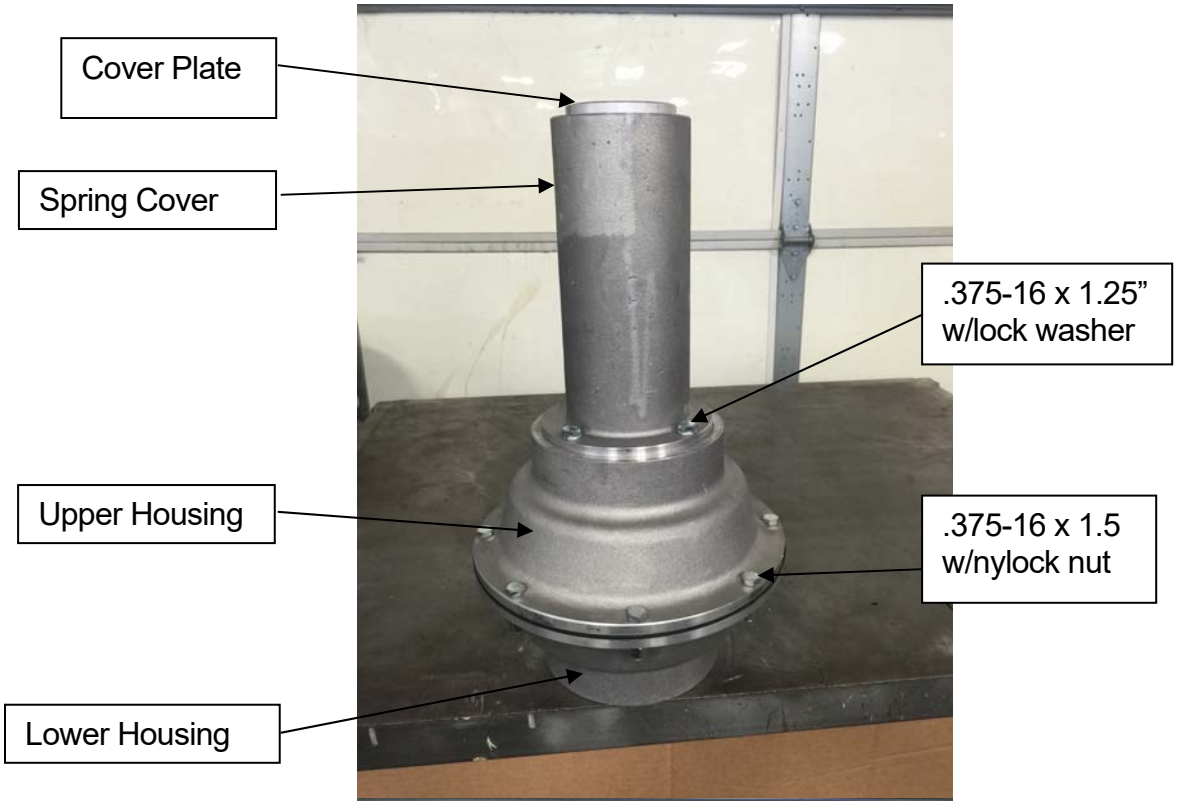
INSTALLATION INSTRUCTIONS

D1000 / D1100 Diaphragm Replacement

Replacement of main diaphragm in D1000 Series actuators is best done in a controlled indoor environment with access to pneumatic tools and a sturdy workbench. You will need either to drill a 1" diameter hole through the workbench top or fabricate a fixture with suitable recess for the actuator stem. Most of the assembly and disassembly work will be done with actuator sitting in a vertical position or inverted 180˚. In either case, a penetration through the work surface will be necessary to allow the actuator body to sit in the normal position. Item numbers used throughout this document refer to drawing, "Durastroke 1000-1049 Actuator" dated 11-10-15.



REMOVAL OF EXISTING HARDWARE:

Unbolt, remove and set aside quantity four (4) Spring Cover Screws (items #16). They will be reused for reassembly.

The following photo shows removed spring cover w/hardware and actuator main spring.

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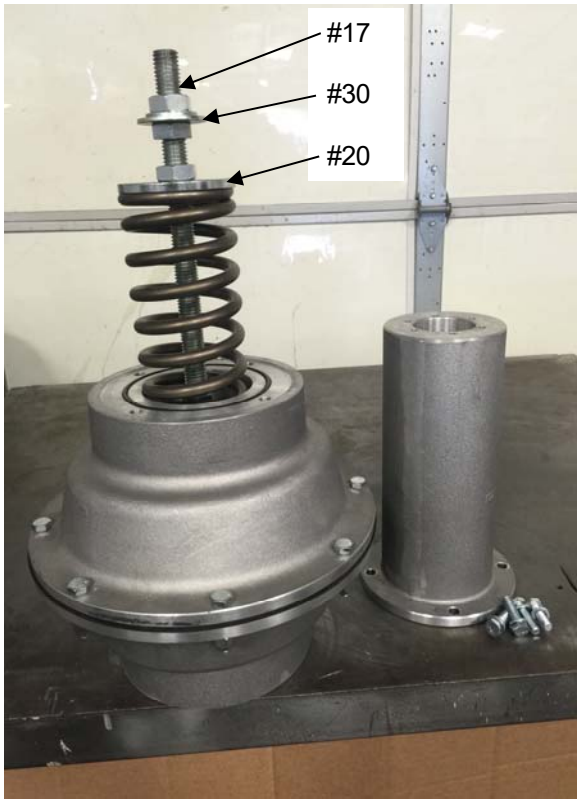


Pay particular attention to the assembly of jamb nuts and washers at the upper end of the Spring Rod (item 17).

At reassembly the distance from top of washer #30 to top of Spring Washer #20 must be restored to 1.75” (+/- .0625”) or will need to be corrected should you ever decide to add a positioner in the future. If the current configuration is a model D1000 (no positioner) and you’re certain the actuator will never need a positioner you can delete the assembly (two of item 10 and items 21, 30 and 32) holding #30 in place and discard all w/o reinstalling.

Do not discard Item #20 and one of item #10 are essential and must be retained.

Carefully remove O-Ring (#15) and set it aside to be reinstalled during assembly.

The actuator has been inverted and the stem (item #5) is now projecting upward from the bottom of the actuator.

Remove the eight (8) nut/bolt (item #8, #6) and set aside to use for reassembly. You are now ready to separate the upper and lower housing halves.

When all #8 nut/bolts are removed gently pull the lower housing up and away from the upper housing (the upper housing is now on bottom) and set it to the side.

Item #5 Stem

Item #11 diaphragm plate

Item #31 jamb nut

Gently remove the stem and diaphragm plate / diaphragm assembly and turn it upward.

Note the presence of silicone sealant at the connector nut (item #14). A new application of sealant will need to be included at reassembly to ensure there is no air leakage through the threads of the stem / connector nut (item 14) and spring rod (item #17)

Remove the connector nut and washer from stem / diaphragm and set aside for use in reassembly. At this point of the process the remaining parts will be the stem and diaphragm plate.

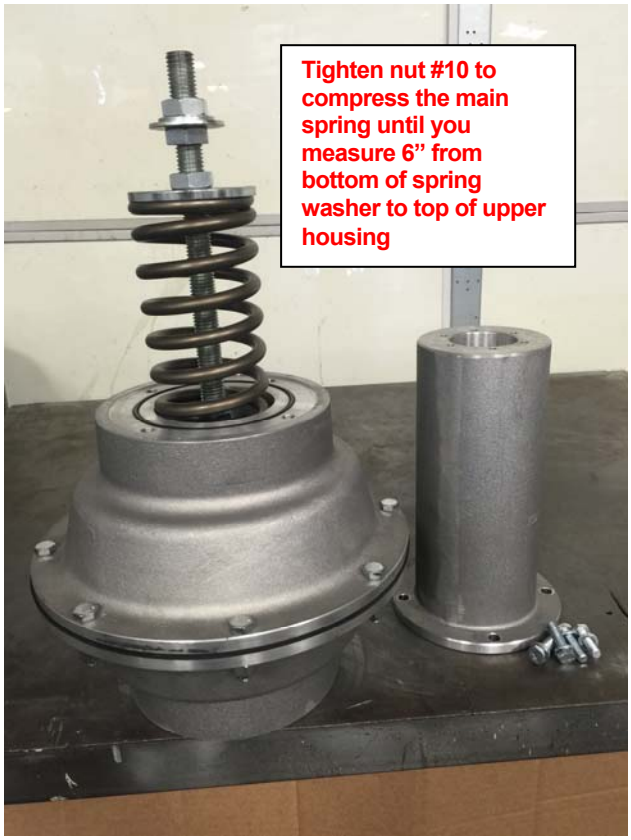
Lay new replacement diaphragm over diaphragm plate w/top of stem projecting up through center hole of replacement diaphragm.

Apply a coating of silicone sealant to surface of diaphragm at least.25" greater diameter than the washer that will be reinstalled and then lay washer in place.

Apply sealant to top of washer and thread the connector nut back onto stem. Wrench tighten securely and then use fingers to spread the sealant squeezed from that connection down inside the connector nut. Apply sealant to the bottom of the spring rod, thread it down into the connector nut and securely tighten by installing the jamb nuts against each other at the end of the spring rod and using a wrench to turn against another wrench on the connector nut.

- Reinstall the assembly to the lower housing.
- Carefully align the upper housing over the stem and slide it into place w/the bolt holes aligned through the new diaphragm.
- Reinstall the twelve (12) nut / bolts and securely tighten
- Lift the assembly and set it back upright w/the actuator stem through the opening in the workbench.

Reinstall the O Ring



Slide the main spring (#18) over the spring rod and into place.

Slide spring washer (#20) into place ensuring the machined surface on bottom is fit down into the spring ID.

Thread nut #10 down until it comes into contact w/the top of spring washer.

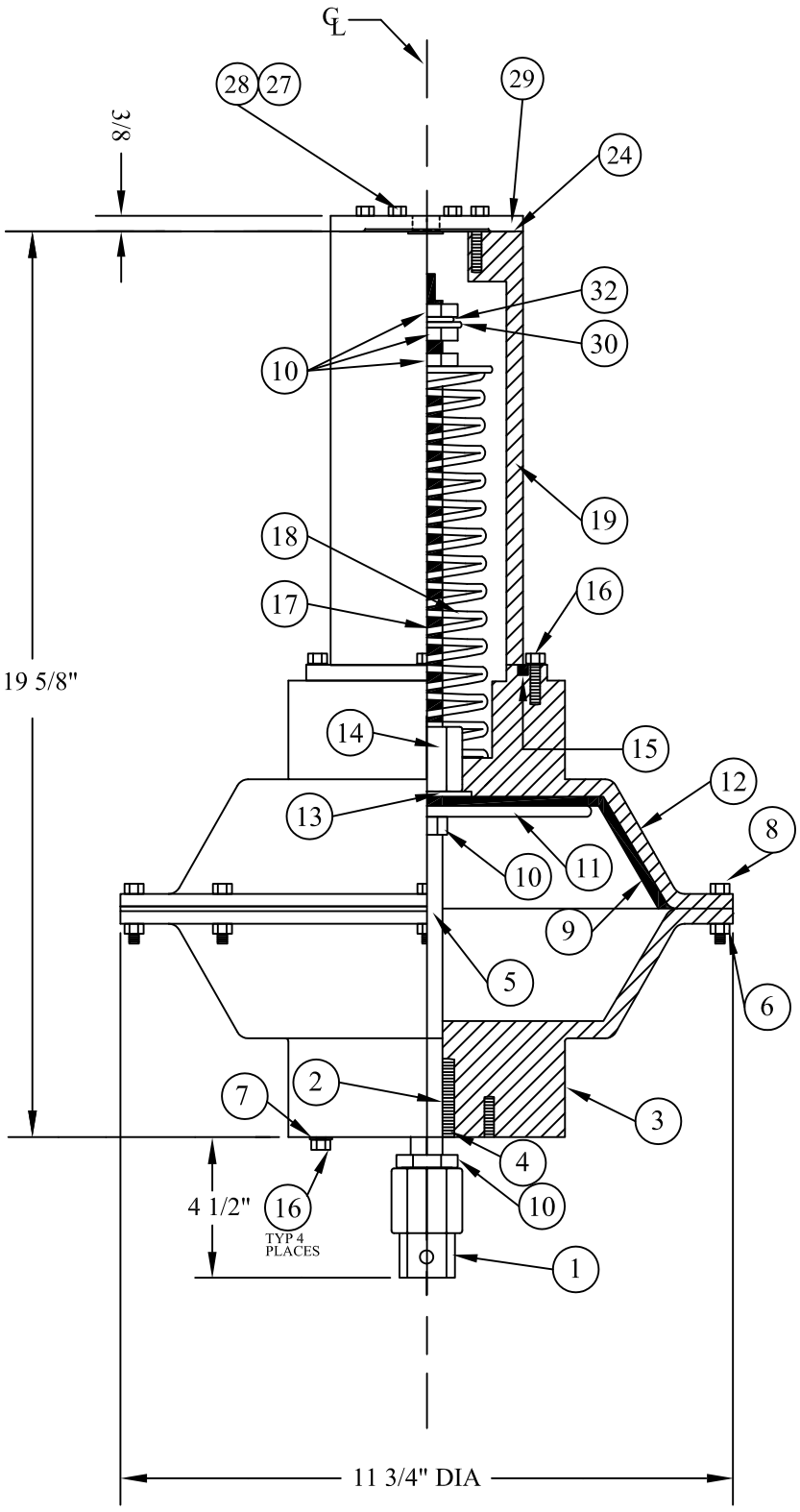
Using a 1.125” end box wrench, tighten nut #10 and compress the main spring until you measure 6” (+/- .125”) from the bottom of spring washer #20 to the top of upper housing #12. **This is a critical step.**

Reinstall (or not) two item 10 and items 21, 30 and 32.

Reinstall spring cover #19 and attach using the original hardware.

Apply pressure to test. 6 psi will start the stem extension, it will be complete by 30 psi. If not, chances are the spring preload wasn’t set correctly.

Testing is complete when the unit will hold air pressure w/o leaking off for 10 minutes. Soapy water will simplify finding air leaks should there be any.



ITEM	QTY.	DESCRIPTION
1	1	CLEVIS
2	1	GUIDE BUSHING
3	1	LOWER HOUSING
4	1	SNAP RING
5	1	STEM
6	8	NYLOCK HOUSING NUT
7	8	LOCKWASHER
8	8	3/8"-16 X 1.5" HOUSING SCREW
9	1	DIAPHRAGM
10	5	3/4"-16 JAMBNUT
11	1	DIAPHRAGM PLATE
12	1	UPPER HOUSING
13	1	DIAPHRAGM WASHER
14	1	CONNECTOR NUT
15	1	O-RING
16	8	3/8"-16 X 1 1/4" SPRING COVER SCREW
17	1	SPRING ROD
18	1	MAIN SPRING
19	1	SPRING COVER
20	1	SPRING WASHER
21		
22		
23		
24	1	GASKET
25		
26		
27	6	LOCKWASHER
28	6	COVER PLATE SCREW
29	1	COVER PLATE
30	1	3/4" FLAT WASHER
31		
32	1	3/4" SAE FLAT WASHER

AIRTECH PRODUCTS, INC.

Dwg. Name:
DURASTROKE 1000-1049 ACTUATOR

Date:	By:
11-10-15	Stewart
Customer:	File #: AIR MOTOR