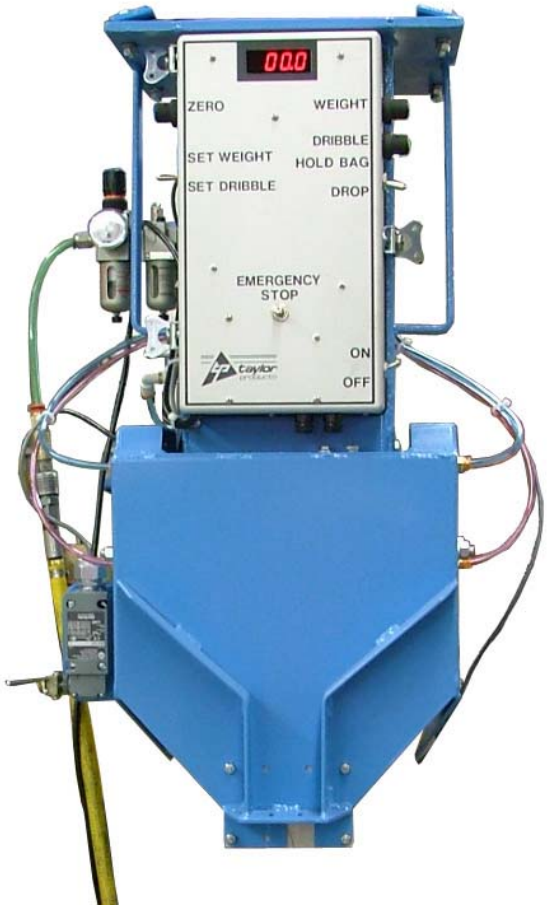
taylor products
Division of Magnum Systems



Taylor Products
Model TE100
Electronic Small Bagging Scale

Operation and Maintenance Manual

Taylor Products
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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 TE100 Electronic Small 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 for more information.

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TE100 Electronic Small Bagging Scale

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Chapter 1
Product Description

1.1 General Description
This chapter will provide a high-level product description of the TE100.

1.2 Introduction
The Taylor Products TE100 is an electronic, self-correcting, small bagging scale. The TE100 is configured to fill open mouth bags.

With over five years of technical development, the TE100 electronic weighing and control package is one of the most advanced weighing systems available. Using a single load cell, the TE100 is a very economical and accurate scale.

The TE100 comes in a standard configuration, but also has several optional features that are available. The TE100 units come standard equipped to fill a standard open mouth bag. The TE100 can also be ordered with . Depending on how the TE100 is equipped, the TE100 can handle weighments from 20 to 125 lbs. (4.54 kilograms to 56.70 kilograms).

1.3 Manual Scope
This manual will provide information on installation, operation, preventive maintenance, troubleshooting, and repair of the Model TE100.

The appendices will include safety information, spare parts list, and mechanical drawings.

1.4 Electrical Requirements
The TE100 is designed to operate on 115 VAC at 50 or 60 Hz.

1.5 Pneumatic Requirements
The TE100 uses approximately 2 CFM (57 liters) @ 75-80 PSI (.52-.55 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 Major Systems and Components

When working with the Model TE100, it is important to understand the major systems and components of the unit. The major components of the system are:

- Scale cabinet assembly
  - Cabinet
  - Shut off gate
  - Shut off gate bearings
  - Shut off gate cylinder
  - Dribble gate
  - Dribble gate cylinder
  - Dribble gate mounting straps
  - Load cell
  - Control box
  - MAC valves
  - Filter/Regulator/Lubricator (FRL) assembly
- Spout assembly
  - Spout
  - Bag clamp arms
  - Bag clamp pads
  - Start switch
  - Bag position switch

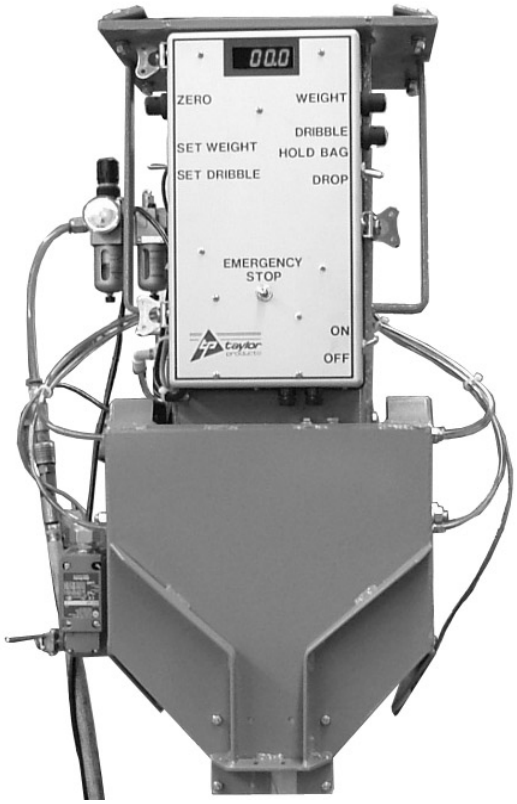


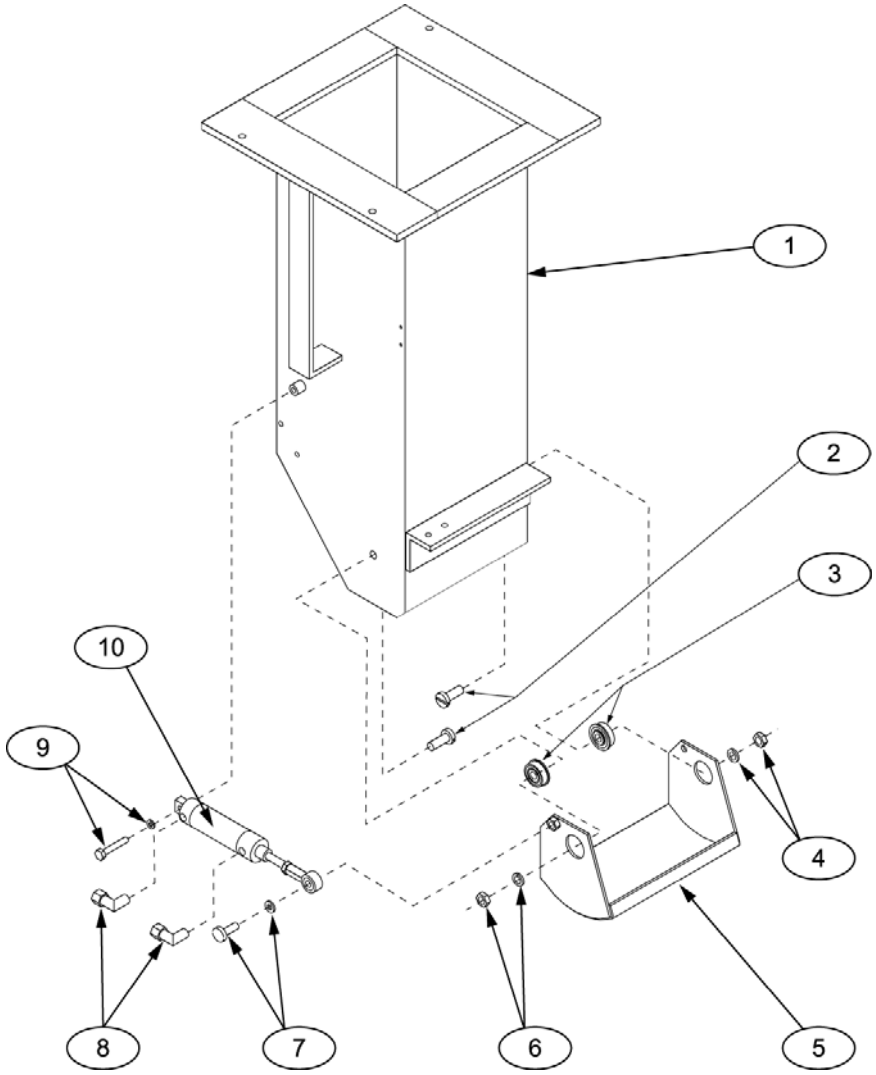
Figure 1-1. TE100 Front View

1.6.1 Scale Cabinet Assembly

The scale cabinet assembly is the upper portion of the TE100. The scale cabinet assembly is made up of several components.

1.6.1.1 Scale Cabinet

The scale cabinet is the core of the TE100. All other TE100 components are mounted on the scale cabinet.



Item #	Description	Item #	Description
1	Scale cabinet	6	Lock washer and jam nut
2	Shut off gate pivot bolts	7	Cylinder to shut off gate bolt and washer
3	Shut off gate pivot bearings	8	Quick connect fittings
4	Lock washer and jam nut	9	Cylinder to cabinet bolt and washer
5	Shut off gate	10	Shut off gate cylinder

Figure 1-2. Scale Cabinet and Shut Off Gate

1.6.1.2 Shut Off Gate
The shut off gate is used to stop product flow into the package, after target weight has been achieved.

1.6.1.3 Shut Off Gate Bearings
The shut off gate rides on a pair of sealed bearings. The use of bearings ensures that the shut off gate is able to smoothly open and close.

1.6.1.4 Shut Off Gate Cylinder
The TE100 uses a pneumatic cylinder to open and close the shut off gate. The gate is mounted on the left side of the scale cabinet.

1.6.1.5 Dribble Gate
The TE100 is equipped with a sliding steel gate that is used to control the flow of product from the hopper. By using a dribble gate, the TE100 is capable of delivering product at two different feed rates. The result is a more efficient fill cycle. When the dribble gate is all the way open, the TE100 is filling at the bulk rate. When the dribble gate cylinder extends, it partially blocks the flow of product.

1.6.1.6 Dribble Gate Cylinder
The dribble gate is extended and retracted using a pneumatic cylinder that is mounted on the rear of the TE100. The rod end of the dribble gate cylinder is bolted directly to the dribble gate, while the cylinder end is bolted to the dribble gate cylinder mounting bracket.

1.6.1.7 Dribble Gate Mounting Rails
The TE100 is equipped with two aluminum rails on rear of the TE100. These rails provide the mounting point for the dribble gate cylinder mounting bracket.

1.6.1.8 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.

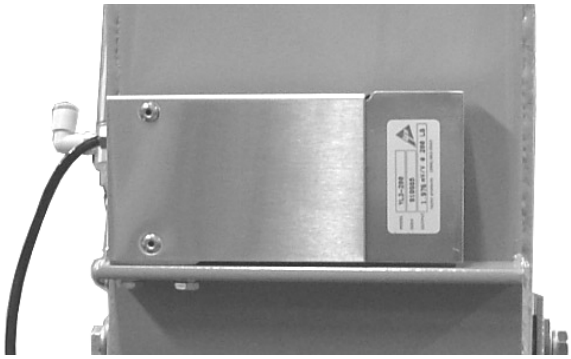


Figure 1-3. Load Cell

1.6.1.9 MAC Valves

There are several MAC valves that are mounted on the rear of the TE100. These valves are used to control various pneumatic components on the TE100, such as the dribble gate, shut off gate, and bag clamp arms.

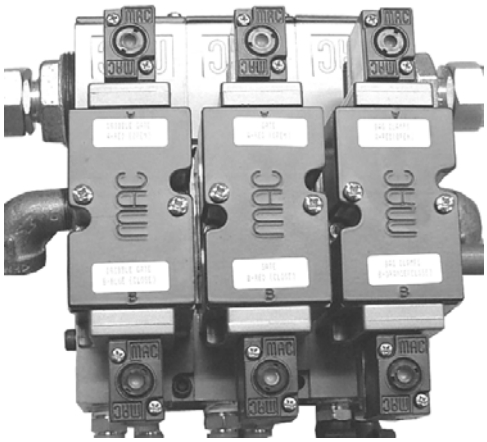


Figure 1-4. MAC Valves

Each of the MAC valves is equipped with a manual operation button, or test button. The operator can use a pencil or small screwdriver to press a button to test that valve function. The buttons are assigned as follows:

- Shutoff gate – Pressing the button marked CYL A will open the gate. Pressing the button marked CYL B will close the gate.
- Dribble gate – Pressing the button marked CYL A will retract the gate. Pressing the button marked CYL B will extend the gate.
- Bag clamp – Pressing the button marked CYL A will apply the bag clamp arms. Pressing the button marked CYL B will release the bag clamp arms.

Each of the MAC valves is also equipped with a flow control screw. These flow control screws control the actuation speed of the device that the valve is controlling. For example, if the flow control screw on the MAC valve that controls the shut off gate cylinder is turned counter-clockwise (opened), it will make the shut off gate open and close faster. If the flow control screw is turned clockwise (closed) it will make the shut off gate open and close slower.

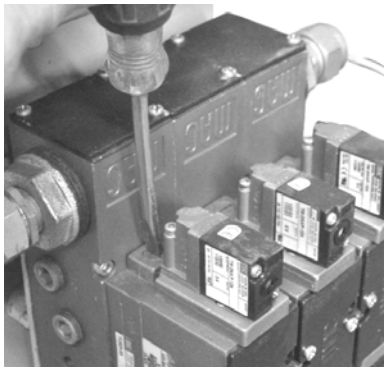


Figure 1-5. MAC Valve Flow Adjustment

1.6.1.10 Filter/Regulator/Lubricator (FRL) Assembly

The air pressure regulator used on the TE100 is a combination unit. It is a 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.

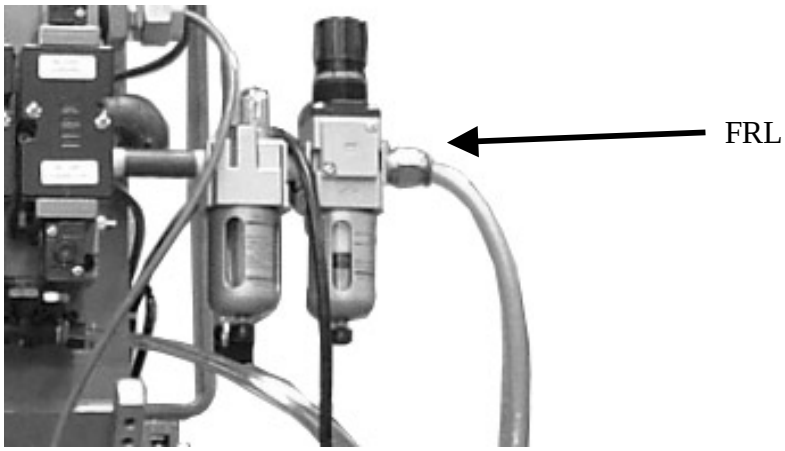


Figure 1-6. Filter/Regulator/Lubricator (FRL) Assembly

1.6.1.11 Control Panel

The TE100 is equipped with a control panel that is used to set the operating parameters for the unit. The control panel is where the operator will find the power switch. It is located on the lower right corner of the control panel. The panel also includes a weight display for monitoring the weight of the package, control knobs for setting zero, the dribble weight, and the target weight, a display select switch, and a HOLD BAG switch. The control panel is also equipped with a STOP button that will immediately interrupt the operation of the machine when it is pressed.

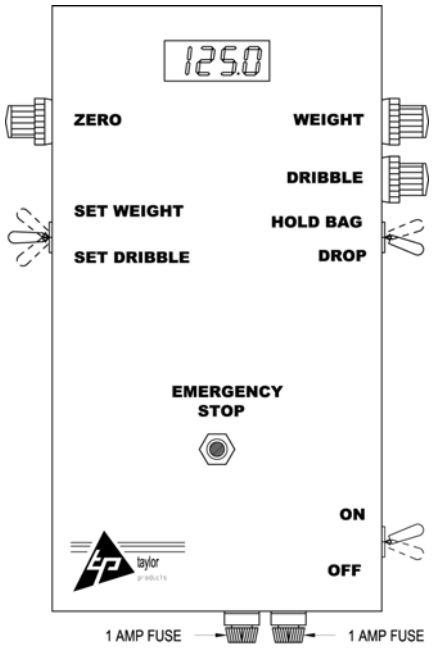


Figure 1-7. Control Panel

1.6.2 Spout assembly

The entire spout assembly is suspended from the load cell. The only place that the spout assembly should contact any component on the scale cabinet assembly is on the top of the load cell where it is bolted to the load cell.

1.6.2.1 Spout

The spout directs the product as it falls from the scale cabinet assembly into the package. The spout also serves as the mounting point for the bag clamp arms, the bag clamp cylinders, the start switch, and the bag position switch.

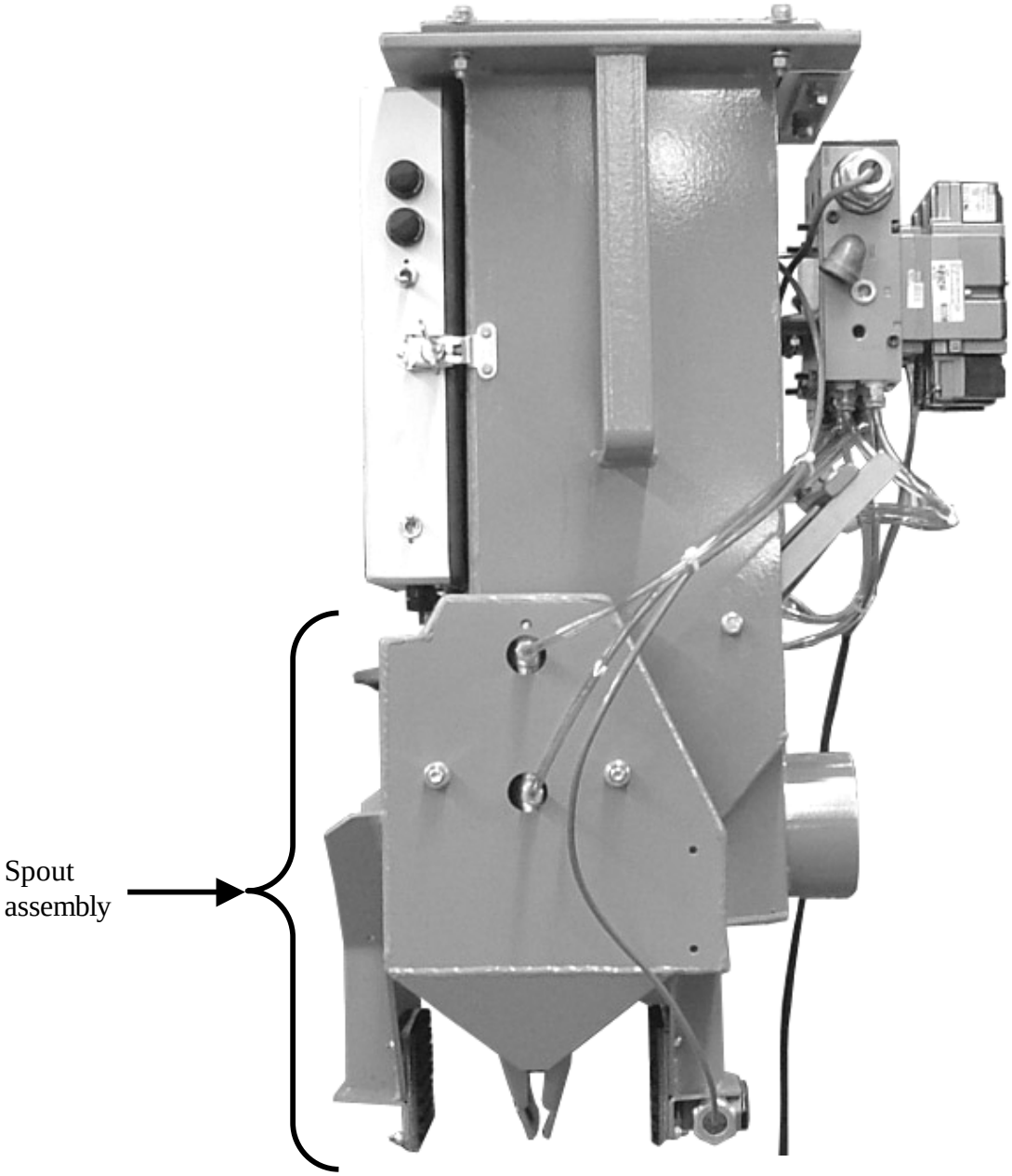


Figure 1-8. Spout Assembly

1.6.2.2 Bag Clamp Arms

The TE100 uses two bag clamp arms. Each bag clamp arm pivots on a set of sealed bearings. The bag clamp arms are linked together using two chain-type links and a pivot block on each end of the bag clamp arms.

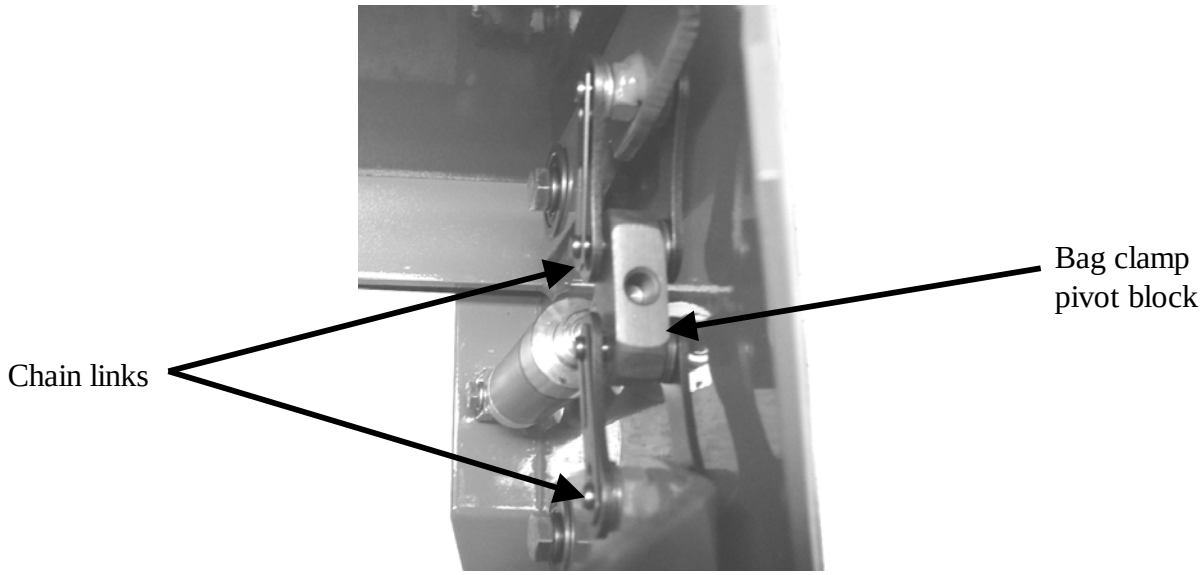


Figure 1-9. Chain Links and Pivot Block

The bag clamp arm that is located to the rear of the TE100 is equipped with a stainless steel deflector.

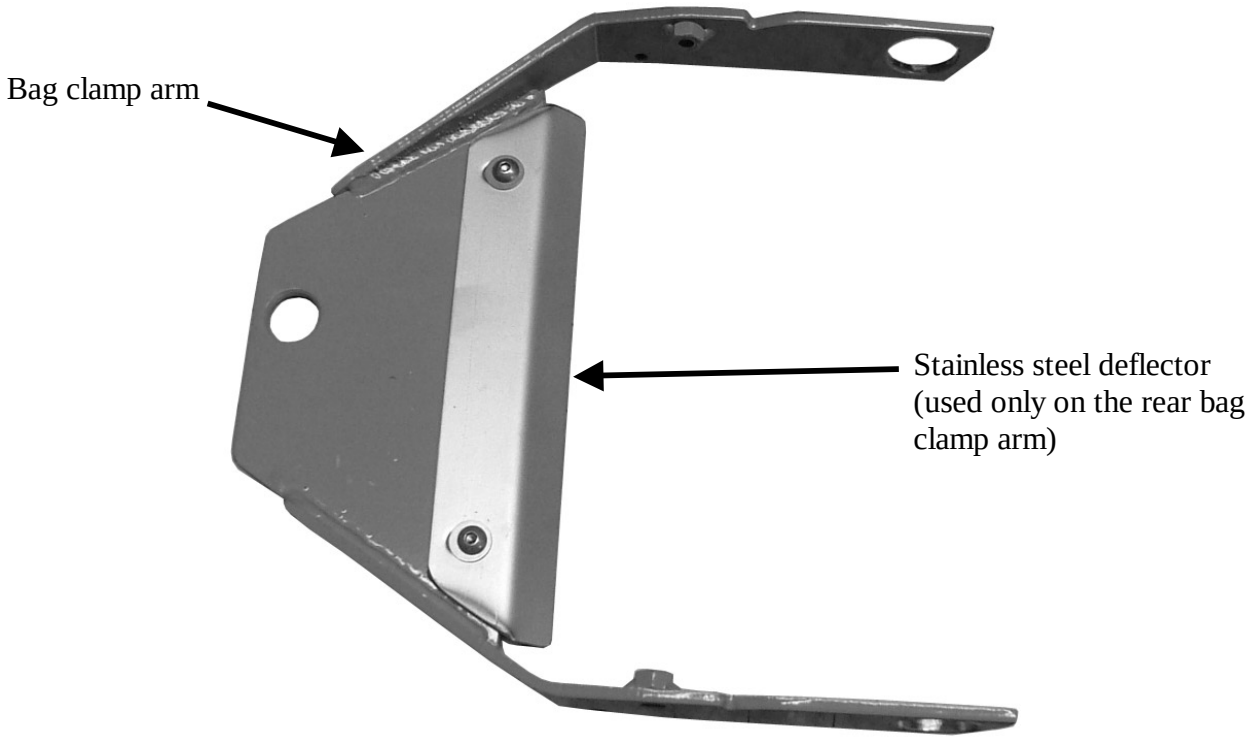


Figure 1-10. Bag Clamp Arm – Shown With Stainless Steel Deflector

1.6.2.3 Bag Clamp Cylinders

Two pneumatic cylinders are used to open and close the bag clamp arms. There is a bag clamp cylinder mounted on each side of the spout. Both cylinders are mounted inside the spout. The cylinder end of the bag clamp cylinder is mounted to the spout. The rod end of the cylinder is threaded into the pivot block that is connected to the bag clamp arms via chain links.

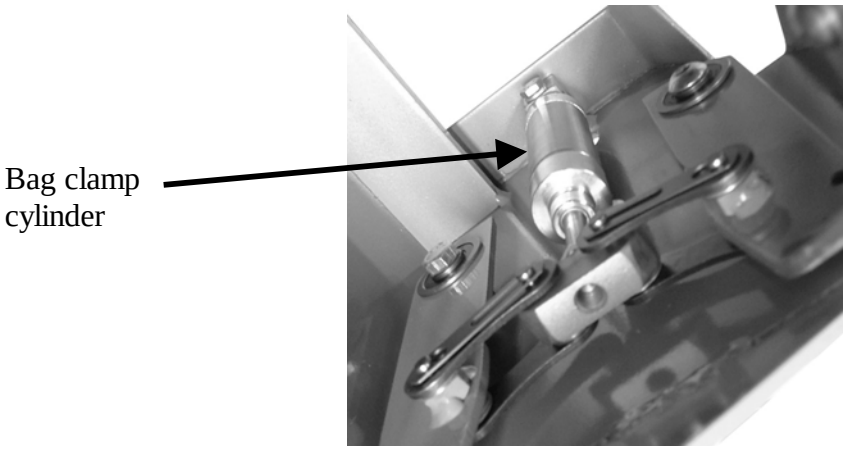


Figure 1-11. Bag Clamp Cylinder (1 of 2 Shown)

1.6.2.4 Bag Clamp Pads

The TE100 uses two ribbed, rubber pads to help hold the package on the TE100 spout as the package fills. The bag clamp pads are mounted on the spout and remain stationary. When the bag clamp arms are actuated, they press the sides of the bag against the bag clamp pads.

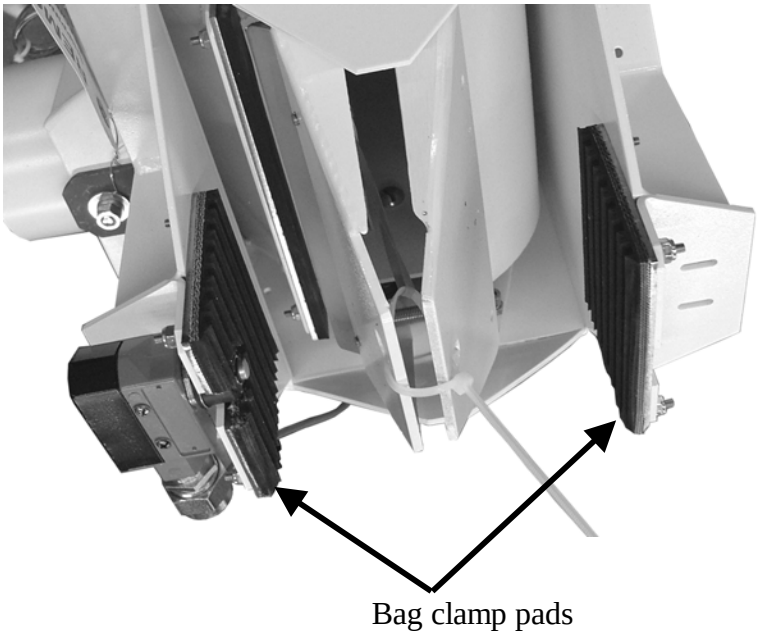


Figure 1-12. Bag Clamp Pads

1.6.2.5 Start Switch

The TE100 uses a rotary start switch. This switch is equipped with a wire bale. As the operator places the bag on the spout, their hand will trip the metal bale. As their hand touches the bale, the bale causes the shaft on the switch to rotate. This causes the internal contacts to make. This initiates the fill cycle.

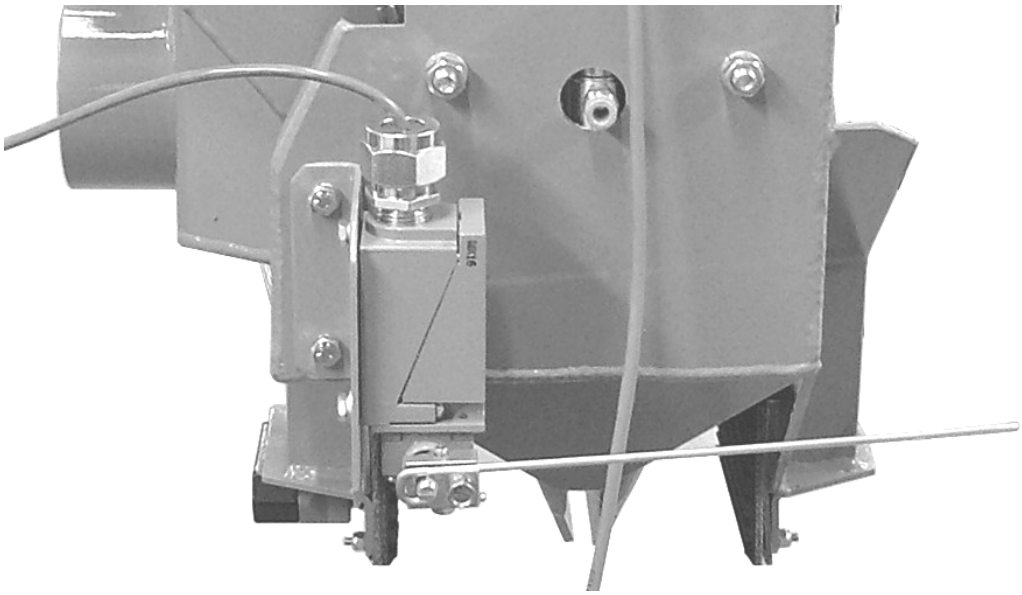


Figure 1-13. Start Switch

1.6.2.6 Bag position Switch

The TE100 may be equipped with an optional bag position switch. The purpose of the switch is to prevent starting the fill cycle, in the event that the start switch is tripped when there is no bag in position to catch the product.

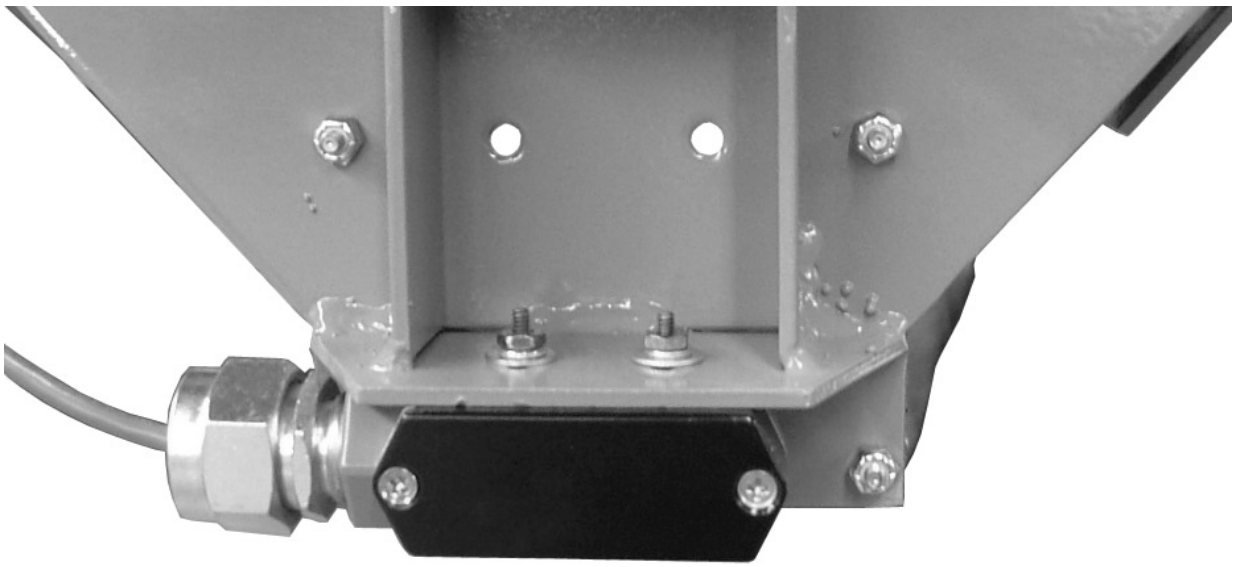


Figure 1-14. Bag Position Switch

1.6.2.7 Optional Small Bag Adapter

The TE100 can be equipped to fill bags that would normally be too small for the TE100. There are two small bag adapters that are available for the TE100, depending on the size of bag that is desired. Depending on the density of the product, the round (actually oval shaped) small bag adapter is used to fill packages ranging from 5–10 lb (2.3–4.5 kg) in size, while the rectangular small bag adapter is used to fill packages ranging from 5–10 lb (4.5–9.0 kg) in size.

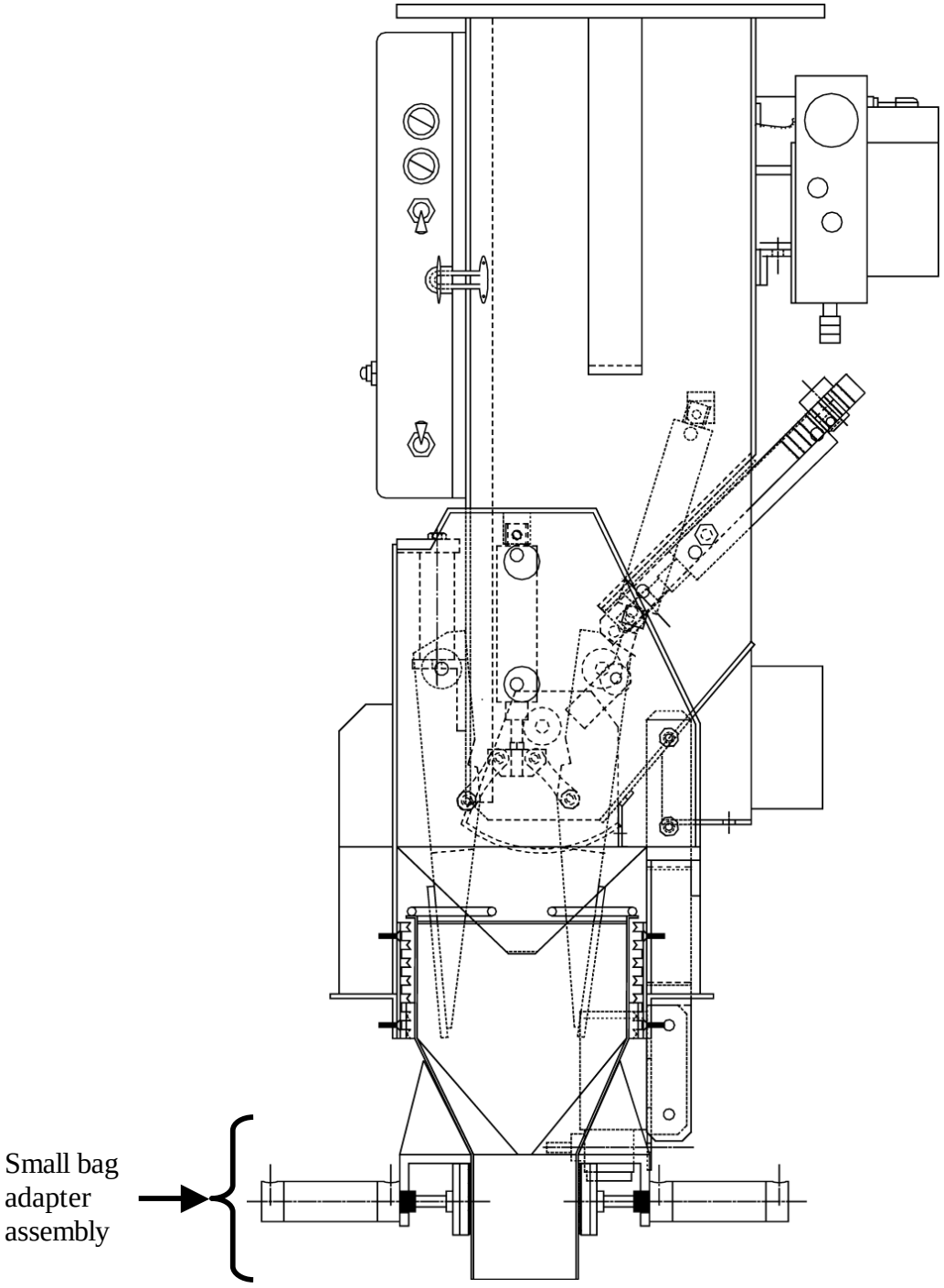


Figure 1-15. TE100 With Small Bag Adapter Installed

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Chapter 2
Receiving Equipment

2.1 General Description

The TE100 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 TE100 hangs from a hopper. Make sure the hopper is in its final position and ready for the TE100 to be installed.
2. Before opening the box and removing TE100 from the shipping pallet, inspect the box, and pallet for visible damage.
3. Remove the box. Use care when unpacking the TE100 to avoid damaging the unit.

Figure 2-1. Typical Shipping Box (2 Boxes Shown)

4. Check the components for damaged or missing parts. If there is damage, notify the shipper and Taylor Products immediately. If the unit is not damaged, the TE100 is now ready for assembly. Refer to 3.2 Mechanical Assembly.

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Chapter 3
Setup/Installation

3.1 General Description

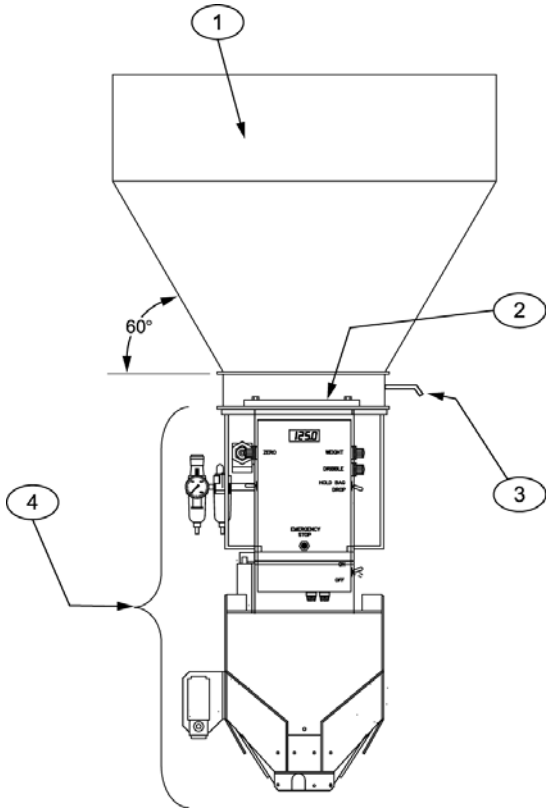
Only persons who have been properly trained and hold the appropriate qualifications should attempt to install, operate, or maintain this equipment.

	***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.*

When mounting the TE100, it should be mounted on a hopper that has 60° sides. The use of a shut off gate is acceptable.

	**CAUTION**	Never install the TE100 on a downspout. This will result in the scale not functioning.



Item #	Description	Item #	Description
1	Hopper (customer supplied)	3	Cutoff gate installed between hopper and TE100
2	Mounting bracket (1 of 2 shown)	4	TE100

Figure 3-1. Mounting the TE100

3.2 Mechanical Setup

Once the TE100 has been moved into the position where it will operate, follow the steps below to setup the mechanical components for operation.

1. Lift the scale cabinet assembly by its bottom edge and slide the scale cabinet onto the mounting flange. This may require two people.

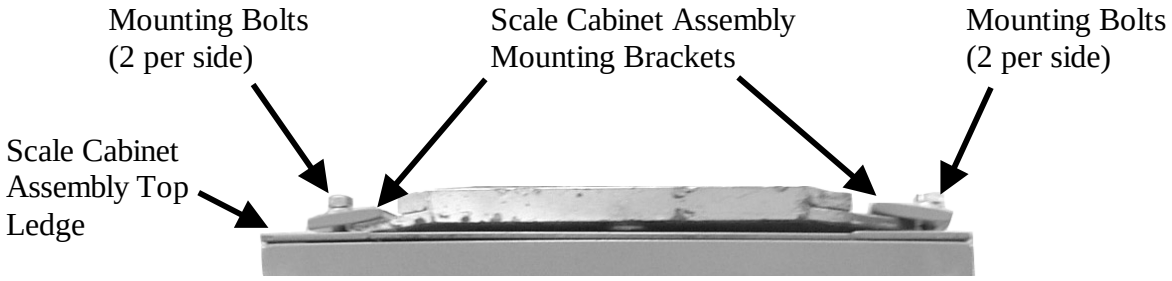


Figure 3-2. Hanging the Cabinet Assembly on the Hopper Flange

2. With the mounting clamps over the flange, center the cabinet under the bin or transition.
3. Tighten the mounting bolts.
4. Use a torpedo level on the top ledge of the cabinet assembly. The cabinet assembly must be level. Adjust the mounting bolts as needed to get the cabinet assembly level.
5. Remove the shipping bracket.

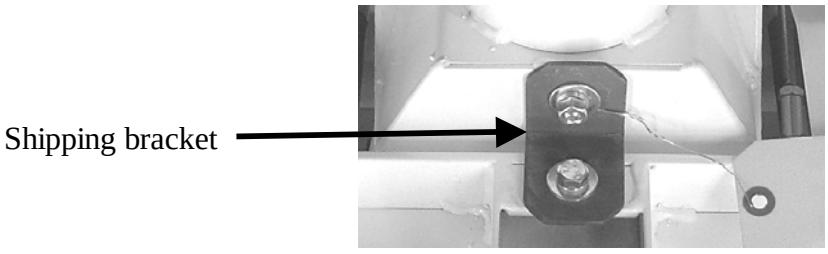


Figure 3-3. Shipping Bracket Location

6. Connect the main electrical and pneumatic connections.
7. Set the air pressure regulator. Refer to 3.4 Making Pneumatic Connections.
8. Dry cycle the TE100. Refer to 3.5 Dry Cycle.
9. Calibrate the TE100. Refer to 3.6 Calibration.

3.3 Making Electrical Connections

Before connecting the TE100 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 TE100 requires 115 VAC at 50 or 60 Hz to operate. The TE100 should be placed within 6 feet of the electrical outlets that it will be connected to.

3.3.1 Electrical Connections

The following schematic illustrates how the different electrical components fit into the overall electrical layout of the machine. If any electrical components have to be removed or replaced, use these schematics to correctly install the valves.

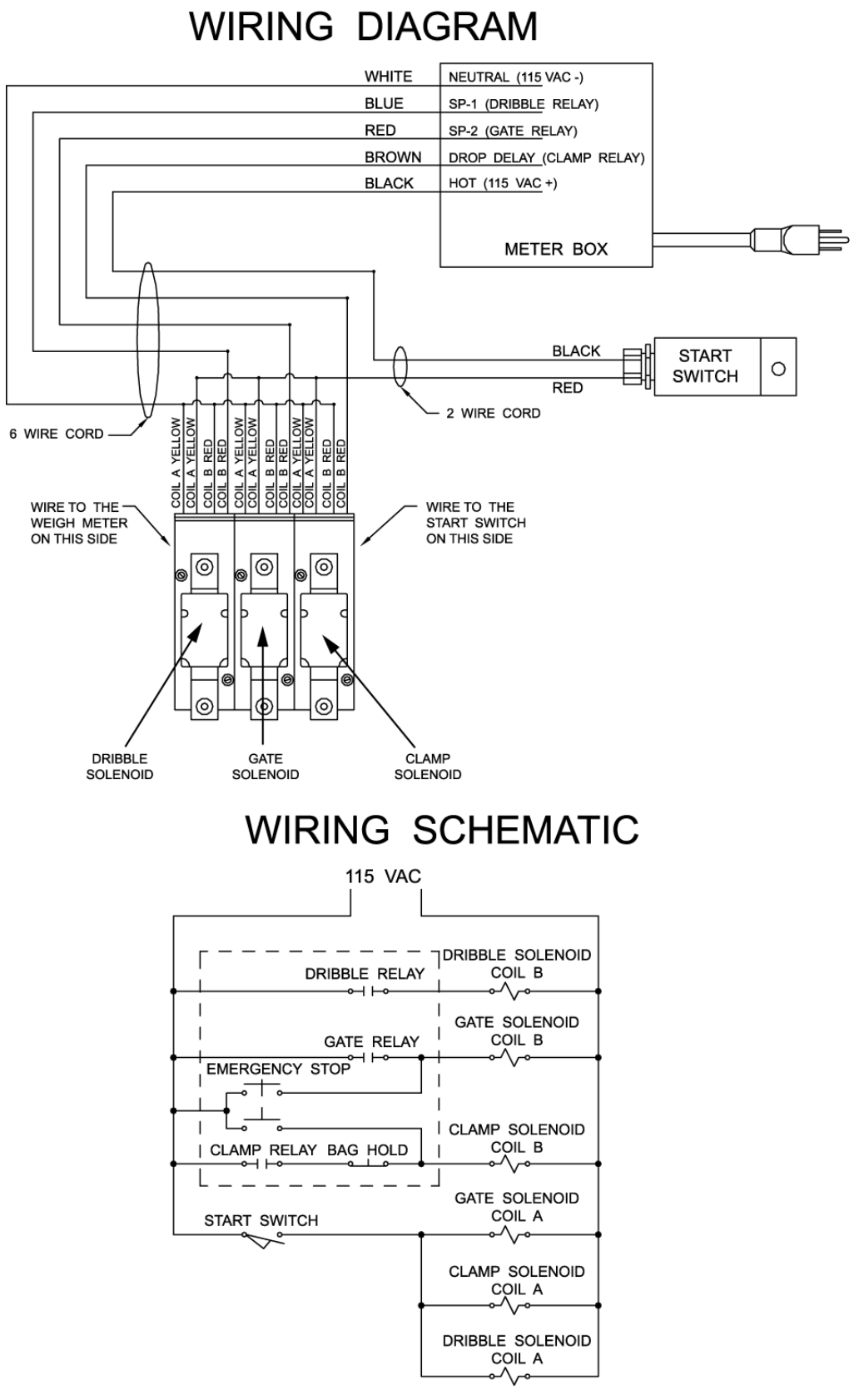


Figure 3-4. MAC Valve Connections And Schematic

3.3.2 Load Cell Connections

The cable from the load cell is connected to the circuit board inside the control panel. Use the graphic below to correctly connect the load cell to the control panel.

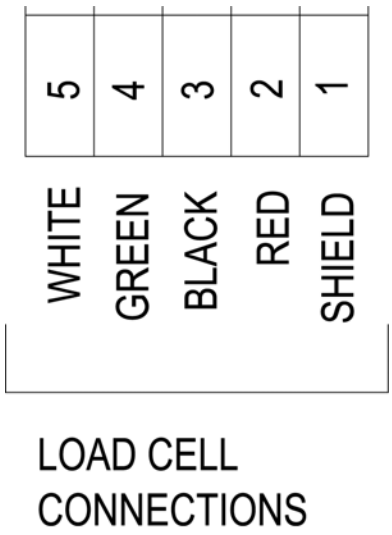


Figure 3-5. Load Cell Connections

3.4 Making Pneumatic Connections

The TE100 requires a compressed air supply line that is capable of delivering approximately 2 CFM (57 liters) @ 75-80 PSI (.52-.55 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.

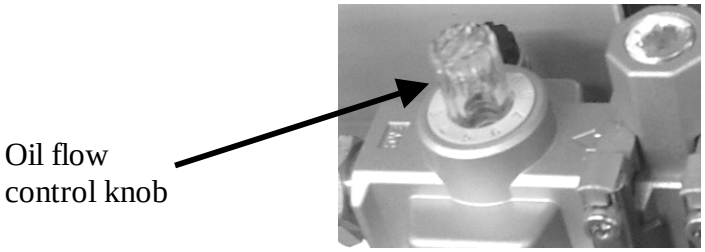


Figure 3-6. Lubricator – Oil Flow Control

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, cylinders, and air supply lines becoming fouled.

3.5 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.

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

1. Make sure the power connection has been connected to the power source.
2. Turn the power switch on the control panel of the TE100 to the ON position.
3. Make sure that the air pressure on the FRL is set to specification.
4. If equipped with a bag position switch, place a bag, or piece of a bag, over the bag position switch.
5. Trip the bale on the START switch. This should result in the following actions:
   - The bag clamp cylinders will extend and pushing the bag clamp arms out against the bag clamp pads.
   - The shut off gate cylinder will extend to open the shut off gate and simulate the start of the fill cycle.
6. Press the STOP button to simulate the package reaching target weight. This should result in the following actions:
   - The shut off gate cylinder will retract to close the shut off gate.
   - The bag clamp cylinders will retract, pulling the bag clamp arms inward, thus releasing the bag.
7. Test the dribble gate function by pressing the test buttons on MAC valve that controls it.

3.6 Calibration

The TE100 is calibrated before it is shipped from the factory. However, the TE100 should always be inspected and calibrated again before being put into service.

The TE100 should be calibrated on a weekly basis during the first month of operation. After the first month of operation the TE100 should be calibrated once a month. The TE100 will also require calibration anytime the full-scale weight range is changed.

When calibrating the TE100, always use a certified test weight.

Prior to starting the calibration process, the operator should familiarize themselves with the controls on the outside and inside of the control panel.

The TE100 can be calibrated to weigh packages in pounds or kilograms. The procedures in this chapter are written for weighing in pounds. To set up a machine for metric weighments, simply substitute a metric certified test weight in place of the standard test weight referenced in the calibration procedures.

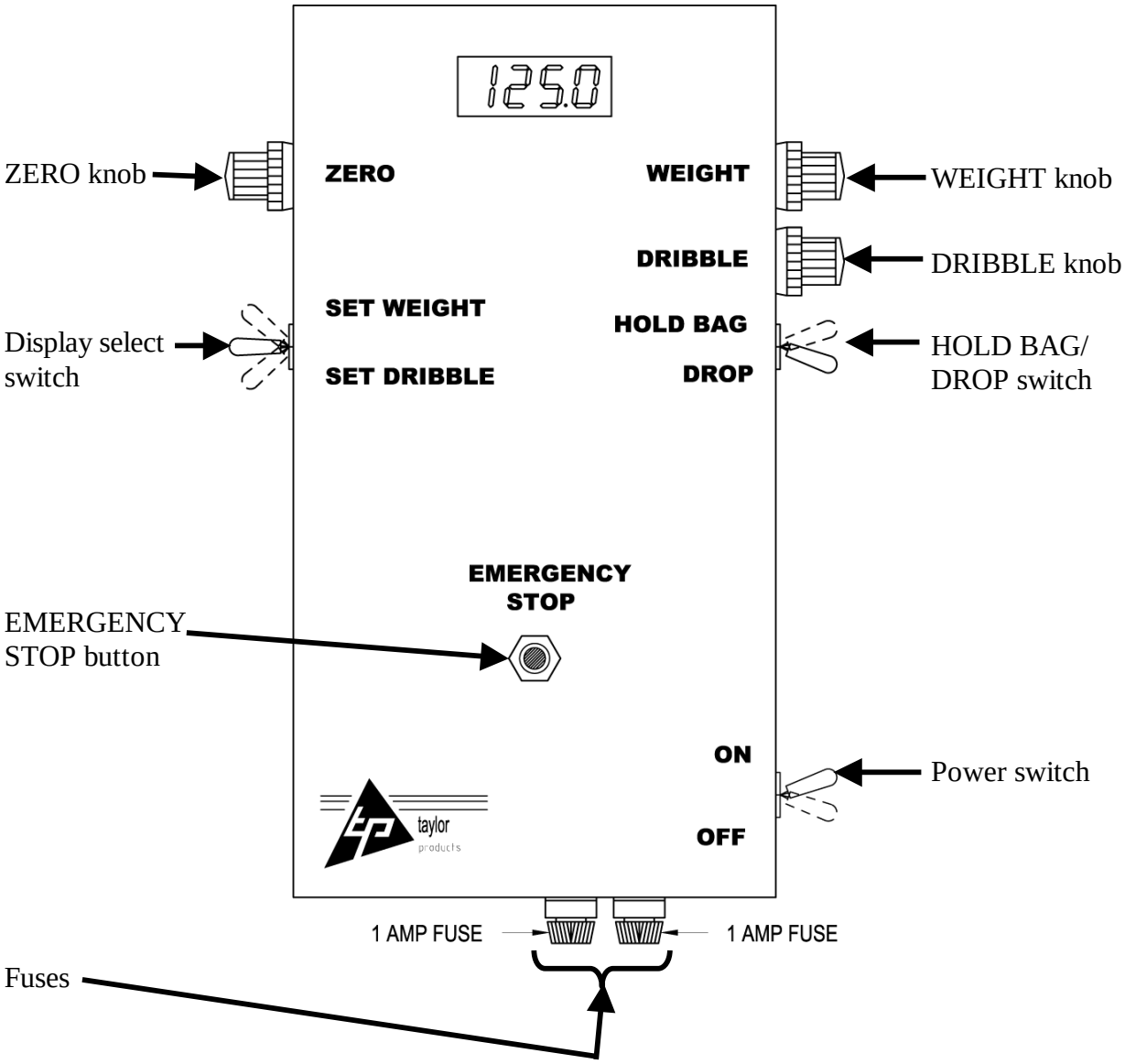


Figure 3-7. Control Panel

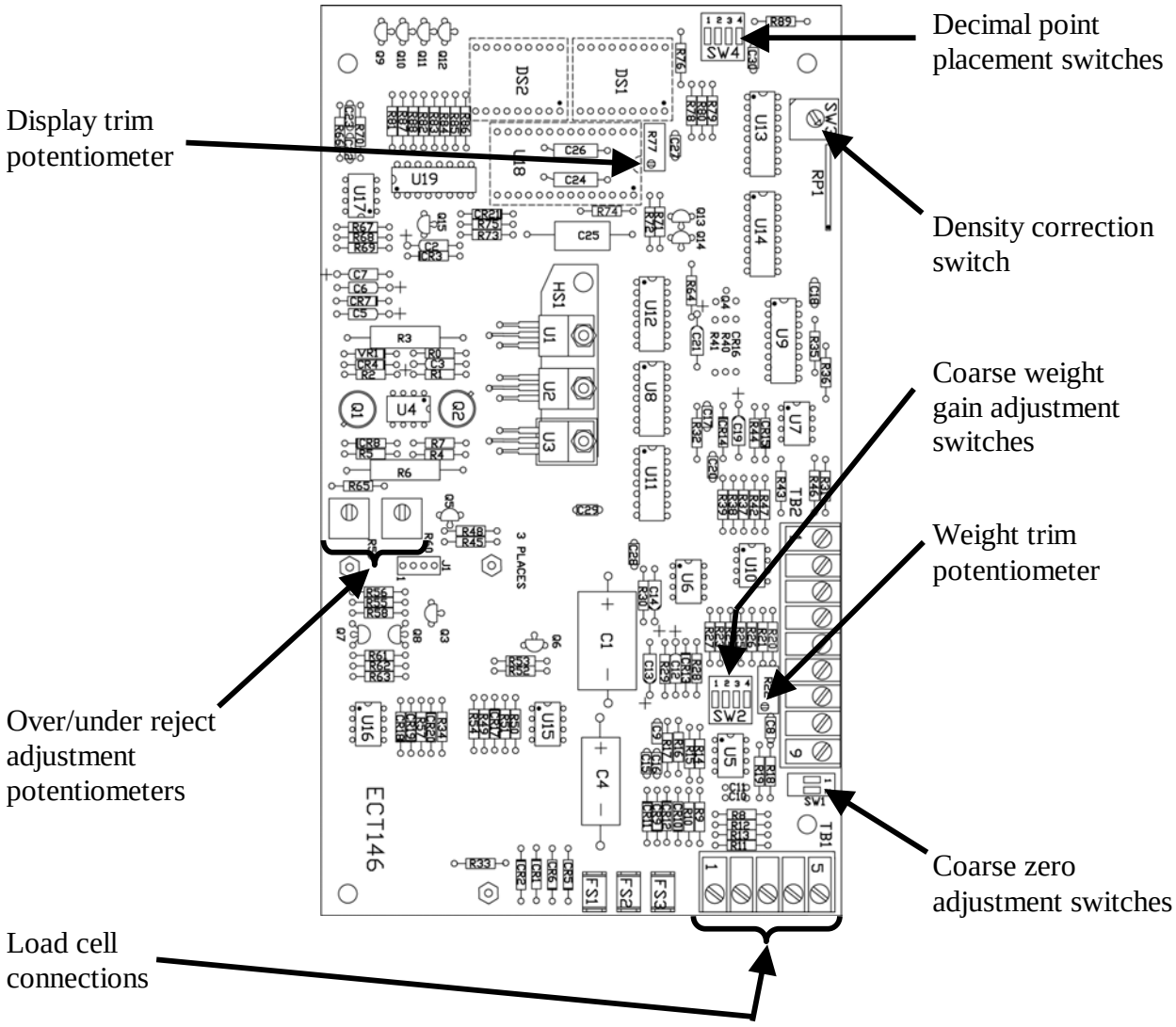


Figure 3-8. Relay Board

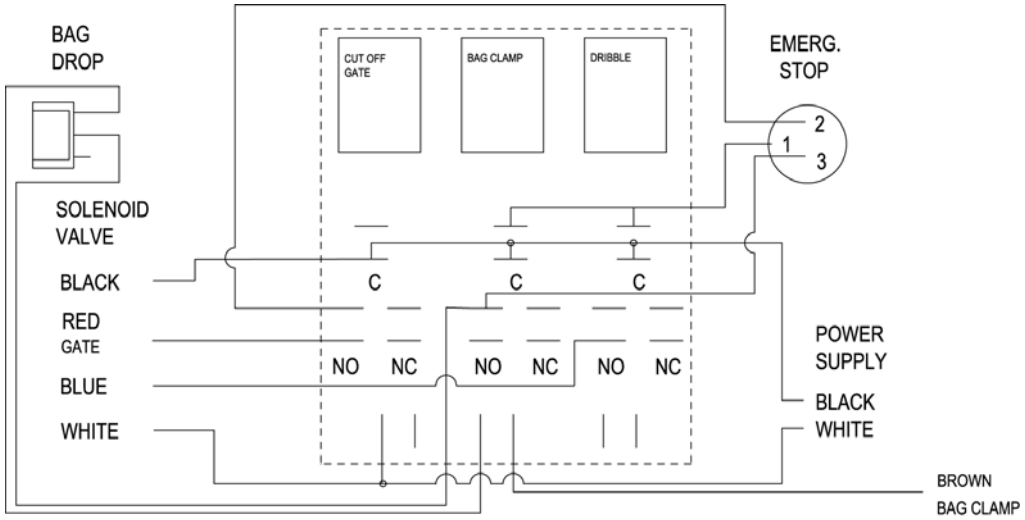


Figure 3-9. Relay Board Schematic

Table 3-1. TE100 Operational Controls

Control Device	Function
WEIGHT knob	Located on the right side of the control panel. The WEIGHT knob is used in conjunction with the display select switch to adjust the target weight. The knob is equipped with a lock collar to prevent the knob from being turned unintentionally.
DRIBBLE knob	Located on the right side of the control panel. The DRIBBLE knob is used in conjunction with the display select switch to adjust the dribble weight. The knob is equipped with a lock collar to prevent the knob from being turned unintentionally.
HOLD BAG/ DROP switch	Located on the right side of the control panel just below the WEIGHT and DRIBBLE knobs. The switch is normally down in the DROP position. In this position, when the fill cycle finishes, if the package weight is between the under/over set points, the TE100 will drop the filled bag. The operator will lift the switch to the HOLD BAG position and hold it there to prevent the bag clamps from releasing a filled bag. This is done to check the package weight
Power switch	Located on the lower right corner of the control panel. This switch is used to turn the TE100 ON or OFF. ***Important:*** *If the power switch is turned to the OFF position, the TE100 will clear its memory. When turned back on, the TE100 will have to be reprogrammed.*
EMERGENCY STOP switch	Located in the lower center of the control panel. This button is used to stop the TE100 in the event of an operational problem.
Display select switch	Located on the left side of the control panel. This is a three-position switch. The switch is spring loaded to return to the center position. The center position is the “display” position. This means that when in this position, the weight display will show the current weight that is on the spout. When the operator lifts the switch up to the SET WEIGHT position and holds it there, the weight display will show the current target weight that is set. The operator will hold the switch in the SET WEIGHT position and turn the WEIGHT knob to adjust the target weight setting. When the operator pushes the switch down to the SET DRIBBLE position and holds it there, the weight display will show the current dribble weight setting. The operator will hold the switch in the SET DRIBBLE position and turn the DRIBBLE knob to adjust the dribble weight setting.
ZERO knob	Used by the operator to zero the weight display before beginning calibration procedures or beginning a bagging cycle. The knob is equipped with a lock collar to prevent the knob from turning unintentionally.
Decimal point placement switches	Located in the upper right corner of the controller circuit board. The operator will use these switches to adjust the placement of the decimal point on the weight display. This determines the level of accuracy of the weight that is being displayed. The switches can be set so that the display will show package weight to the nearest tenth (XXX.X), hundredth (XX.XX) or thousandth (X.XXX) of a pound or kg.
Density correction switch	Located in the upper right corner of the controller circuit board. The potentiometer has 10 correction settings, from 0 to 9. The potentiometer is used to adjust the offset for the automatic weight correction feature. Changing this setting will change the number of bags required to reach the target weight at the beginning of each run. This setting may need to be adjusted slightly when changing products, depending on the density of each product.
Coarse weight gain adjustment switches	Located on the lower right corner of the controller circuit board, next to the weight trim potentiometer. It is used for coarse adjustments when calibrating the scale to full-scale weight. This potentiometer is used when the calibration is too far out of range to be adjusted with the weight trim potentiometer. The four switches provide 16 steps of coarse adjustment.
Weight trim potentiometer	Located on the lower right side of the controller circuit board. It is used for fine adjustment when calibrating the scale to full-scale weight.
Coarse zero adjustment switches	Located on the lower right corner of the controller circuit board. The operator uses the switch block when they are unable to zero the weight display using the ZERO knob.

Control Device	Function
Over/under reject adjustment potentiometers	Located on the left side of the controller circuit board. The two potentiometers are used to adjust the under weight and over weight limit for each package. Each potentiometer has an adjustment range from 0.0 to 0.8 lbs. This feature is especially useful when product density changes rapidly. While the TE100 is compensating for the change of density, the operator will know which bags, if any, are outside of the acceptable weight range.
Display trim potentiometer	Located in the upper center of the controller circuit board. This potentiometer is used to adjust full-scale range of the weight display. While holding the display select switch in the SET WEIGHT position, turn this potentiometer until the weight display reads 1.24 times the desired target weight.

3.6.1 Weight Display Setup

1. Connect the main electrical and pneumatic connections.
2. Turn the power on. Allow the TE100 controls to warm up for thirty (30) minutes.
3. Check the weight display to see if it is currently set to the desired decimal point location. The decimal point location can be set to allow the weigh meter to display the package weight to the nearest tenth (XXX.X), hundredth (XX.XX), or thousandth (X.XXX) of a pound/kilogram. If no change is needed, proceed to step 4. If the decimal point setting needs to be changed, follow the sub-steps below:
    a. Locate the decimal point placement switches in the upper right corner of the printer circuit board.

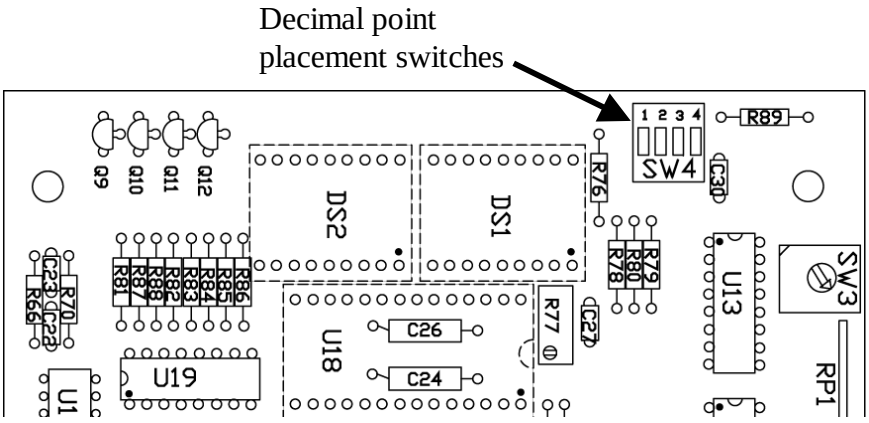


Figure 3-10. Decimal Point Switches

    b. Set the decimal placement:
        i. To set the decimal placement for tenths, switch #1 should be ON and all other switches should be OFF.
        ii. To set the decimal placement for hundredths, switch #2 should be ON and all other switches should be OFF.
        iii. To set the decimal placement for thousandths, switch #3 should be ON and all other switches should be OFF.

Note: *Most weighments will be done with the weigh meter set to show the weight to the nearest tenth (XXX.X) of a pound/kilogram.*

4. Set the full-scale range for the weight display.
    a. Loosen the lock collar on the WEIGHT knob and turn the knob fully clockwise.
    b. Watch the weight display and while holding the display select switch up in the SET WEIGHT position, turn the display trim potentiometer (upper center of the printed circuit board) 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, 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.

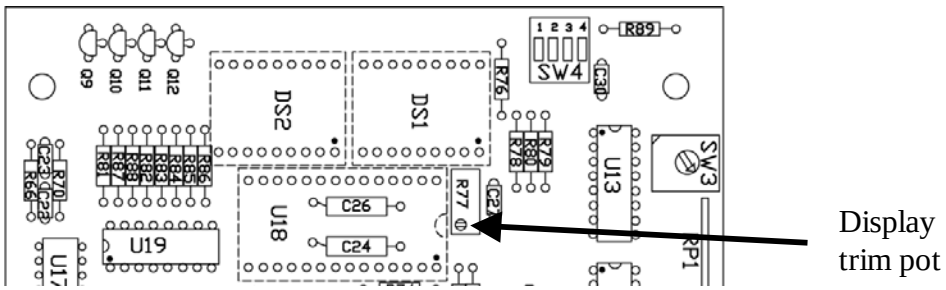


Figure 3-11. Display Trim Pot

    c. Release the display select switch.
    d. Turn the WEIGHT knob to midspan.
    e. Tighten the lock collar.

3.6.2 Zeroing The Weight Display

1. Turn the power on. Allow the TE100 controls to warm up for thirty (30) minutes.
2. Make sure that that there is no weight on the scale. Check the weight display reading. If the scale reads 000.0 (assuming that the weight display is setup to read tenths), then the zeroing process is complete.
3. If the weight display does not read 000.0, loosen the lock collar on the ZERO knob. Turn the ZERO knob clockwise or counter-clockwise until the weight display reads 000.0 and tighten the lock collar on the ZERO knob. If the operator was able to get the display to zero, the process is complete and the operator can tighten the lock collar on the ZERO knob.

Figure 3-12. ZERO Knob And Lock Collar

4. If the operator cannot get the weight display to zero, the coarse zero adjustment switches will need to be reset. Turn the ZERO knob all the way clockwise.
5. Turn the ZERO knob counterclockwise five full turns to center it.

6. Locate the coarse zero adjustment switches. They are located in the lower right corner of the printed circuit board. The two switches can be set to four unique combinations. Both switches ON, both switches OFF, switch #1 ON/switch #2 OFF, switch #1 OFF/switch #2 ON. Try all four combinations. Leave the switches set at the combination that results in the closest reading to zero.

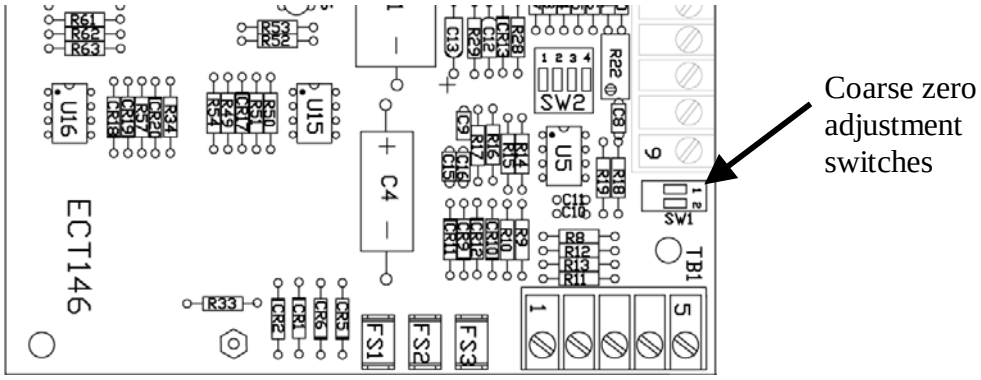


Figure 3-13. Coarse Zero Adjustment

7. Loosen the lock collar on the ZERO knob, if not already loosened.
8. Turn ZERO knob clockwise or counter-clockwise until the weight display reads 000.0.
9. Tighten the lock collar on the ZERO knob.

3.6.3 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. Attach a wire or small cord to the center of the bag clamp brackets at the bottom of the spout. The wire or cord needs to be strong enough to safely support the test weight.
3. Zero the scale with the wire or cord attached.
4. Hang a certified test weight from the wire or cord that is attached to the bag clamp brackets. 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.

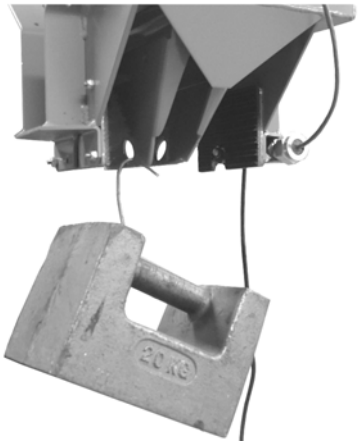


Figure 3-14. Hanging A Certified Test Weight On The TE100

5. Check the weight display. If the display reading matches the weight of the test weight, calibration is complete.
6. If the display reading is only slightly different that the test weight, try using the WEIGHT TRIM POT to adjust the display reading to match the test weight.
7. Locate the weight trim potentiometer on the lower right side of the printed circuit board.

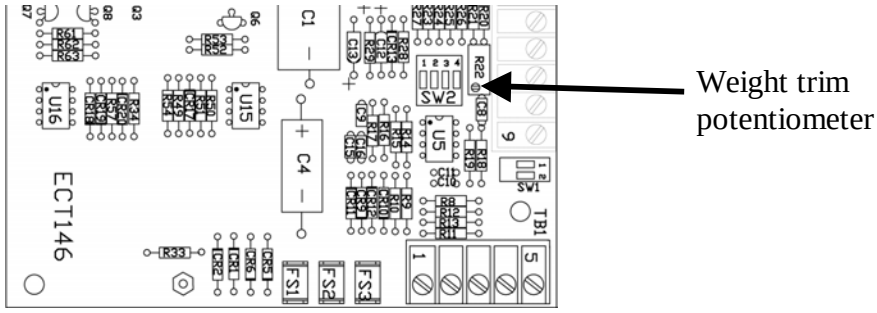


Figure 3-15. Weight Trim Potentiometer

8. Using a small screwdriver, turn the pot either clockwise or counter clockwise until the display matches the test weight. For example, if using a 50 lb. test weight, and the weight display reads 49.8 lbs., turn the weight trim potentiometer clockwise until the display reads 50.0 lbs. If the display reads 50.3 lbs., turn the weight trim potentiometer counter-clockwise until the display reads 50.0 lbs.
9. If the operator is unable to get the weight display to match the weight of the test weight using the weight trim potentiometer, the operator will need to use the coarse weight gain switches.
10. Turn the weight trim potentiometer all the way clockwise.
11. While counting the number of revolutions, turn the weight trim potentiometer all the way counter-clockwise.
12. Divide the number of revolutions that the weight trim potentiometer was turned in the previous step by two to determine where the center of the span is. For example, if the weight trim potentiometer was turned 10 revolutions, the center of the span would be 5 revolutions clockwise.
13. Turn the weight trim potentiometer clockwise the number of revolutions determined in the previous step to center the pot in its span.
14. Locate the coarse weight gain switches. The switches are located on the lower right side of the printed circuit board, just to the left of the weight trim potentiometer. These switches are a block of four switches. The four switches can be set to 16 unique combinations, refer to Table 3-2. Try different combinations until the closest number to the test weight is found.

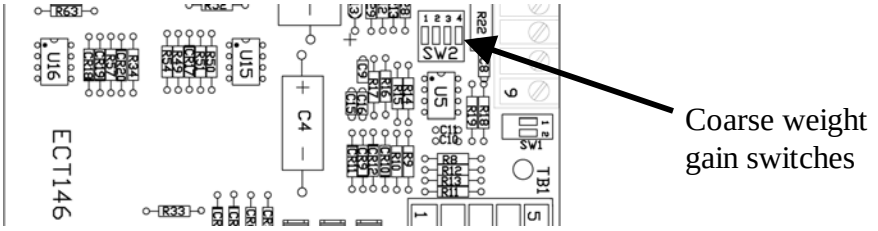


Figure 3-16. Coarse Weight Gain Switches

Note: *Setting all switches to OFF will result in the lowest weight reading, while setting all switches to ON will result in the highest weight reading.*

Table 3-2. Coarse Weight Gain Switch Combinations

Step	SW2-1	SW2-2	SW2-3	SW2-4
0	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF
2	OFF	ON	OFF	OFF
3	ON	ON	OFF	OFF
4	OFF	OFF	ON	OFF
5	ON	OFF	ON	OFF
6	OFF	ON	ON	OFF
7	ON	ON	ON	OFF
8	OFF	OFF	OFF	ON
9	ON	OFF	OFF	ON
10	OFF	ON	OFF	ON
11	ON	ON	OFF	ON
12	OFF	OFF	ON	ON
13	ON	OFF	ON	ON
14	OFF	ON	ON	ON
15	ON	ON	ON	ON

15. Turn the weight trim potentiometer either clockwise or counter clockwise until the display matches the test weight.
16. If the operator is unable to get the weight display to match the weight of the test weight, remove the test weight and wire/cord. Go back to 3.6.1 Weight Display Setup and perform step 4 again and select a full-scale range for the weight display that is closer to the desired target weight. After lowering the full-scale range of the weight display.

    Note: *This procedure may have to be repeated several times before the TE100 is properly calibrated.*

3.6.4 Adjusting Density Correction Setting

The TE100 control system utilizes an automatic correction feature. At the beginning of each production run, if a package comes up either over or under weight, the TE100 will adjust the timing of the fill cycle to correct the overage/underage. The auto-correct feature makes incremental adjustments over several fill cycles (up to 12 bags), until the final package weight matches the target weight. The density correction switch is used to adjust the size of the incremental changes. Changing this setting will change the number of bags required to reach the target weight at the beginning of each run. The setting may also need to be adjusted when changing products, depending on the density of each product.

1. Turn the TE100 off.

   Important: *The operator must turn the power off anytime this adjustment is going to be made. Turning the power off clears the memory.*

2. Open the control panel.
3. Locate the density correction switch on the upper right side of the printed circuit board. The switch has 10 settings, from 0 to 9. The switch is factory preset to 5, which is a 1.0 lb/kg offset. Moving the switch one position is a 0.2 lb/kg.

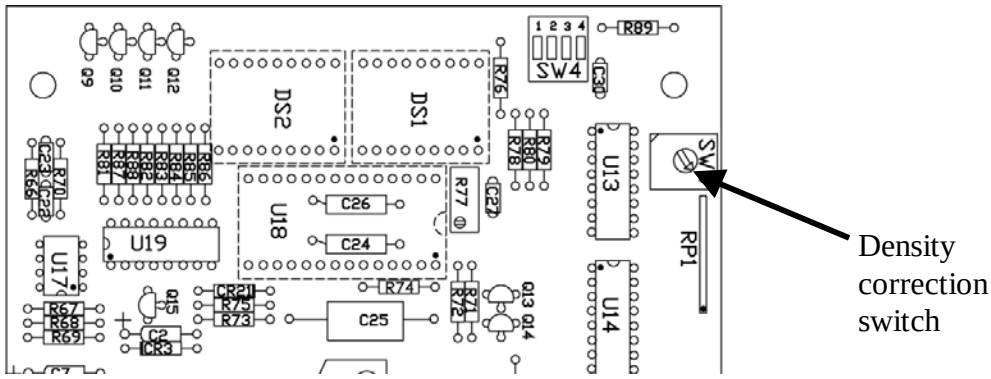


Figure 3-17. Density Correction Switch

4. Adjust the density correction switch as follows:
   a. If the first bag weight is 0.7 to 1.0 lb/kg overweight, turn the density correction switch up one notch (for example, switch from position 5 to position 6).
   b. If the first bag weight is 1.1 to 1.5 lb/kg overweight, turn the density correction switch up two notches (for example, switch from position 5 to position 7).
   c. If the first bag weight is more than 1.5 lb/kg overweight, do not adjust the density correction switch. Instead, adjust the dribble gate in a little to reduce the product flow rate. Refer to 7.2.3 Dribble Gate Adjustment.
5. Zero the scale. Refer to 3.6.2 Zeroing The Weight Display.

   Important: *If using the TE100 to package more than one product, the operator should note the individual settings for each product. This will make transitioning from one product to another more efficient.*

6. Place a bag on the spout.

CAUTION	Keep fingers and loose clothing away from bag clamps. Failure to do so could result in injury.

7. Engage the start switch. The automatic fill cycle will begin.

CAUTION	If the operator needs to stop the machine during a fill cycle, they should press the EMERGENCY STOP button. The operator should NEVER pull down on a bag to stop a fill cycle.

8. If the filling cycle stops, but the bag does not drop, the package weight is outside of the Over/Under reject points. To manually drop the bag, press the EMERGENCY STOP button on the control panel.
9. Proceed to 3.6.5 Over/Under Reject Adjustments.

3.6.5 Over/Under Reject Adjustments

The TE100 is programmed with a unique over/under feature. The operator will program in the acceptable limits. For example, if the target weight is 30 pounds, the operator may determine that a package of 29.6 pounds or 30.4 pounds would be acceptable. The operator will adjust the Over/Under reject points with 29.6 and 30.4. After the adjustment has been made, any package weighing less than 29.6 lbs, or more than 30.4 lbs would be held in the machines jaws, and would require manual release by the operator. To adjust the Over/Under reject points, follow the steps below:

1. Open the control panel.
2. Locate the Over/Under reject controls, located in the center on the left side of the printed circuit board.

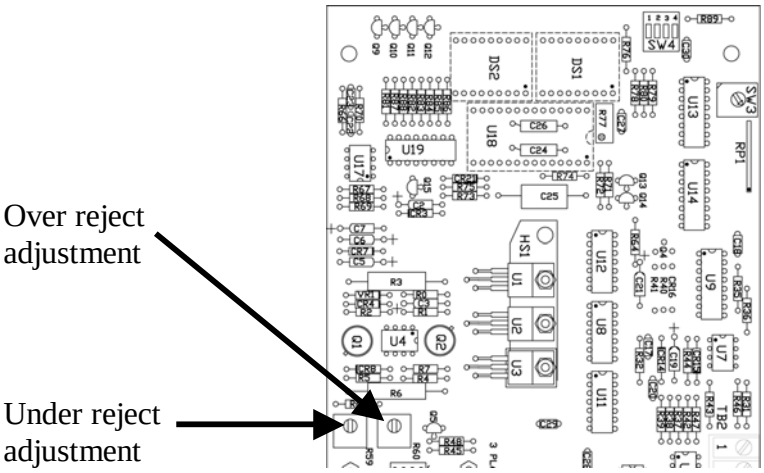


Figure 3-18. Over/Under Reject Controls

3. Set the under reject parameter by turning the dial. Turning the dial all the way to the left will result in the under setting being the same as the target weight. Turning the dial all the way to the right will result in the under reject parameter being 0.8 lbs under the target weight.

Table 3-3. Over/Under Reject Dial Settings

Dial Setting (%)	Allowable Over/Under Weight (Pounds)
0	0.0
12	0.1
25	0.2
37	0.3
50	0.4
67	0.5
75	0.6
87	0.7
100	0.8

4. Set the over reject parameter by turning the dial. Turning the dial all the way to the left will result in the over setting being the same as the target weight. Turning the dial all the way to the right will result in the over reject parameter being 0.8 lbs over the target weight.
5. Close the control panel.
6. Test the TE100 for proper operation.

3.6.6 Dribble Gate Setup

After completing the other calibration procedures, the operator should check the operation of the machine to determine if the dribble gate requires any adjustment. For example, when filling a 50 lb package in less than 4 seconds, if the package weights are erratic, move the dribble gate in one step. The result will be a slower fill rate and more stable bag weights.

1. Turn the TE100 off.
2. Disconnect the main electrical and pneumatic connections.
3. Loosen and remove the two bolts that secure the dribble gate cylinder mounting bracket to the dribble gate rails.

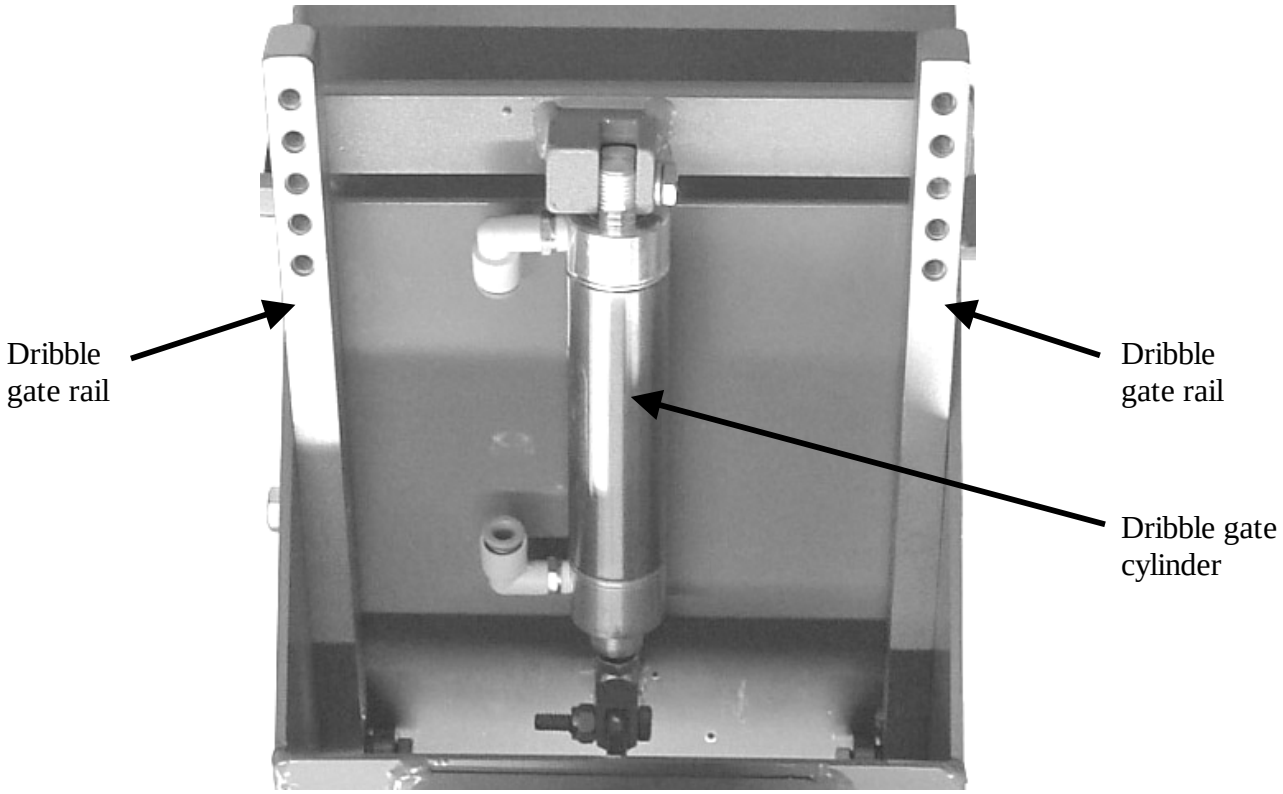


Figure 3-19. Dribble Gate Cylinder Mounting

4. Move the dribble gate cylinder mounting bracket inward to reduce the feed rate or outward to increase the feed rate.
5. Install and tighten the two bolts that secure the dribble gate cylinder mounting bracket to the dribble gate rails.
6. Connect the main electrical and pneumatic connections.
7. Turn the TE100 on and test for proper operation.

3.7 Installing the Optional Small Bag Adapter

The TE100 can be equipped to fill bags that would normally be too small for the TE100. There are two small bag adapters that are available for the TE100, depending on the size of bag that is desired. Depending on the density of the product, the round (actually oval shaped) small bag adapter is used to fill packages ranging from 5–10 lb (2.3–4.5 kg) in size, while the rectangular small bag adapter is used to fill packages ranging from 5–10 lb (4.5–9.0 kg) in size.

1. Shut the TE100 off.
2. Disconnect the main electrical and pneumatic connections.
3. Remove the ¼-inch NPT coupling between the solenoid block and lubricator.
4. Replace the ¼-inch NPT tee with a flow control valve. Make sure the flow control valve is fully closed.
5. Disconnect the two blue hoses located at the top of each bag clamp cylinder and replace them with blue hoses connected to the tee that was just installed.
6. Connect the blue hoses removed from the bag clamp cylinder to the blue hoses on the small bag adapter cylinders.
7. Remove the red hoses from the bag clamp cylinders and connect them to the red hoses on the small bag adapter cylinders.
8. Relocate the start switch using the bracket provided with the small bag adapter.
9. Reconnect the air pressure to the regulator.
10. Grab the small bag adapter by the rod ears on each side and slide it up between the bag clamp arms and the bag clamp pads.
11. Turn the flow control valve on the newly installed tee to the full open position. This will clamp the small bag adapter in place.
12. Using the ZERO knob, zero the weight display.
13. Set the target weight and dribble weight.
14. Place a bag over the spout and trip the start switch to begin the fill cycle.

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Chapter 4
Operation

4.1 General Description

This chapter will provide detailed descriptions of the operational controls of the TE100.

4.2 Operational Controls

The standard TE100 is a gravity fed packaging machine. The TE100 uses electronic controls and an electronic weighing system.

The TE100 control panel is equipped with several control knobs/switches that are used to setup and operate the unit.

- ON/OFF switch – Controls the flow of power to the control panel.
- Display select switch – Used to select the parameter that is displayed on the weight display. Normally in the center position, where the weight display will show the actual package weight. When held in the SET WEIGHT position, the weight display shows the current Target Weight that is set. When held in the SET DRIBBLE position, the weight display shows the current DRIBBLE WEIGHT that is set.
- EMERGENCY STOP button – Located in the center of the control panel, when this button is pushed it will immediately interrupt the operation of the machine.
- ZERO knob – Used to reset the weight display to 0.00.
- WEIGHT knob – Used in conjunction with the DISPLAY SELECT switch to set the target weight.
- DRIBBLE knob – Used in conjunction with the DISPLAY SELECT switch to set the dribble weight.
- HOLD BAG/DROP switch – Normally in the DROP position, the operator can push the switch to the HOLD BAG position to delay releasing a filled bag. This is done so the operator can check the actual package weight to make sure that it matches the target weight.
- Weight display – An LED display that provides the operator with information as to package weight and weight settings.

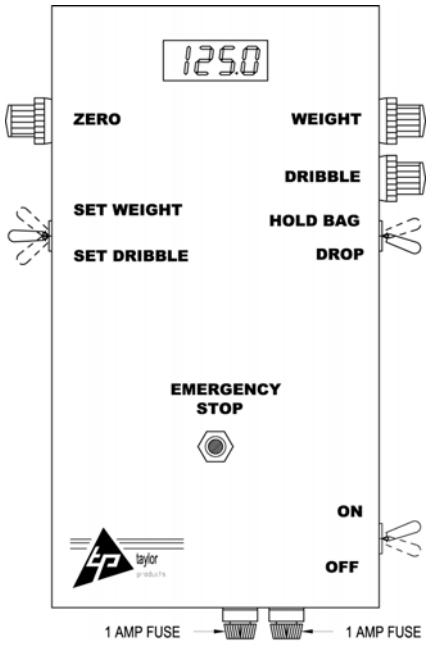

Figure 4-1. Control Panel

4.3 Initial Setup

Use the steps below to perform the initial setup on the TE100.

1. Connect the main electrical and pneumatic connections.
2. Turn the TE100 on.
3. Allow the unit to warm up for thirty (30) minutes.
4. If the unit has not been calibrated, calibrate it at this time. Refer to 3.6 Calibration.
5. Set the Target Weight. Loosen the lock collar on the WEIGHT knob. While holding the display select switch up in the SET WEIGHT position, turn the WEIGHT knob until the weight display shows the desired package weight. Release the display select switch and tighten the lock collar on the WEIGHT knob.

   Note: *To check the current target weight setting at any time, holding the display select switch in the SET WEIGHT position.*

6. Set the Dribble Weight. Loosen the lock collar on the WEIGHT knob. While holding the display select switch down in the SET DRIBBLE position, turn the WEIGHT knob until the desired Dribble Weight is shown on the weight display. Release the display select switch and tighten the lock collar on the WEIGHT knob.

   Note: *The current Dribble Weight can be checked at any time by pressing the display select switch down to the SET DRIBBLE position.*

   Note: *After a little experience with each material, adjustments to the Dribble Weight can be made to minimize fill time while maintaining required weighment accuracy. The optimum dribble weight setting is usually when there are about two seconds of dribble flow before complete cutoff at target weight.*

7. Zero (tare) the weight meter.
    a. If the weighments are to be based on **Gross Weight**, zero the weigh meter with no bag on the spout.
    b. If the weighments are to be based on **Net Weight**, zero the weigh meter with a bag attached to the spout.
8. Place an empty bag on the spout.

WARNING *Be sure to keep fingers and loose clothing away from bag clamps. Failure to do so could result in personal injury.*

9. Engage the start switch. The automatic fill cycle will begin.

    Note: *To stop the machine during a fill cycle, press the* EMERGENCY STOP *pushbutton on the front of the control panel.*

CAUTION Never pull down on a bag to stop a fill cycle. Failure to follow this instruction could result in personal injury or damage to the load cell.

10. If the fill cycle stops, but the bag does not drop, the weight of the bag is outside of the Over/Under reject points. Press the EMERGENCY STOP pushbutton located on the front of the control panel to drop the bag.
11. Due to the pre-programmed Automatic Weight Correction sequence, the first bags of each run will be overweight. Each succeeding bag should get closer to the target weight. It will require 5 to 12 bags of material before the Automatic Weight Correction will be able to fully correct to Target Weight. However, if the first bag is substantially over weight (more than 0.6 pounds), use the following procedure to reduce the amount of bags required for the Automatic Weight Correction to reach Target Weight. If the first bag is 0.6 pounds or less overweight, skip ahead to Step 12.
    a. Turn the power off.

    Note: *The power must be shut off each time this setting is changed. When the power is removed, the memory for this setting is erased.*

    b. Open the control panel.
    c. Locate the density correction switch on the main circuit board. It is a small box with ten settings, 0 through 9. The factory preset is 5, which is a 1.0 pound offset. Each setting is equal to a 0.2 pound increment.
    d. Adjust the density correction switch as follows:
        i. If first bag weight is 0.7 to 1.0 pounds too heavy, turn density correction switch up one notch. (For example, from 5 to 6.)
        ii. If first bag weight is 1.1 to 1.5 pounds too heavy, turn density correction switch up two notches. (For example, from 5 to 7.)
        iii. If the first bag is more than 1.5 pounds too heavy, leave the density correction switch at 5 and adjust the Dribble Gate in a little to reduce the rate of material flow.

e. Now go back to Step 6. Repeat this procedure until you find the proper setting for your material. Every material is different, so if a density correction switch setting of 6 works best for this product, leave the switch on 6.
f. If the TE100 is used to package a couple of different products, keep a record of the density correction switch setting that works best for each product.

12. If the first bag is 0.6 pounds or less overweight, leave the machine alone and the weights of the bags should progress toward the target weight at a rate of 0.1pounds for every two bags.

Note: *It requires two bags for each 0.1 pound of adjustment. This is because the auto correction is programmed to move in steps of 0.05 pounds each time it needs to adjust.*

Table 4-1. Auto Correction Example (Target Weight = 50.0 Lbs)

Bag	Weight (Lbs)
1st	50.6
3rd	50.5
5th	50.4
7th	50.3
9th	50.2
11th	50.1
13th	50.0

13. Once the unit has auto-corrected to Target Weight, each bag should continue to be filled to the target weight, assuming a steady flow of uniform density material is being fed into the unit.
14. Adjust the over/under reject setpoints. Once the TE100 is running properly, it will probably be necessary to adjust the over/under reject setpoints to ensure that the weight of each bag is within the weight range specified by the quality control standards for that product. Any bag that weighs under or over the reject setpoint weights selected will be held in the machine's jaws. The bag will have to be manually dropped.
    a. Locate the over/under reject controls located on left side of the main circuit board.

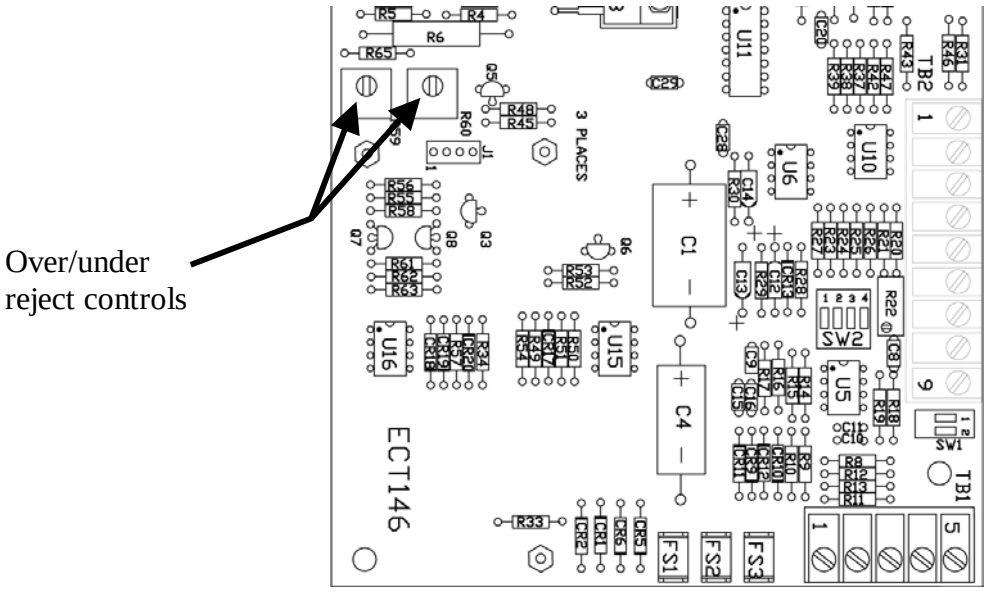

Figure 4-2. Over/Under Reject Controls

b. There are two dials, each scaled from 0% to 100%. The right dial is the over control and the left dial is the under control.
c. Zero to full scale is an 0.8 pound swing. Refer to the table below for the dial settings to achieve 0.1-pound increments.

Table 4-2. Over/Under Reject Dial Settings (0 to 100 = 0.8 Lbs)

Dial Setting (%)	Allowable Over/Under Weight (Lbs)
0	0.0
12	0.1
25	0.2
37	0.3
50	0.4
67	0.5
75	0.6
87	0.7
100	0.8

d. Turn each dial to select the desired over/under setpoints. The settings selected will depend on how much overweight and underweight is acceptable. For example, if the Target Weight is 50 pounds. With the over reject set at 50% and the under reject is set at 25%, the TE100 will accept bags that weigh from 49.8 to 50.4 pounds.

15. Adjust the dribble gate. The dribble gate controls the amount of product flowing through the TE100. If the TE100 is filling a 50 pound bag in less than 4 seconds and the bag weights are erratic, close the dribble gate a little. This should restrict the flow and stabilize the bag weights. If bag weights are very stable and fill times are slow, open the dribble gate to reduce fill time. Try different adjustments of the dribble gate until you find the optimum combination of minimum fill times with acceptable bag weight stability. Refer to 7.2.3 Dribble Gate Adjustments.
16. Setup of the unit is now complete. The unit should be ready to be placed in normal operation.

Important: *Once the TE100 is setup, do not shut it off. If the power is turned off, the TE100 will lose its memory and when power is restored, the TE100 will have to go through the auto correction process again. This machine consumes minimal power.*

4.4 Normal Operation (Typical Fill Cycle)

Once the unit has been properly set up, normal operation will consist of the following steps:

1. Place a bag on the spout.

WARNING *Be sure to keep fingers and loose clothing away from bag clamps. Failure to do so could result in personal injury.*

2. Trip the rod on the start switch. The bag clamp jaws will close down on the bag clamp pads to hold the bag in place. The shutoff gate will open to start the fill cycle.
3. When the bag nears the Target Weight, the dribble gate cylinder will extend, pushing the dribble gate inward, thus slowing the flow of product into the bag.

4. When the bag reaches the cutoff weight, the shutoff gate will close, stopping the flow of product into the bag.
5. The product in free fall will settle into the bag to bring the final weight to the Target Weight.
6. The bag clamp jaws will retract, dropping the bag from the spout.
7. The operator will remove the filled bag from under the spout and start at step 1 with a new bag.

Note: *If the bag clamp jaws fail to open and drop a bag after the fill cycle is complete, it is probably due to the bag being either over or under the acceptable weight limits that have been set. To manually drop the rejected bag from the spout, press the EMERGENCY STOP pushbutton on the front of the control panel.*

Important: *Never pull down on an underweight bag to get it to "make weight" and drop. Follow company procedures for disposition of overweight or underweight bags.*

Note: *To stop a fill cycle at any time for any reason, press the EMERGENCY STOP pushbutton located on the front of the control panel. NEVER PULL DOWN ON A BAG TO STOP THE FILL CYCLE.*

4.4.1 Maintaining Operational Efficiency

To ensure the unit operates at maximum efficiency the operator must:

1. Make sure the unit is properly set up and adjusted, including dribble gate position, dribble weight setting, and over/under reject setpoints.
2. Feed a steady supply of empty bags to the spout.
3. Make sure a uniform, uninterrupted flow of material reaches the unit from the overhead hopper.

Important: *Leave power to the control panel on at all times, except for maintenance or emergencies. This machine consumes minimal power. If the power is turned off, the TE100 will lose its memory and when power is restored, the TE100 will have to go through the auto correction process again.*

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 the calibration, using a known weight.

5.2.1 Cleaning

Keeping the TE100 clean is an important part of the daily maintenance tasks. Remove any dust and/or dirt that has accumulated on a daily basis. Keeping the unit clean will keep debris from entering the control mechanisms, which could cause the performance of the TE100 to suffer. Also, by taking the time to clean the TE100 on a daily basis, the operator will be able to give the TE100 a thorough inspection. Take the time to inspect all components for possible damage.

5.2.2 Check Calibration

On a daily basis, check the calibration of the machine using a known weight. If calibration is required, refer to 3.6 Calibration.

5.3 Monthly Maintenance

On a monthly basis (every 700 operating hours), the operator should do the following items:

1. Inspect and service the filter and lubricator in the FRL.
2. Inspect all hoses, air cylinders, linkages, and bearings. Replace any worn or damaged parts.
3. Inspect the rubber shutoff gate seal. Replace the seal if it is worn or leaking.
4. Clean any dust or product that may have accumulated around the load cell.
5. Inspect the rubber bag clamp pads. Replace them if they are worn.
6. Check the calibration. Refer to 3.6 Calibration.
7. Check the retainer flange bolts. Tighten them if they are loose.

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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 scale is providing inaccurate readings, check the following:

1. Check the calibration of the TE100. Refer to Chapter 3.6 Calibration.
2. Check for anything that might interfere with the natural motion of the spout. Any items, such as cords, hoses, etc., that would impede or change the movement of the spout must be removed.
3. Check spout to make sure it is not rubbing on the scale cabinet. If the spout touches the scale cabinet, it will cause the inconsistent weighments.
4. Check the hopper to make sure an adequate supply of material is available in the product hopper to ensure a consistent head pressure.
5. Check to make sure there is nothing restricting material flow from the hopper.
6. Check that hoses or other components are not coming into contact with the spout.

6.3.2 Scale Does Not Return to Zero

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

1. Check the calibration of the TE100. Refer to Chapter 3.6 Calibration.
2. Check for anything that might interfere with the natural motion of the spout. Any items, such as cords, hoses, etc., that would impede or change the movement of the spout must be removed.
3. Check spout to make sure it is not rubbing on the scale cabinet. If the spout touches the scale cabinet, it will cause the inconsistent weighments.
4. Check to see if product is building up and sticking inside the spout.

6.3.3 The Machine Is Unable To Auto Correct To The Target Weight

If the auto-correct feature is unable to adjust the fill cycle so that the package weight matches the desired target weight, follow the steps below:

1. Adjust the offset for the automatic weight correction feature. Refer to 3.6.4 Adjusting Density Correction Setting.
2. Adjust the actuation speed of the shut off gate. Adjust as necessary. Refer to 7.2.4 MAC Valve Flow Control Adjustment.

6.3.4 The Weighments Fluctuate Between Too Light and Too Heavy

If the TE100 is inconsistent in delivering package weights, and the weights are always either too heavy, or too light, follow the steps below:

1. Verify that the product flow is consistent and stable.
2. Check for consistent head pressure of product above the machine. Head pressure is the amount of product that is always in the hopper immediately above the TE100. It is very important to keep the TE100 from running out of material. As the TE100 runs out of product the weighment accuracy will vary widely. A good rule of thumb is to have enough product in the hopper to fill approximately 20 packages at all times. This amount may vary slightly depending upon product characteristics.
3. Check the calibration of the TE100. Refer to Chapter 3.6 Calibration.

6.3.5 Filled Bag Won't Drop

If the bag does not drop at the end of the fill cycle, check the following:

1. Check the package weight. If the package weight is outside of the acceptable over/under range. If the weight is outside this range, the operator will have to manually release the package by pressing the EMERGENCY STOP button.

   Note: *If packages are consistently finishing outside of the acceptable over/under range, check the over/under range settings to make sure the settings are not too restrictive. It may be necessary to adjust them.*

6.3.6 Bag Won't Stop Filling

If the bag does not drop at the end of the fill cycle, check the following:

1. Check the start switch to make sure that it isn't being held in the on position. At the start of the fill cycle, the switch must "make" contact to start the cycle, and it must return to the neutral (open) position before the fill cycle completes. Check the top of the bag to make sure that it is not holding the start switch in the "make" position.

6.3.7 Air Cylinder Failure

Occasionally a cylinder will fail or will operate intermittently. Check the operation of the suspected cylinder using the steps below:

1. Remove the air hose from the unpressurized side of the cylinder and see if any air leaks through from the pressurized side. Reinstall the hose.
2. Reverse the pressure on the cylinder.
3. Remove the other hose. It should now be on the unpressurized side of the cylinder. Check for any leaks through from the pressurized side. Reinstall the hose.
4. Check for air leaks around the barrel end of the cylinder.
5. If leaks are found in any of the steps, replace the air cylinder.

6.3.8 MAC Valve Failure

Occasionally a MAC valve will fail or will operate intermittently. Check the operation of the suspected MAC valve using the steps below:

1. With the power off, press the manual override buttons (test buttons) on the cylinder coils to cause the cylinder spool to function. If the valve does not function in manual mode, replace the valve.
2. Check the wiring to the cylinder coils from the weigh meter circuit board. Make sure the wiring energizes the coil as the relays on the meter board change. If the wiring to the coils is energizing the proper coil at the proper time, but the MAC valve fails to function, replace the MAC valve.
3. If the wiring to the coils is not being energized at the proper time, use a voltmeter to check the relays on the weigh meter circuit board. There is a normally open and a normally closed contact on each relay and each should change as the weights reach the dribble and target weight setpoints. If the relays do not operate correctly, replace the circuit board.

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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 to return the machine to operation in a timely manner.

7.2 System Adjustments

Depending on how the TE100 is configured, there are several adjustments that may be required from time to time. They are:

- Bag clamp adjustment
- Shut off gate adjustment
- MAC valve flow control adjustment

7.2.1 Bag Clamp Adjustment

1. Turn the TE100 off.
2. Disconnect the main electrical and pneumatic connections.
3. Disconnect the air supply lines from the bag clamp cylinder quick connect fittings.
4. Remove the start switch.
5. Remove the spout. Refer to 7.3.1 Spout Replacement.
6. Loosen the setscrews in the pivot blocks.

   Note: *The setscrews are in the opposite end of the threaded bore as the cylinder rod. The setscrews tighten down against the cylinder rod to lock it in place.*

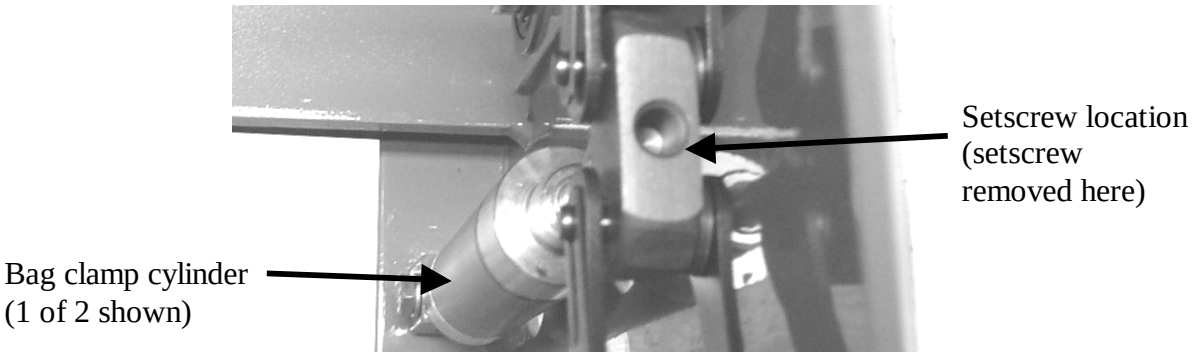

Figure 7-1. Pivot Block Setscrew Location (Setscrew Uninstalled Here)

7. Adjust the cylinder rods by threading them into or out of the pivot blocks. Backing them out of the pivot blocks will increase the clamp travel. Threading them into the pivot blocks will decrease the clamp travel.

   Important: *When adjusting the cylinder rods, make sure that they are adjusted equal amounts.*

8. Tighten setscrews in the pivot blocks against the cylinder rods.

9. Install the spout. Refer to 7.3.1 Spout Replacement.
10. Install the start switch.
11. Connect the air supply lines to the bag clamp cylinder quick connect fittings.
12. Connect the main electrical and pneumatic connections.
13. Turn the TE100 on and test for proper operation.

7.2.2 Shut Off Gate Adjustment

1. Turn the TE100 off.
2. Disconnect the main electrical and pneumatic connections.
3. Disconnect the air supply lines from the bag clamp cylinder quick connect fittings.
4. Remove the start switch.
5. Remove the spout. Refer to 7.3.1 Spout Replacement.
6. Inspect the rubber shut off gate seal for wear or damage. Replace if necessary. Refer to 7.3.7 Shut Off Gate Seal Replacement.
7. Loosen the jam nut on the shut off gate cylinder rod.
8. Turn the cylinder rod in the rod end to adjust the amount of contact between the edge of the shut off gate and the shut off gate seal.

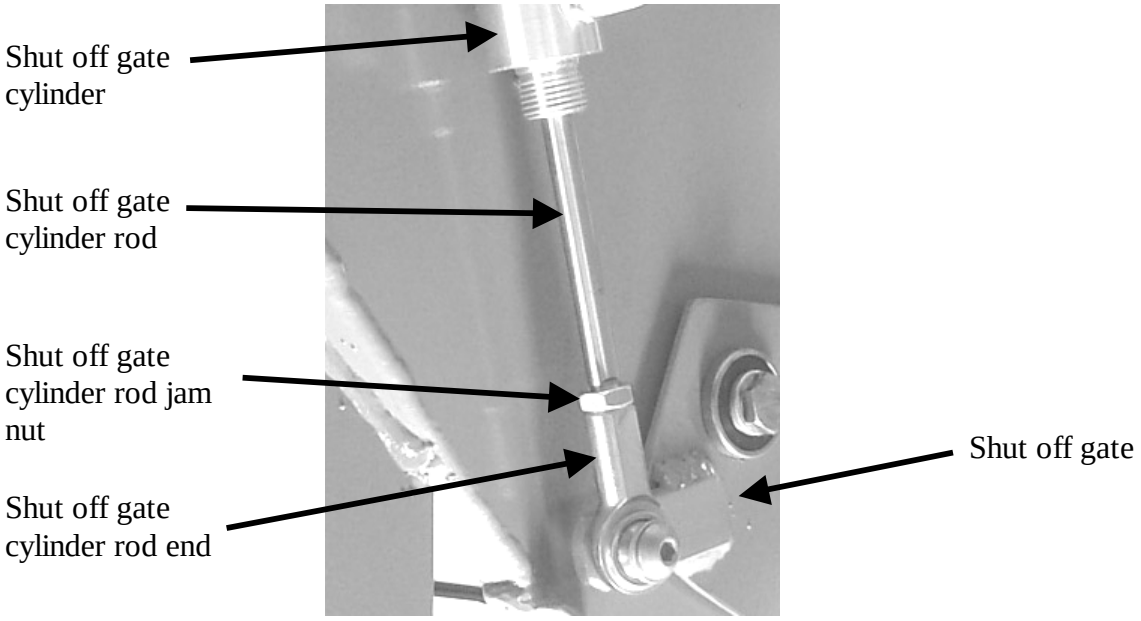

Figure 7-2. Shut Off Gate Adjustment

9. Tighten the jam nut against the rod end.
10. Install the spout. Refer to 7.3.1 Spout Replacement.
11. Install the start switch.
12. Connect the air supply lines to the bag clamp cylinder quick connect fittings.
13. Connect the main electrical and pneumatic connections.
14. Turn the TE100 on and test for proper operation.

7.2.3 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.

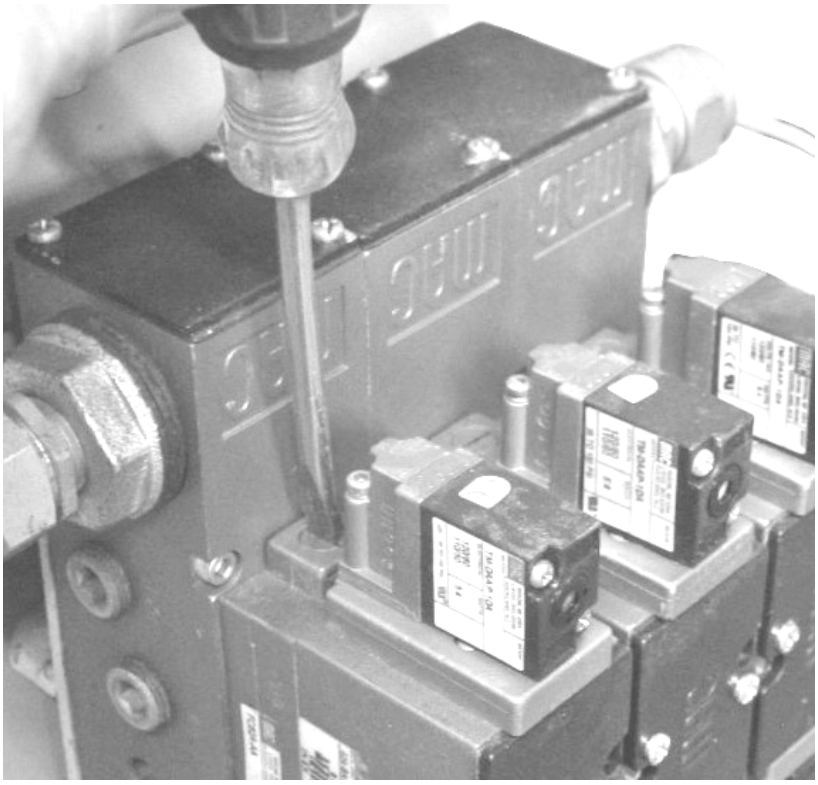

Figure 7-3. Adjusting Airflow From The MAC Valve

7.3 System Repairs

Over time, components on the TE100 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

If the spout becomes damaged or worn, use the procedures below to replace it.

7.3.1.1 Spout Removal

1. Turn the TE100 off.
2. Disconnect the main electrical and pneumatic connections.
3. Label and disconnect the air supply lines that are connected to the bag clamp cylinders.

Bag clamp cylinder air supply lines (1 side shown)

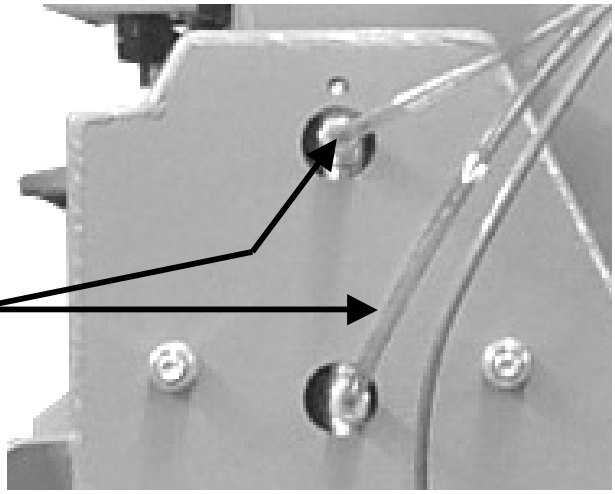

Table 7-1. Bag Clamp Cylinder Air Supply Lines (1 Side Shown)

4. Remove the bag clamp actuator switch.
5. Remove the start switch.
6. Remove the two spout mounting bolts.
7. Remove the spout by lifting it up slightly, and sliding it toward the rear of the TE100, then lowering it until it clears 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.

8. Lower the spout until it clears the scale cabinet. Set the spout assembly aside.

Note: *If the spout is being replaced, follow the procedures in this chapter to transfer the components that are mounted to the new spout.*

7.3.1.2 Spout Installation

1. Lift the spout and align it so that the bottom of the scale cabinet is slipping into the spout.
2. Once the lip of the spout is above the load cell, slide the spout forward and line the mounting holes on the spout up with the mounting holes in the load cell.
3. Lower the spout onto 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.

4. Install the two mounting bolts. Do not tighten the bolts yet.

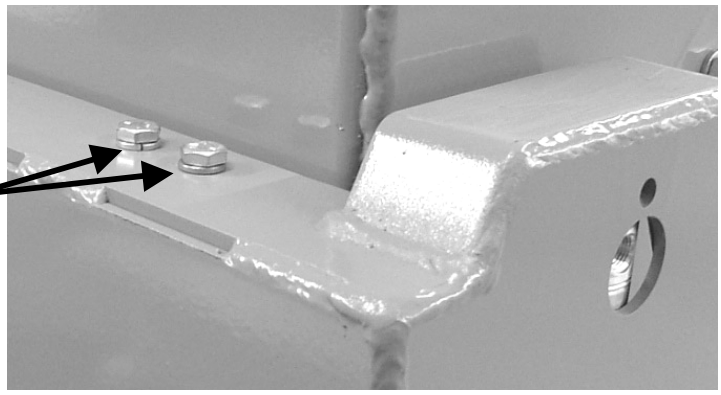

Figure 7-4. Spout Mounting Bolts

5. Check the alignment of the spout to the scale cabinet. The spout should not be touching the scale cabinet. The only contact with the scale cabinet or with its components should be where the spout sits on the load cell.
6. Tighten the spout to load cell bolts. Do not over tighten.
7. Install the start switch.
8. Install the bag clamp actuator switch.
9. Connect the air supply lines that feed the bag clamp cylinders.
10. Connect the main electrical and pneumatic connections.
11. Turn the TE100 on and test for proper operation.

7.3.2 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.

7.3.2.1 Load Cell Removal

1. Turn the TE100 off.
2. Disconnect the main electrical and pneumatic connections.
3. Remove the spout. Refer to 7.3.1 Spout Replacement.
4. Open the control box and locate the load cell connections.
5. Make a note of each connection point and the color of wire that is connected to it.
6. Disconnect the load cell connections.
7. Pull the load cell cable free of the control box.
8. Remove any tie straps that are securing the load cell cable to the frame of the TE100.
9. Loosen and remove the load cell mounting bolts.
10. Remove the load cell.

7.3.2.2 Load Cell Installation

1. Position the load cell.
2. Install the two mounting bolts, but do not tighten them.
3. Check the alignment of the load cell. The side of the load cell should run parallel to the scale cabinet. Tighten the load cell mounting bolts when the load cell is parallel to the scale cabinet.

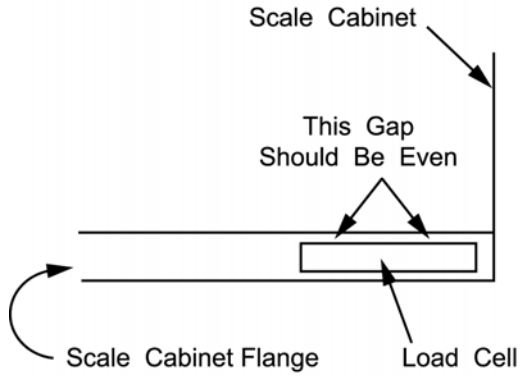

Figure 7-5. Checking Load Cell Alignment (As Viewed From The Top Of The TE100)

4. Route the load cell cable to the control box in the same manner as the cable from the load cell that was removed.
5. Insert the cable into the control box.
6. Connect the load cell cable to the controller and close the control box.
7. Install the spout. Refer to 7.3.1 Spout Replacement.
8. Connect the main electrical and pneumatic connections.
9. Turn the TE100 on.
10. Calibrate the TE100. Refer to 3.6 Calibration.

7.3.3 Dribble Gate Cylinder Replacement

If the dribble gate cylinder develops a leak, or is receiving air pressure and fails to function, use the procedures below to replace it.

7.3.3.1 Dribble Gate Cylinder Removal

1. Turn the TE100 off.
2. Disconnect the main electrical and pneumatic connections.
3. Remove the back cover.
4. Label and disconnect the air supply lines from the dribble gate cylinder.
5. Remove the nut, washer, and bolt that secure the rod end of the cylinder to the dribble gate.
6. Loosen and remove the bolt that secures the cylinder to the cylinder mounting bracket.
7. Remove the dribble gate cylinder.

7.3.3.2 Dribble Gate Cylinder Installation

1. Position the dribble gate cylinder so that the mounting hole on the cylinder end lines up with the mounting hole in the mounting bracket.
2. Install the bolt that secures the dribble gate cylinder to the mounting bracket.
3. Line the rod end of the pneumatic cylinder with the bolt hole on the mounting tab on the dribble gate.
4. Insert the bolt through the rod end and mounting tab.
5. Install the washer and nut on the bolt. Tighten the nut on the bolt.
6. Connect the air supply lines to the dribble gate cylinder.
7. Connect the main electrical and pneumatic connections.
8. Turn the TE100 on and test for proper operation.

7.3.4 Dribble Gate Replacement

If the dribble gate becomes damaged or worn, use the steps below to replace it.

7.3.4.1 Dribble Gate Removal

1. Turn the TE100 off.
2. Disconnect the main electrical and pneumatic connections.
3. Remove the dribble gate cylinder. Refer to 7.3.3 Dribble Gate Cylinder Replacement.
4. Remove the dribble gate cylinder mounting bracket bolts and bracket.
5. Slide the dribble gate upward and to the rear of the TE100 until it is clear of the scale cabinet.

7.3.4.2 Dribble Gate Installation

1. Slide the dribble gate into the slots that the gate rides in.
2. Install the dribble gate cylinder mounting bracket.
3. Install the dribble gate cylinder. Refer to 7.3.3 Dribble Gate Cylinder Replacement.
4. Connect the main electrical and pneumatic connections.
5. Turn the TE100 on and test for proper operation.

7.3.5 Shut Off Gate Cylinder Replacement

If the shut off gate cylinder develops a leak, or is receiving air pressure and fails to function, use the procedures below to replace it.

7.3.5.1 Shut Off Gate Cylinder Removal

1. Turn the TE100 off.
2. Disconnect the main electrical and pneumatic connections.
3. Remove the spout. Refer to 7.3.1 Spout Replacement.
4. Label and disconnect the air supply lines from the shut off gate cylinder.
5. Remove the bolt that secures the rod end of the cylinder to the shut off gate.
6. While holding the shut off gate cylinder with one hand, remove the bolt that secures the cylinder end to the scale cabinet.
7. Remove the cylinder.

7.3.5.2 Shut Off Gate Cylinder Installation

1. Position the cylinder so that the mounting tab is positioned in mounting bracket and so that the air fittings are facing away from the scale cabinet.
2. Line the rod end of the cylinder up with the mounting hole in the shut off gate.
3. Install the bolt that secures the rod end of the cylinder with the shut off gate.
4. Connect the air supply lines to the quick connect fittings on the shut off gate cylinder.
5. Install the spout. Refer to the 7.3.1 Spout Replacement.
6. Connect the main electrical and pneumatic connections.
7. Turn the TE100 on and test for proper operation.

7.3.6 Shut off Gate Replacement

If the shut off gate becomes worn or damaged, follow the procedures below to replace it.

7.3.6.1 Shut Off Gate Removal

1. Turn the TE100 off.
2. Disconnect the main electrical and pneumatic connections.
3. Make sure that the hopper and the scale cabinet are empty.
4. Remove the spout. Refer to the 7.3.1 Spout Replacement.
5. Remove the shut off gate cylinder. Refer to the 7.3.5 Shut Off Gate Cylinder Replacement.
6. Open the shut off gate.
7. Use a screwdriver to hold one of the slotted screws on the inside of the scale cabinet, while using a wrench to loosen and remove the nut on that screw on the outside of the shut off gate.

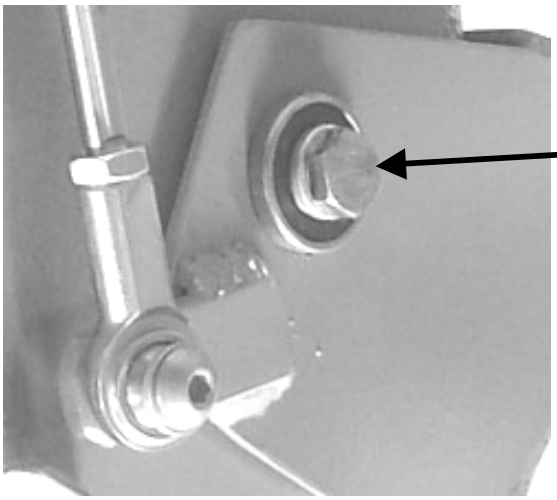

Figure 7-6. Shut Off Gate Mounting

8. While holding the shut off gate with one hand, remove the shut off gate mounting bolts.
9. Remove the shut off gate.

7.3.6.2 Shut Off Gate Installation

1. Position the shut off gate so that the mounting holes are lined up with the mounting holes in the scale cabinet.
2. Insert the two slotted screws through the mounting holes. The heads of the screws should be inside the scale cabinet.
3. Install and tighten the nuts on each of the two slotted screws. Do not over tighten.
4. Use a grinder to grind any portion of the screw shank that extends beyond the outer surface of the nut. This is done to provide clearance for mounting the spout.

Figure 7-7. Shut Off Gate Mounting Screw Ground Off Smooth

5. Install the shut off gate cylinder. Refer to the 7.3.5 Shut Off Gate Cylinder Replacement.
6. Install the spout. Refer to the 7.3.1 Spout Replacement.
7. Connect the main electrical and pneumatic connections.
8. Turn the TE100 on and test for proper operation.

7.3.7 Shut Off Gate Seal Replacement

If the shut off gate seal becomes worn, damaged, or is leaking, use the procedures below to replace it.

7.3.7.1 Shut Off Gate Seal Removal

1. Turn the TE100 off.
2. Disconnect the main electrical and pneumatic connections.
3. Remove the spout assembly. Refer to 7.3.1 Spout Replacement.
4. Open the shut off gate.
5. Remove the nuts from the shut off gate seal.
6. Remove the shut off gate seal.

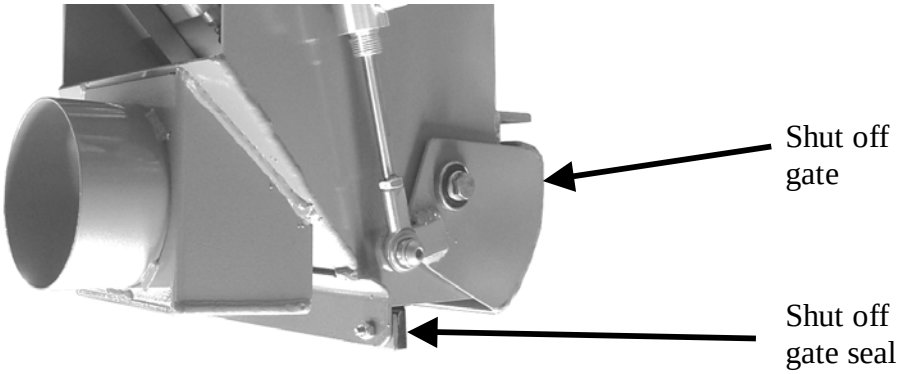

Figure 7-8. Shut Off Gate Seal

7.3.7.2 Shut Off Gate Seal Installation

1. Position the shut off gate seal.
2. Install and tighten the nuts from the shut off gate seal.
3. Close the shut off gate.
4. Install the spout assembly. Refer to 7.3.1 Spout Replacement.
5. Connect the main electrical and pneumatic connections.
6. Turn the TE100 on and test for proper operation.

7.3.8 Bag Clamp Arm Replacement

If a bag clamp arm becomes damaged or worn, follow the steps below to replace it.

7.3.8.1 Bag Clamp Arm Removal

1. Turn the TE100 off.
2. Disconnect the main electrical and pneumatic connections.
3. Make sure that the hopper and the scale cabinet are empty.
4. Remove the spout. Refer to the 7.3.1 Spout Replacement.
5. Place the spout assembly on a workbench upside down.
6. Disconnect the chain links from the bag clamp arm being replaced.
7. Remove the bag clamp arm spring Refer to 7.3.7 Bag Clamp Arm Spring Replacement.
8. Remove the bag clamp cylinders. Refer to 7.3.8 Bag Clamp Cylinder Replacement.
9. Remove the nuts from the bag clamp arm mounting bolts.
10. Remove the bag clamp arm mounting bolts and bearings.
11. Remove the bag clamp arm.

7.3.8.2 Bag Clamp Arms Installation

1. Install three stainless steel washers on one pin on each of the chain links.
2. Insert the pin with the washers through the chain link mounting hole on the bag clamp arm.
3. Position the bag clamp arm. The one with the stainless steel deflector goes on the rear (open) side of the spout.

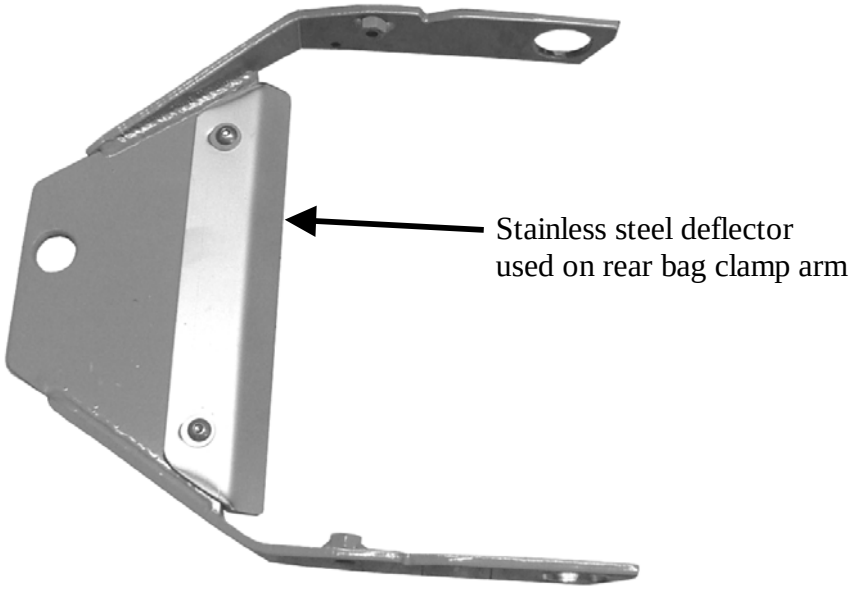

Figure 7-9. Stainless Steel Deflector

4. Install the bag clamp arm mounting bolts and bearings from the inside of the spout assembly.

   Important: *Three of the bolts used are standard hex head bolts. One bolt is an internal hex bolt. This bolt must be installed in the proper location. Failure to do so will result in improper operation of the TE100. Refer to Figure 7-7 for information on.*

   Note: *If the bearings won't slide into the bag clamp arms, it may be necessary to clean the holes out.*

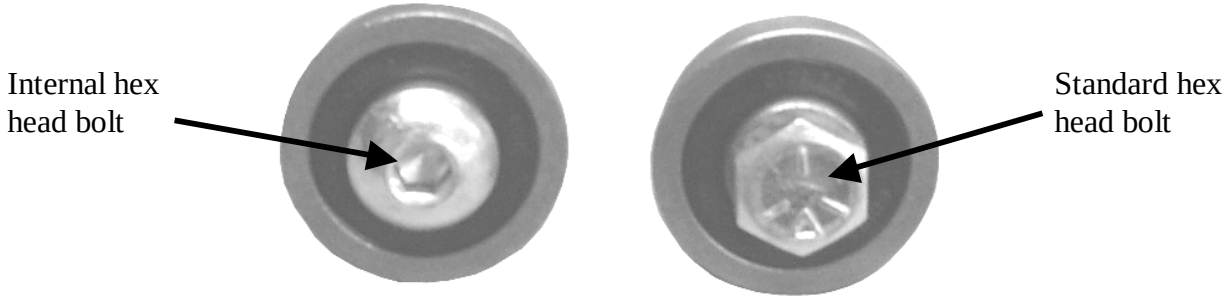

Figure 7-10. Bag Clamp Arm Bolts and Bearings

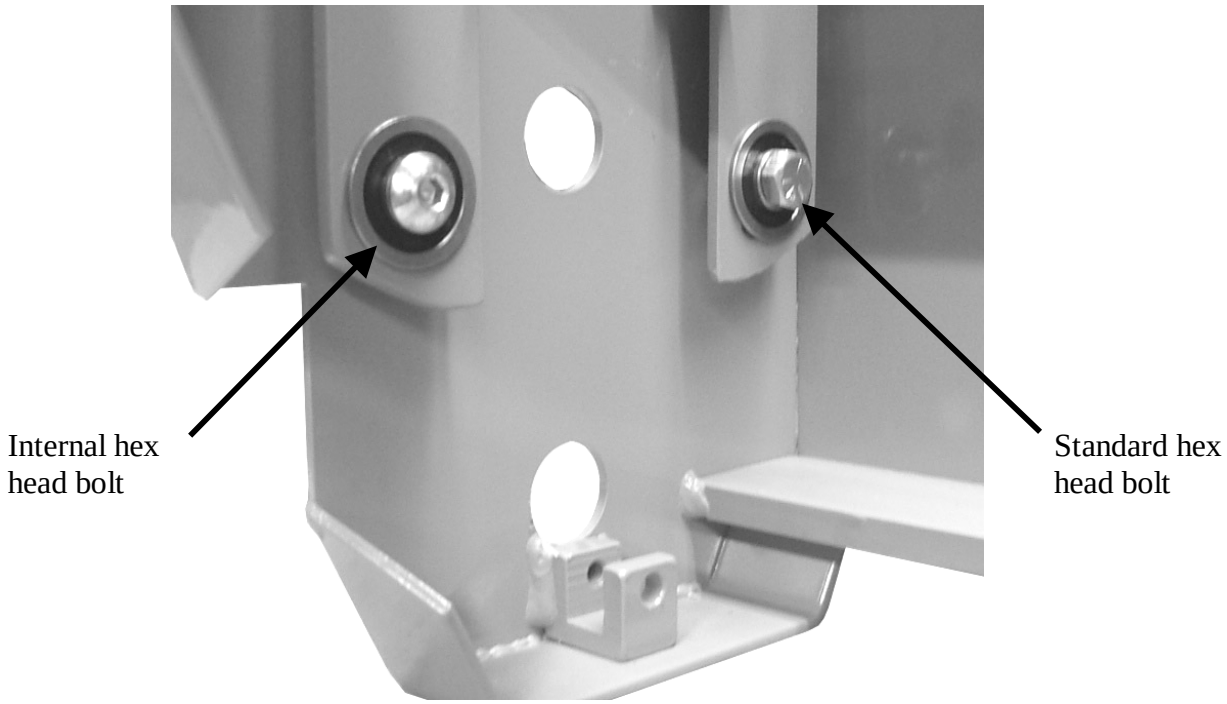

Figure 7-11. Bag Clamp Arm Bolts And Bearings Installed

5. Install and tighten the nuts on the bag clamp arm mounting bolts. Do not over tighten.
6. Install the bag clamp cylinders. Refer to 7.3.8 Bag Clamp Cylinder Replacement.
7. Install the bag clamp arm spring Refer to 7.3.7 Bag Clamp Arm Spring Replacement.
8. Connect the chain links to the bag clamp pivot blocks.
9. Install the spout assembly on the TE100. Refer to the 7.3.1 Spout Replacement.
10. Connect the main electrical and pneumatic connections.
11. Turn the TE100 on and test for proper operation.

7.3.9 Bag Clamp Arm Spring Replacement

On each side of the TE100, a spring is used to connect the two bag clamp arms. Over time, the bag clamp arm springs may weaken or become damaged. Follow the steps below to replace the springs.

7.3.9.1 Bag Clamp Arm Spring Removal

1. Turn the TE100 off.
2. Disconnect the main electrical and pneumatic connections.
3. Remove the spout. Refer to 7.3.1 Spout Replacement.
4. Position the spout so that it is upside down on a workbench.
5. Remove the nuts from the bolts that connect the springs to the bag clamp arms. The nuts will be between the bag clamp arms and the spout.
6. Remove the springs and bolts.
7. Remove the bolts from the spring eyes.

7.3.9.2 Bag Clamp Arm Spring Installation

1. Insert the bolts through the spring eyes.
2. Insert the bolts through the spring mounting bolts in the bag clamp arms.
3. Install and tighten the nuts on the bolts.
4. Install the spout. Refer to 7.3.1 Spout Replacement.
5. Connect the main electrical and pneumatic connections.
6. Turn the TE100 on and test for proper operation.

7.3.10 Bag Clamp Cylinder Replacement

If one of the bag clamp cylinders develops a leak, or is receiving air pressure and fails to function, use the procedures below to replace it.

7.3.10.1 Bag Clamp Cylinder Removal

1. Turn the TE100 off.
2. Disconnect the main electrical and pneumatic connections.
3. Remove the spout. Refer to the 7.3.1 Spout Replacement.
4. Place the spout assembly on a workbench upside down.
5. Remove the bag clamp cylinder quick connect fittings. This is done from the outside of the spout.
6. Loosen the jam nut on the cylinder rod at the pivot block.
7. Make a mark, using a permanent marker, on the cylinder rod.
8. Rotate the rod to back it out of the pivot block threads. Count the number of rotations until the rod is free of the pivot block.
9. Loosen and remove the cylinder mounting bolt.
10. Remove the cylinder.

7.3.10.2 Bag Clamp Cylinder Installation

1. Make a mark on the cylinder rod of the cylinder, near the threads.
2. Make sure that there is a jam nut on the threaded end of the rod. Make sure that the jam nut is turned all the way onto the rod.
3. Position the bag clamp cylinder with the mounting tab in the mounting bracket inside the scale cabinet. Also, make sure that the two pneumatic ports are visible through the port holes in the scale cabinet.
4. Install and tighten the cylinder mounting bolt.
5. Insert the tip of the rod into the pivot block.
6. Start threading the rod into the pivot block. Count the number of rotations. Stop when the number of rotations equals the number of rotations counted in the removal procedure.
7. Tighten the jam nut against the pivot block.
8. Install the two pneumatic quick connect fittings into the ports on the cylinder. Refer to 7.3.12 Pneumatic Quick Connect Fitting Replacement
9. Install the spout. Refer to the 7.3.1 Spout Replacement.
10. Connect the main electrical and pneumatic connections.
11. Turn the TE100 on and test for proper operation.

7.3.11 Bag Clamp Pivot Block Replacement

If one of the bag clamp pivot blocks becomes damaged or worn, or is receiving air pressure and fails to function, use the procedures below to replace it.

7.3.11.1 Bag Clamp Pivot Block Removal

1. Turn the TE100 off.
2. Disconnect the main electrical and pneumatic connections.
3. Remove the spout. Refer to the 7.3.1 Spout Replacement.
4. Place the spout assembly on a workbench upside down.
5. Remove the chain link clip from both chain links attached to the pivot block.
6. Loosen the jam nut on the cylinder rod at the pivot block.
7. Make a mark, using a permanent marker, on the cylinder rod.
8. Rotate the rod to back it out of the pivot block threads. Count the number of rotations until the rod is free of the pivot block.

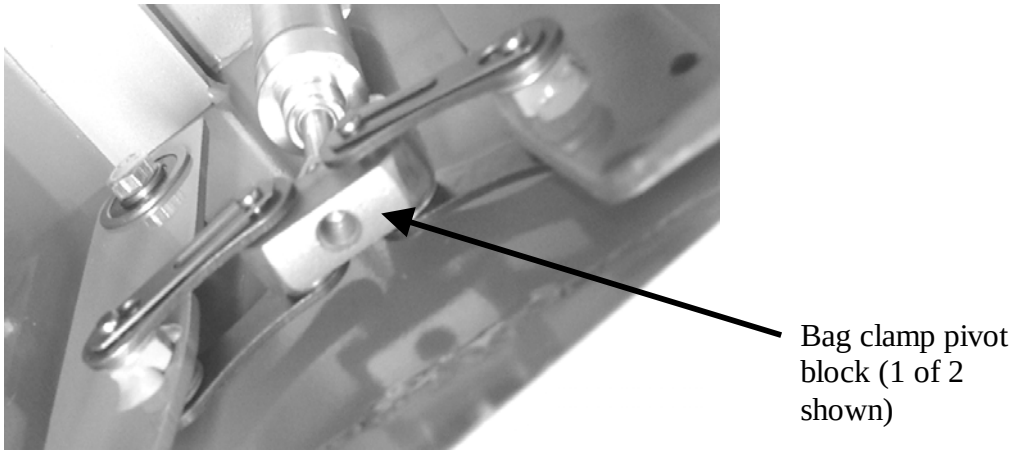

Figure 7-12. Bag Clamp Pivot Block

7.3.11.2 Bag Clamp Pivot Block Installation

1. Position the pivot block. Slide the pivot block over the chain link pins.
2. Start threading the rod into the pivot block. Count the number of rotations. Stop when the number of rotations equals the number of rotations counted in the removal procedure.
3. Tighten the jam nut against the pivot block.
4. Install the chain link clip.
5. Install the spout. Refer to the 7.3.1 Spout Replacement.
6. Connect the main electrical and pneumatic connections.
7. Turn the TE100 on and test for proper operation.

7.3.12 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.

7.3.12.1 Air Supply Line Removal

1. Turn the TE100 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.

7.3.12.2 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.

7.3.13 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.

7.3.13.1 Pneumatic Quick Connect Fitting Removal

1. Turn the TE100 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.

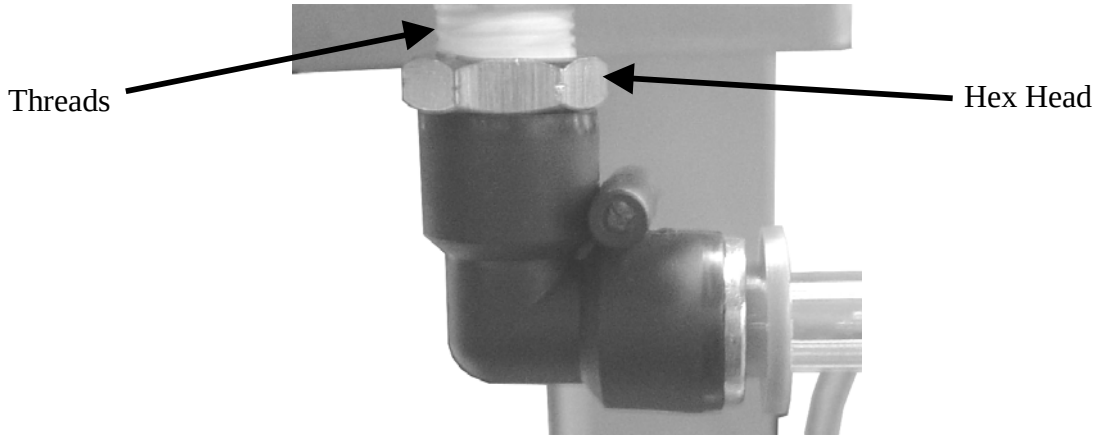

Figure 7-13. Air Supply Fitting

7.3.13.2 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 TE100 on and test for proper operation.

7.3.14 Main Circuit Board Replacement

In the event of a main circuit board failure, use the steps below to replace it.

7.3.14.1 Main Circuit Board Removal

1. Turn the TE100 off.
2. Disconnect the main electrical and pneumatic connections.
3. Unlatch the control enclosure and swing it to the full open position. This will expose the main circuit board.
4. Use a ¼-inch nut driver to remove the nuts that secure the main circuit board. There is one nut on each corner of the circuit board.
5. Label and disconnect the wires for the relay board connections, power supply, IP 1-5 load cell connections, and TP 2-9 control connections.
6. Remove the main circuit board.

7.3.14.2 Main Circuit Board Installation

1. Position the new circuit board on the four mounting studs.
2. Connect the wires for the relay board connections, power supply, IP 1-5 load cell connections, and TP 2-9 control connections.
3. Use a ¼-inch nut driver to install the nuts that secure the main circuit board. There is one nut on each corner of the circuit board. DO NOT over tighten the nuts.
4. Close the control enclosure and latch it closed.
5. Connect the main electrical and pneumatic connections.
6. Turn the TE100 on and test for proper operation.

Glossary

TERM	DEFINITION
AC	Alternating Current
Bag clamp arms	Actuated by two pneumatic cylinders, these arms press the bag outward against two rubberized pads that are attached to the spout. When applied, the two bag clamp arms work with the bag clamp pads to hold the bag in place while it is being filled.
Bag clamp pads	A set of two rubber pads are mounted to the bottom of the spout. When the bag clamp arms are actuated, two bag clamp pads work with the bag clamp arms to hold the bag in place while it is being filled.
Bag position switch	Mounted on the bottom of the spout, this switch will prevent the fill cycle from starting if a bag is not in place.
Bagging cycle	A series of functions that describe the packaging process, from beginning to end, for one package of product.
Component	An item of hardware as commonly supplied complete by manufacturers.
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.
Dribble gate	A metal gate that is used to restrict the flow of product. The gate is actuated by a pneumatic cylinder. When the weight of the package reaches the dribble weight, the cylinder extends, moving the gate to partially obstruct the flow of product.
ESD	Electrostatic Discharge
Ground	Ground (Electrical). 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.
kg	Kilogram
lb or lbs	Pound or pounds
Load cell	An electronic device that is used to monitor the weight of the product that is being packaged.
MAC valve	A device that combines an electric solenoid and a pneumatic valve. Voltage is applied or removed from the solenoid to cause the pneumatic valve to move. Used to control the pneumatic cylinders.
Product	Refers to the material that is being packaged by the machine.
Shut off gate	A hinged metal gate that is actuated by a pneumatic cylinder to start and stop the fill cycle. The shut off gate is opened when a bag is in place and the operator trips the lever on the start switch. The gate is closed according to the settings made by the operator in the control panel.
Spout	A component whose primary function is to guide the product from the feed mechanism into the package. The spout also serves as the mounting point for several other components.
Start switch	An electronic switch that is mounted toward the bottom of the spout. The switch has a wire bale that is attached to the rotary switch. When the operator trips the switch, the fill cycle starts.
Surge	A sudden rise of current or voltage.
Surge Hopper	A reservoir where product is stored for packaging.

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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 TE100. 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 TE100.
- 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 TE100 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 TE100.
- 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-2. TE100 Spare Parts List

	Part Description	Part Number
1	Humphrey gate cylinder (1.0625” bore, 2.5” stroke, 5/16-24 rod, bumper)	50-1184
2	Humphrey clamp cylinder (1.0625” bore, 1.5” stroke, 5/16-24 rod)	50-1166
3	Gate slide bearing	50-7057
4	MAC solenoid valve (less manifold base)	53-0276
5	Gate and clamp bearings (3/8” bore, flanged)	50-7011
6	Bronze gate cylinder clevis bushing (1/4”X5/16”X1/4”)	50-7098
7	200lb. load cell (platform type, stainless steel)	50-1549
8	Bag clamp pads	60-0185 & 604 ½ X 3 (set)
9	Bag clamp extension spring (7/16” X 2-15/16”	53-2007
10	Potentiometer (1K, 10 turn meter)	50-1721

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Appendix C
Mechanical Drawings

Table C-3. TE100 Mechanical Drawings

	Drawing Title	Dwg Number
1	TE-100 Exploded Parts	ISO-1.dwg
2	TE-100 Exploded Parts Bill of Materials	ISO-1 BOM.dwg
3	TE-100 Exploded Parts	ISO-2.dwg
4	TE-100 Exploded Parts Bill of Materials	ISO-2 BOM.dwg
5	TE-100 Exploded Parts	ISO-3.dwg
6	TE-100 Exploded Parts Bill of Materials	ISO-3 BOM.dwg
7	TE-100	ISO-4.dwg
8	ISO-4 Bill of Materials	ISO-4 BOM.dwg
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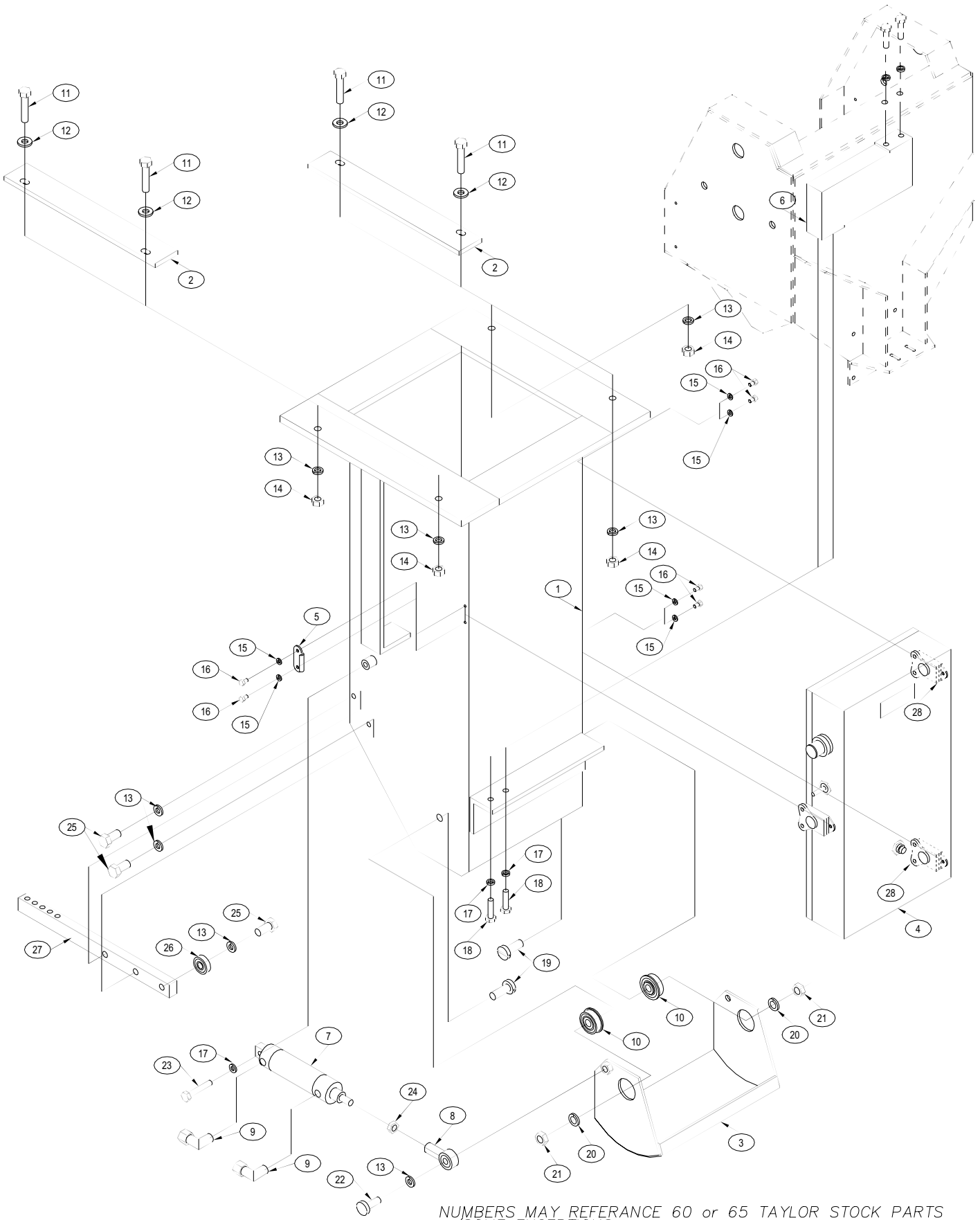
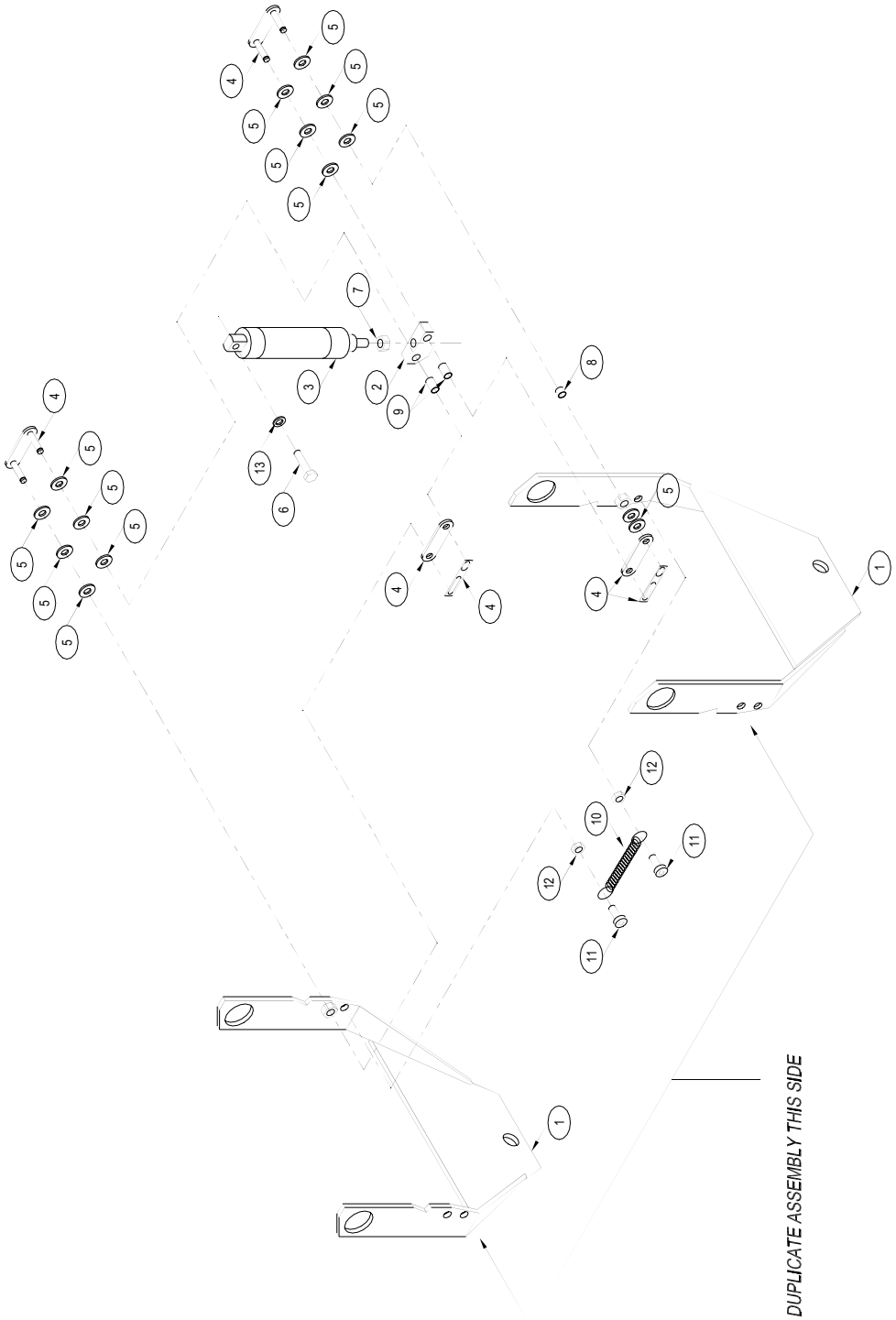


NUMBERS MAY REFERANCE 60 or 65 TAYLOR STOCK PARTS
w/SOME EXCEPTIONS
60 NUMBERS REFERANCE STEEL PARTS
65 NUMBERS REFERANCE STAINLESS STEEL PARTS

Machine Type: TE100
Dwg Name: ISO-1.dwg
Dwg View: Exploded View

TE-100 ISO-1 BILL OF MATERIALS

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	60-0145	MAIN CABINET
2	2	60-0275	MOUNTING STRAPS
3	1	60-0147	MAIN CUT OFF GATE
4	1	50-1645	METER WEIGHING DUAL SET POINT
5	1		FASTENER & KEEPER PLATE
6	1	50-1549	LOAD CELL, 200# PLATFORM TYPE SS
7	1	50-1164	CYLINDER HUMPHERY 1.0625" BORE 2.5" STROKE
8	1	50-7055	BEARING ROD END BEARING 5/16-24
9	2		1/4" HOSE X 1/8" NPT CONNECTOR ELL
10	2	50-7011	3/8" BORE 1 1/8"OD FLANGE BEARING
11	4		5/16"-18 X 1 1/2" HEX HEAD
12	4		5/16" FLAT WASHER
13	5		5/16" LOCK WASHER
14	4		5/16"-18 HEX NUT
15	6		#8 LOCK WASHER
16	6		8-32 X 3/8" HEX HEAD
17	2		1/4" LOCK WASHER
18	2		1/4"-28 X 1" HEX HEAD
19	2		3/8"-16 X 3/4" ROUND HEAD
20	2		3/8" LOCK WASHER
21	2		3/8"-16 JAM NUT
22	1		5/16"-18 X 3/4" BUTTON HEAD
23	1		1/4"-20 X 1 1/2" HEX HEAD
24	1		5/16"-24 JAM NUT
25	4		5/16"-18 X 3/4" HEX HEAD
26	2	50-7057	SCALE BEAM BEARING 38KDD
27	2	60-0188	DRIBBLE GATE MOUNTING RAIL
28	2		HINGE

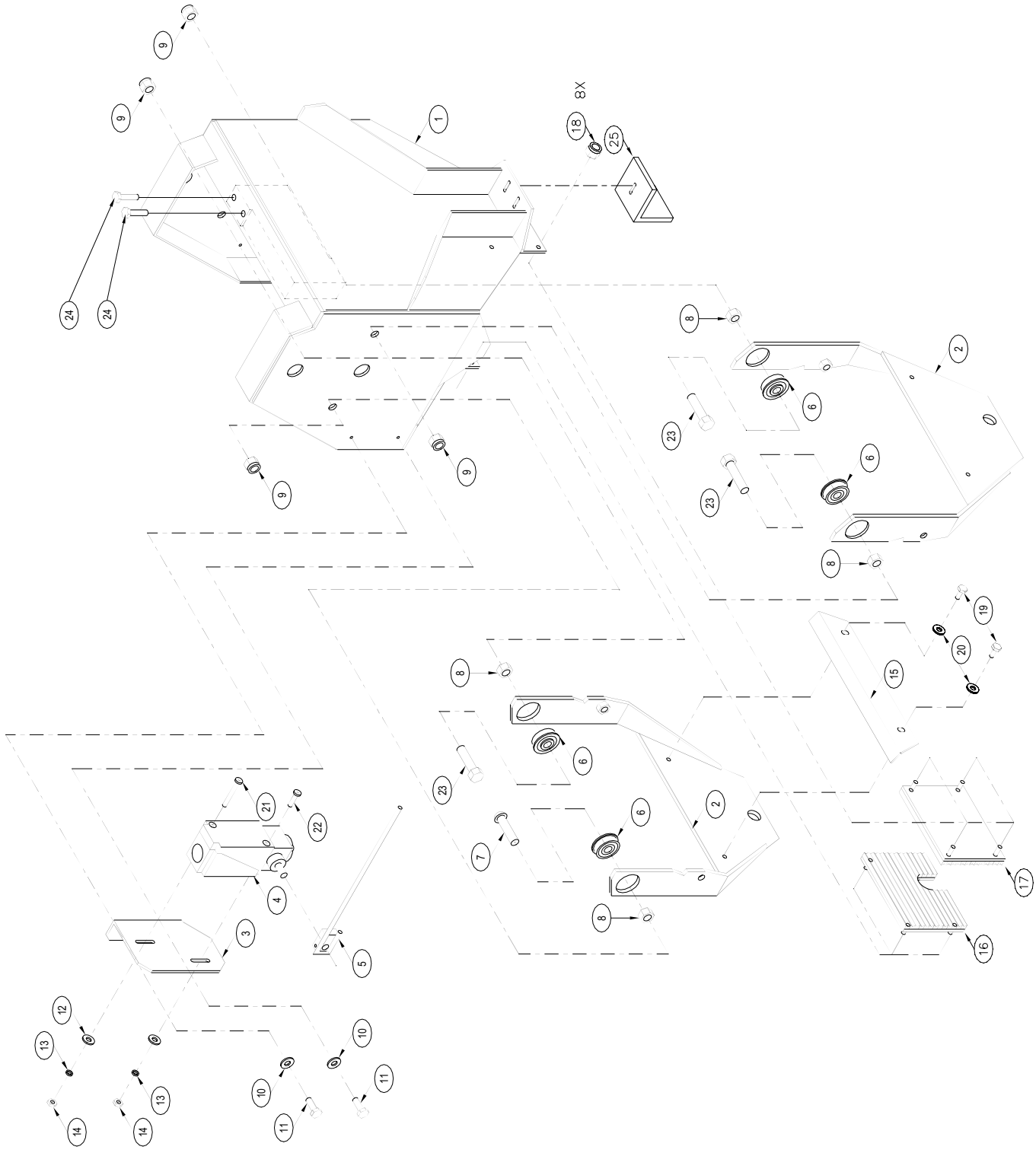


NUMBERS MAY REFERANCE 60 or 65 TAYLOR STOCK PARTS
w/SOME EXCEPTIONS
60 NUMBERS REFERANCE STEEL PARTS
65 NUMBERS REFERANCE STAINLESS STEEL PARTS

Machine Type: TE100
Dwg Name: ISO-2.dwg
Dwg View: Bag Clamp Arms & Related Components - Exploded View

TE-100 ISO-2 BILL OF MATERIALS

ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	60-0171	BAG CLAMP ARM
2	2	60-0172	CLAMP ARM PIVOT BAR
3	2	50-1166	CYLINDER, HUMPHERY, 1.0625" BORE 1.5
4	4	50-7505	CHAIN ROLLER TAB ASSEMBLY EARS
5	32		1/4" FLAT WASHER SS
6	2		1/4"-20 X 1 1/2" HEX HEAD
7	2		5/16"-24 X JAM NUT
8	4	50-7098	BUSHING BRONZE 1/4" X 5/16" X 1/4"
9	2	50-7097	BUSHING BRONZE 1/4" X 5/16" X 1/2"
10	2	53-2007	TE-100 BAG CLAMP SPRING
11	4		1/4"-20 X 3/4" ALLEN HEAD
12	4		1/4"-20 HEX HEAD
13	2		1/4" LOCK WASHER

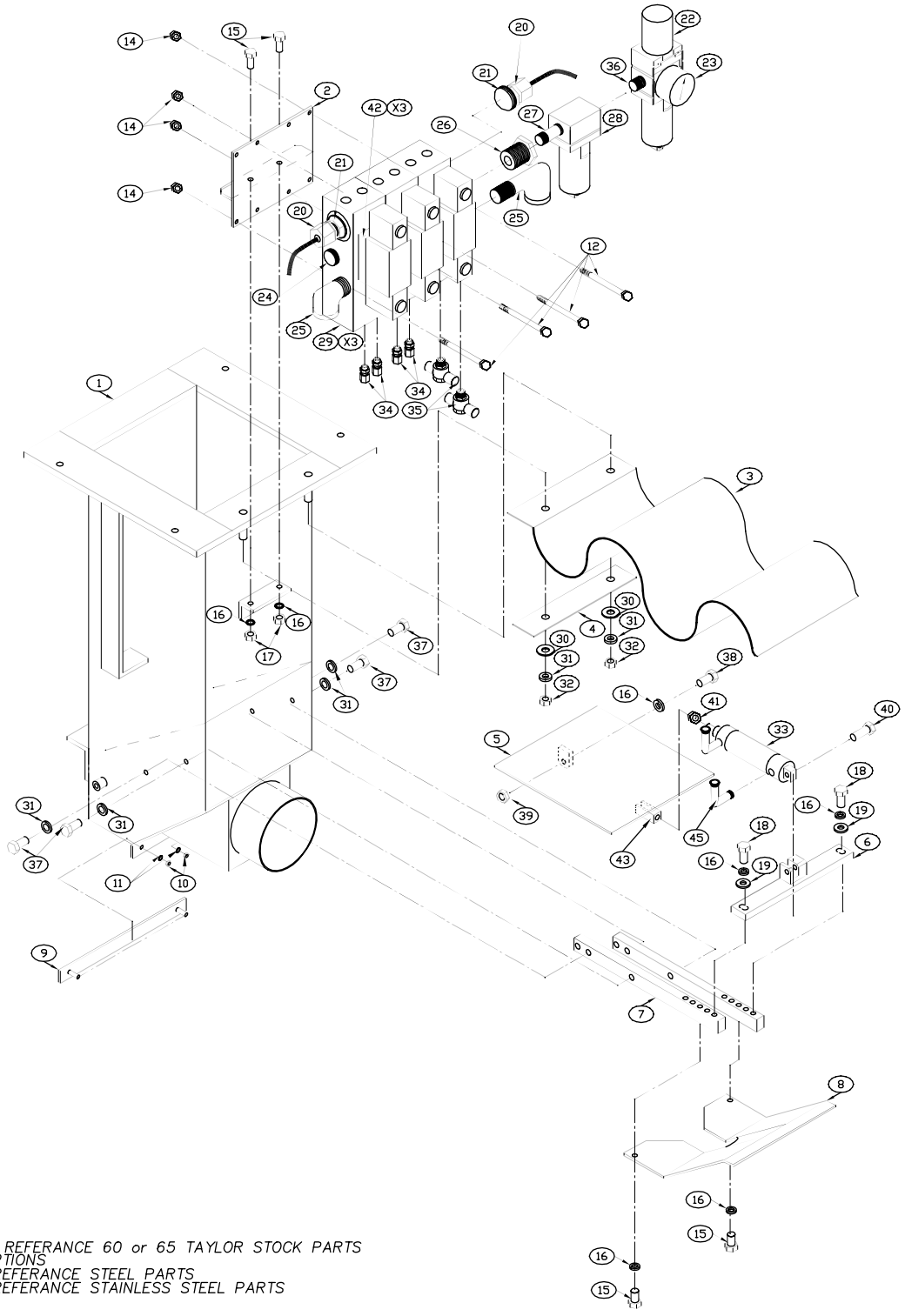


NUMBERS MAY REFERANCE 60 or 65 TAYLOR STOCK PARTS
w/SOME EXCEPTIONS
60 NUMBERS REFERANCE STEEL PARTS
65 NUMBERS REFERANCE STAINLESS STEEL PARTS

Machine Type: TE100
Dwg Name: ISO-3.dwg
Dwg View: Spout Assembly - Exploded View

TE-100 ISO-3 BILL OF MATERIALS

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	60-0173	SPOUT HOUSING
2	2	60-0171	BAG CLAMP ARM
3	1	60-0176	START SWITCH BRACKET
4	1	50-1017	LIMIT SWITCH NEMA 4,13 SINGLE POLE
5	1	50-7424	SWITCH LEVER 8 1/2" LONG FOR 802T
6	4	50-7011	BEARING 3/8" BORE 1 1/8" OD
7	1		3/8"-16 X 1 1/2" HEX HEAD
8	4		3/8"-16 HEX NUT
9	4		3/8"-16 NYLON LOCK NUT
10	2		1/4" LOCK WASHER
11	2		1/4"-20 X 1/2" HEX HEAD
12	2		10 FLAT WASHER
13	2		10 LOCK WASHER
14	2		10-32 HEX NUT
15	1	60-1061	REAR DEFLECTOR
16	1	60-0185	BAG CLAMP PAD W/ SLOT
17	1	60-0739	BAG CLAMP PAD W/O SLOT
18	8		10-32 NYLON LOCK NUT
19	2		1/4"-20 X 1/4" ALLEN BUTTON HEAD
20	2		1/4" FLAT WASHER SS
21	1		10-32 X 1 1/2" SLOT HEAD
22	1		10-32 X 3/4" SLOT HEAD
23	3		3/8-16 x 1 1/2 HEX HEAD
24	2		1/4-28 X 1 HEX HEAD
25	1	60-0187	SHIPPING BRKT



NUMBERS MAY REFERANCE 60 or 65 TAYLOR STOCK PARTS
w/SOME EXCEPTIONS
60 NUMBERS REFERANCE STEEL PARTS
65 NUMBERS REFERANCE STAINLESS STEEL PARTS

Machine Type: TE100
Dwg Name: ISO-4.dwg
Dwg View: Scale Cabinet - Exploded View

ITEM	QTY	PART NUMBER	TE-100 ISO-4 BILL OF MATERIALS DESCRIPTION
1	1	60-0145	MAIN CABINET
2	1	60-0470	VALVE MOUNT ASSEMBLY
3	1	60-0186	MAIN CABINET RUBBER SKIRT
4	1	60-0189	RUBBER MOUNTING STRAP
5	1	60-0174	DRIBBLE GATE
6	1	60-0175	DRIBBLE GATE CYLINDER MTG BRKT
7	2	60-0188	DRIBBLE GATE MOUNTING RAILS
8	1	60-0430	BACK COVER
9	1	60-0197	S/S CUTOFF STRAP
10	2		#8-32 NYLON LOCK NUT
12	4		#10-32 X 2 1/2" CAP SOCKET HEAD SCREW
13	4		#10 LOCK WASHER
14	4		#10-32 HEX NUT
15	2		1/4"-20 X 3/4" HEX HEAD BOLT
16	4		1/4" LOCK WASHER
17	2		1/4"-20 HEX NUT
18	2		1/4"-20 X 3/4" HEX HEAD BOLT
19	2		1/4" FLAT WASHER
20	2		STRAIN RELIEF 1/2" NPT X 25-.375
21	2		1 1/4" NPT X 1/2" NPT BUSHING
22	1	50-1712	FILTER / REGULATOR
23	1	50-0322	0-200 PSI GAUGE 1/8" NPT
24	1		3/8" NPT GALVANIZED PLUG
25	2		3/8" NPT X 90 STREET ELL
26	1		3/8" NPT X 1/4" NPT REDUCER BUSHING
27	1		1/4" NPT X 2 1/2" NIPPLE
28	1	50-1713	1/4" NPT OILER
29	3	53-1904	MAC SOLENOID VALVE
30	2		5/16" FLAT WASHER
31	6		5/16" LOCK WASHER
32	2		5/16" - 18 HEX NUT
33	1	50-1164	CYLINDER 1.0625 BORE X 2.5 STROKE
34	4		MALE CONNECTOR 1/4" TUBE X 1/4" NPT
35	2		MALE CONNECTOR TEE 1/4" TUBE X 1/4" NPT
36	1		1/4" NPT CLOSE NIPPLE
37	4		5/16'-18 X 3/4' HEX HEAD
38	1		1/4"-20 X 1 1/4" HEX HEAD SS
39	1	50-1164	1/4"-20 NYLOCK HEX NUT
40	1		1/4"-20 X 1 1/2" HEX HEAD
41	1		5/16"-24 JAM NUT
42	3	53-0291	FLOW CONTROL VALVE

ITEM	QTY	PART NUMBER	TE-100 ISO-4 BILL OF MATERIALS
43	1	50-7176	CLEVIS 5/16-24
44	1	60-0187	SHIPPING BRACKET (NOT SHOWN)
45	2		1/4 HOSE X 1/8 NPT CONNECTOR ELL

Appendix D
Electrical Drawings

Table D-4. TE100 Electrical Drawings

	Drawing Title	Part Number
1	ECT146 Assembly Dwg	53-0968
2	TE-1002a	TE-1002a.dwg
3	TE-100dr2	TE-100dr2.dwg
4		
5		
6		
7		
8		
9		
10		

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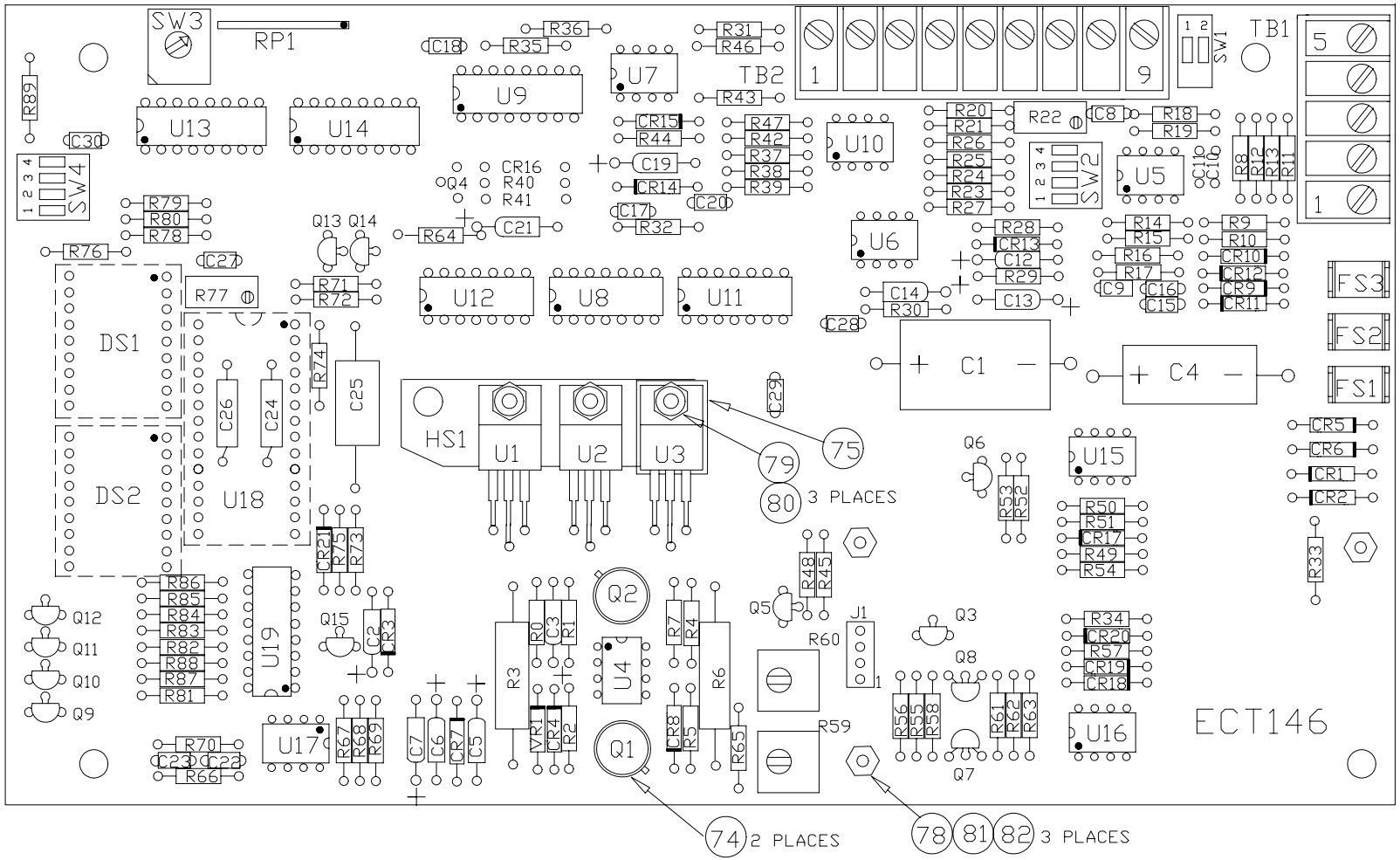
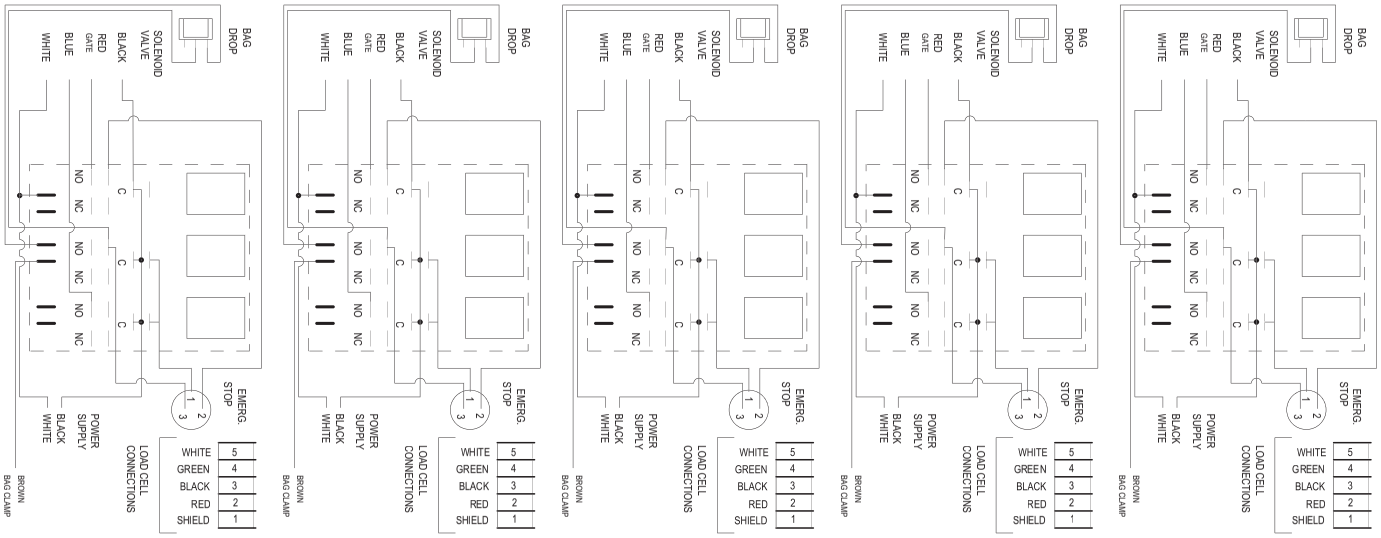
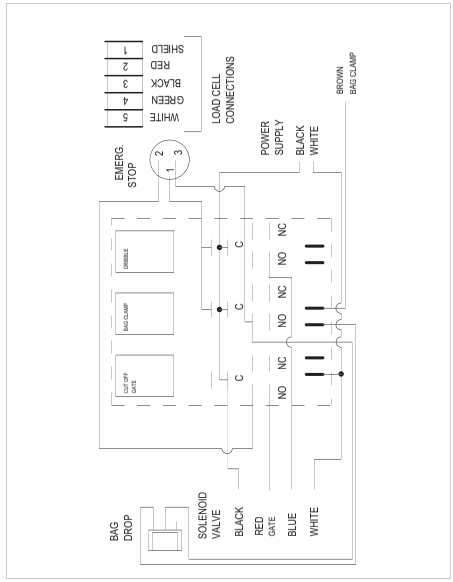
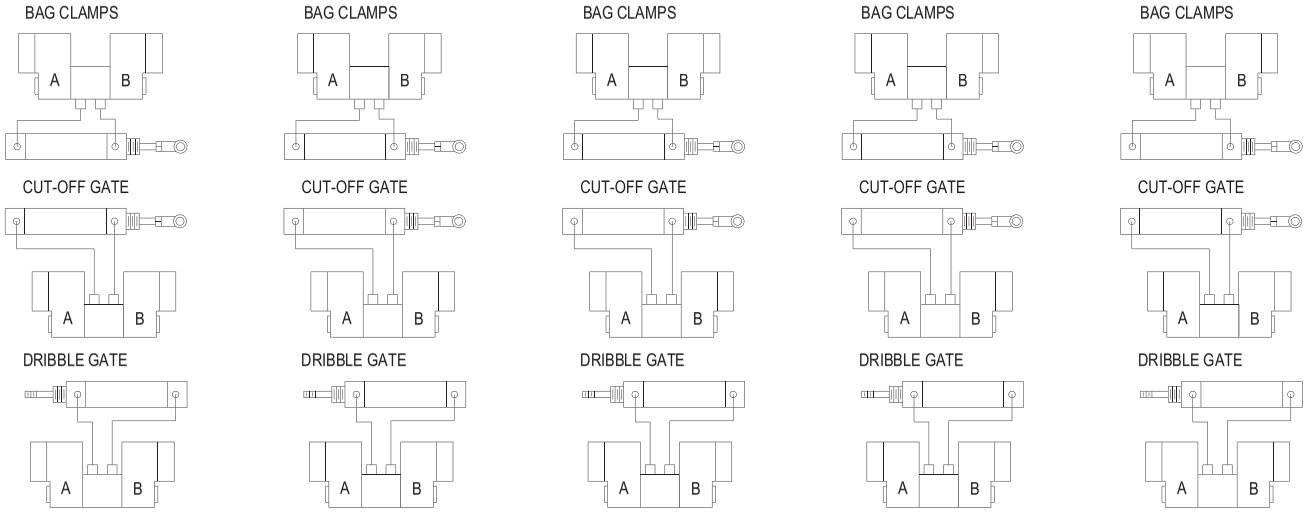


NOTES: 1. Q3,6,7,8-Bend to clear piggy back board
2. DS1,DS2,U18 are mounted on the bottom side.
U18 is mounted on 28 pin socket item#76.

Machine Type: TE100
Dwg Name: ECT146ASY.dwg
Dwg View: Controller Circuit Board

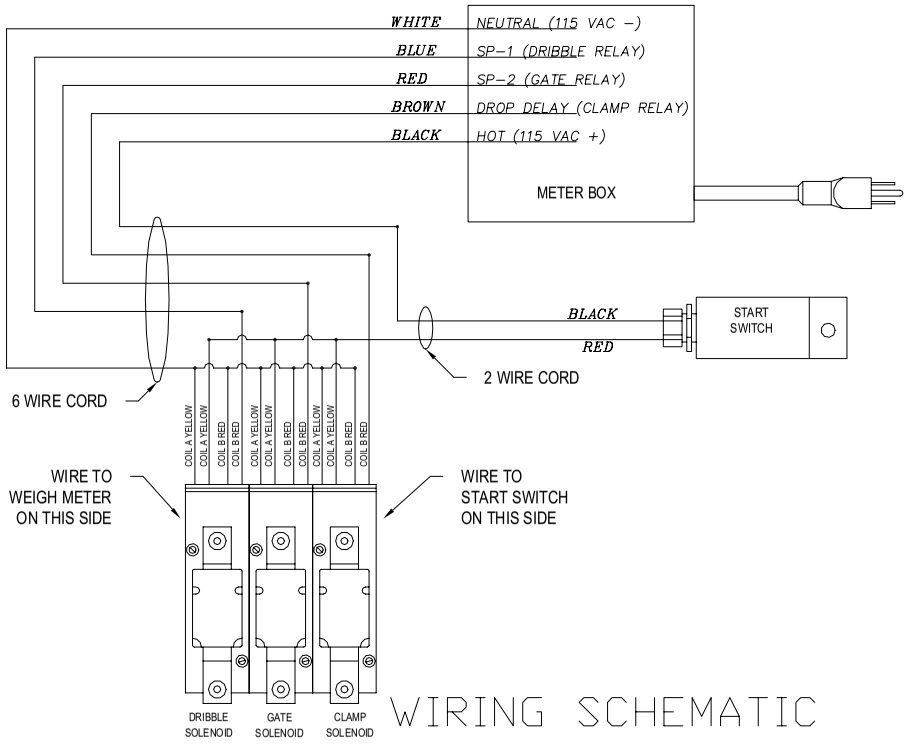




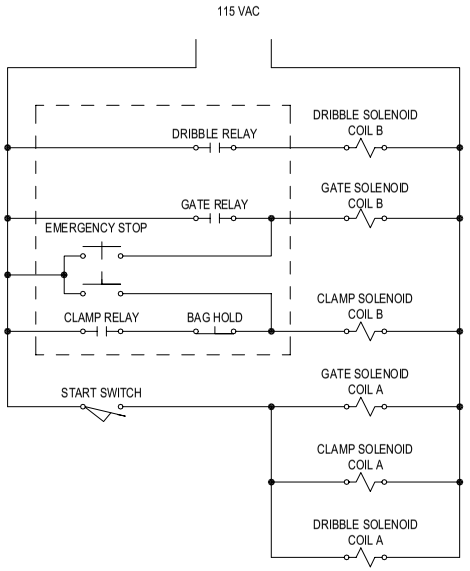


Machine Type: TE100
Dwg Name: Te-1002a.dwg
Dwg View: Solenoid Valve and Load Cell Connections

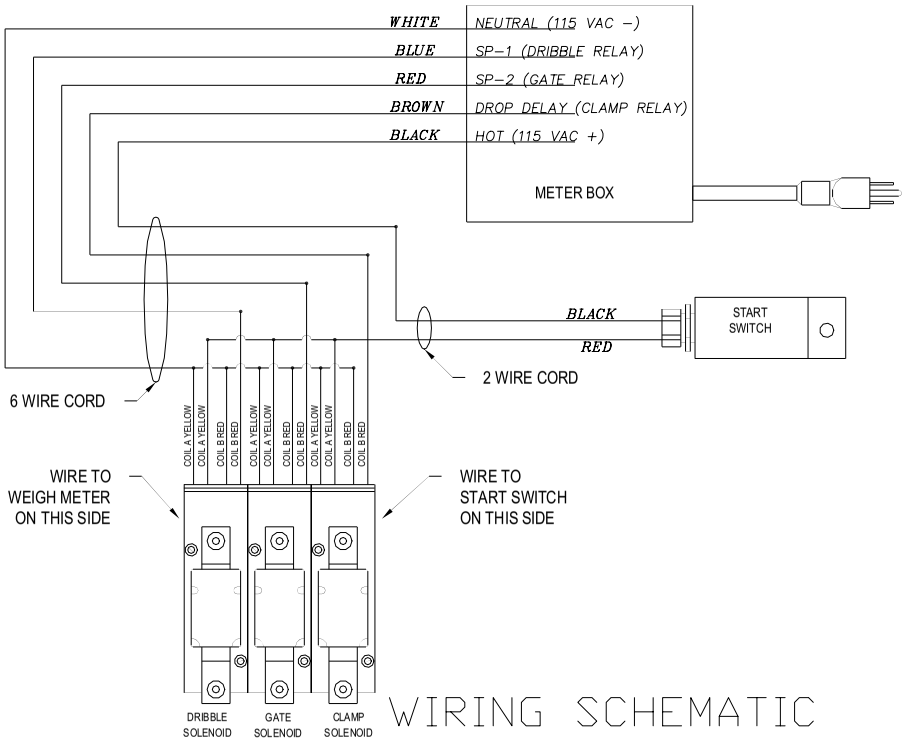
WIRING DIAGRAM



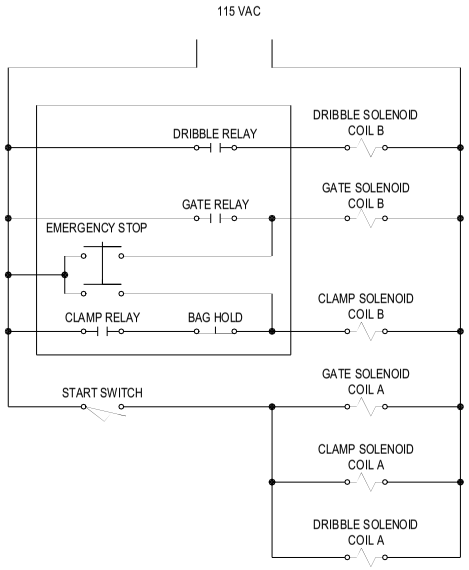
WIRING SCHEMATIC



WIRING DIAGRAM



WIRING SCHEMATIC



Machine Type: TE100
Dwg Name: Te100dr2.dwg
Dwg View: TE100 Electrical Schematics

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