

## Diaphragm Replacement Kit for Flowrite™ AP 599 Series 12-inch Pneumatic Valve Actuator

### Product Description

This kit contains one diaphragm, six screws, and six washers to replace the diaphragm in a Flowrite AP 599 Series 12-inch Pneumatic Valve Actuator.

### Product Number

599-01070 Normal duty diaphragm

### Warning/Caution Notations

<b>WARNING</b>		Personal injury/loss of life may occur if a procedure is not performed as specified.
<b>CAUTION</b>		Equipment damage, or loss of data may occur if the user does not follow procedure as specified.

### Required Tools

- 9/16-inch (≈15 mm) socket or open end wrench
- 1-1/16 inch (≈27 mm) open end wrench
- #2 Phillips screwdriver

### Expected Installation Time

60 minutes to replace an actuator diaphragm

### Prerequisites

Make a note of the start point pressure before relieving the spring tension.

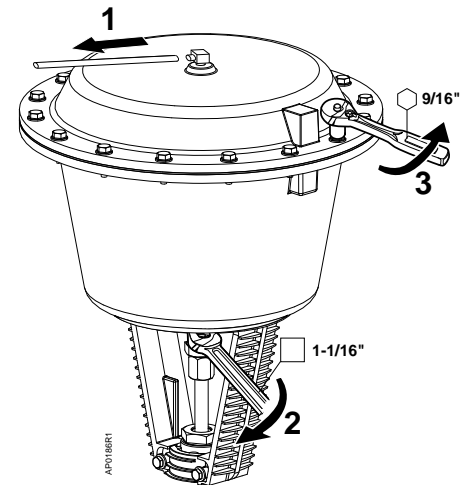
### Installation

1. Disconnect the air line to the actuator. See *Figure 1*.
2. Using a 1-1/16 inch open end wrench on the adjustment screw, relieve all spring tension.



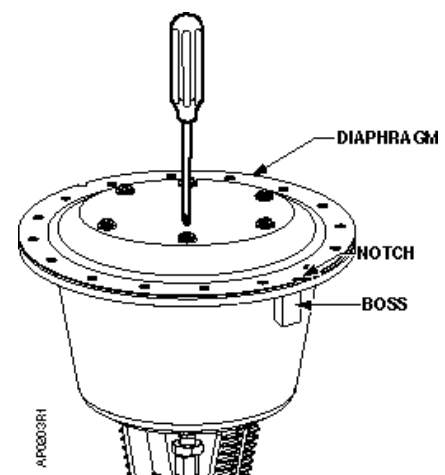
#### **WARNING:**

Relieve all spring tension before removing the actuator upper housing.



**Figure 1. Removing the Actuator Upper Housing.**

3. Use a 9/16-inch socket wrench to remove the screws holding the upper and lower housing together. Keep the screws.
4. Remove the upper housing.
5. Use a #2 Phillips screwdriver to remove the six screws holding the diaphragm to the piston plate. See *Figure 2*.

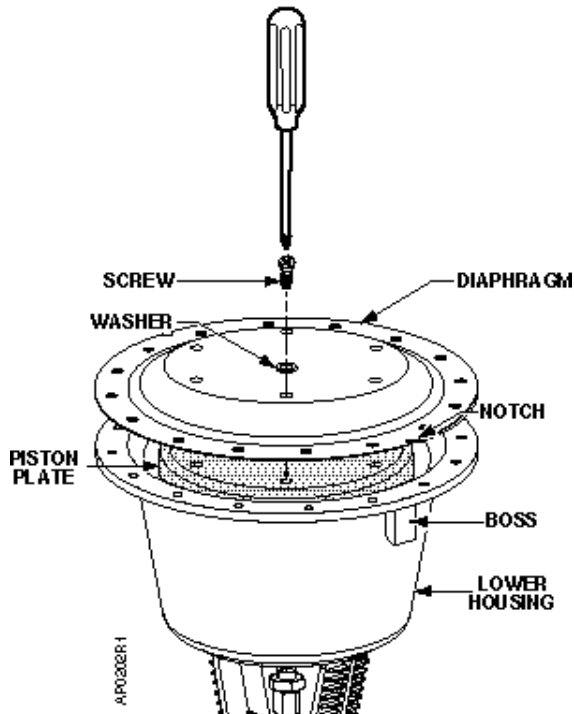


**Figure 2. Removing the Diaphragm.**

## Installation, Continued

**NOTE:** Notice the position of the notches of the diaphragm and boss on the lower housing.

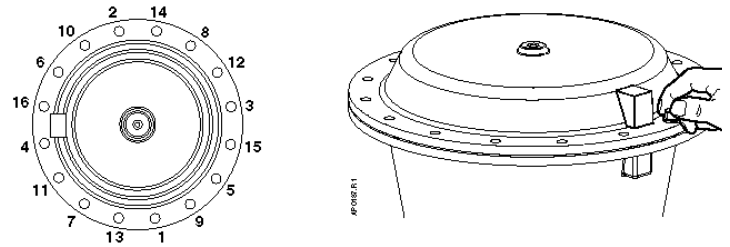
6. Place the new diaphragm over the piston plate, aligning one of the notches with boss in the lower housing. The holes in the diaphragm should align with the holes in the piston plate and outer rim of the lower housing. See *Figure 3*.



**Figure 3. Attaching the New Diaphragm.**

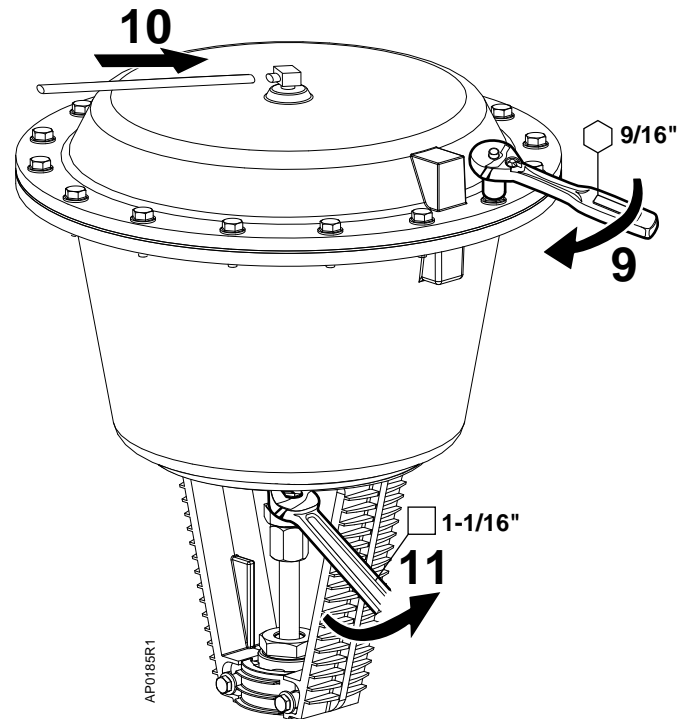
7. Fasten the diaphragm to the piston plate with the six new washers and screws provided. Tighten the screws until the washer compresses the diaphragm.
8. Place the upper housing over the diaphragm and lower housing.

9. Attach the upper housing to the lower housing. Follow the pattern shown in *Figure 4* for tightening the screws.



**Figure 4. Assembling the Upper and Lower Housing.**

10. Attach the air line to the actuator. See *Figure 5*.



**Figure 5. Returning the Actuator to Service.**

11. Adjust the spring tension to the original start point noted in the prerequisites. See *Spring adjustment*.

## Installation, Continued

### Spring adjustment

The top edge of the stem nut measures the valve stem position. The "0" marking on the actuator yoke indicates stem up position. The "1" mark indicates stem down position.

With the actuator in an upright position and the stem visible as shown in *Figure 6*, use a 1-1/16 inch open end wrench to turn the adjustment screw.

- For Normally Open Valves: To increase the start to close pressure, turn the adjustment screw from right to left. To decrease, turn the adjustment screw from left to right.
- Normally Closed Valves: To increase the start to open pressure, turn the adjustment screw from right to left. To decrease, turn the adjustment screw from left to right.

**NOTE:** As the line pressure differential across the valve increases, the spring span will increase.

The installation is now complete.

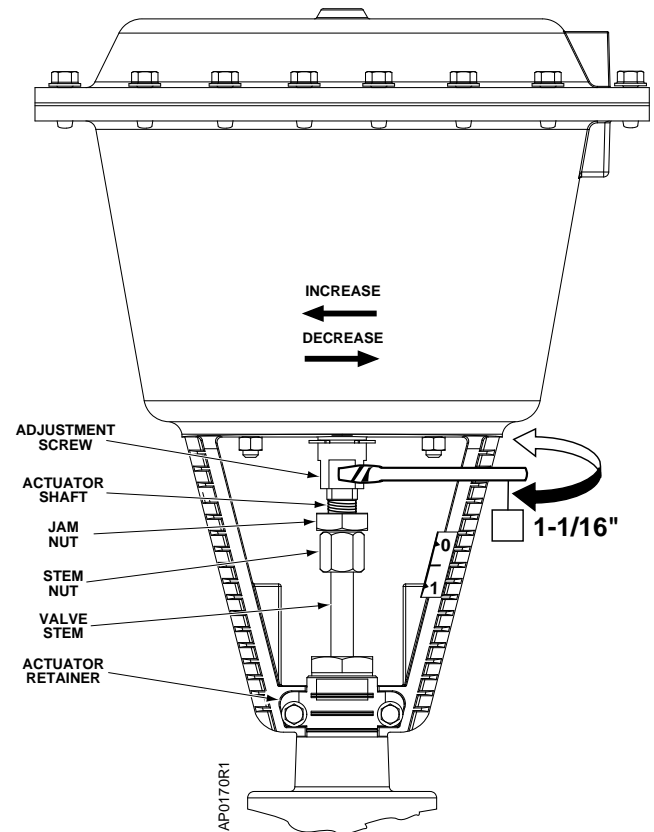


Figure 6. Spring Adjustment.

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