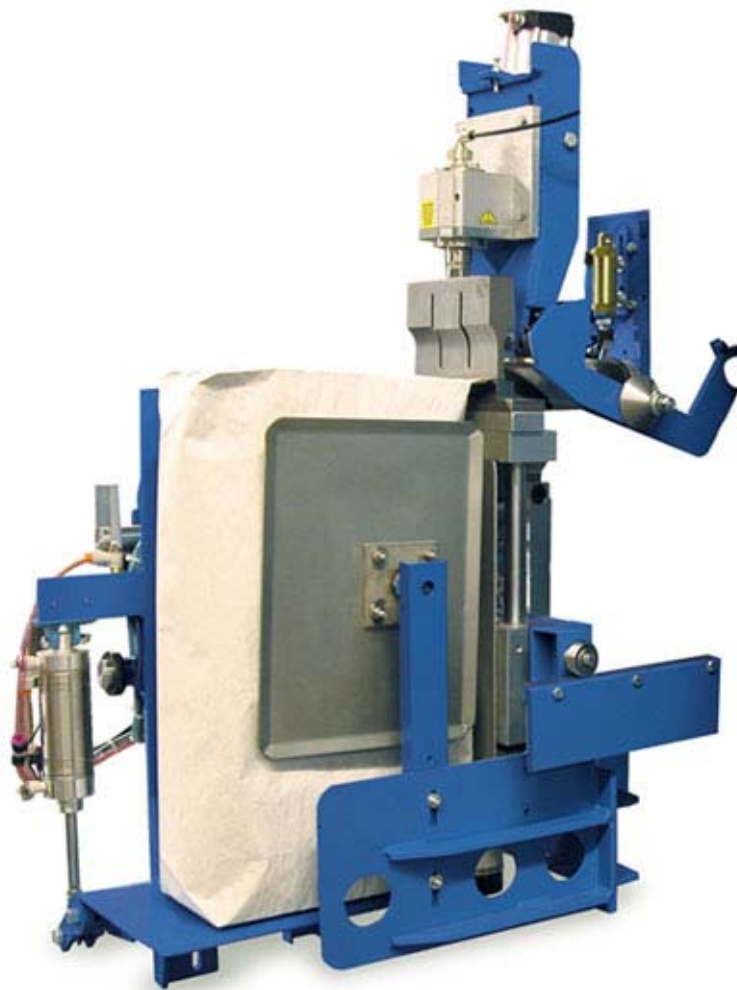




# Valve Bag Ultrasonic Sealer

## Model TRUSeal



Operation and Maintenance Manual



**MAGNUM**  
S Y S T E M S



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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 TRU Ultrasonic Sealer utilizes 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.*

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## **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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# Model TRU – Ultrasonic Sealer

## Table of Contents

Topic	Page
General Description .....	1
Components .....	1
Weigh Mast .....	1
Bag Chair and Pneumatic Cylinder .....	2
Bag Squaring Device and Pneumatic Cylinder .....	2
Bag Width Controllers .....	3
Carriage and Pneumatic Cylinders .....	4
Component Position Monitoring .....	5
Pneumatic Cylinder Proximity Switches .....	5
Carriage Proximity Switch .....	5
Pressure Switches .....	6
Anvil and Pneumatic Cylinder .....	7
Horn, Transmitter, and Pneumatic Cylinders .....	8
Ultrasonic Controller .....	9
Menu System .....	10
Main Screen .....	10
Testing 1 Screen .....	11
Testing 2 Screen .....	11
Testing 3 Screen .....	12
Timers Screen .....	12
Timers 2 Screen .....	13
Operational Sequence .....	14
Adjustment Procedures .....	18
Horn Vertical Adjustment .....	18
Anvil Horizontal Adjustments .....	18
Pneumatic Cylinder Proximity Switch Adjustment .....	19
Carriage Proximity Switch Adjustment .....	21
Pressure Switch Adjustment .....	21
Bag Width Adjustment .....	21
Air Flow Adjustment – Pneumatic Cylinders .....	24
Repair Instructions .....	25
Transmitter Replacement .....	25
Transmitter Removal .....	25
Transmitter Installation .....	25
Horn Replacement .....	26
Horn Removal .....	26
Horn Installation .....	26
Anvil Replacement .....	26
Anvil Removal .....	26
Anvil Installation .....	27
Horn Cylinder Replacement .....	27
Horn Cylinder Removal .....	27
Horn Cylinder Installation .....	28
Proximity Switch Replacement – Setscrew Type .....	29
Proximity Switch Removal – Setscrew Type .....	29
Proximity Switch Installation – Setscrew Type .....	29
Proximity Switch Replacement – Band Clamp Type .....	30
Proximity Switch Removal – Band Clamp Type .....	30

Proximity Switch Installation – Band Clamp Type .....	30
Carriage Proximity Switch Replacement .....	31
Carriage Proximity Switch Removal .....	31
Carriage Proximity Switch Installation .....	31
Anvil Pneumatic Cylinder Replacement .....	32
Anvil Pneumatic Cylinder Removal .....	32
Anvil Pneumatic Cylinder Installation .....	32
Bag Chair Pneumatic Cylinder Replacement .....	33
Bag Chair Pneumatic Cylinder Removal .....	33
Bag Chair Pneumatic Cylinder Installation .....	33
Carriage Pneumatic Cylinder Replacement .....	34
Carriage Pneumatic Cylinder Removal .....	34
Bag Chair Pneumatic Cylinder Installation .....	35



## List of Figures

<b>Figure</b>	<b>Page</b>
Figure 1 – Weigh Mast .....	1
Figure 2 – Bag Chair and Pneumatic Cylinder (Shown in the Up Position) .....	2
Figure 3 – Bag Squaring Device.....	3
Figure 4 – Bag Squaring Device Pneumatic Cylinder .....	3
Figure 5 – Bag Width Control Device .....	3
Figure 6 – Carriage Cylinder .....	4
Figure 7 – Carriage Rollers.....	4
Figure 8 – Proximity Switch (Switch Is Made – LED On).....	5
Figure 9 – Carriage Proximity Switch .....	5
Figure 10 – Pressure Switch Control Box.....	6
Figure 11 – Pressure Switches (Shown with Switches Made – LEDs On) .....	6
Figure 12 – Anvil.....	7
Figure 13 – Anvil Pneumatic Cylinder .....	7
Figure 14 – Ultrasonic Controller .....	9
Figure 15 – Valve Bag Hung On Spout.....	14
Figure 16 – Bag Chair In The Up Position .....	14
Figure 17 – Squaring The Bag (1 of 2).....	15
Figure 18 – Squaring The Bag (2 of 2).....	15
Figure 19 – Carriage In The Out Position.....	16
Figure 20 – Anvil And Horn Pinching The Fill Valve .....	16
Figure 21 - Anvil And Horn Returned To Home Position.....	17
Figure 22 – Bag Chair In Down Position, Bag Has Dropped.....	17
Figure 23 – Horn Vertical Adjustment Mechanism.....	18
Figure 24 – Anvil Adjustment Screw (1 of 2 shown).....	19
Figure 25 – Sealer Buttons On Control Panel.....	19
Figure 26 – Different Types of Proximity Switch Clamps.....	20
Figure 27 – Pneumatic Cylinder Proximity Switch .....	20
Figure 28 – Position the Valve Bag on the Spout.....	22
Figure 29 – Sealer Buttons On Control Panel.....	22
Figure 30 – Pressure Switch Control Box.....	22
Figure 31 – Pressure Switch LEDs (Shown Illuminated).....	23
Figure 32 – Bag Width Control Device .....	23
Figure 33 – Air Flow Adjustment for a Pneumatic Cylinder.....	24
Figure 34 – Transmitter Mounting Screws .....	25
Figure 35 – Transmitter Mounting Screws .....	26
Figure 36 – Anvil Mounting .....	27
Figure 37 – Horn Cylinder (1 of 2 shown) .....	28
Figure 38 – Setscrew Type Proximity Switch Installation .....	29
Figure 39 – Band Clamp Type Proximity Switch Installation.....	30
Figure 40 – Carriage Proximity Switch Mounting Screws.....	31

Figure 41 – Bag Chair Cylinder ..... 33  
Figure 42 – Carriage Cylinder ..... 34

## List of Tables

<b>Figure</b>	<b>Page</b>
Table 1 – Horn, Transmitter, and Pneumatic Cylinders .....	8
Table 2 – Main Screen .....	10
Table 3 – Testing 1 Screen.....	11
Table 4 – Testing 2 Screen.....	11
Table 5 – Testing 3 Screen.....	12
Table 6 – Timers Screen .....	12
Table 7 – Timers 2 Screen .....	13

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## Model TRU – Ultrasonic Sealer

### General Description

The Model TRU ultrasonic sealer is an optional feature that can be added to each of the following machines:

- Model A – Air Packer
- Model C – Air Packer
- Model I – Impeller Packer
- Model APV – Auger Packer, Valve Bag

The ultrasonic sealer is designed to use ultrasonic sound waves to create an airtight seal on the valve bag inlet. The inlet of the valve bag is lined with a non-adhesive coating. When the jaws close on the valve, and the transmitter is turned on, the ultrasonic sound waves cause a change in the molecular structure of the non-adhesive coating, causing it to bond to itself.

### Components

The ultrasonic sealer is comprised of the following components:

- Weigh mast
- Bag chair and pneumatic cylinder
- Bag squaring device and pneumatic cylinder
- Bag width controllers
- Carriage and pneumatic cylinder
- Proximity switches
- Pressure switches
- Anvil and pneumatic cylinder
- Horn, transmitter, and pneumatic cylinder
- Ultrasonic controller

### Weigh Mast

The weigh mast provides the rigid structure that is required to support the ultrasonic sealer and the valve bag. The weigh mast is actually part of the packaging machine, but plays a critical function in the operation of the ultrasonic sealer.

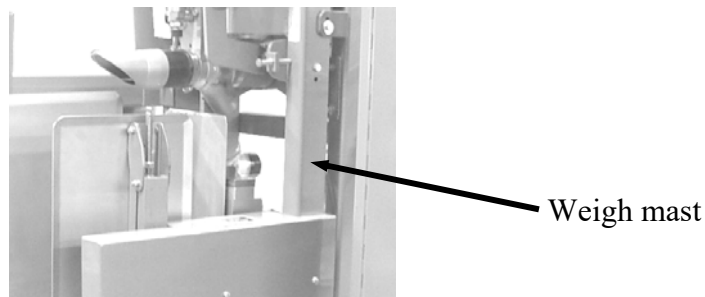


Figure 1 – Weigh Mast

### Bag Chair and Pneumatic Cylinder

On the bottom of the carriage assembly is the bag chair. The bag chair is a metal plate that pivots to support the valve bag during the filling and sealing processes. A vertically mounted pneumatic cylinder is used to move the bag chair between the up and down positions. When the cylinder rod is retracted, the bag chair is in the down position. When the cylinder rod is extended, the bag chair is in the up position. The pneumatic cylinder is equipped with two externally mounted proximity switches to monitor the current state of the pneumatic cylinder. Refer to Pneumatic Cylinder Proximity Switches for more information.



Figure 2 – Bag Chair and Pneumatic Cylinder (Shown in the Up Position)

### Bag Squaring Device and Pneumatic Cylinder

To ensure that the anvil and horn are able to get a good clamp on the valve bag inlet, the Model TRU utilizes a bag squaring device. A metal panel makes contact with the front edge of the bag, under the valve bag inlet and makes sure that this surface is square. This is done to prevent the front of the bag from interfering with the sealing of the valve.

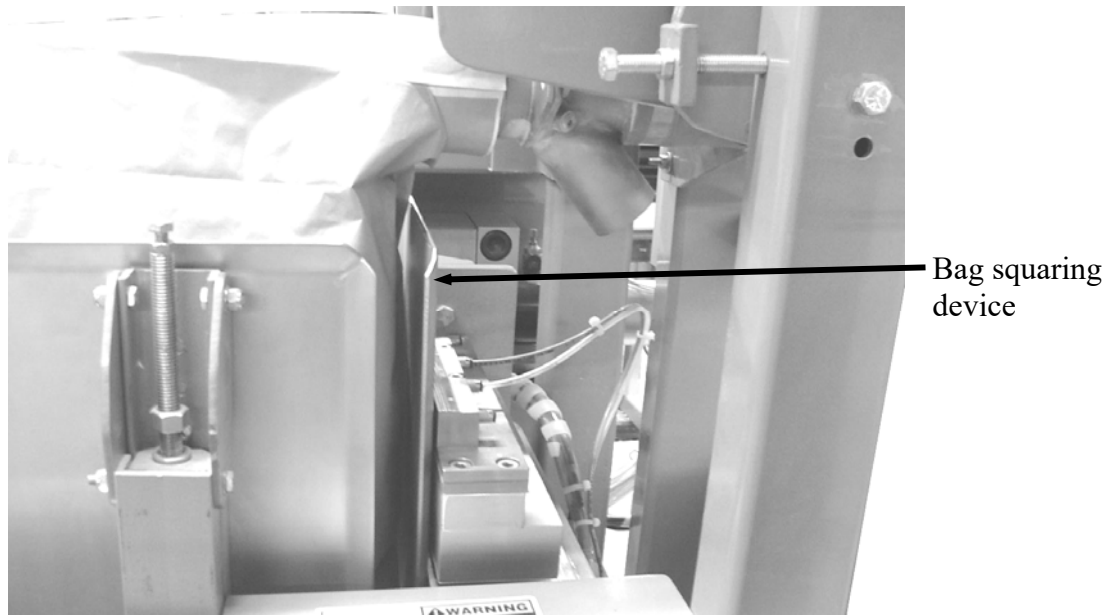


Figure 3 – Bag Squaring Device

A pneumatic cylinder that is mounted inside the carriage assembly moves the bag squaring device forward and rearward.

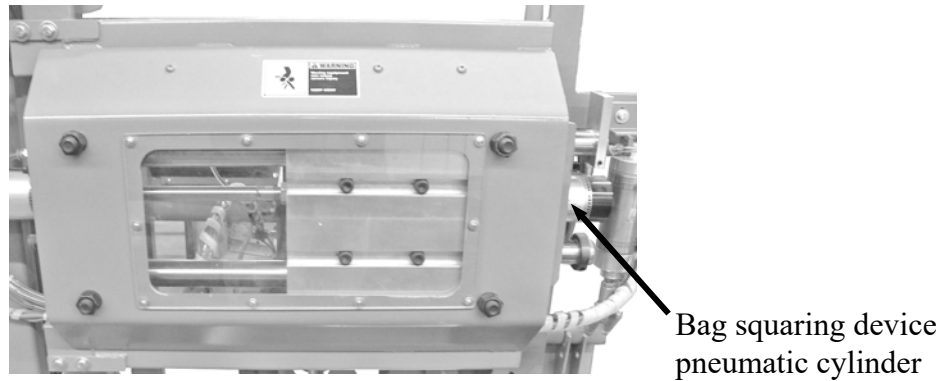


Figure 4 – Bag Squaring Device Pneumatic Cylinder

### Bag Width Controllers

There are two metal panels that are located on the sides of the carriage. These panels are the bag width controllers. The bag width controllers provide a snug fit for the valve bag, width-wise, and to keep the bag centered in the carriage.

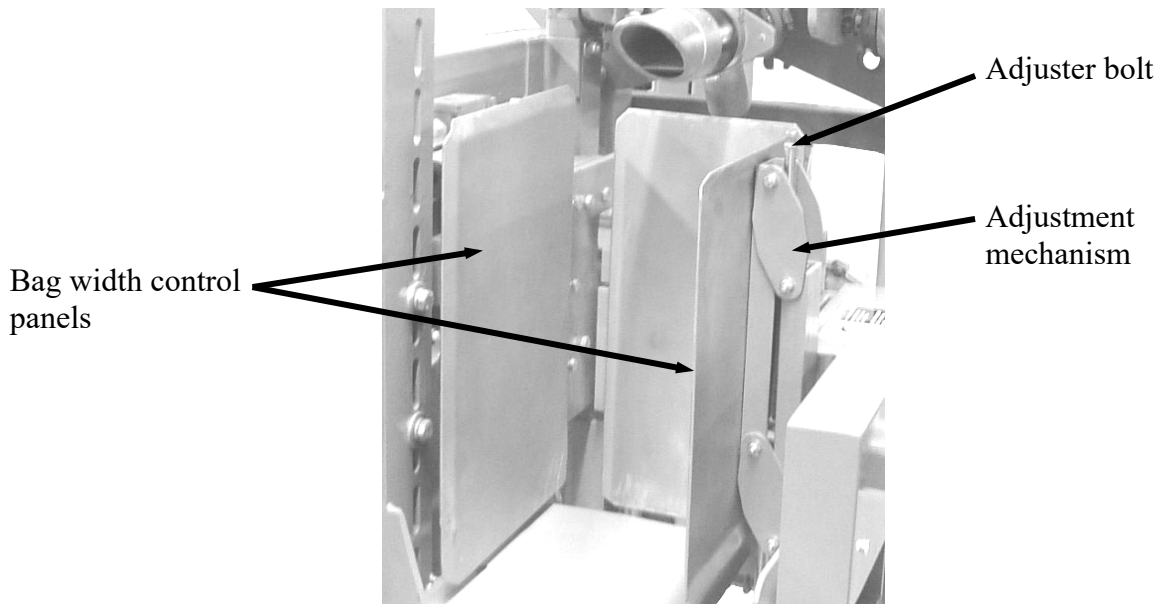


Figure 5 – Bag Width Control Device

Each bag width control panel is attached to an adjustment mechanism. Each adjustment mechanism has an adjuster bolt that runs vertically down through the mechanism. The head of the adjuster bolt is located at the top. Turning the adjuster bolt will allow the operator to widen or narrow the width between the bag width control panels and to keep the bag centered in the carriage.

### Carriage and Pneumatic Cylinders

The Model TRU utilizes a carriage assembly to move the filled valve bag away from the spout so the fill valve can be sealed. The carriage is supported by a set of rollers that ride on a rail, allowing the carriage to slide forward and back. A pneumatic cylinder, mounted on the side of the machine extends to move the carriage out and retracts to pull it back in. The rollers are positioned on one side of the carriage, while the pneumatic cylinder is positioned on the opposite side.

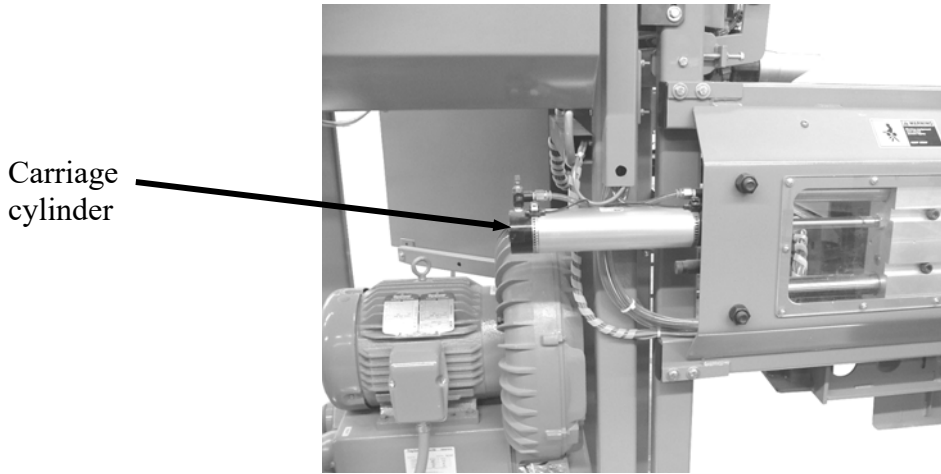


Figure 6 – Carriage Cylinder

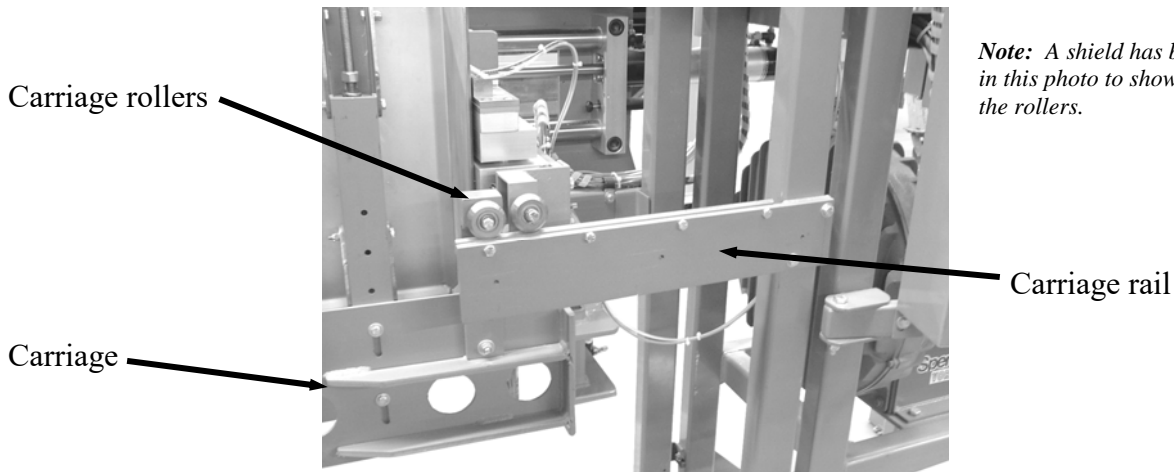


Figure 7 – Carriage Rollers

The bag chair, bag width controllers, bag squaring device, and other components are mounted on the carriage.



## Component Position Monitoring

For the Model TRU ultrasonic sealer requires precise control to maintain proper operation. This means that the monitoring system must know the position of each component at all times. This is accomplished through the use of proximity and pressure switches.

### Pneumatic Cylinder Proximity Switches

The pneumatic cylinders used on the ultrasonic sealer use proximity switches and magnets to monitor the position of the cylinders. The magnets are positioned on the plunger on the inside of the pneumatic cylinders. The proximity switches are positioned on the outside of the pneumatic cylinder. When the cylinder changes position and the magnet lines up with the proximity switch, the proximity switch is made (closes). The result is that the LED in the switch will illuminate and an input is sent to the controller.



Figure 8 – Proximity Switch (Switch Is Made – LED On)

### Carriage Proximity Switch

The carriage is equipped with a rotary type proximity switch that changes state, based on the position of the carriage. When the carriage is all the way in, the switch is open, which opens the circuit, interrupting the input to the controller, indicating that the carriage is in. When the carriage is moved out, the switch is closed, which completes the circuit, resulting in a voltage input to the controller, indicating that the carriage is out.

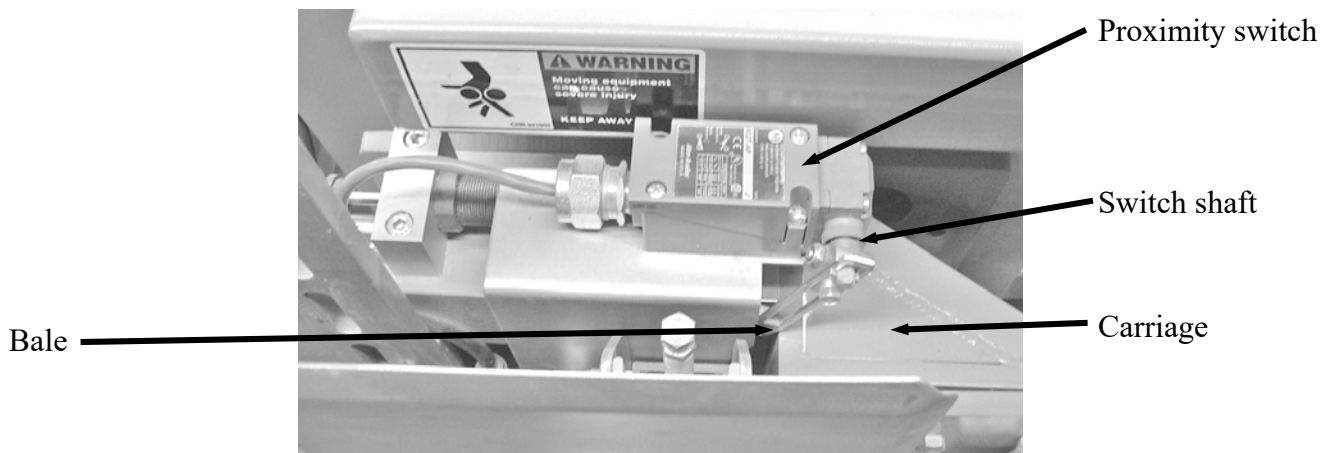


Figure 9 – Carriage Proximity Switch

## Model TRU – Ultrasonic Sealer Quick Reference

### Pressure Switches

The Model TRU ultrasonic sealer uses a pair of pressure switches. The purpose of the pressure switches is to ensure that the bag is properly positioned in the carriage. When the bag is properly positioned, the pressure ports are blocked, causing the air pressure in the air supply lines to increase, causing the pressure switches to change state. Both pressure switches must be made for the sealer to work.

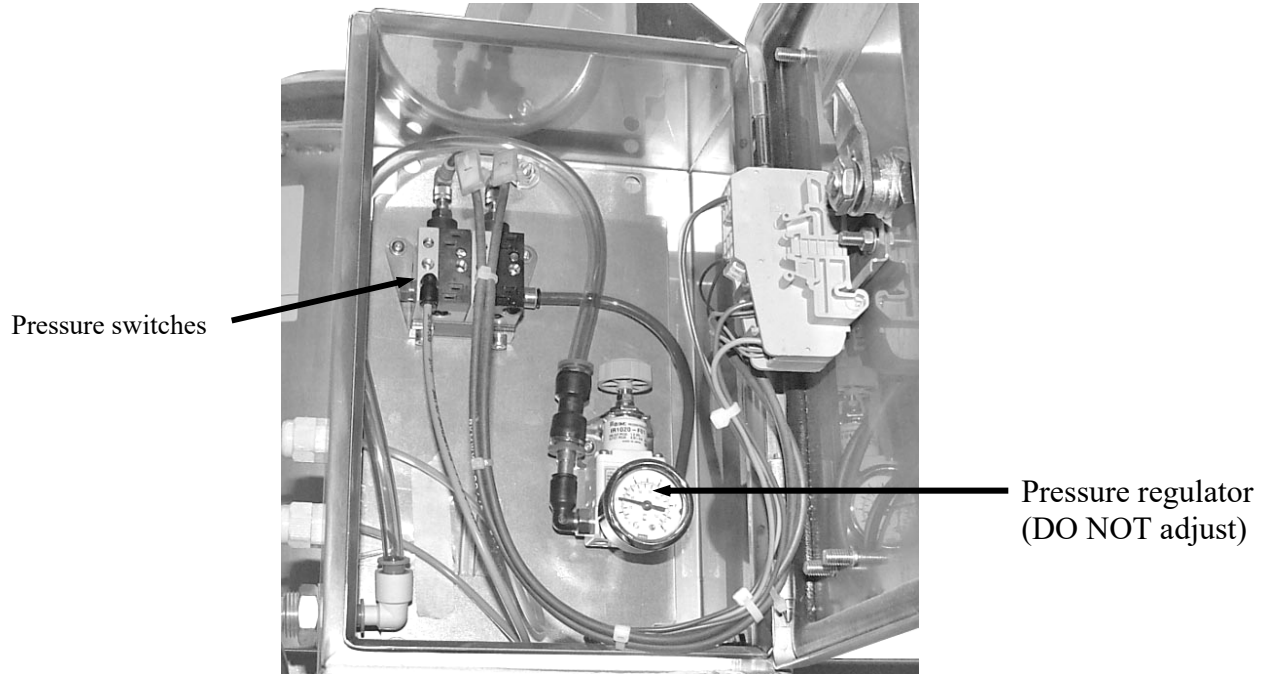


Figure 10 – Pressure Switch Control Box

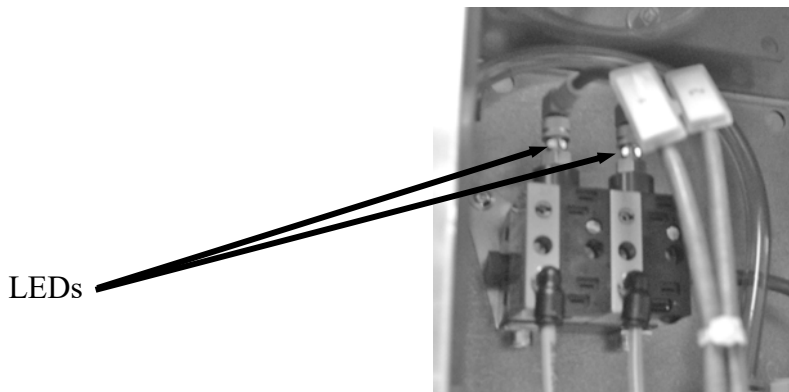


Figure 11 – Pressure Switches (Shown with Switches Made – LEDs On)

Also found inside the pressure switch control box is an air pressure regulator. This regulator controls the amount of air pressure in the lines running from the pressure switches. This regulator is factory set and should not be adjusted by the operator. If the operator feels that an adjustment is necessary, contact Magnum Systems at (888) 882-9567.

### Anvil and Pneumatic Cylinder

The anvil is the base of the sealing assembly and is located on the carriage, just behind the bag squaring device. The anvil is a piece of machined hardened steel that has two ridges across the top. The anvil is raised and lowered by a pneumatic cylinder. When in the raised position, the anvil pushes on the bottom of the fill valve. The anvil will be in the raised position at the same time that the horn is in the lowered position. The horn pinches the valve between itself and the anvil.

The anvil is equipped with two ports that are connected to the bag in place pressure switches. These switches use compressed air. When a bag is in front of the pressure switch ports, the pressure in the air supply lines increases, causing the proximity switches to change state. Both pressure switches must be made for the sealer to work.

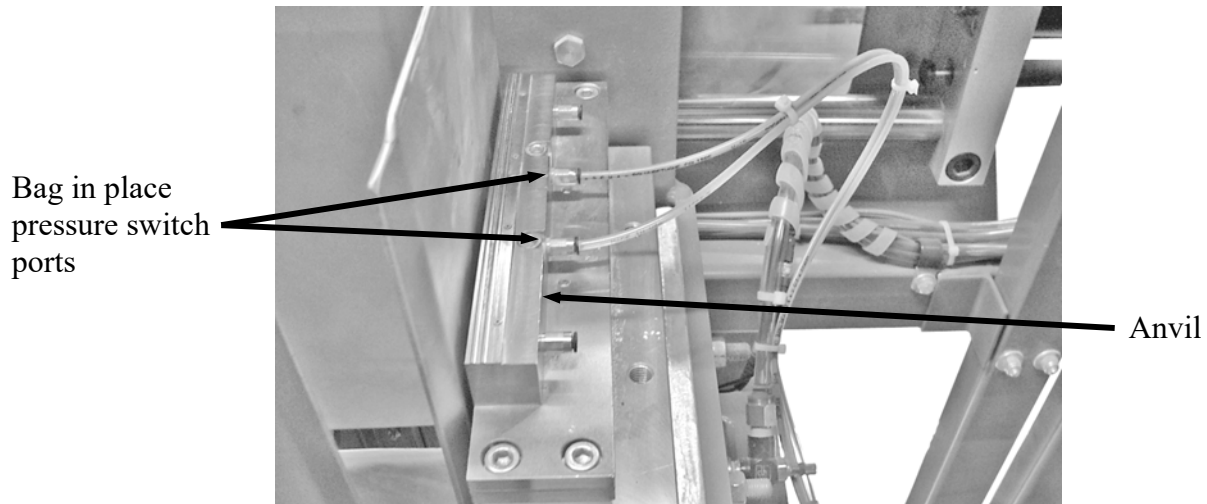


Figure 12 – Anvil

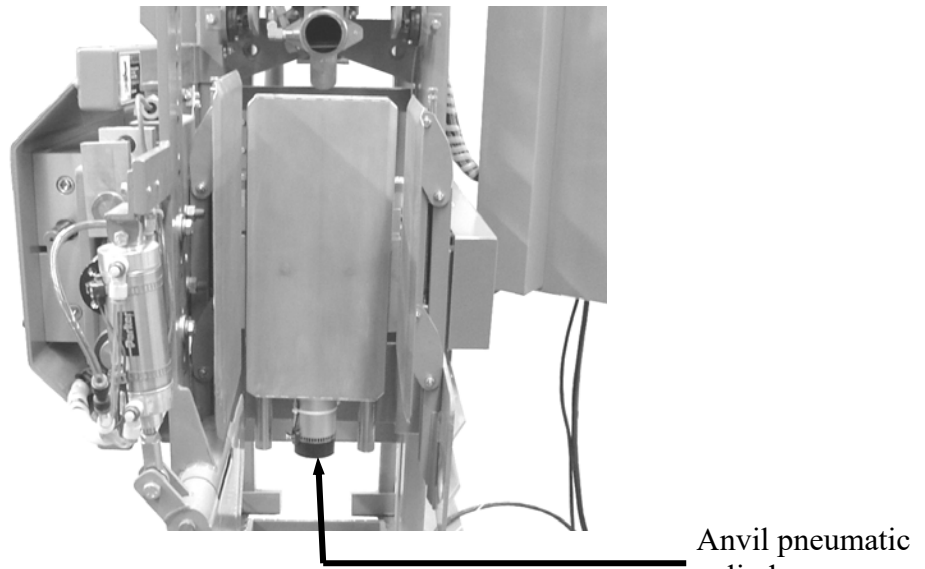
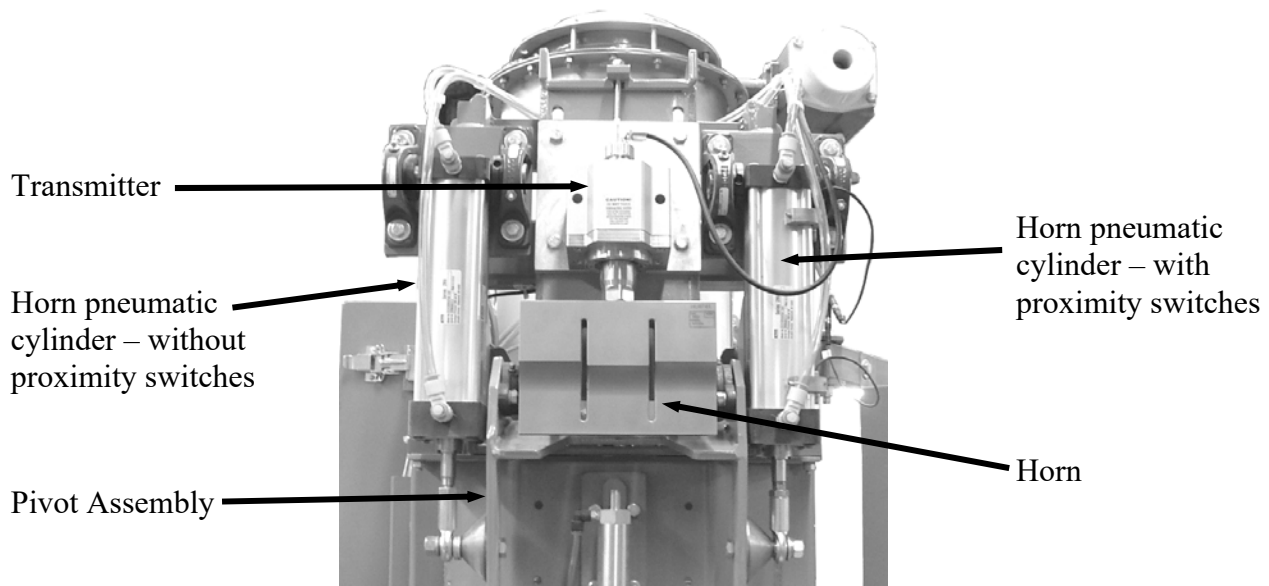


Figure 13 – Anvil Pneumatic Cylinder

## Horn, Transmitter, and Pneumatic Cylinders

The horn is located on the upper portion of the front, near the top. The horn is attached to the transmitter. When the bag inlet valve is pinched between the horn and anvil, and both pressure switches are made, the transmitter will transmit the ultrasonic sound waves through the horn. The transmitter is mounted on an aluminum plate that is secured to the pivot assembly. The control system ensures that the transmitter will not be activated unless the correct circumstances exist. If the transmitter were activated without a valve bag properly positioned between the horn and anvil, the internal components of the transmitter would be damaged.

Adjacent to the transmitter, but not attached to the pivot assembly, are two sets of bearings. These bearings are the pivot points for the two horn pneumatic cylinders. The pneumatic cylinders are extended and retracted as a pair to raise and lower the horn. One of the two cylinders will be equipped with a pair of proximity switches. Since the two cylinders are tied together through the pivot assembly, it is only necessary for the controller to monitor the position of one of the cylinders.

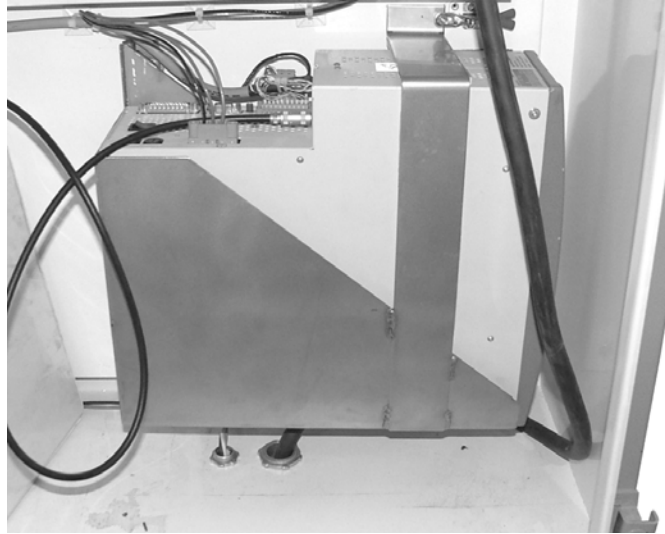


**Table 1** – Horn, Transmitter, and Pneumatic Cylinders

The cylinder rods are attached to the lower portion of the pivot assembly. When the cylinder rods extend, the horn is lowered. When the cylinder rods retract, the horn returns to the up position.

### **Ultrasonic Controller**

The controller for the ultrasonic sealer is found inside the main control panel of the packaging machine. The controller is configured at the factory and does not require any manual adjustment by the operator. If the operator feels that an adjustment is necessary, contact Magnum Systems at (888) 882-9567.



**Figure 14** – Ultrasonic Controller

## Menu System

The menu system is designed to allow machine operators to manage the operation of the ultrasonic sealer. The following paragraphs will provide detail on the function of each of the menus and how to make changes to individual parameters.



### CAUTION

Never change a parameter without understanding how that change will affect the operation. ALWAYS make note of the current setting before changing it. This is done in case the change adversely affects the operation of the machine and the parameter needs to be restored to its previous setting.

The Model TRU Ultrasonic Sealer is monitored and adjusted using the Allen-Bradley PV300 control panel. The following menu screens are used:

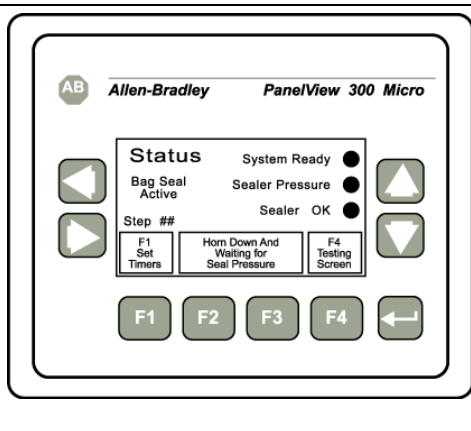
- Main screen
- Testing 1 screen
- Testing 2 screen
- Testing 3 screen
- Timers screen
- Timers 2 screen

## Main Screen

Once the machine has been turned on and it has warmed up, the base screen will appear on the PV300 control panel. This screen will provide basic status information of the Model TRU Ultrasonic Sealer.

Table 2 – Main Screen

Key	Function
F1	Pressing F1 allows the operator to advance to the Timers 1 screen so the operator can adjust the timers.
F4	Pressing F4 will take the operator to the Testing 1 screen, so the operator can test the function of individual components.



**Note:** The box that is positioned above the F2 and F3 keys provides the current status of the ultrasonic sealer.

### Testing 1 Screen

The testing 1 screen is the first of three screens that allow the operator to monitor the output to a device and then monitor whether or not the device responded accordingly, or whether or not the associated proximity switch is responding.

Table 3 – Testing 1 Screen

	Key	Function
	F3	Pressing F3 allows the operator to advance to the Testing 2 screen.
	F4	Pressing the F4 key allows the operator to return to the Main screen.

### Testing 2 Screen

The testing 2 screen is the second of three screens that allow the operator to monitor the output to a device and then monitor whether or not the device responded accordingly, or whether or not the associated proximity switch is responding.

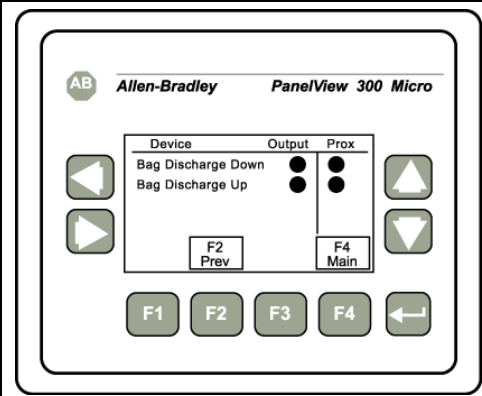
Table 4 – Testing 2 Screen

	Key	Function
	F2	Pressing F2 will return the operator to the Testing 1 screen.
	F3	Pressing F3 allows the operator to access the Testing 3 screen.
	F4	Pressing F4 will allow the operator to return to the Main screen.

### Testing 3 Screen

The testing 1 screen is the third of three screens that allow the operator to monitor the output to a device and then monitor whether or not the device responded accordingly, or whether or not the associated proximity switch is responding.

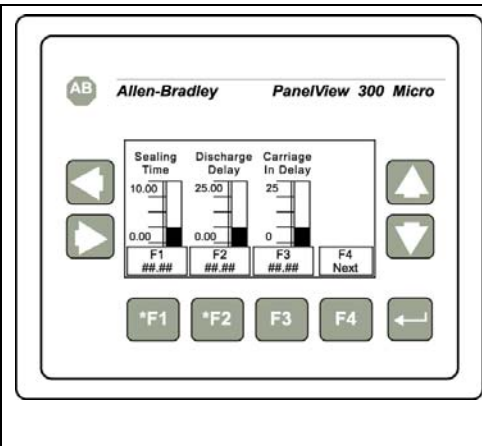
**Table 5 – Testing 3 Screen**

	Key	Function
F2	Pressing F2 will return the operator to the Testing 2 screen.	
F4	Pressing F4 will allow the operator to return to the Main screen.	

### Timers Screen

The Timers screen is the first of two screens that allow the operator to adjust the amount of delay that will occur between to specific operations.

**Table 6 – Timers Screen**

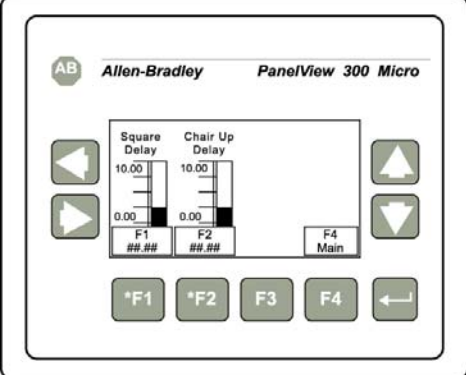
	Key	Function
F1	Pressing F1 allows the operator to adjust the Sealing Time setting.	
F2	Pressing F2 allows the operator to adjust the Discharge Delay setting.	
F3	Pressing F3 allows the operator to adjust the Carriage In Delay setting.	
F4	Pressing F4 will allow the operator to advance to the Timers 2 screen.	



## Timers 2 Screen

The Timers 2 screen is the second of two screens that allow the operator to adjust the amount of delay that will occur between to specific operations.

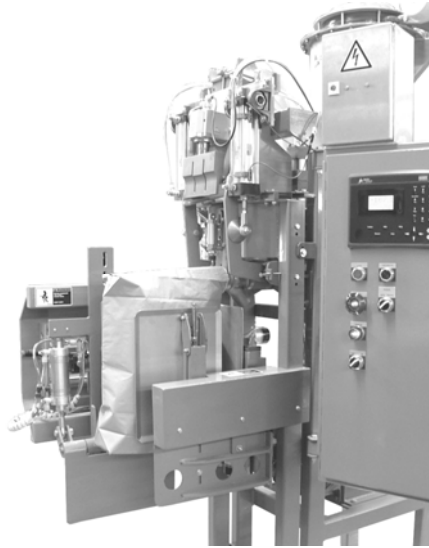
**Table 7 – Timers 2 Screen**

	Key	Function
F1	Pressing F1 allows the operator to adjust the Square Delay setting.	
F2	Pressing F2 allows the operator to adjust the Chair Up Delay setting.	
F4	Pressing F4 will allow the operator to advance to the Main screen.	

## Operational Sequence

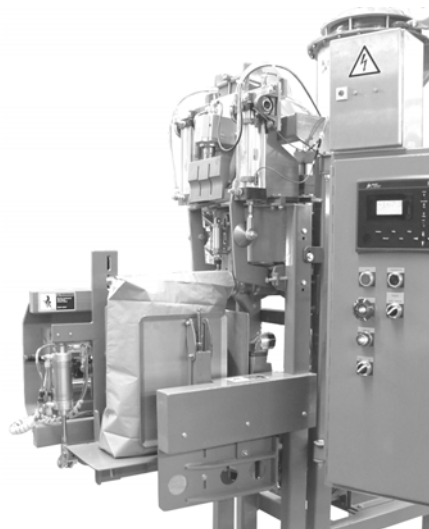
The ultrasonic sealer will operate as follows:

1. Turn the machine on and allow all controls to warm up for thirty (30) minutes.
2. The operator will hang the bag on the valve bag spout and press the START button to initiate the sequence.



**Figure 15** – Valve Bag Hung On Spout

3. The inflatable spout and/or bag clamp will actuate.
4. The filler will Auto Tare (if equipped).
5. Product will begin flowing into the valve bag.
6. The Chair Up delay timer will start to run.
7. After the Chair Up delay timer setting has been achieved, the bag chair will move to the up position, where it will support the bottom of the valve bag.



**Figure 16** – Bag Chair In The Up Position

8. The Bag Square delay timer will start to run.
9. After the Bag Square delay timer setting has been achieved, the bag face squaring device will extend to square the front edge of the bag.

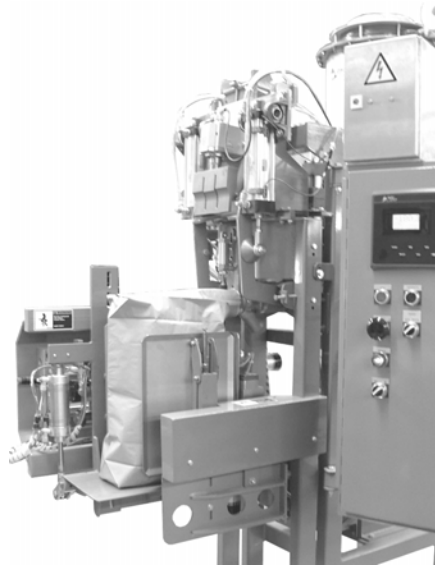


Figure 17 – Squaring The Bag (1 of 2)

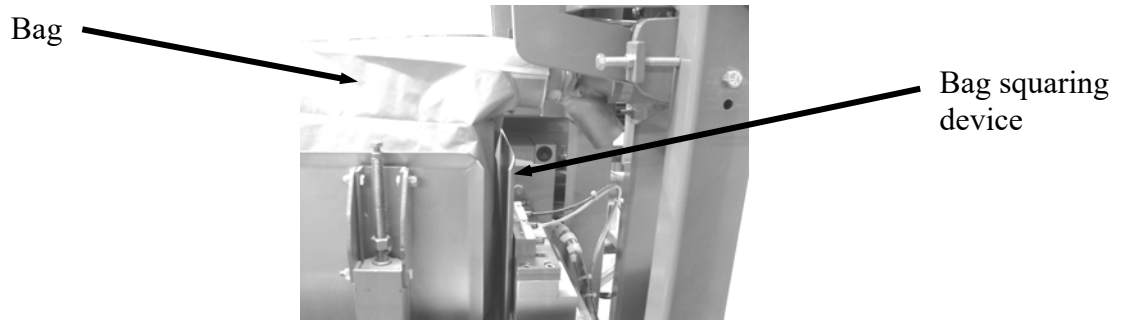
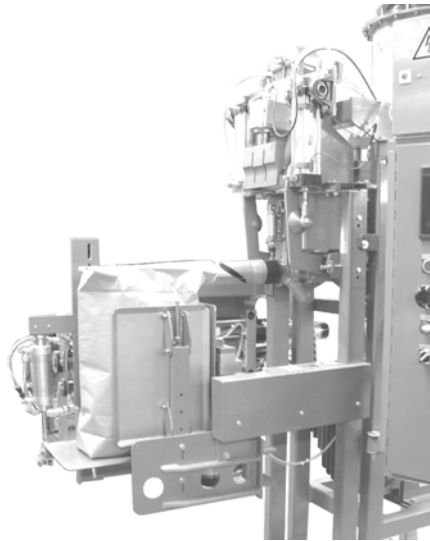


Figure 18 – Squaring The Bag (2 of 2)

10. Once the product in the valve bag has reached the target weight, the flow of product will stop.
11. The carriage will move forward to pull the valve bag off of the valve bag spout.



**Figure 19** – Carriage In The Out Position

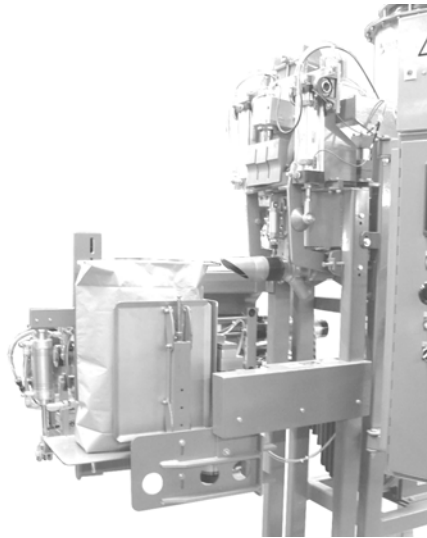
12. The two events listed below will happen simultaneously:
- The anvil will rise up and be positioned below the fill valve.
  - The horn will come down on top of the fill valve, pinching the fill valve between the horn and the anvil.



**Figure 20** – Anvil And Horn Pinching The Fill Valve

13. If both of the Bag Present pressure switches are made, the transmitter will be turned on and will remain on for the amount of time that has been set for the Sealing Time timer parameter.

14. The two events listed below will happen simultaneously:
  - a. The anvil will lower to its home position.
  - b. The horn will retract to its home position.



**Figure 21** - Anvil And Horn Returned To Home Position

15. The Discharge Delay timer will start to run.
16. After the Discharge Delay timer setting has been achieved, the bag chair will retract to the down position, resulting in the bag dropping onto the conveyor below.



**Figure 22** – Bag Chair In Down Position, Bag Has Dropped

17. The Carriage In delay timer will start to run.
18. After the Carriage In delay timer setting has been achieved, the carriage will retract to its home position.

## Adjustment Procedures

Some components on the Model TRU ultrasonic sealer may require periodic adjustment. However, this document will only provide adjustment instructions for specific items. If a component that is not covered in this supplement requires adjustment, contact Magnum Systems at (888) 882-9567. Otherwise, use the following procedures to ensure the Model TRU continues to operate as intended.

### Horn Vertical Adjustment

There is an adjustment bolt located at the top of the horn assembly. This adjustment bolt affects the height of the horn assembly. The adjustment on this item is made at the factory and should not be adjusted by the operator. If the Ultrasonic Sealer is not functioning properly, and it is suspected that the horn's vertical position needs to be adjusted, contact Magnum Systems at (888) 882-9567.



#### CAUTION

**DO NOT** adjust the vertical height of the horn assembly, unless expressly instructed to do so by Magnum Systems. Contact Magnum Systems at (888) 882-9567 regarding any questions/concerns about the operation and/or adjustment of the Model TRU – Ultrasonic Sealer.

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Horn assembly vertical adjustment bolt

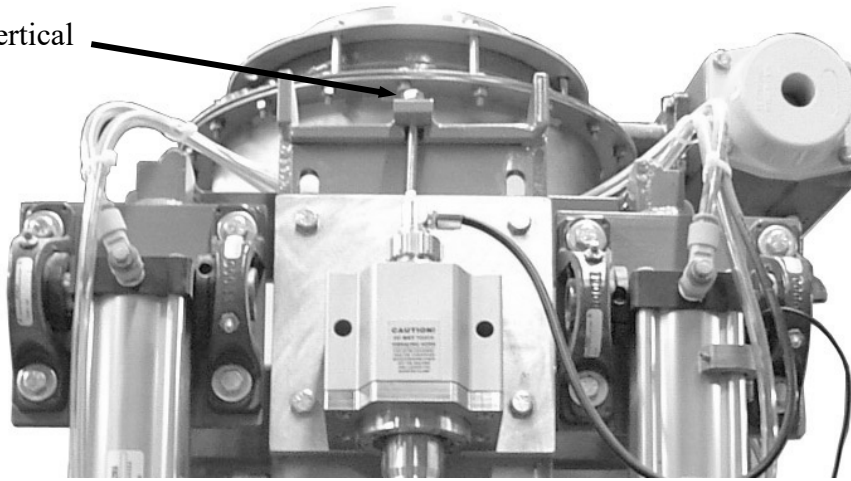


Figure 23 – Horn Vertical Adjustment Mechanism

### Anvil Horizontal Adjustments

On either side of the anvil mounting bracket, are adjustment screws with jam nuts. These screws are used to set the horizontal (side-to-side) position of the anvil, in relation to the carriage assembly. To make a horizontal position adjustment, follow the instructions below:

1. Turn the packaging machine off.
2. Disconnect the main electrical and pneumatic connections.
3. Loosen the jam nuts on each of the adjustment screws.
4. Back the adjustment bolt on the side that the anvil is going to be moved toward. For example, if the anvil needs to move to the side with the carriage cylinder, loosen the adjustment bolt on the side of the carriage cylinder.
5. Turn the adjustment bolt on the opposite side of the anvil clockwise to move the anvil in the desired direction.

6. Once the desired position is achieved, go back to the side that was loosened and tighten that adjustment bolt.
7. Tighten both of the jam nuts.

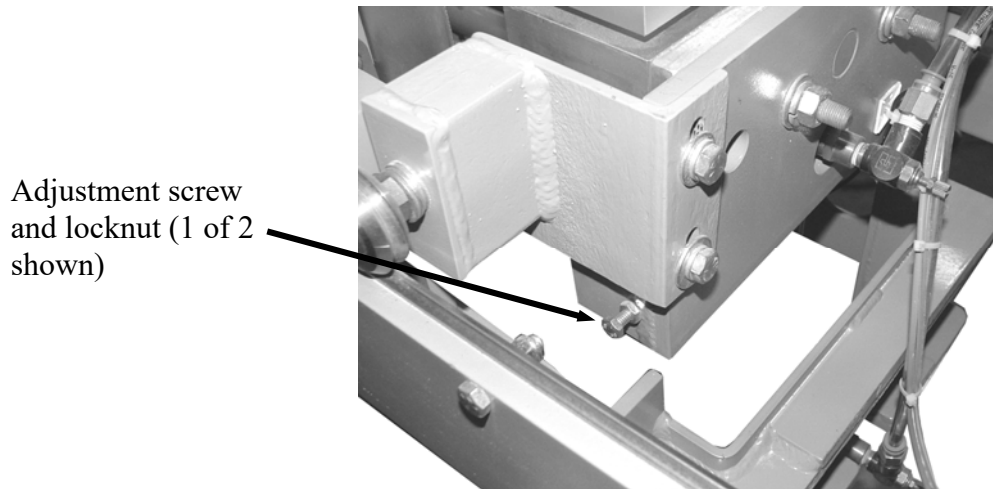


Figure 24 – Anvil Adjustment Screw (1 of 2 shown)

### Pneumatic Cylinder Proximity Switch Adjustment

The Ultrasonic Sealer uses proximity switches to monitor the position of the cylinders. If one of the proximity switches is out of adjustment, use the steps below to adjust the proximity switch.

1. Turn the SEALER power switch to the ON position.



Figure 25 – Sealer Buttons On Control Panel

2. If the cylinder with the proximity switch that is out of adjustment is not in the position required to make the proximity switch, set the SEALER AUTO / MANUAL switch to the MANUAL position and use the manual cycle button to cycle the machine to until the cylinder is in the desired position.
3. Loosen the set screws on the proximity switch clamp.

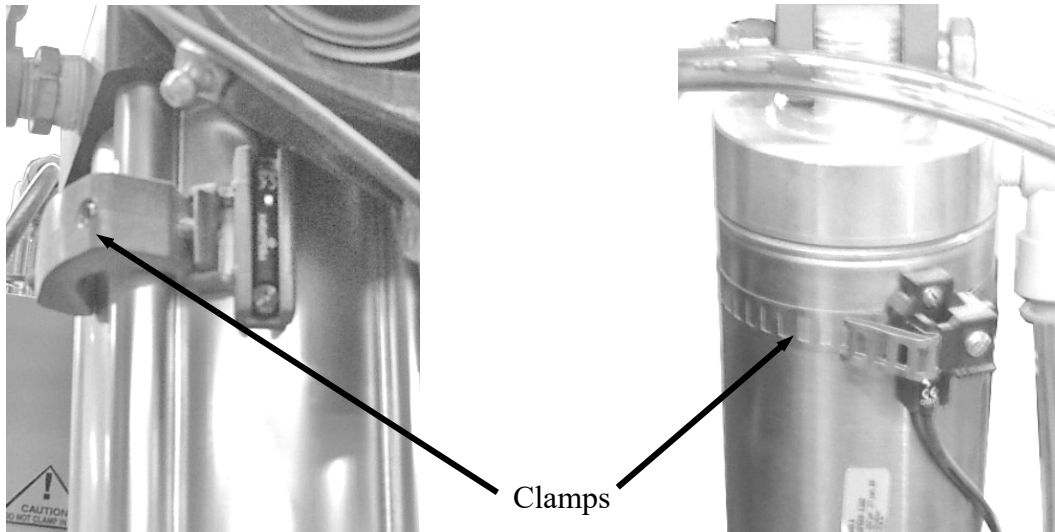


Figure 26 – Different Types of Proximity Switch Clamps

- Slide the proximity switch along the length of the cylinder, within a couple of inches of where it was positioned. Stop at the point where the LED has just illuminated.
- Place a mark on the cylinder with a marker at the top or bottom edge of the proximity switch.
- Continue moving the proximity switch in the same direction until the point where the LED in the proximity switch shuts off.
- Place a mark on the cylinder with a marker at the top or bottom edge (use the same edge that was used in step 5) of the proximity switch.
- Move the proximity switch out of the way.
- Measure the distance between the two lines placed on the cylinder in steps 5 and 7.
- Make a new mark on the cylinder that is centered between the two marks placed in steps 5 and 7.
- Line up the proximity switch with the mark made in step 10. Use the same edge of the proximity switch that was used with making the earlier marks.
- Tighten the set screws on the proximity switch.
- Test the machine for proper operation.

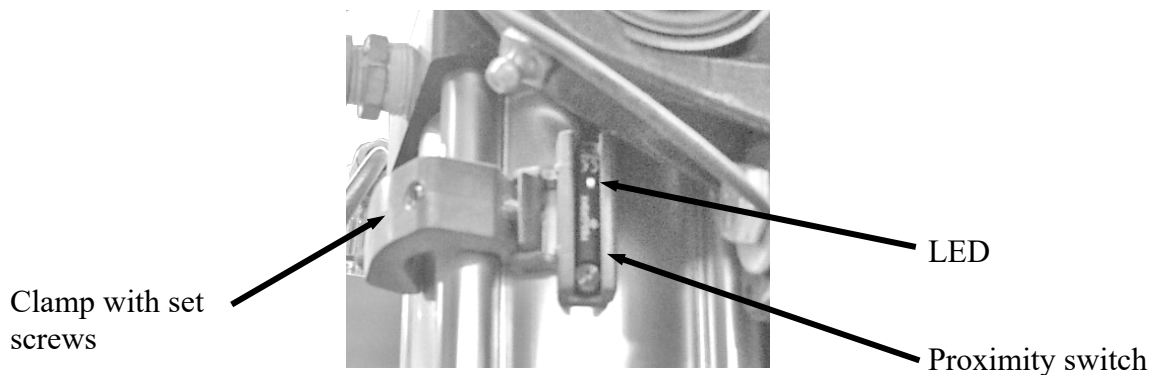


Figure 27 – Pneumatic Cylinder Proximity Switch



## Carriage Proximity Switch Adjustment

The Ultrasonic Sealer uses a rotary proximity switch to monitor the position of the carriage. If the proximity switch is out of adjustment, it may prevent the Ultrasonic Sealer from functioning. Use the steps below to adjust it.

1. Turn the SEALER power switch to the ON position.
2. Set the SEALER AUTO / MANUAL switch to the MANUAL position.
3. Use the MANUAL CYCLE button to step through the individual operations until the carriage is extended.
4. Loosen the set screw that secures the bale to the shaft on the proximity switch.

**Important:** *Adjustments should be made in small increments.*

5. If the switch is actuating too soon, rotate the bale counter-clockwise. If the switch is actuating too late, rotate the bale clockwise.
6. Tighten the set screw that secures the bale to the shaft on the proximity switch.
7. Use the MANUAL CYCLE button to step through the individual operations until the carriage is retracted.
8. Check the operation of the proximity switch to make sure that it is adjusted properly. If it is not, return to step 2.
9. Use the MANUAL CYCLE button to step through the individual operations until the Ultrasonic sealer has returned to its home position.
10. Turn the SEALER AUTO / MANUAL switch to the AUTO position.
11. Test the machine for proper operation.

## Pressure Switch Adjustment

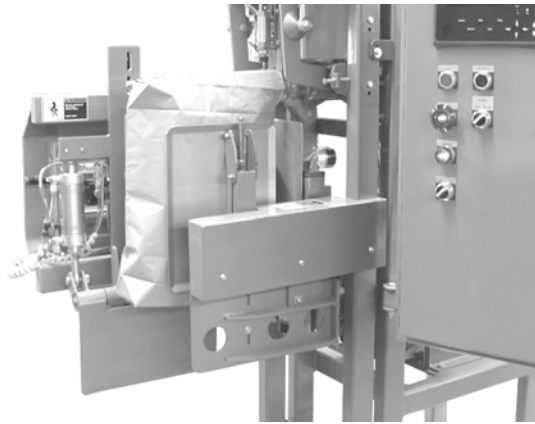
The pressure switches and pressure switch air pressure regulator should not be adjusted, without first consulting Magnum Systems technical experts. Please contact Magnum Systems at (888) 882-9567.

## Bag Width Adjustment

For the Ultrasonic Sealer to function correctly, the valve bag must fit snugly in the carriage and be centered in front of the anvil. Use the bag width adjusters to compensate for changes in bag size and to adjust the alignment of the bags with the pressure switches in the anvil.

1. Grab one of the valve bags that are going to be filled.
2. Use compressed air to fill the bag until it takes shape.
3. Hold the valve bag in the same orientation that it would have when being filled.
4. Position the valve bag in front of the carriage, as it would be positioned in the carriage.
5. Compare the width of the bag with the width of the bag width adjustment panels. If the bag is thinner than the current setting of the bag width adjustment panels, go to step 6. If the bag is thicker than the current setting of the bag width adjustment panels, use a wrench to turn each of the bag width adjustment bolts. Make sure that each bolt is turned the same number of turns, until the panels are wide enough to accept the valve bag.
6. Position the valve bag on the spout.

## Model TRU – Ultrasonic Sealer Quick Reference



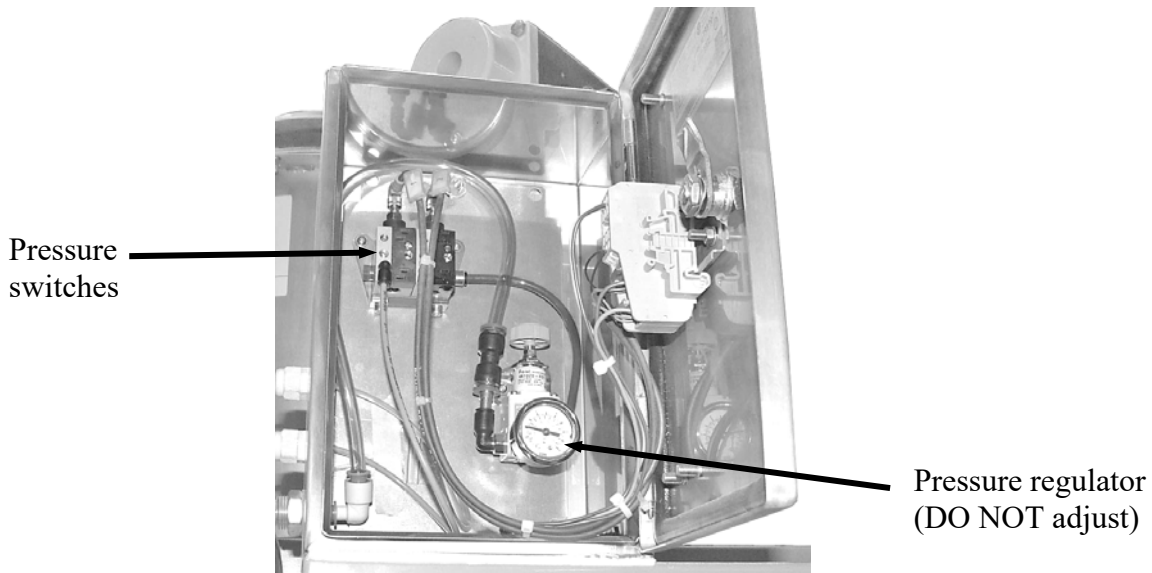
**Figure 28** – Position the Valve Bag on the Spout

7. Turn the SEALER AUTO / MANUAL switch to the MANUAL position.



**Figure 29** – Sealer Buttons On Control Panel

8. Use the MANUAL CYCLE to step through the individual operations until the bag chair is in the raised position and the anvil is in up position (the horn should remain in its home position).
9. Open the door on the control box that contains the two pressure switches. It is located on top of the main control panel.



**Figure 30** – Pressure Switch Control Box

10. Check the LEDs on the two pressure switches. Both LEDs should be illuminated if the bag is properly positioned. If only one or neither LED is illuminated, the bag position needs to be adjusted. Move the bag side to side until both LEDs are illuminated.

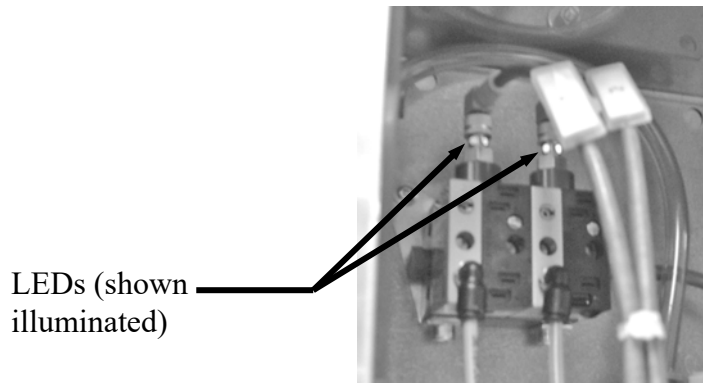


Figure 31 – Pressure Switch LEDs (Shown Illuminated)

11. Turn the adjuster bolts clockwise to move the bag width adjustment panels inward. Move the adjuster bolts counter-clockwise to move the bag width adjustment panels outward.

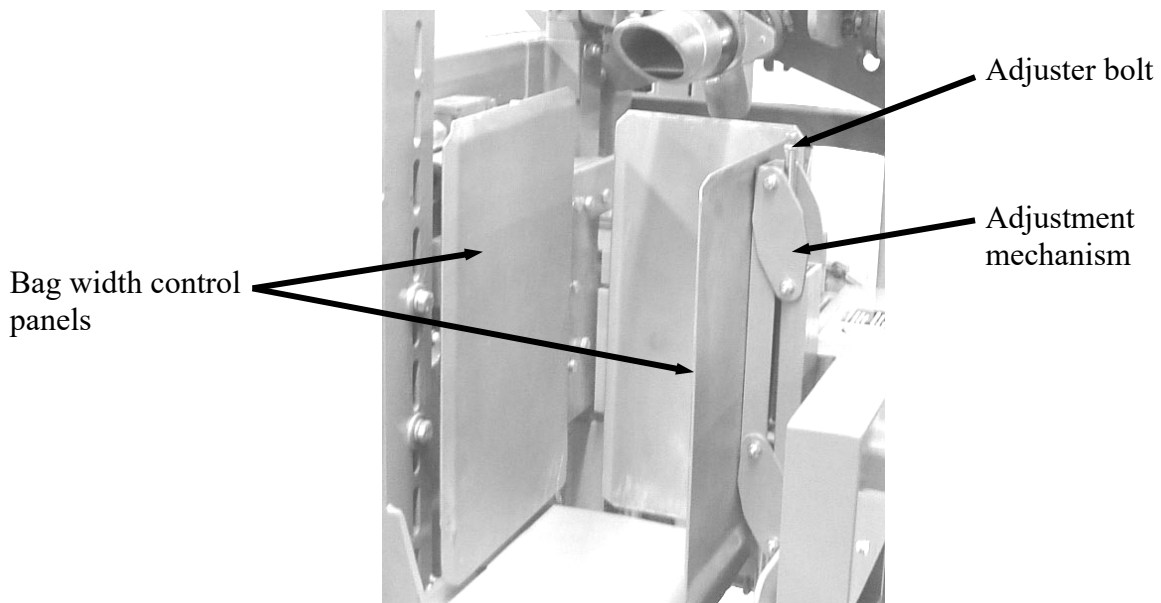
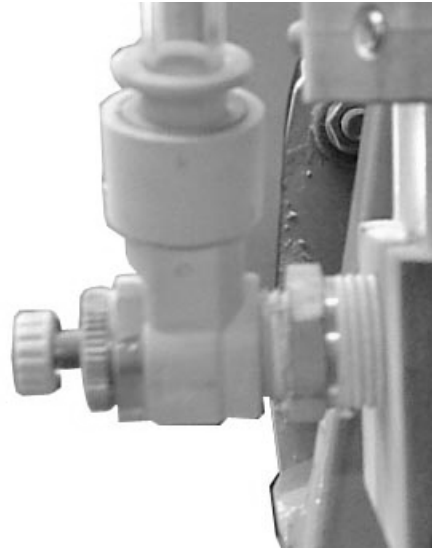


Figure 32 – Bag Width Control Device

12. Once the bag is centered, and the LEDs on both pressure switches are illuminated, the adjustment is complete.
13. Use the MANUAL CYCLE to step through the remaining individual operations until the all of the Ultrasonic Sealer components are back at their home positions).
14. Turn the SEALER AUTO / MANUAL switch to the AUTO position.
15. Test the machine for proper operation.

**Air Flow Adjustment – Pneumatic Cylinders**

The operator may adjust the air flow to or from a pneumatic cylinder. This will affect how fast the cylinder extends or retracts. To increase the speed of actuation, turn the thumb wheel counter-clockwise. To decrease the speed of actuation, turn the thumb wheel clockwise.



**Figure 33 – Air Flow Adjustment for a Pneumatic Cylinder**

## Repair Instructions

This document will only provide repair instructions for specific items. In the event that a component that is not covered in this supplement requires replacement, contact Magnum Systems at (888) 882-9567.

### Transmitter Replacement

In the event that the transmitter fails to function or becomes damaged, use the information below to replace it.

#### Transmitter Removal

1. Turn the packaging machine off.
2. Disconnect the main electrical and pneumatic connections from the packaging machine.
3. Disconnect the electrical cable from the transmitter.
4. Loosen, but do not remove, the two mounting screws.
5. While supporting the transmitter, remove the transmitter mounting screws.
6. Remove the transmitter and carefully set it aside.

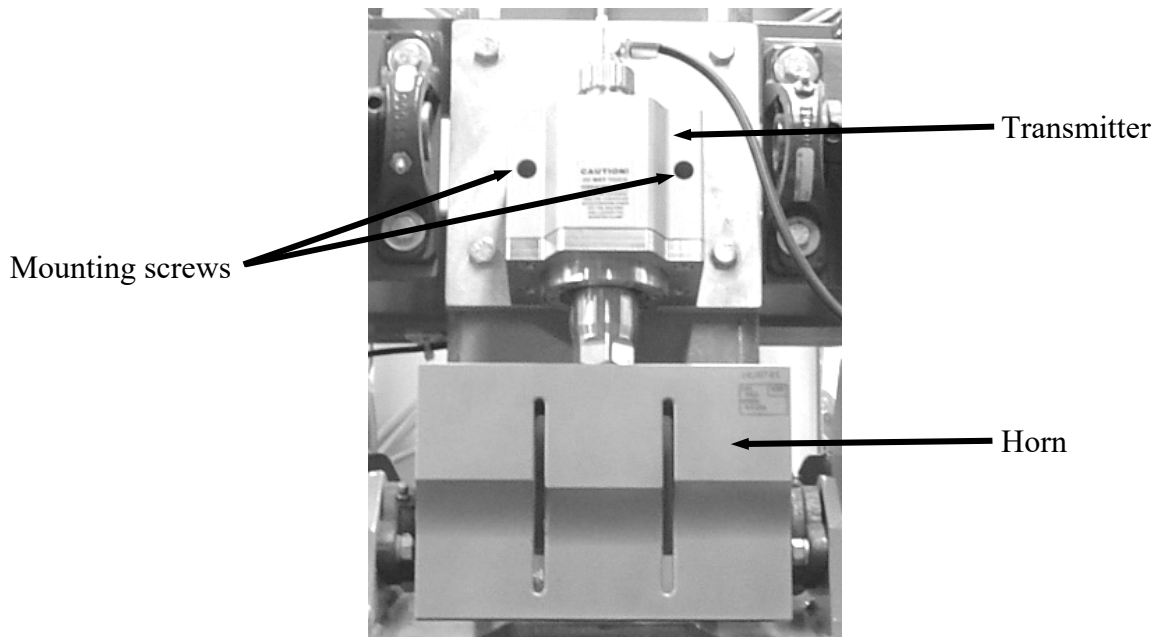


Figure 34 – Transmitter Mounting Screws

#### Transmitter Installation

1. Position the transmitter in front of the mounting plate.
2. Install the two mounting screws.
3. Connect the electrical cable to the transmitter.
4. Connect the main electrical and pneumatic connections.
5. Turn the packaging machine on and test for proper operation.

## Horn Replacement

In the event that the horn becomes worn or damaged, use the information below to replace it.

### Horn Removal

1. Remove the transmitter. Refer to Transmitter Replacement.
2. Wrap the horn in a shop towel to protect it.
3. Place the horn in a vise to prevent it from moving.
4. Select a wrench that fits the flats on the transmitter shaft.
5. Use the wrench to back the shaft out of the horn.
6. Set the transmitter aside.
7. Remove the horn from the vise.

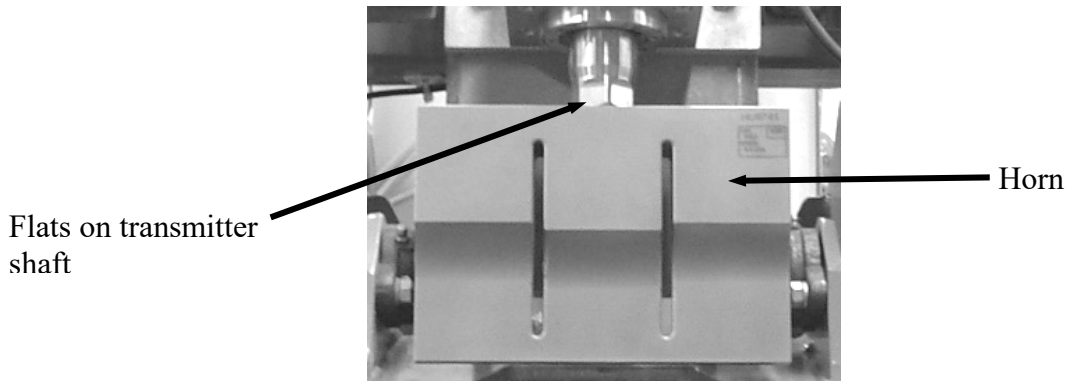


Figure 35 – Transmitter Mounting Screws

### Horn Installation

1. Wrap the horn in a shop towel to protect it.
2. Place the horn in a vise to prevent it from moving.
3. Carefully begin threading the shaft of the transmitter into the horn.
4. Use the wrench to tighten the shaft into the horn.
5. Remove the transmitter and horn assembly from the vise.
6. Install the transmitter. Refer to Transmitter Replacement.

## Anvil Replacement

In the event that the horn becomes worn or damaged, use the information below to replace it.

### Anvil Removal

1. Turn the SEALER AUTO / MANUAL switch to the MANUAL mode position.
2. Use the MANUAL CYCLE through the operations until the anvil is in the up position.
3. Turn the packaging machine off.
4. Disconnect the main electrical and pneumatic connections.
5. Label the two pressure switch lines at the anvil.
6. Disconnect the two pressure switch lines from the anvil.
7. Loosen and remove the four allen-head anvil mounting bolts.
8. Remove the Anvil.

Anvil mounting bolts

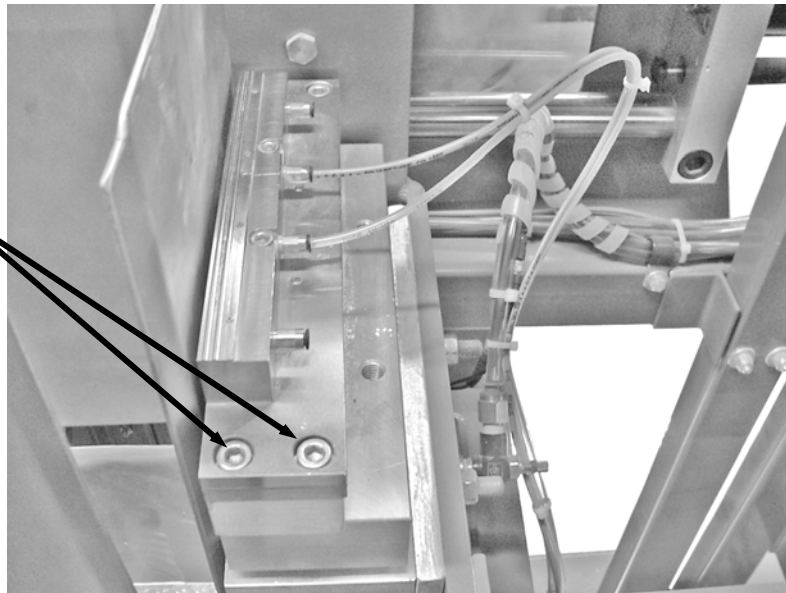


Figure 36 – Anvil Mounting

### Anvil Installation

1. Position the anvil in its mounting location.
2. Install the four allen-head anvil mounting bolts. DO NOT fully tighten the bolts at this time.
3. Check the alignment of the anvil and then tighten the bolts.
4. Connect the two pressure switch lines to the anvil.
5. Connect the main electrical and pneumatic connections.
6. Turn the packaging machine on and test for proper operation.

### Horn Cylinder Replacement

In the event that one of the horn cylinders develops a leak or fails, use the following information to replace the

#### Horn Cylinder Removal

1. Turn the packaging machine off.
2. Disconnect the main electrical and pneumatic connections.
3. Label the air supply lines at the pneumatic cylinder.
4. Disconnect the air supply lines from the quick-connect fittings.
5. If the cylinder is equipped with proximity switches, remove them. Refer to Proximity Switch Replacement.
6. Loosen and remove the nut on the horn cylinder rod to horn carriage bolt.
7. Back the bolt out slightly until the rod end of the cylinder is free.
8. Loosen the bolts on the outer cylinder support bearings.
9. Support the cylinder while removing the outer support bearing bolts.
10. Remove the bearing and cylinder by sliding them sideways away from the bearing that remains installed.
11. Place the assembly on a workbench.
12. If the cylinder is being replaced, remove the quick-connect pneumatic fittings from the cylinder.
13. Mark the position of the shaft in relation to the bearing and the cylinder mount.
14. Remove the pivot shaft from the end of the cylinder.



Figure 37 – Horn Cylinder (1 of 2 shown)

### Horn Cylinder Installation

1. Place the cylinder on a workbench.
2. If the cylinder is not equipped with quick-connect pneumatic fittings, install a quick-connect fitting into each of the pneumatic ports.

**Important:** When installing quick connect fittings, make sure to use Teflon® tape on the threads of the fittings to ensure a good seal.

3. Position the cylinder on the workbench with the quick connect fittings facing up.
4. Install the cylinder pivot shaft, align the marks up with the cylinder so that the shaft is positioned as it was on the other cylinder.
5. Check the end of the shaft to make sure that it is still correctly positioned in the bearing.
6. Lift the cylinder/shaft/bearing assembly from the bench and take it over to the packaging machine.
7. Hold the cylinder in its mounting orientation and line up the end of the shaft with the bearing that is mounted on the packaging machine.
8. Insert the end of the shaft into the bearing.
9. Line up the mounting holes in the bearing housing with the holes in the mounting plate.
10. Install the bearing mounting bolts and finger tighten them.
11. Check the bearing position to make sure the pivot shaft does not bind up. Check for binding by rotating the cylinder up approximately 45°. If any binding is found, adjust the bearing position to relieve any binding.
12. Tighten the bearing mounting bolts.
13. Align the rod end with the horn carriage bolt.
14. Insert the horn carriage bolt through the cylinder.
15. Install and tighten the nut on the horn carriage bolt.
16. If the cylinder is equipped with proximity switches, install them. Refer to Proximity Switch Replacement.
17. Connect the pneumatic supply lines to the quick-connect fittings on the cylinder.
18. Connect the main electrical and pneumatic connections.
19. Turn the packaging machine on. Test for proper operation.



## Proximity Switch Replacement – Setscrew Type

This type of proximity switch is used on the pneumatic cylinders that raise and lower the horn assembly.

### Proximity Switch Removal – Setscrew Type

1. Turn the packaging machine off.
2. Disconnect the main electrical and pneumatic connections.
3. Trace the proximity switch wiring back to the control panel.
4. Open the control panel door.
5. Trace the proximity switch wire inside the control panel to its connection point.
6. Make note of how the wire is connected.
7. Disconnect the proximity switch wire connections.
8. Pull the wire free from the control panel.
9. Remove any wire straps that secure the wire to the framework of the machine.
10. Loosen the setscrews on the proximity switch.
11. Slide the proximity switch toward the end of the cylinder that is closest to it, and slide it off of the cylinder.

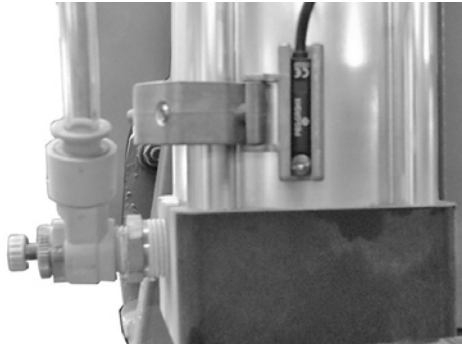


Figure 38 – Setscrew Type Proximity Switch Installation

### Proximity Switch Installation – Setscrew Type

1. Position the proximity switch at the end of the cylinder where it will be installed.
2. Line up the slots in the proximity switch with the ribs in the cylinder.
3. Slide the proximity switch onto the ribs on the cylinder.
4. Roughly position the proximity switch and tighten the setscrews to hold the proximity switch in place.
5. Route the proximity switch wire in the same fashion as the wire for the prior switch. Install the wire straps to secure the wire to the framework of the machine.

**Important:** *When routing the proximity switch wire to the control panel, make sure to leave enough slack in the appropriate locations to prevent damaging the wire or proximity switch when the cylinder is actuated.*

6. Route the proximity switch wire into the control panel.
7. Connect the proximity switch wire in the control panel. Refer to the electrical schematics for that machine.
8. Close the control panel door.
9. Disconnect the main electrical and pneumatic connections.
10. Adjust the proximity switch. Refer to Pneumatic Cylinder Proximity Switch Adjustment.

## Proximity Switch Replacement – Band Clamp Type

This type of proximity switch is used on the pneumatic cylinders that are used for the anvil, the bag squaring device, and the carriage.

### Proximity Switch Removal – Band Clamp Type

1. Turn the packaging machine off.
2. Disconnect the main electrical and pneumatic connections.
3. Trace the proximity switch wiring back to the control panel.
4. Open the control panel door.
5. Trace the proximity switch wire inside the control panel to its connection point.
6. Make note of how the wire is connected.
7. Disconnect the proximity switch wire connections.
8. Pull the wire free from the control panel.
9. Remove any wire straps that secure the wire to the framework of the machine.
10. Loosen the clamp screw on the proximity switch.
11. Slide the proximity switch toward the end of the cylinder that is closest to it, and slide it off of the cylinder.



Figure 39 – Band Clamp Type Proximity Switch Installation

### Proximity Switch Installation – Band Clamp Type

1. Position the proximity switch at the end of the cylinder where it will be installed.
2. Slide the proximity switch onto the cylinder.
3. Roughly position the proximity switch and tighten the clamp to hold the proximity switch in place.
4. Route the proximity switch wire in the same fashion as the wire for the prior switch. Install the wire straps to secure the wire to the framework of the machine.

**Important:** When routing the proximity switch wire to the control panel, make sure to leave enough slack in the appropriate locations to prevent damaging the wire or proximity switch when the cylinder is actuated.

5. Route the proximity switch wire into the control panel.
6. Connect the proximity switch wire in the control panel. Refer to the electrical schematics for that machine.
7. Close the control panel door.
8. Disconnect the main electrical and pneumatic connections.
9. Adjust the proximity switch. Refer to Pneumatic Cylinder Proximity Switch Adjustment.

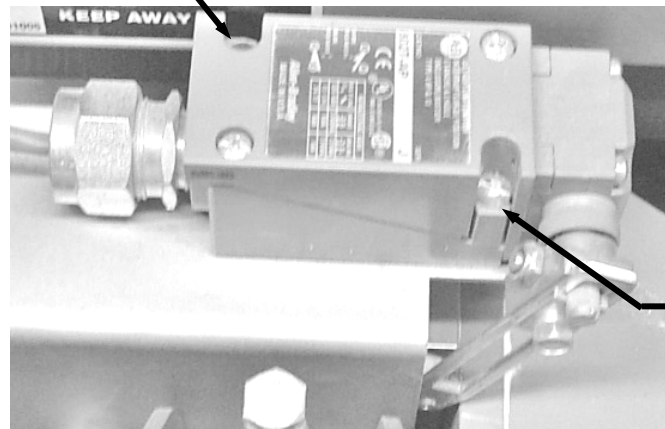
## Carriage Proximity Switch Replacement

If the proximity switch that monitors the position of the carriage becomes damaged or fails to function, use the steps below to replace it.

### Carriage Proximity Switch Removal

1. Turn the packaging machine off.
2. Disconnect the main electrical and pneumatic connections.
3. Trace the proximity switch wiring back to the control panel.
4. Open the control panel door.
5. Trace the proximity switch wire inside the control panel to its connection point.
6. Make note of how the wire is connected.
7. Disconnect the proximity switch wire connections.
8. Pull the wire free from the control panel.
9. Remove any wire straps that secure the wire to the framework of the machine.
10. Pull the wire free from the framework toward the switch so that it will be free once the switch is removed.
11. Loosen the two mounting screws and remove them.
12. Remove the switch.
13. Place the switch on a workbench.

Mounting screw



Mounting screw

**Figure 40** – Carriage Proximity Switch Mounting Screws

### Carriage Proximity Switch Installation

1. If a new proximity switch is being installed, lay the new switch on the workbench next to the switch that is being replaced.
2. Adjust the bale position on the new switch so that it is in the same position as the bale on the switch being replaced.
3. Position the proximity switch on the mount.
4. Install and tighten the mounting screws.
5. Route the cable along the framework of the packaging machine to the control panel. Use care to leave the proper amount of slack in the cable. Too much slack may result in the cable becoming caught in one of the moving components. Too little slack may result in cable damage when the cable is pulled too tight.
6. Secure the cable to the framework.

## Model TRU – Ultrasonic Sealer Quick Reference

7. Route the cable into the control panel.
8. Connect the proximity switch wire in the control panel. Refer to the electrical schematics for that machine.
9. Close the control panel door.
10. Connect the main electrical and pneumatic connections.
11. Turn the packaging machine on and test for proper operation.

### Anvil Pneumatic Cylinder Replacement

If the pneumatic cylinder for the anvil develops a leak, is damaged, or fails to function, use the steps below to replace it.

#### Anvil Pneumatic Cylinder Removal

1. Turn the packaging machine off.
2. Disconnect the main electrical and pneumatic connections.
3. Remove the bag squaring panel to access the pneumatic cylinder.
4. Label the air supply lines at the pneumatic cylinder.
5. Disconnect the air supply lines from the quick-connect fittings on the pneumatic cylinder.
6. Locate the jam nut on the cylinder rod against the anvil. Back the jam nut off about ½ turn.
7. Turn the cylinder rod to back it out of the anvil.
8. Loosen and remove the pneumatic cylinder mounting bolt/nut.
9. Remove the cylinder and lay it on a bench.

#### Anvil Pneumatic Cylinder Installation

1. If the old cylinder is being re-installed, go to step 4. If installing a new cylinder, lay the new cylinder on the workbench next to the cylinder that was removed.
2. Set the jam nut on the new cylinder rod in the same general position as on the old cylinder rod.
3. Install quick-connect fittings in the two pneumatic ports on the cylinder. Make sure to use Teflon® tape on the threads to ensure a good seal.
4. Position the cylinder in its mounting position.
5. Install and tighten the mounting bolt/nut.
6. Line the cylinder rod up with the mounting hole in the anvil.
7. Thread the cylinder rod into the anvil until the jam nut touches the anvil.
8. Back the cylinder rod out ½ turn.
9. Tighten the jam nut.
10. Connect the air supply lines to the quick-connect fittings.
11. Install the bag squaring panel.
12. Connect the main electrical and pneumatic connections.
13. Turn the packaging machine on and test for proper operation.

## Bag Chair Pneumatic Cylinder Replacement

If the pneumatic cylinder for the bag chair develops a leak, is damaged, or fails to function, use the steps below to replace it.

### Bag Chair Pneumatic Cylinder Removal

1. Turn the packaging machine off.
2. Disconnect the main electrical and pneumatic connections.
3. Label the air supply lines at the pneumatic cylinder.
4. Label and disconnect the proximity switch connectors.
5. Disconnect the air supply lines from the quick-connect fittings on the pneumatic cylinder.
6. Loosen and remove the nut/bolt on the rod end at the bag chair arm.
7. Loosen the nut on the cylinder to carriage frame mounting bolt.
8. Support the cylinder while removing the cylinder mounting bolt.
9. Remove the cylinder and place it on a workbench.

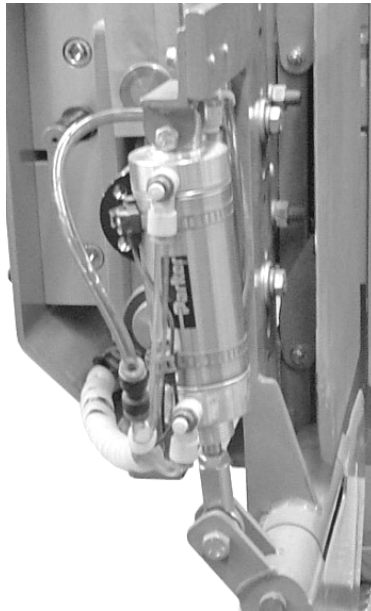


Figure 41 – Bag Chair Cylinder

### Bag Chair Pneumatic Cylinder Installation

1. If re-installing the same cylinder that was removed, proceed to step 7. If installing a new cylinder, install quick-connect fittings in the two pneumatic ports on the cylinder.
2. Position the new cylinder next to the cylinder being replaced. Extend the cylinder rod in both cylinders. If the cylinder rods are not the exact same length. Loosen the jam nut on the new cylinder rod
3. Turn the rod end on the cylinder rod until the cylinder rod is the same length as the cylinder rod on the old cylinder.
4. Tighten the jam nut.
5. Remove the proximity switches from the old cylinder and install them on the new cylinder. Make sure to keep them in the same orientation.
6. Position the proximity switches on the new cylinder and tighten the set screws.

## Model TRU – Ultrasonic Sealer Quick Reference

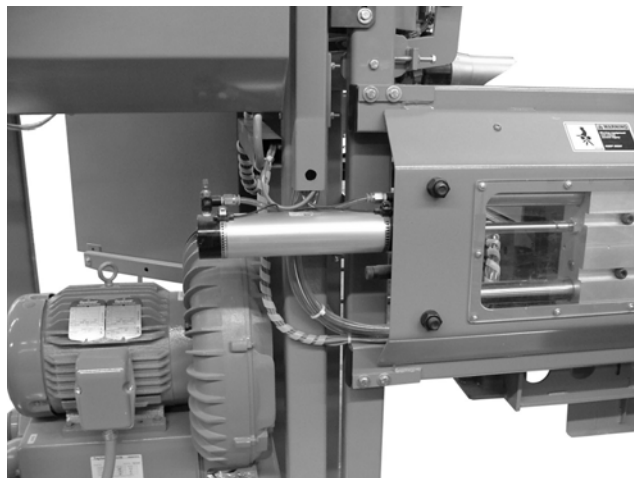
7. Position the pneumatic cylinder in its mounting position, with the pneumatic quick-connect fittings facing the forward.
8. Line up the mounting holes in the mounting bracket with the mounting hole in the top of the cylinder and insert the mounting bolt.
9. Install the washer and nut on the mounting bolt and tighten.
10. Position the cylinder rod end inside the bag chair arm tabs.
11. Line up the cylinder rod end hole with the holes in the bag chair arm tabs and insert the bolt.
12. Install the washer and nut on the mounting bolt and tighten.
13. Connect the proximity switch connections.
14. Connect the air supply lines to the quick-connect fittings on the cylinder.
15. Connect the main electrical and pneumatic connections.
16. Turn the packaging machine on and test for proper operation.
17. If necessary, adjust the proximity switches. Refer to Pneumatic Cylinder Proximity Switch Adjustment.

## Carriage Pneumatic Cylinder Replacement

If the pneumatic cylinder for the bag chair develops a leak, is damaged, or fails to function, use the steps below to replace it.

### Carriage Pneumatic Cylinder Removal

1. Turn the packaging machine off.
2. Disconnect the main electrical and pneumatic connections.
3. Label the air supply lines at the pneumatic cylinder.
4. Label and disconnect the proximity switch connectors.
5. Disconnect the air supply lines from the quick-connect fittings on the pneumatic cylinder.
6. Loosen and remove the screws on the clear access panel on the side of the carriage.
7. Remove the clear access panel.
8. Loosen the cylinder rod and back it out of the carriage.
9. Loosen the cylinder to carriage frame mounting bolts.
10. Support the cylinder while removing the cylinder mounting bolt.
11. Remove the cylinder and place it on a workbench.



**Figure 42 – Carriage Cylinder**

### **Bag Chair Pneumatic Cylinder Installation**

1. If re-installing the same cylinder that was removed, proceed to step 4. If installing a new cylinder, install quick-connect fittings in the two pneumatic ports on the cylinder.
2. Remove the proximity switches from the old cylinder and install them on the new cylinder. Make sure to keep them in the same orientation.
3. Position the proximity switches on the new cylinder and tighten the set screws.
4. Position the pneumatic cylinder in its mounting position, with the pneumatic quick-connect fittings facing the upward.
5. Line up the mounting holes in the cylinder with the mounting holes in the carriage frame and insert the mounting bolts and tighten them.
6. Extend the cylinder rod and thread it into the carriage and tighten.
7. Install the clear access panel and tighten the screws.
8. Connect the proximity switch connections.
9. Connect the air supply lines to the quick-connect fittings on the cylinder.
10. Connect the main electrical and pneumatic connections.
11. Turn the packaging machine on and test for proper operation.
12. If necessary, adjust the proximity switches. Refer to Pneumatic Cylinder Proximity Switch Adjustment.

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## Glossary

Term	Definition
Anvil	A machined hardened steel piece that serves as the anchor point for making the seal in the valve bag valve. The horn presses against the anvil to capture the valve, prior to activating the transmitter.
Bag chair	A metal panel that pivots and is controlled by a pneumatic cylinder. When filling the valve bag, it is in the horizontal position to support the valve bag. It is moved to the vertical position, once the bag is filled and sealed, to allow the bag to drop onto a conveyor.
Carriage	A sliding device that is used to secure and hold the valve bag during the fill cycle. Once the bag is filled, it slides out, pulling the valve bag off of the spout, so it can be sealed.
Horn	Attached to the transmitter, this device pinches the fill valve on the valve bag against the anvil. It also acts as a transmission path for the ultrasonic sound waves produced by the transmitter.
Pressure switch	A switch that uses air pressure to detect the presence and proper positioning of the valve bag. When a bag is placed in front of the pressure ports on the front of the anvil, pressure builds up in the tubes, causing the switch to change state.
Proximity switch	A switch used to detect the position of a component. These switches may be magnetic or rotary types.
Transmitter	Mounted near the top of the Ultrasonic Sealer. This device is used to produce the ultrasonic sound waves that seal the valve on the package.
Ultrasonic sound waves	Sound frequencies above the threshold of audible sound. Sound frequencies above 20,000 Hz are considered ultrasonic.
Weigh mast	Metal frame from which the Ultrasonic Sealer is mounted. It is suspended from the packaging machine's main frame via a load cell and flex leaves.



**Index**

Adjustment Procedures, ..... 18

Air Flow Adjustment – Pneumatic  
     Cylinders, ..... 24

Anvil and Pneumatic Cylinder, ..... 7

Anvil Horizontal Adjustments, ..... 18

Anvil Pneumatic Cylinder Replacement, ..... 32

Anvil Replacement, ..... 26

Bag Chair and Pneumatic Cylinder, ..... 2

Bag Chair Pneumatic Cylinder  
     Replacement, ..... 33

Bag Squaring Device and Pneumatic  
     Cylinder, ..... 2

Bag Width Adjustment, ..... 21

Bag Width Controllers, ..... 3

Carriage and Pneumatic Cylinders, ..... 4

Carriage Pneumatic Cylinder Replacement, .. 34

Carriage Proximity Switch, ..... 5

Carriage Proximity Switch Adjustment, ..... 21

Carriage Proximity Switch Replacement, ..... 31

Component Position Monitoring, ..... 5

Components, ..... 1

Electro Static Discharge, ..... ii

Electro-static Discharge (ESD) Prevention  
     Procedures, ..... ii

Field Service, ..... iii

General Description, ..... 1

Glossary, ..... 1

Horn Cylinder Replacement, ..... 27

Horn Replacement, ..... 26

Horn Vertical Adjustment, ..... 18

Horn, Transmitter, and Pneumatic  
     Cylinders, ..... 8

Important/Notable Information, ..... ii

Menu System, ..... 10

Operational Sequence, ..... 14

Personal Safety Instructions, ..... ii

Pneumatic Cylinder Proximity Switch  
     Adjustment, ..... 19

Pneumatic Cylinder Proximity Switches, ..... 5

Pressure Switch Adjustment, ..... 21

Pressure Switches, ..... 6

Proximity Switch Replacement – Band  
     Clamp Type, ..... 30

Proximity Switch Replacement – Setscrew  
     Type, ..... 29

Repair Instructions, ..... 25

Transmitter Replacement, ..... 25

Ultrasonic Controller, ..... 9

Warranty, ..... iii

Weigh Mast, ..... 1

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