

Small Vibratory Bagging Scale

Model TE10C



Operation and Maintenance Manual



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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 TE10C 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

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

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TE10C Small Electronic Packer

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Chapter 1

Product Description

1.1 General Description

This chapter will provide a high-level product description of the TE10C Electronic Small Packer.

1.2 Introduction

The Magnum Systems Model TE10C is an electronic small packer. The product feed system is fully adjustable. The TE10C has been designed with a timed discharge to eliminate spillage, as well as controls for single operator convenience.

The TE10C comes in a standard configuration, but also has many optional features that are available. The TE10C units come standard equipped with a small vibrator pan feeder. The TE10C can also be ordered with either a mini, or a jumbo vibrator pan feeder, or even a 2-speed belt feeder. However, those models will be covered in separate manuals. Depending on how the TE10C is equipped, the TE10C can handle weighments from 2 oz. to 10 lbs. (57 grams to 4.54 kilograms).

The TE10C comes standard with a PV300 control panel, but is available with an optional T3000 control panel.

1.3 Manual Scope

This manual will provide information on installation, operation, preventive maintenance, troubleshooting, and repair of the TE10C, equipped with a small vibrator pan feeder.

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

1.4 Electrical Requirements

The TE10C is designed to operate on 115 VAC at 50 or 60 Hz.

1.5 Pneumatic Requirements

The TE10C uses approximately 2-3 CFM (57-85 liters) @ 80-100 PSI (.55-.69 MPa) of compressed air. Magnum Systems 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 TE10C, it is important to understand the major systems and components of the unit. The breakdown is as follows:

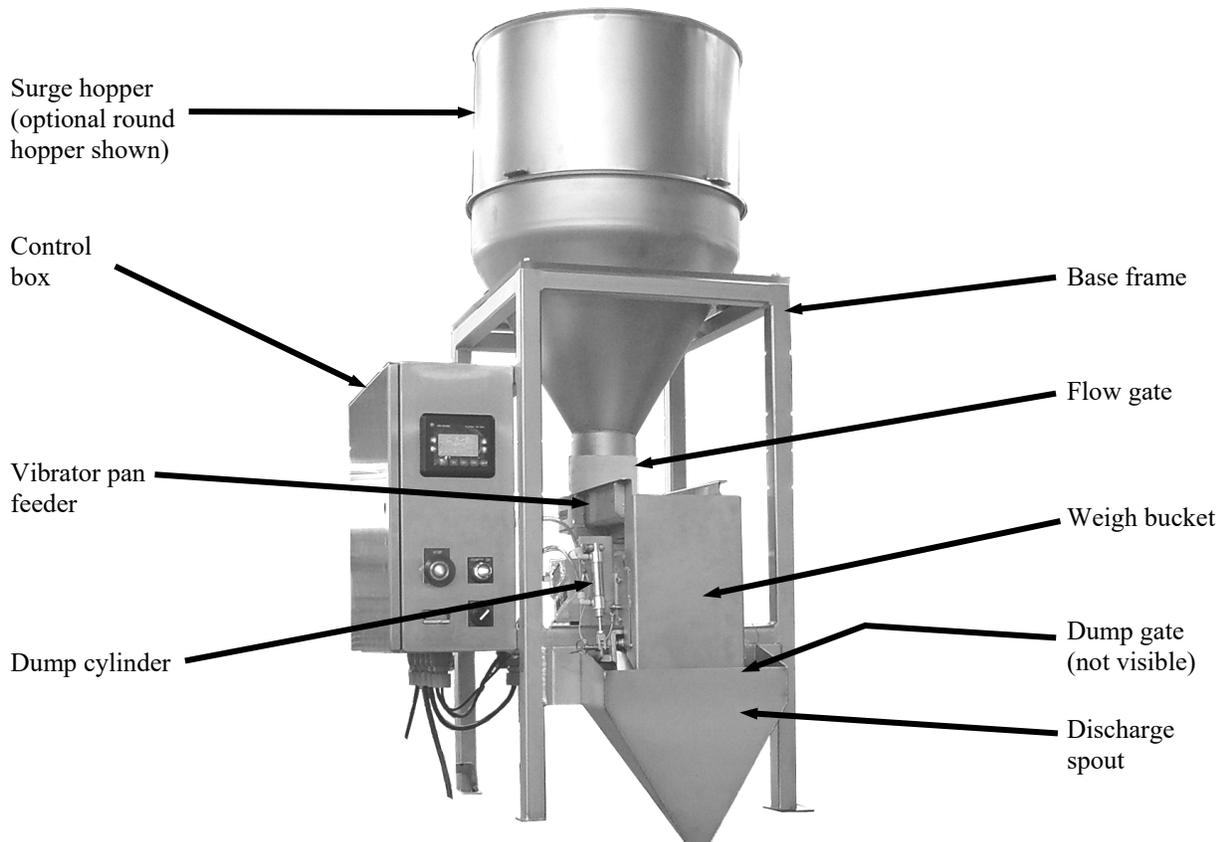


Figure 1-1. Major Components (Front View)

1.6.1 Base Frame

The base frame is the backbone of the TE10C. It provides a support structure for the all of the other components that make up the TE10C.

1.6.2 Surge Hopper

The surge hopper is mounted at the top of the TE10C. It is used as a reservoir for the material that is to be packaged using the TE10C. The surge hopper is loaded from the top using a surge hopper feeder. The material flows out of the bottom of the hopper to the vibrator pan feeder.

The TE10C comes standard with a square surge hopper that has a capacity of 2.0 cubic feet. An optional surge hopper is available that has a capacity of 7.0 cubic feet.

1.6.3 Flow Gate

The flow gate is mounted at the bottom of the hopper on the front side. The flow gate allows the operator to adjust the amount of material that is allowed to flow out of the hopper. Raising the flow gate will increase the flow of material, while lowering the flow gate will restrict the flow of the material.

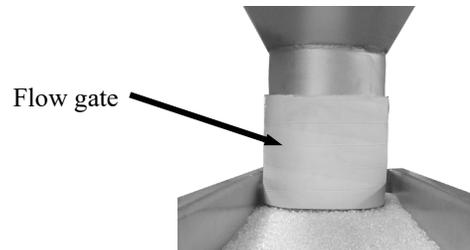


Figure 1-2. Flow Gate

1.6.4 Vibrator Pan Feeder

The vibrator pan feeder uses vibration to move the material from the surge hopper to the weigh bucket. The speed/frequency of the vibrator pan feeder is controlled by the PLC and the vibrator control module. The TE10C comes standard with a small vibrator pan feeder.



Figure 1-3. Vibrator Pan Feeder

1.6.5 Weigh Bucket

As the material flows off of the end of the vibrator pan feeder, it falls into the weigh bucket. The weigh bucket mounts to the weigh bucket support bracket that is bolted to the top of the load cell.



CAUTION

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

The weigh bucket has a dump gate at the bottom. Once the desired amount of product has been loaded into the weigh bucket, the vibrator feeder will stop. The operator will empty the weigh bucket using the weigh bucket dump switch. The TE10C comes standard with a hand operated dump switch, but can be equipped with the optional foot operated dump switch.

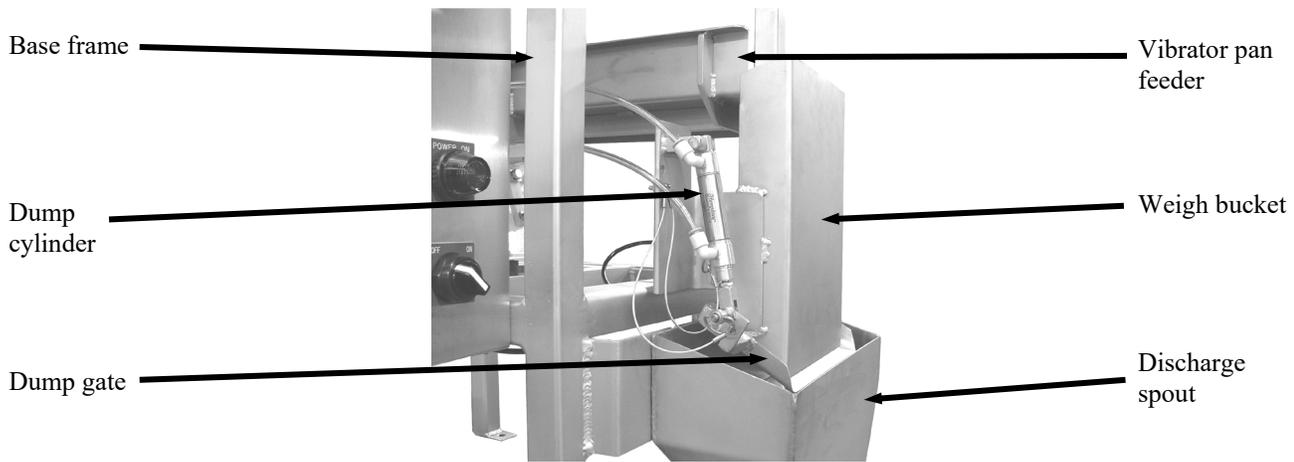


Figure 1-4. Weigh Bucket

1.6.6 Load Cell

The load cell is used to sense the weight of the material in the weigh bucket. As material is loaded into the weigh bucket, the load cell increases it's voltage output to the main meter control box.

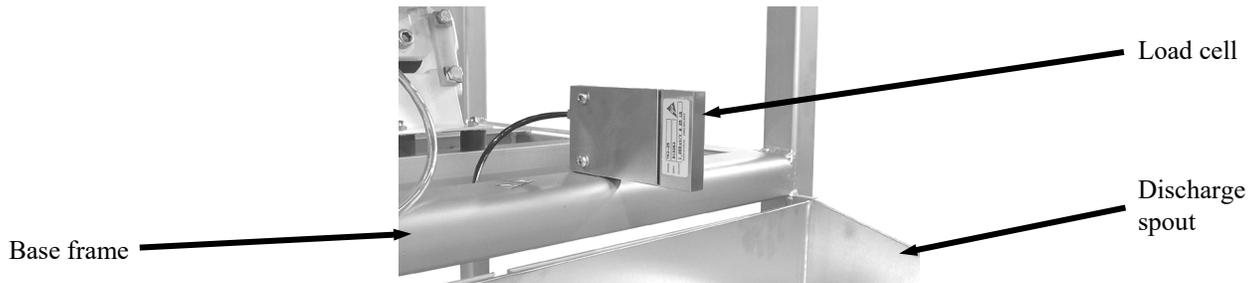


Figure 1-5. Load Cell



CAUTION

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

1.6.7 Discharge Spout

When the weigh bucket dumps the material, the discharge spout is used to control the materials as they fall into the packaging container. The discharge spout is used to eliminate spillage.

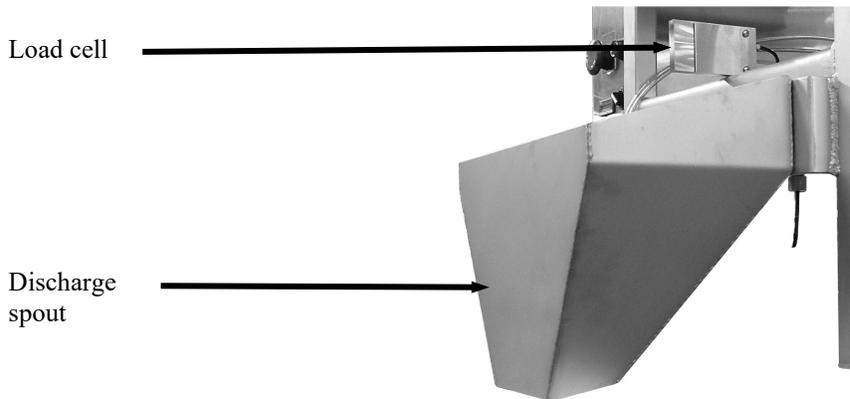


Figure 1-6. Discharge Spout (Weigh Bucket Removed)

1.6.8 Control Box

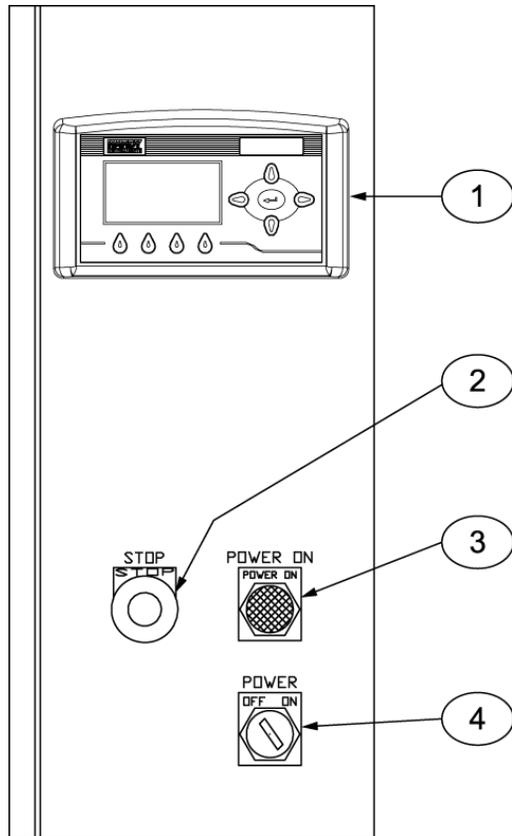
The TE10C can be equipped with two types of control systems. The standard control system utilizes an Magnum Systems/Hardy Instruments T4000 control panel. An optional control system utilizes a Magnum Systems/Hardy Instruments T3000 control panel. Both systems utilize a control box that will be mounted on the TE10C. This control box contains the control components that allow the TE10C to function. The control panels function as the interface between the operator and the programmable logic controller (PLC) that is located inside the control box.

1.6.8.1 Standard T4000 Operator Control Box

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

- T4000 control panel
- POWER ON indicator
- POWER switch
- STOP button/indicator

General Description



Item #	Description	Item #	Description
1	T4000 control panel	3	POWER ON indicator
2	STOP button/indicator	4	POWER switch

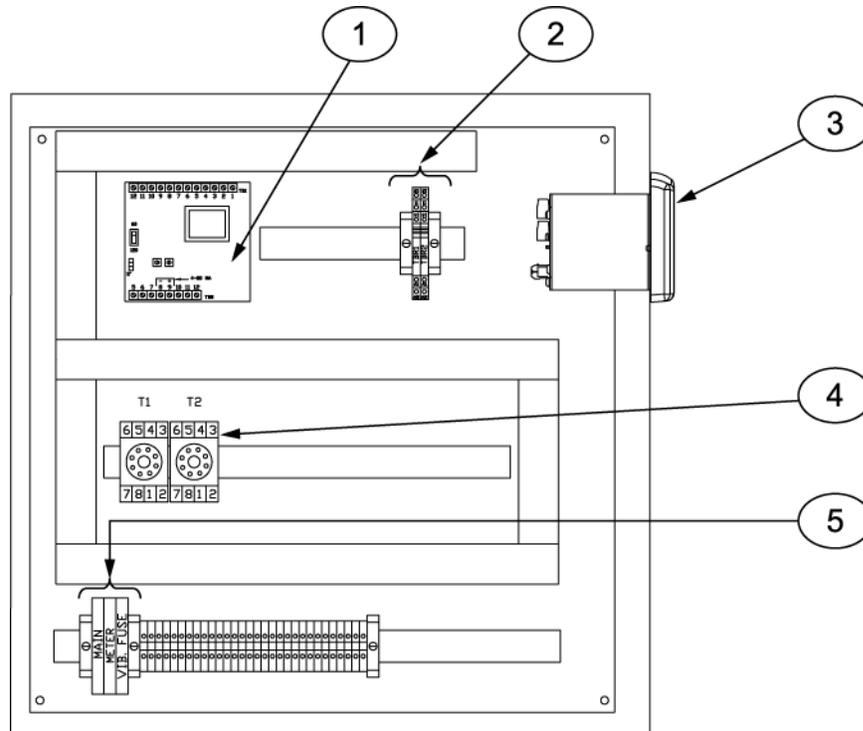
Figure 1-7. Control Box With T4000 Control Panel

The POWER switch is located on the lower right corner of the control box and has two positions, OFF and ON, and is used to turn the machine on and off. Located directly above the POWER switch is the POWER ON indicator. When the POWER switch is turned to the ON position, if the machine is connected to its power source, this indicator will illuminate green. Located directly to the left of the POWER ON indicator is the STOP button/indicator. The STOP button/indicator will immediately stop the machine when it is pushed in. When pushed, this button will illuminate red to indicate that the button is pushed and that machine function is interrupted. The T4000 is centered on the face at the top of the box. This control panel is used to make operational adjustments to the machine.

1.6.8.2 Standard Electronic Control Components

Inside the control box are the components that actually perform the control functions for the machine. In addition to the T4000, the control box also contains the following electrical components:

- Syntron vibrator control
- Terminal relay
- Relay/timer base
- Fuse holders



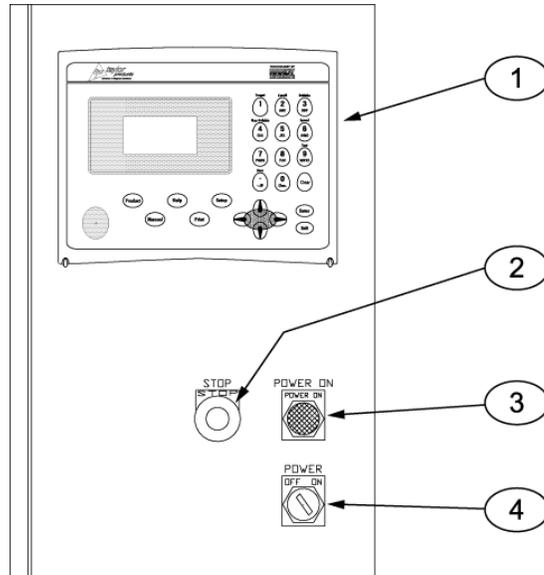
Item #	Description	Item #	Description
1	Syntron vibrator control module	4	Relay/timer base
2	Terminal relay	5	AC fuse holders
3	T4000 control panel		

Figure 1-8. Control Box With T4000 Control Panel, Electronic Control Components

1.6.8.3 Optional T3000 Operator Control Box

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

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



Item #	Description	Item #	Description
1	T3000 control panel	3	POWER ON indicator
2	STOP button/indicator	4	POWER switch

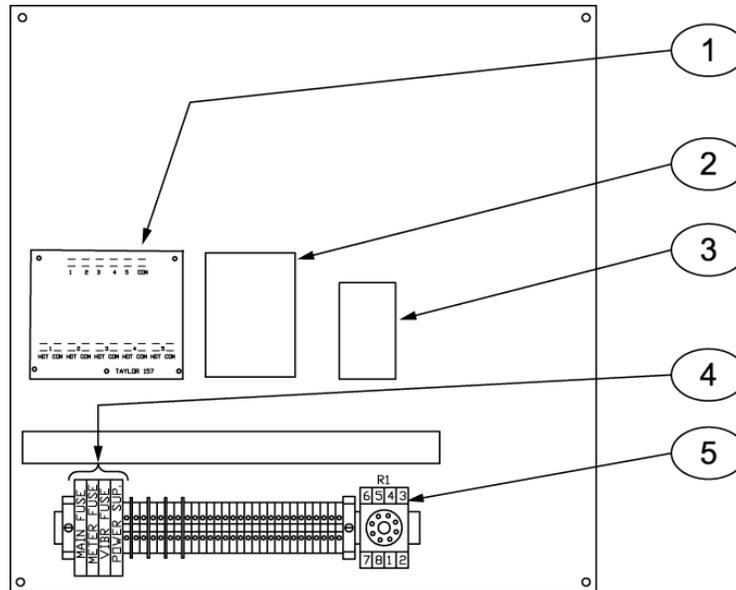
Figure 1-9. Control Box With Optional T3000 Control Panel

The POWER switch is located on the lower right corner of the control box and has two positions, OFF and ON, and is used to turn the machine on and off. Located directly above the POWER switch is the POWER ON indicator. When the POWER switch is turned to the ON position, if the machine is connected to its power source, this indicator will illuminate green. Located directly to the left of the POWER ON indicator is the STOP button/indicator. The STOP button/indicator will immediately stop the machine when it is pushed in. When pushed, this button will illuminate red to indicate that the button is pushed and that machine function is interrupted. The T3000 is centered on the face at the top of the box. This control panel is used to make operational adjustments to the machine.

1.6.8.3 Optional Electronic Control Components

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

- T3000 interface board
- Feeder driver board
- DC power supply
- Relay bases
- Fuse holders



Item #	Description	Item #	Description
1	T3000 interface board	4	Fuse holder and fuses
2	Feeder driver board	5	Relay base
3	DC power supply		

Figure 1-10. Electronic Control Components – Inside the Optional T3000 Control Box

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Chapter 2

Receiving Equipment

2.1 General Description

The TE10C 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 TE10C is a table mount unit. Clear an area 6' x 6'. Make sure floor is level. It is recommended that you locate the TE10C directly under the supply hopper. Complete any nearby construction before installing the TE10C.
2. Before removing TE10C from the shipping pallet, inspect TE10C for visible damage. Inspect for damaged or missing parts. If there is damage, notify the shipper immediately. If the unit is not damaged, proceed to the next step.
3. Remove the shell crate. Use care when unpacking the TE10C to avoid damage to any hinged parts and external control knobs.



Figure 2-1. Shell Crate

4. Carefully cut the plastic shrink-wrap that is wrapped around the TE10C away and remove it.

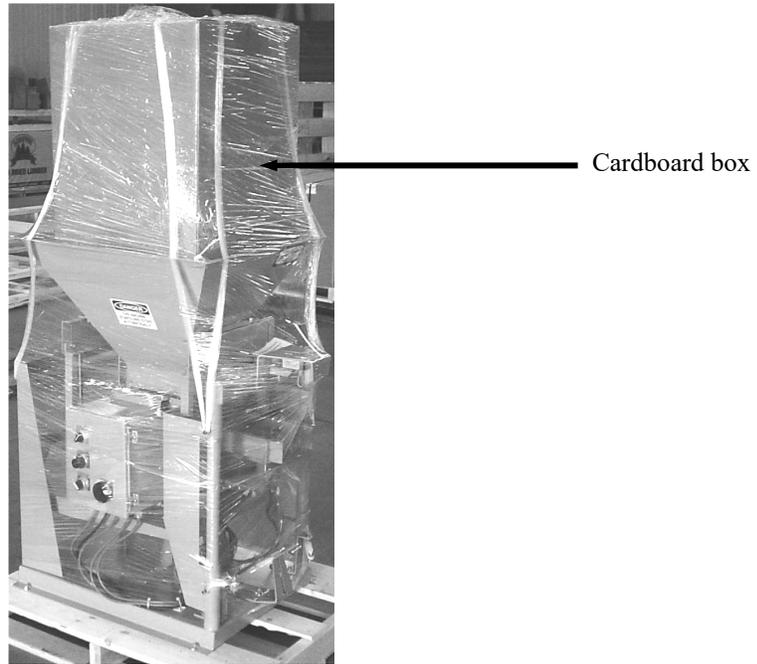


Figure 2-2. Shrink-Wrap and Cardboard Box

5. Cut the straps and remove the cardboard box that is sitting in the surge hopper.
6. Remove lag bolts from mainframe at pallet.

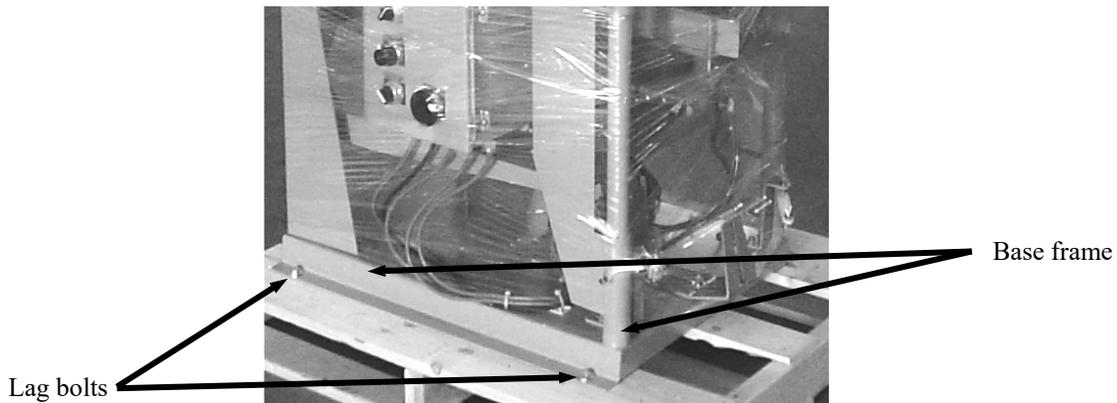


Figure 2-3. Lag Bolts

7. Grasp unit by the base frame to handle.
8. Remove all crating and discard.
9. Place the TE10C in the location where it is to be installed and verify that the TE10C is level.
10. Open the cardboard box and remove the discharge spout and weigh bucket.

Chapter 3

Setup/Installation

3.1 General Description

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

**WARNING**

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

**WARNING**

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

3.2 Assembling the TE10C

Follow the steps below to install the weigh bucket assembly on the load cell.

1. Remove the two bolts from the top of the load cell.

Important: When removing the bolts from the top of the load cell, be careful not to lose the thin metal spacer that is on top of the load cell. This spacer is necessary for the load cell to function properly.

2. Position the weigh bucket support bracket to the top of the load cell and metal spacer and install the two mounting bolts.



Figure 3-1. Weigh Bucket Support Bracket Mount

Setup/Installation

3. Carefully hang the weigh bucket assembly on the weigh bucket support bracket. This is done by:
 - A. Line the weigh bucket mounting tabs up with the weigh bucket support bracket mounting bolts.
 - B. Slide the weigh bucket in so that the slots in the mounting tabs are positioned above the bolts on the weigh bucket support bracket.
 - C. Lower the weigh bucket so that the bolts in the weigh bucket support bracket are now supporting the weigh bucket. Install the retaining pins. There is one pin per side.

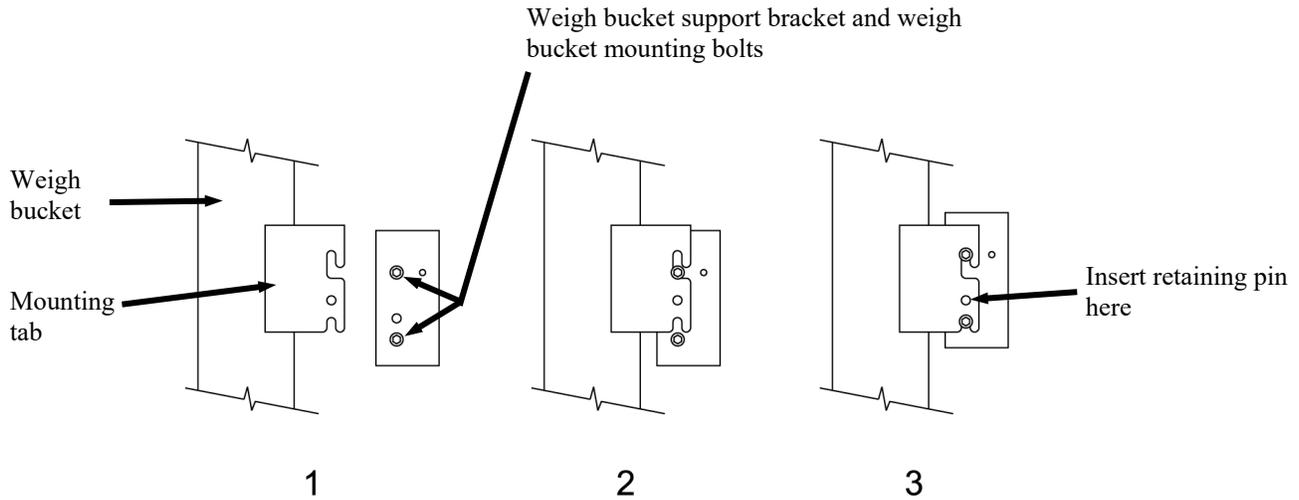


Figure 3-2. Hanging the Weight Bucket



CAUTION

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

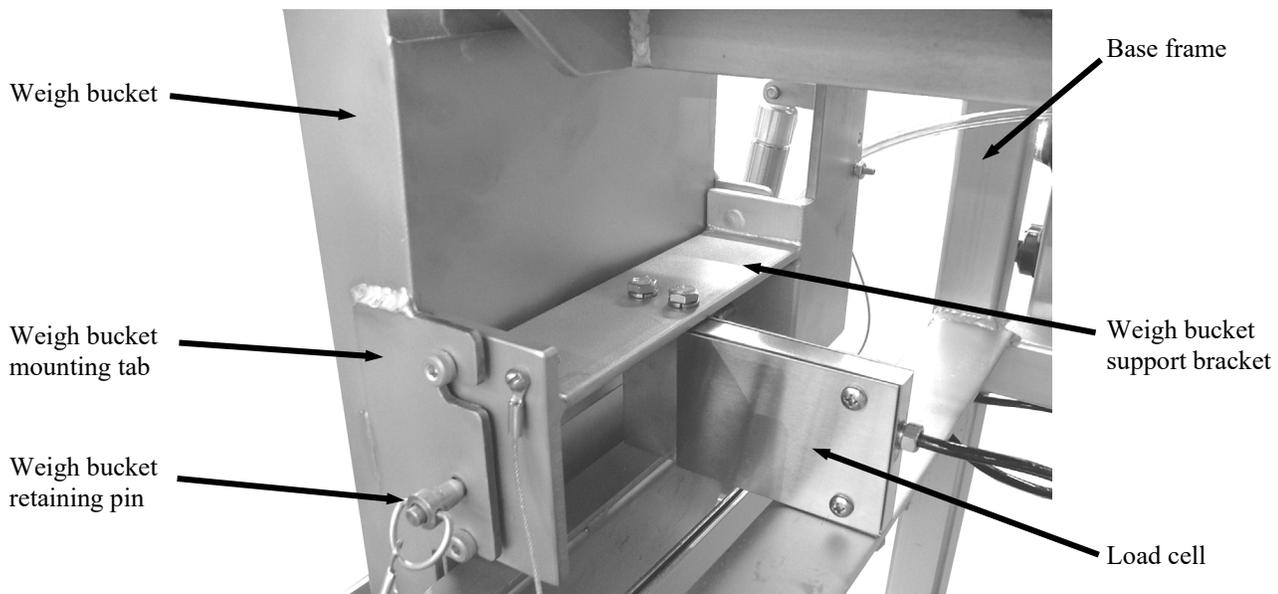


Figure 3-3. Hanging the Weigh Bucket Assembly From the Load Cell

Important: When installing the weigh bucket, the lip of the pan feeder must be inside of the weigh bucket.

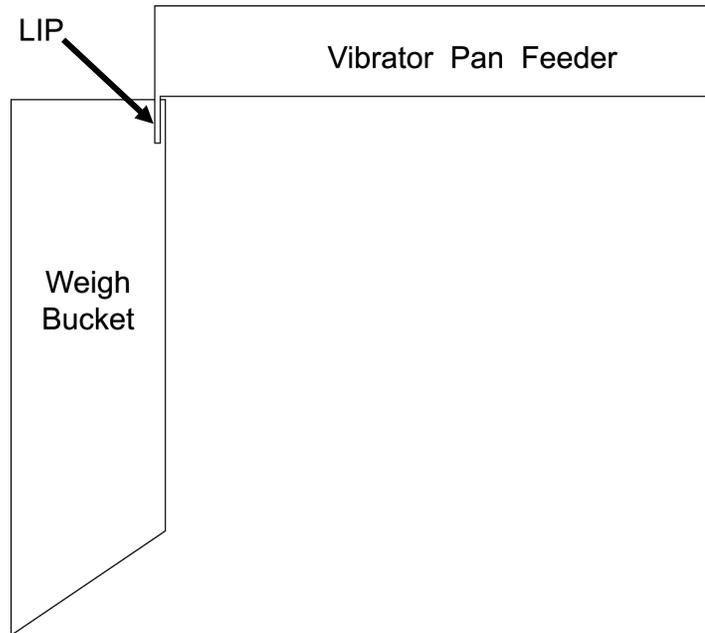


Figure 3-4. Positioning the Pan Feeder Lip Inside the Weigh Bucket

4. Hang the discharge spout. The discharge spout is equipped with two mounting tabs. The two mounting tabs fit into the two slots on the mounting bracket that is welded to the base frame.



Figure 3-5. Discharge Spout Mounting Bracket

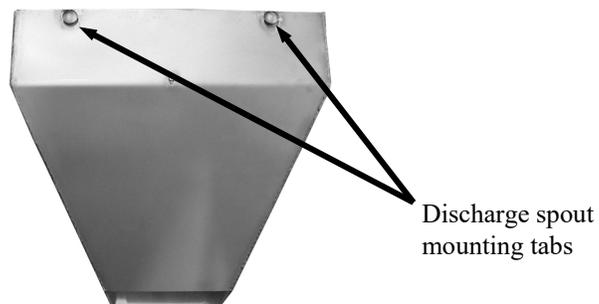


Figure 3-6. Discharge Spout Mounting Point

3.3 Making Electrical Connections

Before connecting the TE10C 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 TE10C comes equipped to operate on power ranging from 115 VAC to 240 VAC at 50 or 60 Hz. The TE10C unit should be placed within 6 feet of the electrical outlet that it will be connected to.

3.4 Making Pneumatic Connections

The TE10C requires a compressed air supply line that is capable of delivering approximately 2-3 CFM (57-85 liters) @ 80-100 PSI (.55-.69 MPa) of compressed air. Magnum Systems 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.

3.5 Making Network Connections (T3000 Only)

TE10C units that are equipped with the optional T3000 control set have the ability for total monitoring and instrument control via the built in communication connectivity of the T3000. The T3000 has the following network capabilities:

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

3.6 Establishing Security Settings

On TE10C machines that are equipped with either the T4000 control panel or the optional T3000 control panel, the manager has the ability to control who does and who does not have the ability to change system and calibration settings.

3.6.1 Establishing T4000A Security Settings

The Security parameters allow management to place security on the instrument and any menu or sub-menu requiring a password before enabling any changes. The Change Security parameter enables all persons to see the security status for a given menu, and selected persons to change that security status for any menu.

1. From the Configuration menu press the down arrow until the cursor is in front of Security.

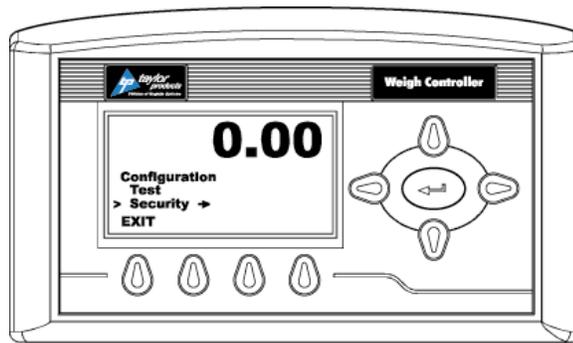


Figure 3-7. Placing The Cursor In Front Of Security

2. Press the enter button. The Security menu appears.
3. Set the Password Parameter. The Set Password parameter enables the operator to create a password for entry to secure menus and sub-menus. If the password is 0 there is no security. If the password is anything other than 0 the security is enabled.

Note: It is recommended that the passwords be created before setting security on the various menus.

4. Press the down arrow button until the cursor is in front of Set Password.

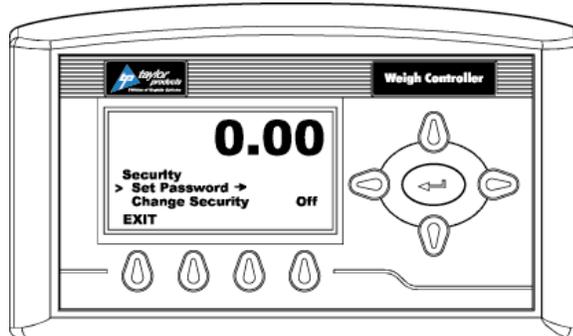


Figure 3-8. Placing The Cursor In Front Of Set Password

5. If the password is being set for the first time or if the factory defaults have been reset in the Test menu, enter the default password “2205”. If the password is being reset, and the existing password is known, enter that number. Press the enter button. The Verify Password display appears.

Setup/Installation

6. Press the enter button. If the password is correct a brief message “Entry Accepted” appears and the Set Password display with the current password appears.

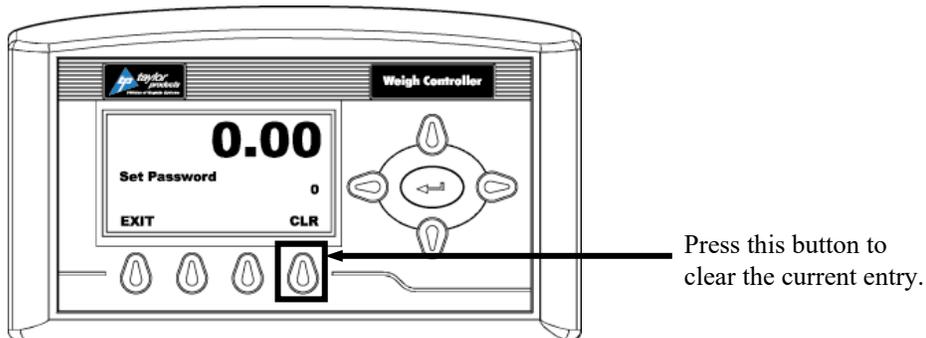


Figure 3-9. Set Password Menu

7. Press the function button located directly below the CLR item on the display to clear the entry. Use the left or right arrow buttons to move the cursor left and right. Use the up or down arrow buttons to enter the password number. To delete a single entry, press the left arrow button. In the example below, “123” was entered.

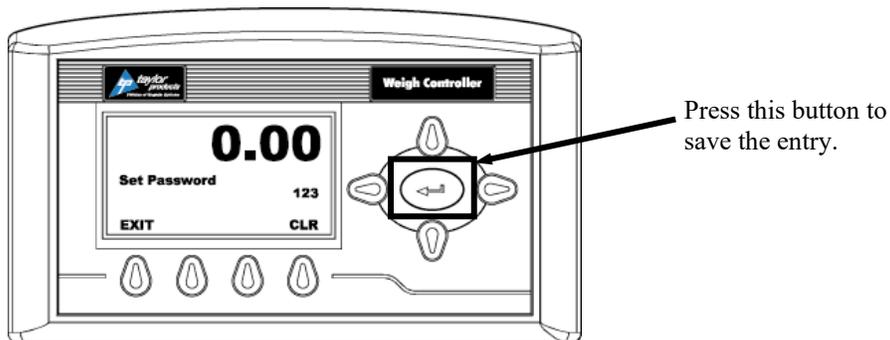


Figure 3-10. Password Set To 123

8. Press the right or left arrow buttons to toggle Change Security On. The Verify Password display appears.

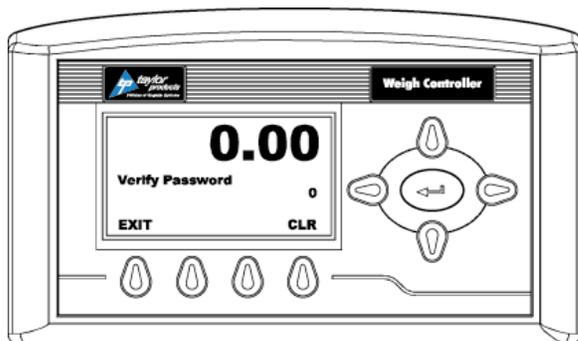


Figure 3-11. Verify Password

9. Use the left or right arrow buttons to move the cursor left and right. Use the up or down arrow buttons to enter the password number.

Important: When entering the password, the last digit is entered first, then the next digit to the left and so on. For example, if the password is set to 123, then 3 is entered first, then the 2, and the 1 is entered last.

10. Press the enter button. The Change Security status changes to On. In this instance we turned Change Security ON because we want to change the security of a sub-menu.
11. Now that the Change Security On feature has been turned on, press the function key below the word EXIT on the display to return to the Configuration menu.
12. Use the up or down arrow buttons to go to the desired sub-menu to be secured. In the example below, the Decimal Point sub-menu has been selected. Notice that the display now includes a SECUR menu item above the function keys.

Note: Steps 8-12 will need to be repeated to lock and unlock a parameter.

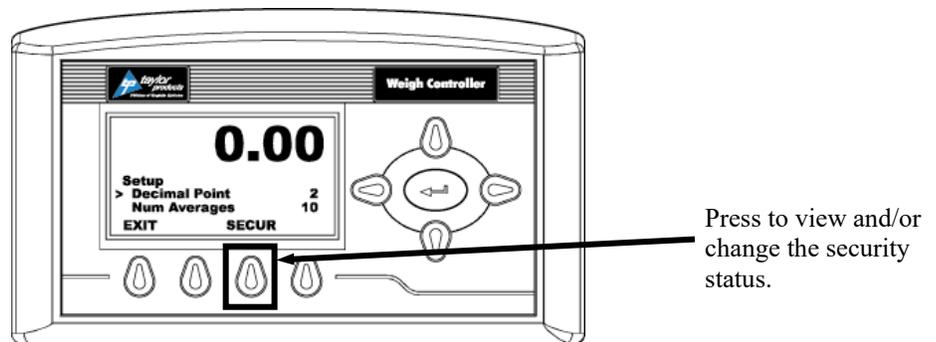


Figure 3-12. SECUR Menu Item Shown Above Function Key

13. Press the function key that is positioned below the SECUR item on the display, to view and/or change the security status of this parameter.
14. Press the right arrow button to changed to LOCKED thereby securing this sub-menu.

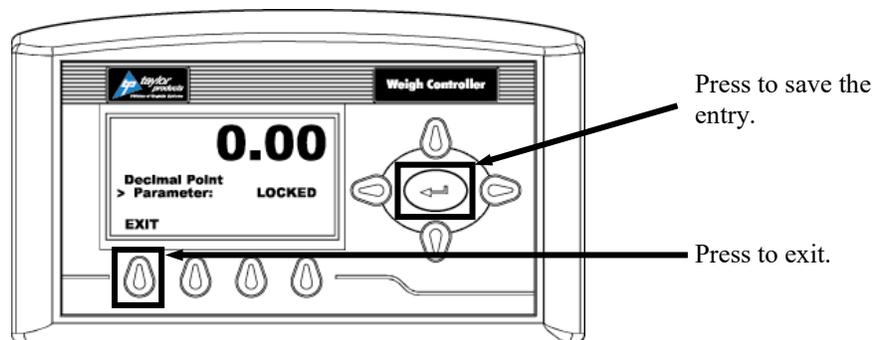


Figure 3-13. Parameter Shown Locked

15. Press the enter button to save the entry.
16. Press the function button below EXIT on the screen until the summary display is shown.

Note: To check to see if the security is set on a specific sub-menu, press the EXIT button until the summary display appears. Then re-enter the menus and try to change the secure parameters.

Setup/Installation

17. Until security has been changed, changing this parameter will require a password (other than 0) to be entered.
18. To turn the Change Security OFF, go back to the Security menu and repeat steps 1-6.

3.6.2 Establishing T3000 Security Settings

The T3000 software application provides the security capability so the manager can set the security levels for each Top-Level menu. Each Top-Level menu is set to Low as the default, but their level of security can be adjusted. These menus are:

- Product Select
- Adjust/Setup
- Calibration
- Options
- I/O Mapping

There are additional menu choices that can have their security levels changed. The menus are:

- Controls
- Local Alarm Clear
- Test

There are three menus that are reserved for supervisors, engineers, or service personnel. The three menus have their security level set to HI and the level cannot be changed. These menus are:

- Security Menu
- Application Type Menu
- Factory Default Menu

After the controller has been configured or calibrated, Magnum Systems recommends that the menus be secured by setting their security level to Medium or High. This will considerably reduce the possibility of problems that might arise from unauthorized personnel changing critical control parameters. Changing these parameters may result in catastrophic system failure or in operational instability.

- Low – No password required.
- Medium – A password is required to access some, but not all of the top level menus. The factory-preset password for this level of security is 7878.
- High – A password is required to access all top-level menus. The factory-preset password for this level of security is 1232.
- If a menu has a Non-Low Security Level, when a user attempts to change a parameter, when the user presses the Enter key to save the setting, the system will display the message “!Security Violation!”. The user must go back and enter their user ID and password. If the user enters an invalid password or no password the user is given read access only to all sub-menus.

**CAUTION**

Only personnel that have been properly trained should access the Medium and High-level security menus. Inadvertently changing a parameter can result in the machine shutting down or cause it not to function properly. These are factory default passwords. Magnum Systems recommends that they should not be changed.

The manager controls access by only providing the high-level password to personnel that should have access to all of the menus. The manager should only provide the medium-level password to personnel that should have access to the menus that have their security level set to medium and low. For personnel that will only have access to menus with a security level of low do not need a password. If a menu has a security setting of Medium or High, if the user does not put a password in, or puts the wrong password in, they will still be able to access the menu, but their access will be read-only.

The T3000 control panel is typically used to configure security settings. Follow the steps below to set security.

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

3.7 Calibration

Each TE10C is calibrated prior to leaving the factory. However, the unit should be reassessed before first use of the unit. It is recommended that the calibration of the unit should be checked every week. A certified test weight must be used to check the calibration of the TE10C.

3.8.1 Calibrating the T4000 Control Panel

1. Make sure the T4000 has been configured for the intended application. This includes setting the units, decimal point, scale capacity, averages, etc.
2. From the Summary display press the enter button. The Configuration menu appears.
3. Press the down arrow button until the cursor is in front of Calibration.
4. Press the enter button. The Calibration menu appears.
5. Traditional Calibration is the method of calibration that uses test weights. Magnum Systems recommends that the test weights total 80–100% of the desired package weight, and that the weight be distributed uniformly on/in the scale.
6. From the Summary display, press the enter button. The Configuration menu appears.
7. Press the down arrow button until the cursor is in front of the Calibration line.

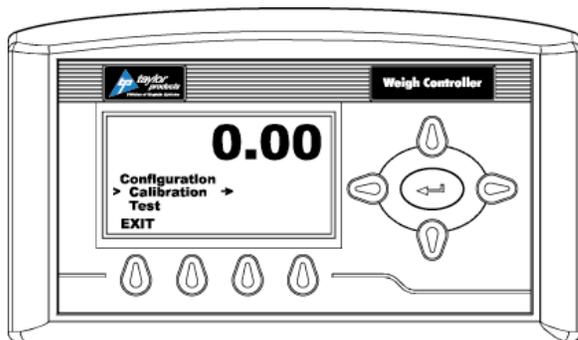


Figure 3-14. Placing the Cursor In Front Of Calibration

8. Press the enter button. The Calibration menu appears.
9. Press the down arrow button until the cursor is in front of “Trad Cal”.

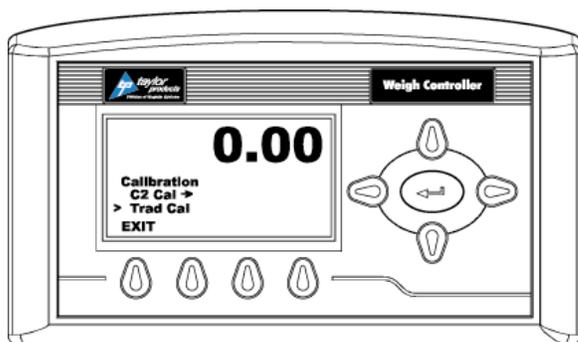


Figure 3-15. Placing The Cursor In Front Of Trad Cal

10. Press the enter button. The Trad Cal menu appears.

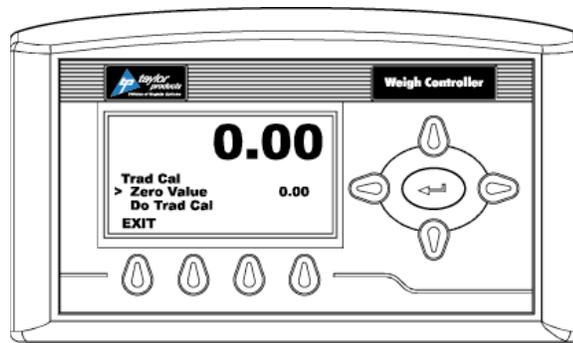


Figure 3-16. Placing The Cursor In Front Of Zero Value

11. Press the enter button. The Zero Value weight menu appears.
12. Traditional Calibration requires a zero point and the physical placement of test weights on the scale. To set the Zero Value Weight:
 - a. Remove all weight “live load” from the Scale. The Zero Value should be 0.0.



CAUTION The scale MUST be empty.

- b. Wait 12 seconds or more.
13. Use the left and right arrow buttons to position the cursor. Use the up or down arrow buttons to enter the Zero Value for this instrument.

Note: Most applications will set the Zero Value to 0.00.

14. Press the enter button to save the entry.
15. Press the down arrow button until the cursor is in front of “Do Trad Cal ” (Zero)”.
16. Press the enter button to Do the Cal Trad Cal (Zero).
 - a. A “Cal Completed OK” message appears briefly if the calibration was successful.
 - b. An Error number appears if the calibration was not successful. An Error list is provided with the troubleshooting information later in this guide. Refer to this list in order to correct the error.
17. Press the down arrow button until the cursor is in front of Span Value.
18. Press the enter button. The Span Weight menu appears. The last Span Weight is displayed.

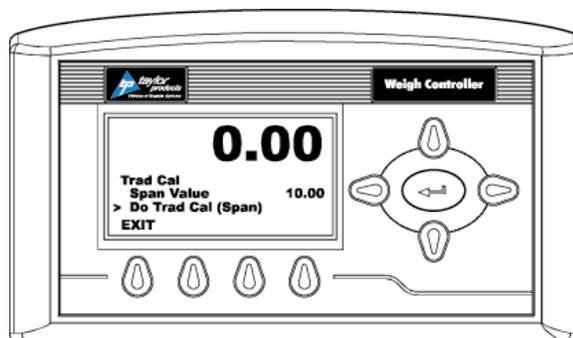


Figure 3-17. Span Value Displayed

Setup/Installation

19. To set the Span Weight:
 - a. Place a certified test weight on the scale.
 - b. Use the left and right arrows to position the cursor and the up or down arrows to enter the value of the test weight. If a 10 lb. weight is used, enter 10.00.
 - c. Press the enter button to save the entry.
20. Press the down arrow button until the cursor is in front of “Do Trad Cal (Span)”.
21. Press the enter button to Do the Trad Cal (Span).
 - a. A “Cal Completed OK” message appears briefly if the calibration was successful.
 - b. An Error number appears if the calibration was not successful. An Error list is provided with the Troubleshooting information later in this guide. Refer to this list in order to correct the error.
22. The scale is now calibrated.

3.7.2 Calibrating The Optional T3000 Control Panel

The Calibration Menu is used to calibrate the weighing system of the T3000. There is only one method of calibration that is used on the TE10C. It is the TRAD Calibration method.

Prior to calibrating the machine, make sure that the machine is ready to be calibrated. Follow the steps below:

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

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

When the operator selects CALIBRATION from the Configuration Menu, the CALIBRATION screen appears. There is one line on that screen, it is the Cal Type line. The currently selected method of calibration will appear at the far right on the Cal Type line. If C2 appears there, use the left/right arrow keys to toggle to TRAD. Once TRAD appears on the screen, press the Enter key to access the screen for that calibration method.

The TRADITIONAL CAL screen will appear. This screen will provide the following lines for the operator.

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

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

1. Turn on the meter.
2. Press the User key.
3. Enter the username.
4. Enter the password.
5. Note the security level once the password has been accepted. The user must have at least Medium-level security access to perform a calibration.
6. Press the Setup key.
7. Use the up/down arrow keys to scroll to the Calibration selection. Press the Enter key.

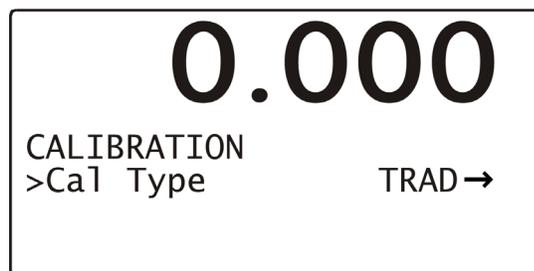


Figure 3-18. Calibration Type Screen (TRAD selected)

8. Use the left/right arrow keys to toggle to the Trad selection. Press the Enter key.
9. Check the display to make sure that the Zero value reads 0.0.
10. Use the up/down arrow keys to scroll to the Do Trad. Cal (Zero). Press the Enter key. The weight display will display !Calibration in Progress! and will then return to its calibration screen.

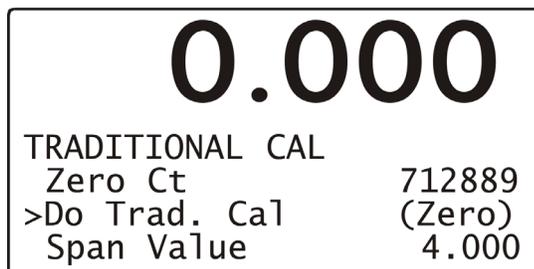


Figure 3-19. Do Trad. Cal (Zero)

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

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

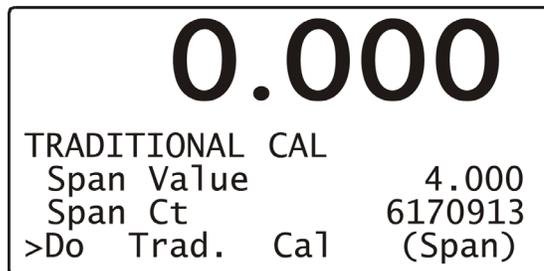


Figure 3-20. Do Trad. Cal (Span)

- Press the Exit key three times to return to the Standby Display.

3.8 Understanding Scaling

Scaling determines the full-scale maximum weight, the weighing accuracy, how many decimal places will be displayed, and how many decimal places will be blanked.

Setting the full scale setting to 32 means that there will be 32 weigh increments maximum, there will be 0 decimals, and there will be 3 decimals blanked. This is the same as 32.0, but 32.0 will show 1 decimal and there will be 2 decimals blanked. It is also the same as 32.00, but 32.00 will show 2 decimals and there will be 1 decimal blanked. It is also the same as 32.000, but 32.000 will show 3 decimals with 0 decimals blanked.

When scaling is set at 320, the display is only capable of displaying two decimal places. When set at 3200, the display is only capable of displaying one decimal place. When set at 32000, the display is not capable of displaying any decimal places.

Table 3-1. Scaling Definition Table

Display Setting	Full Scale Maximum Weighment (in lbs, oz, kg, or g)	Weighing Accuracy	# of Decimals Displayed	# of Decimals Blanked
32000	32000	1	0	0
3200	3200	.1	0	1
320	320	.01	0	2
32	32	.001	0	3
3200.0	3200	.1	1	0
320.0	320	.01	1	1
32.0	32	.001	1	2
320.00	320	.01	2	0
32.00	32	.001	2	1
32.000	32	.001	3	0

Chapter 4 Operation

4.1 General Description

This chapter will provide detailed descriptions of the operational controls of the TE10C.

4.2 General Fill Cycle Information

The TE10C is configured to use two fill speeds. This is known as a dual set point configuration. The fill speeds are named bulk rate and dribble rate. Bulk rate is a faster rate that is used to fill the package quickly, once the package achieves the Set Point 1 weight, the fill rate will slow to the dribble rate. Once the package achieves the weight set with Set Point 2, the vibrator feed pan stops. Once the product that is in free fall settles into the package, the package weight should match the target weight.

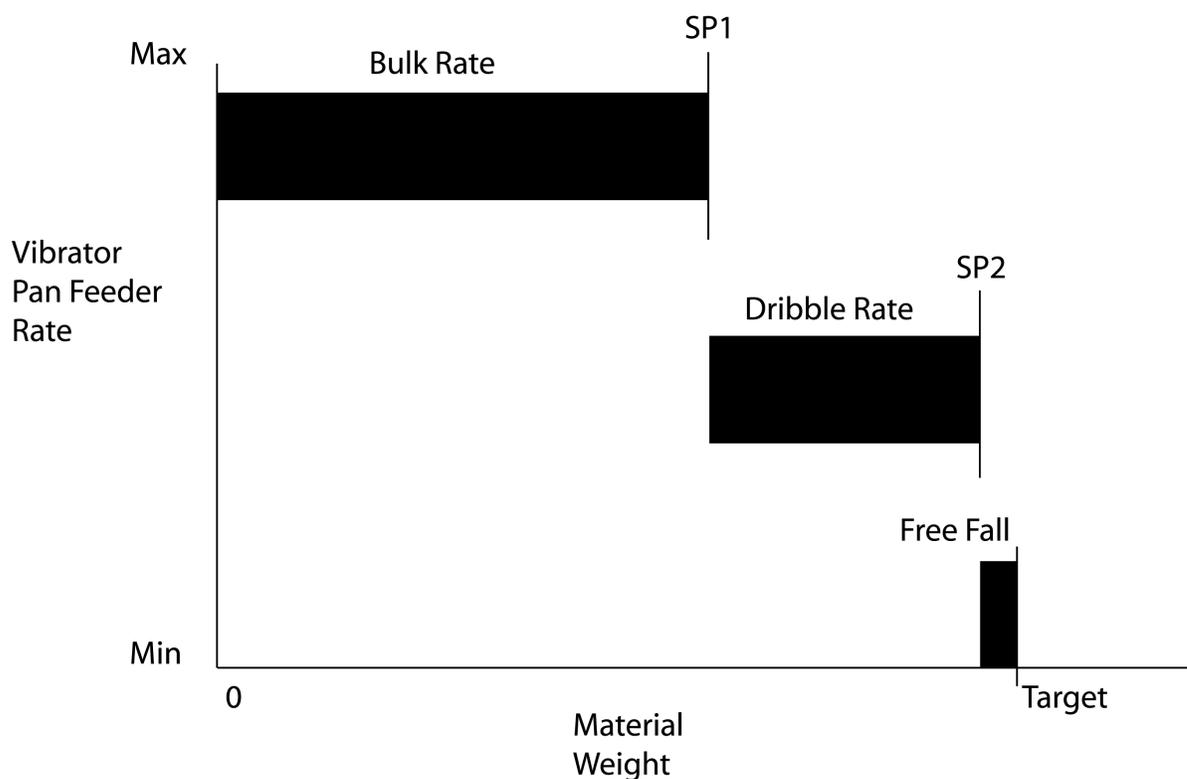


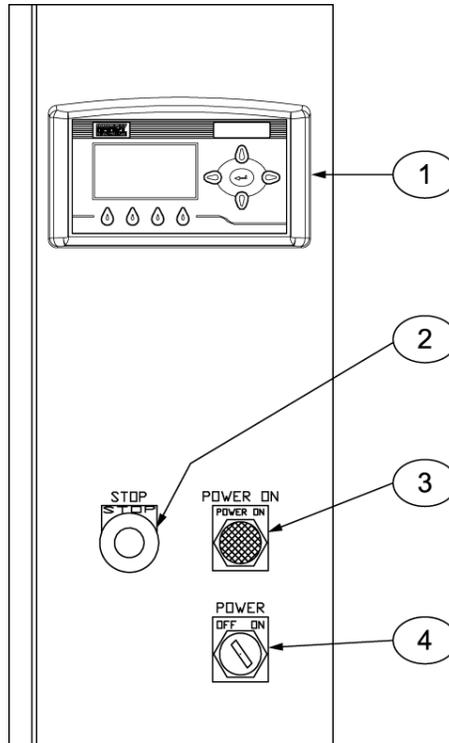
Figure 4-1. Bulk Rate vs. Dribble Rate

4.2 Operational Controls

The standard TE10C is equipped with a Magnum Systems/Hardy Instruments T4000 control panel. Optionally, the TE10C can be ordered with a Magnum Systems/Hardy Instruments T3000 control panel.

4.2.1 T4000 Controls

The TE10C comes standard with T4000 control panel. The control box is located on the left side of the machine. The T4000 control panel, POWER switch, POWER ON indicator, and STOP button/indicator are mounted in the front side of the panel.

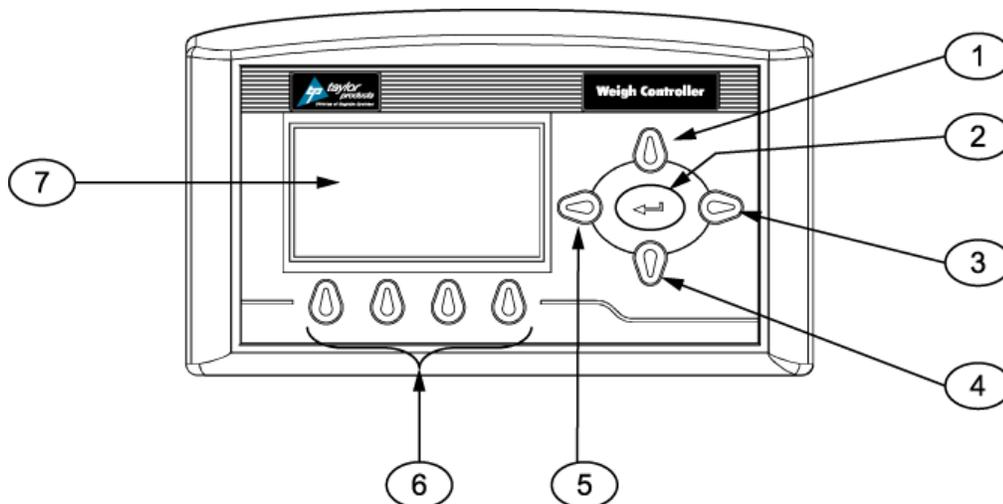


Item #	Description	Item #	Description
1	T4000 control panel	3	POWER ON indicator
2	STOP button/indicator	4	POWER switch

Figure 4-2. T4000 Control Panel

4.2.1.1 T4000 Control Panel

The T4000 is the operator interface and the logic controller that is used to control all of the functions of the TE10C. The T4000 has been jointly designed by Magnum Systems and Hardy Instruments. The T4000 uses a menu system to help the operator to control the TE10C. The operator uses the up/down, left/right, and function keys to navigate the menu system and make system adjustments.



Item #	Description	Item #	Description
1	Up arrow button	5	Left arrow button
2	Enter button	6	Function buttons
3	Right arrow button	7	LCD panel
4	Down arrow button		

Figure 4-3. Taylor T4000 Control Panel

4.2.2 T3000 Controls

The TE10C is available with an optional Taylor T3000 control set. The T3000 has been jointly designed by Magnum Systems and Hardy Instruments. The T3000 provides the operator with total monitoring and instrument control. The T3000 features the following functions:

- Weight display
- Alphanumeric keypad
- Function keys
- Enter/Exit keys
- Arrow keys
- Infrared (IR) port (not used)

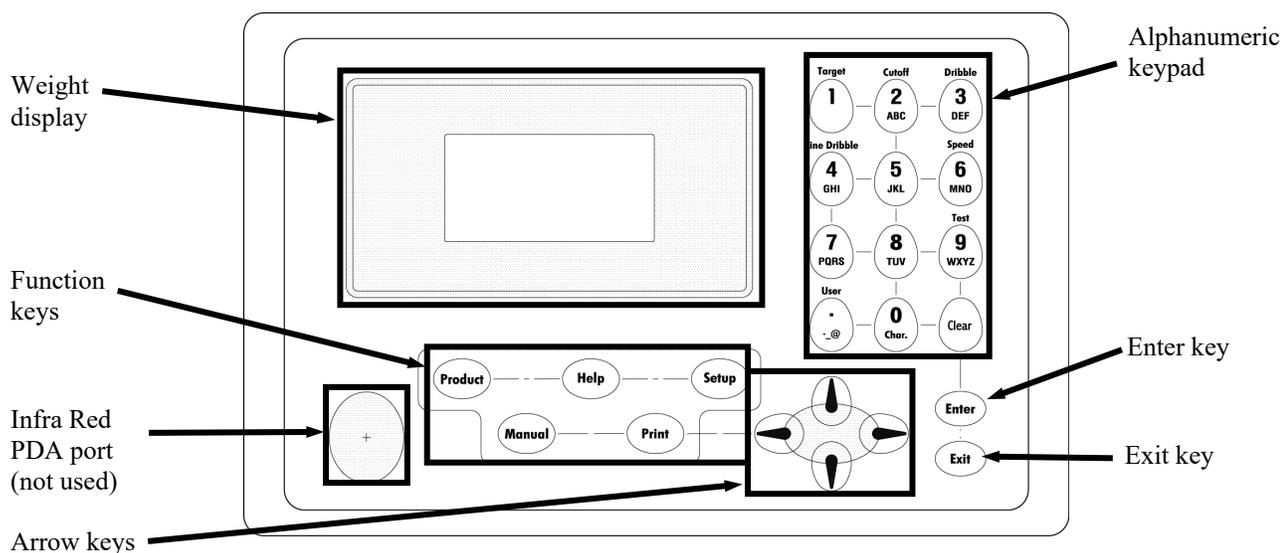


Figure 4-4. Taylor T3000 Control Panel

The front of the T3000 is equipped with a weight display, an alphanumeric keypad, directional arrow keys, function keys, an infrared PDA port (not used), an Enter key, and an Exit key.

The display has one line of large fonts (5.5 alphanumeric characters), and four lines of smaller fonts (20 alphanumeric characters). The top line displays the currently selected package weight. The remaining four lines are used for monitoring system statuses, historical data, and configuration settings of the TE10C.

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

- Fill alarms
- Jog alarms
- Filler discharge alarms

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

4.3 Starting the Unit

Once the unit has been installed, the unit can now be started. The process for turning on the TE10C will be the same for machines equipped with either T4000 or T3000 controls. Both control sets use a power switch and POWER ON indicator that is mounted on the lower right corner of the control box. On the lower left corner of the control box will be a STOP button/indicator.

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

Important: Allow the TE10C to warm up for at least 30 minutes before performing setup procedures or starting the first fill cycle.



CAUTION

When the power switch is in the ON position, the machine can start operating automatically, or someone could accidentally start the machine.

4.4 Initial Setup

TE10C units can be categorized based on their control type, as follows:

- T4000 controls
- T3000 controls

The setup procedure is different based on the controls used on the TE10C.

4.4.1 Setting Up a PV300 to Fill

The TE10C is configured to use two fill speeds. This is known as a dual set point configuration. The fill speeds are named bulk rate and dribble rate. The bulk rate will fill the package until it is approximately 90% full. The machine will then slow the feed rate to the dribble rate. This rate is noticeably slower and is used to fill the package the rest of the way.

Before the TE10C is put into operation, the initial setup procedure needs to be performed to ensure proper weighments. Follow the procedure outlined below to set up a single set point TE10C for its first run. Before beginning this process, the operator should become familiar with the controls and functions of the TE10C.

A typical bagging cycle for the TE10C will proceed as follows:

1. As soon as the STOP button is pulled out, the machine will start filling the weigh bucket with material.
2. Once the weight of material in the weigh bucket reaches the SP1 setting, the vibrator will switch to the second vibrator speed and will finish filling the weigh bucket.
3. Once the cutoff weight (SP2 setting) has been reached, the vibrator will stop.
4. Manually dump the weigh bucket by using the dump switch, or the optional foot switch.

Operation

5. As soon as the weigh bucket is dumped and the dump gate closes, the vibrator will automatically begin filling the weigh bucket. The cycle will repeat until the surge hopper is empty, or until the fill cycle is manually stopped using the STOP button.

Before the TE10C is put into operation, the initial setup procedure needs to be performed to ensure proper weighments. Follow the procedure outlined below to set up a TE10C for its first run. Before beginning this process, the operator should become familiar with the controls and functions of the TE10C.

1. Push the STOP button in.
2. Turn the POWER switch to the ON position. It is located on the control box, in the lower right corner. Allow thirty (30) minutes for controls to warm up.
3. From the Startup Screen, press the F1 key to access the Main Screen.
4. From the Main Screen, press the F2 key to access the Setup Screen.
5. From the Setup Screen, press the F2 key to access the SP1 adjustment screen.
6. Use the left/right arrow keys to move the cursor from digit to digit. Use the up/down arrow keys to increase or decrease the value of each individual digit.

Note: To start out, it is recommended to set SP1 at about 90% of the desired target weight.

7. Once the SP1 value is entered, press the Enter key to save the changes and return to the Setup Screen.
8. From the Setup Screen, press the F3 key to access the SP2 adjustment screen.
9. Use the left/right arrow keys to move the cursor from digit to digit. Use the up/down arrow keys to increase or decrease the value of each individual digit.

Note: The SP2 value should be a little less than the desired target weight. This is done to take the product that is in free fall into account. The recommended starting point would be approximately 98% of the desired target weight.

10. Once the SP2 value is entered, press the Enter key to save the changes and return to the Setup Screen.
11. Press the right arrow key to access the Setting Screen.
12. Press the right arrow key to access the Set Speeds Screen.
13. Press the F1 key to access the adjustment screen for the Vibrator High Speed variable. This is where the bulk rate will be set. The fill rate setting value is a percentage of the maximum fill speed.

Note: To start out, it is recommended to set the bulk rate to 90. This rate is only for the purpose of getting the bagging operation started. Once the operator is familiar with the machine, they will want to experiment with the vibrator settings until a setting that works well with the product. The vibrator CAN run wide open.

Note: If weighing smaller amounts (i.e. 8 oz. or less), start out by setting the bulk rate to 60. A higher setting may result in the impact of the product causing the controller to switch to the dribble rate too early.

14. Once the Vibrator High Speed has been entered, press the Enter key to save the changes and return to the Set Speeds Screen.
15. Press the F2 key to access the adjustment screen for the Vibrator Low Speed variable. This is where the dribble rate will be set. The fill rate setting value is a percentage of the maximum fill rate. The dribble rate **MUST** always be set to a slower rate than the bulk rate.

Note: To start out, it is recommended to set the dribble rate at 50. This rate is only for the purpose of getting the bagging operation started. Once the operator is familiar with the machine, they will want to experiment with the vibrator settings until a setting that works well with the product.

Note: If weighing smaller amounts (i.e. 8 oz. or less), start out by setting the dribble rate to 30. A higher setting may result in the impact of the product causing the controller to initiate the cutoff too early.

16. Press the left arrow key to return to the Settings Screen.
17. Press the left arrow key to return to the Main Screen.
18. Pull the STOP button out. The machine will start the fill cycle.
19. Listen to the machine as the fill cycle runs. There should be a noticeable change when the machine switches from bulk rate to dribble rate. The machine should run at the dribble rate for a minimum of two seconds.
 - a. If the dribble rate runs for a minimum of two seconds, no adjustment is necessary. Proceed to step 20.
 - b. If the dribble rate does not run for a minimum of two seconds, press the F3 key to access the SP1 setting. When adjusting the SP1 setting, adjust a little at a time. Repeat steps 18 and 19 until the dribble portion of the fill cycle runs for a minimum of two seconds.
20. When the fill cycle completes, check the weight display. Compare the actual weight displayed to the desired target weight.
 - a. If the actual weight and the target weight match, setup is complete and the machine is ready for operation.
 - b. If the actual weight and the target weight do not match, press the F4 key to access the SP2 setting. If the package weight is higher than the target weight, adjust the SP2 setting down by an amount that is equal to the difference between the target and package weights. If the package weight is lower than the target weight, adjust the SP2 setting up by an amount that is equal to the difference between the target and package weights. For example, if the target weight is 5 lbs, and the actual package weight was 5.5 lbs. Adjust SP2 down by .5 lbs. Repeat steps 18, 19, and 20 until the actual weight and the target weight match.

Note: Also keep in mind that every time vibrator speed, hopper height, or the flow gate are adjusted, SP1 and SP2 will most likely need to be adjusted. All of these adjustments alter the amount of product moving across the vibrator pan, thus changing the amount of material in free fall.

4.4.3 Setting Up a T3000 to Fill

TE10C units equipped with the T3000 can be programmed to fill as many as 25 different products. Use the steps below to select a specific product from the available list.

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

4.4.3.1 Using the T3000 to Set Up A Product From Scratch

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

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

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

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Chapter 5

Preventive Maintenance

5.1 General Description

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

5.2 Daily Maintenance Procedures

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

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

5.2.1 Cleaning

Keeping the TE10C 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 TE10C to suffer. Also, by taking the time to clean the TE10C on a daily basis, the operator will be able to give the TE10C a thorough inspection. Take the time to inspect all wiring, air supply lines and connections, and components for possible damage.

5.2.2 Check All Fasteners

The operator should check all fasteners on the TE10C on a daily basis. Loose fasteners can cause unwanted vibration and wear.

5.2.3 Drain Water From the Water Separator

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

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

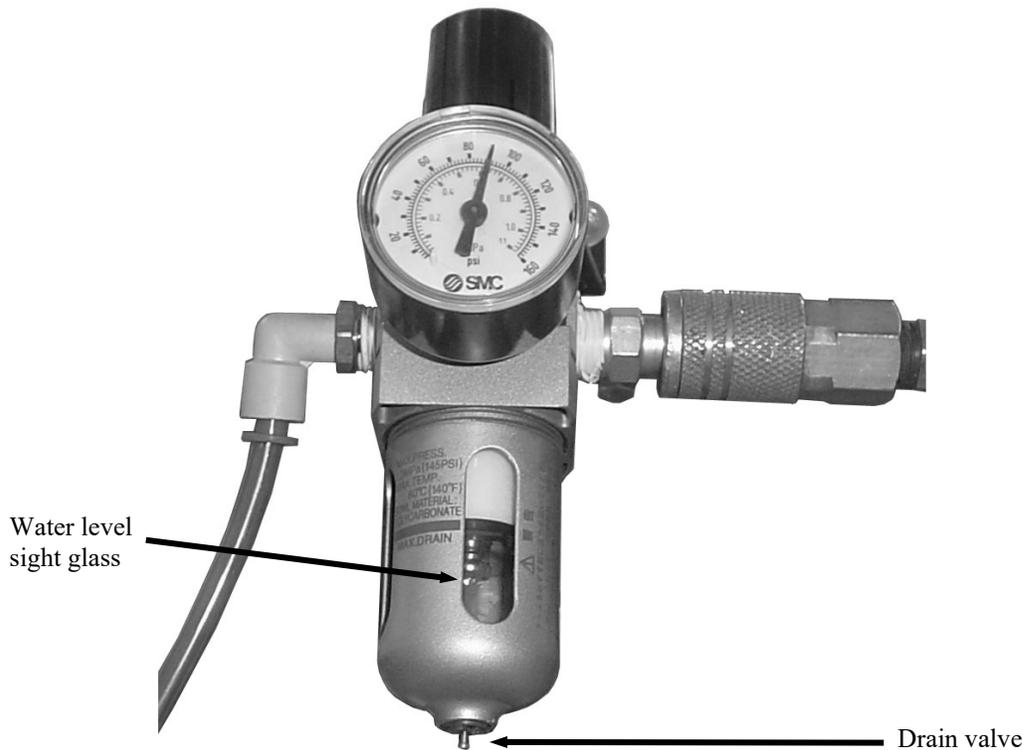


Figure 5-1. Air Supply Line Water Separator

5.3 Monthly Maintenance

On a monthly basis, the TE10C should be recalibrated. Refer to the 3.7 Calibration.

Chapter 6

Troubleshooting

6.1 General Description

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

6.2 The Troubleshooting Process

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

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

6.3 Trouble Symptoms

Use the following information to assist in troubleshooting.

6.3.1 Scale is Not Accurate

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

1. Check for proper calibration. Refer to 3.7 Calibration.
2. Check the surge hopper to make sure an adequate supply of material is available in the product hopper to ensure a consistent head pressure.
3. Check to make sure there is nothing restricting material flow from the surge hopper.

**CAUTION**

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

6.3.2 Scale Does Not Return to Zero

If the scale reading does not return to zero after weigh bucket has been emptied, check the following items:

1. Is there adequate slack in the air supply lines to the weigh bucket dump cylinder?
2. Are the weigh bucket retaining pins in place? If not install both retaining pins.
3. Check the calibration. Refer to 3.7 Calibration.
4. Check for any outside interference, such as cords, hoses, etc., that would effect the movement of the weigh bucket.

6.3.3 The Weighments are Always Too Light

If the weighments are consistently coming up too light, check the following:

1. Try lowering the dribble value (scale must have time to react, if material is coming in on the bulk rate too fast, the flow can cause a spike that will shut flow off too early.
2. Try lowering the bulk feed rate or try restricting the flow of material to the vibrator feeder tray by adjusting the flow gate.
3. Increase the cutoff value.

6.3.4 The Weigh Bucket Dump Gate Closing Too Soon

If the dump gate on the weigh bucket is closing too hard, check the following:

1. Check the MAC valve for proper adjustment. Refer to 7.2.2 MAC Valve Adjustment.
2. Check the dump delay. If the dump delay is set too short, adjust the dump delay. Refer to 7.2.4 Dump Gate Timer Adjustments.
3. Check to make sure that the product is not sticking to the hopper.

6.3.5 Weigh Bucket Dump Gate Fails Close Completely

If the weigh bucket gate will not fully close, check the following:

1. Make sure machine air pressure is at proper level. Refer to 7.2.1 Air Pressure Adjustment.
2. Check the MAC valve for proper adjustment. Refer to 7.2.2 MAC Valve Adjustment.
3. Check for product getting trapped in the dump gate. If the product is getting trapped, adjust the dump delay to allow the gate to stay open longer. Refer to 7.2.4 Dump Gate Timer Adjustments.
4. The MAC valve may need to be replaced. Refer to 7.3.8 MAC Valve Replacement.

6.3.6 Load Cell Fails Frequently

If the load cells on a TE10C are failing frequently, check the following items:

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



CAUTION

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

6.3.7 Weigh Bucket Overflows

If the weigh bucket overflows, check the following:

1. Check the calibration. Refer to Chapter 3.7 Calibration.
2. Check the weigh bucket to make sure that it is hanging freely on the load cell and that it is not bound up.
3. Check the weigh bucket to make sure that it is large enough.
4. When working in bulk mode, set the machine up for double dumps, to split the weightment in half.
5. Call Magnum Systems to discuss options for a larger bucket.



CAUTION

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

6.3.8 Fill Speeds Are Too Slow

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

1. Adjust the vibrator rate to a faster speed
2. Adjust the flow gate to allow for more bed depth in the feeder pan.
3. Use less dribble time (only applies in dual set point units).
4. Check to make sure that the product is not sticking to the weigh bucket.

6.3.9 Accuracy Problems While Doing a Wide Range of Weightments (i.e. 4 oz, 1 lb, and 5 lb)

1. Check the surge hopper to make sure that the product is not bridging.

6.3.10 Vibrator Does Not Run at Full Speed

1. Check the vibrator speed setting.
2. Replace the vibrator control board.

6.4 T3000 Alarms

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

- Fill alarms
- Jog alarms
- Filler discharge alarms

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

6.5 Purge Kit Troubleshooting

Purge Kit troubleshooting is located in the Trouble – Shooting Procedures in the Model 1001 A, Type or Z, Pressurization/Purging System Installation & Operation Manual in Appendix G of this manual.

6.6 PLC Error Messages

The Allen-Bradley MicroLogix 1000 has the ability to provide the following information:

- Status Messages
- Reminder Messages
- Warning Messages
- Fault Messages

To be able to access these messages, a properly equipped computer or handheld device must be connected to the PLC.

6.6.1 Status Messages

Status messages indicate to the operator that the control panel is performing an operation that may limit access to the terminal. Examples are application downloads or communication problems. The message disappears when the control panel completes the operation or when the condition is satisfied.

6.6.2 Reminder Messages

Reminder messages indicate a minor fault or mistake. Reminder messages appear when an invalid operation is attempted, such as entering an out-of-range value. Pressing any key removes the message.

6.6.3 Warning Messages

Indicates the operation may produce undesirable results. The operator must respond to warning messages as indicated in the message.

6.6.4 Fault Messages

Indicates the terminal has detected a condition, which will prevent further operation. The current application will stop. The operator must reset the terminal (power cycle) to recover from this type of error.

Chapter 7

Repair and Adjustment

7.1 General Description

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

7.2 System Adjustment Procedures

The TE10C has several components that may require adjustments over time. These changes may be due to normal wear, or may be required when changing products. Items that may require adjustments are:

- Air pressure
- Mac valve
- Flow gate
- Dump gate delay
- Vibrator start delay

7.2.1 Air Pressure Adjustment

The TE10C requires compressed air to be at approximately 80-100 PSI (.55-.69 MPa) for proper operation. If air pressure is too high or too low, the air pressure regulator can be used to adjust the output air pressure.



Figure 7-1. Air Pressure Adjustment

7.2.2 MAC Valve Adjustment

On the top of the MAC valve, there are two adjustment screws that allow the operator to the speed of the opening and closing of the pneumatic valve. The adjustment is made as follows:

1. Use a screwdriver to hold the screw, while using a wrench to loosen the jam nut.
2. To decrease the speed of the valve actuation, turn the screw clockwise. To increase the speed of the valve actuation, turn the screw counter-clockwise.
3. Once the desired actuation speed has been achieved, tighten the jam nut.

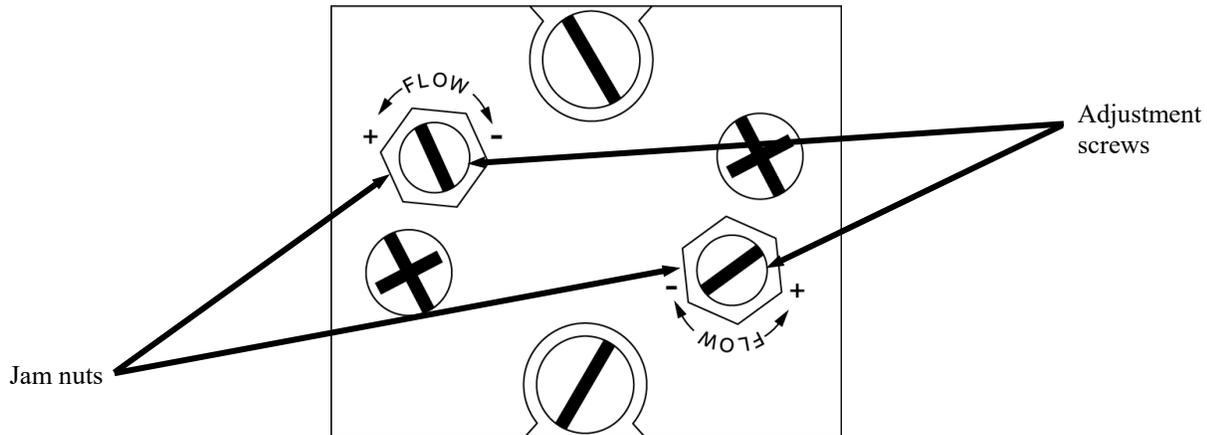


Figure 7-2. MAC Valve Adjustment Screws

7.2.3 Flow Gate Adjustment

The flow gate is a rubberized tube that fits tightly around the surge hopper spout. The flow gate is not held in place using bolts or screws. It is held in place by the tight fit. The flow gate allows the operator to adjust the amount of material that is allowed to flow out of the hopper. To adjust the flow gate, simply slide it up or down the surge hopper spout. Raising the flow gate will increase the flow of material, while lowering the flow gate will restrict the flow of the material.

Adjust the flow gate so that it allows an even steady flow of product into the feeder pan.

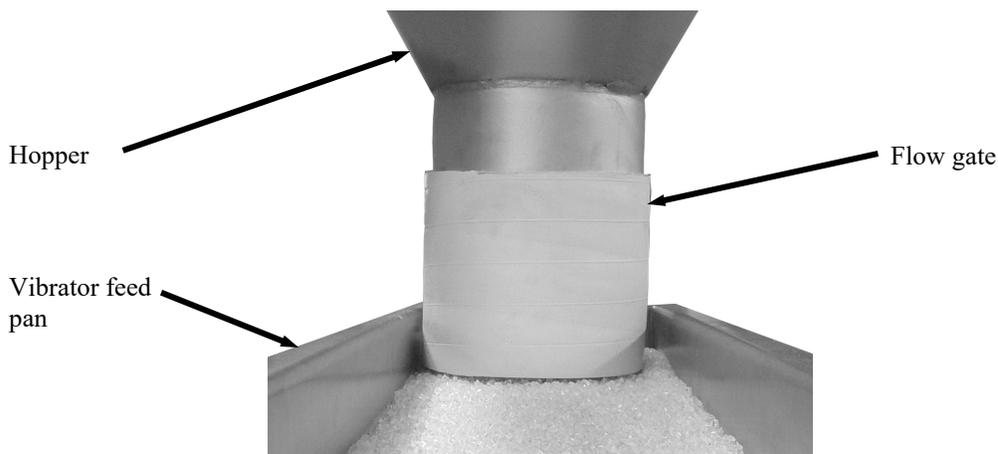


Figure 7-3. Flow Gate

7.2.4 Dump Gate Timer Adjustments

There are two timer adjustments related to the dump gate. Making these adjustments correctly will improve the operational efficiency of the TE10C.

- Dump delay
- Weigh bucket dump time

7.2.4.1 Dump Delay (Used With Bag Clamps)

The dump gate delay adjustment controls how much time will elapse after the end of the fill cycle before the dump gate is opened to empty the weigh bucket. This delay should be adjusted so that enough time is allowed for any product that is in free fall has time to settle in the weigh bucket and so that the controller has enough time to calculate the final weight. However, if the amount of delay is set too long, then there will be an excessive amount of idle time.

The adjustment procedure for the dump gate delay will vary, based on the type of controls. For machines equipped with the PV300 controls, refer to 4.2.1.1.8 PV300 Dump Delay. For machines equipped with T3000 controls, this function is referred to as the Wait Timer. Refer to the T3000 Electronic Weigh Controller Quick Reference Guide in Appendix E of this manual for more information.

7.2.4.2 Weigh Bucket Dump Time

The weigh bucket dump time adjustment is used to control how long the weigh bucket dump gate will remain open when the pan is dumped. The dump gate needs to remain open long enough to ensure that all of the product in the pan is dumped, but not so long that the gate is remaining open long after the pan is empty.

The adjustment procedure for the weigh bucket dump time will vary, based on the type of controls. For machines equipped with the PV300 controls, refer to 4.2.1 PV300 Controls. For machines equipped with T3000 controls, this function is referred to as a user variable under the products setting screen. Refer to the T3000 Electronic Weigh Controller Quick Reference Guide in Appendix E of this manual for more information.

7.2.5 Vibrator Start Delay Adjustment

The vibrator start delay adjustment controls how much time will elapse after the weigh bucket gate closes before the vibrator pan feeder starts. The vibrator pan feeder starting signals the beginning of the next fill cycle.

The adjustment procedure for the vibrator start delay will vary, based on the type of controls. For machines equipped with the PV300 controls, refer to 4.2.1 PV300 Controls. For machines equipped with T3000 controls, this function is referred to as the minimum auto tare delay. Refer to the T3000 Electronic Weigh Controller Quick Reference Guide in Appendix E of this manual for more information.

7.3 Component Replacement Procedures

Over time, components on the TE10C 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 Magnum Systems are used.

7.3.1 Dump Gate Cylinder Replacement

Follow the procedures below to replace the weigh bucket gate cylinder.

7.3.1.1 Dump Gate Cylinder Removal Procedure

1. Turn the power to the TE10C off and unplug the TE10C.
2. Disconnect the air supply line from the TE10C.
3. Label each of the air supply lines that are connected to the cylinder, so they can be installed correctly on the new cylinder.
4. Disconnect the air supply lines by pressing in on the collar on the air fitting and holding it in while pulling out on the air supply line.

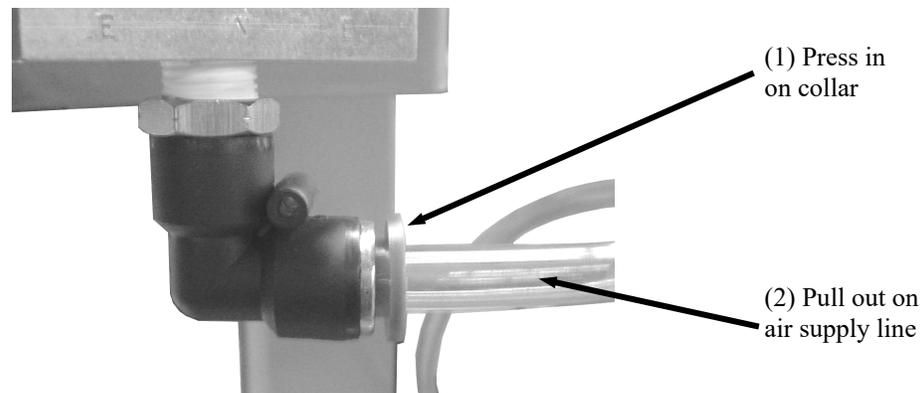


Figure 7-4. Disconnecting Air Supply Line

5. Remove the retaining pin from the lower gate cylinder mount by pressing in on the lock button and pulling the pin out.



Figure 7-5. Removing the Lower Gate Cylinder Retaining Pin

- Loosen the upper gate cylinder mounting bolt.

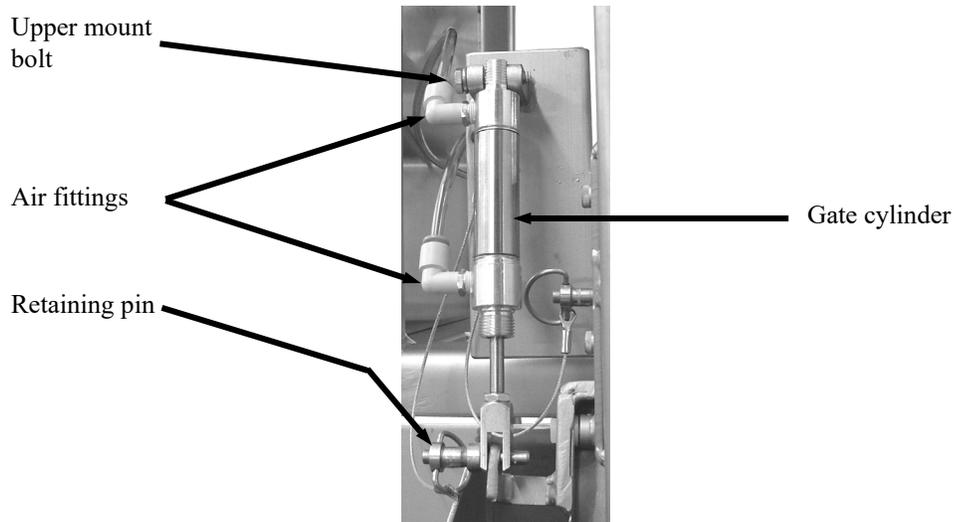


Figure 7-6. Dump Cylinder and Mounting Hardware

- While holding the cylinder with one hand, remove the upper mounting bolt from the cylinder and mount.
- Remove the cylinder.

7.3.1.2 Dump Gate Cylinder Installation Procedure

- Insert the top of the cylinder into the upper mount.
- While holding the cylinder with one hand, insert the upper mounting bolt.
- Install the upper mounting nut on the bolt and tighten.
- Insert the end of the cylinder rod into the lower mounting bracket
- Insert the clevis pin.
- Install the retaining pin into the hole in the clevis pin.
- Install the air supply lines into the appropriate fittings by pressing the air supply lines straight in.
- Reconnect the air supply line to the TE10C at the pressure regulator.
- Reconnect the power connection.

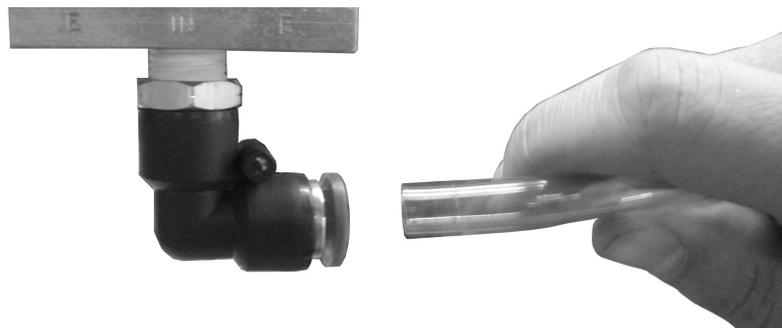


Figure 7-7. Inserting the Air Supply Line

7.3.2 Dump Gate Replacement

Use the following procedures to replace the dump gate if it becomes worn or damaged.

7.3.2.1 Dump Gate Removal

1. Turn the power switch to the OFF position.
2. Disconnect the main electrical and air connections.
3. Remove the discharge spout. Refer to 7.3.5 Discharge Spout Replacement.
4. Remove the retaining pin from the lower dump gate cylinder mount and disconnect the cylinder from the dump gate.
5. Loosen the setscrews found at each end of the dump gate shaft.

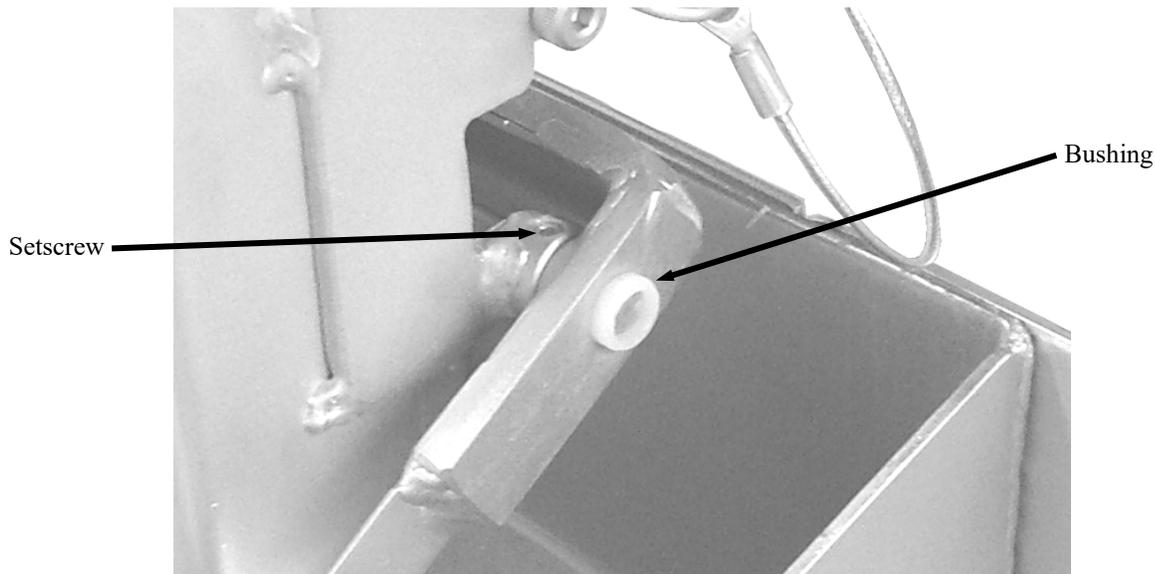


Figure 7-8. Dump Gate Shaft Setscrew

6. While holding the dump gate with one hand, push the shaft all the way out.

Important: When removing the dump gate, make sure not to lose the plastic bushings.

7. Remove the dump gate.

7.3.2.2 Dump Gate Installation

1. Install the plastic bushings into the dump gate.
2. Position the dump gate and install the shaft.
3. Center the shaft and dump gate.
4. Tighten the setscrews found at each end of the dump gate.
5. Position the lower end of the dump gate cylinder over the lower dump gate cylinder mount.
6. Install the lower bag clamp retaining pin.
7. Install the discharge spout. Refer to 7.3.5 Discharge Spout Replacement.
8. Connect the main electrical and air connections.
9. Turn the TE10C ON and test for proper operation.

7.3.3 Weigh Bucket Replacement

If the weigh bucket becomes damaged or worn, use the following procedures to replace it.

7.3.3.1 Weigh Bucket Removal



CAUTION

DO NOT force the weigh bucket when trying to remove it. This could create a sudden jerk or shock, which could cause load cell damage. The load cell is **NOT** covered by warranty.

1. Turn the power to the TE10C off.
2. Disconnect the main electrical and air connections.
3. Remove the dump gate cylinder. Refer to 7.3.1 Dump Gate Cylinder Replacement.
4. Remove the two weigh bucket retaining pins.
5. Remove the weigh bucket by lifting it straight up and then pulling it straight forward until the weigh bucket mounting tabs have cleared the weigh bucket support bracket.

7.3.3.2 Weigh Bucket Installation



CAUTION

DO NOT force the weigh bucket when trying to install it. This could create a sudden jerk or shock, which could cause load cell damage. The load cell is **NOT** covered by warranty.

1. Position the weigh bucket in front of the weigh bucket support bracket.
2. Slide the weigh bucket in so that the slots are lined up above the mounting bolts on the weigh bucket support bracket.

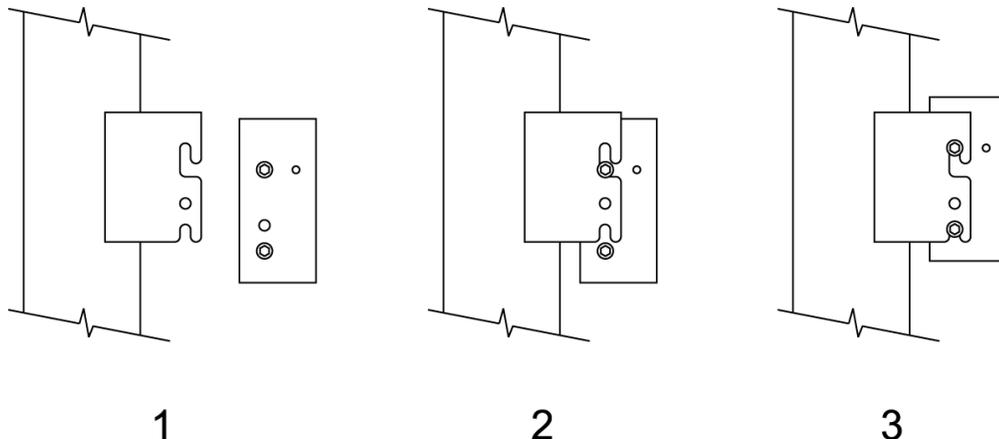


Figure 7-9. Installing the Weigh Bucket

3. Lower the weigh bucket until it is resting on the mounting bolts on the weigh bucket support bracket.
4. Install the dump gate cylinder. Refer to 7.3.1 Dump Gate Cylinder Replacement.
5. Connect the main electrical and air connections.
6. Turn the TE10C on and test it for proper operation.

7.3.4 Weigh Bucket Support Bracket Replacement

If the weigh bucket support bracket becomes damaged, use the following procedures to replace it.

7.3.4.1 Weigh Bucket Support Bracket Removal

1. Turn the power to the TE10C off.
2. Disconnect the main electrical and air connections.
3. Remove the weigh bucket. Refer to 7.3.3 Weigh Bucket Replacement.
4. Remove the two weigh bucket support bracket mounting bolts.
5. Remove the weigh bucket support bracket.

Important: When removing the weigh bucket support bracket, be careful not to lose the thin metal spacer that is underneath of the bracket, on top of the load cell. This spacer is necessary for the load cell to function properly.

7.3.4.2 Weigh Bucket Support Bracket Installation

1. Check the position of the metal spacer on top of the load cell. Make sure the holes in the spacer are lined up with the bolt holes in the load cell.
2. Position the weigh bucket support bracket over the load cell.
3. Install the two weigh bucket support bracket mounting bolts.



CAUTION

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

4. Install the weigh bucket. Refer to 7.3.3 Weigh Bucket Replacement.
5. Connect the main electrical and air connections.
6. Turn the power to the TE10C on and check for proper operation.

7.3.5 Discharge Spout Replacement

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

7.3.5.1 Discharge Spout Removal

1. Turn the power to the TE10C off.
2. Lift the discharge spout straight up until the mounting pins have cleared the discharge spout mounting bracket.

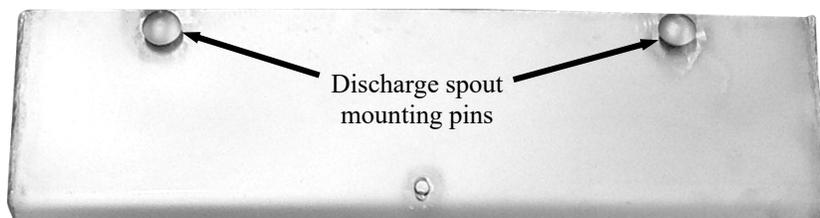


Figure 7-10. Discharge Spout Mounting Pins

3. Pull the discharge spout forward until the discharge spout has cleared the discharge spout mounting bracket.

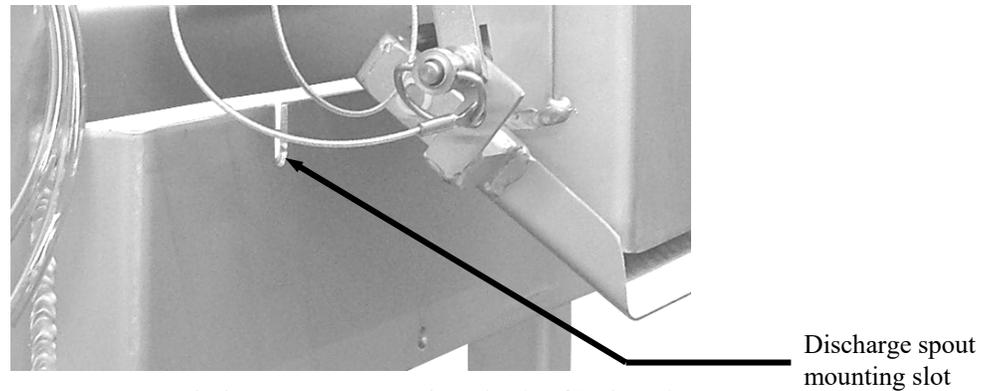


Figure 7-11. Discharge Spout Mounting Slot (1 of 2 Shown)

4. Lower the discharge spout until it has cleared the weigh bucket.

7.3.5.2 Discharge Spout Installation

1. Position the discharge spout under the weigh bucket.
2. Lift the discharge spout so that the weigh bucket is inside the discharge spout. Raise the discharge spout just high enough to allow the mounting pins to clear the top of the discharge spout mounting bracket.
3. Move the discharge spout toward the base frame until the body of the discharge spout has come into contact with the discharge spout mounting bracket.
4. Move the discharge spout side to side to line up the mounting pins with the slots in the discharge spout mounting bracket.
5. Lower the discharge spout so that the mounting pins are in the slots in the discharge spout mounting bracket.



Figure 7-12. Discharge Spout Pins Properly Secured In The Mounting Bracket

6. Turn the power to the TE10C on and test for proper operation.

7.3.6 Vibrator Pan Feeder Replacement

If the vibrator pan feeder becomes damaged or fails to function, use the following procedures to replace the unit.

7.3.6.1 Vibrator Pan Feeder Removal

1. Turn the power to the TE10C off.
2. Disconnect the main electrical and air connections.
3. Open the control box and locate the vibrator pan feeder wire connections. Label the connections and note how they are connected to the controller.
4. Disconnect the vibrator pan feeder wire connections at the controller.
5. Route the vibrator pan feeder wire out of the control box.
6. Remove any wire straps that secure the wire to the base frame.
7. Remove the weigh bucket. Refer to 7.3.3 Weigh Bucket Replacement.
8. Hold one of the vibrator pan feeder mounting nuts with a wrench, while using another wrench to loosen the bolt that is threaded into that nut. Back the bolt all the way out and remove the bolt, washer, and nut. Repeat this step for the remaining three sets of mounting hardware.
9. Remove the vibrator pan feeder.

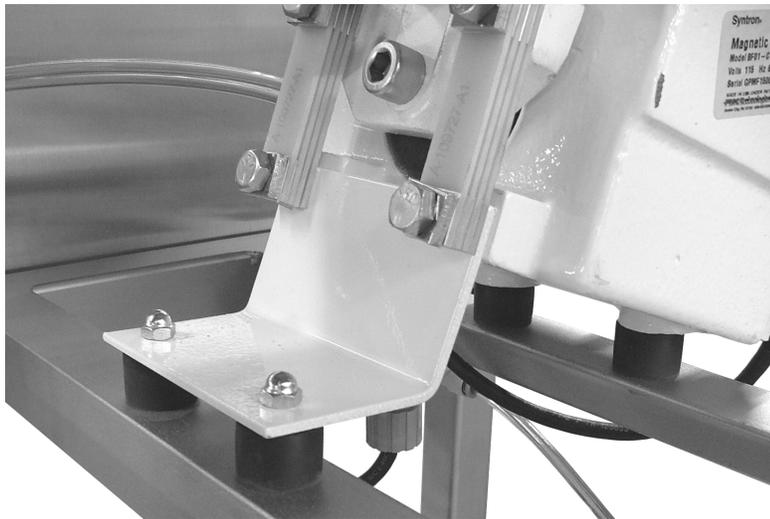


Figure 7-13. Vibrator Pan Feeder Front Mounting Nuts

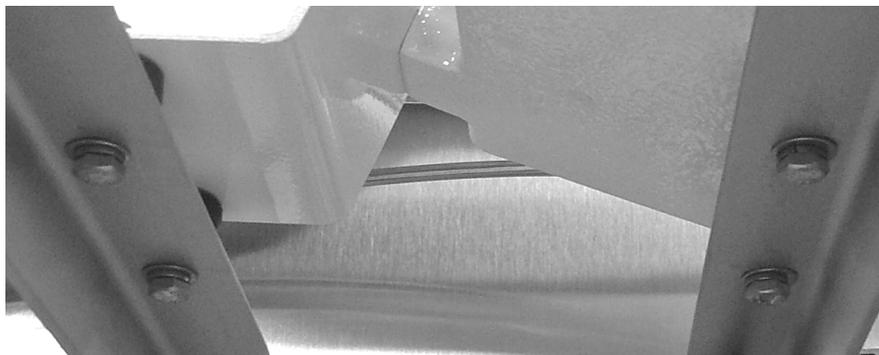


Figure 7-14. Vibrator Pan Feeder Mounting Bolts Below the Feeder

7.3.6.2 Vibrator Pan Feeder Installation

1. Position the vibrator pan feeder in its mounting location on top of the rubber insulators.

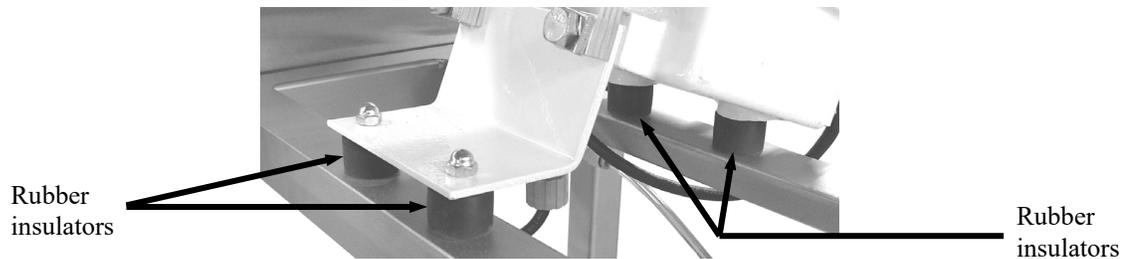


Figure 7-15. Vibrator Pan Feeder Insulators

2. Install a lock washer on one of the mounting bolts.
3. Install the bolt from the bottom through the base frame, the rubber insulator and the hole in the vibrator pan feeder.
4. Install the nut on the bolt. Repeat steps 2 through 4 until all four bolts, washers, and nuts are installed.
5. Tighten the mounting hardware.
6. Route the vibrator pan feeder wire through the base frame and into the control box.
7. Make connections to the control module.
8. Install wire straps to secure the wire to the base frame.
9. Install the weigh bucket. Refer to 7.3.3 Weigh Bucket Replacement.
10. Connect the main electrical and air connectors.
11. Turn the TE10C on and check for proper operation.

7.3.7 Flow Gate Replacement

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

7.3.7.1 Flow Gate Removal

1. Empty the surge hopper.
2. Turn the power to the TE10C off.
3. Disconnect the main electrical and air connections.
4. Remove the vibrator pan feeder. Refer to 7.3.6 Vibrator Pan Feeder Replacement.
5. Remove the flow gate tube by sliding it down and off the surge hopper spout.

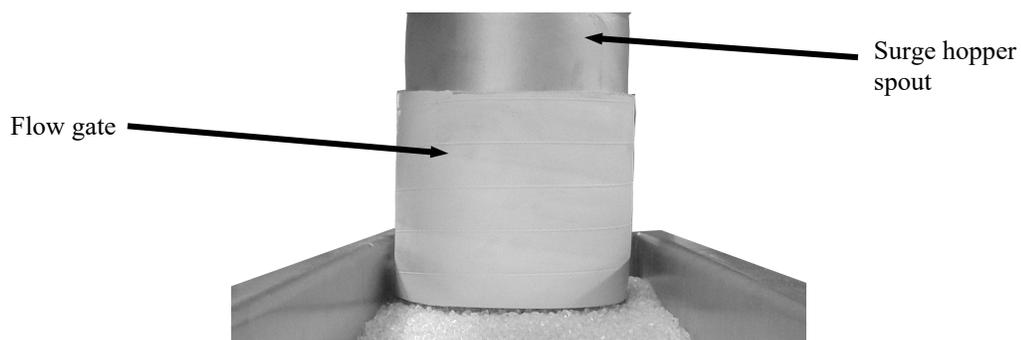


Figure 7-16. Flow Gate

7.3.7.2 Flow Gate Installation

1. Slide the flow gate tube on to the surge hopper spout.
2. Install the vibrator pan feeder. Refer to 7.3.6 Vibrator Pan Feeder Replacement.
3. Connect the main electrical and air connections.

Repair

4. Turn the power to the TE10C on and test for proper operation.
5. Adjust the flow gate. Refer to 7.2.3 Flow Gate Adjustment.

7.3.8 MAC Valve Replacement

Follow the procedures below to replace the MAC valve.

7.3.8.1 MAC Valve Removal

1. Turn the power to the TE10C off and unplug the TE10C.
2. Disconnect the air supply line from the TE10C.
3. Label each of the air supply lines that are connected to the cylinder, so they can be installed correctly on the new cylinder.
4. Disconnect the air supply lines by pressing in on the collar on the air fitting and holding it in while pulling out on the air supply line.
5. Disconnect the electrical connectors from the MAC Valve.
6. Remove the two mounting screws.

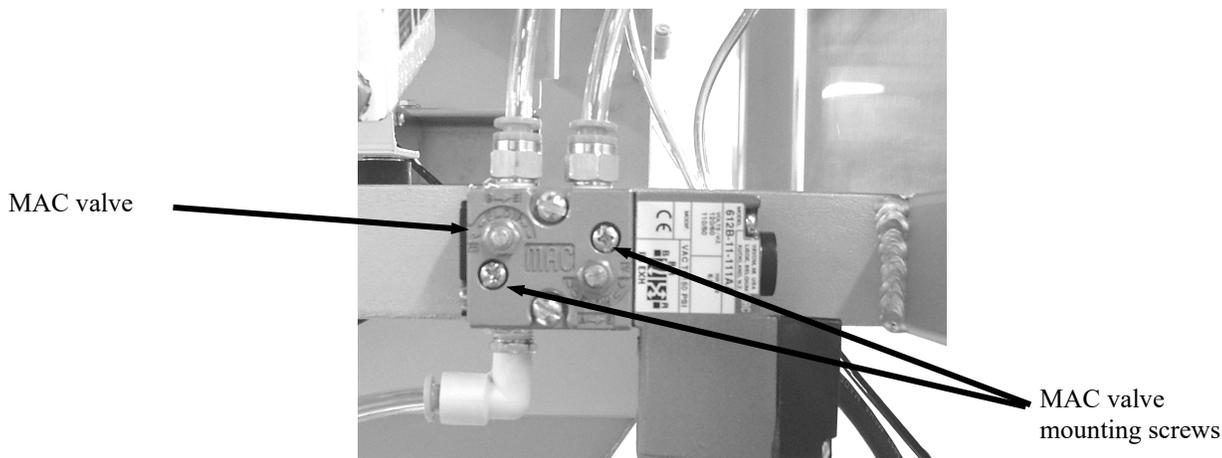


Figure 7-17. MAC Valve

7. Remove the MAC Valve from the TE10C.

7.3.8.2 MAC Valve Installation

1. Position the MAC Valve on the mount.
2. Insert the mounting screws and tighten them.
3. Install the electrical connectors.
4. Reconnect the air supply lines.
5. Reconnect the main air supply line at the air pressure regulator.
6. Reconnect the main power to the TE10C.

7.3.9 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 weigh bucket etc., can cause load cell damage. The load cell is NOT covered by warranty.

7.3.9.1 Load Cell Removal Procedure

1. Turn the power switches OFF.
2. Disconnect the main electrical and air connections.
3. Label the electrical connections inside the control box.
4. Disconnect the load cell wires from the control module.
5. Make note of how the electrical cable is routed from the load cell to the control box.
6. Remove all of the tie straps that are securing the load cell wire to the base frame.
7. Pull the load cell wire out of the control box and route it back to the load cell.
8. Remove the weigh bucket from the weigh bucket support bracket. Refer to 7.3.3 Weigh Bucket Replacement.
9. Remove the weigh bucket support bracket.
10. Loosen the load cell mounting bolts that are found below the load cell.
11. Hold the load cell and remove the two load cell mounting bolts.
12. Remove the load cell.

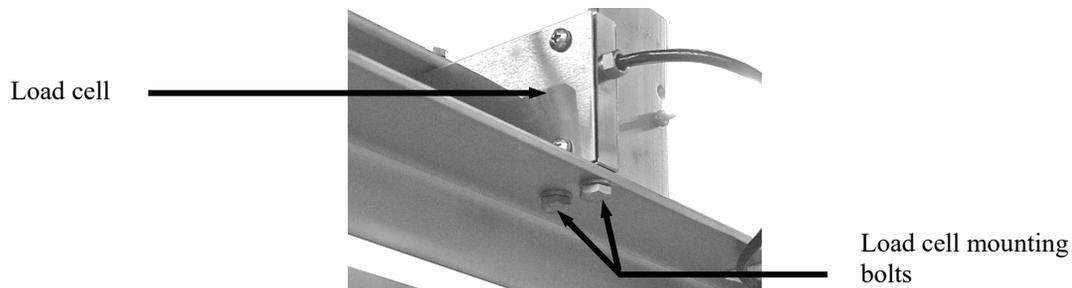


Figure 7-18. Load Cell Mounting

7.3.9.2 Load Cell Installation Procedure

1. Bolt the load cell to the TE10C using the two mounting bolts.
2. Route the load cell wire to the control box in the same manner as the wire for the previous load cell.
3. Insert the load cell wire into the control box through the same port that was used for the previous load cell.
4. Connect the load cell wires to the control module.
5. Install the weigh bucket support bracket on the load cell.
6. Install the weigh bucket on the weigh bucket support bracket. Refer to 7.3.3 Weigh Bucket Replacement.
7. Connect the main air and electrical connections.
8. Turn the TE10C on and calibrate the machine. Refer to Chapter 3.7 Calibration.

7.3.10 Vibrator Control Module Replacement

In the event that the vibrator control module has failed, follow the steps below to replace the unit.



CAUTION

Make sure to wear a ground strap while handling the Vibrator Control Module, as ESD can damage the module.

7.3.10.1 Vibrator Control Module Removal

1. Turn the TE10C off and disconnect it from its power source.
2. Open the control box.
3. Label each wire for easy identification.
4. Disconnect each wire from the module.
5. While holding the module, remove the four mounting screws and the module

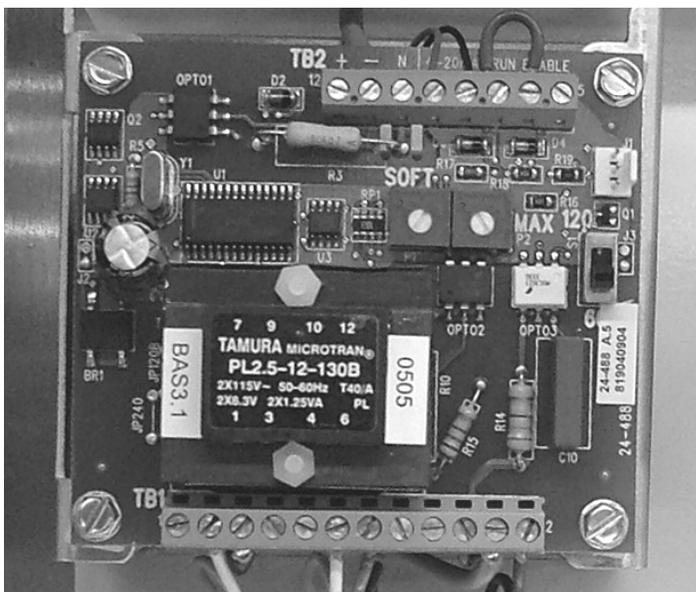


Figure 7-19. Vibrator Control Module Mounting

7.3.10.2 Vibrator Control Module Installation

1. Hold the new module in position and install the four mounting screws.



CAUTION

Do not over tighten the mounting screws. Over tightening could result in damage to the module.

2. Reconnect each wire to the module. Take care to be sure that each wire is connected to the appropriate terminal.
3. Close the control box.
4. Reconnect the TE10C power cords to their respective power sources.
5. Turn the TE10C on and check for proper operation.

7.3.11 T3000 Interface Card Replacement

In the event that the T3000 interface module has failed, follow the steps below to replace the unit.

**CAUTION**

Make sure to wear a ground strap while handling the T3000 Interface Module, as ESD can damage the module.

7.3.11.1 T3000 Interface Card Removal

1. Turn the TE10C off and disconnect it from its power source.
2. Open the control box.
3. Label each wire for easy identification.
4. Disconnect each wire from the module.
5. While holding the module, remove the mounting screws and the module

7.3.11.2 T3000 Interface Card Installation

1. Hold the new module in position and install the mounting screws.

**CAUTION**

Do not over tighten the mounting screws. Over tightening could result in damage to the module.

2. Reconnect each wire to the module. Take care to be sure that each wire is connected to the appropriate terminal.
3. Close the control box.
4. Reconnect the TE10C power cords to their respective power sources.
5. Turn the TE10C on and check 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. Disconnect the main power cord.
2. Disconnect the main air supply line from the TE10C.
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 air supply line and check for any leaks. If a leak is found, disconnect the main air supply line and then disconnect/reconnect the air connections, then reconnect the main air supply line. Repeat as necessary, until no leaks are present.
5. Reconnect the main power cord.

7.3.13 Air Fitting Replacement

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

7.3.13.1 Air Fitting Removal

1. Disconnect the main power cord.
2. Disconnect the main air supply line from the TE10C.
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.

7.3.13.2 Air Fitting Removal

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.

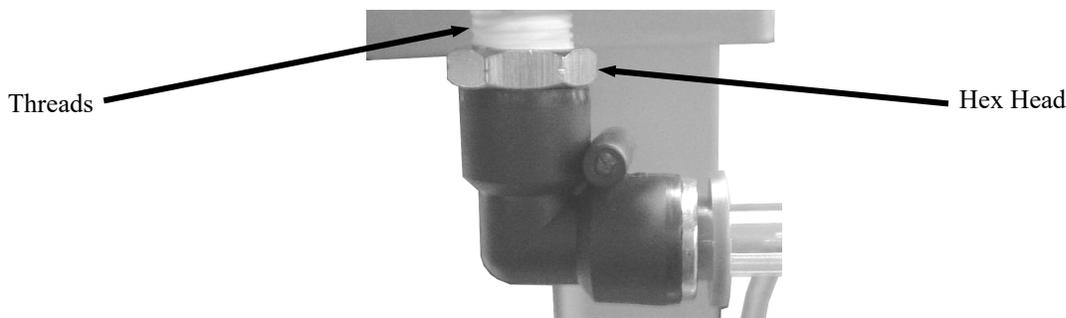


Figure 7-20. Air Supply Fitting

3. Reconnect the air supply line to the fitting.
4. Reconnect the main air supply line and check for any leaks. If a leak is found, disconnect the main air supply line and then disconnect/reconnect the air connections, then reconnect the main air supply line. Repeat as necessary, until no leaks are present.
5. Reconnect the main power cord.

7.3.14 Air Pressure Regulator Replacement

If the air pressure regulator becomes damaged or fails to function properly, use the following steps to replace it.

7.3.14.1 Air Pressure Regulator Removal

1. Turn the power to the TE10C off.
2. Disconnect the main electrical and air connections.
3. Disconnect the air supply line from the output of the air pressure regulator.

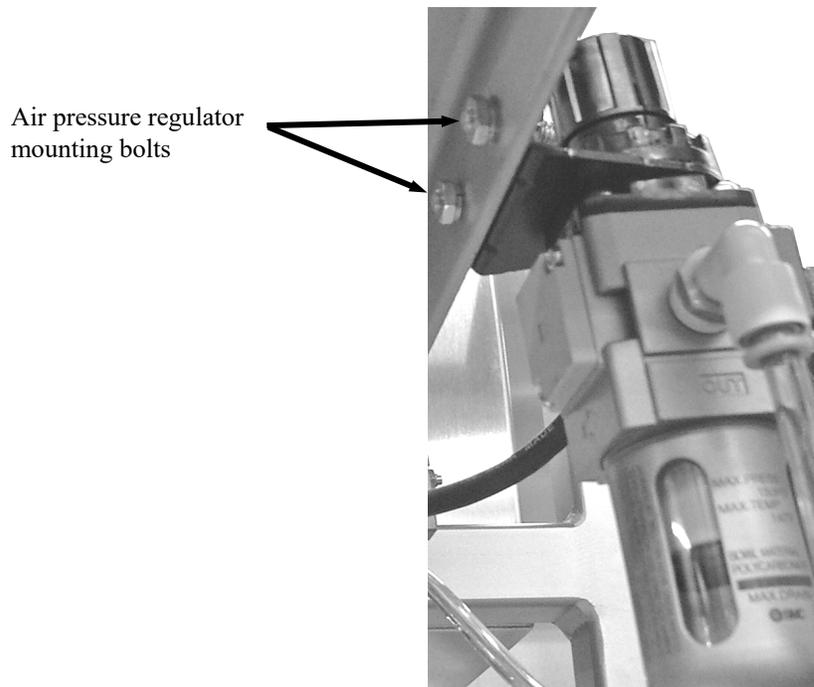


Figure 7-21. Air Pressure Regulator Mounting

4. While holding the pressure regulator, remove the two mounting bolts from the rear of the regulator.

7.3.14.2 Air Pressure Regulator Installation

1. Position the air pressure regulator.
2. Insert the two pressure regulator mounting bolts.
3. Tighten the mounting bolts.
4. Connect the air supply line to the output of the air pressure regulator.
5. Connect the main electrical and air connections.
6. Turn the TE10C on and test for proper operation.

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Glossary

TERM	DEFINITION
1 ST RATE	Setting that controls the vibrator speed/frequency or auger speed during the bulk fill operation.
2 ND RATE	Setting that controls the vibrator speed/frequency or auger speed during the dribble fill operation.
AC	Alternating Current
Audible alarm	The sounding of a bell, buzzer, or other acoustic device to draw the attention of the attendant or operator to an alarm condition.
Bagging cycle	A series of functions that describe the packaging process, from beginning to end, for one package of product.
Base frame	The portion of the machine that provides the support structure for all other components that make up the machine.
Bulk rate	The fill speed used to package the largest portion of the product. It is a fast fill speed. Also referred to as 1 st RATE.
Component	An item of hardware as commonly supplied complete by manufacturers.
Contact	A conducting part that co-acts with another conducting part to open or close an electrical circuit.
Counter	A device that counts the occurrence of some event.
Cubic Feet/Minute (CFM)	A unit of measure that is used to describe the amount of compressed air that is used by a machine.
DC	Direct Current
De-energize	To deprive an electro-receptive device of its operating current.
Discharge spout	A component whose primary function is to guide the product from the feed mechanism into the package.
Display	A device that gives information in visual form.
Dribble rate	The fill speed used to package the smallest portion of the product. It is a slow fill speed, as compared to the bulk rate. Also referred to as 2 nd RATE.
Dual set point	Refers to a machine that has the capability of delivering the product at two different fill speeds.
Dump cylinder	A pneumatic cylinder that is used to open and close a dump gate.
Dump gate	Located at the bottom of the weigh bucket, when closed it allows the product to fill the weigh bucket. Once the desired amount of product has been loaded into the weigh bucket, the dump gate is manually opened to allow the material to drop into the package.
ESD	Electrostatic Discharge
Failure	The event, or inoperable state, in which any item or part of an item does not, or would not, perform as specified.
Fill rate	A general term used to describe the speed at which the product is being fed.
Fine dribble rate	On some units equipped with a digital control set, a third feed rate is available. This speed is slower than the dribble rate.
Flow gate	Used to control the amount of product that is allowed to flow from the supply hopper into the feeder device.
Ground	A conducting connection, whether intentional or accidental, between an electrical circuit or equipment and the earth, or some other conducting body at a reference potential.
h, HR	Hour
I/O	Input/Output
IN, in.	Inch, Inches

Glossary

TERM	DEFINITION
Infra Red (IR) port	A feature of the digital control set, it is used for transferring program/configuration information from a Personal Data Assistant (PDA) to the digital control panel. Rather than using a cable to transfer the data, this method used infrared light.
Jog	The function of adding a small amount of product to a package that ended up being underweight at the end of the bagging cycle.
kg	kilogram
Lag bolt	Used to attach equipment to a pallet during shipping.
lb or lbs	Pound or pounds
LCD	Liquid Crystal Display
LED	Light Emitting Diode. Used as status indicator for many types of equipment (processors, power supplies, I/O modules, modems, etc).
Load cell	An electronic device that is used to monitor the weight of the product that is being packaged.
MAC valve	A pneumatic valve that is used for controlling various pneumatic cylinders. The valves apply air pressure to the cylinders causing them to either open or close.
Module	Assembly of components, which function as a unit and can be replaced as a unit.
OPC	OLE for Process Control
PLC	Programmable Logic Controller
Pounds per Square Inch (PSI)	Unit of measure used to describe air pressure.
POWER ON indicator	A lamp that will illuminate when power has been turned on.
Power supply	A device that converts available power to a form that a system can use — usually converts AC power to DC power.
Processor	The decision-making and data storage sections of a programmable controller or computer.
Product	A type or a category of manufactured goods, constructions, installations, and natural and processed materials or those associated services whose characterization, classification, or functional performance determination is specified by standards.
Reaction time	The time used by equipment, operator, or both, that elapses between the moments an action is called for and when the desired result occurs.
Refrigerated air dryer	A device that is uses a refrigeration unit to remove moisture from a compressed air supply. This is done to reduce corrosion and contamination of the pneumatic equipment.
Relay	An electromagnetic device that is operated by a variation in the conditions of one electric circuit, to effect the operation of other devices in the same or another electric circuit.
RS-232	An EIA standard that specifies electrical, mechanical, and functional characteristics for serial binary communication circuits. A single-ended serial communication interface.
Safety-Critical	Any condition, event, operation, process, component, assembly, subsystem, or system, the failure or malfunction of which can result in severe injury, severe occupational illness, or major damage.
Set point	A control setting that is used to define a transition point in the fill process. It can be a point when a change in fill rate occurs, or when the machine stops filling all together.
Set Point 1 (SP-1)	The control setting that defines where the bulk feed rate is to stop.
Set Point 2 (SP-2)	The control setting that defines where the dribble rate stops. Is typically slightly lower than target weight.
Shipping bracket	A piece of metal that is used to secure the weighing apparatus to the base frame during shipping to prevent damage to the weighing apparatus.
Single set point	Refers to a machine that has the capability of delivering the product at a single fill speeds.

TERM	DEFINITION
State	1) The condition of a circuit or system. 2) The condition at the output of a circuit that represents logic 0 or 1.
STOP button/indicator	Used by the operator to immediately stop the machine. Is a large red button that illuminates when the stop button has been pressed. To restart the machine the button is pulled out.
Surge	A sudden rise of current or voltage.
Surge hopper	A reservoir for the product before it reaches the feed device.
T3000	An electronic control device that was jointly developed by Magnum Systems and Hardy Instruments.
Target weight	The desired package weight.
VAC	Volt, alternating current
VDC	Volt, direct current
Vibrator pan feeder	A product feed device that uses vibration to move the product from the supply hopper to the discharge spout.
Water separator	A device that is installed in a compressed air supply line to remove excess moisture from the air supply. This is done to reduce corrosion and contamination of the pneumatic equipment.
Weighment	One charge or fill of a packaging machine.
Weight display	An electronic device that is used to display package weights and to set package parameters.
Weigh bucket	A metal device that is used to catch and hold the product for weighing.
Zero knob	The control mechanism for adjusting machine to zero.

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Appendix A

Safety Procedures, Cautions, Warnings, and Notices

- General safety precautions must be observed during all phases of operation, service and repair of the TE10C. 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 TE10C.
- 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 TE10C 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 TE10C.
- Observe all procedural cautions and warnings located on the equipment and throughout this manual.
- Read and follow all instructions
- Follow all warnings and instructions marked on the units and listed in manuals.

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Appendix B Spare Parts

Table B-1. TE10C Spare Parts List

	Part Description	Part Number
1	612b-11-111aa MAC Valve	50-1294
2	7-dp-1 Weigh Bucket Gate	50-1924
3	60051-25 Load Cell	50-0242
4	700-ha32a1 Relay	50-1097

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Appendix C

Mechanical Drawings

Table C-1. TE10C Mechanical Drawing List

	Drawing Title	Drawing Number
1		
2		
3		
4		

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Appendix D Electrical Drawings

Table D-1. TE10C Electrical Drawing List

	Drawing Title	Drawing Number
1		
2		
3		
4		

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Appendix E

T3000 Control Panel User Guide

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This unit was ordered with the base PV300 control panel, thus the T3000 Control Panel User Guide is not needed and not included.

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Appendix F Custom Features

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

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

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