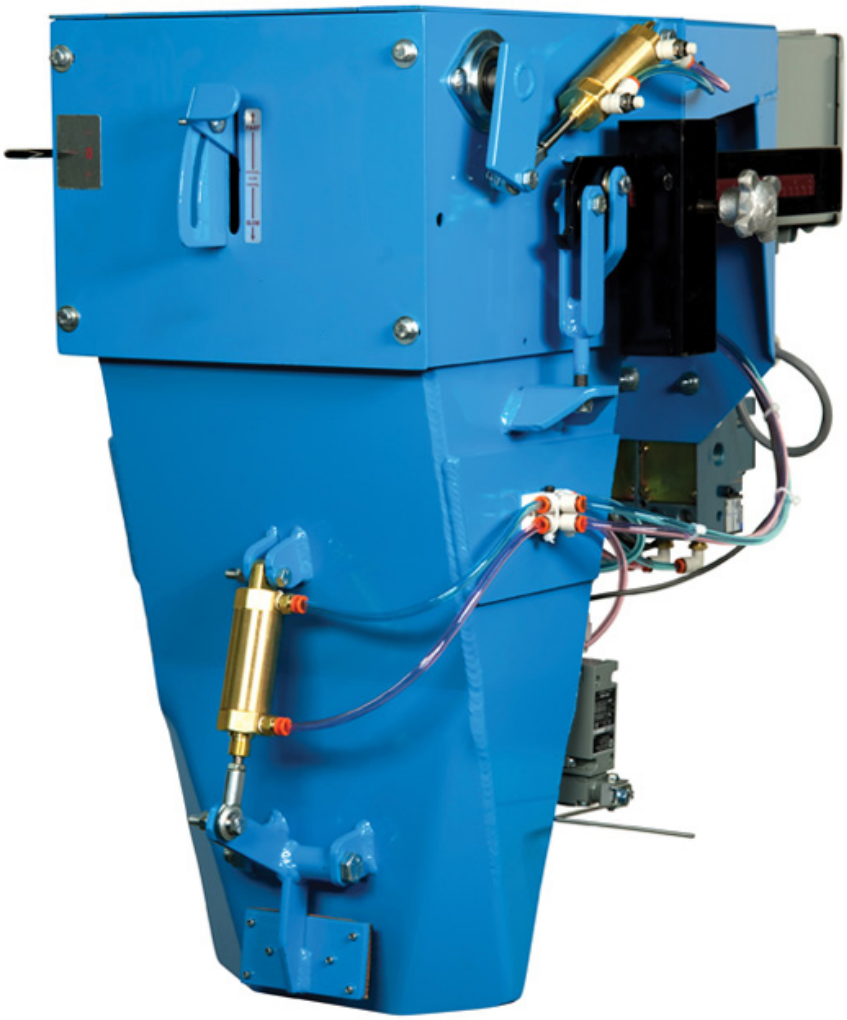
MAGNUM SYSTEMS

Manual Bagging Scale

Model OM2A



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 OM2A 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, and maintenance of on new and existing equipment. Contact Magnum Systems at (888) 882-9567.

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Chapter 1
Product Description

1.1 General Description
This chapter will provide a high-level product description of the OM2A Manual Bagging Scale.

1.2 Introduction
The Magnum Systems Model OM2A is a manual bagging scale. The OM2A is configured to fill open mouth bags.

1.3 Manual Scope
This manual will provide information on installation, operation, preventive maintenance, troubleshooting, and repair of the Model OM2A.

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

1.4 Major Systems and Components
When working with the Model OM2A, it is important to understand the major systems and components of the unit. The major components of the system are:

- Scale cabinet assembly
  - Cabinet
  - Shut off gate
  - Gate shaft and bearings
  - Gate cylinder
  - Choke assembly
  - Control box
  - MAC valves
  - Filter/Regulator/Lubricator (FRL) assembly
- Scale beam assembly
  - Scale beam
  - Scale beam weights
  - Scale beam bearings
  - Scale beam fine zero adjustment
  - Scale beam proximity switch
  - Scale beam proximity switch wiper and adjustment mechanism
- Spout assembly
  - Spout
  - Bag clamp assembly

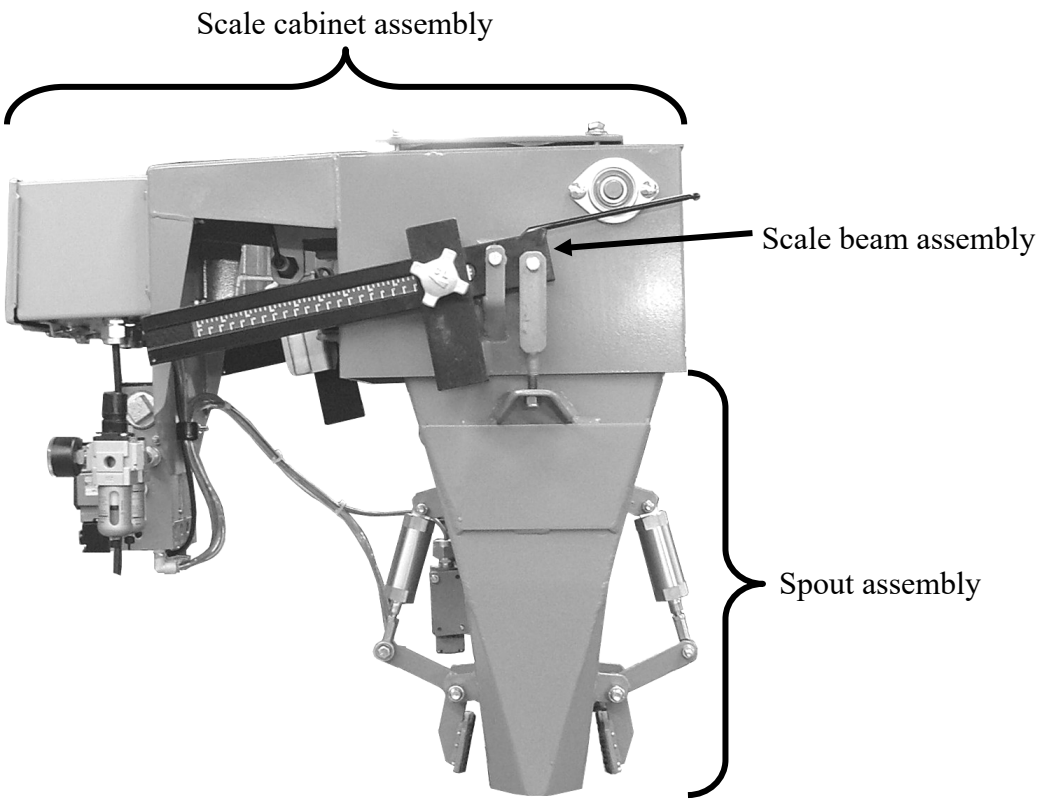
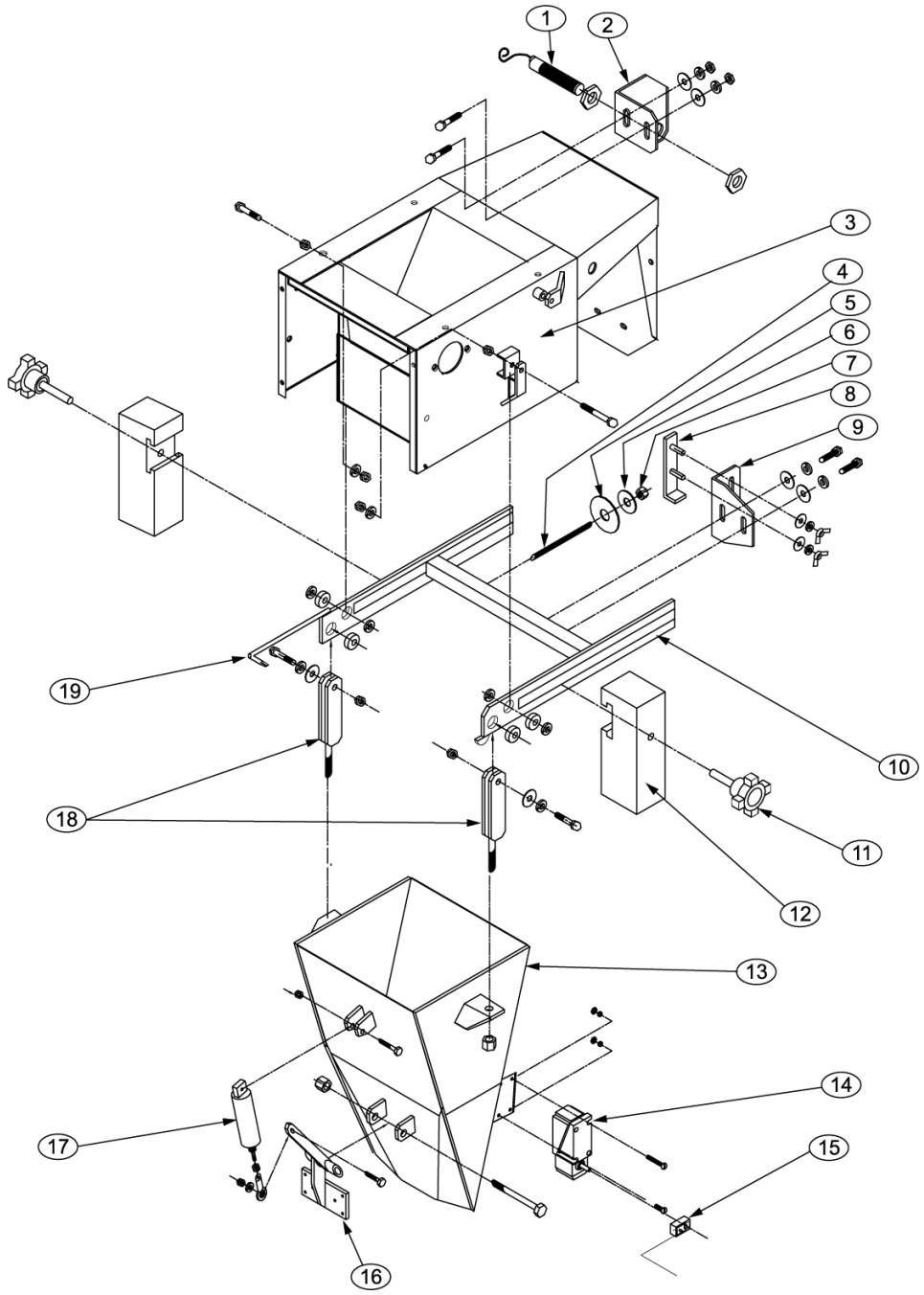
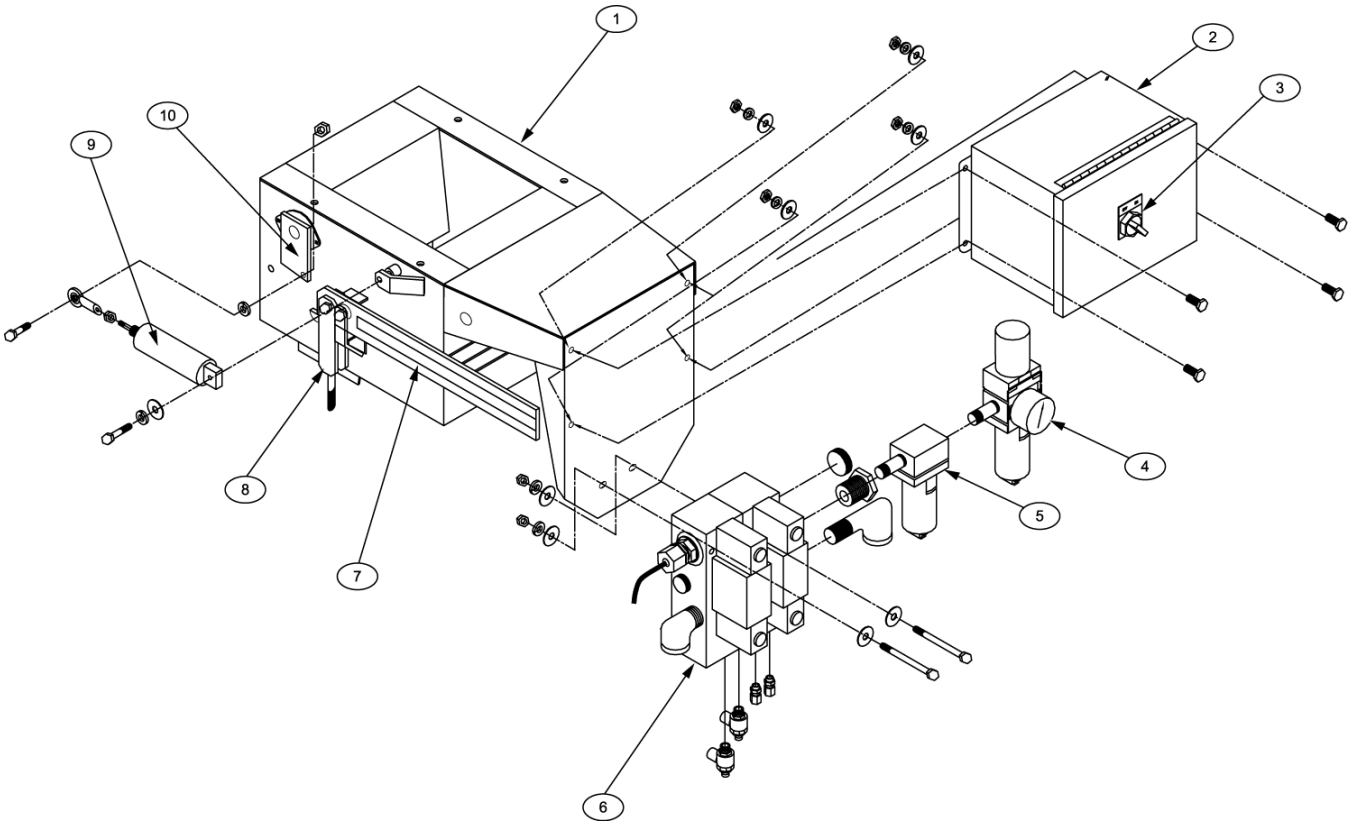


Figure 1-1. OM2A



Item #	Description	Item #	Description
1	Proximity switch	11	Scale beam weight lock knob
2	Proximity switch bracket	12	Scale beam weight
3	Scale cabinet assembly	13	Spout
4	Fine zero adjustment - threaded rod	14	Bag clamp actuator switch
5	Fine zero adjustment - large washer	15	Bag clamp actuator switch bale
6	Fine zero adjustment - small washer	16	Bag clamp
7	Fine zero adjustment - nut	17	Bag clamp cylinder
8	Weight fine adjustment arm	18	Scale bottom hangers
9	Weight fine adjustment arm bracket	19	Scale beam pointer
10	Scale beam		

Figure 1-2. OM2A – Exploded View



Item #	Description	Item #	Description
1	Scale cabinet assembly	6	MAC valve assembly
2	Control enclosure	7	Scale beam
3	ON/OFF button	8	Scale bottom hanger
4	Pneumatic pressure regulator	9	Gate trip cylinder
5	Pneumatic lubricator	10	Gate trip lever

Figure 1-3. OM2A Rear View – Disassembled

1.6.1 Scale Cabinet Assembly

The scale assembly is comprised of several individual components. This assembly is the most delicate part of the OM2A. The scale assembly should always be handled with care. The scale assembly includes the following items:

- Scale cabinet
- Shut off gate
- Gate wiper
- Gate shaft and bearings
- Gate cylinder
- Choke assembly

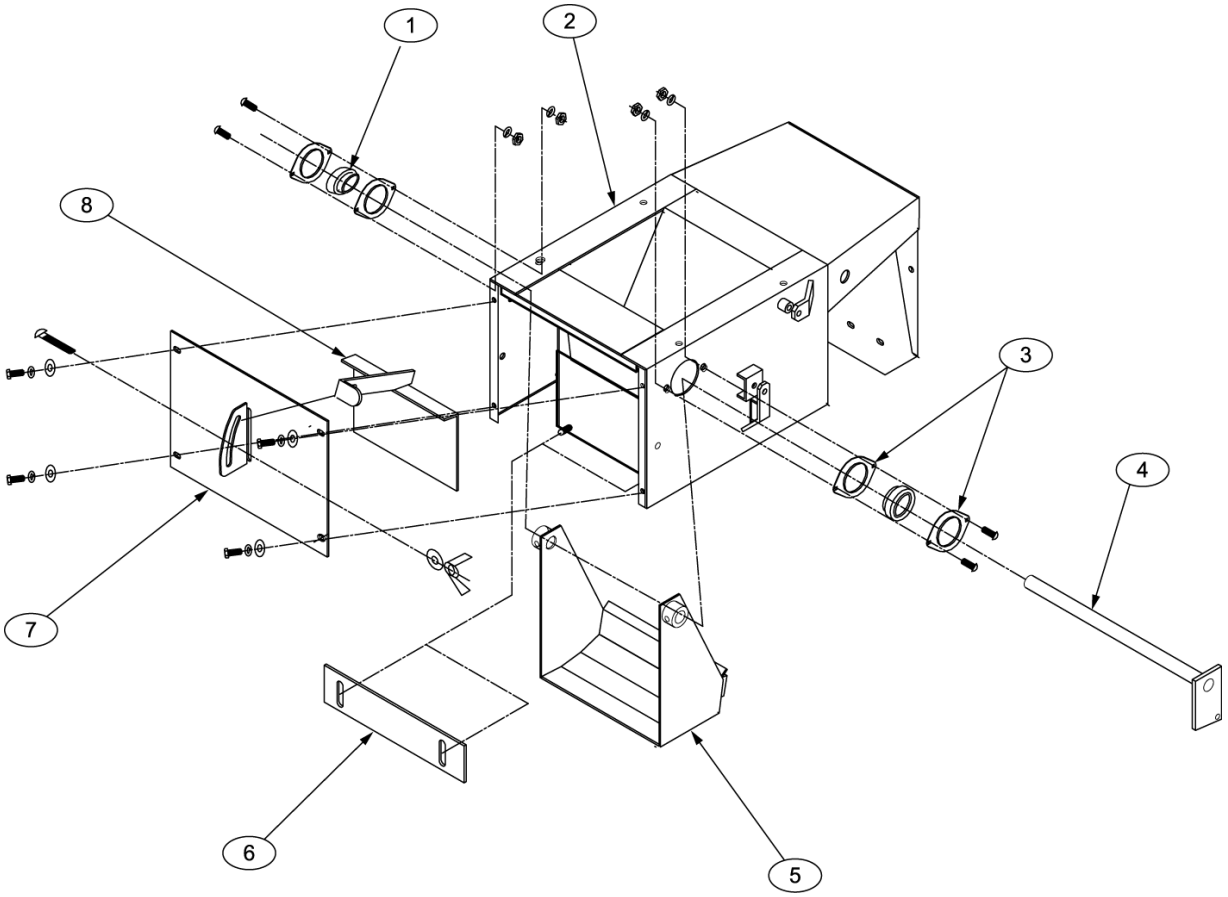
1.6.1.1 Scale Cabinet

The scale cabinet is the foundation for the weighing system. The cabinet is designed with mounting points for the gate trip mechanism, shut off gate, the scale beam, and the spout. The cabinet also has the mounting points for the scale beam and the choke assembly.

A small hopper is located inside the scale cabinet assembly. As material flows in from the supply hopper, it enters the internal hopper of the OM2A. The OM2A hopper is equipped with a shut off gate to stop the flow of material from flowing into the spout.

1.6.1.2 Shut Off Gate

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



Item #	Description	Item #	Description
1	Shut off gate bearing (1 of 2 shown)	5	Shut off gate
2	Scale cabinet assembly	6	Flow gate
3	Bearing spacers (2 of 4 shown)	7	Front plate
4	Shut off gate shaft	8	Choke plate

Figure 1-4. Shut Off Gate and Related Components

1.6.1.3 Gate Wiper

The gate wiper is used to adjust the size of the gap between the shut off gate and the hopper when the gate is closed. This is done to prevent material from flowing when the shut off gate is closed.

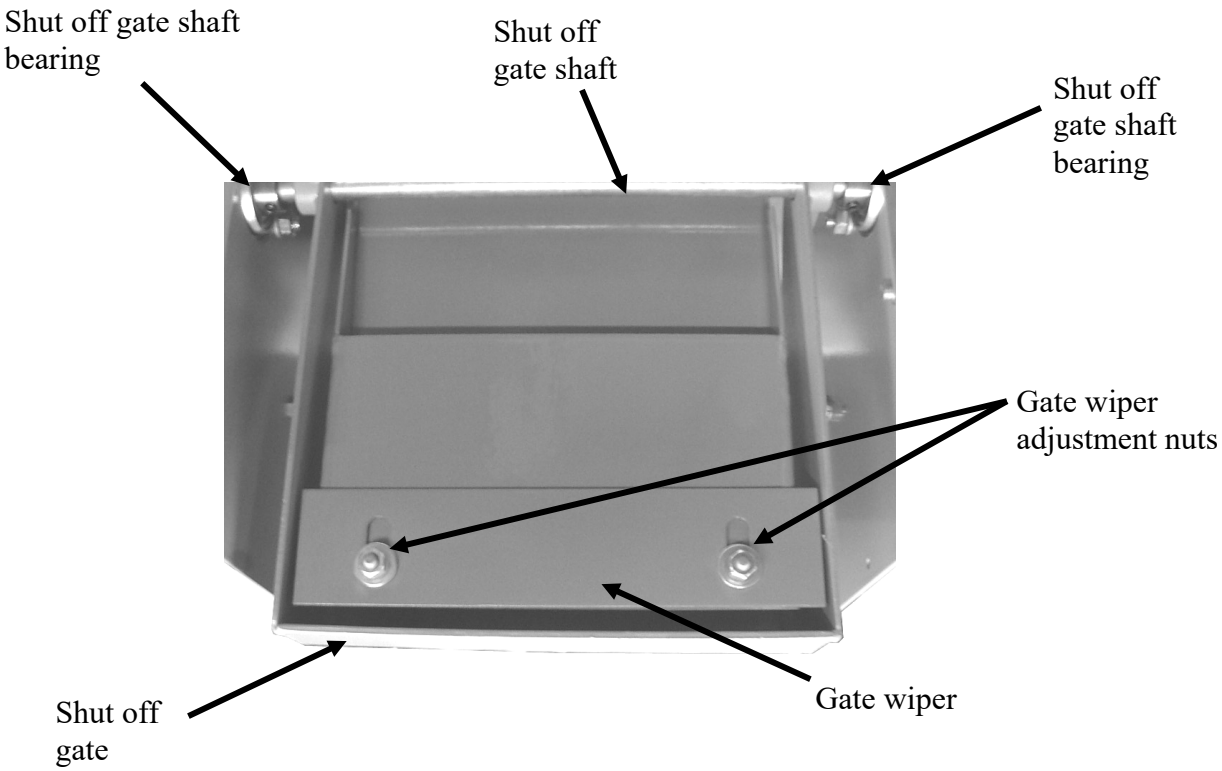


Figure 1-5. Gate Wiper

1.6.1.4 Gate Mechanism

The gate mechanism is located in the top of the scale cabinet assembly. It rides on two bearing assemblies, one on each side of the cabinet. The shut off gate rides on the gate mechanism shaft. The shut off gate is locked to the shaft by two setscrews, one on each side of the gate in the collar. The shut off gate lever is attached to the rod end of the pneumatic gate cylinder. The gate cylinder extends to close the shut off gate and retracts to open the shut off gate.

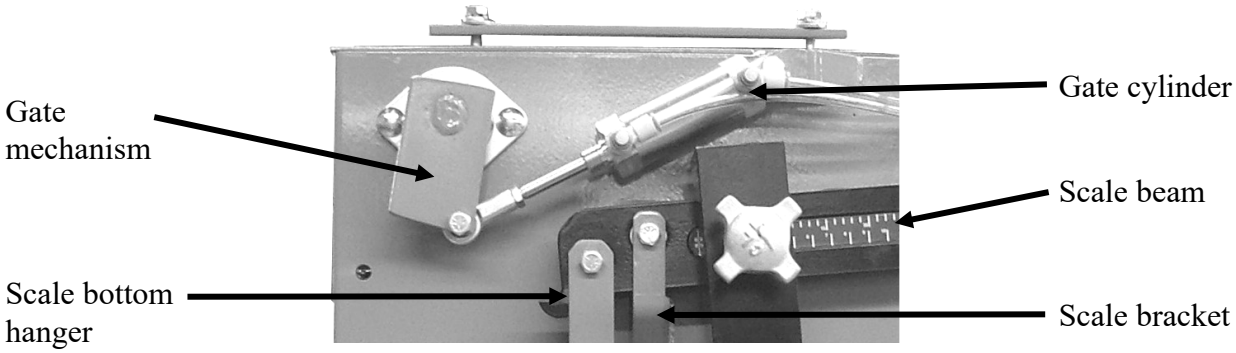
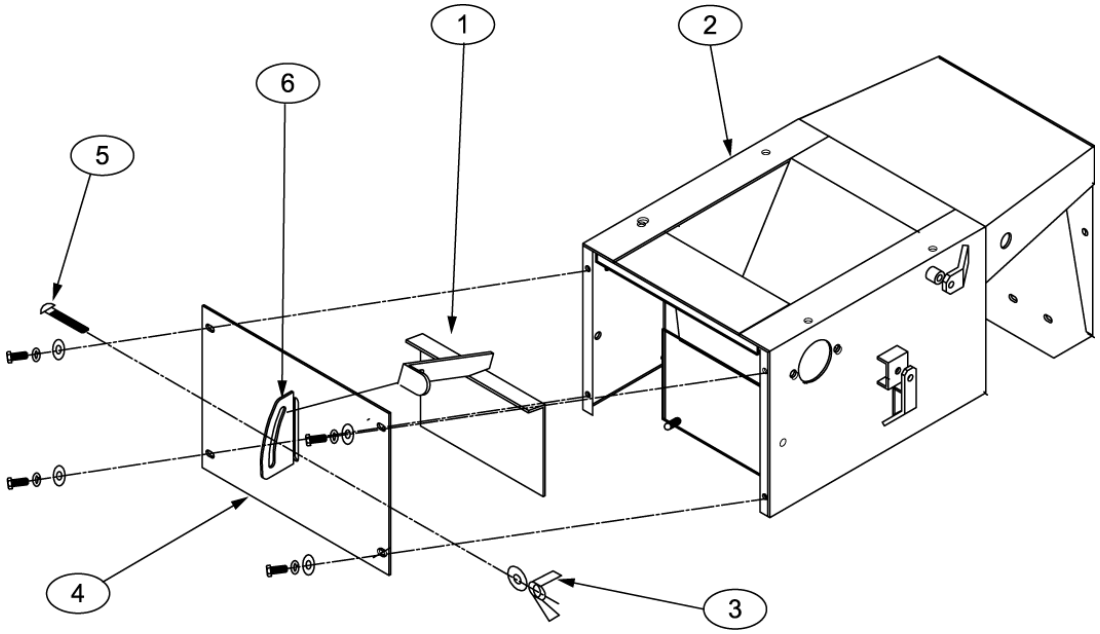


Figure 1-6. Gate Mechanism

1.6.1.5 Choke Assembly

The choke assembly is used to control the speed of the product as it flows into the package. The choke assembly includes:

- Choke flap
- Front plate
- Choke flap adjustment bolt, washer, and wing nut



Item #	Description	Item #	Description
1	Choke plate	4	Front plate
2	Scale cabinet	5	Choke plate locking bolt
3	Wing nut locking wing nut	6	Choke plate adjustment bracket

Figure 1-7. Choke Assembly – Exploded View

1.6.1.6 Control Box

Mounted on the scale cabinet assembly is a control box. This control box has the ON/OFF switch mounted on the door. A timer mechanism, a fuse holder, and a relay are mounted inside the control box.

1.6.1.7 MAC Valves

Mounted on the scale cabinet are two MAC valves. These valves are used to control the flow of compressed air to the bag clamp cylinders and the gate cylinder. MAC valves use an electric solenoid to control the position of the air control valve.

1.6.1.8 Filter/Regulator/Lubricator (FRL) Assembly

The Filter/Regulator/Lubricator (FRL) assembly is used to perform the following functions:

- Remove moisture from the incoming compressed air
- Control the amount air pressure that is supplied to the components
- Add oil to the compressed air to lubricate the pneumatic components that are downstream.

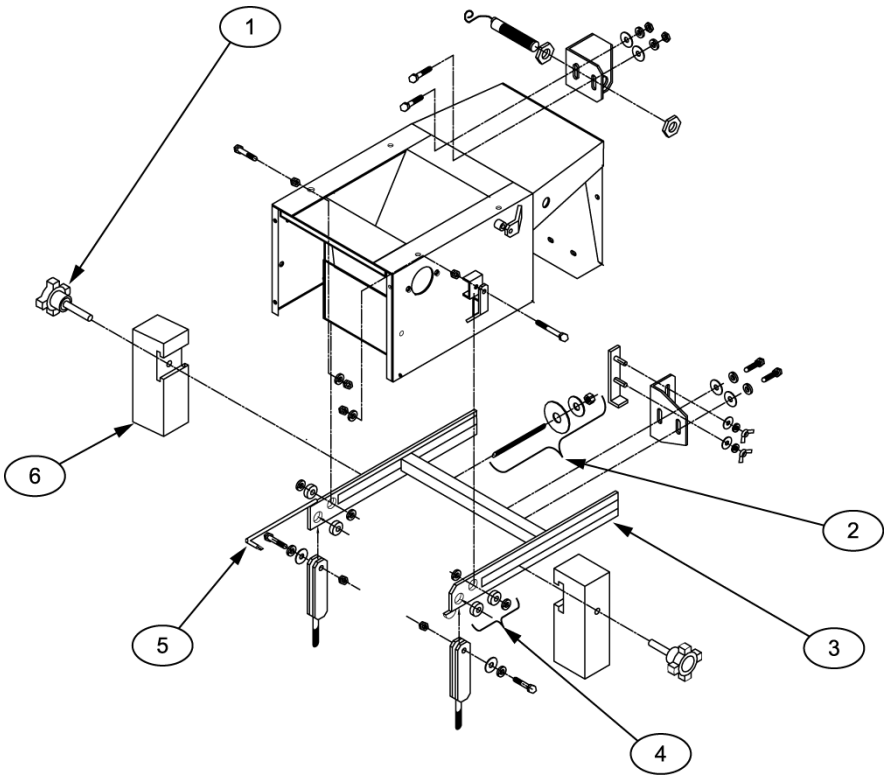
1.6.2 Scale Beam Assembly

The scale beam assembly is the device that will determine the target weight of the package. The scale beam assembly mounts on the scale cabinet. The scale beam assembly is made up of the following components:

- Scale beam
- Scale beam weights
- Scale beam weight lock knobs
- Scale pointer
- Scale beam bearings
- Scale beam fine zero adjustment

1.6.2.1 Scale Beam

The scale beam mounts to the outside of the scale cabinet. The scale beam pivots on the cabinet mount using a bearing on each side of the scale beam. A second set of bearings is installed toward the rear of the scale beam. This set of bearings provides the pivot action for the scale bottom hangers.



Item #	Description	Item #	Description
1	Scale beam weight locking knob	4	Scale beam bearings
2	Fine zero adjustment	5	Scale beam pointer
3	Scale beam	6	Scale beam weight

Figure 1-8. Scale Beam Mounting

1.6.2.2 Scale Beam Weights

The OM2A uses two or more scale beam weights. The scale beam weights have a machined slot in the back side of the weight that allows them to slide along the beam.

1.6.2.3 Scale Beam Weight Lock Knobs

Each scale beam weight that is used must be secured in position to keep it from moving as the angle of the scale beam changes. The scale beam weights are locked into position using a lock knob assembly that is threaded through the weight. As the knob is turned clockwise, the screw is tightened and makes contact with the scale beam. This locks the weight in position. If the knob is turned counter-clockwise, the screw is loosened and the weight will be able to slide.

1.6.2.4 Scale Pointer

On the front end of the scale beam is the scale pointer. The scale pointer is used, in conjunction with the scale display sticker, to display the current weight of the package.

1.6.2.5 Scale Beam Bearings

The scale beam utilizes four bearing assemblies. The bearings function as two sets. One set is used to allow the scale beam to pivot, while the second set is used to allow the scale bottom hangers to pivot on the scale beam. LOCTITE® 680 retaining compound is used to hold the scale beam bearings in the bearing bores in the scale beam.

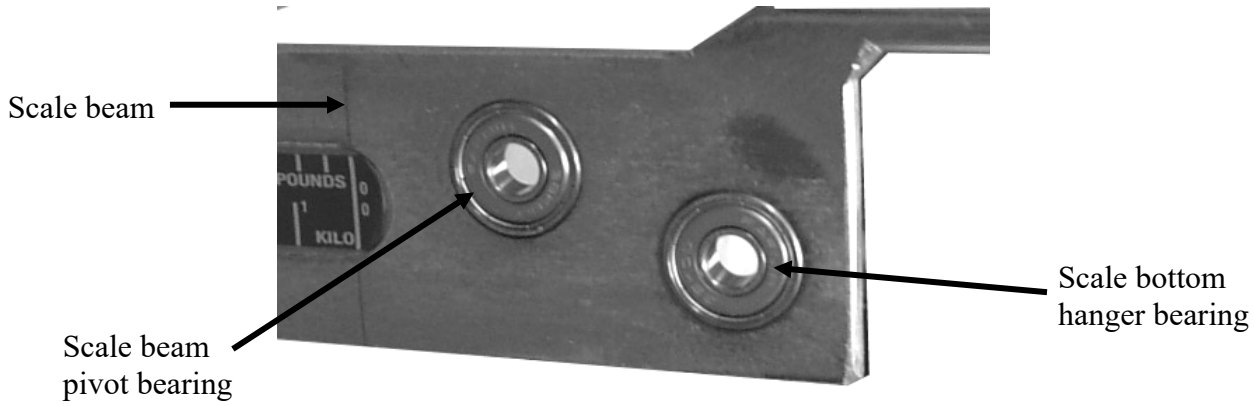


Figure 1-9. Scale Beam Bearings (2 of 4 shown)

1.6.2.6 Scale Beam Fine Zero Adjustment

On the rear of the scale beam is a fine zero adjustment. This adjustment mechanism is a piece of all-thread that is about four inches long. It is threaded into the scale beam. To help zero the scale, multiple washers are installed on the all-thread and a lock washer and nylon lock nut. There will be several different sizes of washer and there will be several washers of each size.

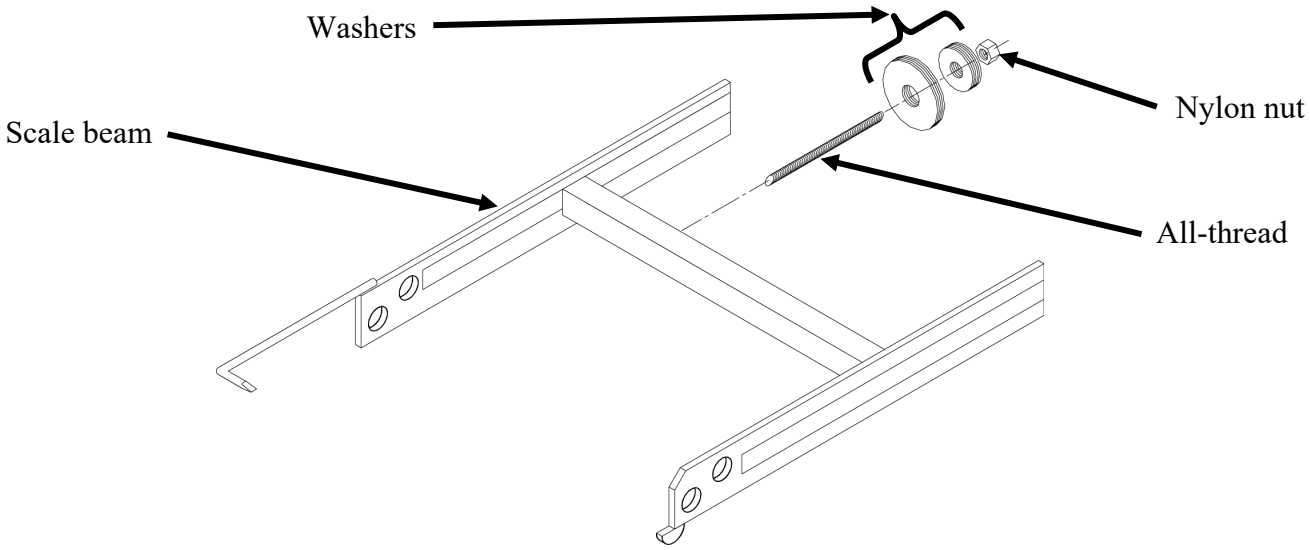


Figure 1-10. Scale Beam and Fine Zero Adjustment

1.6.2.7 Proximity Switch

The OM2A uses a proximity switch arrangement to determine when the shut off gate will close. This arrangement uses a magnetic switch and a metal wiper arm. Contrary to its name, the wiper arm should never make physical contact with the proximity switch. An air gap of approximately 1/8-inch should be maintained at all times.

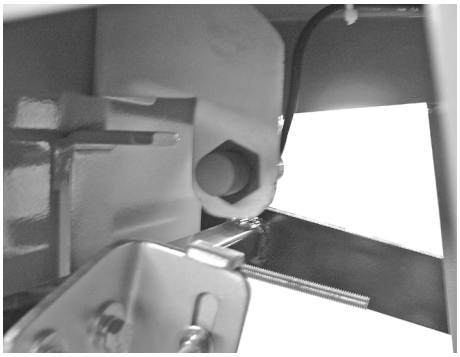
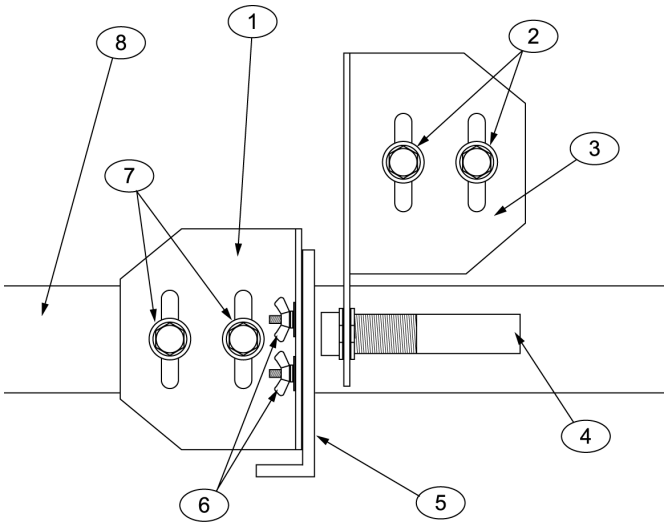


Figure 1-11. Proximity Switch Location

The proximity switch is mounted in a bracket that is bolted to the scale cabinet. The switch is threaded and held in position by two nuts. One on the front side of the bracket and one on the rear side.

The wiper arm is mounted on a bracket that is bolted to the scale beam.



Item #	Description	Item #	Description
1	Proximity switch wiper arm mounting bracket	5	Proximity switch wiper arm
2	Proximity switch mounting bracket bolts	6	Wiper arm adjustment wing nuts
3	Proximity switch mounting bracket	7	Proximity switch wiper arm mounting bracket bolts
4	Proximity switch	8	Scale beam

Figure 1-12. Proximity Switch and Wiper Arm

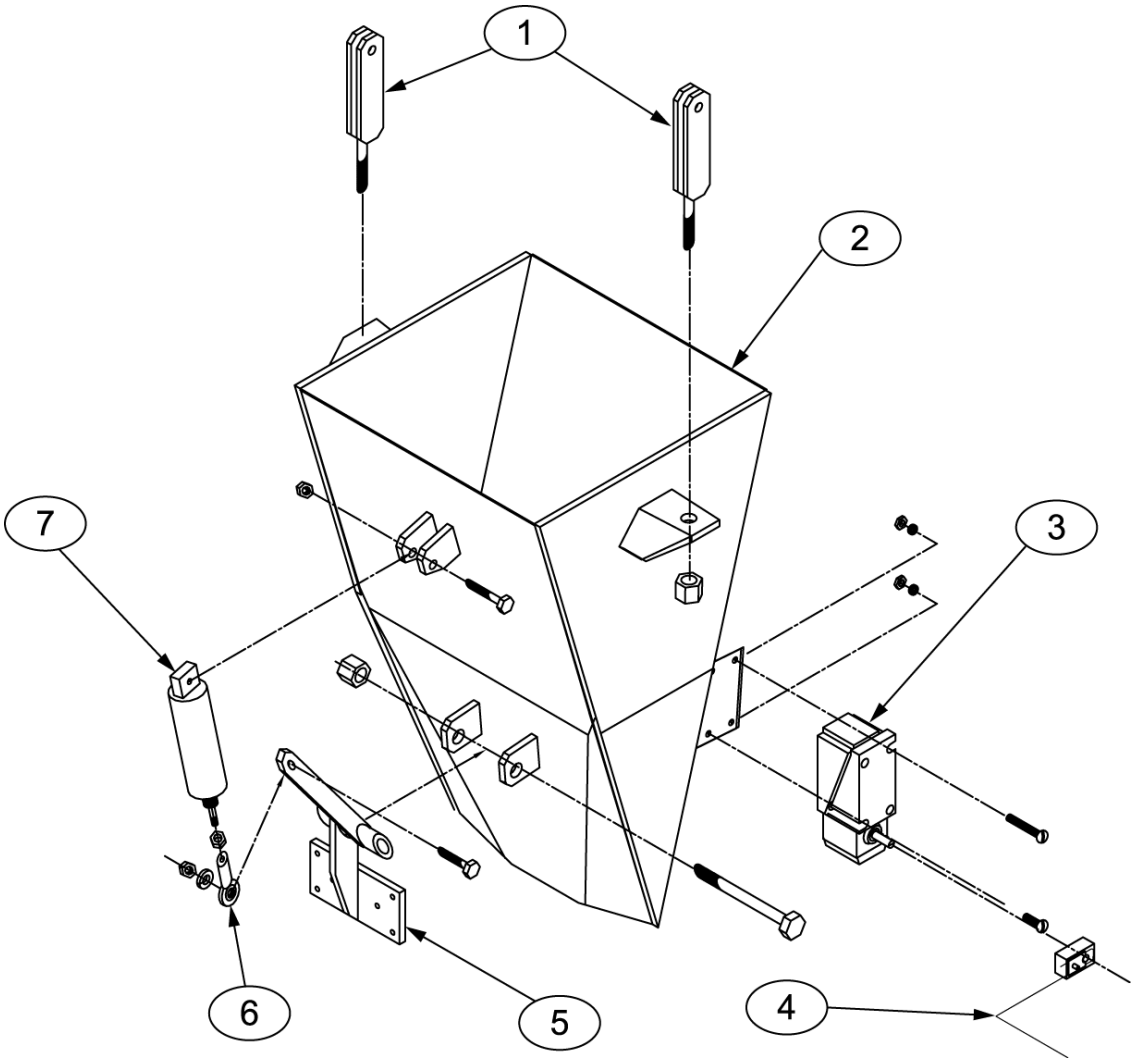
When the package weight is sufficient to move the wiper arm up so that it is in front of the proximity switch, the magnet in the switch closes the switch. When the proximity switch closes, the shut off gate is closes and the timer for the bag clamp release is initiated.

1.6.3 Spout Assembly

The spout assembly hangs from the scale beam assembly by two scale bottom hangers.

1.6.3.1 Spout

The spout assembly directs the product from the scale cabinet assembly to the package. The spout is connected to the scale cabinet assembly by two scale bottom hangers. The spout assembly also serves as the mounting point for the bag clamp assembly.



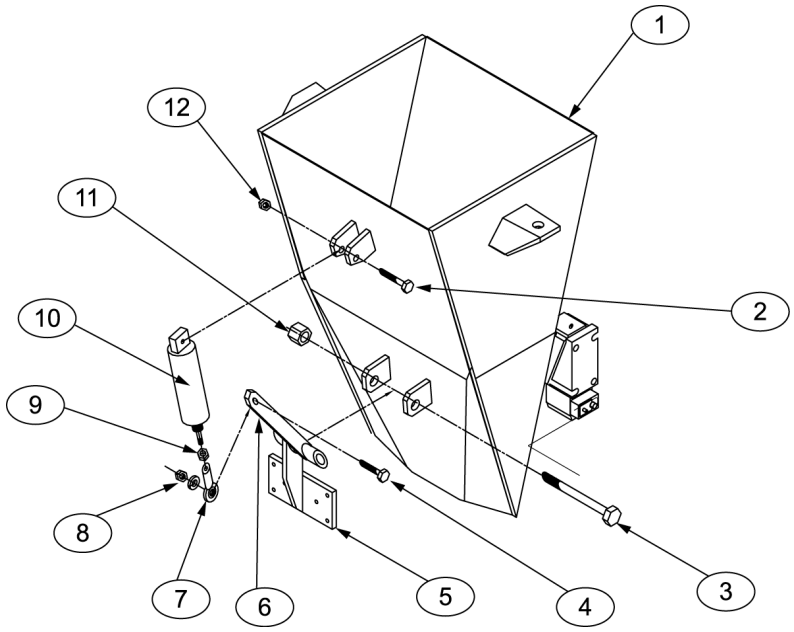
Item #	Description	Item #	Description
1	Scale bottom hangers	5	Bag clamp
2	Spout	6	Bag clamp cylinder rod end
3	Bag clamp actuator switch	7	Bag clamp cylinder
4	Bag clamp actuator switch bale		

Figure 1-13. Spout

1.6.3.2 Bag Clamp Assembly

The bag clamp assembly includes the following components:

- Bag clamp levers
- Bag clamp pads
- Bag clamp cylinders and rod-end bearings
- Bag clamp actuator switch and bale



Item #	Description	Item #	Description
1	Spout	7	Bag clamp cylinder rod end
2	Bag clamp cylinder upper mounting bolt	8	Bag clamp cylinder to bag clamp mounting nut
3	Bag clamp mounting bolt	9	Bag clamp rod length adjustment jam nut
4	Bag clamp cylinder to bag clamp mounting bolt	10	Bag clamp cylinder
5	Bag clamp	11	Bag clamp mounting nut
6	Bag camp lever	12	Bag clamp cylinder upper mounting nut

Figure 1-14. Bag Clamp Assembly – Exploded View

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Chapter 2
Receiving Equipment

2.1 General Description

The OM2A 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 OM2A hangs from a hopper. Make sure the hopper is in its final position and ready for the OM2A to be installed.
2. Before opening the box and removing OM2A from the shipping pallet, inspect the box, and pallet for visible damage.
3. Remove the box. Use care when unpacking the OM2A to avoid damaging the unit.

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

4. Check the components for damaged or missing parts. If there is damage, notify the shipper and Magnum Systems immediately. If the unit is not damaged, proceed to the next step.
5. Remove the beam weights from the inside of the cabinet assembly and set them aside.
6. Remove the cabinet assembly and set it aside.
7. Remove the spout assembly and set it aside.
8. The OM2A is now ready for assembly. Refer to 3.2 Mechanical Assembly.

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Chapter 3
Setup/Installation

3.1 General Description

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

3.2 Mechanical Assembly

Once the OM2A has been moved into the position where it will operate, follow the steps below to setup the mechanical components for operation. To achieve accurate weighments, a surge hopper must be used to feed the OM2A.

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

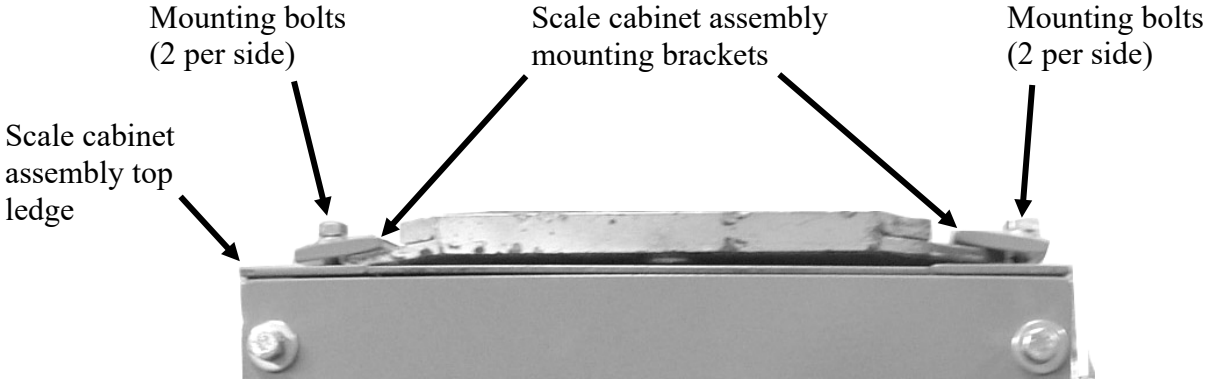
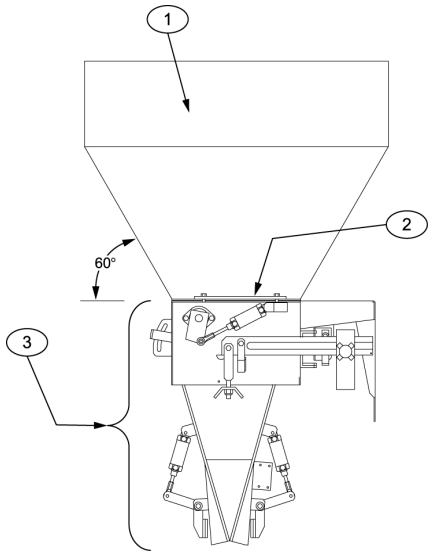


Figure 3-1. Hanging the Cabinet Assembly on the Hopper Flange



Item #	Description	Item #	Description
1	Hopper	3	OM2A
2	OM2A Mounting Bracket		

Figure 3-2. OM2A Mounted on Hopper

2. With the mounting clamps over the flange, center the cabinet under the bin or transition.
3. Tighten the mounting bolts.
4. Use a torpedo level on the top ledge of the cabinet assembly. The cabinet assembly must be level. Adjust the mounting bolts as needed to get the cabinet assembly level.
5. Remove the nut off of both of the scale bottom hangers and set them aside.
6. Lift the spout assembly into position under the cabinet assembly and slip the rear scale bottom hanger through the hole in the rear spout mounting bracket.
7. Install the nut on the scale bottom hanger. Turn the nut a couple of turns so it won't come off.

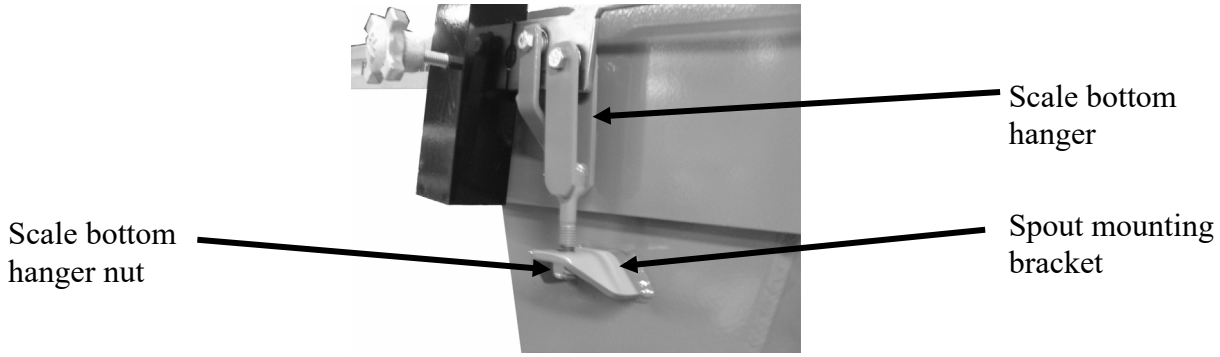


Figure 3-3. Spout Mounting Bracket

8. Lift the front of the spout and slip the front scale bottom hanger through the hole in the front spout mounting bracket.
9. Install the nut on the scale bottom hanger. Turn the nut a couple of turns so it won't come off.
10. Pull the scale beam down against the scale beam stop and clamp it in position.

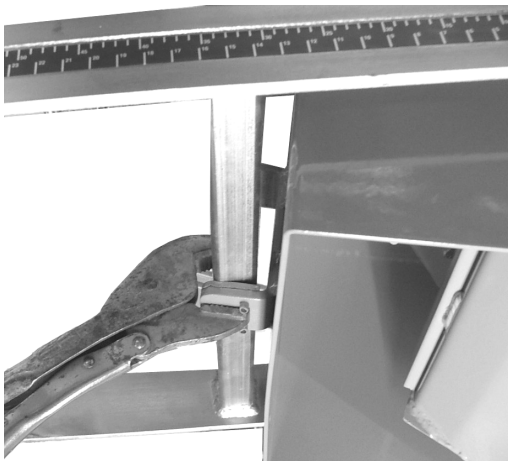


Figure 3-4. Clamping the Scale Beam Down

11. Tighten each nut a little at a time until each of the spout hanger ears is just touching the bottom of the scale cabinet.
12. Remove the clamp.
13. Unwrap the scale beam weights.
14. Install the scale beam weights by sliding one onto each side of the scale beam. Slide them all the way in until the edge of the weight that is closest to the scale beam mount is lined up with the "0" on the scale beam label.

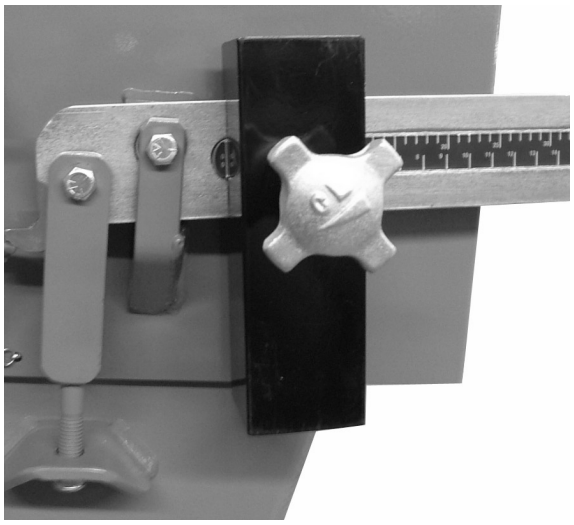


Figure 3-5. Scale Beam Weight on Scale Beam

15. Tighten the scale beam weight locking knobs.
16. Connect the air supply lines from the MAC valves to the pneumatic manifolds.
17. Install the bag clamp actuator switch on the mounting bracket on the spout.

3.3 Calibration

The scale is calibrated prior to leaving the factory. However, Magnum Systems recommends that the balance should be checked again before operation.

With both scale beam weights set at zero, the pointer on the scale beam should line up with the zero line on the cabinet. If it does not, follow the procedure below to zero the unit:

1. Make sure both scale beam weights are set at zero.

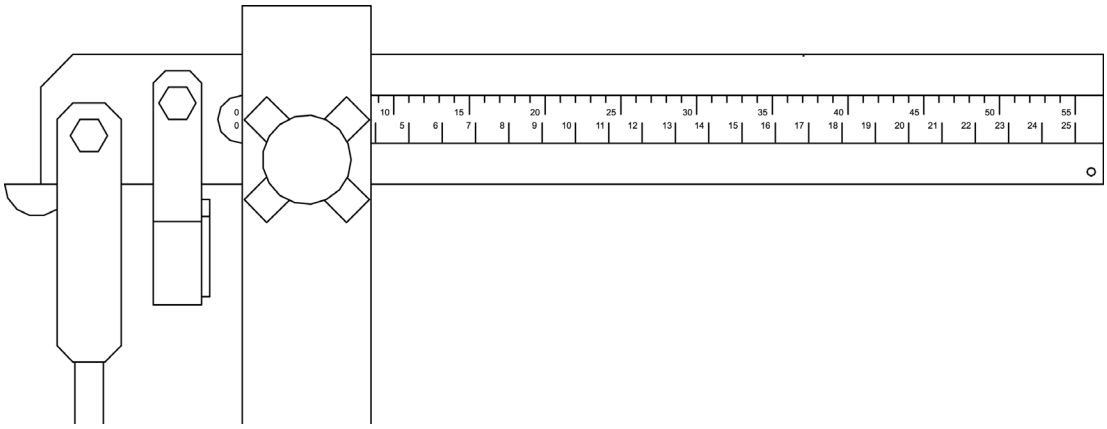


Figure 3-6. Setting the Scale Beam Weight to Zero

2. Remove the nut, lock washer, and first flat washer off of the piece of allthread on the front of the scale beam.
3. Place the nut, lockwasher, and flat washer on top of the crossbeam portion of the scale beam.

4. The all-thread has several sizes of washers hanging on it. There will be several of each size. Add or remove washers as needed to bring the scale beam into balance.
5. Once the scale beam is balanced, install the nut on the allthread.

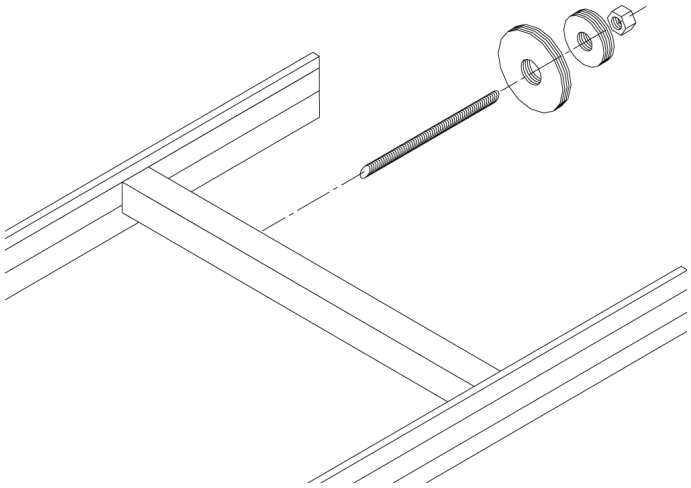


Figure 3-7. Fine Zero Adjustment

6. Calibration is complete.

Chapter 4
Operation

4.1 General Description

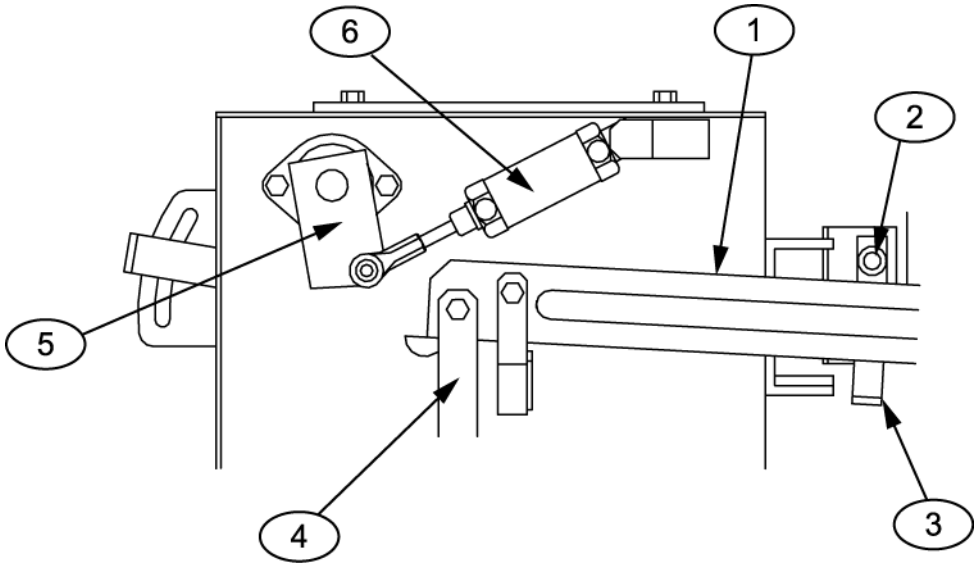
This chapter will provide detailed descriptions of the operational controls of the OM2A.

4.2 Operational Controls

The OM2A is a gravity fed packaging machine. It uses a combination of electronic and pneumatic controls to open and close the shut off gate and the bag clamps. The OM2A utilizes an electronic bag clamp actuator switch and an electronic proximity switch to control the starting point and stopping point of the fill cycle. A mechanical scale beam, in conjunction with weights, is used to set the package weight setting. The weights are moved closer to the scale beam pivot point for a lighter package, or moved away from the scale beam pivot point for a heavier package.

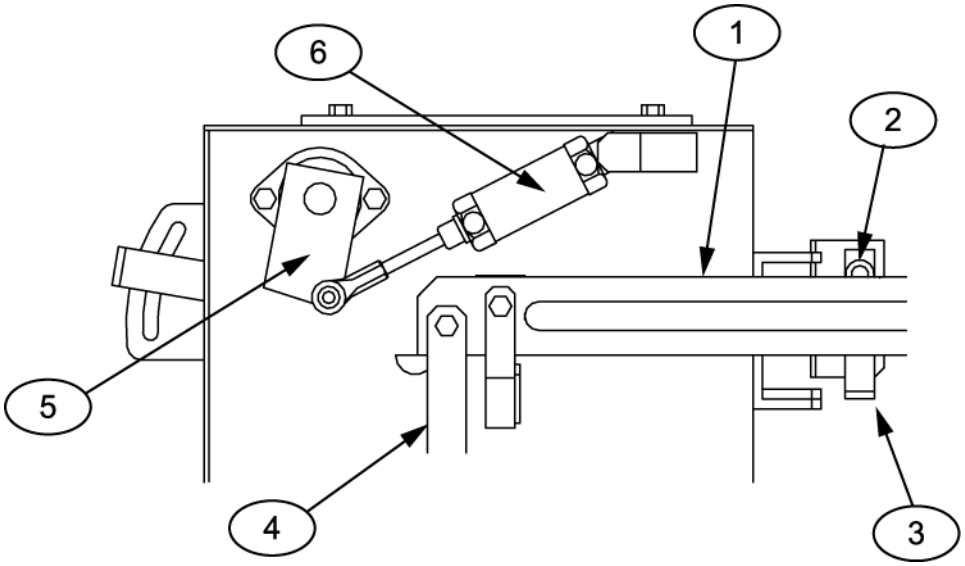
The gate cylinder is used to open and close the gate mechanism. The cylinder end of the gate cylinder is bolted to the scale cabinet assembly. The rod end of the gate cylinder is bolted to the gate shaft.

The operator trips the bag clamp actuator switch, which results in the bag clamps being applied and the shut off gate being opened. The package will start to fill. As the weight in the package increases, it pulls the spout end of the scale beam downward, and the opposite end of the scale upward. When the weight fine adjustment arm reaches the proximity switch, the switch closes to complete the switch circuit. Once the proximity switch circuit closes, the OM2A will extend the gate cylinder, which closes the shut off gate. When the proximity switch circuit closes, it also activates the timer circuit. Once the timer has run, the bag clamp cylinders will retract to release the bag.



Item #	Description	Item #	Description
1	Scale beam	4	Scale bottom hanger
2	Proximity switch (open)	5	Gate mechanism
3	Weight fine adjustment arm	6	Gate cylinder

Figure 4-1. Gate Trip Mechanism – Gate Open



Item #	Description	Item #	Description
1	Scale beam	4	Scale bottom hanger
2	Proximity switch (closed)	5	Gate mechanism
3	Weight fine adjustment arm	6	Gate cylinder

Figure 4-2. Gate Trip Mechanism – Gate Closed

4.2.1 Control Box

An electronic control box is mounted on the rear of the OM2A. This control box is where the power switch is located. The power switch is mounted in the center of the control box door.

Inside the control box is where the Digi-Set timer, the fuse holders, and relay are located. The Digi-Set timer uses two-position dipswitches to control how much time will elapse at the end of the fill cycle before the bag clamps are opened.

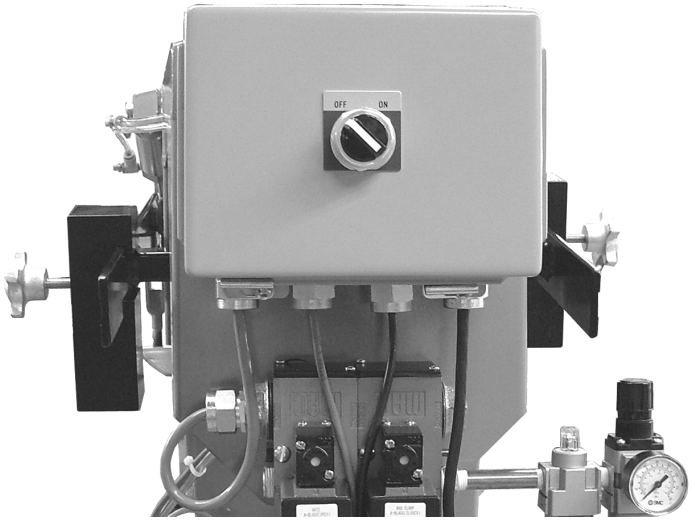


Figure 4-3. OM2A Control Box

4.3 The Filling Process

Once the unit has been installed and calibrated, the fill process can be initiated.

1. Make sure that the power cord is plugged into an active outlet.
2. Connect the air supply line to the FRL.
3. Turn the power switch on the OM2A to the ON position.
4. Place a bag on the spout.
5. When the bag is in position, trip the bag clamp actuator switch bale. The MAC valve will supply air to the bag clamp cylinders, causing them to extend and close the bag clamps on the bag.
6. The MAC valve will direct air to the shut off gate cylinder, causing it to retract and open the shut off gate to start the product flowing into the package.
7. The package will fill. When the target weight has been reached, the proximity switch will close, by magnetic force, which will cause the MAC valve to the shut off gate cylinder, causing the cylinder to extend and close the gate.
8. After a short delay, the bag clamps will open, releasing the filled package. The amount of delay can be adjusted using the dipswitches on the timer mechanism inside the control box. Refer to 7.2.7 Bag Release Delay Adjustment.

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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 the calibration, using a known weight.

5.2.1 Cleaning

Keeping the OM2A 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 OM2A to suffer. Also, by taking the time to clean the OM2A on a daily basis, the operator will be able to give the OM2A a thorough inspection. Take the time to inspect all components for possible damage.

5.2.2 Check Calibration

On a daily basis, check the calibration of the machine using a known weight. If calibration is required, refer to 3.3 Calibration.

5.2.3 Drain Water From The Water Separator

It is very important to remove unwanted moisture from the incoming air to ensure proper operation 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.

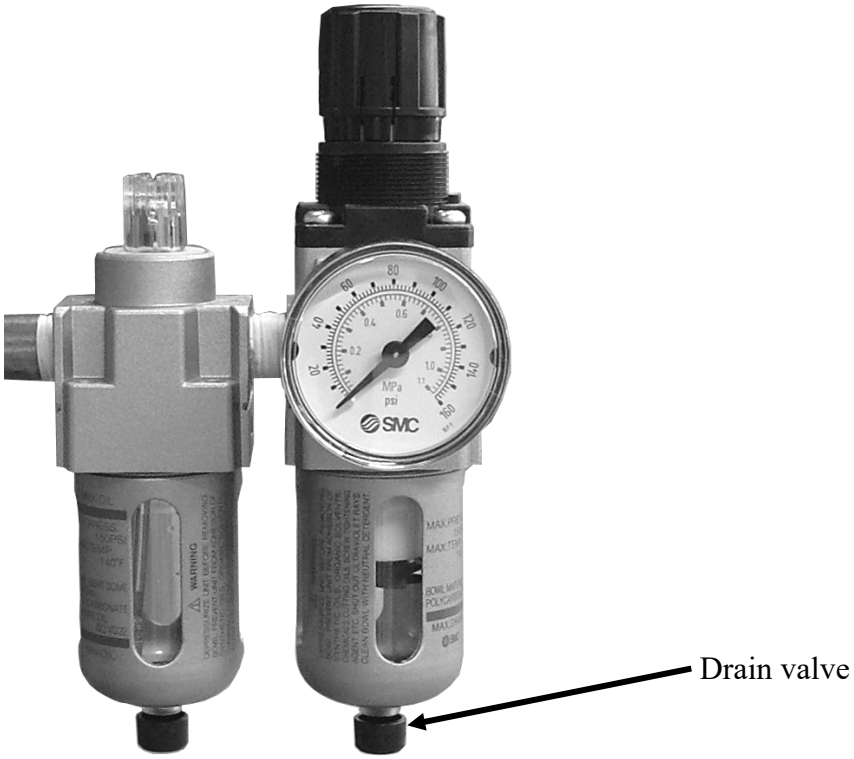

Figure 5-1. Drain Valve On Water Separator

5.3 Monthly Maintenance

On a monthly basis, the operator should check all fasteners on the OM2A. Loose fasteners can cause unwanted vibration and wear.

Chapter 6
Troubleshooting

6.1 General Description

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

6.2 The Troubleshooting Process

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

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

6.3 Trouble Symptoms

Use the following information to assist in troubleshooting.

6.3.1 Scale is Not Accurate

If the scale is providing inaccurate readings, check the following:

1. Check the calibration of the OM2A. Refer to 3.3 Calibration.
2. Check scale beam mounting bolts. If they are too tight, it will cause the scale beam to bind and impede the natural motion of the scale beam.
3. Check the scale beam pivot bearings for binding. Replace them if necessary. Refer to 7.3.2 Scale Beam Bearing Replacement.
4. Check the scale bottom hanger to scale beam bolts. If they are too tight, it will cause them to bind and impede the natural motion of the spout.
5. Check the scale bottom hanger bearings for binding. Replace them if necessary. Refer to 7.3.2 Scale Beam Bearing Replacement.
6. Check the hopper to make sure an adequate supply of material is available in the product hopper to ensure a consistent head pressure.
7. Check to make sure there is nothing restricting material flow from the hopper.
8. Check that hoses or other components are not coming into contact with the spout.

6.3.2 Scale Does Not Return to Zero

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

1. Check the calibration of the OM2A. Refer to 3.3 Calibration.
2. Check for anything that might interfere with the natural motion of the scale beam and spout. Any items, such as cords, hoses, etc., that would impede or change the movement of the weigh mast must be removed.
3. Check scale beam mounting bolts. If they are too tight, it will cause the scale beam to bind and impede the natural motion of the scale beam.
4. Check the scale beam pivot bearings for binding. Replace them if necessary. Refer to 7.3.2 Scale Beam Bearing Replacement.
5. Check the scale bottom hanger to scale beam bolts. If they are too tight, it will cause them to bind and impede the natural motion of the spout.
6. Check the scale bottom hanger bearings for binding. Replace them if necessary. Refer to 7.3.2 Scale Beam Bearing Replacement.
7. Check to see if product is building up and sticking inside the spout.

6.3.3 The Weighments are Always Too Light

Troubleshooting for weighments that are consistently coming up too light varies depending on the amount of time required to fill the package.

1. Adjust the weight fine adjustment arm so that cutoff occurs a little later. Refer to 7.2.5 Weight Fine Adjustment Arm Adjustment.

6.3.4 The Weighments are Always Too Heavy

If the OM2A is consistently filling the package and stopping above the target weight, follow the steps below:

1. Adjust the weight fine adjustment arm so that cutoff occurs a little earlier. Refer to 7.2.5 Weight Fine Adjustment Arm Adjustment.

6.3.5 The Weighments Fluctuate Between Too Light and Too Heavy

If the OM2A is inconsistent in delivering package weights, and the weights are always either too heavy, or too light, follow the steps below:

1. Verify that the product flow is consistent and stable.
2. Check the flow rate of the product. If the flow rate is too slow, the result will be inconsistent or inaccurate weighments.
3. Check for consistent head pressure of product above the machine. Head pressure is the amount of product that is always in the hopper immediately above the OM2A. It is very important to keep the OM2A from running out of material. As the OM2A runs out of product the weighment accuracy will vary widely. A good rule of thumb is to have enough product in the hopper to fill approximately 20 packages at all times. This amount may vary slightly depending upon product characteristics.
4. Check the calibration of the OM2A. Refer to 3.3 Calibration.

6.3.6 Too Much or Too Little Delay Before Bag Clamp Release

If the OM2A is releasing the filled package too soon, or if there is too much delay before releasing the package, adjust the timer settings. Refer to 7.2.6 Bag Release Timer Adjustment.

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Chapter 7
Repair and Adjustment

7.1 General Description

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

7.2 System Adjustment Procedures

Depending on how the OM2A is configured, there are several adjustments that may be required from time to time. They are:

- Gate wiper adjustment
- Choke plate adjustment
- Spout to scale cabinet clearance adjustment
- Bag clamp cylinder rod adjustment
- Weight fine adjustment arm adjustment
- Bag release delay adjustment

7.2.1 Gate Wiper Adjustment

If the product continues to flow out of the hopper when the shut off gate is closed, or if the shut off gate is dragging on the gate wiper, the gate wiper needs to be adjusted. Follow these steps to adjust the gate wiper.

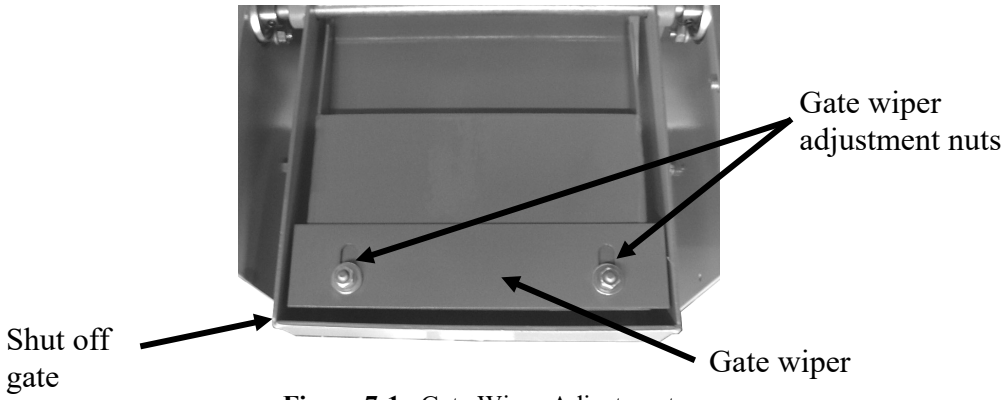


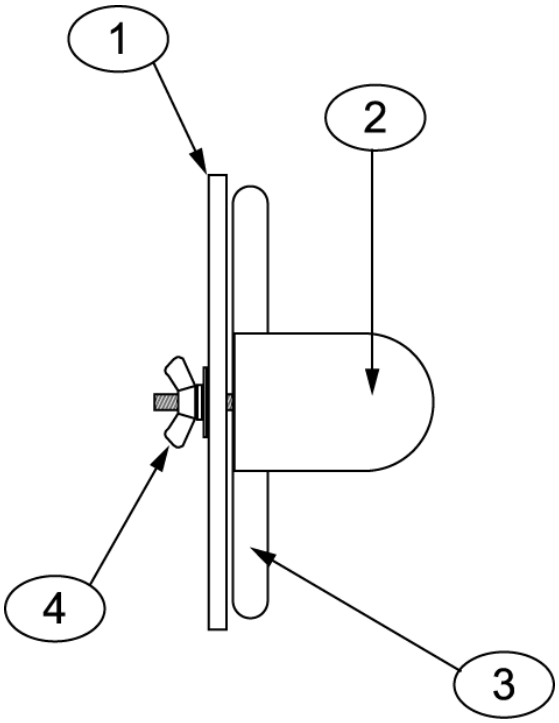
Figure 7-1. Gate Wiper Adjustment

1. Loosen the choke flap adjustment nut.
2. Remove the front plate and choke flap together.
3. Loosen the two gate wiper adjustment nuts.
4. Adjust the gate wiper so that the opening does not touch the shut off gate, yet does not allow product to flow out.
5. Tighten the gate wiper adjustment nuts.
6. Install the front plate and choke flap.
7. Adjust the choke plate. Refer to 7.2.2 Choke Plate Adjustment.

7.2.2 Choke Plate Adjustment

If product is flowing into the spout too fast or too slow, adjust the choke flap. Use the following steps to adjust the choke flap.

1. Loosen the choke flap adjustment nut.
2. To increase product flow rate, move the choke flap adjustment lever upward. To decrease product flow rate, move the choke flap downward.
3. Tighten the choke flap adjustment nut.



Item #	Description	Item #	Description
1	Front plate adjustment tab	3	Front plate adjustment slot
2	Choke plate adjustment tab	4	Choke plate locking wing nut

Figure 7-2. Choke Plate Adjustment

7.2.3 Spout to Scale Cabinet Clearance Adjustment

If there is too much or too little clearance between the spout and the scale cabinet, use the following steps to adjust the clearance.

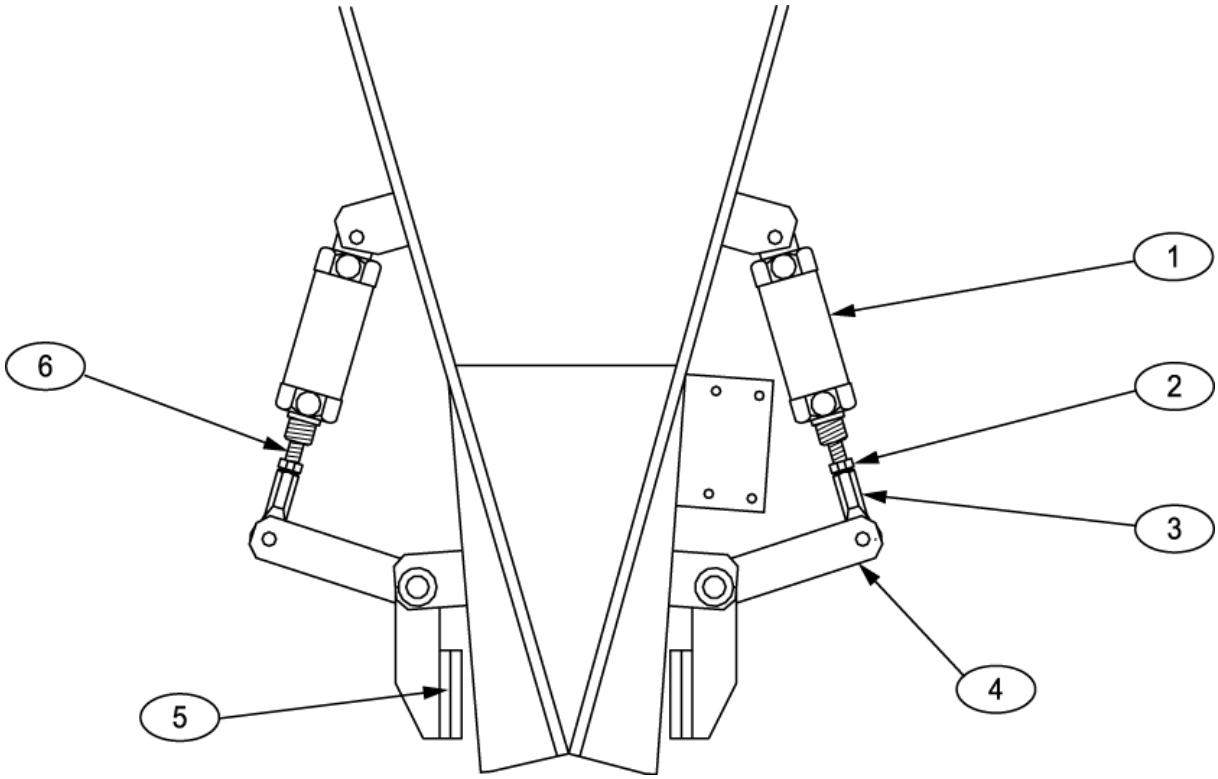
1. With the scale beam set to the desired package weight, pull the scale beam down until it touches the scale beam stop.
2. Clamp the scale beam to the scale beam stop.
3. Loosen or tighten the scale bottom hanger to spout nuts so that the top edge of the spout is just touching the bottom edge of the scale cabinet.
4. Remove the clamp.

7.2.4 Bag Clamp Cylinder Rod Adjustment

The bag clamp cylinder rods should be adjusted so that when the cylinder rods are extended, the bag clamp applies enough pressure on the bag clamp to hold the packages that are being filled. Follow the procedure below to adjust the bag clamp cylinder rods:

1. Loosen the jam nut on the cylinder rod.
2. Turn the bag clamp rod to adjust the amount of slack in the mechanism.
    a. Clockwise will increase the amount of slack in the mechanism.
    b. Counter-clockwise will decrease the amount of slack in the mechanism.
3. Tighten the jam nut on the cylinder rod.
4. Repeat steps 1 through 3 for the other bag clamp cylinder.
5. Test the OM2A for proper operation.

Important: *The adjustment must be made on both bag clamp rods. There is one on either side of the spout.*



Item #	Description	Item #	Description
1	Bag clamp cylinder	4	Bag clamp lever
2	Bag clamp cylinder rod end jam nut	5	Bag clamp pad
3	Bag clamp cylinder rod end	6	Bag clamp cylinder rod

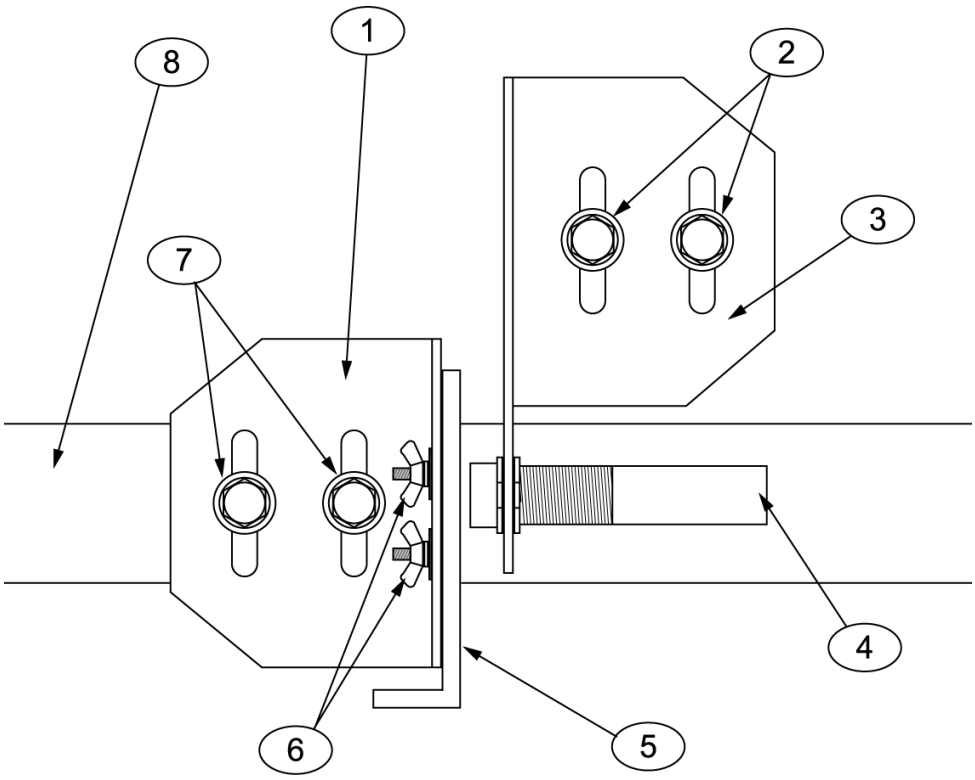
Figure 7-3. Bag Clamp Components

7.2.5 Weight Fine Adjustment Arm Adjustment

The proximity switch and weight fine adjustment arm work together to control the point where the shut off gate will close. Adjustment is accomplished by moving the wiper arm up or down. The weight fine adjustment arm has two threaded studs that are inserted in the slot on the mounting bracket. This slot allows the operator to adjust the wiper arm up or down. The wiper arm is held in place using two wing nuts.

- Raising the wiper arm will cause the shut off gate to close sooner, resulting in a lighter package weight.
- Lowering the wiper arm will cause the shut off gate to close later, resulting in a heavier package weight.

If the operator is unable to adjust the wiper arm far enough to meet their packaging needs, the operator can loosen the two bolts that connect the mounting bracket to the scale beam, and slide the bracket up or down.



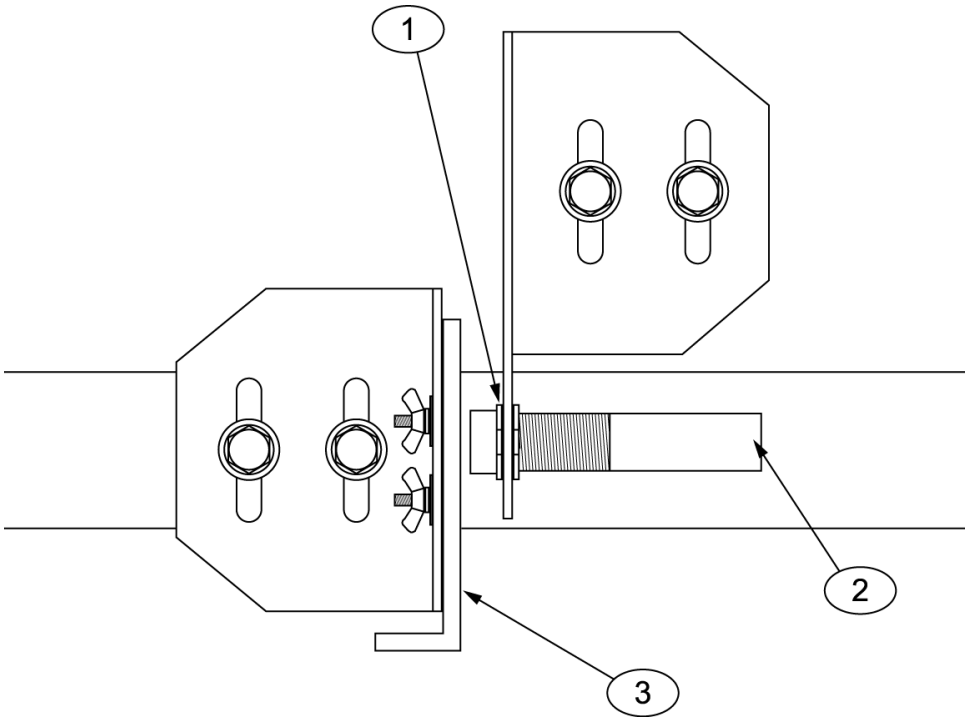
Item #	Description	Item #	Description
1	Weight fine adjustment arm mounting bracket	5	Proximity switch wiper arm
2	Proximity switch mounting bracket bolts	6	Weight fine adjustment arm wing nuts
3	Proximity switch mounting bracket	7	Weight fine adjustment arm mounting bracket bolts
4	Proximity switch	8	Scale beam

Figure 7-4. Weight Fine Adjustment Arm Adjustment

7.2.6 Proximity Switch Air Gap Adjustment

The amount of gap between the proximity switch and the weight fine adjustment arm must be maintained at approximately 1/8-inch. To adjust the air gap, use the following steps:

1. Turn the OM2A off.
2. Loosen the proximity switch jam nut and back it off several turns.
3. Turn the proximity switch air gap adjustment nut to either increase or decrease the air gap
4. Once the desired amount of air gap is achieved, tighten the proximity switch jam nut to secure the adjustment.
5. Turn the OM2A on and test for proper operation.



Item #	Description	Item #	Description
1	Proximity switch jam nut	3	Proximity switch air gap adjustment nut
2	Proximity switch		

Figure 7-5. Proximity Switch Air Gap Adjustment

7.2.7 Bag Release Delay Adjustment

At the completion of the fill cycle there will be a slight delay, after the shut off gate closes, before the bag clamps release. This is done to give the operator enough time to catch the filled package. Too much delay will result in the operator waiting for the clamps to release, which would reduce the operational efficiency. The Digi-Set timer mechanism that is located inside the control box is used to set the delay.

The timer is equipped with 10 dipswitches. The switches are either ON or OFF. To calculate the amount of delay that is currently set, the operator will need to add the value of all of the switches that are in the ON position.

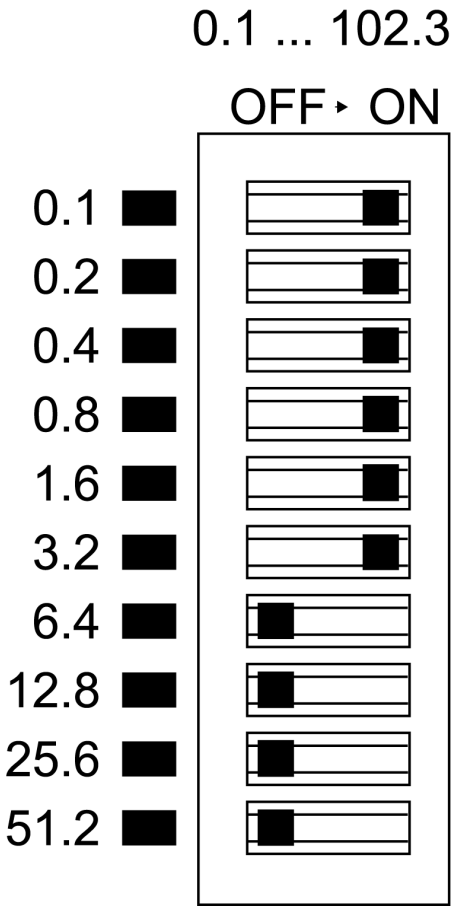


Figure 7-6. Bag Release Delay Timer Settings

In the graphic shown above, the delay is set to 6.3 seconds. If the switch for position 3.2 were switched to the OFF position, the amount of delay would be 3.1 seconds.

7.3 Component Replacement Procedures

Over time, components on the OM2A 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 Scale Beam Replacement

In the event that the scale beam becomes damaged, use the procedure below to replace it.

7.3.1.1 Scale Beam Removal

1. Remove the spout assembly. Refer to 7.3.4 Spout Replacement.
2. Remove the scale beam weights. Refer to 7.3.3 Scale Beam Weight Replacement.
3. Remove the choke plate.
4. From the front of the OM2A, pull the scale beam to the down position and clamp it in place.

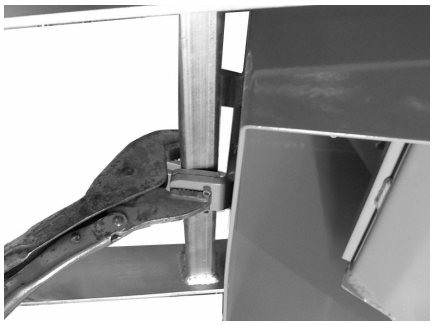


Figure 7-7. Clamping the Scale Beam in the Down Position

5. Remove the scale bottom hangers. Refer to 7.3.5 Scale Bottom Hanger Replacement.
6. Remove the scale beam mounting nuts and the lock washers that are located inside the scale cabinet and set them aside.
7. Use a wrench to hold the nut inside the outer mounting bracket, while using a wrench to slowly back the mounting bolt out.

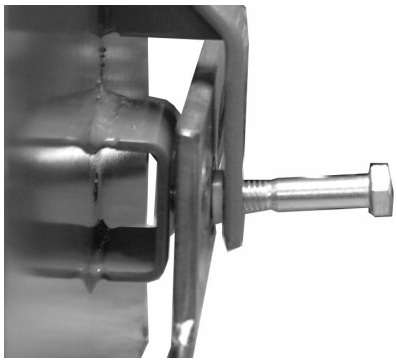


Figure 7-8. Scale Beam Mount

8. Remove the nut and set it aside.

9. Back the bolt out until the inner plastic spacer drops out. Set the spacer aside.
10. Continue backing the bolt out, making sure to catch the second plastic spacer.
11. Use a wrench to hold the nut inside the outer mounting bracket and begin backing the second scale beam mounting bolt out.
12. Remove the nut and set it aside.
13. Continue backing the bolt out until the inner plastic spacer drops out. Set the spacer aside.
14. Continue backing the bolt out, making sure to catch the second plastic spacer.
15. Remove the bolt.
16. Hold the scale beam with one hand and remove the clamp.
17. Remove the scale beam.

7.3.1.2 Scale Beam Installation

1. Install the scale beam bearings. Refer to 7.3.2 Scale Beam Bearing Replacement.
2. Position the scale beam so the pivot bolts can be installed.
3. Insert a pivot bolt so that it just barely protrudes through the outer portion of the mounting bracket.
4. Install a plastic spacer on the end of the bolt.
5. Lift the scale beam so that the hole in the scale beam pivot bearing is lined up with the end of the pivot bolt.
6. Gently slide the bolt through the pivot bearing so that it just clears the pivot bearing.

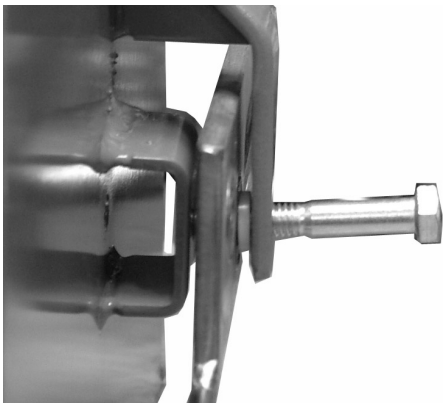


Figure 7-9. Mounting the Scale Beam

CAUTION The installation of the scale beam requires a plastic spacer be installed on both sides of both bearings.

7. Use a small wire or tool to insert a plastic spacer in between the scale beam and the inner mounting bracket.
8. Slide the bolt through the inner bracket so that it protrudes into the gap between the inner bracket and the scale cabinet.
9. Use needle nose pliers to grasp a nut and position it so that it can be threaded onto the bolt in the gap between the inner bracket and the scale cabinet.
10. Push the pivot bolt through the hole and into the scale cabinet.
11. Install a lock washer and loosely install a nut.

12. Gently slide the second pivot bolt through the pivot bearing so that it just clears the pivot bearing.
13. Use a small wire or tool to insert a plastic spacer in between the scale beam and the inner mounting bracket.
14. Slide the bolt through the inner bracket so that it protrudes into the gap between the inner bracket and the scale cabinet.
15. Use needle nose pliers to grasp a nut and position it so that it can be threaded onto the bolt in the gap between the inner bracket and the scale cabinet.
16. Push the pivot bolt through the hole and into the scale cabinet.
17. Install a lock washer and loosely install a nut.
18. Tighten each of the pivot bolt nuts so that the scale beam is secure, but the scale beam is still able to pivot freely.
19. Install the scale bottom hangers. Refer to 7.3.5 Scale Bottom Hanger Replacement.
20. Install the spout assembly. Refer to 7.3.4 Spout Replacement.
21. Install the scale beam weights. Refer to 7.3.3 Scale Beam Weight Replacement.

7.3.2 Scale Beam Bearing Replacement

In the event that one of the four bearings mounted in the scale beam becomes worn so that it no longer allows free movement, follow the procedures below to replace it.

7.3.2.1 Scale Beam Bearing Removal

CAUTION Use extreme caution when applying heat. The metal will retain heat and could burn someone for several minutes after the heat has been removed. If using a an open-flame heat source, make sure that any and all flammable materials have been removed from the work area.

1. Remove the scale beam from the scale cabinet assembly. Refer to 7.3.1 Scale Beam Replacement.
2. Stand the scale beam on end so that the bearings are located at the top.

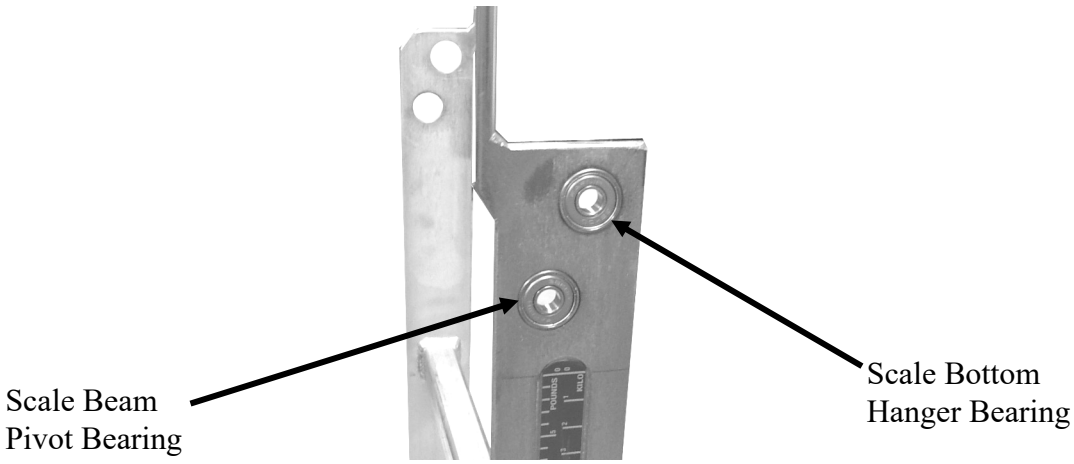


Figure 7-10. Scale Beam Bearings

3. Heat the area immediately surrounding the bearing being replaced to approximately 480°F (250°C).
4. Place a clean metal container against the scale beam, just below the bearing being replaced.

5. Use a socket that is just slightly smaller than the outside diameter of the bearing to push the bearing out of the hole into the metal catch container. It may be necessary to use a hammer to tap on the socket to push the bearing out of the bore.
6. Repeat steps 3, 4, and 5 for all bearings that need replaced.

7.3.2.2 Scale Beam Bearing Installation

1. Apply a small bead of LOCTITE® 680 Retaining compound around the outer surface of the bearing.

CAUTION Do not allow any of the LOCTITE® 680 to penetrate into the actual bearing. This would likely cause the bearing to seize, or at the very least would adversely affect the operation of the bearing.

2. Take a bearing and insert it into the bearing hole in the scale beam.
3. The bearing is slightly thicker than the scale beam itself. Center the bearing in the hole.
4. Repeat steps 1, 2, and 3 until all of the bearings have been installed.
5. Set the scale beam aside for 2 to 3 hours to allow the LOCTITE® 680 to set up. A heat lamp may be used to reduce the set up time.

7.3.3 Scale Beam Weight Replacement

If a scale beam weight becomes damaged, or if weight needs to be added or removed from the scale beam, use the following procedures.

The OM2A may have multiple weights installed on both sides of the scale beam. If the weight that needs to be removed/replaced is located behind another weight, or multiple weights, then repeat the procedure for removal until the weight that needs to be removed has been removed.

CAUTION Do not exceed 50 lbs. (100 lbs. total package weight) per side. Exceeding this limit will result in damage to the OM2A. If a package weight greater than 100 lbs. is required, contact Taylor Product for available solutions.

CAUTION Each bearing installed in the scale beam requires a plastic spacer on the inboard and outboard side of the bearing when installed on the machine.

7.3.3.1 Scale Beam Weight Removal

1. Loosen the scale beam weight lock knob on the weight that is being removed.
2. Slide the weight to the open end of the scale beam and remove it. Be careful to not drop the weight.

7.3.3.1 Scale Beam Weight Installation

1. Make sure that the lock knob bolt does not protrude out of the bolt hole on the in the scale beam slot on the rear of the weight. If it does, loosen the lock knob to back it back into the bolt hole.

2. Position the scale beam weight at the end of the scale beam on the side that the weight is going to be added to.
3. Line the scale beam up with the scale beam slot on the rear of the weight.

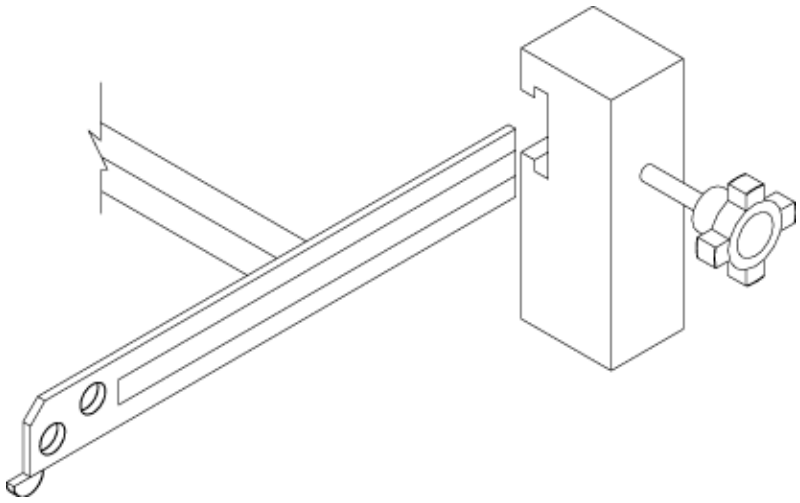


Figure 7-11. Lining Up the Scale Beam with the Scale Beam Weight Slot

4. Slide the scale beam weight onto the scale beam all the way.
5. Tighten the lock knob.
6. Once all of the weights have been added to the scale beam, calibrate the scale beam. Refer to 3.3 Calibration.

7.3.4 Spout Replacement

Due to the abrasiveness of some products, the spout may require periodic replacement. Use the procedures below to replace the spout.

7.3.4.1 Spout Removal

1. Turn the OM2A off.
2. Disconnect the main power and pneumatic connections.
3. Label the air supply lines to the air manifold on the front of the spout.
4. Disconnect the air supply lines from the air manifold on the front of the spout.
5. If the spout is being replaced with a new one, remove the following items:
    a. Bag clamp cylinders. Refer to 7.3.8 Bag Clamp Cylinder Replacement.
    b. Bag clamps. Refer to 7.3.6 Bag Clamp Replacement.
    c. Bag clamp actuator switch. Refer to 7.3.9 Bag Clamp Actuator Switch Replacement.
6. Loosen the nut on the scale bottom hangers almost all the way.
7. Support the spout with one arm, and remove the nut from the scale bottom hanger at the front spout mounting bracket.
8. Remove the nut from the scale bottom hanger at the rear spout mounting bracket.
9. Remove the spout by lowering it away from the scale bottom hangers.

7.3.4.2 Spout Installation

1. Position the spout so that the rear scale bottom hanger bolt goes through the rear spout bracket.
2. Install the nylon nut a couple of turns so that the nut will not slip off of the hanger.
3. Lift the front of the spout so the front scale bottom hanger bolt goes through the front spout bracket.
4. Install the nylon nut a couple of turns so that the nut will not slip off of the hanger.
5. Adjust the spout to scale cabinet clearance. Refer to 7.2.3 Spout to Scale Cabinet Clearance Adjustment.
6. If the spout is being replaced with a new one, install the following items:
    a. Bag clamp actuator switch. Refer to 7.3.9 Bag Clamp Actuator Switch Replacement.
    b. Bag clamps. Refer to 7.3.6 Bag Clamp Replacement.
    c. Bag clamp cylinders. Refer to 7.3.8 Bag Clamp Cylinder Replacement.
7. Connect the air supply lines to the air manifold on the front of the spout.
8. Connect the main power and pneumatic connections.
9. Turn the OM2A on and test for proper operation.

7.3.5 Scale Bottom Hanger Replacement

If the scale bottom hanger becomes worn or damaged, or needs to be removed during the replacement of another component, use the following procedures.

CAUTION The installation of the scale bottom hangers requires a plastic spacer be installed on both sides of both bearings.

7.3.5.1 Scale Bottom Hanger Removal

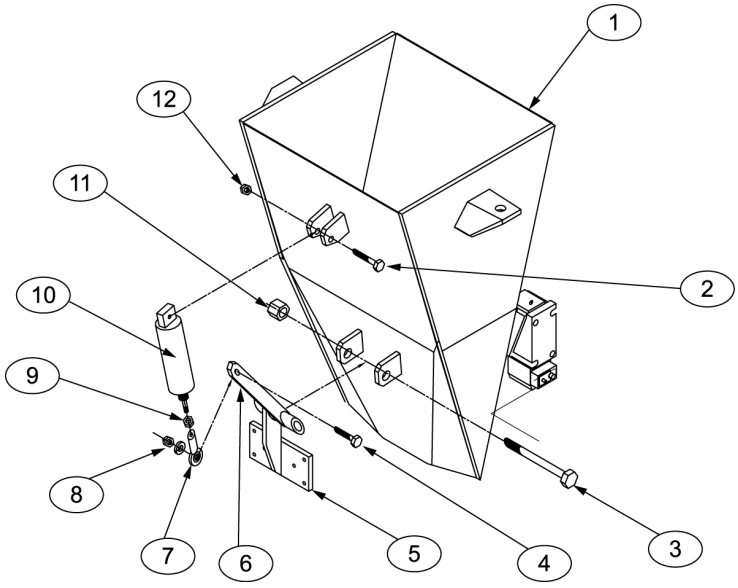
1. Remove the spout assembly. Refer to 7.3.4 Spout Replacement.
2. Use a wrench to hold the scale bottom hanger retaining nut.
3. Use another wrench to loosen the scale bottom hanger retaining bolt.
4. Back the bolt out until the nut is completely off.
5. Grasp the scale bottom hanger by the shank.
6. Remove the retaining bolt, while being careful not to drop the two washers.
7. Once the bolt has been removed, the scale bottom hanger is free to be removed.

7.3.5.2 Scale Bottom Hanger Installation

1. Grasp the scale bottom hanger by the shank and lift it into position so that the scale bottom hanger pivot bearing in the scale beam is in between the two scale bottom hanger tabs and so that the holes in the tab and bearing are lined up.
2. Place the lock washer on the bolt.
3. Place the flat washer on the bolt.
4. Insert the bolt through the scale bottom hanger and bearing from the outside.
5. Place a nut on the end of the bolt.
6. Use a wrench to tighten the nut. Be careful that the nut is not over tightened. The nut needs to be secure, but the scale bottom hanger must be able to pivot freely on the bearing.
7. Install the Spout. Refer to 7.3.4 Spout Replacement.

7.3.6 Bag Clamp Replacement

Use the following procedures to remove and install the bag clamp.



Item #	Description	Item #	Description
1	Spout	7	Bag clamp cylinder rod end
2	Bag clamp cylinder upper mounting bolt	8	Bag clamp cylinder to bag clamp mounting nut
3	Bag clamp mounting bolt	9	Bag clamp rod length adjustment jam nut
4	Bag clamp cylinder to bag clamp mounting bolt	10	Bag clamp cylinder
5	Bag clamp	11	Bag clamp mounting nut
6	Bag camp lever	12	Bag clamp cylinder upper mounting nut

Figure 7-12. Bag Clamp Components (Left Side Only Shown)

7.3.6.1 Bag Clamp Removal

1. Remove the bag clamp cylinder to bag clamp mounting nut and washer.
2. Remove the bag clamp cylinder to bag clamp mounting bolt.
3. Remove the bag clamp pivot nut.
4. While supporting the bag clamp with one hand, remove the bag clamp pivot bolt.
5. Remove the bag clamp.

7.3.6.2 Bag Clamp Installation

1. Position the bag clamp in the mount.
2. Insert the bag clamp pivot bolt from the front, through the front bracket tab, the bag clamp, and the rear bracket tab.
3. Install and tighten the nut for the pivot bolt. Do not overtighten, as the bag clamp needs to be able to pivot freely.
4. Slide the bag clamp cylinder to bag clamp bolt through the hole in the bag clamp lever.
5. Slide the bag clamp cylinder rod end over the bolt.
6. Install the washer and nut on the bag clamp cylinder rod end bolt.
7. Tighten the nut. Do not overtighten, as the rod end needs to be able to pivot freely.

7.3.7 Bag Clamp Pad Replacement

The bag clamp is equipped with a bag clamp pad to provide some gripping force when clamping the bag. Over time, this pad may become worn or damaged and may require replacement. Use the following procedures to remove and install the bag clamp pad.

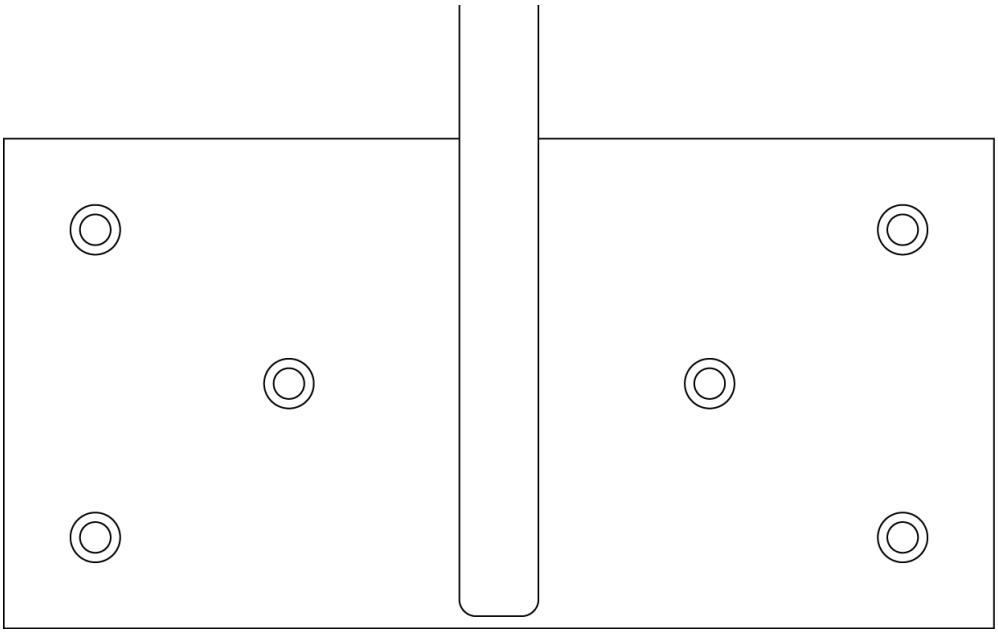


Figure 7-13. Bag Clamp Pad Mounting

7.3.7.1 Bag Clamp Pad Removal

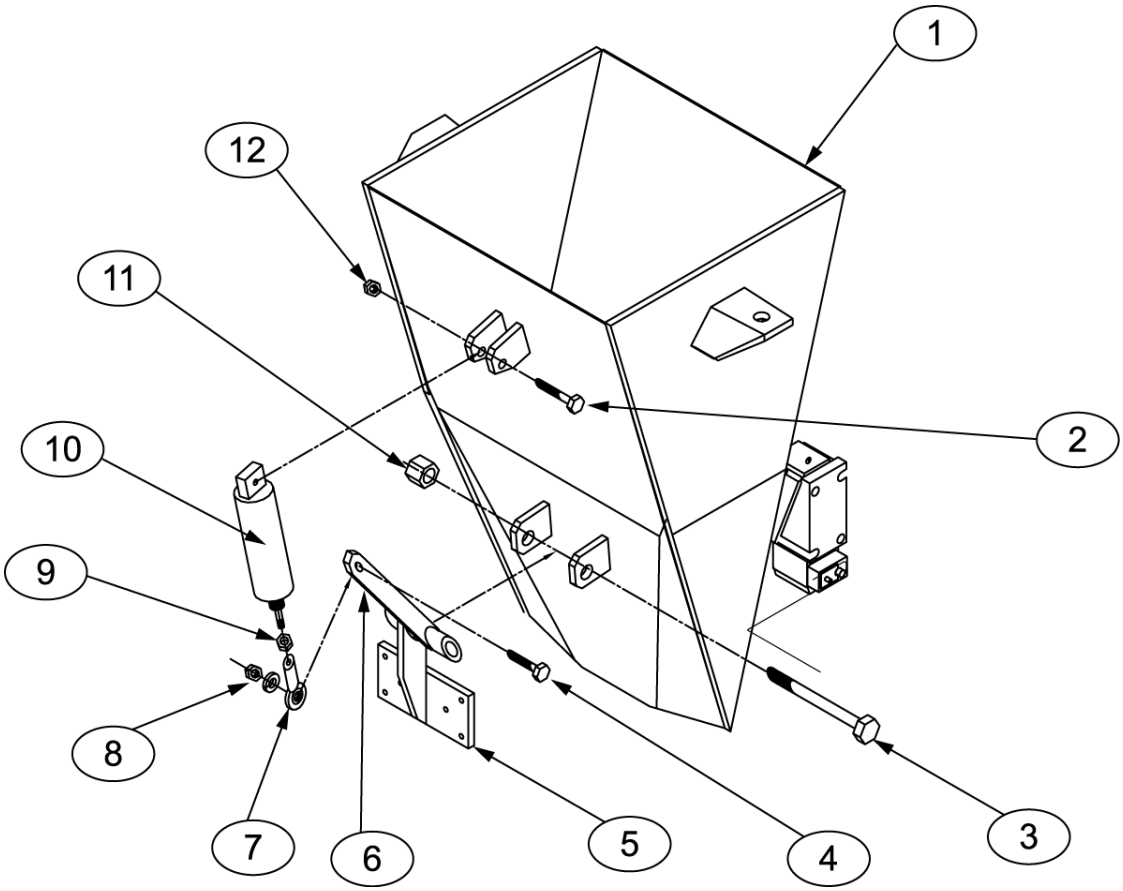
1. Remove the bag clamp. Refer to 7.3.6 Bag Clamp Replacement.
2. Drill out the six rivets that secure the bag clamp pad to the bag clamp.
3. Remove the rivets.
4. Remove the bag clamp pad off of the bag clamp.

7.3.7.2 Bag Clamp Pad Installation

1. Lay the new bag clamp pad face down on a flat surface.
2. Place the bag clamp on top of the bag clamp pad, so the new pad is positioned how it will be mounted.
3. Mark the positions of the six mounting holes on the bag clamp pad.
4. Set the bag clamp aside. Drill six holes in the pad at the locations that were marked in the previous steps. Make sure the holes are just big enough for the tips on the rivets to slide through.
5. Use a rivet gun to install a rivet in each of the six holes.
6. Install the bag clamp. Refer to 7.3.6 Bag Clamp Replacement.

7.3.8 Bag Clamp Cylinder Replacement

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



Item #	Description	Item #	Description
1	Spout	7	Bag clamp cylinder rod end
2	Bag clamp cylinder upper mounting bolt	8	Bag clamp cylinder to bag clamp mounting nut
3	Bag clamp mounting bolt	9	Bag clamp rod length adjustment jam nut
4	Bag clamp cylinder to bag clamp mounting bolt	10	Bag clamp cylinder
5	Bag clamp	11	Bag clamp mounting nut
6	Bag camp lever	12	Bag clamp cylinder upper mounting nut

Figure 7-14. Bag Clamp Actuator Rod Mounting

7.3.8.1 Bag Clamp Cylinder Removal

1. Label the air supply lines to the cylinder.
2. Disconnect the air supply lines from the quick connect fittings on the cylinder.
3. Remove the bag clamp to cylinder mounting nut and washer.
4. Remove the bag clamp to cylinder mounting bolt.
5. Remove the bag clamp cylinder upper mounting nut.
6. Remove the bag clamp cylinder upper mounting bolt.
7. Remove the bag clamp cylinder.

7.3.8.2 Bag Clamp Cylinder Installation

1. Loosen the rod end jam nut on the new bag clamp cylinder and back it off.
2. Make sure that the rods in both the old and new cylinder are fully retracted.
3. Position the pneumatic cylinders side-by-side.

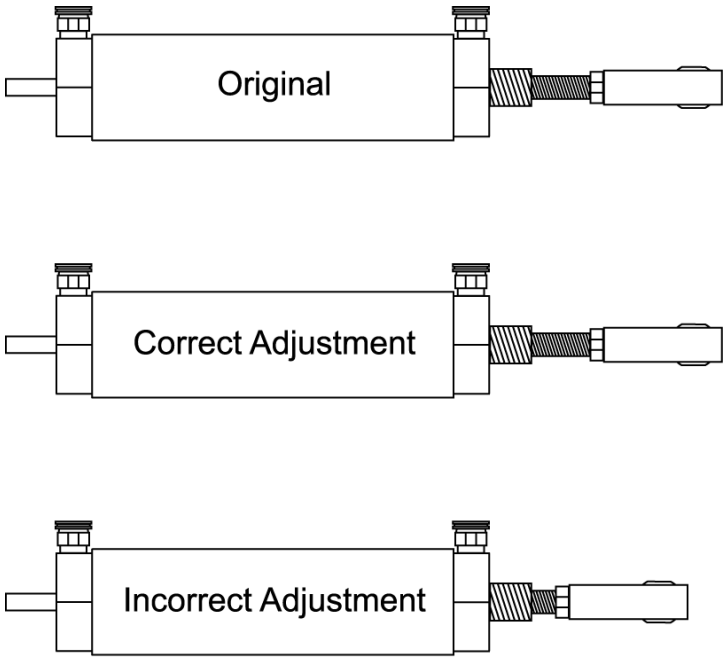


Figure 7-15. Pneumatic Cylinder Adjustments

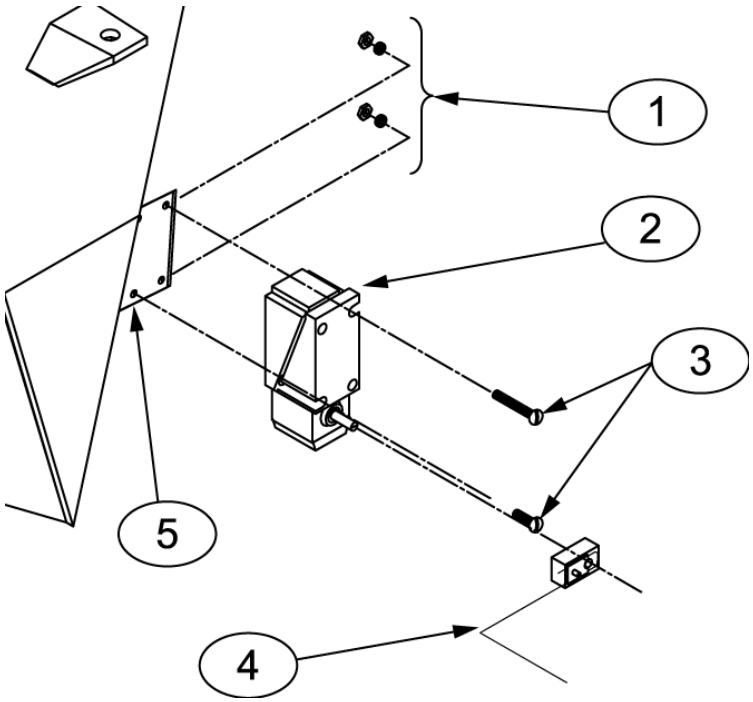
4. Turn the rod end until it is lined up with the rod end on the old cylinder.
5. Tighten the jam nut to lock the cylinder rod end in position.
6. Position the bag clamp cylinder so that the rod end is pointing down, and the cylinder end is in between the mounting tabs on the spout.
7. Install the bag clamp cylinder upper mounting bolt.
8. Install and tighten the bag clamp cylinder upper mounting nut. Do not over tighten the nut. The cylinder needs to be able to pivot on the bolt.
9. Line the rod end of the bag clamp cylinder up with the hole in the bag clamp lever.
10. Install the bag clamp cylinder to bag clamp mounting bolt.
11. Install the washer and nut on bag clamp cylinder to bag clamp mounting bolt. Do not over tighten the nut.
12. Connect the air supply lines to the cylinder.
13. Adjust the bag clamp cylinder rod. Refer to 7.2.4 Bag Clamp Cylinder Rod Adjustment.
14. Turn the OM2A on and test for proper operation.

7.3.9 Bag Clamp Actuator Switch Replacement

If the bag clamp actuator switch fails, or requires removal to facilitate another repair, use the following steps to remove and install it.

7.3.9.1 Bag Clamp Actuator Switch Removal

1. Turn the OM2A off.
2. Disconnect the main electrical and pneumatic connections.
3. Hold the bag clamp actuator switch and remove the two mounting screws.
4. Remove the bag clamp actuator switch.



Item #	Description	Item #	Description
1	Switch mounting nuts and washers	4	Bag clamp actuator switch bale
2	Bag clamp actuator switch	5	Switch mount
3	Switch mounting screws		

Figure 7-16. Bag Clamp Actuator Switch Mount

7.3.9.2 Bag Clamp Actuator Switch Installation

1. Position the actuator switch on the mounting bracket so the mounting holes in the switch are lined up with the mounting holes in the mounting bracket.
2. Install and tighten the mounting screws.
3. Connect the main electrical and pneumatic connections.
4. Turn the OM2A on and test for proper operation.

7.3.10 MAC Valve Replacement

In the event that troubleshooting indicates that a MAC valve has failed, follow the procedures below to replace it.

7.3.10.1 MAC Valve Removal

1. Turn the OM2A off.
2. Disconnect the main electrical and pneumatic connections from the OM2A.
3. Disconnect the air line from the quick connect fitting on the MAC valve.
4. Remove the four mounting screws.
5. Unplug and remove the MAC valve.

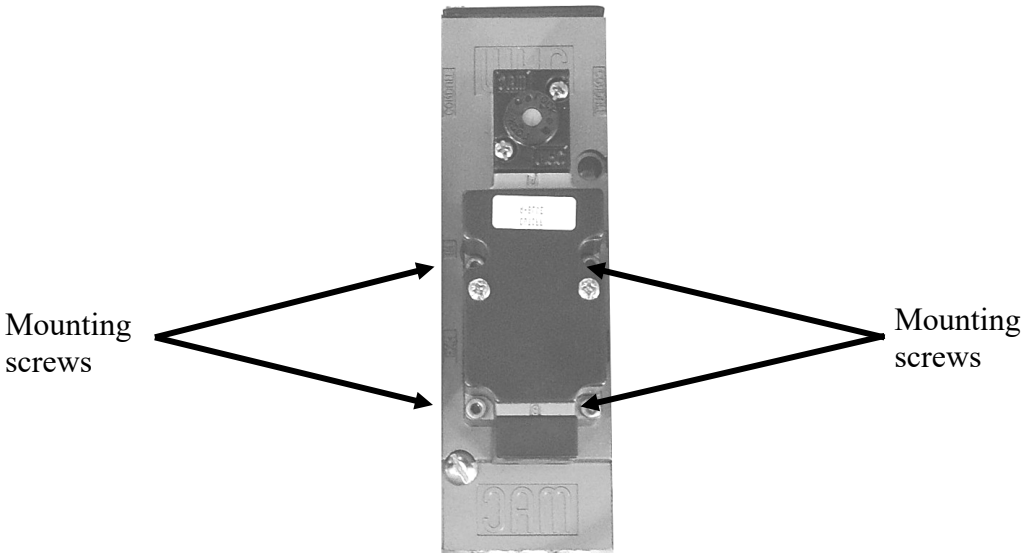


Figure 7-17. MAC Valve Solenoid Mounting Screws

7.3.10.2 MAC Valve Installation

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

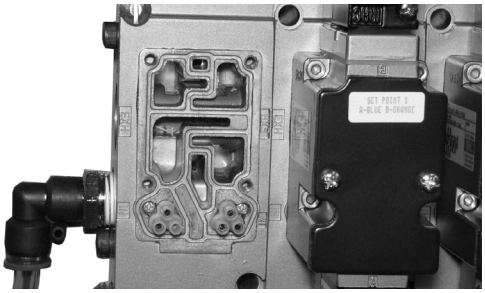


Figure 7-18. MAC Valve (Solenoid Removed)

3. Install and tighten the four mounting screws.
4. Connect the air line to the quick connect fitting on the MAC valve.
5. Connect the compressed air supply line to the OM2A at the filter.
6. Connect the OM2A to its primary power supply.
7. Test for proper operation.

7.3.11 Air Manifold Replacement

In the event that the air manifold becomes damaged or develops a leak that cannot be repaired, use the following steps to replace it.

7.3.11.1 Air Manifold Removal

1. Turn the OM2A off.
2. Disconnect the power cord and the pneumatic connection at the FRL.
3. Label and disconnect the air supply lines that are connected to the manifold.
4. Cut the tie wrap that secures the air manifold to the adhesive mount.
5. Remove the air manifold.

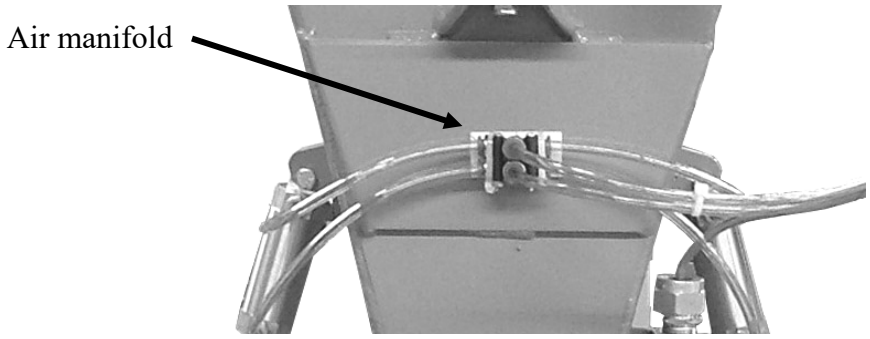


Figure 7-19. Air Manifold

7.3.11.2 Air Manifold Installation

1. Position the air manifold and secure it to the adhesive mount with a tie wrap.
2. Connect the air supply lines to the air manifold.
3. Connect the pneumatic connection at the FRL and plug the power cord in.
4. Turn the OM2A on and check for proper operation.
5. If any leaks are found, repair them before returning the OM2A to service.

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Glossary

TERM	DEFINITION
AC	Alternating Current
Bag clamp	A paddle like device that has a rubberized pad. A set of two bag clamps are applied and released via pneumatic cylinders. When applied, the two bag clamps hold the bag in place while it is being filled.
Bagging cycle	A series of functions that describe the packaging process, from beginning to end, for one package of product.
Choke flap	An adjustable metal plate that is located inside the scale cabinet assembly that is used to control the flow rate of the product into the package.
Component	An item of hardware as commonly supplied complete by manufacturers.
Cubic Feet/Minute (CFM)	A unit of measure that is used to describe the amount of compressed air that is used by a machine.
DC	Direct Current
De-energize	To deprive an electro-receptive device of its operating current.
Discharge spout	A component whose primary function is to guide the product from the feed mechanism into the package.
ESD	Electrostatic Discharge
Front plate	A metal plate that bolts to the outside of the scale cabinet assembly. The front plate includes the adjustment mechanism for the choke flap.
Gate	Used to control the amount of product that is allowed to flow from the supply hopper into the feeder device.
Gate trip shaft	The pivot point for the gate mechanism. This shaft rotates to open and close the gate.
Ground	Ground (Electrical). A conducting connection, whether intentional or accidental, between an electrical circuit or equipment and the earth, or some other conducting body at a reference potential.
kg	Kilogram
lb or lbs	Pound or pounds
MAC valve	A device that combines an electric solenoid and a pneumatic valve. Voltage is applied or removed from the solenoid to cause the pneumatic valve to move. Used to control the pneumatic cylinders.
Product	Refers to the material that is being packaged by the machine.
Proximity switch	A magnetic switch that is used to stop the fill cycle.
Scale beam	Part of the weighing mechanism. The
Scale beam weight	Made from billet steel, a set of two is used to determine the amount of material that will be placed in the package. Each weight slides on one side of the scale beam and is secured in place with a lock knob.
Scale bottom hanger	Used to connect the spout assembly to the scale beam.
Scale cabinet assembly	The main portion of the OM2A. It houses or supports the shutoff gate, the scale beam, the MAC valves, the proximity switch, etc.
Scale pointer	Mounted on the pivot end of the scale beam. This device is used to
Surge	A sudden rise of current or voltage.
Surge Hopper	A reservoir where product is stored for packaging.

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Appendix A
Safety Procedures, Cautions, Warnings, and Notices

- General safety precautions must be observed during all phases of operation, service and repair of the OM2A. 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 OM2A.
- 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 OM2A contains some electrostatic-sensitive components. Therefore, technicians should always ground themselves 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 OM2A.
- 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. OM2A Spare Parts List

	Part Description	**Part Number**
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Appendix C
Mechanical Drawings

Table C-1. OM2A Mechanical Drawing List

	Drawing Title	**Drawing Number**
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Appendix D
Electrical Drawings

Table D-1. OM2A Electrical Drawing List

	Drawing Title	**Drawing Number**
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