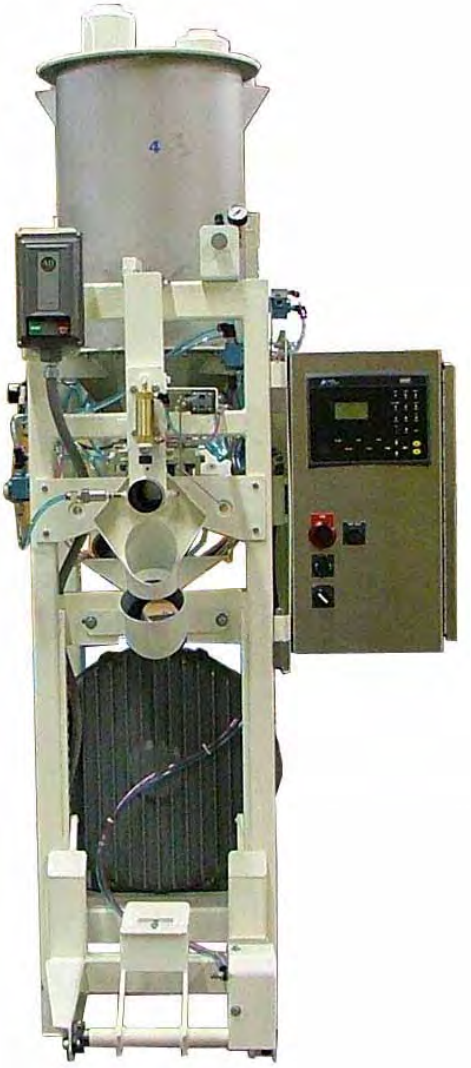
taylor products
Division of Magnum Systems



Taylor Products
Model A
Air Packer

Operation and Maintenance Manual

Taylor Products
a division of Magnum Systems

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Machine Serial Number: _____

Sales Order Number: _____

Important Information

Conventions

Safety Alert Symbols

The ⚠ symbol indicates that important personal safety information follows. Carefully read this text for the warnings information it contains. The signal word next to each safety alert symbol is defined as:

 ***WARNING***	*Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.*
 **CAUTION**	Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury, or damage to the equipment. This single word may also be used to identify unsafe practices.
 **LOCKOUT**	This symbol will be used anytime that a procedure requires an electrical lockout.

Static Sensitive Symbols for Equipment Handling Instructions

The ♆ and ⚠ symbols indicate important handling guidelines for proper handling of electronic equipment modules and sensitive components for the prevention of potential damage that could be caused by ESD (electrostatic discharge) during routine maintenance, handling and transportation.

 **ESD NOTICE**	To protect against ESD damage to electronic equipment, follow the Standard ESD Prevention Procedures. Failure to use protective measures could result in permanent equipment damage, either immediate or latent, when handling modules.
 **ESD NOTICE**	To protect against ESD damage to electronic equipment containing components, follow the Standard ESD Prevention Procedures. Failure to use recommended protective measures could result in permanent equipment damage, either immediate or latent, when handling components.

Standard Electro-static Discharge (ESD) Prevention Procedures
The Model A Air Packer utilizes many electronic components that are susceptible to damage from Electro Static Discharge. Anytime electronic components are serviced, the following precautions should be followed:

1. Wear a commercial grounding wrist strap.
2. Remove power from the machine.
3. Leave all static sensitive components in their protective packaging until it is time to install the component
4. Always hold static sensitive components by their metal mounting tabs, and/or by their edges

Important/Notable Information
While all of the information in this manual is important, there are some pieces of information where special attention needs to be paid to avoid equipment damage, or specific information needs to be emphasized. This information will be handled as follows:

> ***Important:*** *Indicates an operating procedure, practice, or condition that, if not strictly followed, may cause equipment damage.*
>
> ***Note:*** *Indicates additional information or emphasizes a topic related to the subject being discussed.*

Personal Safety Instructions
Only qualified personnel should work on or around this equipment. To ensure the highest degree of personal safety, all who use this equipment are required to become thoroughly familiar with all safety instructions contained in this document. Successful and safe operation of this equipment depends upon proper handling, operation, maintenance, and application of associated equipment. Refer to Appendix A of this manual for all safety instructions. Safety instructions are also provided where they apply within the body of this manual.

WARNING

No information in this manual supersedes or replaces your employer's operating rules. If there is a difference in instructions between this manual and the employer's operating rules, follow the most restrictive instruction.

Deliberate misuse or abuse of electronic components may cause personal injury or death.

Warranty Information

Seller warrants that the Products will operate substantially in conformance with Seller's published specifications, when subjected to normal, proper and intended usage by properly trained personnel, for a period of one (1) year from the date of shipment to Buyer (the "Warranty Period"). Seller agrees during the Warranty Period, provided it is promptly notified in writing upon the discovery of any defect and further provided that all costs of returning the defective Products to Seller are pre-paid by Buyer, to repair or replace, at Seller's option, defective Products so as to cause the same to operate in substantial conformance with said specifications. Replacement parts may be new or refurbished, at the election of Seller. All replaced parts shall become the property of Seller. Replacement Parts will be billed at list price, unless they are approved as warranty replacement item(s) by the service technician and the technical services manager.

Lamps, fuses, bulbs and other expendable items are expressly excluded from the warranty. Seller's sole liability with respect to equipment, materials, parts or software furnished to Seller by third party suppliers shall be limited to the assignment by Seller to Buyer of any such third party supplier's warranty, to the extent the same is assignable. In no event shall Seller have any obligation to make repairs, replacements or corrections required, in whole or in part, as the result of (i) normal wear and tear, (ii) accident, disaster or event of force majeure, (iii) misuse, fault or negligence of or by Buyer, (iv) use of the Products in a manner for which they were not designed, (v) causes external to the Products such as, but not limited to, power failure or electrical power surges, (vi) improper storage of the Products or (vii) use of the Products in combination with equipment or software not supplied by Seller. If Seller determines that Products for which Buyer has requested warranty services are not covered by the warranty hereunder, Buyer shall pay or reimburse Seller for all costs of investigating and responding to such request at Seller's then prevailing time and materials rates. If Seller provides repair services or replacement parts that are not covered by the warranty, the Buyer shall pay Seller therefore at Seller's then prevailing time and materials rates. ANY INSTALLATION, MAINTENANCE, REPAIR, SERVICE, RELOCATION OR ALTERATION TO OR OF, OR OTHER TAMPERING WITH, THE PRODUCTS PERFORMED BY ANY PERSON OR ENTITY OTHER THAN SELLER WITHOUT SELLER'S PRIOR WRITTEN APPROVAL, OR ANY USE OF REPLACEMENT PARTS NOT SUPPLIED BY SELLER, SHALL IMMEDIATELY VOID AND CANCEL ALL WARRANTIES WITH RESPECT TO THE AFFECTED PRODUCTS.

Field Service

Taylor Products can provide field service for start-up assistance, training, maintenance, and replacement/spare parts for new and existing equipment. Contact Taylor Products at (888) 882-9567.

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Chapter 1
Product Description

1.1 General Description
This chapter will provide a high-level product description of the Model A Air Packer.

1.2 Introduction
The Taylor Products Model A is an air packer. The Model A is has been designed to package both granular and powdered products. Depending on how the Model A is equipped, the Model A can handle weighments from 20 to 125 lbs. (9 kg. to 56.5 kg.).

The Model A comes standard with an analog control set, but is available with an optional T3000 control set.

The Model A can be used to package food and non-food materials. In non-food applications, painted components are used. In food applications, any component that comes in contact with the food product must be stainless steel to avoid possible contamination of the food material.

1.3 Manual Scope
This manual will provide information on installation, operation, preventive maintenance, troubleshooting, and repair of the Model A.

The appendices will include safety information, spare parts list, mechanical and electrical drawings, and information regarding any custom features.

1.4 Electrical Requirements
The Model A requires two distinct voltages to operate. One voltage source is required for the controls, and a separate voltage source is required for the blower motor. The electronic controls operate on 115 VAC, 60 Hertz, single-phase power. The blower motor requires either 230 VAC, 3-phase, 60 Hz or 460VAC, 3-phase, 60 Hz.

Note: *The buyer must provide circuit protection and a local circuit disconnect.*

1.5 Pneumatic Requirements
The Model A uses approximately 15 SCFM (425 liters/minute) @ 80-100 PSI (.55-.69 MPa) of compressed air. Taylor Products recommends that the air supply line be equipped with a refrigerated air dryer, or at the very least a water separator.

1.6 Dust Collection Requirements

If the bagging process will generate dust, the conduit fittings must be dust-tight and satisfy any hazard requirements for the product and site.

Use the 4-inch O.D. dust pickup spout on the back of the dust shroud to connect the Model A to a dust collection system. The dust collection duct should have a blast gate to control the flow of air at the spout. Excessive airflow could create vacuum forces at the spout and affect weights.

1.7 Major Systems and Components

When working with the Model A, it is important to understand the major systems and components of the unit. The breakdown is as follows:

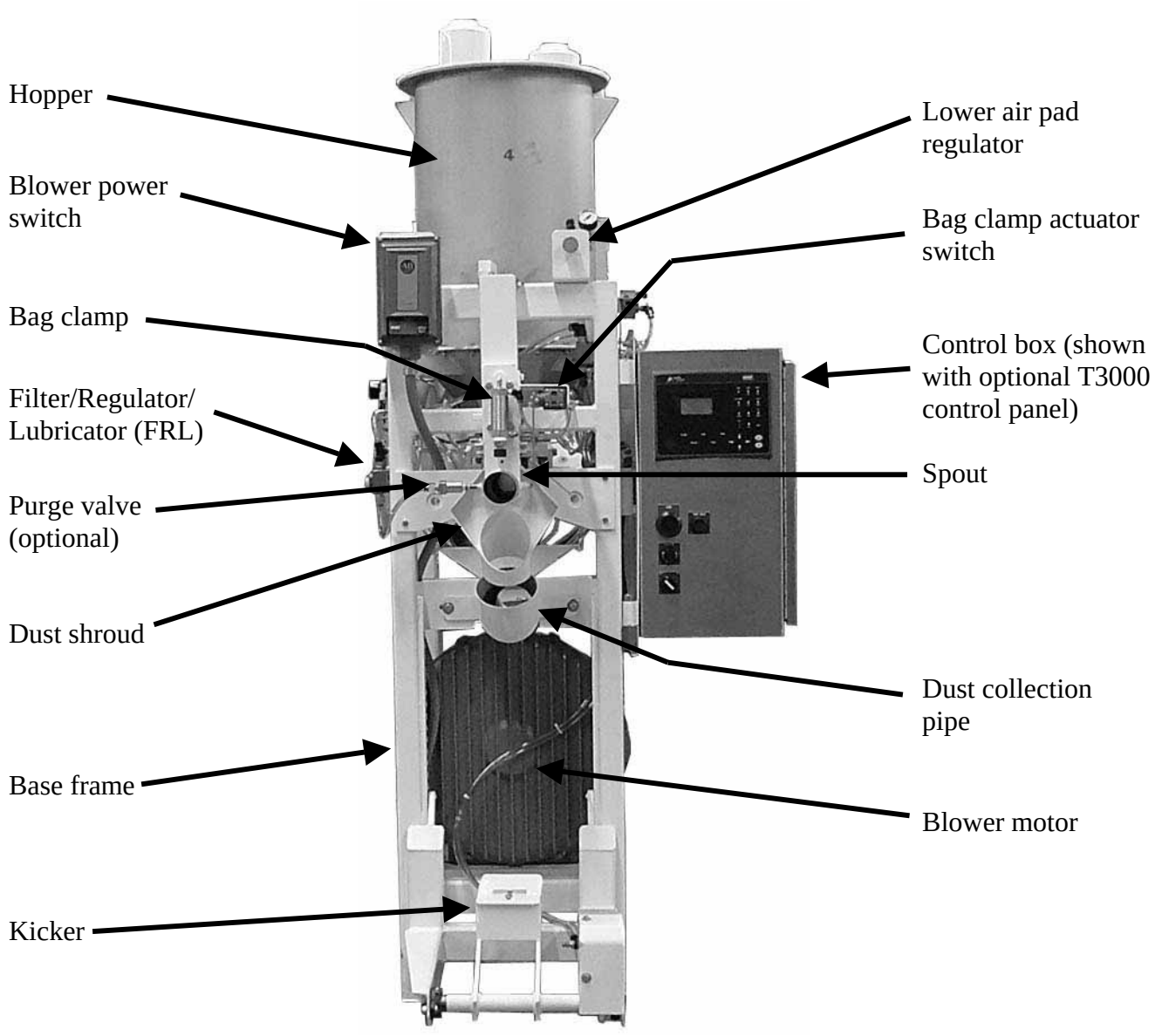


Figure 1-1. Major Components (Front View)

1.7.1 Base Frame

The base frame is the backbone of the Model A. It provides a support structure for the all of the other components that make up the Model A.

1.7.2 Hopper

The hopper is mounted at the top of the Model A. It is used as a reservoir for the material that is to be packaged using the Model A. The hopper is loaded from the top via a butterfly valve. The material is forced by air pressure out of the bottom of the hopper to the spout.

The Model A comes standard with a hopper that has a capacity of 4200 cubic inches. The hopper includes five air pads that provide aeration to the product to assist the product in flowing out of the hopper to the spout.

1.7.3 Butterfly Valve

The standard Model A air packer comes equipped with a 10-inch butterfly valve. There are two optional 12-inch butterfly valves that are available. The first is a 12-inch version of the standard butterfly valve. The second is a Posiflate butterfly valve that is used when packaging abrasive products.

The butterfly valve is controlled by air pressure and utilizes a rack and pinion actuator to open and close the valve. This valve controls the flow of the product from the customer supplied product delivery system.

When the butterfly valve is closed, it must provide an airtight seal for the top of the hopper. This allows the air pressure in the hopper to build and push the product out through the spout.

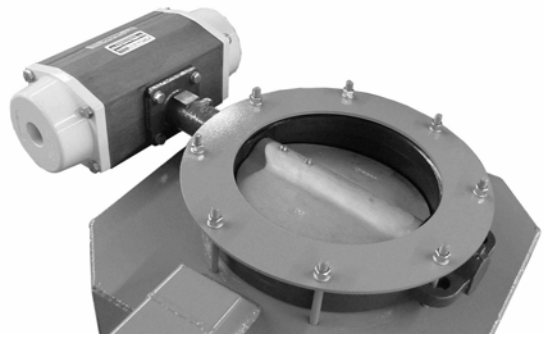
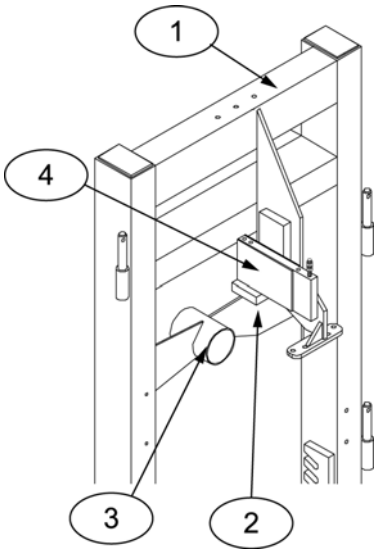


Figure 1-2. Butterfly Valve

1.7.4 Load Cell

The load cell is used to sense the weight of the material in the package. As material is loaded into the package, the load is applied to the load cell in a linear fashion. As the load increases, the voltage output from the load cell increases.

CAUTION A sudden jerk or shock, such as being struck by a tool or hitting the spout, etc., can cause load cell damage. The load cell is NOT covered by warranty.



Item #	Description	Item #	Description
1	Base Frame	3	Product Feed
2	Load Cell Mount	4	Load Cell

Figure 1-3. Load Cell

1.7.5 Spout

The Model A uses a valve bag spout for transferring the product into the package. The spout is connected to the hopper using a gum rubber fill tube. There are several optional spouts that are available:

- Tapered spout – equipped with a tapered sleeve to better seal the package opening and help control dust.
- Spout with inflatable bladder – uses an inflatable rubber bladder to seal the package opening. This method provides the best dust control.
- Purged spout – uses a jet of pressurized air to clear product from the spout at the end of the fill cycle. This prevents product from dribbling out of the spout once the package is removed.

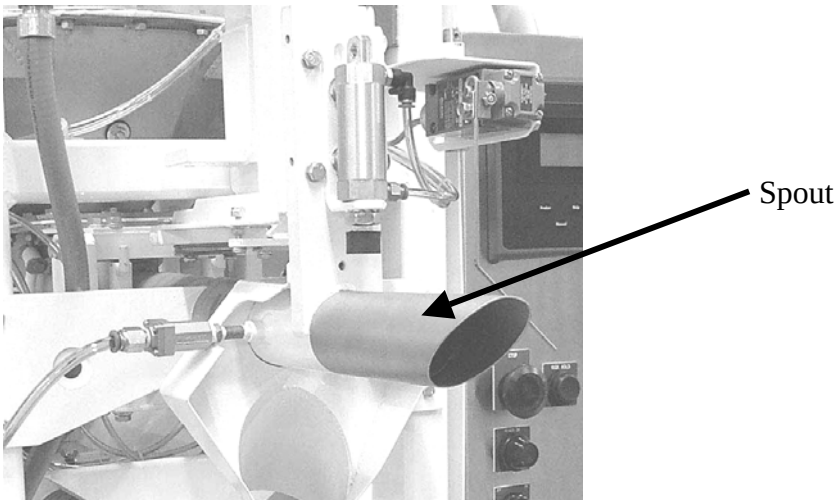


Figure 1-4. Spout (Purged Spout Shown)

The spout also provides the mounting points for the dust shroud and the bag clamp cylinder mount.

1.7.6 Flex Leaves

The Model A uses two flex leaves to stabilize the spout assembly and to make sure that the weight of the package is transferred to the load cell in a linear fashion. For proper operation, the flex leaves must be parallel and level. The flex leaves are installed and leveled during the construction of the Model A. When the Model A is installed and leveled, the flex leaves should remain level.

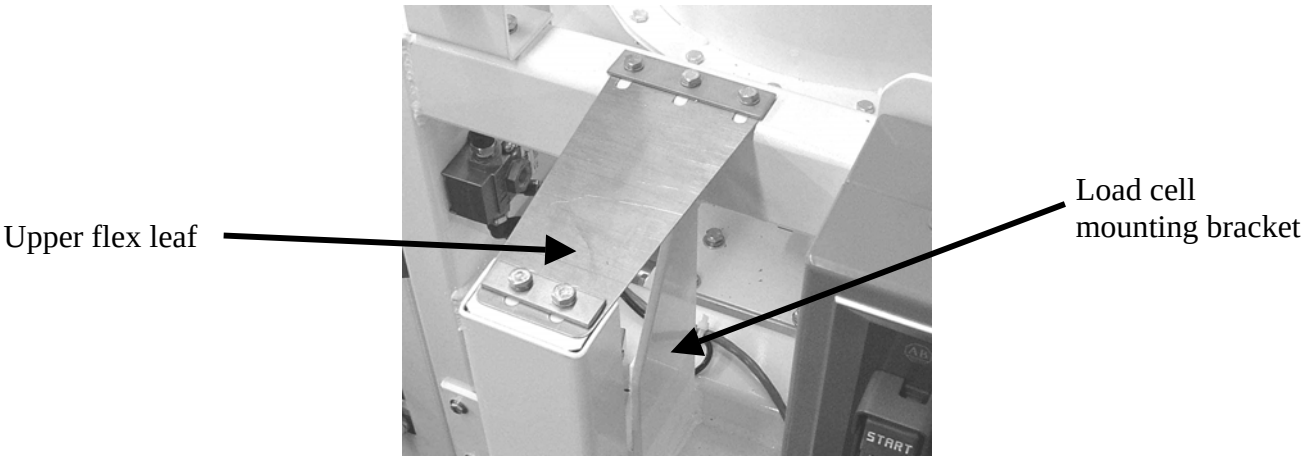


Figure 1-5. Upper Flex Leaf

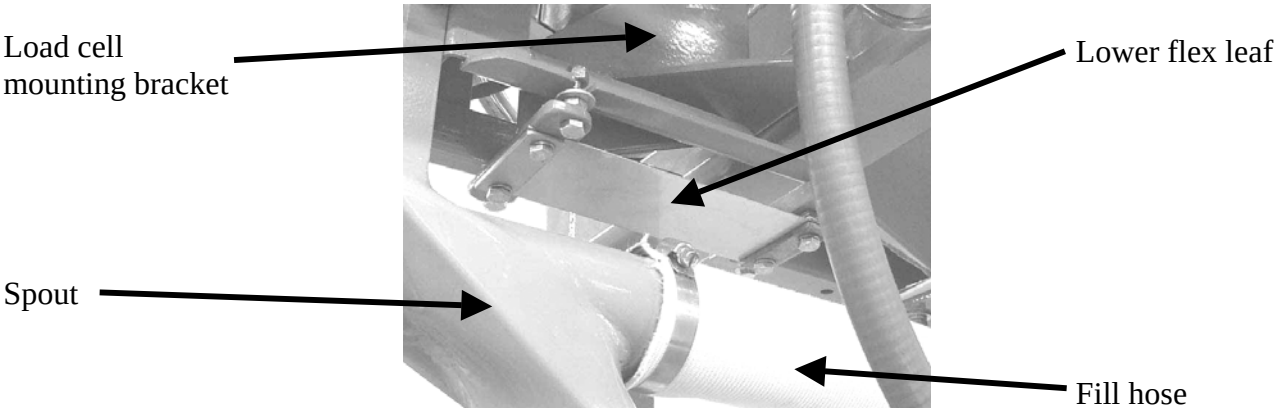


Figure 1-6. Lower Flex Leaf

1.7.7 Blower Motor

The blower motor provides the air pressure that is used to force the product from the hopper, through the spout, and into the package. The blower motor is mounted on the lower rails of the base frame. On the rear of the motor assembly, there are two ports. One is the air inlet, and the other is the air outlet. The blower motor has its own power switches that are mounted in their own control box on the front of the Model A.

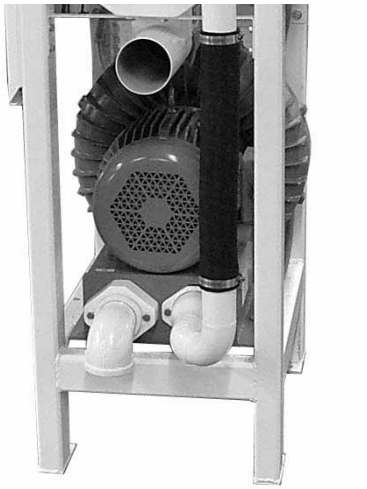


Figure 1-7. Blower Motor (Rear View, Filter Removed)

Figure 1-8. Blower Motor Power Switch

1.7.8 Intake Air Filter

The blower motor must pull air from the surrounding environment. Depending on the location of the unit, this air may contain dust or other contaminants that could damage components or contaminate the product being packaged. To prevent this, an optional blower intake filter can be added to the inlet of the blower motor. The filter will remove these contaminants before the air enters the blower motor. The filter is located on the rear side of the Model A. The filter element is mounted over a cage type of mount and is held in place by a wing nut.

Figure 1-9. Intake Air Filter

1.7.9 Bag Clamp

The Model A uses a pneumatic back clamp that is mounted on the front of the unit, directly above the spout. This clamp is used to prevent the bag from being pushed off of the spout by the pressurized product flowing into the package.

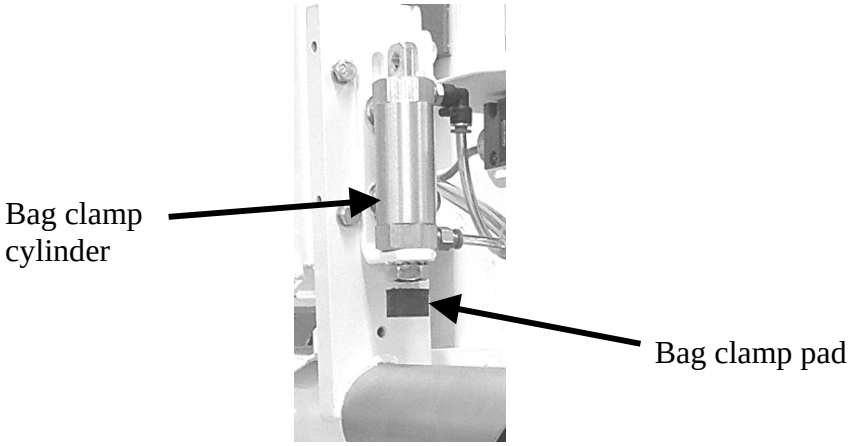


Figure 1-10. Bag Clamp Assembly

1.7.10 Bag Clamp Actuator Switch

Located just to the right of the bag clamp is the bag clamp actuator switch. The operator will trip this switch when placing the valve bag on the spout. Once this switch has been tripped, the bag clamp will be applied and the fill cycle will begin.

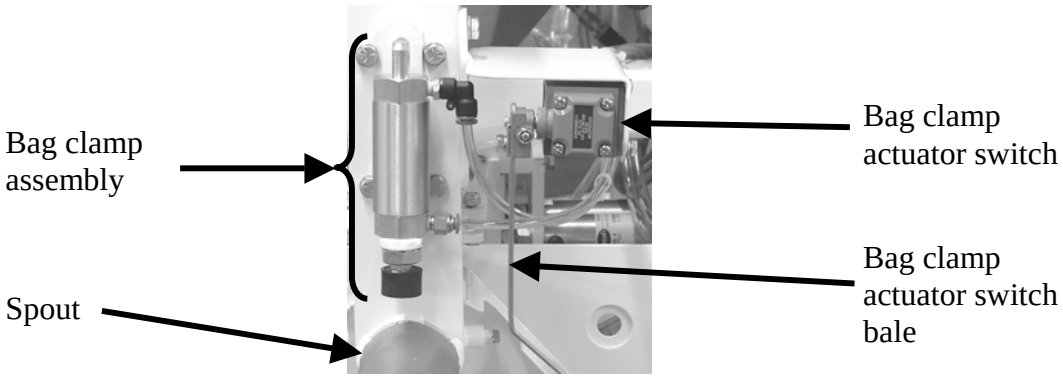


Figure 1-11. Bag Clamp Actuator Switch

1.7.11 Adjustable Pinch Valve

The Model A controls the bulk feed rate with air pressure. Once SP-1 (dribble weight) has been reached, the Model A switches to the dribble rate by actuating an adjustable pinch valve. The adjustable pinch valve consists of one pneumatic cylinder that is mounted vertically above the fill tube. When the cylinder is actuated, it causes two arms to pinch the fill tube so that the feed rate is reduced. The amount of product flow during the dribble period can be adjusted using the adjustment knob on top of the pinch valve assembly. Turning the knob clockwise will reduce the flow of product. Turning the knob counter-clockwise will increase the flow of product.

Once SP-2 (cutoff weight) has been reached, the Model A will actuate the adjustable pinch valve all the way closed to stop the flow of product. At the same time, the Model A will exhaust air pressure from the blower so the hopper is no longer pressurized.

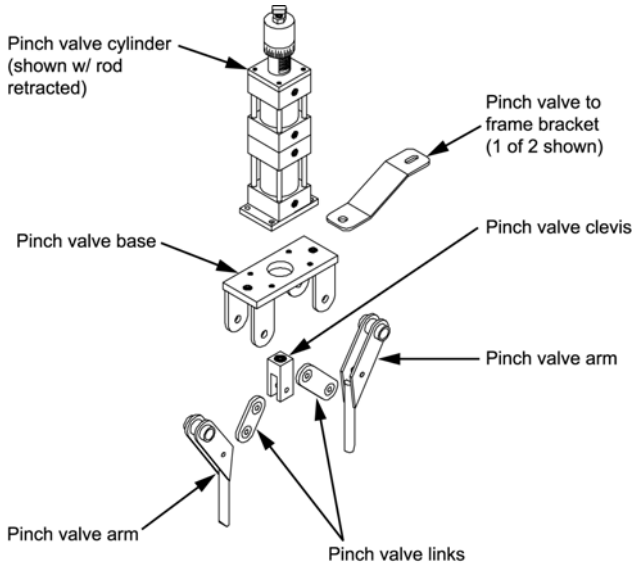


Figure 1-12. Adjustable Pinch Valve

1.7.12 Filter/Regulator/Lubricator (FRL) Assembly

The primary air pressure regulator used on the Model A is a combination unit. It is the Filter/Regulator/Lubricator (FRL) assembly. This unit filters the incoming compressed air, regulates its pressure, and adds a lubricant to the air that provides lubrication to the internal components of the pneumatic devices that are downstream.

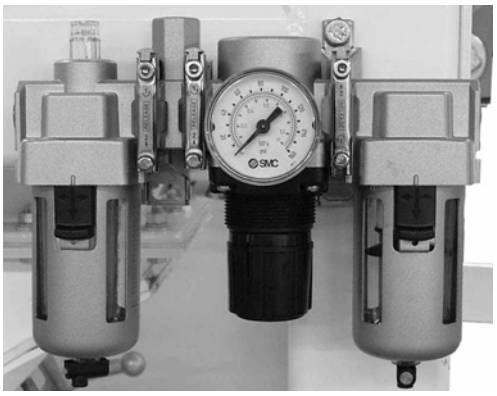


Figure 1-13. Filter/Regulator/Lubricator (FRL) Assembly

1.7.13 Lower Air Pad Pressure Regulator

The Model A uses a group of air pads inside the hopper to assist the product flowing out of the hopper and through the spout. The lower air pad pressure regulator, mounted above and to the left of the spout, is used to adjust the amount of air pressure that is supplied to the lower air pad that is mounted on the clean out door.

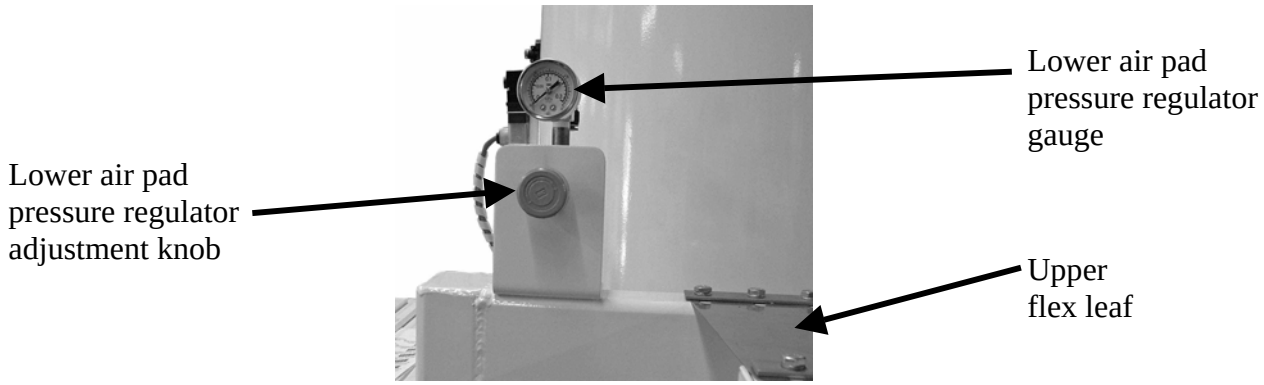


Figure 1-14. Lower Air Pad Pressure Regulator

1.7.14 Pinch Valve Regulator

On the right side of the machine toward the rear of the machine, there is another pressure regulator. This regulator is used to control the amount of air pressure that is directed to the pneumatic valves that open and close the pinch valves.

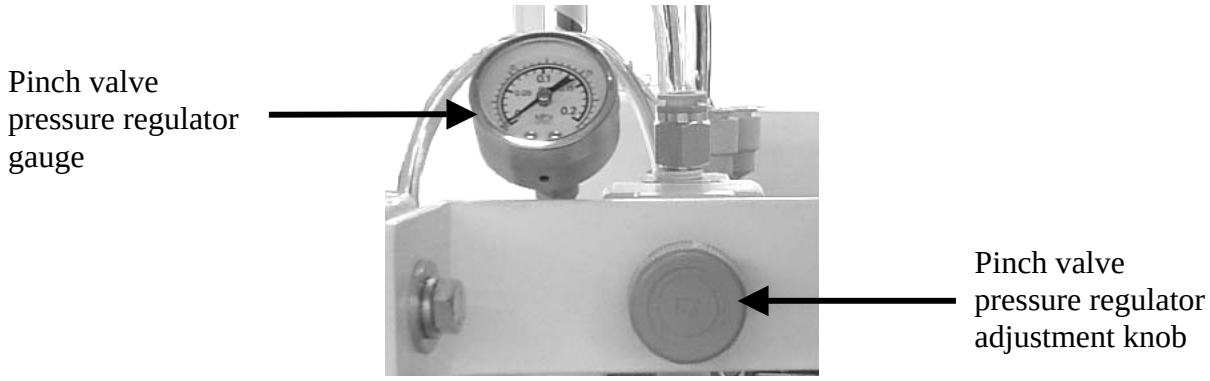


Figure 1-15. Pinch Valve Pressure Regulator

1.7.15 Gate Valves

The Model A is equipped with two 2-inch gate valves. One valve is installed in the pipe that runs to the hopper. This valve is used to govern the amount of blower air pressure to the hopper or the 4 lower air pads during the fill cycle. The second valve is mounted in the blow by manifold and is used to bleed off air from the blower that feeds the hopper.

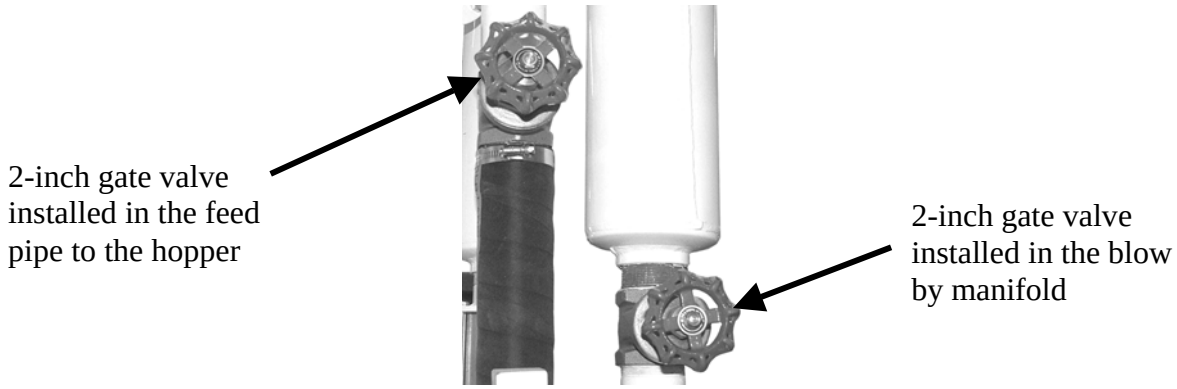


Figure 1-16. 2-Inch Gate Valves

1.7.16 Pinch Valves

The Model A uses pinch valves to control airflow from the blower to regulate the fill process. When air pressure is supplied to the valve, it causes the rubber sleeve to collapse, effectively closing the valve. When air pressure to the valve is reduced or eliminated, the air pressure from the blower overcomes the valve and pushes it all the way open.

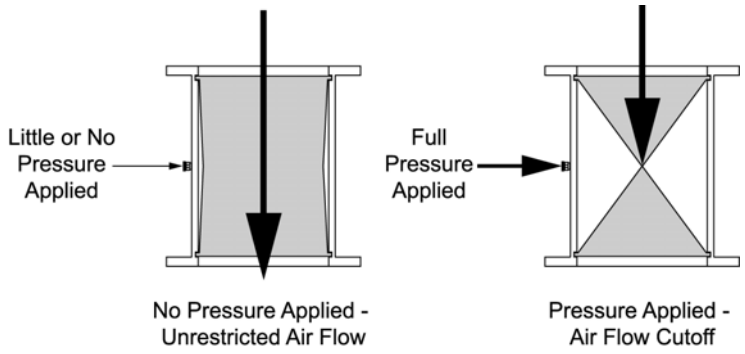


Figure 1-17. Pinch Valve Operation

The Model A is equipped with three pinch valves:

1. Discharge pinch valve
2. Exhaust pinch valve
3. Tank pinch valve

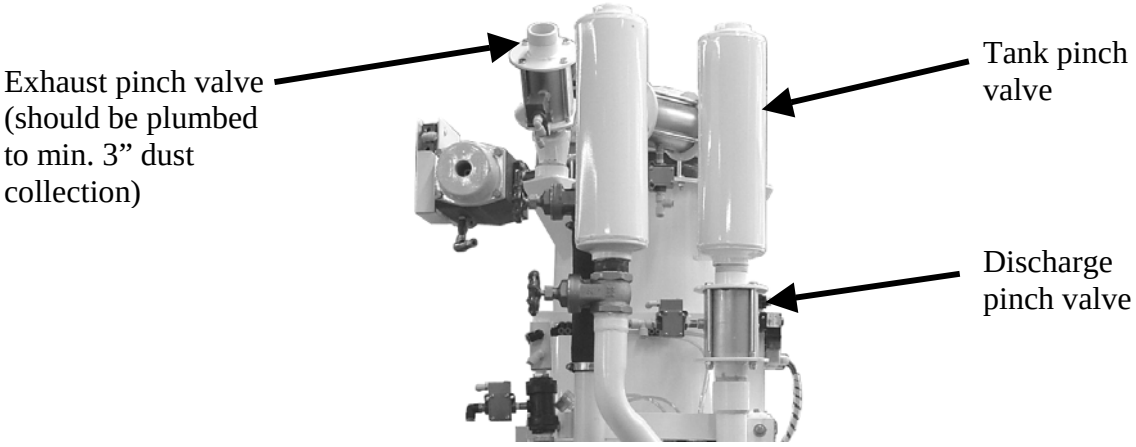


Figure 1-18. Pinch Valves

The three pinch valves work together to make the fill process work. When filling a package, the discharge and exhaust pinch valves are closed, while the tank pinch valve is open. At the conclusion of the fill cycle, the discharge pinch valve is open and the tank and exhaust pinch valves are closed. When the hopper is being recharged, the discharge and exhaust pinch valves are open and the tank pinch valve is closed.

Each pinch valve is controlled using an electric solenoid actuated pneumatic valve.

1.7.17 Fluidizer Air Pad Pinch Valve

The fluidizer air pad pinch valve is installed in a port that branches off of the tank feed tube. This valve is used to control the flow of blower air to the four fluidizer air pads that are installed in the sides of the hopper. Compressed air from the plant air source is used to open and close the fluidizer air pad pinch valve.

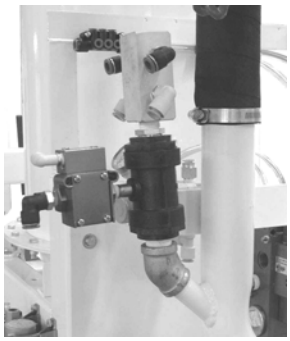


Figure 1-19. Fluidizer Air Pad Pinch Valve

1.7.18 Mufflers

The Model A is equipped with two mufflers that are used to reduce the noise that is emitted from the ductwork on the rear of the machine when the pressurized air from the blower is vented to the atmosphere.

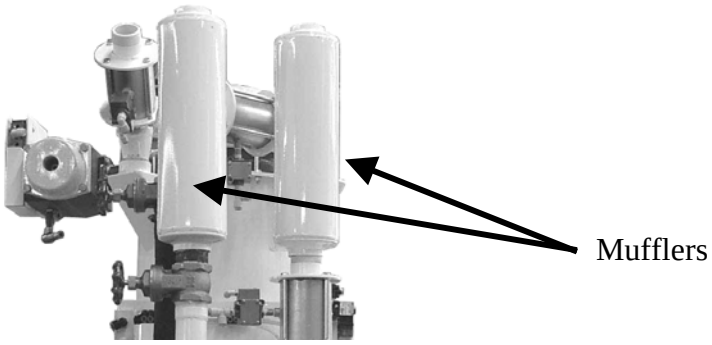


Figure 1-20. Mufflers

1.7.19 Air Pads

The Model A uses a series of five air pads to assist the product to flow from the hopper to the gum rubber fill tube and on to the spout. The four air pads in the bottom of the hopper, called fluidizer pads, are evenly spaced around the perimeter. The fifth pad, called the lower air pad, is mounted on the clean out door of the transition between the hopper and the gum rubber fill tube.

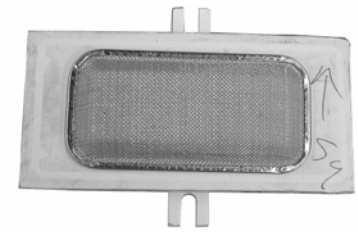


Figure 1-21. Lower Air Pad Mounted on Cleanout Door, Internal View

1.7.20 Optional Kicker

A kicker is used to remove the full packages from the spout. The kicker is controlled using a pneumatic cylinder. The height of the kicker is adjustable to accommodate packages of different lengths.

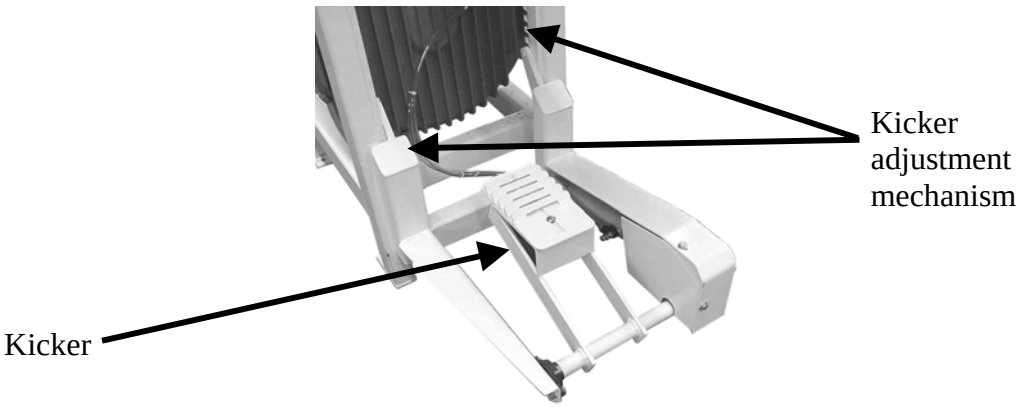


Figure 1-22. Kicker (Optional)

1.7.21 Delay Timers

In order for the Model A to package correctly, the butterfly valve must cycle in sequence with the pinch valves. This requires a means of timing the pinch valves to the butterfly valve. The Model A accomplishes this by using time delay solenoids on some of the pinch valves. The timers are mounted on the left side of the Model A, when viewing the Model A from the front. They are mounted on a cross member that is just behind the hopper.

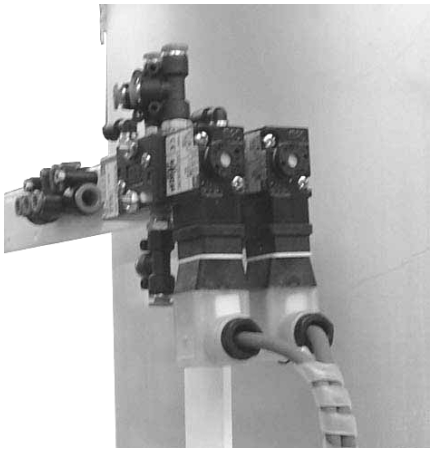


Figure 1-23. Timers

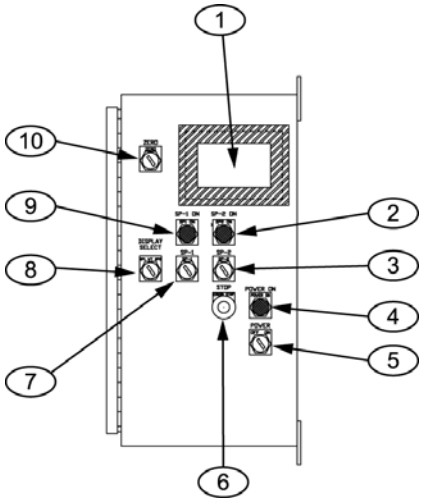
1.7.22 Control Box

The Model A can be equipped with two types of control systems. The standard control system is an analog control panel. An optional control system utilizes a Taylor Products/Hardy Instruments T3000 control panel. Both systems utilize a control box that will be mounted on the Model A. The control boxes contain the control components that allow the Model A to function.

1.7.22.1 Standard Analog Control Box

The controls that the operator will use to start, stop, and adjust machine functions are located on the front side of the control box. The base control package for the Model A uses analog controls. The operator controls consist of the following items:

- Weight display
- DISPLAY SELECT switch
- SP-1 knob (not functional on SSP units)
- SP-1 indicator (not functional on SSP units)
- SP-2 knob
- SP-2 indicator
- ZERO knob
- POWER ON indicator
- POWER switch
- STOP button/indicator



Item #	Description	Item #	Description
1	Weight display	6	STOP button/indicator
2	SP-2 indicator	7	SP-1 knob (not used on SSP units)
3	SP-2 knob	8	DISPLAY SELECT switch
4	POWER ON indicator	9	SP-1 indicator (not used on SSP units)
5	POWER switch	10	ZERO knob

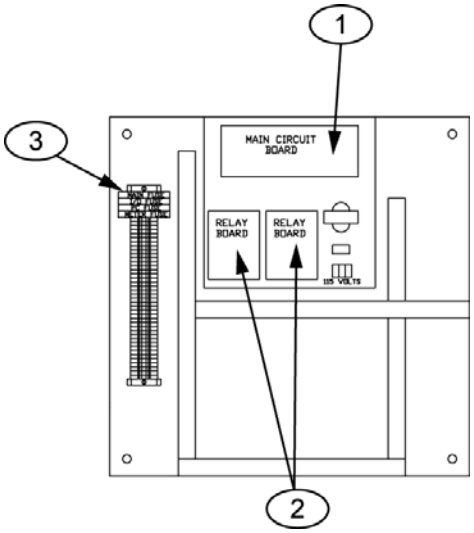
Figure 1-24. Control Panel With Analog Controls

The POWER switch is located on the right side of the control box and has two positions, OFF and ON. As its name indicates, this switch is used to turn the machine on and off. Located directly above the POWER switch is the POWER ON indicator. When the POWER switch is turned to the ON position, if the machine is connected to its power source, this indicator will illuminate green. Located directly to the left of the POWER ON indicator is the STOP button/indicator. The STOP button/indicator will immediately stop the machine when it is pushed in. When pushed, this button will illuminate red to indicate that the button is pushed and that machine function has been interrupted. Mounted side-by-side, just above the STOP button are the SP-1 and SP-2 knobs. On a SSP machine, the SP-1 knob is non-functional. On a DSP machine, the SP-1 knob is used to set the dribble weight. On both SSP and DSP machines the SP-2 knob is used to set the cutoff weight.

1.7.22.2 Standard Electronic Control Components

Inside the control box are the components that actually perform the control functions for the machine. These components include the following components:

- Main pc board
- Relay boards
- Fuse holders, fuses, and terminals



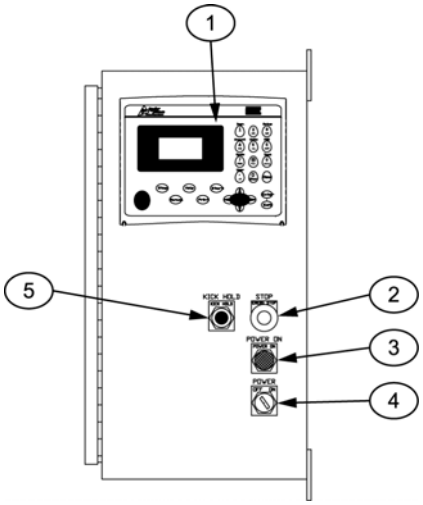
Item #	Description	Item #	Description
1	Main pc board	3	Fuse holders and fuses
2	Relay boards		

Figure 1-25. Electronic Control Components – Inside the Analog Control Box

1.7.22.3 Optional T3000 Operator Control Box

The controls that the operator will use to start, stop, and adjust machine functions are located on the front side of the control box. The operator controls consist of the following items:

- T3000 control panel
- POWER ON indicator
- POWER switch
- STOP button/indicator
- KICK HOLD button



Item #	Description	Item #	Description
1	T3000 Control Panel	4	Power switch
2	STOP button/indicator	5	KICK HOLD button
3	POWER ON indicator		

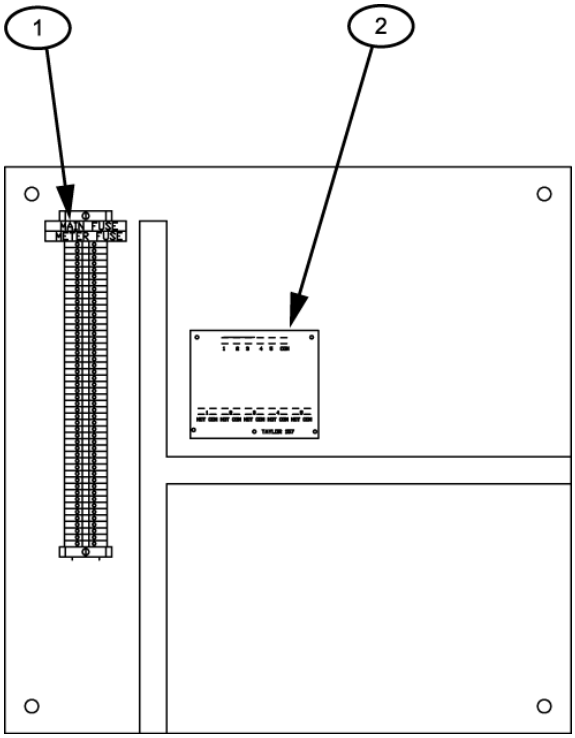
Figure 1-26. Optional T3000 Control Panel

The POWER switch is located on the lower right corner of the control box and has two positions, OFF and ON. As its name indicates, this switch is used to turn the machine on and off. Located directly above the POWER switch is the POWER ON indicator. When the POWER switch is turned to the ON position, if the machine is connected to its power source, this indicator will illuminate green. Located directly above the POWER ON indicator is the STOP button/indicator. The STOP button/indicator will immediately stop the machine when it is pushed in. When pushed, this button will illuminate red to indicate that the button is pushed and that machine function has been interrupted. The T3000 is centered on the face at the top of the box. The KICK HOLD button, when pressed, interrupts the kicker from ejecting the bag from the spout. This would be done to allow the operator to verify the weight of the bag. The T3000 is the operator interface to the Model A. This control panel is used to make operational adjustments to the machine.

1.7.22.4 Optional T3000 Electronic Control Components

Inside the control box are the components that actually perform the control functions for the machine. These components include the following components:

- T3000 interface card
- Fuse holders, fuses, and terminals



Item #	Description	Item #	Description
1	Fuse holders, fuses, and terminals	2	T3000 interface card

Figure 1-27. Electronic Control Components – Inside the Optional T3000 Control Box

Chapter 2
Receiving Equipment

2.1 General Description

The Model A and all of its components are thoroughly inspected before shipment. Upon receipt of the equipment, it is important that the machine be carefully inspected for shipping damage. In the event that damage is found, contact the shipping company and follow their process for reporting shipping damage.

2.2 Uncrating the Equipment

Follow the procedure below to unpack the equipment and prepare it for installation.

1. The Model A is a floor mount unit. Clear an area 10' x 10'. Make sure floor is level. It is recommended that you locate the Model A directly under the supply hopper. Complete any nearby construction before installing the Model A.
2. Before removing Model A from the shipping pallet, inspect the Model A for visible damage. Inspect for damaged or missing parts. If there is damage, notify the shipper immediately. If the unit is not damaged, proceed to the next step.
3. Remove the shell crate. Use care when unpacking the Model A to avoid damage to any hinged parts and external control knobs.

Figure 2-1. Typical Shell Crate

4. Carefully cut the plastic shrink-wrap that is wrapped around the Model A away and remove it.
5. Remove lag bolts from mainframe at pallet.
6. If the unit must be moved, lift using the base frame.
7. Remove all crating and discard.
8. Place the Model A in the location where it is to be installed and verify that the Model A is level.
9. Loosen the nuts on the shipping bolts until they bottom out against the mount.

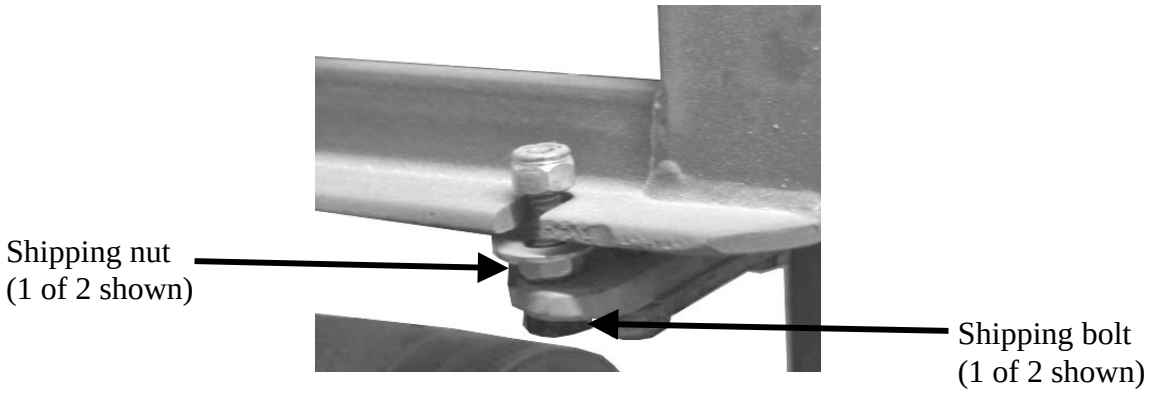


Figure 2-2. Shipping Bolt (1 of 2 shown)

10. If the optional air filter was ordered, open the cardboard box and remove the air filter.

Chapter 3
Setup/Installation

3.1 General Description

Only persons who have been properly trained and hold the appropriate qualifications should attempt to install, operate, or maintain this equipment.

WARNING *Before installing, adjusting, or servicing any electrical component, be sure to become familiar with the electrical schematic for the machine.*

WARNING *Before installing, adjusting, or servicing any pneumatic component, be sure to become familiar with the pneumatic schematic for the machine.*

3.2 Installing Components

If the Model A was ordered with the optional intake air filter, it must be installed prior to placing the Model A into service. Refer to 7.3.10 Intake Air Filter Replacement.

3.3 Making Electrical Connections

Before connecting the Model A to the electrical supply, it is vital that the unit be properly grounded. The recommended method is to plug the power cord into an earth grounded receptacle.

The Model A requires two different voltages for it to operate. The controls require 115 VAC at 50 or 60 Hz. The blower can be set up to operate on either 240 or 460 VAC at 50 or 60 Hz. The Model A should be placed within 6 feet of the electrical outlets that it will be connected to.

3.4 Making Pneumatic Connections

The Model A requires a compressed air supply line that is capable of delivering approximately 2-3 CFM (57-85 liters) @ 80-100 PSI (.55-.69 MPa) of compressed air. Taylor Products recommends that the air supply line be equipped with a refrigerated air dryer, or at the very least a water separator. After making pneumatic connections, check all connectors for leaks using a soapy water mixture. Bubbles will appear at the site of any leaks. Eliminating or reducing air leaks will reduce wear on the air supply equipment.

3.4.1 Lubrication Requirements

The pneumatic cylinders require lubrication to ensure their proper operation and to extend their useful life. The lubricator should be filled with 10 or 20 weight, non-detergent oil.

The oil flow control knob, located on top of the lubricator, should be set so that the lubricator is delivering 1 drop of oil for every 15 to 20 bags that are filled.

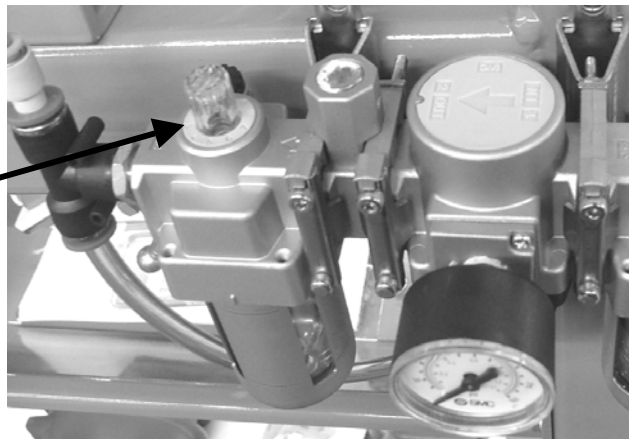


Figure 3-1. Lubricator – Oil Flow Control

Use caution when setting the flow control on top of the lubricator. While too little oil can cause operational problems, so can too much oil. If the oil control is set too high, it may result in the solenoid valves and cylinders getting gummed up and the air supply lines.

3.5 Making Network Connections

Model A units that are equipped with the optional digital control set have the ability for total monitoring and instrument control via the built in communication connectivity of the T3000. The T3000 has the following network capabilities:

- DeviceNet
- HardyLink Ethernet
- IR Port
- RS-232 Simplex Serial Port
- Remote I/O (RIO) (optional)
- ControlNet (optional)
- Profibus I/O (optional)
- Modbus over TCP/IP (optional)
- OLE Process Control (OPC) (optional)

3.6 Establishing Security Settings

On Model A's that are equipped with the optional T3000 digital control set, the manager has the ability to control who does and who does not have the ability to change system and calibration settings. There are three levels of system security:

- Low - No password required
- Medium – A password is required to access some, but not all of the top level menus
- High – A password is required to access all top-level menus.

Additionally, the manager also has the ability to assign different levels of security to individual menus. The menus where this applies are:

- Adjust Ingredient
- Setup
- Calibration
- Options
- I/O Mapping

If a menu has a security setting of Medium or High, the users' access will be read-only, unless they enter the correct password.

3.6.1 Setting Security Settings Using the Control Panel

The typical method for setting security settings on the T3000 is via the control panel. Follow the steps below to set security.

1. Press the User shortcut key. Enter the User ID and high-level password.
2. From the Standby display, press the Setup button. The Configuration Menu will appear.
3. Use the up/down arrows to position the cursor in front of SECURITY. Press the Enter button.
4. The SECURITY MENU will appear. The cursor will be in front of SET SECURITY MENU selection. Press the Enter button.
5. The SET SECURITY MENU will appear. The Top-Level Menus will be listed with the security level set at the default LOW setting.
6. Press the up/down arrow buttons to position the cursor in front of the desired menu selection.
7. Press the left/right arrow buttons to change the security setting for that menu item.
8. Once the desired security level is displayed, press the Enter button to set the entry.
9. If other menus require an adjustment to its security setting, repeat steps 5 through 7.
10. When all security setting adjustments have been completed, press the Exit button to return to the Standby display.

3.6.2 Setting Security Settings Using the Browser

Security settings on the Model A can also be set via the T3000 Home Page.

1. Type in the address for the T3000 Home Page.
2. When the page appears, click on the Configuration link. The Configuration page will appear.
3. Click on the Security link. An Enter Password dialog box will appear.
4. Type the number 0 into the dialog box and click on OK.

Note: *If this is not the first time that a password is being set, the manager will need to enter the existing password, instead of 0, and then click on OK.*

5. The Enter Network Password dialog box will appear.
6. Enter the User ID and Password. If the password is to be saved, make sure the check box is checked below the Password line. Click on OK.
7. When the Security screen appears, the settings will be at the default level.

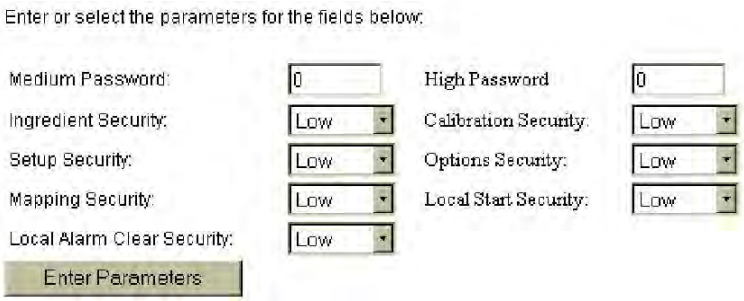


Figure 3-2. Screen for Setting Menu Security Level

8. The screen lists each menu with a drop down box, where the manager sets the security level for the menus. Also, this page contains two text boxes where the manager can enter the desired one to four-digit password for the Medium and High security levels. After making the selections, click on the Enter Parameters button to complete the setup procedure.

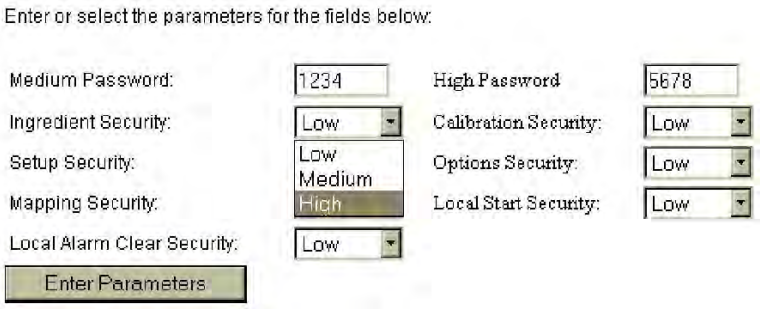


Figure 3-3. Making Security Settings

3.7 Dry Cycle

Once all electrical/pneumatic connections have been made, the operator should dry cycle the machine to test the control components. If all components operate properly, the machine is ready to calibrate.

Important: *During the dry cycle process, the blower* ***WILL NOT*** *be turned on.*

Note: *The cylinders may be cycled manually by pressing the test buttons on the solenoid valves.*

1. Turn the power switch on the control panel of the Model A to the ON position.
2. Make sure that the air pressure on the FRL is set to specification.
3. Press the START switch on the control panel. This should result in the following actions:
   - The bag clamp will extend and the bag clamp pad should come in contact with the spout.
   - The kicker (if equipped) will retract to the down position.
   - The butterfly valve actuator will close the butterfly valve.
   - The pinch cylinders will retract to open the fill tube.
4. Press the STOP button to simulate the package reaching target weight. This should result in the following actions:
   - The bag clamp will retract.
   - The kicker (if equipped) will extend.
   - The butterfly valve actuator will open the butterfly valve.
   - The pinch cylinders will extend to close the fill tube.

3.8 Calibration

Each Model A Air Packer is calibrated prior to leaving the factory. However, the unit should be reassessed before first use of the unit. It is recommended that the calibration of the unit should be checked every week. A certified test weight must be used to check the calibration of the Model A.

3.8.1 Base Analog Control Set

The calibration procedure for a base analog control set is a three-tier process.

3.8.1.1 Weight Display Setup

1. Turn the power switch ON and allow the unit to warm up for 30 minutes.
2. Open the control enclosure.
3. Locate the weight display board.
4. Observe the weight display and set the decimal point to the desired position.
    a. On 3-½ digit displays, use the dipswitches to adjust the position of the decimal point (refer to Figure 3-4). The dipswitch all the way to the left (#1), controls the 199.9 decimal point position. The second switch from the left controls 19.99 decimal point position. The third switch from the left controls the 1.999 decimal point position. The fourth switch from the left is not used.

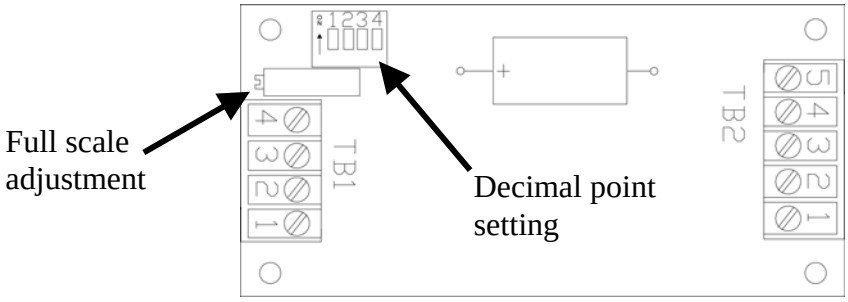


Figure 3-4. Decimal Point Setting and Full Scale Adjustment (3-½ Digit Display)

    b. On 4-½ digit displays, use the pin jumper to adjust the decimal point position (refer to Figure 3-5). Each pin position will translate into a different decimal placement. The pin all the way to the left (#1), controls the 1999.9 decimal point position. The second pin from the left controls 199.99 decimal point position. The third pin from the left controls the 19.999 decimal point position. The fourth pin from the left controls the 1.9999 decimal point position.

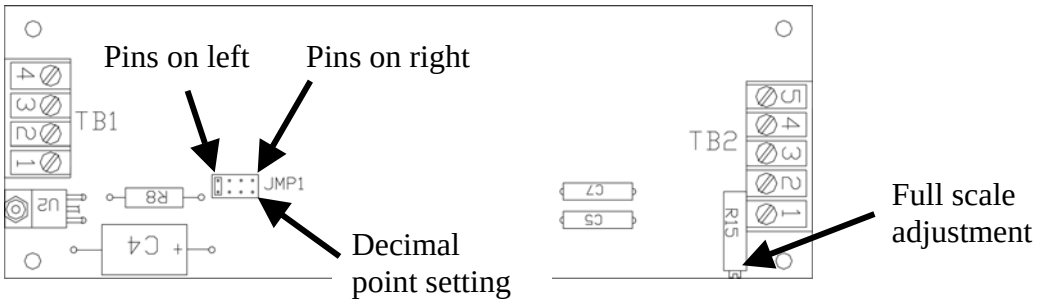


Figure 3-5. Decimal Point Setting and Full Scale Adjustment (4-½ Digit Display)

5. Turn either the SP-1 or SP-2 control knob (may appear as EARLY CUTOFF or CUTOFF) fully clockwise.
6. Turn and hold the DISPLAY SELECT switch to the corresponding position for the control knob that was turned fully clockwise in step 5.
7. Watch the weight display and turn the full-scale adjustment (refer to Figure 3-4, if using a 3-½ digit display, or Figure 3-5, if using a 4-½ digit display) until the number displayed is equal to the desired full-scale weight range multiplied by a factor of 1.24. For example, if the desired full-scale weight range is 10.00 lb., set the range to 12.40 lb. If a 50.00 lb. package is desired, set the range to 62.00 lb. For applications requiring measurements using metric units, a 4-½ digit display must be used. The same factor of 1.24 is used. For a desired full-scale weight range of 5 kg. set the display to 6.2 kg. For 25kg., set the display to 31 kg.

3.8.1.2 Offset and Zero Setup

1. Make sure no weight is being applied to the weigh carriage.
2. Momentarily energize ZERO RESET if the unit is equipped with the Auto Zero feature.
3. Adjust the ZERO knob to the center of the span. Turn the knob either left or right to full range, then turn it back the opposite direction five full turns.
4. Locate the Coarse Zero Adjustment (SW-1) dipswitches on the main pc board (refer to Figure 3-4). The switches are used in combination to minimize weight offset. Switch 1 (SW1-1) causes the least amount of change, while Switch 5 (SW1-5) will cause the greatest amount of change. There are 32 possible combinations of switch settings, with all switches in the ON position providing the greatest amount offset. Choose the appropriate amount of offset so that the weight display is as close to zero as possible.

Table 3-1. Coarse Zero Adjustment Switch Settings

Step	SW1-1	SW1-2	SW1-3	SW1-4	SW1-5
0	OFF	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF	OFF
2	OFF	ON	OFF	OFF	OFF
3	ON	ON	OFF	OFF	OFF
4	OFF	OFF	ON	OFF	OFF
5	ON	OFF	ON	OFF	OFF
6	OFF	ON	ON	OFF	OFF
7	ON	ON	ON	OFF	OFF
8	OFF	OFF	OFF	ON	OFF
9	ON	OFF	OFF	ON	OFF
10	OFF	ON	OFF	ON	OFF
11	ON	ON	OFF	ON	OFF
12	OFF	OFF	ON	ON	OFF
13	ON	OFF	ON	ON	OFF
14	OFF	ON	ON	ON	OFF
15	ON	ON	ON	ON	OFF
16	OFF	OFF	OFF	OFF	ON
17	ON	OFF	OFF	OFF	ON
18	OFF	ON	OFF	OFF	ON
19	ON	ON	OFF	OFF	ON
20	OFF	OFF	ON	OFF	ON
21	ON	OFF	ON	OFF	ON
22	OFF	ON	ON	OFF	ON

Step	SW1-1	SW1-2	SW1-3	SW1-4	SW1-5
23	ON	ON	ON	OFF	ON
24	OFF	OFF	OFF	ON	ON
25	ON	OFF	OFF	ON	ON
26	OFF	ON	OFF	ON	ON
27	ON	ON	OFF	ON	ON
28	OFF	OFF	ON	ON	ON
29	ON	OFF	ON	ON	ON
30	OFF	ON	ON	ON	ON
31	ON	ON	ON	ON	ON

5. Use the ZERO knob on the front of the control panel to adjust the weight display to zero.

3.8.1.3 Calibration of Scale to Full-Scale Weight

1. Check the weight display to make sure that it is displaying zero. The ZERO knob should be adjusted so that the – (minus) has just disappeared from the display.
2. Hang a certified test weight on the spout. Position the weight so it is as close to the center of the spout as possible. The test weight should be as close to the desired maximum package weight as possible to help reduce linear deviation. Linear deviation can occur when a lighter test weight is used to set the scale gain.

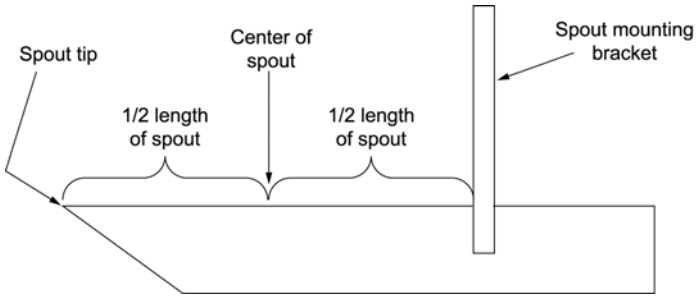


Figure 3-6. Finding The Center Of The Spout

3. Locate the Coarse Gain Adjustment (SW-2) dipswitches on the main pc board (refer to Figure 3-7). The SW-2 switches are used in combination to set the gain (calibrate the unit). Switch 1 (SW2-1) causes the least amount of change, and Switch 5 (SW2-5) causes the greatest amount of change. There are 32 possible combinations of switch settings, with all switches in the ON position giving the highest amount of gain.
4. Locate the Fine Gain Adjustment potentiometer on the main pc board. This control serves the same function in the calibration process as the front panel ZERO knob does in the Zero Setup process. It should be set to the center of its range before beginning calibration. Centering the Fine Gain Adjustment potentiometer is not as easy as centering the ZERO knob. The best way to center it is to place a calibration weight on the spout and to observe the weight display while the potentiometer is adjusted. Turn the screw clockwise until the weight display stops changing, then turn it counterclockwise and count the turns until the display stops changing again. Turn the screw clockwise ½ the number of counterclockwise turns (i.e. if it took 6 counterclockwise turns for the display to stop changing, then turn the screw 3 turns clockwise). It should now be centered.

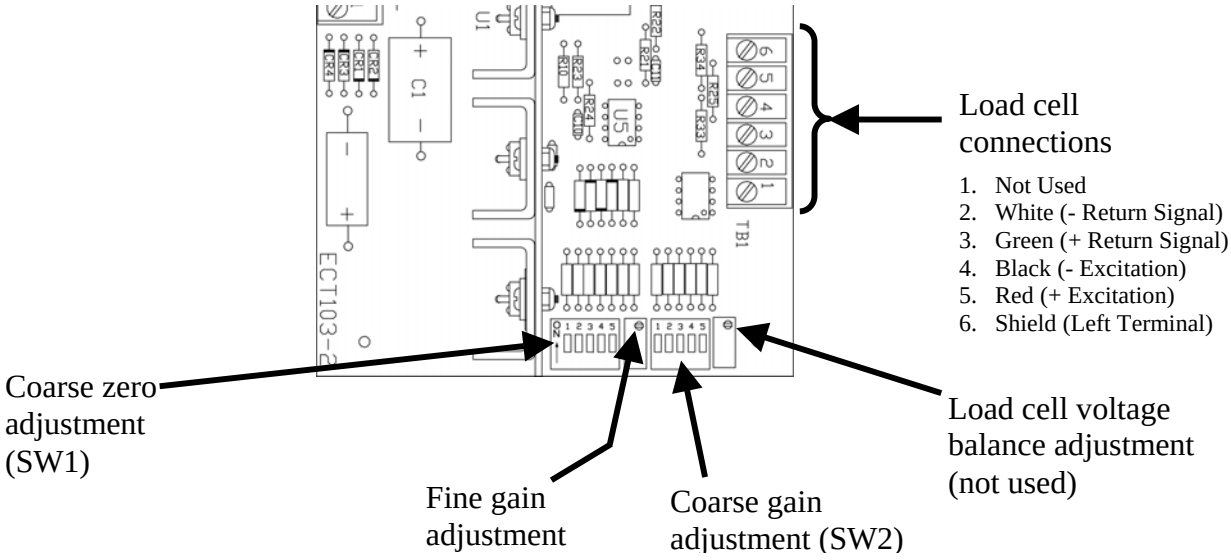


Figure 3-7. Coarse Zero, Fine Gain, Coarse Gain, and Load Cell Voltage Balance Adjustments

Note: *The Load Cell Voltage Balance Adjustment is not used on the Model A.*

5. Use the Coarse Gain Adjustment (SW2) dipswitches on the main pc board in combination to make the display read as close to the weight of the test weight as possible. Refer to the following table for information on setting the switches.

Table 3-2. Coarse Gain Adjustment Switch Settings

Step	SW1-1	SW1-2	SW1-3	SW1-4	SW1-5
0	OFF	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF	OFF
2	OFF	ON	OFF	OFF	OFF
3	ON	ON	OFF	OFF	OFF
4	OFF	OFF	ON	OFF	OFF
5	ON	OFF	ON	OFF	OFF
6	OFF	ON	ON	OFF	OFF
7	ON	ON	ON	OFF	OFF
8	OFF	OFF	OFF	ON	OFF
9	ON	OFF	OFF	ON	OFF
10	OFF	ON	OFF	ON	OFF
11	ON	ON	OFF	ON	OFF
12	OFF	OFF	ON	ON	OFF
13	ON	OFF	ON	ON	OFF
14	OFF	ON	ON	ON	OFF
15	ON	ON	ON	ON	OFF
16	OFF	OFF	OFF	OFF	ON
17	ON	OFF	OFF	OFF	ON
18	OFF	ON	OFF	OFF	ON
19	ON	ON	OFF	OFF	ON
20	OFF	OFF	ON	OFF	ON
21	ON	OFF	ON	OFF	ON
22	OFF	ON	ON	OFF	ON
23	ON	ON	ON	OFF	ON
24	OFF	OFF	OFF	ON	ON
25	ON	OFF	OFF	ON	ON

Step	SW1-1	SW1-2	SW1-3	SW1-4	SW1-5
26	OFF	ON	OFF	ON	ON
27	ON	ON	OFF	ON	ON
28	OFF	OFF	ON	ON	ON
29	ON	OFF	ON	ON	ON
30	OFF	ON	ON	ON	ON
31	ON	ON	ON	ON	ON

6. Use the Fine Gain Adjustment potentiometer to trim the weight display reading so that it is exactly the same as the weight of the test weight. Refer to Figure 3-7.
7. Remove the test weight from the spout. Check the weight display to make sure it returns to 0.00.
8. If the weight display does not return to 0.00, use the ZERO knob on the front of the control panel to trim the weight display to 0.00.
9. Repeat steps 2 through 7, until the unit is calibrated.
10. Close the control box when the calibration is completed.

Note: *This procedure may have to be repeated several times before the MODEL A is properly calibrated.*

Note: *When more extensive calibration is required, use the coarse adjustment switches.*

3.8.2 Optional T3000 Control Set

The Calibration Menu is used to calibrate the weighing system of the T3000. There are two available methods of calibration. The two methods are:

- Via the control panel.
- Via web page

Before beginning the calibration procedure, be sure that the machine is ready to be calibrated. Make sure that the load points have been installed properly. Follow the steps below to make sure the Model A is ready for calibration:

1. Make sure the load system is free of binding and that nothing is draped over the equipment, such as hoses, electrical cords, tubes, etc.
2. Verify that the load cell is mounted so that 100% of the load always passes vertically through the load cell at the same point.
3. Check all communication and power cables to be sure they are securely fastened to their connectors on the rear of the control panel.
4. Make sure that power is supplied to the controller. The panel display should illuminate.

Important: *The operator MUST log in with the proper security level to initiate calibration. Once logged in, an access timer will run. If the timer expires (typically about 5 minutes), the operator will be logged out. The operator will have to log in again to regain access.*

When the operator selects CALIBRATION from the Configuration Menu, the CALIBRATION screen appears. There is one line on that screen, it is the Cal Type line. The currently selected method of calibration will appear at the far right on the Cal Type line. Use the left/right arrow keys to toggle to until TRAD is displayed on the line. Press the Enter key to access the screen for the TRAD calibration method.

3.8.2.1 TRAD Calibration

This screen will provide the following lines for the operator.

- Zero Value – This value should be set to zero.
- Zero Ct – This parameter is controlled by the controller.
- Do Trad. Cal (Zero) – Start the calibration procedure.
- Span Value – The amount of weight being used for calibration.
- Span Ct – This parameter is controlled by the controller.
- Do Trad. Cal (Span) – Start the calibration procedure.

Use this procedure to calibrate a machine with traditional load cells.

1. Turn on the meter.
2. Press the User shortcut key. Enter the User ID and medium or high-level password.
3. Press the Setup key to access the CONFIGURATION MENU.
4. Use the up/down arrow buttons to scroll to the CALIBRATION line. Press the Enter key to access CALIBRATION.

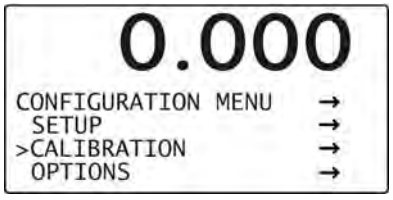


Figure 3-8. Calibration Line

5. Use the left/right arrow keys to toggle to the TRAD selection if it is not already displayed. Press the Enter key.

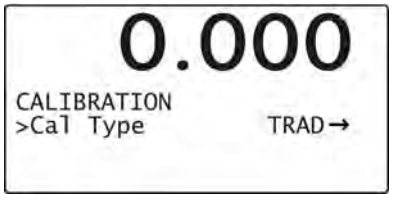


Figure 3-9. Selecting TRAD Calibration

6. A Function OK message will flash briefly in place of the Cal Type line, then the TRADITIONAL CAL screen will appear. Check the display to make sure that the Zero Value reads 0.0.

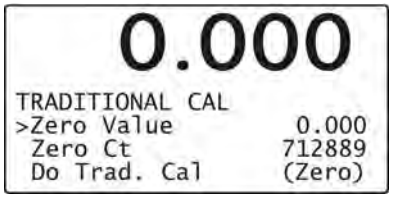


Figure 3-10. Checking Zero Value

7. Use the up/down arrow keys to scroll to the Do Trad. Cal (Zero). Press the Enter key. The weight display will display !Calibration in Progress! and will return to its calibration screen.

8. Use the up/down arrow keys to scroll to the Span Value selection and use the alphanumeric keypad to enter the weight that will be used for calibration. Press the Enter key.

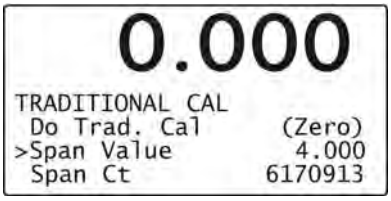


Figure 3-11. Setting Span Value

9. Use the up/down arrow keys to scroll down to the Do Trad. Cal (Span). Place the calibration weight on the scale by hanging it on the fill spout directly under the bag clamp cylinder. Press the Enter key. The weight display will display !Calibration in Progress! and will then return to its calibration screen. Press the Exit key three times to return to the main screen.

3.8.2.2 T3000 Quick Calibration From the Web Page

When equipped with the T3000 control set, the Model A can also be calibrated via the T3000 Home Page. The T3000 is equipped with an Ethernet connection that allows remote access to the T3000 control set.

1. Type in the address for the T3000 Home Page.
2. When the page appears, click on the Configuration link, which is located under the Local Links heading in the left margin of the page. The Configuration page will appear.
3. Click on the Calibration link. The Calibration Sub-Menu will appear.
4. On the Calibration Sub-Menu, the Load Sensor number is a read only field. It represents the number of load sensors that are correctly connected to the instrument.
5. To enter the Reference Weight, click in the Reference Weight field to place the cursor there.
   a. The Reference Point is the total weight that is currently on the scale.
   b. If there is no weight on the scale the Ref Point is 0. If there is 5 lbs on the scale the Ref Point is 5.
6. To clear the entry, move the cursor over the current reference weight, which highlights the weight value.
7. Using the keyboard, type the new value into the field.
8. Click on the “Do TRAD Calibration” button.
9. A page stating that the TRAD Calibration completed OK will appear.
10. Click on “Back” to return to the Calibration page.
11. Click on “Home” to return to the T3000 Home page. Calibration is complete.

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Chapter 4
Operation

4.1 General Description

This chapter will provide detailed descriptions of the operational controls of the Model A.

4.2 Operational Overview

There are several factors that contribute to the operation of the Model A. Understanding those factors are critical to understanding overall machine function.

4.2.1 Product Feed Rates

The Model A can be configured to use one or two fill speeds. A machine with one fill rate is referred to as a single set point (SSP) machine. A machine with two fill rates is known as a dual set point (DSP) machine. SSP machines will only use bulk rate to fill the package. DSP machines will use a bulk rate and a dribble rate. The bulk rate is a fast rate, while dribble rate is a slow rate. The bulk rate on a SSP machine will also be slower than the bulk rate on a DSP machine. Bulk rate is controlled by adjusting the amount of air pressure in the hopper.

On DSP machines, bulk rate is used to quickly fill the package until it is about 90% full. Once the package weight reaches set point 1 (SP-1), the dribble cylinders are activated, which slows the fill rate to the dribble rate. Dribble rate is controlled using the dribble cylinder travel adjustment knobs. The dribble rate will be used to fill the package the rest of the way. Once the package reaches set point 2 (SP-2), the cutoff cylinders are actuated, which cuts off the product flow to the spout. Once the product that is in free fall settles into the package, the package weight should match the target weight.

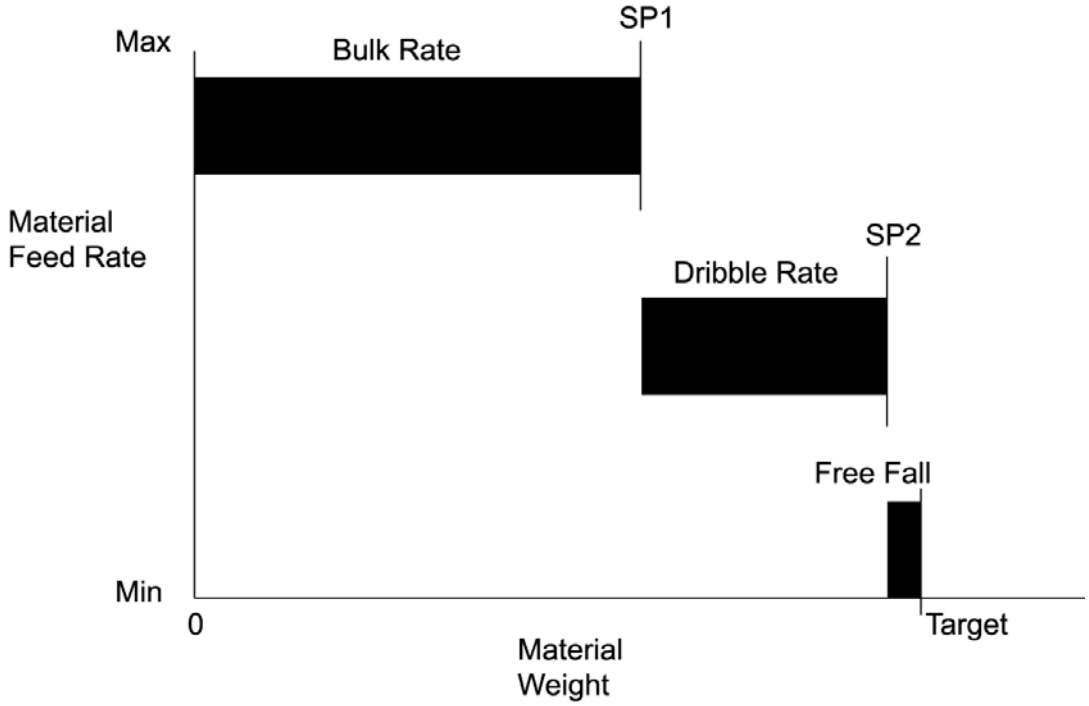


Figure 4-1. Bulk Rate vs. Dribble Rate

4.2.2 Typical Fill Cycle

The typical fill cycle for a Model A will vary a little, based on its configuration.

4.2.2.1 Single Set Point (SSP) Fill Cycle

1. Push the STOP button in.
2. Connect the main electrical and pneumatic connections.
3. Turn the power switch on the control panel to the ON position.

   Important: *Allow the Model A to warm up for 30 minutes before starting the first fill cycle.*

4. Turn the blower motor on.
5. Pull the STOP button out.
6. Put an empty bag on the spout. The operator's hand should trip the bag clamp actuator switch to start the fill cycle.
7. Bag clamp will extend. The butterfly valve will close, the cross pinch cylinders will retract, and the bag kicker (if equipped) will retract.
8. The bag will fill with product at the bulk rate until the weight of the package reaches the cutoff weight (SP-2), the front cross pinch cylinders will close to stop the flow of product through the fill tube. When the product settles in the package, the weight of the package should match the target weight.
9. The bag clamp will retract. The poppet valve will close the hopper port and open the exhaust port. The butterfly valve will open to allow the hopper to refill. The kicker (if equipped) will eject filled bag. On units without kicker, the operator will remove the bag manually.

4.2.2.2 Dual Set Point (DSP) Fill Cycle

1. Push the STOP button in.
2. Connect the main electrical and pneumatic connections.
3. Turn the power switch on the control panel to the ON position.

   Important: *Allow the Model A to warm up for 30 minutes before starting the first fill cycle.*

4. Turn the blower motor on.
5. Pull the STOP button out.
6. Put an empty bag on the spout. The operator's hand should trip the bag clamp actuator switch to start the fill cycle.
7. Bag clamp will extend. The butterfly valve will close, the cross pinch cylinders will retract, and the bag kicker (if equipped) will retract.
8. The bag will fill with product at the bulk rate until the weight of the package reaches the dribble weight (SP-1), then the rear cross pinch cylinders will close to partially close the fill tube and restrict the fill rate to the dribble rate.
9. The package will continue to fill at the dribble rate until the weight of the package reaches the cutoff weight (SP-2), the front cross pinch cylinders will close to stop the flow of product through the fill tube. When the product settles in the package, the weight of the package should match the target weight.
10. The bag clamp will retract. The poppet valve will close the hopper port and open the exhaust port. The butterfly valve will open to allow the hopper to refill. The kicker (if equipped) will eject filled bag. On units without kicker, the operator will remove the bag manually.

4.2.3 Air Delivery Network

The air delivery network on the Model A is what allows the Model A to function. Airflow is controlled to pressurize the hopper for product delivery, or to vent to the atmosphere to allow the hopper to recharge. Airflow is controlled through the use of pinch valves. Pinch valves are opened and closed in a specific sequence. The delivery cycles are referred the "A" (fill) cycle and the "B" (recharge) cycle.

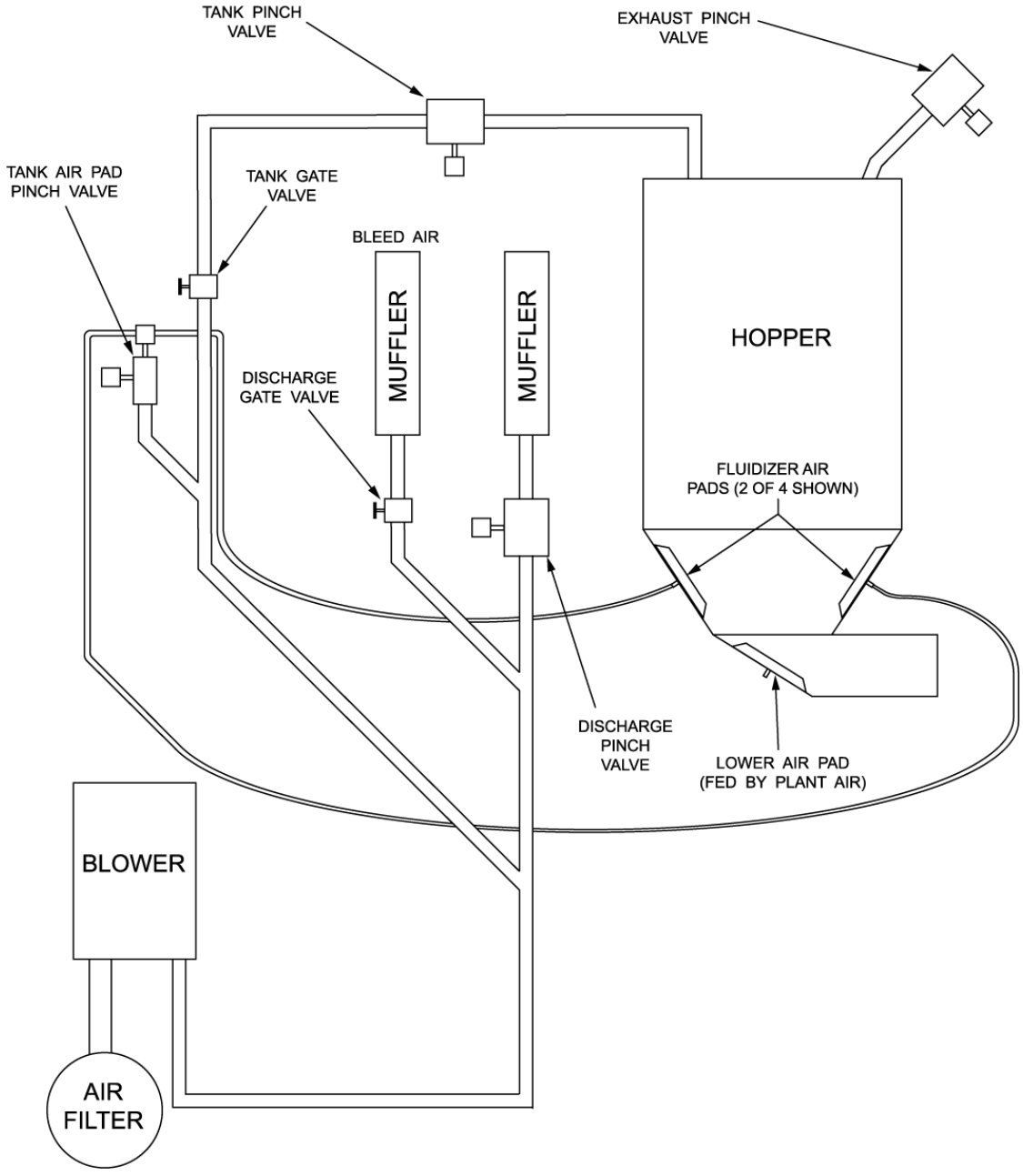


Figure 4-2. Air Delivery Network

Important: *The graphic shown above is a flow diagram. It is not a physical arrangement, or layout, of the components used on the Model A. This graphic is intended to provide operators and maintenance personnel with an understanding of how air flows through the Model A.*

4.2.3.1 "A" (Fill) Cycle

During the "A" cycle the package is being filled. The tank pinch valve and the rich way pinch valve are open. This allows air to enter the top of the chamber and flow through the fluidizer pads.

The exhaust pinch valve is fully closed. The discharge pinch valve is partially to fully closed to control the amount of air sent to the product chamber.

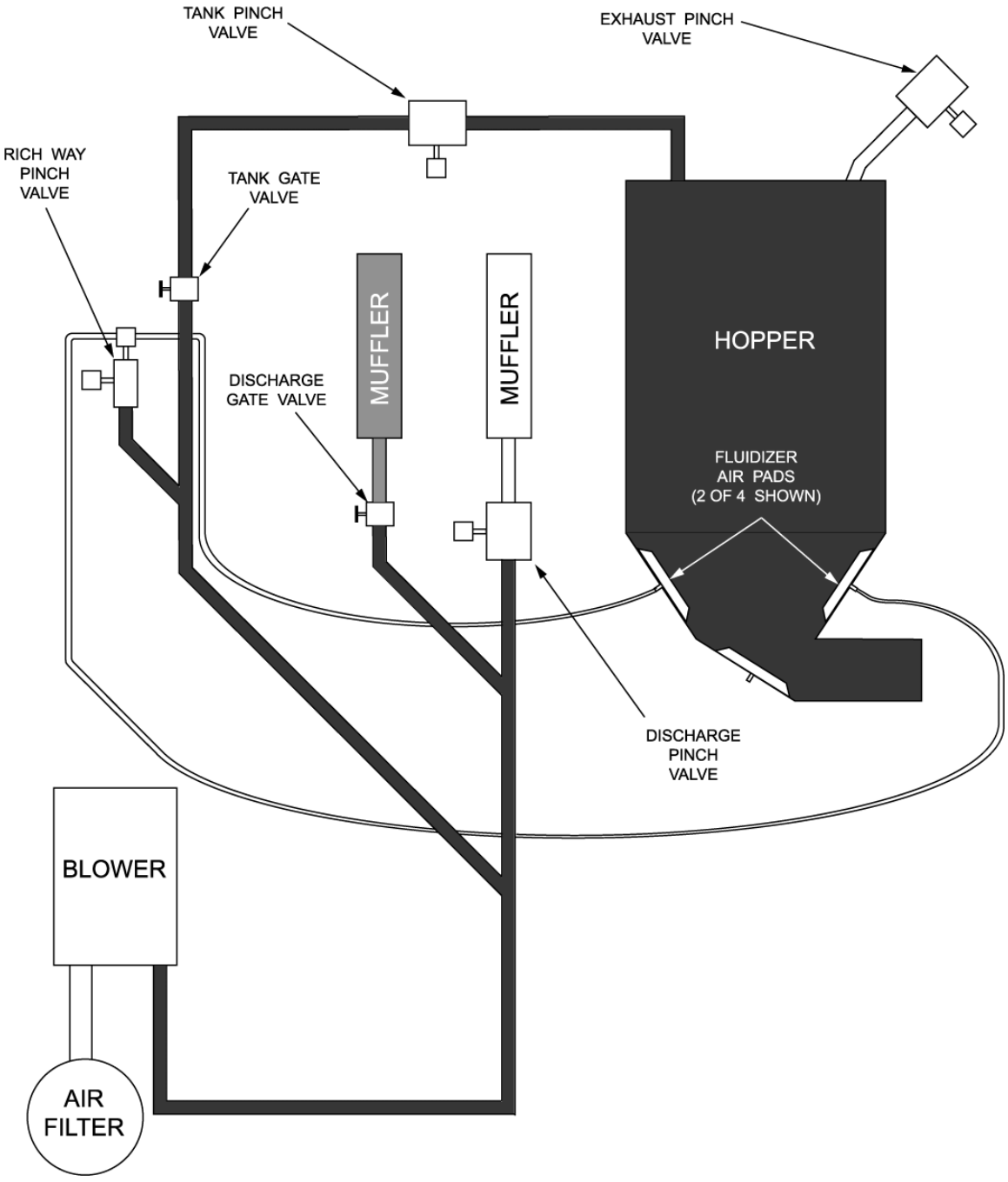


Figure 4-3. "A" (Fill) Cycle

4.2.3.2 "B" (Recharge) Cycle

During the "B" cycle the hopper is being recharged. The tank and tank air pad pinch valves are closed. The discharge pinch valve is open. The exhaust pinch valve cycles open for a moment to allow the trapped air pressure to vent from the product chamber, then closes again.

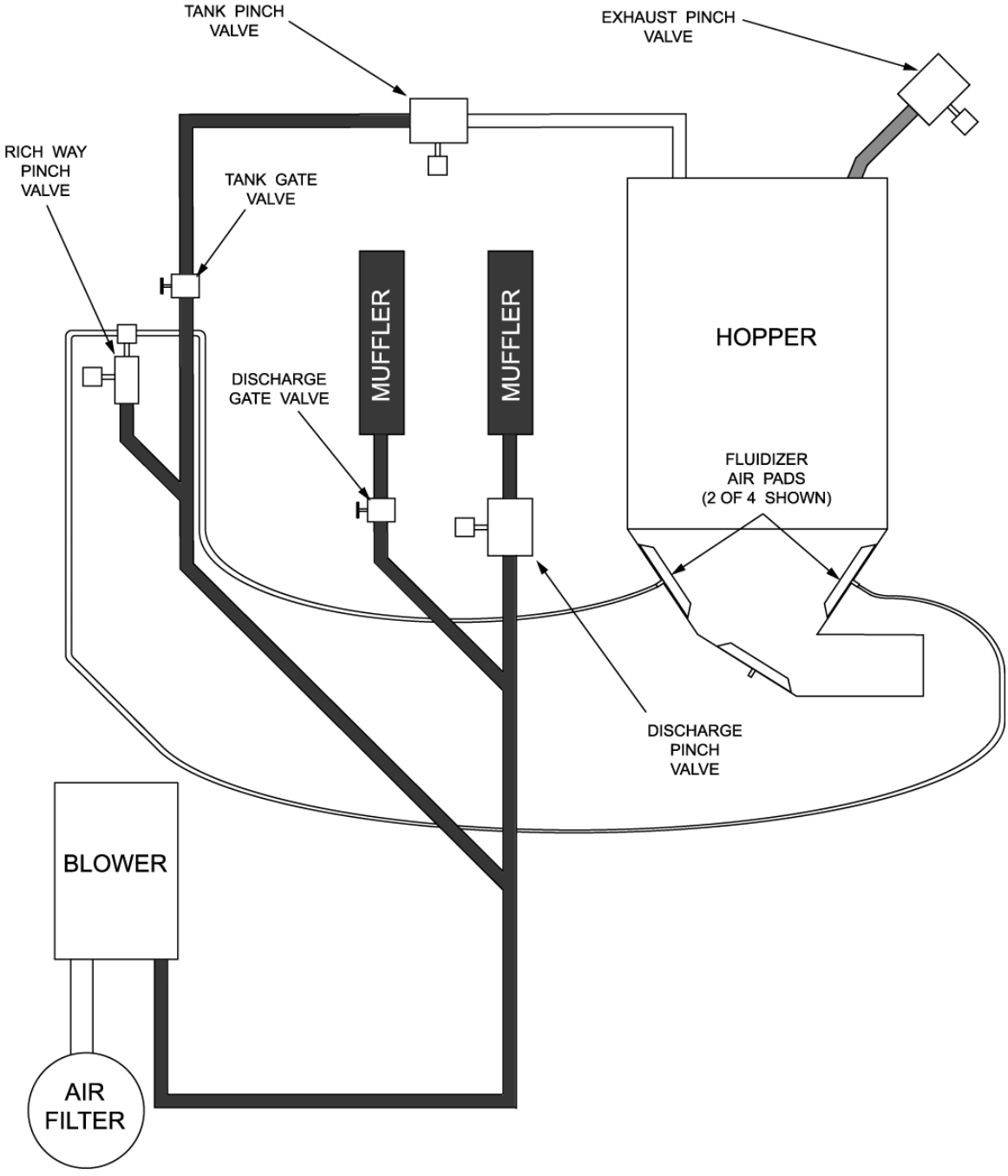


Figure 4-4. "B" (Recharge) Cycle

4.2.4 Controlling Air Pressure

Air pressure is a key factor to the function of the Model A. Generally speaking, air pressure is used to control component function and it controls the movement of product into the package. There are two sources of air pressure that must be considered:

- Blower air pressure
- Plant air pressure

4.2.4.1 Blower Air Pressure

Pressurized air, provided by the blower, is used to feed the product from the hopper into the package. A system of pipes and valves are used to control the flow and pressure of the air coming from the blower. Pinch valves are used to turn the airflow through a given pipe on or off.

The Model A uses two 2" gate valves:

- Tank gate valve
- Discharge gate valve

The tank gate valve is used to set the amount of top air versus fluidizer pad air. Open the gate valve fully to bag granules and close the valve to package powders.

> ***Note:*** *Some powders may need a little top air. In these cases, open the tank gate valve a little to facilitate the flow of the powder.*

The discharge gate valve is used to set the level of blower air that is released directly to the atmosphere. This adjustment controls the amount of top pressure that is pushing the product out of the hopper.

4.2.4.2 Plant Air Pressure

An air compressor that is located somewhere in the plant provides plant air pressure. This pressurized air supply is used to control specific devices, such as pinch valves, the cutoff and dribble cylinders, the bag clamp, and the optional kicker. MAC valves are used to control the flow of the plant air pressure electronically.

4.2.5 Delay Timers

In order for the Model A to package correctly, the butterfly valve must cycle in sequence with the pinch valves. This requires a means of timing the pinch valves to the butterfly valve. The Model A accomplishes this by using time delay solenoids on some of the pinch valves.

The air signal (SP-2A signal) from the SP-2A solenoid initiates the start of the fill cycle. This signal initiates the closing of the butterfly valve. At the same time as the butterfly starts to close, the start delay solenoid initiates it's timing cycle. This delays the pinch valves from changing and pressurizing the product chamber until the butterfly valve is completely closed.

When the start delay timer has run, the discharge pinch valve will close and the tank pinch valve and the rich way pinch valve will open. The exhaust pinch valve will already be closed. The exhaust delay solenoid sequences the exhaust pinch valve.

At the end of the fill cycle the SP-2A signal will stop and the SP-2B signal will be given from the SP-2B solenoid. This opens the butterfly valve to recharge the product chamber with material. Before the butterfly valve can open, the SP-2B signal causes the exhaust pinch valve to open and vent the trapped air pressure from the product chamber.

The exhaust delay timer starts with the SP-2B signal and times long enough to allow the chamber to vent. When the exhaust delay is done timing the exhaust pinch valve closes again to prevent large amounts of product from escaping the product chamber.

To change the amount of the timer delays use the small screw on the bottom side of the timer control. The adjustment screw is located off-center in the corner of the valve. The screw in the center holds the timer to the solenoid valve. There is a small red light to signal the length of time on the bottom of the timer control.

4.2.6 Adjustable Pinch Valve

The Model A is equipped with an adjustable pinch valve. This valve is used to transition from the bulk feed rate to the dribble feed rate. It is also used to stop the flow of product through the fill tube when the cutoff weight (SP-2) has been achieved. The adjustable pinch valve uses two pneumatic cylinders that are installed vertically, one on top of the other.

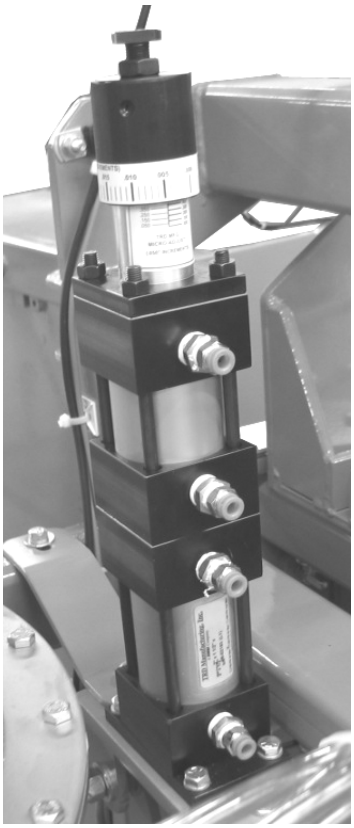


Figure 4-5. Adjustable Pinch Valve Cylinders

Compressed air is supplied to the pinch valve via two MAC valves. To fill at the bulk rate, air is supplied to the pinch valve cylinder to extend the cylinder rod and open the pinch valve arms.

When SP-1 has been reached, compressed air will be applied to cause the cylinder rod to retract. The rod will only retract as far as the dribble adjustment will allow. By partially retracting the cylinder rod, the pinch arms are pulled inward causing them to restrict the flow through the fill tube.

Once SP-2 has been achieved, the cylinder rod will retract fully, will result in the pinch arms completely closing off the fill tube.

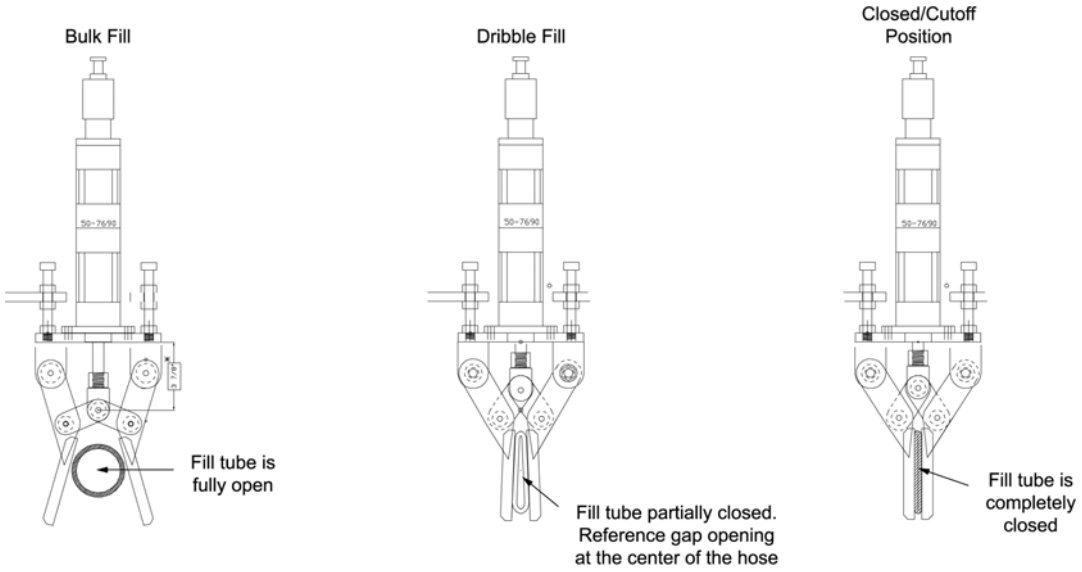


Figure 4-6. Adjustable Pinch Valve Operation

4.3 Operational Controls

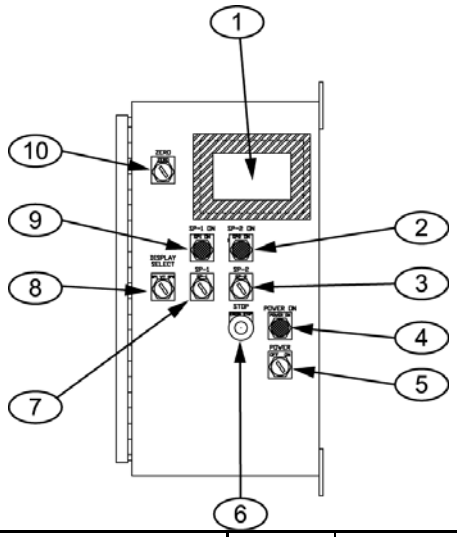
The standard Model A is equipped with an analog controls. Optionally, the Model A can be ordered with a Taylor Products/Hardy Instruments T3000 control panel.

4.3.1 Analog Controls

The Model A comes standard with analog controls and configured as a single set point unit. An option is available with the analog controls that will allow dual set points to increase operational efficiency. The control box can be located on the either side of the machine. The weight display, controls, and indicators are mounted in the front side of the panel.

4.3.1.1 Single Set Point Analog Controls

A Model A with a single set point analog control set uses only one fill rate.



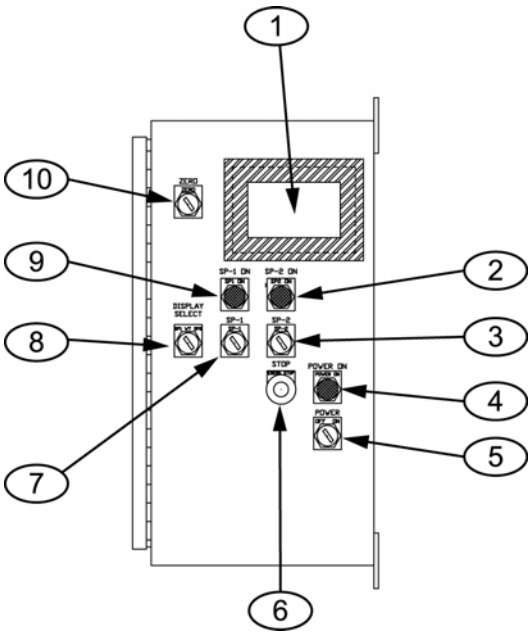
Item #	Description	Item #	Description
1	Weight display	6	STOP button/indicator
2	SP-2 indicator	7	SP-1 knob (not used on SSP units)
3	SP-2 knob	8	DISPLAY SELECT switch
4	POWER ON indicator	9	SP-1 indicator (not used on SSP units)
5	POWER switch	10	ZERO knob

Figure 4-7. Analog Control Box – Single Set Point

The machine will fill the package until the set point 2 (SP-2) weight is achieved. SP-2 is set just below the target weight. Once SP-2 is achieved, the cutoff cylinder will be activated, which stops the flow of product into the package. When SP-2 is reached, there is still a small amount of product that is in free fall. This means that the product is falling from the spout into the package, so its weight has not yet registered. Once the product in free fall settles in the package, the total weight of the package should match the target weight. The operator will control the fill rate by adjusting the amount of air pressure in the hopper.

4.3.1.2 Dual Set Point Analog Controls

A Model A with a dual set point analog control set uses two fill rates.



Item #	Description	Item #	Description
1	Weight display	6	STOP button/indicator
2	SP-2 indicator	7	SP-1 knob
3	SP-2 knob	8	DISPLAY SELECT switch
4	POWER ON indicator	9	SP-1 indicator
5	POWER switch	10	ZERO knob

Figure 4-8. Analog Control Box – Dual Set Point

The machine will fill the package at the bulk rate until Set Point 1 (SP-1) weight is achieved. SP-1 is set at approximately 90% of the target weight. Once SP-1 is achieved, the dribble cylinders will be activated. This pinches the gum rubber fill tube, partially obstructing the product flow. The package will continue to fill at the dribble rate until SP-2 is reached. SP-2 is set just below the target weight. Once SP-2 achieved, the cutoff cylinders will be activated, which will completely stop the flow of product to the spout. There is still a small amount of product that is in free fall. This means that the product is falling from the spout into the package, so its weight has not yet registered. Once the free fall product settles in the package, the total weight of the package should match the target weight.

4.3.2 T3000 Controls

The Model A is available with an optional Taylor T3000 control set. This T3000 is a digital control panel that has been jointly designed by Taylor Products and Hardy Instruments. The T3000 provides the operator with total monitoring and instrument control. The T3000 features the following functions:

- Weight display
- Alphanumeric keypad
- Function keys
- Enter/Exit keys
- Arrow keys

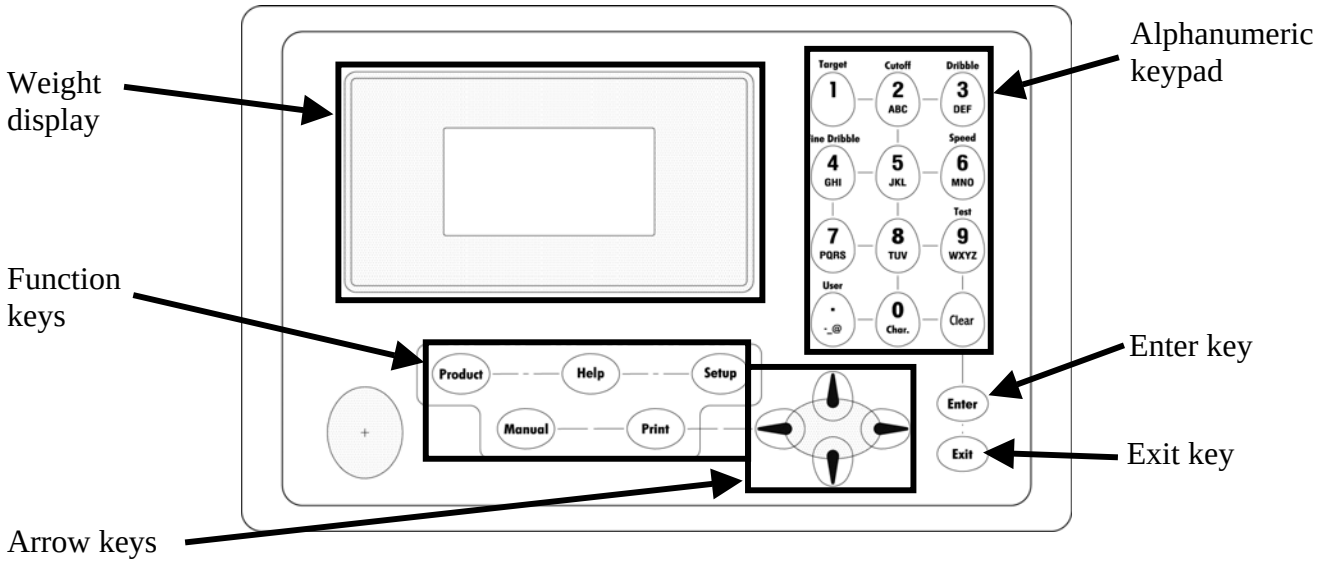


Figure 4-9. Taylor T3000 Control Panel

The front of the T3000 is equipped with a weight display, an alphanumeric keypad, directional arrow keys, function keys, an infrared PDA port, an Enter key, and an Exit key.

The display has one line of large fonts (5.5 alphanumeric characters), and four lines of smaller fonts (20 alphanumeric characters). The top line displays the currently selected package weight. The remaining four lines are used for monitoring system statuses, historical data, and configuration settings of the Model A.

The T3000 is equipped to provide alarms for the following conditions:

- Fill alarms
- Jog alarms
- Filler discharge alarms

For a full description of these alarms, refer to Chapter 3: Operating Procedures/Filler, of the Taylor Products Filler/Dispenser/T3000 User Guide, that is included in Appendix E of this manual.

4.4 Initial Setup

Model A units can be categorized based on their control type, as follows:

- Analog controls
  - Single set point (SSP)
  - Dual set point (DSP)
- T3000 controls
  - Single set point (SSP)
  - Dual set point (DSP)

4.4.1 Setting Up an Analog Model A to Fill

The procedure for setting up an analog Model A will differ based on whether it is a single or dual set point unit.

4.4.1.1 Setting Up an Analog Model A – Single Set Point (SSP)

Before placing the Model A into operation, perform the initial setup procedure to ensure proper weighments. Follow the steps below to set up a Model A for its first run. Before beginning this process, the operator should become familiar with the controls and functions of the Model A.

1. Push the STOP button in.
2. Turn the POWER switch to the ON position. It is located on the control box, in the lower right corner. Allow thirty (30) minutes for controls to warm up.
3. Set SP-2 (cutoff weight) by holding the DISPLAY SELECT switch to the SP-2 position with one hand, and using the other hand to adjust the SP-2 knob until the weight display shows the desired cutoff weight.

   Note: *To start out, it is recommended to set SP-2 at about 95% of the desired target weight.*

4. Release the DISPLAY SELECT switch.
5. Pull the STOP button out. The machine will start the fill cycle.
6. When the fill cycle completes, check the weight display. Compare the actual weight displayed to the desired target weight.
   a. If the actual target weights match, setup is complete and the unit is ready for operation.
   b. If the actual and target weights do not match, go back to step 3 and adjust the SP-2 setting. If the package weight is higher than the target weight, adjust the SP-2 setting down by an amount that is equal to the difference between the target and actual package weights. If the package weight is lower than the target weight, adjust the SP-2 setting up by an amount that is equal to the difference between the target and actual package weights. For example, if the target weight is 5 lbs, and the actual package weight was 5.5 lbs. Adjust SP-2 down by .5 lbs. Repeat steps 3, 4, and 5 until the actual and target weights match.

Note: *Also keep in mind that every time the product feed rate is adjusted, SP-2 will most likely need to be adjusted. These adjustments alter the amount of product moving through the spout, thus changing the amount of material in free fall.*

4.4.1.2 Setting Up an Analog Model A – Dual Set Point (DSP)

An option on the analog Model A is the dual set point configuration. The fill speeds are named bulk rate and dribble rate. The bulk rate will fill the package until it is approximately 90% full. The machine will then slow the feed rate to the dribble rate. This rate is noticeably slower and is used to fill the package the rest of the way.

Before placing the Model A into operation, perform the initial setup procedure to ensure proper weighments. Follow the steps below to set up a Model A for its first run. Before beginning this process, the operator should become familiar with the controls and functions of the Model A.

1. Push the STOP button in.

2. Turn the POWER switch to the ON position. It is located on the control box, in the lower right corner. Allow thirty (30) minutes for controls to warm up.
3. Set SP-1 (dribble weight) by holding the DISPLAY SELECT switch to the SP-1 position with one hand, and using the other hand to adjust the SP-1 knob until the weight display shows the desired dribble weight.

   Note: *To start out, it is recommended to set SP-1 at about 90% of the desired target weight.*

4. Release the DISPLAY SELECT switch.
5. Set SP-2 (cutoff weight) by holding the DISPLAY SELECT switch to the SP-2 position with one hand, and using the other hand to adjust the SP-2 knob until the weight display shows the desired cutoff weight.

   Note: *The SP-2 value should be a little less than the desired target weight. This is done to take the product that is in free fall into account.*

6. Release the DISPLAY SELECT switch.
7. Place an empty bag on the spout.
8. Pull the STOP button out and trip the bag clamp actuator switch lever. The machine will start the fill cycle.
9. Listen to the machine as the fill cycle runs. There should be a noticeable change when the machine switches from bulk rate to dribble rate. The machine should run at the dribble rate for a minimum of two seconds.
   a. If the dribble rate runs for a minimum of two seconds, no adjustment is necessary. Proceed to step 10.
   b. If the dribble rate does not run for a minimum of two seconds, go back to step 3 and adjust the SP-1 setting down. When adjusting the SP-1 setting, adjust a little at a time. It may be necessary to readjust the SP-1 several times, until the dribble portion of the fill cycle runs for a minimum of two seconds.
10. When the fill cycle completes, check the weight display. Compare the actual weight displayed to the desired target weight.
    a. If the actual target weights match, setup is complete and the unit is ready for operation.
    b. If the actual and target weights do not match, go back to step 5 and adjust the SP-2 setting. If the package weight is higher than the target weight, adjust the SP-2 setting down by an amount that is equal to the difference between the target and actual package weights. If the package weight is lower than the target weight, adjust the SP-2 setting up by an amount that is equal to the difference between the target and actual package weights. For example, if the target weight is 5 lbs, and the actual package weight was 5.5 lbs. Adjust SP-2 down by .5 lbs. It may be necessary to repeat this process several times, until the actual and target weights match.

Note: *Also keep in mind that every time the bulk or dribble rate are adjusted, SP-1 and SP-2 will most likely need to be adjusted. All of these adjustments alter the amount of product moving through the spout, thus changing the amount of material in free fall.*

4.4.3 Setting Up a T3000 to Fill

Model A units equipped with the T3000 can be programmed to fill as many as 25 different products. Use the steps below to select a specific product from the available list.

1. Position the first container for filling.
2. Check the T3000 to make sure the Filler is configured for the specific product that is being used.
3. Make sure the T3000 is in Standby Mode.
4. Press the User button to pull up the User Menu.
5. Press the Clear button to erase the current entry.
6. Enter the user ID.
7. Press the Enter button.
8. If the product shown on the display is the product that is going to be packaged, the setup is complete. If not, continue to step 9.
9. If the product shown on the Standby Menu is not the product being packaged, do the following:
    a. Press the Product button once. A list of products that have been programmed into the control panel will appear. The currently selected product will be displayed.
    b. The operator can change the product using the up or down arrow buttons to scroll through the available list of products. When the desired product is found, position the cursor next to it and press the Enter button. The menu for that product will appear, with the cursor adjacent to the Accept Settings line. Press Enter again to accept the settings, or use the up/down arrows to scroll through the available parameters for that product. To change a specific parameter, place the cursor next to that line and key in the new value for that parameter, followed by pressing the Enter button. When finished, scroll back to the Accept Settings line and press the Enter button to accept the changes.

4.4.3.1 Using the T3000 to Set Up A Product From Scratch

To configure one of the 25 available product selections for a specific product, follow the steps below:

1. Press the Setup key once. The Configuration Menu will appear and will have the cursor on the ADJUST PRODUCT line. Press the Enter key.
2. The cursor will be positioned next to the currently selected product ID. Use the arrow keys to scroll down until the cursor is next to the first product number that has not been previously programmed.
3. Press the Enter key to select that product.
4. Position the cursor next to the line for the product name. Use the alphanumeric keypad to enter the name that has been selected for this product configuration. The default name can be used, but it is not recommended. Taylor Products recommends using a name that provides some indication of what the product configuration is for. Press the Enter key to save the change.
5. Scroll down to the Unit of Measure line. Use the left/right arrow keys to select the appropriate unit of measure (Lb, Oz, Kg, G). Press the Enter key to save the change.
6. Scroll down to the WAVERSAVER line. Use the alphanumeric keypad to enter the desired setting. Taylor Products recommends setting the WAVERSAVER to 3.50 Hz. Press the Enter key to save the change.
7. Scroll down to the Averages line. Use the alphanumeric keypad to enter the desired setting. Press the Enter key to save the change.
8. Scroll down to the Jog line. Press the Enter key to access the Jog Menu.

9. Set Jog On Time to 0.000s, to disable the jog function. Press the Enter key to save the setting.
10. Press the Exit key.
11. Scroll down to the Fill Timer Line. Use the alphanumeric keypad to enter a new value, if desired. Press the Enter key to save the setting.
12. Scroll down to the Wait Timer line. Use the alphanumeric keypad to enter a new value, if desired. Press the Enter key to save the setting.
13. Scroll down to the Speeds line. Use the left/right arrow keys to select the Dual speed setting. Press the Enter key to access the settings for that fill speed.
14. Use the left/right arrow keys to toggle between OFF and ON. When this option is ON, the controller will auto adjust the dribble point.
15. Leave the Mode setting at the factory preset setting.
16. Scroll down to the Fill Proof Menu and press the Enter key.
    a. The Fast Switch and Slow Switch settings MUST be off for the machine to run.
    b. The recommended setting for the Fast Switch Tmr and the Slow Switch Tmr is 5s.
17. Press the Exit key three times to return to the Standby Display.

4.5 Starting the Unit

Once installed, the unit can now be started. The process for turning on the Model A will be the same for machines equipped with either analog or T3000 controls. Both control sets use a power switch and POWER ON indicator that is mounted on the lower right corner of the control box. A STOP button/indicator will be located in the same vicinity. The following steps are used to start the machine.

1. Press the STOP button in.
2. Turn the power switch to the ON position. The POWER ON indicator should illuminate. The weigh display, or controller display, should also illuminate and perform its initiation sequence. When complete, the weigh display or controller should display its opening screen.

   Important: *Allow the Model A to warm up for at least 30 minutes before performing setup procedures or starting the first fill cycle.*

3. Turn the blower on.

CAUTION Once the power switch is in the ON position, and the blower has been turned on, the machine can start operating automatically, or someone could accidentally start the machine.

4. Pull the STOP button out.
5. Place an empty bag on the spout. When placing the bag on the spout, the operator's hand should trip the bag clamp actuator switch lever, which will start the fill cycle.

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Chapter 5
Preventive Maintenance

5.1 General Description

To minimize downtime, preventive maintenance should be made a priority. Proper preventive maintenance practices will also extend the life of the equipment. Developing a preventive maintenance schedule will ensure that critical maintenance procedures are not missed.

5.2 Daily Maintenance Procedures

At the start of each working day, the following maintenance tasks should be performed before starting the machine:

1. Thoroughly clean the machine.
2. Check all fasteners.
3. Drain any water that may have accumulated in the water separator in the air supply line.

5.2.1 Cleaning

Keeping the Model A clean is an important part of the daily maintenance tasks. Remove any dust and/or dirt that may accumulate on a daily basis. Keeping the unit clean will keep debris from entering the control mechanisms, which could cause the performance of the Model A to suffer. Also, by taking the time to clean the Model A on a daily basis, it will allow the operator to thoroughly inspect the Model A. Take the time to inspect all wiring, air supply lines and connections, and components for possible damage.

5.2.2 Check All Fasteners

The operator should check all fasteners on the Model A on a daily basis. Loose fasteners can cause unwanted vibration and wear.

5.2.3 Drain Water From the FRL

It is very important to remove unwanted moisture from the incoming air to ensure proper operating of the pneumatic components. At the beginning of each day, the operator should empty the water from the FRL. Use the process below to drain the water.

1. Disconnect the air supply line.
2. Place a container under the drain valve.
3. There are two types of drain valves, follow the appropriate step below to open and close the drain valve:
    a. If the water separator has a pin-type drain valve, press the pin upward and hold it in to drain the water. Release the pin once all water has drained.
    b. If the water separator has a screw-type drain valve, turn the screw cap counter-clockwise to completely loosen the cap. After the water has completely drained, lightly push the cap upward to engage the threads and turn the cap clockwise until snug.
4. Discard the water from the container.
5. Reconnect the air supply line.

Figure 5-1. Filter/Regulator/Lubricator Assembly – Drain Valve

5.3 Monthly Maintenance

On a monthly basis, the Model A should be recalibrated. Refer to the 3.8 Calibration.

Chapter 6
Troubleshooting

6.1 General Description

When a problem occurs, proper troubleshooting techniques will allow maintenance personnel to quickly identify the problem.

6.2 The Troubleshooting Process

The actual troubleshooting process is just as important as the repair process. Use the following troubleshooting keys to assist with the troubleshooting process:

- Identify the trouble symptom
  - What is the problem?
  - What were the circumstances when the problem occurred?
  - Could weather be a factor?
  - Are there any other contributing factors?
- Sectionalize the problem
  - Look at the problem.
  - What area of the machine is the problem occurring in?
  - Has anything changed recently?
- Isolate the problem
  - Try simple things first.
  - Observe indication and trouble codes.
  - Check test points.
  - Avoid complicating the problem.

6.3 Trouble Symptoms

Use the following information to assist in troubleshooting.

6.3.1 Scale is Not Accurate

If the load cell is providing inaccurate readings, check the following:

1. Check for proper calibration. Refer to 3.8 Calibration.
2. Check the surge hopper to make sure an adequate supply of material is available in the product hopper to ensure a consistent head pressure.
3. Check to make sure there is nothing restricting material flow from the surge hopper.
4. Check the shipping bolts/nuts. Make sure the shipping nuts have been backed off until they bottom out against the mount.

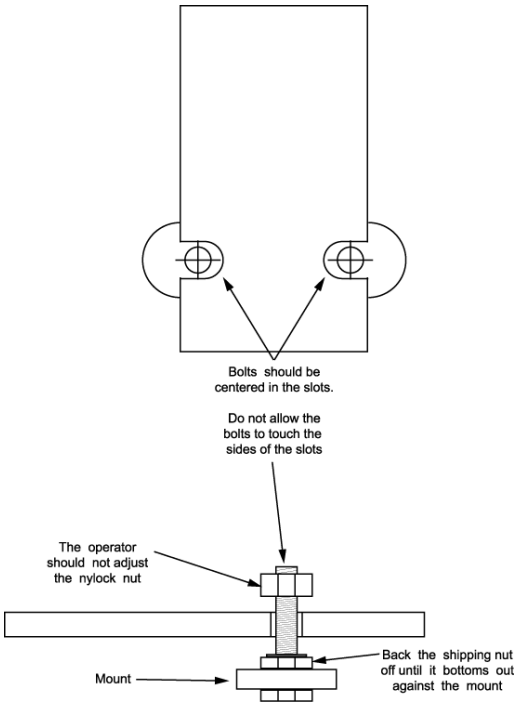

Figure 6-1. Shipping Bolt Alignment

6.3.2 Scale Does Not Return to Zero

If the scale reading does not return to zero after the package has been removed from the spout, check the following items:

1. If the AutoZero function is enabled, the weight display will show a negative weight reading.

6.3.3 The Blower Will Not Run

If the blower will not run when the START button is pressed, check the following:

1. Check the power coming into the unit to make sure you have 240/460 volts.
2. Check the heaters on the starter to make sure they are not tripped.
3. Check the start button to see if the contacts are closing.
4. Check the wires on motor to see if the wiring is correct for the available voltage.
5. Check the motor to see if the windings are bad or it has a short to ground. If either condition is found, replace motor. Refer to 7.3.9 Blower Motor Replacement.

6.3.4 Weighments are Erratic

If the weighments vary from too high to too low, check the following items.

1. Check the mechanical operation of the spout to make sure there is not anything coming into contact with the spout.
2. Check the condition of the flex leaves. Make sure they are not bent or broken.
3. Check the condition of the fill hose between the spout and the bulkhead. Make sure it is pliable and not dry rotted. If the fill hose is not pliable, or if dry rot is found, replace the hose. Refer to 7.3.2 Fill Hose Replacement.

4. Check the size of the package to make sure there is enough room for the product to fit into the bag without it having to be forced into the bag. A few inches are recommended for this. (To find out if this is happening lower the weight going into bag to see if it runs accurate).
5. Check to see if the bag is touching the kicker. The bag should not be touching the kicker.
6. For dual set point machines, check the dribble (SP-1) and cutoff (SP-2) set points. Once SP-1 is achieved, the machine should run at the dribble rate for a minimum of two seconds for proper operation.
7. Check the operation of the adjustable pinch cylinder. Make sure it is working properly. It may be necessary to adjust the dribble, depending on product.
8. Empty the machine and check the butterfly to see if it needs to be replaced or a new seal installed. A leaking butterfly valve might cause the machine to lose air through the top, which would cause erratic flow.
9. Check the flow of product into bag. Product flow should be as smooth as possible. If the bag is jumping, adjust the tank gate valve to change the air pressure in the hopper. Lowering the air pressure in the hopper should smooth this out. For more information refer to 4.2.3.1 Blower Air Pressure.
10. Check the load cell for proper operation. If the load cell is damaged or does not function properly, replace it.
11. Check the zero of the machine. Make sure it stays on zero and doesn't jump around. If the zero is unstable, a faulty load cell or zero pot may be the cause.

6.3.5 Machine Fails To Start After The START Switch Is Pressed

If the Model A won't start when the START button is pressed, even though the machine is turned on, check the following items.

1. Check the start switch to see if the contacts are working properly.
2. Check the voltage to and from the start switch. The voltage should be 110 volts.
3. Check the MAC valve to see if it is getting voltage and the valve is functioning properly.
4. Check for the presence of voltage at the delay of start timer. If voltage is present, check to see if the valve changes states. If it does not change states, replace the MAC valve. Refer to 7.3.5 MAC Valve Replacement.
5. Check the MAC valve to see if it is getting air. If compressed air is not being supplied to the MAC valve, correct the air supply problem.
6. Check to see if the pinch tubes are opening and closing properly, to direct the air from the blower to the chamber to force product out of spout.
7. Check the start pressure switch to make sure that it is receiving air.

6.3.6 Load Cell Fails Frequently

CAUTION A sudden jerk or shock, such as being struck by a tool or hitting the spout, etc., can cause load cell damage. The load cell is NOT covered by warranty.

If the load cell on a Model A fails frequently, check the following items:

1. Check the operating conditions to make sure that the load cell is not jarred, jerked, or being loaded with a sudden excessive force.
2. Check the load cell to make sure that the product being weighed does not exceed the rating of the load cell.

6.3.7 Kicker Does Not Kick Off Bag

If the kicker is unable to kick the filled package off of the spout, follow the steps below.

1. Check for proper air pressure. A minimum of 80 psi is required.
2. Check for airflow to the MAC valve on the butterfly actuator.
3. Check for airflow to the check weigh button valve. Check the valve to make sure that air is able to pass through it. The check weigh button is the white button on the face of the machine.
4. Check for airflow to the kicker cylinder. If air is available to the cylinder and the air passes through the cylinder, then the cylinder should be replaced.

6.3.8 Fill speeds are too slow

If the fill rate is slow, check the following items:

1. Check the butterfly valve seal. Replace the seal if necessary.
2. Check the five air pads. The air pads will require periodic replacement. They should be changed approximately twice a year. Some applications may require changing them more frequently, depending on the type of product being packaged.
3. Adjust the tank gate valve in the blow by manifold to allow more air pressure in the hopper. This is done by turning the valve clockwise.
4. Check the pinch valves to make sure they are working properly.
5. Check the dribble (SP-1) setting to make sure it isn't set too low. This would result in longer fill times.

6.3.9 Squealing Noise From The Blower Motor

If the blower is making a squealing noise, check the following items:

1. Check the blower motor silencers. Replace as necessary.

6.4 T3000 Alarms

During the filling process, conditions may occur that result in an alarm from the T3000. There are 3 different categories of alarms:

- Fill alarms
- Jog alarms
- Filler discharge alarms

For a full description of these alarms, refer to Chapter 3: Operating Procedures/Filler, of the Taylor Products Filler/Dispenser/IBC T3000 User Guide, that is included in Appendix E of this manual.

6.4.1 Fill Alarms

Fill alarms are used to indicate that current conditions will not allow the selected fill feature to function properly. These alarms are:

- Not OK to fill alarm
- Lost OK to fill alarm
- No fast feed alarm
- Feed on alarm
- No medium feed alarm
- No slow feed alarm
- Slow feed on alarm
- Fill timeout alarm
- Underfill/overfill alarm

6.4.2 Jog Alarms

Jog alarms are used to indicate that current conditions will not allow the selected jog feature to function properly. These alarms are:

- Did not jog alarm
- Jog stuck on alarm
- Jog count alarm

6.4.3 Filler Discharge Alarms

Filler discharge alarms are used to indicate that current conditions will not allow the selected fill feature to function properly. These alarms are:

- Not OK to discharge alarm
- No discharge alarm
- Discharge clogged alarm
- Discharge on alarm

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Chapter 7
Repair and Adjustment

7.1 General Description

When troubleshooting procedures have indicated that a component needs to be repaired, replaced, or adjusted, following the repair procedures contained in this chapter will assist maintenance personnel return the machine to operation in a timely manner.

7.2 System Adjustment Procedures

The Model A has several components that may require adjustments over time. These changes may be due to normal wear, or may be required when changing products. Items that may require adjustments are:

- Primary air pressure
- Lower air pad air pressure
- Pinch valve air pressure
- MAC valve

7.2.1 Primary Air Pressure Adjustment

The Filter/Regulator/Lubricator (FRL) is the primary air pressure regulator for the Model A. The machine requires that compressed air from the FRL be set at approximately 80-100 PSI (.55-.69 MPa) at 15 SCFM for proper operation. If air pressure is too high, the air pressure regulator can be used to adjust the output air pressure. The pressure regulator cannot be used to increase the air pressure higher than the pressure of the source.

7.2.2 Lower Air Pad Air Pressure Adjustment

On the front of the Model A, to the left of the upper flex leaf is the lower air pad air pressure regulator. This air pressure regulator is used to control the amount of compressed air that is supplied to the lower air pad. As air pressure is increased, so is the product flow from the spout. As air pressure is decreased, the product flow from the spout also decreases. The recommended setting will vary, depending on the type of product that is being packaged. For powder products, the recommended range is 3-6 PSI (.02-.04 MPa). For granular products, it may be necessary to increase the air pressure to as high as 20 PSI (.14 MPa).

7.2.3 Pinch Valve Air Pressure Adjustment

On the right side of the Model A, toward the rear of the machine, the operator will find the air pressure regulator for the pinch valves. The pressure setting for this regulator should never exceed 20 PSI (.13 MPa).

7.2.4 MAC Valve Flow Control Adjustment

If the operator has determined that the actuation speed of a pneumatic component is either too fast or too slow, the operator can adjust the actuation speed of that component by adjusting the flow control on the MAC valve that controls that pneumatic component. Use the steps below to adjust the airflow from the MAC valve.

1. Locate the MAC valve that controls the affected component.
2. Locate the flow control screw on the top of the MAC valve.
3. Using a screwdriver turn the flow control screw. To increase the actuation speed, turn the adjustment screw counter-clockwise. To decrease the actuation speed, turn the adjustment screw clockwise.

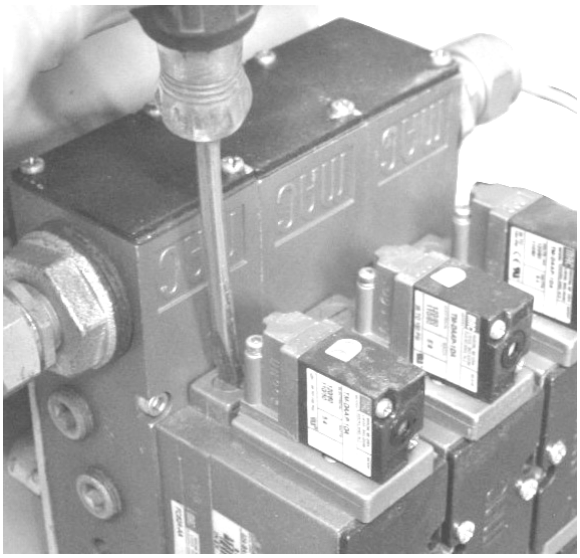

Figure 7-1. Adjusting Airflow From The MAC Valve

7.3 Component Replacement Procedures

Over time, components on the Model A may become worn or damaged. If this occurs, follow the procedures in this section to repair or replace individual components.

WARNING *When replacing parts, it is critical that only parts approved by Taylor Products are used.*

7.3.1 Spout Replacement

Due to the abrasiveness of some products, the spout may need to be replaced periodically. Use the following procedures to remove and install the spout.

7.3.1.1 Spout Removal

1. Turn the Model A off.
2. Disconnect the main electrical and pneumatic connections.
3. Remove the bag clamp cylinder. Refer to 7.3.11 Bag Clamp Cylinder Replacement.
4. Loosen the clamp on the spout end of the fill tube.
5. Remove the spout purge valve (if equipped). Refer to 7.3.3 Purge Valve Replacement.
6. Remove the spout mounting bolts.
7. Remove the spout. It may be necessary to twist the spout to free it from the fill tube.
8. Remove the bolt that secures the dust shroud to the rear of the spout.
9. Slide the dust shroud off of the spout.

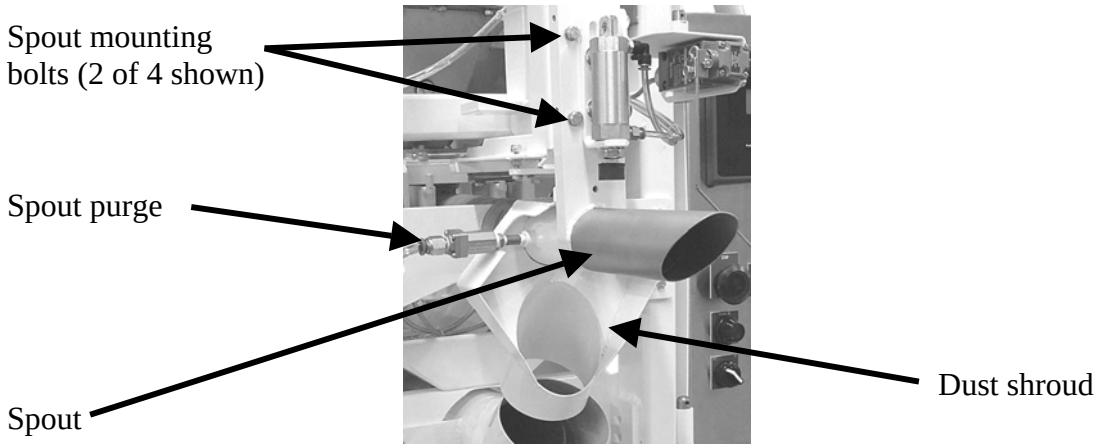

Figure 7-2. Spout (Purge Option Shown) and Related Components

7.3.1.2 Spout Installation

1. Slide the dust shroud onto the rear of the spout.
2. Install and tighten the dust shroud mounting bolt.
3. Position the new spout and install and tighten the mounting bolts.
4. Connect the spout end of the gum rubber fill hose to the spout.
5. Position the fill hose clamp and tighten it to secure the hose to the spout.
6. Install the spout purge valve (if equipped). Refer to 7.3.3 Purge Valve Replacement.
7. Install the bag clamp cylinder. Refer to 7.3.11 Bag Clamp Cylinder Installation.
8. Connect the main electrical and pneumatic connections.
9. Turn the Model A on and test it for proper operation.

7.3.2 Fill Hose Replacement

Due to the abrasiveness of the materials being packaged, the fill tube will require periodic replacement. The frequency will be dependent on how abrasive the product is that the machine is packaging.

7.3.2.1 Fill Hose Removal

1. Turn the Model A off.
2. Disconnect the main electrical and pneumatic connections.
3. Loosen the hose clamp that secures the fill hose to the transition.
4. Loosen the hose clamp that secures the fill hose to the spout.
5. Pull the spout end of the fill hose free of the spout.
6. Remove the hose clamps and set them aside.
7. Pull the transition end of the fill hose free of the transition.

Figure 7-3. Fill Hose

7.3.2.2 Fill Hose Installation

1. Position the new fill hose and slide one end onto the spout.
2. Slide the two hose clamps onto the fill hose.
3. Slide the free end of the fill hose onto the transition.
4. Position one hose clamp at each end.
5. Tighten the hose clamp that secures the fill hose to the spout.
6. Tighten the hose clamp that secures the fill hose to the transition.
7. Connect the main electrical and pneumatic connections.
8. Turn the Model A on and test for proper operation.

7.3.3 Purge Valve Replacement

The Model A may be ordered with an optional purge valve installed in the spout. This spout is used to help clear product from the spout. If the valve requires replacement, or removal to facilitate the replacement of another component, follow the steps below.

7.3.3.1 Purge Valve Removal

1. Turn the Model A off.
2. Disconnect the main electrical and pneumatic connections.
3. Disconnect the air supply line from the quick connect fitting on the purge valve.
4. Use a wrench to loosen and remove the purge valve from the spout.

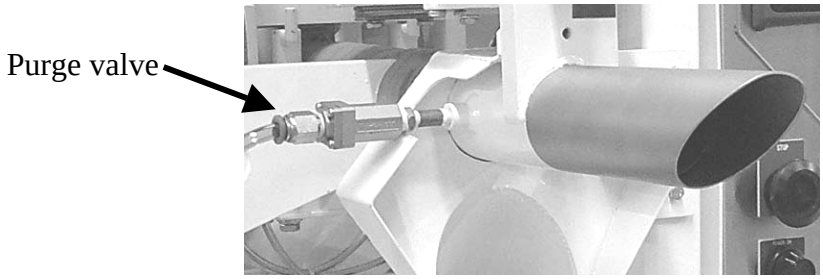

Figure 7-4. Purge Valve

7.3.3.2 Purge Valve Installation

1. Apply Teflon® tape to the threads of the purge valve.
2. Install the purge valve by threading it into the fitting in the spout.
3. Use a wrench to tighten the valve in the fitting.
4. Connect the air supply line to the quick connect fitting on the purge valve.
5. Connect the main electrical and pneumatic connections.
6. Turn the Model A on and test for proper operation.

7.3.4 Load Cell Replacement

In the event that a load cell becomes damaged, or fails to function, follow the procedure below to replace the load cell.

CAUTION A sudden jerk or shock, such as being struck by a tool or hitting the spout, etc., can cause load cell damage. The load cell is NOT covered by warranty.

7.3.4.1 Load Cell Removal

1. Turn the Model A off.
2. Disconnect the main electrical and pneumatic connections.
3. Remove the bag clamp cylinder. Refer to 7.3.11 Bag Clamp Cylinder Replacement.
4. Remove the spout. Refer to 7.3.1 Spout Replacement.
5. Open the control box.
6. Locate the load cell connections.
7. Make a note of each connection point and the color of wire that is connected to it.
8. Disconnect the load cell connections.
9. Pull the load cell cable free of the control box.
10. Remove any tie straps that are securing the load cell cable to the frame of the Model A.
11. Loosen and remove the load cell mounting bolts.
12. Remove the load cell.

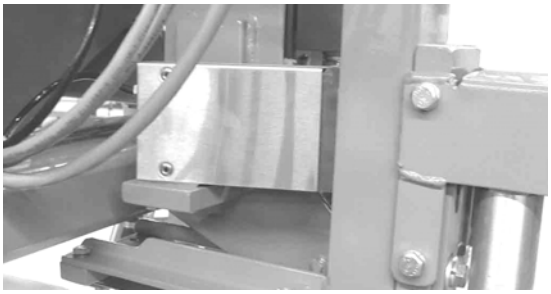

Figure 7-5. Load Cell

7.3.4.2 Load Cell Installation

1. Position the load cell.
2. Install and tighten the two mounting bolts.
3. Route the load cell cable to the control box in the same manner as the cable from the load cell that was removed.
4. Insert the cable into the control box.
5. Connect the load cell cable to the controller.
6. Close the control box.
7. Install the spout. Refer to 7.3.1 Spout Replacement.
8. Install the bag clamp cylinder. Refer to 7.3.11 Bag Clamp Cylinder Replacement.
9. Connect the main electrical and pneumatic connections.
10. Turn the Model A on.
11. Calibrate the Model A. Refer to 3.8 Calibration.

7.3.5 MAC Valve Replacement

In the event that a MAC valve becomes damaged, or fails to function, or develops a leak, follow the procedure below to replace the MAC valve.

7.3.5.1 MAC Valve Removal

1. Turn the Model A off.
2. Disconnect the main electrical and pneumatic connections.
3. Disconnect the air line from the quick connect fitting on the MAC valve.
4. Remove the four mounting screws.
5. Unplug and remove the MAC valve.

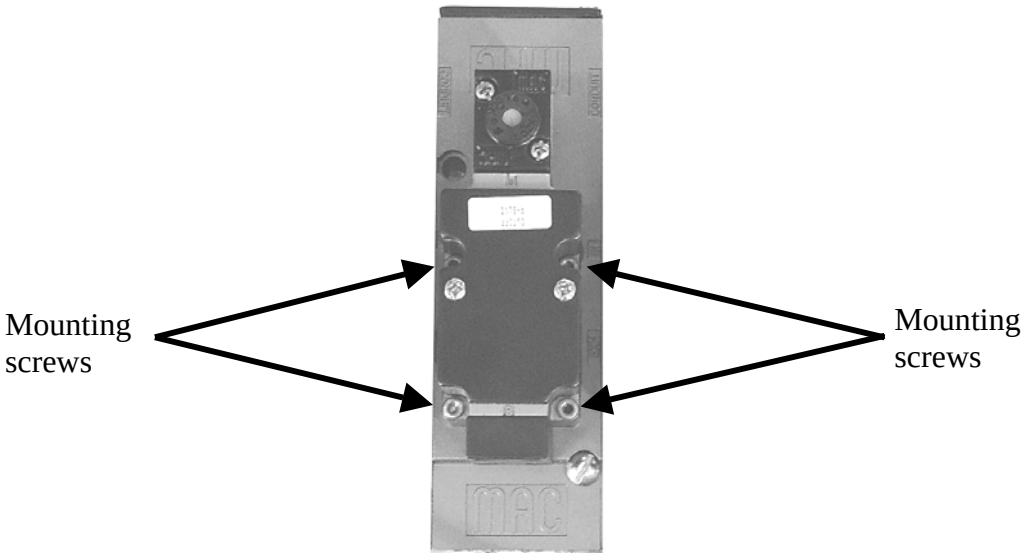

Figure 7-6. MAC Valve Solenoid Mounting Screws

7.3.5.2 MAC Valve Installation

1. Position the valve gasket securely in the groove in the valve base.
2. Position the new MAC valve and plug it in.

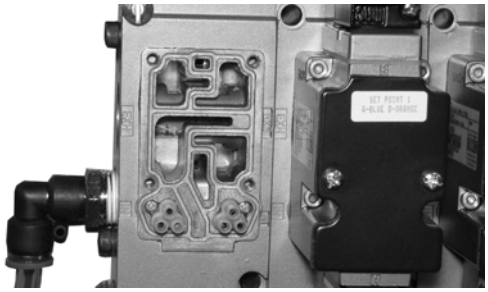

Figure 7-7. MAC Valve (Solenoid Removed)

3. Install and tighten the four mounting screws.
4. Connect the air line to the quick connect fitting on the MAC valve.
5. Connect the main electrical and pneumatic connections.
6. Turn the Model A on and test for proper operation.

7.3.6 Butterfly Valve Replacement

In the event that the butterfly valve has failed, follow the steps below to replace the unit.

> ***Important:*** *Before attempting to replace the butterfly valve, make sure that the supply hopper that is feeding the Model A has been emptied or has been sealed off. Failure to do so will result in a major product spill.*

7.3.6.1 Butterfly Valve Removal

1. Turn the Model A off.
2. Disconnect the main electrical and pneumatic connections.
3. Disconnect the electrical and pneumatic connections from the butterfly valve.
4. Remove the plant provided supply hopper.
5. Remove the nuts that secure the butterfly valve to the top of the hopper on the Model A.
6. Remove the butterfly valve.

7.3.6.2 Butterfly Valve Installation

1. Clean the gasket surface on top of the hopper.
2. Position the new gasket on top of the hopper.
3. Position the butterfly valve on top of the hopper.
4. Install and tighten the nuts that secure the butterfly valve to the hopper.
5. Install the plant provided supply hopper.
6. Connect the electrical and pneumatic connections to the butterfly valve.
7. Connect the main electrical and pneumatic connections.
8. Turn the Model A on and test for proper operation.

7.3.7 Upper Flex Leaf Replacement

In the event that the upper flex leaf becomes damaged and requires replacement, use the following procedures to replace it.

> ***Important:*** *Before replacing the flex leaf, make sure that the spout is not under load. When installing the new flex leaf, it must be level.*

7.3.7.1 Upper Flex Leaf Removal

1. Turn the Model A off.
2. Disconnect the main electrical and pneumatic connections.
3. Remove the bolts that secure the upper flex leaf to the weigh mast.
4. Remove the bolts that secure the upper flex leaf to the base frame.
5. Remove the upper flex leaf. Be careful to not lose the shims/spacers.

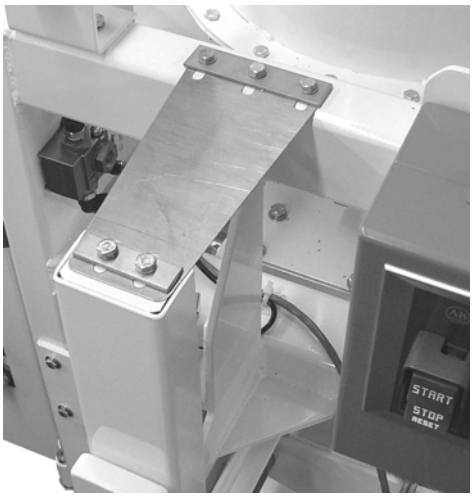

Figure 7-8. Upper Flex Leaf

7.3.7.2 Upper Flex Leaf Installation

1. Position the upper flex leaf on the Model A and line up the bolt holes.
2. Loosely install the upper flex leaf mounting bolts.
3. Tighten the upper flex leaf mounting bolts.
4. Connect the main electrical and pneumatic connections.
5. Turn the Model A on and test for proper operation.

7.3.8 Lower Flex Leaf Replacement

In the event that an air fitting becomes damaged and requires replacement, use the following procedures to replace the air fitting.

> ***Important:*** *Before replacing the flex leaf, make sure that the spout is not under load. When installing the new flex leaf, it must be level.*

7.3.8.1 Lower Flex Leaf Removal

1. Turn the Model A off.
2. Disconnect the main electrical and pneumatic connections.
3. Remove the bolts that secure the lower flex leaf to the weigh mast.
4. Remove the bolts that secure the lower flex leaf to the base frame.
5. Remove the lower flex leaf. Be careful to not lose the shims/spacers.

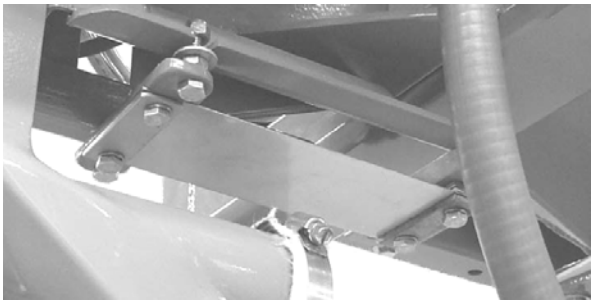

Figure 7-9. Lower Flex Leaf

7.3.8.1 Lower Flex Leaf Installation

1. Position the lower flex leaf on the Model A and line up the bolt holes.
2. Position the shims.
3. Loosely install the lower flex leaf mounting bolts.
4. Tighten the lower flex leaf mounting bolts.
5. Connect the main electrical and pneumatic connections.
6. Turn the Model A on and test for proper operation.

7.3.9 Blower Motor Replacement

In the event that the blower motor fails and requires replacement, use the following procedures to remove and install the blower motor.

7.3.9.1 Blower Motor Removal

1. Turn the Model A off.
2. Disconnect the main electrical and pneumatic connections.
3. Remove the intake air filter element. Refer to 7.3.10 Intake Air Filter Replacement.
4. Loosen and remove the two mounting bolts that connect the air intake pipe to the blower motor.
5. Remove the air intake pipe.
6. Loosen and remove the two mounting bolts that connect the air outlet pipe to the blower motor.
7. Pull the air outlet pipe free of the blower motor.
8. Open the electrical box on the side of the blower motor.
9. Label and disconnect the wires from the power cord and the switch.
10. Loosen and remove the blower mounting bolts.
11. Remove the blower motor.

7.3.9.2 Blower Motor Installation

1. Position the blower motor on the frame.
2. Adjust the placement of the blower so that all four mounting holes on the blower are lined up with the four mounting holes on the frame of the Model A.
3. Install and tighten the mounting bolts.
4. Open the electrical box on the side of the blower motor.
5. Route the power cord cable and the cable from the power switch into the electrical box.
6. Connect the cables in the electrical box. Refer to Appendix D Electrical Drawings.
7. Close the electrical box.
8. Position the outlet pipe at outlet of the blower motor.
9. Line up the mounting holes in the outlet pipe flange with the mounting holes in the blower motor.
10. Install and tighten the outlet pipe mounting bolts.
11. Position the inlet pipe at the inlet of the blower motor.
12. Line up the mounting holes in the inlet pipe flange with the mounting holes in the blower motor.
13. Install and tighten the inlet pipe mounting bolts.
14. Install the intake air filter element. Refer to 7.3.10 Intake Air Filter Replacement.
15. Turn the Model A on and test for proper operation.

7.3.10 Intake Air Filter Replacement

As the Model A operates, the air filter will be removing dust and debris from the air entering the blower intake port. Over time, this filter may become clogged to the point where the operation of the Model A will be adversely affected. Use the following procedures to replace the filter element.

7.3.10.1 Intake Air Filter Removal

1. Shut the Model A off.
2. Disconnect the main power and pneumatic connections.
3. Remove the wing nut and washer that are used to retain the filter element and set them aside.
4. Rotate the filter element to break the seal that may have formed at the base.
5. Gently lift the filter element straight up, being careful to not dislodge any of the debris that is trapped in the filter.
6. Discard the filter.

7.3.10.2 Intake Air Filter Installation

1. Position the new filter over the mount and lower it onto the filter mount. Make sure that the stud on the top of the mount protrudes through the hole in the top of filter.
2. Install the washer and wing nut on the stud.
3. Tighten the wing nut.
4. Connect the main power and pneumatic connections.
5. Turn the Model A on and test for proper operation.

7.3.11 Bag Clamp Cylinder Replacement

If the bag clamp cylinder fails to function or develops a leak, use the following procedures to replace the cylinder.

7.3.11.1 Bag Clamp Cylinder Removal

1. Turn the Model A off.
2. Disconnect the main electrical and pneumatic connections
3. Label and disconnect the air supply lines at the quick connect fittings on the bag clamp cylinder.
4. Remove the bag clamp pad. Refer to 7.3.12 Bag Clamp Pad Replacement.
5. Use a wrench to hold the bag clamp cylinder, while using a second wrench to remove the bag clamp cylinder retaining nut.
6. Remove the bag clamp cylinder by lifting it out of the mounting bracket.

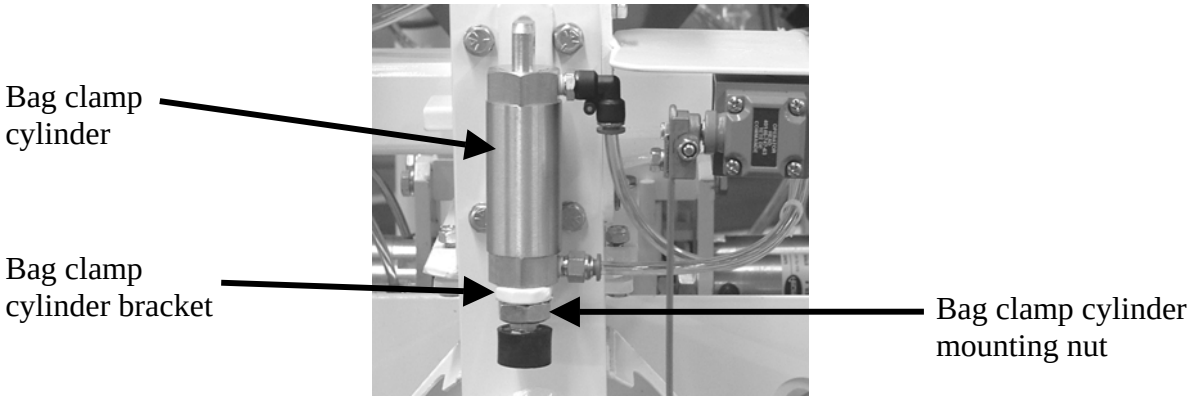

Figure 7-10. Bag Clamp Cylinder Mounting

7.3.11.2 Bag Clamp Cylinder Installation

1. Place the new bag clamp cylinder into the mounting bracket. Situate it so that when facing the impeller packer from the front, the quick connect fittings are on the right.
2. Install the bag clamp cylinder retaining nut. Use a wrench to hold the bag clamp cylinder while tightening the retaining nut with another wrench.
3. Install the bag clamp pad. Refer to 7.3.12 Bag Clamp Pad Replacement.
4. Connect the air supply lines to the quick connect fittings on the bag clamp cylinder.
5. Connect the main electrical and pneumatic connections.
6. Check all air supply connections for leaks.
7. Turn the Model A on and test for proper operation.

7.3.12 Bag Clamp Pad Replacement

Over time, the bag clamp pad may wear and require replacement. Follow the steps below to replace the bag clamp pad.

7.3.12.1 Bag Clamp Pad Removal

1. Turn the Model A off.
2. Disconnect the main electrical and pneumatic connections.
3. Use a wrench to hold the threaded fitting on the cylinder rod.
4. Unscrew the bag clamp pad from the cylinder rod.

Figure 7-11. Bag Clamp Pad Mount

7.3.12.2 Bag Clamp Pad Installation

1. Screw the bag clamp pad on to the cylinder rod.
2. Use a wrench to hold the threaded fitting on the cylinder rod and tighten the bag clamp pad.
3. Connect the main electrical and pneumatic connections.
4. Turn the Model A on and test for proper operation.

7.3.13 Bag Clamp Actuator Switch Replacement

If the bag clamp actuator switch fails to function and troubleshooting techniques have determined that the switch must be replaced, use the following steps to replace the switch.

7.3.13.1 Bag Clamp Actuator Switch Removal

1. Turn the Model A off.
2. Disconnect the main electrical and pneumatic connections.
3. Open the control box.
4. Trace the cable from the switch to the point where it is connected to the controller.
5. Label the wires to indicate how they were connected.
6. Disconnect the switch cable from the controller.
7. Pull the cable free from the control box.
8. Remove any tie wraps that may secure the cable to the Model A.
9. Pull the cable free of the machine, all the way up to the switch.
10. Remove the mounting screws that mount the switch to the mounting bracket.
11. Remove the switch.

7.3.13.2 Bag Clamp Actuator Switch Installation

1. Position the switch so that the mounting holes in the bracket are aligned with the mounting holes in the switch.
2. Insert and tighten the mounting screws.
3. Route the switch cable to the control box. The routing should be very similar to the routing of the cable from the switch that was removed.
4. Insert the end of the cable through the grommet into the control box.
5. Connect the wires to the controller in the same fashion as the connections from the switch that was installed previously.
6. Close the control box.
7. Secure the switch cable to the frame of the Model A using tie straps.
8. Connect the main electrical and pneumatic connections.
9. Turn the Model A on and test for proper operation.

7.3.14 Adjustable Pinch Cylinder Replacement

If the adjustable pinch cylinder develops a leak or fails to function, use the following steps to replace the cylinder assembly.

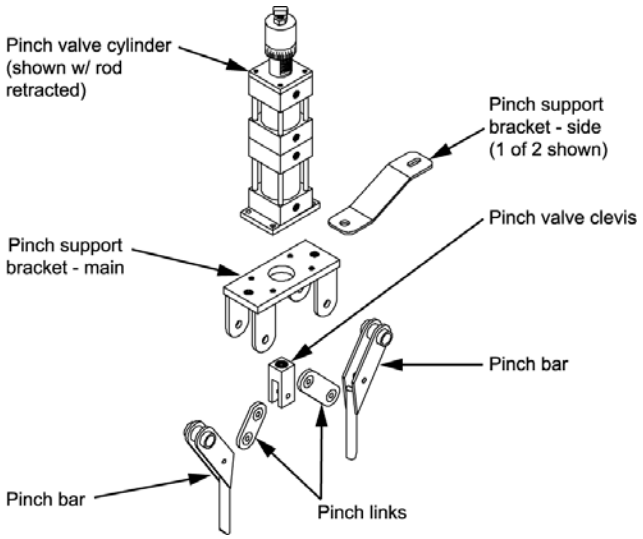

Figure 7-12. Adjustable Pinch Cylinder Mounting

7.3.14.1 Adjustable Pinch Valve Cylinder Removal

1. Turn the Model A off.
2. Disconnect the main electrical and pneumatic connections.
3. Label and disconnect the air supply lines from the cylinder assembly.
4. Loosen and remove the bolts/nuts from that secure the pinch support bracket to frame brackets to the frame.
5. Lift the entire adjustable pinch valve assembly up and away from the Model A.
6. Loosen the jam nut that secures the clevis.
7. Back the cylinder rod out of the clevis.
8. Loosen and remove the bolts/nuts that secure the adjustable pinch valve cylinder to the adjustable pinch valve base.
9. Remove the adjustable pinch valve cylinder from the base.

7.3.14.2 Adjustable Pinch Valve Cylinder Installation

1. Insert the rod end of the new cylinder through the hole in the base.
2. Install and tighten the bolts/nuts that secure the adjustable pinch valve cylinder to the adjustable pinch valve base.
3. Thread the cylinder rod into the clevis.
4. Tighten the jam nut.
5. Position the adjustable pinch valve assembly on the frame of the Model A so that the bolt holes in the mounting brackets are lined up with the bolt holes in the frame.
6. Install and tighten the bolts/nuts that secure the adjustable pinch valve to frame bracket to the Model A frame.
7. Connect the air supply lines to the air fittings on the cylinder.
8. Connect the main electrical and pneumatic connections.
9. Turn the Model A on and test for proper operation. Adjust the adjustable pinch valve as needed.

7.3.15 Adjustable Pinch Valve Bar Replacement

If one of the pinch valve bars becomes worn or damaged, use these steps to replace it.

7.3.15.1 Adjustable Pinch Valve Bar Removal

1. Turn the Model A off.
2. Disconnect the main electrical and pneumatic connections.
3. Label and disconnect the air supply lines from the cylinder assembly.
4. Loosen and remove the bolts/nuts that secure the pinch support bracket to frame brackets to the frame.
5. Lift the entire adjustable pinch valve assembly up and away from the Model A.
6. Lay the adjustable pinch valve assembly on a workbench.
7. Loosen and remove the bolt/nut that secures the pinch valve bars to the pinch valve support bracket.
8. Loosen and remove the bolt/nut that secures the pinch valve bar to the pinch link.
9. Remove the pinch valve bar.

7.3.15.2 Adjustable Pinch Valve Bar Installation

1. Position the pinch valve bar.
2. Install and tighten the bolt/nut that secures the pinch valve bar to the pinch link.
3. Install and tighten the bolt/nut that secures the pinch valve bars to the pinch valve support bracket.
4. Position the adjustable pinch valve assembly on the frame of the Model A so that the bolt holes in the mounting brackets are lined up with the bolt holes in the frame
5. Install and tighten the bolts/nuts that secure the pinch support bracket to frame brackets to the frame.
6. Connect the air supply lines to the air fittings on the cylinder.
7. Connect the main electrical and pneumatic connections.
8. Turn the Model A on and test for proper operation. Adjust the adjustable pinch valve as needed.

7.3.16 Adjustable Pinch Valve Link Replacement

If one of the pinch links becomes worn or damaged, use the following steps to replace it.

7.3.16.1 Adjustable Pinch Valve Link Removal

1. Turn the Model A off.
2. Disconnect the main electrical and pneumatic connections.
3. Label and disconnect the air supply lines from the cylinder assembly.
4. Loosen and remove the bolts/nuts that secure the pinch support bracket to frame brackets to the frame.
5. Lift the entire adjustable pinch valve assembly up and away from the Model A.
6. Lay the adjustable pinch valve assembly on a workbench.
7. Loosen and remove the bolt/nut that secures the pinch valve bars to the cylinder clevis.
8. Loosen and remove the bolt/nut that secures the pinch valve bar to the pinch link.
9. Remove the pinch valve bar.

7.3.16.2 Adjustable Pinch Valve Link Installation

1. Position the pinch valve bar.
2. Install and tighten the bolt/nut that secures the pinch valve bar to the pinch link.
3. Install and tighten the bolt/nut that secures the pinch valve bars to the cylinder clevis.
4. Position the adjustable pinch valve assembly on the frame of the Model A so that the bolt holes in the mounting brackets are lined up with the bolt holes in the frame
5. Install and tighten the bolts/nuts that secure the pinch support bracket to frame brackets to the frame.
6. Connect the air supply lines to the air fittings on the cylinder.
7. Connect the main electrical and pneumatic connections.
8. Turn the Model A on and test for proper operation. Adjust the adjustable pinch valve as needed.

7.3.17 Filter/Regulator/Lubricator (FRL) Replacement

Should one of the FRL components fail to function, replace the entire unit. Use the steps below.

7.3.17.1 Filter/Regulator/Lubricator (FRL) Removal

1. Turn the Model A off.
2. Disconnect the main electrical and pneumatic connections.
3. Disconnect the air hose from the outlet port of the lubricator.
4. Remove the fitting from the outlet port of the lubricator.
5. Remove the fitting from the inlet port of the filter.
6. Loosen the two FRL mounting bolts.
7. While holding the FRL with one hand, remove the mounting bolts and remove the FRL.

7.3.17.2 Filter/Regulator/Lubricator (FRL) Installation

1. Position the FRL so that the mounting holes in the FRL are aligned with the mounting holes on the frame of the Model A.
2. Loosely install one of the mounting bolts.
3. Install the second mounting bolt.
4. Tighten both mounting bolts.

5. Using Teflon® tape, wrap the threads of the new fittings for the inlet to the filter and the outlet from the lubricator. Start at the bottom of the thread and work toward the hex head in the same direction as the threads.
6. Install a fitting into the inlet of the filter.
7. Tighten the fitting.
8. Install a fitting into the outlet of the lubricator.
9. Tighten the fitting.
10. Connect the outlet hose to the outlet port on the lubricator.
11. Connect the air supply hose to the inlet port on the filter.
12. Check the FRL for leaks. Repair any leaks that are found.
13. Connect the main electrical connection.
14. Turn the Model A on and test for proper operation.

7.3.18 Air Manifold Replacement

If the air manifold becomes damaged, or develops a leak that can't be resolved, follow the steps below to replace the manifold.

7.3.18.1 Air Manifold Removal

1. Turn the Model A off.
2. Disconnect the main electrical and pneumatic connections.
3. Label and disconnect the air supply lines from the air manifold.
4. Remove the manifold mounting screws.
5. Remove the manifold.

7.3.18.2 Air Manifold Installation

1. Position the air manifold so that the mounting holes in the manifold are lined up with the mounting holes in the frame of the Model A.
2. Install and tighten the manifold mounting screws.
3. Connect the air supply lines, just as the lines were connected before.
4. Connect the main pneumatic connection.
5. Check the air supply lines at the manifold for leaks. Repair any leaks that are found.
6. Turn the Model A on and check for proper operation.

7.3.19 Lower Air Pad Air Pressure Regulator Replacement

If the lower air pad air pressure regulator develops a leak or is no longer able to regulate the pressure to the lower air pad, use the steps below to replace it.

7.3.19.1 Lower Air Pad Air Pressure Regulator Removal

1. Turn the Model A off.
2. Disconnect the main electrical and pneumatic connections.
3. Label and disconnect the air supply lines from the quick connect fittings at the regulator.
4. Loosen the setscrew that is used to retain the regulator knob.
5. Remove the regulator knob.
6. Loosen and remove the nut that is used to hold the regulator in the mounting bracket.
7. Remove the pressure regulator from the bracket.

7.3.19.2 Lower Air Pad Air Pressure Regulator Installation

1. Position the pressure regulator so that the regulator shaft and threads protrude through the mounting hole in the bracket.
2. Loosely install the nut.
3. Adjust the pressure regulator so that the gauge is positioned directly above the regulator shaft.
4. Tighten the nut.
5. Install the knob on the shaft.
6. Tighten the setscrew on the knob.
7. Connect the air supply lines to the regulator.
8. Connect the main electrical and pneumatic connections.
9. Adjust the air pressure. Refer to 7.2.2 Lower Air Pad Air Pressure Adjustment.
10. Turn the Model A on and test for proper operation.

7.3.20 Pinch Valve Regulator Replacement

If the pinch valve pressure regulator develops a leak or is no longer able to regulate the pressure to the lower air pad, use the steps below to replace it.

7.3.20.1 Pinch Valve Regulator Removal

1. Turn the Model A off.
2. Disconnect the main electrical and pneumatic connections.
3. Label and disconnect the air supply lines from the pinch valve regulator.
4. Loosen the setscrew that is used to retain the regulator knob.
5. Remove the regulator knob.
6. Loosen and remove the nut that is used to hold the regulator in the mounting bracket.
7. Remove the pressure regulator from the bracket.

7.3.20.2 Pinch Valve Regulator Installation

1. Position the pressure regulator so that the regulator shaft and threads protrude through the mounting hole in the bracket.
2. Loosely install the nut.
3. Adjust the position of the pressure regulator so that the inlet is pointing straight up.
4. Tighten the nut.
5. Install the knob on the shaft.
6. Tighten the setscrew one the knob.
7. Connect the air supply lines to the regulator.
8. Connect the main electrical and pneumatic connections.
9. Adjust the air pressure setting of the regulator. Refer to 7.2.3 Pinch Valve Air Pressure Adjustment.
10. Turn the Model A on and test for proper operation.

7.3.21 Air Supply Line Replacement

In the event that an air supply line becomes damaged and requires replacement, use the following procedures to replace the air supply line.

7.3.21.1 Air Supply Line Removal

1. Turn the Model A off.
2. Disconnect the main electrical and pneumatic connections.
3. Remove any clips and/or retainers that hold the air supply lines in place.
4. Remove the air supply line, making note of how the line is routed.
5. Measure the air supply line that was just removed.
6. Cut a new length of air supply line, making sure that the ends of the line are cut square. Cut the new line to the same length of the one that was removed.

7.3.21.2 Air Supply Line Installation

1. Route the new air supply line in the same manner as the one that was removed.
2. Insert each end of the new line into their fittings.
3. Reattach any clips and/or retainers to secure the air supply line.
4. Reconnect the main pneumatic connection and check for any leaks. If a leak is found, disconnect the main pneumatic connection and then disconnect/reconnect the air connections, then reconnect the main pneumatic connection. Repeat as necessary, until no leaks are present.
5. Reconnect the main power cord.

7.3.22 Pneumatic Quick Connect Fitting Replacement

In the event that a quick connect fitting becomes damaged and requires replacement, use the following procedures to replace the quick connect fitting.

7.3.22.1 Pneumatic Quick Connect Fitting Removal

1. Turn the Model A off.
2. Disconnect the main electrical and pneumatic connections.
3. Disconnect the air supply line from the fitting by pressing in on the collar while pulling out on the air supply line.
4. Using a wrench, unscrew the fitting.

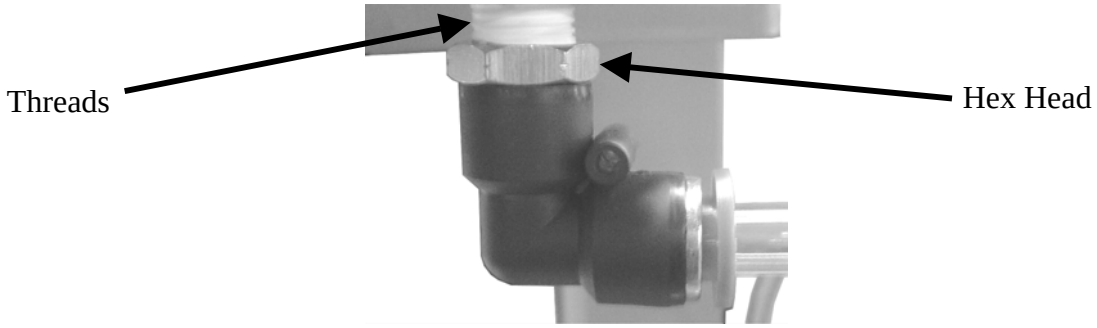

Figure 7-13. Air Supply Fitting

7.3.22.2 Pneumatic Quick Connect Fitting Installation

1. Using Teflon® tape, wrap the threads of the new fitting, starting at the bottom of the thread working toward the hex head in the same direction as the threads.
2. Screw the new fitting into the threads and use a wrench to carefully tighten the fitting.

CAUTION Over tightening the fitting can damage the fitting, or the component that it is being threaded into.

3. Reconnect the air supply line to the fitting.
4. Reconnect the main pneumatic connection and check for any leaks. If a leak is found, disconnect the main pneumatic connection and then disconnect/reconnect the air connections, then reconnect the main pneumatic connection. Repeat as necessary, until no leaks are present.
5. Reconnect the main electrical connection.
6. Turn the Model A on and test for proper operation.

7.3.23 Gate Valve Replacement

In the event that one of the gate valves becomes damaged or worn, it must be replaced. There are two different procedures for replacing the gate valves, depending on where it is installed. Use the steps below to replace it.

7.3.23.1 Tank Gate Valve Removal

1. Turn the Model A off.
2. Disconnect the main electrical and pneumatic connections.
3. Loosen the hose clamp that is located just below the gate valve.
4. Pull down on the rubber hose until it is pulled free from the gate valve.
5. Using a large pipe wrench, loosen the gate valve.
6. Unscrew and remove the gate valve.

7.3.23.2 Tank Gate Valve Installation

1. Screw the gate valve onto the threads of the inlet pipe.
2. Use a large pipe wrench to tighten the gate valve. Make sure that the control knob for the valve is facing the right side of the machine when the installation is complete.
3. Install the rubber hose on the end of the gate valve and slide the hose into position.
4. Position the hose clamp and tighten the screw.
5. Connect the main electrical and pneumatic connections.
6. Turn the Model A on and test for proper operation.

7.3.23.3 Discharge Pipe Gate Valve Removal

1. Turn the Model A off.
2. Disconnect the main electrical and pneumatic connections.
3. Remove the muffler above the gate valve. Refer to 7.3.25 Muffler Replacement.
4. Using a large pipe wrench, loosen the gate valve.
5. Unscrew and remove the gate valve.

7.3.23.4 Discharge Pipe Gate Valve Installation

1. Screw the new gate valve onto the discharge pipe.
2. Use a large pipe wrench to tighten the gate valve. Make sure that the control knob for the valve is facing the right side of the machine when the installation is complete.
3. Install the muffler. Refer to 7.3.25 Muffler Replacement.
4. Connect the main electrical and pneumatic connections.
5. Turn the Model A on and test for proper operation.

7.3.24 Pinch Valve Liner Replacement

If one of the pinch valves develops a leak or fails to function, use the steps below to replace the liner.

7.3.24.1 Pinch Valve Liner Removal

1. Turn the Model A off.
2. Disconnect the main electrical and pneumatic connections.
3. Disconnect the outlet of the pinch valve from the any downstream components.
4. Remove any control valves that may be connected to the pinch valve assembly.
5. Remove the pinch valve assembly from the Model A and place it on a workbench.
6. Remove the four bolts around the perimeter of the pinch valve assembly.

Figure 7-14. Pinch Valve

7. Remove the end caps.

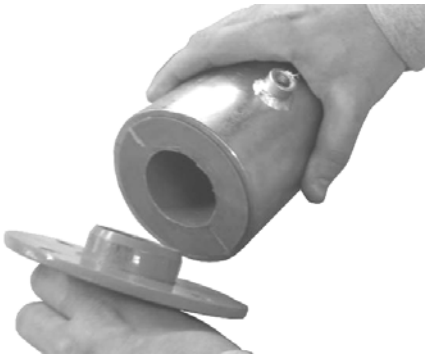

Figure 7-15. Removing the End Caps

8. Wrap the pinch valve cylinder housing in a shop towel and clamp it in a vise.

Figure 7-16. Wrap The Pinch Valve Cylinder Housing In A Shop Towel And Clamp It In A Vise

9. Insert two flat screwdrivers, or similar tools, between the housing and the pinch tube liner. One tool should be inserted on each side of the liner.

Figure 7-17. Using Screwdrivers To Squeeze The Pinch Valve Liner During Removal

10. Pull the two screwdriver handles together in the center of the opening in the housing. This will squeeze the liner.
11. Push the two screwdrivers downward to start sliding the liner out of the bottom of the housing.
12. Remove the rubber liner from the inside of the pinch valve.

Figure 7-18. Remove The Pinch Valve Liner From The Housing

7.3.24.2 Pinch Valve Liner Installation

1. Apply silicone lubricant to the lip on each end of the rubber liner. Use either Dow Corning® 111 Valve Lubricant and Sealant or JAK Dry Glide.

Figure 7-19. Application Of Silicone Lubricant to Lip Of Pinch Valve Liner

2. Slide the rubber liner into the bore of the pinch valve.

Figure 7-20. Slide The Pinch Valve Liner Into The Housing

3. Push the liner into the housing until it stops.

Figure 7-21. Push The Liner Into The Housing Until It Stops

4. Invert the housing and press down to force the liner in the rest of the way.

Figure 7-22. Invert the Housing And Press Down

5. Install the end cap on the pinch valve housing.

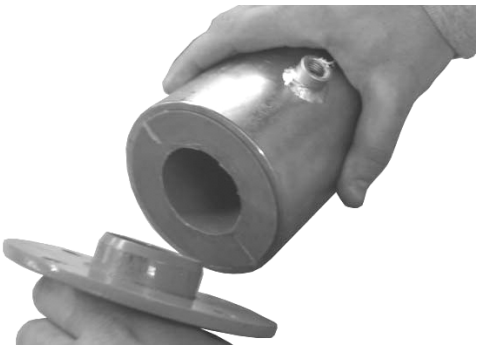

Figure 7-23. Install the End Cap

6. Install the bolts and nuts. Make sure that the nuts are tightened evenly around the perimeter. Tighten each nut a little, then move on to the next nut. Continue moving around the perimeter until all of the nuts are tight.

Figure 7-24. Install The Bolts And Nuts

7. Install the pinch valve on the air delivery pipe.
8. Install the pneumatic control valves
9. Install any downstream components.
10. Connect the main electrical and pneumatic connections.
11. Turn the Model A on and test for proper operation.

7.3.25 Muffler Replacement

If one of the mufflers fails to perform as intended, use the steps below to replace it.

7.3.25.1 Muffler Removal

1. Turn the Model A off.
2. Disconnect the main electrical and pneumatic connections.
3. Use a large pipe wrench to loosen and remove the muffler.

7.3.25.2 Muffler Installation

1. Apply plumbers thread sealant to the threads of the muffler.
2. Install and tighten the muffler.
3. Connect the main electrical and pneumatic connections.
4. Turn the Model A on and test for proper operation.

7.3.26 Fluidizer Air Pad Replacement

If one of the fluidizer air pads becomes clogged or damaged, use the steps below to remove it and install a new one.

7.3.26.1 Fluidizer Air Pad Removal

1. Make sure the hopper is completely empty. This should be done to prevent product from spilling.
2. Turn the Model A off.
3. Disconnect the main electrical and pneumatic connections.
4. Open the cleanout door on the bottom of the hopper.
5. Disconnect the air supply line from the quick connect fitting for the air pad that is going to be replaced.
6. Loosen the nut that is used to secure the air pad.
7. Remove the nut.
8. Remove the air pad and pull it out of the hopper through the cleanout door opening.

7.3.26.2 Fluidizer Air Pad Installation

1. Insert the air pad into the hopper through the cleanout door.
2. Insert the air pad air fitting through the mounting hole in the hopper.
3. Install the nut on the air pad air fitting. Loosely tighten the nut at this time.
4. Position the air pad so that it is in its operating position.
5. Tighten the air pad mounting nut.
6. Connect the air supply line to the quick connect fitting on the air pad.
7. Install the clean out door.
8. Connect the main electrical and pneumatic connections.
9. Turn the Model A on and test for proper operation.

7.3.27 Lower Air Pad Replacement

If the lower air pad becomes clogged or damaged, use the steps below to remove it and install a new one.

7.3.27.1 Lower Air Pad Replacement

1. Make sure the hopper is completely empty. This should be done to prevent product from spilling.
2. Turn the Model A off.
3. Disconnect the main electrical and pneumatic connections.
4. Open the cleanout door on the bottom of the hopper.
5. Disconnect the air supply line from the quick connect fitting for the lower air pad.
6. Loosen the nut that is used to secure the air pad.
7. Remove the nut.
8. Remove the air pad.

7.3.27.2 Lower Air Pad Installation

1. Insert the air pad air fitting through the mounting hole in the cleanout door.
2. Install the nut on the air pad air fitting. Loosely tighten the nut at this time.

3. Position the air pad so that it is in its operating position.
4. Tighten the air pad mounting nut.
5. Connect the air supply line to the quick connect fitting on the air pad.
6. Install the clean out door.
7. Connect the main electrical and pneumatic connections.
8. Turn the Model A on and test for proper operation.

7.3.28 T3000 Interface Card Replacement

If the T3000 Interface Card becomes damaged or fails to function, use the following procedures to remove it and install a new one.

ESD NOTICE

To protect against ESD damage to the T3000 Interface Card, follow Standard ESD Prevention Procedures. Failure to use recommended protective measures could result in permanent equipment damage, either immediate or latent, when handling components.

7.3.28.1 T3000 Interface Card Removal

1. Turn the Model A off and disconnect it from its power source.
2. Open the control box.
3. Label each wire for easy identification.
4. Disconnect each wire from the module.
5. While holding the module, remove the mounting screws and the module.

7.3.28.2 T3000 Interface Card Installation

1. Hold the new module in position and install the mounting screws.
2. Reconnect each wire to the module. Take care to be sure that each wire is connected to the appropriate terminal.
3. Close the control box.
4. Reconnect the Model A power cords to their respective power sources.
5. Turn the Model A on and check for proper operation.

Glossary

TERM	DEFINITION
AC	Alternating Current
Bagging cycle	A series of functions that describe the packaging process, from beginning to end, for one package of product.
Base frame	The portion of the machine that provides the support structure for all other components that make up the machine.
Bulk rate	The fill speed used to package the largest portion of the product. It is a fast fill speed.
Butterfly valve	This dual-purpose valve is located at the top of the hopper. When open, it allows the hopper to refill with product. When closed, it seals the hopper, allowing air pressure to build in the hopper and push the product out into the package.
Component	An item of hardware as commonly supplied complete by manufacturers.
Contact	A conducting part that co-acts with another conducting part to open or close an electrical circuit.
Counter	A device that counts the occurrence of some event.
Cross pinch cylinders	The Model A uses cross pinch cylinders in sets of two. If set up as a single set point unit, the machine will have a set of cutoff cross pinch cylinders. If set up as a dual set point unit, the machine will have a set of cutoff cross pinch cylinders and a set of dribble cross pinch cylinders. The cylinders are used to restrict (dribble) or stop (cutoff) the flow of product through the fill tube.
Cubic Feet/Minute (CFM)	A unit of measure that is used to describe the amount of compressed air that is used by a machine.
DC	Direct Current
De-energize	To deprive an electro-receptive device of its operating current.
Discharge spout	A component whose primary function is to guide the product from the feed mechanism into the package.
Display	A device that gives information in visual form.
DISPLAY SELECT switch	Used on units that are equipped with an analog controls. This device is used to change the information that is being displayed on the weight display. Often used during the calibration process.
Dribble rate	The fill speed used to package the smallest portion of the product. It is a slow fill speed, as compared to the bulk rate. Also referred to as 2nd RATE.
Dual set point (DSP)	Refers to a machine that has the capability of delivering the product at two different fill speeds.
ESD	Electrostatic Discharge
Failure	The event, or inoperable state, in which any item or part of an item does not, or would not, perform as specified.
Fill rate	A general term used to describe the speed at which the product is being fed.
Gate valve	A manual valve that is used to control how much air is directed to the hopper during the fill cycle.
Ground	A conducting connection, whether intentional or accidental, between an electrical circuit or equipment and the earth, or some other conducting body at a reference potential.
h, HR	Hour
I/O	Input/Output
IN, in.	Inch, Inches
Infra Red (IR) port	A feature of the digital control set, it is used for transferring program/configuration information from a Personal Data Assistant (PDA) to the digital control panel. Rather than using a cable to transfer the data, this method used infrared light.

TERM	DEFINITION
Jog	The function of adding a small amount of product to a package that ended up being underweight at the end of the bagging cycle.
kg	kilogram
Lag bolt	Used to attach equipment to a pallet during shipping.
lb or lbs	Pound or pounds
LCD	Liquid Crystal Display
LED	Light Emitting Diode. Used as status indicator for many types of equipment (processors, power supplies, I/O modules, modems, etc).
Load cell	An electronic device that is used to monitor the weight of the product that is being packaged.
MAC valve	An electrically controlled pneumatic valve that is used for controlling various pneumatic cylinders. The valves apply air pressure to the cylinders causing them to either open or close.
Module	Assembly of components, which function as a unit and can be replaced as a unit.
OPC	OLE for Process Control
Pounds per Square Inch (PSI)	Unit of measured used to describe air pressure.
Pinch valve	Used to control the flow of blower air. The pinch valves are closed using plant air (supplied by an air compressor).
POWER ON Indicator	A lamp that will illuminate when power has been turned on.
Power supply	A device that converts available power to a form that a system can use — usually converts AC power to DC power.
Processor	The decision-making and data storage sections of a programmable controller or computer.
Product	A type or a category of manufactured goods, constructions, installations, and natural and processed materials or those associated services whose characterization, classification, or functional performance determination is specified by standards.
Reaction Time	The time used by equipment, operator, or both, that elapses between the moments an action is called for and when the desired result occurs.
Refrigerated Air Dryer	A device that is uses a refrigeration unit to remove moisture from a compressed air supply. This is done to reduce corrosion and contamination of the pneumatic equipment.
Relay	An electromagnetic device that is operated by a variation in the conditions of one electric circuit, to effect the operation of other devices in the same or another electric circuit.
RS–232	An EIA standard that specifies electrical, mechanical, and functional characteristics for serial binary communication circuits. A single–ended serial communication interface.
Set point	A control setting that is used to define a transition point in the fill process. It can be a point when a change in fill rate occurs, or when the machine stops filling all together.
Set Point 1 (SP-1)	The control setting that defines where the bulk feed rate is to stop.
Set Point 1 knob	The control mechanism for adjusting Set Point 1 (SP-1) on machines with analog controls. Used in conjunction with the DISPLAY SELECT Switch.
Set Point 2 (SP-2)	The control setting that defines where the dribble rate stops. Is typically slightly lower than target weight.
Set Point 2 knob	The control mechanism for adjusting Set Point 2 (SP-2) on machines with analog controls. Used in conjunction with the DISPLAY SELECT Switch.
Shipping bracket	A piece of metal that is used to secure the weighing apparatus to the base frame during shipping to prevent damage to the weighing apparatus.
Single set point (SSP)	Refers to a machine that has the capability of delivering the product at a single fill speeds.

TERM	DEFINITION
SP-1 indicator	A lamp used on analog control boxes that illuminates when SP-1 has been reached.
SP-2 indicator	A lamp used on analog control boxes that illuminates when SP-2 has been reached.
STOP button/indicator	Used by the operator to immediately stop the machine. Is a large red button that illuminates when the stop button has been pressed. To restart the machine the button is pulled out.
Surge	A sudden rise of current or voltage.
Surge Hopper	A reservoir for the product before it reaches the feed device.
T3000	An electronic control device that was jointly developed by Taylor Products and Hardy Instruments.
Target weight	The desired package weight.
VAC	Volt, alternating current
Valve bag	Type of bag that uses a valve opening to insert product.
VDC	Volt, direct current
Water separator	A device that is installed in a compressed air supply line to remove excess moisture from the air supply. This is done to reduce corrosion and contamination of the pneumatic equipment.
Weighment	One charge or fill of a packaging machine.
Weight display	An electronic device that is used to display package weights and to set package parameters.
Wing	A swing out panel that is used for mounting control boxes on either side of the machine.
Zero knob	The control mechanism for adjusting machine to zero.

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Appendix A
Safety Procedures, Cautions, Warnings, and Notices

- General safety precautions must be observed during all phases of operation, service and repair of the Model A. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture and intended use of the Model A.
- The manufacturer assumes no liability for customer's failure to comply with the following requirements:
- Qualified technicians and maintenance personnel should service the equipment described in this manual.
- Do not attempt internal service or adjustments unless another person, capable of rendering first aid and resuscitation, is available.
- Do not substitute parts or modify equipment. This practice could, in some cases, introduce the danger of additional hazards
- The Model A contains some electrostatic-sensitive components. Therefore, always ground yourself with a proper wrist strap before handling any modules or printed circuit boards so that static charges are removed from the person. Use static suppressive packaging to protect electronic assemblies removed from the Model A.
- Observe all procedural cautions and warnings located on the equipment and throughout this manual.
- Read and follow all instructions
- Follow all warnings and instructions marked on the units and listed in manuals.

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Appendix B
Spare Parts

Table B-1. Model A Spare Parts List

	Part Description	Part Number
1	Upper flex leaf	60-0037
2	Lower flex leaf	60-0038
3	Load cell (200 lb.)	50-1549
4	Gum rubber hose	50-1530
5	Bag clamp cylinder	50-1159
6	Bag clamp pad	50-7440
7	Air pad assembly – stainless steel (optional to machine)	50-1194
8	Air pad assembly – steel	50-1177
9	Blower filter elements	N/A
10	Pinch tube insert	50-7432
11	Upper air pads pinch tube	50-7433
12	Pinch tube sleeve – ¾-inch	53-0416
13	Air pad precision regulator	50-1702
14	Pinch tube air pilot timer	50-1588
15	MAC valve timer	50-1672
16	MAC valve timer	50-1850
17	Solenoid – pinch tube exhaust	50-1427
18	Solenoid – pinch tube air pad	50-1060
19	MAC solenoid valve	50-1673
20	MAC solenoid valve	50-1729
21	Kicker cylinder	50-1160
22	Butterfly valve with actuator (Feb 2004)	50-7628
23	Flow control meter in ¼ X ¼	50-4885
24	MAC mechanically actuated valve	50-1906
25	Potentiometer	50-1721
26	Centerline valve seat – 10-inch	50-0558
27	Special trd pinch cylinder	50-7690
28	V-pinch clevis 303 – stainless steel	50-7691
29	V-pinch support bracket	60-3634
30	V-pinch support bracket	60-4056
31	V-pinch main frame	60-4054
32	5/16-inch – 18 X 2-inch bolt (special)	60-4055
33	V-pinch bars	60-4044
34	V-pinch link	60-4046
35	V-pinch shield	60-4053

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Appendix C
Mechanical Drawings

Table C-1. Model A Mechanical Drawing List

	Drawing Title	Drawing Number
1	Control Box With T3000	N/A
2	Control Box With T3000 – Internal Components	N/A
3	Control Box With Analog Controls	N/A
4	Control Box With Analog Controls – Internal Components	N/A
5	Model A – Isometric – Exploded View	Airpackerexploded-05.dwg
6	Adjustable pinch valve assembly	Adj Pinch Design to Eng 2 8 06.dwg
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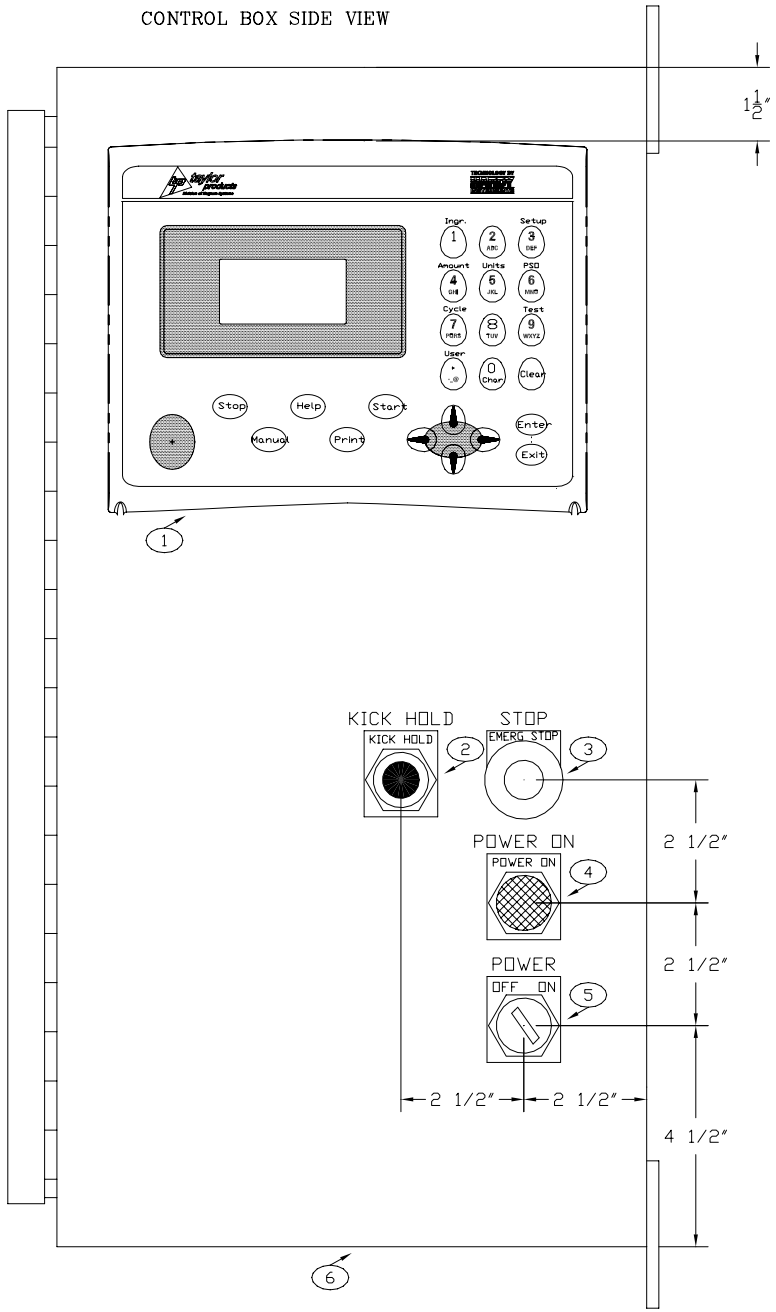
CONTROL BOX SIDE VIEW

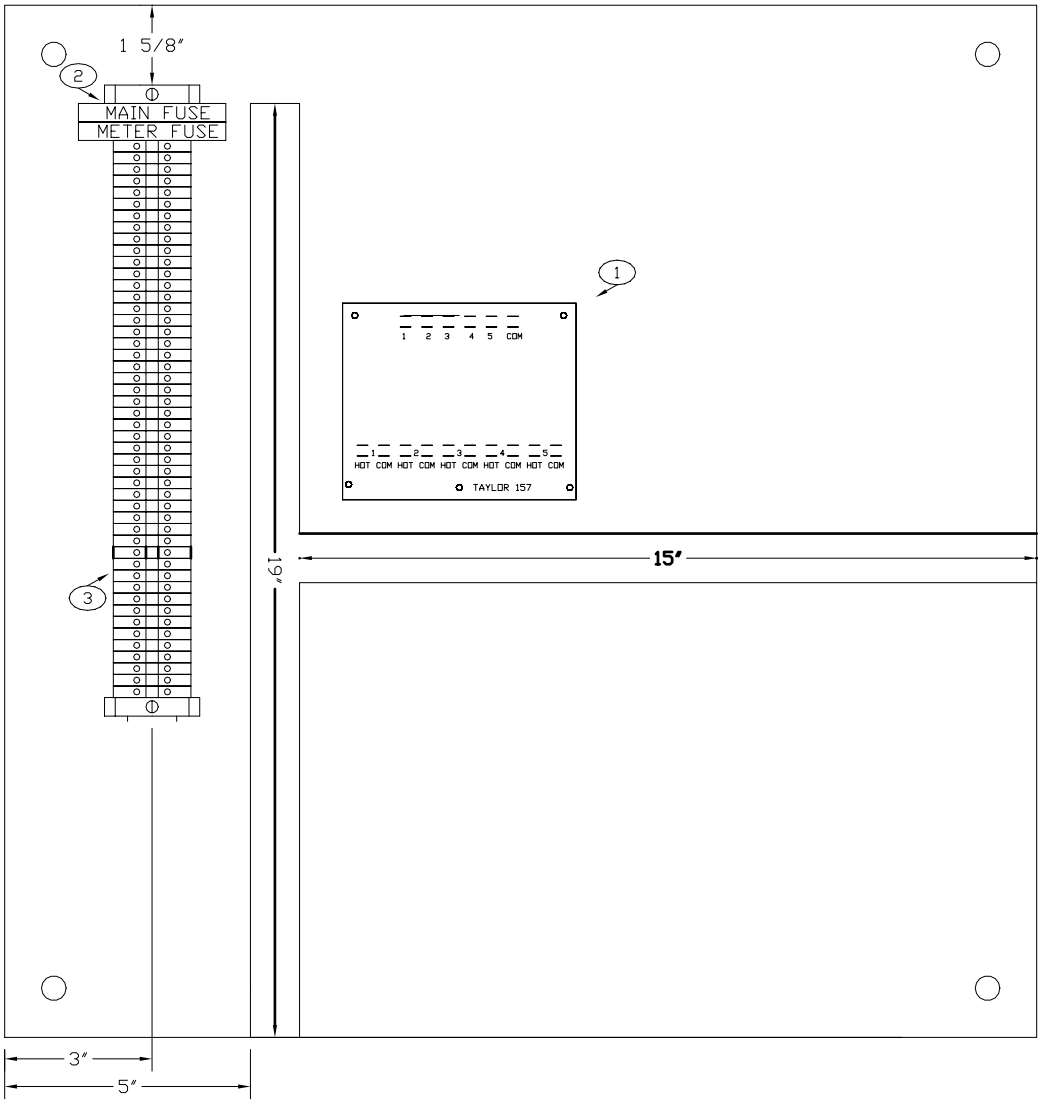


BILL OF MATERIALS

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	50-0000	T3000 METER T3000-PM-AA7-LC-00-00
2	2	50-1036	BLACK FLUSH BUTTON
3	1	53-0106	STOP BUTTON LIGHTED PUSH-PULL
4	1	50-1406	INDICATOR LAMP
4	2	50-1409	GREEN LENS FOR LAMP
5	1	50-1035	2 PS MAINTAINED
8	1	50-1329	CONTROL BOX 24 X 24 X 12

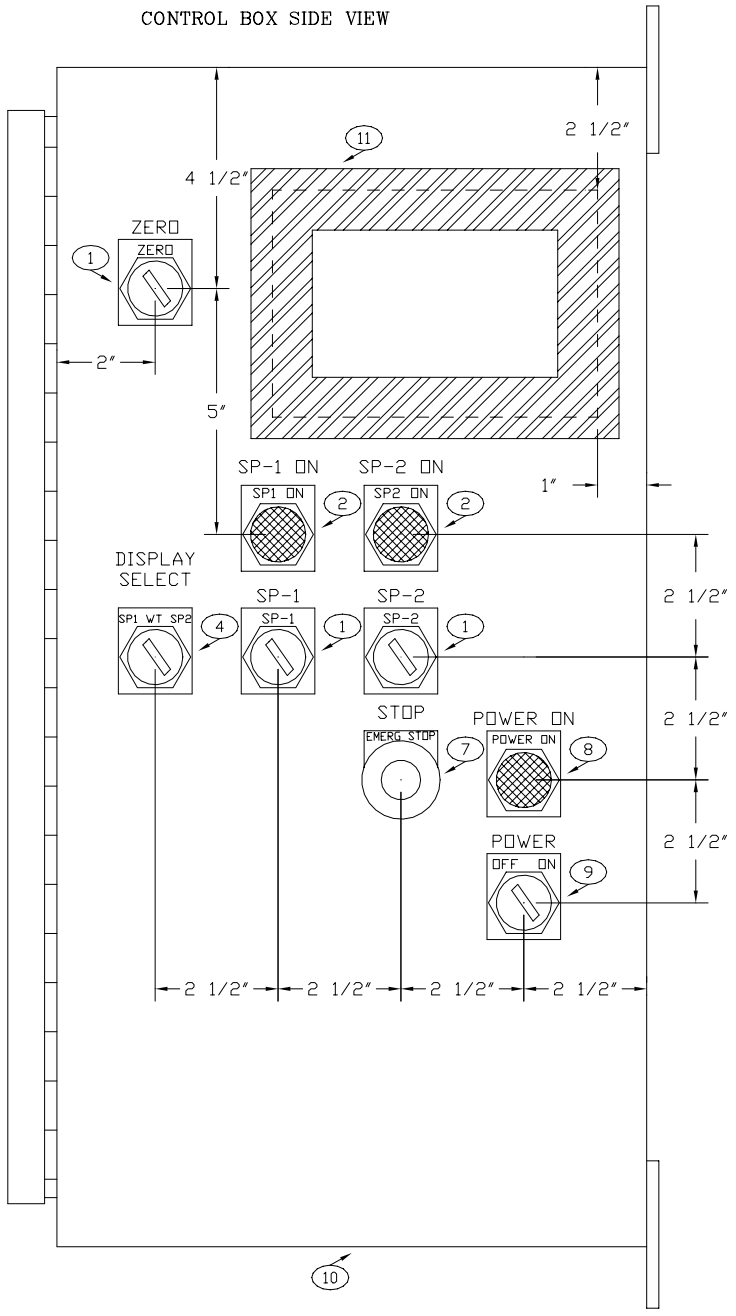
Machine Type: Model A - Air Packer
Dwg Name: 26343-1-401-00
Dwg Scale: 1/4
Dwg View: Control Panel with T3000

ITEM	QTY	PART NUMBER	BILL OF MATERIALS DESCRIPTION
1	1	53-2077	INPUT INTERFACE BOARD
2	2	50-1744	FUSE HOLDERS
3	46	50-1813	TERMINAL BLOCKS



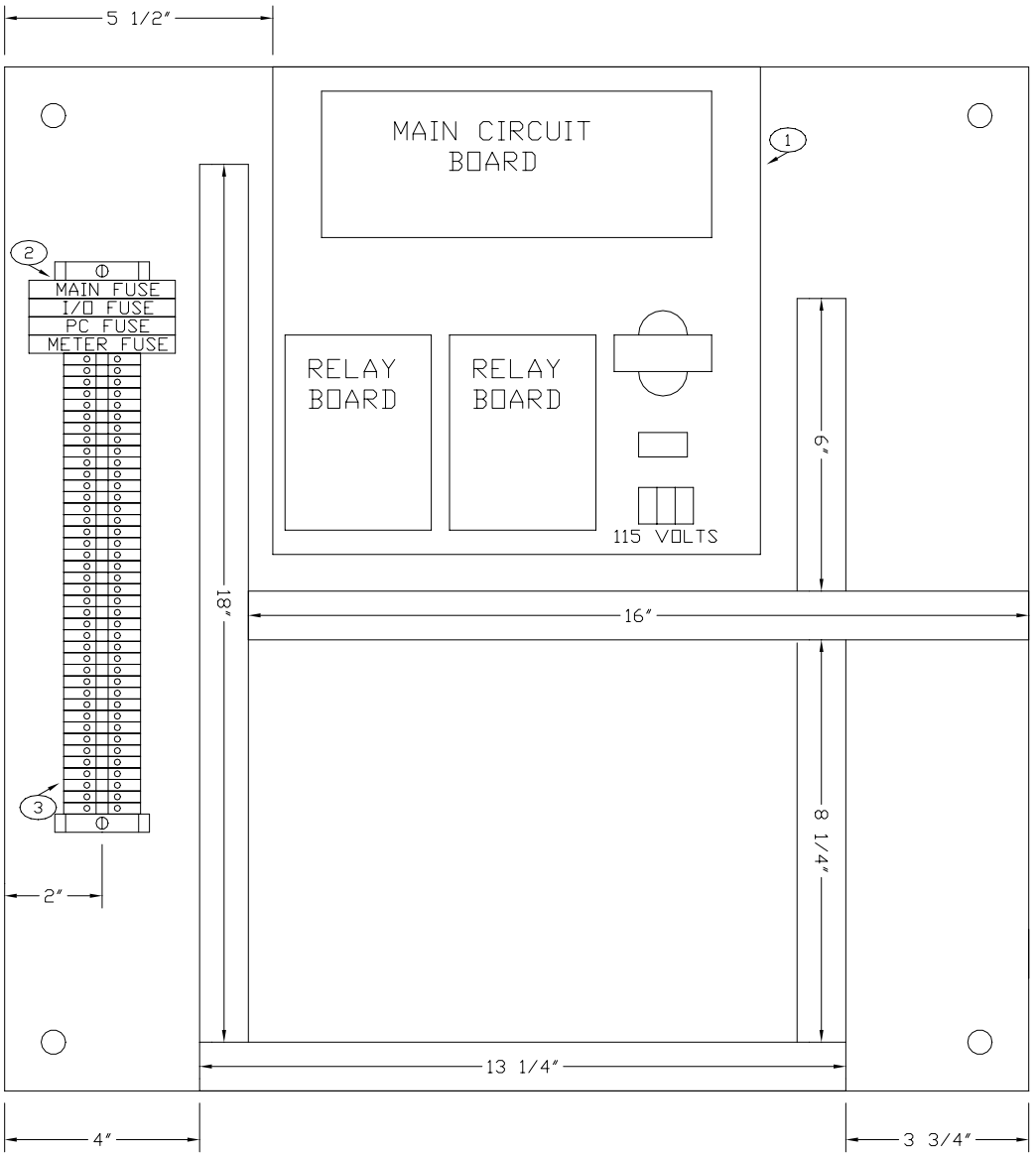
Machine Type: Model A - Air Packer
Dwg Name: 26343-1-402-00
Dwg Scale: 1/4
Dwg View: Control Panel with T3000 - Internals

CONTROL BOX SIDE VIEW



ITEM	QTY	PART NUMBER	BILL OF MATERIALS DESCRIPTION
1	3	50-1083	POTENTIOMETER OPERATOR
2	2	50-1406	INDICATOR LAMP
2	2	50-1409	RED LENS CAP FOR INDICATOR LAMP
4	1	50-1094	2 PS SPRING RETURN SWITCH
7	1	53-0106	RED ILLUMINATED PUSH PULL
8	1	50-1406	INDICATOR LAMP
8	1	50-1408	GREEN LENS CAP FOR POWER ON LAMP
9	1	50-1035	2 POSITION MAINTAINED SELECTOR SWITCH
10	1	50-1329	CONTROL BOX 24″ X 24″ X 12″
11	1	50-1103	WINDOW KIT

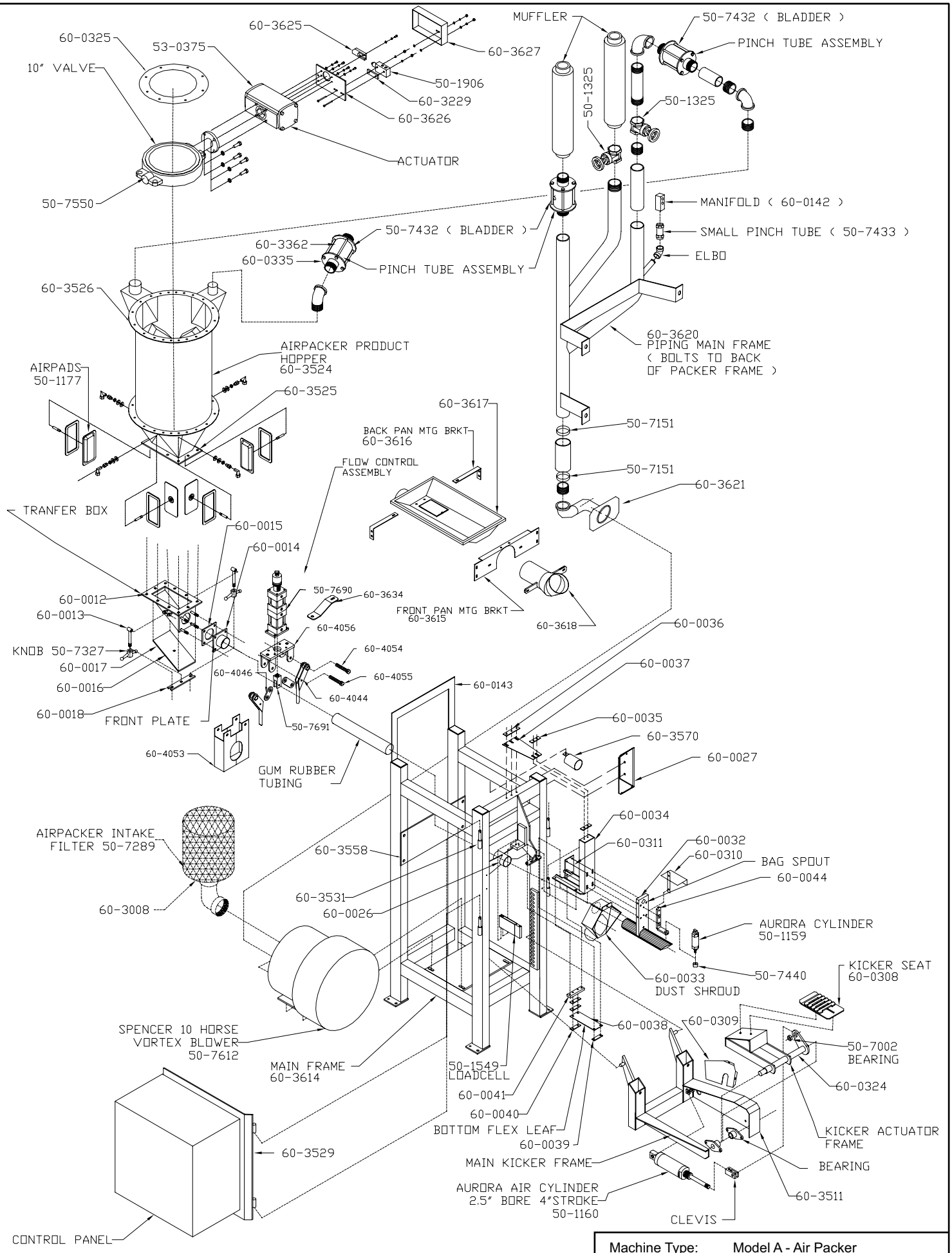
Machine Type: Model A - Air Packer
Dwg Name: 27799-1-401-00
Dwg Scale: 1/4
Dwg View: Control Panel with Analog Controls



ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	50-1069	WEIGH METER CONTROL CIRCUITS
2	4	50-1744	FUSE HOLDERS
3	40	50-1717	TERMINAL BLOCKS

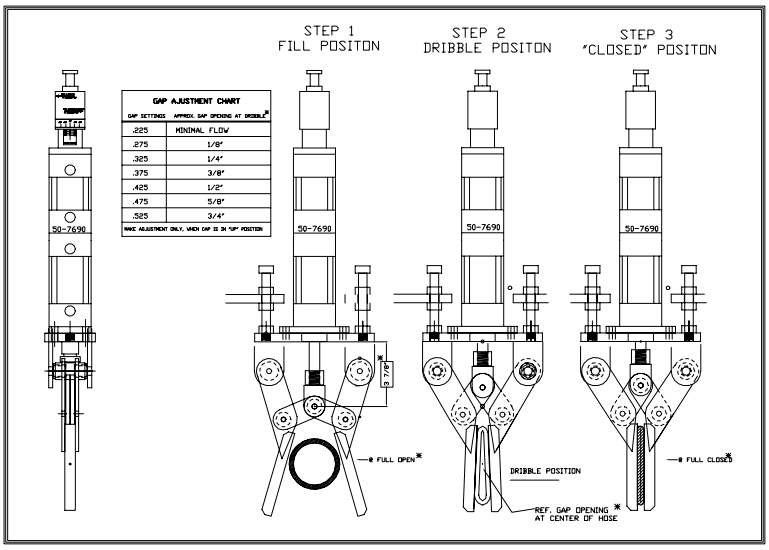
BILL OF MATERIALS

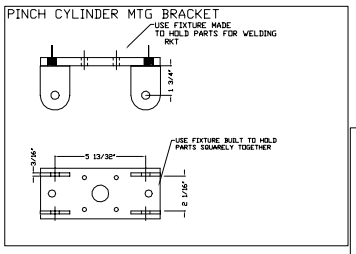
Machine Type: Model A - Air Packer
Dwg Name: 27799-1-402-00
Dwg Scale: 1/4
Dwg View: Analog Control Panel Internals

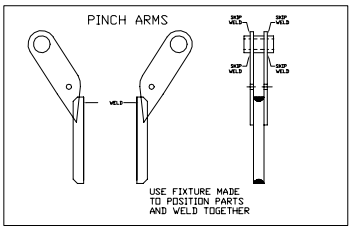


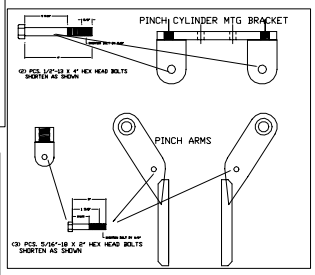
Machine Type:	Model A - Air Packer
Dwg Name:	airpackerexploded-05.dwg
Dwg View:	Isometric - Exploded View

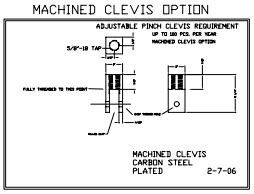
50-7690
TRD STACK UP
HEIGHT, DIMENSION
PORTING LOCATION
NOT EXACT

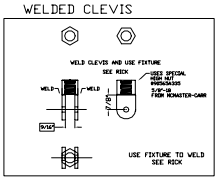


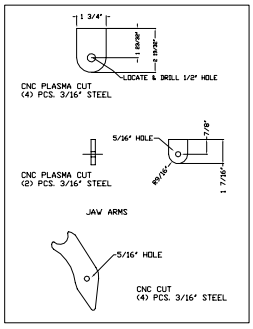


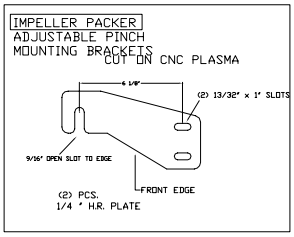


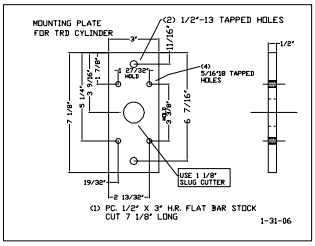


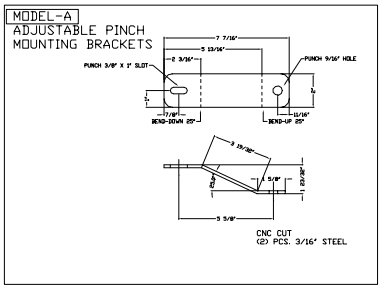


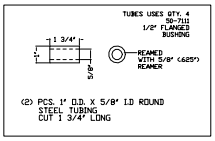


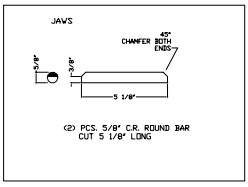












Machine Type:	Model A - Air Packer
Dwg Name:	Adj Pinch Design to Eng 2 8 06.dwg
Dwg View:	Isometric - Exploded View

Appendix D
Electrical Drawings

Table D-1. Model A Electrical Drawing List

	Drawing Title	Drawing Number
1	Electrical Schematics With T3000	N/A
2	Electrical Schematics With Analog Controls	N/A
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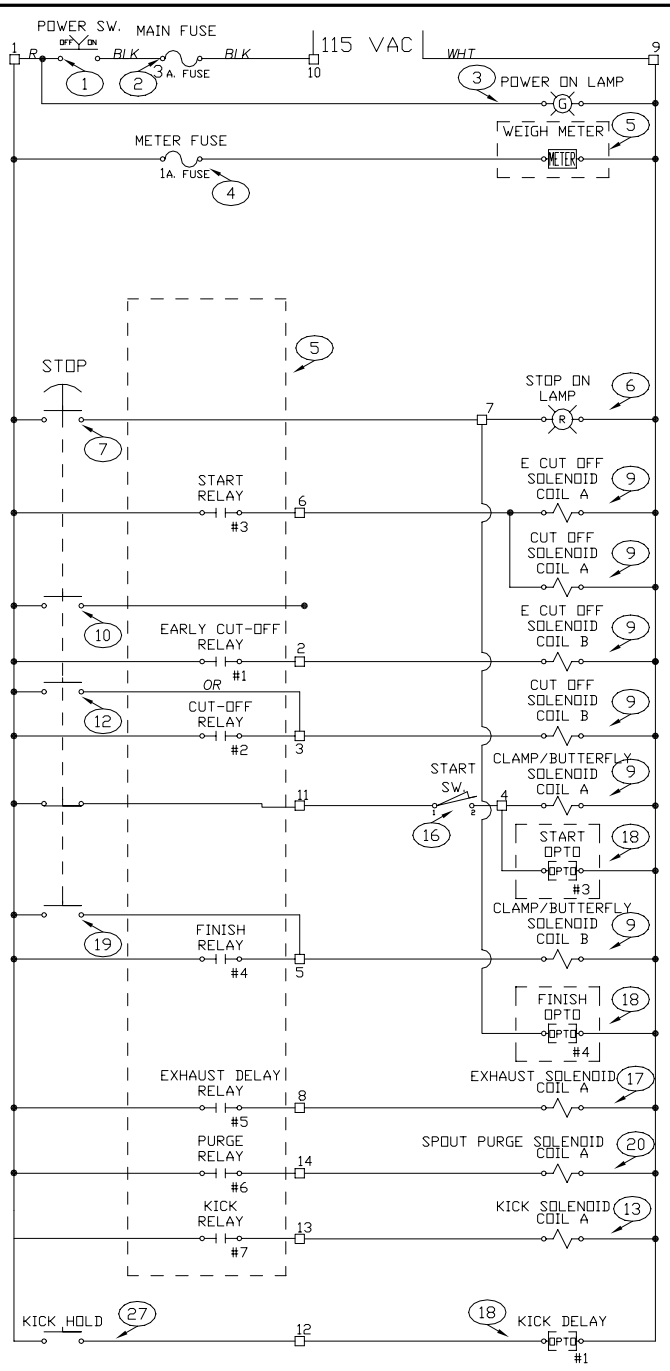


CUSTOMER TO SUPPLY 115 VAC 15 AMP SERVICE TO TERMINALS 10 HOT & 9 GROUND ON TERMINAL STRIP IN CONTROL BOX

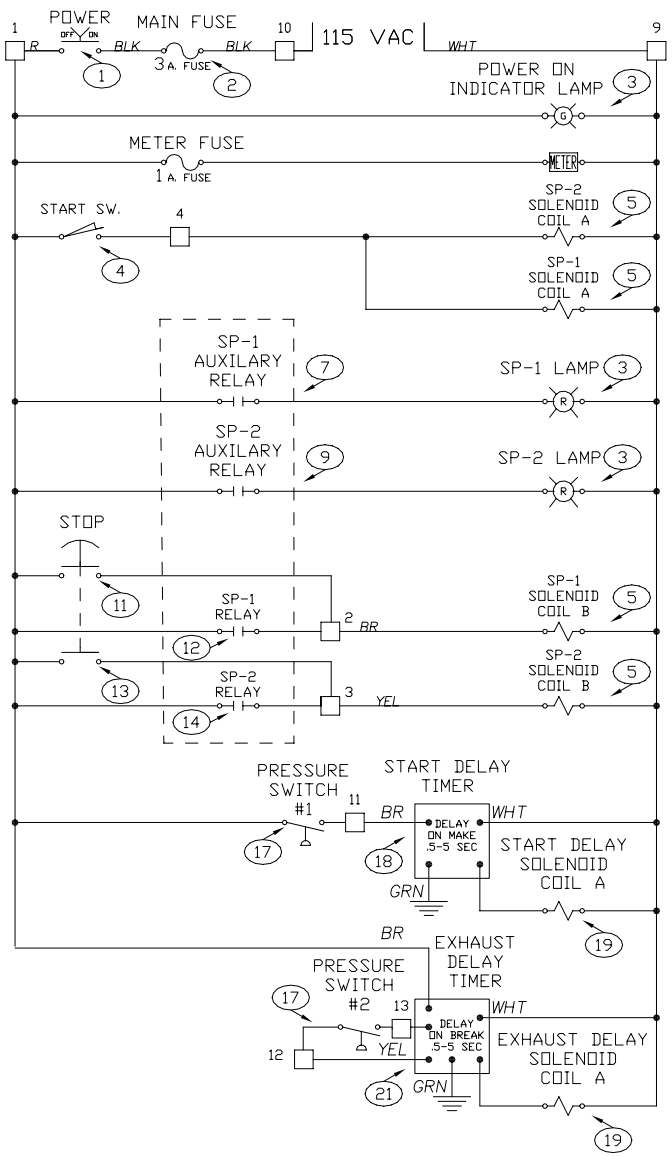
NOTE:

[ ] – INDICATES PART OF WEIGH METER

BILL OF MATERIALS

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	50-0000	POWER SWITCH CONTACTS N.O.
2	1	50-1065	3 AMP FUSE FOR MAIN CIRCUIT
3	1	50-1407	POWER ON INDICATOR LAMP
4	1	50-1051	1 AMP FUSE FOR WEIGH METER
5	1	50-0000	T3000 METER #T3000-PM-AA7-LC-00-00
6	1	50-1415	STOP BUTTON ON INDICATOR LAMP
7	1	50-1040	STOP BUTTON CONTACT N.O.
9	3	50-1014	MAINTAINED 4 WAY SOLENOID
10	1	50-1040	STOP BUTTON CONTACT N.O.
12	1	50-1040	STOP BUTTON CONTACT N.O.
13	1	50-1048	SPRING RETURN 4 WAY SOLENOID
16	1	50-1017	START SWITCH CONTACT N.O.
17	1	50-1701	EXHAUST SOLENOID
18	1	53-2077	INPUT INTERFACE BOARD 157
19	1	50-1040	STOP BUTTON CONTACT N.O.
20	1	50-1045	PURGE SOLENOID
26	3	50-1045	SOLENOID COIL A
27	1	50-1040	KICK HOLD BUTTON CONTACT N.O.

Machine Type: Model A - Air Packer
Dwg Name: 26343-1-403-00
Dwg Scale: 1/4
Dwg View: T3000 Control Panel Schematics



CUSTOMER TO SUPPLY 115 VAC 15 AMP SERVICE TO TERMINALS 10 HOT & 9 GROUND ON TERMINAL STRIP IN CONTROL BOX

□ – *INDICATES TERMINAL CONNECTION ON TERMINAL STRIP*

BILL OF MATERIALS

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	50-1026	POWER SWITCH CONTACT N.O.
2	1	50-1065	3 AMP FUSE FOR MAIN CIRCUIT
3	3	50-1406	INDICATOR LAMP
4	1	53-0089	START SWITCH CONTACT N.O.
5	2	50-1014	SOLENOID
7	1	50-1137	AUXILARY SET POINT 1 RELAY CONTACT N.O.
9	1	50-1137	AUXILARY SET POINT 2 RELAY CONTACT N.O.
11	1	50-1040	STOP BUTTON CONTACT N.O.
12	1	50-1252	SP-1 RELAY CONTACT N.O.
13	1	50-1040	STOP BUTTON CONTACT N.O.
14	1	50-1252	SP-2 RELAY CONTACT N.O.
17	2	50-1588	PRESSURE SWITCH
18	1	50-1672	DELAY TIMER .5 - 5 SECOND (DELAY ON MAKE)
19	2	50-1673	SOLENOID
21	1	50-1671	DELAY TIMER (DELAY ON BREAK)

Machine Type: Model A - Air Packer
Dwg Name: 27799-1-403-00
Dwg Scale: 1/4
Dwg View: Analog Control Panel Schematics

Appendix E
T3000 Control Panel User Guide

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This unit was ordered with the base analog control set, thus the T3000 Control Panel User Guide is not needed and not included.

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Appendix F
Custom Features

The documents included in Appendix F will provide information regarding any custom features that were ordered and included in the equipment purchase.

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The equipment that accompanies this manual was not ordered with any custom features, thus no custom documentation is included.

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