T-1000
Advanced Poly-BaggerÊ

(Model T-1000-S14)

Operation Manual, Version 8 Revision A

Advanced
Poly-Packaging, Inc.

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Acknowledgments

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Limited Warranty & 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 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.

Contents

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Chapter 1: Introduction

1.1 Overview

T-1000 Advanced Poly-BaggerÊ is a general purpose bagging system designed for manual or automatic packaging of a variety of products.

1.2 Standard Features

The machine comes standard with the following features:

Energy Conservation & Component Saver ï Extends component life and conserves energy.

Pass Code Protection ï Restricted access to settings can be enabled (Level 2 pass code). Factory settings protection is always enabled (Level 1 pass code).

Counters ï Preset, Total and Maintenance counters are provided.

Communications Ports ï Provides for auxiliary communications.

Anti-jam Device ï Detects rigid objects of at least 3/8ò to safeguard the equipment and product.

Internal (PLC) and External (USB) Recipe Management System ï stores up to 30 Recipe settings internally, or hundreds of recipes externally. Optional Ethernet card can allow for remote recipe management.

Auxiliary Automatic Operation ï Integrates automatically to vibratory counters, scales and other in-feed equipment.

1.3 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 T-1000 Advanced Poly-BaggerÊ .

text	Normal text
<ENTER>	Used to show Touch Screen keys
Italics	Used for emphasis

***CAUTION*:** Warning messages - To avoid physical harm, damage to equipment or damage to the product. Be sure to read these messages carefully.

1.4 Warranty Registration

This section must be completed and returned to Advanced Poly-Packaging, Inc. to register the T-1000 Bagger for Warranty Protection.

Serial Number:

_____

(Serial Number located on the back panel)

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

Please fax or mail this page to:

Service Manager
Advanced Poly-Packaging, Inc.
1331 Emmitt Road
Akron, OH 44306
USA

Fax # (USA) 330-785-4010
Or email the information above to: sales@advancedpoly.com

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Chapter 2: Safety, Getting Started

2. Getting Started

This chapter describes risks, required safety precautions and quick start procedures.

2.1 Safety, Risks

The equipment has been designed with features to reduce the possibility of injury. Despite safety precautions, operators may receive lacerations, minor burns or crushed or broken bone injuries if coming in contact with the heater bar or other moving components. Please carefully read the following precautions to operate the equipment properly and avoid injury.

Although no special personal protective equipment is required to operate the equipment, eye protection, gloves or other protection should be worn depending on the characteristics of product being packaged or the method of loading the product.

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.

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.

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.

2.2 Quick 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.

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.

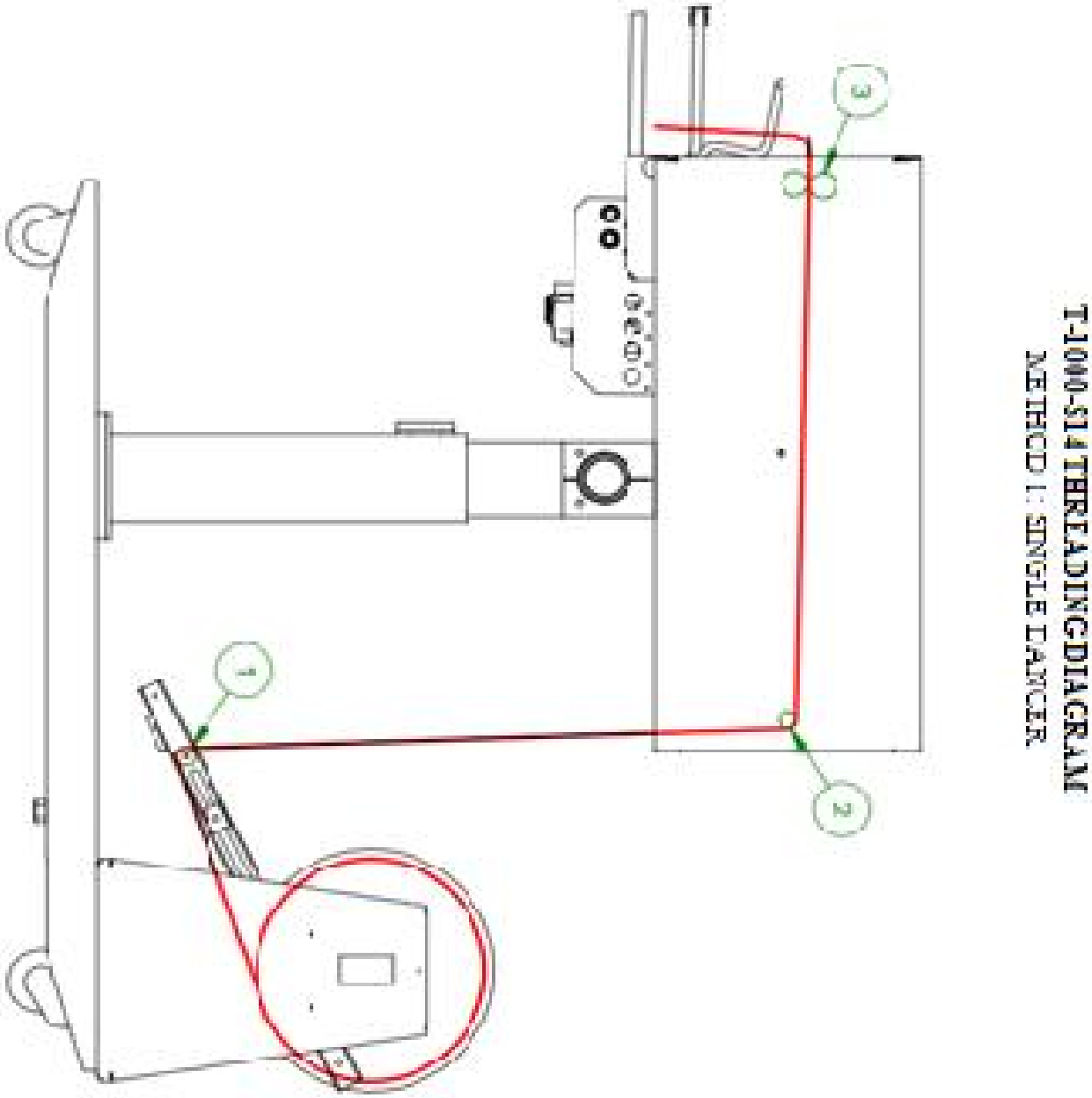
Setup Cycle Operation: Prior to loading parts, place the bagger in the Start / Manual / Setup mode and press the footswitch or touch the <Manl Cycle> button. Test the bag seals, seal location or other inspection requirements.

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.

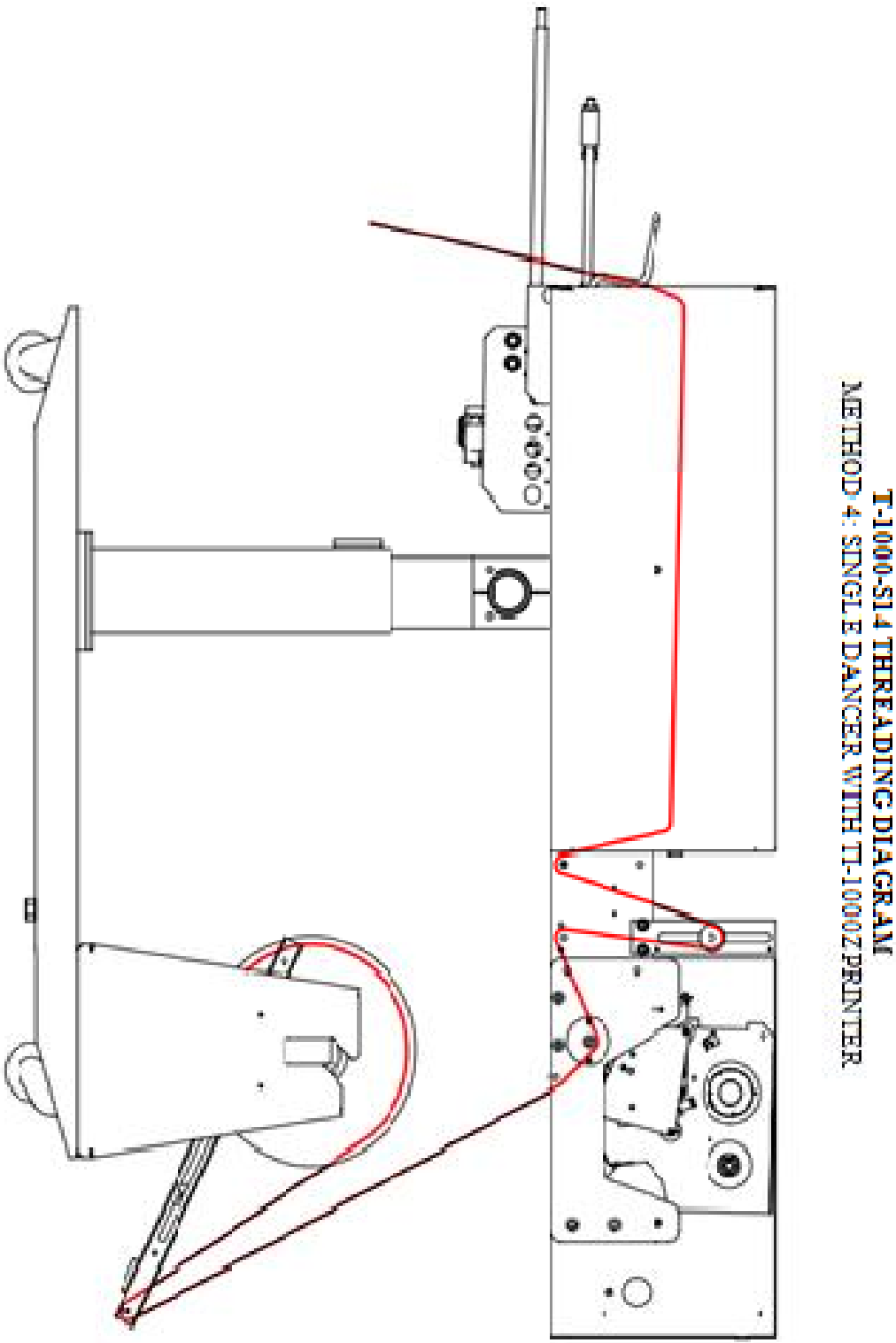
Automatic Cycle Operation (if applicable): If loading automatically with a conveyor, counter or scale infeed system, ensure auxiliary equipment is turned on and press the <Manl Cycle> button to start the system. If all equipment in the system is operating properly, toggle the machine from the Manl mode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

2.3 Threading Diagrams

Several threading diagrams are available based on the configuration of the bagger or the options ordered. Select the configuration: standard vertical, horizontal, or horizontal incline. Then, select with printer or without. Finally, select single or double dancer. Double dancer is for longer bags. This manual may not contain the proper threading diagram for your specially or custom configured machine. Please contact Technical Support to obtain a copy of the correct threading diagram.



Threading Diagram, Standard Vertical, Single Dancer



Threading Diagram: Standard Vertical, Single Dancer, with Ti-1000 ñZò Printer

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Chapter 3: Touch Screen Operation

3. Touch Screen Operation

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

3.1 Touch Screen Identification (See Fig. 3-0)

1 System Button
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

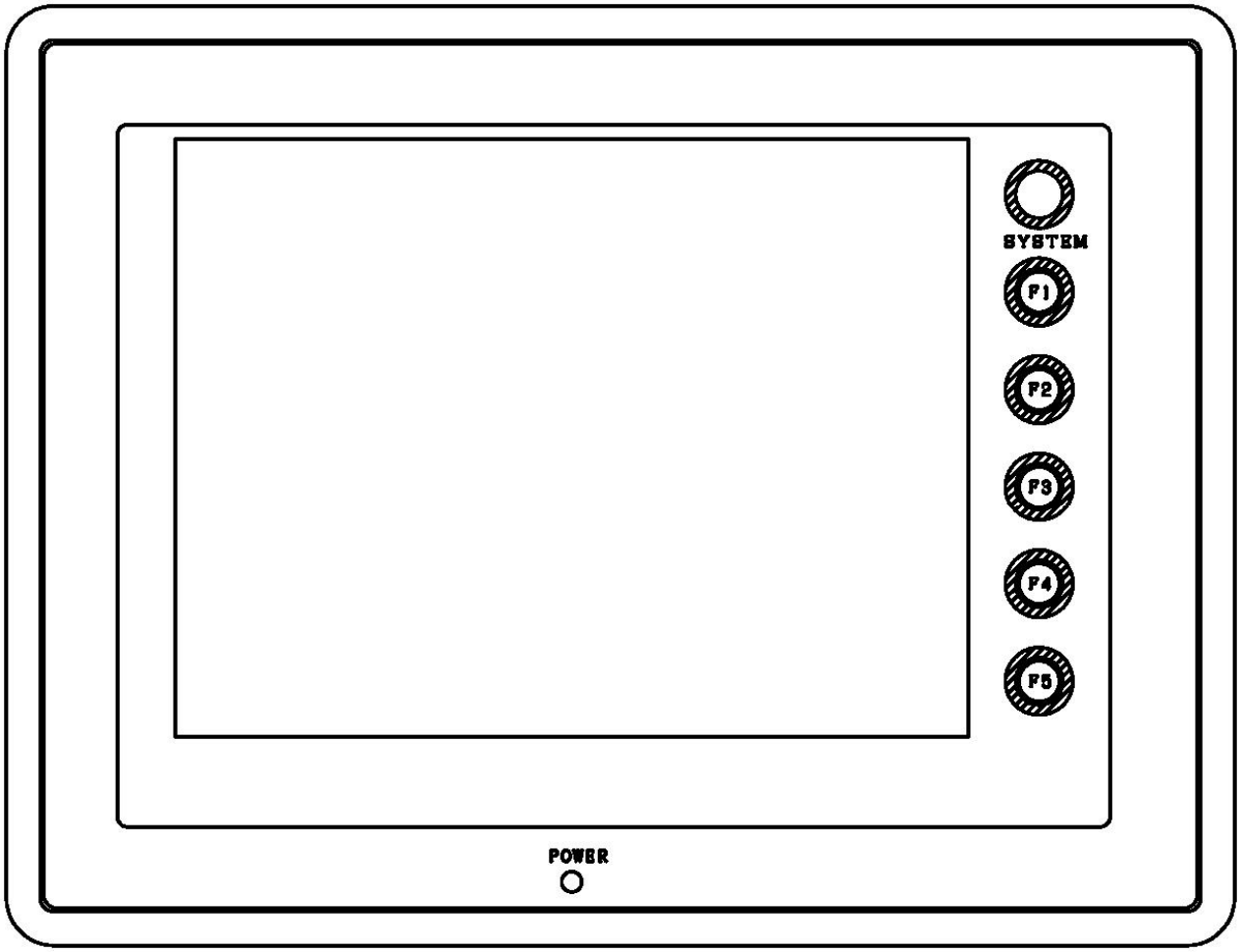

Fig 3-0

3.2 Touch Screen Brightness Adjustment

The brightness of the LCD may be adjusted if the screen is difficult to read. To adjust the contrast, press the <System> button, then press <F2> button to increase brightness or <F4> button to decrease brightness. <F3> resets brightness to the default setting.

3.3 Touch Screen Program, Overview

The Touch Screen Program is a "user-friendly" menu-driven setup and operation program. Pop-up 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 ñjobò will be recalled automatically without the need for reprogramming.

A general color scheme has been used to identify functions:

Blue: Background color. Blue is used as a background or text-only color, which when pressed typically does nothing.

Yellow: Menu buttons which will take you to other areas in the program.

Green: Setting buttons used to change settings or mode of operation.

Red: Stop, off functions or warning messages.

Figure 3-1

3.4 Introductory Screen

When the T-1000 is turned on, an Introductory screen is displayed. See Figure 3-1.

3.5 Operation Screen

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 3-2. There are several Operations Screens, which are selected based on the Operation, Auxiliary and Options installed. Figure 3-2 is the most basic operation screen sample.

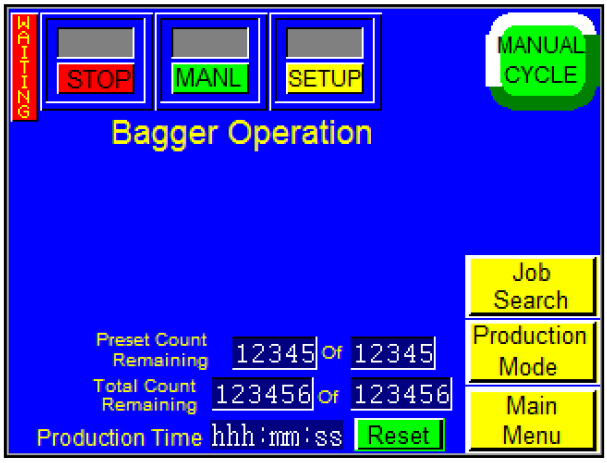

Figure 3-2

3.6 Main Menu

Main Menu screen allows the operator to quickly navigate to other areas. See Figure 3-3.

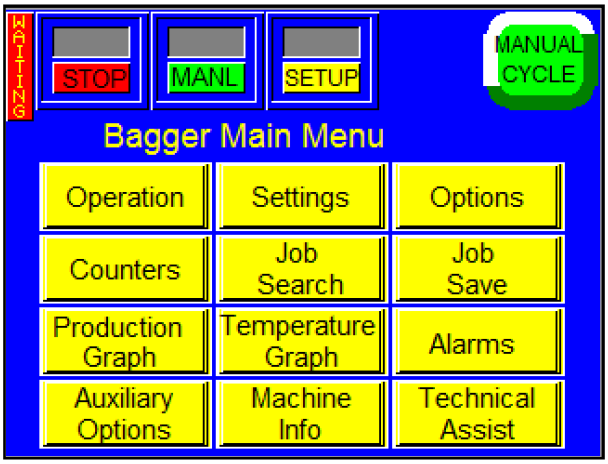

Figure 3-3

Mode toggle buttons are located at the top of many screens:

<Start> / <Stop> toggle button controls operation mode, the mode which enables the equipment to cycle.

<Manl> / <Auto> toggle button activates the Automatic (paced rate) or Auxiliary Cycle mode.

<Run> / <Setup> toggle button deactivates functions and allows cycling when not at temperature. Setup mode stops counters, production timers and auxiliary signals so that the equipment can be operated

independently in a setup mode.

Ready/Waiting LED displays Ready when the heater bar temperature is in the range of acceptance. Waiting flashes when the machine is not at temperature. Waiting pauses the operation unless in the setup mode.

3.7 Settings Screen

Settings 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 3-4.

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 to setup a new bag size or to run a new product.

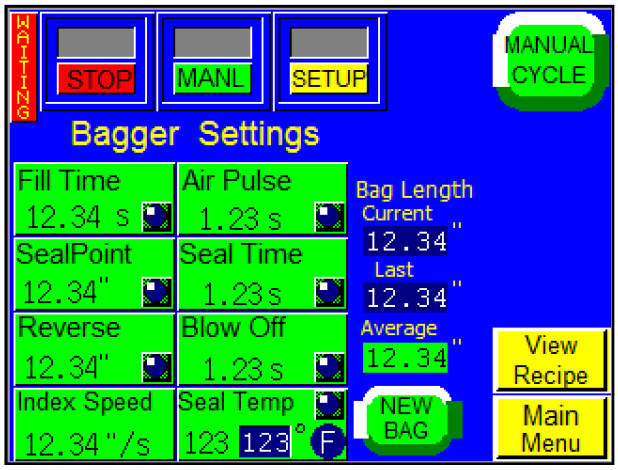

Figure 3-4

3.8 Fill Time

The <Fill Time> button functions differently dependent upon the MODE in which the T-1000 is operating: MANUAL, AUTOMATIC (<AUTO>) mode or AUXILIARY mode.

In the Manual mode with NO accumulating funnel, Fill Time will delay the operation from starting until this time has passed. When equipped with an accumulating funnel, Fill Time will affect the delay time before sealing, after the accumulating funnel door has closed.

In the AUTO cycle mode with no auxiliary in-feed 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 a footswitch is not required.

CAUTION: To avoid physical harm, DO NOT cycle the equipment in the AUTO mode if the funnel, guards or covers are removed. Since the seal bar actuates automatically, operators must keep fingers, hands and other parts of the body away from the sealing mechanism and all other moving parts.

AUXILIARY cycle mode, FILL TIME displays the time which a product, automatically filled by auxiliary equipment, has to be completely settled in the bag before the seal bar is actuated.

Typical setting for manual loading with a footswitch is 0.0 seconds. Typical setting for auxiliary equipment / automatic loading is 0.5 seconds. The lower the setting, the faster the operation. However, too low of a setting could cause the seal bar to contact the product, possibly damaging the product or seal components.

3.9 Air Pulse

The amount of time that a burst of air will *initially* blow the bag open. Wider bags and heavier gauge bags require a longer burst of air. Additionally, to increase the *volume* of air from the air pulse tubes, turn the Air Pulse valve counter-clockwise. Flow control valves are located on the right lower side of the seal frame assembly to increase or decrease air through the air pulse tube or blower.

Typical setting for Air Pulse is 0.2 seconds for smaller bags and 0.4 seconds for larger bags. If the index speed is lower (6-15”/Sec), the Air Pulse may need to be longer.

3.10 Seal Point

Seal point is measured from the top of the bag and can be set to the desired or required location.

The proper positioning of the seal on the bag varies due to bag size and product characteristics. Wider bags or bulky products require greater sealing area. Typical settings for Seal Point: .8 inches for narrower bags, 1.2” mid-size widths and 1.5” for wide bags.

<New Bag> button is used to start an internal program which calculates an average bag length. The perf is used for registration. If a perforation is not detected, the bag will stop in the correct seal position based on the average bag length measurement. A Feed Error message will be displayed if the perf is not detected within a range of acceptance of bag length.

3.11 Seal Time

Seal Time is the time the heater bar comes in contact with the rubber strip, which is mounted on the pressure bar. Seal time is one of three critical components to obtain a good quality seal. Other critical factors include seal temperature and seal pressure. After adjusting Seal Time, test for good seals and adjust if necessary.

Typical settings for Seal Time with temperature set to 400 degrees F: 0.3 seconds for thinner bags (1.5 mil), 0.4 seconds for medium thicknesses (2 to 3 mil) and .7 for heavier thicknesses (4 mil). However, the set temperature will affect the required seal time. If adjusting pressure or temperature, test various seal times until satisfied with the seal quality.

3.12 Reverse

The distance the bag reverses can be set to cause the perforation to break between the bags. For wider bags, the reverse distance may need to be increased. A typical setting is 1”.

3.13 Blow Off

A blow off tube is provided to decrease the possibility of bags sticking to the PTFE Anti-Stick Sheet. Increase the blow off time if bags are not falling from the machine. Typically, the blow off time is set to .15 to .25 seconds.

3.14 Index Speed

Bag feeding (index) speed can be set to improve production. If bags are prematurely breaking at the perforation, reduce the index speed. For shorter bags, the speed can be significantly decreased (to 10"/Sec, for instance). The typical setting is between 15 and 25" per second.

3.15 Seal Temperature

Electrical current is pulsed to the heater element to maintain a constant temperature. Waiting LED is displayed if the temperature is not within the set range. The typical temperature is setting is between 360 and 440 degrees depending on film thickness.

3.16 Options Menu

Options that have been added to the T-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 Figures 3-5.

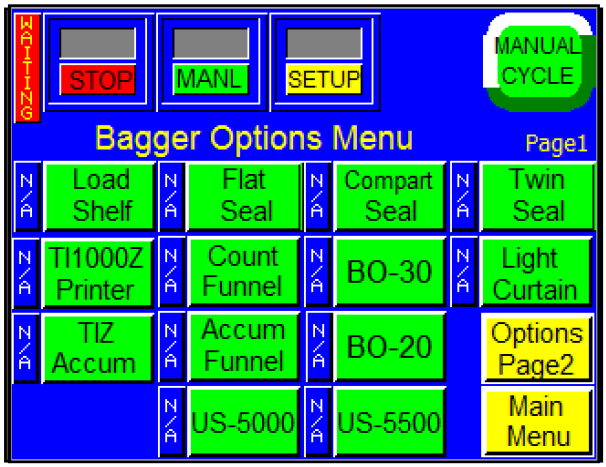

Figure 3-5

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 Specialized Maintenance Personnel.

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, greater than 0.

The following sections describe the settings for optional equipment. If your T-1000 is not equipped with these options, please disregard these sections. Most of the listed options are not standard and must be purchased separately. Setting changes require testing prior to beginning production.

Due to specialized nature of some options or if your machine has custom programming, settings descriptions may not be included in this manual. Please contact Advanced Poly for special instructions.

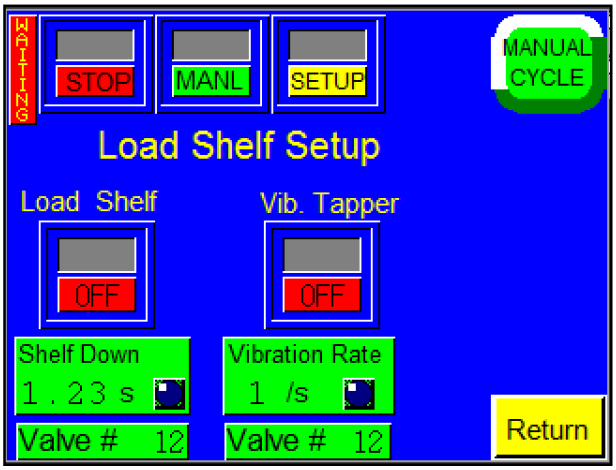

Figure 3-6

3.17 LS-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 3-6.

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.

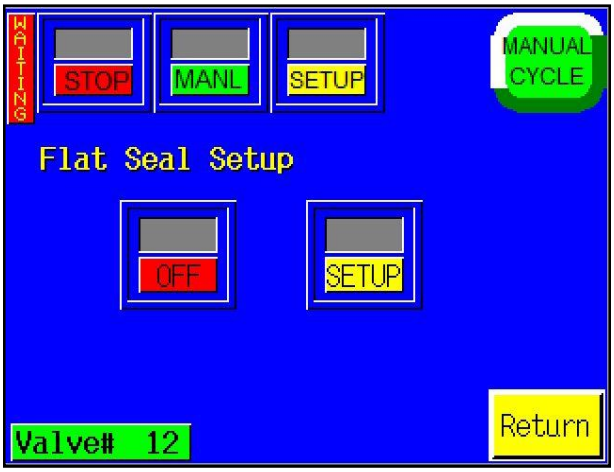

Figure 3-7

3.18 FS-10 Flat Seal Assembly

Fingers enter the bag immediately before sealing to pull the front/back layer of bag together, decreasing wrinkles or folds. See Figure 3-7.

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 T-1000. Once the mechanical

adjustment is complete, press <ON> and <AUTO> for normal operation of the flat seal assembly. In the Auto mode, the option will operate automatically.

3.19 CS-10 Compartment Seal

Seal the bag a second time to create a separate compartment in the bag. This option is useful to segregate different parts or protect damage caused from part contact. See Figure 3-8.

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 <Seal Point 2> and entering a value in the number keypad. Adjust the value of the second seal point until the desired position is achieved. Larger parts should be loaded first, in the larger, lower compartment.

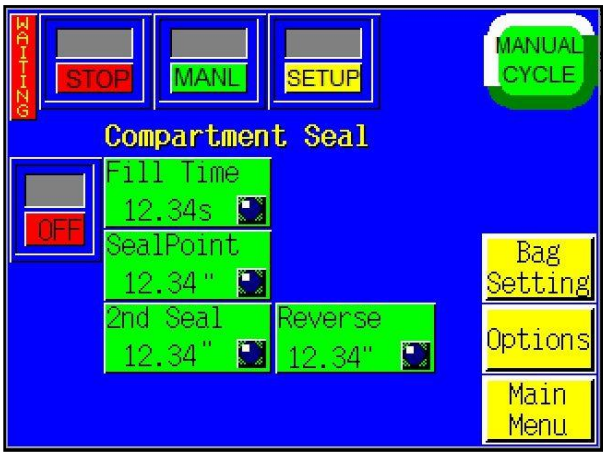

Figure 3-8

3.20 TS-10 Twin Seal Feature

Special programming is available to seal the bag twice, to increase the integrity of the bag.

To turn on the Twin Seal option, press the <Twin Seal> menu option and toggle the option ON. Second seal should be very close to the first.

3.21 Ti-1000Z Printer

To enable Printer operation on the Zebra Printer, press the <On> button.
Refer to Appendix A for further information regarding the operation of this option.

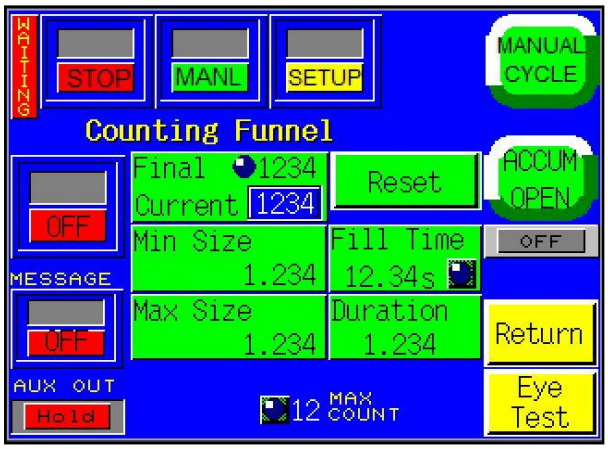

Figure 3-9

3.22 CF-10 Counting Funnel

This option is useful to automatically cycle the bagger when a preset number of parts have fallen through the funnel. See Figure 3-9.

Parts must have separation to be counted accurately through the eye. If two parts fall at the same time, they may be counted as one.

To turn ON the option, press the toggle button to ON. Press the <Reset> button to reset the count to the preset value.

Parts length test: (Eye Test) With the option ON, go to the Parts Length Test Screen and press the <Reset> button.
Press the <Stop> top mode button. Then, drop parts (samples) individually through the photo sensor /

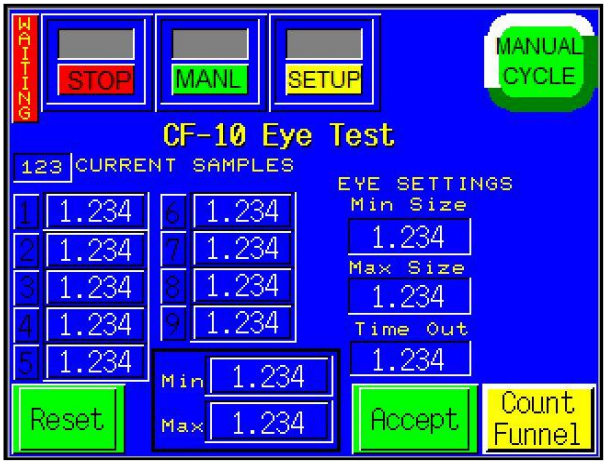

Figure 3-10

funnel. The Min and Max values will change as you drop parts through the eye. If parts will be fed automatically, parts should pass through the eye as they would if feeding automatically. See Fig 3-10

Min and Max Settings and Time Out setting: These settings will be set automatically based on the ñsampleò parts values. Settings can be fine-tuned by manually entering the settings.

Press the <Accept> button after dropping many ñsampleò parts. If the Min / Max values continue to change, continue dropping samples until the values do not change. Then press the ñAcceptò button and return to the Counting Funnel screen.

Test by dropping one part at a time ensuring that the count increments by a value of one. If not counting correctly, return to the Eye Test screen, or change the Min / Max settings manually.

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

3.23 BO-30 Bag Opening Device

This device enters the bag with one or more ñfingersò and then pulls and holds the bag open. Air can also be shut off at this point. See Figure 3-11.

To turn ON this option, press the Toggle button to ON.

<DownDelay> is a delay time before the finger will attempt to enter the bag, after it is initially blown open. A typical value is .7 seconds.

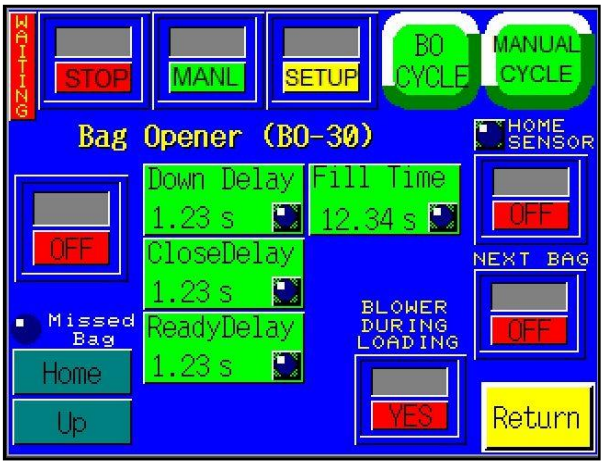

Figure 3-11

<CloseDelay> 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 .5 seconds.

<Next Bag> toggle button can be turned On to automatically reject an empty bag after failed attempts
to open the bag.

<Blower During Loading> toggle button turns off air if set to NO.

<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 .5 seconds.

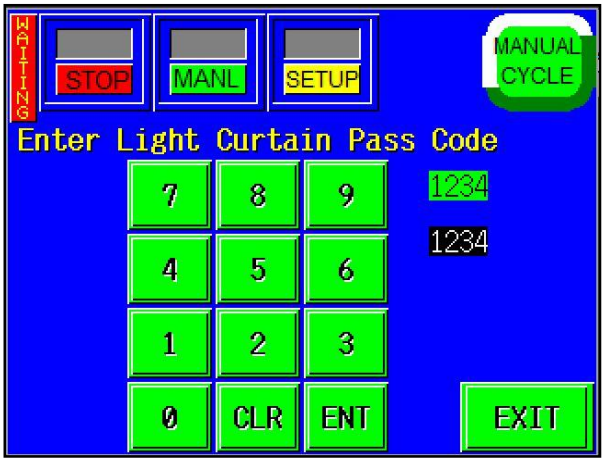

Figure 3-12

<BO Cycle> button allows you to test cycle the Bag Opening Device alone, without initiating other equipment or the T-1000 seal operation.

3.24 LC-10 Light Curtain

This option is used as a safety device to disable air power when the active area is obstructed.
See Figure 3-12 and 3-13.

Caution: To avoid injury, do not reach under guards. This may defeat the safety feature of the LC-10 Light Curtain option.

As an additional safety function, the Automatic cycle mode is disabled when the Light Curtain option is turned ON.

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.

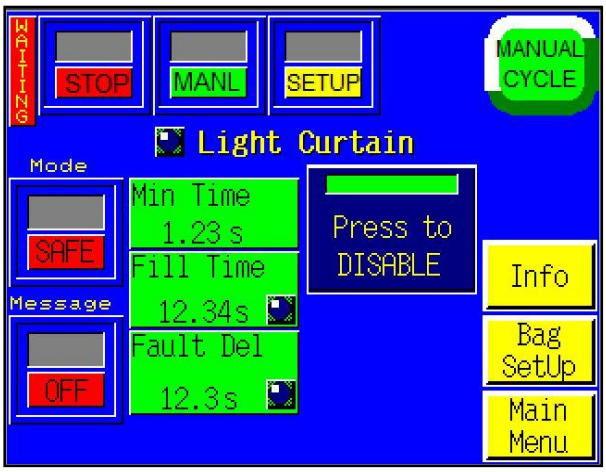

Figure 3-13

The Light Curtain option can be used as a means of initiating the cycle operation of the T-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 prevent starting a cycle until the light curtain area is obstructed for a longer period of time. A typical setting for the Min Time is .5 seconds.

In the Auto mode, the <Fill Time> can be set to delay the cycle operation after the detection area is clear.

To deactivate the light curtain to install a funnel, 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.

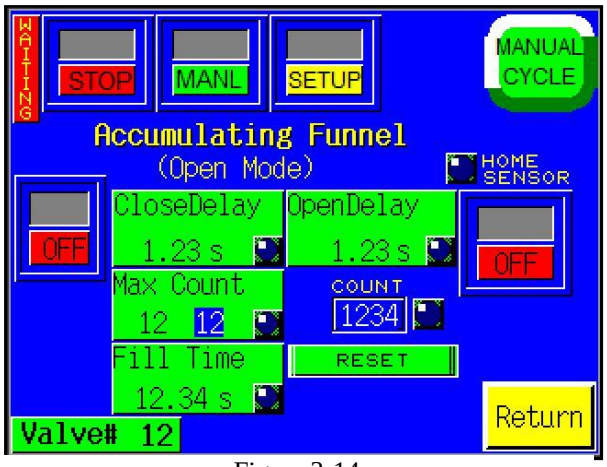

Figure 3-14

3.25 TIZ RAP / Accumulator

This printer option is equipped with a festoon to collect bags that have already been printed on as they wait to go through the bagger.

3.26 AF-10 Accumulating Funnel

This special purpose funnel has several functions: 1) to accumulate a product before dropping the full contents of the Accumulator into the bag, 2) to contain a product while the equipment is sealing, 3) to insert the funnel into the bag and keep the product away from the sealing portion of the bag, and 4) to physically open the bag with a gate that enters into the bag while the product exits the funnel. See Figure 3-14 and 3-15.

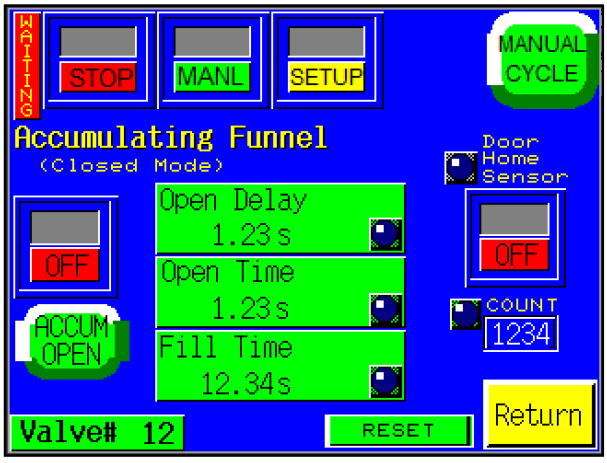

Figure 3-15

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

sealing operation. The door opens when the bag is in position and will remain open until the bag has been filled. The door will then close only until the next bag is in position.

In the Closed Accumulator mode the door remains closed until the full batch is in the funnel. Then the funnel door will open until all product drops from the funnel.

Settings are provided to delay opening or maintain the opening until product has passed through.

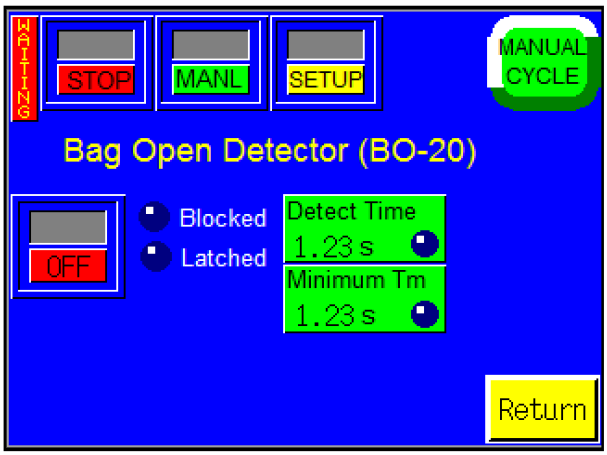

Figure 3-16

3.27 BO-20 Bag Open Detector

This option will detect whether or not a bag is open, ready to receive product. See Figure 3-16.
A message will be displayed if the bag fails to open.

3.28 US-5000 / US-5500 Semiautomatic Net weigh Scale

The US-5000 and US-5500 Net Weigh systems are versatile semiautomatic bagging systems which provides for fast bagging of kits or one type of part per bag, in counts up to 10,000 pieces.

If your company bags a wide variety of parts with multiple parts of various counts in bags, the US-5000 and US-5500 Kit Packaging systems are an excellent solution.

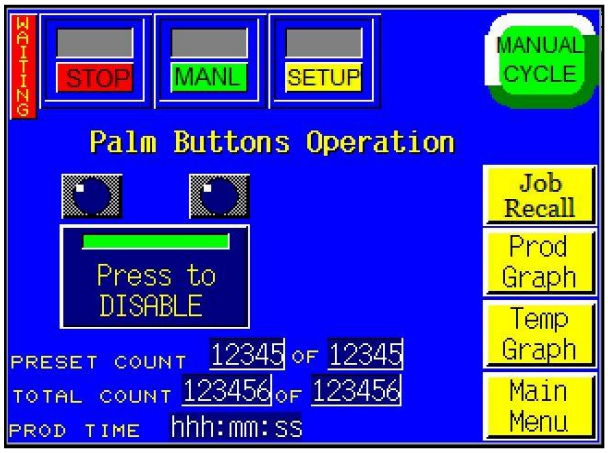

Figure 3-17

This option is accessed through the **Options** screen. A separate manual is provided if this option is purchased or is available upon request

3.29 PB-20 Palm Buttons

Palm Buttons can be used to cycle the machine instead of a foot switch. Two buttons, positioned on opposite sides on the machine must be *pressed* simultaneously to cycle the bagger. If both buttons are not pressed at the same time, or if one of the buttons is held while the other button is pressed, the machine 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. See Fig 3-17.

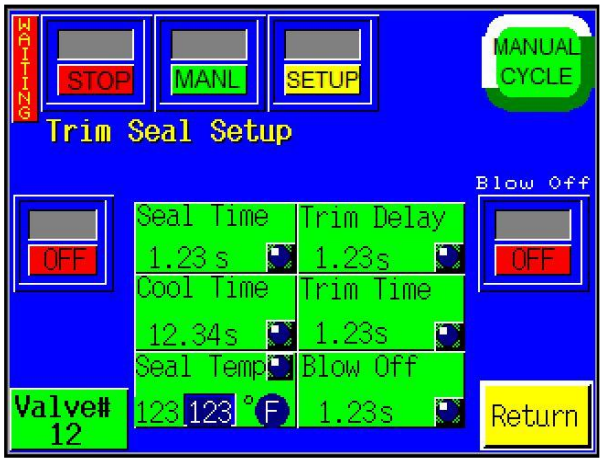

Figure 3-18

3.30 TS-10 Trim Seal Assembly

Trim Seal option removes excess film from the bag above the seal. See Fig. 3-18.

Blow-off time indicates the time which a blower will remove the excess film from the bag.

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 1.25" of film from the bag.

Press the ON/OFF toggle button to enable and disable the operation of the Trim Seal option. Seal Time, Seal Temp, Cool Time, Trim Del and Trim Time settings affect the operation of this option. Adjust the settings until bags are trimming consistently.

3.31 ES-10 Estop Circuit

This option can be used to stop the cycle operation of the T-1000 and possibly other auxiliary infeed or outfeed equipment. One or more Estop buttons may be equipped.

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.

3.32 MV-10 Seal Validation

Seal validation is provided by adding additional components to detect failures or out of range condition for components that affect seal quality. See Fig 3-19. Each component required to produce a good quality seal is validated, including seal time, temperature and pressure. Alarm outputs are provided with each component.

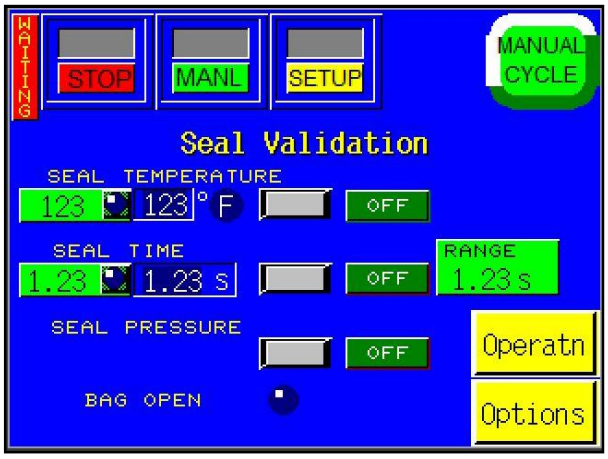

Figure 3-19

3.33 HT-10 Base Height Adjustment

Operating height can be adjusted through the touch screen controlling a telescopic lift screw mechanism. To adjust the height, toggle the Option ON and press <JOG UP> or <JOG DOWN>. See Fig 3-20.

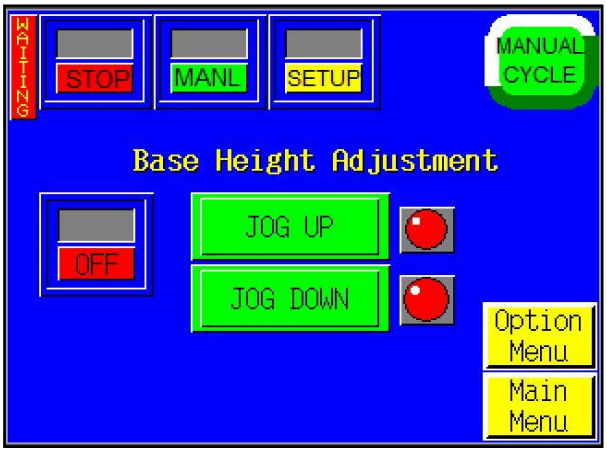

Figure 3-20

3.34 DF-20 Part Diverter (Diverting Funnel)

This feature is used to count bags from the bagger and divert them for further packaging operations. See Figure 3-21 and 3-22.

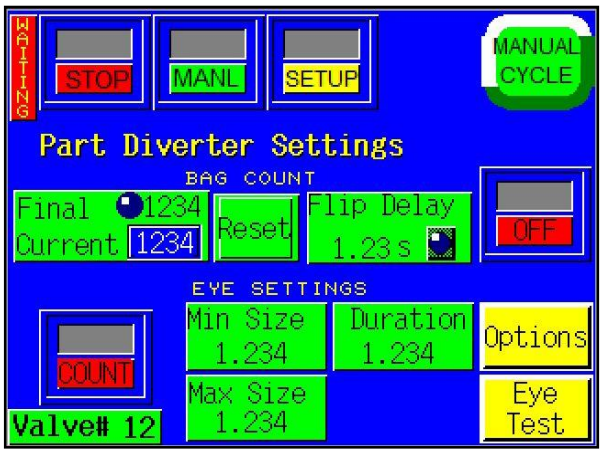

Figure 3-21

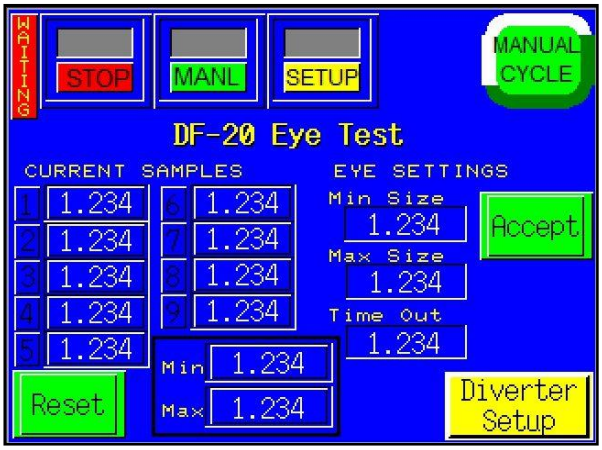

Figure 3-22

3.35 Medical Flat Seal

This holds the same function as the FS-10 Flat Seal as described in section 3.18 but adheres to medical specifications.

3.36 BF-10 Bag Deflator

To press the air from the bag, a pneumatic bag deflator can be fitted. Several timers are provided to change the sequence of operation. Toggle the option ON and adjust the Seal Delay settings to cause the bag deflator to cycle prior to the seal bar. Index Delay setting delays the next bag from feeding, Fill Time delays the bag deflator from operating and Cool Time delays the bag deflator from returning home. See Fig 3-23.

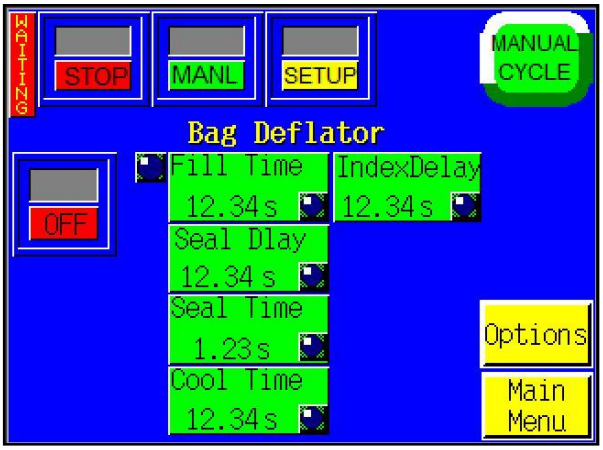

Figure 3-23

3.37 UF-5000 Infeed Conveyor Operation Screen

Refer to Appendix B for further information.

3.38 BV-10 Barcode Reader Option

This option is purchased to validate that a barcode is present and readable. See Fig 3-24.

Press the <ON> toggle button. For each barcode successfully read, the status box will provide a GOOD message. If a NO READ occurs, a message will be displayed.

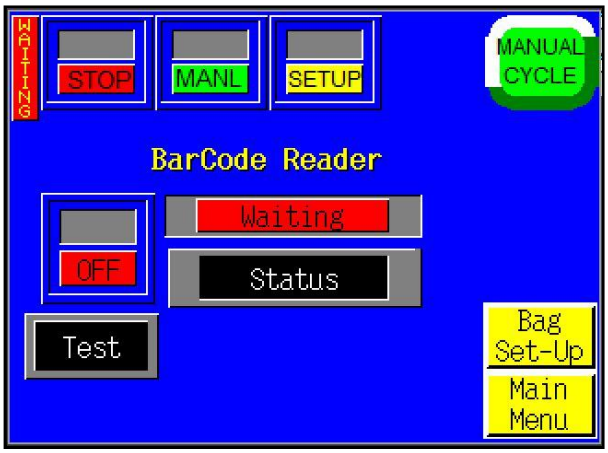

Figure 3-24

3.39 Ti-1000 Inline Printer

The Thermal Inline Transfer Printer - prints text, graphics and bar codes, formatted in a separate software program. The label formats are "downloaded" to the printer from a PC.

To enable Printer operation on the Thermal Transfer (TT) Printer, press the highlighted <Printer Ti-1000> button. Toggle <ON> to enable operation of the printer. See Figure 3-25.

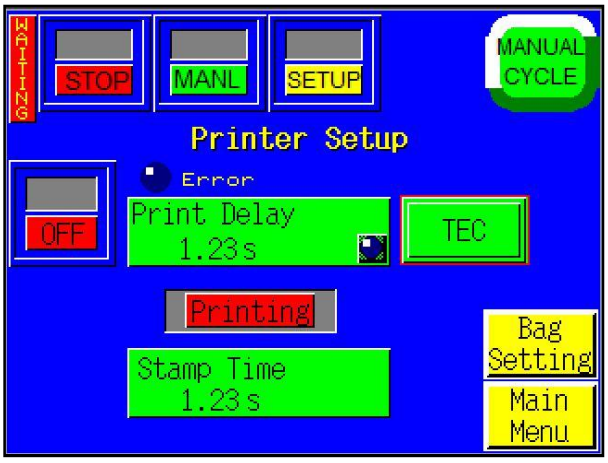

Figure 3-25

3.40 Counters Screen

Three internal counters are provided as a standard feature. To access the counter screen press the <Counter> button from the Main Menu. See Figure 3-26.

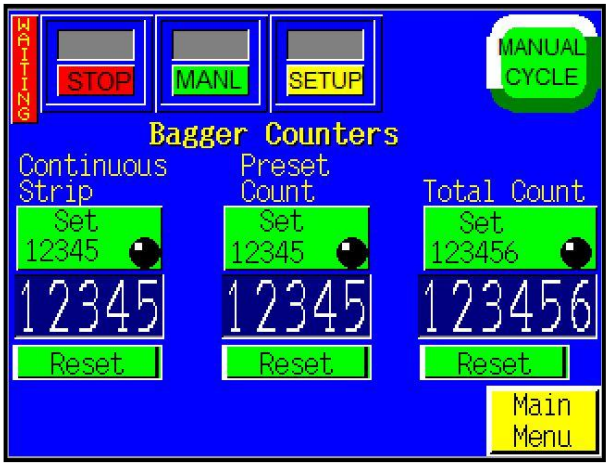

Figure 3-26

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 machine. 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.

Figure 3-27

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 ñ0ò.

3.41 View Settings, Job Save & Recall

Each time a setting is changed on the machine, the settings are immediately saved in memory so that if power is lost, current setting will not be lost.

To Save the current settings, press <Job Save> from the Main Menu. To recall a job already saved, press the desired job slot. See Fig. 3-27.

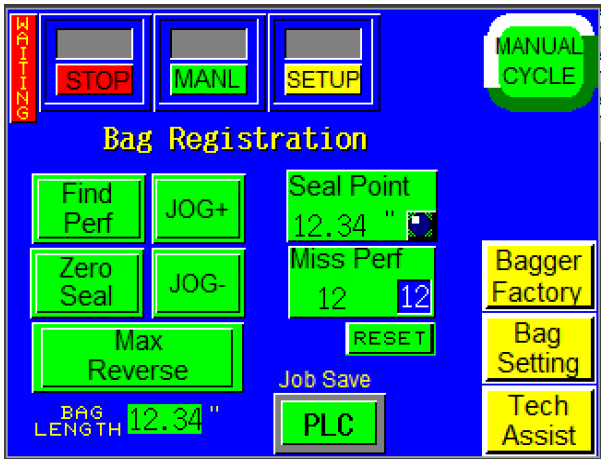

Figure 3-28

3.42 Internal and External Memory

The T-1000-S14 is now equipped to support internal and external memory. To change from internal to external memory:

First, insert external memory (flash drive. thumb drive, USB stick, etc., not included). You will need to unscrew the back cover of the touch screen housing unit to access the USB port, which is located on the bottom left hand side of the touch screen device.

Next, from the Main Menu on the touch screen software, access the <Tech Assist> page and enter the factory code as it is prompted. Next, access the <Bagger Factory> page and locate the yellow <Perf Registration> button on the right hand side of the page. On the bottom in the middle of the Perf Registration page there is a <PLC> button which can be toggled between <PLC> (internal) and <USB> (external) memory. See figure 3-28. Once the memory is chosen for the machine that will be where jobs and recipes are recalled from as well as where alarms, timers and data will be stored.

3.43 Production Graph and Temperature Graph

Simple production and temperature graphs are provided to chart production and temperature throughout the day. See Figure 3-29 and 3-30.

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

Figure 3-29

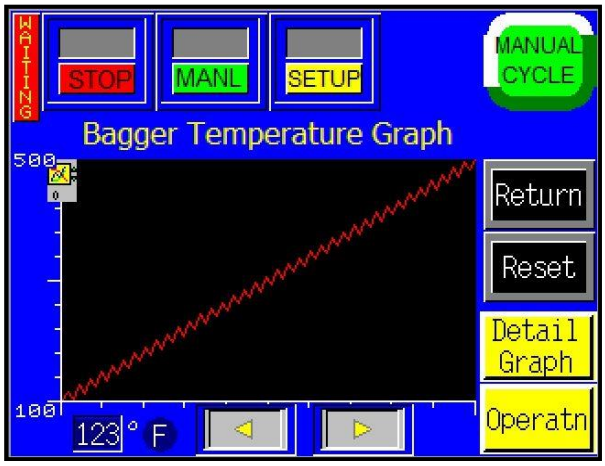

Figure 3-30

3.44 Operation Mode Timers, Alarms, Alarm Data

Several Timers are provided to track Uptime and Downtime. See Fig. 3-31 and 3-32.

Alarm logs are also provided.

Downtime can be analyzed by view Alarm Data screen which sums all down time associated with each type of fault condition and counts the number of occurrences of each condition.

NOTE: Timers, Alarms and Data are automatically saved once daily by the machine, either on the internal or external memory, according to the machine setting. Each save creates a new record in the file.

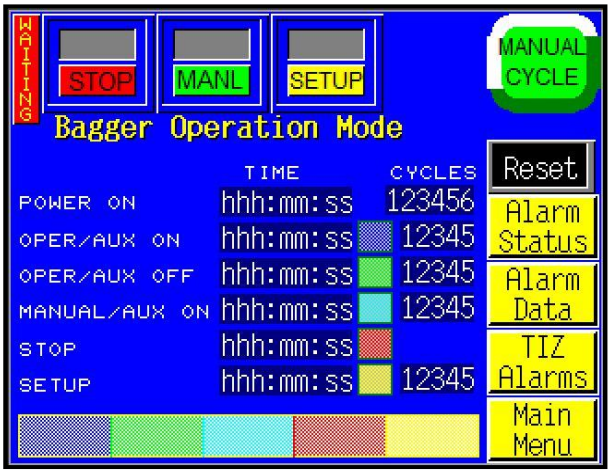

Figure 3-31

3.45 Auxiliary Screen

Auxiliary communication is provided by closed contact signaling. Additional cabling may be required which will transfer the signals between the machines in the system.
See Fig. 3-33.

Auxiliary settings are displayed on this screen, but must be change in the Technical Assistance / Aux Setup screen.

The auxiliary signal mode will depend on the type of equipment connected.

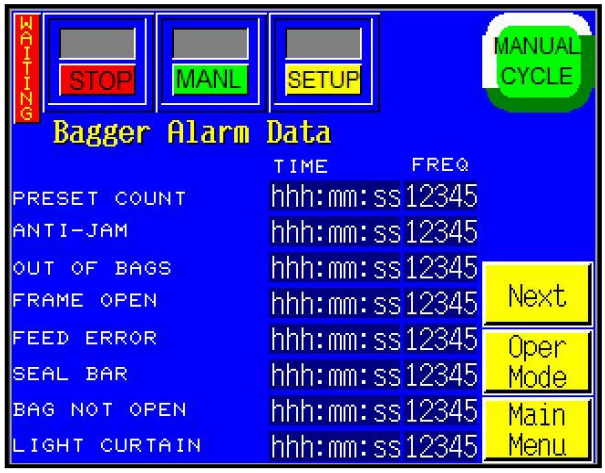

Figure 3-32

Figure 3-33

3.46 Machine Info

Model Number, Serial Number, Part Number and Line Number will be displayed; set at the factory. See Fig. 3-34.

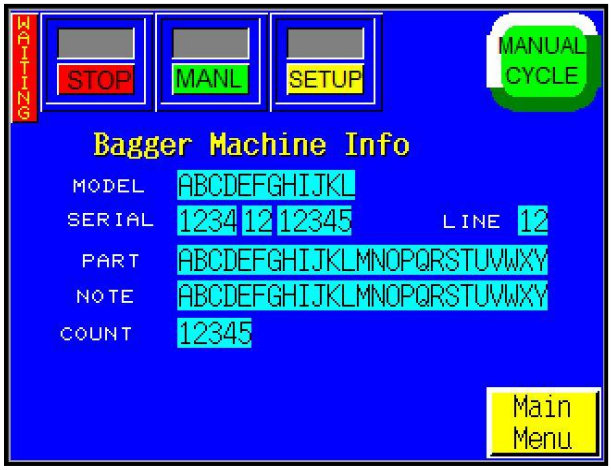

Figure 3-34

3.47 Technical Assistance & Troubleshooting Screens

Technical assistance sections of the Touch Screen program should be accessed by Specialized Personnel only and are provided for troubleshooting and advanced setup by Qualified Service Engineers. See Maintenance manual for additional information. See Fig 3-35.

Figure 3-35

3.48 Warning and Message Screens

Normal operating message and fault messages will be displayed automatically to alert the operator of situations on the machine. See Figures 3-36-3-42 for examples of messages that indicate the status of the machine.

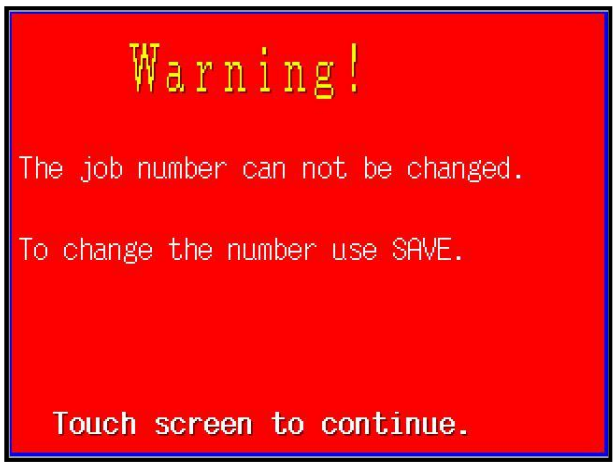

Figure 3-36

Figure 3-37

Figure 3-38

Figure 3-39

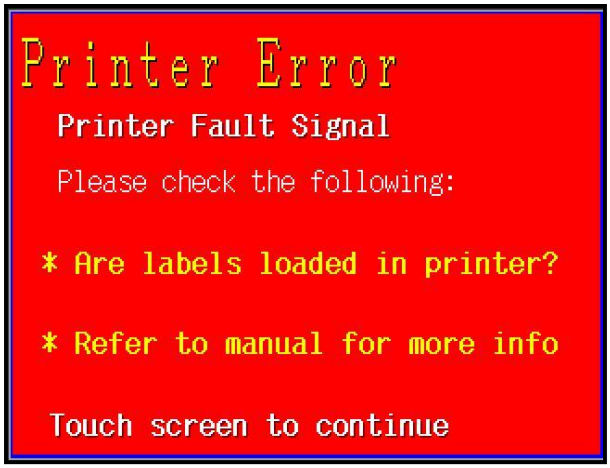

Figure 3-40

Figure 3-41

Figure 3-42

3.49 Notes

Date	Note

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Chapter 4: Adjustments Maintenance, Troubleshooting

4.1 Machine Adjustments
4.2 Tracking and Alignment Adjustments
4.3 Compression (Nip) Roller Adjustment
4.4 Dancer Assembly Adjustment (Roller Shaft)
4.5 Dancer Bare and Break Strap Adjustment
4.6 Upper Roller Guides
4.7 PTFE Adjustment
4.8 PTFE Replacement
4.9 Pressure Bar Adjustment
4.10 Sealer Cylinder Adjustment
4.11 Pressure Bar (Rubber) Replacement
4.12 Anti-Jam Adjustment
4.13 Heater Cartridge Replacement
4.14 Replace Thermocouple Wire
4.15 Preventative Maintenance and Scheduled Maintenance
4.16 Preventative Maintenance Checklist
4.17 Scheduled Maintenance Chart
4.18 Preventative Maintenance Chart
4.19 Spare Parts Kit 4.20 Troubleshooting Guide
4.21 Troubleshooting Checklist
4.22 PLC IO Listing
4.23 Electrical Drawings
4.24 Troubleshooting Notes / Technical Support Information

4.1 Machine Adjustments

Periodically, the T-1000-S14 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 T-1000-S14, consult with APPI Technical Support before attempting adjustments or repairs.**

4.2 Tracking and Alignment Adjustments

To avoid spillage of product in an automatic loading operation and loss of production in a manual loading operation, make machine adjustments to correct the tracking and alignment of the web of bags.

4.3 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 Figures 4-1 and 4-2.

Compression adjustment is a two step process. First, the upper and lower rollers are adjusted to make the lower roller 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 inner frame locked in the UP position, lower the lower roller by turning the adjustment screws counterclockwise until the lower roller is parallel to the upper roller, leaving a 1/16" gap between the rollers. Turn the adjustment screw 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 showing light in the gap of the rollers will assist in judging whether the upper and lower roller are parallel.

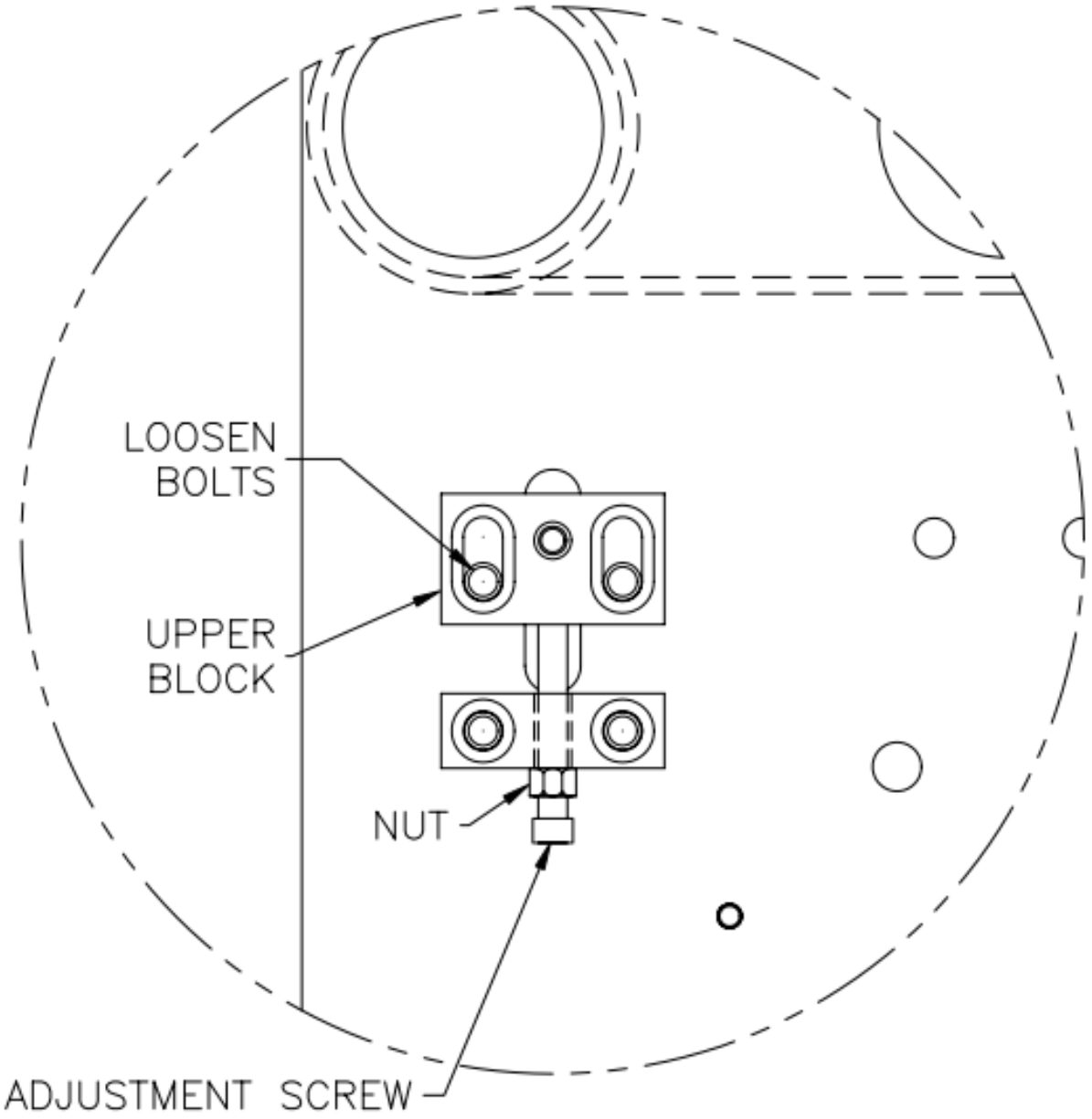
With the rollers parallel and slightly touching, turn each adjustment screw approximately ½ turn clockwise. Then test the compression by putting a bag between the rollers. Attempt to pull the bag between the rollers. If the bag pulls out easily, turn the compression adjustment screws ½ turn clockwise. 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 inner 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 inner 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.

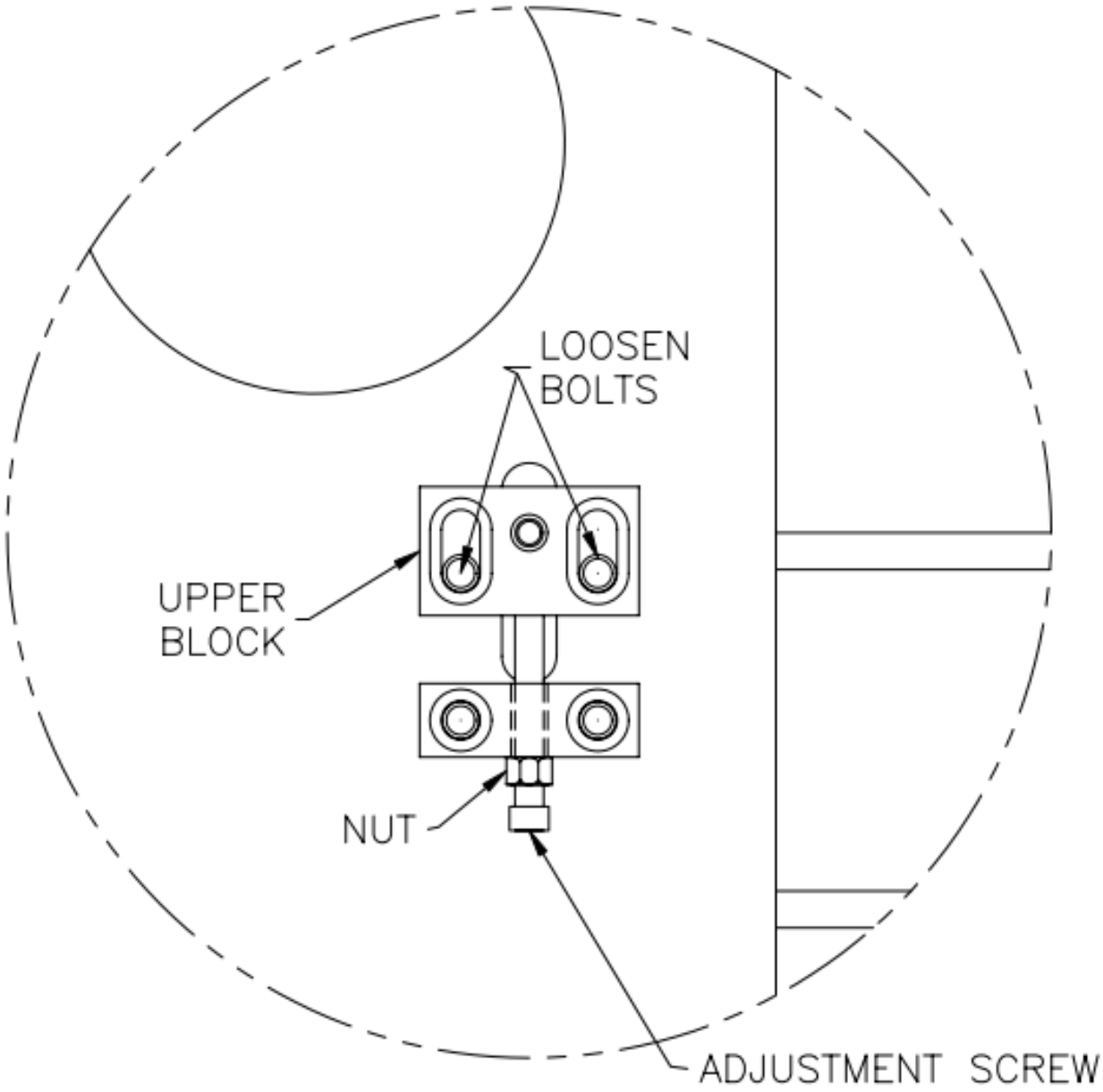
LEFT SIDE PANEL COMPRESSION NIP ROLLER ADJUSTMENT

Figure 4-1



RIGHT SIDE PANEL COMPRESSION NIP ROLLER ADJUSTMENT

Figure 4-2



4.4 Dancer assembly Adjustments (Roller Shaft)

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. 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.

4.5 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.

4.6 Upper Roller Guides

Two plastic web guides are located on the upper rear roll of the T-1000-S14 and are used for *fine* adjustment of tracking. Once the web is tracking within +/- 1/8" 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.

4.7 PTFE 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 can be turned (rotated) to cover the contact surfaces with a fresh material.

If a change of 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 clockwise approximately ¼ of a turn using a flathead screwdriver. When fresh material is in place, turn the roller counterclockwise, releasing ALL of the tension on the sheet.

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

4.8 PTFE Replacement

Turn the power to the OFF position and unplug the power cord. Remove the Lexan guard and the four screws that hold the front plate to the inner frame. Pull the front plate from the inner frame and slide the front plate along the guide rods away from the seal assembly. Then slide the rollers and the roller holder away from the heater bar as a unit. Remove and discard the material. Replace the sheet and rollers with the new material wrapped on the upper roller. Place the rollers on the roller holder, ensuring springs are seated in the grooves on the rollers. Replace the rollers and holder as an assembly (with the unexpended material on the upper roller). Replace the front plate and tighten the four screws. Adjust the material as described in the previous section.

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

4.9 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. Turn the power to the OFF position and unplug the power cord. Remove the air line from the regulator and remove the top cover. Once the air is removed, the pressure bar can freely be pushed toward the front plate. As the pressure bar approaches the front plate, you can see whether the pressure bar is parallel to the front plate. If it is not, remember which side of the pressure bar touches first, along with the distance of the gap on the opposite side. To make the pressure bar parallel to the front plate, the rear channel that holds the guide rods must be adjusted. Loosen the nuts inside the channel. On the side opposite of the "touching" side, turn the nut located on back side of the channel clockwise the same distance the pressure bar was out of alignment. Tighten the inner-channel nuts and test the pressure bar again by sliding it in and out a few times. Ensure it is parallel to the front plate by slowly pushing it against the front plate. Readjust the nuts on the rear channel as required.

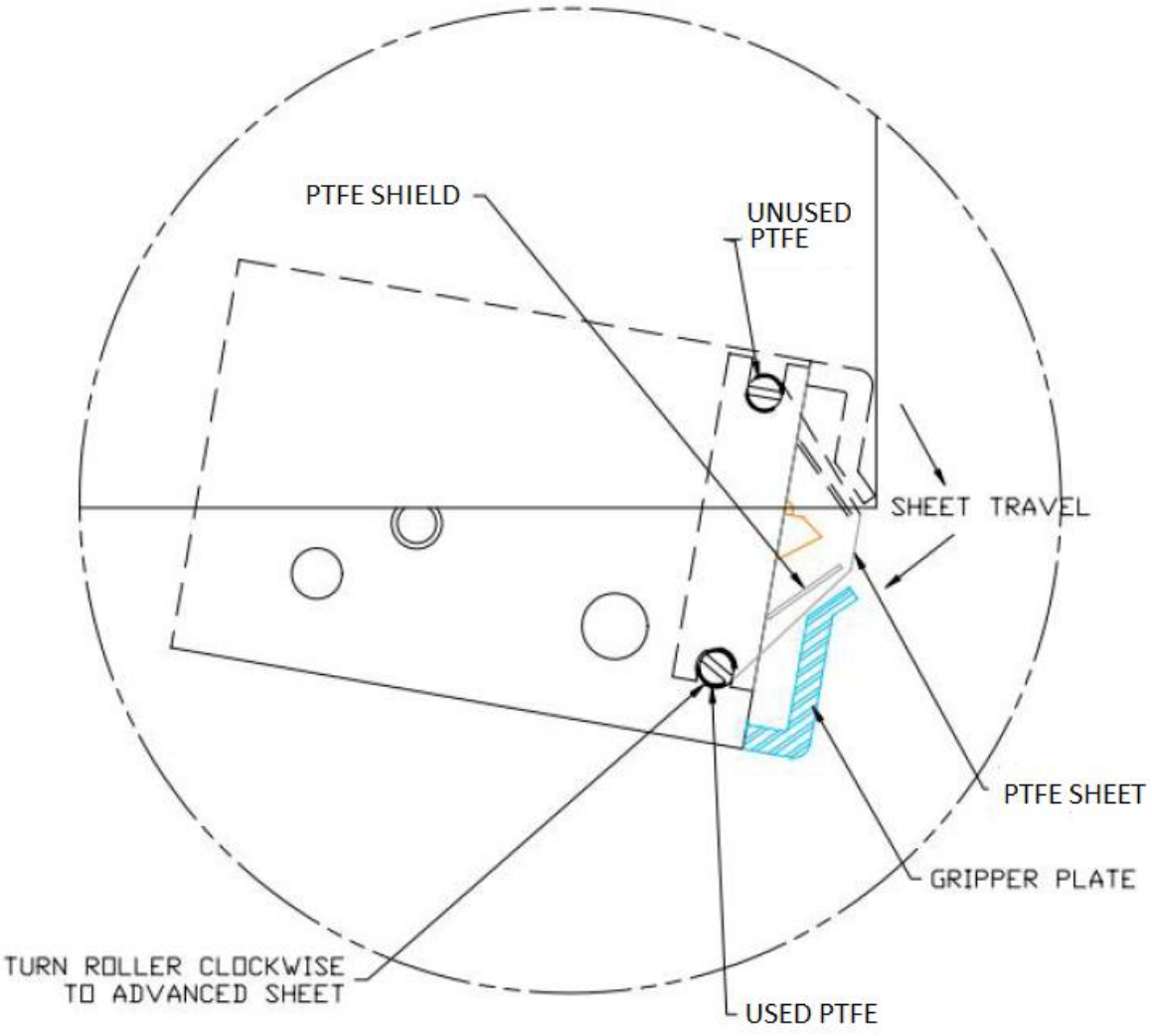
NOTE: Pressure bar adjustment should only be necessary after rod or bushing replacement.

4.10 Sealer Cylinder Adjustment

Two “speed controls” operate 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 valve that controls the pressure bar cylinder is located on 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 plate). The adjustment knob (A) controls the speed of the pressure bar OUTWARD (away from the front 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. To increase the speed of the pressure bar OUTWARD, turn the knob (A) counterclockwise. To decrease the speed of the pressure 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.

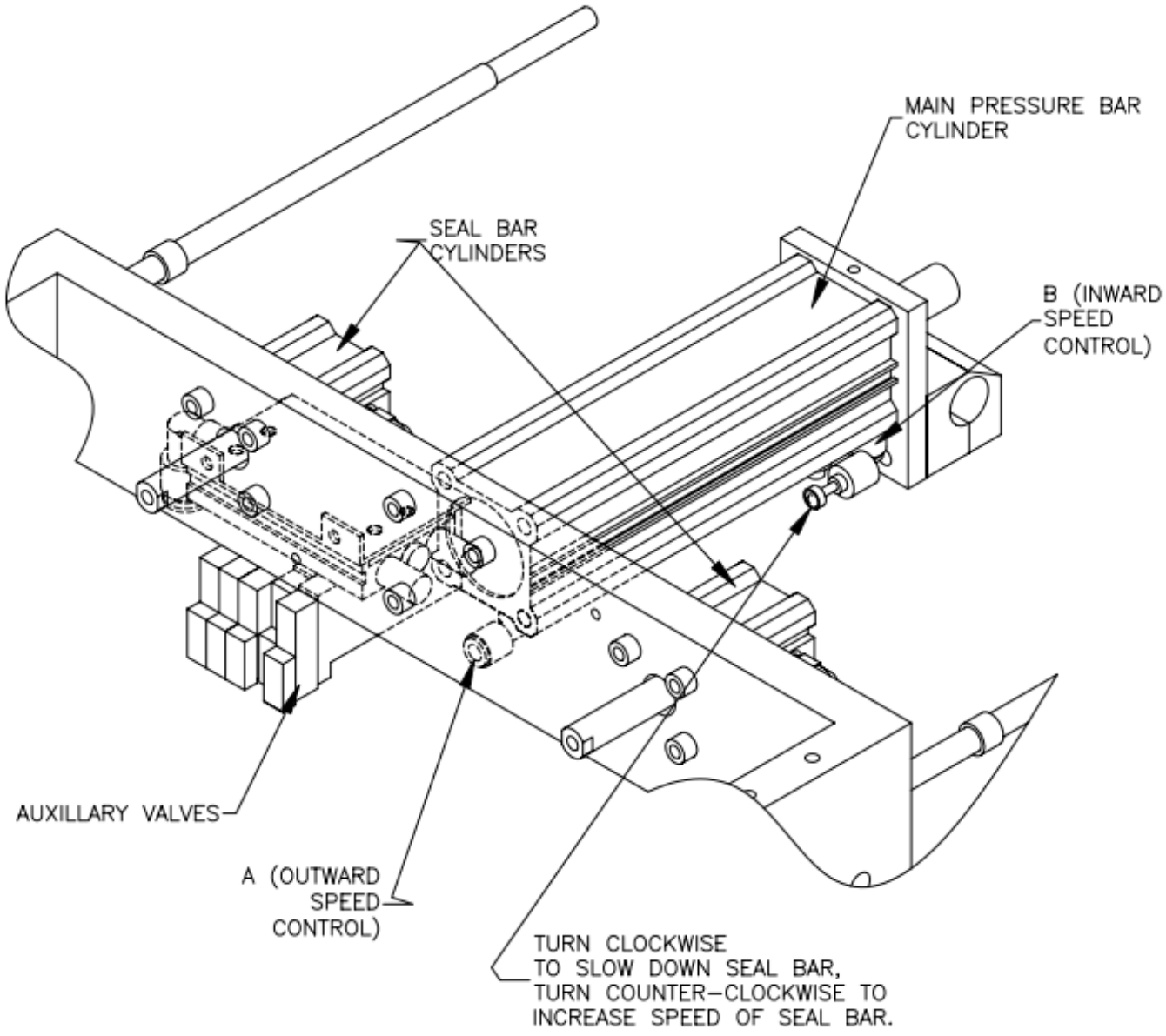
RIGHT SIDE PLATE PTFE ADJUSTMENT

Figure 4-3



SEAL CYLINDER ADJUSTMENT

Figure 4-4



4.11Pressure 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 4-6. If you used PTFE tape to cover the surface of the rubber, place the PTFE on the rubber along its length. If the PTFE extends beyond the rubber, cut off the excess.

NOTE: PTFE 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.

4.12 Anti-Jam Adjustment

The anti-jam device is designed to protect the T-1000-S14 from damage when an obstruction is encountered in the seal area (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 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 in the 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.

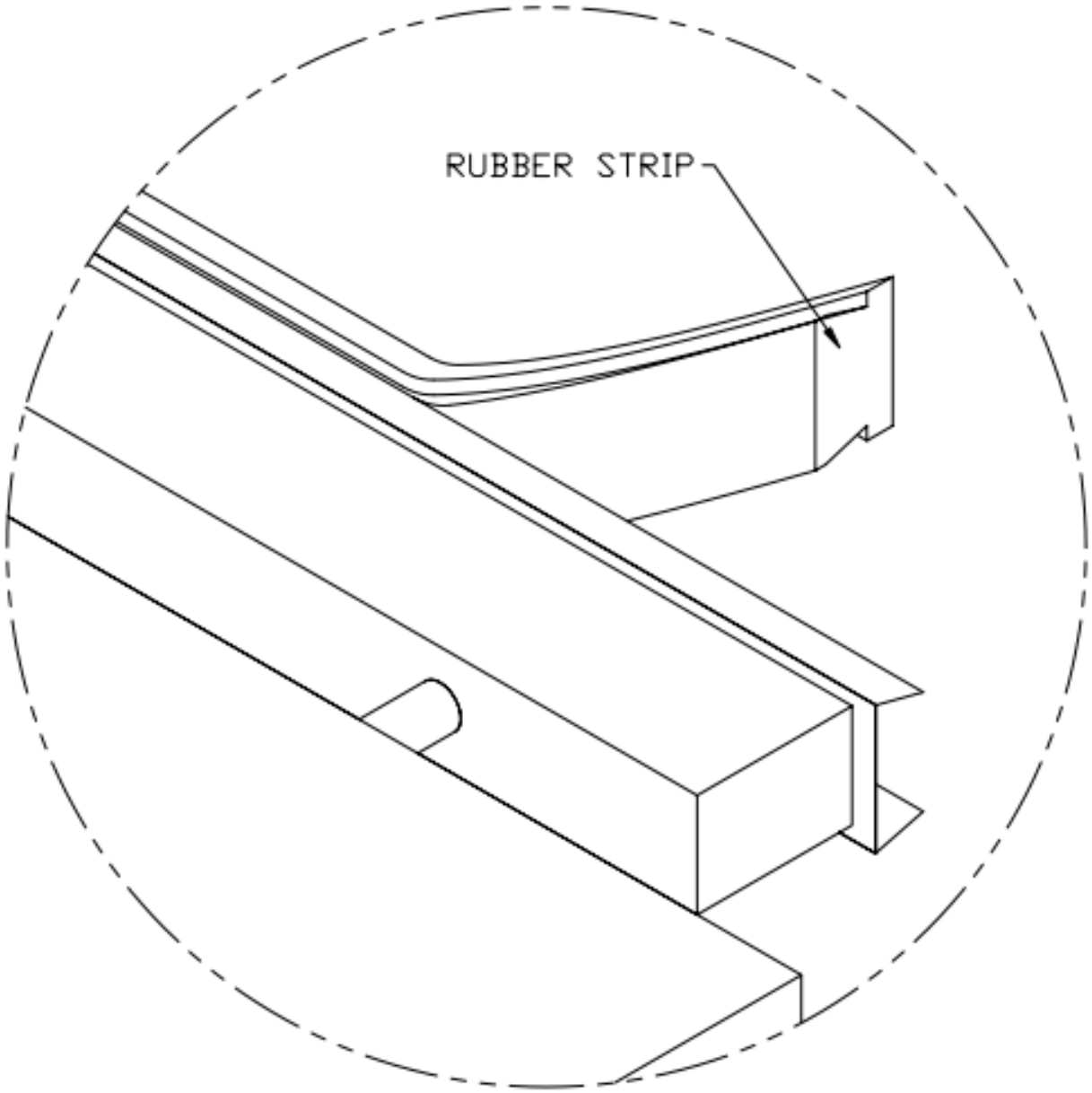
***CAUTION:* To avoid personal injury, do not place fingers or hands into the seal area of the T-1000-S14 while power is ON or air is attached. Do not test the anti-jam device with hands or fingers. Ensure the poly tube that is used for testing is long enough to keep fingers or hands away from the seal area of the T-1000-S14.**

To thoroughly test and adjust the anti-jam device, you must first turn the power to the OFF position, disconnect the air line from the T-1000-S14 and remove the top and left side cover. With the covers removed and air disconnected, turn the power to the ON position.
To test the pressure bar sensor, locate the "X4" LED on the PLC Board 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.

To test the anti-jam override sensor, locate the "X7" LED on the PLC board and ensure that the light is off. Then, standing in front of the T-1000-S14, push the pressure bar slowly towards the front plate, keeping hands and fingers out of the seal area. While pushing the pressure bar towards the front plate, do not compress the rubber into the nylon holder or touch the round nuts on the pressure bar. See Figure 4-7.

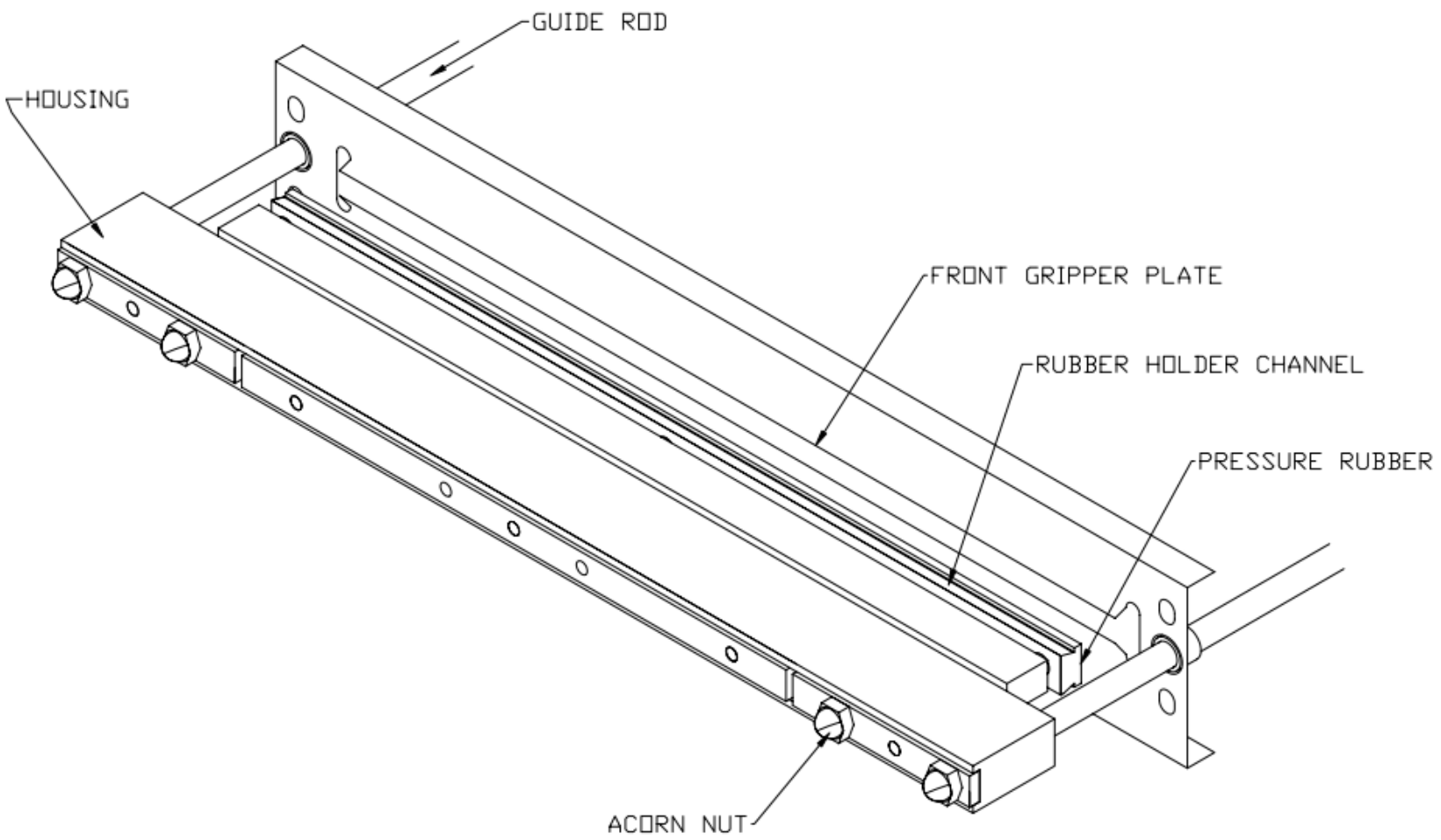
PRESSURE BAR REPLACEMENT

Figure 4-5



PRESSURE BAR REPLACEMENT

Figure 4-6



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

When the pressure bar rubber is approximately 1/8" from the front plate, "X7" LED should illuminate (ON).

If the LED illuminates prematurely (when the rubber is farther than 1/8" from the front plate), the anti-jam override sensor must be adjusted. An aluminum block, located on the right guide rod in the inner frame, houses a magnet. See Figure 4-7.The anti-jam override sensor detects the magnetic field, sending the signal to the PLC. If illuminated prematurely, the "magnetic block" should be moved toward the front of the T-1000-S14 along the guide rod.

If the LED illuminates when the rubber is closer than 1/8" to the front plate or when the rubber is touching the rubber plate (illuminates late), the magnetic block should be adjusted by moving the magnetic block toward the rear of the T-1000-S14 along the guide rod.

To move the magnetic block, loosen the screw on the block that secures it to the guide rod. Loosen the screw just enough to allow the magnet block to slide along the guide rod without pivoting.

After moving the magnetic block, pull the pressure bar away from the front plate and check the illumination of the "X7" LED by pushing the pressure bar slowly toward the front plate. If out of alignment, move the magnetic block in 1/8" increments until properly positioned. In its final position along the guide rod, the magnetic block should be parallel to the side plate.

If the magnetic block, when parallel to the side plate and adjacent to the override sensor, does not cause the LED to illuminate, adjust the override sensor so that the sensor is closer to the magnetic block.

The override sensor is secured to the side-plate with two plastic nuts, one on either side of the side plate. To bring the sensor closer to the magnetic block, loosen the nuts and turn the sensor counterclockwise from inside the frame. Turn the sensor 1/2 turn at a time or until the "X7" LED is illuminated. When illuminated, turn 1/4 turn more.

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.**

When properly positioned, secure the sensor by tightening the securing nuts. When properly adjusted and thoroughly tested, tighten the screw on the magnetic block, replace covers and connect the air line to the regulator.

4.13 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.

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

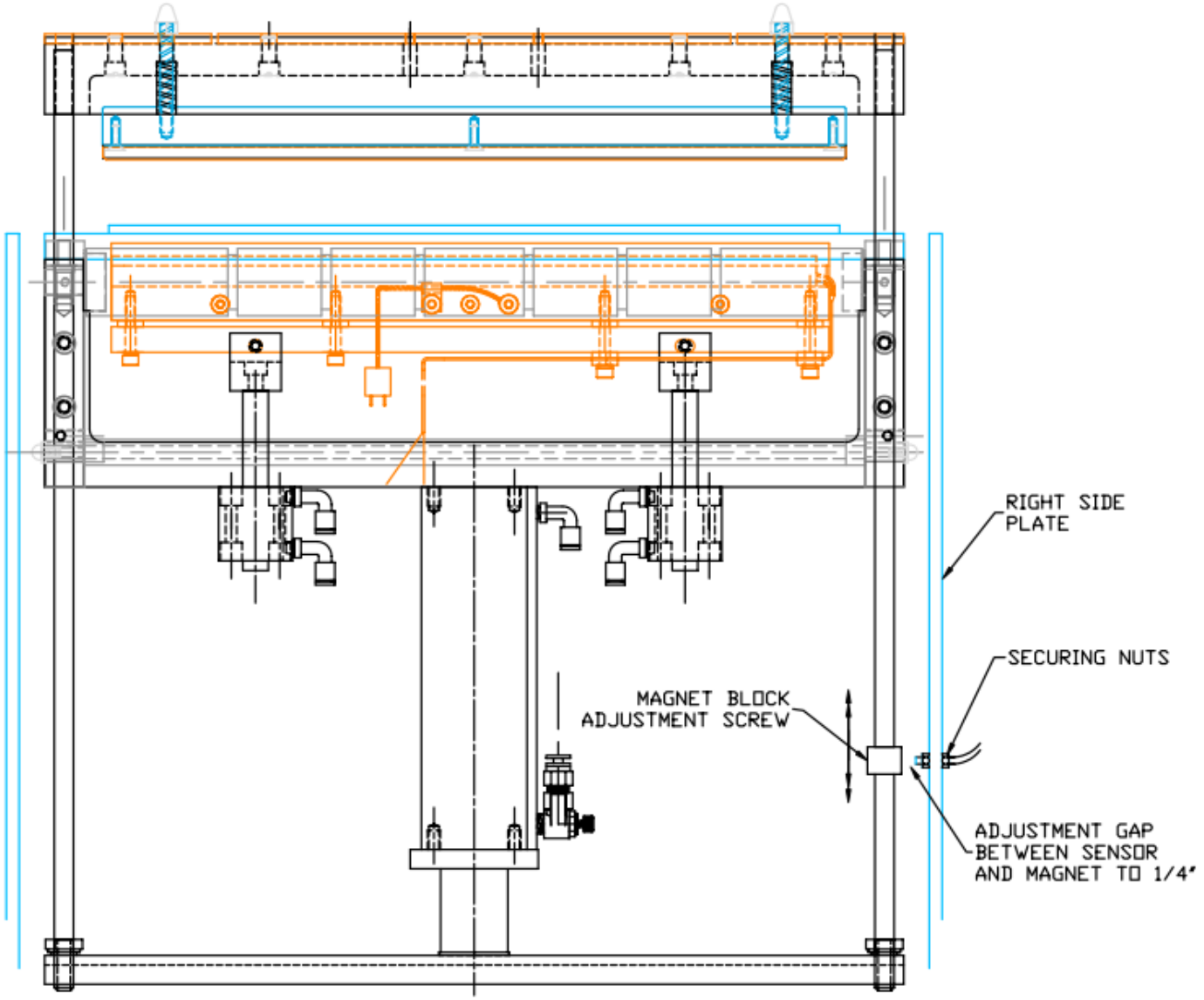
1. Locate the "Y3" indicator on the PLC info screen.
2. Press the **START** button if the T-1000-S14 is in the Stop mode. If "Y3" illuminates in long pulses without increasing the temperature on the Bagger Settings screen, proceed to Step 3.
3. Check resistance value of heater cartridge. It should read between 18-32 Ohms.

NOTE: If you do not have an Ohms meter, replace the heater cartridge after Step 1.

To replace the heater cartridge, turn the main power to the OFF position, unplug the power cord and disconnect the air line.

ANTI-JAM OVERRIDE ADJUSTMENT

Figure 4-7



Disconnect the heater cartridge wire at the connector. From underneath the inner frame, loosen and remove the screws that hold the wire clamp and lower heater bar plate to the upper heater bar plate. See Figure 4-8. Then remove the two remaining screws that hold the lower heater bar plate to the upper heater bar plate. Remove the heater cartridge wires from the wire clamp. Place a new cartridge into the heater bar slot and replace the lower heater bar plate. Place the wires into the wire clamp and secure to the lower heater bar plate. Reconnect the heater cartridge wires, ensuring that the heater bar can extend fully without stretching the heater cartridge wires. Plug the cord into the outlet, turn the power to the ON position and connect the air line to the regulator. Press **START** on the touch screen and verify that the temperature increases.

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.

4.14 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.

Remove the front plate and PTFE assembly. 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.

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 assembly and front plate.

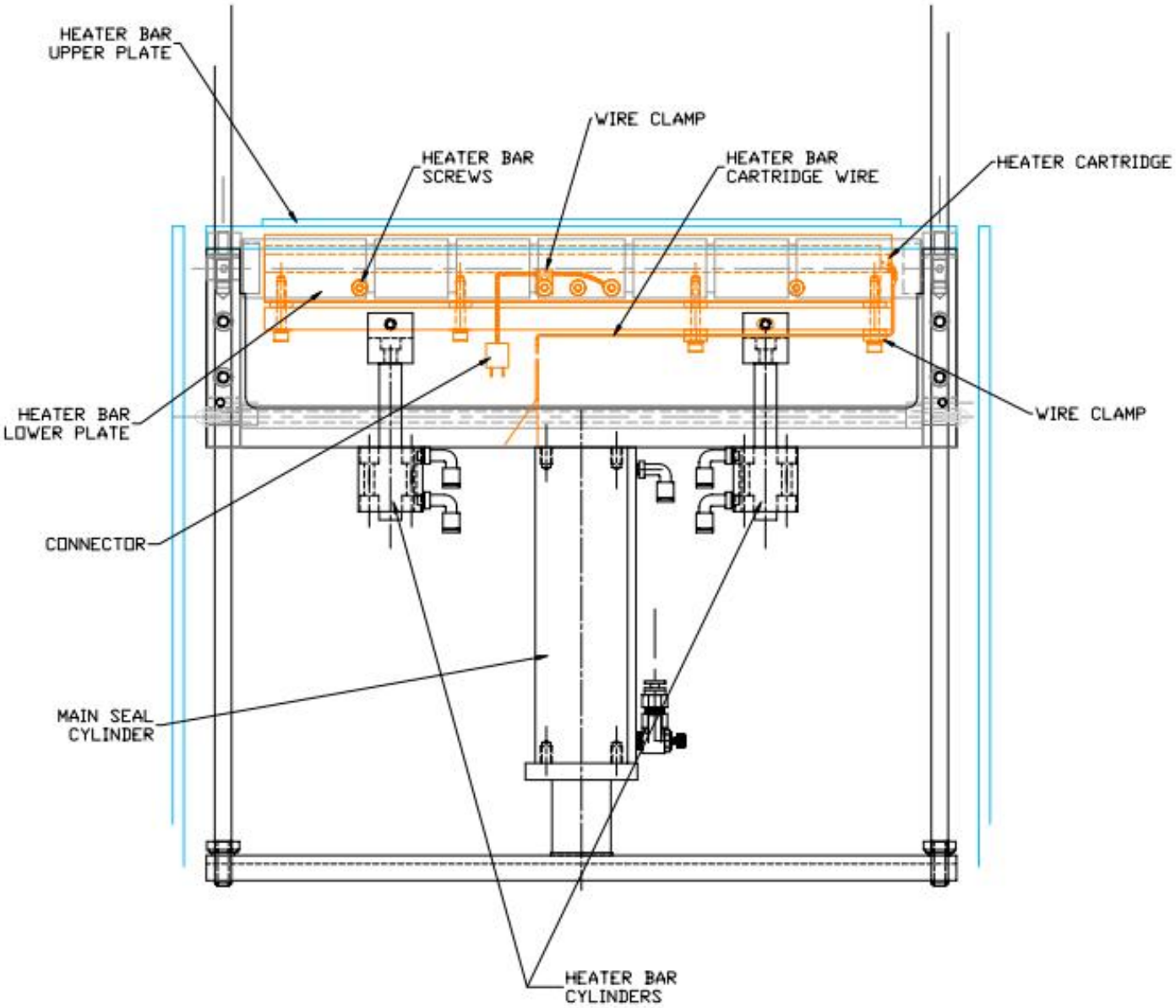
4.15 Preventative Maintenance and Scheduled Maintenance

To extend the life of the T-1000-S14, 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 that should be performed on a daily, weekly or monthly basis.

Scheduled maintenance tasks are performed when the T-1000-S14 Maintenance Chart Number changes to a higher number. Scheduled maintenance tasks (CHART items) are performed depending on the number of machine cycles and therefore are not considered "periodic" tasks.

HEATER BAR CARTRIDGE REPLACEMENT

Figure 4-8



VIEW FROM UNDERNEATH THE INNER FRAME

4.16 Preventative Maintenance Checklist

CHART

ITEM	DESCRIPTION	PERIOD
Filter / Air regulator	Drain water from filter	D
Air regulator	Adjust pressure to 60 PSI	D
Anti-jam device	Check operation, adjust as needed (section 4.12)	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

CAUTION: **Unplug power cord and disconnect air line prior to removing guards, funnels or covers. Preventative maintenance must be performed by qualified maintenance personnel.**

Legend for Preventative Maintenance Checklist:

D	Daily
W	Weekly
M	Monthly

4.17 Scheduled Maintenance Chart

		CHART									
ITEM	DESCRIPTION	1	2	3	4	5	6	7	8	9	10
Drive belt (right panel)	Adjust/Inspect for wear replace when necessary	O	O	O	O	O	O	O	O	O	O
Heater element and 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 and 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	O
Lower aluminum roller	Clean with 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 and 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*)

4.18 Preventative Maintenance Chart

(Options / Auxiliary Equiptment)

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

NOTE: Each chart change represents 1MM cycles

4.19 Spare Parts Kits

This section provides two lists of common wear items that may require occasional replacement.

Level One Spare Parts Kit

PN: TO-T1-SP10-S14

ITEM	ITEM NO.	DESCRIPTION	QTY
1	TA-T100124-1	HIGH VOLTAGE SENSOR	1
2	TP-215200	SWITCH, MAGNETIC (THREADED BOLT AND NUT)	1
3	TP-T1MA00115	BRAKE TENSION STRAP (DANCER)	1
4	TP-108155	COMPRESSION SPRING, PRESSURE BAR	2
5	TP-111010	COLLARS, SPRING CLOSURE (WEB GUIDE)	2
6	TP-207344	FUSE, 12 AMP, TIME DELAY	2
7	TP-217116	CARTRIDGE, HEATER 800W / 120V	1
8	TP-221416	THERMAL-COUPLE WIRE WITH CONNECTOR	1
9	TP-300500	PTFE SHEET (T-1000-S14)	1
10	TP-306002	SEAL RUBBER STRIP, T-1000-S14-W14	1
11	TP-404266	POLY TUBING, ¼" DIA. (33M ROLL)	10 FT
12	TP-404267	POLY TUBING, 3/8" OD DIA. BLUE (20M/RI)	5 FT
13	TP-406181	FILTER, 4 MICRON (AIR KNIFE)	1
14	TP-503185	BELT, T-1000-S14	1
15	TP-101131	NUT, ACORN BRASS NICKEL PLATED (¼ – 20)	2
16	D2-5205	¼" TAPE	1 ROLL

Level Two Spare Parts Kit

PN: TO-T1-SP20-S14

ITEM	ITEM NO.	DESCRIPTION	QTY
1	TP-101131	NUT ACORN BRASS NICKEL PLATED ¼ - 20	2
2	TP-108155	COMPRESSION SPRINGS PRESSURE BAR	2
3	TP-108156	EXTENSION SPRING, PTFE ASSEMBLY	2
4	TP-207344	FUSE 12 AMPS	2
5	TP-215200	SWITCH MAGNETIC	1
6	TP-217116	CARTRIDGE HEATER 800W 120V	1
7	TP-221416	THERMAL-COUPLE WIRE WITH CONNECTOR	1
8	TP-300500	PTFE SHEET	1
9	TP-306002	SEAL RUBBER STRIP	1
10	TP-404266	1/4" POLY TUBE	1
11	TP-404267	3/8" POLY TUBE	1
12	TP-406181	FILTER, 4 MICRO (AIR KNIFE)	1
13	TP-503185	MOTOR BELT	1
14	TP-T1MA00115	BRAKE TENSION STRAP (DANCER)	1
15	TP-107160	BUSHINGS 3/8" PTFE COATED	4
16	TP-T1MB00033	SEAL RODS	2
17	TP-T1ME00209	SEAL BAR COILED CABLE HARNESS	1
18	TA-T100124-1	HIGH VOLTAGE SENSOR	1
19	TP-T1MC00017	VULCANIZED RUBBER ROLLER	1
20	TP-501170	MOTOR, VEXTA STEPPER	1
21	TP-T1ME00301	PCB HIGH VOLTAGE BOARD FINISHED	1
22	TP-211386	TRANSFORMER, DUAL VOLTAGE	1
23	TP-214111	BATTERY FOR FP SIGMA PLC	1
24	TP-215000	RELAY SOLID STATE 10A G-SERIES	1
25	TP-219455-1	AUX. RELAY UPGRADE (COMPLETE)	1
26	TP-501169-1	5-PHASE MOTOR DRIVER 110 V	1
27	TP-213358	POWER SUPPLY, 25W	1
28	TP-403244	CYLINDER SEAL NCQ2A4OUIA950549	1
29	TP-T1MB00111	RUBBER STRIP HOLDER	1
30	TP-403245	CYLINDER, HEATER BAR	1
31	TP-T1MB00008	HEATER BAR MOUNTING PLATE	1
32	TP-T1MB00010	TIE BAR, T-1000-S14 SEAL BAR	1
33	TP-T1MB00026	GRIPPER PLATE SPACER	2

4.20 Troubleshooting Guide

The items included in this section cover the common causes of trouble that an operator might encounter during the operation of the T-1000-S14. When operating difficulties occur, the best procedure is to observe what is happening, identify 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 problem(s), 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 (i.e. with conveyors, scales, feeders, counters, etc.), always isolate the equipment and operate each machine individually.

4.21 Troubleshooting Checklist

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
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
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 2. Seal time too high 3. PTFE in poor condition 4. Rubber is dirty / contaminated	1. Decrease temp in Settings screen 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

4.22 PLC IO Listing

Main PLC and Expansion PLC IO (Inputs and Outputs) listing is provided to assist in troubleshooting the T-1000-S14.

Main PLC				
	Input	Description	Output	Description
	X0	Reserved for Stepper control	Y0	Stepper PulseTrain CW
	X1	Perf Sensor	Y1	Stepper PulseTrain CCW
	X2	Not Used - Available	Y2	H/V Trigger
	X3	AF10 HomeSensor	Y3	Heater control
	X4	Jam Detect Sensor	Y4	Air Blower Solenoid
	X5	CF-10 Part Counting Eye	Y5	Air Pulse Solenoid
	X6	Auxiliary In	Y6	Heater Bar Solenoid
	X7	Seal Bar In Sensor	Y7	Seal Bar Out Solenoid
	X8	Foot Switch	Y8	Seal Bar In Solenoid
	X9	Out of Bags Sensor	Y9	Blow Off Solenoid
	XA	Frame Open Sensor	YA	TIZ NBO Print Request
	XB	TI1k Printer Ready	YB	Station #5 Solenoid
	XC	TI1k Printer Error	YC	HV Armed (for 220V)
	XD	Palm Button Left	YD	LC-10 Power Relay
	XE	Palm Button Right	YE	TIZ OFL Print Request
	XF	Aux Fault	YF	Auxiliary Out
Expansion PLC				
	Input	Description	Output	Description
	X20	UF5K Flight Sensor	Y20	UF5k Run
	X21	UF5K Part Sensor	Y21	UF5k Auxiliary Out
	X22	UF5k Drive Alarm	Y22	Good Bag
	X23	UF5K Aux In	Y23	Med Flat Seal Down Solenoid
	X24	E-Stop	Y24	Med Flat Seal Out Solenoid
	X25	Light Curtain Signal	Y25	Stack Light Red
	X26	DF-20 Eye	Y26	Stack Light Amber
	X27	Spare	Y27	Stack Light Green
	X28	Dumper Home Sensor	Y28	Station #6 Solenoid
	X29	Dumper Out Sensor	Y29	Station #7 Solenoid
	X2A	MV-10 Temperature Alarm	Y2A	Station #8 Solenoid
	X2B	MV-10 Pressure Alarm	Y2B	Station #9 Solenoid
	X2C	BCVer NO Error	Y2C	Station #10 Solenoid
	X2D	BO-30 Bag Open Sensor	Y2D	Base Height UP Solenoid
	X2E	BO-30 Home Sensor	Y2E	Base Height DOWN Solenoid
	X2F	Spare	Y2F	UF5k: Conveyor Drive Alarm Reset

4.23 Electrical Drawings

Electrical drawings are provided along with descriptions to assist in troubleshooting the T-1000-S14.

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.

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.

Stepper Motor Circuit

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

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.

Aux Interface

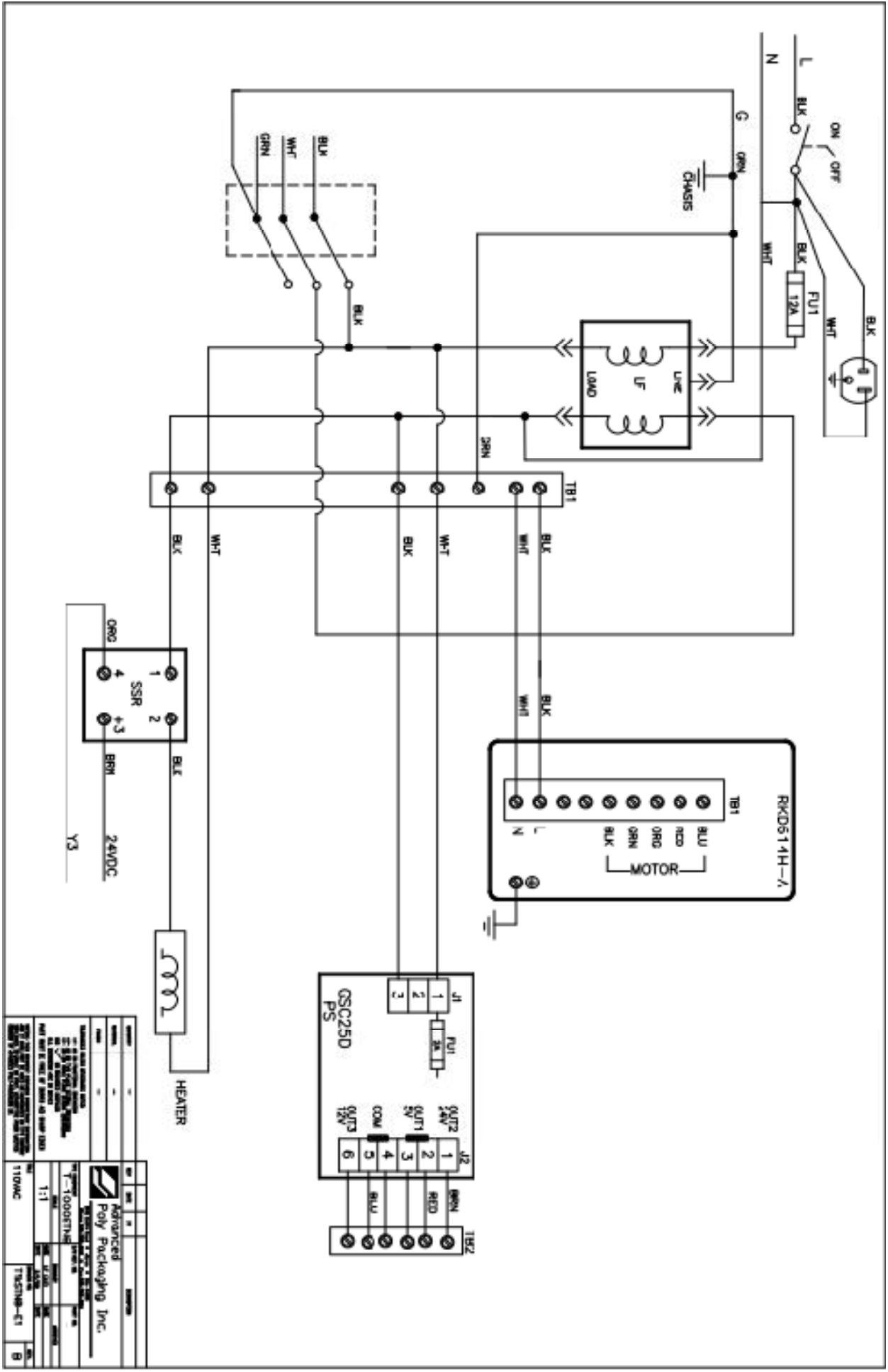
APPI provides for a closed loop signal with auxiliary infeed equipment. The circuit diagram references the pinouts on Aux 2 connector, located on the T-1000 rear electrical panel (military connector). See Dwg T1kST-E7.

Solenoid Valve Circuit Diagram

The T-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.

Pneumatic Piping Diagram

APPI offers a piping diagram to assist in troubleshooting the T-1000 bagger. Piping from Solenoid Valve Stations 5 through 11 will change based on the configuration of the T-1000 and the options ordered by the customer. See Dwgs T-1000 PNE 1 through 7.


L
N
BLK
ON
OFF
G
GRN
CHASIS
WHT
FU1
12A
LINE
LF
LOAD
TB1
ORG
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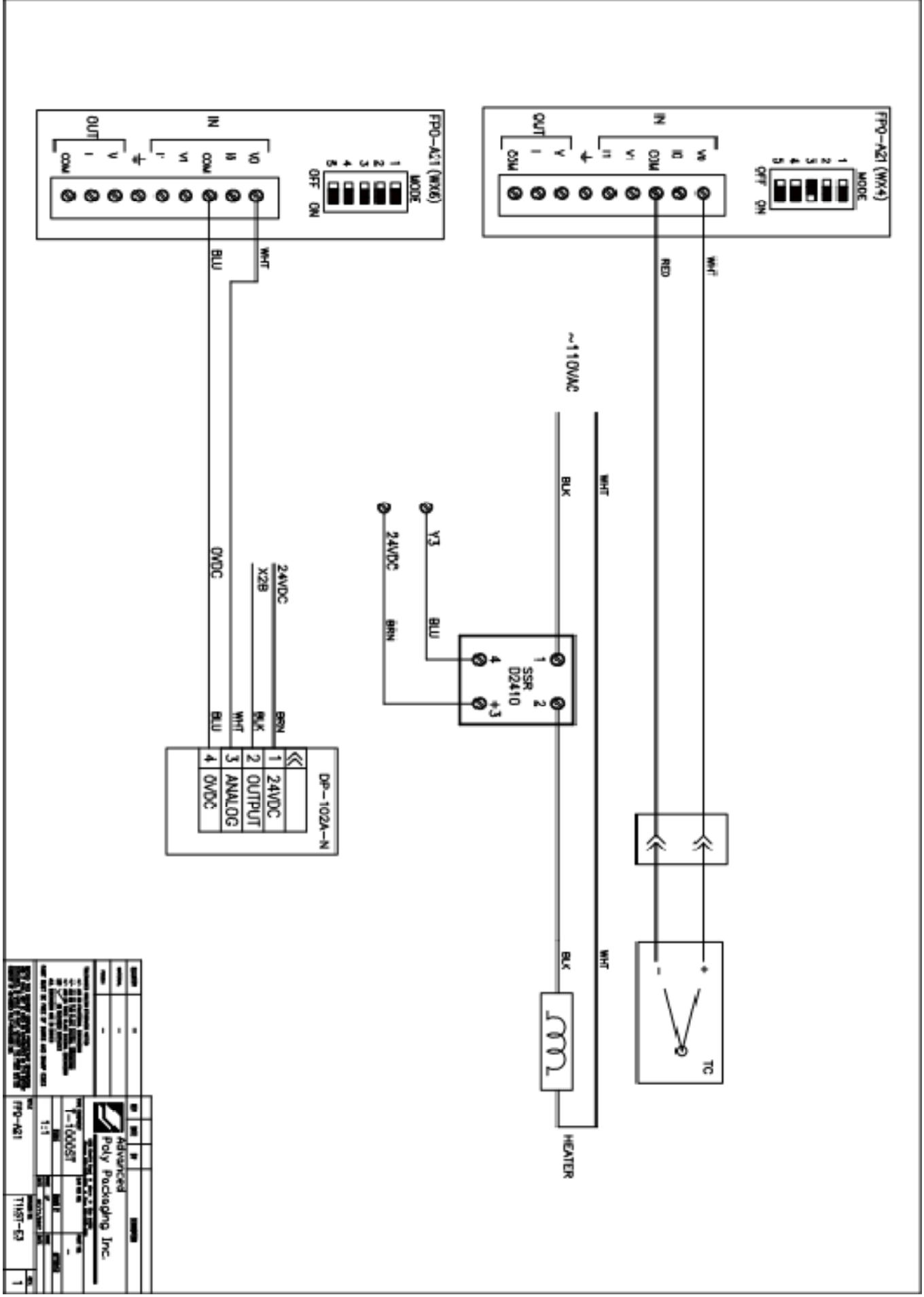
24VDC
Y3
HEATER
RKD514H-A
MOTOR
BLU
RED
BLK
QSC25D
PS
J1
J2
FU1
3A
OUT2
24V
OUT1
5V
OUT3
12V
COM
110VAC
Advanced
Poly Packaging Inc.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OUT
COM
RED
WHT
~110VAC
BLK
WHT
SSR
D2410
Y3
BLU
24VDC
BRN
+3
TC
HEATER
FPD-A11 (WX6)
MODE
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IN
COM
OUT
COM
WHT
BLU
24VDC
X2B
0VDC
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2 OUTPUT
3 ANALOG
4 0VDC
Advanced
Poly Packaging Inc.
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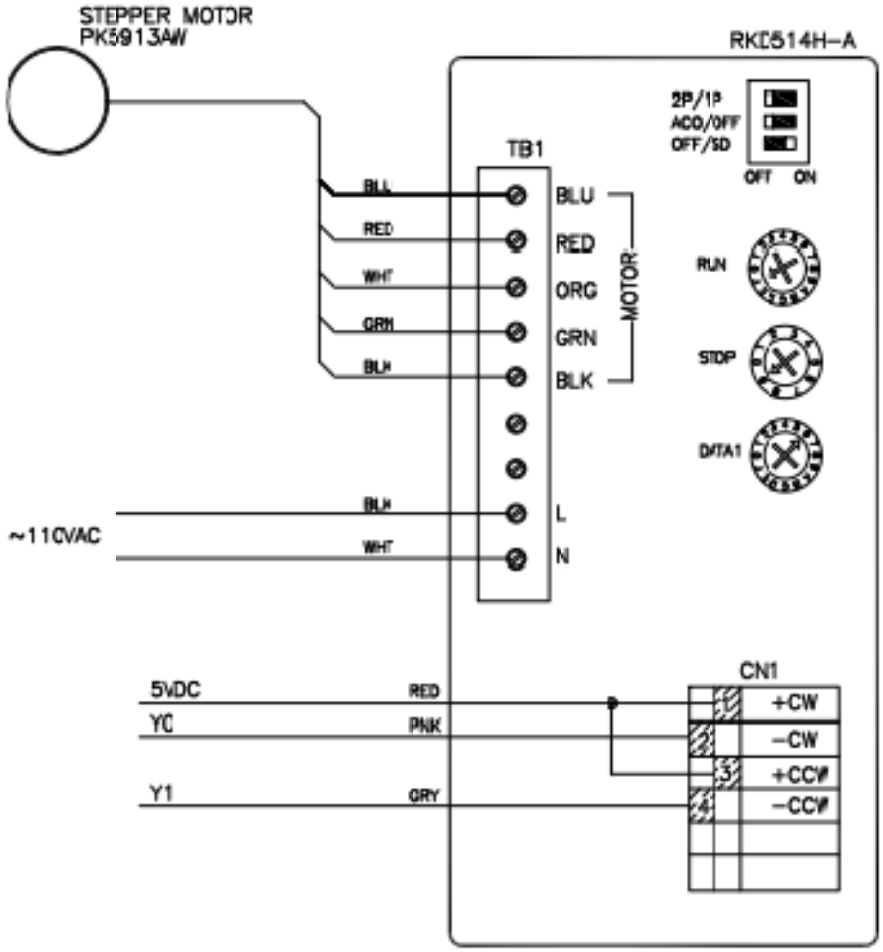
T1157-E2



NOTE:

DATA 1 DIAL SET TO POSITION 6.
PLC PROGRAM VER 301 AND HIGHER DATA 1=6.
PLC PROGRAM VER BEFORE 3.01 DATA 1=7
ALL VERSIONS RUN=F & STOP=9

		Advanced Poly Packaging Inc.	
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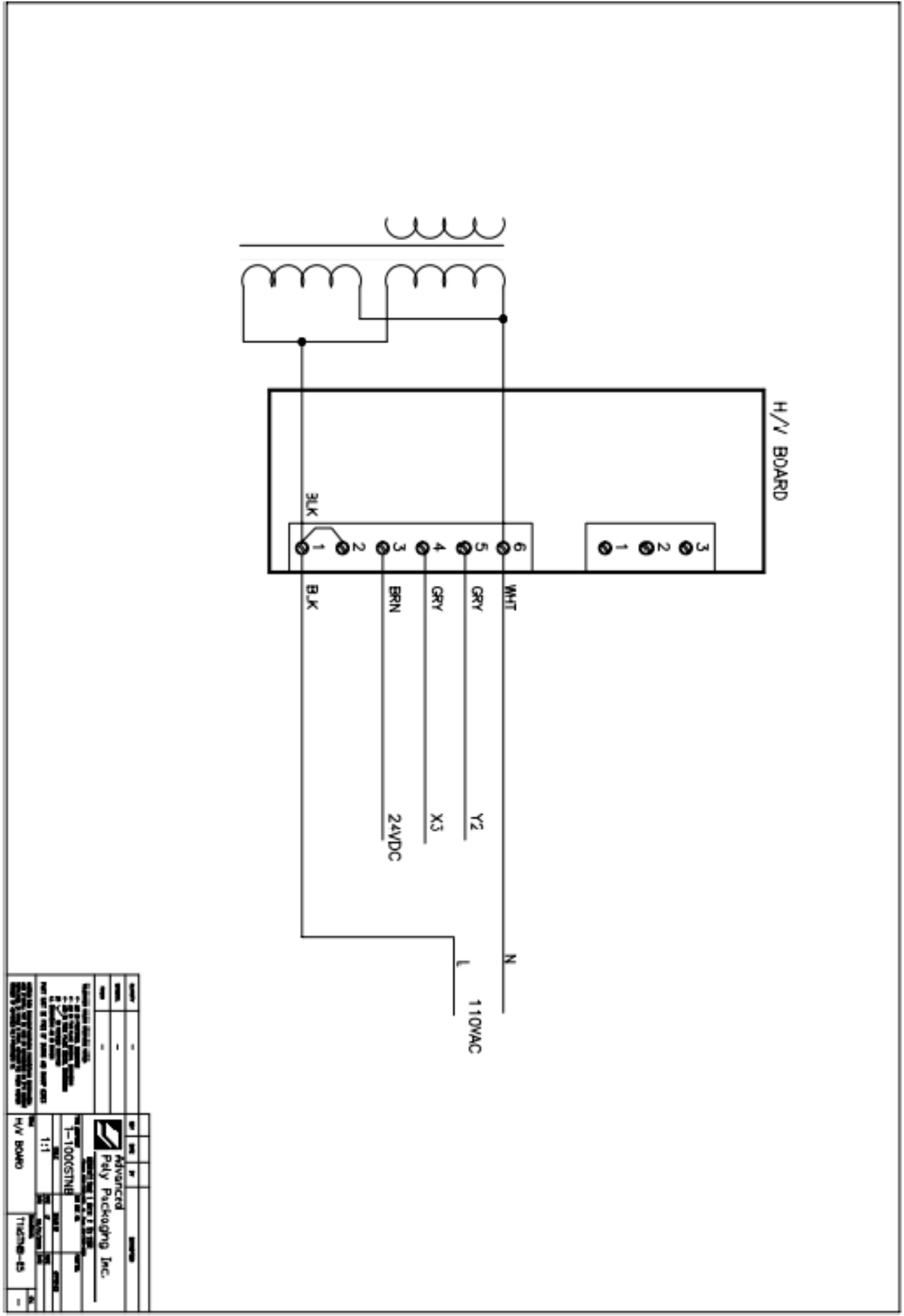
		RKD514	T1KST-E4


H/V BOARD
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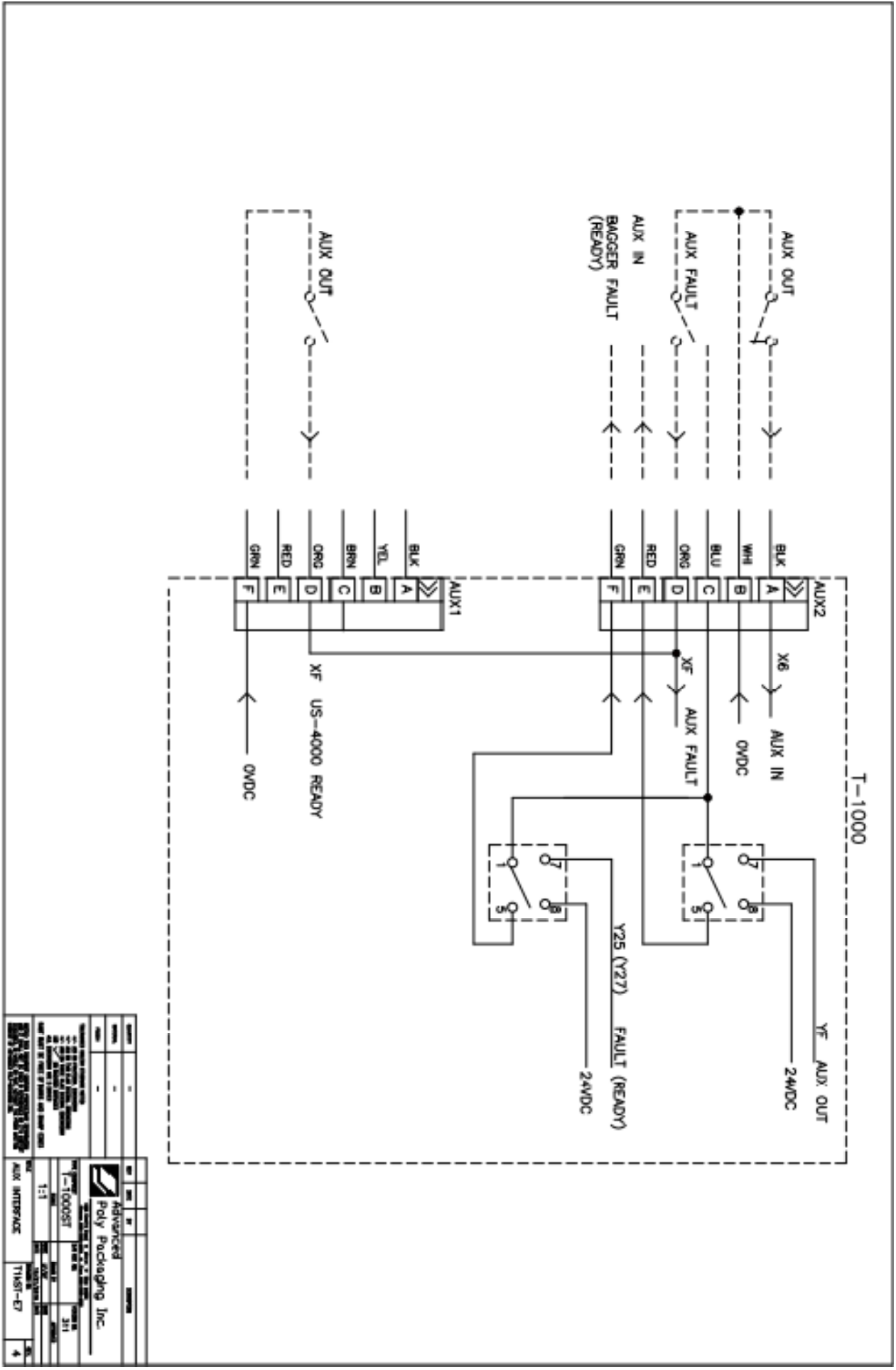
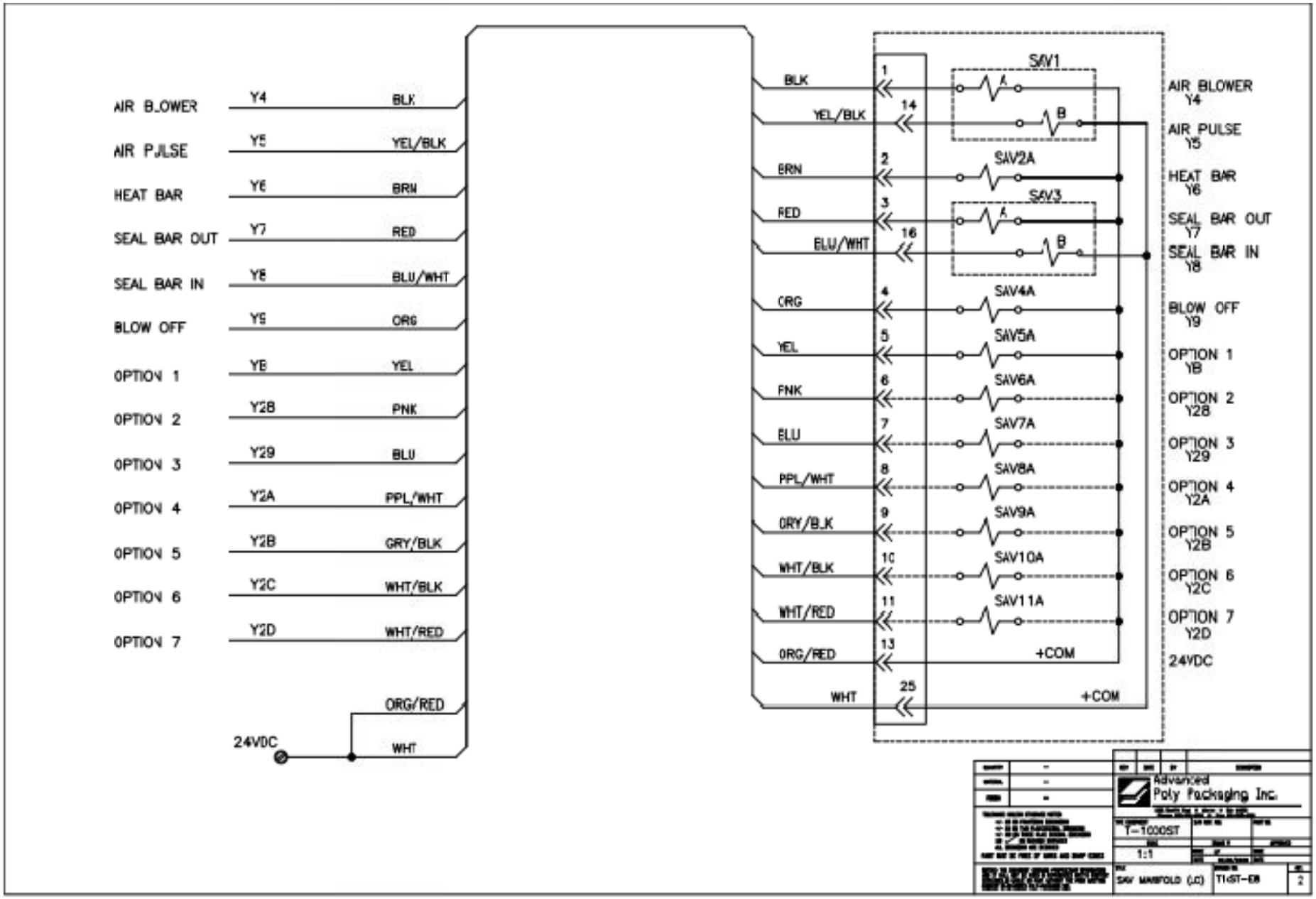
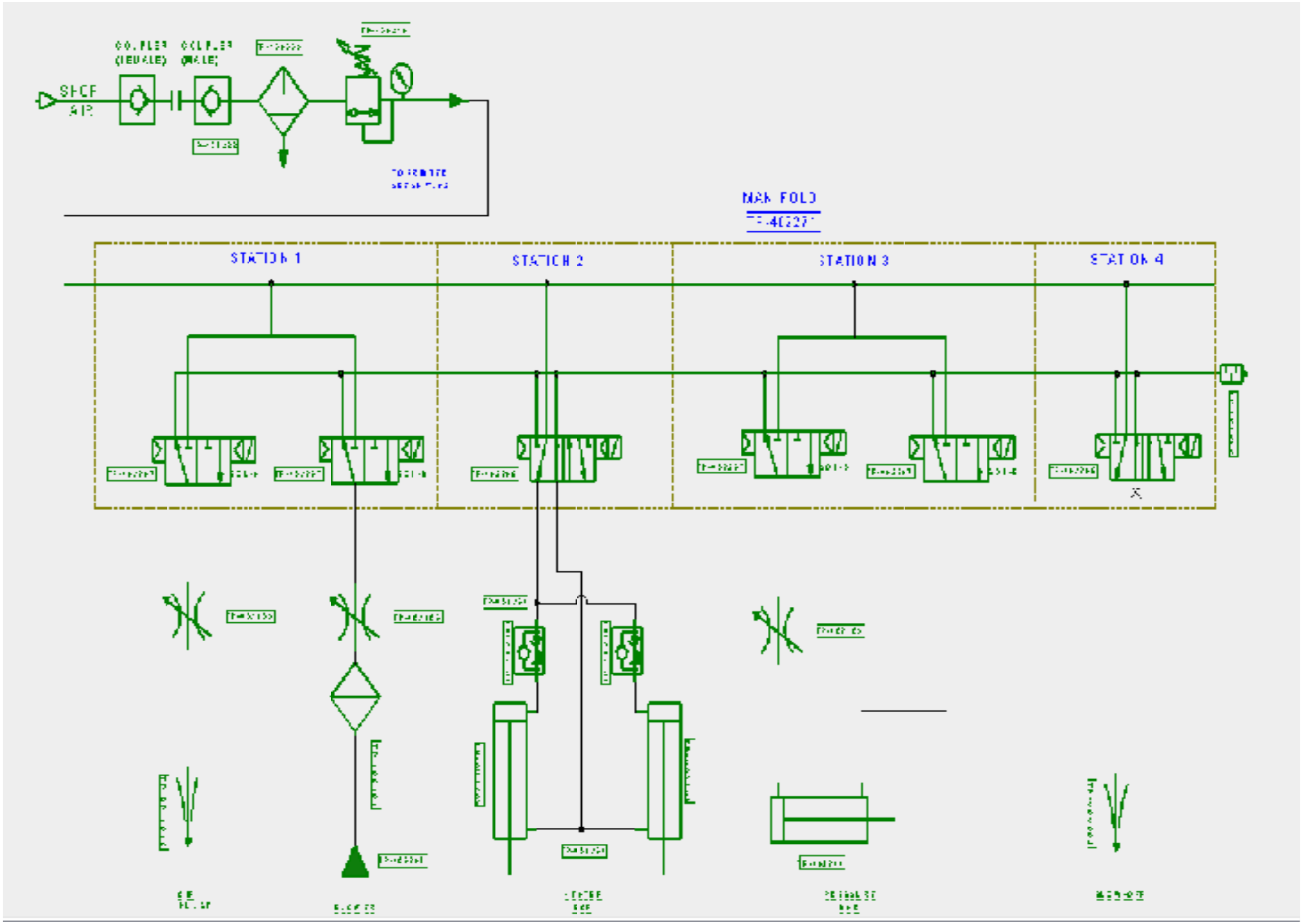
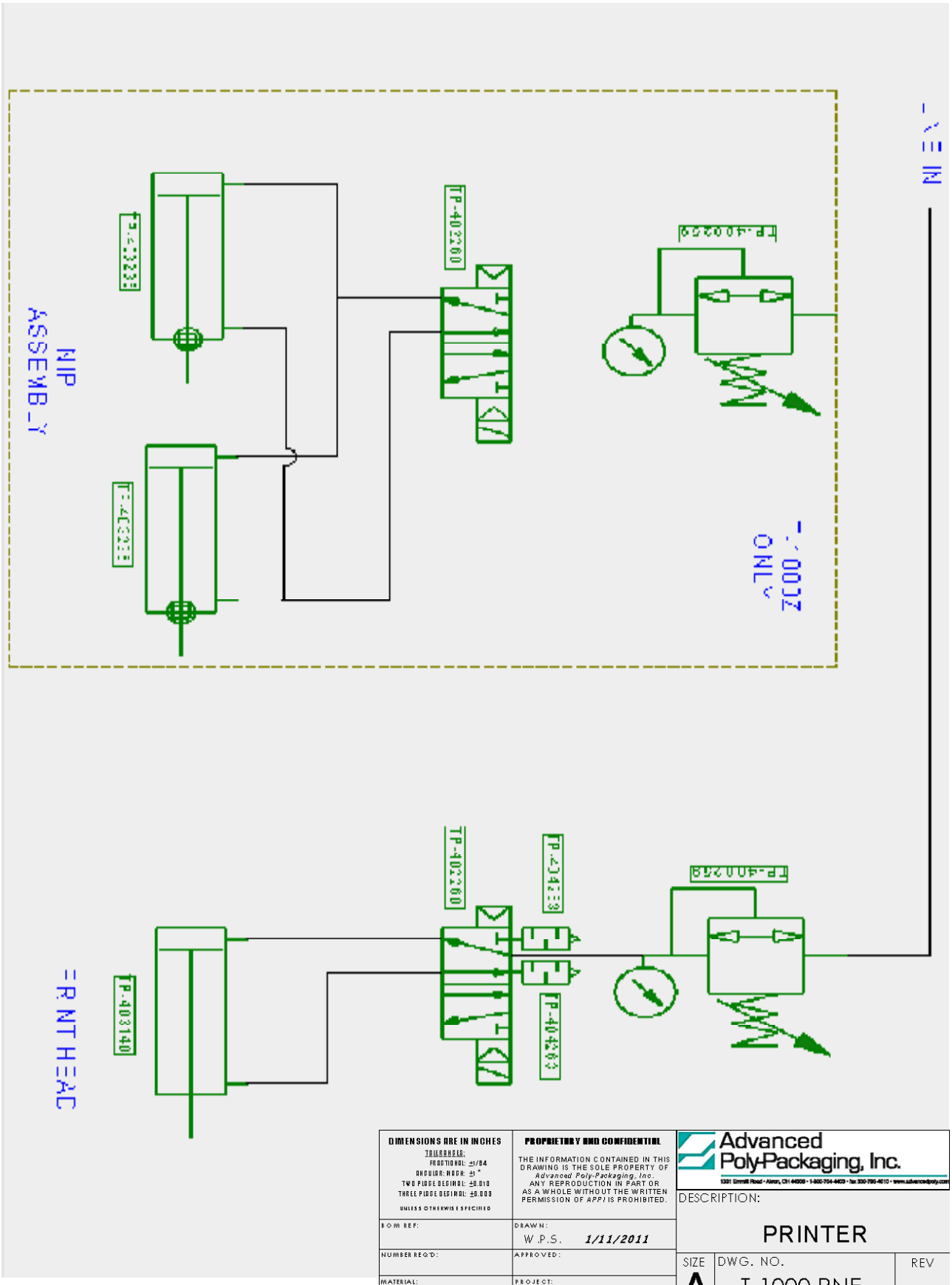
6
BLK
BRN
GRY
GRY
WHT
24VDC
X3
Y2
L
N
110VAC
Advanced Poly Packaging Inc.
H/V BOARD
1:1


T-1000
AUX OUT
AUX FAULT
AUX IN
BAGGER FAULT (READY)
AUX OUT
AUX1
AUX2
BLK
YEL
BRN
ORG
RED
GRN
WHI
BLU
X6
XF
AUX IN
AUX FAULT
0VDC
24VDC
Y25 (Y27) FAULT (READY)
XF US-4000 READY
YF AUX OUT
Advanced Poly Packaging Inc.
T-1000ST
1:1
AUX INTERFACE
T1ASI-E7

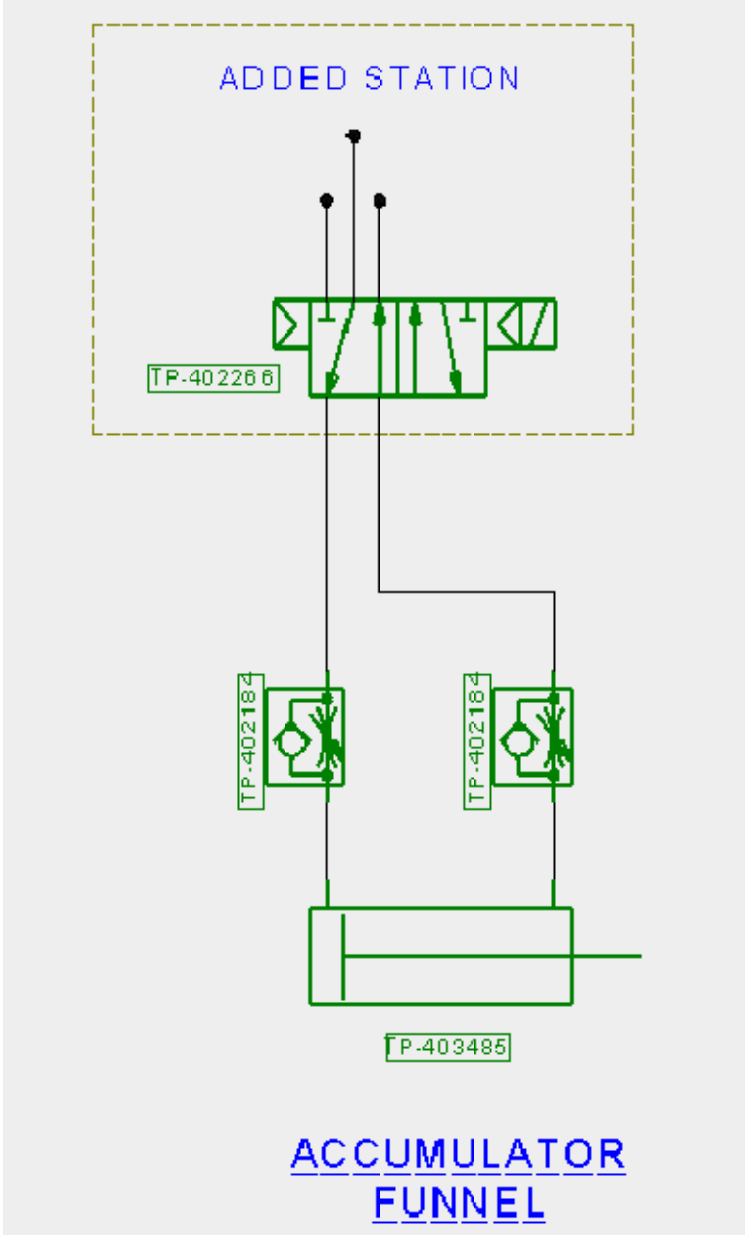

AIR BLOWER
Y4
BLK
AIR PULSE
Y5
YEL/BLK
HEAT BAR
Y6
BRN
SEAL BAR OUT
Y7
RED
SEAL BAR IN
Y8
BLU/WHT
BLOW OFF
Y9
ORG
OPTION 1
YB
YEL
OPTION 2
Y2B
PNK
OPTION 3
Y29
BLU
OPTION 4
Y2A
PPL/WHT
OPTION 5
Y2B
GRY/BLK
OPTION 6
Y2C
WHT/BLK
OPTION 7
Y2D
WHT/RED
ORG/RED
24VDC
WHT
SAV1
SAV2A
SAV3
SAV4A
SAV5A
SAV6A
SAV7A
SAV8A
SAV9A
SAV10A
SAV11A
+COM
+COM
AIR BLOWER
Y4
AIR PULSE
Y5
HEAT BAR
Y6
SEAL BAR OUT
Y7
SEAL BAR IN
Y8
BLOW OFF
Y9
OPTION 1
YB
OPTION 2
Y2B
OPTION 3
Y29
OPTION 4
Y2A
OPTION 5
Y2B
OPTION 6
Y2C
OPTION 7
Y2D
24VDC
Advanced
Poly Packaging Inc.
T-1000ST
1:1
SAV MANIFOLD (JC)
T1-ST-E8



		Advanced Poly-Packaging, Inc.
		DESCRIPTION: T-1000 BAGGER
		SIZE B · DWG. NO. T-1000 PNE · REV
		SCALE: 1:1 · WEIGHT: # · SHEET 1 OF 1

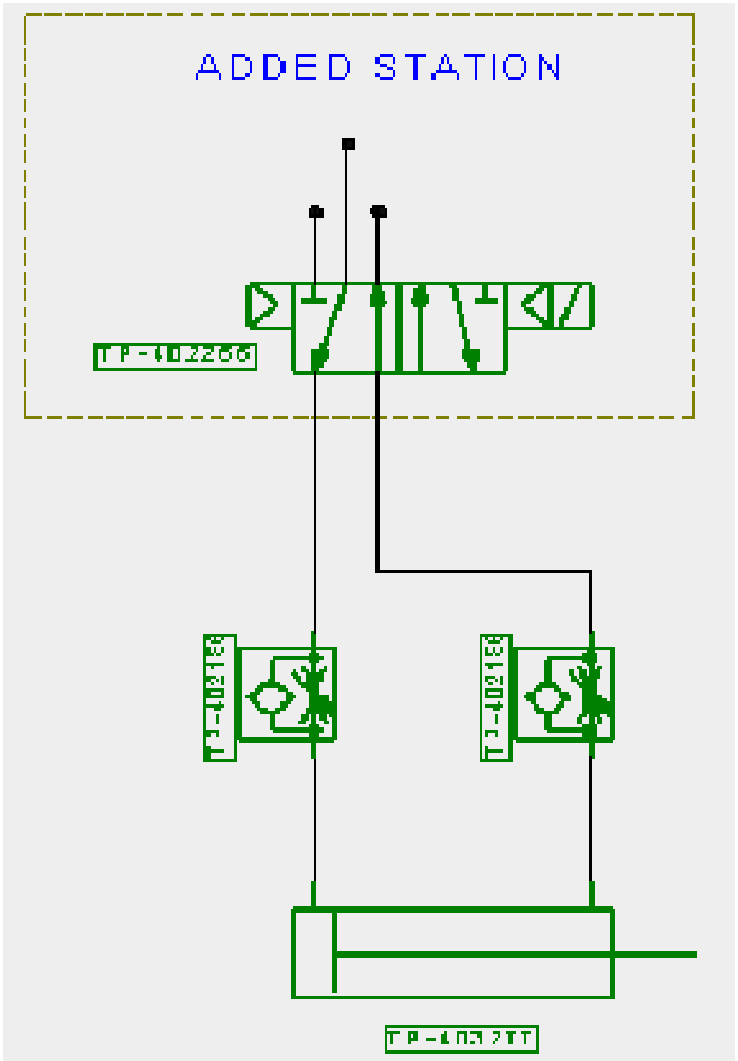


DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ±1/64 ANGULAR: MACH: ±1° TWO PLACE DECIMAL: ±0.010 THREE PLACE DECIMAL: ±0.005 UNLESS OTHERWISE SPECIFIED	PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF *Advanced Poly-Packaging, Inc.* ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF *APPI* IS PROHIBITED.	Advanced Poly-Packaging, Inc. 1391 Emmitt Road - Akron, OH 44306 - 1-800-764-4429 - fax 330-785-4010 - www.advancedpoly.com
BOM REF:	DRAWN: W.P.S. *1/11/2011*	DESCRIPTION: PRINTER
NUMBER REQ'D:	APPROVED:	SIZE A / DWG. NO. T-1000 PNE / REV
MATERIAL:	PROJECT:	
FINISH:	P/N:	SCALE: 1:1 / WEIGHT: # / SHEET 2 OF 7



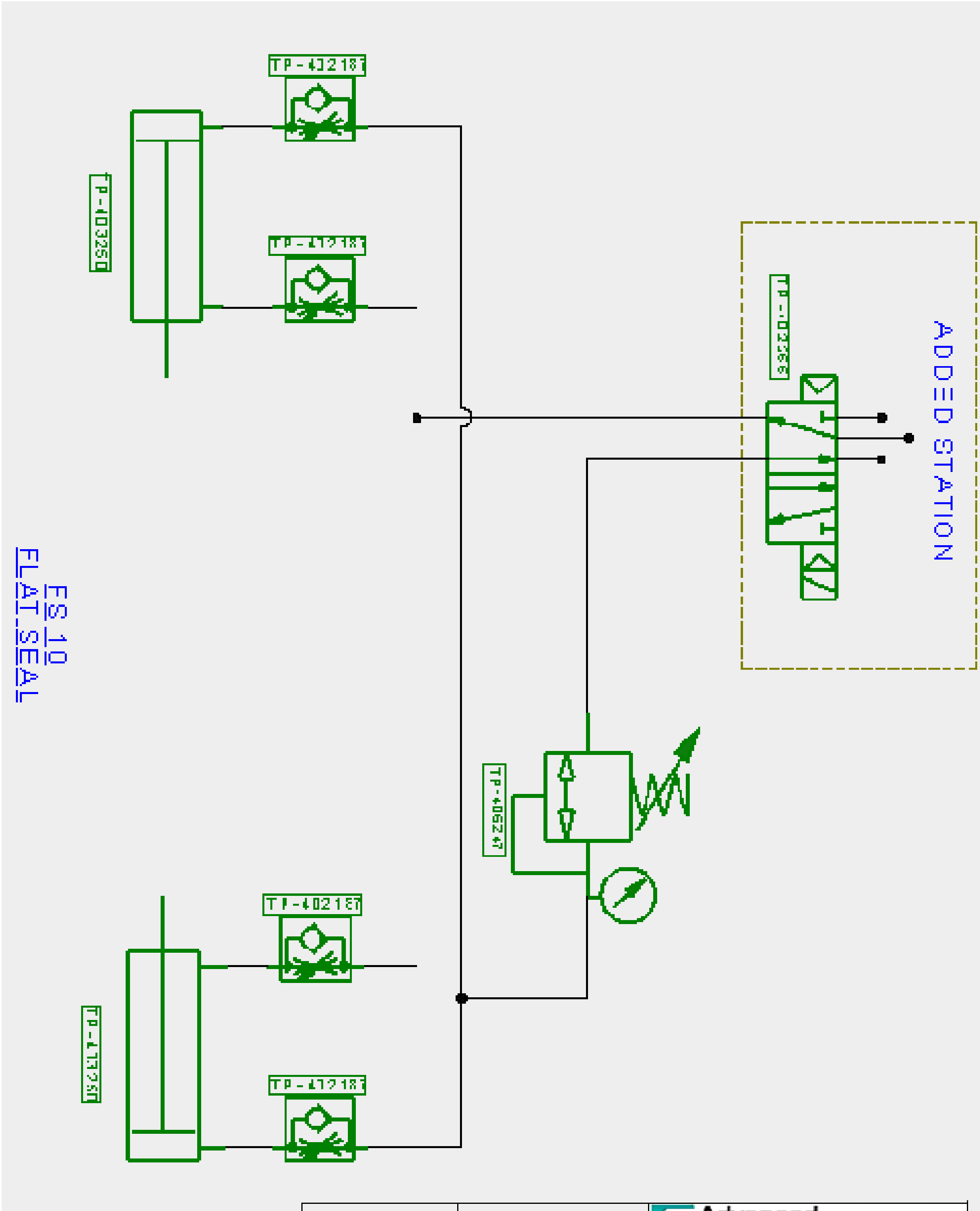
ACCUMULATOR FUNNEL

DIMENSIONS ARE IN INCHES	PROPRIETARY AND CONFIDENTIAL	Advanced Poly-Packaging, Inc.
	W.P.S. 2/22/2022	DESCRIPTION: ACCUMULATOR FUNNEL
		SIZE A · DWG. NO. T-1000 PNE · REV
		SCALE: 1:1 · WEIGHT: # · SHEET 3 OF 7

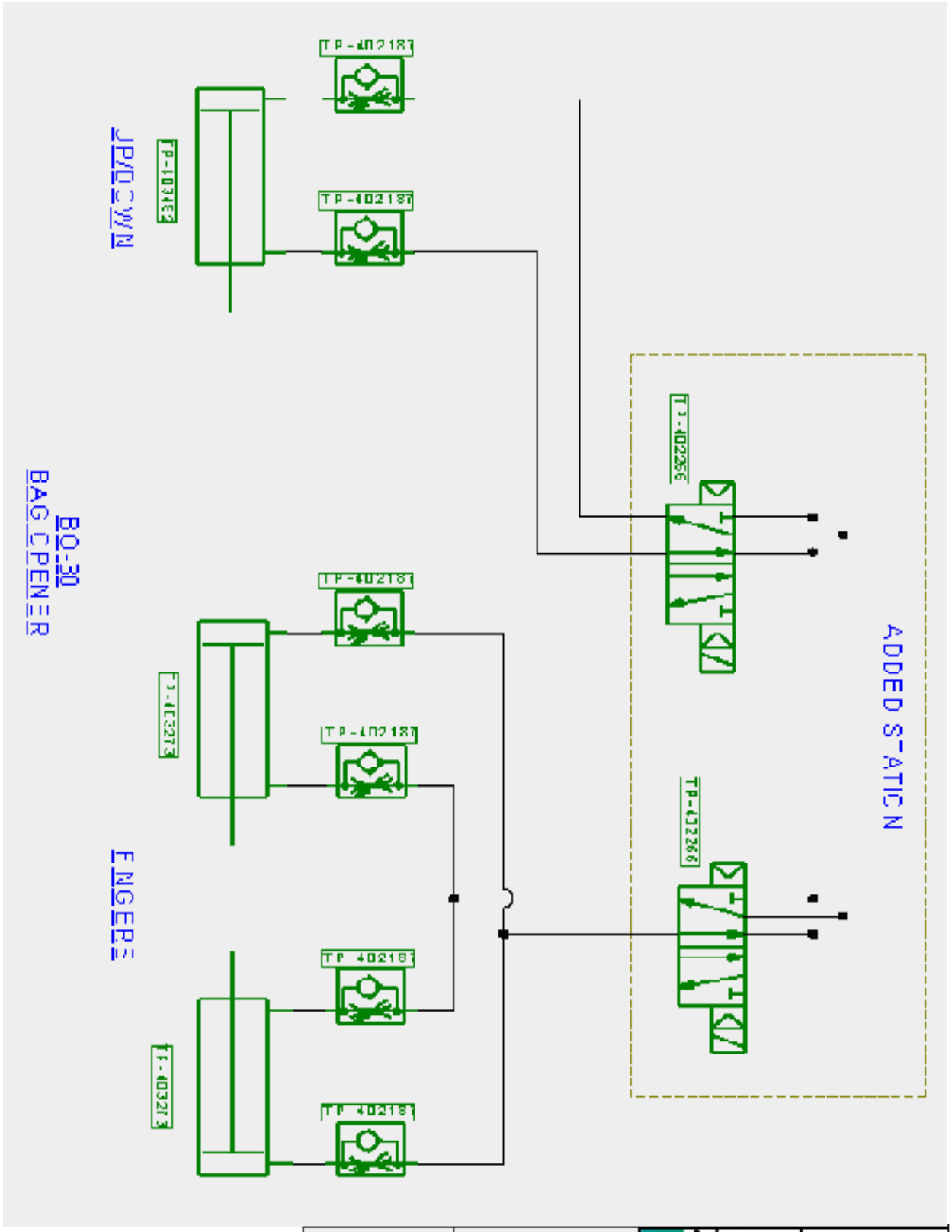


LS-1U LOAD SHELF

DIMENSIONS ARE IN INCHES	PROPRIETARY AND CONFIDENTIAL	Advanced Poly-Packaging, Inc.
	W.P.S. 2/22/2022	DESCRIPTION: LOAD SHELF
		SIZE A · DWG. NO. T-1000 PNE · REV
		SCALE: 1:1 · WEIGHT: # · SHEET 4 OF 7

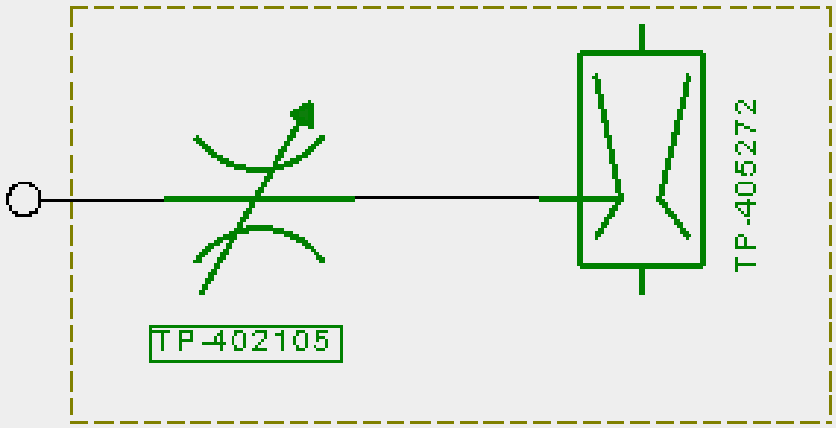


DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ±1/64 ANGULAR: MACH: ±1° TWO PLACE DECIMAL: ±0.010 THREE PLACE DECIMAL: ±0.005	PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF Advanced Poly-Packaging, Inc. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF APPI IS PROHIBITED.	Advanced Poly-Packaging, Inc. DESCRIPTION: FLAT SEAL
COMP. REF.	DRAWN W.P.S. 1/11/2011	SIZE A · DWG. NO. T-1000 PNE · REV
NUMBER REQ'D	APPROVED	
MATERIAL	PROJECT	
FINISH	P/N	SCALE: 1:1 · WEIGHT: # · SHEET 5 OF 7



DIMENSIONS ARE IN INCHES	PROPRIETARY AND CONFIDENTIAL	Advanced Poly-Packaging, Inc.
	DRAWN W.P.S. 1/11/2011	DESCRIPTION: BAG OPENER
	APPROVED	SIZE A / DWG. NO. T-1000 PNE / REV
		SCALE: 1:1 / WEIGHT: # / SHEET 6 OF 7

NBO & TRIM SEAL ONLY



DIMENSIONS ARE IN INCHES	PROPRIETARY AND CONFIDENTIAL	Advanced Poly-Packaging, Inc.
	DRAWN JDF 3/1/2012	DESCRIPTION: HEAT EVACUATOR
	APPROVED	SIZE A / DWG. NO. T-1000 PNE / REV
		SCALE: 1:1 / WEIGHT: # / SHEET 7 OF 7

4.24 Troubleshooting Notes / Technical Support Information

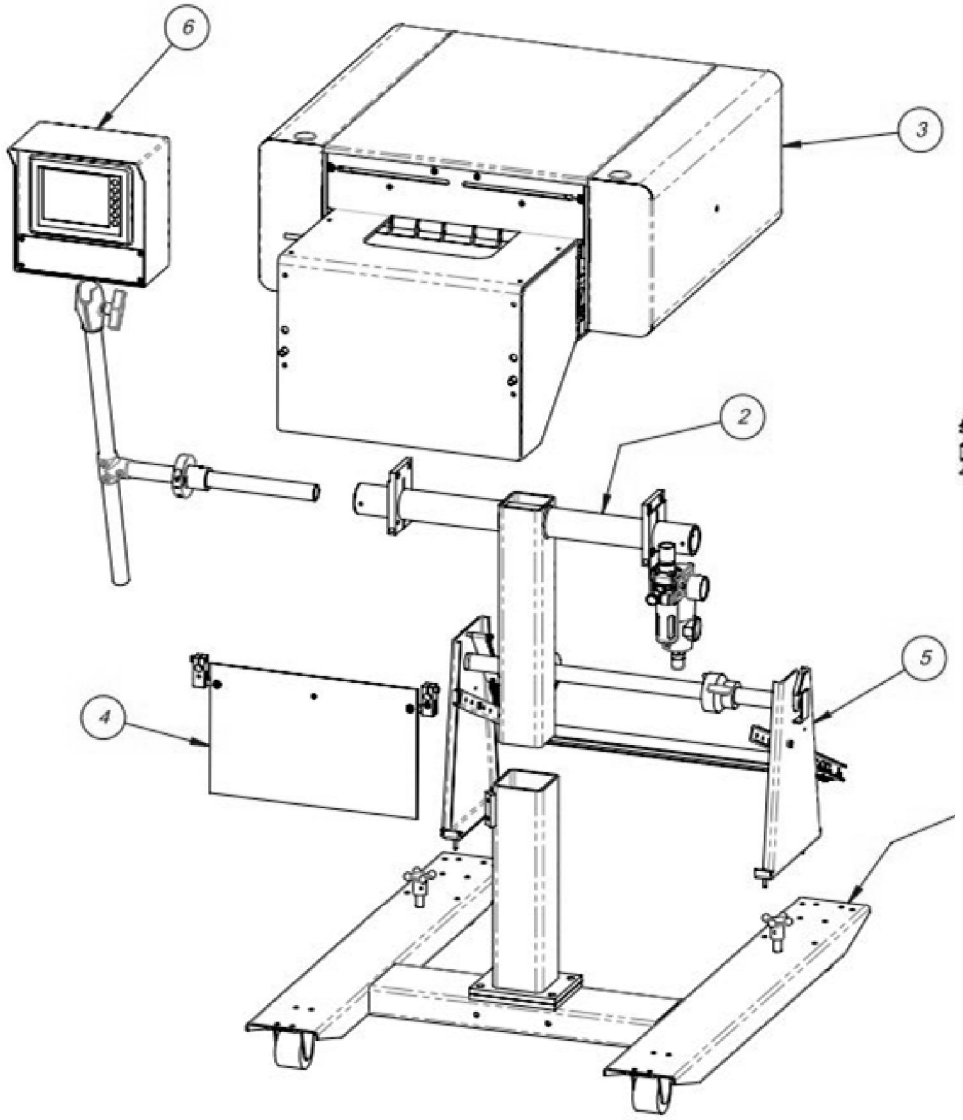
Date	Notes

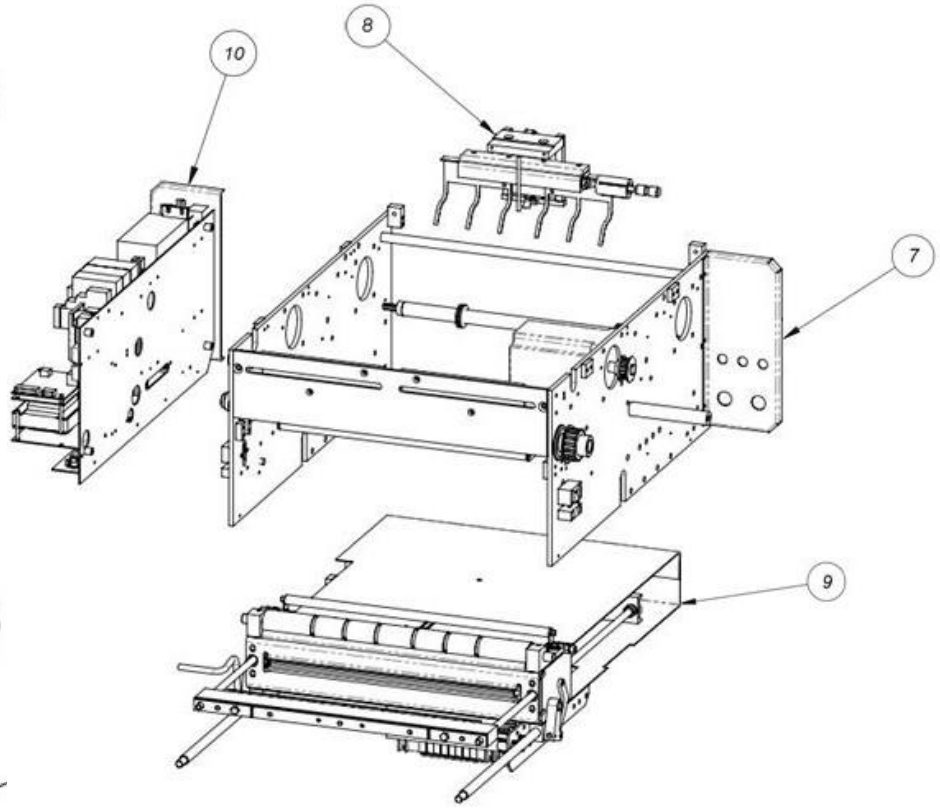
Chapter 5: Parts and Drawings

5.1 T-1000-S14 Advanced Poly-Bagger

T-T1000-S14

ITEM NO.	QTY.	PART NO.	DESCRIPTION	SECTION NO.	PAGE NO.
1	1	TA-T10200	BASE ASSEMBLY	5.1	74
2	1	TA-T10210	UPPER COLUMN ASSEMBLY	5.2	75
3	1	TA-T1-S14NOPRINT	COVERS AND GUARDING	5.3	76
4	1	TA-T10018	FLAT LOAD SHELF ASSEMBLY	5.4	77
5	1	TA-T10220	DANCER ASSEMBLY	5.5	78
6	1	TA-T10240	TOUCH SCREEN ASSEMBLY	5.6	79
7	1	TA-T10250-S14	MAIN FRAME ASSEMBLY	5.7	81
8	1	TA-T10001-S14	AIR KNIFE ASSEMBLY	5.8	84
9	1	TA-T10280-S14	SEALER FRAME ASSEMBLY	5.9	85
10	1	TA-T1270-S14	ELECTRICAL PANEL	5.10	94



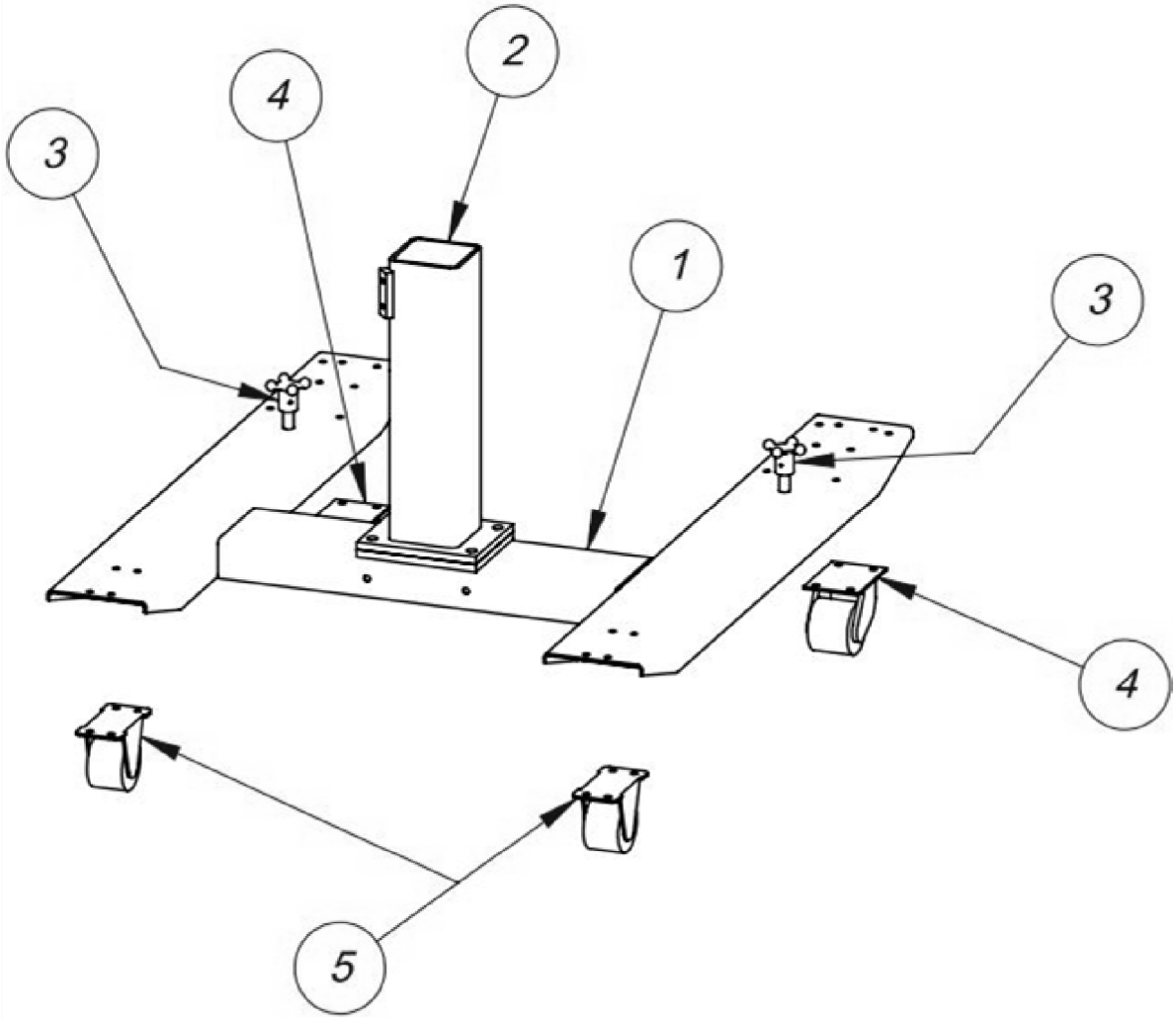


VIEW FROM INSIDE BAGGER

5.2 Base Assembly

PN: TA-T10200

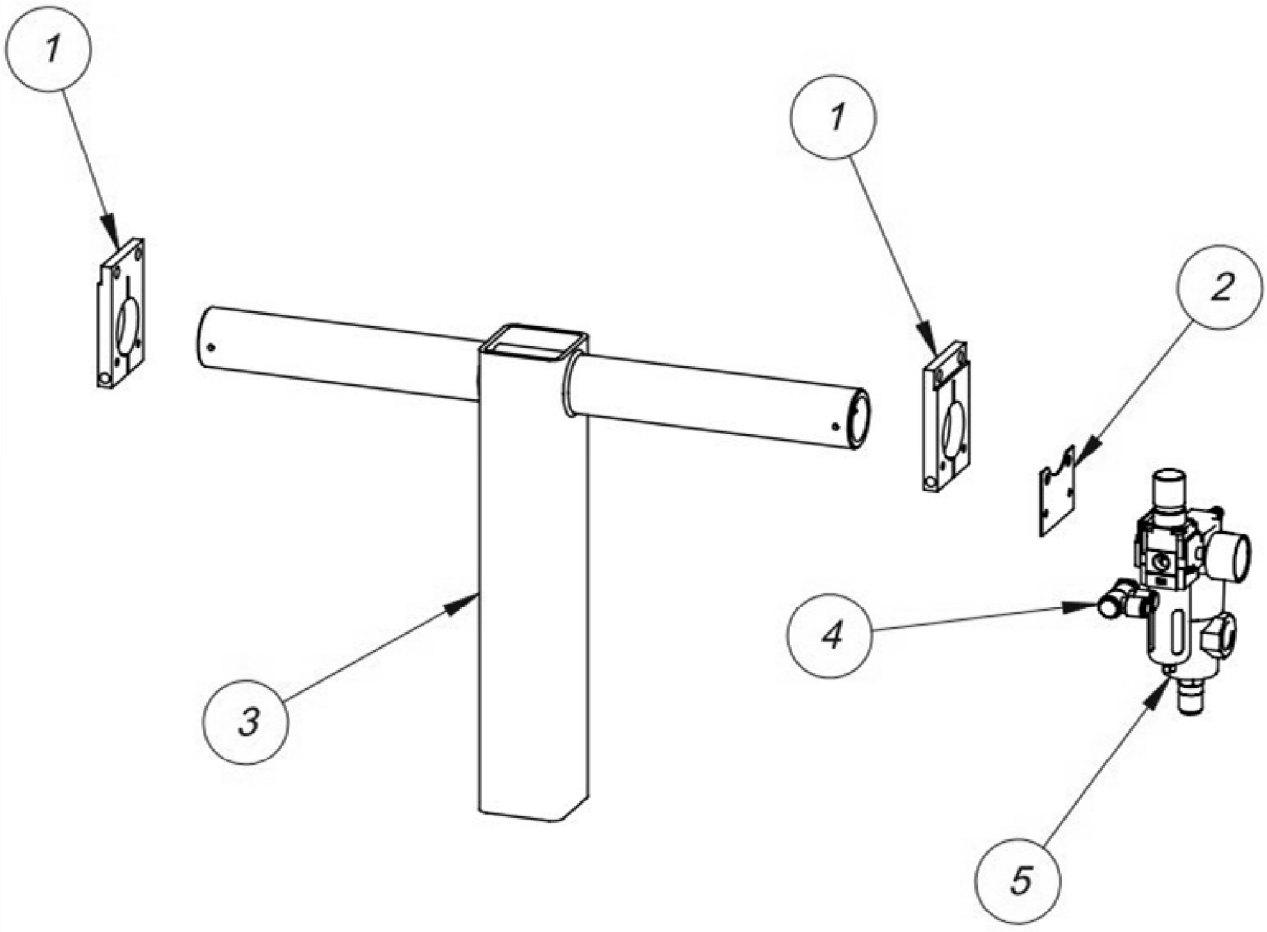
ITEM NO.	QTY	PART NO.	DESCRIPTION
1	1	TP-T1MA00051	LOWER BASE WELDMENT
2	1	TP-T1MA00051-1	LOWER COLUMN
3	2	TP-T1MA00102	FLOOR LEVELER
4	2	TP-110756	CASTER, SWIVEL
5	2	TP-110763	CASTER, RIGID



5.3 Upper Column Assembly

PN: TA-T10210

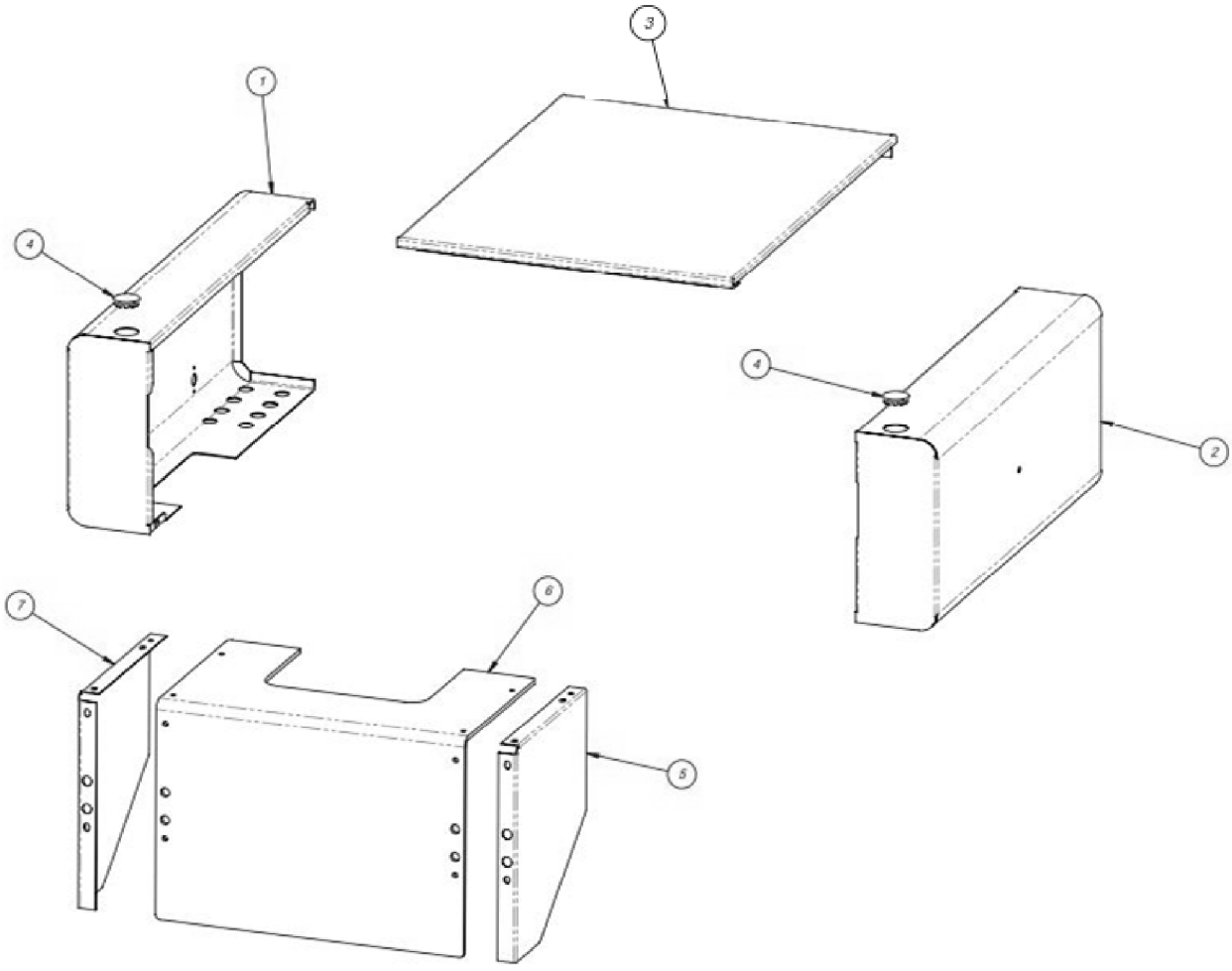
ITEM NO.	QTY	PART NO.	DESCRIPTION
1	1	TP-T1MC00019-1	BASE CLAMP (LH)
2	1	TP-T1MC00019-2	BASE CLAMP (RH)
3	1	TP-T1MC00019-3	MOUNTING BRACKET
4	1	TP-T1MA00087	CROSS PIPE
5	1	TP-401267	ELBOW, DOUBLE UNIVERSAL
6	1	TP-406260-1	FILTER/DRYER/REGULATOR ASSEMBLY



5.4 Covers and Guarding

PN: TA-T1-S14NOPRINT

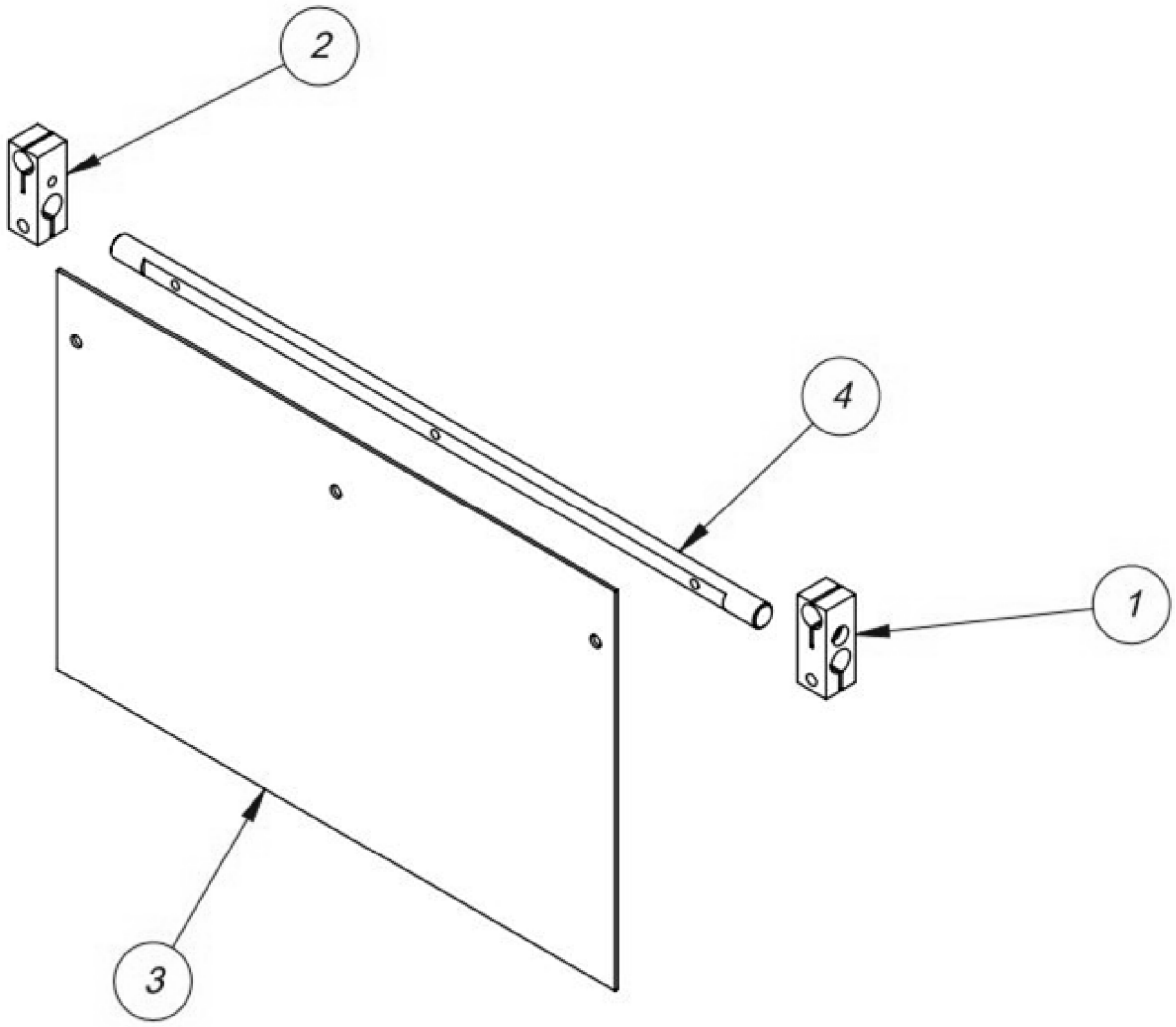
ITEM NO.	QTY	PART NO.	DESCRIPTION
1	1	TP-T1MD00004S14	ELECTRONICS COVER
2	1	TP-T1MD00005S14	RIGHT SIDE COVER
3	1	TP-T1MD00044	TOP COVER
4	2	TP-111241	SNAP BUTTON PLUG
5	1	TP-T1MO00226-4	LEXAN GUARD BRACKET (RIGHT)
6	1	TP-T1MD00116-2	LEXAN GUARD 5.25" PASS THROUGH
7	1	TP-T1MO00226-3	LEXAN GUARD BRACKET (LEFT)



5.5 Flat Load Shelf Assembly

PN: TA-T10018

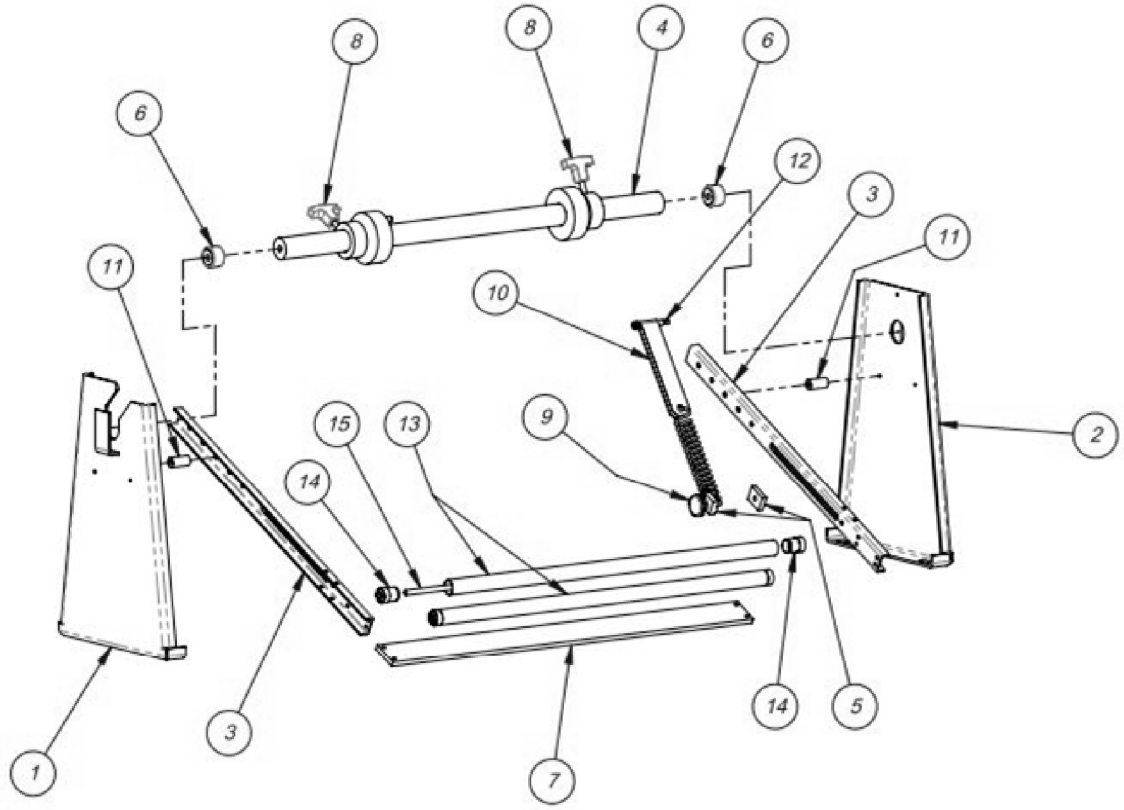
ITEM NO.	QTY	PART NO.	DESCRIPTION
1	1	TP-T1MB00074-2	LOAD SHELF BRACKET (RIGHT)
2	1	TP-T1MB00074-1	LOAD SHELF BRACKET (LEFT)
3	1	TP-T1MB00075	9" FIXED LOAD SHELF
4	1	TP-T1MB00076	LOAD SHELF ROD



5.6 Dancer Assembly

PN: TA-T10220

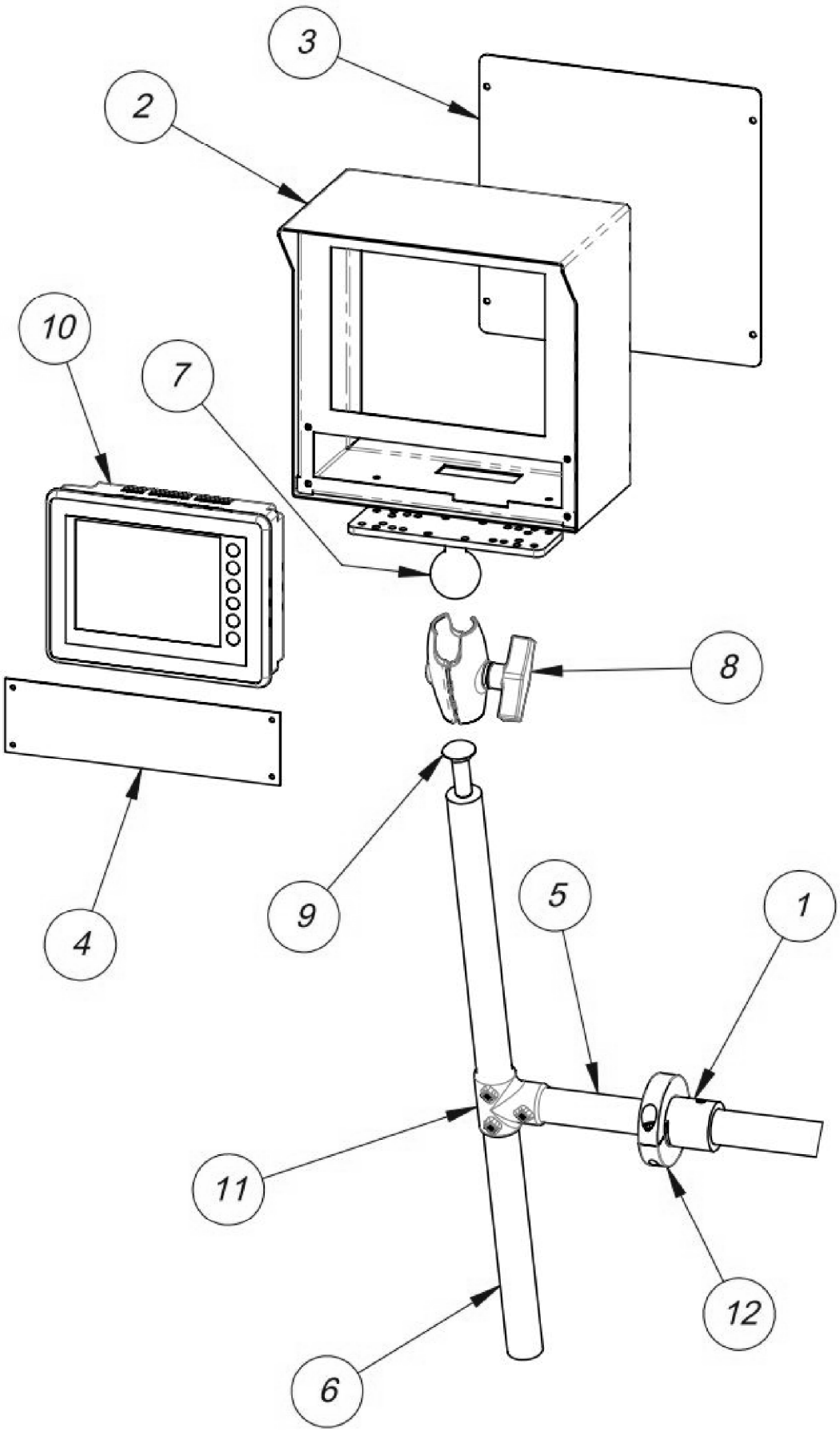
ITEM NO.	QTY	PART NO.	DESCRIPTION
1	1	TP-T1MA00069-1	DANCER SIDE PLATE
2	1	TP-T1MA00069-2	DANCER SIDE PLATE
3	2	TP-T1MA00072	DANCER TENSION BAR
4	1	TP-T1MA00073	BAG ROLL SHAFT
5	1	TP-T1MA00186	TENSION ADJUSTER
6	2	TP-504132	CAM FOLLOWER
7	1	TP-T1MA00081	DANCER TENSION BAR CROSS BRACE
8	2	TA-T10010	FILM TENSION HUB ASSEMBLY
9	1	TP-109212	KNOB
10	1	TP-T1MA00115	BELT TENSION STRAP AND SPRING
11	2	TP-104148	SPACER
12	1	TP-103583	SHOULDER BOLT
13	2	TP-T1MA00089	DANCER ROLLER
14	4	TP-504101	ROLLER BEARING
15	2	TP-T1MA00090	DANCER GUIDE ROLLER SHAFT



5.7 Touch Screen Assembly

PN: TA-T10240

ITEM NO.	QTY	PART NO.	DESCRIPTION
1	1	TP-T1MA00088	BASE CLAMP PIPE
2	1	TP-T1MD00039	CONTROL CASE
3	1	TP-T1MD00039-1	BACK COVER
4	1	TP-T1MD00039-3	IOP FRONT PLATE
5	1	TP-T1MD00094	IOP TUBE
6	1	TP-T1MD00109	MOUNTING BAR
7	1	TP-111131	BALL GRIP POSITIONING ARM
8	1	TP-111125-2	SOCKET ASSEMBLY
9	1	TP-IOPBOLT	MODIFIED BOLT
10	1	TP-220353	TOUCH SCREEN
11	1	TP-111215	JOINING TEE
12	1	TP-111104	COLLAR CLAMP


3
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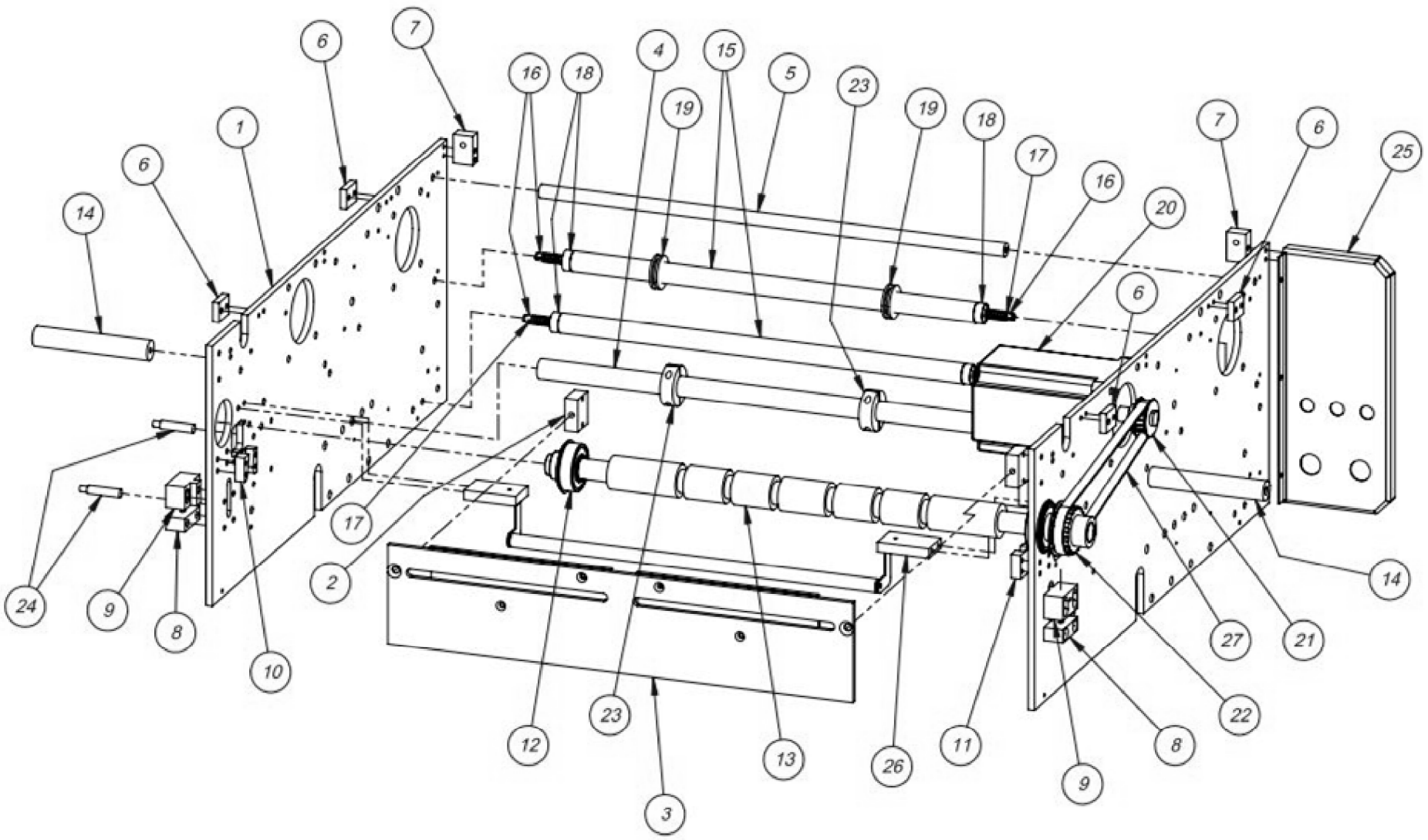
5.8 Main Frame Assembly

PN: TA-T10250-S14

ITEM NO.	QTY	PART NO.	DESCRIPTION
1	2	TP-T1MC00001S14NB	SIDE FRAME
2	2	TP-T1MC00044	FACE PLATE BLOCK
3	1	TP-T1MC00042NB	FACE PLATE
4	1	TP-T1MC00079	CYLINDER PIVOT SHAFT
5	1	TP-T1MC00056	REAR CROSS SUPPORT SHAFT
6	4	TP-T1MC00054	COVER SUPPORT CLAMP
7	2	TP-T1MC00099	REAR COVER SUPPORT
8	2	TP-T1MC00058	LATCH ADJUSTER BLOCK
9	2	TP-T1MC00059	LATCH LOCK BLOCK
10	1	TP-T1MC00163-2	GUIDE BLOCK - RH
11	1	TP-T1MC00163-1	GUIDE BLOCK - LH
12	2	TP-504113	BEARING
13	1	TP-T1MC00017	RUBBER ROLLER
14	2	TP-T1MC00082	COVER STAND-OFF
15	2	TP-T1MC00052	GUIDE ROLLER
16	4	TP-106106	SPRING PINS
17	4	TP-108099	COMPRESSION SPRING, 0.040 GAUGE, 0.359 OD
18	4	TP-504101	BEARING
19	2	TP-111010	SPRING CLOSURE COLLAR
20	1	TP-501170	S14 STEPPER MOTOR
21	1	TP-T14M1027	MOTOR PULLEY
22	1	TP-T1MC00161	DRIVEN PULLEY
23	2	TP-111142	CLAMP, COLLAR
24	2	TP-215200	MAGNETIC SWITCH, T-1000-S14 MACHINE OPEN SENSOR
25	1	TP-T1MD00010S14	PNEUMATICS BACK PANEL
26	1	TA-T10002-S14	UPPER ROLLER ASSEMBLY
27	1	TP-502104	BELT 210XL037



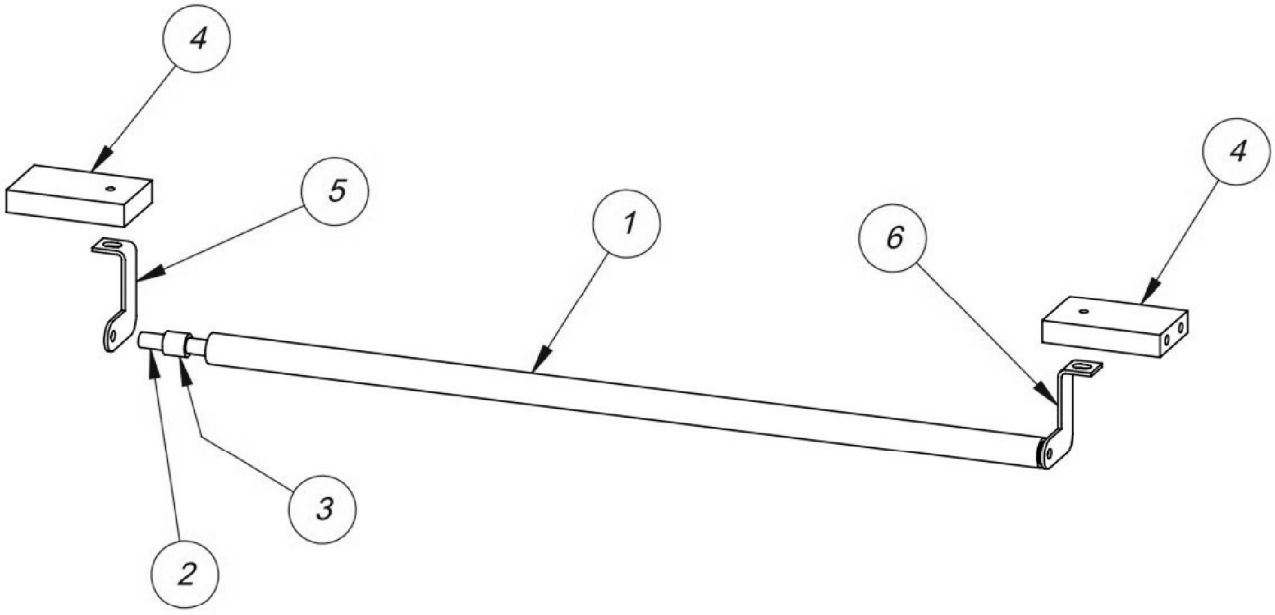
MAIN FRAME ASSEMBLY 82

TA-T10250-S14

5.8a Upper Roller Subassembly

PN: TA-T10002-S14

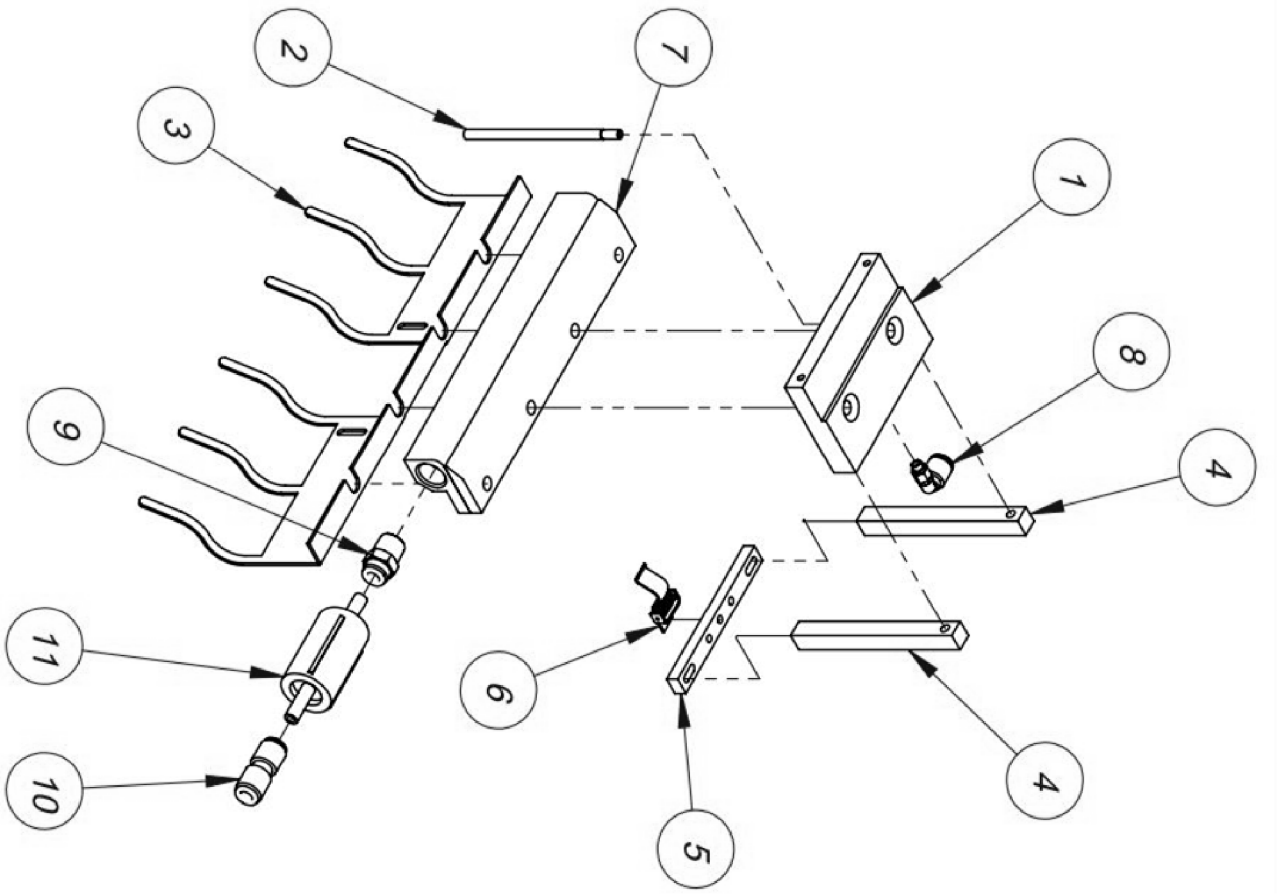
ITEM NO.	QTY	PART NO.	DESCRIPTION
1	1	TP-T1MC00119	FILM WEB ROLLER
2	1	TP-T1MC00120	FILM WEB ROLLER SHAFT
3	2	TP-107177	¼ ID, 3/8 OD, 0.375 LONG BUSHING
4	2	TP-T1MC00018S14	ROLLER MOUNT
5	1	TP-T1MC00118-1	FILM WEB ROLLER BRACKET LEFT
6	1	TP-T1MC00118-2	FILM WEB ROLLER BRACKET RIGHT



5.9 Air Knife Assembly

PN: TA-T10001-S14

ITEM NO.	QTY	PART NO.	DESCRIPTION
1	1	TP-BP-1013-S14	MOUNTING BAR
2	1	TP-BP-1015-S14	AIR NOZZLE
3	1	TP-T1MC00020NB	FINGER PLATE
4	2	TP-T1MC00125S14	SENSOR MOUNTING BAR
5	1	TP-T1MC00083	HIGH VOLTAGE SENSOR INSULATOR
6	1	TA-T100124-1	HIGH VOLTAGE SENSOR
7	1	TP-405268	AIR KNIFE
8	1	TP-401277	ELBOW, ¼ TUBE
9	1	TP-401292	STRAIGHT, ¼ POLY x ¼ NPT
10	1	TP-401262	UNION, STRAIGHT ¼ TUBE
11	1	TP-406181	FILTER

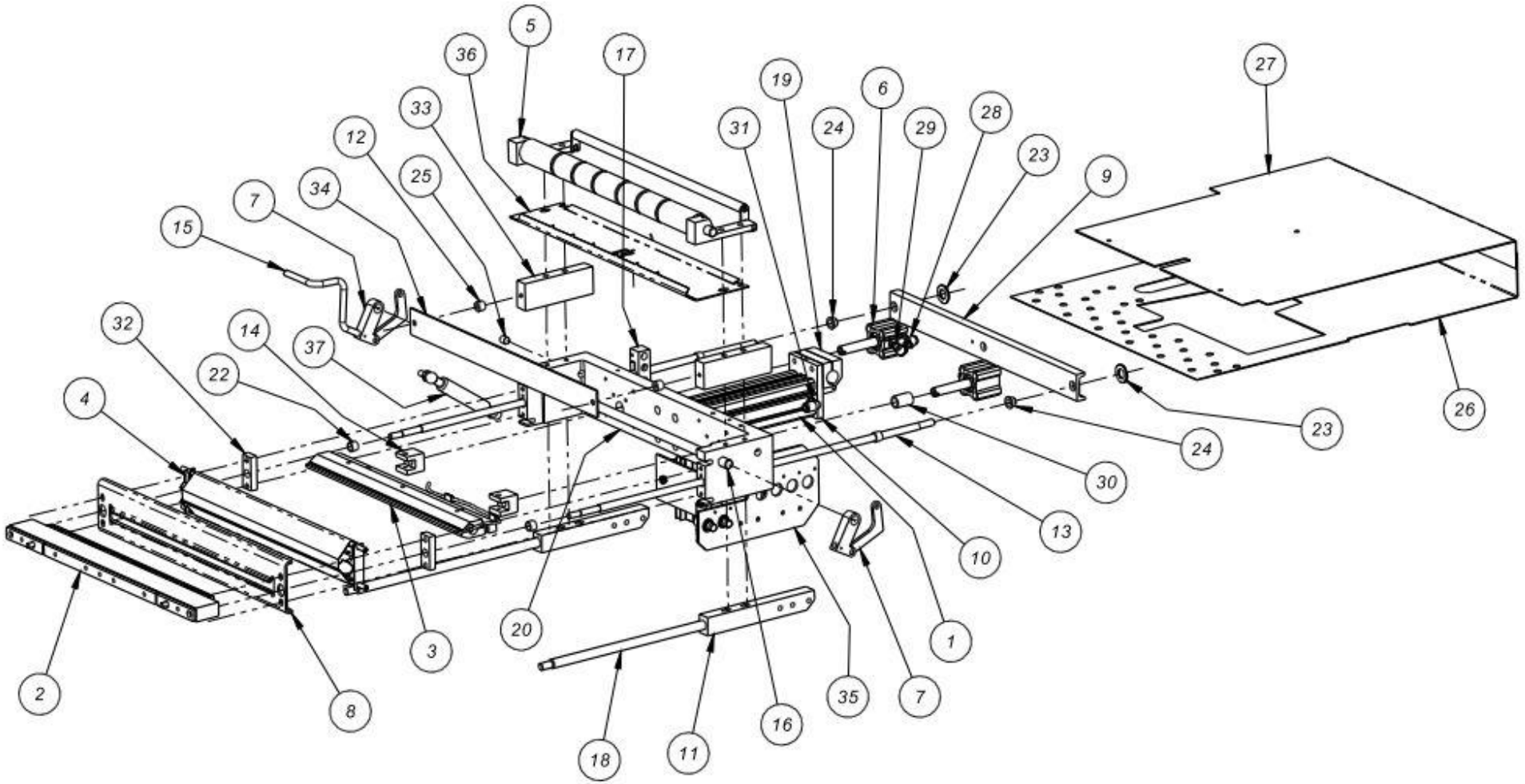


5.10 Sealer Frame Assembly: Drop Frame

PN: TA-T10280-S14

ITEM NO.	QTY	PART NO.	DESCRIPTION
1	1	TP-403244	CYLINDER
2	1	TA-T10005	PRESSURE BAR SUBASSEMBLY
3	1	TA-T10006	HEATER BAR SUBASSEMBLY
4	1	TA-T10009	PTFE GUIDE SUBASSEMBLY
5	1	TA-T10012	GROOVED ROLLER MOUNTING SUBASSEMBLY
6	2	TP-403245	CYLINDER
7	2	TA-T10019	LATCH SUBASSEMBLY
8	1	TP-T1MB00005	FRONT GRIPPER PLATE
9	1	TP-T1MB00010	SEALER ROD TIE
10	1	TP-T1MB00016	SEAL CYLINDER MOUNTING BLOCK
11	2	TP-T1MB00022	GUARD ROD MOUNTING BLOCK
12	2	TP-104210	SPACER 3/8LG, ½ DIA, 0.252 HOLE
13	2	TP-T1MB00033	SEAL GUIDE ROD
14	2	TP-T1MB00057	HEATER BAR YOKE
15	1	TP-T1MB00062	L.H. LATCH HANDLE
16	1	TP-T1MB00063	LATCH SHAFT
17	1	TP-T1MB00107	MAGNETIC SENSOR HOUSING
18	2	TP-T1MB00144-1	SHIELD MOUNTING ROD
19	1	TP-T1MB00164	PIVOT CLAMP
20	1	TP-T1MB00200	SEALER FRAME
21	1	TP-T1ME00209	SEAL BAR COIL CABLE (NOT SHOWN)
22	4	TP-107160	PTFE COATED BUSHING
23	2	TP-107227	BUSHING, THRUST NYLON
24	2	TP-107228	BUSHING, NYLON FLANGE
25	3	TP-211374	MAGNET, ROUND
26	1	TP-T1MD00275NB-1	BOTTOM INTERNAL GUARD
27	1	TP-T1MD00276NB-1	NBO INTERNAL GUARD
28	2	TP-402186	FLOW CONTROL, #10-32
29	2	TP-401277	ELBOW 1/4" TUBE x #10-32
30	2	TP-107127-1	BRONZE BUSHING
31	2	TP-401257	ELBOW 1/4" TUBE x 1/8 NPT
32	2	TP-T1MB00027	GRIPPER SPACER
33	2	TP-T1MO00023	DROP FRAME SPACER
34	1	TP-T1MO00129	DROP FRAME FACE PLATE
35	1	TA-T10020-S14	MANIFOLD ASSEMBLY
36	1	TA-T10017	BAG FINGER GROUNDING ASSEMBLY
37	1	TP-403508	SEAL FRAME STRUT

**NOTE: If you purchased the T-1000-S14 with a Standard Frame instead of a Drop Frame, your part numbers for the Standard Sealer Frame Assembly are the same as those listed above with the exception of Item 12 TP-104210 Spacer, Item 33 TP-T1MB00023 Drop Frame Spacer and Item 34 TP-T1MO00129 Drop Frame Face Plate. Those three parts are not included in the Standard Frame Sealer Frame Assembly.*

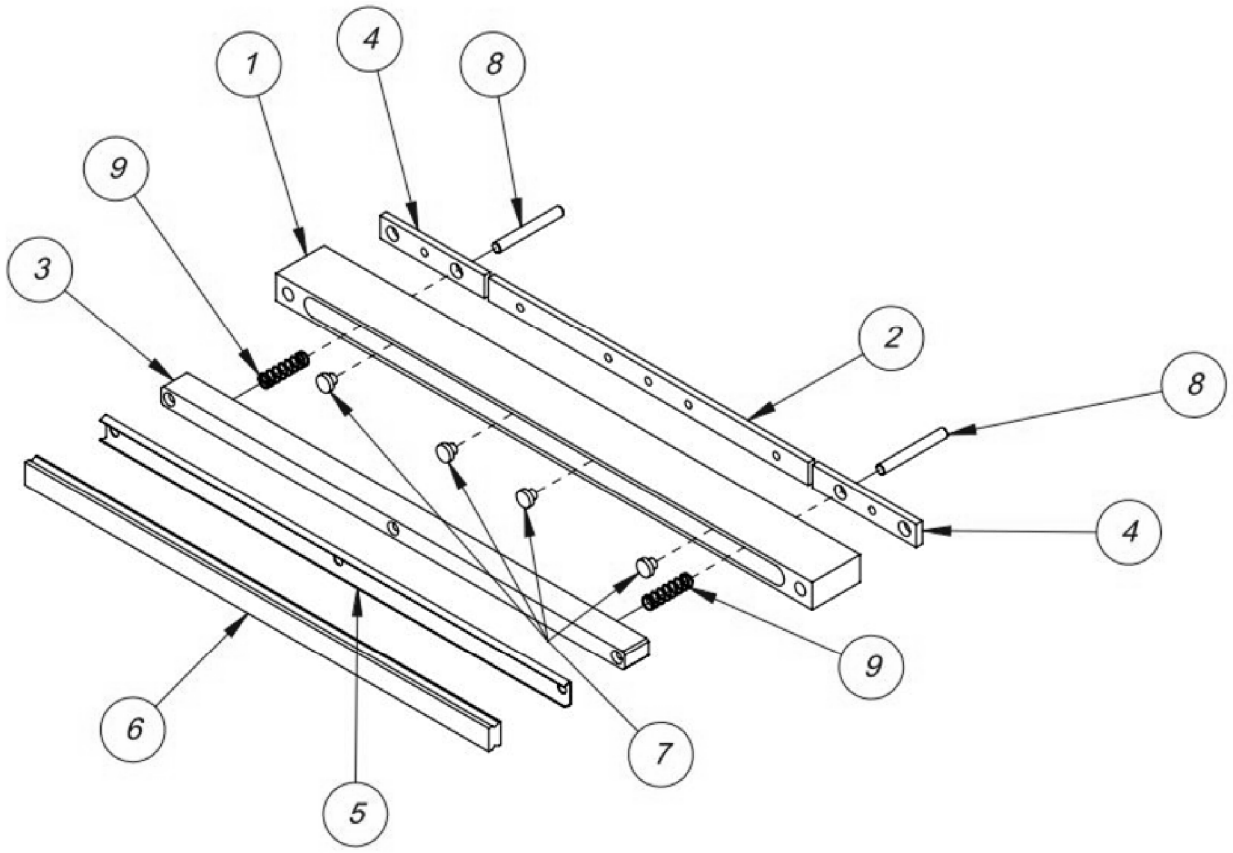


**NOTE: Items 26 and 27 shown above are used in baggers with a 5.25" bag pass through. For baggers with a 4.25" bag pass through, Item 26 will be TP-T1MD000275 and Item 27 will be TP-T1MD000276. For baggers with a 6.25" bag pass through, Item 26 will be TP-T1MD000275-2 and Item 27 will be TP-T1MD000276-2. For baggers with a 7.25" bag pass through, Item 26 will be TP-T1MD000275-3 and Item 27 will be TP-T1MD000276-3.*

5.10a Pressure Bar Subassembly

PN: TA-T10005

ITEM NO.	QTY	PART NO.	DESCRIPTION
1	1	TP-T1MB00029	ANTI-JAM PRESSURE HOUSING
2	1	TP-T1MB00030	ANTI-JAM CONTACT STRIP
3	1	TP-T1MB00031	ANTI-JAM PRESSURE PAD
4	2	TP-T1MB00068	ANTI-JAM CONTACT STRIP
5	1	TP-T1MB00111	RUBBER STRIP HOLDER
6	1	TP-306002	RUBBER SEAL
7	4	TP-300001	RUBBER BUMPER
8	2	TP-106093	¼ - 20 x 2" STUD
9	2	TP-108155	COMPRESSION SPRING

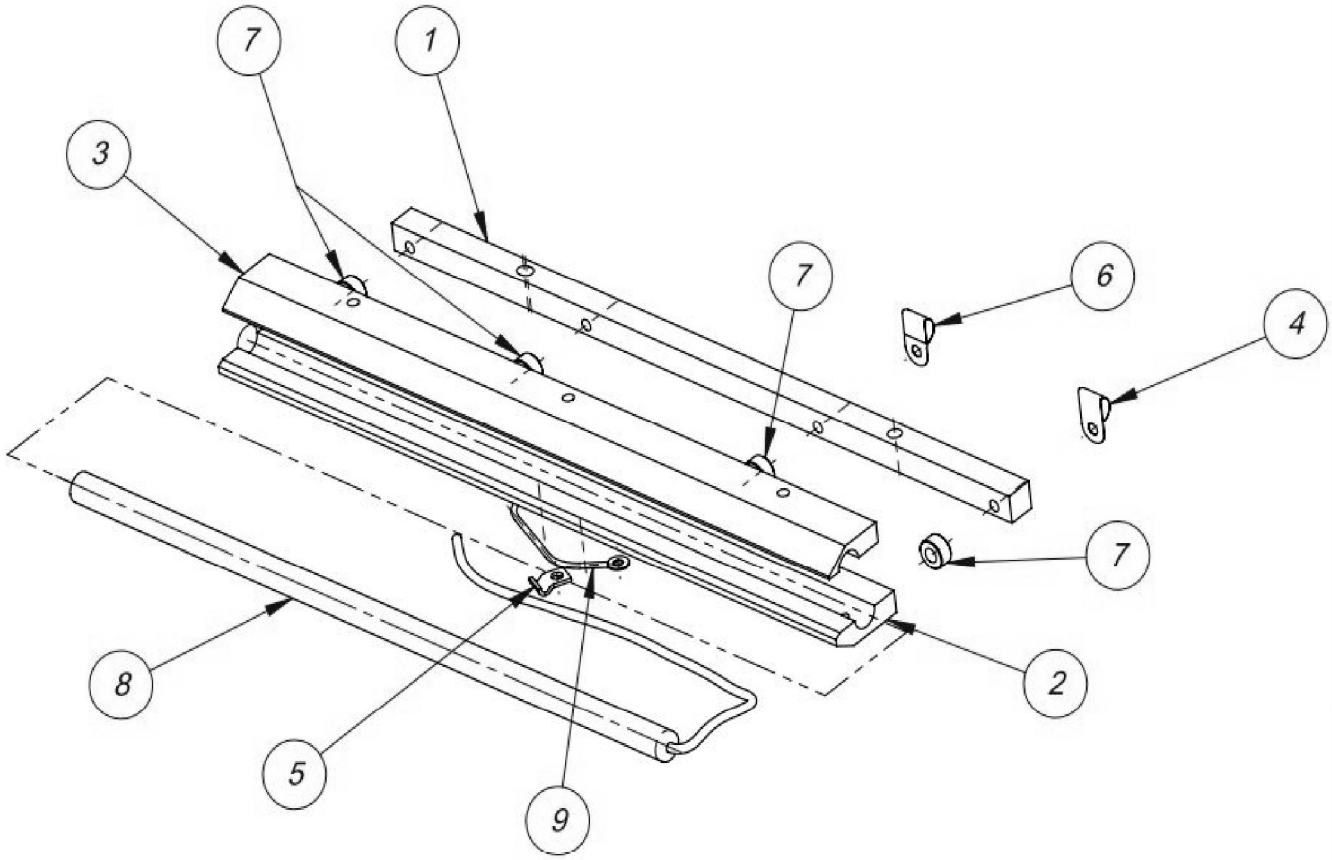


5.10b Heater Bar Subassembly

PN: TA-T10006

ITEM NO.	QTY	PART NO.	DESCRIPTION
1	1	TP-T1MB00008	HEATER BAR MOUNTING PLATE
2	1	TP-T1MB00009-1	1/8" SEAL BAR*
3	1	TP-T1MB00006	HEATER BAR CLAMP
4	1	TP-T1MB00024	HEATER CARTRIDGE CORNER HANGER
5	1	TP-T1MB00145	WIRE TIE DOWN
6	1	TP-T1MB00159	HEATER CARTRIDGE WIRE LEAD CLAMP
7	4	TP-104124	SPACER
8	1	TP-217116	CARTRIDGE, HEATER
9	1	TP-221416	THERMAL-COUPLE WIRE

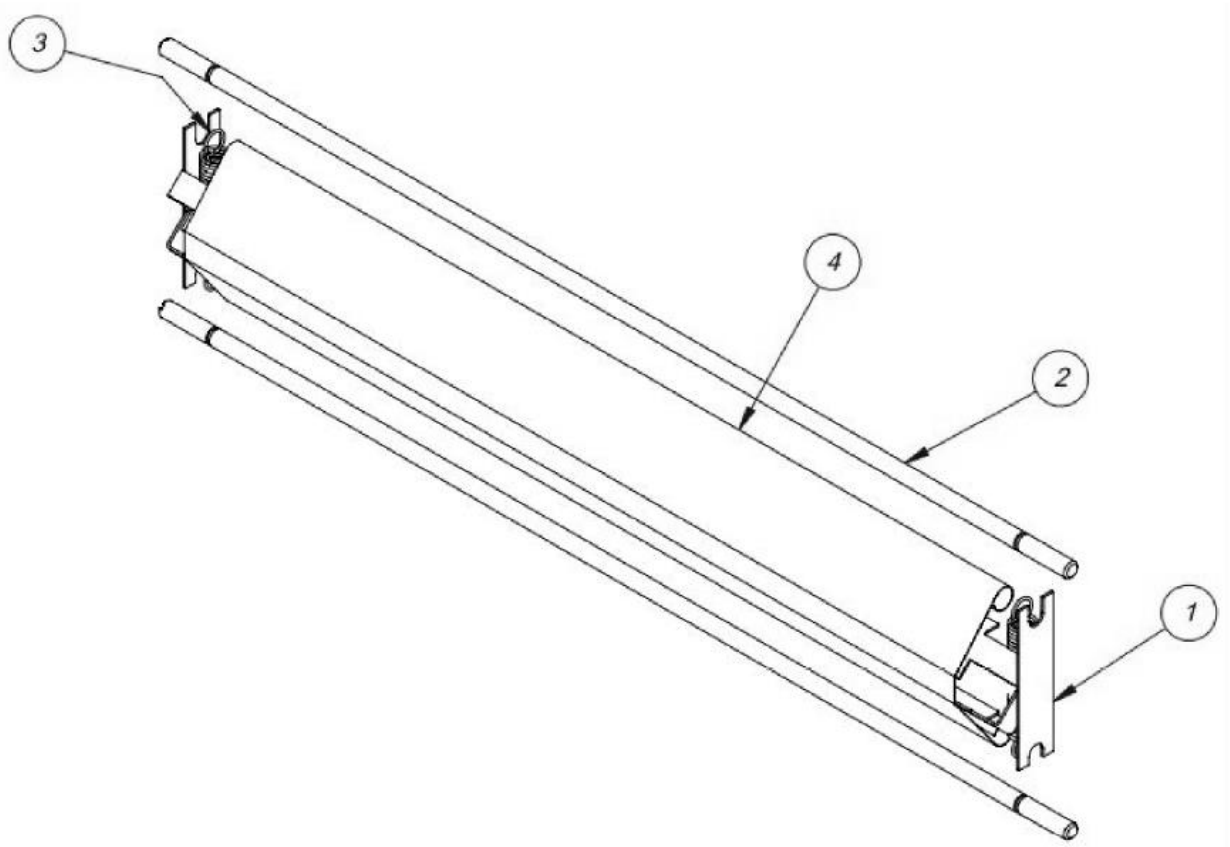
**NOTE: Depending on your order, Item 2 could also be TP-T1MB00009 Heater Seal Bar, TP-T1MB00009-2 1/4" Seal Bar, TP-T1MB00009-3 Three Point Seal or TP-T1MB00009-5 3/8" Seal Bar.*



5.10c PTFE Guide Subassembly

PN: TA-T10009

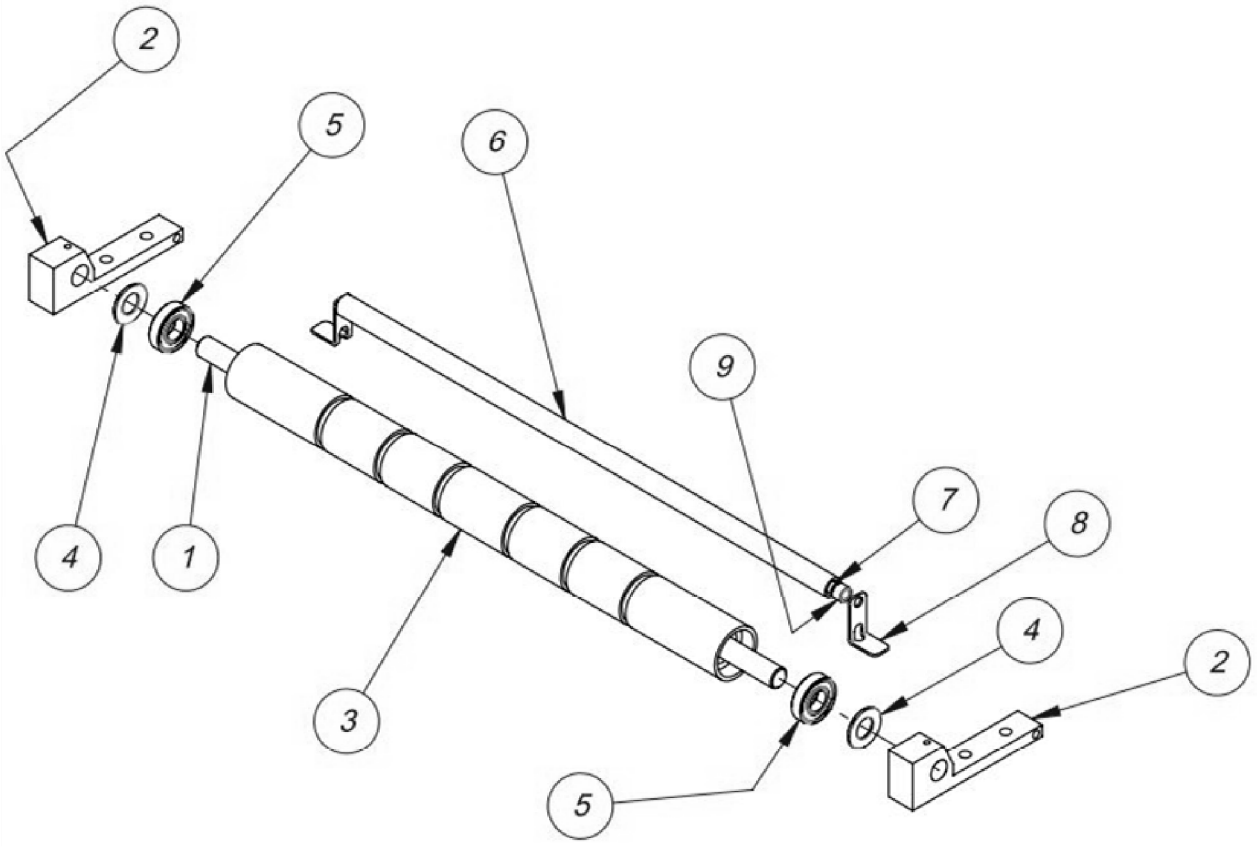
ITEM NO.	QTY	PART NO.	DESCRIPTION
1	1	TP-T1MB00034	PTFE FINGER
2	2	TP-T1MB00040	PTFE ROD
3	2	TP-108089	EXTENSION SPRING
4	1	TP-300500	PTFE



5.10d Grooved Roller Mounting Subassembly

PN: TA-T10012

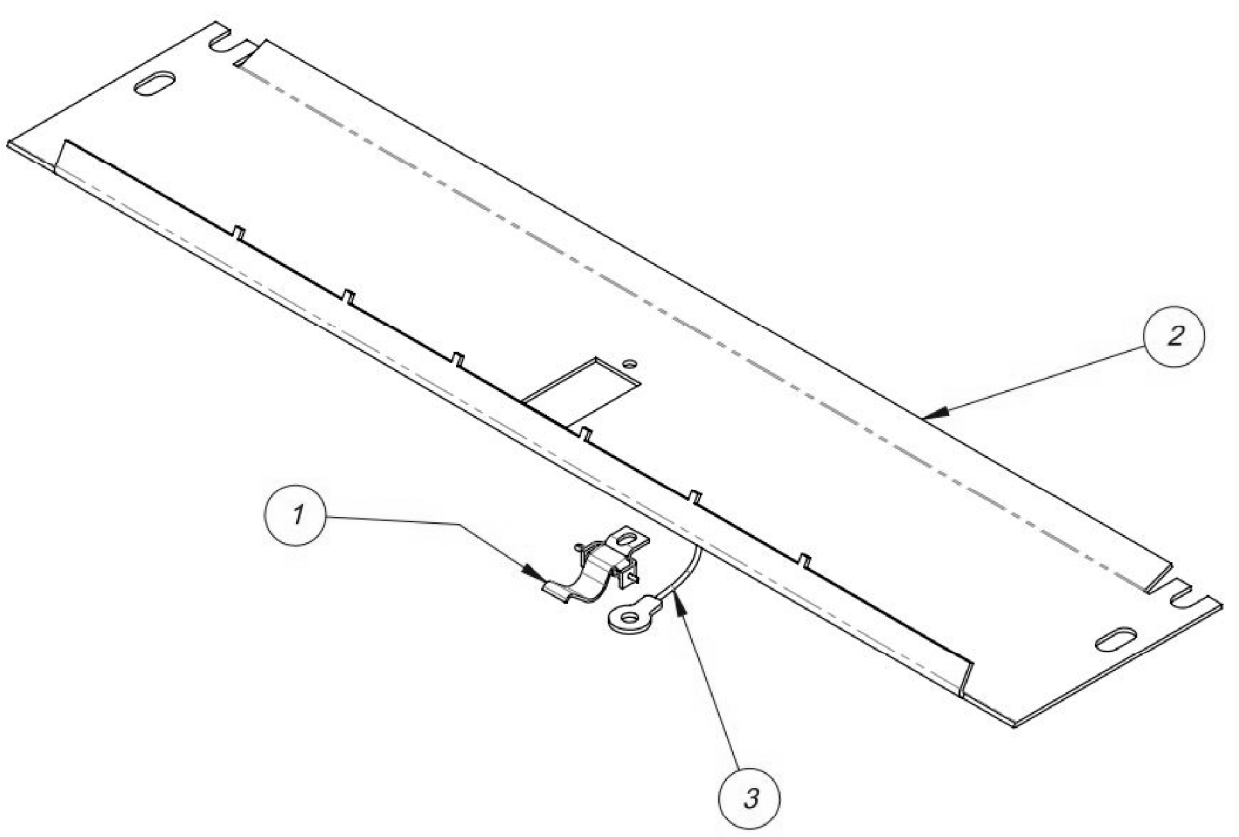
ITEM NO.	QTY	PART NO.	DESCRIPTION
1	1	TP-T1MB00013	ALUMINUM ROLLER SHAFT
2	2	TP-T1MB00004NB	ROLLER MOUNTING BLOCK
3	1	TP-T1MB00012	ROLLER
4	2	TP-107227	BUSHING, THRUST NYLON
5	2	TP-504107	BEARING, 0.500 BORE, 1.125 0D, 9/32 WIDE
6	1	TP-T1MB00155	FILM WEB TENSION ROLL
7	1	TP-T1MB00156	FILM WEB TENSION SHAFT
8	2	TP-T1MC00121	REAR ROLLER CLIP
9	2	TP-107163	¼ ID x 3/8 x 0.250 BUSHING



5.10e Bag Finger Grounding Assembly

PN: TA-T10017

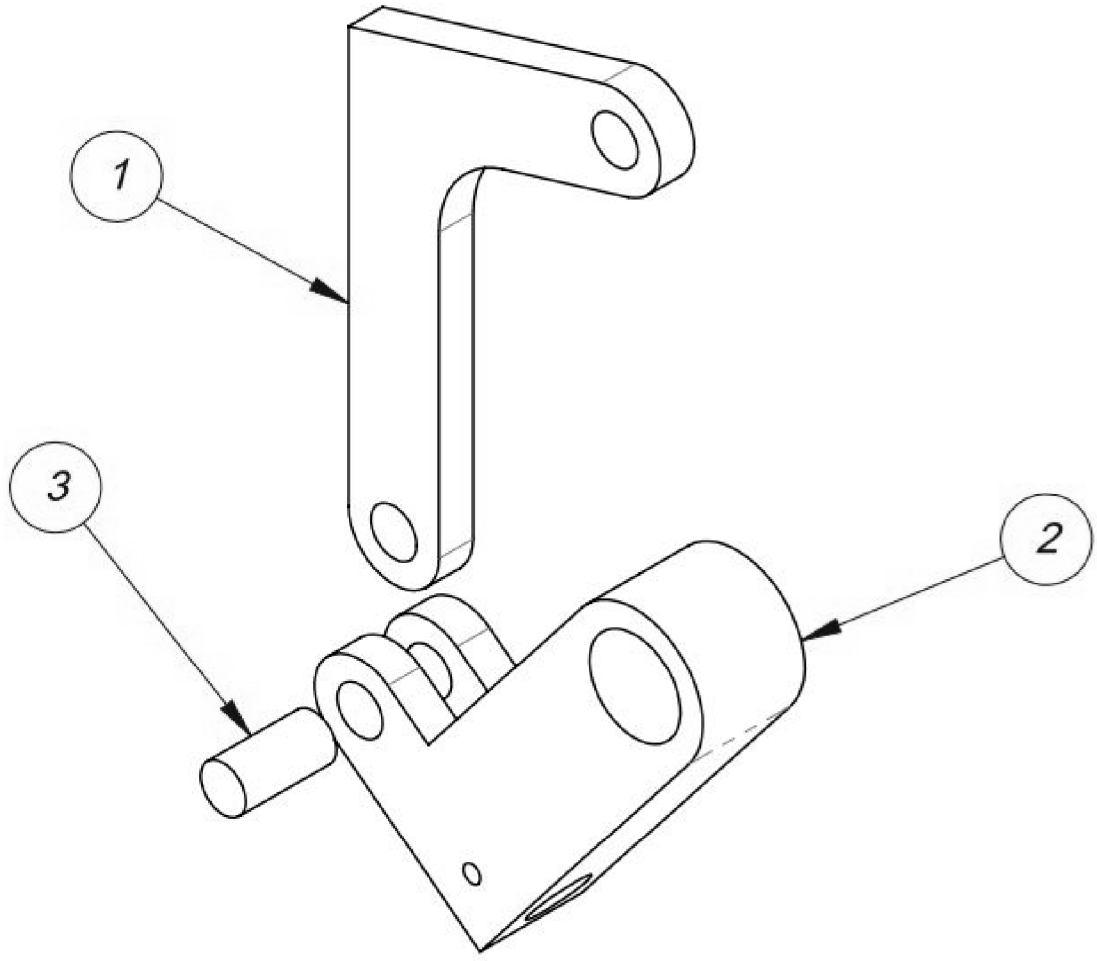
ITEM NO.	QTY	PART NO.	DESCRIPTION
1	1	TA-T100124-3	GROUNDING SENSOR
2	1	TP-T1MB00028	GROOVED METAL ROLLER FINGER
3	1	TP-T1ME00325	GROUNDING SENSOR WIRE ASSEMBLY



5.10f Latch Subassembly

PN: TA-T10019

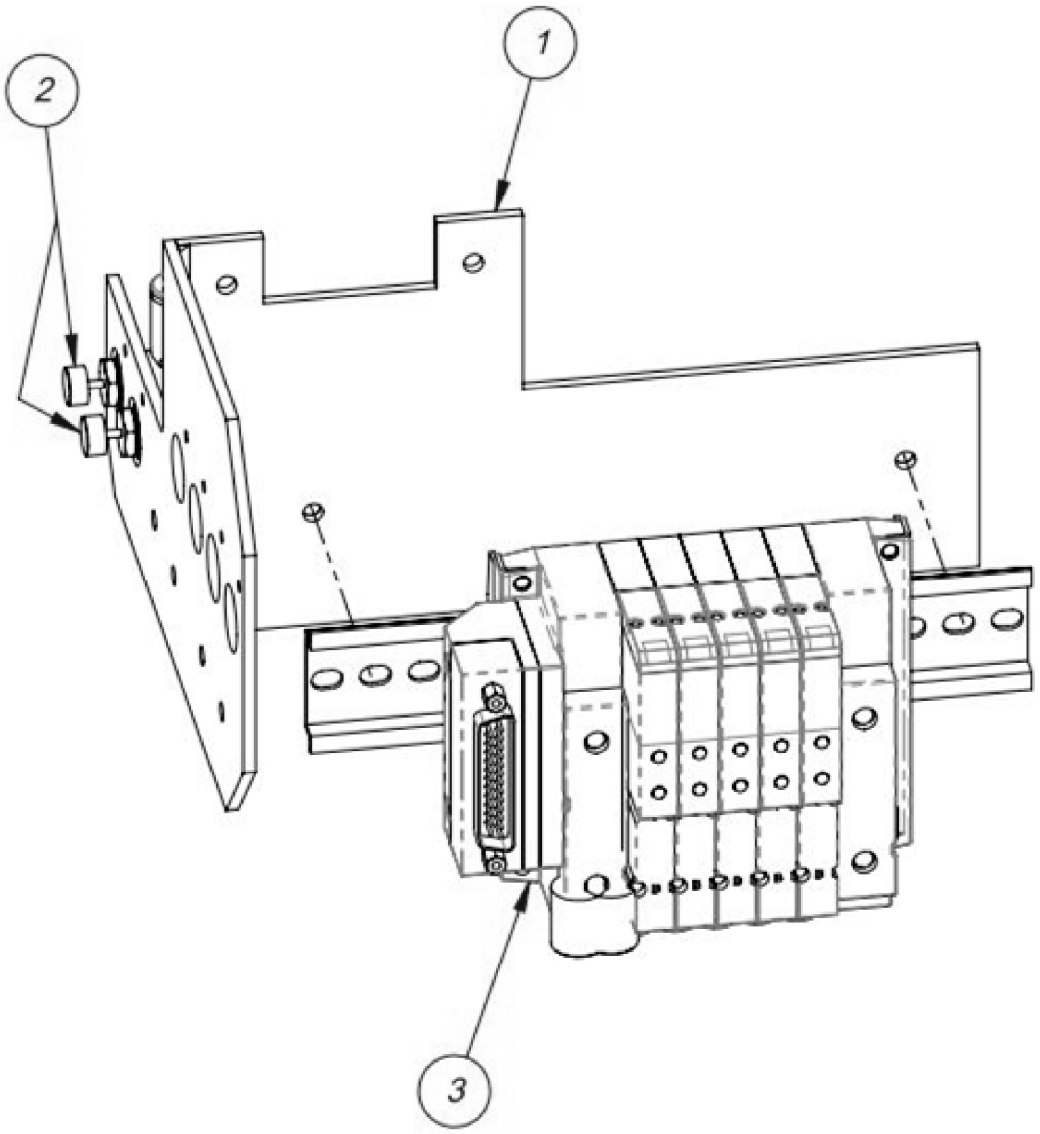
ITEM NO.	QTY	PART NO.	DESCRIPTION
1	1	TP-T1MB00060	LATCH LOCK
2	1	TP-T1MB00061	LATCH CAM
3	1	TP-106135	DOWELL PIN



5.10g Manifold Assembly

PN: TA-T10020-S14

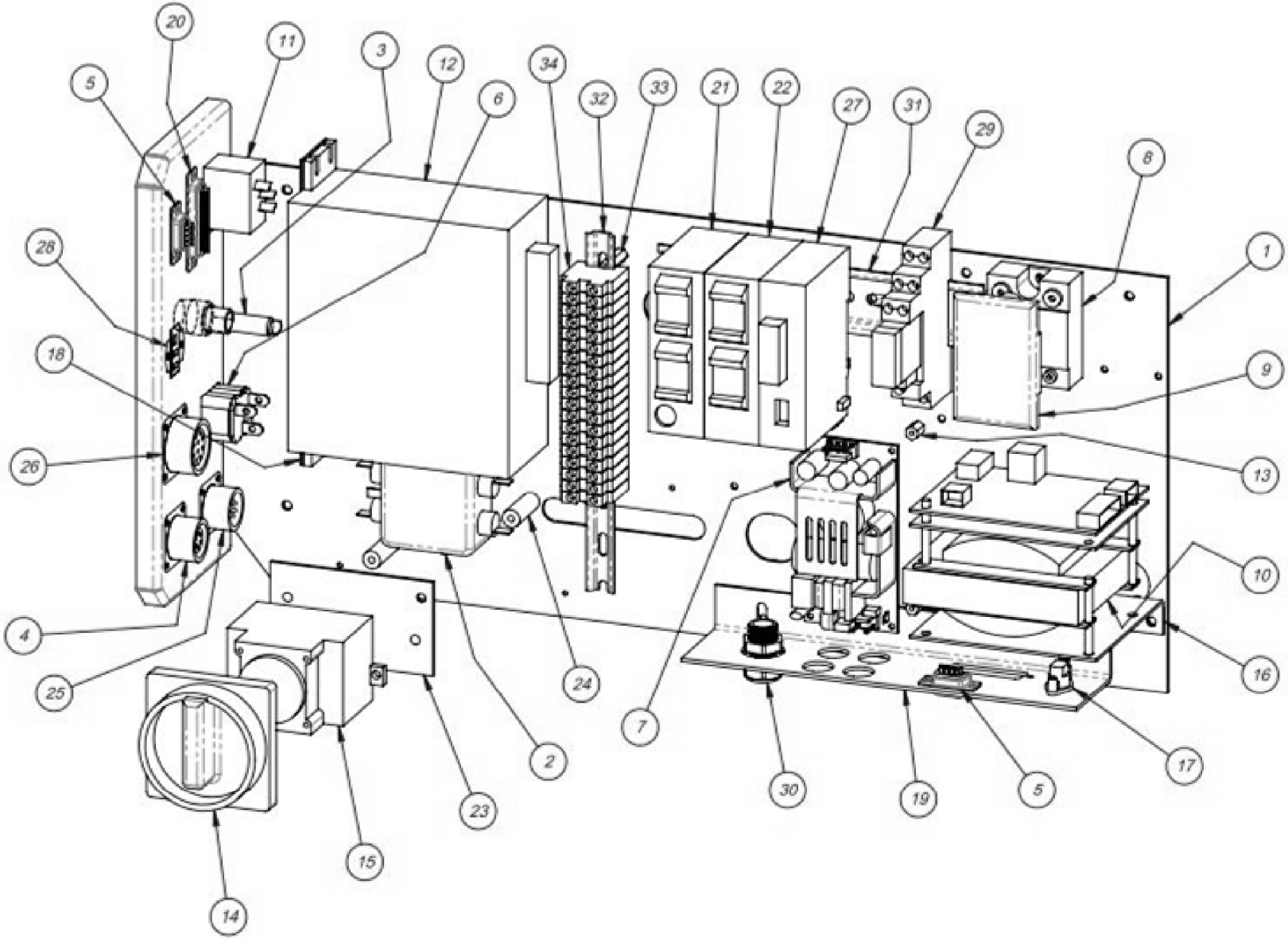
ITEM NO.	QTY	PART NO.	DESCRIPTION
1	1	TP-T1MC00015S14	MANIFOLD BRACKET
2	2	TP-402104	IN-LINE FLOW CONTROL, AS2051F-07
3	1	TA-T10025-S14	PNEUMATIC VALVE ASSEMBLY



5.11 Electrical Panel

PN: TA-T10270-S14

ITEM NO.	QTY	PART NO.	DESCRIPTION
1	1	TP-T1MC00006-S14	ELECTRONICS MOUNTING PANEL
2	1	TP-205108	EMI FILTER, CORCOM
3	1	TP-207216, TP-207344	FUSE HOLDER AND FUSE
4	1	TP-212167	6 PIN CIRCULAR FEMALE
5	2	TP-212247	9 PIN D-SUB FEMALE
6	1	TP-212410	AC OUTLET
7	1	TP-213361	24VDC, 3 AMP POWER SUPPLY
8	1	TP-215000	SOLID STATE RELAY
9	1	TP-215000A	COVER
10	1	TP-211386	HIGH VOLTAGE TRANSFORMER
11	1	TP-215384	POWER SWITCH
12	1	TP-501169-1	5 PHASE DRIVER
13	4	TP-214268	STAND-OFF 0.38"
14	1	TP-215004	SWITCH KNOB
15	1	TP-215005	SWITCH
16	1	TP-T1MC00021	TRANS MOUNTING PLATE
17	1	TP-212160	5 POS MINI DIM
18	1	TP-T1MC00002S14	ANGLE MOUNT (5) PHASE DRIVER
19	1	TP-T1MC00016S14	ELECTRONICS MOUNTING BRACKET
20	1	TP-212248	25 PIN D-SUB FEMALE
21	1	TP-220511, TP-214111, TP-220513	PLC, BATTER AND COMM 2 CAS
22	1	TP-220514	PLC, FPO-E32T-A EXPANSION I/O
23	1	TP-T1MO00228	T-1000-S14 EURO DISCONNECT SWITCH MOUNTING PLATE
24	2	TP-T1MO00229	STANDOFF
25	1	TP-212166	6 PIN MALE
26	1	TP-212338	10 PIN FEMALE
27	1	TP-220508	PLC ANALOG MODULE
28	1	TP-212242	3 PIN SOCKET WITH ANGLE BRACKET
29	1	TP-215115, TP-215116	AUX RELAY AND SOCKET
30	1	TP-112242	POWER DIST. STRAIN RELIEF, 7/8 HOLE
31	1	TP-218020	DIN RAIL
32	1	TP-218021	DIN RAIL
33	2	TP-214279	STANDOFF 1"
34	19	TP-208142	LARGE TERMINAL BLOCK



ELECTRICAL PANEL 95

TA-T10270-S14

5.12 Notes:

Date	Note