Advanced Poly-Packaging, Inc.
Shop Towel Inspection & Bagging System

Advanced Poly Model ST-1000

Operation Guide, Version 2
Setup, Operation and Parts Manual

Advanced Poly-Packaging, Inc.

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Acknowledgments

Acknowledgments

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Reviewed By: Stuart Baker

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Limited Warranty and Disclaimer

Warranty period is 12 months or 1,000,000 cycles whichever comes first. The warranty commences on the date of delivery of the equipment to the Purchaser. APPI warrants to the Purchaser that the equipment is free from defects in workmanship or material under normal use and service. During the warranty period, APPI agrees to repair or replace, at its sole option, without charge to Purchaser, any defective component part of the equipment. To obtain service, Purchaser must return the equipment or component to APPI or an authorized APPI distributor or service representative in an adequate container for shipping. Any shipping charges, insurance, or other fees must be paid by Purchaser and all risk for the equipment shall remain with Purchaser until such time as APPI takes receipt of the equipment. Upon receipt, APPI, the authorized distributor or service representative will promptly repair or replace the defective component and then return the equipment or component to Purchaser, shipping charges, insurance, and additional fees prepaid. APPI may use reconditioned or like new parts or units, at its sole option, when repairing any component or equipment. Repaired products shall carry the same amount of outstanding warranty as from original purchase. Any claim under the warranty must include a dated proof of delivery. In any event, APPI's liability for defective components or equipment is limited to repairing or replacing the components. This warranty is contingent upon proper use of the equipment by Purchaser and does not cover: expendable component part such as Print Heads, thermocouple wire, heater cartridge, rollers, bushings, and the like; or if damage is due to accident, unusual physical, electrical or electromechanical stress, neglect, misuse, failure of electric power, water damage (from airlines), improper environmental conditions, transportation, tampering with or altering of the equipment, packaging of corrosive or contaminating products or other products damaging to components, and equipment or components not owned or in the possession of original Purchaser. APPI will not be liable for loss of production, profits, lost savings, special, incidental, consequential, indirect, or other similar damages arising from breach of warranty, breach of contract, negligence, or their legal action even if APPI or its agent has been advised of the possibility of such damages or for any claim brought against the Purchaser by another party. This warranty allocates risks of equipment failure between Purchaser and APPI. APPI's pricing reflects this allocation of risk and the limitations of liability contained in this warranty. The warranty set forth above is in lieu of all other express warranties, whether oral or written. The agents, employees, distributors, and dealers of APPI are not authorized to make modifications to this warranty, or additional warranties binding on APPI. Accordingly, additional statements such as dealer advertising or presentations, whether oral or written, do not constitute warranties by APPI and should not be relied upon. Warranty on equipment is considered void when outstanding balances become delinquent (over 30 days late - 60 days after ship date). Equipment Integration to other Equipment: APPI assumes no responsibility for the integration of its products to other products or within a system unless APPI performs the integration, testing and provides the results of the tests to the purchaser in writing. Furthermore, APPI assumes no responsibility for bag sizing whether suggested or recommended.

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1.1 Welcome

Now that you've decided to upgrade your packaging facilities with the ST-1000 Shop Towel Inspection and Packaging System™, we thank you for selecting our company to supply and support the system. Where labor reduction and fast changeover is important, the system uses Advanced Poly-Bags (pre-opened bags on rolls), manufactured by Advanced Poly-Packaging, Inc. Extensively equipped with several "built-in", ready-to-use options, the ST-1000 can package bar towels, shop towels and other towels and linens.

1.2 Overview

The ST-1000 Shop Towel Inspection and Packaging System™ is a system designed to lower your shop towel packaging costs with high speeds, versatility, reliability, and simplicity.

High Speeds: Indexes, opens, seals, and tears off a bag at very high rates. Actual packaging speed depends on the bag size, equipment options, product characteristics and method of loading.

Versatility: Mobile on rugged castors for packaging at any production station throughout your facility. Ideal for numerous short runs with virtually no production loss for job changeovers since all that is required is a roll change and recalling the bag settings from memory.

Reliability: Crafted from the highest quality components and materials to withstand the most rigorous manufacturing environment; sturdy mounts with castors, and rugged frame guarantee long life and usefulness with minimal maintenance.

Simplicity: A user-friendly, menu-driven touch screen program allows operators to set up the bag, options, and auxiliary equipment, save settings in memory and recall those settings for repeat runs.

1.3 Special Features

The ST-1000 comes standard with the following features:

Energy Conservation & Component Saver - To extend its life and conserve energy in your plant, the System is programmed to sequentially shut components down when not in use for extended periods. Electric current to the heater bar will discontinue and place the SYSTEM in the stop mode during a preset period of nonuse. Shortly thereafter, air flow will be shut off preserving compressed air. A screen saver is also provided.

Pass code Protection - As an option, setting screens can be protected from being altered by unauthorized individuals. Once turned on, this function acts as a “screen save” feature whereas a timer causes the pass code screen to be displayed, from the Operations Menu. Factory settings are protected by a level 1 pass code and should only be provided to authorized maintenance personnel.

Predetermined Counter - Preset the ST-1000 to stop after a predetermined number of bags have been packaged. Set the quantity of finished bags to complete a work order or fill a shipping container. Once the work order is complete or the container is full, the ST-1000 stops to alert the operator to begin the next work order or to push aside the box to begin filling another. Pressing anywhere on the screen resets the counter and starts the bagging operation with minimum delay.

Totalizing Counter - Reset this counter at the beginning of each shift or day to record packaging production over a period of time.

Maintenance Counter/Chart - Periodically check this counter (total machine cycles) to determine preventative maintenance / component inspection intervals for inspection / maintenance criteria and intervals.

Continuous Strip Option - Leave bags connected in an "endless" strip or a predetermined number of strips of sealed bags.

Communications Port - Allows for auxiliary communications.

Anti-jam Device - During the loading and sealing operation, this device will detect obstructions and automatically reverse the pressure bar and discontinue the cycle operation.

Castors Assembly - Rugged castors are standard for plant mobility.

1.4 System Integration

The ST-1000 is preprogrammed to integrate automatically to major brand vibratory counters and feeders, weigh scales, volumetric fillers, auger fillers and infeed conveyors. As an OEM for numerous equipment manufacturers of infeed systems, we can offer the best available system, with the ST-1000 Advanced Poly-Bagger as the integral packaging component. However, APPI cannot be responsible for the successful integration of third party equipment, unless approved and integrated by APPI.

FREE CONSULTATION AND PRODUCT EVALUATION: We invite you to call to discuss your packaging requirements and our free product packaging analysis.

1.5 Additional Options Available

Although the ST-1000 is equipped with many "built-in" options described above, various auxiliary options and equipment can easily be added for special purpose packaging. The following options may be purchased from Advanced Poly-Packaging, Inc.

LS-10 Load / Support Shelf - Provides support for heavier packages when dropped into bag. Sizes: 10", 15", or 20" long.

LC-10 Light Safety Curtain - If funnels are removed, APPI highly recommends the addition of this option to prevent injuries. This option, when activated, prevents inputs to valves which causes the seal bar to activate. Additionally, the stepper motor stops when blocked.

FS-10 Flat Seal Assembly - Helps decrease / eliminate wrinkles in the seal by pulling sides of bag. Increase bag integrity.

TS-10 Trim Seal Assembly - Trims excess film from bag above seal to enhance the appearance of the package (retail products).

PB-20 Dual Palm Buttons - Decrease the possibility of injury to hands and fingers. Operator must push two buttons simultaneously to actuate seal bar.

Ti-1000 Thermal Transfer Inline Printer - Print bar codes, graphics, etc. by downloading pre-formatted labels, generated via label software. (PC or Terminal & software required)

Roll-a-Print 1400 or 2800 Single or Dual Thermal Inline Printer - Print bar codes, graphics on the front or both front and back of the bag, directly to the surface of the bag.

OFS-10 Output Fault Signal w/ SL-10 Stack Light - For automatic bagging operations with third party or production equipment, this signal provides a fault when the bagger is inoperative (due to out of bag conditions or other fault conditions).

Twin-Seal ™ - Seal the bag a second time, 3/8" from the first seal for additional bag integrity.

Estop - This option can be used to stop the cycle operation of the ST-1000 and possibly other auxiliary infeed or outfeed equipment if purchased with the ST-1000.

CF-10 Counting Funnel -This option is useful to automatically cycle the bagger when a preset number of parts have fallen through the funnel.

AF-10 Accumulating Funnel - A special purpose funnel that collects and holds product until ready to be dropped, it can also insert a funnel to help contain the product.

BO-20 Bag-Open Detector - This option will detect whether or not a bag is blown open, or whether or not a funnel is inserted into the bag for validation that that bag is ready to receive product.

Bag-out sensor - If the bag material ends, a message will be displayed indicating out of bags or a threading or web breakage issue.

DF-10 Diverting Funnel - This feature is used to count bags from the bagger and divert them for further packaging operations including counting into cartons.

CS-10 Compartment Seal - seals the bag twice with compartments within the same bag.

MV-10 Seal Validation - additional components to provide a secondary means detecting a failure or out of range condition for components that affect seal quality.

BV-10 Barcode Verifier - to verify that a barcode is readable. If no barcode is detected, or if a barcode is not correctly formatted (as per software settings in the barcode verifier), then a NO READ message will be displayed.

BO-30 Bag Opening Device - This device enters the bag with one or more “fingers” and then pulls the bag open to a stop.

Bag-in-Bag option - A conveyor feeds bagged product to a second bagger to be bagged.

Base Height Adjustment - electronic mechanism which raises or lowers the base of the bagger, which allows for more versatility and convenience, without this option the operator would raise or lower the bagger manually.

UF-2000 Takeaway Conveyor - Remove the packaged product to a packing station or directly feed a carton or table, conveying the product from floor level. The conveyor perfectly fits underneath the ST-1000 and takes the product away. Small, lightweight, and equipped with castors, use this conveyor anywhere in the plant. Designed for 24 hour / 7 days a week operation.

UF-5000 Infeed Conveyor - Kit packaging infeed conveyor. Instead of loading parts directly into the Bag, load parts into compartments on the conveyor. Packaging kits loading the compartments by hand or automatically with parts or scales

1.6 Using this Manual - Typographical Conventions

The following manual conventions are frequently used to assist in understanding important information, alerting the operator of potentially dangerous or damaging practices, and the normal functions of the System.

Text	Normal text.
Italics	Used for emphasis.
BOLDFACE	Used to identify heading names and touch screen buttons.
CAUTION:	Warning messages. To avoid physical harm, damage to equipment or damage to the product, be sure to read these messages carefully.
NOTE:	Identifies important information.

1.7 Warranty Registration

(This section must be completed and returned to Advanced Poly Packaging, Inc. to register the SYSTEM for Warranty Protection)

SYSTEM Serial Number:

_____

(Serial Number located on the back panel)

Company Name & Address	Contact Name(s) / Title(s) / Phone Number
_____	_____
_____	_____
_____	_____

Please fax or mail this page to:

Stuart Baker
Advanced Poly-Packaging, Inc.
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Chapter 2: Getting Started

Getting Started

Safety, Risks

Installation Procedures

Air & Power Requirements

Assembly Instructions

Air & Power Hookup

Main Power

Bag Threading

Cycle Operation

Quick Setup Procedures

Notes on Adjusting the ST-1000

2.1 Chapter Summary

This chapter describes procedures to receive and set up the ST-1000, including uncrating instructions, environmental, air and power requirements, risks, required safety precautions, quick start procedures assembly instructions and height adjustments. Additionally, this chapter describes safety precautions, how to power on the ST-1000 and how to properly thread bags through the machine.

2.2 Safety, Risks

Many safety features have been included in the mechanical, electronic, and pneumatic systems of this machine. Despite these safety precautions, operators may receive lacerations, minor burns, or crushed or broken bone injuries if they come in contact with the heater bar or any other moving components. Improper use, improper adjustments and neglect of preventative maintenance may result in serious personal injury. No special personal protective equipment is required to operate the equipment, but eye protection, gloves or other protection should be worn, depending on the characteristics of the product being packaged and the method of loading the product.

Please carefully read the following precautions to operate the equipment properly and avoid injury:

CAUTION: Initial Setup of the machine must be performed by Specialized Personnel. Qualified Service Engineers should uncrate, assemble (if required), test and connect power sources, test the equipment for proper operation and otherwise setup the equipment for use.

CAUTION: Maintenance must be performed by Specialized Personnel. Qualified Service Engineers must remove guards or covers to gain access to electrical or mechanical areas.

CAUTION: To avoid injury do not reach under the equipment or guards. Do not place hands or fingers in the seal area, near the seal or heater bar, load shelf, or other moving components.

CAUTION: To avoid injury, do not operate the equipment if funnels, guards, or covers or other access panels have been removed. If any of these safety measures have been removed or modified or if any openings have been increased, the operator will have access to moving components and extreme temperature areas that can cause crush, cut, or burn injuries to hands or fingers.

CAUTION: To avoid injury, do not reach under guards or elsewhere under the machine.

CAUTION: Do not remove or loosen fasteners on the frame. If loosened the equipment may drop suddenly causing injury or damage to the machine.

CAUTION: Do not attempt to adjust the height without assistance and without supporting the weight of the machine. Attempting to make a height adjustment without assistance could cause the machine to drop suddenly, causing severe injury. APPI offers several optional accessories that can reduce the risk of injury during height adjustments. These accessories include carts, motorized height adjustment components and stabilizing bars.

CAUTION: Ensure that any height adjustments allow for sufficient movement of the operator. Improper height adjustments could negatively affect operator movement, causing strain, added stress, discomfort and fatigue.

CAUTION: Be careful when opening the seal frame as it may drop suddenly causing injury or damage to the equipment.

CAUTION: To avoid injury, avoid coming in contact with pinch points including rollers, automatic funnel doors or other moving components.

CAUTION: To avoid injury, avoid contact with Roller "Fingers" as they may be sharp.

CAUTION: Exercise care when adjusting or relocating the touch screen. Movement of the touch screen could cause unexpected movement of the machine and injury to the operator.

CAUTION: If control or air pressure settings are set too high, higher noise levels may result from increased part on part contact or part on machinery contact. Limit these settings and add guards or covers to reduce airborne noise.

CAUTION: Exercise extreme care when clearing jams, replacing materials, changing controls or mechanical settings, and cleaning internal parts. Be sure to de-energize energy sources prior to removing guarding. Failure to do so may result in unexpected movement or flying objects, which could cause crush, cut, or eye injuries.

CAUTION: Maintenance must be performed by specialized personnel. Qualified service engineers must remove guards or covers to gain access to electrical or mechanical areas.

CAUTION: Maintenance must be performed regularly to ensure that the machine is operating properly and to protect against injury. Routine maintenance includes: periodic inspections, the replacement of worn or damaged components, the tightening of loose bolts or components, and regular cleaning and adjustments. Contact APPI and/or service centers for service support if there is not sufficient maintenance staff at your facility to perform regular maintenance.

2.3 Installation Procedures

The ST-1000 is transported in (4) custom crates designed to protect the machine during shipment for a few items which are easily attached during installation with final adjustment for proper placement of touch screen, dancer assembly, foot switch, funnel, and guards.

Items in crates:
T-1000-S14
Conveyor Scale
Towel Hopper
UF-2000

Unpacking: After removing the stretch wrapping, remove the outer crate from the skid that contains the ST-1000. Unfasten the base support brace from the skid. Carefully lower the ST-1000 from the skid. Transport the ST-1000 to the operating location prior to placing the touch screen in position and unfastening the dancer assembly.

Operating Environment: The ST-1000 should be placed in an area free of excessive heat, moisture, dirt, and dust. Operating room temperature should range from 50°F to 100°F.

2.4 Air and Power Requirements

Power Requirements: Provisions must be made for 115 VAC, 50/60 Hz line current with ground. The full load current for the ST-1000 is 12 Amps. APPI recommends a dedicated 20 Amp circuit for the ST-1000.

CAUTION: A qualified electrician should ensure that the ST-1000 power outlet is properly grounded, voltages are as required and amperage capacity is sufficient.

NOTE: A qualified electrician should ensure that voltages are as required, amperage is sufficient, power outlets are the required 115 VAC and power outlets are properly grounded before hooking up the power. If the unit is not properly grounded, it will produce a shock and will not function properly.

Air Requirements: At least 2 CFM free air is required, regulated to 60 PSI. Air should be dry and oil-free.

NOTE: Running the ST-1000 at a higher PSI setting than 60 PSI will cause excessive wear and may cause damage to components on the machine or parts being packaged. The anti-jam function may also be adversely affected.

2.5 Assembly Instructions

Choose an operating location considering traffic flow, availability of bag supplies, supply of product to be packaged, takeaway of finished packages, placement of auxiliary infeed equipment and placement of takeaway conveyor(s). At the operating location, the first step is to remove any inner packaging, banding or wires.

Touch Screen Assembly / Position: The touch screen has been secured for transportation in a "face-in" position with protective wrapping. Holding the touch screen to prevent it from falling, loosen the set screw located in the clamp collar at the top of the upper “T” column. Pull the shaft from the clamp collar approximately 6" and tighten the collar. Holding the touch screen module, loosen the “ball” clamp lever and position the touch screen. See Figure 2-1.

CAUTION: To avoid damage to the touch screen module, hold the screen until it is in the desired position and then be sure the screws and ball clamp lever are securely tightened.

Dancer Assembly: The dancer assembly, located on the stand at the rear of the ST-1000, is secured with tape strapping during shipment. After the removal of the strapping, the dancer should be checked to ensure it will rotate freely in a semicircular path. The shaft assembly may then be inserted into the dancer frame brackets so it is over the brake stop for tension.

CAUTION: The seal bar should not come in contact with the funnel during sealing. Raise the funnel to avoid contact.

CAUTION: To avoid injury, do not operate the ST-1000 without a funnel, guard or covers properly positioned. APPI offers a variety of funnels and chutes. Guarding may need to be added to prevent operators from reaching in, around or under the guard or funnels.

CAUTION: To avoid injury, do not reach underneath guards while the machine is plugged in.

Machine Height Adjustment: The height of the ST-1000 is adjustable. To change the height of the machine, three people total are required. With two people holding the weight of the machine, loosen the

two bolts located on the leg, clamping the outer leg to the inner leg. See Figure 2-2. Raise or lower the ST-1000 to the desired height and tighten the two bolts.

CAUTION: Unless properly supported, the ST-1000 will drop suddenly when loosening the height adjustment bolts. This may cause damage to the machine or injury to individuals.

CAUTION: Do not attempt to adjust the height without the assistance of at least two other people supporting the weight.

Attaching Hoppers and Conveyors:

Figure 2-1

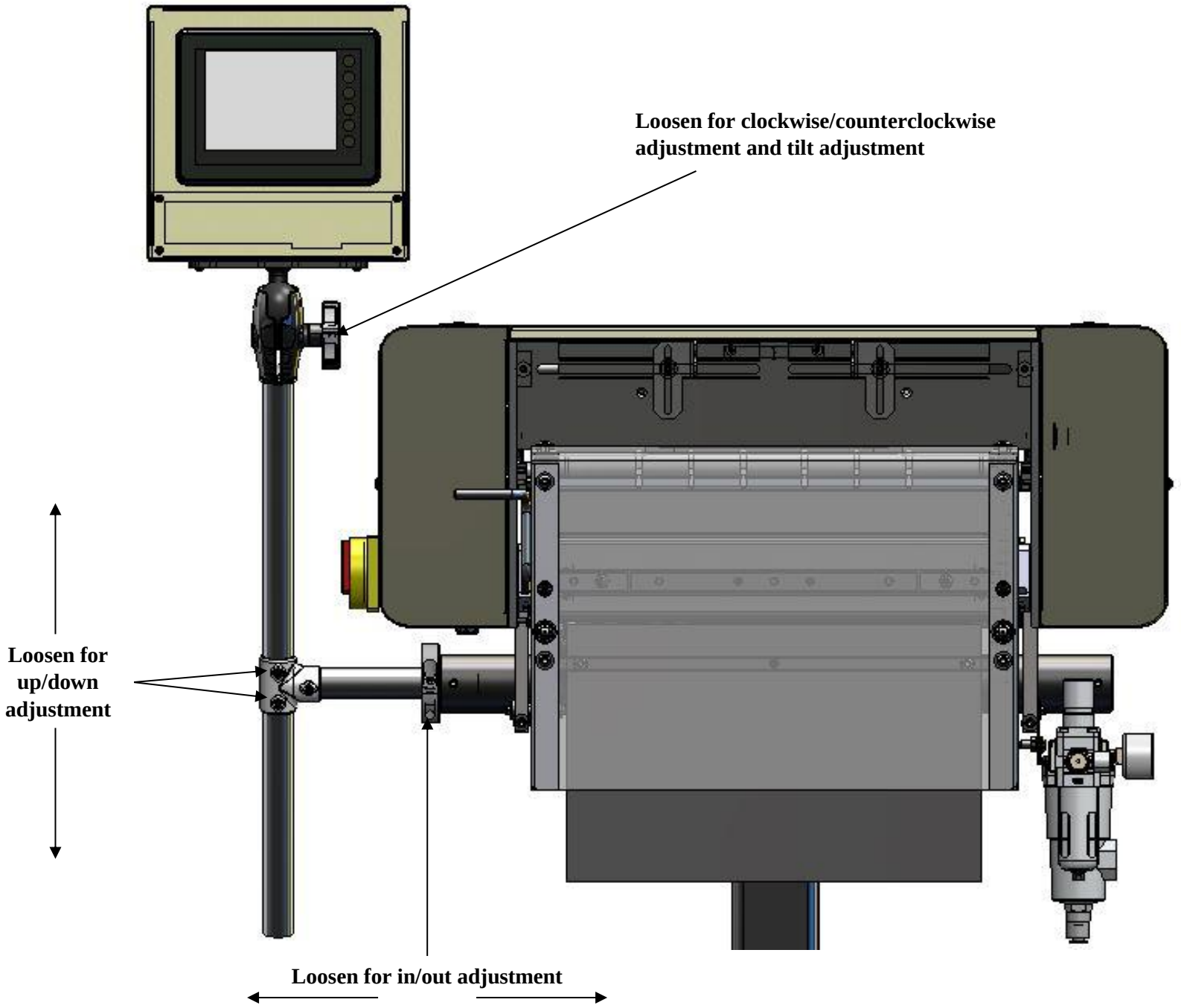
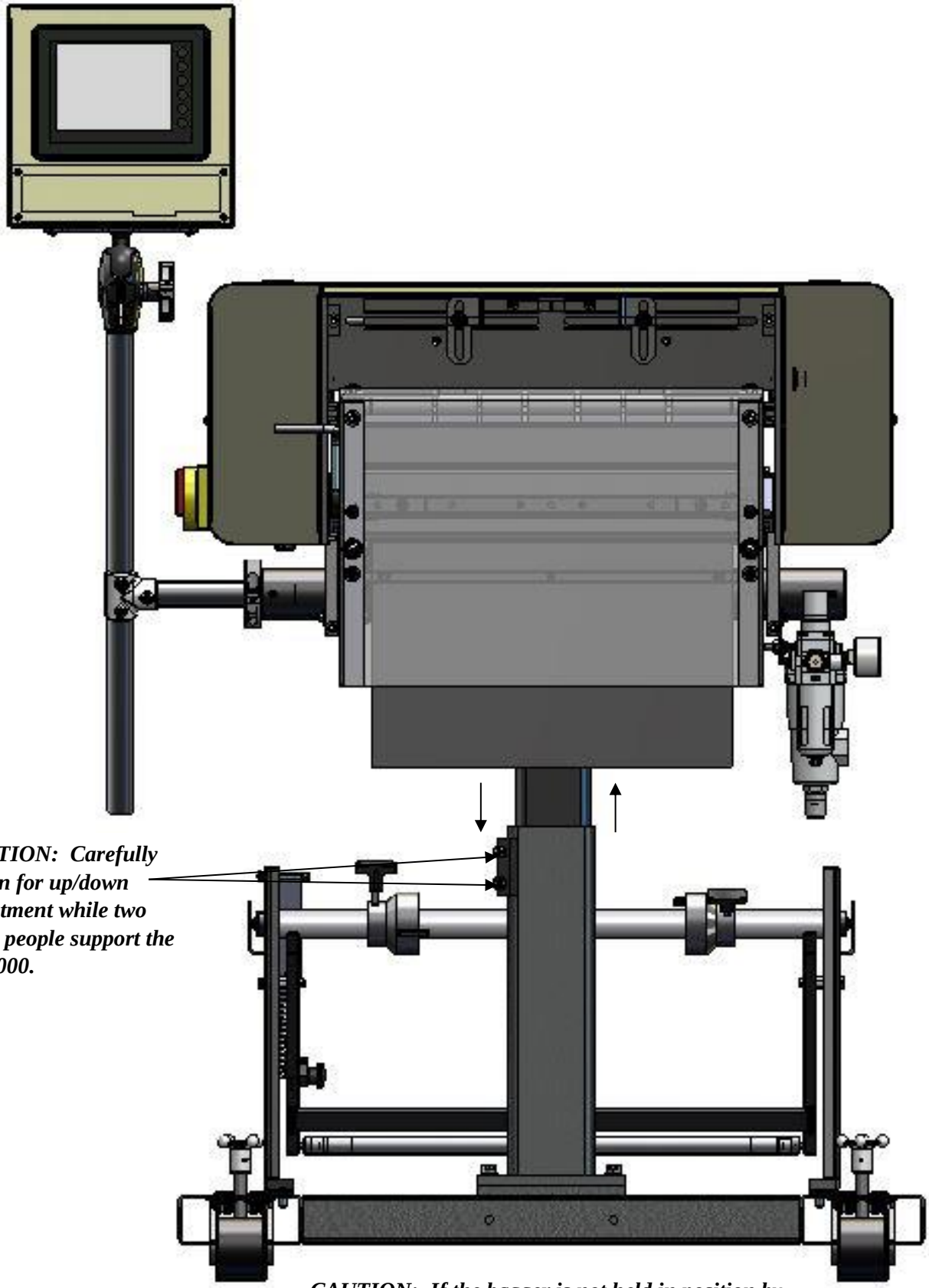

Loosen for clockwise/counterclockwise adjustment and tilt adjustment
Loosen for up/down adjustment
Loosen for in/out adjustment

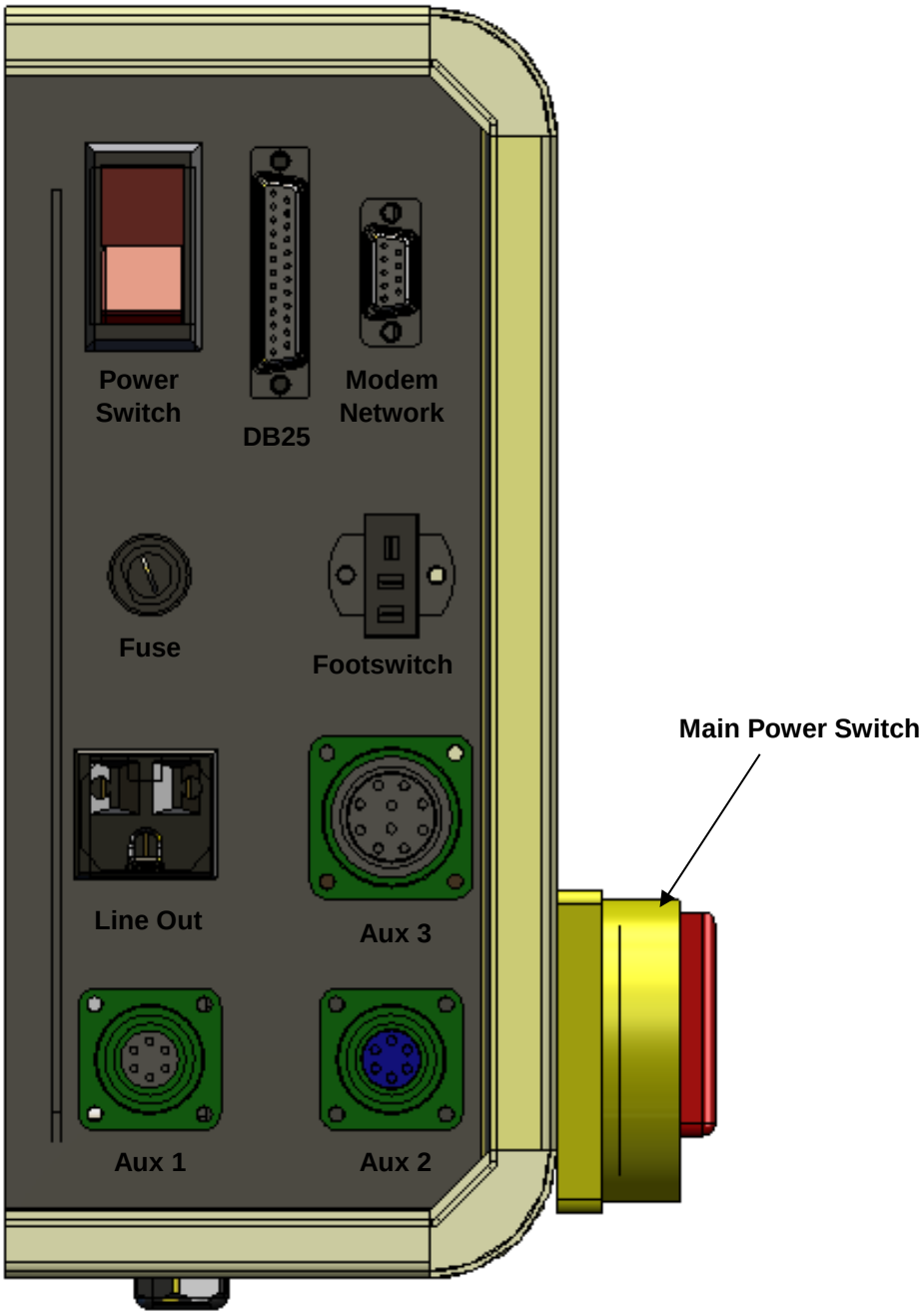
Figure 2-2



CAUTION: Carefully loosen for up/down adjustment while two other people support the ST-1000.

CAUTION: If the bagger is not held in position by two people, the weight of the machine may cause it to drop suddenly, causing severe injury.

Figure 2-3


Power Switch
DB25
Modem Network
Fuse
Footswitch
Main Power Switch
Line Out
Aux 3
Aux 1
Aux 2

2.6 Air and Power Hookup

This section describes how to hook up air and power and the air and power requirements.

NOTE: A qualified electrician should ensure power outlets are the required 115 VAC and properly grounded before hooking up power. If the unit is not properly grounded, it will produce a shock and the machine will not work properly.

The air supply should be fed to the ST-1000 with 3/8 ID flexible tubing. This tubing affixes to the coupler adapter (quick disconnect not provided). Connect the air to the regulator by holding the regulator firmly in one hand and pushing the air line connector on the male regulator connector. After connecting air, the regulator should be adjusted so the gauge reads 60 PSI. Insert the ST-1000 power cord into a 115 VAC, 60 Hz, grounded power outlet.

2.7 Main Power

The main power switch is located on the side cover of the machine. See Figure 2-3. To turn the ST-1000 on, turn the switch counterclockwise from its vertical OFF position to its horizontal ON position. The green Power light on the touch screen will illuminate and the Introduction screen will be displayed. The program version will also be identified. The Introduction screen will only appear for a few seconds until automatically changing to the Bagger Operation screen or Main Menu.

NOTE: If the touch screen does not power up to the Introduction screen, see Chapter 4 for troubleshooting steps.

2.8 Bag Threading

The first step to threading the machine is to place a roll of bags on the shaft. Remove one of the chucks from the shaft by loosening the chuck knob and sliding the roll of bags over the shaft, locking the chuck pin in the small hole in the core plug. Tighten the knob. Replace the second chuck, also locking the chuck pin to the core plug. Remove the tape from the bags so that the bags fall freely and hang down from the top of the roll towards the back of the machine. Insert the right side of the roll shaft in the right side of the shaft holder (circular holder). Then drop the roll shaft in the slot located on the left side of the dancer assembly.

Center the bags on the shaft by loosening the chuck knobs and sliding the roll of bags, along with the chucks, to the desired location. Ensure the chuck pins remain in the core plug holes when sliding left or right. Pull the bags over the roller immediately above the dancer assembly, then down between the roll of bags and the outer dancer roller. Pull the bags around the outer dancer roller, over the rear "guide" roller and into the back of the ST-1000. Push the bags at least halfway through the machine.

From the front of the ST-1000, lower the frame by slowly pulling the frame handle forward and downward while holding the guard assembly, supporting the weight of the seal frame assembly.

CAUTION: You must support the weight of seal assembly while lowering it with the handle. Otherwise, you may drop the seal assembly, possibly causing personal injury or damage to the equipment.

Carefully reach inside and pull the bags through the front of the ST-1000 so that one bag is centered on the roller. Ensure only one bag extends through the front of the machine. Slowly raise the frame by pulling forward and upward on the handle while holding the bag in position. Holding the guide roller shaft, slide the roller guides approximately 1/8" from the sides of the bag to assist the tracking of the web of bags.

CAUTION: Roller "fingers" may be sharp. To avoid injury when reaching into the ST-1000, ensure that you do not come in contact with the roller fingers.

NOTE: The roller guides are for fine adjustments only, after proper tracking has been achieved. If the web of bags is not properly tracking, make proper adjustments. If not tracking properly, the web of bags may "ride" up the side of the guides, causing the bags to fold over.

Two Threading Diagrams are available based on the design of the machine, with or without a printer. If your machine has special features or other equipment that changes the function of the bagger, the specific threading diagram will be included with that particular manual or addendum. If you need further assistance with bag threading, please contact APPI Technical Support.

2.9 Cycle Operation of the ST-1000

If all prior installation procedures have been performed properly, the ST-1000 should be in its operating location with air and power connected. All guards, funnels and covers should be in position and securely fastened.

Locate the foot switch and plug it into the rear foot switch connector. See Figure 2-3. Press the foot switch to index one bag through the "nip" rollers. If a foot switch is not being used, press the **Manual Cycle** button. One bag should index, blow open and stop between the pressure bar and the heater bar. If the ST-1000 is not up to temperature, the machine will not cycle unless the **RUN / SETUP** button is toggled to **SETUP**.

If the web of bags breaks prematurely, further adjustments will be required. See Chapter 4 for troubleshooting. If one bag indexed through the machine, press the foot switch a few more times. Each previously indexed bag should detach completely from the web of bags. If the bag is not indexing and/or stopping or not tearing off properly, see Chapter 4 for troubleshooting.

NOTE: The web of bags may track right or left for a few feet until "settled" on the web path. The roll of bags or the roller guide may require readjustments or realignment after the first few feet of bags are indexed.

NOTE: If bags were delivered with the ST-1000 or the bag size was known to APPI, the ST-1000 may be ready to run. Therefore, very few changes to the Bagger Settings screen will be required.

2.10Quick Setup Procedures

(Perform prior to operating the machine on a daily basis)
Considering that the machine has been setup by Maintenance Personnel, the following quick start procedures should be followed before daily operation of the equipment.

Power off tasks (perform these tasks prior to turning on the power):

Clean the blue rubber roller, print rollers, perforation sensor, idler rollers and product contact surfaces with a clean cotton cloth and alcohol.

Inspect the machine to ensure all guards, covers and funnels are in position.

Inspect the machine for maintenance issues and report issues such as loose or broken components, frayed wires, etc. to maintenance personnel.

Check that the air pressure is set to 60 psi (4.14 BAR).

Power on tasks (perform these tasks after cleaning and inspecting the machine)

Threading: A threading diagram has been provided to illustrate the proper bag path through the machine. It is recommended that the appropriate diagram be copied and mounted to the side cover of the machine.

Setup Cycle Operation: Prior to loading parts, place the bagger in the Start / Manual / Setup mode and press the footswitch or touch the **Manl Cycle** button. Test the bag seals, seal location or other inspection requirements.

Manual Cycle Operation (if applicable): If manually loading parts, load parts into the bag ensuring all parts are going into the bag. Toggle the machine from Setup mode to Manl mode. Press the **Manl Cycle** button on the screen. Inspect the bag seals, seal location or appearance and continue the bagging operation.

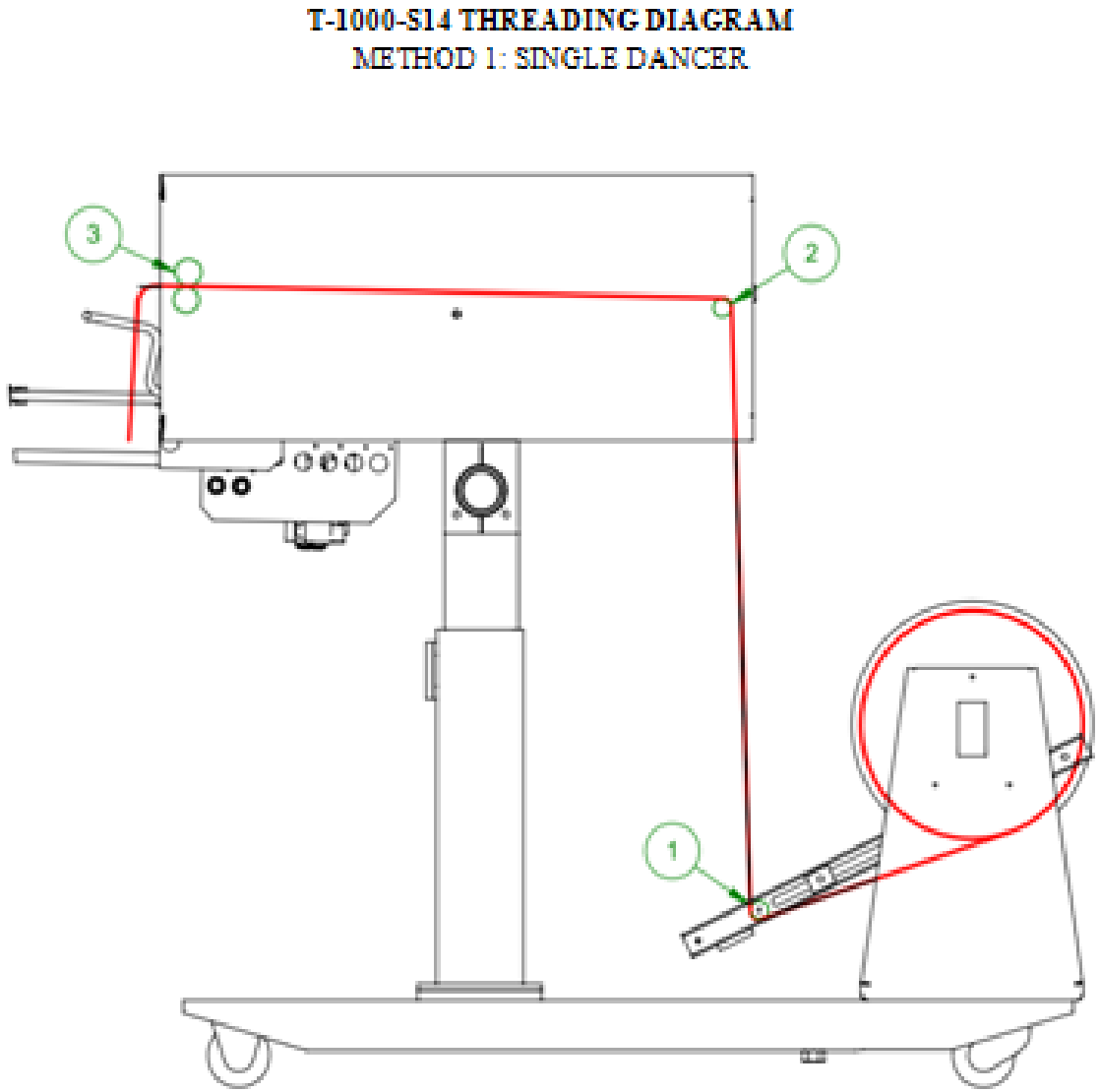
Automatic Cycle Operation (if applicable): If loading automatically with a conveyor, counter, or scale infeed system, ensure auxiliary equipment is turned on and press the **Manl Cycle** button to start the system. If all equipment in the system is operating properly, toggle the machine from the Manl mode to the Auto mode.

2.11Note on Adjustments to the ST-1000

Upon receipt, it is not unusual for the ST-1000 to be out of alignment due to shipping and excessive handling. Unless physically damaged, the ST-1000 will function properly after minor adjustments are made. Refer to Chapter 4 for information on adjustments to the ST-1000.

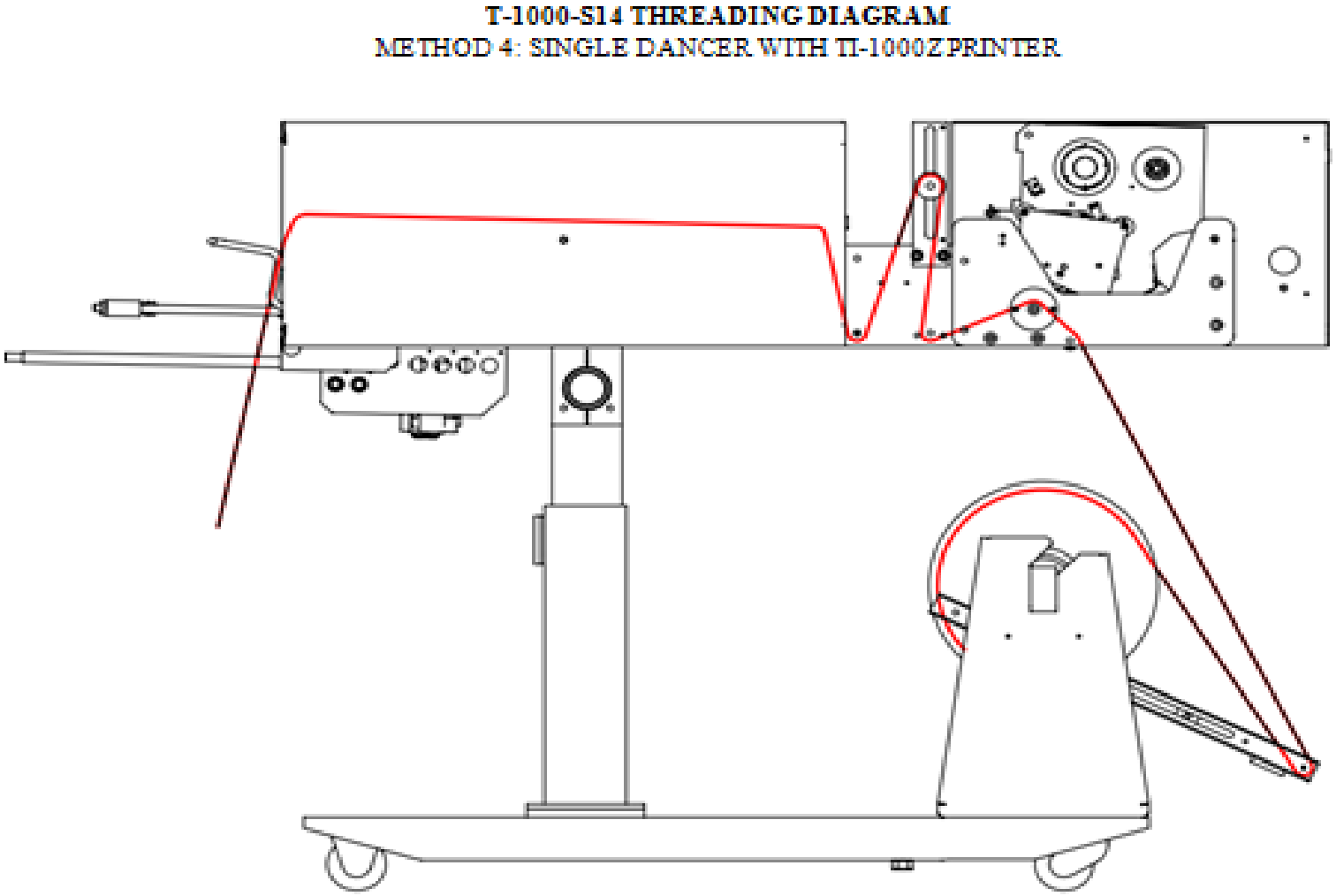
Threading Diagram, Standard Vertical, Single Dancer

Figure 2-4



Threading Diagram: Standard Vertical, Single Dancer, with Ti-1000 “Z” Printer

Figure 2-5



Chapter 3: Touch Screen Operation

Touch Screen Part Names

Specifications

Contrast Adjustment

Touch Screen Program

3.1 Touch Screen Operation

This section describes in detail, the identification, operation, and adjustments of the Touch Screen Program.

3.2 Touch Screen Part Names - Front Panel

(See *Figure 3-1*)
1 System Button (See Section 3.4)

2 F1 (Help Screen)
3 F2 Increase Brightness (when system button is pressed)
4 F3 Midpoint Brightness (when system button is pressed)
5 F4 Decrease Brightness (when system button is pressed)
6 F5 Job Save / Recall
8 Green LED (Power): Lit when Touch Screen is turned on

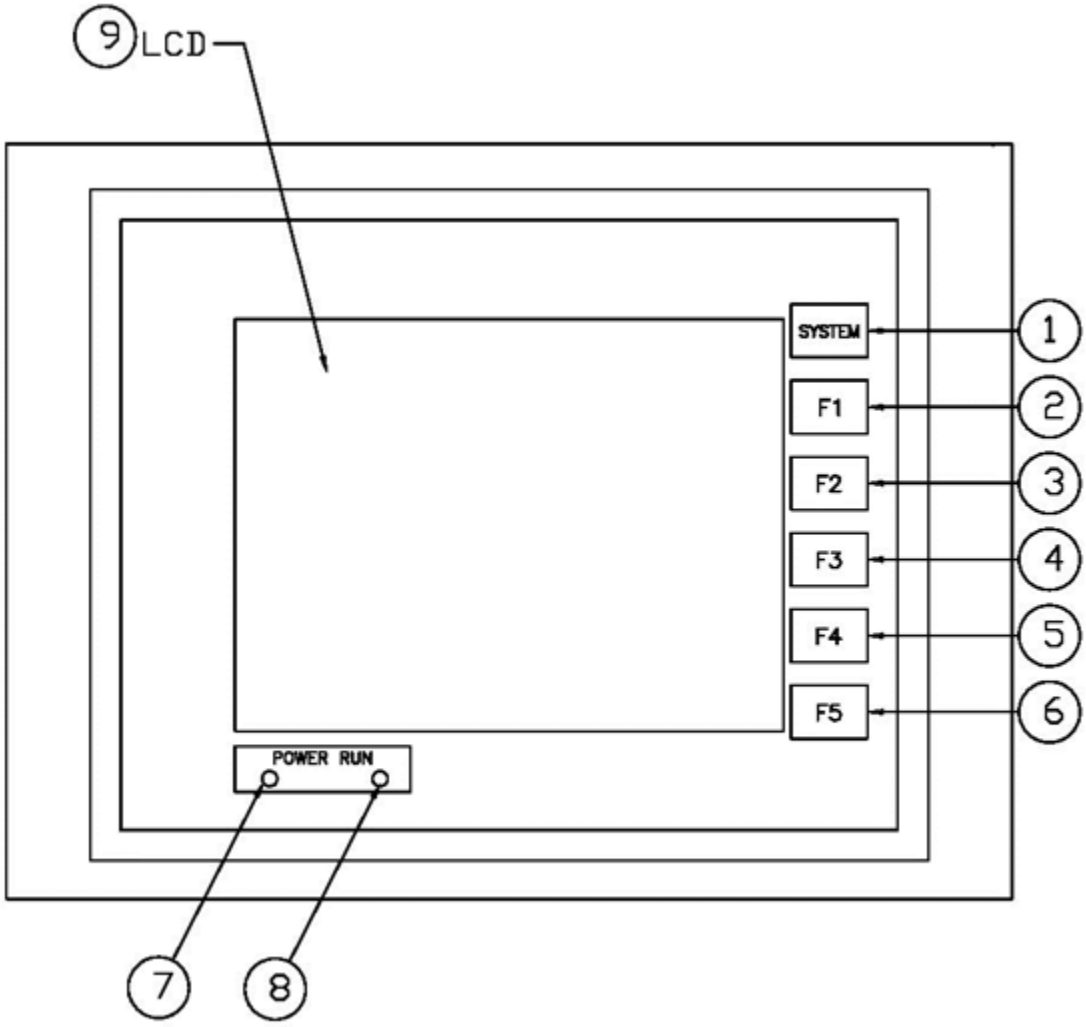


Figure 3-1

3.3 Touch Screen Part Names - Back Panel

(See Figure 3-2)

1 RS-232 Communication port to PLC
2 Programming (For APPI use only).
3 Power Supply: Power terminal for Touch Screen Operation.

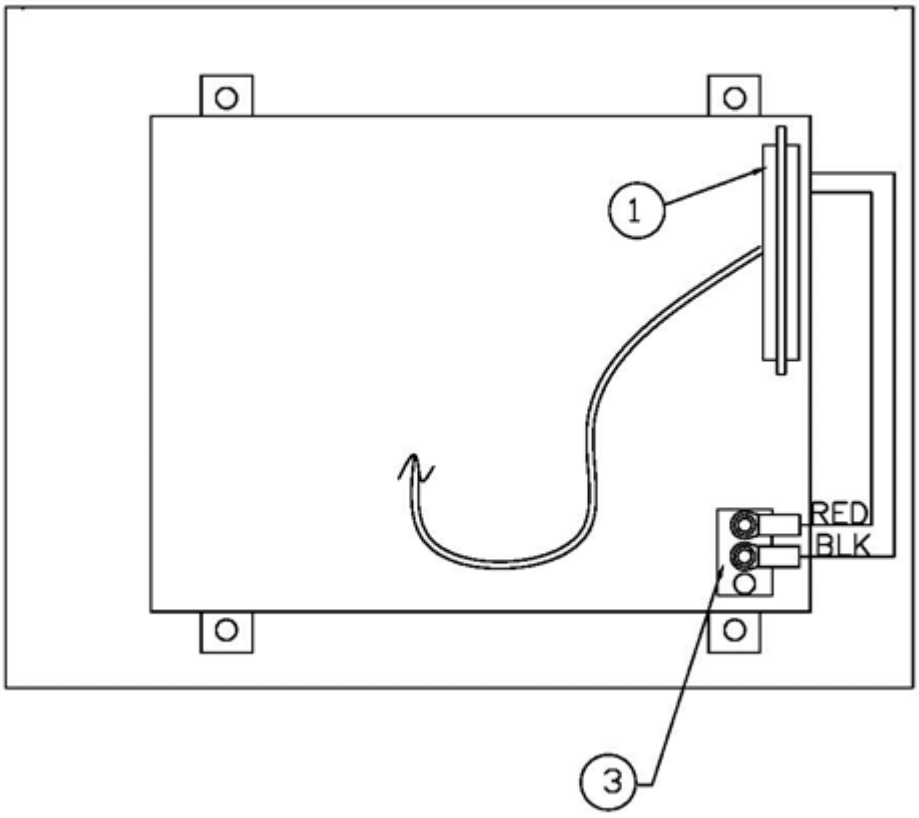


Figure 3-2

3.4 Touch Screen Contrast Adjustment

The contrast of the LCD may be adjusted if the screen is difficult to read. To adjust the contrast, press the **System** button located to the right side of the active touch screen area (See Fig. 2). Then press the F2 button to increase brightness and the F4 button to decrease brightness. F3 will go to the midpoint position.

3.5 Touch Screen Program

The Touch Screen Program is a "user-friendly" menu-driven setup and operation program. Popup windows are incorporated for quick and easy setting adjustments. Each time a setting is changed, the settings are saved so that if power is lost, the “job” will be recalled automatically without the need for reprogramming. Moving around through the program, entering menu levels, and entering setup options are easily and quickly achieved by just one

touch of the screen to set the options you choose. A general color scheme has been used for consistency with operation:

Blue: Background color. Blue is used as a background or text only color. Pressing this area will typically do nothing.
Yellow: Yellow buttons are Menu buttons which will take you to other available screens. Yellow buttons may be located anywhere on the screen.
Green: Setting button. Green buttons are used to change settings or mode of operation.
Red: Stop functions or warning messages

3.6 Introductory Screen

When the ST-1000 is turned on, an introductory screen is displayed. The Introduction screen is a welcome screen and has a button to take you to the Operations Menu. See Figure 3-3

Figure 3-3

3.7 Operation Screen

The Operation Screen is provided to function with Pass code Protection function of the machine. If the pass code function is enabled in the Technical Assistance Screen, the touch screen will default to the Operation Screen after a preset time has elapsed. This function prevents unauthorized operators from making setting changes that could affect the operation or performance of the unit. Since no settings are displayed on the Operations Screen, the operator cannot change settings unless a pass code is enabled. See Figure 3-4

The Operation Screen also displays a Totalizing Counter and Production Time that can be reset by the operator.

NOTE: The Totalizing Counter feature must be turned ON from the Counters Screen to track cycle operations.

*NOTE: For more information regarding the pass code function, refer to Section 3.39*Pass Code Setup Screen, *later in this chapter.*

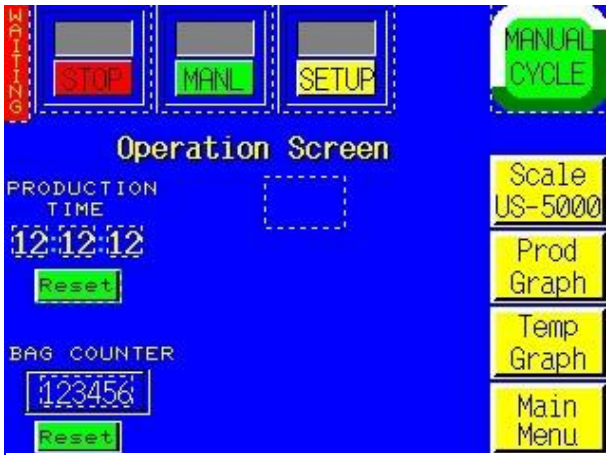


Figure 3-4

3.8 Main Menu

The Main Menu is initially accessed from the Operations Screen, this screen allows the operator to go through all of the screens, See Figure 3-5.

Start / Stop button controls operation mode; mode which enables ST-1000 to cycle.

Manual/Auto: Toggle button to enter Automatic (paced rate) or Auxiliary Cycle mode.

Pause/Setup: Temporarily deactivates Predetermining Counter and Totalizing Counter until reset. Temporarily deactivates signal to auxiliary equipment. Allows cycle operation when heater bar is not up to temperature.

Ready/Waiting: Indicator LED. Displays Ready when heater bar is at the temperature set point. Waiting flashes when the machine is not at temperature.

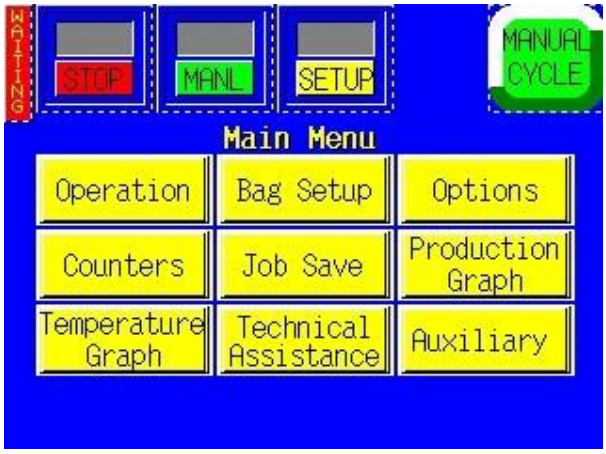


Figure 3-5

3.9 Bag Setup

The Bag Setup Screen provides access to the basic machine settings. Bag size, thickness and product characteristics affect settings required for the proper operation of the machine. See Figure 3-6.

All settings will be entered numerically on a keypad. To adjust any value, press the green button of the setting which you would like to change, then enter the value on the number keypad followed by the **Enter** button.

The Settings Menu is where most entries and machine operation settings will occur a new bag size or to run a new product.

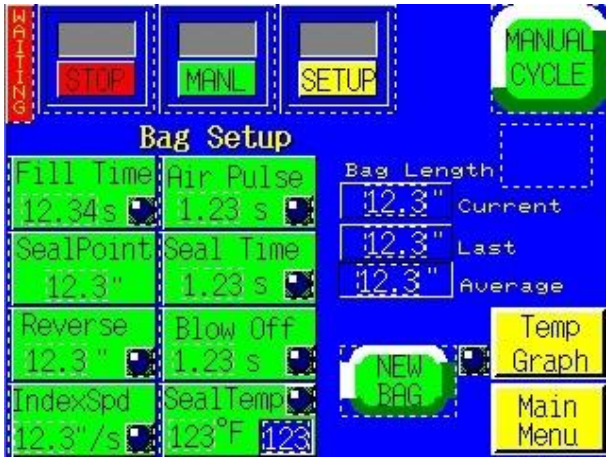


Figure 3-6

A. Fill Time

The **Fill Time** button functions differently dependent upon the MODE in which the ST-1000 is operating: 1) MANUAL, 2) AUTOMATIC (**AUTO**) mode or AUXILIARY mode

(1) In the Manual mode with NO accumulating funnel, Fill Time will delay the operation from starting until this time has passed. When the ST-1000 is equipped with an accumulating funnel, Fill Time will affect the delay time before sealing, after the door has closed on the accumulating funnel.
(2) In the AUTO cycle mode with no auxiliary infeed equipment, Fill Time affects the paced rate operation. The bagger will automatically cycle with the Fill Time delaying the seal bar after the bag has been blown open. In the AUTO mode, no foot switch or other actuator is used.

CAUTION: To avoid physical harm, DO NOT cycle the ST-1000 in the AUTOMATIC mode when funnel(s), guard(s) or covers are removed.

CAUTION: Since the seal bar actuates automatically, operators must keep fingers, hands, and other parts of the body well away from the sealing mechanism and all other moving parts at all times.

NOTE: In AUXILIARY cycle mode, FILL TIME displays, in seconds, the time for which a product, automatically filled by auxiliary equipment, has to be completely settled in the bag before the seal bar is actuated. This time is typically referred to as the DELAY TIME.

CAUTION: To avoid physical harm, DO NOT cycle the ST-1000 in the AUXILIARY mode without the funnel(s), funnel extension(s), guard(s) and covers in proper position. Since the seal bar actuates

automatically, operators must keep fingers, hands, and other parts of the body well away from the sealing mechanism and all other moving parts at all times.

To adjust the value, press the highlighted **Fill Time** button to display the number keypad. Then enter the value on the number keypad followed by the **Enter** button to return to the Bag Setup Screen.

NOTE: Auxiliary mode is further described in Appendix B if Auxiliary options or components were provided by APPI.

B. Air Pulse

Displays, in seconds, the amount of time that a burst of air will last, initially blowing the bag open. Wider bags and heavier gauge bags require a longer burst of air to initially open the bag. Narrower and thinner gauge bags require less air to initially open the bag. To adjust the value, press the **Air Pulse** button from the Bag Setup Menu to display the number keypad. Press the numbers on the keypad followed by the **Enter** button to return the Bag Setup Menu. Additionally, to increase the volume of air from the air pulse tubes, turn the Air Pulse valve counter-clockwise; turning the valve clockwise will decrease the volume of air. The Valves to adjust the air pulse air volume and blower air volume are located on the right lower side of the seal frame assembly.

NOTE: The volume of air set should be the minimum amount and duration required to consistently open the bag.

C. Seal Point

Displays, in inches, the seal point position measured from the top perforation. To adjust the value, press the button labeled **Seal Point** from the Bag Setup Menu. Using the displayed number keypad, press in the value for the amount desired followed by the **Enter** button. Press the foot switch to test the setting and adjust as required. The proper positioning of the seal on the bag varies due to bag size and product characteristics. Wider bags generally require greater sealing area than do narrower bags. Additionally, bags packaged with bulky products require greater sealing area than do bags packaged with thinner products.

New Bag button is used to start an internal program which calculates an average bag length. This information is required if a perforation is not detected, so that the bag will stop in the correct seal position. Bag length information is displayed but may not exactly match the bag length due to mechanical tolerances in the equipment (i.e.: roller diameter fluctuations). It is only useful to compare one bag length to the next. If the variance is too great, a Feed Error message with be displayed.

NOTE: Feed errors are detected and displayed on the screen. See Figure 3-99. Once a feed error occurs, the bagger will restart to calculate the bag length.

D. Seal Time

Displays, in seconds, the time the pressure (rubber) bar will remain touching the surface of the bag for proper sealing. Sometimes referred to as "dwell time", seal time is one of three critical components to obtain a strong seal (other critical factors include seal temperature and seal pressure). To adjust the Seal Time value, touch the highlighted **Seal Time** menu option to display a number pad. To change the setting, press the number (decimal point first, if less than 1) and then press **Enter**. To clear an incorrectly pressed value, press the highlighted **Clear** button and retype the correct value. Pressing **Enter** will return you to the Bag Setup Screen. Test and further adjust if necessary.

E. Reverse

Displays in inches the distance that the rollers will reverse the bag into the ST-1000, while the pressure bar is gripping the bag, to separate the bag being loaded from the bag above. For wider bags, the reverse distance may need to be increased. A typical setting is between .5" and 1". To adjust the value, press the **Reverse** button from the Bag Setup Menu. Using the displayed number keypad, press enter the value followed by the **Enter** button. Press the foot switch or otherwise cycle the bagger to test the new setting.

F. Blow Off

To decrease the possibility of bags sticking to the PTFE Anti-Stick Sealing Sheet, a blow off tube is provided as a standard feature. The blower tube is located in the center, immediately below the seal bar. Typically, the blow off time is set to .1 to .3 seconds.

Index Speed

Displays in inches per second the speed at which the bag will feed/index into position. For shorter bags, the speed can be significantly decreased (to 10"/Sec, for instance). For longer bags, the setting can be increased to the max. setting of 30"/Sec. A typical setting is between 15 and 25" per second. To adjust the value, press the **IndexSpd** button from the Bag Setup Menu. Using the displayed number keypad, press enter the value followed by the **Enter** button. Press the foot switch or otherwise cycle the bagger to test the new setting.

G. Seal Temperature

When the power is ON, the heater bar element receives electrical current. The PLC pulses electrical current to the element until the temperature setting is reached. Shorter pulses indicate maintaining the temperature. An amber indicator lamp illuminates on the Bag Setup Screen while the element is receiving current. The longer the light is illuminating, the longer the "pulse" of current and the further away from the temperature setting. If the temperature of the heater bar is not within a set range around the set point, “Waiting” will be flashed on the top left screen. To adjust the value, press the highlighted **Seal Temp** button to display the number keypad popup screen. Enter the value and press **Enter** to return to the Bag Setup Menu.

NOTE: After making adjustments, test the seal strength prior to beginning production. It is normal for the indicator light to illuminate (pulse) during operation. As the actual temperature approaches the set temperature, the pulses will get shorter and shorter. When the heater bar is up to temperature, the Waiting LED indicator will change to Ready. From a "cold" start, it takes approximately four minutes to reach the set temperature.

Note on Seal Quality

Quality seals are achieved by making adjustments to SEAL TIME, SEAL TEMP., SEAL POINT and by having the proper seal pressure.

NOTE: As an additional seal function, cool time may also be required for heavy or bulky products. If too hot, the seal may separate when the pressure bar releases the bag after sealing. Cool time is considered a factory setting and can be adjusted through the Technical Assistance Screens. (See Section 3.50).

NOTE: Ensure Regulator Pressure is set to 60 PSI.

If, after making necessary adjustments, seal quality remains insufficient, additional options may be purchased to enhance seal appearance, integrity, or strength.

See Chapter 1 for description of available options: FS-10 Flat Seal Assembly, TS-10 Trim Seal Assembly, BD-10 Bag Deflator, LS-10 Load Shelf, Twin Seal option). Wider seal bars are also available to increase the consistency of seals.

Temp Graph Menu Option is also accessible from this screen. See Section 3.45 for more information regarding this screen.

3.10Options Menu

Options that have been added to the ST-1000 at the factory can be setup from the Options Screen. If options were not installed at the factory, then N/A (Not available) will be displayed to the left of each options button. Otherwise, the button will display ON or OFF. See Figure 3-7 and Figure 3-8.

NOTE: If options are added in the field, a pass code is required to enable use of the option. Contact APPI for pass codes. Options which have been purchased separately must be installed by APPI or by qualified maintenance personnel.

The following sections describe how to setup optional equipment on the ST-1000. If your ST-1000 is not equipped with these options, please disregard these sections. Most of the listed options are not standard and must be purchased separately.

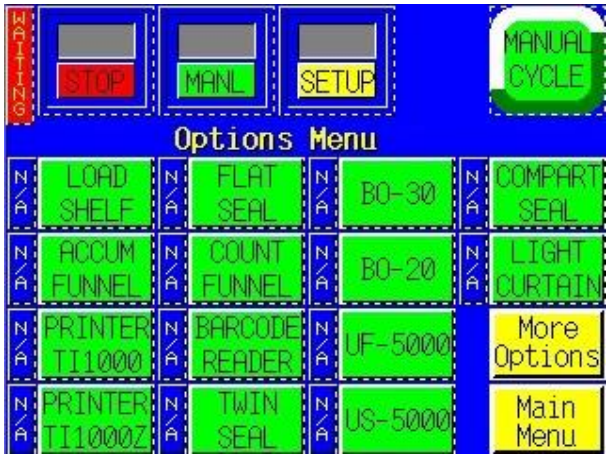


Figure 3-7

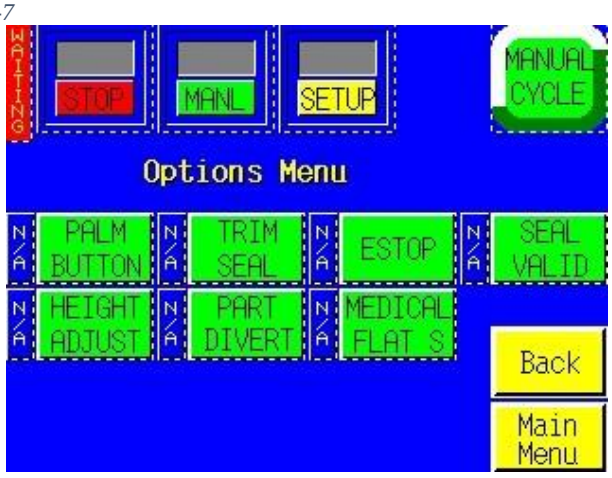


Figure 3-8

3.11LS-10 Load Shelf

This option is used as a support shelf for the product to avoid the bag from prematurely tearing off at the perforation when the product is inserted in the bag. The Load Shelf allows the product to drop onto the shelf relieving the pressure on the bottom of the bag. See Figure 3-9.

To turn ON the load shelf, press the **Load Shelf** menu option and press the **ON** button. The Load Shelf down time is the length of time the shelf is in the down position. Increase the time for longer bags. See Figure 3-10.

NOTE: Valve # X indicates the Valve Station number assigned to this option. Valve #0 indicates that no valve is assigned to this option. The option will not operate unless a Valve Station number is assigned, other than 0.

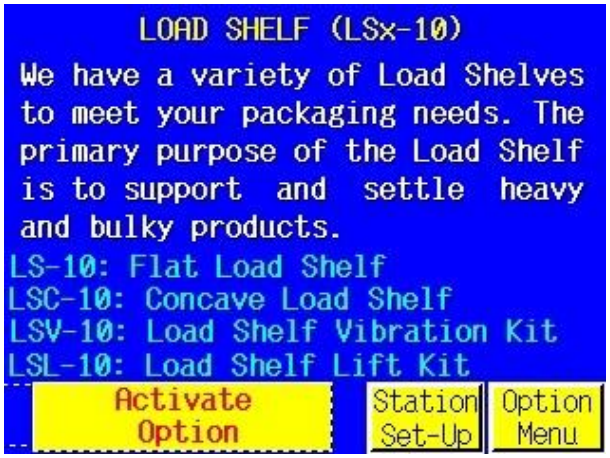


Figure 3-9

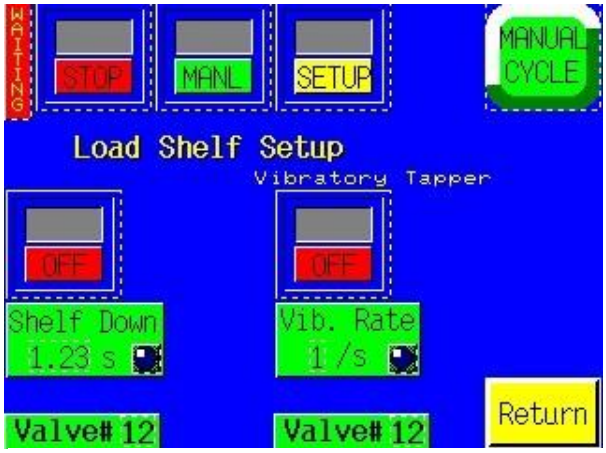


Figure 3-10

3.12FS-10 Flat Seal Assembly

The Flat Seal Assembly option is not included in the standard ST-1000 package and must be purchased separately. Used to help decrease or eliminate wrinkles or folds when sealed, the Flat Seal Assembly can easily be attached. For products which require a high integrity bag, for retail products, bulky products or "air tight" packages, the Flat Seal Assembly is ideal. The Flat Seal Assembly, also called "fingers", flattens the seal portion of the bag (two layers of poly) by pulling the sides of the bag away from the center. The fingers enter the bag immediately before the pressure bar presses the two layers of the bag together, against the front sealer plate. Pulling on the sides of the bag outward causes the layers to flatten, decreasing the possibility of folds. See Figure 3-11.

To turn the Flat Seal Assembly ON, press the **Flat Seal** button on the Options menu and toggle ON the ON/OFF button. Use the **Setup** button to make it easier to mechanically adjust the fingers along the front plate slots on the ST-1000. Once the mechanical adjustment is complete, press **ON** and **AUTO** for normal operation of the flat seal assembly. In the Auto mode, the fingers will automatically extend into the bag immediately prior to the pressure bar sealing the bag. See Figure 3-12.

Figure 3-11

NOTE: Valve # X indicates the Valve Station number assigned to this option. Valve #0 indicates that no valve is assigned to this option. The option will not operate unless a Valve Station number is assigned, other than 0.

3.13TS-10 Trim Seal Assembly

The Trim Seal option is not included in the standard ST-1000 package and must be purchased separately. Used to enhance the appearance of packaged products, the Trim Seal option removes the excess film (trim) from the bag, above the seal. The Blow-off time indicates the time, in seconds, which a blower will remove the excess film from the bag (trim-off time). The Trim Seal option is ideal for 1) retail products for enhanced appearance and 2) hanging products for reduction of "shelf" space. See Figure 3-13.

NOTE: To properly "trim-off" excess film, the bag length may have to be increased to provide the required finished bag size. We recommend trimming at least 1.5" of film from the bag.

Two functions are available for trimming: 1) seal through and blow off, 2) seal through, side shift heater bar and blow off. The first function is recommended and works for most trimming applications. It also reduces wear on the heater bar and cylinder. The second function adds an additional operation of side-shifting the heater bar. This function is required when trimming specialty films such as polypropylene.

Press the ON/OFF toggle button to enable and disable the operation of the Trim Seal option. Press the value on the keypad to increase or decrease the Blow off Time value (trim-off time). Seal Point, Seal Time and Seal Temp. buttons are also available on this screen which are the same settings button that are on the Bag Setup Screen.

To enable the side-shift function, press the toggle button to turn ON the side shift.

Adjust all values until bags are trimming consistently. See Figure 3-14.

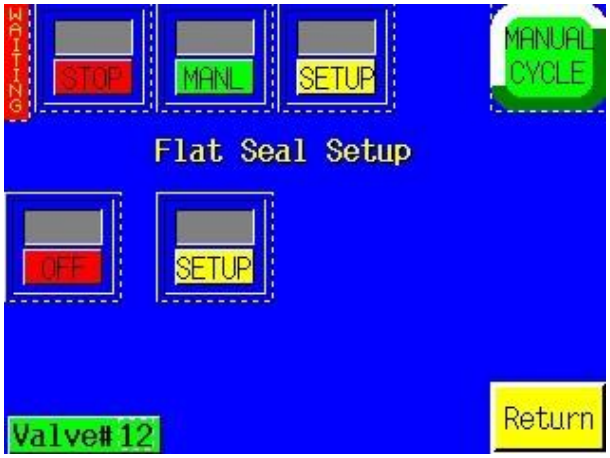


Figure 3-12

Figure 3-13

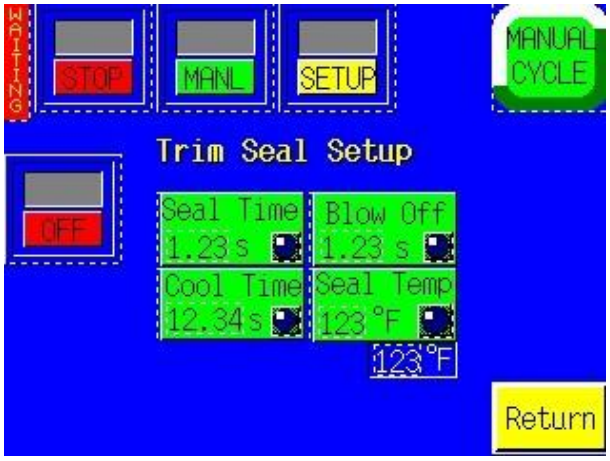


Figure 3-14

NOTE: Operating the TS-10 option may cause production to decrease due to the additional time required for sealing and trimming off the excess. The side shift option and normal trimming function increase maintenance required on the heater bar, PTFE Anti-Stick Sealing Sheet, and cylinders.

NOTE: Valve # X indicates the Valve Station number assigned to this option. Valve #0 indicates that no valve is assigned to this option. The option will not operate unless a Valve Station number is assigned, other than 0.

3.14PB-20 Palm Buttons

The Palm Buttons option (Dual Palm Buttons) is not included in the standard ST-1000 package and must be purchased separately. This option is used as a safety device to avoid personal injury by ensuring that fingers or hands are not in the seal area during the cycle operation of the ST-1000. See Figure 3-15 through Figure 3-17.

CAUTION: To avoid personal injury, do not operate the ST-1000 when funnels are removed. Advanced Poly-Packaging, Inc. recommends either the Palm Button or Light Screen options to safeguard operators.

The Palm Button option operates in lieu of a foot switch. Two buttons, positioned on opposite (left and right) sides on the top of the ST-1000 covers, must be pressed or touched simultaneously to cycle the bagger. If both buttons are not pressed at the same time, or if one of the buttons are held while the other button is pressed, the ST-1000 will not cycle. As an additional safety function, the Automatic cycle mode is disabled when the Palm Button option is turned ON. The foot switch input is also disabled when the Palm Button option is turned ON.

The Palm Button option will be enabled at the factory, if the option was purchased with the machine. Otherwise, contact APPI Service Dept. for instructions on how to enable this option.

Figure 3-15

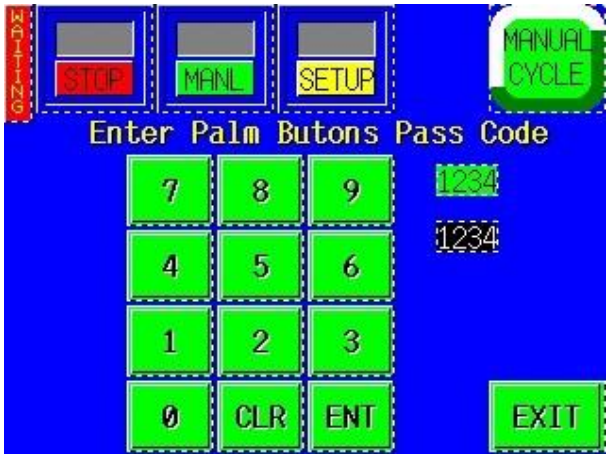


Figure 3-16

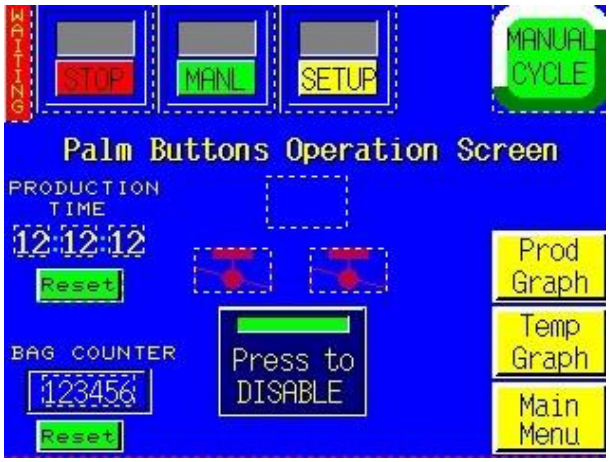


Figure 3-17

3.15LC-10 Light Curtain

The Light Curtain option is not included in the standard ST-1000 package and must be purchased separately. This option is typically used as a safety device to avoid personal injury by ensuring that fingers or hands are not in the seal area during the cycle operation of the ST-1000. See Figure 3-18.

CAUTION: To avoid personal injury, do not operate the ST-1000 when funnels are removed. Advanced Poly-Packaging, Inc. recommends either the Palm Button or Light Screen options to safeguard operators.

CAUTION: Do not attempt to reach under guards for any reason. This may defeat the safety feature of the LC-10 Light Curtain option. The Light Curtain only deactivates the motor and seal/pressure bar when enabled and when the light curtain beam is broken from above the seal bar. Reaching from underneath will place your hands or fingers in the seal area!

As an additional safety function, the Automatic cycle mode is disabled when the Light Curtain option is turned ON. However, the foot switch input is not disabled when the Light Curtain option is turned ON so if pressed the machine will cycle.

To enable the Light Curtain option, press the button labeled **Press to Enable**. Once enabled, you will not be able to disable the option without knowing the correct pass code. See Figure 3-19.

The Light Curtain option can be used as a means of initiating the cycle operation of the ST-1000. To cycle the bagger automatically after the light curtain sensing area is cleared, press the **Mode** toggle button to change from Safe to Auto.

Once in the Auto mode, the **Min Time** can be set to "debounce" the input signal. This means that the curtain must be blocked for at least this amount of time before the ST-1000 will automatically cycle. A typical setting for the Min Time is .3 seconds.

Also, in the Auto mode, the **Fill Time** can be set to delay the cycle operation. For instance, if the mode is set to Auto and the Fill Time is set to 1 sec., the machine will cycle only after the operator has removed their hands and after 1 second has elapsed.

A Message toggle, if pressed to ON will cause a message to be displayed during the time that the light curtain area is blocked. The message tells the operator that the machine will automatically cycle when they remove their hands.

Figure 3-18

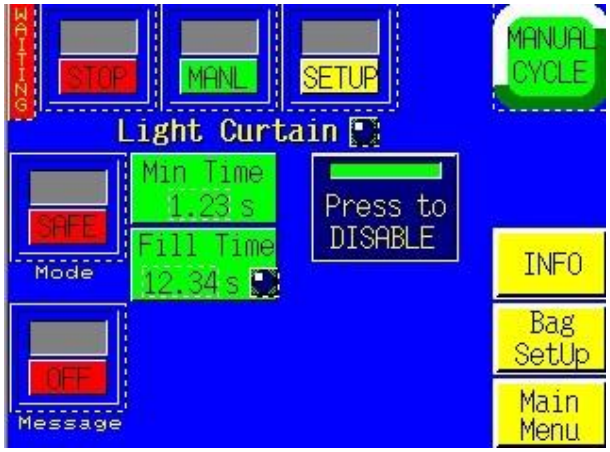


Figure 3-19

Figure 3-20

CAUTION: To avoid personal injury, do not attempt to disable the Light Curtain option unless a funnel is added which physically blocks the path to the heater bar.

If you need to add a funnel or chute which causes the light curtain area to be permanently blocked, and this funnel or chute also prevents the operator from reaching into the seal area, the light curtain can be deactivated. See Figure 3-20.

To deactivate the light curtain, press the button labeled **Press to Deactivate**. A keypad will be displayed which will require a special code. Unless you know this code, you cannot deactivate the light curtain option. Contact APPI Service Dept. for the pass code to disable the option. See Figure 3-21.

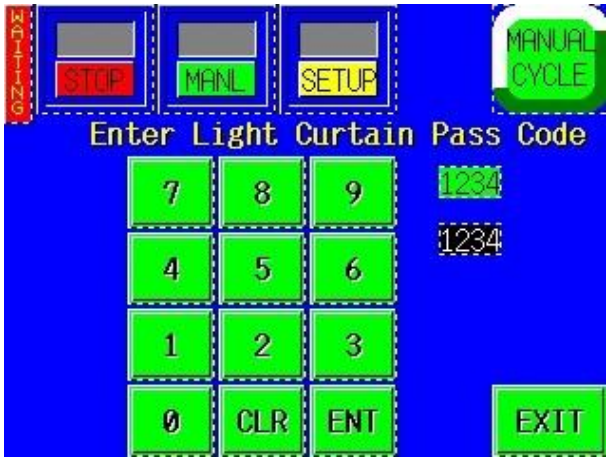


Figure 3-21

If the light curtain is blocked for several seconds, a message will be displayed preventing the machine operation. You must then either unblock the light curtain area or deactivate the light curtain. See Figure 3-22.

Figure 3-22

3.16Estop Option

The Estop option is not included in the standard ST-1000 package and must be purchased separately. This option can be used to stop the cycle operation of the ST-1000 and possibly other auxiliary infeed or outfeed equipment if purchased with the ST-1000. This option is useful if a full system is purchased which may run in an automatic operation. One or more Estop buttons may incorporated to stop one or more operations. See Figure 3-23.

Figure 3-23

If depressed, the Estop button will cut power to the drive motors, turn off air pressure or otherwise halt moving components within the system. However, due to the wide range of equipment options, E-stops may function differently from one system to another depending on the components and safety requirements requested. When the Estop is pressed, a message screen will be displayed. See Figure 3-24.

Figure 3-24

3.17Ti-1000 Inline Printer

A Printer option not included in the standard ST-1000 package and must be purchased separately. Used for product identification, it will print information, graphic images or bar codes directly to the surface of the film using a ribbon foil to transfer ink. See Figure 3-25.

The Thermal Inline Transfer Printer - prints text, graphics and bar codes, formatted in a separate software program. The label formats, saved in a P.C. structure can be recalled and "downloaded" to the printer.

To enable Printer operation on the Thermal Transfer (TT) Printer, press the highlighted **Printer Ti-1000** button. Toggle switch to **ON** or **OFF** to disable the operation of the printer. See Figure 3-26.

Figure 3-25

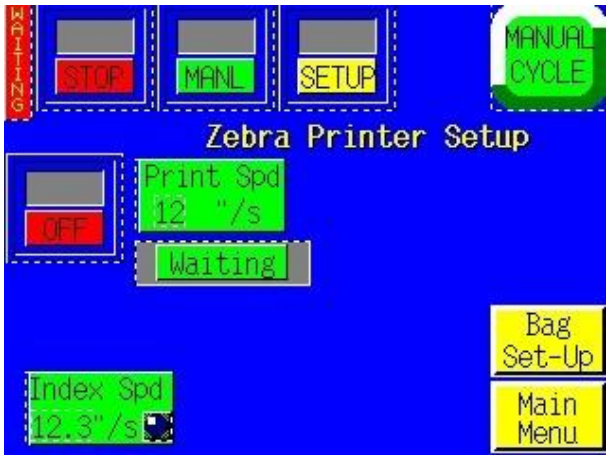


Figure 3-26

3.18CF-10 Counting Funnel

A Photo optic and preset Counting option not included in the standard ST-1000 package and must be purchased separately. This option is useful the automatically cycle the bagger when a preset number of parts have fallen through the funnel. See Figure 3-27.

Photo optic eyes may vary depending on your product, so parts should be sent to APPI for testing to determine the correct components. Parts must be separated to be counted accurately through the eye. If two parts fall at the same time, they may be counted as one. If loading automatically with minimal distance part in the batch count and first part in the next batch. Contact APPI Sales Support for additional options, programming or operations for automatic infeed operations.

To turn ON the option, press the Mode toggle button. See Figure 3-28. Press the **Reset** button to reset the count to the preset value.

Parts length test: With the option ON, go to the Parts Length Test Screen, press the **Reset** button. Toggle the ST-1000 to the Stop mode using the Toggle button located at the top left side of the screen. Then, drop parts individually through the photo sensor / funnel. You will notice that the Min and Max values will change as you drop parts through the eye. If the parts will be fed (Manually?) automatically, parts should pass through the eye as they would if feeding automatically. See Figure 3-29.

Min Setting: The Minimum Setting is used to filter scrap. If through testing the min value detected was .2, setting the value to .1 would cause parts that are .1 or less not to be counted. If you set the Min. Setting too close to the actual minimum test value however, these parts may not be counted causing over counts. Setting the Minimum Setting to Zero will cause all parts to be counted.

Maximum Setting: The Max Setting is used to count parts connected or parts falling through the eye together (overlapped) as two parts. If when testing the parts length, the Max value was determined to be .5, you could set the Max Setting to .8. Then, if two parts overlapped go through the eye with a setting a .9, they would be counted as two

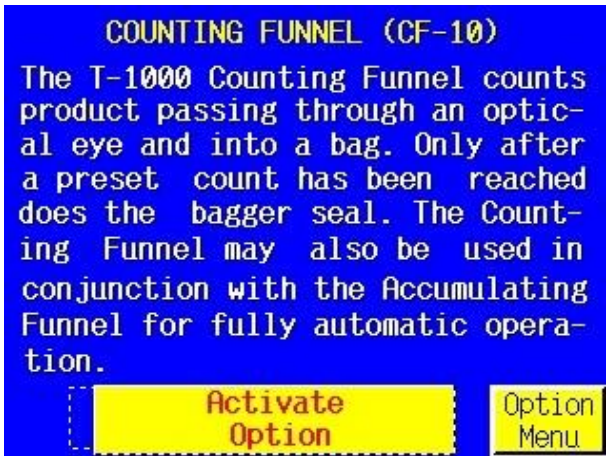


Figure 3-27

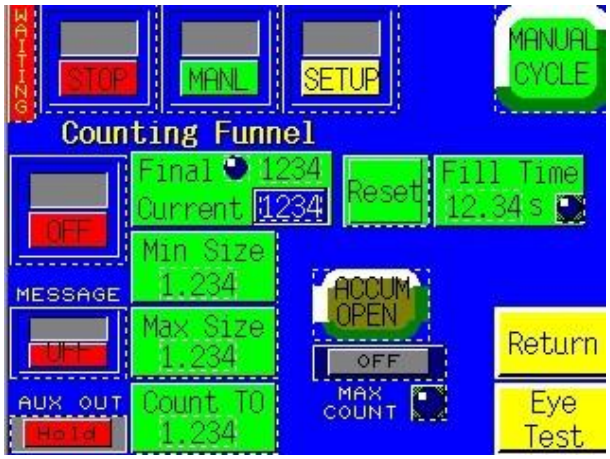


Figure 3-28

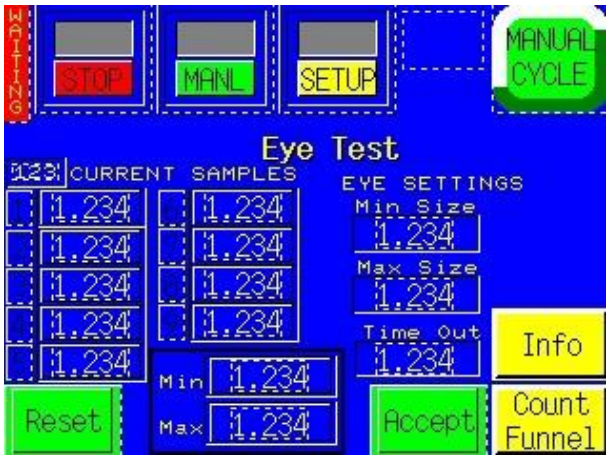


Figure 3-29

parts. However, if you set the Max Setting too close to the Max Value, one part may be counted as two, causing undercounts. To disable this 2 count function, set the value to zero.

A help screen is provided to further explain Min and Max Settings. See Figure 3-30.

When the final count has been reached, a message can be displayed by toggling the Message button to ON. The message will display the final count and tell the operator to stop loading until the bag is ready to receive the next batch. See Figure 3-31.

If the eye is blocked for an extended period of time (parts jam), the machine will stop and a message will be displayed.

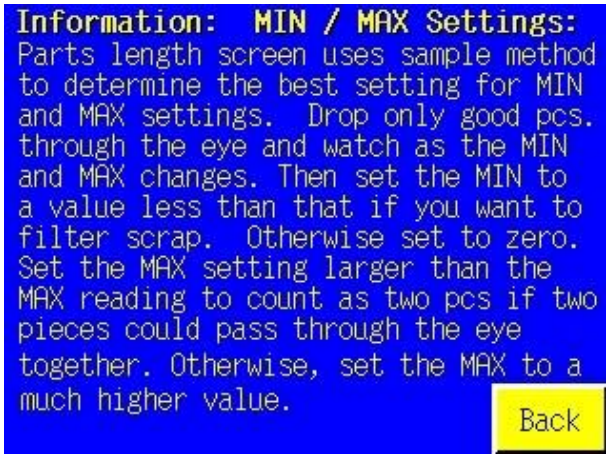


Figure 3-30

3.19AF-10 Accumulating Funnel

A Photo optic and preset Counting option not included in the standard ST-1000 package and must be purchased separately. This special purpose funnel has several functions: 1) to collect (accumulate) a product before dropping the full contents of the Accumulator into the bag, 2) to contain a product while the bagger is in a CYCLE operation (sealing, tearing off, and indexing a bag into position), 3) to insert the funnel into the bag and keep the product away from the sealing portion of the bag (Insert Funnel) and 4) to physically open the bag with a gate that enter into the bag while the product exits the funnel. See Figure 3-32

Figure 3-31

Increased production can be achieved in manual load or automatic load operations. In a manual operation, the operator can insert the product into the funnel without waiting for the bag to be in position and opened. When the bagger is ready to receive the product, the door at the bottom of the funnel will open, drop the product and shut, to allow the funnel to again be loaded.

In an automatic operation, increased production can be achieved by allowing counters, fillers, scales and other infeed equipment to feed the funnel without regard for the status of the bagger.

Figure 3-32

Additionally, the funnel can be operated in an "Open Accumulator" mode or a "Closed Accumulator" mode. In an Open Accumulator mode, the door is closed only during the CYCLE operation. When the door opens (when the bag is in position and blown open), the door will open and

remain open until the bag has been filled with the required amount of product. The door will then close only until the next bag is in the Closed Accumulator mode, the door remains closed until the full contents have been inserted into the funnel. When the bag contents is reached in the funnel, the door will open and all of the product will enter the bag in one.

To turn ON the option press the Mode Toggle button. See Figure 3-33.

The Setup screen displays the time, in seconds, which the bagger will wait after the door opens (product drops). Depending on whether you are in the Open or Closed mode, adjusting the **Door Delay 1** or **Door Delay 2** settings will cause delay in the opening or closing of the funnel, See Figure 3-34.

NOTE: Valve # X indicates the Valve Station number assigned to this option. Valve #0 indicates that no valve is assigned to this option. The option will not operate unless a Valve Station number is assigned, other than 0.

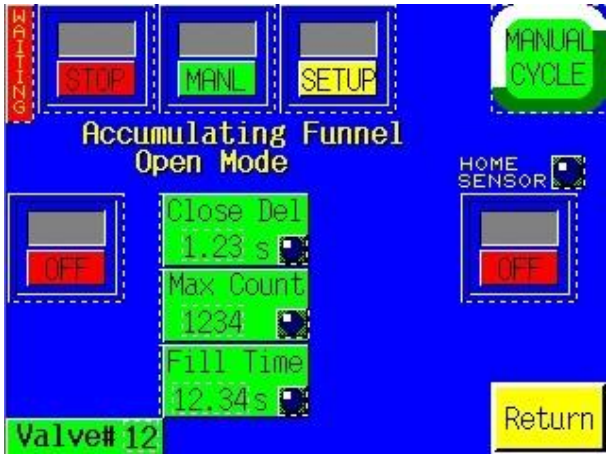


Figure 3-33

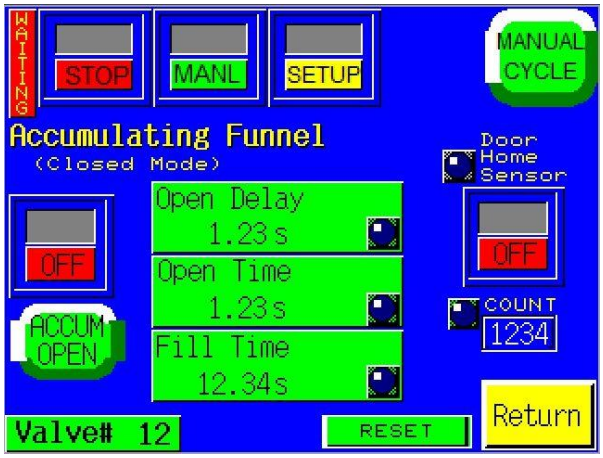


Figure 3-34

Figure 3-35

3.20BO-20 Bag Open Detector

A Photo optic or Closed Contact sensor to detect the opening or presence of bag material is available for purchase, not included in the standard ST-1000 package. See Figure 3-36.

This option will detect whether or not a bag is blown open, or whether or not a funnel is inserted into the bag for validation that that bad is ready to receive product. This option is valuable for an automatic operation to decrease the chance of product falling on the floor. See Figure 3-37.

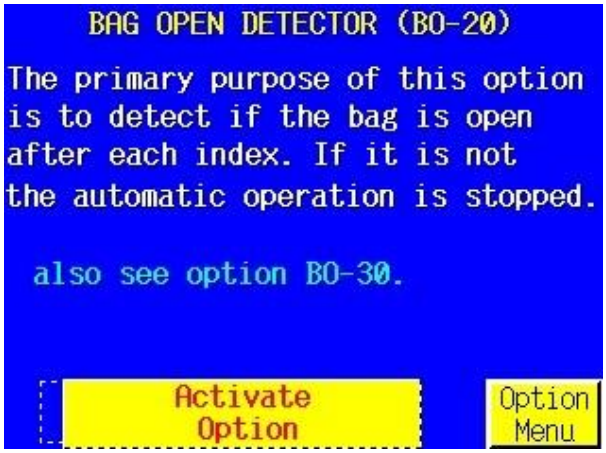


Figure 3-36

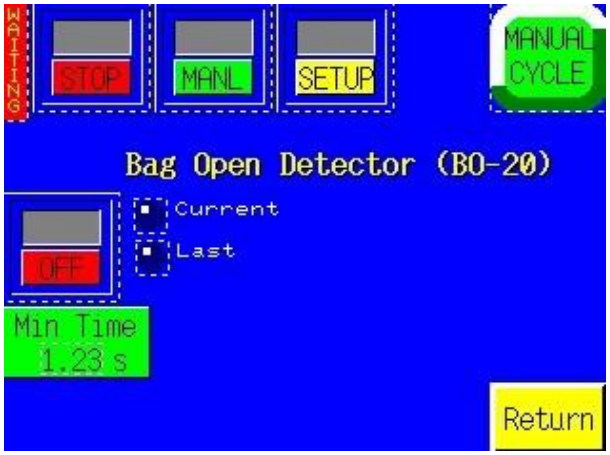


Figure 3-37

3.21Bag "Out" Sensor

A Photo optic or Closed Contact sensor to detect the presence of bag material is available for purchase, not included in the standard ST-1000 package. If the bag material ends, a message will be displayed indicating out of bags or a threading or web breakage issue.

3.22DF-20 Part Diverter (Diverting Funnel)

A Photo optic and preset Counting and Diverting option is not included in the standard ST-1000 package and must be purchased separately. See Figure 3-38

This feature is used to count bags from the bagger and divert them for further packaging operations including counting into cartons. See Figure 3-39.

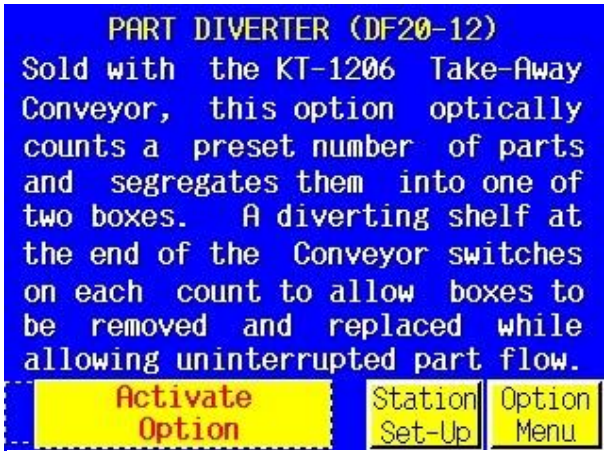


Figure 3-38

NOTE: Valve # X indicates the Valve Station number assigned to this option. Valve #0 indicates that no valve is assigned to this option. The option will not operate unless a Valve Station number is assigned, other than 0.

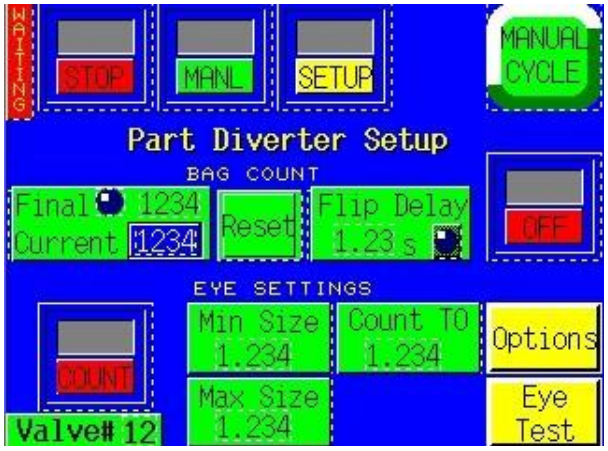


Figure 3-39

3.23Compartment Seal

Special programming is required to seal the bag twice with compartments within the same bag. This option is not included in the standard ST-1000 package and must be purchased separately.

For instance, it may be necessary to segregate a sharper object (screw) from a plastic component (mounting plate) to avoid the screw damaging the plastic part. See Figure 3-40.

Both seal points can be adjusted by the operator to increase or decrease the size of each compartment. However, the larger object should be placed into the bag first.

First set Seal Point 1 by pressing the **Seal Point 1** button and typing in the value on the number keypad. Adjust the first seal point until the desired location is achieved. Then, turn the option ON by toggling ON the ON/OFF button. Adjust the second seal point by pressing < > and entering a value in the number keypad. Adjust the value of the second seal point until the desired position is achieved. Each seal time may be adjusted if you wish the Trim Seal after the second seal has been placed on the bag.

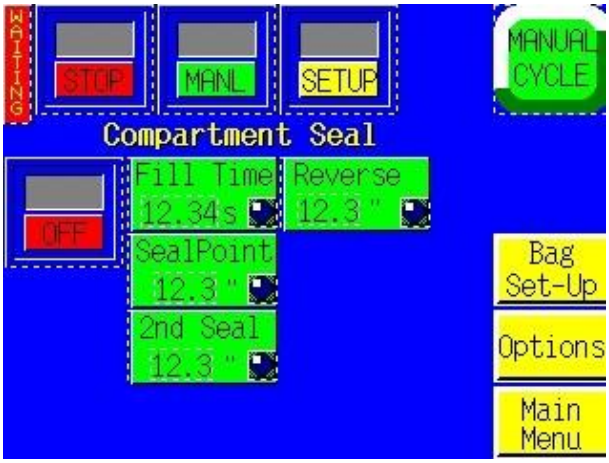


Figure 3-40

3.24TW-10 Twin Seal Feature

Special programming is available to seal the bag twice. This option is not included in the standard ST-1000 package and must be purchased separately. An additional seal can be placed on the bag based to increase the integrity of the bag.

To turn on the Twin Seal ™ option, press the < > menu option and toggle the option **ON**. Adjust the second seal point.

NOTE: You may need to decrease the Seal Point value on the Bag Setup Screen to allow space for two seals on the same bag.

NOTE: Weight of the product, special load shelves or other options, funneling and bag size will affect the operation of this option. Contact APPI Sales Support for more information.

3.25MV-10 Seal Validation

The Seal Validation option is not included in the standard ST-1000 package and must be purchased separately. APPI provided additional components to provide a secondary means detecting a failure or out of range condition for components that affect seal quality. See Figure 3-41.

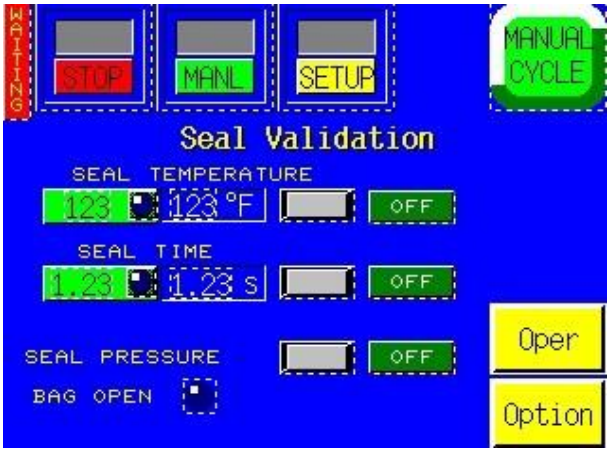


Figure 3-41

To cause a good seal and to confirm that each component required to obtain the seal is in range, we have added three validations to the ST-1000:

1. Seal time: sensors were added to the seal bar to measure how long the seal bar is engaged to validate that the heater bar is extended within an acceptable time compared to the set seal time.

2. Pressure: a pressure sensor was added with an alarm output that alarms when the pressure falls out of the set range in the pressure sensor.

3. Temperature: a secondary controller was added with an alarm output that alarms when the temperature falls out of the set range in the temperature controller.

Typically, medical companies require seal validation as a secondary means to detect out of range conditions are to stop the operation when the condition exists. A Message will be displayed if any of the three validation components are out of range. See Figure 3-42 and Figure 3-43.

Figure 3-42

The Pressure Sensor may be also be added to the ST-1000 to validate only pressure, without adding the other two components. For application requiring this validation only, the bagger will not operate unless the sensor provides an output indicated that the pressure is above a minimum allowable setting.

Figure 3-43

3.26BV-10 Barcode Reader Option

As an optional device, a barcode reader can be purchased from APPI to verify that a barcode is readable. If no barcode is detected, or if a barcode is not correctly formatted (as per software settings in the barcode verifier), then a NO READ message will be displayed.

To turn on the option, press the ON toggle button. Press the TEST button to send a sync signal to the barcode verifier to turn on the scanner. In this mode, the verifier can be used to scan individual barcodes. See Figure 3-44.

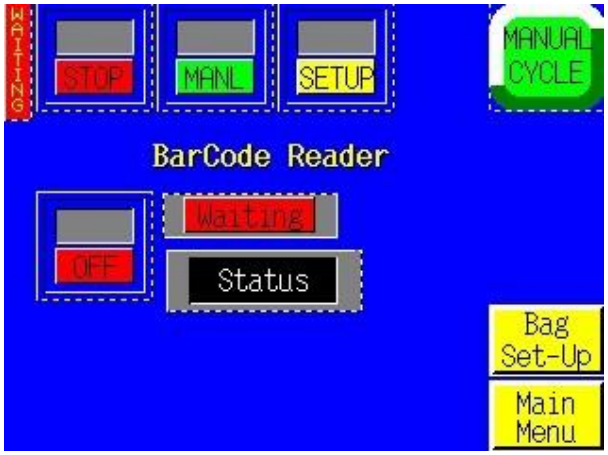


Figure 3-44

Option 1 or Option 2 mode can be used depending upon the sequence of operation desired. Press the Help menu button for a description of the mode of operation for Option 1 and Option 2.

For each barcode successfully read, the status box will provide a GOOD message. If a NO READ occurs, a message will be displayed. Figure 3-45.

Figure 3-45

3.27IF-10 Insert Funnel

A special funnel is offered to enter the bag so that the product does not contaminate the seal area, or the air can be shutoff or to facilitate proper loading. This special purpose funnel is not included in the standard ST-1000 package and must be purchased separately

The funnel enters the bag and remains in the bag until signaled with a foot switch or automatically by a filler. To turn the Insert Funnel ON, press the toggle button. To disable the air, press the Air Delay, type in the amount of time the funnel is filling up the bag before the air should shut off

NOTE: A sensor input is required to confirm that the funnel is in the bag, prior to providing an auxiliary output. If the sensor does not detect the presence of the bag around the funnel, no signal output will be provided and the system will be halted.

NOTE: Valve # X indicates the Valve Station number assigned to this option. Valve #0 indicates that no valve is assigned to this option. The option will not operate unless a Valve Station number is assigned, other than 0.

3.28BO-30 Bag Opening Device

A special device to assist in opening and maintaining a bag opening is offered by APPI. This device enters the bag with one or more "fingers" and then pulls the bag open to a stop. The stop holds the bag open during loading and also validates that there is bag material present in the "gripper". Air can also be shut off at this point. This special purpose device is not included in the standard ST-1000 package and must be purchased separately.

To turn ON this option, press the Toggle button, See Figure 3-46.

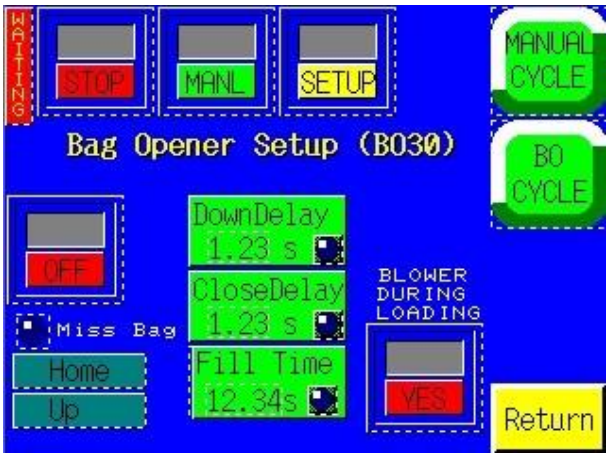


Figure 3-46

Reject Count is typically set to 1 which, after one unsuccessful attempt to open and hold open the bag, a message will be displayed and the operation halted. If set to 2, for instance, the fingers will try one more time to enter the bag and pull it open to the gripper.

Fill Time is the amount of time, in seconds, that an output will be sent to an auxiliary piece of equipment, after the bag has been opened and the opening validated. A typical value is .2 seconds.

Down Time is a delay time before the finger will attempt to enter the bag, after it is initially blown open. A typical value is .5 seconds.

Close Time is the amount of time, in seconds, after the fingers have entered the bag, before the fingers will pull the bag to the gripper point. A typical value is .4 seconds.

Open Cycle button allows you to test cycle the Bag Opening Device alone, without initiating other equipment or the ST-1000 seal operation.

A Help Screen for the Bag Opener Operation is provided for information.

NOTE: Valve # X indicates the Valve Station number assigned to this option. Valve #0 indicates that no valve is assigned to this option. The option will not operate unless a Valve Station number is assigned, other than 0.

3.29ST-10 Stack Light Option

The ST-10 Stack Light option is not included in the standard ST-1000 package and must be purchased separately. This option consists of a two or three LED options. Two LED indicates on Operation Condition (Green) or a Stop/Fault Condition (Red). Three LED indicates the same as the two LED option, but adds a Warning condition (Yellow) which can be used for low materials or other warnings within a system.

3.30Base Height Adjustment

An option that allows the ST-1000 Bagger to be conveniently versatile is the “Base Height Adjustment” Option, which allows the operator to raise or lower the base of the bagger, which is necessary particularly when other equipment, such as conveyors is to “work” with the Ti-1000Z.

To adjust the base of the bagger, select the “Height Adjustment” button from the Option Menu an turn it “ON”. To raise the bagger select “JOG UP”, to lower the bagger select “JOG DOWN”. See Figure 3-47.

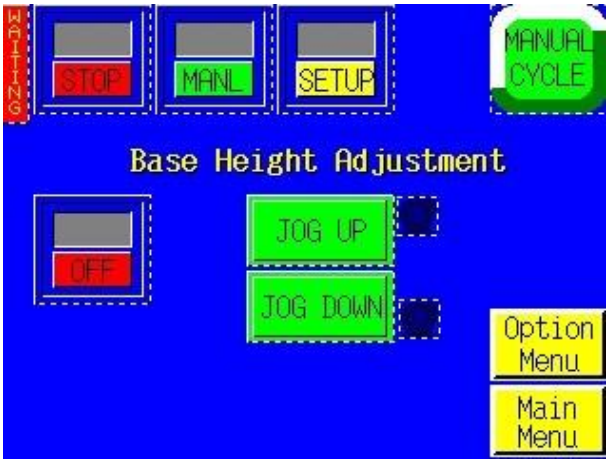


Figure 3-47

3.31UF-5000 Infeed Conveyor Operation Screen

The ST-1000 is programmed to also control the UF-5000 Infeed Conveyor. This screen allows the operator to setup the conveyor to run standalone, with the ST-1000 or with parts counters. See Figure 3-48.

CONV CYCLE button manually cycles the conveyor and also toggles OFF auxiliary mode buttons and bagger Run buttons.

SETUP/RUN button toggles ON the conveyor to operate with the ST-1000.

ON/OFF Bagger Auxiliary button sets up the communication with ST-1000.

ON/OFF Counter Auxiliary button sets up the communication with counters (UC-2400).

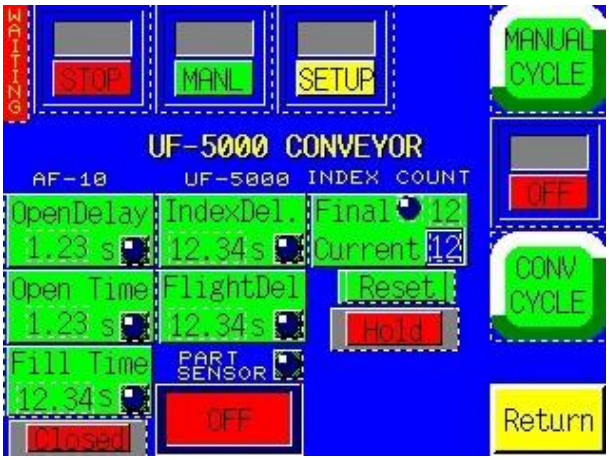


Figure 3-48

PART SENSOR turns on photo eyes mounted in the discharge funnel of the UF-5000 (CE-10) option, if equipped.

Index Count Value is the number of compartments that will be indexed before providing an output signal to the bagger.

The UF-5000 is equipped with an emergency stop (ESTOP) switch, either a push button or pull cord. When the button is pressed, a screen will appear indicating this condition.

UF-5000 Infeed Conveyor Settings Screen

The UF-5000 settings screen provides all the settings to control production speeds and timing of the integration components of a system.

Fill Time is the amount of time from the time the conveyor cycles to the point that the bagger cycles.

Flight Delay is the delay time that the flight sensor is active when the flight (cleat) passes through the optical eye (normally set a .2 sec.). Light/Dark setting is determined by the type of sensor used to detect the cleats (typically set at Light).

Input Delay is the amount of time from the point the conveyor receives a signal to index before the conveyor indexes.

Output Delay is the amount of time after the conveyor indexes before the conveyor signals the bagger that it has cycled.

Sensor Delay is the amount of time after the conveyor indexes that the photo eyes (CE-10 option) "looks" for a parts before indexing another compartment of the conveyor.

Funnel Delay is the amount of time after the conveyor indexes to the point that an accumulating funnel (AF-10 option) cycles (if equipped).

Adjust each timer by pressing the associated timer and entering the value on the number keypad. After each value, test the settings by cycling the conveyor. Press the UF-5000 Mode button to return to the UF-5000 Operation Screen.

3.32 US-5000 Semiautomatic Net Weigh Scale Operation Screen

The US-5000 "Kit" Net Weigh system is a versatile semiautomatic bagging system which provides

For fast bagging of kits or one type of part per bag, in counts up to 10,000 pieces. See Figure 3-49.

If your company bags a wide variety of parts with multiple parts of various counts in bags, the US-5000

Kit Packaging system is an excellent solution.

This option is accessed through the Ti-1000 screen. A separate manual is provided if this option is purchased or is available upon request

Figure 3-49

3.33 Auxiliary Screen

The ST-1000 Touch Screen Program is preprogrammed to accept most infeed equipment signals so that the two or more pieces of equipment "talk" to each. Occasionally, reprogramming will be necessary to interface auxiliary (infeed) equipment that is not manufacturer by APPI. Additional cabling may be required which will transfer the signals between the ST-1000 and your existing equipment. See Figure 3-50.

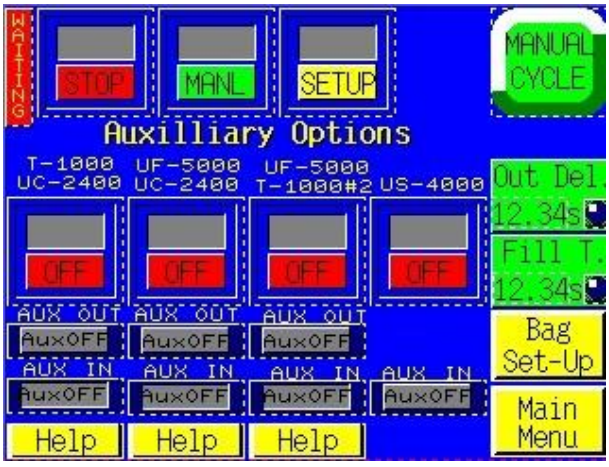


Figure 3-50

Once connected and with both systems running independently, turn the Auxiliary Signal ON by pressing the ON/OFF toggle button from the Auxiliary Screen. An output time delay is provided which delays the bagger from sealing after the auxiliary infeed signal has cycled and signaled the bagger to seal. To adjust the delay timer, press the **Output Delay** button and enter the value, in seconds, on the number keypad.

Help screens are available See Figure 3-51 thru Figure 3-52

CAUTION: We recommend that APPI technicians provide the cable(s) linking the equipment. Contact APPI customer support for information which will be required for the integration.

When the Auxiliary setup procedures are complete, toggle the ST-1000 from **Manual** to **AUTO** by pressing the **Manual/Auto** toggle button. This will place the ST-1000 in the Automatic / Auxiliary mode.

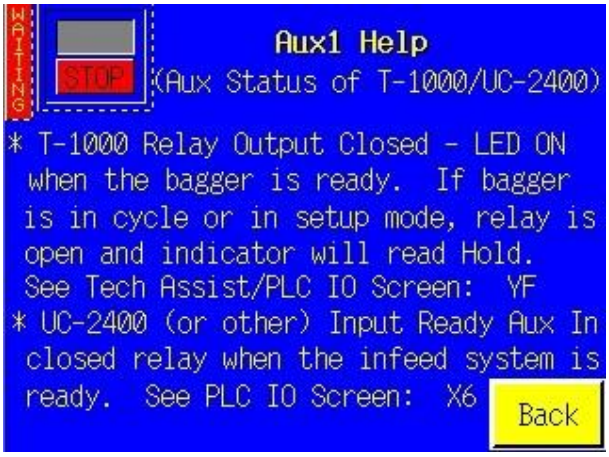


Figure 3-51

Figure 3-53

Figure 3-52

3.34 Internal Memory (PLC) and External Memory (USB):

From the **Main Menu** touch **Technical Assist** and enter the Level 1 Pass Code. Touch the **Bagger Factory** button to access the Bagger Factory screen. From there touch the **Perf Registration** button located along the right hand side of the screen. Once in the Perf Registration screen, locate the **Job Save toggle button** along the bottom of the screen, see Figure 3-54. If the toggle button reads "**PLC**" the machine will save all jobs internally on the PLC. If the button reads "**USB**" all jobs will be saved externally to a USB memory stick. Press the button to toggle between the two. Once you have made your selection exit back to the **Main Menu** by pressing the **Tech Assist** button and press **Exit** when the numeric keypad is accessed.

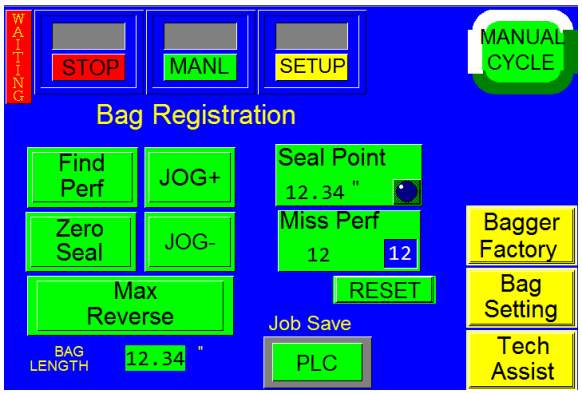


Figure 3-54

NOTE: There must be a USB Flash Drive / Memory Stick inserted into the machine for the External Memory function to operate. If there is no memory stick inserted, ensure the Job Save is in PLC mode in order to save job recipes.

There are benefits to using either memory option. The PLC Internal option allows the user to save up to 24 jobs to the PLC without any extra hardware required. The USB External option allows the user to save an unlimited number of jobs to the USB memory stick. A file will be automatically created on the memory stick that contains Recipes, Alarm data, and Production data from the machine. These files can be viewed when the memory stick is inserted into a PC. Please refer to "Files on the Memory Stick" for more information.

NOTE: Remove the back cover of the touch screen housing to locate the USB port and insert a memory stick (not included).

NOTE: These instructions are for saving bagger settings only. Labels are saved using printer software (such as Labelview).

A. Internal Memory (PLC)

Saving a job to Internal Memory: Select **PLC** in the Perf Registration screen (as described above) and exit to the **Main Menu**. Go to **Settings** and set the specifications for your job. Once the job is set, touch **Job Save** on the right side of the screen to access the **Bagger Job Save** screen, see Figure 3-55. Select the designation under PN where you would like to save the job (#1-24), which will access a green numeric key pad. Enter a numeric name for your job and touch **Ent**. A warning screen will ask if you would like to overwrite the job. The PN of the current job at that location will be displayed in a box to the side. This box will display "0" if it is not being used. Select **Yes** to overwrite and continue. Your job is now saved to the Internal Memory on the PLC.

Figure 3-55

To recall a job from Internal Memory: Touch **Job Search** on the **Main Menu** to access the **Touch to Recall** screen, see Figure 3-57. The jobs that are saved to the PLC will be displayed in this table. Touch the job you would like to recall. This will take you to the **Job Load** screen that displays the settings for this job, see Figure 3-56. Ensure this is the correct job and touch **Load**. This will take you to the **Bagger Settings** screen with all the settings loaded and ready to start the job.

Figure 3-57

Figure 3-56

B. External Memory (USB)

To save a job to the External Memory: Select **USB** in the Perf Registration screen (as described in 3.34) and exit to **Main Menu**. Go to **Settings** and set the specifications for your job. Once the job is set, touch **Job Save** which will take you to the Job Save screen. See Figure 3-58. Press the box that reads "**Part**" which will access a keypad. In the USB Mode, Jobs can be saved by either numbers or letters. Enter the name or number you wish to save the job as and press enter. To enter a note press the box that says **Note**, and enter the information using the keypad that is displayed. Touch **Enter** to continue or **Exit** to cancel. Touching the **QTY** box will access a green numeric keypad where the operator can enter the number of products that will go into each bag. For instance, if three items go into the bag before it is sealed, the number 3 can be entered into that field. When all the information is setup touch **Save** to save to the External memory stick.

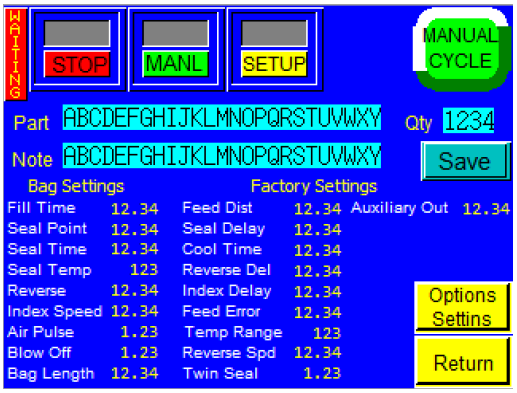


Figure 3-58

*NOTE: In the Job Save screen there is a **Recipe List** button and an **Options Settings** button. When the **Recipe List** button is pressed, the recipe list screen will be accessed. A record "REC0000" will be displayed. This is the file created by the program which records all the activity on the bagger and where the recipe information is stored. This information can only be viewed when the USB is plugged into a PC. To recall a job you must type in the name of the job and hit enter in the **Job Load** screen. When the **Options Settings** button is pressed all the information for that recipe is displayed. The **Part**, **Note**, and **QTY** information can all be changed in this screen. If you do chose to change the information on this screen, go back to the **Job Save** screen and press **Save** to ensure your changes are saved.*

To recall a job from External Memory: Press **Job Search** from the **Main Menu** to access the Job Search screen. From there either scan (if you have a bar code reader option) or enter the job name using the keypad, (accessed by pressing the area under the heading "Current Scan") and press **Search,** see Figure 3-59. This will access a screen

listing all the Bag and Factory Settings for this job, see Figure 3-60. Press **Load**. This will take you to the Printer Operation Screen with all the settings loaded and ready to start the job.

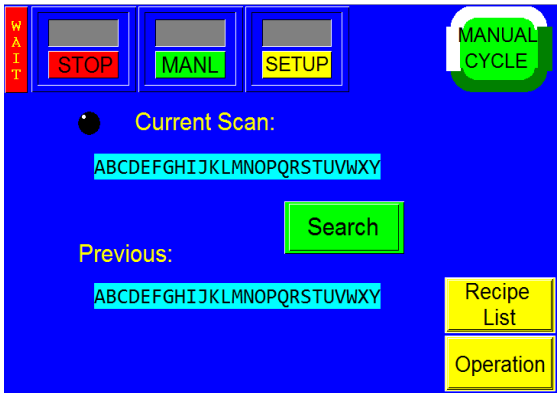


Figure 3-59

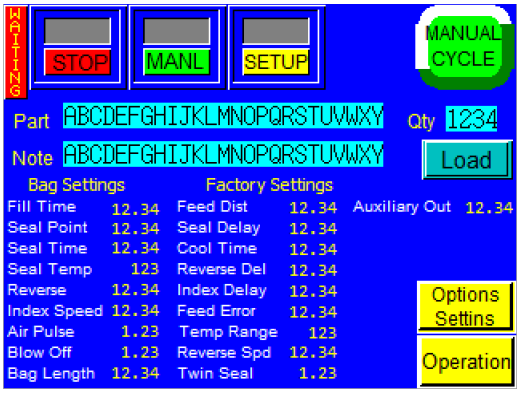


Figure 3-60

C. Files on the Memory Stick

The memory stick contains several types of data from the machine, including Recipe Management, Alarm Data and Production Data. To access this information, plug in the memory stick from the bagger to your PC and open the DAT0000 folder. There will be a list of folders that have been set up by the touch screen program, (see Figure 3-61 for full description). The two folders that contain the Recipe Data and Production Data are called **Recipe** and **Sample**.

Inside DAT000 Folder:

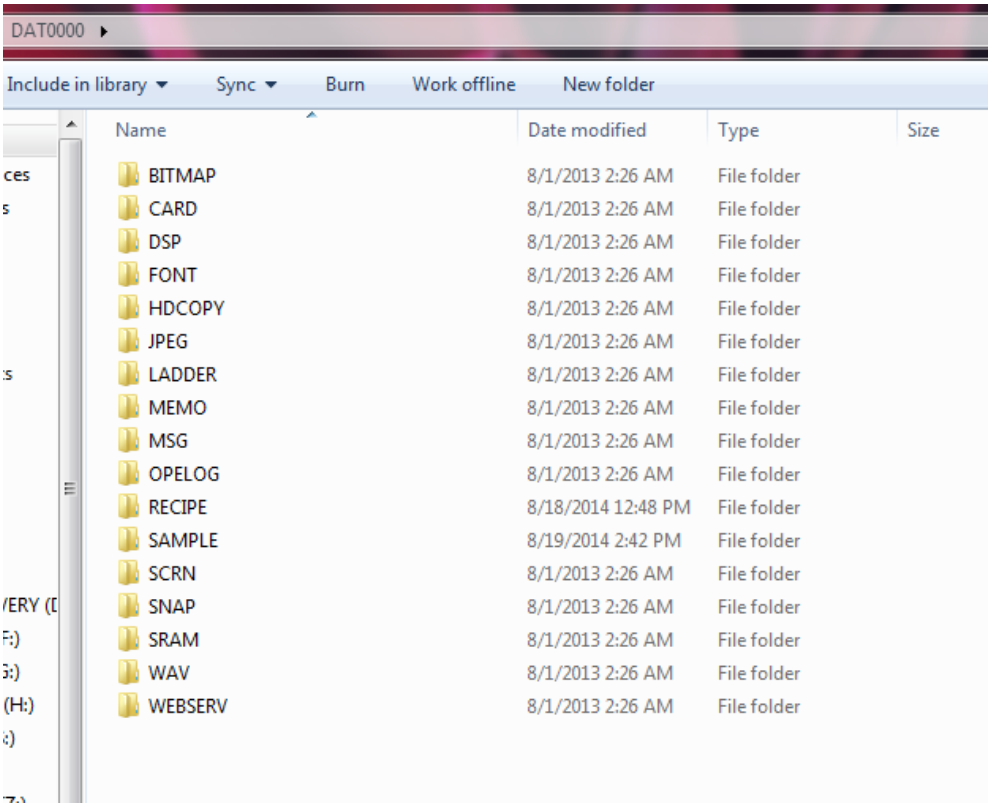


Figure 3-61

BITMAP, CARD, DISP, FONT, HDCOPY, JPEG, LADDER, MEMO, MSG, OPELOG, SCRN, SNAP, SRAM, WAV, and **WEBSERV** are folders used by the touch screen software and will appear empty on the PC. Do not store any information in these files as it will alter the program and will not function when the memory stick is re-inserted in the touch screen.

RECIPE—contains REC0000.CSV which is a list of all the jobs / recipes saved to the USB memory stick. To access this information click on **Recipe** and then on **REC0000**, this will open an Excel file containing all the information pertaining to each job as it was saved on the bagger. This file must be saved (copied) to the PC without the original file changed. Once the file has been saved as a different name than the original, then the operator can use the file and save it as a MS Excel file for full use of the MS Excel formulas. On the spreadsheet, each row is a separate job / recipe that has been saved in the USB mode on the bagger, and the columns list all the specifications as it was set on the bagger. Information for each of the jobs starts at column "C" and goes all the way through column "DU". Some of the common settings are in column C-QTY, AF-Blow-off, AG-Seal Point,

AH-Reverse, AI-Seal Temp, AJ-Index Speed, AK-Fill Time, AL-Seal Time, AM-Air Pulse, AN Bag Length, AS-Feed Distance, AT-Seal Delay, AU-Cool Time, AV Reverse Delay, AW-Temp Range, AY-Aux Out.

NOTE: The program does not save headings for the information being recorded. Also, the data logged is specific to each job; more data is acquired the longer the machine is run. It is recommended that you record each setting for your initial job. This information will be used the first time the spreadsheet is viewed by matching / updating the data to improve your records.

NOTE: DO NOT change the data in the memory stick. However, you can copy the files and past them into a folder on your PC and then use MS Excel to manipulate the data.

NOTE: If you are going to change anything on this file, remember to "Save As" a different name to keep the original intact.

SAMPLE—contains .BIN files and .CSV files. Use the .CSV files to view the spreadsheet for each file that contains a different kind of data. The files are: Cycle Log – SMP0003.CSV; Production Time Log – SMP0004.CSV; Event Logs – SMP0005.CSV, SMP0006.CSV and SMP0007.CSV (see below for full description of files). This data can be used to provide information about the machine, including number of parts per month. However, these files must be saved (copied) to a PC without the original file changed. Then, the files can be used and saved as MS Excel files for full use of the MS Excel formulas.

NOTE: There are .BIN files and .CSV files in the Sample folder. DO NOT try to open or change the program used to run the .BIN files. This is the file the touch screen uses to read the information and if it is changed the program will no longer recognize the file. Use the files that have been saved as .CSV.

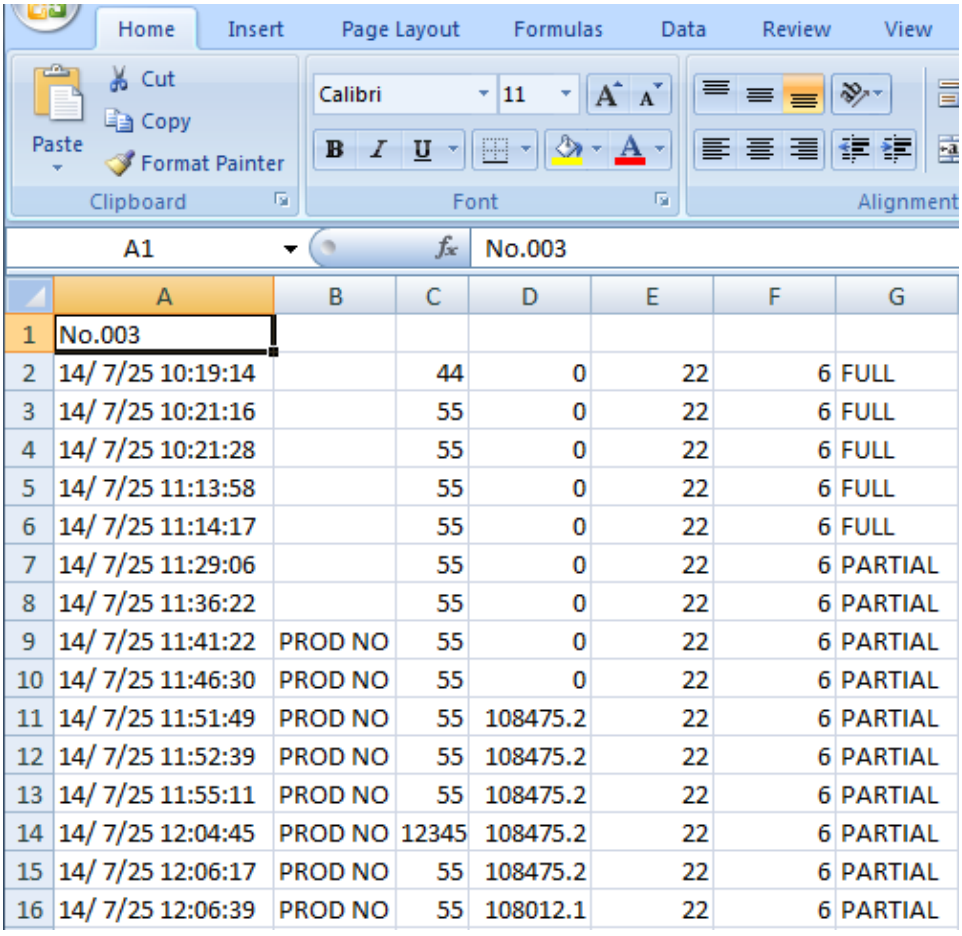
NOTE: If you wish to change the data listed in the spreadsheet, "Save As" a different name then make your changes, keeping the original intact.

NOTE: Some files may not be used depending on the options of the machine. For instance, if your machine does not have a scale, you will not have any information recorded in the SMP0003.CSV file.

SMP0003.CSV Cycle Log – records every Scale production cycle. (See Figure 3-62) The data recorded in each column is as follows:

A). Date & Time—Records when the occurrence happened
B). Production#--the number assigned to the production run.
C). Part#--the number to identify each part.
D). Part weight—the weight of the part
E). Target quantity—records the quantity that is to go in the bag.
F). Actual quantity—records the actual quantity that is in the bag.
G). FULL/PARTIAL mode—records if the kit is in Full or Partial mode.

NOTE: There is a Backup Period every day at midnight. A new backup file with full day data is created; old data is then cleared from the buffer to start the new day.



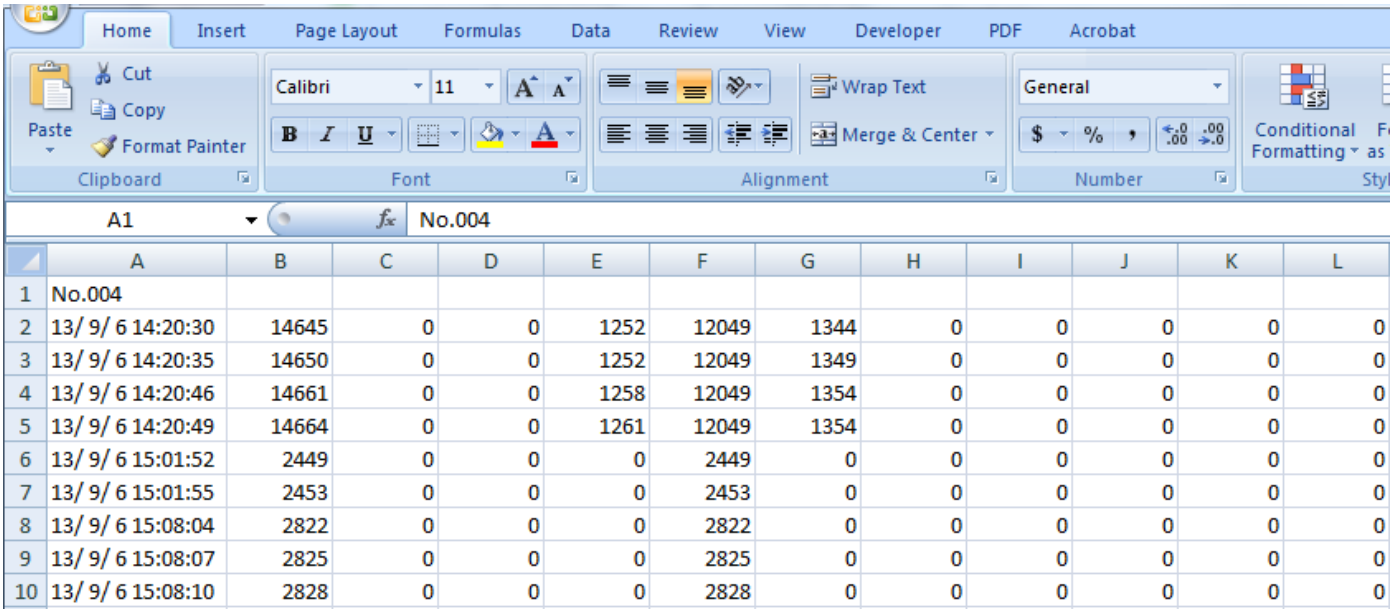
	A	B	C	D	E	F	G
1	No.003						
2	14/ 7/25 10:19:14		44	0	22	6	FULL
3	14/ 7/25 10:21:16		55	0	22	6	FULL
4	14/ 7/25 10:21:28		55	0	22	6	FULL
5	14/ 7/25 11:13:58		55	0	22	6	FULL
6	14/ 7/25 11:14:17		55	0	22	6	FULL
7	14/ 7/25 11:29:06		55	0	22	6	PARTIAL
8	14/ 7/25 11:36:22		55	0	22	6	PARTIAL
9	14/ 7/25 11:41:22	PROD NO	55	0	22	6	PARTIAL
10	14/ 7/25 11:46:30	PROD NO	55	0	22	6	PARTIAL
11	14/ 7/25 11:51:49	PROD NO	55	108475.2	22	6	PARTIAL
12	14/ 7/25 11:52:39	PROD NO	55	108475.2	22	6	PARTIAL
13	14/ 7/25 11:55:11	PROD NO	55	108475.2	22	6	PARTIAL
14	14/ 7/25 12:04:45	PROD NO	12345	108475.2	22	6	PARTIAL
15	14/ 7/25 12:06:17	PROD NO	55	108475.2	22	6	PARTIAL
16	14/ 7/25 12:06:39	PROD NO	55	108012.1	22	6	PARTIAL

Figure 3-62

SMP0004.CSV Production Time Log – records the length of time the machine has been in production and gives details on the length of time the machine has been in the modes listed below. (See Figure 3-63) The data recorded in each column is as follows:

A). Date & Time—records the date and time the mode was switched.
B). Power On time—the length of time the power has been turned on.
C). Auxiliary mode time—the length of time the machine has been in Aux Mode.
D). Auto mode time—the length of time the machine has been in Auto Mode.
E). Manual mode time—the length of time the machine has been in Manual Mode.
F). Stop time—the length of time the machine has been in Stop Mode.
G). Setup time—the length of time the machine has been in Setup Mode.
H). Power On total cycles—the number of cycles made since the machine has been powered on.
I). Auxiliary mode cycles—the number of cycles made since the machine has been in Auxiliary Mode.
J). Auto cycles—the number of cycles made since the machine has been in Auto Mode.
K). Manual cycles—the number of cycles made since the machine has been in Manual Mode.
L). Setup cycles—the number of cycles made since the machine has been in Setup Mode.

NOTE: There is a Backup Period every day at midnight when a new production record is added to the list and saved to the .CSV file. Previous records are not erased. Cycle count and timing start over from Zero every day.



	A	B	C	D	E	F	G	H	I	J	K	L
1	No.004											
2	13/ 9/ 6 14:20:30	14645	0	0	1252	12049	1344	0	0	0	0	0
3	13/ 9/ 6 14:20:35	14650	0	0	1252	12049	1349	0	0	0	0	0
4	13/ 9/ 6 14:20:46	14661	0	0	1258	12049	1354	0	0	0	0	0
5	13/ 9/ 6 14:20:49	14664	0	0	1261	12049	1354	0	0	0	0	0
6	13/ 9/ 6 15:01:52	2449	0	0	0	2449	0	0	0	0	0	0
7	13/ 9/ 6 15:01:55	2453	0	0	0	2453	0	0	0	0	0	0
8	13/ 9/ 6 15:08:04	2822	0	0	0	2822	0	0	0	0	0	0
9	13/ 9/ 6 15:08:07	2825	0	0	0	2825	0	0	0	0	0	0
10	13/ 9/ 6 15:08:10	2828	0	0	0	2828	0	0	0	0	0	0

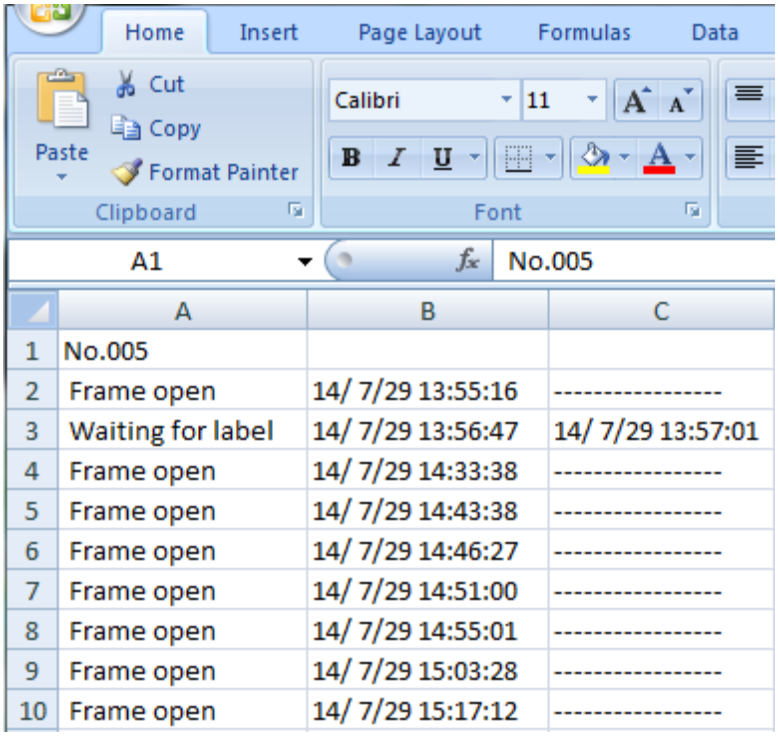
Figure 3-63

SMP0005.CSV, SMP0006.CSV and SPM0007.CSV Event Logs *record every Bagger fault event during operation, (See*

Figure 3-64). The data recorded in each column is as follows:

A). Fault description—the name of the error that has occurred.
B). Occurrence time—the initial time the occurrence happened.
C). Clear time—the time the error was acknowledged / reset. *NOTE: Dashes (---) or asterisks (***) in a field on the spreadsheet indicate no data was recorded for that error.*

NOTE: There is a Backup Period on 1st of the month at midnight a new backup file with the event list is created. Then old data is cleared from the buffer to start new month.



	A	B	C
1	No.005		
2	Frame open	14/ 7/29 13:55:16	----------
3	Waiting for label	14/ 7/29 13:56:47	14/ 7/29 13:57:01
4	Frame open	14/ 7/29 14:33:38	----------
5	Frame open	14/ 7/29 14:43:38	----------
6	Frame open	14/ 7/29 14:46:27	----------
7	Frame open	14/ 7/29 14:51:00	----------
8	Frame open	14/ 7/29 14:55:01	----------
9	Frame open	14/ 7/29 15:03:28	----------
10	Frame open	14/ 7/29 15:17:12	----------

Figure 3-64

Manual Backup: Data is recorded and saved automatically as described above. It can also be done manually using buttons on Log screens: 'Write' - overwrite (save) the same file; 'Backup' - create new file (save as); 'Record' - add a new record; 'Reset' - clear buffer.

3.35Counters Screen

The ST-1000 is equipped with three internal counters as a standard feature. To access the counter screen press the **Counter** button from the Main Menu. See Figure 3-65.

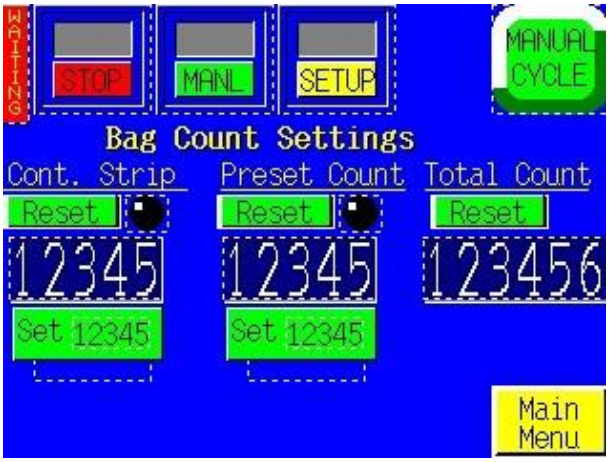


Figure 3-65

Continuous Strip Counter: This option allows you to seal bags in a strip, without separating them at the perforation. If you set this counter value to 10, for instance, you will have a strip of 10 bags connected. The bagger will then reverse to separate the 11th bag.

Press the **Reset** button to reset the counter to the set value. To disable the option, set the value to zero.

NOTE: If you don't want the bags separated ever, you can either set the counter value to very large number or simply change the Reverse setting to zero in the Bag Setup Menu.

Totalizing Counter: To track production, use the Totalizing Counter to count cycle operations of the ST-1000. Press the **Reset** button to reset the counter to zero. This counter value is also displayed on the Operation Screen.

Predetermining Counter: To halt production after a preset number of cycle operations, use the Predetermining Counter. When the final count has been reached, a message screen will be displayed. See

Set the value by pressing the **Set** button and then type the value on the number keypad followed by the **Enter** button. To disable the Predetermining Counter set the value to "0".

3.36Production Chart

APPI provides a simple graph to chart production throughout the day. See Figure 3-66.

Press the < (left arrow key) to scroll back, 1 hour at a time, to review past production. Press the > (right arrow key) to check more recent production information. Press the **CURNT** Current button to display the current hourly production information.

Press the **Reset** button once to reset the production time and twice to reset the graph.

Figure 3-66

3.37Temperature Graph

APPI provides a temperature graph to display the operating temperature during production. This information is useful if bags are found to have weak seals, in isolating the problem by reviewing previous operating temperatures. See Figure 3-67.

The << (left arrow key) is used to view prior operating temperatures and the >> (right arrow key) is used to view more recent temperatures. Pressing the **Curnt** Current button will display the current hour of operating temperatures. Press the **Reset** button to reset the graph information.

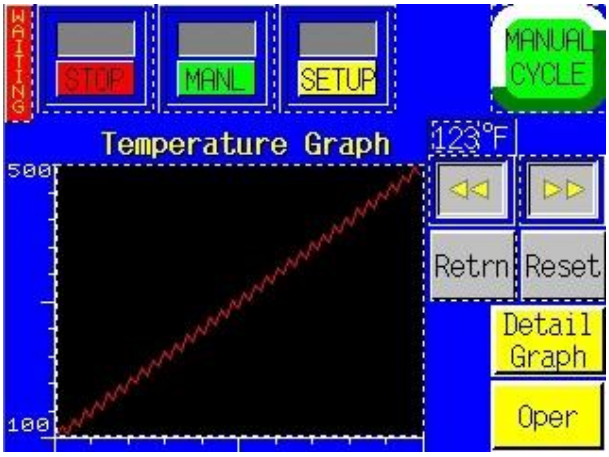


Figure 3-67

3.38Technical Assistance

The Technical Assistance screen provides manufacturer information, factory settings adjustments and functions testing and troubleshooting. It also displays program version for PLC controller and touch screen. See Figure 3-68.

The screen is protected from access with a Level 1 pass code. The pass code is set by default (from the factory) to 1001. See Figure 3-69. This code can and should be changed when the system is put into operation.

Several menu options are available from the Tech Assist. menu which will assist with troubleshooting the ST-1000 and also change settings that affect the operation of the equipment.

Figure 3-68

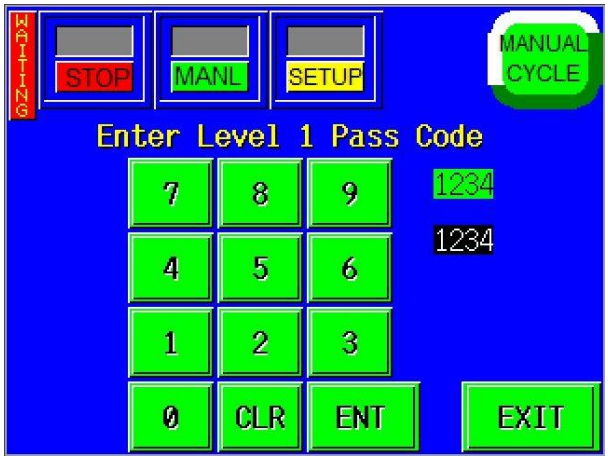


Figure 3-69

3.39Pass Code Setup Screen

Advanced Poly-Packaging, Inc. (APPI) has included a pass code function in all touch screen equipment to prevent operators from changing settings. See Figure 3-70.

There are two pass code levels described as follows:

1. Level 1: This is the highest level pass code which prevents operators from accessing the Technical Assistance functions of the machine. The default pass code, when shipped from the factory, is 1001. See Figure 3-69.

2. Level 2: This level pass code, when the pass code function is enabled, prevents the operator from accessing settings screens that affect the operation of the equipment. See Figure 3-71.

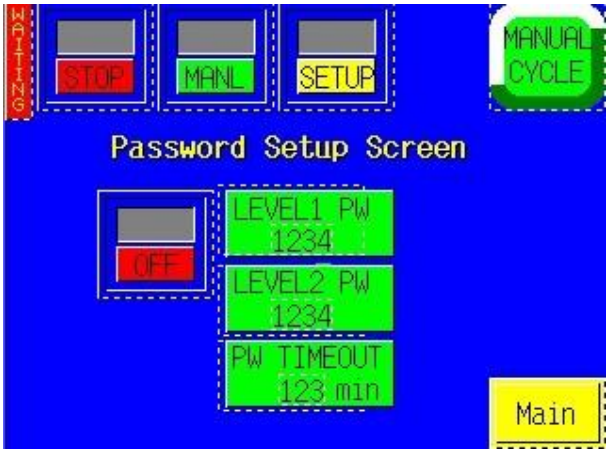


Figure 3-70

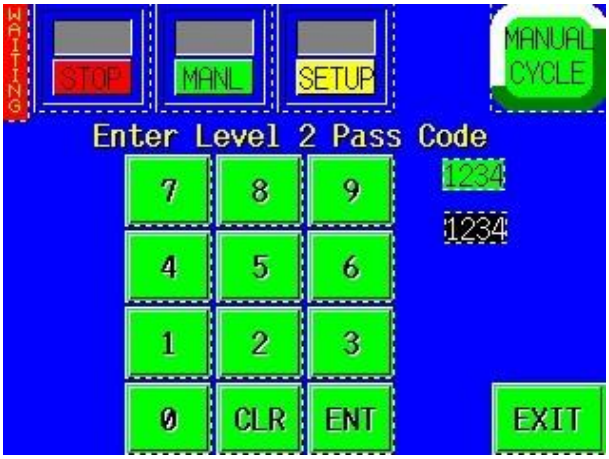


Figure 3-71

Pass codes prevent unauthorized individuals from tampering with settings. When equipment is shipped, APPI uses the following codes which should be changed prior to putting the ST-1000 into operation.

Factory Set Pass Codes:

1. Level 1 pass code: 1001

2. Level 2 pass code: 1002

To enable the pass code function, press the **Tech Assist** button from the Main Menu. Type in the Level 1 pass code (1001 by default from APPI). Press **Bagger PassC** Then press ON to toggle the pass code function ON. If you change the pass codes, ensure that these codes are written down.

Once the pass code function is enabled, the operator will have a programmed amount of time (time-out time) to make changes. Once this time has elapsed, the Operation Screen will automatically be displayed. This time can be changed by accessing the Bagger PassC setup screen.

If you misplace or forget the pass codes, contact APPI Service Dept for assistance. APPI will prove a "factory code" so that the current pass codes can be displayed. Once you receive the factory code, press F5 function key, located to the right of the touch screen, to enter the factory code and your current pass codes will be displayed.

3.40Options Enable Pass Codes

The Options Enable Screen is used at the factory to "enable" options for use by the operator. A status box is located to the left of the option to indicate if the option is available to operator. If OFF, the option settings screen will not be displayed for use by the operator. See Figure 3-72 and Figure 3-73.

Options must be purchased from Advanced Poly-Packaging, Inc. to obtain the password. Contact Advanced Poly-Packaging, Inc. Service Dept. for more information regarding options available for the ST-1000.

Figure 3-72

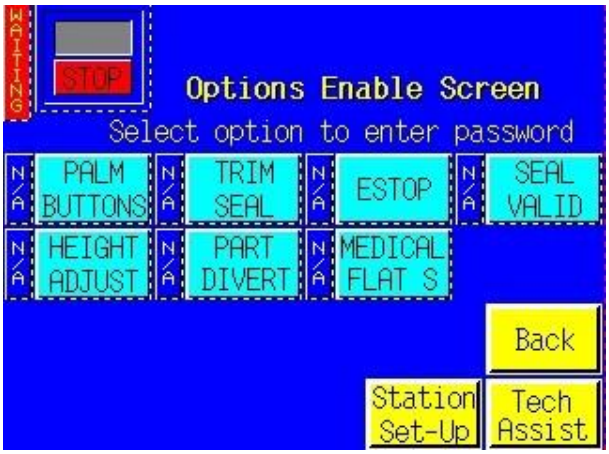


Figure 3-73

3.41Valve Station Setup

The ST-1000 is equipped with a valve station that is wired from DB25 connector/open ended cable to the PLC. Each wire is pre assigned to a PLC output, but options that are available are not assigned to a solenoid valve until the machine is ready to ship from the factory.

Each valve is assigned a "station" number. Stations 1 through 4 are fixed and programmed to operate a standard ST-1000 in a fixed sequence of operation. However, when options are added, the sequence of operation changes. Additionally, outputs from the PLC to the valve are assigned, depending on the options equipped.

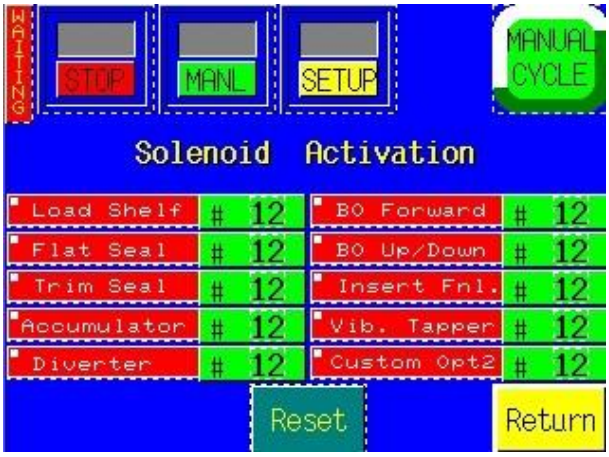


Figure 3-74

For instance, if a LS-10 Load Shelf option is added and the valve station assigned is #6, the ST-1000 Valve Setup Screen must be accessed and the Load Shelf option assigned to Station #6. See Figure 3-74.

To assign an option to a Valve Station, press the option and on the number keypad, press the number followed by the **Enter** button.

NOTE: You will not be able to assign two options to the same Station number. A message screen will be displayed if you attempt to assign two options to the same Valve Station number. The message will also be displayed if you attempt to leave the Valve Station setup screen with two options assigned to the same valve.

To start over, press the **Reset** button. Contact APPI Technical Support for assistance.

3.42Bagger Factory Settings

These settings are additional bagger settings which should only be set by qualified technicians or by the factory. See Figure 3-75.

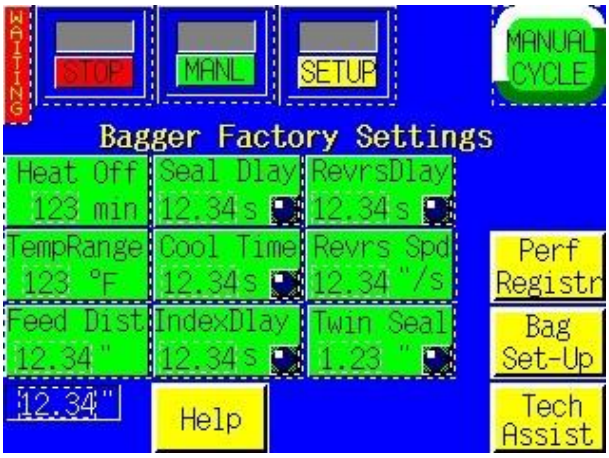


Figure 3-75

Heat Off - The amount of time that will pass before the heater bar will turn off automatically, while

The machine is still "ON" during for example operator breaks.

Temp Range - The range above and below the temperature set point where the bagger will display "Ready" and allow normal operation. If the temperature is out of this ranging a Warning signal will display.

Feed Dist- displays a distance in inches where perforation sensor is not looking for a perforation. Example: if there are other holes in the bag. *NOTE: Normal distance is 0"-2".*

Seal Delay - amount of time the seal is delayed after the air is turned off, so that the air can escape the bag.

Cool Time - after the pressure bar and the heater bar come into contact, the amount of time the pressure bar is released to ensure the seal is cool enough to be torn off.

Index Delay - after the bag is released the next bag is fed into place, the delay allows the previous bag time to get out of the way so that the bag doesn't beat the seal bar coming into contact and causing a bag "jam".

NOTE: It normally takes 3-4 minutes to bring the heater bar to temperature depending on the Seal Temp. value and the current temperature of the heater bar.

Job Default - If pressed, all settings will revert back to the factory settings. These settings may be used to simplify the troubleshooting procedures by APPI Service Personnel.

Perf Setup Routine – Select the Perf Registr button"

Select the "Find" Perf button. See Figure 3-76.

The bagger will advance the perforation until the perf sensor finds it. The bag will stop at that point.

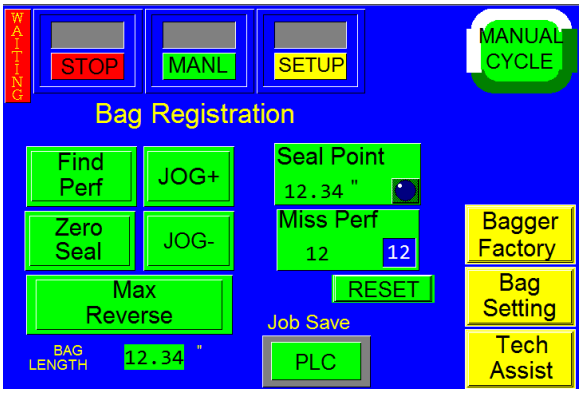


Figure 3-76

Hold the "JOG+" button until the perforation moves down to the middle of the PTFE Anti-Stick Sealing sheet area at the heater bar. Release the "JOG+" button. Push "Zero Seal" once.

Next hold the "JOG-" until the perforation moves up to just in front of the Nip rollers. Push "Max Reverse" once.

The Bag Perf registration is now set for all bag indexing.

3.43PLC Info

The PLC I/O screen is provided for maintenance personnel to determine the status of the PLC and review the mode of Outputs and Inputs. PLC I/O screen(s) are also used to assist APPI Service Technicians, working with your Maintenance Personnel to troubleshoot the ST-1000 in the field. See Figure 3-78 and Figure 3-77.

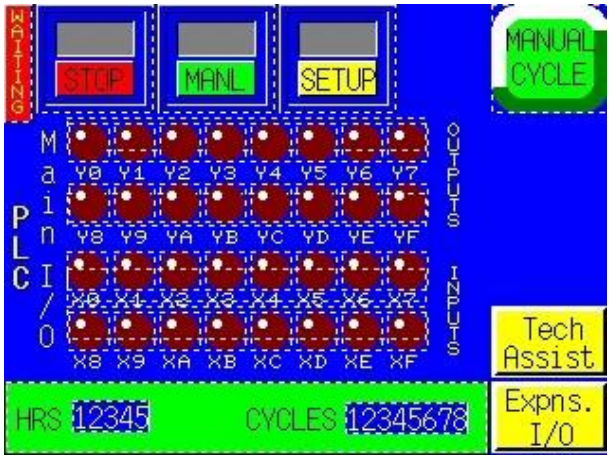


Figure 3-78

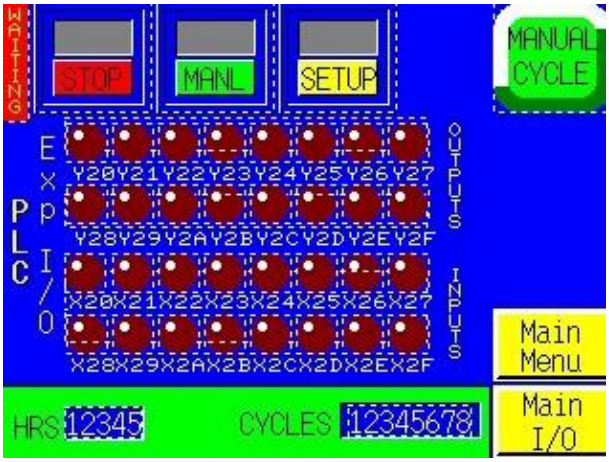


Figure 3-77

To determine the function of each Input / Output, press the LED to display a brief description. The PLC I/O screen also provide the run Hours and Cycles counters. These counters cannot be reset by the operator.

3.44Information Screens / Message Screens

The ST-1000 touch screen program provides for many informational screens that provides descriptions of functions or screens. See Figures 3-79 through 3-100 for examples of messages that indicate the status of the bagger. Some messages provide functional messages that describe errors or the status of equipment and some provide instructions for operators to follow to bring the bagger back online.

To reset a message screen, clear the condition first (if required) and then touch the screen.

Figure 3-86

Figure 3-82

Figure 3-84

Figure 3-85

Figure 3-88

Figure 3-89

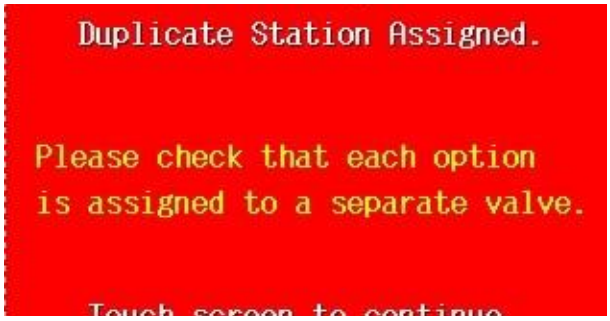


Figure 3-90

Figure 3-87

Figure 3-94

Figure 3-95

Figure 3-93

Figure 3-92

Figure 3-91

Figure 3-96

Figure 3-98

Figure 3-97

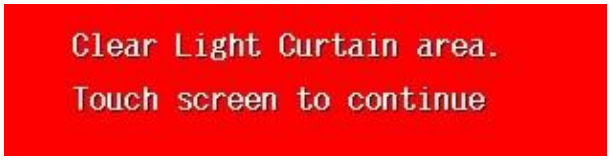


Figure 3-100

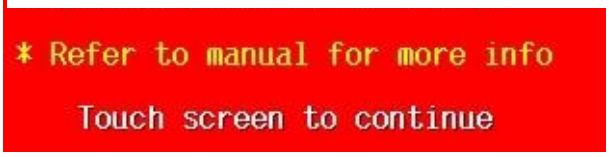


Figure 3-99

Chapter 4: Settings & Adjustments

Machine Adjustments

Tracking and Alignment Adjustments

Compression (NIP) Roller Adjustment

Dancer Assembly Adjustments (Roller Shaft)

Dancer Bar & Break Strap Adjustment

Upper Roller Guides

PTFE Anti-Stick Adjustment

PTFE Anti-Stick Replacement

Pressure Bar Adjustment

Sealer Cylinder Adjustment

Pressure Bar (Rubber) Replacement

Anti-jam Adjustment

Heater Cartridge Replacement

Replace Thermocouple Wire

4.1 Machine Adjustments

Periodically, the ST-1000 will require readjustments or realignments of components to ensure proper operation. Adjustments may be required after transportation, excessive handling or due to normal wear and tear.

CAUTION: Machine adjustments, electrical troubleshooting and component replacement should be performed by qualified maintenance technicians familiar with safety practices including, but not limited to, equipment lock-out / tag-out, voltages and pneumatics. If you are not familiar with the equipment or have not received training on the ST-1000, consult with APPI Technical Support before attempting adjustments or repairs.

4.2 Compression (Nip) Roller Adjustment

The drive roll compression is the force that exists between the two feed rolls (rubber-covered grooved roll and grooved steel roll). Too little drive roll compression will prevent the bags from tearing off after each sealing operation. Too much drive roll compression will cause extra wear on the drive roll and the motor.

NOTE: Always clean rollers before adjusting.

Turn the power switch to the OFF position and unplug the power cord. Remove the left and right side covers. The compression adjustment is located on the lower outside right and left side plates. See Figure 4-1 and Figure 4-2.

Compression adjustment is a two-step process. First, the lower roller is adjusted so that it is parallel to the upper roller. Then, the lower roller is adjusted (raised) for proper compression.

On both the left panel and right panel, loosen the two locking bolts on the upper block of the compression tension assembly. Loosen the nut on the adjustment screw. With the Seal Frame locked in the UP position, lower the lower (steel) roller by turning the adjustment screws clockwise until the lower (steel) roller is parallel to the upper (blue) roller, leaving a 1/16" gap between the rollers. Turn the adjustment screw counter-clockwise alternatively, keeping the lower roller parallel with the upper roller until the rollers come in contact across the width of the rollers. Slightly lower the inner frame and raise again to ensure that when raised again, the rollers touch simultaneously. Then "snug" the upper block bolts and recheck the alignment.

NOTE: A light source (lamp) positioned to the rear of the T-1000-S14 Bagger showing light in the gap of the rollers will assist in judging whether the upper and lower roller are parallel.

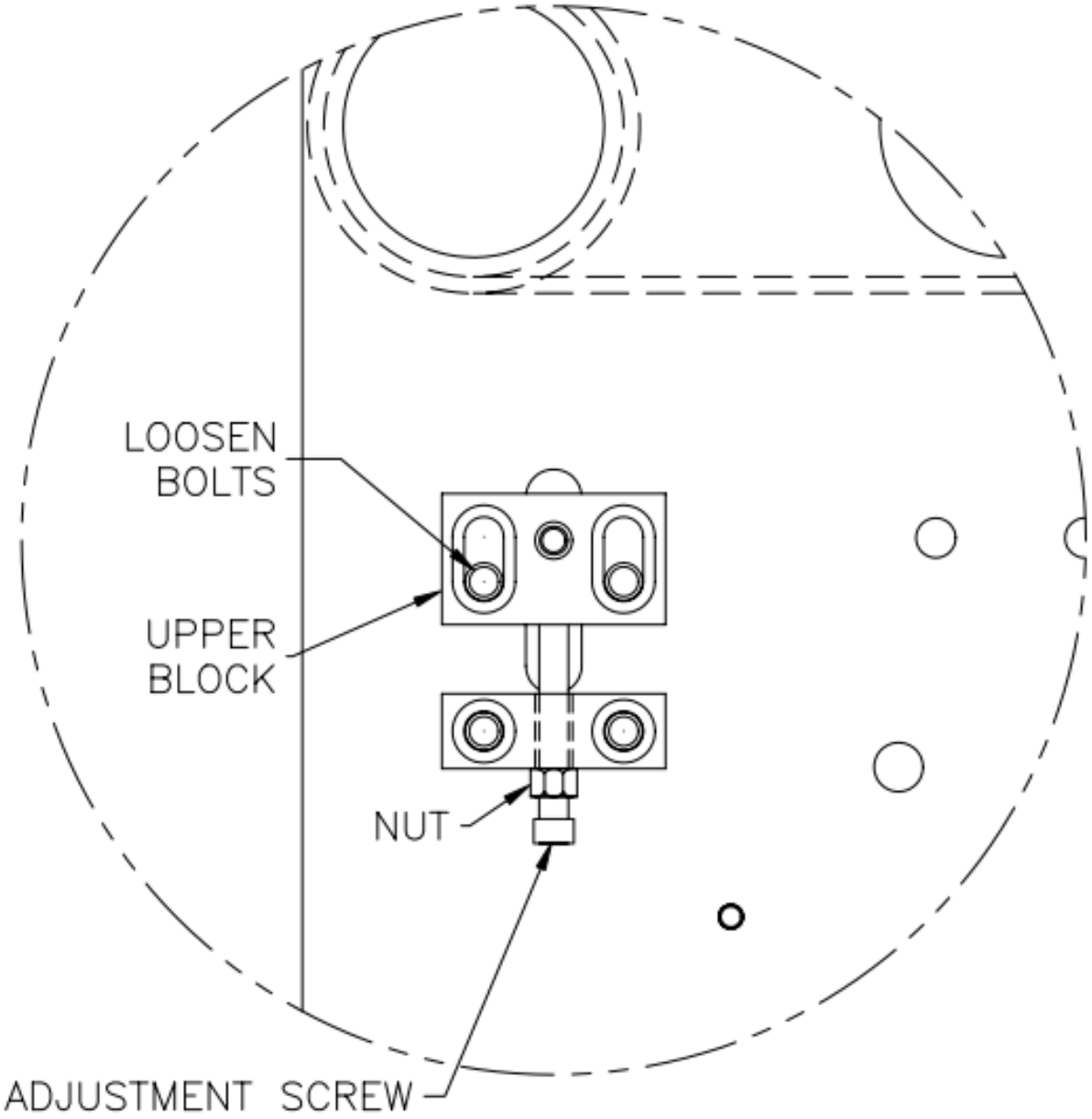
With the rollers parallel and slightly touching, turn each adjustment screw approximately 1/8 turn counter-clockwise. Then test the compression by putting a bag between the rollers and attempting to pull the bag between the rollers. If the bag pulls out easily, turn the compression adjustment screws 1/8 turn counter-clockwise. Continue this adjustment until the bag is slightly difficult to pull out of the rollers.

CAUTION: Over-tightening of the compression adjustment screws may cause damage to the upper (rubber) roller or the motor.

When you are satisfied with the compression, slightly lower the Seal Frame and then slowly raise it until it almost touches the upper roller. If the gap is consistent across the width of the rollers and it appears parallel, lock the Seal Frame upward and retighten the two locking bolts on the upper block of the compression tension assembly. Then retighten the nut on the adjustment screws. Replace the covers, plug the cord into the power outlet, and turn the main power on.

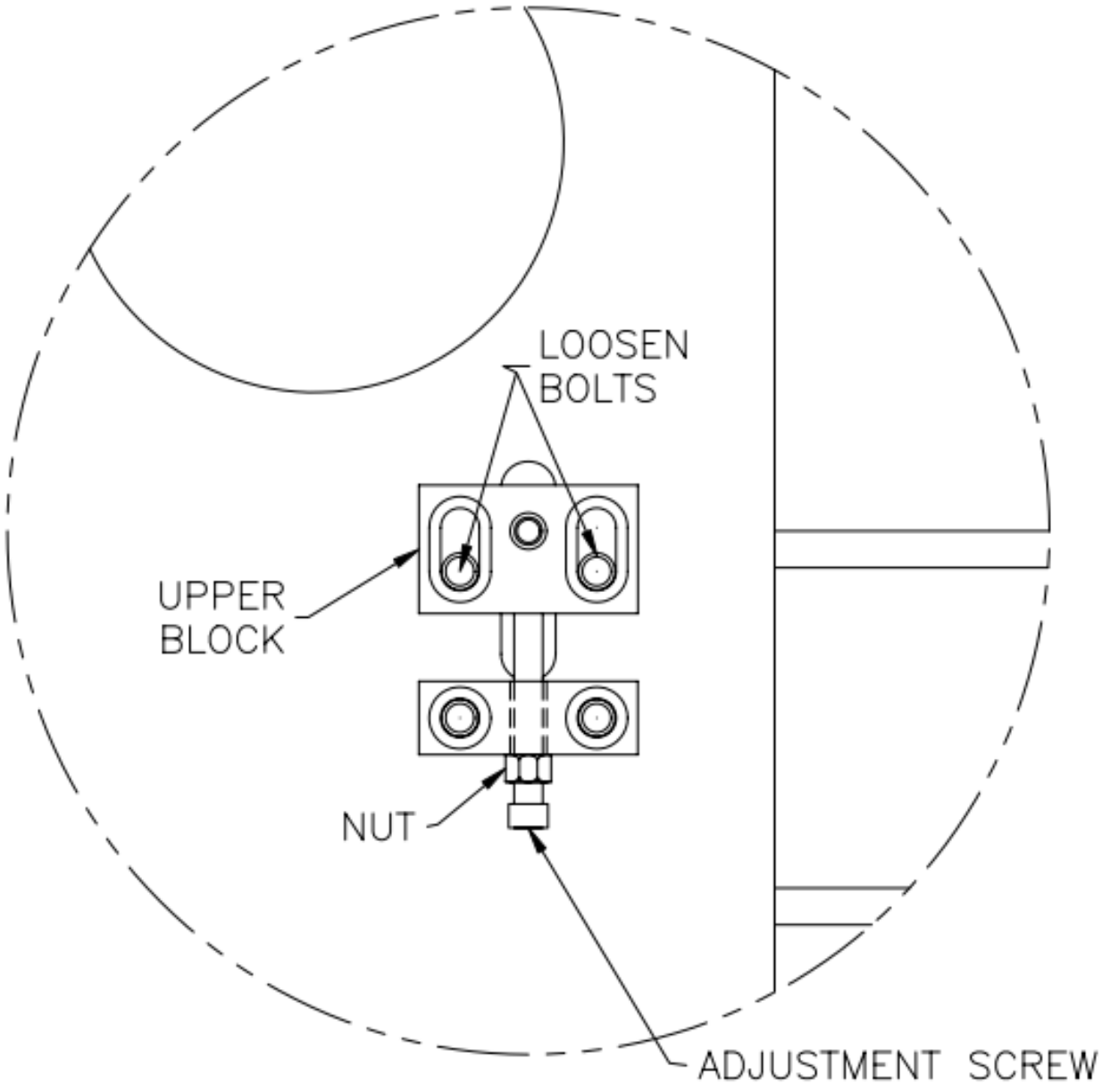
LEFT SIDE PANEL COMPRESSION NIP ROLLER ADJUSTMENT

Figure 4-1



RIGHT SIDE PANEL COMPRESSION NIP ROLLER ADJUSTMENT

Figure 4-2



4.3 Dancer Assembly Adjustments (Roller Shaft)

Please refer to **Error! Reference source not found. Error! Reference source not found.** when using these instructions. A roller shaft, holding in position a roll of bags, will rest on the side plates of the dancer assembly. The roller shaft must be parallel to the upper and lower guide rollers to allow proper tracking through the center of the T-1000-S14 Bagger. If the roller shaft is not parallel, the web of bags may track to the left or right.

NOTE: The roller shaft should not be out of alignment unless damaged or jolted in shipment.

If the rollers are not parallel, loosen two Socket Head Bolts on Dancer Frame and move Dancer Frame backward or forward until the Dancer Roller is parallel with Guide Rollers on the T-1000-S14 Bagger. When Guide rollers are parallel with Dancer Rollers, tighten the bolts on the Dancer Frame.

4.4 Dancer Bar and Break Strap Adjustment

The dancer assembly maintains proper bag web tension throughout the stop/start feed motion. Web tension is required for proper tracking. If the tension is insufficient, the web may track left or right. Thinner bags require less tension than thick bags. Web tension is created by the friction of the brake strap along with the weight of the dancer bar pulling downward on the web of bags. Friction of the brake is created by the weight of the bag roll and the spring tension on the brake strap. As the dancer bar rises, spring tension is decreased and friction is decreased. If the web of bags is slack between the dancer roller and nip rollers, there is not enough tension on the bags. If the web of bags breaks prematurely, the tension is too high.

To correct the web tension, the dancer bar or brake strap spring must be adjusted. To increase brake strap tension, relocate the spring on the dancer rail by sliding the block closer to the dancer roller. To decrease tension with the brake strap, move the spring on the dancer bar and slide the block back away from the dancer roller.

The dancer bar pivots on two shoulder bolts that extend from the side plates. The downward force can be adjusted by repositioning the pivot point. To increase tension with the pivot position, move the pivot position away from the dancer roller. To decrease tension, move the pivot position closer to the dancer roller.

NOTE: For the brake strap to function correctly, the roll shaft must be installed so the strap wraps around the roll shaft. Inspect the dancer bar to ensure that it is parallel to the roller shaft.

4.5 Upper Roller Guides

Two plastic web guides are located on the upper rear roll of the T-1000-S14 Bagger and are used for *fine* adjustment of tracking. Once the web is tracking within +/- 1/8" (0.31 cm) left to right, the plastic web guides can be used to further assist with tracking. Hold the upper roller in place while turning and sliding the plastic guides close to the bags without touching the bags.

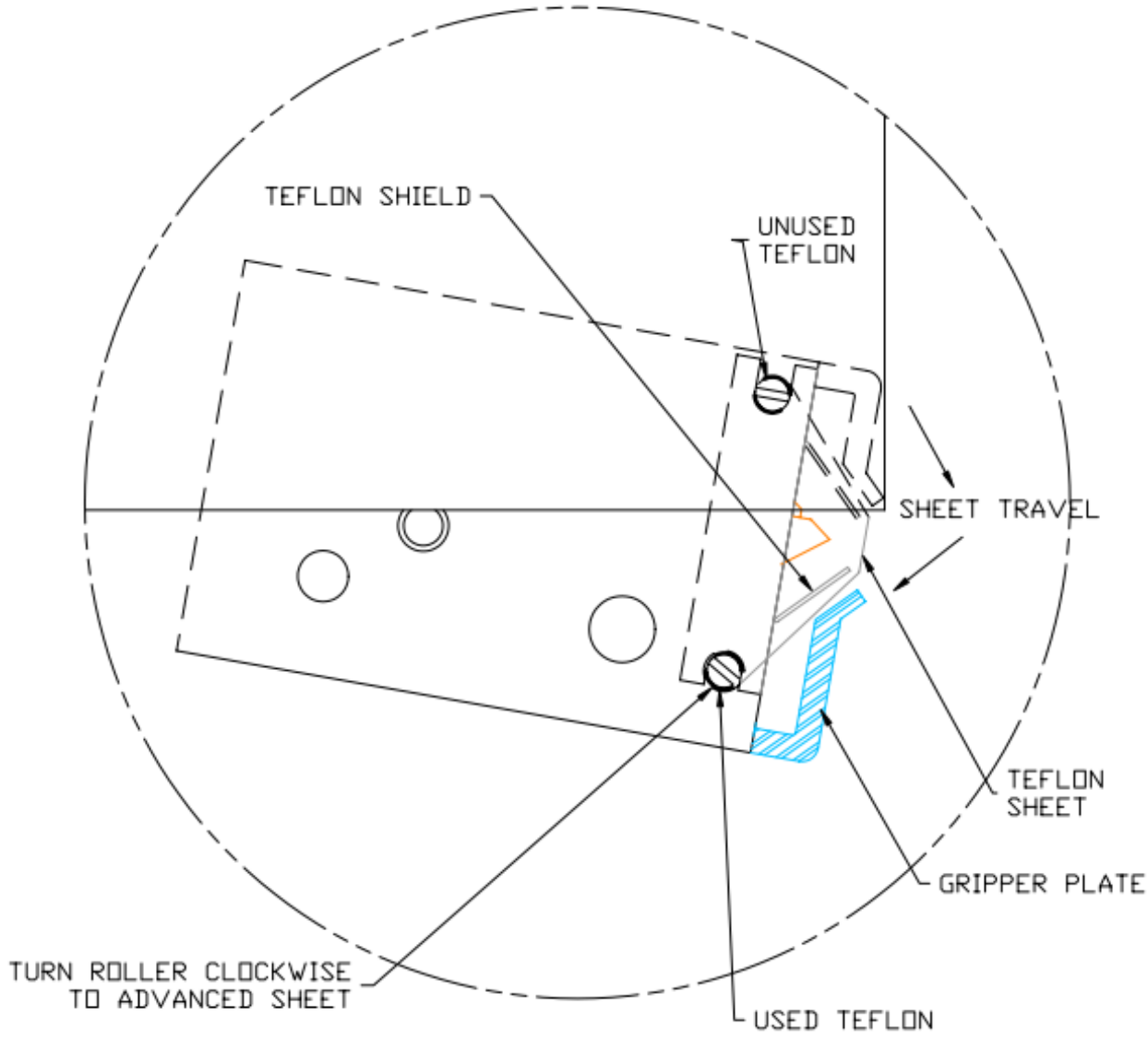
NOTE: If the bags are not tracking properly, the plastic guides could cause the bag web to turn or fold over. If this occurs, slide the guides further away from the web and make adjustments to correct tracking issues.

NOTE: If bags have an air relief hole or hanger hole, shift the bag to the right or left of center to avoid having the hole pass directly under the perforation sensor.

NOTE: Use the web guides for minor adjustments only. Major adjustment of the guides requires relocation of the bag roll on the bag roll shaft.

LEFT SIDE PLATE PTFE ANTI-STICK SHEET ADJUSTMENT

Figure 4-3



4.6 PTFE Anti-Stick Sheet Adjustment

An anti-stick sheet that prevents the bag from sticking to heater bar surfaces is located immediately behind the front plate. The material should periodically be inspected for wear or damage. If holes or tears exist, the rolls can be turned (rotated) to cover the contact surfaces with a fresh surface.

If an adjustment of the material is required, turn the main power OFF and unplug the power cord. Lower the inner frame by pulling the handle downward. The rollers are located on the outside lower frame, on the left and right side of the inner frame that extends beneath the side plates. See Figure 4-3.
To adjust the sheet, turn the lower roller counter-clockwise approximately ¼ of a turn using a flathead screwdriver. If there is too much tension on the sheet, turn the roller counter-clockwise, releasing ALL of the tension on the material. If there is too much slack in the sheet, turn the top clockwise.

CAUTION: If sheet tension is not released, the material will tear when the seal bar engages.

4.7 PTFE Anti-Stick Sheet Replacement

Once the Anti-Stick Sheet has reached the end of the roll, it is time for it to be replaced. To order a replacement Anti-Stick Sheet, call APPI Service and refer to part number TP-300500.

1. Turn the power to the OFF position and unplug the power cord. Let machine cool for at least an hour.
2. Remove the Lexan guard by unscrewing the two acorn nuts connected to the shafts. Remove the four Button head screws that hold the Front Plate to the inner frame. Set these aside in a safe place.

NOTE: Fiber spacers located behind the front plate may fall when removing the Front Plate screws.

3. Slide the Front Plate back and remove PTFE Anti-Stick Guide. Determine if your machine is a Standard Frame or a Drop Frame. Look closely at the PTFE Anti-Stick Sheet Bracket. If you have a Standard Frame the LONG side of the PTFE Anti-Stick Sheet Bracket goes up. If you have a Drop Frame the SHORT side goes up. This is important for reassembly.
4. Remove the two springs and clean the adhesive from both shafts. See Section 5.10c for Exploded Diagram.
5. Separate the two shafts.
6. Lay one Shaft on the top of the PTFE Anti-Stick Sheet and measure from the edge of the PTFE Anti-Stick Sheet to the edge of the Shaft. Ensure the PTFE Anti-Stick Sheet is in the center of the Shaft.
7. Wrap a piece of tape on the Shaft at the edge of the material.
8. Take the second Shaft, lay the first Shaft next to it and wrap tape around the end of the second Shaft in exactly the same place as the first. Keep the taped ends on the same side of the Sheet.
9. Remove the adhesive backing from one end of the Sheet.
10. Align one Shaft parallel to the PTFE Anti-Stick Sheet with the taped end of the Shaft meeting up with the edge of the Sheet. Once the shaft is in position, lower onto adhesive side of the Sheet.
11. Roll the Shaft until you reach the end of the adhesive part.
12. Repeat with the other Shaft, ensuring the taped ends are on the same side. Once the Sheet has been rolled over the Shafts, the tape may be removed.
13. Determine if your machine is a Standard Frame or a Drop Frame. Look closely at the Sheet Bracket. If you have a Standard Frame the LONG side of the Sheet Bracket goes up. If you have a Drop Frame the SHORT side goes up.
14. Lay the Sheet Bracket in the middle of the Sheet.

15. Place the Shaft into the cutouts of the Bracket then pull the spring so that you have two wraps between the Bracket and the Shaft. Be sure the Spring is in the groove on the Shaft.
16. Repeat the same procedure on the other Shaft.
17. Wind the Sheet so that the supply is at the TOP of the Sheet Bracket. Standard Frame, LONG side up; Drop Frame, SHORT side up (refer to step 13)
18. Place Sheet Bracket Assembly back into the bagger. If your machine is a Standard Frame, ensure the LONG side is up, and for a Drop Frame the SHORT side is up.
19. Slide the Front Gripper Plate back into position.
20. Place Front Plate Spacers behind Front Plate, insert button head screws, then tighten.

4.8 Pressure Bar Adjustment

The pressure bar, when actuated by the seal cylinder, is forced against the front plate. The pressure bar must be parallel to the front plate to avoid excessive wear of components. Please contact Advanced Poly-Packaging Service for Pressure Bar adjustment instructions.

NOTE: Pressure bar adjustment should only be necessary after rod or bushing replacement.

4.9 Sealer Cylinder Adjustment

Flow controls operate the air flow which dictates the speed of the cylinder in an “in-and-out” motion that brings the Pressure Bar against the front plate (gripper plate). Increasing the speed of the Pressure Bar will increase production. But if the Pressure Bar moves in or out too fast, the Pressure Bar will “bang” and excessive wear will occur. The inline Flow Control that controls the Pressure Bar cylinder is located on the tubing to the main center cylinder on the inner frame. See Figure 4-4.

The adjustment knob (B) controls the speed of the Pressure Bar INWARD (towards the front gripper plate). To increase the speed of the Pressure Bar INWARD, turn the knob (B) counterclockwise. To decrease the speed of the Pressure Bar INWARD, turn the knob (B) clockwise.

NOTE: There is no OUTWARD adjustment for the Pressure Bar.

The adjustment knob (A) controls the speed of the heater Bar OUTWARD (away from the front gripper plate). To increase the speed of the Heater Bar OUTWARD, turn the knob (A) counterclockwise. To decrease the speed of the Heater Bar OUTWARD, turn the knob (A) clockwise. Adjust the speed of the Pressure Bar so that it moves in and out rapidly, in a fluid manner, without causing the Pressure Bar to "bang" in or out.

NOTE: There is no INWARD adjustment on the Heater Bar.

4.10 Pressure Bar (Rubber) Replacement

Located along the inside of the pressure bar is a strip of rubber, held on the pressure bar by a channel, pressing on the edges of the rubber. The rubber compresses against the front (gripper) plate holding the bag in place during sealing and bag tear-off. If the rubber becomes brittle, torn, gouged or otherwise worn, it should be replaced to assure strong seals.

To replace the pressure bar rubber, simply pull one end of the rubber from the channel. The rubber will come out of the channel quickly and easily. To install a fresh piece of rubber, press one edge of the rubber into the channel, then the other edge. Work the rubber into the channel in small increments along the length of the channel. See Figure 4-5 and Figure 4-6. If you used PTFE Anti-Stick tape to cover the

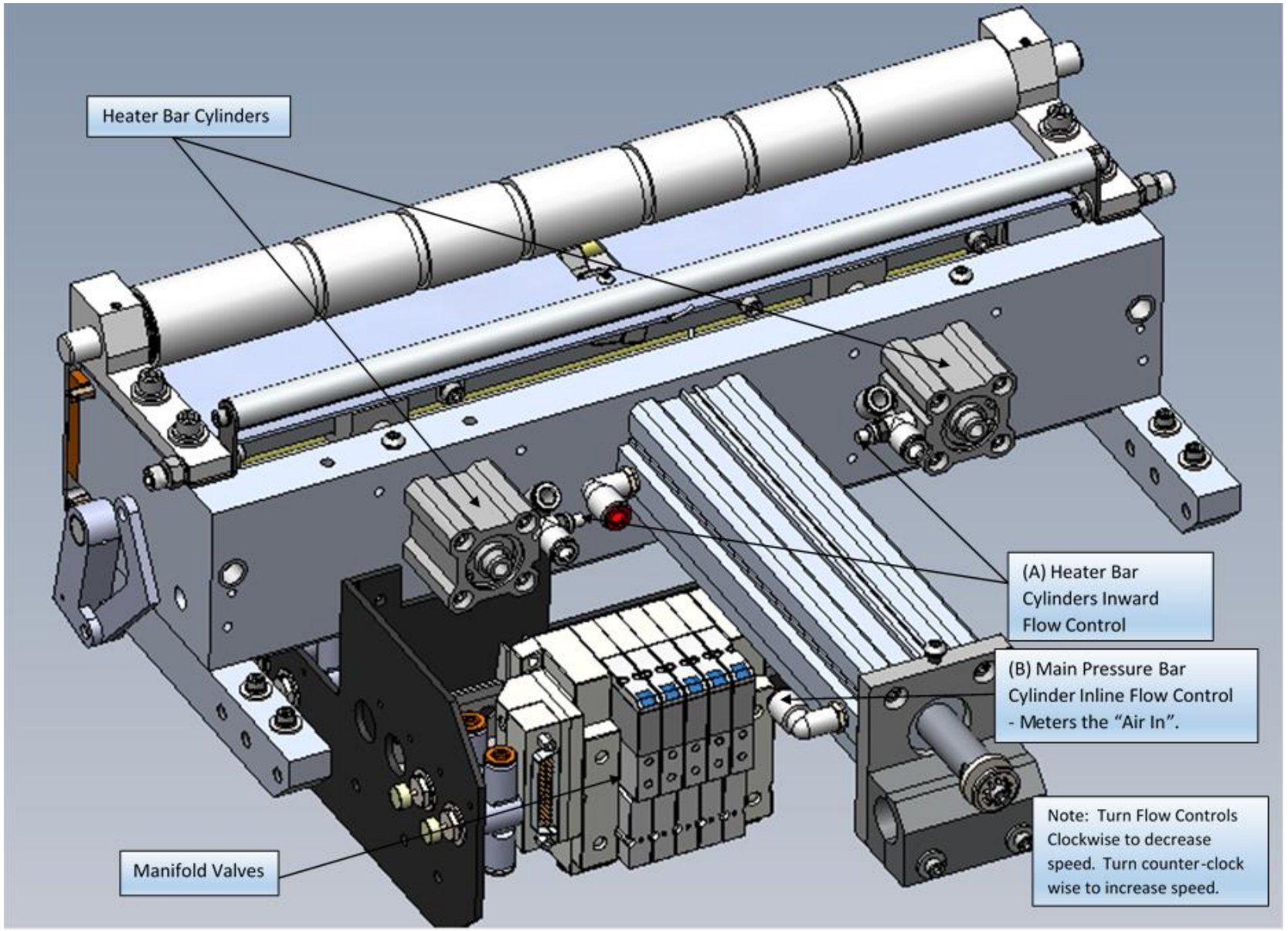
surface of the rubber, place the PTFE Anti-Stick on the rubber along its length. If the PTFE Anti-Stick extends beyond the rubber, cut off the excess.

NOTE: PTFE Anti-Stick may be added to the pressure bar rubber if the bag sticks to the rubber after loading and sealing. The bag may stick to the rubber if the product and bag are lightweight and if the rubber is dirty.

NOTE: Frequently clean the rubber with alcohol to remove buildup of dirt or other contaminants.

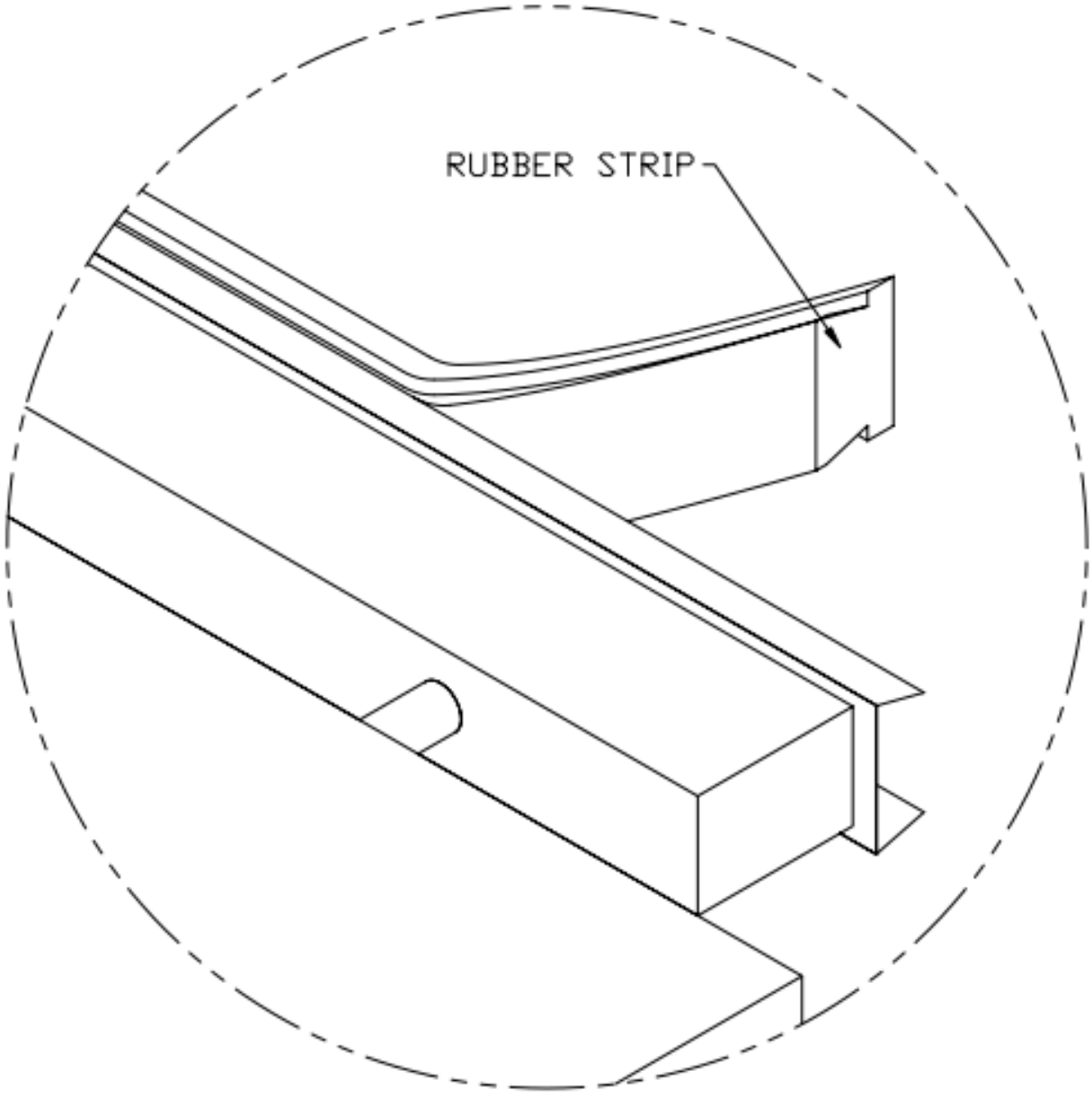
SEAL CYLINDER ADJUSTMENT

Figure 4-4



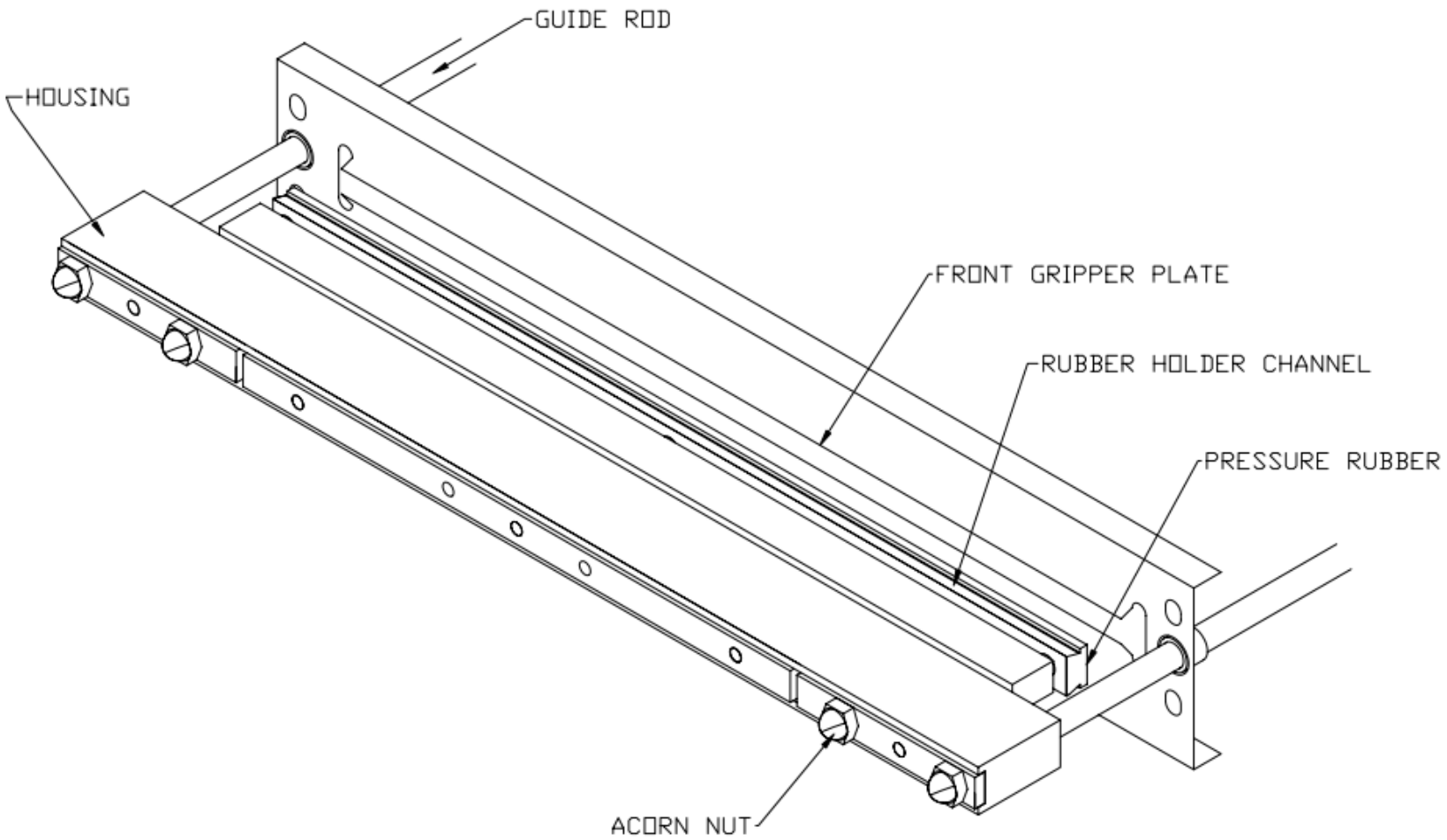
PRESSURE BAR REPLACEMENT

Figure 4-5



PRESSURE BAR REPLACEMENT

Figure 4-6



NOTE: There is a 1/8"gap between the pressure rubber and front gripper plate.

4.11 Anti-Jam Adjustment

The anti-jam device is designed to protect the T-1000-S14 Bagger from damage when an obstruction is encountered in the seal area, between the pressure bar and front gripper plate. If properly adjusted, the pressure bar will retract if an obstruction is encountered in the seal area. The pressure bar houses springs that cause the rubber and holder to compress. When the rubber holder compresses, a sensor is activated, causing the pressure bar to retract. The sensor is defeated when the pressure bar is approximately 1/8" from the gripper plate. See Figure 4-7. The anti-jam device can quickly be tested while the T-1000-S14 Bagger is operating using care, but it should be thoroughly tested by disconnecting air and power and removing covers.

To quickly test the anti-jam device, place a 3/8" diameter flexible poly tube against the front gripper plate perpendicular to the seal bar opening. Press the foot switch allowing the pressure bar to compress the poly tube against the front plate. If the pressure bar does not immediately retract and place the T-1000-S14 into STOP mode, the anti-jam device is not properly adjusted. Test the anti-jam device along the entire length of the pressure bar using the 3/8" poly tubing as a test device.

CAUTION: To avoid personal injury, do not place fingers or hands into the seal area of the bagger while power is ON or air is attached. Do not test the anti-jam device with hands or fingers. Ensure the poly tube that is used for testing is long enough to keep fingers or hands away from the seal area of the bagger.

Part 1: Anti-Jam Test

To thoroughly test and adjust the anti-jam device, you must first turn the power to the OFF position, and disconnect the air line from the bagger. Remove Top Cover by unscrewing the two Button Head Screws, one on each side of the top- rear of the machine. Keep these screws in a safe place. Remove the top cover. With the covers removed and air disconnected, turn the power to the ON position.
With Power on, access the Main Menu on the Touch Screen, press Technical Assistance, and enter Level 1 Pass Code (1001). Press ENT.

On the Technical Assistance screen, press PLC Info to access the PLC I/O screen. You will be checking to see if the X7 LED illuminates when the Anti-Jam is tested.

From the front of the machine, move Pressure Bar in until the rubber is approximately 1/8 inch from touching the angle of the Gripper Plate.

Locate the Seal Rod and Magnetic Sensor Block on the left side of the T-1000-S14 Bagger.

With an Allen Wrench, loosen the Magnetic Sensor Block and slide Magnetic Sensor Block towards Magnetic Switch until X7 just illuminates.

At this point, tighten the Magnetic Sensor Block at the place where X7 illuminated. Be sure it is straight up and down and clears the Magnetic Switch.

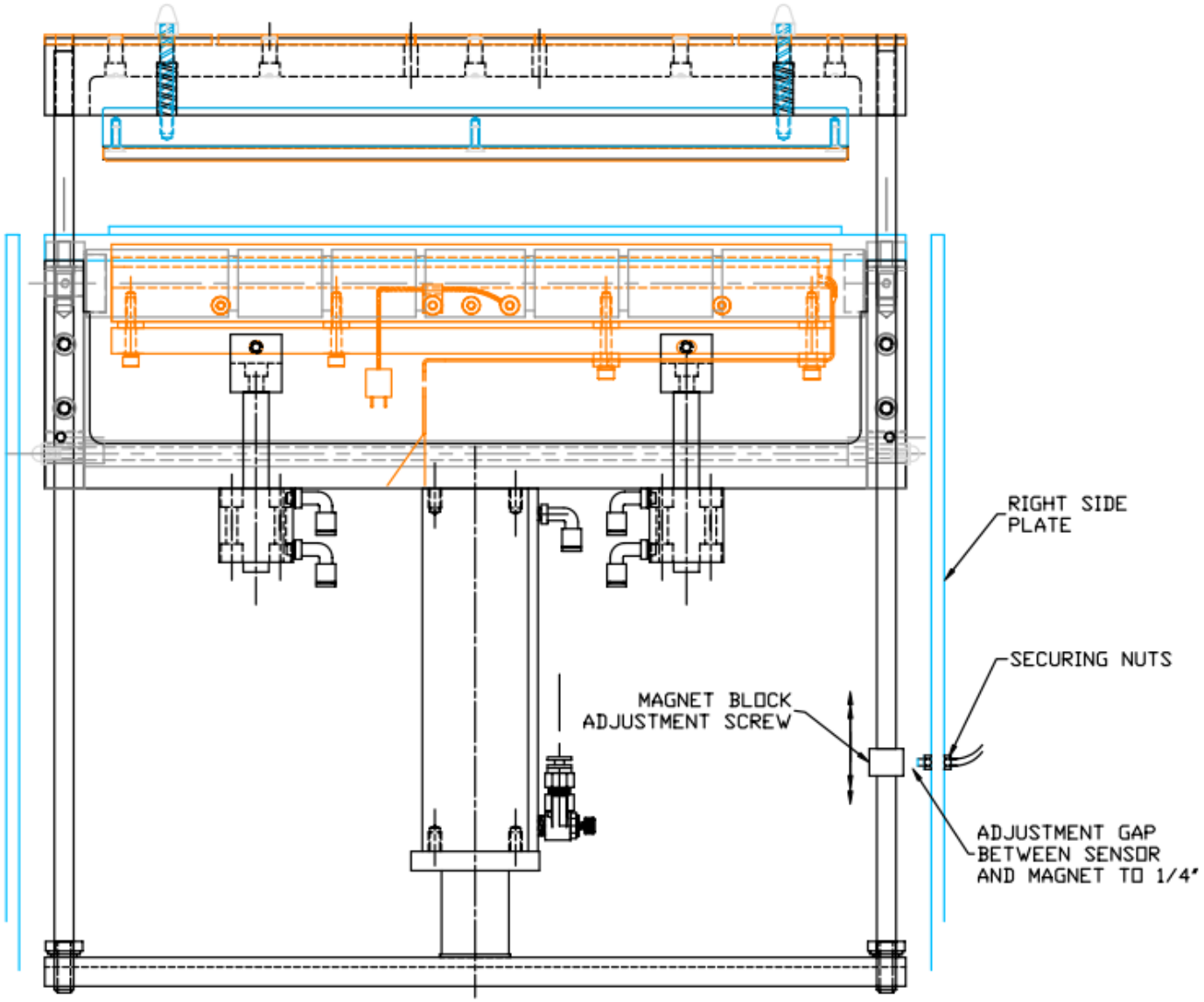
CAUTION: To avoid damaging the plastic override sensor, position the sensor so that it does not contact the magnetic block when the pressure bar is moving. To avoid "stripping" the threads of the sensor, do not over tighten the securing nuts.

Re-Attach Air Supply by attaching the female quick-coupler to the male quick-coupler on the filter regulator assembly.

Anti-Jam is working. Put the ST-1000 in Auto Run and let it cycle. While it is running perform the Anti-Jam test again by placing a piece of 3/8 tubing doubled over and place in between Pressure Bar and Heat Bar. The Pressure bar should jump back and the Touch Screen should give an Anti-Jam error screen.

ANTI-JAM OVERRIDE ADJUSTMENT

Figure 4-7



Part 2: Other Anti-Jam Testing

Next, locate the "X4" LED on the PLC Info Screen (under Technical Assist) and ensure the light is illuminated (ON). Then, compress the rubber and holder into the pressure bar (nylon holder). As soon as the rubber is pressed into the nylon holder, the "X4" LED should turn OFF. The LED should remain off while the rubber is held compressed into the nylon holder. If the "X4" LED shuts off while the rubber bar is pressed into the nylon holder, the pressure bar sensor is functioning properly.

NOTE: Acorn Nut base should be flat making full contact to the surface of the plate. If the Acorn Nut is warn, it will need replaced. Call APPI and refer to Replacement Part # TP-101131 (Nut, Acorn Brass Nickel Plate) when reordering.

NOTE: X3 is used on the T-1000 Clutch Brake and X4 is used on the T-1000-S14.

If the X4 LED is OFF when the rubber bar is not depressed into the nylon holder, the Coiled Cable, located inside the Main Frame of the T-1000-S14 Bagger, must be tested and the two Acorn Nuts must be checked for wear. Check the cable for any cuts or worn spots that could be going to ground. If there are signs of wear and tear it must be replaced. Refer to Part # TP - T1ME00209, Seal Bar Coiled Cable Harness when reordering from APPI Service.

If the coil is intact and it is still lighting when the Rubber Bar is depressed, unplug the Coiled Cable Harness located inside the Main Frame of the T-1000-S14. Using an electric meter set on Ohms, put the test leads on the coiled cable side and measure the resistance, it should be 0 or closed.

Squeeze the pressure bar. The meter should now show resistance or open. If it does, reconnect coiled cable, reattach Lexan Cover with Acorn nuts, and continue with production. If it does not, the coiled cable will need replaced. Call APPI Service and refer to PN: TP-T1ME00209, Seal Bar Coiled Cable Harness when reordering.

4.12 Heater Cartridge Replacement

A cylinder-shaped cartridge (element), located inside the heater bar, heats the bronze bars that contain it. This cartridge is considered a normal wear item and will infrequently fail, requiring replacement. Refer to Figure 4-8 while following these instructions.

To determine if the heater cartridge is bad, use the following troubleshooting steps:

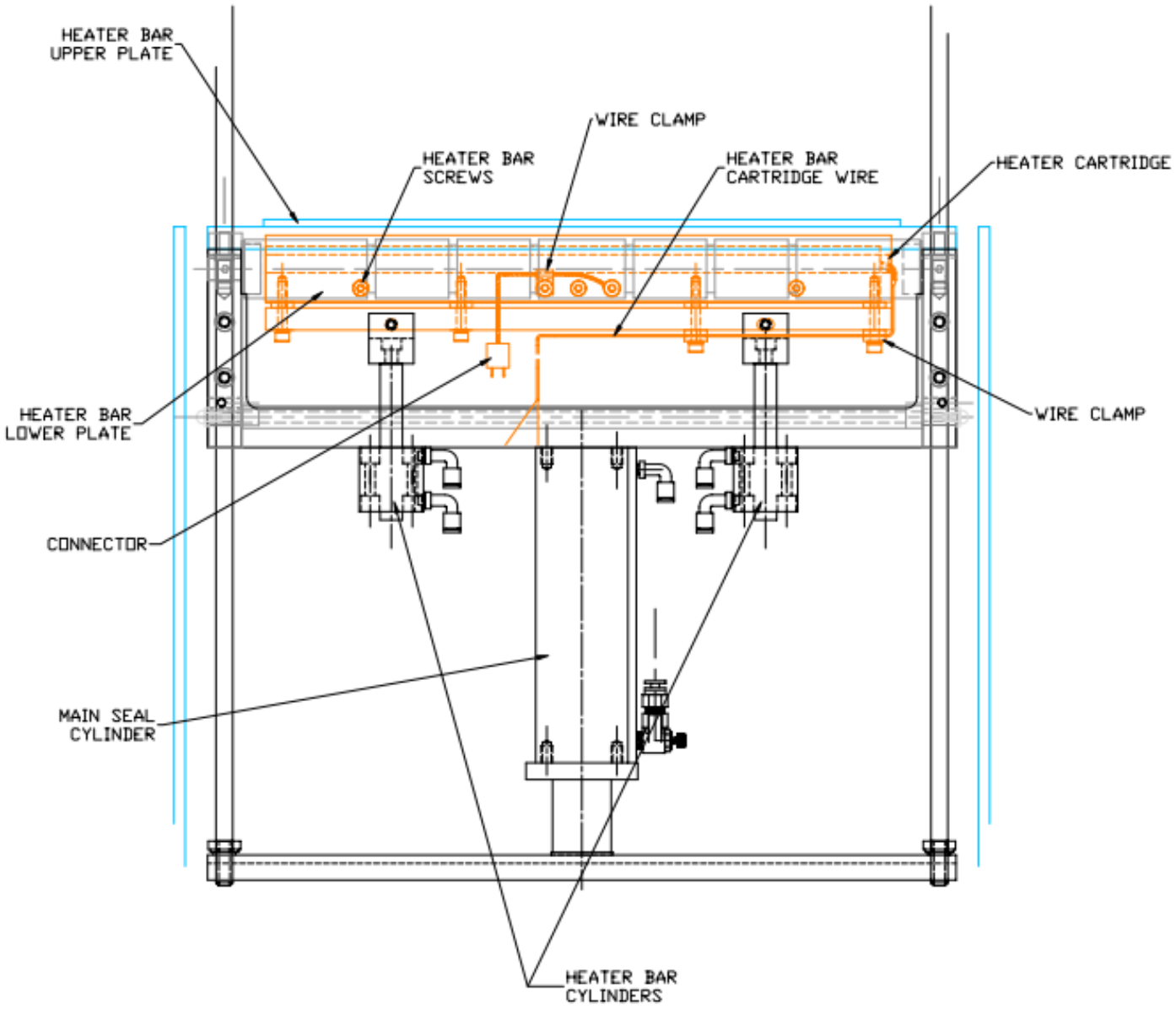
1. Check resistance value of heater cartridge. At room temperature, a 110V machine should read approximately 18 Ohms, and a 220V machine should read approximately 60 Ohms.
2. Locate the "Y3" indicator on the **PLC info** screen.
3. Press the **START** button if the ST-1000 is in the Stop mode. If "Y3" illuminates in long pulses without increasing the temperature on the Bagger Settings screen, the Heater Cartridge will need replaced.

NOTE: If you do not have an Ohms meter, start at step 2.

If the Heater Cartridge needs replaced, please call APPI Service.

HEATER BAR CARTRIDGE REPLACEMENT

Figure 4-8



VIEW FROM UNDERNEATH THE INNER FRAME

NOTE: Heater cartridge wires must make a sharp 90° bend at the end of heater bar. Wires should not extend past the end of the heater bar.

NOTE: If the wires rub on the bagger when the heater bar is in or out, the heater cartridge will fall prematurely.

4.13 Replace Thermocouple Wire

A thermocouple wire, brazed to a ring terminal and secured to the bottom of the heater bar, detects the amount of heat the heater bar is emitting. The thermocouple wire is considered a normal wear item and will infrequently fail, requiring replacement.

The thermocouple should be replaced when excessive fluctuations occur or incorrect temperature is displayed in the Bagger Settings menu. The thermocouple should also be replaced when a visual inspection reveals frayed insulation or broken wire. If the above conditions are met, the thermocouple is bad and the current to the heater bar has been turned OFF.

To replace the thermocouple wire, turn the main power to the OFF position, unplug the power cord and disconnect the air line. Let machine cool for at least an hour.

Remove the Gripper Plate and PTFE Anti-Stick assembly, take note as to which side of the PTFE Anti-Stick Sheet Bracket is up (the SHORT side of the groove on the bracket will be up for Drop Frame or the LONG side of the groove will be up for Standard Frame). Unplug the Heater Cartridge and Thermocouple wires, then remove the two shoulder bolts holding the Heater Bar in the yolks. Remove the Heater Bar. Remove the screws that hold the ring terminal and the jacketed wire clamp. Disconnect the connector and remove the wire. Reverse these steps to replace the wire and reattach Heater Bar.

NOTE: there is a top side and a bottom side to the thermocouple eye, the top side is flat and shiny, the bottom side has a slight groove in it. Attach the thermocouple wire so the top side is facing out.

CAUTION: To avoid stretching or breaking the wire during heater cylinder extension, ensure that the wire is looped and free to bend during heater bar movement.

Replace the PTFE Anti-Stick assembly ensuring the correct side is up, then reattach Gripper Plate.

Chapter 5: Parts

T-1000-S14 Parts and Drawings

Power Unwind

Scale Conveyor

Feed Hopper Parts and Drawings

Feed Conveyor

Pull “Claw” Conveyor

TO-T1-LSV30

TO-T1-BO30

5.1

Chapter 6: Preventative Maintenance & Scheduled Maintenance

Preventative Maintenance & Scheduled Maintenance

Preventative Maintenance Checklist

Scheduled Maintenance Chart

Preventative Maintenance Chart

6.1 Preventative Maintenance & Scheduled Maintenance

To extend the life of the ST-1000, qualified maintenance personnel must perform all required maintenance tasks. Failure to perform scheduled and preventative maintenance may cause excessive wear to components and will void the warranty. For the purpose of this manual, preventative maintenance (PM) tasks are considered periodic tasks which should be performed on a daily, weekly or monthly basis.

Scheduled maintenance tasks are performed when the ST-1000 Maintenance Chart Number changes to a higher number. Scheduled maintenance tasks (CHART items) are performed dependent upon the number of machine cycles and therefore are not considered "periodic" tasks.

Legend for Preventative Maintenance Checklist

D	Daily
W	Weekly
M	Monthly

6.2 Preventative Maintenance Checklist

Filter / Air regulator	Drain water from filter	D
Air regulator	Adjust pressure to 80 PSI	D
Anti-jam device	Check operation, adjust as needed (Chapter 4.10)	D
Pressure bar (rubber)	Clean with alcohol	D
Perforation sensor	Clean sensor assembly with alcohol	W
Upper (rubber) roller	Inspect for nicks or cuts, clean with alcohol	W
Lower (alum.) roller	Clean with alcohol	W
Micron filter / Venturi	Inspect for contamination of filter, replace as needed Inspect for blockage / air restriction	M
Wiring / Connectors	Inspect for loose wiring / connectors, tighten as needed	M
Air lines / Valves / Cylinders	Inspect for loose air lines, listen for leaks, tighten or replace poly tubing as needed	M
Compartments / Covers	Remove all covers, clean and blow out compartments with compressed air to remove dust and dirt	M
Side-plates	Clean and wipe down with lightweight oil (based upon environmental - humidity conditions)	M
Drive belt	Inspect for wear / fraying, replace if needed	M
Drive belt (right panel)	Inspect for looseness, tighten as required	M
Touch Screen cabinet / arms	Tighten set screws	M
Height adjustments screws	Tighten bolts	M

6.3 Scheduled Maintenance Chart

Drive belt (right panel)	Adjust/Inspect for wear replace when necessary	O	O	O	O	O	O	O	O	O	O
Heater element & wiring	Inspect for fraying, cuts, loose connections	O	O	O	O	O	O	O	O	O	O
Pressure bar assembly	Disassemble, clean, inspect springs for wear, breakage (frequency dependent on environment and product)	O		O		O		O		O	
Guide rollers	Inspect for free movement	O	O	O	O	O	O	O	O	O	O
Roller bearings	Inspect for free movement	O	O	O	O	O	O	O	O	O	O
Perf sensor & spring	Inspect for wear, replace when necessary		O		O		O		O		O
Upper rubber roll	Inspect for cuts, unevenness	O		O	O	O	O	O	O	O	O
Lower aluminum roller	Clean w/ alcohol, inspect for burs	O	O	O	O	O	O	O	O	O	O
Printed circuit boards	Blow off with clean, dry air, inspect for loose wires, connectors	O	O	O	O	O	O	O	O	O	O
Main Seal Cylinder	Listen for air leakage, replace or repair as required	O	O	O	O	O	O	O	O	O	O
Air (blower) filter	Inspect for contamination, replace as necessary	O	O	O	O	O	O	O	O	O	O
Air lines & connectors	Inspect for wear, cuts, leaking, replace as required	O	O	O	O	O	O	O	O	O	O
	INITIALS										

(NOTE: Each chart change represents 1MM cycles)

6.4 Preventative Maintenance (PM) Chart, Continued...

(Options / Auxiliary Equipment)

CHART

ITEM	DESCRIPTION	1	2	3	4	5	6	7	8	9	10
	Inspected by: (Initials)										

(*NOTE: Each chart change represents 1MM cycles*)

Chapter 7: Troubleshooting

Troubleshooting Guide

Troubleshooting Checklist

Wiring Tab (Point to Point)

Electrical and Pneumatic Schematics

7.1 Trouble Shooting Guide

The items included in this section cover the common causes of trouble which an operator might encounter during the operation of the ST-1000. When operating difficulties occur, the best procedure is to observe what is happening; then search out the causes; and effect the correction. Make only one adjustment at a time, checking the results of each adjustment. If an adjustment does not help or escalates the problems, return the settings back to the former position.

CAUTION: These tests and repairs should be performed only by qualified mechanics or electricians and at their own risk.

NOTE: When troubleshooting a T-1000-S14 functioning within a system (e.g. with conveyors, scales, feeders, counters, etc.), always isolate the equipment and operate each machine individually.

7.2 Troubleshooting Checklist

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
60 Day Trial Expired screen appears	60 Day Trial expired	Call APPI Service
Bags not tearing off	1. Continuous Strip is ON 2. Reverse Distance is too low 3. Reverse Speed too low	1. Turn Continuous Strip OFF 2. Increase Reverse Distance 3. Increase Reverse Speed
Low Battery screen appears	It is recommended to replace battery once every three years.	If the Low Battery Screen displays on the touch screen, DO NOT turn off the machine, it will erase the operating program and any stored settings. Call APPI Service to reorder battery and for replacement instructions.
Touch screen does not display	1. Power off 2. Loose connection 3. Fuse blown 4. Contrast out of adjustment	1. Plug in power cord / turn on 2. Tighten connections 3. Replace fuse(s) 4. Adjust screen contrast
No main power light	1. Blown fuse 2. Bulb out	1. Replace fuse 2. Replace bulb
Pressure bar does not move when foot switch is operated	1. Disconnected air line/foot switch 2. Power off	1. Hookup air line 2. Turn on power
Pressure bar moves inward but does not reach the front plate (retracts immediately)	1. Anti-jam improperly adjusted 2. Misalignment of guide rods 3. Insufficient air pressure 4. Loose / broken ground wire on guide rods	1. Adjust anti-jam (section 4.12) 2. Align guide rods (section 4.6) 3. Increase air pressure 4. Connect / tighten ground wires

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
Pressure bar presses against front plate but does not seal bag	1. Seal time too low 2. Heat (temperature) too low 3. Heater cartridge bad 4. Insufficient air pressure 5. Misalignment of guide rods 6. PTFE folded over 7. Heater bar not extending 8. Seal cylinder bad 9. Heater bar cylinder(s) bad	1. Increase in Settings screen 2. Increase in Settings screen 3. Replace heater cartridge 4. Increase air pressure 5. Align guide rods 6. Turn PTFE 7. Check heater bar cylinders / valve 8. Replace cylinder / valve 9. Replace cylinder / valve
Bag sticks to PTFE or pressure (rubber) bar	1. Seal temperature too high	1. Decrease temp in Settings screen
	2. Seal time too high 3. PTFE in poor condition 4. Rubber is dirty / contaminated	2. Decrease seal time in Settings screen 3. Turn / replace PTFE 4. Clean / replace pressure bar rubber
Bag does not tear off completely	1. Bag slipping through rollers 2. Compression pressure insufficient 3. Drive roller not reversing 4. Bag did not index properly 5. Seal rubber dirty / worn	1. Clean upper and lower rollers with alcohol to remove slip and dirt build-up 2. Adjust roller compression 3. Check Reverse setting 4. Index another bag for test 5. Clean / replace rubber
Two bags index from rollers	1. Bag is folded over 2. Perf sensor dirty / damaged 3. Perf sensitivity out of adjustment 4. Ungrounded outlet causing electrical noise 5. Auxiliary equipment: noise 6. Seal point value too high	1. Lower inner frame and straighten bag 2. Clean / replace perf sensor 3. Contact APPI for perf adjustment 4. Plug into "clean" power source 5. Contact APPI for solution 6. Set value lower
Bag does not completely index	1. Perf is sensing hole in bag (vent) 2. Seal position setting too low	1. Reposition bag 2. Increase seal position in Settings screen
Bag web indexing to floor level without stopping on bag	1. Perf sensor not sensing bag 2. Dirty / damaged sensor 3. Perf sensor out of adjustment	1. Contact APPI for adjustment 2. Clean / replace sensor 3. Contact APPI for adjustment
Bags web breaking prematurely in machine	1. Improper web tension 2. Web dragging foreign objects 3. Bag roll side plates bent inward	1. Adjust tension 2. Remove obstructions 3. Repair / remove side-plates

7.3 110V Circuit

Circuit drawings are provided to assist in troubleshooting the functionality of the T-1000 and also the interface signaling with auxiliary infeed equipment.

A circuit diagram of the 110V circuit is comprised of main power to the T-1000, through the fuse, Corcom filter, motor controller, solid state relay, heater element, line out, and into the power supply printed circuit board. See Dwg T1kSTNB-E1, Figure 7-1.

7.4 Analog Card, Temperature Controller, Heater Circuit

A circuit diagram of the Analog controller FPO-A21 with correct Dip switch settings is provided. See Dwg T1kSTNB-E3. With a Thermocouple input (TC), the analog card has built in PID and auto tuning functions with 16 bit resolution for very accurate temperature controls. See Dwg T1kSTNB-E3, Figure 7-2.

7.5 Stepper Motor Circuit

A circuit diagram of the stepper motor controller is provided with correct Dip switch and Pot settings. See Dwg T1kST-E4, *Figure 7-3*.

7.6 Perforation Sensor PCB

APPI manufactures the printed circuit board for accurate and consistent perforation detection, for accurate bag positioning and registration. A circuit diagram is provided for this PCB. See Dwg T1kSTNB-E5.

7.7 Aux Interface

APPI provides for a closed loop signal with auxiliary infeed equipment. The circuit diagram references the pinouts on Aux 2 connector, located on the T-1000 rear electrical panel (military connector). See Dwg T1kST-E7.

7.8 Solenoid Valve Circuit Diagram

The ST-1000 is equipped with an expandable Valve manifold, pre wired for up to 7 options solenoid valves. Valve stations 1 through 4 are standard, and valve station 5-11 are options. PLC output information, DB25 pin outs, voltages and valve descriptions are provided on this circuit diagram. See Dwg T1kST-E8.

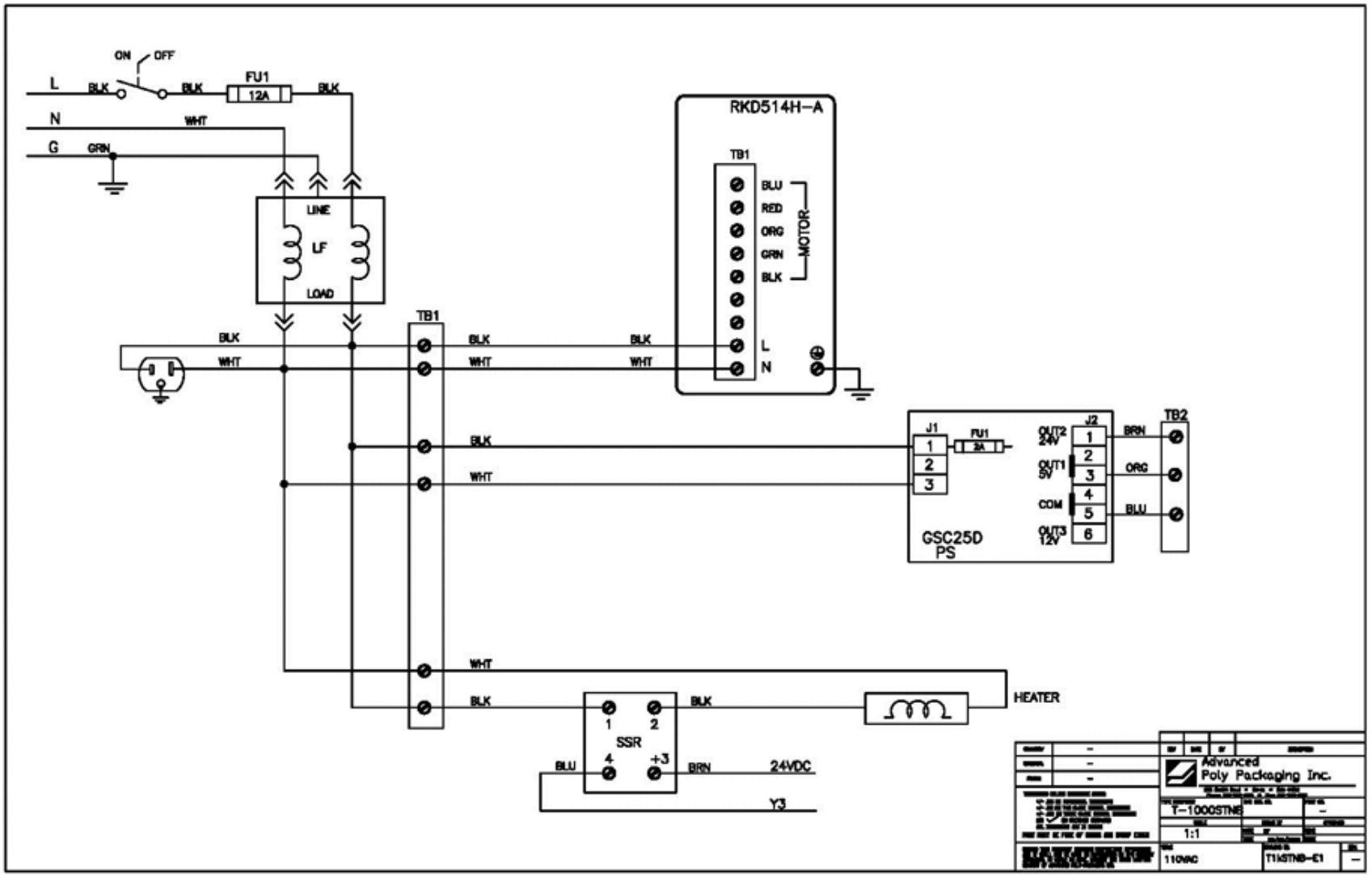
7.9 Pneumatic Piping Diagram

APPI offers a piping diagram to assist in troubleshooting the ST-1000 bagger. Piping from Solenoid Valve Stations 5 through 11 will change based on the configuration of the ST-1000 and the options ordered by the customer. See Dwg PL-S14.

7.3 110V Circuit

T1kSTNB-E1

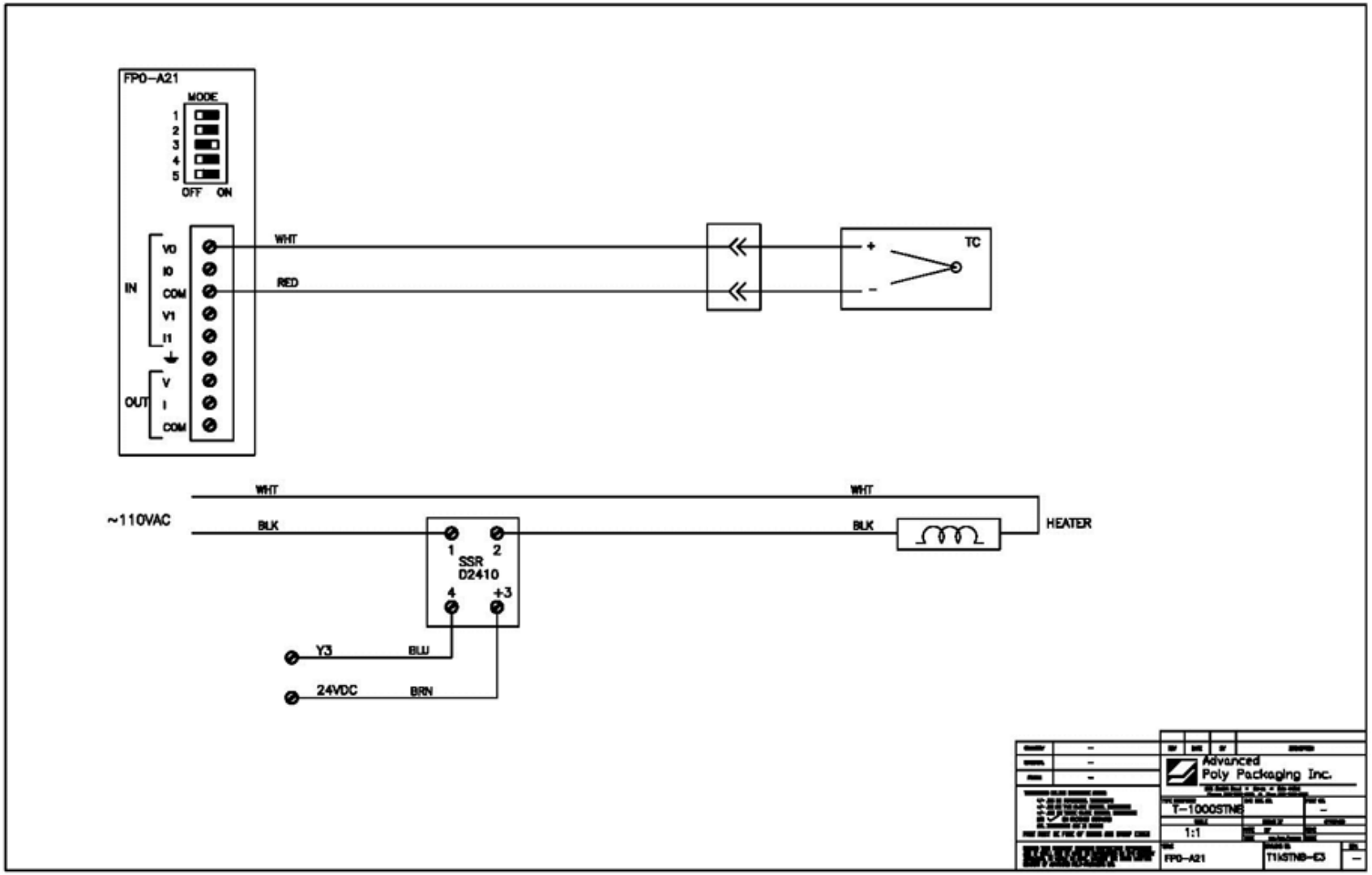
Figure 7-1



7.4 Analog Card, Temperature Controller, Heater Circuit

T1kSTNB-E3

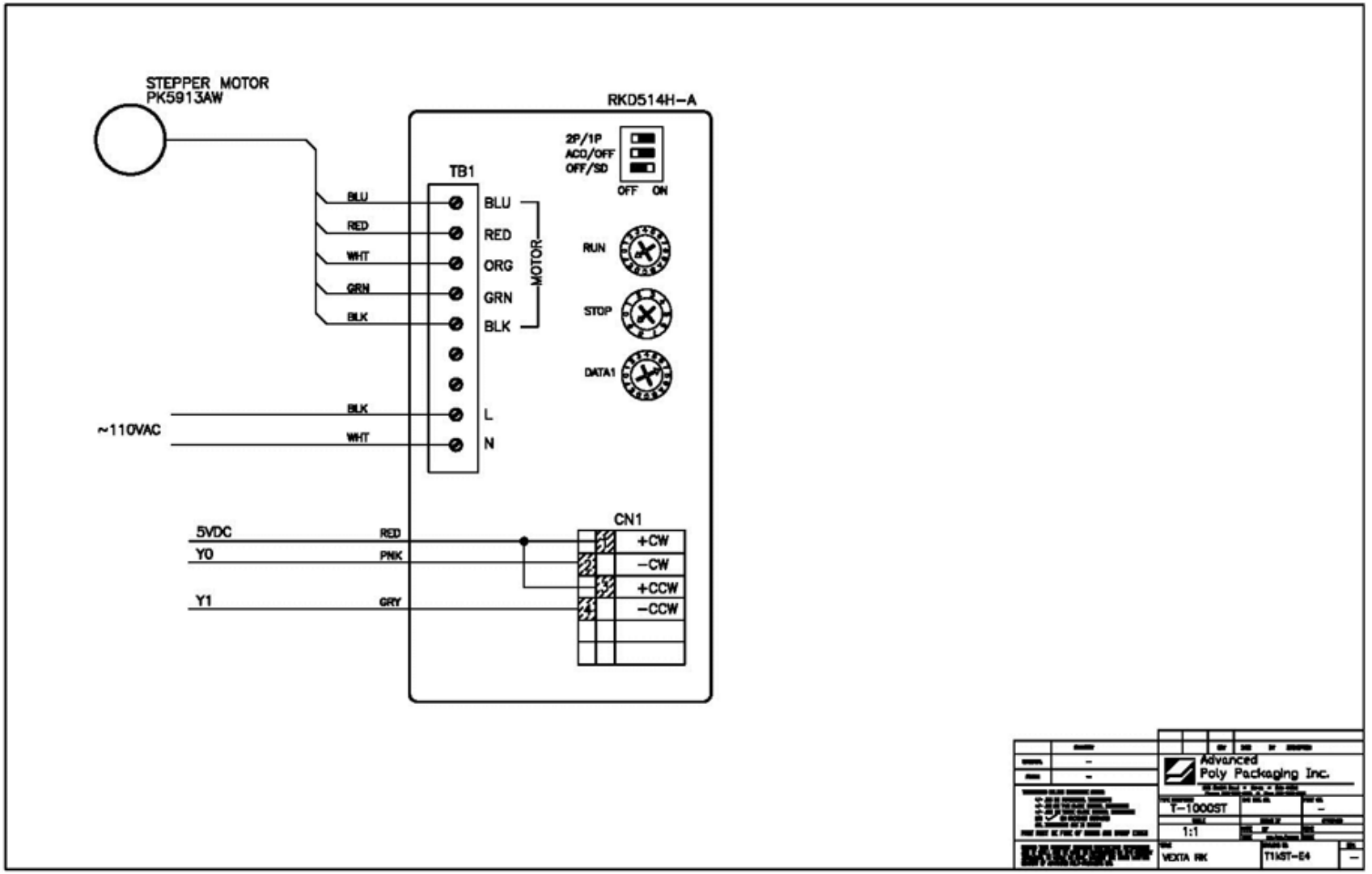
Figure 7-2



7.5 Stepper Motor Circuit

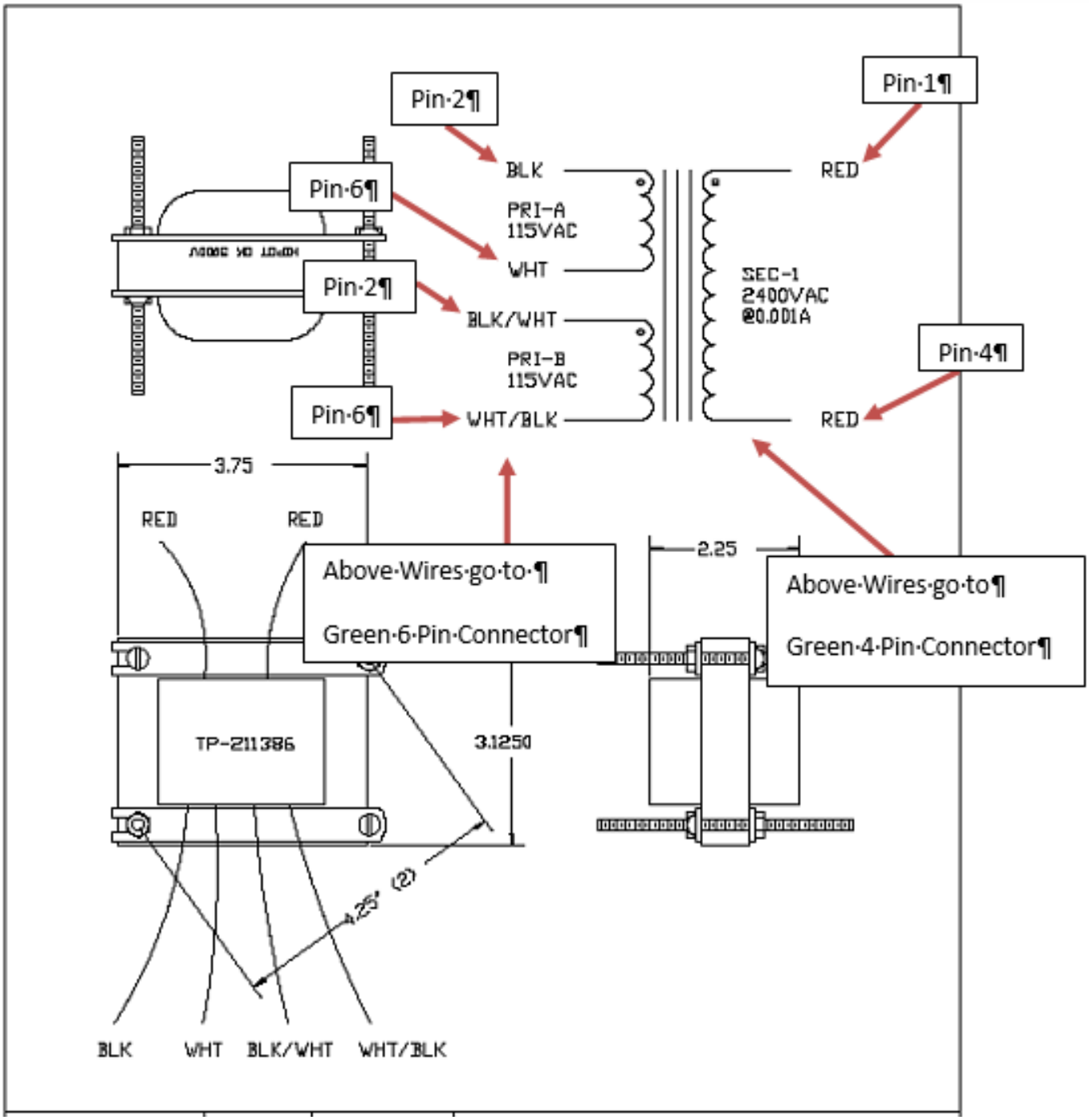
T1kST-E4

Figure 7-3



7.6 Perforation Sensor PCB

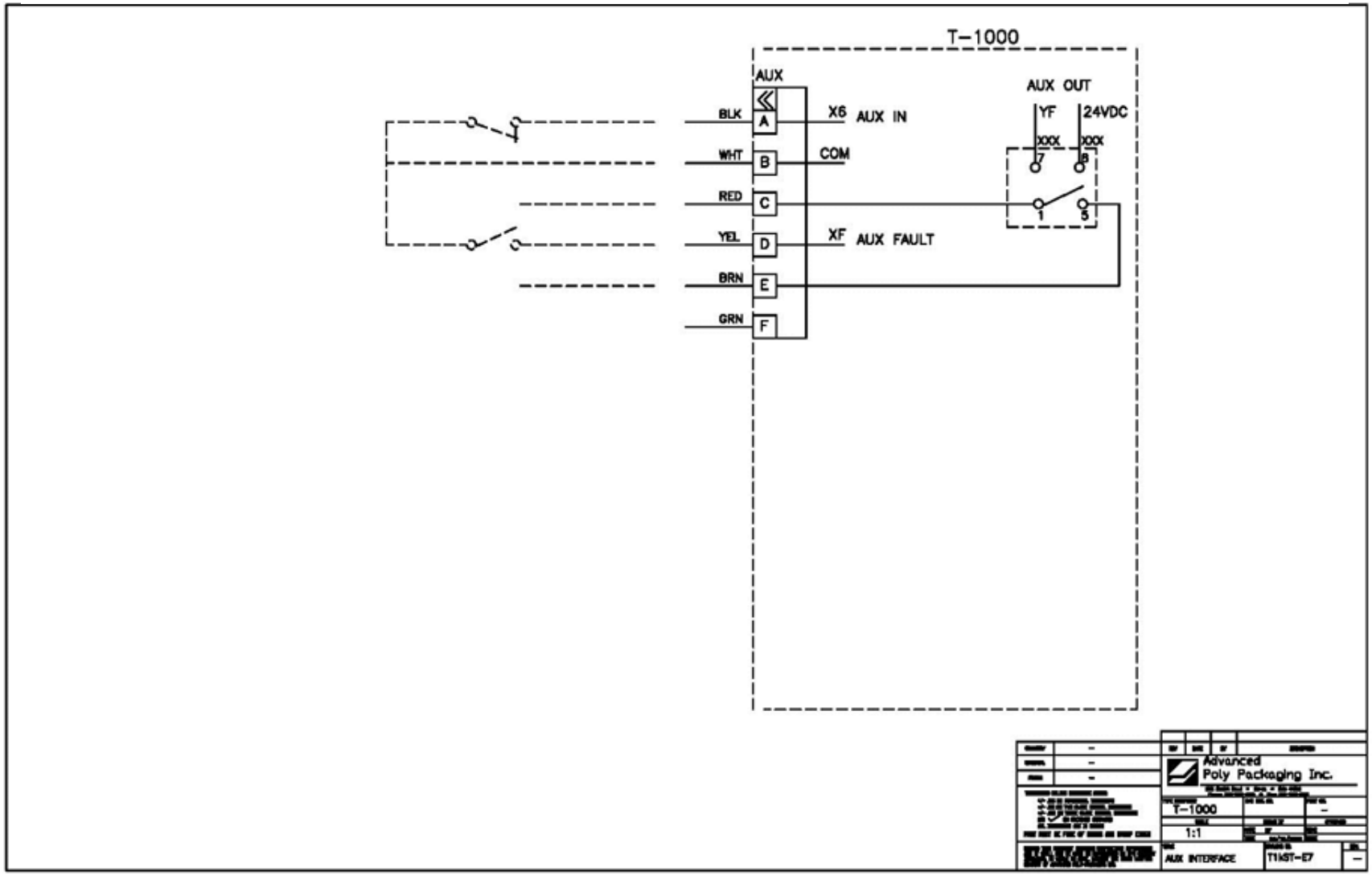
Figure 7-4



7.7 Auxiliary Interface

T1kST-E7

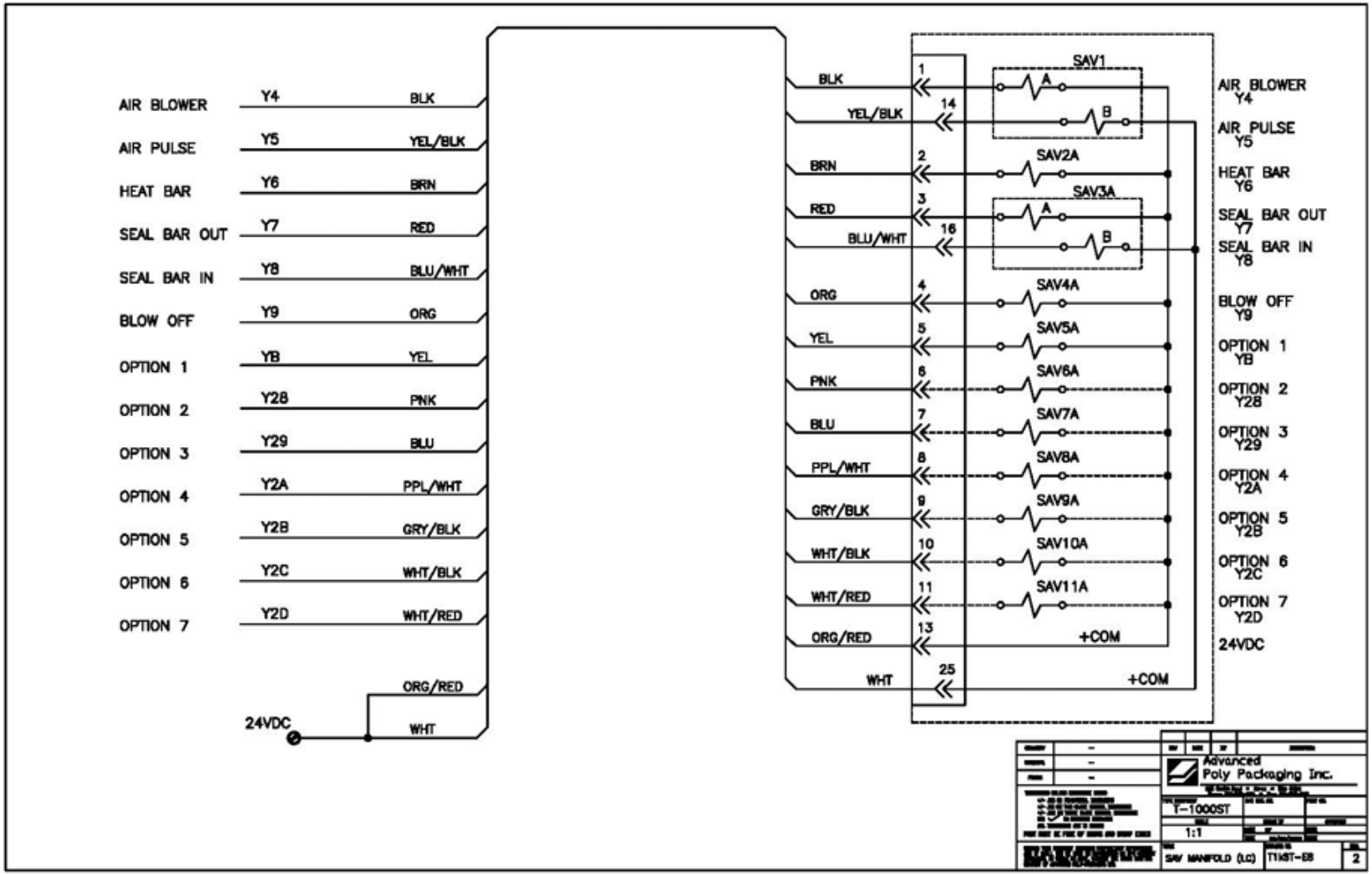
Figure 7-5

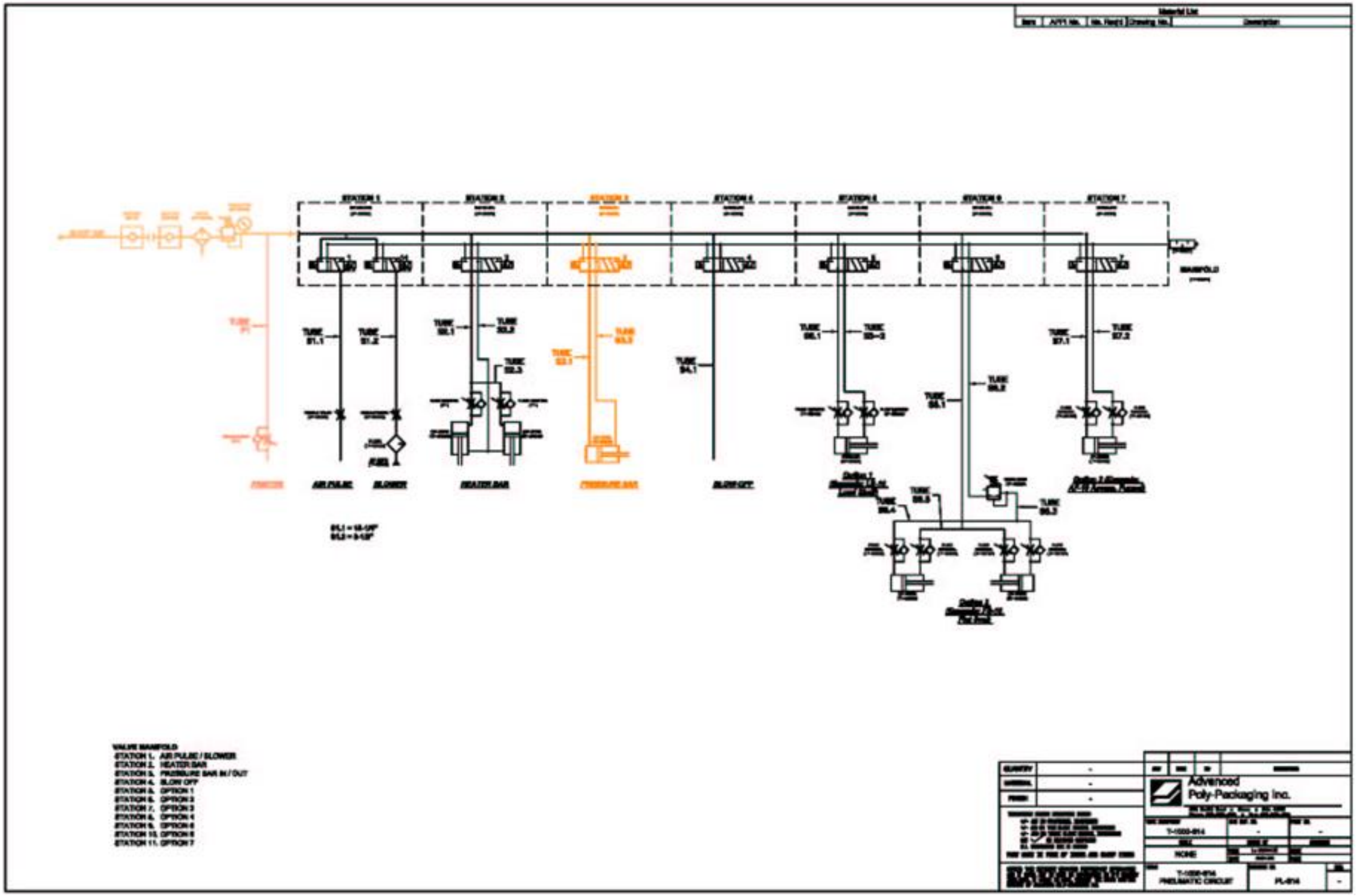


7.8 Solenoid Valve Circuit Diagram

T1kST-E8

Figure 7-6




VALVE MANIFOLD
STATION 1. AIR PULSE / BLOWER
STATION 2. HEATER BAR
STATION 3. PRESSURE BAR IN / OUT
STATION 4. BLOW OFF
Advanced
Poly-Packaging Inc.

7.10PLC IO Listing

Main PLC and Expansion PLC IO (Inputs and Outputs) Listing is provided to assist in troubleshooting the T-1000.

Main PLC	Input	Description	Output	Description
	X0	Stepper Control	Y0	Stepper Motor Forward
	X1	Perforation Sensor	Y1	Stepper Motor Reverse
	X2	Spare	Y2	Perforation Activate
	X3	Spare	Y3	Heater Element
	X4	Spare	Y4	Air Blower Valve#1a
	X5	CF-10 Counting Funnel Photo Sensor	Y5	Air Pulse Valve#1b
	X6	Spare	Y6	Heater Bar Valve#2
	X7	Seal Bar In Sensor – Anti-jam Defeat	Y7	Seal Bar Out Valve#3a
	X8	Spare	Y8	Seal Bar In Valve#3b
	X9	Bag Out Sensor	Y9	Blow Off Valve#4
	XA	Spare	YA	Spare
	XB	Ti-1000 Ready	YB	Option 1, Valve#5
	XC	Ti-1000 Fault	YC	Spare
	XD	PB-20 Palm Button 1	YD	LC-10 Activate Cycle Operation
	XE	PB-20 Palm Button 2	YE	Ti-1000 Print Initiate
	XF	Spare	YF	Spare
Expansion PLC	X20	Spare	Y20	Spare
	X21	Spare	Y21	Spare
	X22	Spare	Y22	Spare
	X23	Spare	Y23	Spare
	X24	E-Stop Button	Y24	Spare
	X25	LC-10 Light Curtain	Y25	ST-10 Stack Light Red
	X26	DF-20 Diverting Funnel Photo Sensor	Y26	ST-10 Stack Light Green
	X27	IF-10 Insert Funnel Down Sensor	Y27	ST-10 Stack Light Yellow
	X28	BV-10 Barcode Verifier Read	Y28	Spare
	X29	BV-10 Barcode Verifier No Read	Y29	Spare
	X2A	MV-10 Medical Val. Temp. Out of Range	Y2A	Spare
	X2B	MV-10 Medical Val. Pressure Out of Range	Y2B	Spare
	X2C	MV-10 Medical Val. Heater Bar 1 Cylinder Activated	Y2C	Spare
	X2D	BO-20 Bag Open Sensor	Y2D	Spare
	X2E	MV-10 Medical Val. Heater Bar 2 Cylinder Activated	Y2E	BV-10 Barcode Verifier Initiate (Sync)
	X2F	Spare	Y2F	Spare

7.11Troubleshooting Notes / Technical Support Information

DATE	NOTES