



OSBORNE
Weight Watcher™ Growth Management System

**BY-PASS GATE CYLINDER
SPRING REPLACEMENT
Installation Instructions**
FS-SS00550 (Galv.) - FS-SS00560 (SS)

U.S. Patent No. 8,511,257

This procedure is used to replace the internal spring in the By-Pass Gate Air Cylinder.

Caution: Before attempting service or close inspection of the By-Pass Gate, disconnect all electrical and pneumatic power sources to the Survey Scale and By-Pass Gate and release air pressure from the By-Pass Gate. Failure to follow this procedure can cause serious injury to fingers and hands.

The tools needed to replace the spring:

- 1/2-inch open-end wrench
- 1-1/16 inch open-end wrench or equivalent adjustable wrench
- Locking pliers
- Vise or rigid clamping device
- Phillips and straight blade screw drivers
- Adjustable wrench or pipe wrench capable of adjusting to 2-3/16 inch.

If at all possible, remove the By-Pass gate assembly from the gating to perform the By-Pass Gate Cylinder Spring Replacement procedure in a shop or other clean work area. By performing the work in a shop or other clean area, dropped parts won't disappear into open slats or other open areas.

Disconnect all electrical and pneumatic power sources from the Survey Scale and By-Pass Gate. Purge the remaining air from the Survey Scale by adjusting the air regulator to zero. Disconnect the air line from the vented valve located at the top of the air cylinder. By placing the 1/2-inch open-end wrench over the air line tube and compressing the end rings of the one-touch tube connector, you may then remove the hose. Pull the air line free from the connector while the end rings are compressed.

The By-Pass Gate should open and release the gates. Manually close the gates and pull the gate lock (Figure 1, #1) down over the gate top. Use the 1-1/16 inch open-end wrench to loosen the Cylinder Piston Rod (#2) from the nut on the By-Pass Gate Lock (#1). Release the gate lock and allow it to rise all the way upward. Spin the gate lock off of the air cylinder rod (#2).

Clamp the locking pliers to one of the tie rods (#3) and using the 1/2-inch open-end wrench remove the top locknut (#4). Place the nut and tie rod in a secure location for use during reassembly. Repeat for the remaining three tie rods. The air cylinder (#5) should be free from the By-Pass Gate frame.

Remove the small end hose clamp (Figure 2, #6) from the protective rubber bellow (#7) using the appropriate screwdriver. Set the hose clamp aside for use during reassembly. Place the cylinder front mounting flange (#8) into the vise or clamping fixture with the cylinder barrel (#9) upward and clamp firmly. Using the large adjustable wrench or pipe wrench carefully place the wrench on the top wrench flats located on the cylinder barrel end. Be sure the wrench is firmly placed on the wrench flats.

Caution: Failure to place the wrench on the wrench flats may result in permanent damage to the cylinder barrel.

Twist the cylinder barrel counter-clockwise to loosen the cylinder barrel. Carefully remove the cylinder barrel from the cylinder piston rod (#3).

Take note of the components holding and locating the internal spring in place. Push the cylinder piston rod (#3) out of the cylinder cap (#10) and remove the spring (#11). Replace the longer, original spring (#11) with the new shorter, heavier spring (#15) provided. Discard the scrap, original spring (#11). Reassemble the cylinder piston rod in the cylinder cap. Ensure the alignment sleeve (#13) and washer (#14) centrally locate the spring around the piston rod. Slide the cylinder barrel over the piston rod and screw the barrel and cap together. Make sure the o-ring (#16) (not pictured) located on the cylinder cap is properly aligned when the barrel is tightened. Use the large adjustable wrench to retighten the barrel without over-tightening. Push the protective rubber bellow to the compressed position and reapply the hose clamp. The air cylinder is ready to be reinstalled onto the By-Pass Gate frame.

Place the cylinder spacer (#12) on top of the By-Pass Gate frame and insert the air cylinder rod through the spacer and the hole located on top of the frame. Orient the air cylinder vented valve to the original location. Reinstall one of the tie rods through the frame and into the cylinder front mounting flange. Secure the tie rods by hand tightening a locknut. Repeat for the other three tie rods. The assembly should be self-aligning. Clamp the locking pliers on to one of the tie rods and snug tighten the locknut. Repeat for the other three rods. Be careful to tighten the locknut evenly.

Caution: Failure to tighten the locknuts evenly may cause the air cylinder to become tilted, binding the cylinder rod and the hole located in the frame.

After tightening the tie rods, inspect the underside of the frame where the cylinder rod extends to ensure there is no binding. Slight adjustment can be made on the cylinder by loosening the locknuts, adjusting accordingly, and retightening the locknuts.

Place the large locknut on the cylinder rod end and thread to the top of threads. Spin the gate lock (#1) onto the cylinder rod end until it bottoms against the end of the cylinder rod. Loosen the gate lock until it is parallel to the gate frame and lock in place using the large locknut and 1-1/16 inch open-end wrench. The gate lock can be pulled downward over the gates to assist in locking the nut.

Reattach the air line to the vented valve and restore the electrical and pneumatic sources to the Survey Scale. The By-Pass Gate system is ready to be placed back into service. Reset the gates according to the By-Pass Gate operation instructions.

Warning: A pinch point may occur if your fingers, hands or any object is placed on the top edge of the gates between the gate lock and the top edge of the gates when the gate lock is engaged. Keep hands and other objects away from this area. Severe injury to fingers and hands can result from failure to operate this gate safely during this resetting procedure.

BY-PASS GATE - FS-SS00550 - GALVANIZED			
Item #	Part #	Description	Qty
1	KS-SS0553	By-Pass Gate Lock, Galvanized	1
2	-	Cylinder Piston Rod	4
3	KS-SS0555	By-Pass Gate Tie Rod, Galvanized	1
4	-	Lock Nuts	4
5	RFF-4049	By-Pass Gate Cylinder, 50 x 75mm Stroke	1
6	-	Hose Clamp	1
7	-	Protective Rubber Bellow	4
8	-	Cylinder Front Mounting Flange	1
9	-	Cylinder Barrel	1
10	-	Cylinder Cap	1
11	-	Original Spring	1
12	KS-SS0558	By-Pass Gate Cylinder Spacer, Galvanized	1
13	-	Alignment Sleeve	1
14	-	Washer	1
15	-	Replacement Spring	1
16	-	O-Ring	1

BY-PASS GATE - FS-SS00560 - 304 STAINLESS STEEL			
Item #	Part #	Description	Qty
1	KS-SS0563	By-Pass Gate Lock, Stainless Steel	1
2	-	Cylinder Piston Rod	1
3	KS-SS0565	By-Pass Gate Tie Rod, Stainless Steel	4
4	-	Lock Nut	4
5	RFF-4049	By-Pass Gate Cylinder, 50 x 75mm Stroke	1
6	-	Hose Clamp	1
7	-	Protective Rubber Bellow	4
8	-	Cylinder Front Mounting Flange	1
9	-	Cylinder Barrel	1
10	-	Cylinder Cap	1
11	-	Original Spring	1
12	KS-SS0566	By-Pass Gate Cylinder Spacer, SS	1
13	-	Alignment Sleeve	1
14	-	Washer	1
15	-	Replacement Spring	1
16	-	O-Ring	1

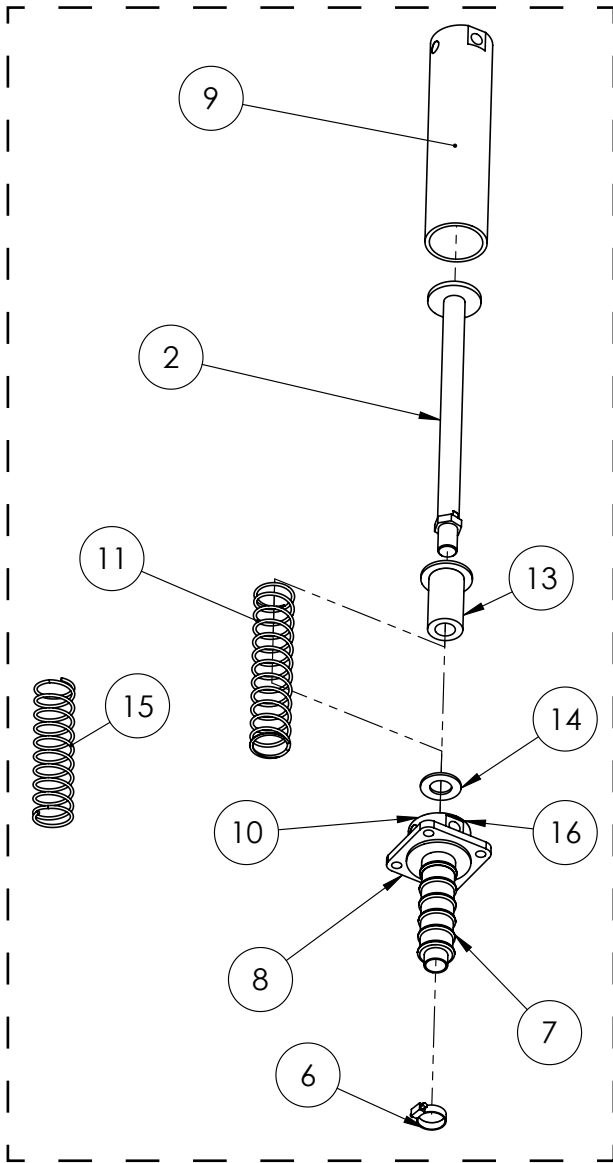


Figure 2. By-Pass Gate Air Cylinder

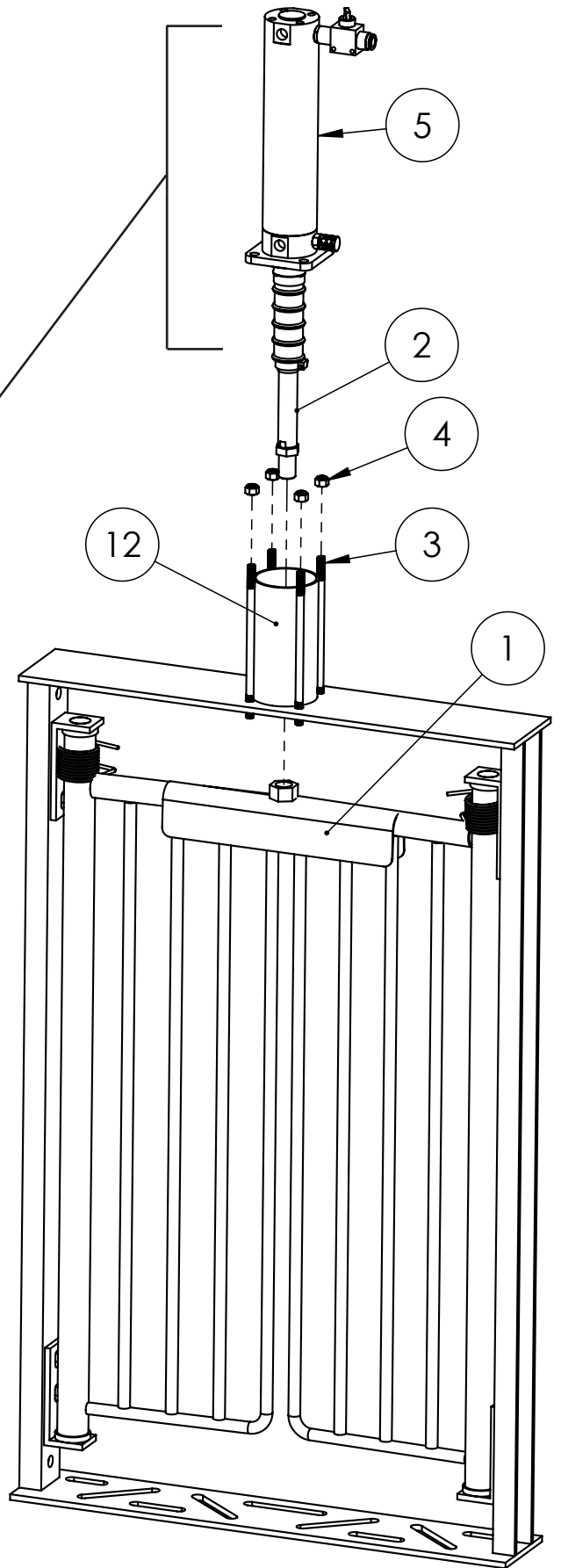


Figure 1. By-Pass Gate



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