

Thiele Technologies, Inc.

1-800-932-3647

Order the desired label by its part number. See Table 1-1 for each label title, figure number and its corresponding part number.

Table 1-1 List of Thiele Safety Labels and Corresponding Part Numbers

Thiele Part Number	Safety Label Title	Figure Number
600429	Danger Hazardous Voltage--ISO Lockout	Figure 1-6
600498	Danger Hazardous Voltage--Arc Flash and Shock	Figure 1-7
600431	Danger Hazardous Voltage--Stored Power Present	Figure 1-8
600428	Danger Hazardous Voltage--Multiple Power Sources Present	Figure 1-9
600427	ISO Electrical Shock/Electrocution Danger	Figure 1-10
600420	Danger Moving Parts Can Crush and Cut	Figure 1-11
600421	Danger Crush Hazard	Figure 1-12
600510	Danger Rotating Cut Crush	Figure 1-13
600424	Danger Machine Starts Automatically	Figure 1-14
600572	Danger Entanglement Hazard	Figure 1-15
600425	Warning Read and Understand Operator's Manual	Figure 1-16
600426	Warning Replace Guard Before Operating	Figure 1-17
600539	Do Not Bypass this Interlock	Figure 1-18

Table 1-1 List of Thiele Safety Labels and Corresponding Part Numbers

Thiele Part Number	Safety Label Title	Figure Number
600517	Stay Clear, Missing Guard Warning	Figure 1-19
159062	Guards-In-Place Warning	Figure 1-20
600516	Pinch Point Warning	Figure 1-21
600573	Pinch Point Warning	Figure 1-22
600518	Do Not Operate Without Guards	Figure 1-23
600512	ISO Hazard Identification Warning (small)	Figure 1-24
600513	ISO Hazard Identification Warning (large)	Figure 1-25
147726	Unauthorized Modification Warning	Figure 1-26
165424	Label Replacement Caution	Figure 1-27
600422	Caution Burn Hazard	Figure 1-28
600430	Do Not Weld Caution	Figure 1-29
159066	Pickup Caution	Figure 1-30

Installing Safety Labels

Follow the procedure below to install a safety label.

1. Turn off the machine.
2. Disconnect and lock out electrical power and air power to the machine.
3. Be sure all designated HOT areas are cool.
4. Be sure the area intended for the label is thoroughly clean.
    a. Remove all dust, grease or other debris that could prevent good adherence.
    b. Be sure the surface is dry.
5. Peel the protective paper off the back of the new label.
6. Stick the label on the cleaned surface and press the entire label so it adheres securely to the machine.

Inspecting and Maintaining Safety Labels

Follow the guidelines below to inspect and maintain Thiele safety labels.

1. Inspect all safety labels daily for good legibility and safe viewing.
    a. Look for dirty, torn, loose or otherwise damaged and illegible labels.
    b. Have any damaged or illegible label replaced immediately.

IMPORTANT!

Thiele Technologies provides free replacements for our safety labels. If you discover missing or damaged safety labels, contact your supervisor for replacements.

    c. See See “Installing Safety Labels” on page 1-36 for detailed replacement instructions.
2. Keep all safety labels clean and easy to read.
3. Keep spare safety labels on hand.
    a. See See “Ordering Replacements” on page 1-35 for ordering instructions.

Section 2
DESCRIPTIONS & SPECIFICATIONS

Table of Contents

SECTION 2

DESCRIPTIONS & SPECIFICATIONS

Introduction

Your Thiele Technologies shrink bundler (Figure 2-1) is a fully automatic product bundling system. This chapter will describe the machine's function, the mechanical components, and the electrical components. Specifically, the following will be discussed in this chapter:

Sequence Of Operation

The Thiele shrink bundler is made up of the following sections (See Figure 2-1).

Infeed- After the literature has been placed on the products by the Thiele topserter, they continue on to the shrink bundler. Prior to reaching the bundler.

The infeed conveyor advances the loaded products through the film and past the seal bar.

Seal Bar- A heated knife in the seal bar assembly seals a seam in the film for the products which are enclosed in film. At the same time, it seals a seam for the next products to be advanced through the film. The knife cuts between the two seals, releasing the enclosed products to proceed to the shrink (oven) tunnel on the transfer conveyor.

Shrink Tunnel- The products are conveyed through the shrink (oven) tunnel where heated air circulates to evenly shrink the film around the products. The wrapped products with “bull’s-eye” enclosure are then discharged from the machine. The machine is comprised of two major sections to create a complete bundling system: the infeed section (Ref.#1 in Figure 2-1) incorporating the infeed conveyor and seal bar station, and the oven section (Ref.#2 in Figure 2-1) incorporating the shrink tunnel (oven) with its own tunnel conveyor.

The complete bundling process is made possible with the use of several electro-mechanical devices that “sense” the flow of progress and electrically report back to a programmable logic controller (PLC).

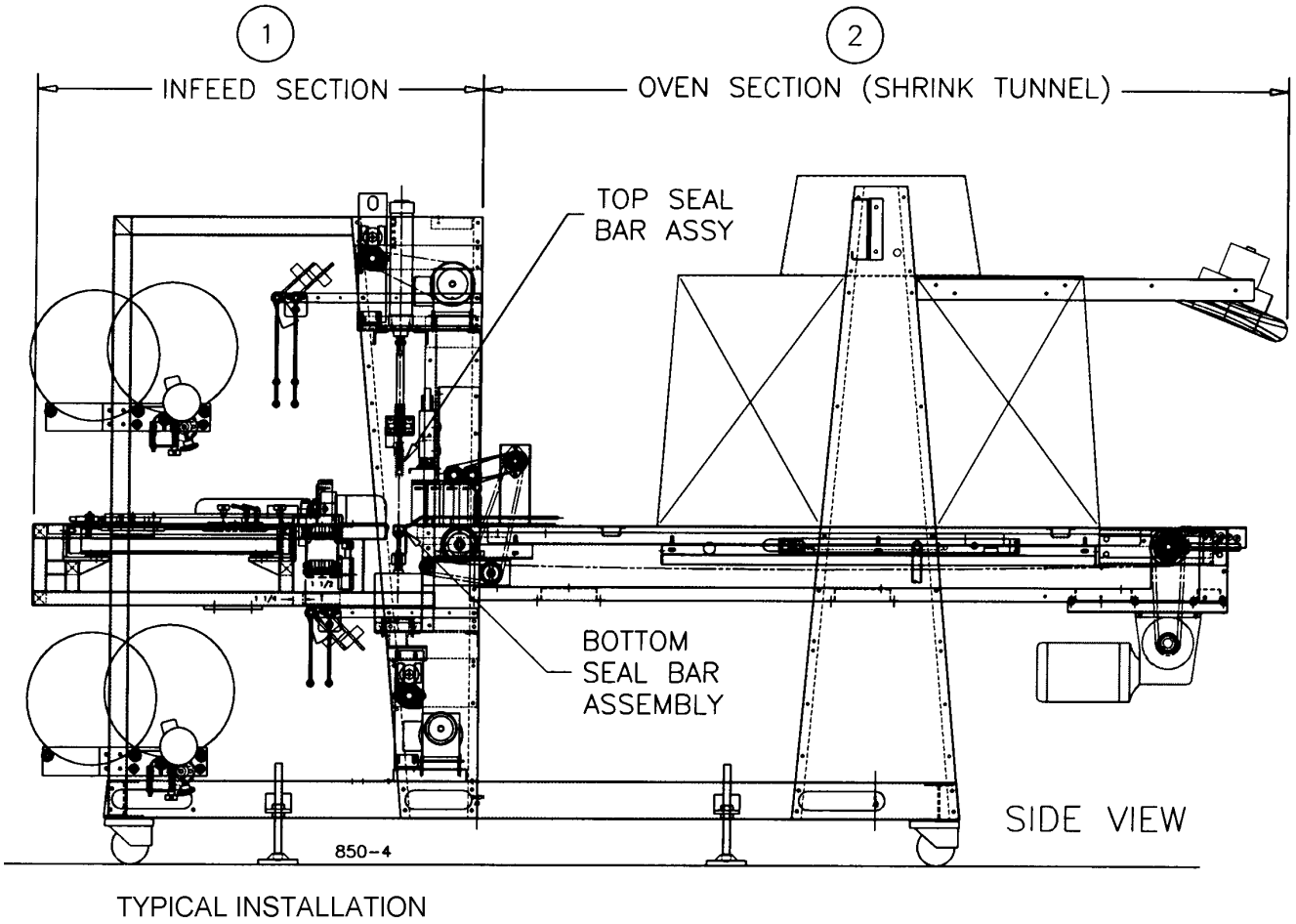


Figure 2-1
QUICK REFERENCE DIAGRAM

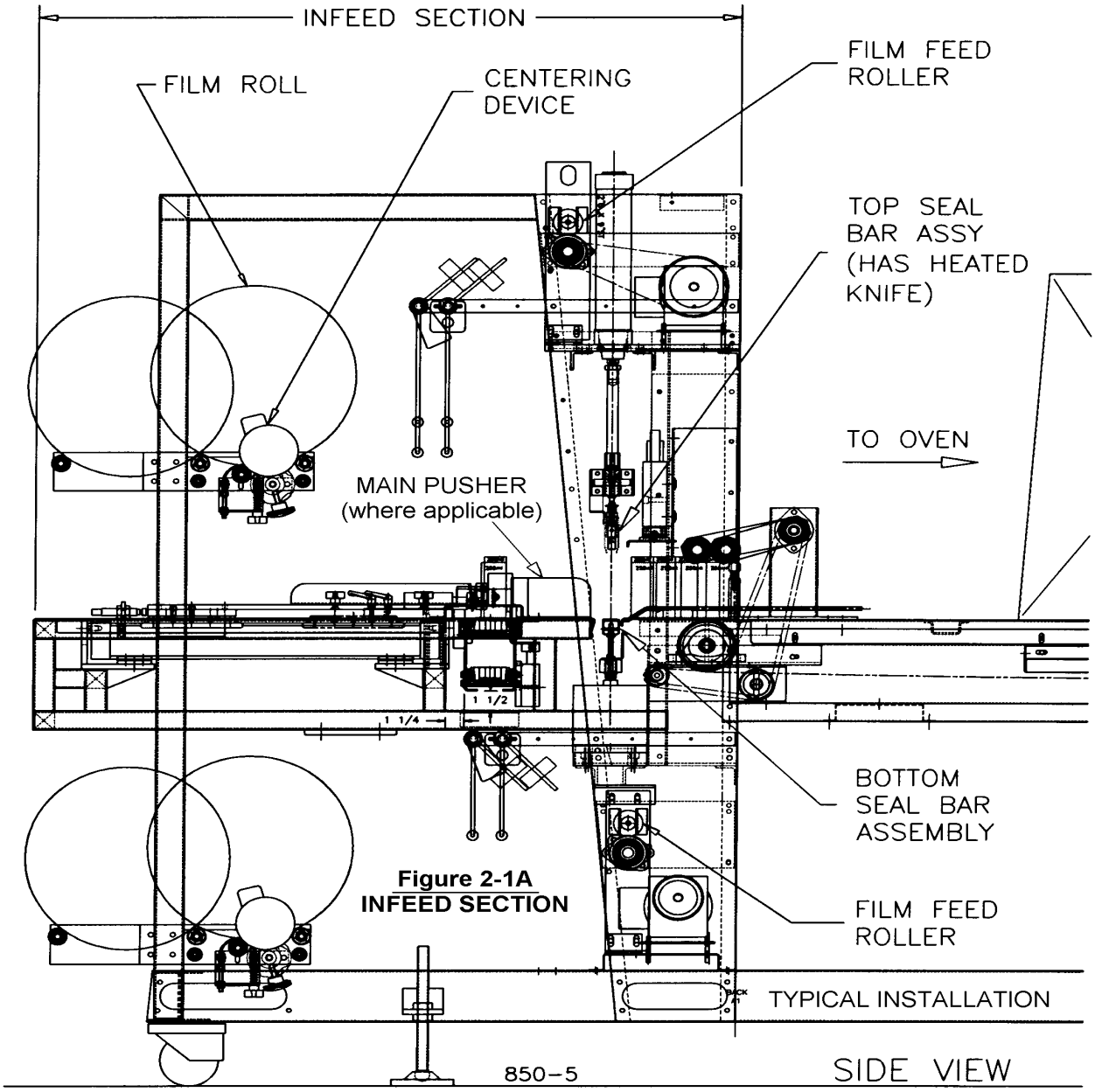


Figure 2-1A
INFEED SECTION

Machine Description

Infeed Section

The infeed section (Figure 2-1A) accepts incoming product and handles the important tasks of transporting and enveloping the product with film, before conveying it to the shrink tunnel (oven).

An infeed conveyor is commonly used to bring product into the machine. Accumulation methods may vary, and may incorporate a deadplate, side guides, infeed product brake, or other (optional) components to orient, group and/or control the product. Once the product is in position in the accumulation area, typically a main pusher or conveyor advances the product through the seal bar area.

A heated knife in the seal bar assembly seals a seam in the film for the product which is enclosed in film. At the same time, it seals a seam for the next product grouping to be advanced through the film. A product hold-down assembly may be utilized at this station to stabilize the product as the knife is sealing the film. The knife then cuts between the two seals, releasing the enclosed product to proceed to the shrink (oven) tunnel.

Film Feed System

Film is fed through powered film feed rollers and across a "dancer" bar to the film sealing area. An (optional) film perforating device may be incorporated in the film feed system.

Seal Bar Operation

A heated knife in the seal bar assembly (Figure 2-1A) seals a seam in the film for the product which is enclosed in film. At the same time, it seals a seam for the next product to be pushed through the film. A product hold-down device may be utilized at this station to stabilize the product while the seal is made. The knife then cuts between the two seals, releasing the enclosed product to proceed to the shrink (oven) tunnel.

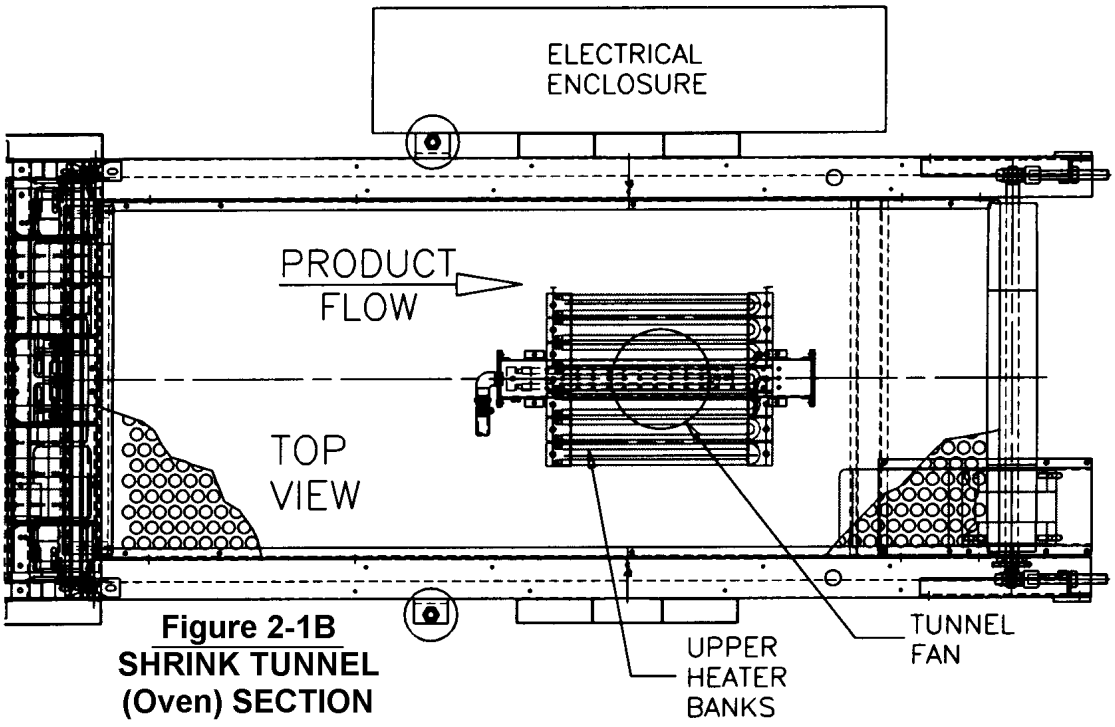
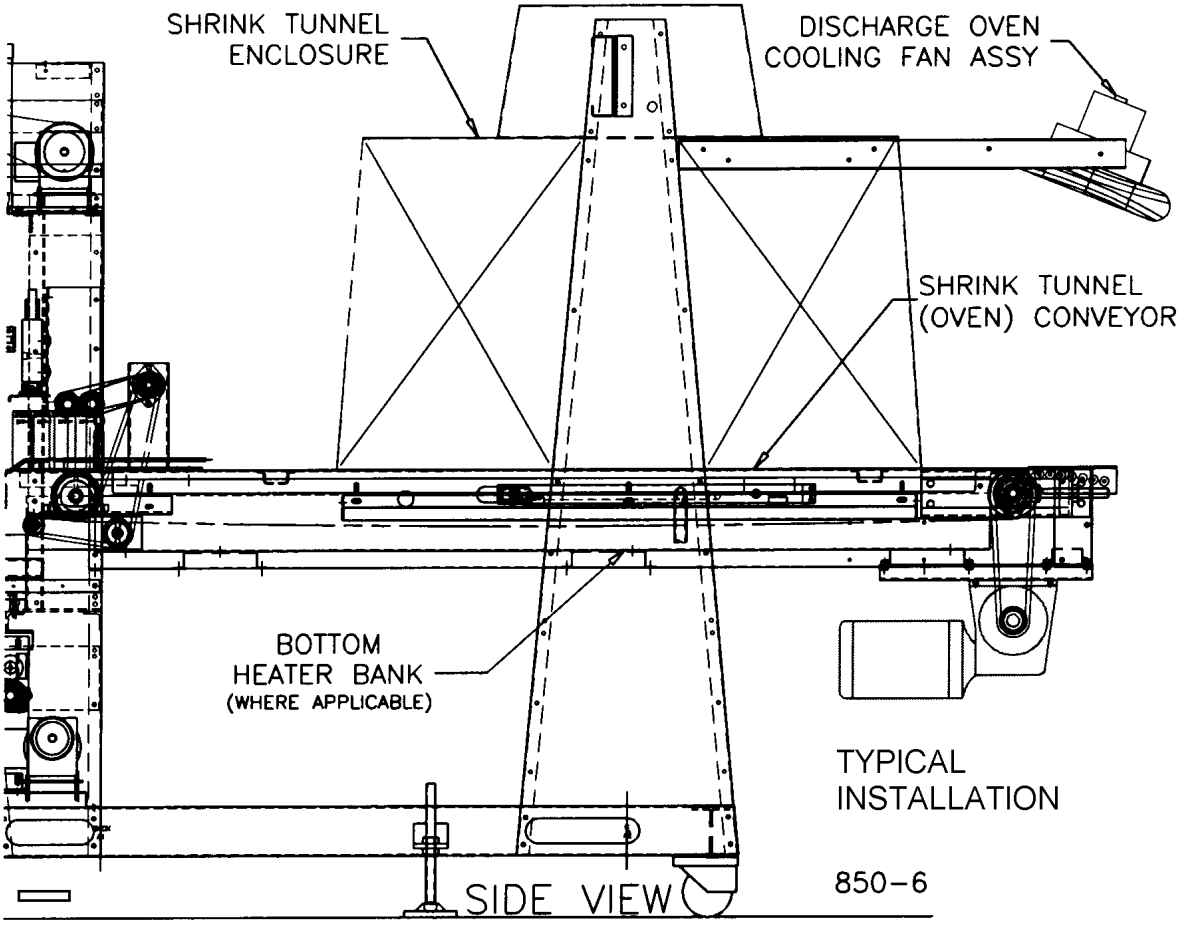


Figure 2-1B
SHRINK TUNNEL
(Oven) SECTION



Shrink Tunnel (Oven Section)

The shrink tunnel, also referred to as the oven (Figure 2-1B), functions to shrink the film properly around the product. This is achieved by (A) setting the speed of the tunnel conveyor and (B) setting the tunnel temperature. The major components of the oven typically are as follows:

- the tunnel conveyor;
- tunnel enclosure;
- upper heater bank;
- bottom heater bank;
- tunnel fan;
- discharge oven cooling fan;
- oven blower on bottom (not shown).

Product is conveyed through the shrink tunnel where heated air circulates to evenly shrink the film around the product. The wrapped product is then discharged from the machine.

The oven section has its own individually powered tunnel conveyor. The drive roller (or sprockets) provide the operating power through a chain connected to the drive motor. Tension on the conveyor is adjustable through the position of the drive roller (or sprockets).

The highly efficient shrink tunnel uses high temperature insulation, providing minimal heat loss and maximum oven efficiency. Shrink tunnel temperature is controlled through the operator workstation.

In addition to the typical heater(s) located in the shrink tunnel, bundlers may be optionally equipped with a bottom heater and blower, used to further seal the product.

Machine Controls

A combination of pneumatic and electrical controls govern the operation of the machine.

Electrical Controls

Pneumatic Controls

The following subsections will further explain the controls and how they function to effectively operate the machine.

Electrical Controls

The following pages contain information regarding the function and location of the electrical controls.

Programmable Logic Controller (PLC)

The PLC provides the signals required to operate the electrical components on the machine. The PLC receives information from electrical input controls on the machine such as photoeyes and limit switches. Based on the instructions programmed into the PLC, the PLC decodes the information and applies the proper output signals for each product size. “See ”Programable Logic Control (PLC)” on page 2-10.

For specific program instructions, refer to the Ladder Logic Diagram on the disk inside the electrical enclosure.

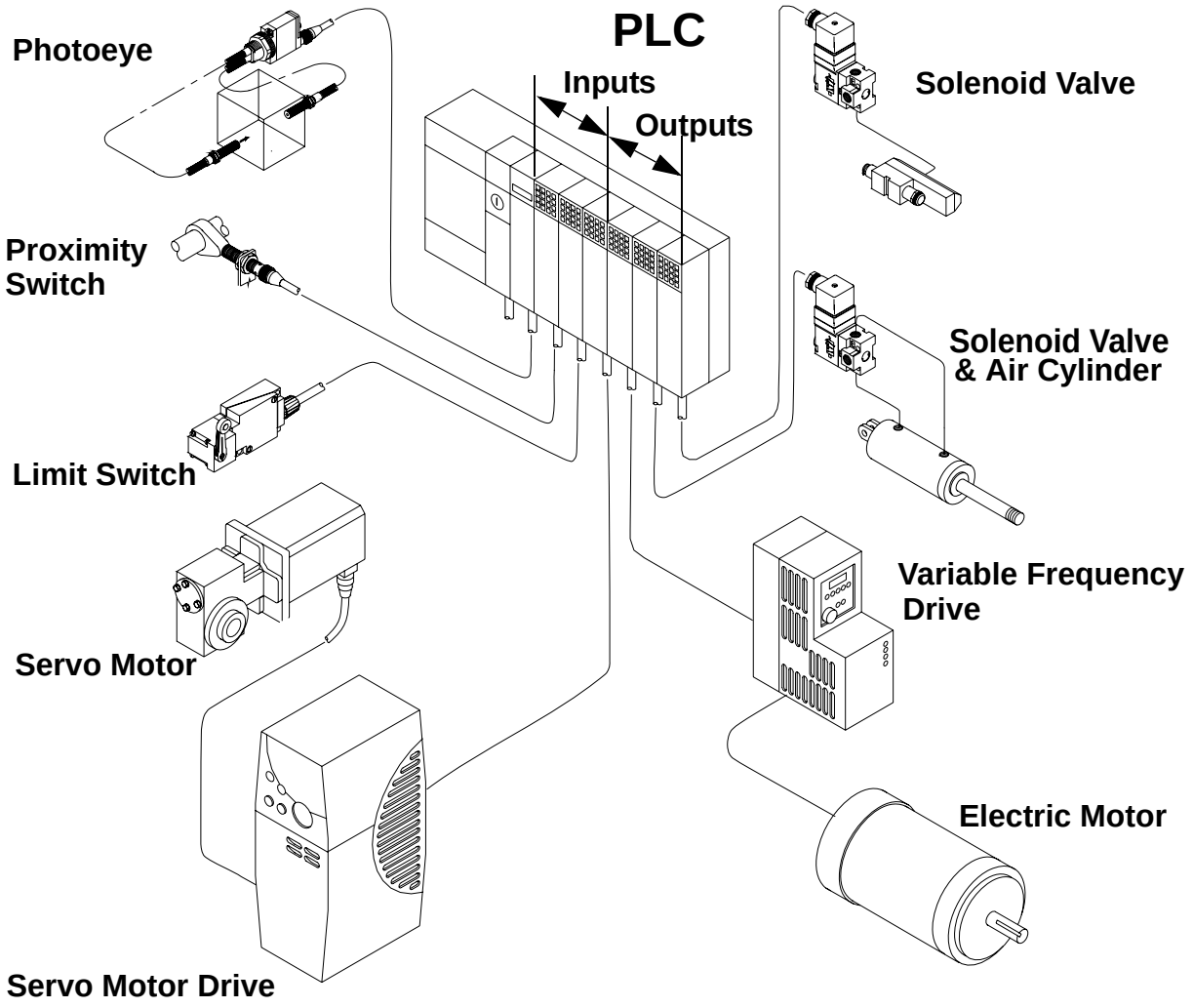


Figure 2-3: Programable Logic Control (PLC)

Encoder

An output encoder is used to track the rotation of the case's main shaft. The encoder reading controls the electrical timing of the equipment. The zero point on the encoder timing dial is also the mechanical zero timing point for the machine.

Readings from the output encoder control the electrical timing of the equipment in relation to the mechanical position of the components. Encoder outputs are used for correctly timing operation of various electrical functions.

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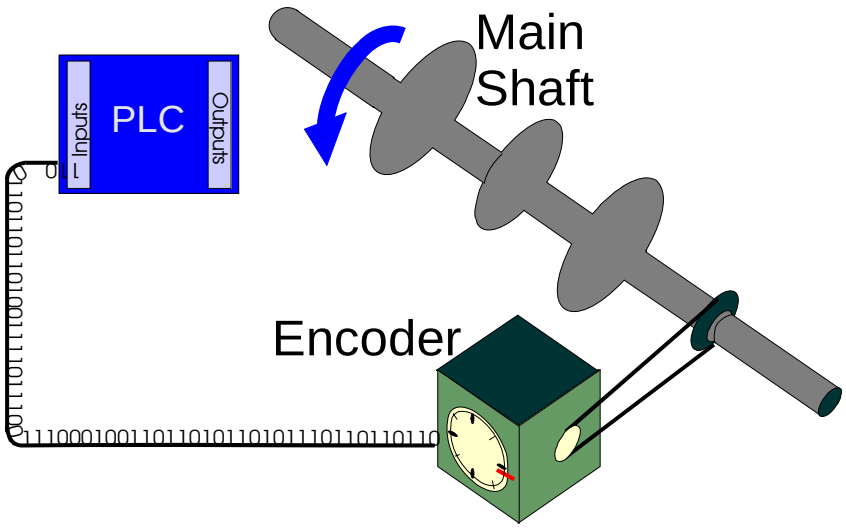

Programmable Limit Switch (PLS)

The Programmable Limit Switch, or PLS, is a 16-point output card located in the Indramat servo controller inside the electrical controls enclosure. The PLC sends settings to the PLS. The PLS controls electrical circuits based on mechanical conditions. When an object pushes the actuator, the associated electrical contact is changed (open-to-closed or closed-to-open). The PLS receives information from the servo axis. The PLS program holds the on and off settings for the various channels based on the flight position. See "Programable Logic Control (PLC)" on page 2-10 for an image of the PLS.

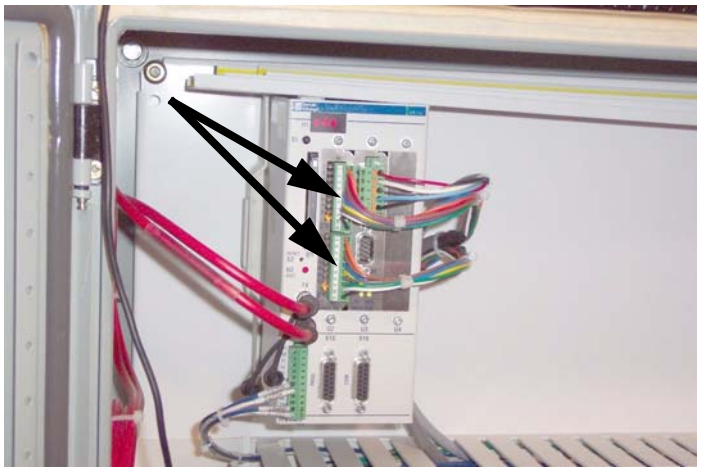

Figure 2-4: Programmable Limit Switch in Servo Controller

Solenoid Valves (SV)

In "Air Regulator and Gauge Symbols" on page 2-24, you will notice a solenoid valve which is between the air regulator and air cylinder. Solenoid valves are the output components which direct the flow of air to operate pneumatically-powered equipment such as air cylinders or clutches and brakes.

Solenoid valves are electrically operated by a signal from the programmable logic controller, or PLC. Solenoid valves contain an electromagnet and a spool. When the solenoid valve is energized, the spool moves to allow air to flow and thus move pneumatically-powered equipment such as air cylinders or clutches and brakes.

The valves require both an electric signal at its contacts and a supply of compressed air at its ports for correct operation. View the legend plate on the valve to see how the ports of that specific valve operate. For an example of a solenoid valve see Figure 2-5:"Solenoid Valve" below.

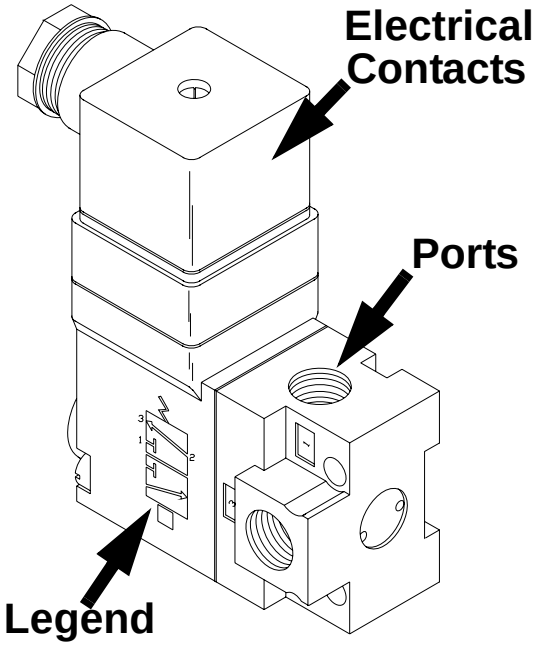

Figure 2-5: Solenoid Valve

Single Solenoid Valves

There are two different types of solenoid valves: single and double solenoid valves. Single solenoid valves are used to command a single function, like extending an air cylinder. When the solenoid is energized, the spool is moved to allow air to flow and extend the cylinder.

Once the solenoid is de-energized, a single-coil spring return valve pushes the spool back so air is cut and the cylinder returns to its original position.

See Figure 2-6: "Single Solenoid Valve on Pneumatic Drawing" on page 2-13 for an example of how a single solenoid valve looks on a pneumatic drawing.

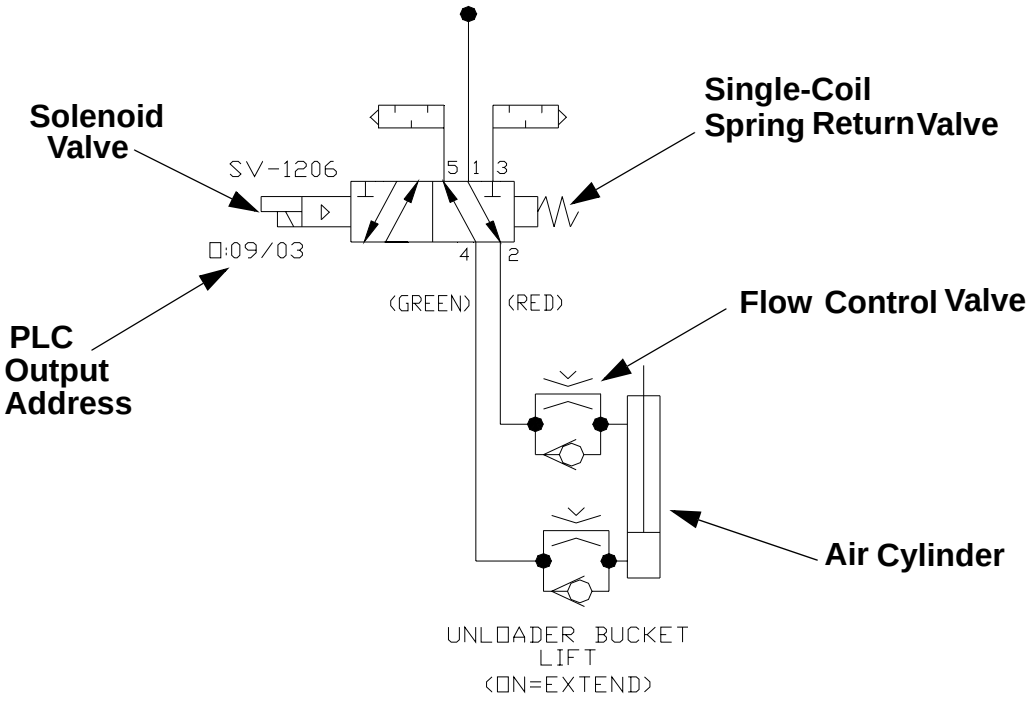

Figure 2-6: Single Solenoid Valve on Pneumatic Drawing

Double Solenoid Valves

Double solenoid valves are used to command two functions, like extending and retracting an air cylinder. When one side of the double solenoid valve is energized, the spool for that valve is moved and air flows to extend the cylinder. When that solenoid is de-energized and the other solenoid is energized, the spool for that valve is moved and air flows to retract the cylinder. See the photo below for an example of a double solenoid valve.

Figure 2-7: Double Solenoid Valve

When the machine is de-energized, both solenoids can be de-energized at the same time. However, both solenoids cannot be energized at the same time. Also, just because one solenoid is de-energized, that does not mean the other will automatically energize. Each solenoid must receive a signal from the PLC in order to energize and thus move the pneumatic device.

View Figure 2-8: ”Double Solenoid Valve on Pneumatic Drawing” on page 2-15 for an example of how a double solenoid valve appears on a pneumatic drawing.

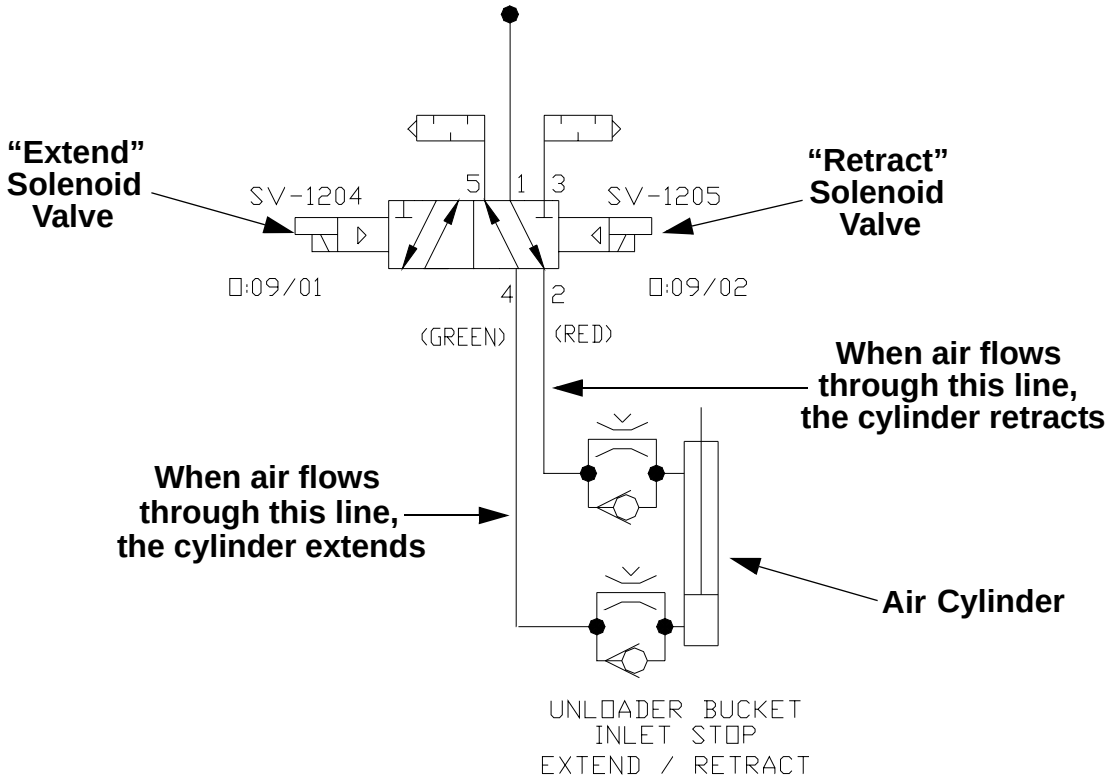

Figure 2-8: Double Solenoid Valve on Pneumatic Drawing

To find the solenoid valves on your specific machine, refer to "Finding Inputs and Outputs on Electrical Drawings" on page 2-26.

Proximity Switches (PS)

Proximity switches sense the presence of an object or react to an object's proximity without actual contact or connection. When a switch is activated by the proximity of a component (or activation device), it sends an input to the PLC. The PLC then sends a corresponding output based on its programmed set of instructions.

See "Proximity Switch" on page 2-16 below for an example of a proximity switch.

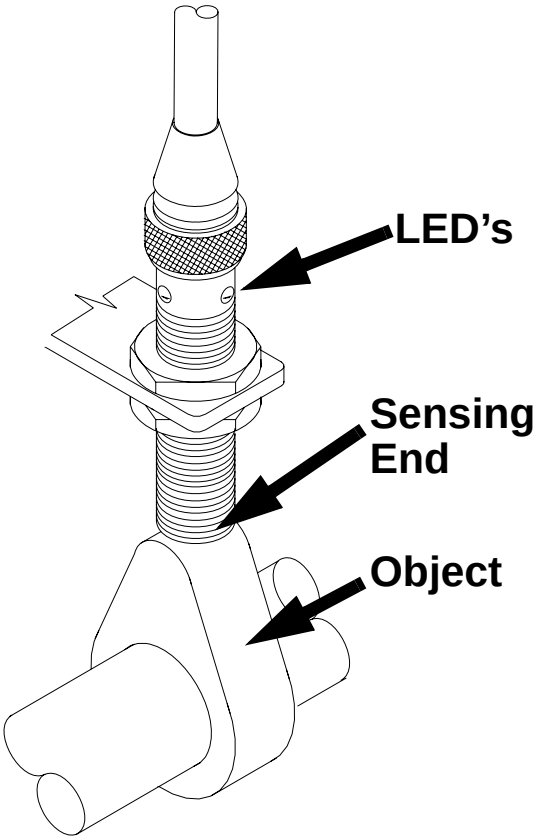

Figure 2-9: Proximity Switch

To find the proximity switches on your specific machine, refer to "Finding Inputs and Outputs on Electrical Drawings" on page 2-26.

Photoeyes (PE)

Photoeyes (also called photoelectric sensors) use light to detect objects. Information from the sensors is input to the PLC. The PLC then sends a corresponding output based on a programmed set of instructions.

All photoeyes have an emitter which sends a beam of light to another part of the photoeye called the receiver. The emitter and receiver can be on the same side of an object path, or they can be on opposite sides of a path. The paragraphs on the following pages explain the different types and styles of photoeyes on your machine.

Diffuse Photoeyes

Diffuse eyes have their emitter and receiver mounted on the same side of the object path. The emitter sends a beam of light that bounces off an object before it is received by the receiver.

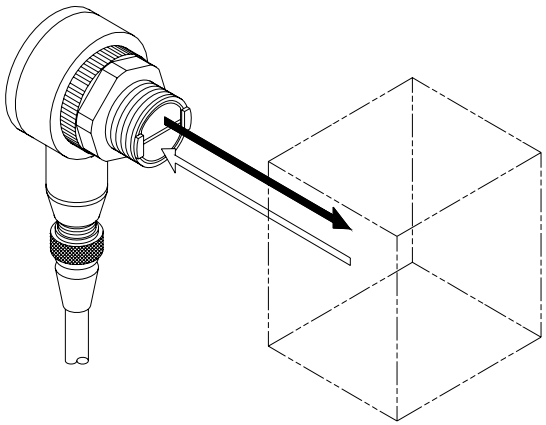

Figure 2-10: Diffuse Photoeye

Convergent Photoeyes

Convergent photoeyes have the emitter and receiver mounted on the same side of the object path. The emitter is angled and sends a beam of light that is bounced back to the receiver which is also angled. Convergent photoeyes are angled so that they are able to detect objects at specific distances.

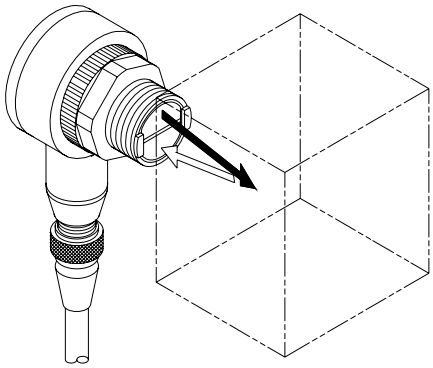

Figure 2-11: Convergent Photoeye

Retro-Reflective Photoeyes

Retro-reflective photoeyes have the emitter and receiver are mounted on the same side of the object path. The emitter sends a beam of light that is bounced back to the receiver by a reflector. When an object passes between the photoeye and the reflector, the path of the light beam is broken.

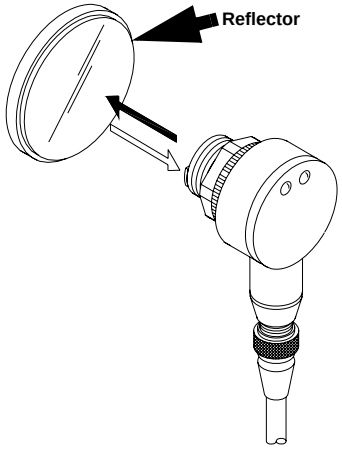

Figure 2-12: Retro-Reflective Photoeye

Bifurcated-Fiber Photoeyes

Bifurcated fiber photoeyes have fibers for the emitter and receiver bundled together so that a single cable is mounted on one side of the object path. Light is emitted and received by a single sensing tip. The cable divides before the sensor so that light is separated for the sensors emitting and receiving elements.

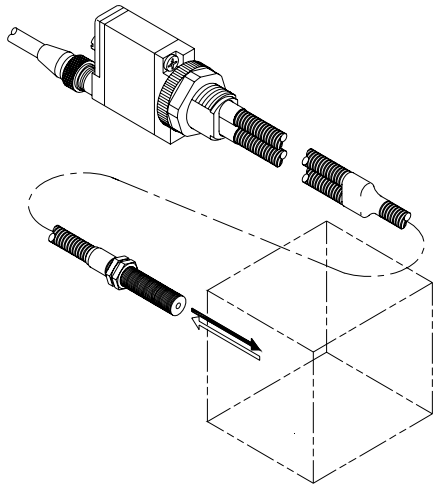

Figure 2-13: Bifurcated-Fiber Photoeye

Opposed-Fiber Photoeyes

An opposed-fiber photoeye has the fiber from the emitter mounted on one side of the object path and the fiber for the receiver mounted on the opposite side. The emitter's fiber sends a beam of light that is received by the receiver's fiber.

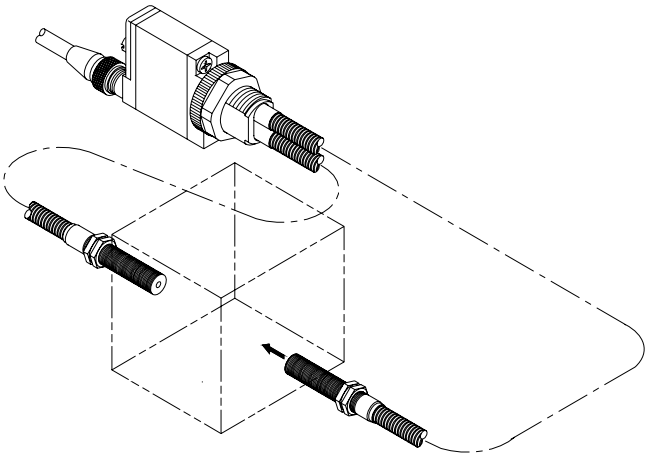

Figure 2-14: Opposed-Fiber Photoeye

Light-Operate Photoeyes

A light-operate photoeye only sends a signal to the PLC when light enters the receiver. When light is received from an emitter or reflected off of an object or reflector, the photoeye circuit is closed and a signal is sent to the PLC.

In the illustration below that light is entering the receiver of the light-operate photoeye, therefore causing the photoeye to signal the PLC. The output LED on the photoeye illuminates under this condition, indicating that a signal is being sent to the PLC.

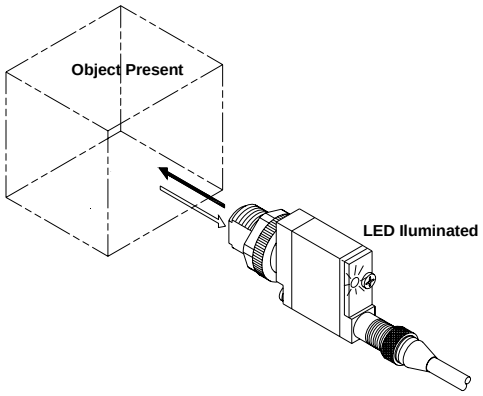

Figure 2-15: Light-Operate Photoeye

Dark-Operate Photoeyes

A dark-operate photoeye only sends a signal to the PLC when light does not enter the receiver. When light is not received from an emitter or reflected off of an object or reflector, the photoeye circuit is closed and a signal is sent to the PLC.

In the illustration below that light is not entering the receiver of the dark-operate photoeye, therefore causing the photoeye to signal the PLC. The output LED on the photoeye illuminates under this condition, indicating that a signal is being sent to the PLC.

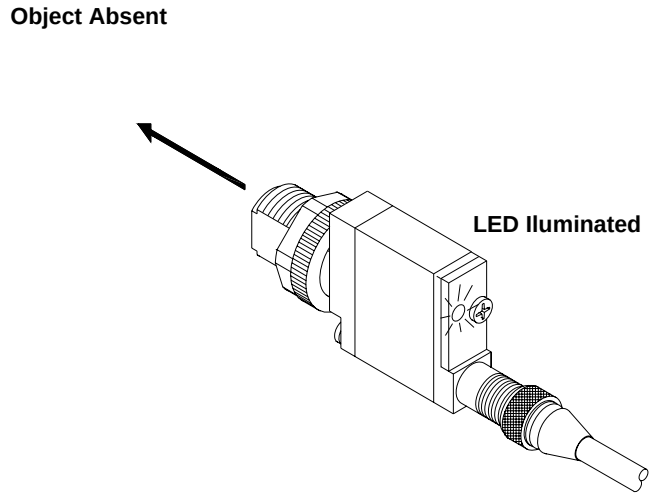

Figure 2-16: Dark-Operate Photoeye

To find the photoeyes on your specific machine, refer to "Finding Inputs and Outputs on Electrical Drawings" on page 2-26.

Limit Switches (LS)

These mechanically actuated devices function to control electrical circuits based on mechanical conditions. When an object pushes the actuator, the associated electrical contact is changed (open-to-closed or closed-to-open). See the image below for an example of a limit switch.

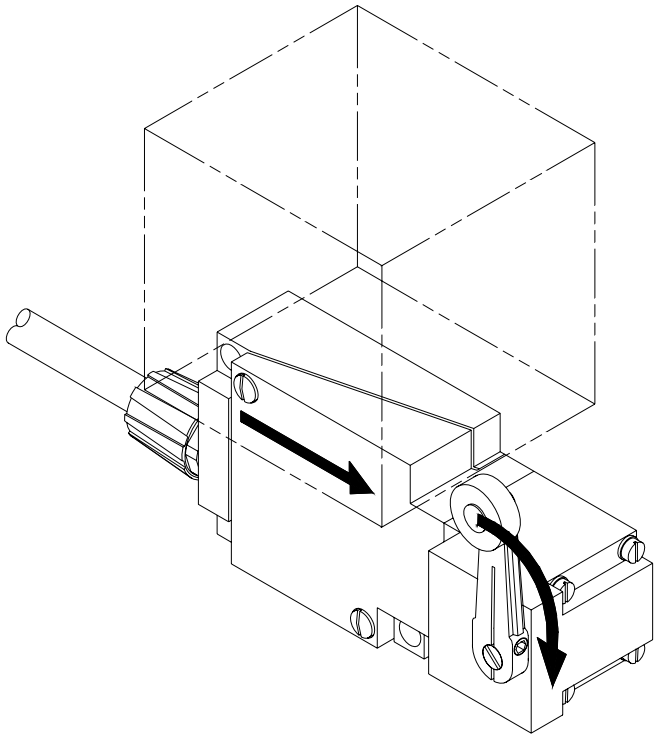

Figure 2-17: Limit Switch

Pneumatic Controls

The following pages contain information regarding the function of the pneumatic controls. Depending on the design of your machine some of the components may apply to your machine.

Air Regulators (AP)

Air regulators are installed on some pneumatic supply lines to control the air pressure to some of the machine's pneumatic devices. The regulator can be turned by hand to increase or decrease air pressure in the line. As the regulator is adjusted, the gauge will change its reading. See the figure below for an example of an air regulator and gauge.

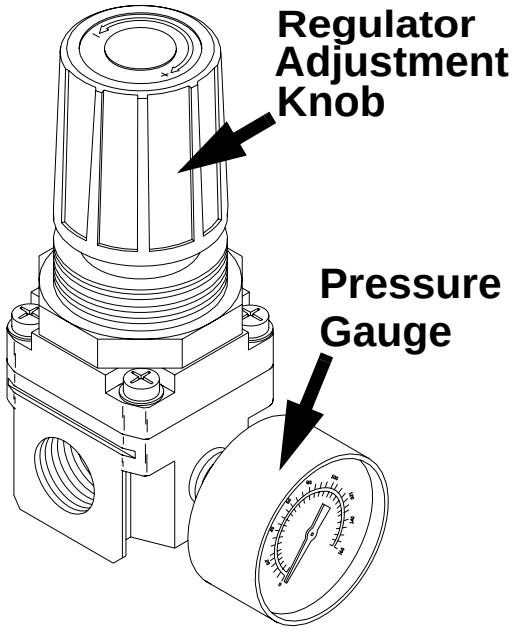

Figure 2-18: Air Regulator and Guage

To find the specific air regulator settings for your machine, refer to the pneumatic diagram in Section 12 of this manual. The pneumatic diagram can be found behind the electrical schematics (which are typically located behind the bills of material in Section 12 of this manual).

On the pneumatic diagram, an air regulator symbol is a box with a "zig zag" line attached to one side of it. (The "zig zag" line represents the knob used

to change the air pressure setting.) The other side of the box has a dotted line extending from it, which then connects to a circle. This circle represents the air regulator gauge. The air regulator number is beside these two figures and is always *AP-* followed by a number. The psi setting for the air regulator is also set next to the air regulator and gauge symbols.

Note: this setting is an approximation only and can be adjusted for optimum machine performance.

See the figure below for an example of how the air regulator and gauge appear in a pneumatic drawing.

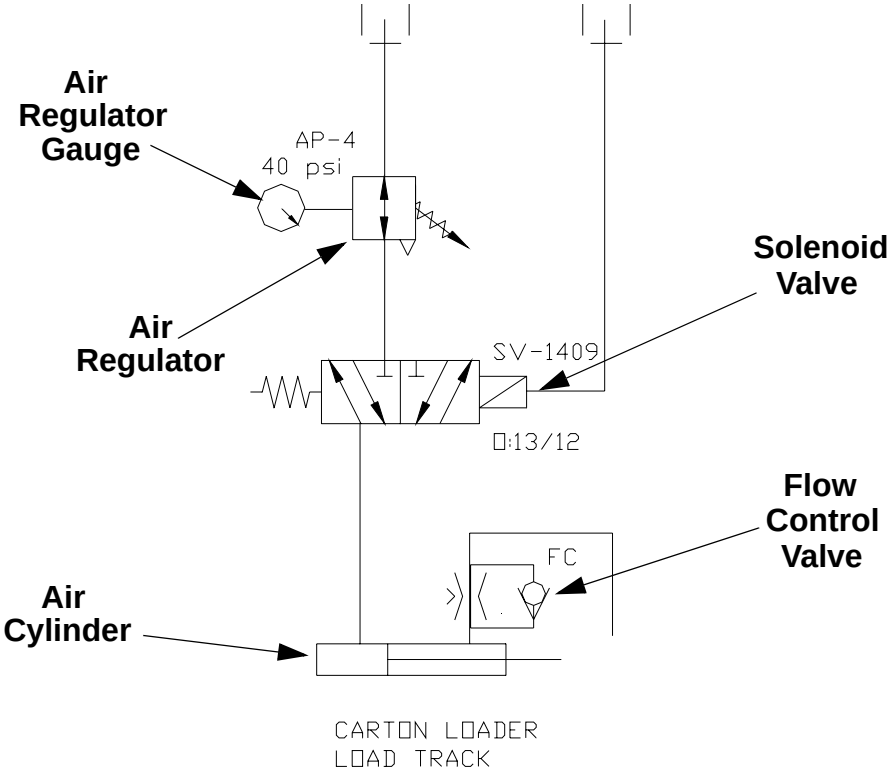

Figure 2-19: Air Regulator and Gauge Symbols

Vacuum Switches (VS)

Vacuum switches are electrical/mechanical devices that react to the presence or absence of vacuum to a solenoid valve. See the figure below for an example of a vacuum switch.

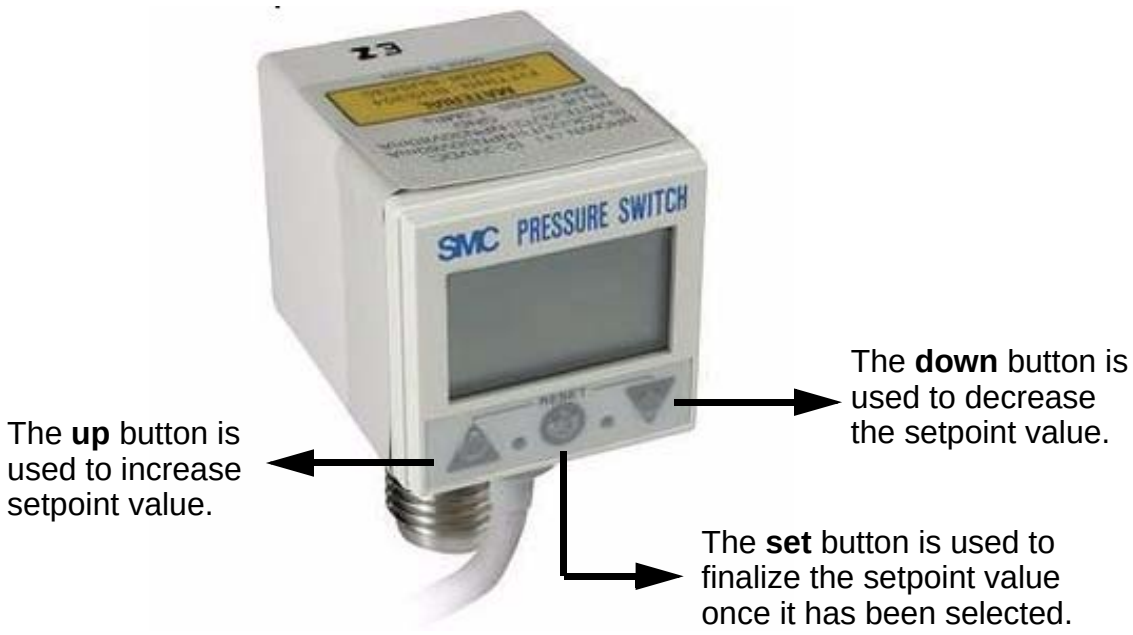

Figure 2-20: Vacuum Switch

To find the vacuum switches on your specific machine, refer to "Finding Inputs and Outputs on Electrical Drawings" on page 2-26.

Finding Inputs and Outputs on Electrical Drawings

To find the specific input and output components on your machine, first find the electrical drawings in *Section 12* of this manual. The electrical drawings are typically located behind the bills of material in *Section 12* of this manual. Once you find the electrical drawings, look at the title block located in the bottom right corner on any of the drawings. The title block contains a three-digit number followed by a dash and then a four-digit number. The first three numbers designate the type of drawing while the remaing numbers are sequence numbers. This is the electrical drawing number that is associated with the electrical bills of material. For electrical drawings, the number prefix will always be 642. For pneumatic drawings, the prefix will always be 742. See Figure 2-21:"Sample of Title Block on Electrical Drawing" below for an example of a title block on an electrical drawing.

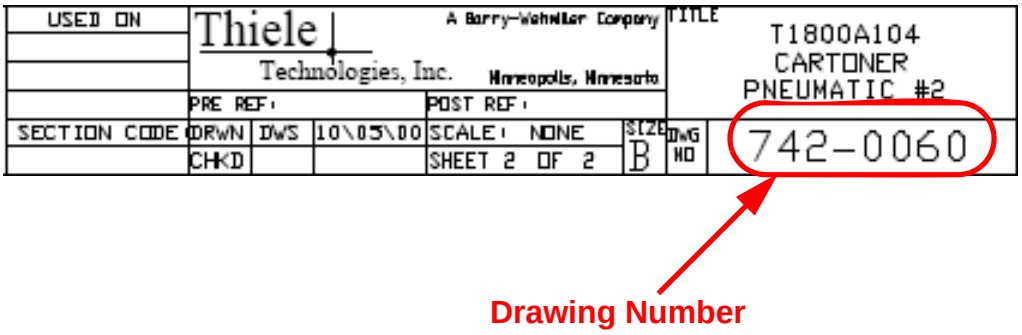

Figure 2-21: Sample of Title Block on Electrical Drawing

Using the 642 electrical drawings, turn to the very last page and you will find the location drawing. The location drawing contains an aerial view of the machine with call-outs showing the location of all the inputs and outputs. Below the drawing are listings of all the inputs and outputs located on the machine.

The inputs and outputs are all named in a specific manner. They begin with a two- or three-letter abbreviation. See Table 2-1 "Input and Output Abbreviations" on page 2-27 for input and output abbreviations.

Table 2-1 Input and Output Abbreviations

Photoeyes	PE-
Proximity Switches	PX-
Solenoid Valves	SV-
Limit Switches	LS-
Vacuum Switches	VS-
Pressure Switches	PRS-

The letter abbreviations are followed by a dash and then either a three- or four-digit number. The first number (can be one or two digits) shows what page the component is located on. The next number (must be two digits) calls out the line on that page. For example, if you are looking for PE-804, you will first look on page 8, and then look for line 4.

Once you have found the page and line of your component, you can then find that component's PLC address. Look directly below the line that the input or output name is written on. If you are looking at an input, the address will be to the right of the name; if you are looking at an output, the address will be to the left of the name.

The addresses all have the same composition. For inputs, the addresses begin with the letter "I" and outputs begin with the letter "O". The letter is followed by a colon, then a set of numbers followed by a slash mark and another set of numbers. The first set of numbers (before the slash) represents the PLC chassis slot. The second set of numbers represents the bit of that slot. See the figure below to view an example of solenoidb valves on an electrical schematic.

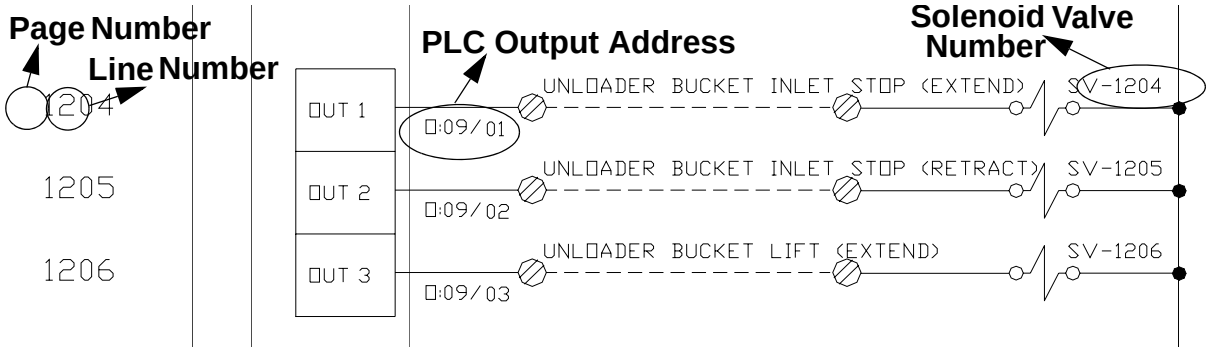

Figure 2-3: Solenoid Valves on an Electrical Schematic

Section 3

INSTALLATION INSTRUCTIONS

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SECTION 3

INSTALLATION INSTRUCTIONS

Overview

This chapter contains maintenance information necessary to safely unpack and install the Model ZB20A Wraparound Case Packer. Before unpacking the machine, personnel involved in unpacking and installing the machine must have knowledge and experience working with electromechanical assemblies and components. Personnel should read and understand all safety procedures as described in "Safety First", Section 1 as well as be knowledgable of the their company's safety procedures.

WARNING

Thiele equipment is manufactured to meet the product/safety regulations of the industrial packaging equipment industry. However, THIS EQUIPMENT CAN BE DANGEROUS if not operated or maintained properly. Equipment installation, operation, and maintenance of a safe operating environment are the responsibilities of *the customer*.

The following will be discussed in this chapter:

Machine Delivery

Before delivery to your facility, this equipment was inspected and approved for shipment by Thiele's Service Manager and/or Project Engineer.

After check-out, the system is disassembled into separate modules for shipment. All electrical runs and air lines are broken at strategic points to ease installation. Each module is ready to put into place and hook up to the other modules.

Many precautions are taken to make sure the equipment reaches your facility in the same approved condition, but occasionally damage may occur during the shipping process.

- When the machine arrives, inspect the entire shipment for damage. If there is damage, photograph the areas for verification and immediately file a claim with the carrier.
- If a claim is to be filed, make sure you save all original packing and crating materials.
- Notify Thiele of any damage or loss claims you may file so that we may help you in every possible way.

WARNING

Do not attempt to operate equipment suspected of damage. Operation of damaged equipment can result in serious personal injury.

Preparing the Site

All machine modules must be installed on a clean, flat and level floor.

Tools needed for installing the machine modules include:

- Forklift with a minimum capacity of 5000 pounds (2268 Kg)
- Set of standard American size socket wrenches and open end wrenches or box wrenches 1/4 inch - 1 1/4 inch
- laser-leveling device or standard bubble-type level
- plumb bob and plumb line
- chalkline for laying out centerlines
- steel shims for leveling modules as needed
- *General Arrangement* drawing, *Electrical Schematic* drawing and *Pneumatic Schematic* drawing. These are in the “Assembly Drawings & Control Prints” section (Section 12) of this manual.
- lag bolts for securing each component to the floor (typically use 1/2 in. dia. bolts)
- electric drill and masonry bit for drilling lag bolt holes

Follow the guidelines below to prepare the site for installing the machine modules.

1. Be sure the installation area is clean, flat and level. All modules of the machine must be installed plumb and level.
2. Transfer all the centerlines shown on the *General Arrangement* drawing onto the floor via chalklines or other method.
3. Double check that each chalkline and layout line is correct per the *General Arrangement* drawing **before** placing a equipment on the floor.

Unpacking the Equipment

Before removing the equipment from its crate, thoroughly inspect for evidence of damage to the crate, loose or damaged electrical wires and/or connections, and chain damage. If shipping damage is evident or suspected, immediately contact the transporter involved. If a claim is to be filed, make sure you save all original packing and crating materials. Notify Thiele of any damage or loss claims you may file so that we may help you in every possible way.

Transfer the equipment on its shipping skids to the final operating site before unpacking. No special instructions are required for uncrating the equipment; simply use care and common sense.

After uncrating, remove the shipping leg retainers and use a forklift to lift the sections to the appropriate placement position.

Equipment Setup

WARNING

Use only certified rigging, lifting, and support techniques to move this equipment. Much of this equipment is top-heavy and/or is an overhung load which can cause severe injury or death if it falls.

You can assemble and install the whole system by following the appropriate *General Arrangement* drawing, *Electrical Schematic* drawing and *Pneumatic Schematic* drawing. These are in the “Assembly Drawings & Bills of Material” section (Section 12) of this manual.

1. Position the main section of the case packer at the infeed of your machine if required.
2. Raise/lower the main section of the machine to the correct height by adjusting the nuts on the leveling legs. Place a level across the bottom rail on each side of the machine to make sure the main section is properly leveled.
3. Bolt the main section of the case packer to the equipment as needed.
4. Use a qualified electrician to complete the pneumatic and electrical connections on the placer.
   a. For information on electrical setup see “Electrical Requirements” on page 3- 6.
   b. For information on pneumatic setup see “Air Requirements” on page 3- 7.
5. Have a qualified electrician connect the equipment to the designated power source. Note that the main disconnect is located in the main electrical enclosure.
6. Connect all air/vacuum lines.
7. Refer to the “Air Requirements” in this section for setting the air regulators and air lubricator to the appropriate settings.
8. Raise or lower the equipment to the correct height by adjusting the nuts on the leveling legs.

Electrical Requirements

The electrical schematics provided with this manual show power requirements, control logic and electrical enclosure layouts for the electrical system. Electrical requirements are engraved on the machine nameplate. Be sure all electrical connections have been made per the appropriate Electrical Schematic.

WARNING

Electrical service must be provided by the customer. Use a qualified electrician for making all electrical connections.

Color Code

The electrical color code used on the machine is as follows:

Table 3-1: Electrical Color Codes

RED	AC control circuits except grounded conductor
BLUE	DC control circuits
WHITE	Grounded current carrying conductor
GREEN	Grounded non-current carrying conductor
YELLOW	Special control cicuits and interlock circuits energized from an external power source
ORANGE	Guard door wiring
BLACK	Line and load circuits at line voltage and control circuits at line voltage if some AC control circuits operate at a different voltage
WHITE/BLUE	DC common

Air Requirements

CAUTION

Take care to supply CLEAN, dry air to the system. Allowing dirt or other contaminants into the air system may cause damage to system components.

The recommended air intake supply for the system is 60-80 psi minimum. Thiele recommends using a 1/2-inch supply line. A manually operated air valve and air filter are furnished. The main air valve (MOV) is controlled by a manually operated switch. The MOV is used to turn off the main air supply to the machine.

A lubricator is installed on the air line to supply lubricated air to the air cylinder. The lubricator should be set to release one drop of oil approximately every 20 minutes. It is essential that the lubrication reservoir be kept full.

Regulators are provided on the line to some pneumatic components. Optimum regulator settings are best determined by experienced personnel in a production environment. Refer to the Pneumatic Diagram provided for suggested air regulator settings.

Inspection and Checkout

Although the machine has been thoroughly tested before shipping, it needs to be checked out to verify that it runs properly after initial installation. Follow the guidelines below to check that the machine is ready for normal operation.

WARNING

Do not attempt to operate damaged equipment or serious personal injury could result.

Assembly

1. Check that all the proximity switches, photoeyes, and limit switches are properly aligned with the product.
2. Be sure all air and electrical lines are clear of any moving parts.
3. Check miscellaneous nuts, bolts, and screws to make sure they are tight.
4. Be sure all sensors are clear of moving parts.
5. Be sure mounting brackets are tightly fastened.
6. Be sure all modules are aligned and level.
7. Be sure that adjustments are made for the size product being run.

Pneumatic

1. Be sure all electrical connections have been made per the appropriate Pneumatic Schematic. For information on pneumatic setup see “Air Requirements” on page 3- 7.
2. Be sure the machine has a supply of clean, dry air of at least 60 psi.
3. Be sure the air regulator is set to 60 psi.
4. Check that all air lines are open and leak-free.
    a. Clean out any blocked line as required.
    b. Tighten any loose connection as required.
5. Check that all the air cylinders are properly adjusted. The rod end of the cylinder can be removed and adjusted to align with the part that it is attached to.
6. Check all newly installed pneumatic lines for leaks.

Electrical

1. Be sure all electrical connections have been made per the appropriate Electrical Schematic. For information on electrical setup see “Electrical Requirements” on page 3- 6.
2. Be sure all electrical interlocks work properly.

SECTION 4

ADJUSTMENTS & CHANGEOVER

Section 5

HOW TO OPERATE THE MACHINE

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SECTION 5

HOW TO OPERATE THE MACHINE

Overview

The casepacker system includes a software-controlled touchscreen/display panel mounted near the machine's infeed section. The touchscreen/display panel is the primary operator's control station. It has menu screens and keys for operating and monitoring the machine. Also, the touchscreen/ display panel displays status messages, fault messages and history data.

In this section, the following will be discussed

- operator station controls
- touchscreen displays
- sequence of operation
- operating instructions

Please read this section carefully and take the time to familiarize yourself with the controls and functions of the machine. Also, follow the instructions as they are written; do not deviate from the steps as they are written.

Operator’s Control Station

You can control and monitor the machine by using the menus and touch-sensitive keys on the touchscreen/display panel operator’s control station. The touchscreen/display panel lets you perform the following major functions:

- power up the machine
- power off the machine
- emergency stop all machine functions
- acknowledge faults and informational messages

See ”Operator’s Control Station” on page 5-2 for a sketch of the operator’s control station.

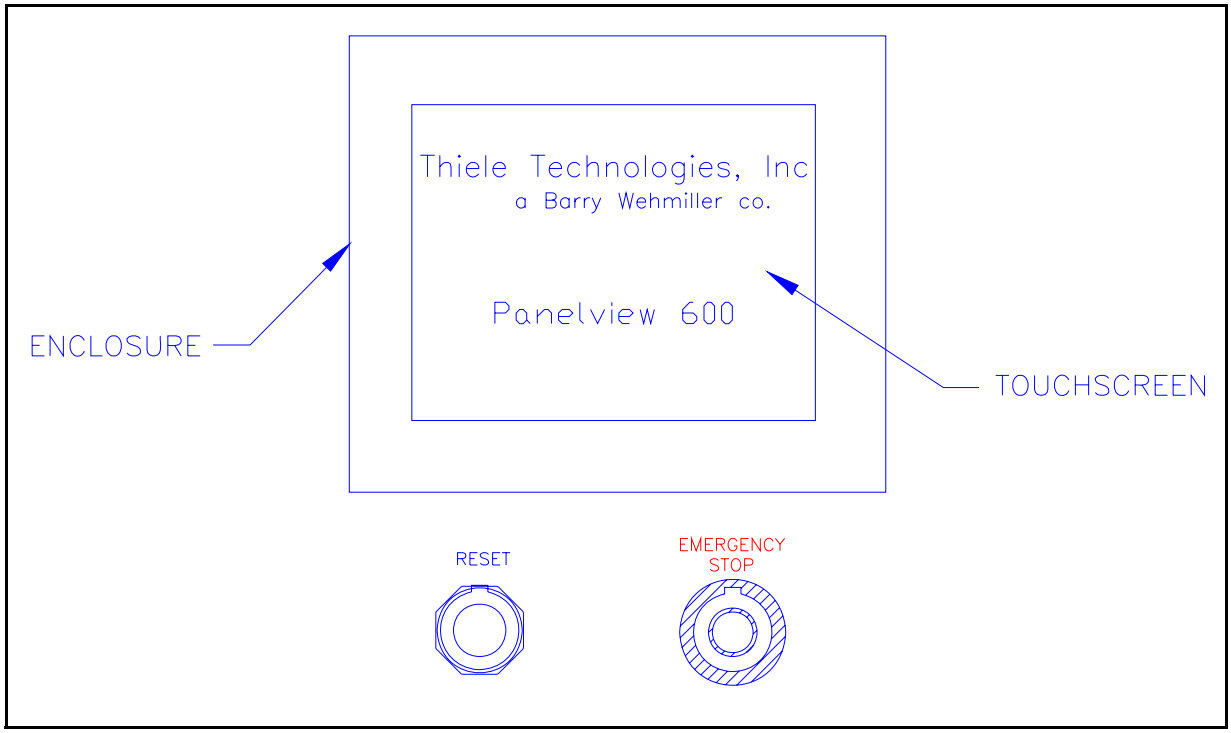


Figure 5-1 Operator’s Control Station

Operator’s Control Station Buttons

The operator’s control station has two push-buttons along the bottom. See Table 1: ”Operator’s Control Station Buttons” for a description of each push-button. Know the function of each push-button before operating the machine.

Table 1: Operator’s Control Station Buttons

Switch Label	Switch Type	Switch Function
RESET	Push-button	Pressing the RESET button turns resets the machine faults.
EMERGENCY STOP	Push-pull button	Pushing in the EMERGENCY STOP button immediately cuts off all electrical power to machine. All motion stops. Pulling the EMERGENCY STOP button out makes the machine operable again. However, it does not start or initiate any power or movement. See the “Emergency Stopping” on page 5-97 for detailed procedures for emergency shutdowns.

Touchscreen Displays

You can select and change product programs as well as control and monitor the machine via the keys on the touchscreen panel.

CAUTION!

Use care when touching keys on the touchscreen. Applying too much pressure to the screen may damage the display.

Before You Begin

Before operating the machine, familiarize yourself with the following information.

- Know the function of the push-buttons, menu screens and keys on the touchscreen before powering up the machine. See the “Operator’s Control Station Buttons” on page 5-3 for a description of the operator’s control station and the push-buttons.
- The screens on the machine may differ slightly from the ones in the manual.
- The screens are shown with all available touchpads. Some touchpads only appear when a specific action occurs. Other touchpads are available only if certain options are installed.

Controlling Machine Functions through Touchscreen Displays

You can perform the following functions from the machine operator's control station:

- power the machine on and off
- read fault and status messages on the message display window
- select a program that product presets
- manually jog the machine
- acknowledge, silence and reset faults
- emergency stop all machine functions

Quick Reference Guide

The following is a quick reference table listing the touchscreens that are available. Refer to the screen to see further information about it's function, location, and touchscreen keys.

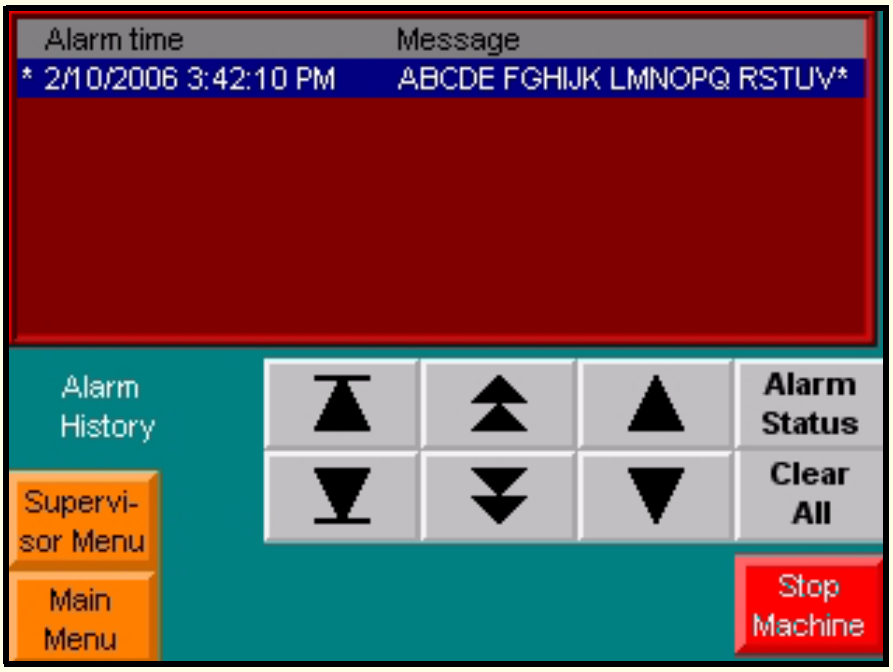
Screen	Function	Page
Alarm History	This screen is used to show all the alarms and status messges that were displayed for the current run. It also shows the date, time, and alarm number for each message.	5-8
Alarm Status	This screen displays the machine faults and the number of times each fault has occured.	5-10
Configuration Mode	This screen is used to access internal features of the touchscreen such as brightness or color intensity.	5-11
Copy Product Recipe	This screen isused to copy product recipes and save them as new recipes.	5-12
Cycle Rate	This screen displays general machine performance concerning key areas.	5-13
Edit Product Name	This screen is used to change the descriptive name of a product.	5-14
Edit Recipe List	This list is used to select the edit product recipe screen.	5-15
Edit Product Recipe	This screen allows the operator to view, change and save preset parameters for a specific product recipe. There are nine screens available.	5-17
Jog	This screen allows the user to manually operate certain machine functions. This screen is used for maintenance or troubleshooting purposes.	5-37
Main Menu	This screen is used to access all other main display screens. It appears as soon as the machine starts.	5-36
Maintenance Menu	This screen allows the operator to access other screens that are used for maintenance puposes.	5-39

Screen	Function (Continued)	Page
Manual Function	This screen allows the operator to manually enable and disable certain functions on the machine.	5-41
Run	This screen is used to control the machine operations.	5-44
Select Product	This screen allows the user to select a product recipe to run.	5-46
Setup Timer and Counter	This screen allows the operator to setup the machine's timers and counters.	5-47
Supervisor Menu Login	This screen is used to enter the *Supervisor Menu Screen.* A user name and password must be entered.	5-49
Supervisor Menu	This is a password protected screen that allows the user to view and edit machine functions.	5-50
Time and Date Setup	This screen allows the user to view and change the system time and date.	5-52

Touchscreens

The following touchscreens are used to control and monitor machine operation as well as identify machine error conditions.

Alarm History Screen
This screen is used to show all the alarms and status messges that were displayed for the current run. It also shows the date, time, and alarm number for each message. This screen can be accessed from the *Supervisor Menu Screen* and *Maintenance Menu Screen.*



Alarm History Screen Keys

Up Icons Pressing this key highlights the fault listed above the current fault.

Down Icons Pressing this key highlights the fault listed below the current fault.

Clear All Pressing this key clears the list of faults in the alarm history.

Alarm Status Pressing this key will take the user to the *Alarm Status Screen*. This screen displays the machine faults and the number of times each fault has occured.

Alarm History Screen Keys (Continued)

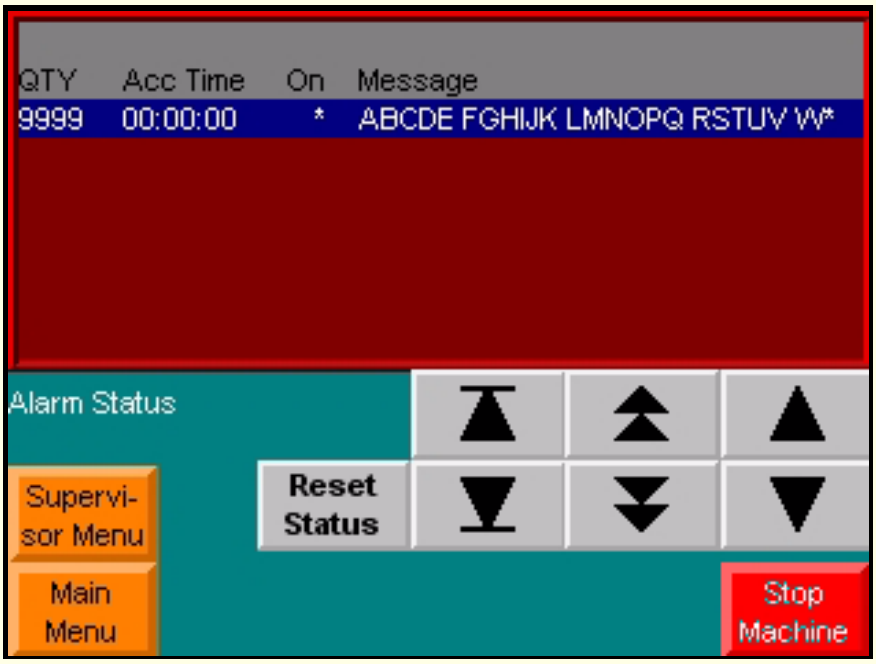
Supervisor Menu Pressing this key will take the user to the *Supervisor Menu Screen*. This is a password protected screen that allows the user to view and edit machine functions.

Main Menu Pressing this key will take the user to the *Main Menu Screen*. This screen is used to access all other main display screens.

Stop Machine Pressing this key will stop the machine's current cycle run.

Alarm Status Screen

This screen displays the machine faults and the number of times each fault has occured. This screen can be accessed from the *Alarm History Screen* and the *Supervisor Menu Screen.*



Alarm Status Screen Keys

Up Icons Pressing this key highlights the fault listed above the current fault.

Down Icons Pressing this key highlights the fault listed below the current fault.

Main Menu Pressing this key will take the user to the *Main Menu Screen*. This screen is used to access all other main display screens.

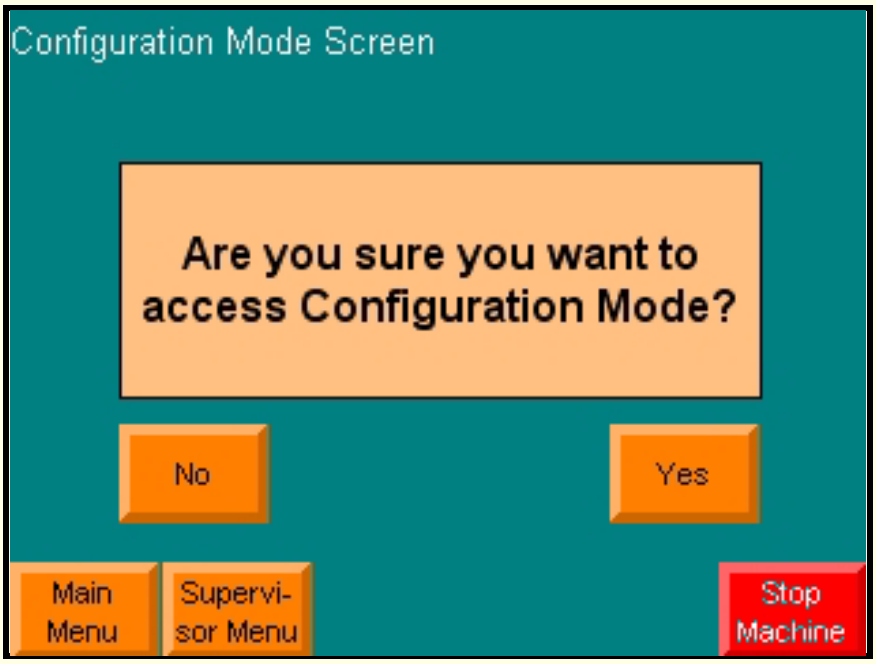
Supervisor Menu Pressing this key will take the user to the *Supervisor Menu Screen*. This is a password protected screen that allows the user to view and edit machine functions.

Reset Status Pressing this key wil delete all the faults listed from the screen.

Stop Machine Pressing this key will stop the machine's current cycle run.

Configuration Mode Screen

This screen is used to access internal features of the touchscreen. This screen should only be used by a qualified service technician. This screen can be accessed from the *Supervisor Menu Screen.*



Configuration Mode Screen Keys

Configuration Mode Entry — This screen asks you whether or not you would like to enter the configuration mode. If you press **YES**, you will be taken to a configuration screen.

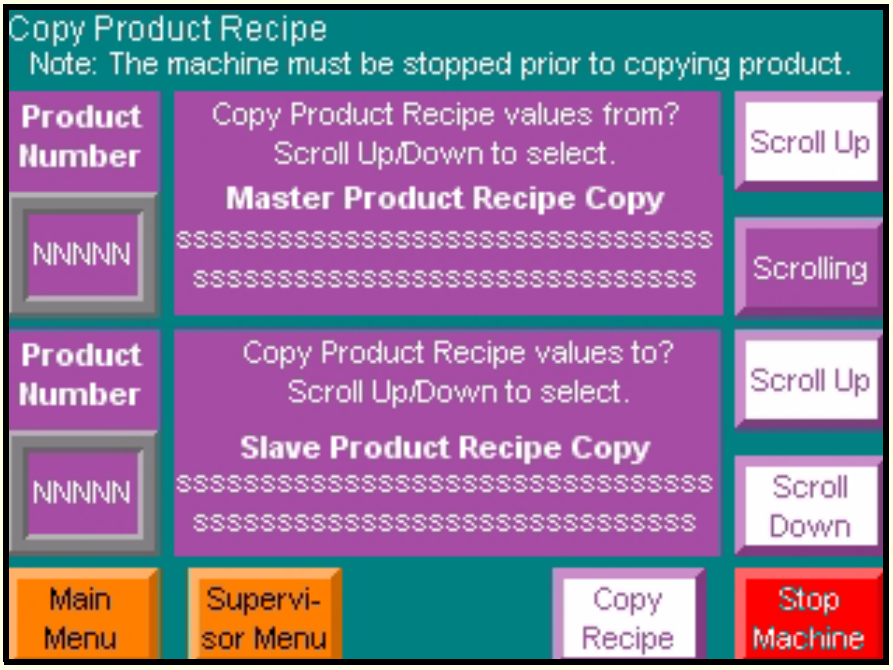
Supervisor Menu — Pressing this key will take the user to the *Supervisor Menu Screen*. This is a password protected screen that allows the user to view and edit machine functions.

Go to Main Menu — Pressing this key will take the user to the *Main Menu Screen*. This screen is used to access all other main display screens.

Stop Machine — Pressing this key will stop the machine's current cycle run.

Copy Product Recipe Screen

This screen isused to copy product recipes and save them as new recipes. This screen can be accessed from the *Supervisor Menu Screen.*



Copy Product Recipe Screen Keys

Copy Product From — This screen displays the recipe that will be copied. Press the scroll up or scroll down keys to select the recipe you would like to copy.

Copy Product To — This screen displays the recipe that will receive the copied changes. Press the scroll up or scroll down keys to select the recipe you would like to change.

Product Number — This screen displays the number of the product on screen.

Main Menu — Pressing this key will take the user to the *Main Menu Screen*. This screen is used to access all other main display screens.

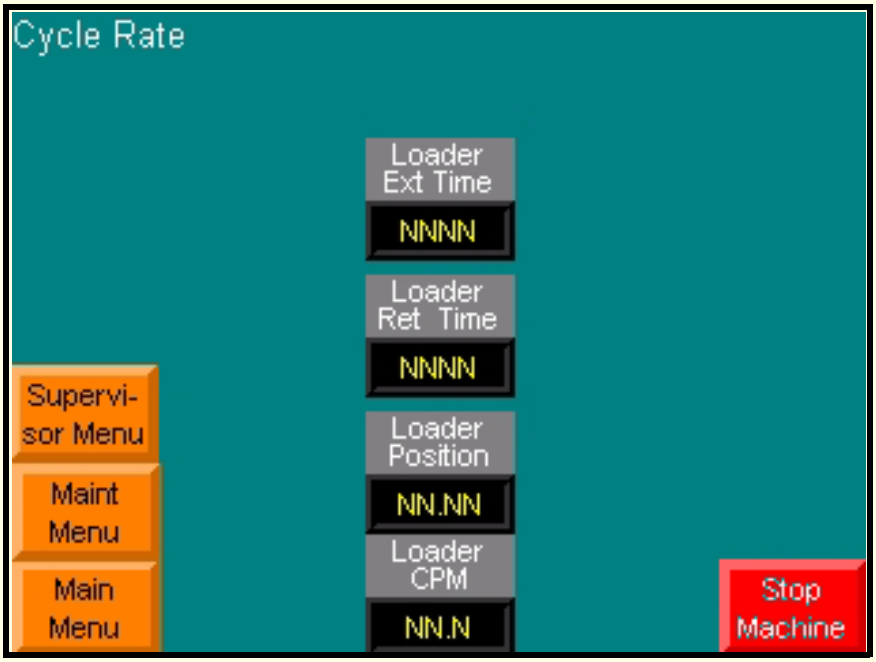
Supervisor Menu — Pressing this key will take the user to the *Supervisor Menu Screen*. This is a password protected screen that allows the user to view and edit machine functions.

Copy Recipe — Pressing this key will bring up a screen which will allow the user to copy the recipe of an existing recipe to be used for creating a new recipe.

Stop Machine — Pressing this key will stop the machine's current cycle run.

Cycle Rate Screen

This screen displays general machine performance concerning key areas. This screen can be accessed from the *Maintenance Menu Screen.*



Cycle Rate Screen Keys

Loader Ext Time Displays the loader extend time.

Loader Ret Time Displays the loader retract time.

Loader Position Displays the loader position in inches.

Loader CPM Displays the number of cases that are being loaded per minute.

Supervisor Menu Pressing this key will take the user to the *Supervisor Menu Screen*. This is a password protected screen that allows the user to view and edit machine functions.

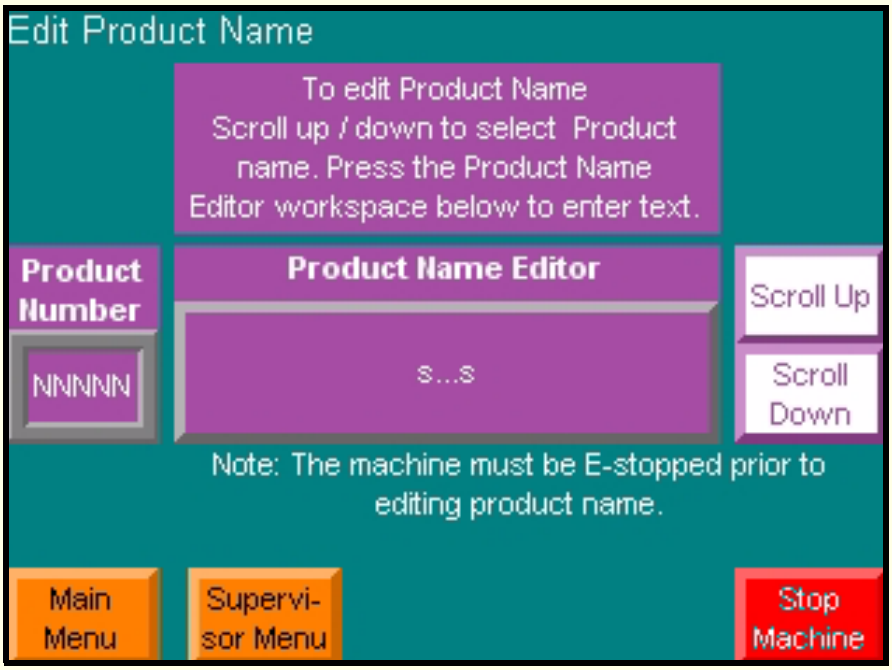
Main Menu Pressing this key will take the user to the *Main Menu Screen*. This screen is used to access all other main display screens.

Maintenance Menu Pressing this key will take the user to the *Maintenance Menu Screen*. This screen allows the operator to access other screens that are used for maintenance puposes.

Stop Machine Pressing this key will stop the machine's current cycle run.

Edit Product Name Screen

This screen is used to change the descriptive name of a product. This screen can be access from the *Supervisor Main Menu Screen*.



Edit Product Name Screen Keys

Product Name Editor This screen displays the product recipe name to be edited. Press the scroll up or scroll down keys to select the recipe you would like to edit.

Product Number This screen displays the number of the product on screen.

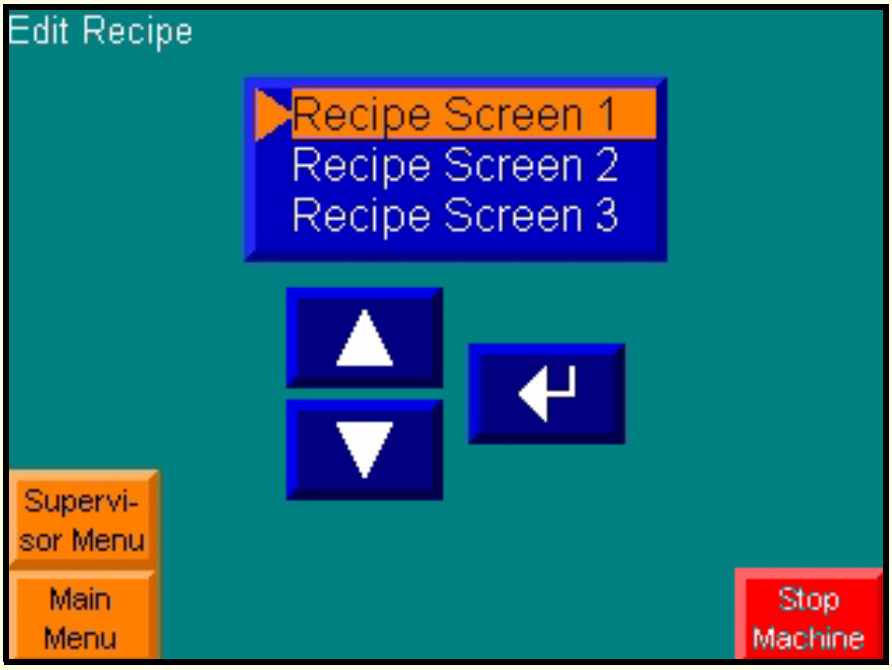
Main Menu Pressing this key will take the user to the *Main Menu Screen*. This screen is used to access all other main display screens.

Supervisor Menu Pressing this key will take the user to the *Supervisor Menu Screen*. This is a password protected screen that allows the user to view and edit machine functions.

Stop Machine Pressing this key will stop the machine's current cycle run.

Edit Recipe List Screen

This screen allows the operator to view, change and save preset parameters for a specific product recipe. There are four screens in total. This screen can be accessed through the *Edit Product Recipe Screens* and the *Supervisor Screen*.



Edit Recipe List Screen Keys

Recipe Screen List This screen displays the recipe screens available.

Screen #	Items
1	1-9
2	10-18
3	19 -27
4	28-34
5	35-41
6	42-48
7	49-55
8	56-62
9	63-64

Up Arrow Press this key to scroll up the menu.

Edit Recipe List Screen Keys (Continued)

Down Arrow	Press this key to scroll down the menu.
Enter Key	Once you have selected a recipe screen, press the **ENTER** key.
Main Menu	Pressing this key will take the user to the *Main Menu Screen*. This screen is used to access all other main display screens.
Supervisor Menu	Pressing this key will take the user to the *Supervisor Menu Screen*. This is a password protected screen that allows the user to view and edit machine functions.
Stop Machine	Pressing this key will stop the machine's current cycle run.

Edit Product Recipe #1 Screen (Recipe Items 1-9)

This screen allows the operator to view, change and save preset parameters for a specific product recipe. There are four screens in total. This screen can be accessed through the *Edit Product Recipe List Screen*. You can also access the other *Edit Product Recipe Screens* using the **PREV REC SCREEN** key or the **NEXT REC SCREEN** key. These keys can be found on any of the *Edit Product Recipe Screens.*

Acronyms

Accel Acceleration
Decel Deceleration
Dist Distance
Vel Velocity

Edit Product Recipe Screen #1 Keys

Recipe Item 1 This is a spare key.

Recipe Item 2 Pressing this key allows the user to change the speed of the infeed conveyor. The speed is measured in hertz.

Recipe Item 3 Pressing this key allows the user to change the temperature of the seal bar. The degree is measured in farenheit.

Edit Product Recipe Screen #1 Keys (Continued)

Recipe Item 4 Pressing this key allows the user to change the temperature of the oven heat. The degree is measured in farenheit.

Recipe Item 5 Pressing this key allows the user to change the speed of the oven conveyor. The speed is measured in hertz.

Recipe Item 6 Pressing this key allows the user to change the speed of the oven fan. The speed is measured in hertz.

Recipe Item 7 This is a spare key.

Recipe Item 8 This is a spare key.

Recipe Item 9 This is a spare key.

Previous Rec Screen Pressing this key will take the user to the previous screen in the list.

Next Rec Screen Pressing this key will take the user to the next recipe screen in the list.

Edit Recipe Pressing this key will take the user to the *Edit Recipe List Screen.* This list is used to select the edit product recipe screen.

Main Menu Pressing this key will take the user to the *Main Menu Screen*. This screen is used to access all other main display screens.

Supervisor Menu Pressing this key will take the user to the *Supervisor Menu Screen*. This is a password protected screen that allows the user to view and edit machine functions.

Save Changes Pressing this key will allow the user to save the changes made to the recipe.

Cancel Changes Pressing this key will allow the user to cancel the changes made to the recipe *before* the **SAVE CHANGES** key is pressed.

***Note**: Once the **SAVE CHANGES** key has been pressed, you cannot undo your changes by pressing the **CANCEL CHANGES** key.*

Stop Machine Pressing this key will stop the machine's current cycle run.

Edit Product Recipe #2 Screen (Recipe Items 10-18)

This screen allows the operator to view, change and save preset parameters for a specific product recipe. There are four screens in total. This screen can be accessed through the *Edit Product Recipe List Screen*. You can also access the other *Edit Product Recipe Screens* using the **PREV REC SCREEN** key or the **NEXT REC SCREEN** key. These keys can be found on any of the *Edit Product Recipe Screens.*

Acronyms

Accel Acceleration
Decel Deceleration
Dist Distance
Vel Velocity

Edit Product Recipe Screen #2 Keys

Recipe Item 10 Pressing this key allows the user to change the seal bar overtemp time. The seal bar overtemp controls the duration of time that the seal bar can run over temperature before the machine is shut down. The time is measured in seconds.

Edit Product Recipe Screen #2 Keys (Continued)

Recipe Item 11 Pressing this key allows the user to change the amount of time that the seal bar stays down before raising up again. The time is measured in seconds.

Recipe Item 12 Pressing this key allows the user to change the set allowance of space between bottles before the photoeye considers a bottle to be tipped over. The length of space is measured in seconds.

Recipe Item 13 Pressing this key allows the user to change the raise lift delay time of the loader lift. This time is measured in seconds.

Recipe Item 14 Pressing this key allows the user to control amount of time the loader is extended before it begins to retract. This time is measured in seconds.

Recipe Item 15 Pressing this key allows the user to control the amount of time that the pop-up is down. This time is measured in seconds.

Recipe Item 16 Pressing this key allows the user to bypass the tipped product sensor for a preset amount of time so that product can be loaded into the machine. This time is measured in seconds.

Recipe Item 17 Pressing this key allows the user to define how long a product can remain in high surge before the sensor senses a backup of product. This time is measured in seconds.

Recipe Item 18 Pressing this key allows the user to define the amount of product that is loaded for a preset amount of time. This time is measured in seconds.

Previous Rec Screen Pressing this key will take the user to the previous screen in the list.

Next Rec Screen Pressing this key will take the user to the next recipe screen in the list.

Edit Recipe Pressing this key will take the user to the *Edit Recipe List Screen.* This list is used to select the edit product recipe screen.

Main Menu Pressing this key will take the user to the *Main Menu Screen*. This screen is used to access all other main display screens.

Supervisor Menu Pressing this key will take the user to the *Supervisor Menu Screen*. This is a password protected screen that allows the user to view and edit machine functions.

Save Changes Pressing this key will allow the user to save the changes made to the recipe.

Edit Product Recipe Screen #2 Keys (Continued)

Cancel Changes Pressing this key will allow the user to cancel the changes made to the recipe *before* the **SAVE CHANGES** key is pressed.

***Note**: Once the **SAVE CHANGES** key has been pressed, you cannot undo your changes by pressing the **CANCEL CHANGES** key.*

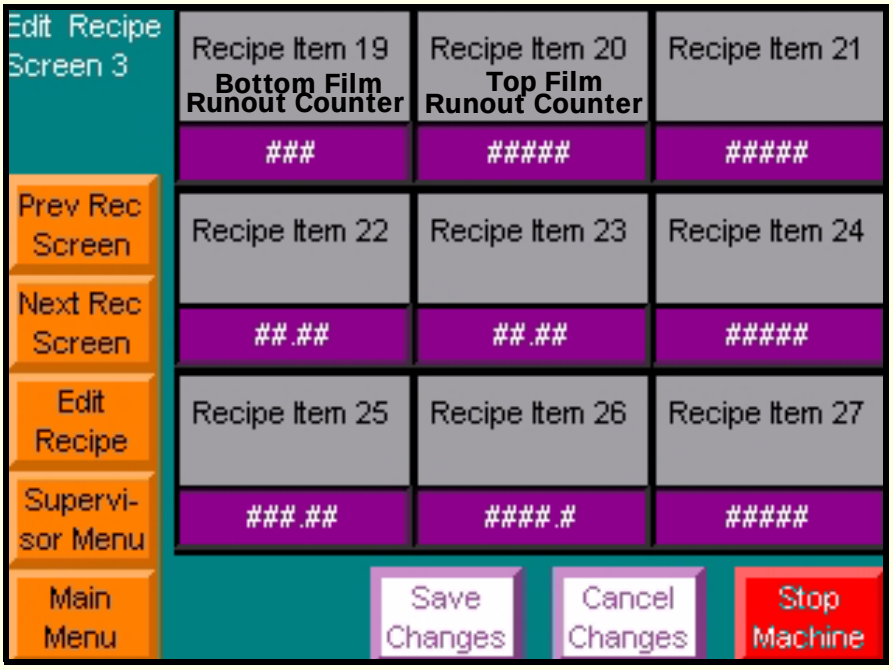
Stop Machine Pressing this key will stop the machine's current cycle run.

Edit Product Recipe #3 Screen (Recipe Items 19-27)

This screen allows the operator to view, change and save preset parameters for a specific product recipe. There are four screens in total. This screen can be accessed through the *Edit Product Recipe List Screen*. You can also access the other *Edit Product Recipe Screens* using the **PREV REC SCREEN** key or the **NEXT REC SCREEN** key. These keys can be found on any of the *Edit Product Recipe Screens.*

Acronyms

Accel Acceleration
Decel Deceleration
Dist Distance
Vel Velocity



Edit Product Recipe Screen #3 Keys

Recipe Item 19 Pressing this key allows the user to control how many products can be bundled, when the bottom film is running low, before coming to a controllled stop.

Recipe Item 20 Pressing this key allows the user to control how many products can be bundled, when the top film is running low, before coming to a controllled stop.

Edit Product Recipe Screen #3 Keys (Continued)

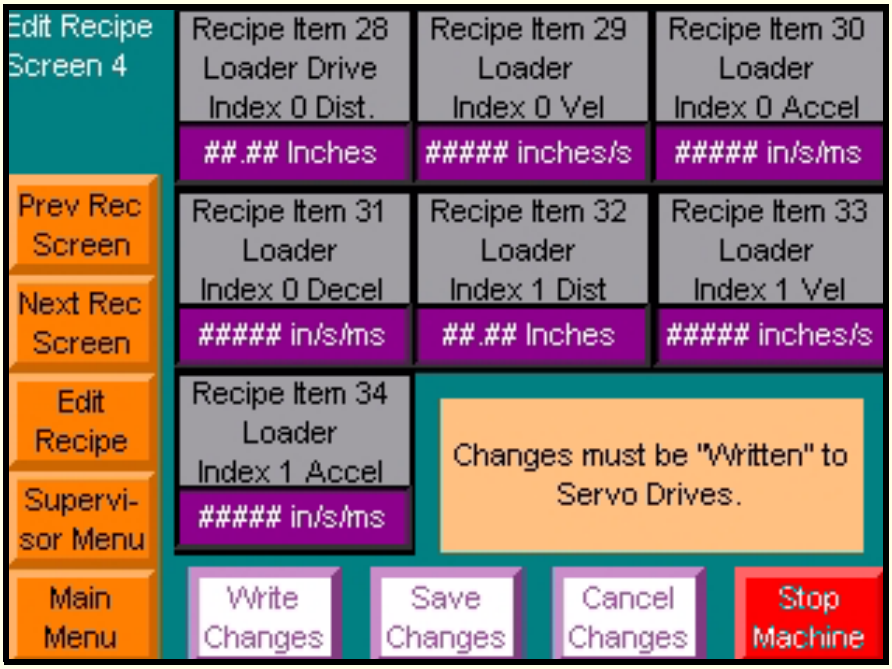
Recipe Item 21	This is a spare key.
Recipe Item 22	This is a spare key.
Recipe Item 23	This is a spare key.
Recipe Item 24	This is a spare key.
Recipe Item 25	This is a spare key.
Recipe Item 26	This is a spare key.
Recipe Item 27	This is a spare key.
Previous Rec Screen	Pressing this key will take the user to the previous screen in the list.
Next Rec Screen	Pressing this key will take the user to the next recipe screen in the list.
Edit Recipe	Pressing this key will take the user to the *Edit Recipe List Screen.* This list is used to select the edit product recipe screen.
Main Menu	Pressing this key will take the user to the *Main Menu Screen*. This screen is used to access all other main display screens.
Supervisor Menu	Pressing this key will take the user to the *Supervisor Menu Screen*. This is a password protected screen that allows the user to view and edit machine functions.
Save Changes	Pressing this key will allow the user to save the changes made to the recipe.
Cancel Changes	Pressing this key will allow the user to cancel the changes made to the recipe *before* the **SAVE CHANGES** key is pressed. ***Note**: Once the **SAVE CHANGES** key has been pressed, you cannot undo your changes by pressing the **CANCEL CHANGES** key.*
Stop Machine	Pressing this key will stop the machine's current cycle run.

Edit Product Recipe #4 Screen (Recipe Items 28-34)

This screen allows the operator to view, change and save preset parameters for a specific product recipe. There are four screens in total. This screen can be accessed through the *Edit Product Recipe List Screen*. You can also access the other *Edit Product Recipe Screens* using the **PREV REC SCREEN** key or the **NEXT REC SCREEN** key. These keys can be found on any of the *Edit Product Recipe Screens.*

Acronyms

Accel	Acceleration
Decel	Deceleration
Dist	Distance
Vel	Velocity



Edit Product Recipe Screen #4 Keys

Recipe Item 28 Press this key to index the loader drive backward by a preset distance. The distance is measured in inches.

Recipe Item 29 Press this key to index the loader backward by a preset distance. The speed at which the loader moves backward is measured by inches per second.

Edit Product Recipe Screen #4 Keys (Continued)

Recipe Item 30 Press this key to accelerate (increase) the speed at which the loader is indexed backward. The speed at which the loader moves backward is measured by inches per millisecond.

Recipe Item 31 Press this key to deccelerate (decrease) the speed at which the loader is indexed backward. The speed at which the loader moves backward is measured by inches per millisecond.

Recipe Item 32 Press this key to index the loader drive forward by a preset distance. The distance is measured in inches.

Recipe Item 33 Press this key to index the loader forward by a preset distance. The speed at which the loader moves forward is measured by inches per second.

Recipe Item 34 Press this key to accelerate (increase) the speed at which the loader is indexed forward. The speed at which the loader moves forward is measured by inches per millisecond.

Previous Rec Screen Pressing this key will take the user to the previous screen in the list.

Next Rec Screen Pressing this key will take the user to the next recipe screen in the list.

Edit Recipe Pressing this key will take the user to the *Edit Recipe List Screen.* This list is used to select the edit product recipe screen.

Main Menu Pressing this key will take the user to the *Main Menu Screen*. This screen is used to access all other main display screens.

Supervisor Menu Pressing this key will take the user to the *Supervisor Menu Screen*. This is a password protected screen that allows the user to view and edit machine functions.

Save Changes Pressing this key will allow the user to save the changes made to the recipe.

Cancel Changes Pressing this key will allow the user to cancel the changes made to the recipe *before* the **SAVE CHANGES** key is pressed.

***Note**: Once the **SAVE CHANGES** key has been pressed, you cannot undo your changes by pressing the **CANCEL CHANGES** key.*

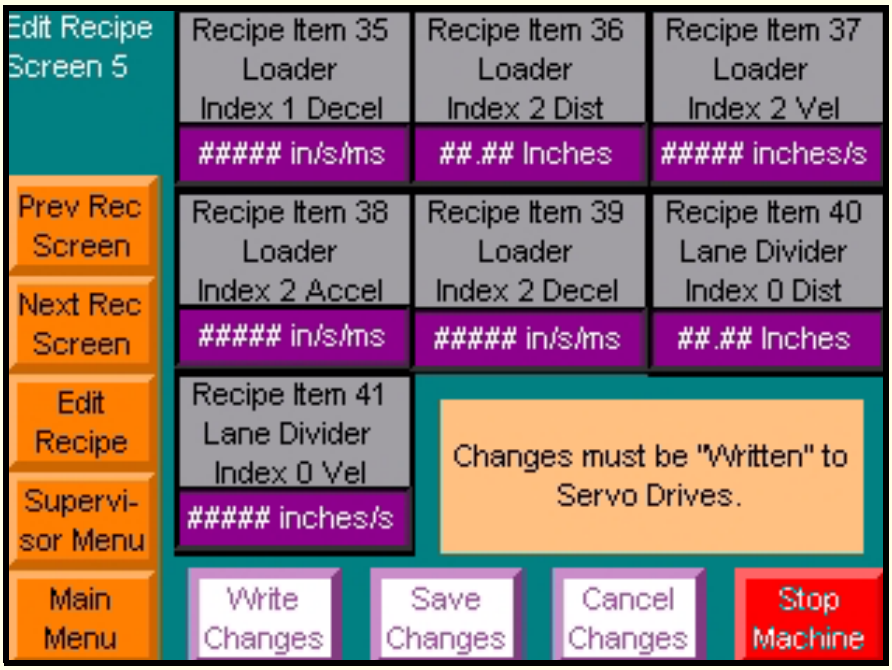
Stop Machine Pressing this key will stop the machine's current cycle run.

Edit Product Recipe #5 Screen (Recipe Items 35-41)

This screen allows the operator to view, change and save preset parameters for a specific product recipe. There are four screens in total. This screen can be accessed through the *Edit Product Recipe List Screen*. You can also access the other *Edit Product Recipe Screens* using the **PREV REC SCREEN** key or the **NEXT REC SCREEN** key. These keys can be found on any of the *Edit Product Recipe Screens.*

Acronyms

Accel	Acceleration
Decel	Deceleration
Dist	Distance
Vel	Velocity



Edit Product Recipe Screen #5 Keys

Recipe Item 35 Press this key to deccelerate (decrease) the speed at which the loader is indexed forward. The speed at which the loader moves forward is measured by inches per millisecond.

Recipe Item 36 This is a spare key for the loader.

Recipe Item 37 This is a spare key for the loader.

Recipe Item 38 This is a spare key for the loader.

Edit Product Recipe Screen #5 Keys (Continued)

Recipe Item 39 This is a spare key for the loader.

Recipe Item 40 Press this key to index the lane divider backward by a preset distance. The distance is measured in inches.

Recipe Item 41 Press this key to index the lane divider backward by a preset distance. The speed at which the lane divider moves backward is measured by inches per second.

Previous Rec Screen Pressing this key will take the user to the previous screen in the list.

Next Rec Screen Pressing this key will take the user to the next recipe screen in the list.

Edit Recipe Pressing this key will take the user to the *Edit Recipe List Screen.* This list is used to select the edit product recipe screen.

Main Menu Pressing this key will take the user to the *Main Menu Screen*. This screen is used to access all other main display screens.

Supervisor Menu Pressing this key will take the user to the *Supervisor Menu Screen*. This is a password protected screen that allows the user to view and edit machine functions.

Save Changes Pressing this key will allow the user to save the changes made to the recipe.

Cancel Changes Pressing this key will allow the user to cancel the changes made to the recipe *before* the **SAVE CHANGES** key is pressed.

***Note**: Once the **SAVE CHANGES** key has been pressed, you cannot undo your changes by pressing the **CANCEL CHANGES** key.*

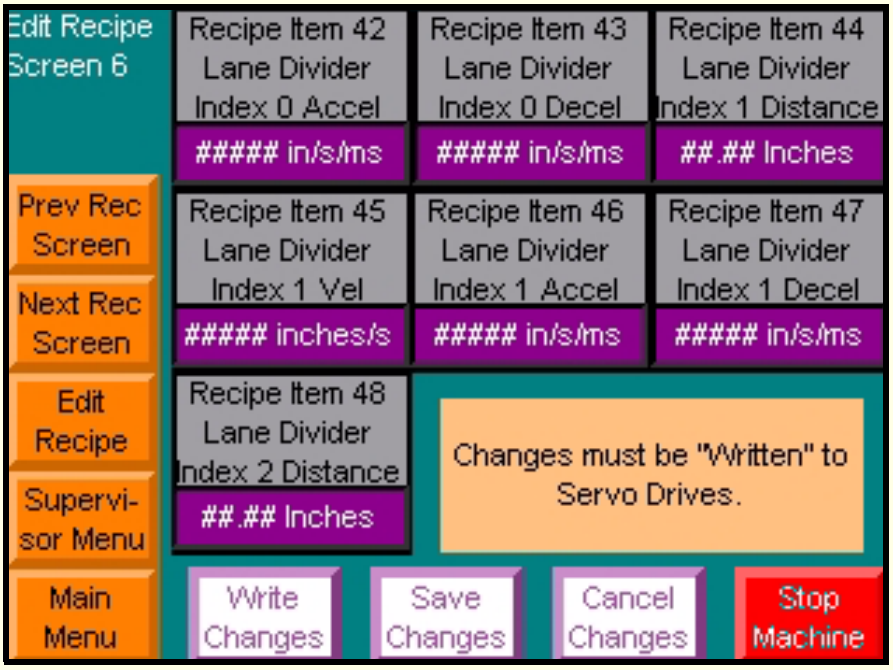
Stop Machine Pressing this key will stop the machine's current cycle run.

Edit Product Recipe #6 Screen (Recipe Items 42-48)

This screen allows the operator to view, change and save preset parameters for a specific product recipe. There are four screens in total. This screen can be accessed through the *Edit Product Recipe List Screen*. You can also access the other *Edit Product Recipe Screens* using the **PREV REC SCREEN** key or the **NEXT REC SCREEN** key. These keys can be found on any of the *Edit Product Recipe Screens.*

Acronyms

Accel	Acceleration
Decel	Deceleration
Dist	Distance
Vel	Velocity



Edit Product Recipe Screen #6 Keys

Recipe Item 42 Press this key to accelerate (increase) the speed at which the lane divider is indexed backward. The speed at which the lane divider moves backward is measured by inches per millisecond.

Edit Product Recipe Screen #6 Keys (Continued)

Recipe Item 43 Press this key to deccelerate (decrease) the speed at which the lane divider is indexed backward. The speed at which the lane divider moves backward is measured by inches per millisecond.

Recipe Item 44 Press this key to index the lane divider forward by a preset distance. The distance is measured in inches.

Recipe Item 45 Press this key to index the lane divider forward by a preset distance. The speed at which the lane divider moves forward is measured by inches per second.

Recipe Item 46 Press this key to accelerate (increase) the speed at which the lane divider is indexed forward. The speed at which the lane divider moves forward is measured by inches per millisecond.

Recipe Item 47 Press this key to deccelerate (decrease) the speed at which the lane divider is indexed forward. The speed at which the lane divider moves forward is measured by inches per millisecond.

Recipe Item 48 This is a spare key for the lane divider.

Previous Rec Screen This is a spare key for the loader.

Next Rec Screen Pressing this key will take the user to the next recipe screen in the list.

Edit Recipe Pressing this key will take the user to the *Edit Recipe List Screen.* This list is used to select the edit product recipe screen.

Main Menu Pressing this key will take the user to the *Main Menu Screen*. This screen is used to access all other main display screens.

Supervisor Menu Pressing this key will take the user to the *Supervisor Menu Screen*. This is a password protected screen that allows the user to view and edit machine functions.

Save Changes Pressing this key will allow the user to save the changes made to the recipe.

Cancel Changes Pressing this key will allow the user to cancel the changes made to the recipe *before* the **SAVE CHANGES** key is pressed.

***Note**: Once the **SAVE CHANGES** key has been pressed, you cannot undo your changes by pressing the **CANCEL CHANGES** key.*

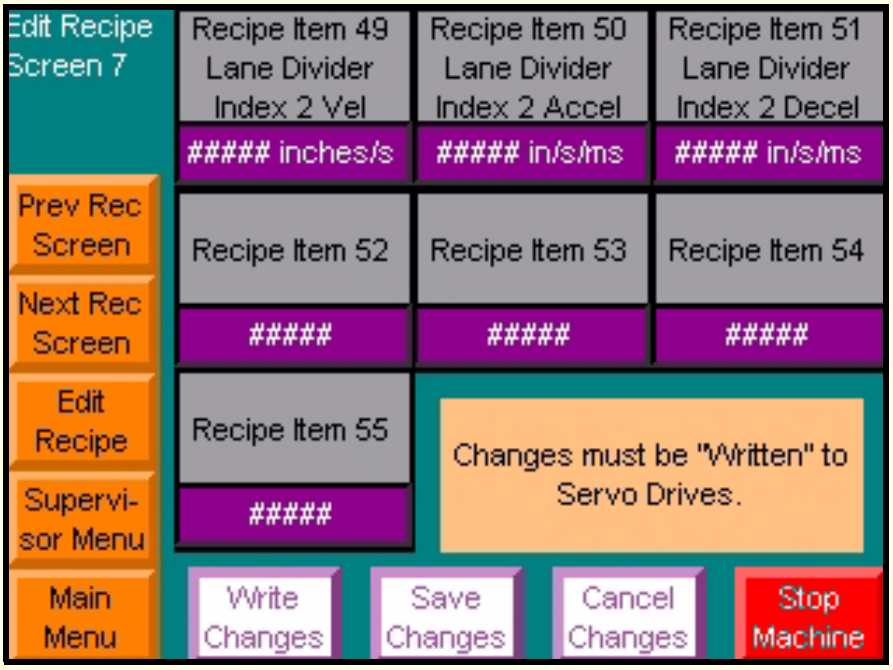
Stop Machine Pressing this key will stop the machine's current cycle run.

Edit Product Recipe #7 Screen (Recipe Items 49-55)

This screen allows the operator to view, change and save preset parameters for a specific product recipe. There are four screens in total. This screen can be accessed through the *Edit Product Recipe List Screen*. You can also access the other *Edit Product Recipe Screens* using the **PREV REC SCREEN** key or the **NEXT REC SCREEN** key. These keys can be found on any of the *Edit Product Recipe Screens.*

Acronyms

Accel Acceleration
Decel Deceleration
Dist Distance
Vel Velocity



Edit Product Recipe Screen #7 Keys

Recipe Item 49 This is a spare key for the lane divider.

Recipe Item 50 This is a spare key for the lane divider.

Recipe Item 51 This is a spare key for the lane divider.

Recipe Item 52 This is a spare key.

Edit Product Recipe Screen #7 Keys (Continued)

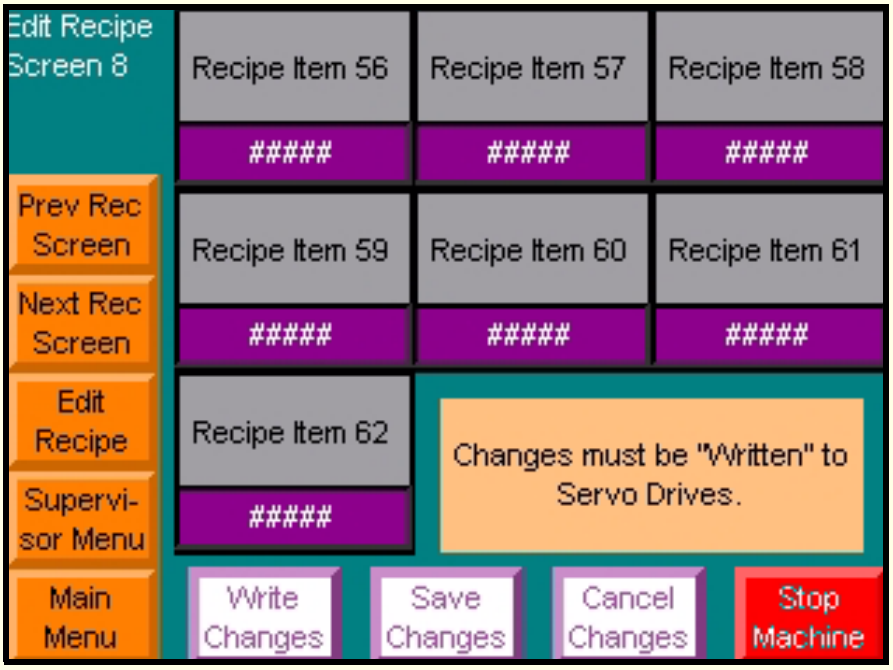
Recipe Item 53	This is a spare key.
Recipe Item 54	This is a spare key.
Recipe Item 55	This is a spare key.
Previous Rec Screen	Pressing this key will take the user to the previous screen in the list.
Next Rec Screen	Pressing this key will take the user to the next recipe screen in the list.
Edit Recipe	Pressing this key will take the user to the *Edit Recipe List Screen.* This list is used to select the edit product recipe screen.
Main Menu	Pressing this key will take the user to the *Main Menu Screen*. This screen is used to access all other main display screens.
Supervisor Menu	Pressing this key will take the user to the *Supervisor Menu Screen*. This is a password protected screen that allows the user to view and edit machine functions.
Save Changes	Pressing this key will allow the user to save the changes made to the recipe.
Cancel Changes	Pressing this key will allow the user to cancel the changes made to the recipe *before* the **SAVE CHANGES** key is pressed. ***Note**: Once the **SAVE CHANGES** key has been pressed, you cannot undo your changes by pressing the **CANCEL CHANGES** key.*
Stop Machine	Pressing this key will stop the machine's current cycle run.

Edit Product Recipe #8 Screen (Recipe Items 56-62)

This screen allows the operator to view, change and save preset parameters for a specific product recipe. There are four screens in total. This screen can be accessed through the *Edit Product Recipe List Screen*. You can also access the other *Edit Product Recipe Screens* using the **PREV REC SCREEN** key or the **NEXT REC SCREEN** key. These keys can be found on any of the *Edit Product Recipe Screens.*

Acronyms

Accel Acceleration
Decel Deceleration
Dist Distance
Vel Velocity



Edit Product Recipe Screen #8 Keys

Recipe Item 56 This is a spare key.

Recipe Item 57 This is a spare key.

Recipe Item 58 This is a spare key.

Recipe Item 59 This is a spare key.

Edit Product Recipe Screen #8 Keys (Continued)

Recipe Item 60 This is a spare key.

Recipe Item 61 This is a spare key.

Recipe Item 62 This is a spare key.

Previous Rec Screen Pressing this key will take the user to the previous screen in the list.

Next Rec Screen Pressing this key will take the user to the next recipe screen in the list.

Edit Recipe Pressing this key will take the user to the *Edit Recipe List Screen.* This list is used to select the edit product recipe screen.

Main Menu Pressing this key will take the user to the *Main Menu Screen*. This screen is used to access all other main display screens.

Supervisor Menu Pressing this key will take the user to the *Supervisor Menu Screen*. This is a password protected screen that allows the user to view and edit machine functions.

Save Changes Pressing this key will allow the user to save the changes made to the recipe.

Cancel Changes Pressing this key will allow the user to cancel the changes made to the recipe *before* the **SAVE CHANGES** key is pressed.

***Note**: Once the **SAVE CHANGES** key has been pressed, you cannot undo your changes by pressing the **CANCEL CHANGES** key.*

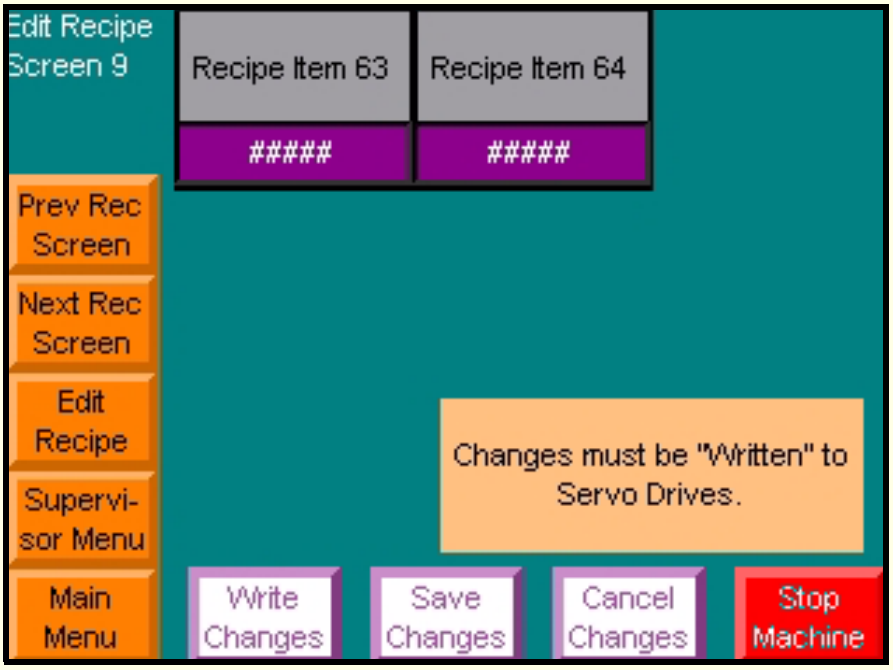
Stop Machine Pressing this key will stop the machine's current cycle run.

Edit Product Recipe #9 Screen (Recipe Items 63-64)

This screen allows the operator to view, change and save preset parameters for a specific product recipe. There are four screens in total. This screen can be accessed through the *Edit Product Recipe List Screen*. You can also access the other *Edit Product Recipe Screens* using the **PREV REC SCREEN** key or the **NEXT REC SCREEN** key. These keys can be found on any of the *Edit Product Recipe Screens.*

Acronyms

Accel	Acceleration
Decel	Deceleration
Dist	Distance
Vel	Velocity



Edit Product Recipe Screen #9 Keys

Recipe Item 63 This is a spare key.

Recipe Item 64 This is a spare key.

Previous Rec Screen Pressing this key will take the user to the previous screen in the list.

Edit Product Recipe Screen #9 Keys (Continued)

Next Rec Screen Pressing this key will take the user to the next recipe screen in the list.

Edit Recipe Pressing this key will take the user to the *Edit Recipe List Screen.* This list is used to select the edit product recipe screen.

Main Menu Pressing this key will take the user to the *Main Menu Screen*. This screen is used to access all other main display screens.

Supervisor Menu Pressing this key will take the user to the *Supervisor Menu Screen*. This is a password protected screen that allows the user to view and edit machine functions.

Save Changes Pressing this key will allow the user to save the changes made to the recipe.

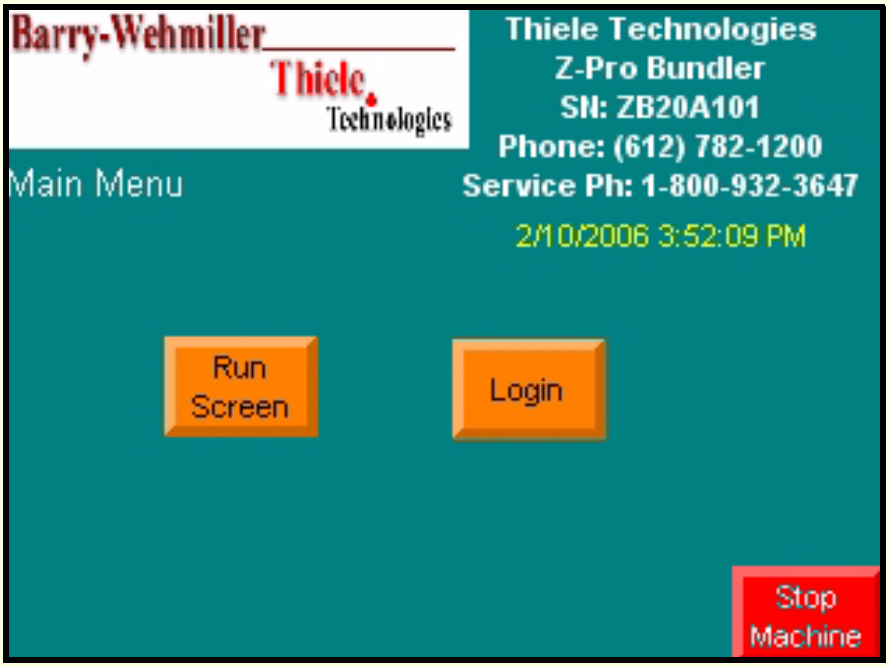
Cancel Changes Pressing this key will allow the user to cancel the changes made to the recipe *before* the **SAVE CHANGES** key is pressed.

***Note**: Once the **SAVE CHANGES** key has been pressed, you cannot undo your changes by pressing the **CANCEL CHANGES** key.*

Stop Machine Pressing this key will stop the machine's current cycle run.

Main Menu Screen

This screen is used to access all other main display screens. It appears as soon as the machine starts. This screen can be accessed from all of the screens in this program.



Main Menu Screen Keys

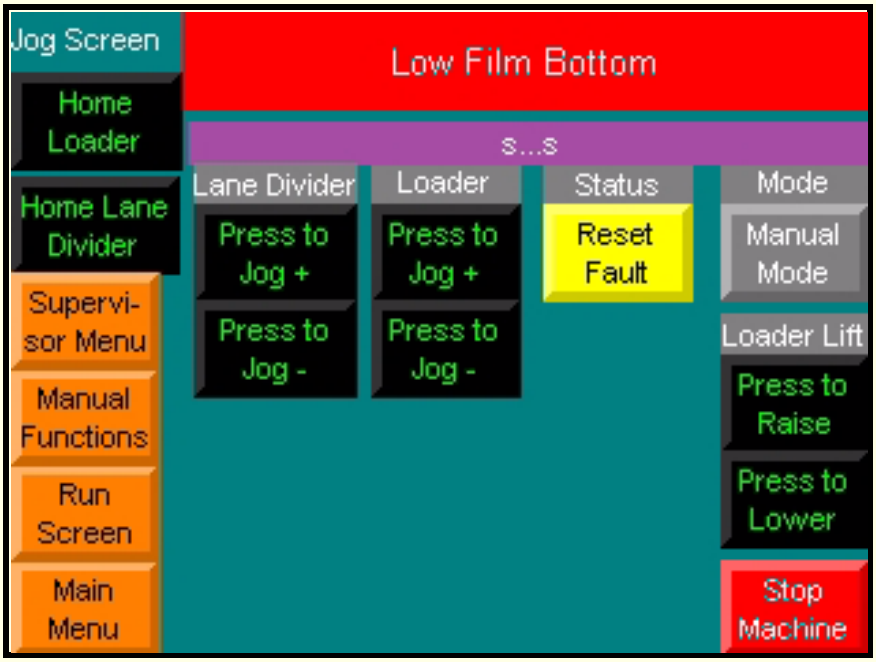
Run Screen Pressing this key will take the user to the *Run Screen*. This screen is used to control the machine operations.

Login Pressing this key will take the user to the *Supervisor Menu Login Screen*. A username and password must be entered. Once the username and password have been accepted, all password protected areas can be accessed.

Stop Machine Pressing this key will stop the machine's current cycle run.

Jog Screen

This screen is used to manually operate some of the machines function. It is mainly used for maintenance and troubleshooting purposes only. This screen can be accessed from the *Supervisor Menu Screen*.



Jog Screen Keys

Information Message Display — This window displays informational status messages.

Local Message Display — This window displays machine fault messages.

Manual Functions — Pressing this key will take the user to the *Manual Function Screen*. This screen allows the operator to manually enable and disable certain functions on the machine.

Run Screen — Pressing this key will take the user to the *Run Screen*. This screen is used to control the machine operations.

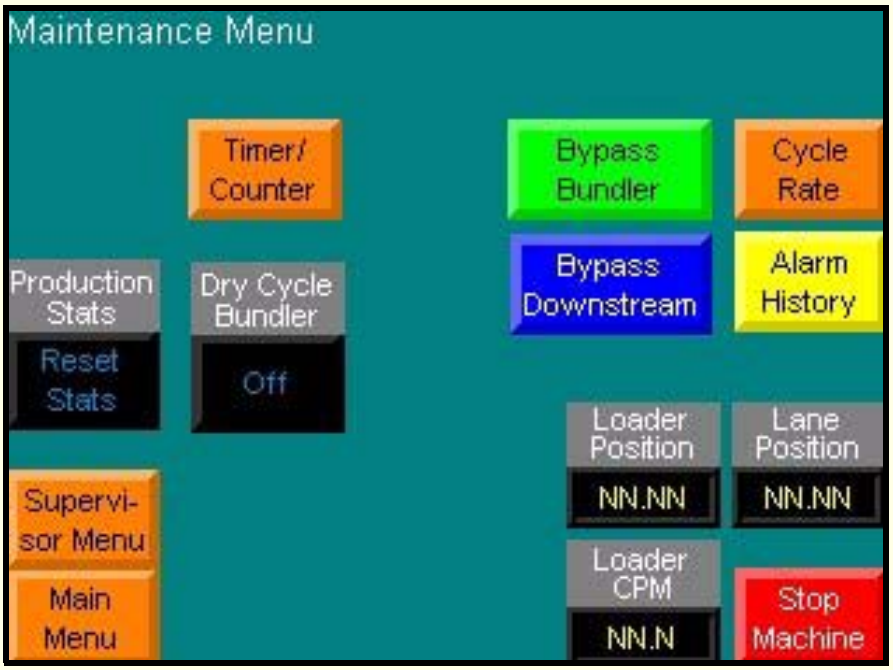
Main Menu — Pressing this key will take the user to the *Main Menu Screen*. This screen is used to access all other main display screens.

Jog Screen Keys (Continued)

Supervisor Menu	Pressing this key will take the user to the *Supervisor Menu Screen*. This is a password protected screen that allows the user to view and edit machine functions.
Loader Lift Press to Raise	Pressing this key allows the operator to manually raise the loader lift.
Loader Lift Press to Lower	Pressing this key allows the operator to manually lower the loader lift.
Mode Manual/Auto Mode	Pressing the **MANUAL** key will place the machine in the manual mode. The manual mode is used for maintenance and troubleshooting purposes. Pressing the **AUTO** key will place the machine in the auto mode.
Home Loader	Pressing and holding this key returns the loader to the zero position on the servo.
Home Lane Divider	Pressing and holding this key returns the lane divider to the zero position on the servo.
Lane Divider Press to Jog +	Pressing and holding this key moves the lane divider to the right.
Lane Divider Press to Jog -	Pressing and holding this key moves the lane divider to the left.
Status Reset Fault	Pressing this key resets machine faults. When the button is yellow, then the machine faults need to be reset. When the button is black, there are no machine faults. *Note*: *after a fault has been corrected, the machine cannot run until this key is pressed.*
Stop Machine	Pressing this key will stop the machine's current cycle run.

Maintenance Menu Screen

This screen allows the operator to access other screens that are used for maintenance puposes. This screen can be accessed from the *Cycle Rate Screen, Fault Display Screen, Setup Timer and Counter Screen,* and the *Supervisor Menu Screen*.



Maintenance Menu Screen Keys

Cycle Rate Pressing this key will take the user to the *Cycle Rate Screen*. This screen displays general machine performance concerning key areas.

Production Stats Reset Stats Pressing this key resets the bundles produced to zero on the *Run Screen*.

Dry Cycle Bundler Pressing this key allows the user to run the bundler without any product. The machine must be in manual mode.

Timer/Counter Pressing this key will take the user to the *Timer/Counter Screen*. This screen allows the operator to setup the machine's timers and counters.

Supervisor Menu Pressing this key will take the user to the *Supervisor Menu Screen*. This is a password protected screen that allows the user to view and edit machine functions.

Maintenance Menu Screen Keys (Continued)

Main Menu Pressing this key will take the user to the *Main Menu Screen*. This screen is used to access all other main display screens.

Bypass Downsteam During normal operations, a sensor will signal the machine that product is feeding into the machine. If there is no signal, then the machine will come to a controlled stop. Pressing the **BYPASS DOWNSTREAM** key allows the user to bypass the downstream functions.

Bypass Bundler Pressing this key puts the lane divider in the center lane, turns the heat to the oven off, and allows the product to run through the bundler.

Lane Position This display window shows the lane's current position.

Loader Position This display window shows the loader's current position.

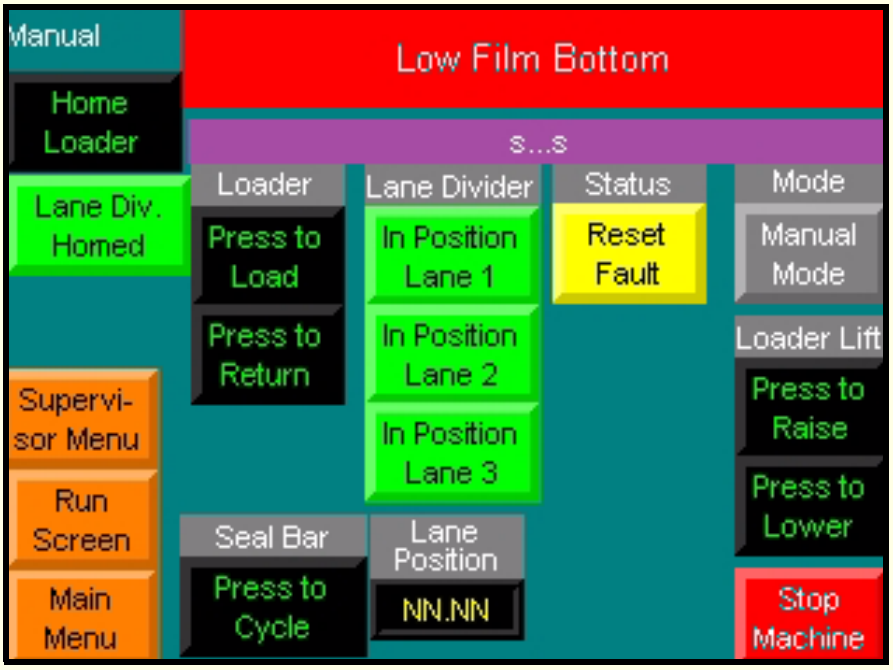
Loader CPM

Alarm History Pressing this key will take the user to the *Alarm History Screen*. This screen is used to show all the alarms and status messgs that were displayed for the current run.

Stop Machine Pressing this key will stop the machine's current cycle run.

Manual Functions Screen

This screen allows the operator to manually enable and disable certain functions on the machine. This screen can be accessed from the *Supervisor Menu Screen* and the *Jog Screen*.



Manual Functions Screen Keys

Fault Message Display — Displays the current machine fault message. For information on the machine faults and corrective actions, see "Responding to Machine Faults and Informational Messages" on page 5-99.

Informational Message Display — Displays the current machine informational message. For information on the machine faults and corrective actions, see "Responding to Machine Faults and Informational Messages" on page 5-99.

Home Loader / Loader Homed — Pressing the **HOME LOADER** key returns the loader to the zero position on the servo. When the loader has been homed, the button will change states to display **LOADER HOMED**.

Home Lane Div. / Lane Div. Homed — Pressing the **HOME LANE DIV.** key returns the loader to the zero position on the servo. When the loader has been homed, the button will change states to display **LANE DIV. HOMED**.

Manual Functions Screen Keys (Continued)

Supervisor Menu — Pressing this key will take the user to the *Supervisor Menu Screen*. This is a password protected screen that allows the user to view and edit machine functions.

Run Screen — Pressing this key will take the user to the *Run Screen*. This screen is used to control the machine operations.

Main Menu — Pressing this key will take the user to the *Main Menu Screen*. This screen is used to access all other main display screens.

Loader Press to Load — Pressing this key allows the operator to advance the loader.

Loader Press to Return — Pressing this key allows the operator to jog the loader in the reverse direction.

Lane Divider In Position Lane 1 — Pressing this key puts the lane divider in lane one. When the lane divider is in lane one, the button will change states from a raised yellow button to a lowered black button.

Lane Divider In Position Lane 2 — Pressing this key puts the lane divider in lane two. When the lane divider is in lane two, the button will change states from a raised yellow button to a lowered black button.

Lane Divider In Position Lane 3 — Pressing this key puts the lane divider in lane three. When the lane divider is in lane three, the button will change states from a raised yellow button to a lowered black button.

Loader Lift Press to Raise — Pressing this key allows the operator to manually raise the loader lift.

Loader Lift Press to Lower — Pressing this key allows the operator to manually lower the loader lift.

Status Press to Reset Fault — Pressing this key resets machine faults. When the button is yellow, then the machine faults need to be reset. When the button is black, there are no machine faults.

Note: *after a fault has been corrected, the machine cannot run until this key is pressed.*

Seal Bar Press to Cycle — Pressing this key allows the user to manually seal the product.

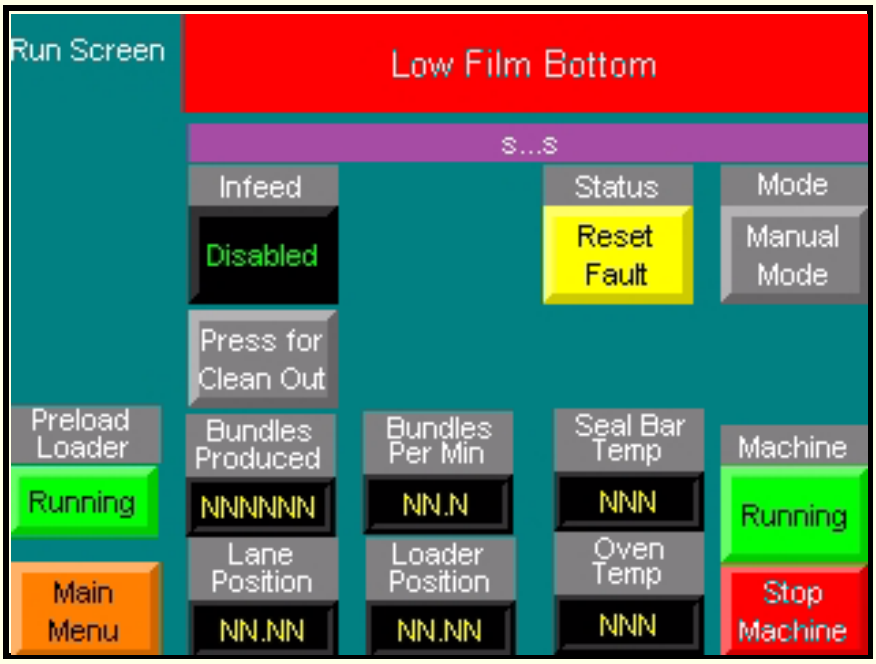
Note: This function cannot work until the machine is in manual mode and the seal bar is heated to its preset operating temperature.

Manual Functions Screen Keys (Continued)

Lane Position	This display window shows the lane's current position.
Mode **Manual/Auto Mode**	Pressing the **MANUAL** key will place the machine in the manual mode. The manual mode is used for maintenance and troubleshooting purposes. Pressing the **AUTO** key will place the machine in the auto mode.
Stop Machine	Pressing this key will stop the machine's current cycle run.

Run Screen

This screen is used to control the machine operations. This screen can be accessed from the *Manual Functions Screen* and the *Supervisor Menu Screen*.



Run Screen Keys

Fault Message Display — Displays the current machine fault message. For information on the machine faults and corrective actions, see "Responding to Machine Faults and Informational Messages" on page 5-99.

Informational Message Display — Displays the current machine informational message. For information on the machine faults and corrective actions, see "Responding to Machine Faults and Informational Messages" on page 5-99.

Home Loader / Loader Homed — Pressing the **HOME LOADER** key returns the loader to the zero position on the servo. When the loader has been homed, the button will change states to display **LOADER HOMED**.

Home Lane Div. / Lane Div. Homed — Pressing the **HOME LANE DIV.** key returns the loader to the zero position on the servo. When the loader has been homed, the button will change states to display **LANE DIV. HOMED**.

Preload Loader — Pressing this key allows the user to bypass the tipped product sensor for a preset amount of time so that product can be loaded into the machine.

Run Screen Keys (Continued)

Main Menu — Pressing this key calls up the *Main Menu Screen*. This screen is used to access all other main display screens.

Infeed Enabled/Disabled — Pressing the **INFEED DISABLED** key turns the infeed conveyor on. Pressing the **INFEED ENABLED** key turns the infeed conveyor off.

Press for Clean Out — Pressing this key allows the user to bypass the infeed sensors and allow the remaining products to be bundled and discharged.

Bundles Produced — This display window shows the total number of bundles produced during the machine's current run.

Bundles Per Min. — This display window shows the total number of bundles produced per minute during the machine's current run.

Loader Position — This display window shows the loader's current position.

Lane Position — This display window shows the lane's current position.

Status Reset Fault — Pressing this key resets machine faults. When the button is yellow, then the machine faults need to be reset. When the button is black, there are no machine faults.

Note: *after a fault has been corrected, the machine cannot run until this key is pressed.*

Seal Bar Temp — This display window shows the seal bar's current temperature.

Oven Temp — This display window shows the oven's current temperature.

Manual Mode / Auto Mode — Pressing the **MANUAL MODE** key places the machine in the auto mode. Once this key is pressed, the key will change states and display **AUTO MODE**.

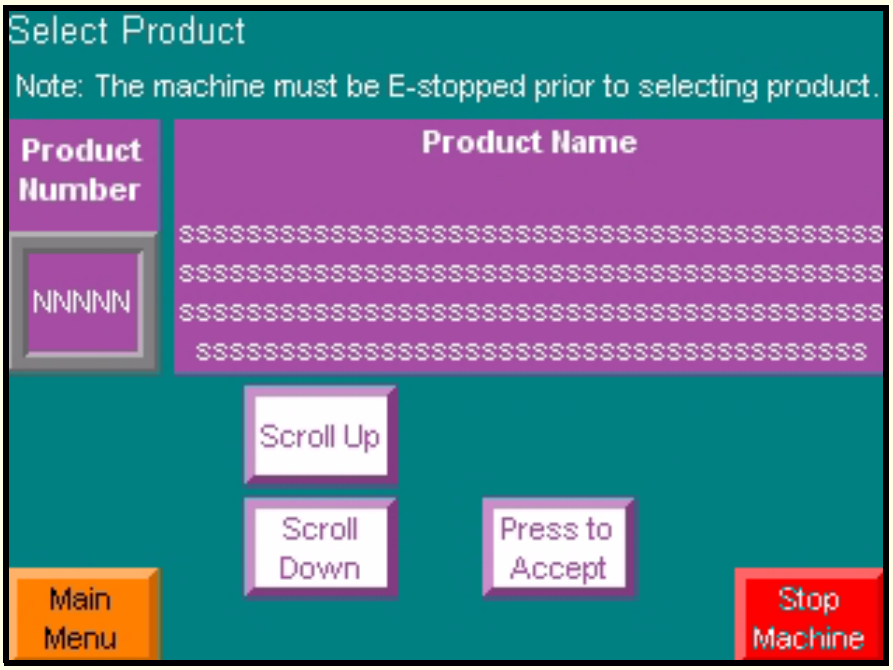
Pressing the **AUTO MODE** key places the machine in the manual mode. Once this key is pressed, the key will change states and display **MANUAL MODE**.

Machine Start / Running — Pressing the **START** key starts the machine functions. Once this key has been pressed, the key will change states and show **RUNNING** until the **STOP MACHINE** key has been pressed.

Stop Machine — Pressing the **STOP MACHINE** key stops the machine functions.

Select Product Screen

This screen allows the user to select a product recipe to run. This screen can be accessed from the *Supervisor Menu Scree*n.



Select Product Screen Keys

Product Number Display — This screen displays the product number of the recipe that is shown.

Product Name Display — This screen displays the name of the recipe that is shown.

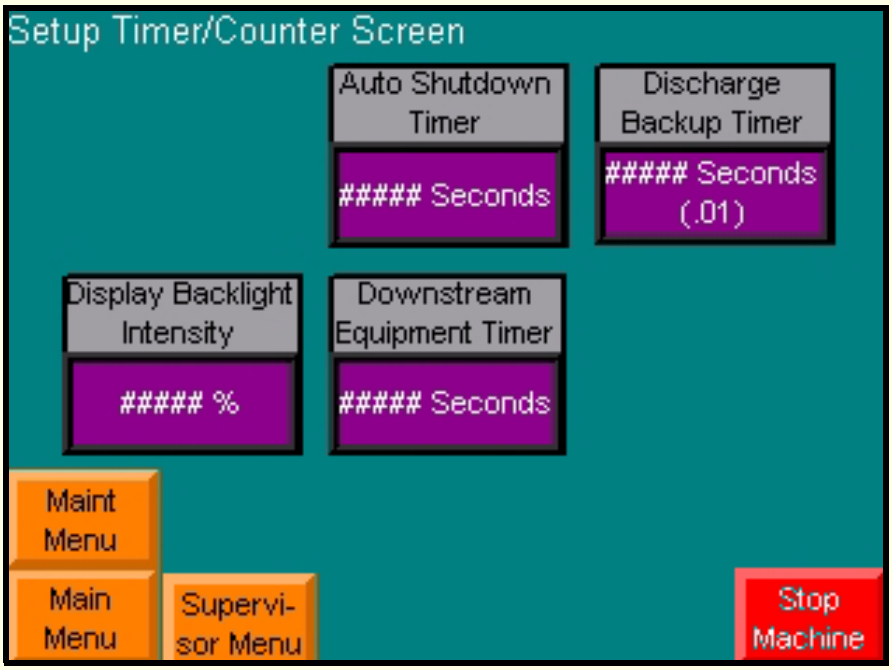
Press to Accept — Once the desired recipe is shown, press the PRESS TO ACCEPT key to select the product recipe.

Main Menu — Pressing this key will take the user to the *Main Menu Screen*. This screen is used to access all other main display screens.

Stop Machine — Pressing this key will stop the machine's current cycle run.

Setup Timer and Counter Screen

This screen allows the operator to setup the machine's timers and counters. This screen can be accessed from the *Maintenance Menu Screen*.



Setup Timer and Counter Screen Keys

Auto Shutdown Timer — If the machine does not have any product running through the infeed for a preset amount of time, the machine will shut down. This key allows the user to set the amount of time that the machine will wait before shutting down. This time is measured in seconds.

Discharge Backup Timer — If the discharge photoeye becomes blocked, the lane divider will clamp the product flow until the discharge photoeye becomes unblocked. This time is measured in seconds.

Display Backlight Intensity — This key controls the brightness of the touchscreen.

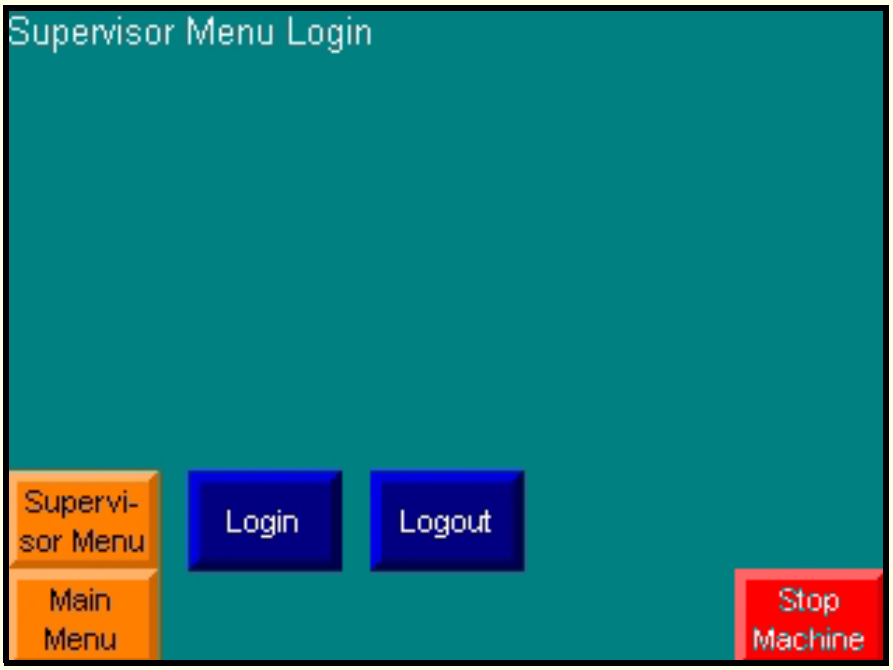
Downstream Equipment Timer — This key controls the amount of time that product can run when the downstream conveyor has been bypassed. After the product has been flowing for a preset amount of time, the lane divider will clamp the product flow. The machine will come ot a controlled stop.

Setup Timer and Counter Screen Keys (Continued)

Main Menu	Pressing this key will take the user to the *Main Menu Screen*. This screen is used to access all other main display screens.
Supervisor Menu	Pressing this key will take the user to the *Supervisor Menu Screen*. This is a password protected screen that allows the user to view and edit machine functions.
Maintenance Menu	Pressing this key will take the user to the *Maintenance Menu Screen*. This screen allows the operator to access other screens that are used for maintenance puposes.
Stop Machine	Pressing this key will stop the machine's current cycle run.

Supervisor Menu Login Screen

This screen is used to enter the *Supervisor Menu Screen.* A user name and password must be entered. This screen can be accessed from the *Main Menu Screen*. At the *Main Menu Screen*, press the **LOGIN** key to call up the *Supervisor Menu Login Screen*.



Supervisor Menu Login Screen Keys

Login Pressing this key will call up a numerical keypad. Use this key to enter your username and password.

Logout When you are done using the machine, press this key to logout of the system.

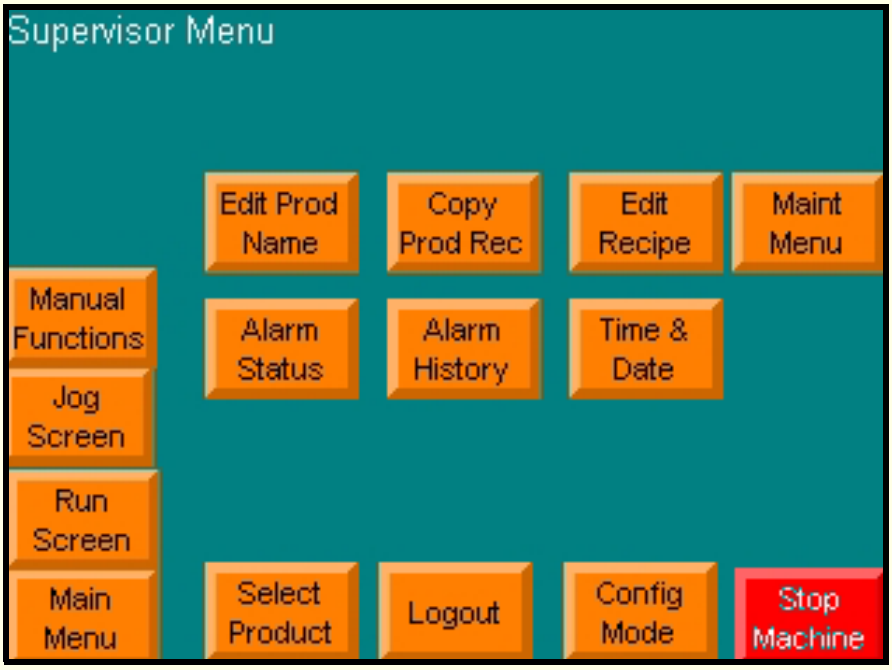
Supervisor Menu Pressing this key will take the user to the *Supervisor Menu Screen*. This is a password protected screen that allows the user to view and edit machine functions.

Main Menu Pressing this key will take the user to the *Main Menu Screen*. This screen is used to access all other main display screens.

Stop Machine Pressing this key will stop the machine's current cycle run.

Supervisor Menu Screen

This is a password protected screen that allows the user to view and edit machine functions. This screen can be accessed from most screens **except** the *Main Menu Screen, Run Screen,* and the *Select Product Screen.*



Supervisor Menu Screen Keys

Edit Prod Name Pressing this key will take the user to the *Edit Product Name Screen*. This screen is used to change the descriptive name of a product.

Copy Prod Rec Pressing this key will take the user to the *Copy Product Recipe Screen*.

Edit Recipe Pressing this key will take the user to the *Edit Recipe List Screen.* This list is used to select the edit product recipe screen.

Maint Menu Pressing this key will take the user to the *Maintenance Menu Screen*. This screen allows the operator to access other screens that are used for maintenance puposes.

Alarm Status Pressing this key will take the user to the *Alarm Status Screen*. This screen displays the machine faults and the number of times each fault has occured.

Supervisor Menu Screen Keys (Continued)

Alarm History Pressing this key will take the user to the *Alarm History Screen*. This screen is used to show all the alarms and status messgs that were displayed for the current run.

Time & Date Pressing this key will take the user to the *Time & Date Screen*. This screen allows the user to view and change the system time and date.

Manual Functions Pressing this key will take the user to the *Manual Function Screen*. This screen allows the operator to manually enable and disable certain functions on the machine.

Jog Screen Pressing this key will take the user to the *Jog Screen*. This screen is used to manually operate some of the machines function. It is mainly used for maintenance and troubleshooting purposes only.

Run Screen Pressing this key will take the user to the *Run Screen*. This screen is used to control the machine operations.

Main Menu Pressing this key will take the user to the *Main Menu Screen*. This screen is used to access all other main display screens.

Select Product Pressing this key will take the user to the *Select Product Screen*. This screen allows the user to select a product recipe to run.

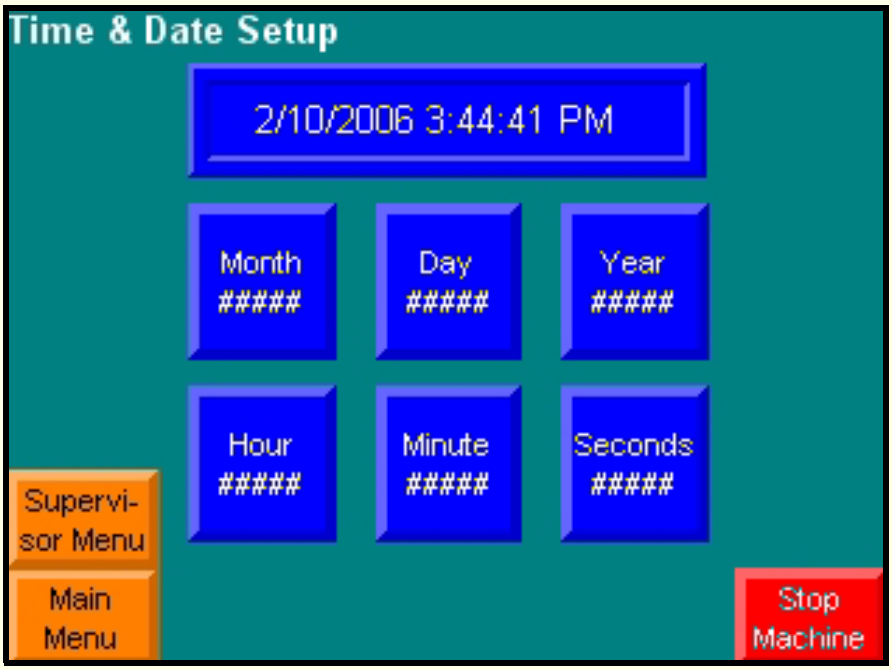
Logout When you are done using the machine, press this key to logout of the system.

Config Mode Pressing this key will take the user to the *Configuration Mode Screen*. This screen is used to access internal features of the touchscreen.

Stop Machine Pressing this key will stop the machine's current cycle run.

Time and Date Setup Screen

This screen allows the user to view and change the system time and date. This screen can be accessed from the *Supervisor Menu Screen*.



Time and Date Setup Screen Keys

Time and Date Display This display shows the current date and time.

Month Keypad Pressing this key allows the user to change the month. Changes are automatically saved.

Day Keypad Pressing this key allows the user to change the day. Changes are automatically saved.

Year Keypad Pressing this key allows the user to change the year. Changes are automatically saved.

Hour Keypad Pressing this key allows the user to change the hour. Changes are automatically saved.

Minute Keypad Pressing this key allows the user to change the minute. Changes are automatically saved.

Seconds Keypad Pressing this key allows the user to change the seconds. Changes are automatically saved.

Time and Date Setup Screen Keys (Continued)

Main Menu Pressing this key will take the user to the *Main Menu Screen*. This screen is used to access all other main display screens.

Supervisor Menu Pressing this key will take the user to the *Supervisor Menu Screen*. This is a password protected screen that allows the user to view and edit machine functions.

Stop Machine Pressing this key will stop the machine's current cycle run.

Operating Instructions

The following sections provide information on operating the machine system. This section is divided in the following manner:

Pre-Operation Guidelines and Procedures

Starting the Machine

Operating the Machine

Emergency Stopping the Machine

Responding to Machine Faults and Informational Messages

Shutting the Machine Down

Pre-Operation Guidelines

Follow the guidelines listed below before operating the machine.

WARNING!

Do not operate this machine until you have been instructed in its safe use. Unsafe operation can cause severe injury or death.

1. Be properly trained in the safe use of this machine before operating it.
2. Observe all safety precautions, warning labels and pinch-point warning stickers; see the “Safety First” section (Section 1) of this manual.
3. Be familiar with the main assemblies and components of the machine before operating it.
    a. See the “Descriptions & Specifications” section (Section 2) of this manual for a description of the main components of the machine.
4. Know where the EMERGENCY STOP push-pull switches are located.
5. Know where the EMERGENCY STOP pull-cords are located.
6. Never insert any part of the body or foreign object, for any reason, in any section of the machine system while it is running.
    a. Always lockout and tagout parts to the machine system before inserting anything into the machine or any part of the machine.
7. Keep all doors and safety guards closed while the machine is running.
8. Be sure all conveyors are clear of obstructions and foreign objects *before* powering up the machine.
9. Be sure all the photo eyes and proximity switches are clean *before* powering up the machine.
    a. Wipe all photo eyes clean with a soft cloth to remove product buildup and dust.
10. Never climb on the conveyors.
11. Never operate the machine until all guards and product guides are in place and secure.
12. Stay behind all guard gates and doors.

13. Never reach beyond a guard gate or door while the machine is running. You could loose your balance and fall into moving parts that could cause severe injury or death.

Pre-Operation Checks

Follow the guidelines below to check that the machine system is ready for operation.

General

1. Check that all the proximity switches, photoeyes, and limit switches are clean and properly aligned with the product.
2. Be sure all air and electrical lines are clear of any moving parts.
3. Be sure all sensors are clear of moving parts.
4. Check that the machine has a good supply of products.
5. Be sure that the products are properly oriented in the machine.
6. Be sure all faults are corrected.
    a. Check the fault display on the message window of the machine operator's control station.
    b. Clear all faults and correct them before operating the machine.
    c. See the "Responding to Machine Faults and Informational Messages" on page 5-99 for directions on correcting faults.
7. Be sure all people and foreign objects are clear of all the machinery in the machine system *before* applying power.

Pneumatic

1. Be sure the machine system has a supply of clean, dry air.
2. Be sure the air regulator is set to 80 psi (5.6 Kg/sq. cm).
    a. To lower the pressure setting, pull and turn the adjustment knob clockwise.
    b. To raise the pressure setting, pull and turn the adjustment knob counter-clockwise.
3. Check that all air lines are open and leak-free.
    a. Clean out any blocked line as required.
    b. Tighten any loose connection as required.
4. Check that all the air cylinders are properly adjusted. The rod end of the cylinder can be removed and adjusted to align with the part that it is attached to.

Electrical

1. Be sure all electrical interlocks work properly.
2. Be sure all air and electrical lines are clear of any moving parts

Starting the Machine

The following pages will provide instructions for powering up the machine. To learn about the various functions for running the machine, see the section “Operating the Machine” on page 5-59.

Before you start the machine, be sure you have carefully reviewed and followed the instructions provided in section “Pre-Operation Guidelines” on page 5-55.

Powering Up the Machine

Follow the procedure below to start the machine. Before starting the machine, perform all the pre-operation checks per the “Pre-Operation Checks” on page 5-57.

1. Verify that all guard doors are closed and all guard panels are in place.
2. Place the main electrical disconnect switch in the **ON** position.
3. Turn the main air supply valve to the machine system to the **ON** position.
4. Fill the film rollers with rolls.
5. Place the **CASEPACKER JOG/RUN MODE** in the **RUN** mode.
6. Select product pattern desired.
7. Press **START MACHINE.**
8. Verify that infeed conveyors are enabled.

Operating the Machine

This section will provide instructions for running the machine once the machine has been started by supplying power to it. Before you run the machine, be sure you have carefully reviewed and followed the instructions provided in section “Pre-Operation Guidelines” on page 5-55.

This section is divided in the following manner:

Selecting a Product Recipe to Run

The *Select Product Screen* has several touch-sensitive keys that let you select a product program that has presets for a specific product. Follow the procedure below to call up the *Select Product Screen.*

WARNING!

Turn off all conveyors. Be sure all machine functions have stopped before selecting a product program. Improper operation could cause damage to products or equipment if the product program is changed when the machine is running. See *"Disabling the Infeed Conveyors" on page 5-76*.for more information on stopping the conveyors.

Table 2: Calling Up the Select Product Screen

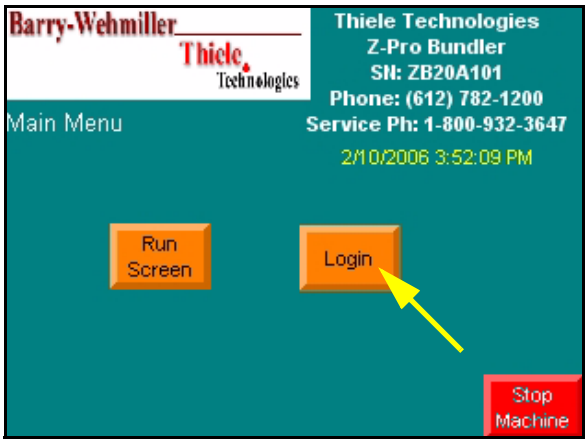
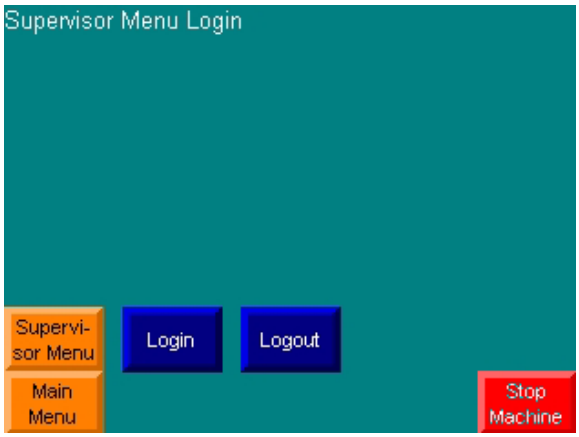
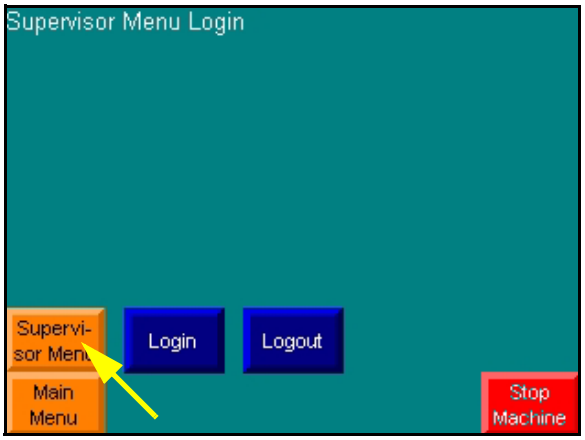
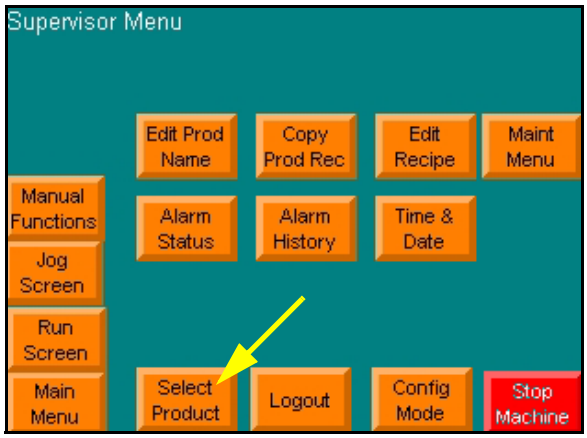
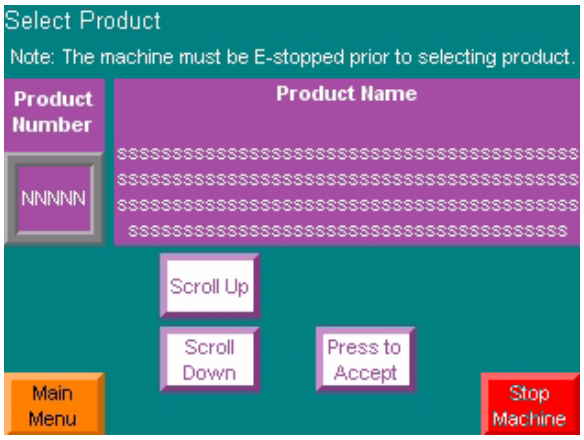
Image	Instructions
	1. From the *Main Menu Screen*, press the **LOGIN** key to bring up the *Supervisor Menu Login Screen.*
	2. From the *Supervisor Menu Login Screen,* press the **LOGIN** key to enter your username and password. 3. Once your username and password have been accepted, you can access all password protected areas of the program.

Table 2: Calling Up the Select Product Screen (Continued)

Image	Instructions
	4. From the *Supervisor Menu Login Screen,* press the **SUPERVISOR MENU** key. Pressing this key will call up the *Supervisor Menu Screen*.
	5. From the *Supervisor Menu Screen,* press the **SELECT PRODUCT** key.
	6. Pressing the **SELECT PRODUCT** key will call up the *Select Product Screen*. From this screen you can select the product recipe you would like to run or edit.

Selecting and Changing a Product Program

You can select a product program that has all the presets already programmed for a specific product. The *Select Product Screen* gives you a choice of product programs. When you select a product number, you automatically select a program that has all the presets programmed for a specific product.

Besides running a preset product recipe, you can also create new recipes or modify existing recipes.

- You can create new recipes by exporting data from one file and importing it into a separate file then saving the new file. When you create a new file, you actually copy and export the file into an import file and save it as new name. To learn how to copy a product recipe, see "Copying a Product Recipe" on page 5-63.
- To learn how to edit a product name, see "Editing a Product Name" on page 5-66.
- To learn how to make changes to machine parameters such as the conveyors, seal bar, oven, loader, lane divider, and film rolls for each recipe, see "Using the Edit Product Recipe Screens" on page 5-69.
- To learn how to edit the product timer and counter parameters for items such as the discharge back-up or downstream equipment, see "Using the Setup Timer and Counter Screen" on page 5-72.

WARNING!

As a safety precaution, the machine must be emergency stopped prior to editing the product name.

WARNING!

Turn off all conveyors. Be sure all machine functions have stopped before selecting a product program. Improper operation could cause damage to products or equipment if the product program is changed when the machine is running. See *"Disabling the Infeed Conveyors" on page 5-76*.for more information on stopping the conveyors.

Table 3: Copying a Product Recipe

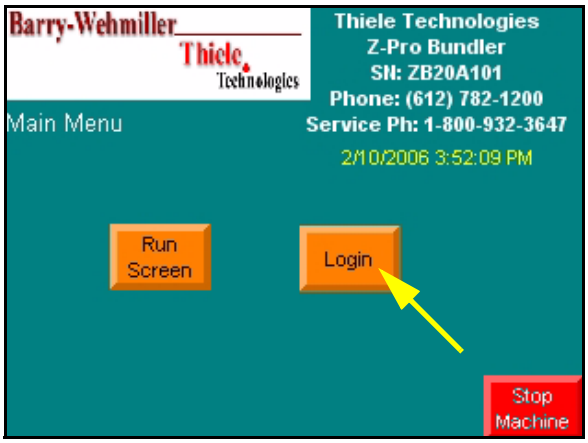
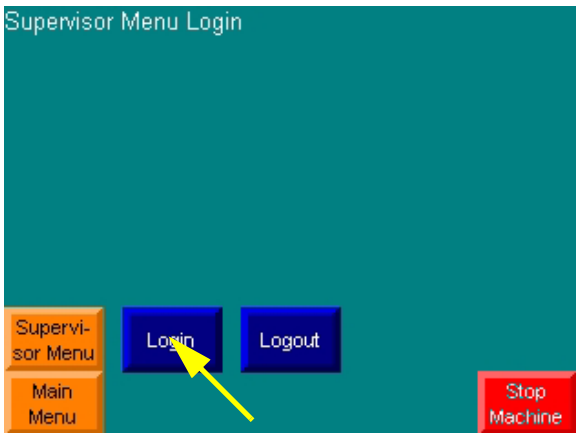
Image	Instructions
	1. From the *Main Menu Screen*, press the **LOGIN** key to bring up the *Supervisor Menu Login Screen.*
	2. From the *Supervisor Menu Login Screen,* press the **LOGIN** key to enter your username and password. 3. Once your username and password have been accepted, you can access all password protected areas of the program.

Table 3: Copying a Product Recipe

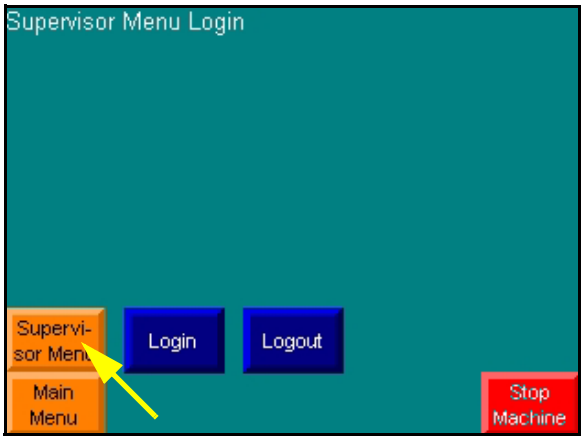
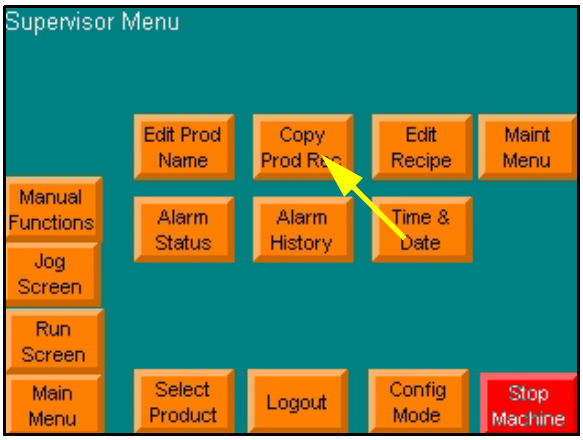
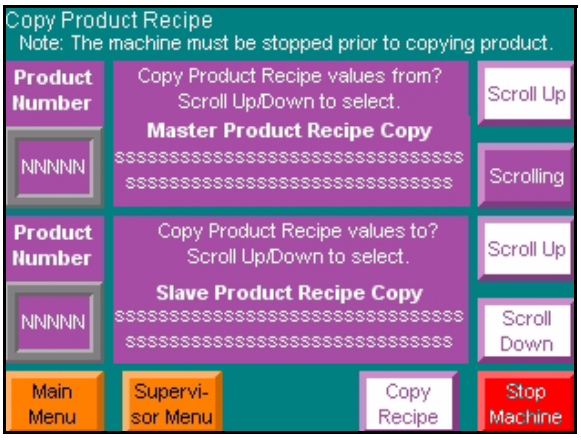
Image	Instructions
	4. From the *Supervisor Menu Login Screen,* press the **SUPERVISOR MENU** key. Pressing this key will call up the *Supervisor Menu Screen*.
	5. From the *Supervisor Menu Screen,* press the **COPY PROD REC** key.
	6. Pressing the **COPY PROD REC** key will call up the *Copy Product Recipe Screen*.

Table 3: Copying a Product Recipe

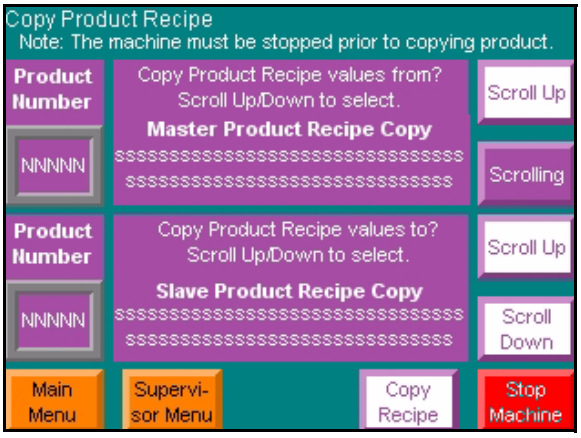
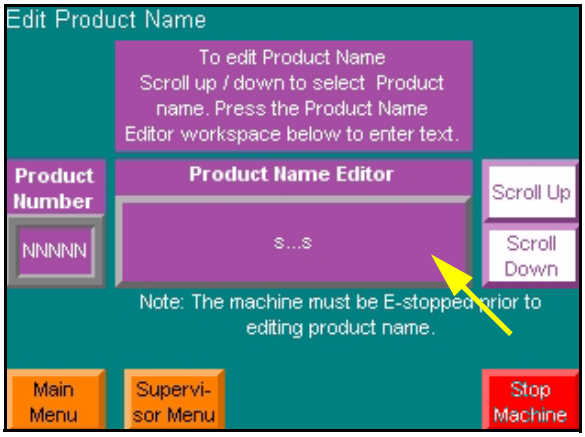
Image	Instructions
	7. Follow the instructions on the screen.
	8. Once you have selected a product recipe, press the product name editor key. 9. Type the new name of the selected product and then save your changes.

Table 4: Editing a Product Name

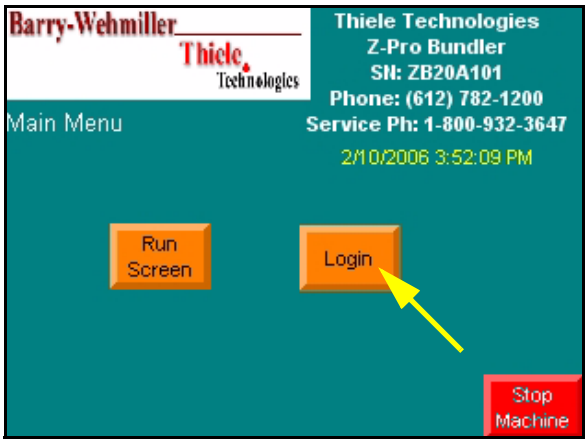
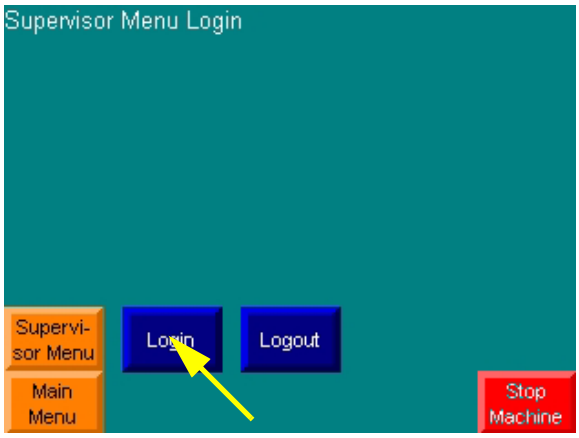
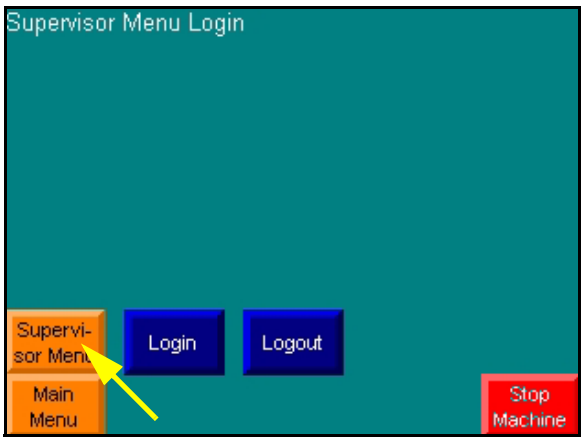
Image	Instructions
	1. From the *Main Menu Screen*, press the **LOGIN** key to bring up the *Supervisor Menu Login Screen.*
	2. From the *Supervisor Menu Login Screen,* press the **LOGIN** key to enter your username and password. 3. Once your username and password have been accepted, you can access all password protected areas of the program.
	4. From the *Supervisor Menu Login Screen,* press the **SUPERVISOR MENU** key. Pressing this key will call up the *Supervisor Menu Screen*.

Table 4: Editing a Product Name

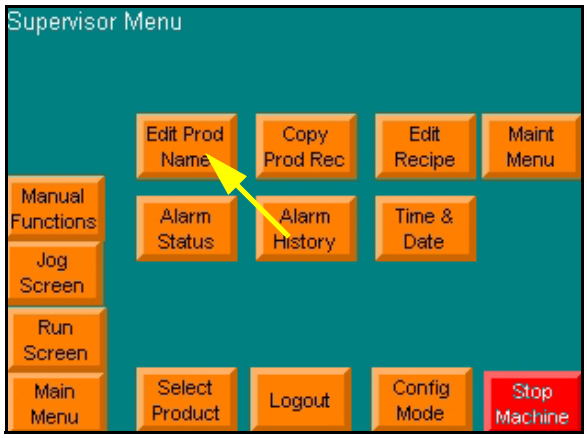
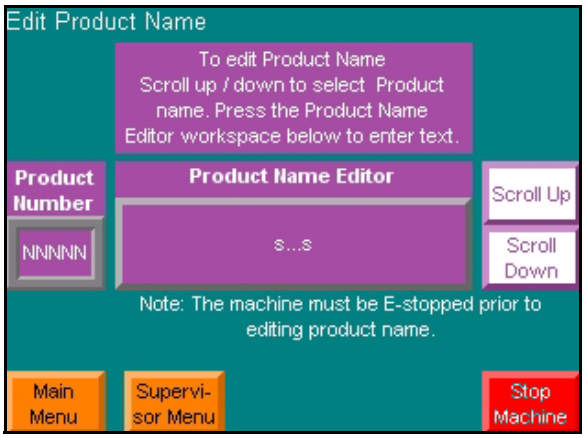
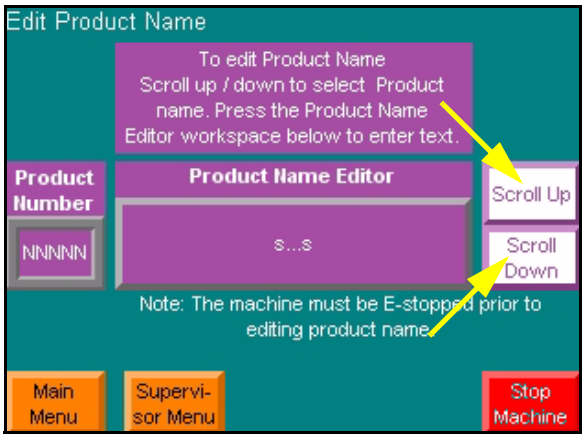
Image	Instructions
	5. From the *Supervisor Menu Screen,* press the **EDIT PROD NAME** key.
	6. Pressing the **EDIT PROD NAME** key will call up the *Edit Product Name Screen*.
	7. Using the **SCROLL UP** or **SCROLL DOWN** keys, move through the menu of available product recipes until you find the recipe you would like to edit. 8. As you are scrolling through the available product recipes, the product name will appear in the Product Name Editor display.

Table 4: Editing a Product Name

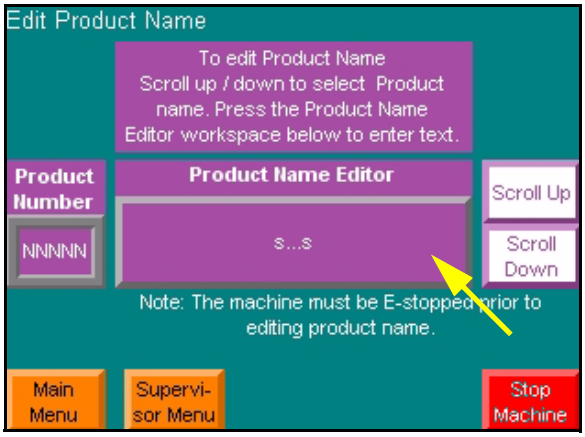
Image	Instructions
	9. Once you have selected a product recipe, press the product name editor key. 10. Type the new name of the selected product and then save your changes.

Table 5: Using the Edit Product Recipe Screens

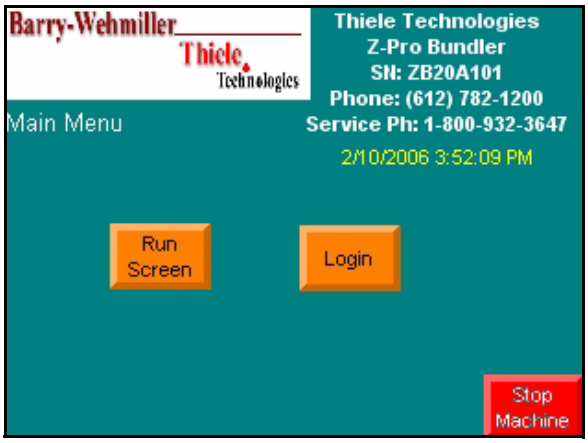
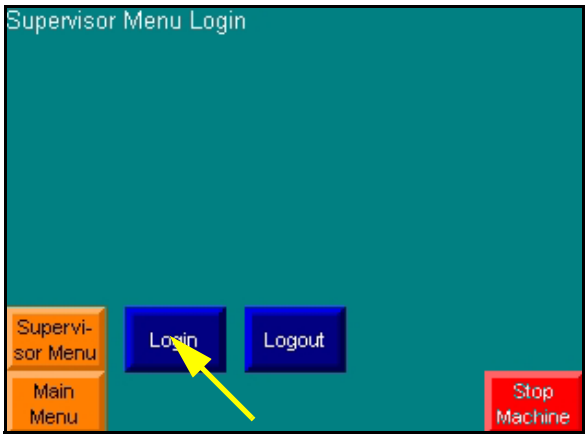
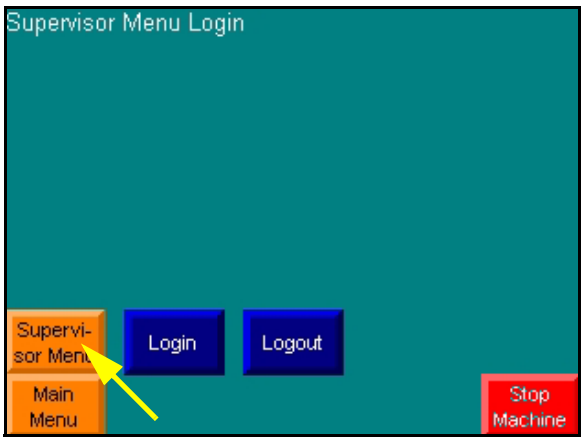
Image	Instructions
	1. From the *Main Menu Screen*, press the **LOGIN** key to bring up the *Supervisor Menu Login Screen.*
	2. From the *Supervisor Menu Login Screen,* press the **LOGIN** key to enter your username and password. 3. Once your username and password have been accepted, you can access all password protected areas of the program.
	4. From the *Supervisor Menu Login Screen,* press the **SUPERVISOR MENU** key. Pressing this key will call up the *Supervisor Menu Screen*.

Table 5: Using the Edit Product Recipe Screens (Continued)

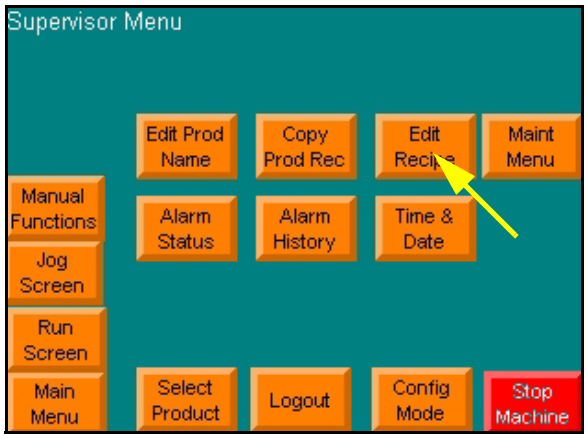
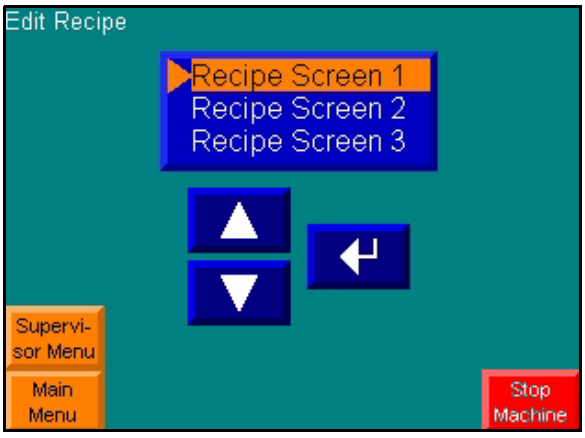
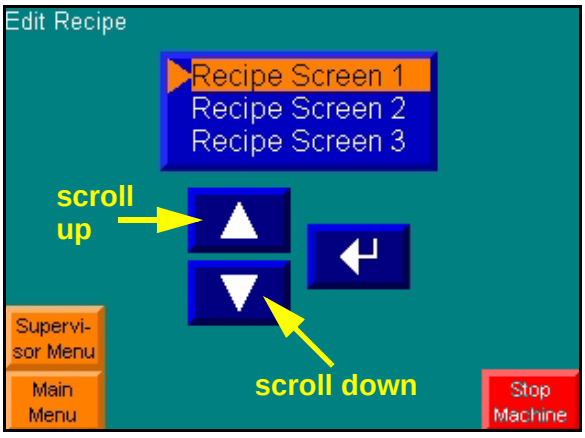
Image	Instructions
	5. From the *Supervisor Menu Screen,* press the **EDIT RECIPE** key.
	6. Pressing the **EDIT RECIPE** key will call up the *Edit Recipe List Screen*.
	7. Using the **SCROLL UP** or **SCROLL DOWN** keys, move through the menu of available product recipe screens.

Table 5: Using the Edit Product Recipe Screens (Continued)

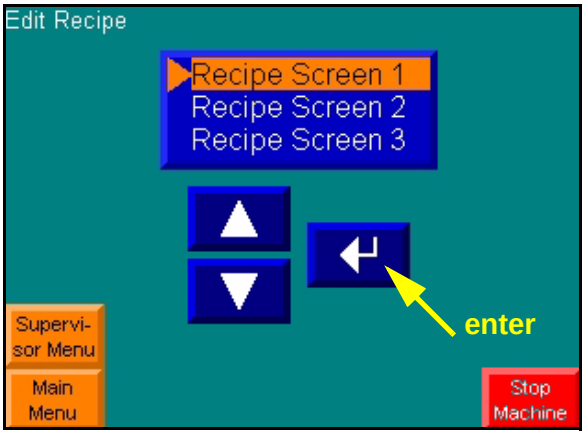
Image	Instructions
	8. Once you have selected a recipe screen, press the **ENTER** key.
	9. Pressing the enter key will call up the selected recipe screen. 10. From the *Edit Recipe Screens*, you can modify the machine parameters for the product recipe being run. For a complete description of each recipe item, see the Edit Recipe Screens starting from page 5-17 and ending on page 5-34.

Table 6: Using the Setup Timer and Counter Screen

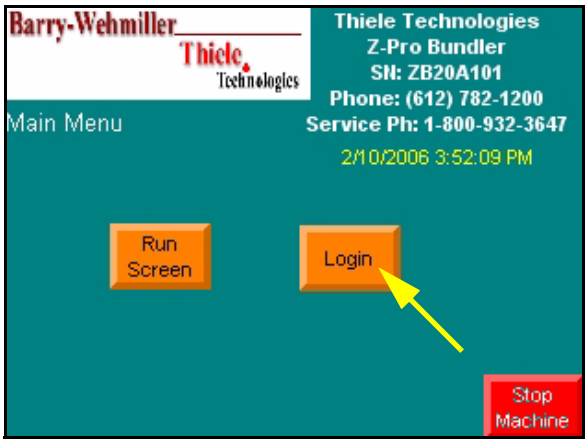
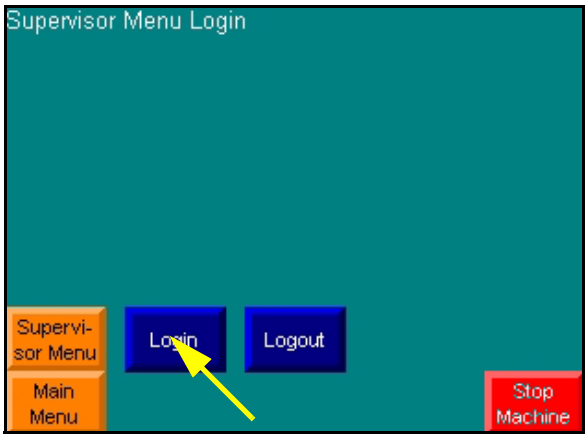
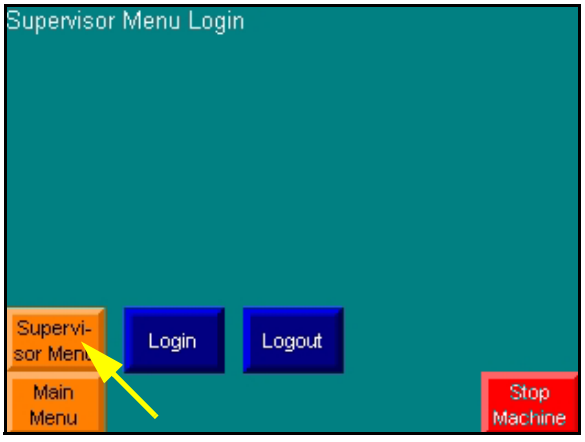
Image	Instructions
	1. From the *Main Menu Screen*, press the **LOGIN** key to bring up the *Supervisor Menu Login Screen.*
	2. From the *Supervisor Menu Login Screen,* press the **LOGIN** key to enter your username and password. 3. Once your username and password have been accepted, you can access all password protected areas of the program.
	4. From the *Supervisor Menu Login Screen,* press the **SUPERVISOR MENU** key. Pressing this key will call up the *Supervisor Menu Screen*.

Table 6: Using the Setup Timer and Counter Screen (Continued)

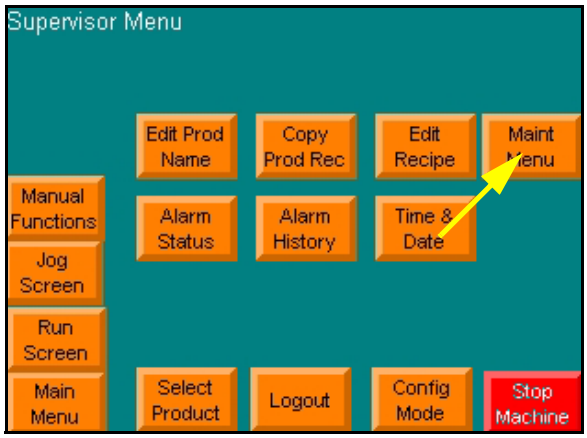
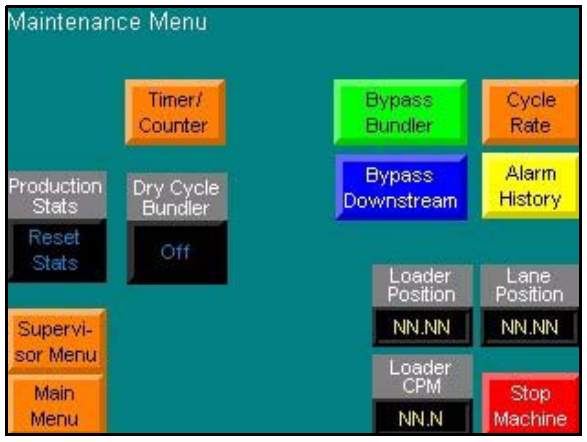
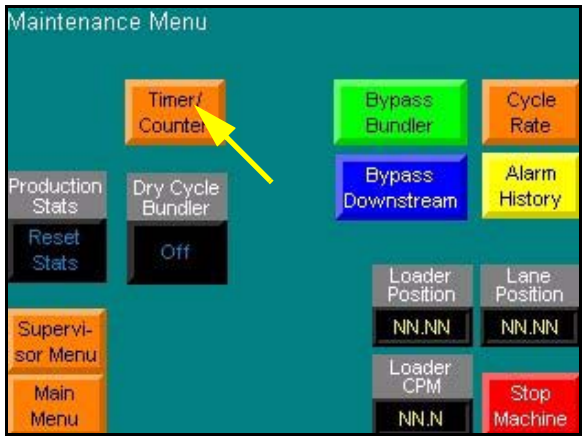
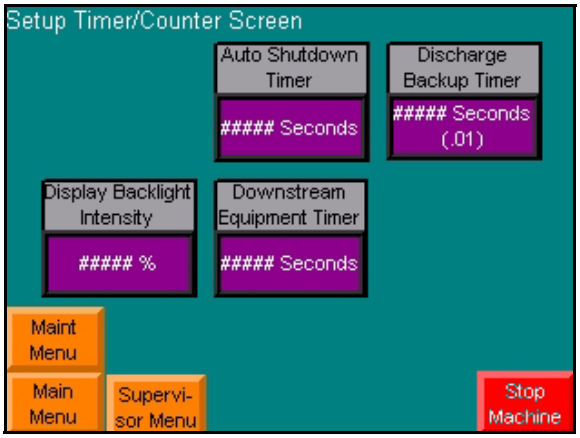
Image	Instructions
	5. From the *Supervisor Menu Screen,* press the **MAINT MENU** key.
	6. Pressing the **MAINT MENU** key will call up the *Maintenance Menu Screen*.
	7. From the *Maintenance Menu Screen*, press the **TIMER/COUNTER** key.

Table 6: Using the Setup Timer and Counter Screen (Continued)

Image	Instructions
	8. Pressing the **TIMER/COUNTER** key will call up the *Setup Timer and Counter Screen*. 9. Press the key labeled with the timer or counter preset that you want to change to call up the numeric entry screen. 10. Key in the new value desired by pressing the appropriate number keys on the numeric entry screen. 11. When you want to accept the current value, press the **ENTER** key to enter the current value. 12. Press the **DONE** key to return to the *Modify Timer and Counter Presets Screen*.

Running the Machine

From the *Run Screen* you can control and monitor the machine functions. From this screen you can access other screens.

- To learn how to call up the *Run Screen*, see "Calling Up the Run Screen" on page 5-75.
- To learn how to disable the infeed conveyors, see "Disabling the Infeed Conveyors" on page 5-76.
- To learn how to clean out products from the machine, see "Cleaning Out Products from the Machine" on page 5-79.

Table 7: Calling Up the Run Screen

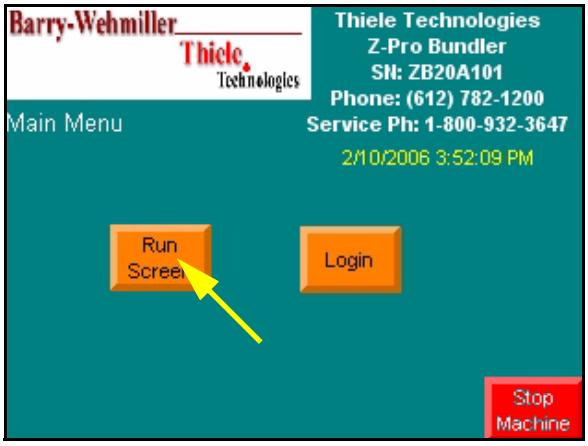
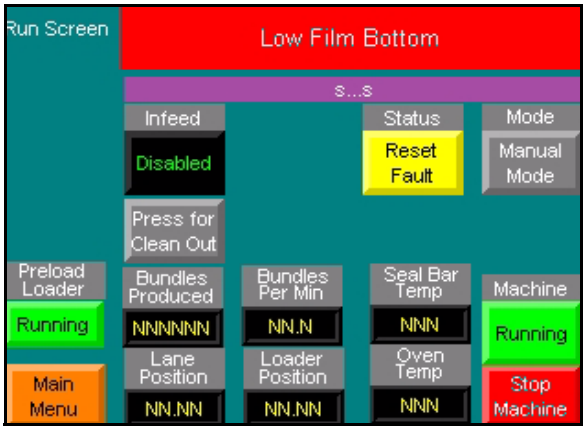
Image	Instructions
	1. From the *Main Menu Screen*, press the **RUN SCREEN** key to bring up the *Run Screen.*
	2. Pressing the **RUN SCREEN** key will bring up the *Run Screen*.

Table 8: Disabling the Infeed Conveyors

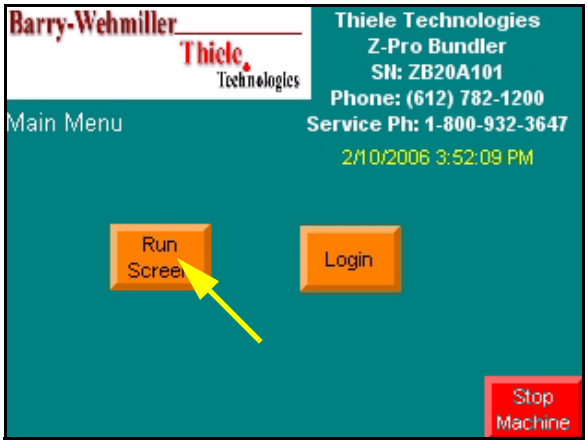
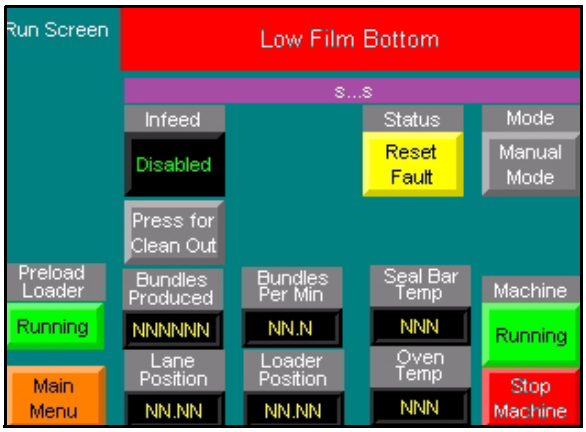
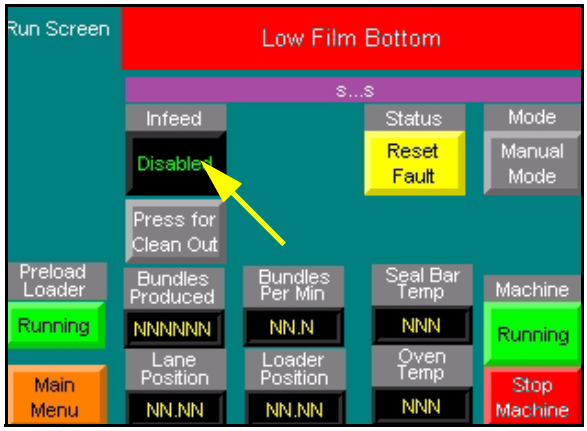
Image	Instructions
	1. From the *Main Menu Screen*, press the **RUN SCREEN** key to bring up the *Run Screen.*
	2. Pressing the **RUN SCREEN** key will bring up the *Run Screen*.
	3. From the *Run Screen*, press the **ENABLED** key to disable the infeed conveyor. Once the conveyor has disabled, the key will change to state **DISABLED**.

Table 8: Disabling the Infeed Conveyors (Continued)

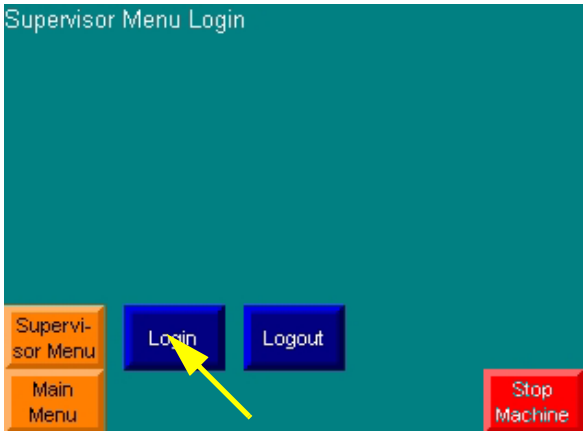
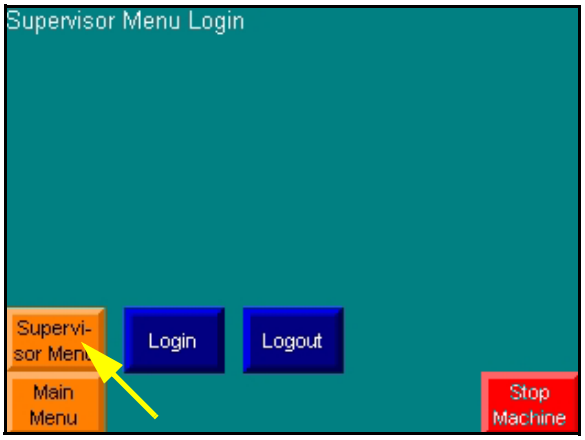
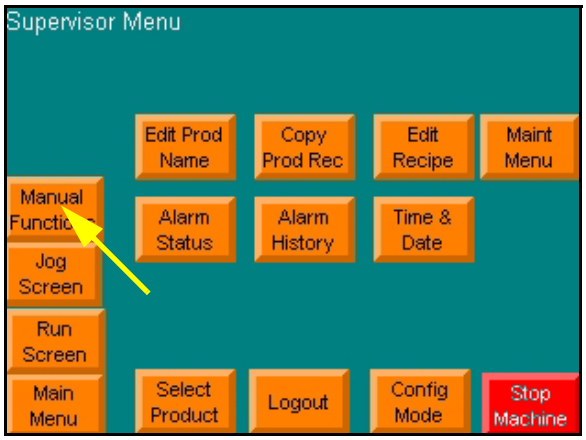
Image	Instructions
	4. From the *Supervisor Menu Login Screen,* press the **LOGIN** key to enter your username and password. 5. Once your username and password have been accepted, you can access all password protected areas of the program.
	6. From the *Supervisor Menu Login Screen,* press the **SUPERVISOR MENU** key. Pressing this key will call up the *Supervisor Menu Screen*.
	7. From the *Supervisor Menu Screen,* press the **MANUAL FUNCTIONS** key.

Table 8: Disabling the Infeed Conveyors (Continued)

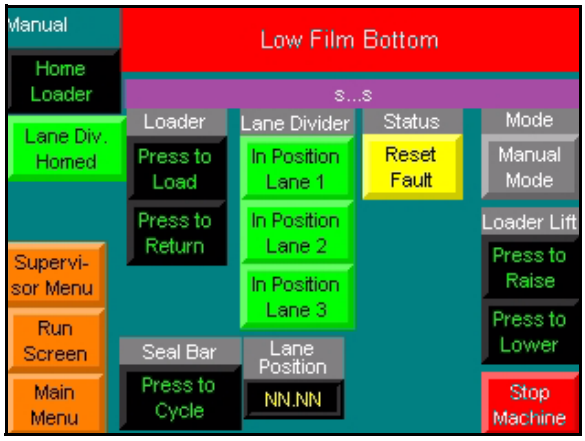
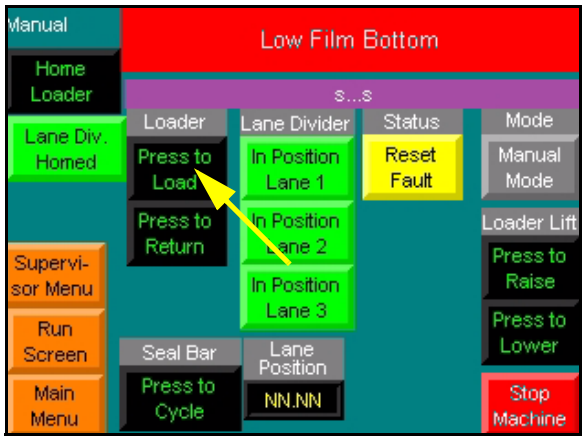
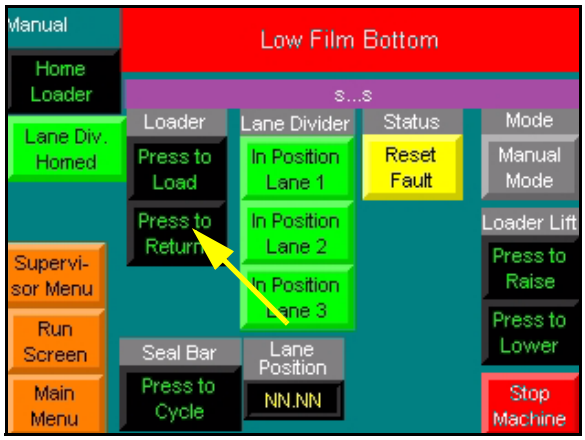
Image	Instructions
	8. Pressing the **MANUAL FUNCTIONS** key calls up the *Manual Functions Screen*.
	9. From the *Manual Functions Screen*, press the **PRESS TO LOAD** key to manually advance the loader.
	10. press the **PRESS TO RETURN** key to manually retract the loader.

Table 9: Cleaning Out Products from the Machine

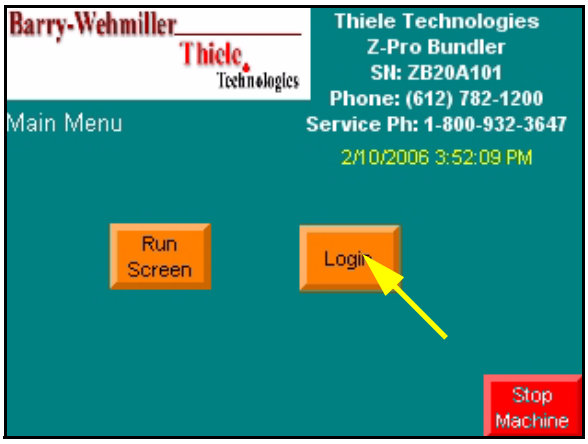
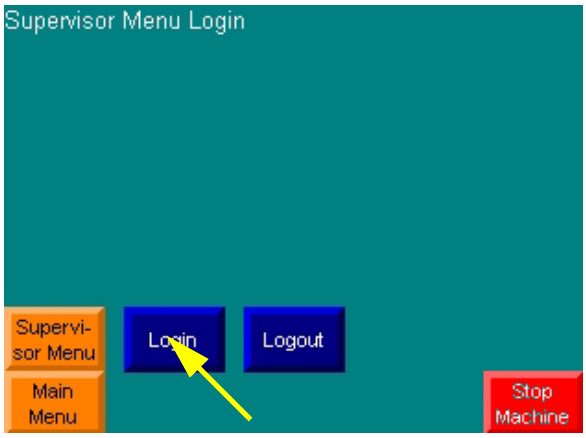
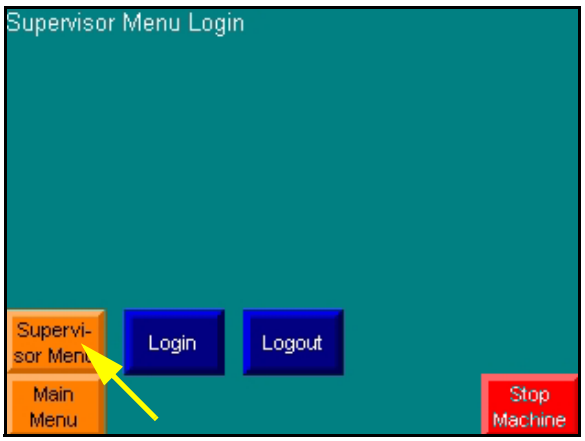
Image	Instructions
	1. From the *Main Menu Screen*, press the **LOGIN** key to bring up the *Supervisor Menu Login Screen.*
	2. From the *Supervisor Menu Login Screen,* press the **LOGIN** key to enter your username and password. 3. Once your username and password have been accepted, you can access all password protected areas of the program.
	4. From the *Supervisor Menu Login Screen,* press the **SUPERVISOR MENU** key. Pressing this key will call up the *Supervisor Menu Screen*.

Table 9: Cleaning Out Products from the Machine (Continued)

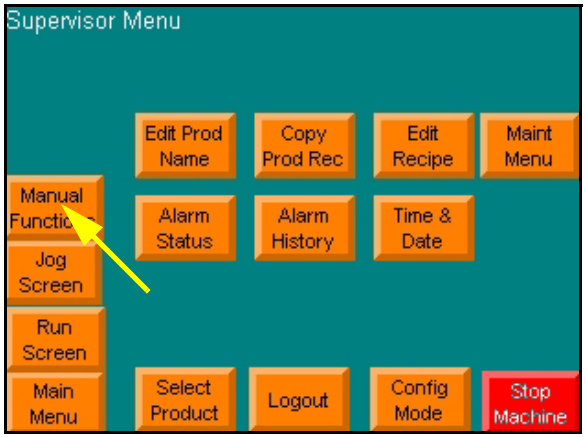
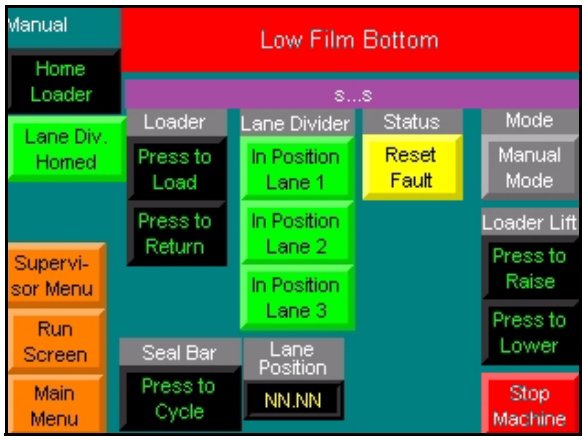
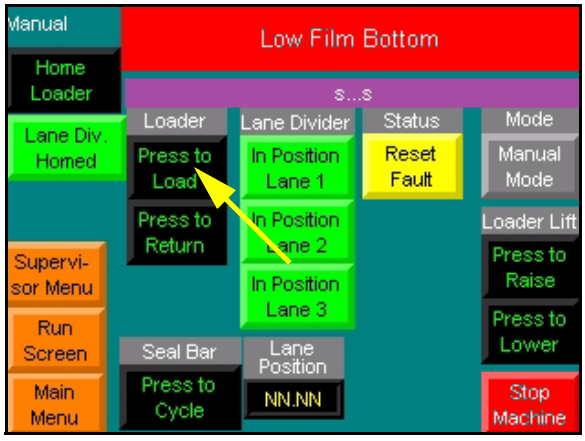
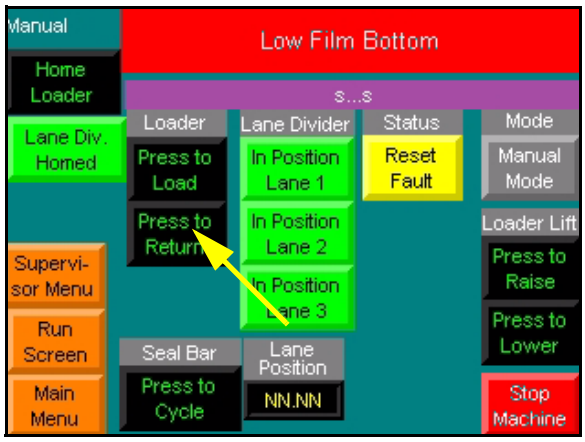
Image	Instructions
	5. From the *Supervisor Menu Screen,* press the **MANUAL FUNCTIONS** key.
	6. Pressing the **MANUAL FUNCTIONS** key calls up the *Manual Functions Screen*.
	7. From the *Manual Functions Screen*, press the **PRESS TO LOAD** key to manually advance the loader.

Table 9: Cleaning Out Products from the Machine (Continued)

Image	Instructions
	8. press the **PRESS TO RETURN** key to manually retract the loader.

Manually Operating the Machine

The *Manual Functions Screen* has keys that let you manually actuate machine functions.

- To learn how to call up the *Manual Functions Screen*, see “Calling up the Manual Functions Screen” on page 5-83.
- To learn how to home the loader, see “Homing the Loader” on page 5-85.
- To learn how to manually operate the loader, see “Operating the Loader” on page 5-87.
- To learn how to home the lane divider see “Homing the Lane Divider” on page 5-90.
- To learn how to manually operate the lane divider see “Operating the Lane Divider” on page 5-92.
- To learn how to manually operate the loader lift, see “Operating the Loader Lift” on page 5-94.

Calling up the Manual Functions Screen

Follow the procedure below to call up the *Manual Functions Screen.*

Table 10: Calling Up the Manual Functions Screen

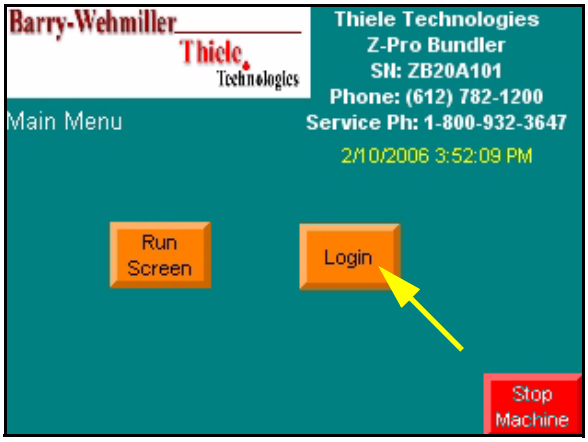
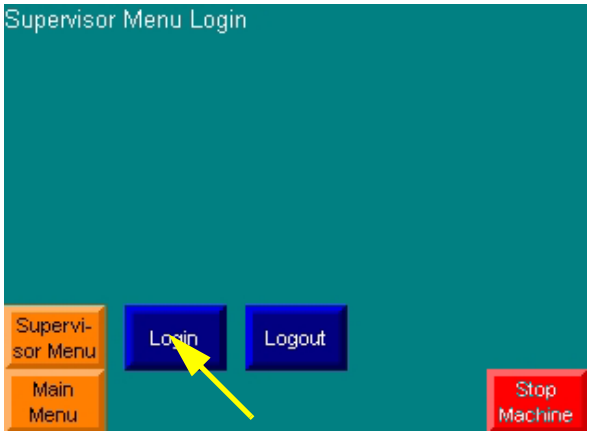
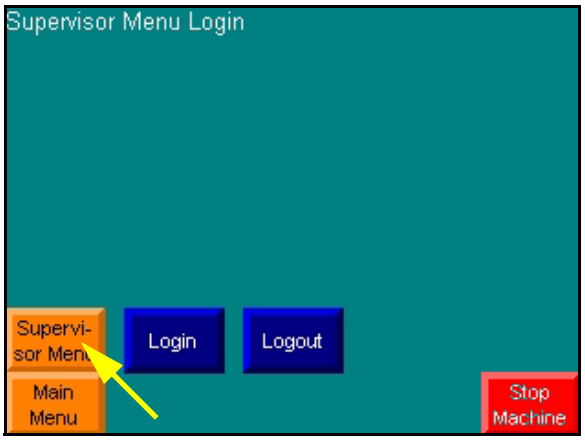
Image	Instructions
	1. From the *Main Menu Screen*, press the **LOGIN** key to bring up the *Supervisor Menu Login Screen.*
	2. From the *Supervisor Menu Login Screen,* press the **LOGIN** key to enter your username and password. 3. Once your username and password have been accepted, you can access all password protected areas of the program.
	4. From the *Supervisor Menu Login Screen,* press the **SUPERVISOR MENU** key. Pressing this key will call up the *Supervisor Menu Screen*.

Table 10: Calling Up the Manual Functions Screen (Continued)

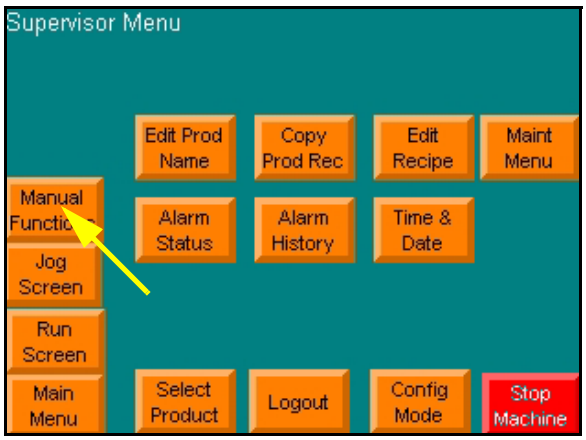
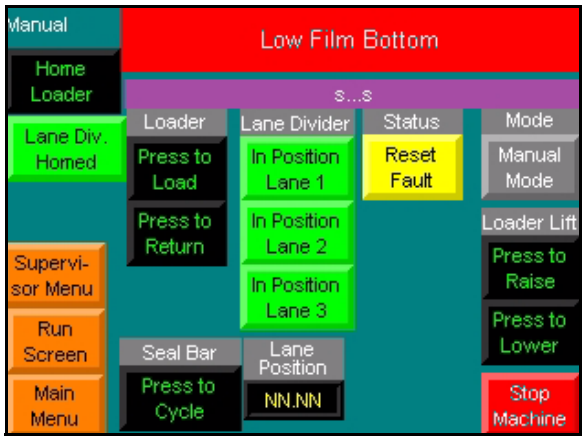
Image	Instructions
	5. From the *Supervisor Menu Screen*, press the **MANUAL FUNCTIONS** key.
	6. Pressing the **MANUAL FUNCTIONS** key calls up the *Manual Functions Screen*.

Table 11: Homing the Loader

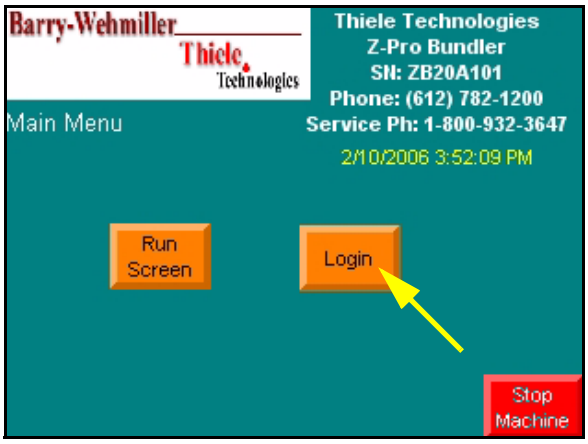
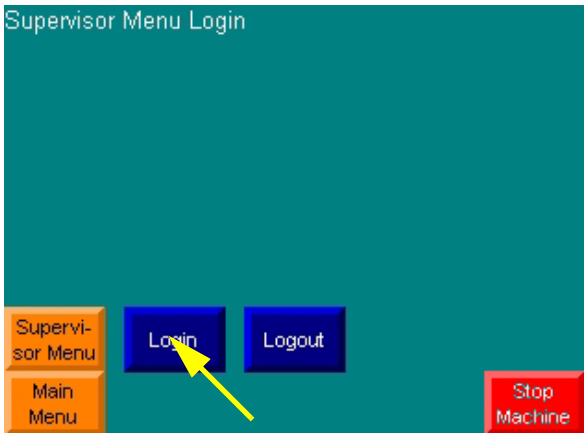
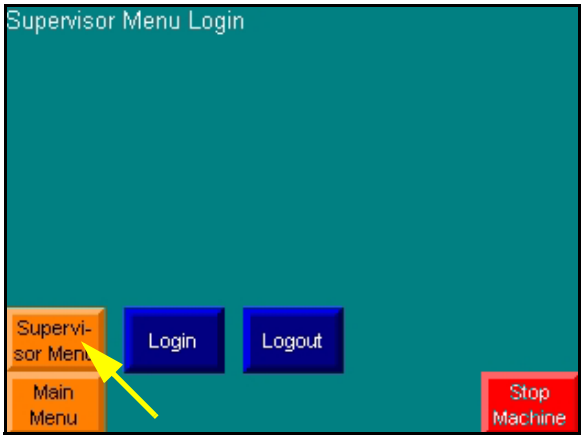
Image	Instructions
	1. From the *Main Menu Screen*, press the **LOGIN** key to bring up the *Supervisor Menu Login Screen.*
	2. From the *Supervisor Menu Login Screen,* press the **LOGIN** key to enter your username and password. 3. Once your username and password have been accepted, you can access all password protected areas of the program.
	4. From the *Supervisor Menu Login Screen,* press the **SUPERVISOR MENU** key. Pressing this key will call up the *Supervisor Menu Screen*.

Table 11: Homing the Loader (Continued)

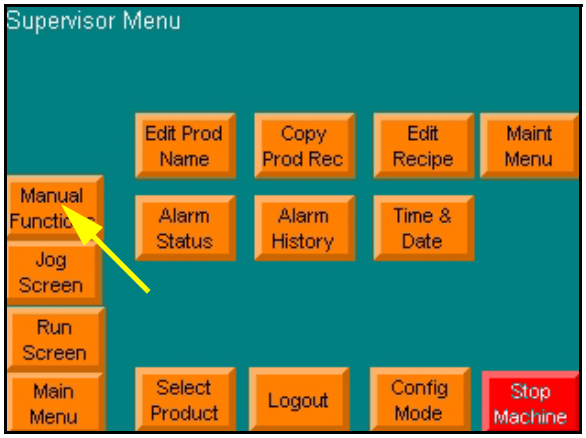
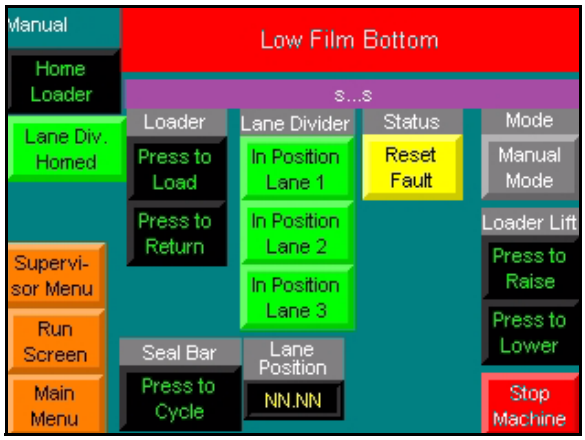
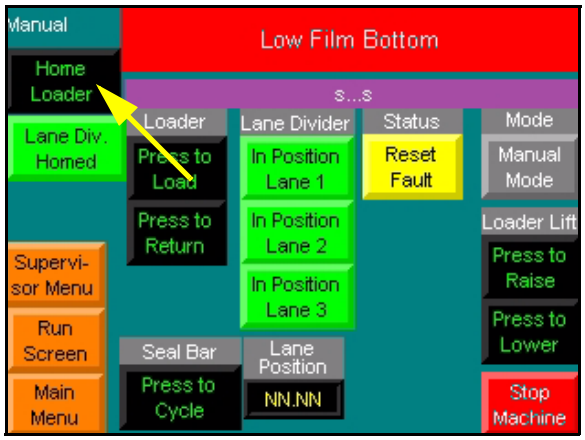
Image	Instructions
	5. From the *Supervisor Menu Screen,* press the **MANUAL FUNCTIONS** key.
	6. Pressing the **MANUAL FUNCTIONS** key calls up the *Manual Functions Screen*.
	7. From the *Manual Functions Screen*, press the **HOME LOADER** key. 8. Once the loader has been homed, the key will change to state **LOADER HOMED**.

Table 12: Operating the Loader

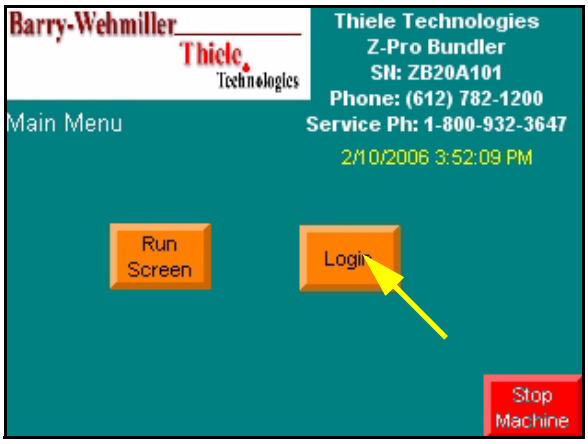
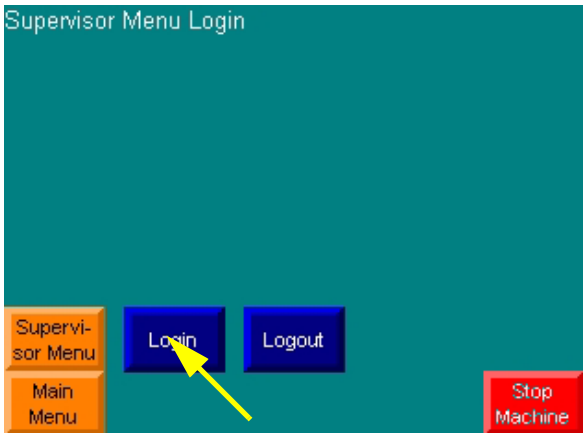
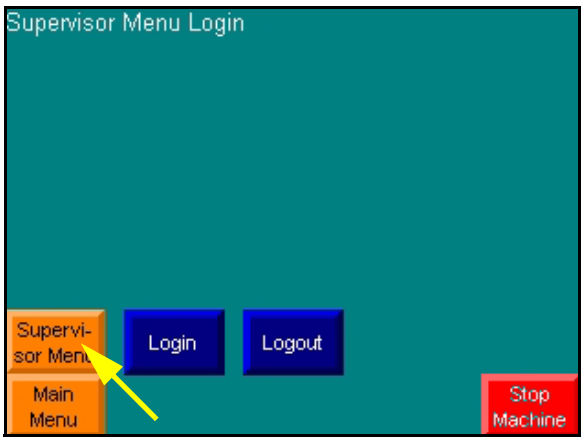
Image	Instructions
	1. From the *Main Menu Screen*, press the **LOGIN** key to bring up the *Supervisor Menu Login Screen.*
	2. From the *Supervisor Menu Login Screen,* press the **LOGIN** key to enter your username and password. 3. Once your username and password have been accepted, you can access all password protected areas of the program.
	4. From the *Supervisor Menu Login Screen,* press the **SUPERVISOR MENU** key. Pressing this key will call up the *Supervisor Menu Screen*.

Table 12: Operating the Loader (Continued)

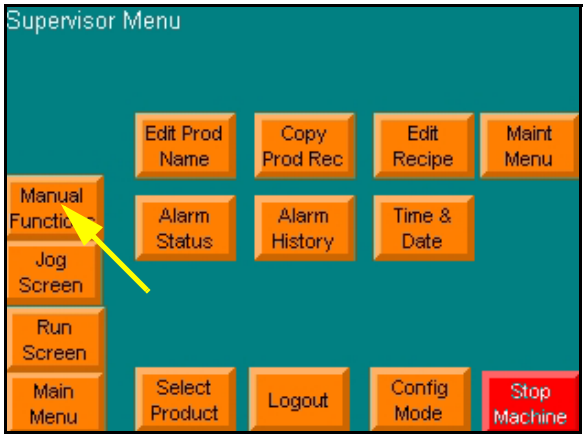
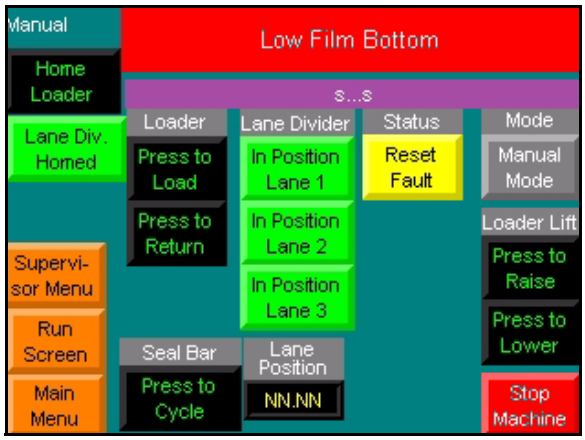
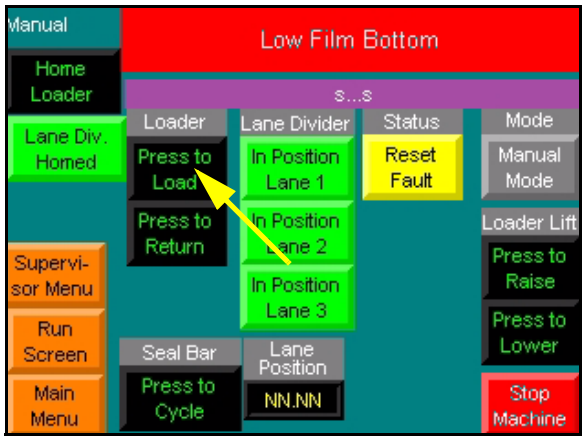
Image	Instructions
	5. From the *Supervisor Menu Screen,* press the **MANUAL FUNCTIONS** key.
	6. Pressing the **MANUAL FUNCTIONS** key calls up the *Manual Functions Screen*.
	7. From the *Manual Functions Screen*, press the **PRESS TO LOAD** key to manually advance the loader.

Table 12: Operating the Loader (Continued)

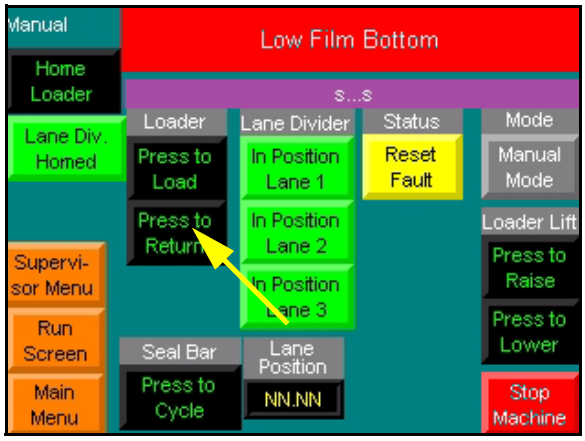
Image	Instructions
	8. press the **PRESS TO RETURN** key to manually retract the loader.

Table 13: Homing the Lane Divider

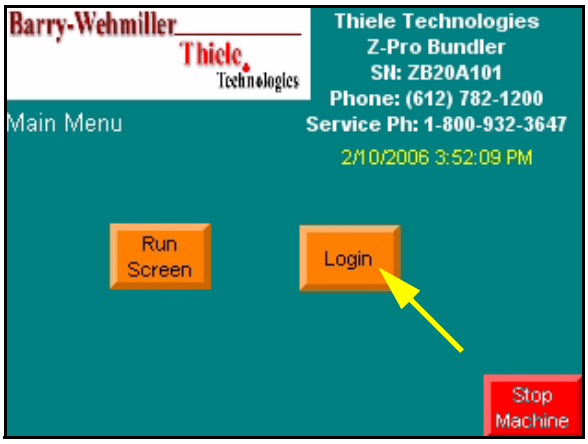
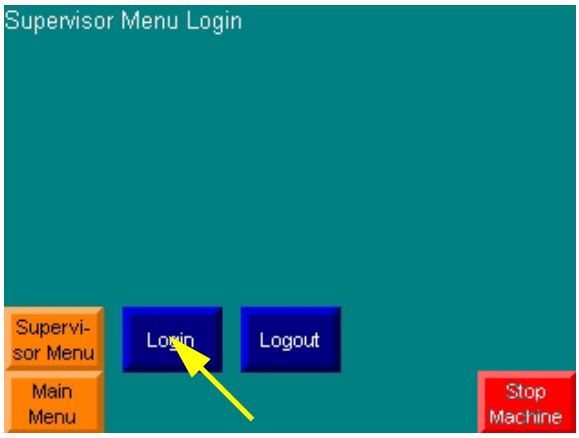
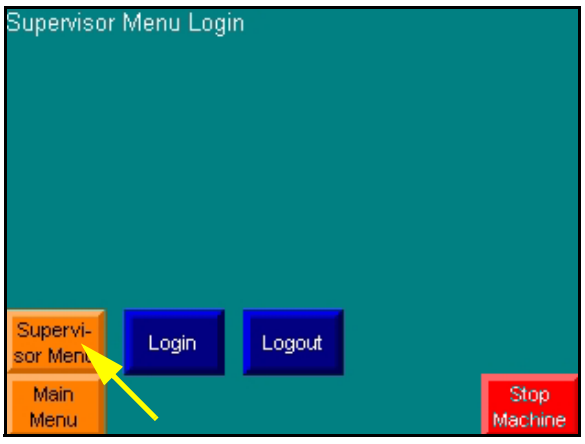
Image	Instructions
	1. From the *Main Menu Screen*, press the **LOGIN** key to bring up the *Supervisor Menu Login Screen.*
	2. From the *Supervisor Menu Login Screen,* press the **LOGIN** key to enter your username and password. 3. Once your username and password have been accepted, you can access all password protected areas of the program.
	4. From the *Supervisor Menu Login Screen,* press the **SUPERVISOR MENU** key. Pressing this key will call up the *Supervisor Menu Screen*.

Table 13: Homing the Lane Divider (Continued)

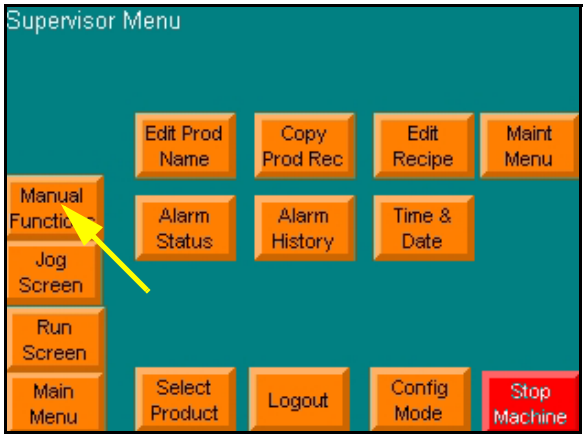
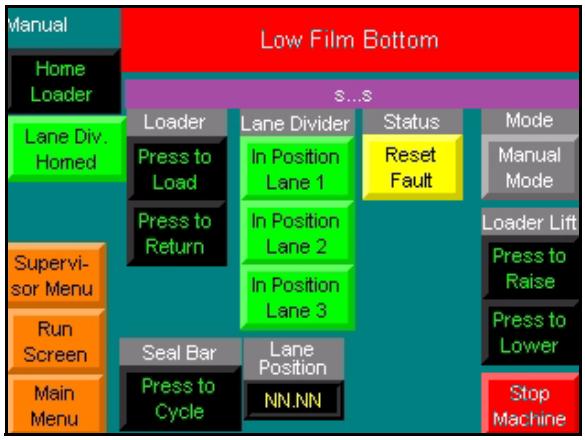
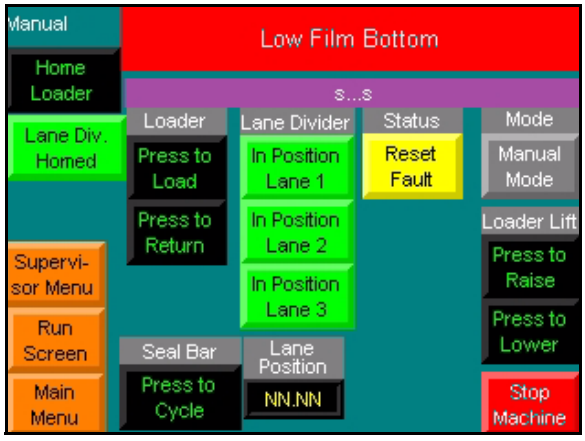
Image	Instructions
	5. From the *Supervisor Menu Screen,* press the **MANUAL FUNCTIONS** key.
	6. Pressing the **MANUAL FUNCTIONS** key calls up the *Manual Functions Screen*.
	7. From the *Manual Functions Screen*, press the **HOME LANE DIV.** key. 8. Once the lane divider has been homed, the key will change to state **LANE DIV. HOMED**.

Table 14: Operating the Lane Divider

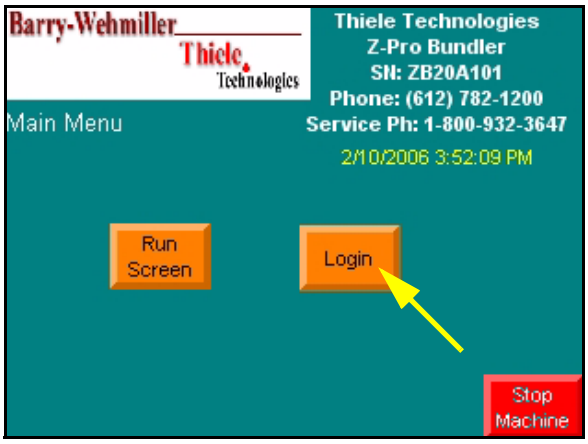
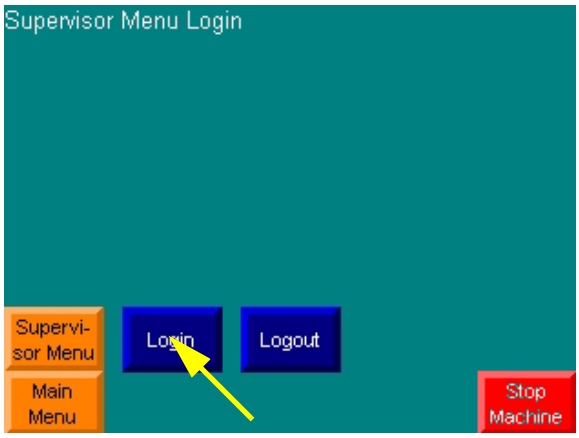
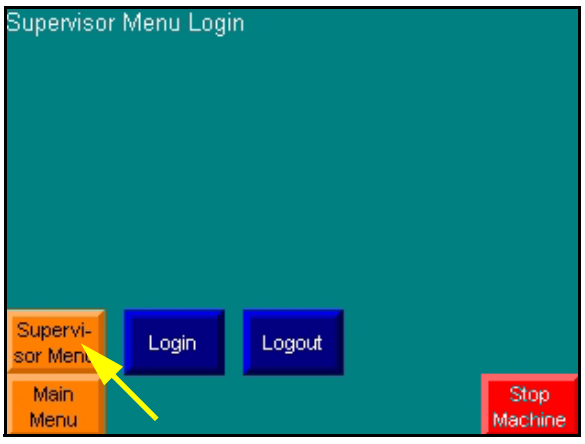
Image	Instructions
	1. From the *Main Menu Screen*, press the **LOGIN** key to bring up the *Supervisor Menu Login Screen.*
	2. From the *Supervisor Menu Login Screen,* press the **LOGIN** key to enter your username and password. 3. Once your username and password have been accepted, you can access all password protected areas of the program.
	4. From the *Supervisor Menu Login Screen,* press the **SUPERVISOR MENU** key. Pressing this key will call up the *Supervisor Menu Screen*.

Table 14: Operating the Lane Divider (Continued)

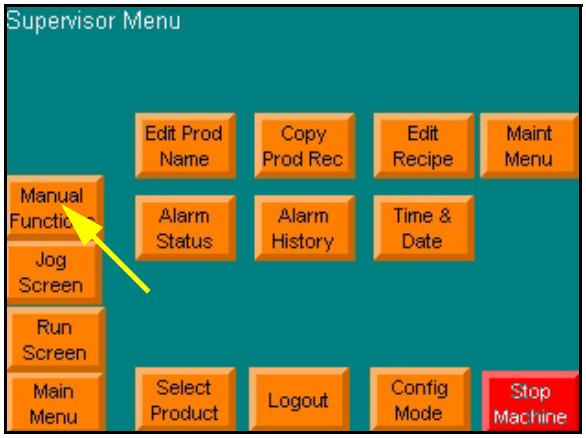
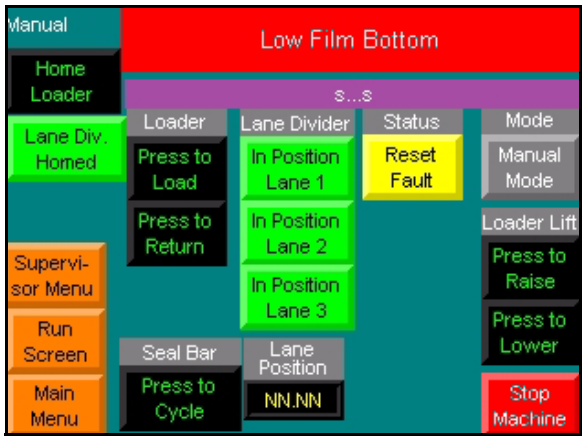
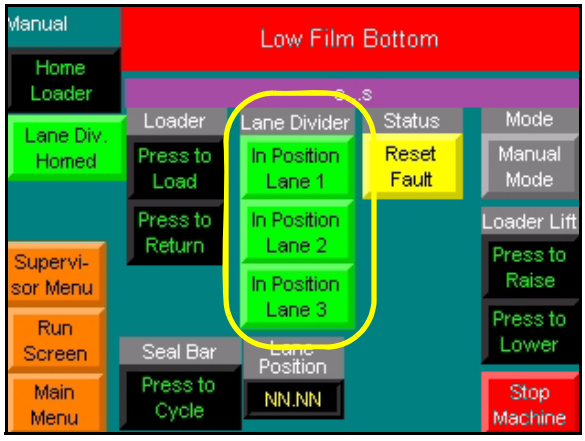
Image	Instructions
	5. From the *Supervisor Menu Screen,* press the **MANUAL FUNCTIONS** key.
	6. Pressing the **MANUAL FUNCTIONS** key calls up the *Manual Functions Screen*.
	7. From the *Manual Functions Screen*, press the lane divider **IN POSITION 1** (to place the lane divider in the left lane), **IN POSITION 2** (to place the lane divider in the center lane), or **IN POSITION 3** (to place the lane divider in the right lane) keys to place the lane divider in the desired position.

Table 15: Operating the Loader Lift

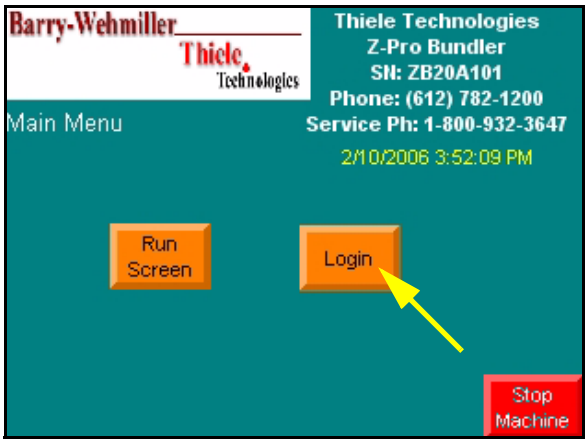
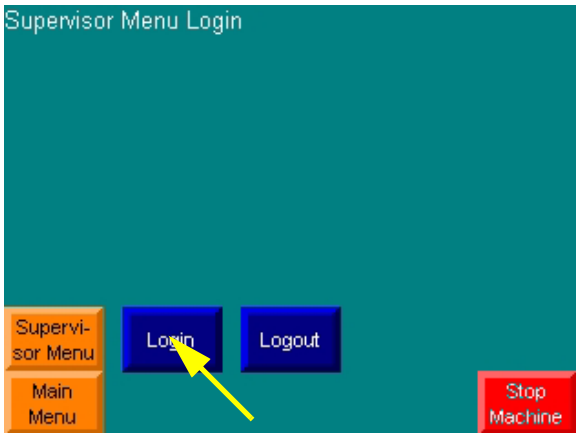
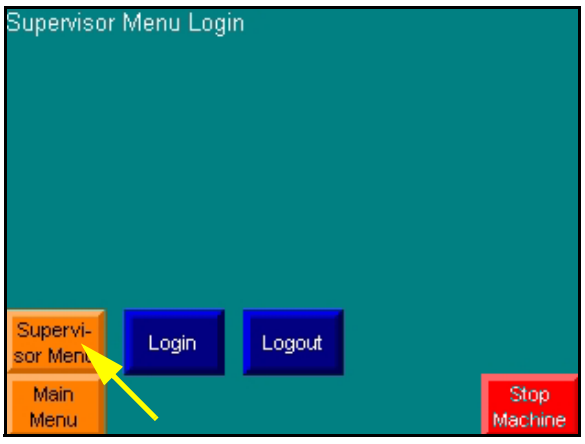
Image	Instructions
	1. From the *Main Menu Screen*, press the **LOGIN** key to bring up the *Supervisor Menu Login Screen.*
	2. From the *Supervisor Menu Login Screen,* press the **LOGIN** key to enter your username and password. 3. Once your username and password have been accepted, you can access all password protected areas of the program.
	4. From the *Supervisor Menu Login Screen,* press the **SUPERVISOR MENU** key. Pressing this key will call up the *Supervisor Menu Screen*.

Table 15: Operating the Loader Lift (Continued)

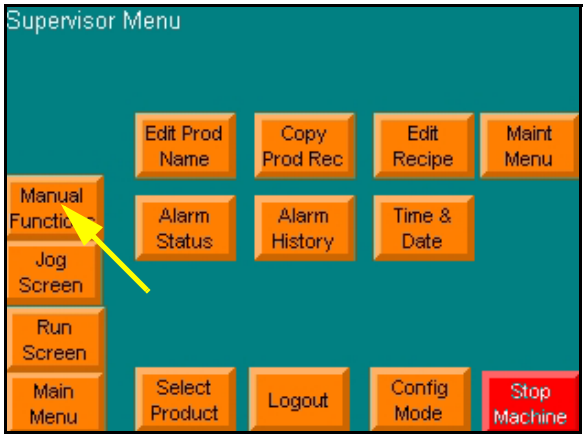
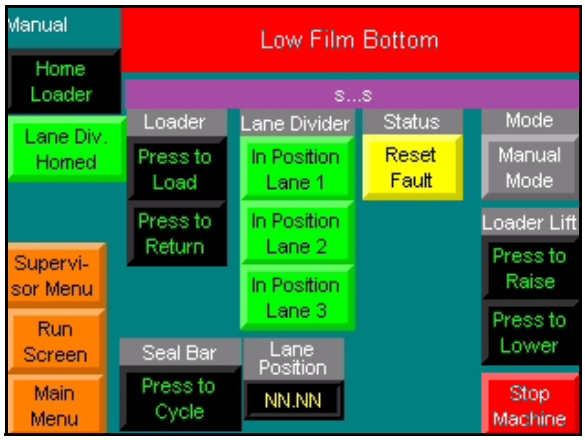
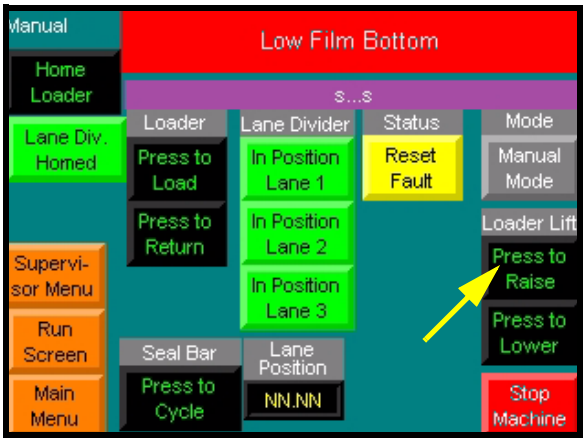
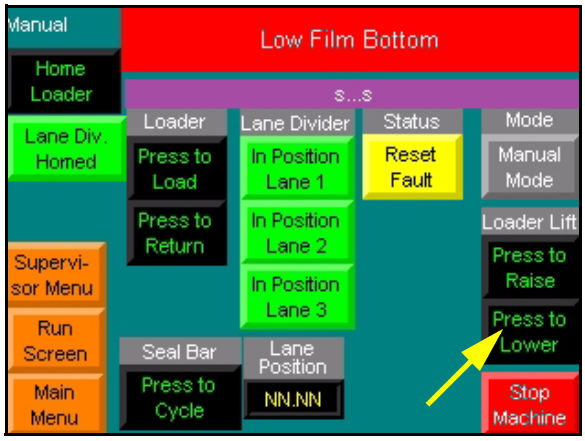
Image	Instructions
	5. From the *Supervisor Menu Screen,* press the **MANUAL FUNCTIONS** key.
	6. Pressing the **MANUAL FUNCTIONS** key calls up the *Manual Functions Screen*.
	7. From the *Manual Functions Screen*, press the **PRESS TO RAISE** key to manually raise the loader lift.

Table 15: Operating the Loader Lift (Continued)

Image	Instructions
	8. From the *Manual Functions Screen*, press the **PRESS TO LOWER** key to manually raise the loader lift.

Emergency Stopping

You can shutdown the machine immediately by:

- opening any guard door or safety gate
- pressing any EMERGENCY STOP button or
- pulling any EMERGENCY STOP pull-cord

CAUTION!

Activating the EMERGENCY STOP sequence shuts off all electrical power to the machine motive functions.

Follow the procedure below to stop the machine in an emergency.

1. Press any EMERGENCY STOP switch on the machine to disconnect the motive power.

   a. Look for EMERGENCY STOP buttons near the operator's control station

   or

2. Open any guard door or safety gate on the machine to shutdown the motive power.

Resetting The Power Circuits After An Emergency Stop

The machine motive circuits need to be reset after any emergency stop. Pressing the SYSTEM E-STOP RESET push-button switch, on the main power control panel, resets the circuits.

Follow the procedure below to reset the machine circuits after an emergency stop.

1. Be sure all conditions that caused the emergency stop are corrected.
2. Pull out all EMERGENCY STOP push-pull switches.
    a. Look for EMERGENCY STOP switches at the following locations:
        • touchscreen/display panel operator’s control station
3. Be sure all safety doors are securely closed and latched.

You can now power up the machine. See the “Powering Up the Machine” on page 5-58 for details on powering up the machine.

Responding to Machine Faults and Informational Messages

The machine displays informational messages and fault messages in the display box on the touchscreen. These messages keep the operator informed of existing conditions on the machine.

Under certain conditions the PLC signals for automatic shutdown of the machine. If a fault condition is detected, equipment operation stops and a corresponding fault message appears in the display.

After the cause of a shutdown has been determined and the fault condition has been corrected, the machine will need to be reset.

In this section, the following will be discussed:

- fault messages - these faults shut off motive power to the machine. The machine remains inoperable until the fault is corrected and the circuits are reset. The fault messages that appear on the machine as well as a description and remedy for each one can be found in the subsection, “Fault Messages” on page 5-101.
- informational messages - these messages tell you the status of a certain operation. For example, a message may appear if the product is low or the air pressure to the machine is low. The machine remains operable. The informational messages that appear on the machine as well as a description and remedy for each one can be found in the subsection, “Informational Messages” on page 5-118.

On the following pages, information about the fault messages and informational messages is provided. The section “Using the Alarm History and Alarm Status Screens” on page 5-100 provides information on how to use the screens and the information provided.

Using the Alarm History and Alarm Status Screens

The touchscreen offers two alarm screens: Alarm History and Alarm Status. The *Alarm History Screen* is used to show all the alarms and status messges that were displayed for the current run. It also shows the date, time, and alarm number for each message. The *Alarm Status Screen* is used to display the machine faults and the number of times each fault has occured. Both screens can be accessed from the *Supervisor Menu Screen*. To learn more about the contents of the *Alarm History Screen* see page 5-8 . To learn more about the contents of the *Alarm Status Screen* see page 5-10 .

Fault Messages

Table 16: Fault Messages

Message Display	Function	Corrective Action
Low Air Pressure	Incoming air pressure has dropped below setting.	1. Verify incoming air pressure is available. 2. Press the **RESET FAULT** key 3. Press the **START** key.
Control Power Off	The safety circuit has been interrupted.	1. Close the guard doors. 2. Pull out the emergency stop button. 3. Push controls on button.
VFD-203 Faulted, Oven Conveyor	The oven conveyor VFD recognizes that there is a fault.	1. Notify your maintenance team. 2. Check the VFD maintenance manual. 3. Pull out the emergency stop button. 4. Push controls on button. 5. Press the **RESET FAULT** key. 6. Press the **MACHINE START** key.
VFD-209 Faulted, Oven Fan	The oven fan VFD recognizes that there is a fault.	1. Notify your maintenance team. 2. Check the VFD maintenance manual. 3. Pull out the emergency stop button. 4. Push controls on button. 5. Press the **RESET FAULT** key. 6. Press the **MACHINE START** key.

Table 16: Fault Messages (Continued)

Message Display	Function	Corrective Action
VFD-215 Faulted, Infeed Conveyor	The infeed conveyor VFD recognizes that there is a fault.	1. Notify your maintenance team. 2. Check the VFD maintenance manual. 3. Pull out the emergency stop button. 4. Push controls on button. 5. Press the **RESET FAULT** key. 6. Press the **MACHINE START** key.
SD-601 Servo Fault, Loader Drive	This is a general servo drive fault.	1. Notify your maintenance team. 2. Check the seven segment display against the manufacturer's manual. 3. Pull out the emergency stop button. 4. Push controls on button. 5. Press the **RESET FAULT** key. 6. Press the **MACHINE START** key.
SD-601 Loader Servo Not o.k.	The servo o.k. signal has dropped off.	1. Check the manufacturer's manual. 2. Pull out the emergency stop button. 3. Push controls on button. 4. Press the **RESET FAULT** key. 5. Press the **MACHINE START** key.

Table 16: Fault Messages (Continued)

Message Display	Function	Corrective Action
SD-601 Loader Servo Homing Fault	The servo has attempted to home but a fault has occured during the process.	1. Check for any obstructions. 2. Pull out the emergency stop button. 3. Push controls on button. 4. Press the **RESET FAULT** key. 5. Press the **MACHINE START** key.
SD-621 Lane Divider Servo Drive Fault	This is a general servo drive fault.	1. Notify your maintenance team. 2. Check the seven segment display against the manufacturer's manual. 3. Pull out the emergency stop button. 4. Push controls on button. 5. Press the **RESET FAULT** key. 6. Press the **MACHINE START** key.
SD-621 Lane Divider Servo Not o.k.	The servo o.k. signal has dropped off.	1. Check the manufacturer's manual. 2. Pull out the emergency stop button. 3. Push controls on button. 4. Press the **RESET FAULT** key. 5. Press the **MACHINE START** key.

Table 16: Fault Messages (Continued)

Message Display	Function	Corrective Action
SD-621 Lane Divider Servo Homing Fault	The servo has attempted to home but a fault has occured during the process.	1. Check for any obstructions. 2. Pull out the emergency stop button. 3. Push controls on button. 4. Press the **RESET FAULT** key. 5. Press the **MACHINE START** key.
Main Op Panel E-Stop Pressed	The emergency stop push button has been pressed.	1. Pull out the emergency stop push button. 2. Press controls on button. 3. Press the **RESET FAULT** key. 4. Press the **MACHINE START** key.
Aux. E-Stop Pressed	The emergency stop push button has been pressed.	1. Pull out the emergency stop push button. 2. Press controls on button. 3. Press the **RESET FAULT** key. 4. Press the **MACHINE START** key.
Lane Divider E-Stop Pressed	The emergency stop push button has been pressed.	1. Pull out the emergency stop push button. 2. Press controls on button. 3. Press the **RESET FAULT** key. 4. Press the **MACHINE START** key.

Table 16: Fault Messages (Continued)

Message Display	Function	Corrective Action
Raise Loader Lift Fault	The loader lift has failed to raise up.	1. Check for any obstructions. 2. Pull out the emergency stop button. 3. Push controls on button. 4. Press the **RESET FAULT** key. 5. Press the **MACHINE START** key.
Infeed Jam Lane 1	The product is at low surge in lane 1 but there is product available in the loader.	1. Check to see if the product is being read by the product in loader proximity switches. 2. Pull out the emergency stop button. 3. Push controls on button. 4. Press the **RESET FAULT** key. 5. Press the **MACHINE START** key.
Infeed Jam Lane 2	The product is at low surge in lane 2 but there is product available in the loader.	1. Check to see if the product is being read by the product in loader proximity switches. 2. Pull out the emergency stop button. 3. Push controls on button. 4. Press the **RESET FAULT** key. 5. Press the **MACHINE START** key.

Table 16: Fault Messages (Continued)

Message Display	Function	Corrective Action
Machine Stopped due to Downstream Conditions	The signal from the downstream (exit) side of the bundler has been lost.	1. Check for any obstructions. 2. Check to see if the exit conveyors have been stopped. 3. Pull out the emergency stop button. 4. Push controls on button. 5. Press the **RESET FAULT** key. 6. Press the **MACHINE START** key.
Infeed Jam Lane 3	The product is at low surge in lane 3 but there is product available in the loader.	1. Check to see if the product is being read by the product in loader proximity switches. 2. Pull out the emergency stop button. 3. Push controls on button. 4. Press the **RESET FAULT** key. 5. Press the **MACHINE START** key.
MCP-202 Fault, Oven Conv	The motor circuit protector has been tripped.	1. Check for any short circuits. 2. Reset the MCP. 3. Pull out the emergency stop button. 4. Push controls on button. 5. Press the **RESET FAULT** key. 6. Press the **MACHINE START** key.

Table 16: Fault Messages (Continued)

Message Display	Function	Corrective Action
MCP-209 Fault, Oven Fan	The motor circuit protector has been tripped.	1. Check for any short circuits. 2. Reset the MCP. 3. Pull out the emergency stop button. 4. Push controls on button. 5. Press the **RESET FAULT** key. 6. Press the **MACHINE START** key.
MCP-214 Fault, Infeed Conv	The motor circuit protector has been tripped.	1. Check for any short circuits. 2. Reset the MCP. 3. Pull out the emergency stop button. 4. Push controls on button. 5. Press the **RESET FAULT** key. 6. Press the **MACHINE START** key.
Seal Bar Safety Bottom Fault	The seal bar has attempted to move but the photoeye is blocked.	1. Remove any obstructions. 2. Close the guard doors. 3. Pull out the emergency stop button. 4. Push controls on button. 5. Press the **RESET FAULT** key. 6. Press the **MACHINE START** key.

Table 16: Fault Messages (Continued)

Message Display	Function	Corrective Action
Low Film Upper	The film roll is low and the preset recipe value has been exceeded. To learn more about preset film roll values, go to the "Edit Product Recipe #3 Screen (Recipe Items 19-27)" on page 5-22.	1. Replace the film roll. 2. Pull out the emergency stop button. 3. Push controls on button. 4. Press the **RESET FAULT** key. 5. Press the **MACHINE START** key.
Low Film Bottom	The film roll is low and the preset recipe value has been exceeded. To learn more about preset film roll values, go to the "Edit Product Recipe #3 Screen (Recipe Items 19-27)" on page 5-22.	1. Replace the film roll. 2. Pull out the emergency stop button. 3. Push controls on button. 4. Press the **RESET FAULT** key. 5. Press the **MACHINE START** key.
Tipped Product Lane 1	Check for tipped product in the infeed loader.	1. Remove the product or place it in the upright position. 2. Pull out the emergency stop button. 3. Push controls on button. 4. Press the **RESET FAULT** key. 5. Press the **MACHINE START** key.
Tipped Product Lane 2	Check for tipped product in the infeed loader.	1. Remove the product or place it in the upright position. 2. Pull out the emergency stop button. 3. Push controls on button. 4. Press the **RESET FAULT** key. 5. Press the **MACHINE START** key.

Table 16: Fault Messages (Continued)

Message Display	Function	Corrective Action
Tipped Product Lane 3	Check for tipped product in the infeed loader.	1. Remove the product or place it in the upright position. 2. Pull out the emergency stop button. 3. Push controls on button. 4. Press the **RESET FAULT** key. 5. Press the **MACHINE START** key.
Lane Divider Discharge Jammed	The product exiting the lane divider has blocked the photoeye as the lane divider was attempting to shift between lanes.	1. Remove the blockage. 2. Pull out the emergency stop button. 3. Push controls on button. 4. Press the **RESET FAULT** key. 5. Press the **MACHINE START** key.
Auto Shutdown	The machine is shutting down because the preset amount of idle time, with no product running throught the machine, has been exceeded.	1. Pull out the emergency stop button. 2. Push controls on button. 3. Press the **RESET FAULT** key. 4. Press the **MACHINE START** key.
CH-0 Communication Fault	The communication at channel 0 of the PLC has been interrupted.	1. Check the connection. 2. Pull out the emergency stop button. 3. Push controls on button. 4. Press the **RESET FAULT** key. 5. Press the **MACHINE START** key.

Table 16: Fault Messages (Continued)

Message Display	Function	Corrective Action
CH-1 Communication Fault	The communication at channel 1 of the PLC has been interrupted.	1. Check the connection. 2. Pull out the emergency stop button. 3. Push controls on button. 4. Press the **RESET FAULT** key. 5. Press the **MACHINE START** key.
Top Seal Bar Retract Fault	The top seal bar was retracting but did not return to its home position in the preset amount of time.	1. Remove any obstructions. 2. Close the guard doors. 3. Pull out the emergency stop button. 4. Push controls on button. 5. Press the **RESET FAULT** key. 6. Press the **MACHINE START** key.
Top Seal Bar Extend Fault	The top seal bar was extending but did not extend in the preset amount of time.	1. Remove any obstructions. 2. Close the guard doors. 3. Pull out the emergency stop button. 4. Push controls on button. 5. Press the **RESET FAULT** key. 6. Press the **MACHINE START** key.
Bottom Seal Bar Extend Fault	The bottom seal bar was extending but did not extend in the preset amount of time.	1. Remove any obstructions. 2. Close the guard doors. 3. Pull out the emergency stop button. 4. Push controls on button. 5. Press the **RESET FAULT** key. 6. Press the **MACHINE START** key.

Table 16: Fault Messages (Continued)

Message Display	Function	Corrective Action
Bottom Seal Bar Retract Fault	The bottom seal bar was retracting but did not return to its home position in the preset amount of time.	1. Remove any obstructions. 2. Close the guard doors. 3. Pull out the emergency stop button. 4. Push controls on button. 5. Press the **RESET FAULT** key. 6. Press the **MACHINE START** key.
Seal Bar Safety Right Fault	During the seal bar actuation, the proximity switch recognized a blockage.	1. Remove any obstructions. 2. Close the guard doors. 3. Pull out the emergency stop button. 4. Push controls on button. 5. Press the **RESET FAULT** key. 6. Press the **MACHINE START** key.
Seal Bar Safety Left Fault	During the seal bar actuation, the proximity switch recognized a blockage.	1. Remove any obstructions. 2. Close the guard doors. 3. Pull out the emergency stop button. 4. Push controls on button. 5. Press the **RESET FAULT** key. 6. Press the **MACHINE START** key.
Line Stop Cyl Retract Fault	The line stop cylinder was retracting but did not return to its home position in the preset amount of time.	1. Remove any obstructions. 2. Close the guard doors. 3. Pull out the emergency stop button. 4. Push controls on button. 5. Press the **RESET FAULT** key. 6. Press the **MACHINE START** key.

Table 16: Fault Messages (Continued)

Message Display	Function	Corrective Action
Line Stop Cyl Extend Fault	The line stop cylinder was extending but did not extend in the preset amount of time.	1. Remove any obstructions. 2. Close the guard doors. 3. Pull out the emergency stop button. 4. Push controls on button. 5. Press the **RESET FAULT** key. 6. Press the **MACHINE START** key.
Loader is Out of Position	The loader is not at its extended position.	1. Remove any obstructions. 2. Close the guard doors. 3. Pull out the emergency stop button. 4. Push controls on button. 5. Press the **RESET FAULT** key. 6. Press the **MACHINE START** key.
Lower Loader Lift Fault	The loader lift tried to lower but did not lower in the preset amount of time.	1. Remove any obstructions. 2. Close the guard doors. 3. Pull out the emergency stop button. 4. Push controls on button. 5. Press the **RESET FAULT** key. 6. Press the **MACHINE START** key.

Table 16: Fault Messages (Continued)

Message Display	Function	Corrective Action
Tip Product At Low Surge Lane 1	Lane 1 photoeye high surge is on but the low surge photoeye is not.	1. Check lane 1 for a tipped product. 2. Remove the product or place the product in the upright position. 3. Close the guard doors. 4. Pull out the emergency stop button. 5. Push controls on button. 6. Press the **RESET FAULT** key. 7. Press the **MACHINE START** key.
Tip Product At Low Surge Lane 2	Lane 2 photoeye high surge is on but the low surge photoeye is not.	1. Check lane 2 for a tipped product. 2. Remove the product or place the product in the upright position. 3. Close the guard doors. 4. Pull out the emergency stop button. 5. Push controls on button. 6. Press the **RESET FAULT** key. 7. Press the **MACHINE START** key.

Table 16: Fault Messages (Continued)

Message Display	Function	Corrective Action
Tip Product At Low Surge Lane 3	Lane 3 photoeye high surge is on but the low surge photoeye is not.	1. Check lane 3 for a tipped product. 2. Remove the product or place the product in the upright position. 3. Close the guard doors. 4. Pull out the emergency stop button. 5. Push controls on button. 6. Press the **RESET FAULT** key. 7. Press the **MACHINE START** key.
Bottom Film Overfeed Fault	The bottom film motor ran too long and has faulted.	1. Check the film flow. 2. Close the guard doors. 3. Pull out the emergency stop button. 4. Push controls on button. 5. Press the **RESET FAULT** key. 6. Press the **MACHINE START** key.
Top Film Overfeed Fault	The top film motor ran too long and has faulted.	1. Check the film flow. 2. Close the guard doors. 3. Pull out the emergency stop button. 4. Push controls on button. 5. Press the **RESET FAULT** key. 6. Press the **MACHINE START** key.

Table 16: Fault Messages (Continued)

Message Display	Function	Corrective Action
Home Loader	The loader needs to be homed.	1. Pull out the emergency stop button. 2. Push controls on button. 3. Press the **RESET FAULT** key. 4. Press the **MACHINE START** key.
Home Lane Divider	The lane divider needs to be homed.	1. Pull out the emergency stop button. 2. Push controls on button. 3. Press the **RESET FAULT** key. 4. Press the **MACHINE START** key.
Check for Broken Seal Bar Web	The product pushing through the seal bar hasn't triggered the film feed.	1. Check the sensors. Be sure they are free from dust or debris. 2. Close the guard doors. 3. Pull out the emergency stop button. 4. Push controls on button. 5. Press the **RESET FAULT** key. 6. Press the **MACHINE START** key.

Table 16: Fault Messages (Continued)

Message Display	Function	Corrective Action
Oven Overtemperature Too Long	The oven temperature is operating above the preset temperature longer than the allotted amount of time.	1. Verify that there are not any problems with the wiring. 2. Check that the oven fan is running in proper condition (see manufacturer's literature). 3. Close the guard doors. 4. Pull out the emergency stop button. 5. Push controls on button. 6. Press the **RESET FAULT** key. 7. Press the **MACHINE START** key.
Seal Bar Overtemperature Too Long	The seal bar temperature is operating above the preset temperature longer than the allotted amount of time.	1. Verify that there are not any problems with the wiring. 2. Close the guard doors. 3. Pull out the emergency stop button. 4. Push controls on button. 5. Press the **RESET FAULT** key. 6. Press the **MACHINE START** key.
Oven VFD Running, Fan Not Turning	The oven VFD is running at proper speed but the proximity switch is not sensing any motion.	1. Check the fan belt. 2. Close the guard doors. 3. Pull out the emergency stop button. 4. Push controls on button. 5. Press the **RESET FAULT** key. 6. Press the **MACHINE START** key.

Table 16: Fault Messages (Continued)

Message Display	Function	Corrective Action
Lane Divider Not Clear To Shift	The product exiting the lane divider has blocked the photoeye as the lane divider was attempting to shift between lanes.	1. Remove the blockage. 2. Close the guard doors. 3. Pull out the emergency stop button. 4. Push controls on button. 5. Press the **RESET FAULT** key. 6. Press the **MACHINE START** key.
Oven Thermocouple Disconnected	The wiring is disconnected.	1. Check to see if the wiring is disconnected. 2. Make any necessary repairs. 3. Close the guard doors. 4. Pull out the emergency stop button. 5. Push controls on button. 6. Press the **RESET FAULT** key. 7. Press the **MACHINE START** key.
Seal Bar Thermocouple Disconnected	The wiring is disconnected.	1. Check to see if the wiring is disconnected. 2. Make any necessary repairs. 3. Close the guard doors. 4. Pull out the emergency stop button. 5. Push controls on button. 6. Press the **RESET FAULT** key. 7. Press the **MACHINE START** key.

Informational Messages

Table 17: Informational Messages

Message Display	Function	Corrective Action
Please Wait...	The safety circuit is being re-established. There may be a slight delay.	No action is required.
Press the "Press To Reset Fault" push button	The reset fault push button must be pressed prior to performing requested action.	Push the reset fault push button on the HMI.
"Start Machine" is Not Possible	The machine must be in auto mode to start the machine.	On the *Run Screen*, press the **AUTO MODE** key to place the machine in auto mode.
Not Possible	The action requested is not possible	
Machine is Running	This is a status message.	No action is required.
Machine is Ready to Run	This is a status message informing the user that the machine is ready to run.	No action is required.
Manual Mode Selected	This is message informs the user that the machine is in manual mode.	No action is required.
Auto Mode Selected	This is message informs the user that the machine is in auto mode.	No action is required.
DeviceNet Scanner Module is Not Running	The scanner module is not scanning.	1. Check the wiring against the schematics. 2. Refer to the manufacturer's literature.
DeviceNet Communication Error	There is a communications error.	1. Check the wiring against the schematics. 2. Check any new devices that were added or any nodes that were changed. 3. Refer to the manufacturer's literature.

Table 17: Informational Messages (Continued)

Message Display	Function	Corrective Action
Go to Supervisor Menu and then to Setup screen(s) to enter VFD reference (Hz)	If no VFD reference per drive is chosen, a reference is required.	
Waiting for product at the Infeed	The machine is running but no product is coming onto the infeed conveyors.	No action is required.
Selected Product has no name. Provide a Product Name &/or accept a new Product Selection.	The product chosen has no name associated.	Create a product name. For instructions on creating a user name, see “Editing a Product Name” on page 5-66.
SLC Low Battery	The SLC battery is low.	Replace the battery.
Discharge Backed up, PE-1929	The discharge conveyor has a backlog of product.	Clear the back-up photoeye.
Downstream Equip-ment is Not running	The signal has been interrupted.	Check the downsteam equipment for obstructions.
Some Areas Of The Machine Are Paused	The downstream photoeye may be blocked.	Check the downsteam equipment for obstructions.

Shutting Down the Machine

You can shut down the machine via the touchscreen operator's control station. Follow the procedure below to shutdown the machine.

Table 18: Shutting Down Machine

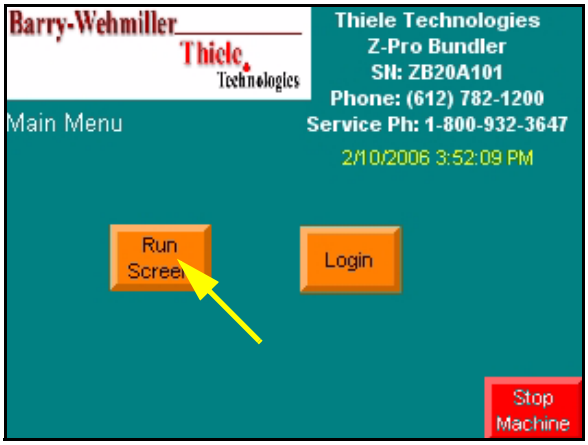
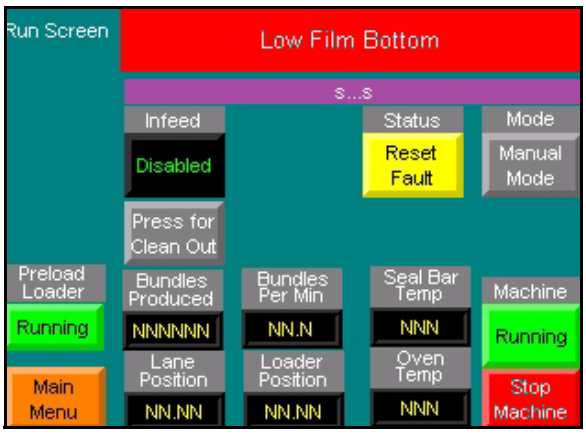
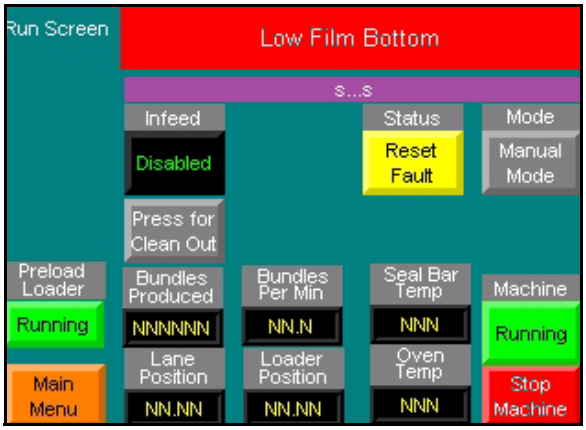
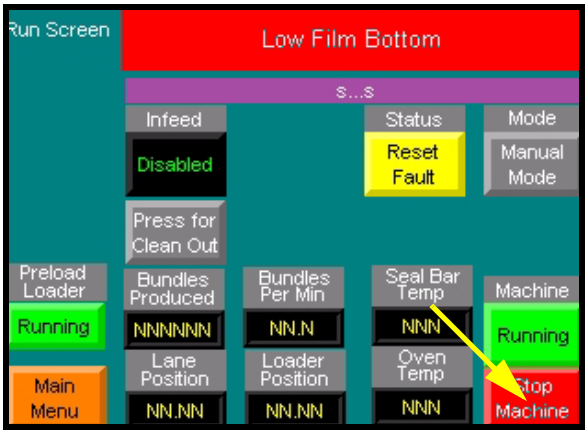
Image	Instructions
	1. From the *Main Menu Screen*, press the **RUN SCREEN** key to bring up the *Run Screen.*
	2. Pressing the **RUN SCREEN** key will bring up the *Run Screen*.

Table 18: Shutting Down Machine (Continued)

Image	Instructions
	3. From the *Run Screen*, press the **PRESS FOR CLEANOUT** key to bypass the infeed sensors and clear the machine of any remaining product.
	4. Once any remaining product has been cleared from the machine, press the **STOP MACHINE** key to cycle stop the machine. 5. Place the main electrical disconnect switch in the **OFF** position. 6. Turn the main air supply valve to the machine system to the **OFF** position.

SECTION 6

OPTIONS

This section is reserved for special options on your machine. This Model ZB20A Wraparound Case Packer does not require this information at this time.

Section 7
MAINTENANCE & TROUBLESHOOTING

Table of Contents

SECTION 7

MAINTENANCE & TROUBLESHOOTING

Overview

This chapter contains information necessary to ensure safe and proper maintenance of your machine. Although the machine is designed to provide maximum performance with minimum maintenance, it is important to maintain cleanliness, timely lubrication, and periodic maintenance to ensure the machine's peak efficiency and prolonged performance.

The following will be discussed in this chapter:

- pre-maintenance procedures
- maintenance areas and procedures
- troubleshooting

Pre-Maintenance Procedures

Maintenance personnel are assumed to be experienced in working with electromechanical assemblies and components. Because of the many options involved, specific instructions are not provided for many of the suggested procedures and the method is left to the discretion of the service person. Accordingly, personnel using procedures not recommended or approved by Thiele Technologies, Inc. should first completely satisfy themselves that personal safety and equipment integrity will not be jeopardized in the method selected.

The following will be covered in this section:

- safety precautions (locking out air power)
- ordering replacement parts

Safety Precautions

Before any maintenance work is done on the machine, safety precautions must be followed. See "Safety First" in Section 1 of this manual. Before you begin working on the machine, you should take the time to read and familiarize yourself with the safety information provided in this manual as well as your company's safety procedures. Only qualified personnel should perform any maintenance work on the machine.

All air and electrical power to the machine must be locked out before performing any work on the machine. Below are procedures for locking out air and electrical power.

IMPORTANT!

It is your responsibility to know and follow your company's lockout/tagout procedures.

Locking Out Air Power

For safety purposes, you need to lock out supply air to the machine before doing any maintenance work. You can lock out the supply air via the lock out holes on the manually operated valve. The air regulator is a relieving type valve. The pressure gauge drops to zero when the air is shut off.

IMPORTANT!

It is your responsibility to know and follow your company's lockout/tagout procedures.

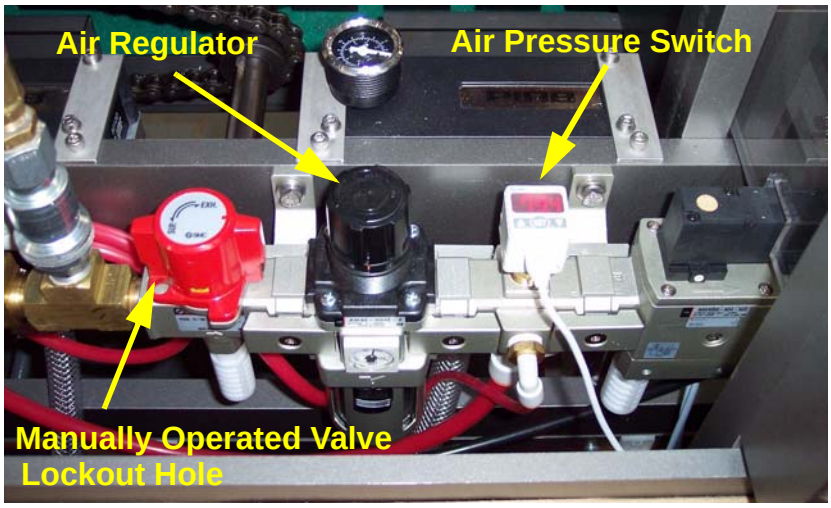


Figure 7-1: Manually Operated Valve and Air Filter/Regulator

Follow the procedure below to lock out supply air to the machine:

1. Turn the manually operated valve so the lockout hole on the valve lines up with the hole on the lock out tab as shown in the photo above.
2. Ensure the lockout holes line up so a padlock can be used to lock the shut off valve in position.
3. Check that the air pressure gauge shows 0 psi.
4. Be sure all the air has been expelled before doing maintenance work to the machine.

After the servicing and/or maintenance are complete and equipment is ready for normal production operations, check the area around the machine or equipment to

- ensure that employees are in the clear.
- After all tools have been removed from the machine or equipment,
- guards have been installed or restored

After all checks are complete, perform the following steps below.

1. Remove all lockout and tagout devices.
2. Return the switch counter-clockwise to its ON position.
3. Restore energy to the machine by operating the energy isolating devices.

Ordering Replacement Parts

It is essential for maximum performance that only genuine Thiele parts (or Thiele specified parts) be used as replacement parts. Refer to "Parts & Service" in section 8 for the further information about ordering parts. For information on finding the right parts to order, see "Assembly Drawings & Control Prints" in section 12 to identify the appropriate part number.

Maintenance Areas and Procedures

It is important to provide periodic maintenance to your machine to ensure its proper function. In addition to following maintenance procedures described below, the machine should be clean and free of debris at all times. Any product that become caught in the machine should be removed immediately to keep the machine running as efficiently as possible. Operators should also be alert for any unusual noises or leaks in the system. An unusual noise or leak may be an indication of a machine malfunction, that if not repaired, could cause extensive damage to the equipment or its components.

In this section the following will be discussed:

- general maintenance activities that should be performed on a daily basis
- specific maintenance areas that should be attended to periodically
- machine timing
- adjustments for machine maintenance

Maintenance Schedule

Following is a chart listing specific components that require periodic maintenance. The chart also provides suggested maintenance intervals. Remember, these are suggested intervals only. Plant experience, combined with environmental conditions and desired equipment performance levels, will determine the best maintenance intervals for your machine. It is recommended that a copy of all maintenance schedules and service reports be filed with this manual.

Remember, if neglected, even the highest quality equipment will fail to meet acceptable performance standards.

Table 1: Maintenance Schedule

Page #	Component	Daily	Weekly	Monthly	Three Months	Six Months	One Year
7-11	Air System	X		x			
7-12	Bearings		X				
7-13	Bolts			X			
7-14	Chains	X		X	X	X	X
7-16	Electrical Conduits			X			
7-16	Guard Doors	X					
7-17	Lubrication	see section for information					
7-18	Mechanical Vacuum Valve			X			
7-20	Motors						X
7-21	Photoeyes	X					
7-21	Vacuum Cups			X			
7-22	Vacuum Filter		X				
7-22	Vacuum Lines			X			
7-23	Vacuum Pump						X
7-24	Vacuum Solenoid Valve				X		

General Maintenance

Perform the general maintenance checks below to keep the machine operating smoothly.

1. Check for loose nuts and bolts after every 10 to 20 hours of operation and tighten as required.
2. Keep the photo eyes and proximity switches clean so they work efficiently.
    a. Check the photo eyes and switches frequently (even hourly depending on conditions) for dust and dirt buildup and clean as required.
3. Keep all hoses, tubes and other components clear of moving parts.
4. Keep the machine components properly lubricated per "Lubrication" on page 7-17.
5. Keep all the beacon lights working properly at all times. Replace all damaged bulbs and lenses before operating the machine.

Maintenance Areas

The following pages provide information about the areas that must be maintained periodically. These areas correspond with the maintenance chart found in the “Maintenance Schedule” on page 7-8.

Air System Maintenance

All air lines should be tagged before disconnection or disassembly to enable accurate and rapid re-assembly of the system. When servicing an air line or component, make sure that all open lines are capped or sealed to prevent internal contamination. All test points and surfaces immediately adjacent to these points must be cleaned prior to testing or making an adjustment.

See Table 2, “Air Maintenance Chart,” on page 7-11 for maintenance frequency and procedures.

WARNING

Take care to supply clean, dry air to the system. Allowing dirt or other contaminants into the air system may cause damage to system components.

The minimum air intake supply for the system is 80 psi. The main air intake is adjacent to the main operator control panel. A red push button is used to operate the main air valve (MOV) to turn off the main air supply to the machine.

WARNING

Relieve all air lines of pressure before disconnecting. A pressurized air line that is disconnected will whip and fly about as the air escapes it and could result in serious personal injury.

Table 2: Air Maintenance Chart

Frequency	Activity
Daily	• Accumulated moisture and dirt trapped in the air regulator bowl should be released by opening the petcock of the bottom of the regulator valve.
Monthly	• Check the pneumatic and vacuum lines for damage and/or loose connections. • Replace any pneumatic line that has become old and lost its flexibility.

Bearings Maintenance

Frequent inspection of bearing set screws will help to eliminate the possibility of bearing-supported parts shifting out of position. Bearings are of sealed construction and require only periodic lubrication.

Since their flat position allows them to easily catch dust, bearings mounted on vertical shafts should be lubricated more frequently than bearings mounted on horizontal shafts.

Bearings should be greased as often as necessary to maintain a slight leakage at the seal. A full bearing with consequent slight leakage is the best protection against entrance of foreign materials.

A small amount of grease at frequent intervals is preferable to a large amount at infrequent intervals. When applying lubricants, add grease slowly, with the shaft revolving whenever possible.

CAUTION

Use care not to over-lubricate bearings. Over lubrication can cause the seals to blow.

See Table 3, “Bearings Maintenance Chart,” on page 7-12 for maintenance frequency and procedures.

Table 3: Bearings Maintenance Chart

Frequency	Activity
Weekly	• Lubricate all bearings mounted on vertical shafts. (Keystone, Nevastane HT/AW-1)
6 Months	• Lubricate all bearings mounted on horizontal shafts. (Keystone, Nevastane HT/AW-1) • Inspect all bearing set screws.

Bolts Maintenance

When removing parts, bolts and nuts should be replaced in their respective holes so that the proper bolt will be on hand when reassembling the parts. All bolts should be replaced if they are defective in any way. This is especially important for pillow block bolts. Periodically, personnel should inspect the machine for loose screws, bolts and nuts, and also for loose electrical connections.

See Table 4, “Bolts Maintenance Chart,” on page 7-13 for maintenance frequency and procedures.

Table 4: Bolts Maintenance Chart

Frequency	Activity
Monthly	• Check for loose bolts on all moving parts and mountings (infeed buckets, load funnels, gear boxes, plow assemblies, etc.). Tighten or replace bolts as required.

Chains Maintenance

WARNING

Proper lubrication is one of the most important factors in getting the best possible performance out of your roller chain. *NOTE THAT OPERATING TEMPERATURES WILL AFFECT THE LUBE REQUIREMENTS.*

Wear between the pin and bushing causes the roller chain to stretch. These parts should, therefore, be well lubricated. The gap between the pin link plate and the roller link plate on the slack side of the chain should be filled with oil. This oil forms a film which minimizes wear on the pin and bushing. This not only increases life of the chain, but also reduces noise and acts as a coolant when the chain runs at high speeds.

There are different methods of lubricating roller chains. These include drip lubrication, oil bath, lubrication pump, or manual application. To manually lubricate the chain the oil should be applied with an oil can or brush. Apply the oil in the gap between the pin link and roller link on the slack side of the chain. The manufacturer recommends that the chains be oiled a minimum of every eight hours, or as often as necessary to prevent the bearing area of the chain from becoming dry. Recommended oil is Nevastane 6 AW (SAE 30) for series 60 and 80 chain. Recommended oil for series 50 and smaller chains is a good quality SAE 20 oil.

Regardless of the lubricating system used, periodically, the roller chain must be thoroughly cleaned and lubricated. Examine the pin and bushing after removing the chain. Any damage or reddish-brown color on their surfaces indicate that the system is not receiving adequate lubrication.

Replacing chains when they have stretched a maximum of 2% will prevent the sprockets from wearing prematurely. The first chain measurement should be taken after the initial break-in period. Use a tape measure to measure as many pitches as possible (10 pitches minimum). Elongation of the chain links is then calculated by comparing this measurement to the original chain pitch.

WARNING

Always make sure to re-time the machine after replacing or adjusting chains.

See Table 5, “Chains Maintenance Chart,” on page 7-15 for maintenance frequency and procedures.

Table 5: Chains Maintenance Chart

Frequency	Activity
Monthly	• Check for loose chains and tighten chains as required. • Measure for chain stretch. Replace chains which have stretched a maximum of 2 percent.
3 Months	• Use compressed air to clean the flight chains. • Apply heavy amounts of lubricant to the flight chains. (SAE 30 oil or equivalent food grade oil) • Run the machine (with the flight chains dripping oil) until the links are free from any binding, then thoroughly wipe off all excess oil. (The machine should run for approximately 2 hours.)
6 Months	• Remove drive chains from sprockets and wash in a non-flammable solvent. If chain is badly gummed, soak in a non-flammable solvent and re-wash in fresh liquid. • After washing, drain off the non-flammable solvent and soak chain in oil to restore lubrication. • Hang chain to drain off excess lubrication. • Wash sprockets with a non-flammable solvent before replacing chain.

Electrical Conduits

A break or tear in an electrical wireway allows the electrical wires to become susceptible to dirt and moisture, creating a safety hazard.

WARNING

For safety reasons all required electrical repairs should be completed immediately.

See Table 6, “Electrical Conduits Maintenance Chart,” on page 7-16 for maintenance frequency and procedures.

Table 6: Electrical Conduits Maintenance Chart

Frequency	Activity
Monthly	• Inspect for broken conduit. • Inspect for tears in electrical flex joints or broken Sealtite fittings.

Guard Doors Maintenance

Guards should be kept clean to enable visual inspection of the moving components during equipment operation.

See Table 7, “Guard Doors Maintenance Chart,” on page 7-16 for maintenance frequency and procedures.

Table 7: Guard Doors Maintenance Chart

Frequency	Activity
Daily	• Clean all polycarbonate guards with plastic lens cleaner and a soft cloth.

Lubrication

Plastic lines connect the zerk fittings on the lubrication manifolds to the sealed bearings that require periodic lubrication. Frequency of greasing will vary depending on duty cycle, operating temperature and environmental conditions.

Bands on the zerk fittings are color–coded at the manifolds to indicate greasing frequency for the bearings. The color code is as follows:

Yellow . . . . . .40 hours
Red . . . . . .200 hours
Blue . . . . . 1,000 hours
Green . . . . . Tol-O-Matic gear boxes
Drive chains, flight chains. . . . . 2,000 hours

WARNING

On systems with plastic lubrication lines, it is recommended that a hand-operated grease pump be used. If an air-operated pump is used, make sure the set pressure is not greater than 35 psi. The plastic lines will burst (next to the fitting) if a higher pressure is used. On systems with copper lines the air-operated grease pump may be used at full pressure.

Completed Factory Lubrication

Air Lubricators . . . . . .DTE Light (Mobil)
Bearings . . . . . Nevastane HT/AW-1 (Keystone)

Additional Recommended Lubricants

- Atlantic Refining Co., Atlantic 54
- Imperial Oil Ltd., Andok 280
- Keystone Lubricating Co., Keystone 44H
- Master Lubricants Co., Lubriko M-21
- Mobil Oil Co., Mobilux 2
- New York and New Jersey Lubricant Co., F-925
- Phillips Petroleum Co., Philube IB and RB
- Shell Oil Co., Nertia 2
- Standard Oil Co., (Ind.) Amolith #1, (NJ) Andok B
- Sun Oil Co., Sunoco 844-X

Mechanical Vacuum Valve Maintenance

A vacuum valve may begin to leak if the face of the valve has become pitted or unevenly worn. If this occurs the face of the nylon valve will need to be relapped.See Table 8, “Mechanical Vacuum Valve Maintenance Chart,” on page 7-19 for maintenance frequency and procedures.

WARNING

Unless otherwise noted, all new vacuum valves ordered from the Thiele factory should be lapped prior to installation. Be sure and install all fittings prior to lapping the valve.

Vacuum Valve Lapping Procedure

To lap the vacuum valve you will need the following:

- a hard, flat surface
- a large felt tip marker
- a piece of 60 to 100 grit coated abrasive paper (approximately 11 X 17 inches or larger)
- a piece of 240 grit coated abrasive paper (approx. 11 X 17 inches or larger)

Disconnect the vacuum lines from the valve. Remove the nylon plate from the placer and clean the grease from the face of the valve. Cover the surface of the valve face with felt tip marker.

Place the coarse abrasive paper on the flat surface and place the valve face on the paper. Using a figure-eight motion, press down slightly and move the valve face on the paper until all traces of marker are removed.

IMPORTANT

Make sure to use the figure-eight motion and change grip positions often to ensure even coverage.

Once all traces of marker are removed, complete approximately ten more strokes on the 240 grit paper. Clean the valve face and lubricate prior to installation.

Vacuum Valve Lubrication

The required frequency of vacuum control valve lubrication varies with the normal operating speed of the equipment. The valve should be lubricated weekly when operating speeds are near 300 placements per minute, and bimonthly when operating speeds are closer to 150 placements per minute.

To lubricate the face plates, slide back the spring compressed nylon valve to access the nylon and steel plates.

IMPORTANT

Do not pry the nylon valve apart with a screw driver or other sharp object or the valve face may become damaged. The valve is spring compressed – simply pull back.

Using your fingers or something similar to a wooden tongue depressor, apply a light film of grease to the face plates. (Recommended food grade grease is Keystone Nevastane HT/AW-1. For nonfood-grade applications use petroleum or silicone grease.)

WARNING

Use care when applying lubricant, not to allow any foreign particles between the valve faces.

Table 8: Mechanical Vacuum Valve Maintenance Chart

Frequency	Activity
Monthly	• Lubricate the face plates of the vacuum valve. • Inspect the surface of the steel plate, making sure the surface is smooth.

Motor Maintenance

Depending on the type of electric motor used, lubrication may or may not be required. Motors which require lubrication have a zerk fitting located on the motor itself.

See Table 9, “Motor Maintenance Chart,” on page 7-20 for maintenance frequency and procedures.

WARNING

Use care not to over-lubricate as over-lubrication can cause damage to the motor.

Table 9: Motor Maintenance Chart

Frequency	Activity
1 Year	• Add small amount of lubricant at grease fitting. (Keystone, Nevastane HT/AW-1)

Photoeyes Maintenance

Photoeyes and reflectors require periodic cleaning to remove accumulated dust and dirt.

See Table 10, “Photoeyes Maintenance Chart,” on page 7-21 for maintenance frequency and procedures.

Table 10: Photoeyes Maintenance Chart

Frequency	Activity
As necessary	• Moisten a cotton ball or soft cloth with alcohol and gently rub the lens/reflector to clean.

Vacuum Cups Maintenance

Replacement vacuum cup part numbers are provided on the Recommended Spare Parts List.

See Table 11, “Vacuum Cup Maintenance Chart,” on page 7-21 for maintenance frequency and procedures.

Table 11: Vacuum Cup Maintenance Chart

Frequency	Activity
Monthly	• Clean each vacuum cup, stem and orifice with a wire. • Visually inspect the vacuum cups and replace when noticeably worn.

Vacuum Filter Maintenance

A vacuum filter is provided for most styles of vacuum systems.

See Table 12, “Vacuum Filter Maintenance Chart,” on page 7-22 for maintenance frequency and procedures.

Table 12: Vacuum Filter Maintenance Chart

Frequency	Activity
Weekly	• Unscrew the can and unscrew the filter element. • Clean the assembly or replace if damaged in any way.

Vacuum Lines Maintenance

The amount of dust in the environment will determine how often the vacuum lines need to be cleaned.

See Table 13, “Vacuum Line Maintenance Chart,” on page 7-22 for maintenance frequency and procedures.

Table 13: Vacuum Line Maintenance Chart

Frequency	Activity
Monthly	• Blow out vacuum lines to clear of accumulated dust and dirt.

Vacuum Pump Maintenance

Never lubricate the dry “oil-less” vacuum pump. The carbon vanes and grease packed bearings require no oil. The specified .0015" top clearance and .0025" total end clearance between the rotor and the body may vary on special models. The vanes take up their own wear. The unit is built of steel and cast iron and is designed to pump only clean air. With proper care and preventative maintenance the pump should provide years of trouble free service.

If foreign particles are present in the pump chamber, remove the end plate opposite the drive shaft end. This will permit the removal of the four sliding vanes. Thoroughly clean the vanes in a solvent and remove any particles from the chamber. Replace the body gaskets as required. The original body gaskets are only .001" to .005" thick. If thicker gaskets are used the pump’s efficiency will be greatly reduced.

See Table 14, “Vacuum Pump Maintenance Chart,” on page 7-23 for maintenance frequency and procedures.

WARNING

The vacuum system may be equipped with an automatic thermal protector. The unit may restart automatically. Disconnect the power source before performing any maintenance operations on the unit. Use only experienced mechanics to perform maintenance on the pump.

Table 14: Vacuum Pump Maintenance Chart

Frequency	Activity
1 Year	• Clean or service according to the Manufacturer’s directions.

Vacuum Solenoid Valve Maintenance

The vacuum solenoid valve is plumbed to the nylon vacuum valve. Accumulated dust and dirt inside the solenoid valve may cause the spool inside the valve to stick. It is recommended that the valve be periodically disassembled and cleaned. This cleaning may need to be completed more or less frequently, depending on the amount of dust or foreign particles in the air.

It is recommended that whenever the vacuum solenoid valve is serviced, all vacuum lines from the vacuum cups to the vacuum valve also be replaced.

WARNING

Before installing new vacuum lines, make sure to purge the vacuum cup shafts with compressed air. Use great care not to allow any dirt or contaminants into the vacuum lines.

See Table 15, “Vacuum Solenoid Valve Maintenance Chart,” on page 7-24 for maintenance frequency and procedures.

Table 15: Vacuum Solenoid Valve Maintenance Chart

Frequency	Activity
3 Months	• Disassemble the vacuum solenoid valve. • Remove the spool and clean all components. • Wipe a light coat of lubricant on the spool before reassembling. (Mobil, DTE Light) • Reassemble the valve and replace. (Vacuum lines should also be replaced at this time.)

Troubleshooting Table

The following troubleshooting table is offered as a general guide to understand and correct common machine problems. A thorough understanding of the case packer mode of operation will aid in recognizing and correcting problems in a logical and efficient manner. Isolating and eliminating problems should be the goal during troubleshooting.

WARNING Do NOT attempt to operate the case packer before gaining complete familiarity with all machine controls and functions.

See Table 16 " Troubleshooting Table" for a guide to troubleshooting the case packer.

Table 16: Troubleshooting Table

Symptom	Remedy
Case Packer Does Not Start	Check workstation display for any fault messages, indicating a condition that may require attention.
	Check that all Emergency Stop pushbuttons are disengaged. Emergency Stops will be illuminated (red) when engaged. Pull the pushbutton back out to disengage.
	Check that all guard doors are closed. The red beacon will illuminate whenever a guard door is open.
	Check if the motor overloads on the main and/or remote electrical panels are tripped. Overloads can be reset by the pushbutton located on the overload.
	Check if the circuit breakers on the main electrical panel are tripped. Circuit breakers can be reset but the cause of the trip should be determined and corrected first.
	Check the variable frequency drives or servo drives for possible fault indications and reset where indicated.

Table 16: Troubleshooting Table (Continued)

Symptom	Remedy
Case Packer Flight Lug Chain Conveyor Does Not Index	Check the Indexer Drive Servo Controller for possible fault displays.
	Check the Loader Servo Home and Indexer Servo Home proxes for proper operation and alignment.
	Check that any related motor overloads, where applicable, have not tripped. If so, correct the problem and reset the overload via the pushbutton located on the overload.
	Check if the circuit breakers on the main electrical panel are tripped. Circuit breakers can be reset but the cause of the trip should be determined and corrected first.
	Check that the exit of the case packer is clear and/or no jams exist on the discharge conveyor.
	Check the Exit Conveyor is Blocked photoeye for dirt or debris. Also check the photoeye for proper operation and alignment.

Section 8
PARTS & SERVICE

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SECTION 8

PARTS & SERVICE

Parts Department

You can contact the Aftermarket Parts Department to order parts or make general inquiries concerning replacement parts for your machine.

Contact Information

Hours Monday through Friday, 7:30 AM to 5:00 PM (CST)

Note: In case of emergencies you can call after business hours by contacting the Emergency After Hours phone number below.

Address
Thiele Technologies, Inc.
Attention: Aftermarket Parts Department
315 27th Avenue Northeast
Minneapolis, MN 55418-2715 U.S.A.

Telephone *Note: the 1-800 phone numbers are available for use within the USA only.*

Direct Dial: 1-612-782-1200 (ask for Aftermarket Parts)

Toll Free: 1-800-932-3647, ext. 3 (Business Hours)

Toll Free: 1-800-932-3647, ext. 3 (Emergency After Hours)

Fax: 1-612-782-1207

E-mail CustomerService@thieletech.com

Website www.thieletech.com

Options for Ordering Parts

Before you Begin

Before you order your parts, be sure you have the following information readily available to improve our ability to provide accurate service.

1. Machine: Model ZB20A Wraparound Case Packer

   Note: Serial numbers are stamped on the nameplate affixed to the machine.

2. A list of parts you want to order (including the part number, the number of parts you would like to order, and a description of each part)
3. Your purchase order
4. Your company's shipping and billing address.

Telephone

You can order your parts by calling our Aftermarket Products department by calling 1-612-782-1200 (ask for Aftermarket Products) or toll free at 1-800-932-3647, ext. 3. The Aftermarket Products Department business hours are from Monday through Friday, 7:30 AM to 5:00 PM (CST).

If you have an emergency and need to order parts after business hours, you can call 1-800-932-3647, ext. 3. If you leave a message, someone will return your call within fifteen minutes.

Fax

You can fax your parts order at 1-612-782-1207. Please be sure to include the following information in your fax:

- your name and your department
- your company's name
- your company's billing and shipping address
- your company's phone and fax number
- the machine serial number
- a list of parts you want to order (include the part number, the number of parts you would like to order, and a description of each part)
- your purchase order number

E-mail

You can e-mail your parts order at CustomerService@thieletech.com. Please be sure to include the following information in your e-mail:

- your name and your department
- your company's name
- your company's billing and shipping address
- your company's phone number
- the machine serial number
- a list of parts you want to order (include the part number, the number of parts you would like to order, and a description of each part)
- your purchase order number

Website

You can order your parts online by using barry-wehmiller.com

This service can be access through www.thieletech.com.

Our online service allows you to

- do your own quotes without phone calls or faxes,
- buy spare parts online 24 hours a day, 7 days a week,
- receive automated order status e-mails,
- track order and shipping information online, and
- review online reports with complete purchasing history.

Please note that you must first register with us to use this service. Complete the one-time registration form online.

Field Service and Technical Support

Should you have questions about your machine, you can contact our Field Service and Technical Support Department. Service technicians are available for phone assistance, troubleshooting, installation, training, and field service. You can also inquire about issues related to the warranty of your machine.

Contact Information

Hours Monday through Friday, 7:30 AM to 5:00 PM (CST)

Note: In case of emergencies you can call after business hours by contacting the Emergency After Hours phone number below.

Address
Thiele Technologies, Inc.
Attention: Field Service Department
315 27th Avenue Northeast
Minneapolis, MN 55418-2715 U.S.A.

Telephone *Note: the 1-800 phone numbers are available for use within the USA only.*

Direct Dial: 1-612-782-1200 (ask for Field Service or Technical Support)

Toll Free: 1-800-932-3647, ext. 5 (Field Service)

Toll Free: 1-800-932-3647, ext. 4 (Technical Support)

Toll Free: 1-800-932-3647, ext. 3 (Emergency After Hours)

Fax: 1-612-782-1203

E-mail CustomerService@thieletech.com

Website www.thieletech.com

Machine Upgrades and Rebuilds

Should you have questions about upgrading components of your machine or rebuilding your machine, you can contact our Aftermarket Machinery Department. We work closely with you to meet your budget and production goals. Our objective is to keep your machine in state-of-the-art condition.

Contact Information

Hours Monday through Friday, 7:30 AM to 5:00 PM (CST)

Note: In case of emergencies you can call after business hours by contacting the Emergency After Hours phone number below.

Address Thiele Technologies, Inc.
Attention: Aftermarket Machinery Department
315 27th Avenue Northeast
Minneapolis, MN 55418-2715 U.S.A.

Telephone *Note: the 1-800 phone numbers are available for use within the USA only.*

Direct Dial: 1-612-782-1200 (ask for Aftermarket Machinery Department)

Toll Free: 1-800-932-3647, ext. 1623 (business hours)

Fax: 1-612-782-1203

E-mail CustomerService@thieletech.com

Website www.thieletech.com

Warranty Administration Policy

Labor and expenses related to replacement or installation of parts under warranty will be invoiced at applicable standard rates. Decisions made concerning which parts can be repaired under warranty are made by field service technicians.

Mechanical Parts

Generally, mechanical parts are warranted for 1 year from the date of shipment.

Electrical Parts

Electrical parts are warranted for 90 days from the date of shipment.

SECTION 9

PURCHASED COMPONENT LITERATURE

Thiele machines include some components manufactured by other vendors. Shipped with the machine are manufacturer's manuals for those machine components purchased by Thiele Technologies, Inc.

SECTION 10

REVISIONS & SPECIALS

This section is reserved for any upgrade kits added to the machine in the future. Also, any software revisions should be placed in this section of the manual.

SECTION 11

RECOMMENDED SPARE PARTS LIST

Your machine may include spare parts lists. The spare parts will be included in the following pages of this section. If you received a CD version of the manual, the spare parts lists will be placed in a separate folder on the CD.

Spare Parts on CD

See Figure 11-1: "Sample CD Manual" for an example of a CD manual and the spare parts folder.

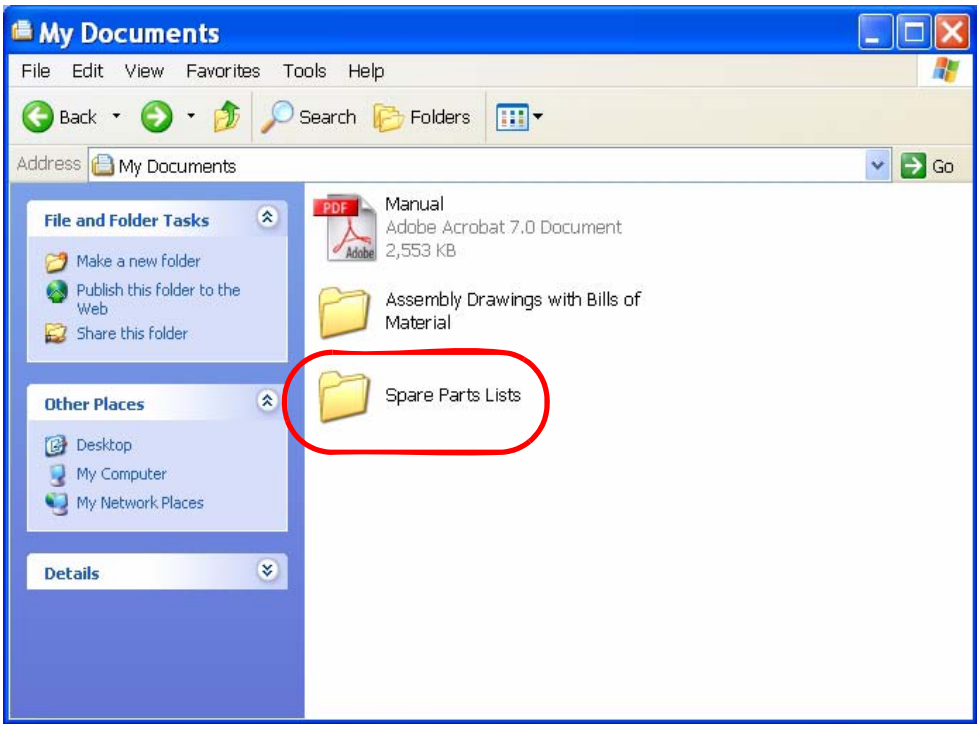

Figure 11-1: Sample CD Manual

When you open the Spare Parts folder, you will see a list of spare parts documents. See Figure 11-2: "Sample Spare Parts Folder" for a sample list of spare parts.

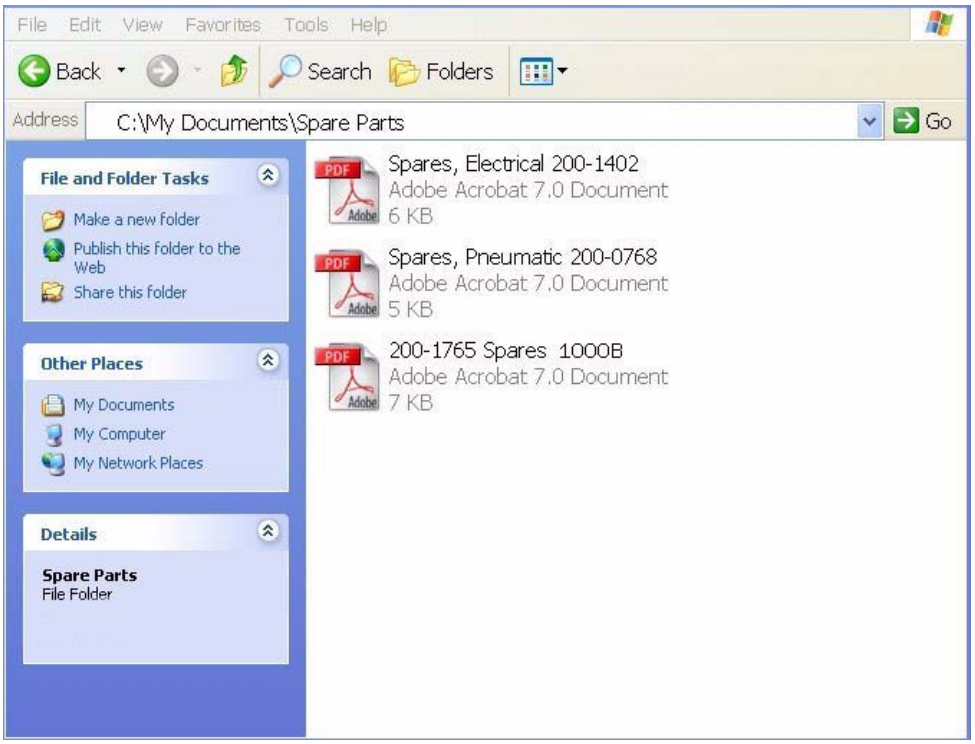

Figure 11-2: Sample Spare Parts Folder

The spare parts lists are in PDF format and can be viewed and printed but not edited. The documents can be viewed using Adobe Acrobat Reader. The Acrobat Reader can be downloaded for free at http://www.adobe.com.

SECTION 12

ASSEMBLY DRAWINGS & CONTROL PRINTS

This section contains the mechanical and electrical bills of material as well as the mechanical and electrical schematics and drawings for your Thiele machine. If you have requested an electronic version of the CD, the drawings and bills may be included in separate files on the manual CD. See "The CD Manual" below for further information.

The CD Manual

If you received a CD version of the manual, the assemblies lists will be placed in a separate folder on the CD. See Figure 12-1: "Sample CD Manual" for an example of a CD manual and the assemblies and bills of material folder.

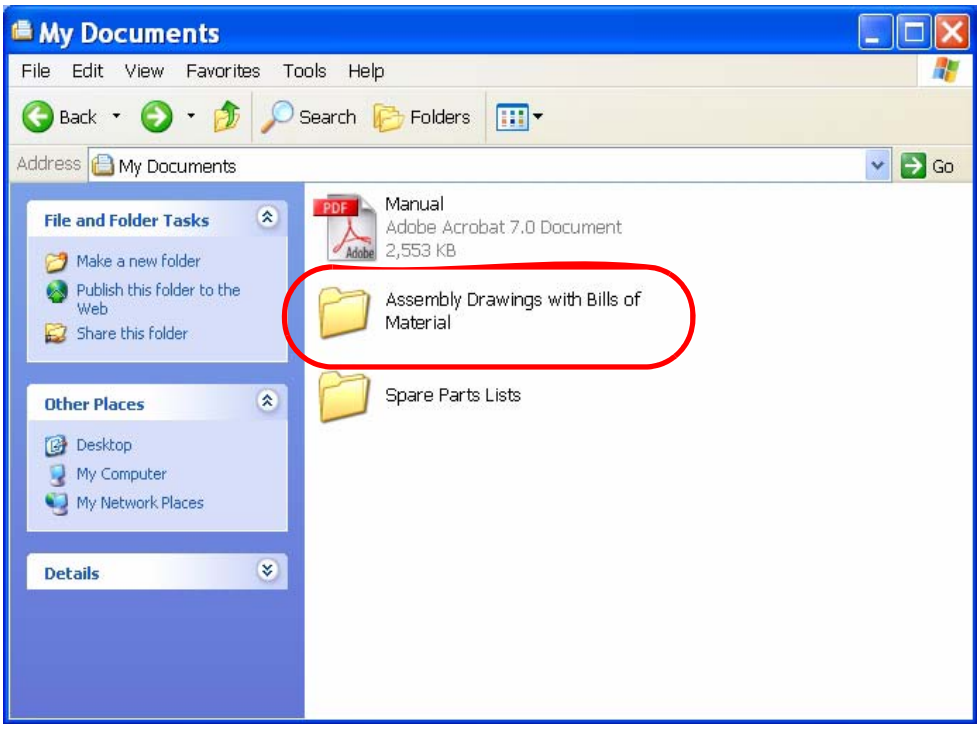

Figure 12-1: Sample CD Manual

When you open the Assemblies and Bills of Material folder, you will see a list of documents. See Figure 12-2: "Sample Assemblies and Bills of Material Folder" for a sample list of assemblies and bills of material.

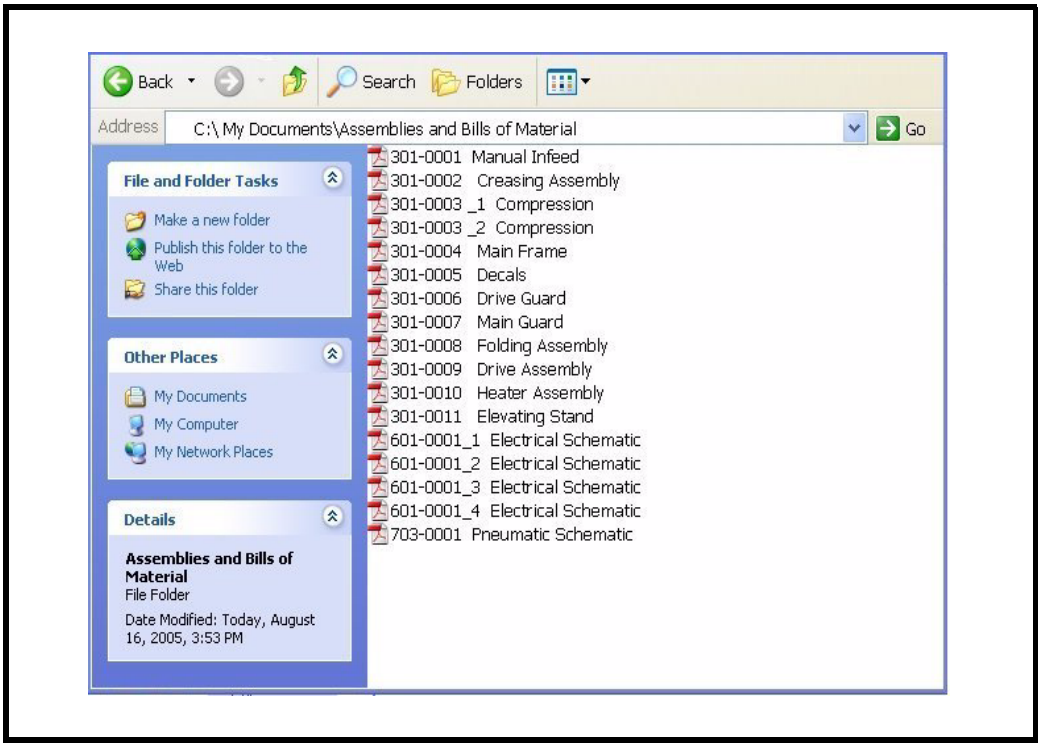

Figure 12-2: Sample Assemblies and Bills of Material Folder

The drawings and bills of material are in PDF format and can be viewed and printed but not edited. The documents can be viewed using Adobe Acrobat Reader. The Acrobat Reader can be downloaded for free at http://www.adobe.com.