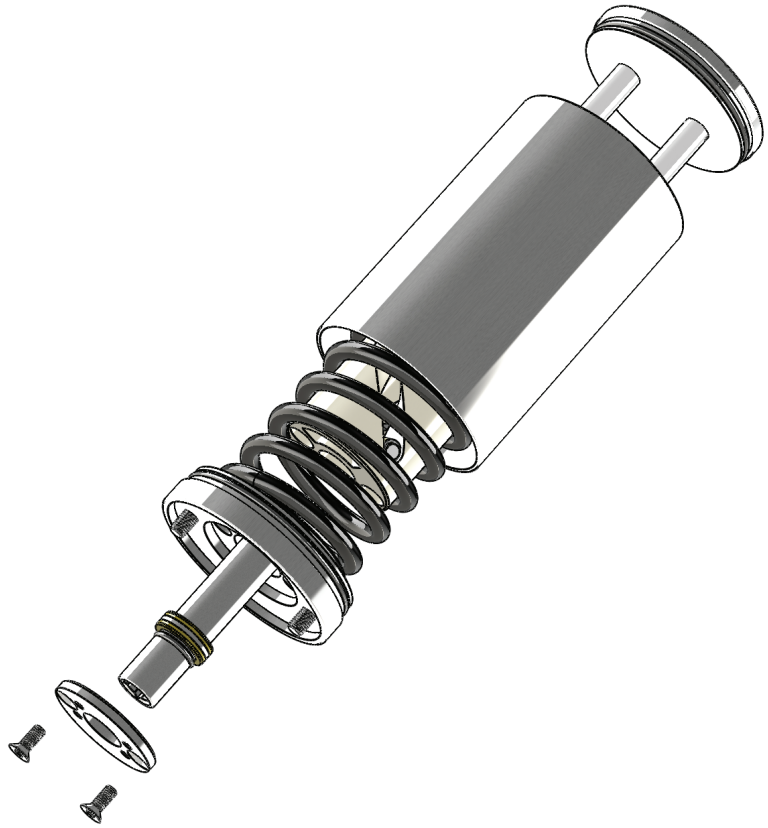
# Pneumatic Actuator

## Operation & Service Manual

**Models: 430084-88**



**Original Instructions**

**MANUAL NO.: 430084-88 REVISION: 04/2022**

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Hygienic Technologies

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Revision Date: 04/2022
Manual No.: 430084-88

# Table of Contents

# Technical Specifications

## Function

Air to Air: Air opened/ Air closed
Air to Spring: Air opened/ Spring Closed

## Versions

- Female (see Figure 1)
- Male (see Figure 1)
- 6 bar
- 4 bar

## Material Data

| | |
|---|---|
| Sealing Elements | Nitrile |
| Stainless Steel Parts | 304 |

## Surface

Polished

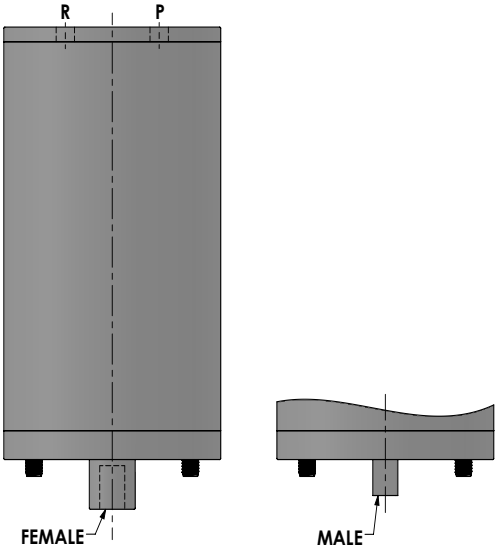



*Figure 1*

## Electrical and pneumatic connection

**Electrical Connection**
***WARNING*** Electrical work should only be performed by a trained professional.
- Check operating voltage and current specifications before connecting

**Pneumatic Connection "P, R"**

| Connection | Use | Type |
|---|---|---|
| P (see Figure 1) | Control air connection | Thread R 1/8" |
| R (see Figure 1) | Return Vent | Thread R 1/8" |

## Control Air Specifications

| | |
|---|---|
| Pressure | 6 bar |
| Solids content | Max. particle size: 5 µm<br>Max. particle volume: 5 mg/m$^3$ |
| Water Content | Dew point: +2° C |
| Oil Content | Oil-free, max. volume: 25 mg/m$^3$<br>Oil |

## Safety

**CAUTION:** Air to Spring actuator assemblies are under heavy spring load and must be disassembled while using extreme caution. Failure to follow these instruction can result in injury. Any unauthorized changes to the valve may affect the proper functionality of the actuator and is not advised.

## Installation Instructions

### General Information

All maintenance and servicing should be performed by a trained technician.

### Delivery Status

The drive is in the factory-tested state.

### Mounting Guidelines

**Installation Space:**
Determine and define the connection axes before mounting.

**Mounting:**
Exclude tensile and compressive stress.

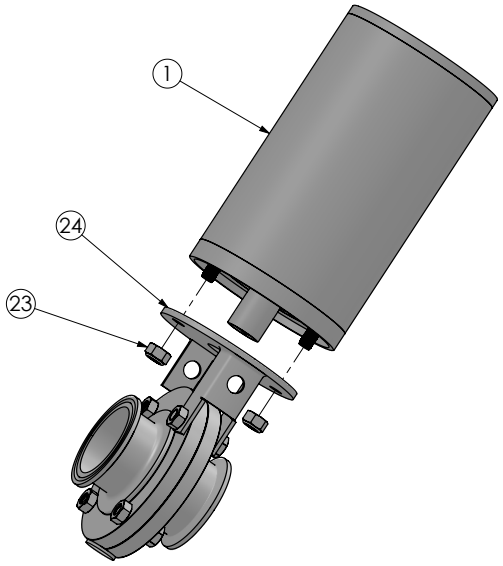
### Assembly

Actuator should be assembled according to assembly instructions.

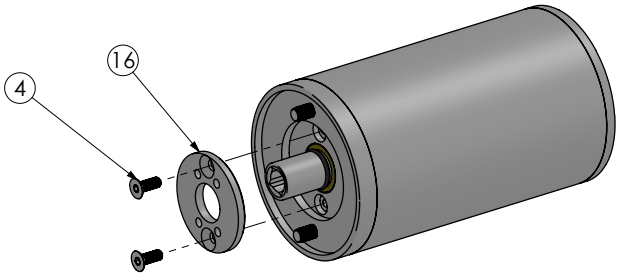
# Disassembly and Assembly Instructions

## Disassembly: Air to Spring

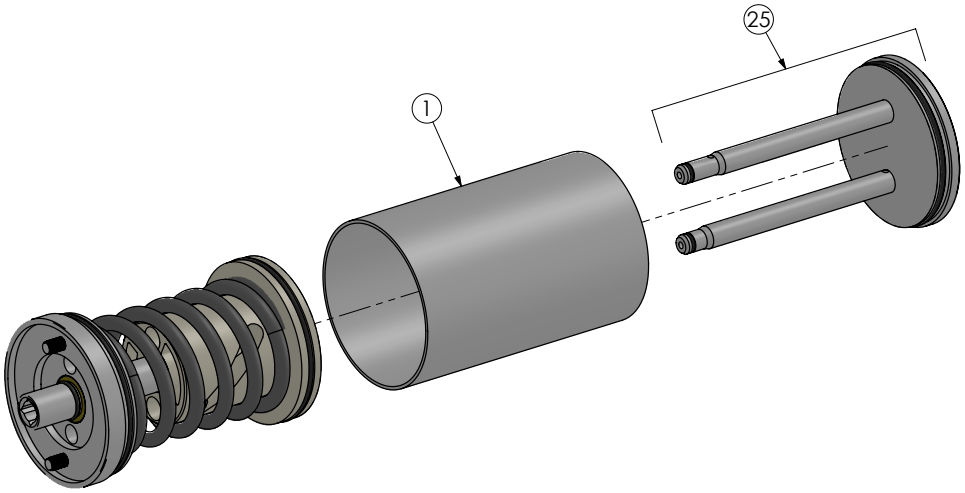
1. Clamp the casing (1) in a vise with aluminum (soft) jaws.
2. Unscrew the two lock nuts (23) and remove the valve and bracket assembly (24).



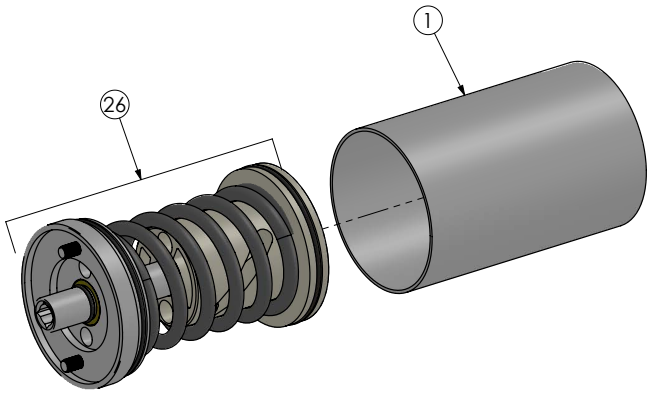

3. **CAUTION:** If the piston (10) is broken, the spring (15) will assist in pushing the top plate assembly (25) out of the casing (1). To avoid injury, make sure that no one stands in front or behind the actuator.
4. Unscrew the two flat head screws (4) and remove the flange (16).



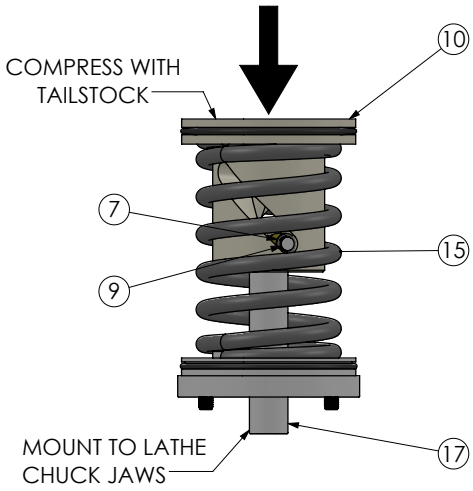

5. Remove the top plate assembly (25) from the casing (1). (To aid in removal, it may be necessary to very carefully blow air into the “R” labeled terminal.



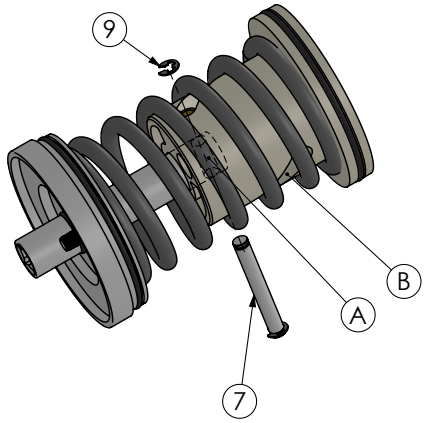
6. Remove the base plate/piston assembly (26) from the casing (1).



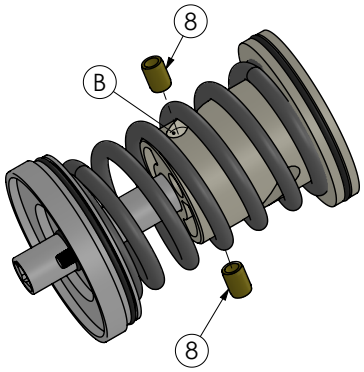

7. To remove the piston (10) from the assembly, we recommend using a lathe. Mount the shaft (17) on the lathe using soft chuck jaws and press the tailstock against the top of the piston (10). Compress the spring (15) with the tailstock enough to provide access to one of the axle (7) retaining rings (9).



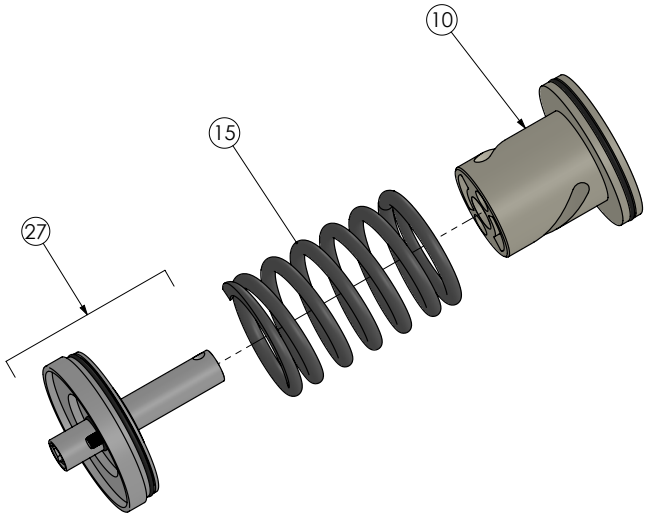

8. Remove the retaining ring (9) and press the axle (7) through the shaft's axle bore (A) and piston's helical track (B).



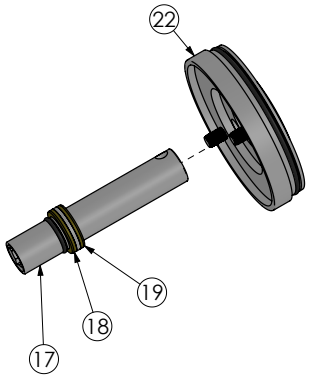
9. Remove the track rollers (8) from the piston's helical track (B).




10. Relieve the spring's tension by backing off the tailstock completely.
11. Remove the piston (10) and spring (15). Then remove the baseplate assembly (27) from the chuck jaws.



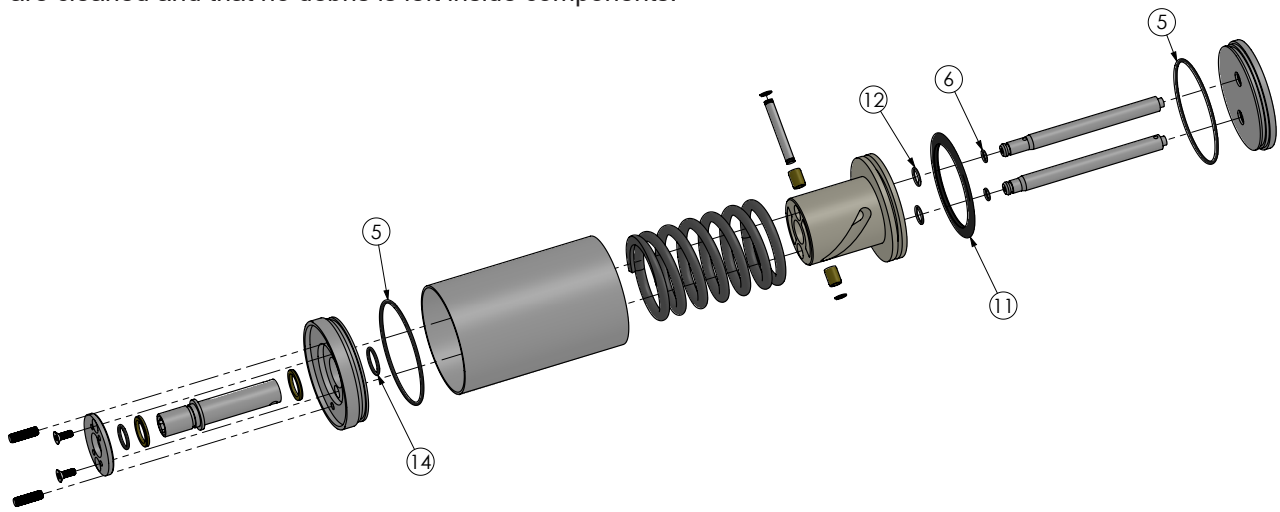

12. Remove the shaft (17) from the base plate (22). The bushings (18,19) will come out on the shaft.



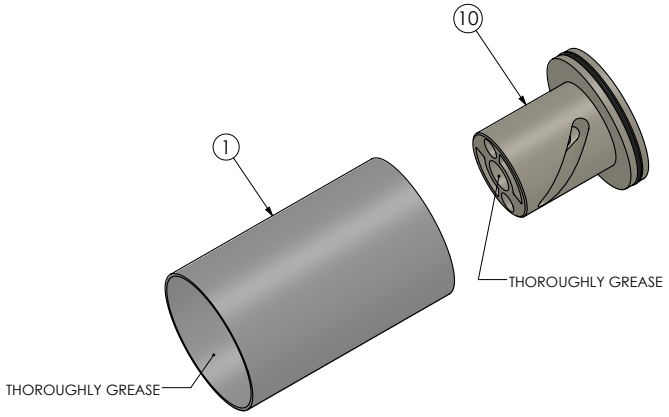

13. The actuator is now fully disassembled and ready for servicing.

## Assembly: Air to Spring

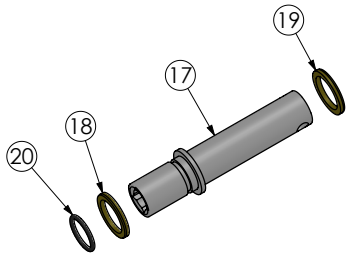
1. Before assembling the actuator be sure to replace and lubricate o-rings (5,6,12,14) and seal (11). Ensure that all parts are cleaned and that no debris is left inside components.



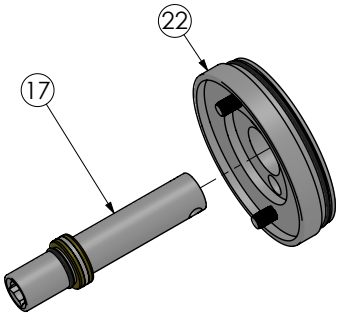

2. Thoroughly grease the inside of the casing (1) and piston (10).



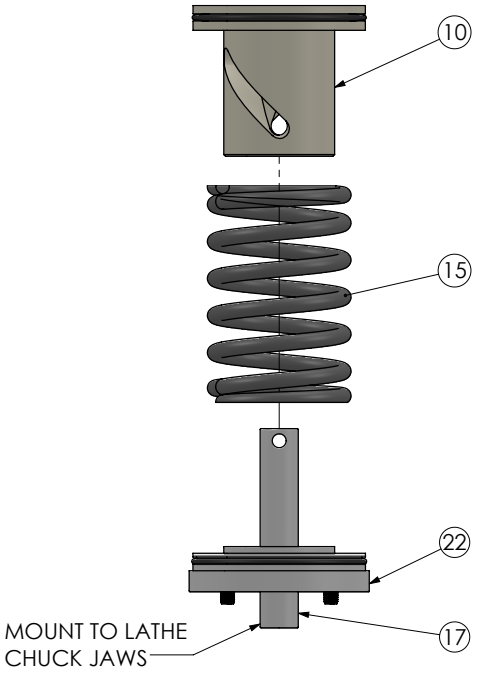

3. Install the bushings (18, 19) on the shaft (17). Replace shaft o-ring (20) and lubricate.



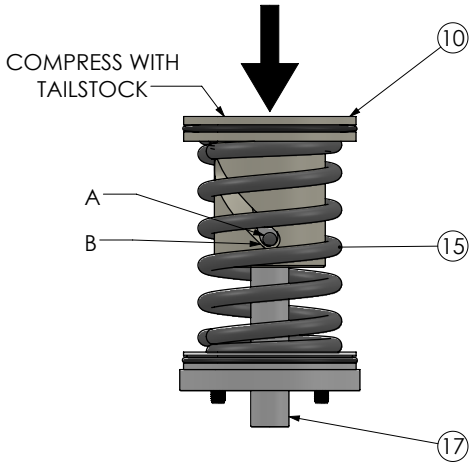

4. Insert the shaft (17) into the base plate (22).



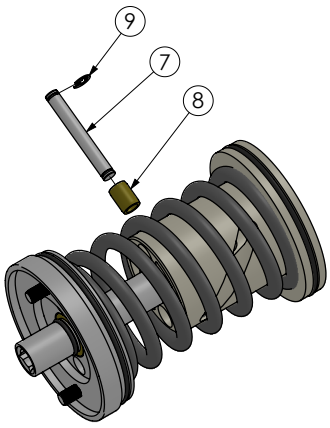
5. We recommend using a lathe to aid in the following assembly steps.
6. Mount the shaft (17), with base plate (22) installed, on the lathe using soft chuck jaws and insert the piston (10) into the top of the spring (15). Place the bottom of the spring (15) against the top of the base plate (22) and press the tailstock spindle against the top of the piston (10).



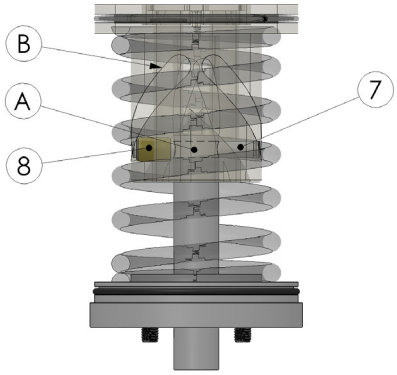

7. Compress the spring (15) with the tailstock until the shaft (17) is inserted into the bore of the piston (10). Continue tensioning the spring until the shaft's axle bore (A) is aligned with the helical track (B) and is accessible for the installation of the axle assembly.



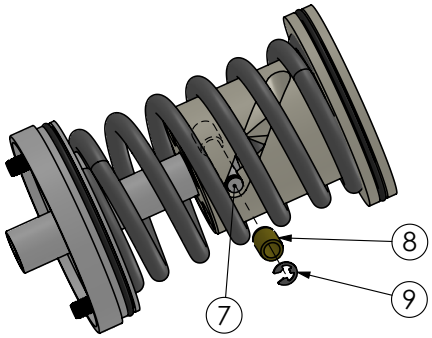
8. Mount retaining ring (9) onto one end of axle (7) and slide track roller (8) onto axle (7).




9. Insert axle (7), with track roller (8) installed, into helical slot (B) and through axle bore (A).

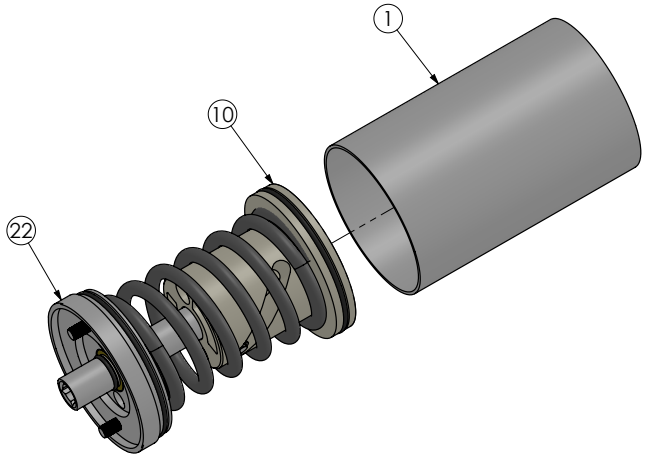



10. Slide the second track roller (8) onto the axle (7) and mount the second retaining ring (9).

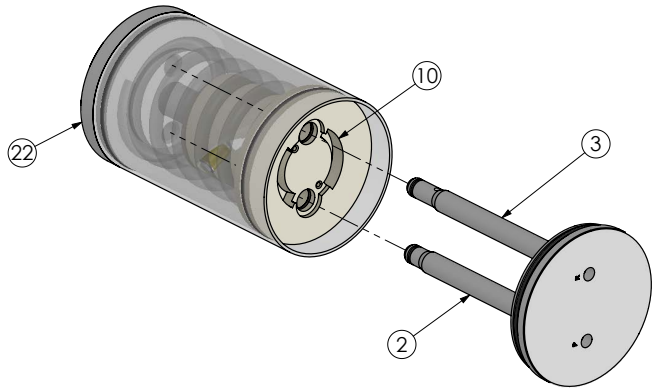



11. Relieve the springs tension by backing off the tailstock completely and remove the base plate/piston assembly from the chuck jaws.

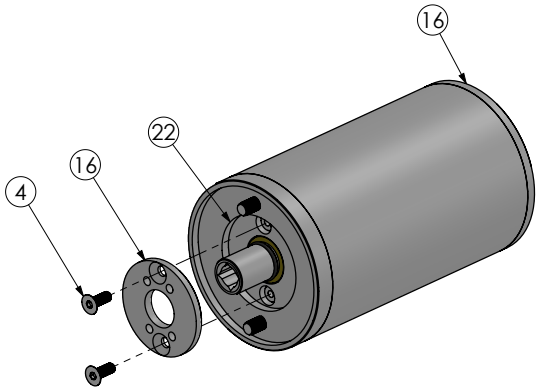
12. Slide the casing (1) over the piston (10) and onto the base plate (22).




13. Insert the guide bars (2,3) into the bores on top of the piston (10) and align them with the bores in the base plate (22).

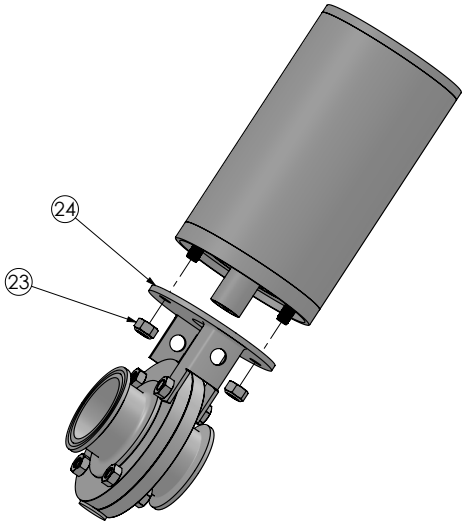



14. Insert the flange (16) into the bottom of the base plate (22) and align the counter sunk holes with the bores in the base plate (22). While pressing down on the top plate (13) install and firmly tighten the flat head screws (4).




15. The actuator is now fully assembled.

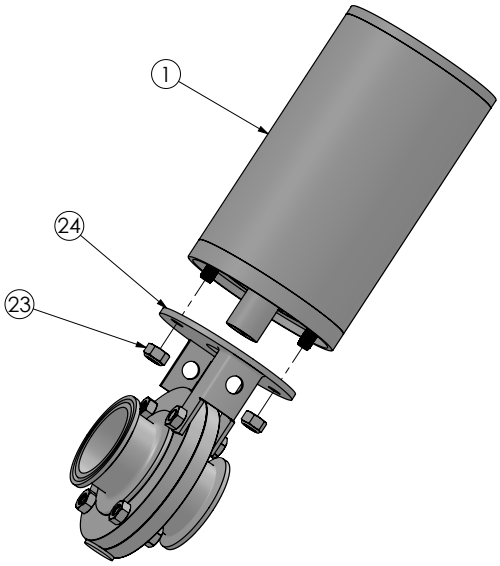
16. Reinstall the valve and bracket assembly (24) and tighten the two lock nuts (23).



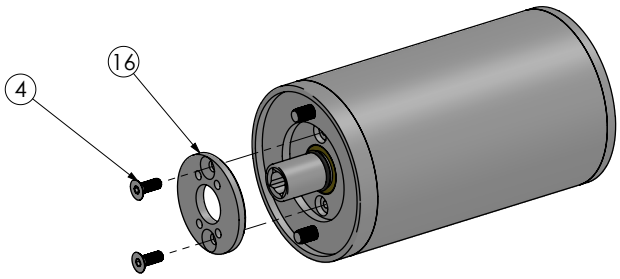

17. It is important to test the actuator to ensure that it is properly functioning before placing it back into service.

## Disassembly: Air to Air

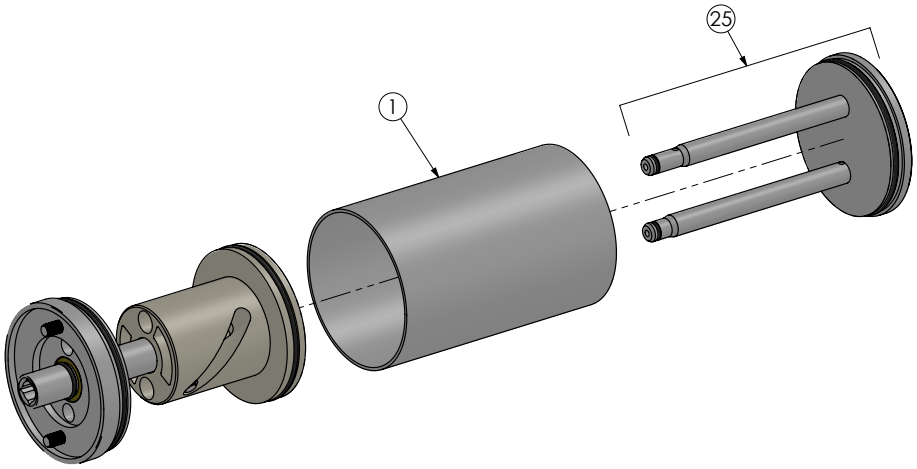
1. Clamp the casing (1) in a vise with aluminum jaws.
2. Unscrew the two lock nuts (23) and remove the valve and bracket assembly (24).



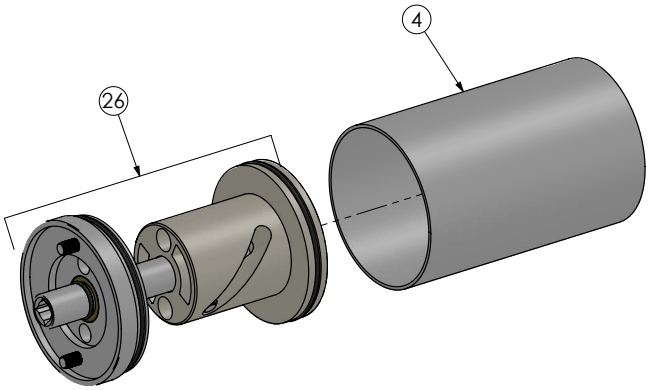

3. Unscrew the two flat head screws (4) and remove the flange (16).



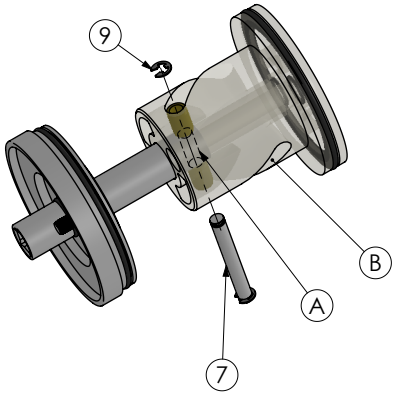
4. Remove the top plate assembly (25) from the casing (1). (To aid in removal, it may be necessary to very carefully blow air into the “R” labeled terminal.



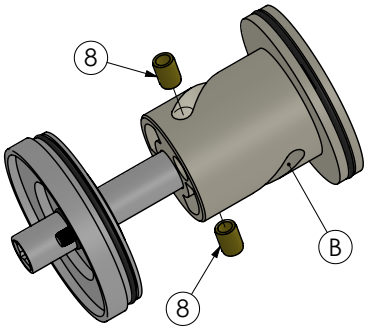

5. Remove the base plate/piston assembly (26) from the casing (1).



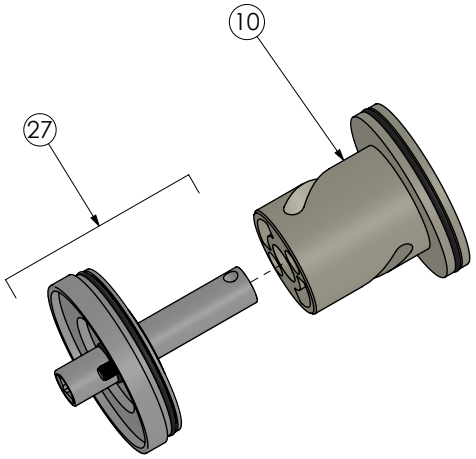

6. Remove the retaining ring (9) and press the axle (7) through the shaft’s axle bore (A) and piston’s helical track (B).



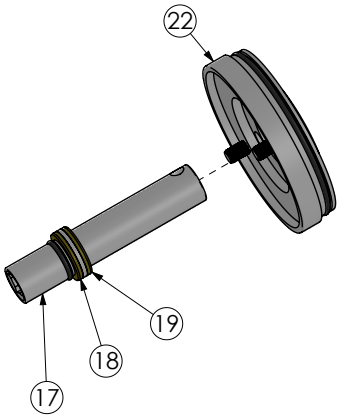

7. Remove the track rollers (8) from the piston’s helical track (B).



8. Remove the piston (10) from the baseplate assembly (27).



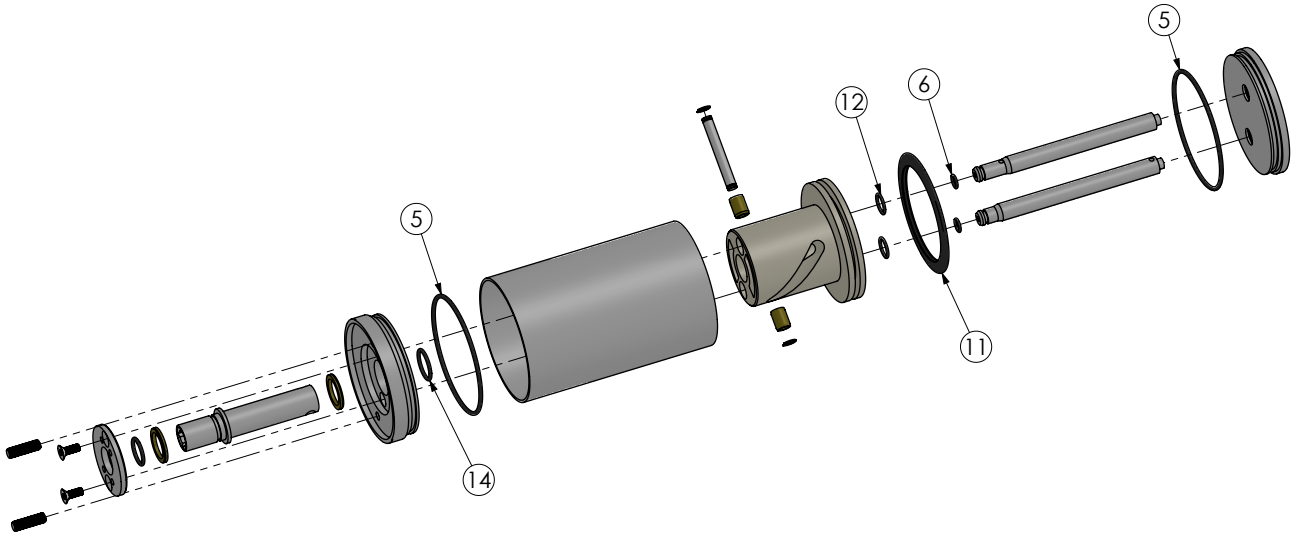

9. Remove the shaft (17) from the base plate (22). The bushings (18,19) will come out on the shaft.



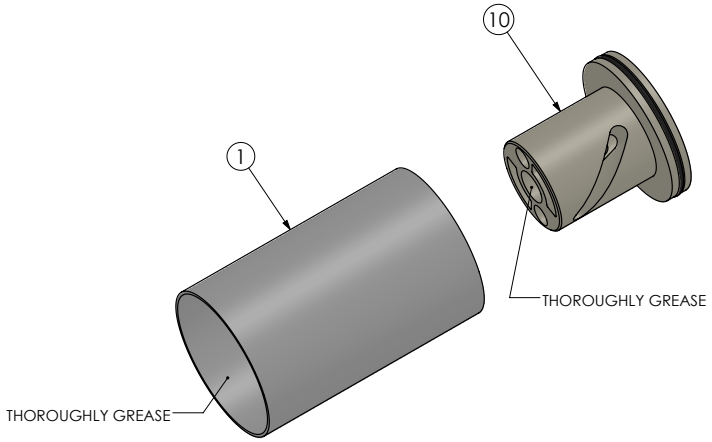

10. The actuator is now fully disassembled and ready for servicing.

## Assembly: Air to Air

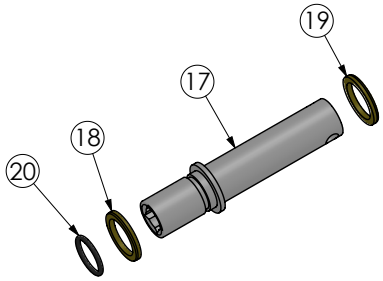
1. Before assembling the actuator be sure to replace and lubricate o-rings (5,6,12,14) and seal (11). Ensure that all parts are cleaned and that no debris is left inside components.



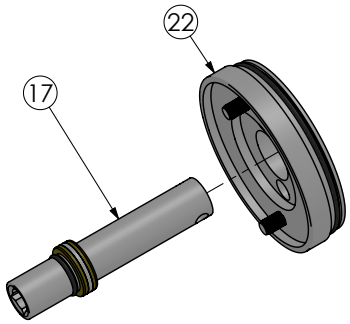
2. Thoroughly grease the inside of the casing (1) and piston (10).



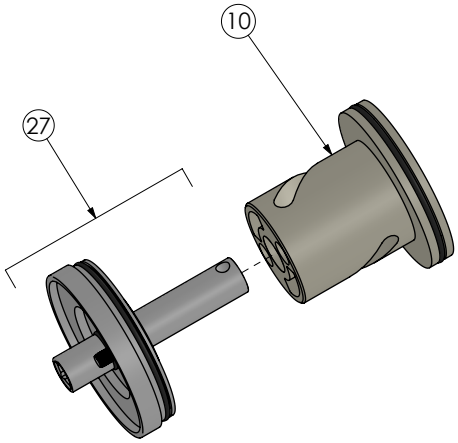

3. Install the bushings (18, 19) on the shaft (17). Replace shaft o-ring (20) and lubricate.



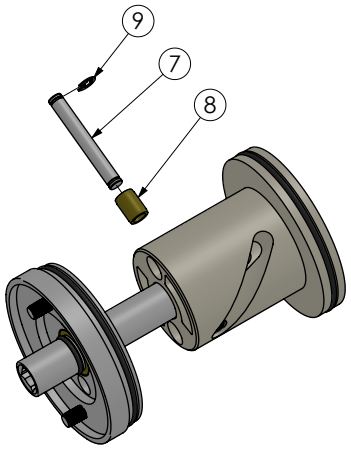

4. Insert the shaft (17) into the base plate (22).



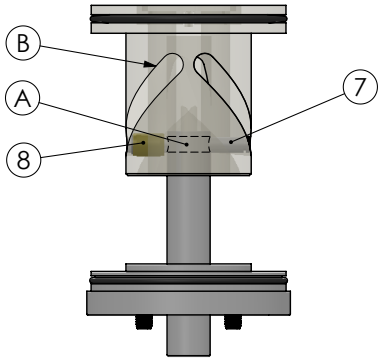

5. Insert the base plate assembly (27) into the piston (10).



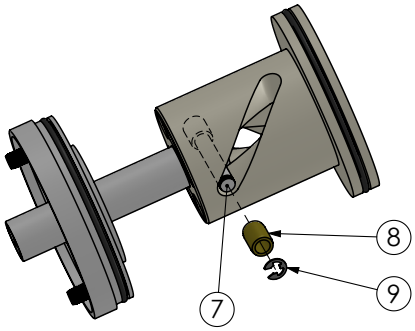
6. Mount retaining ring (9) onto one end of axle (7) and slide track roller (8) onto axle (7).



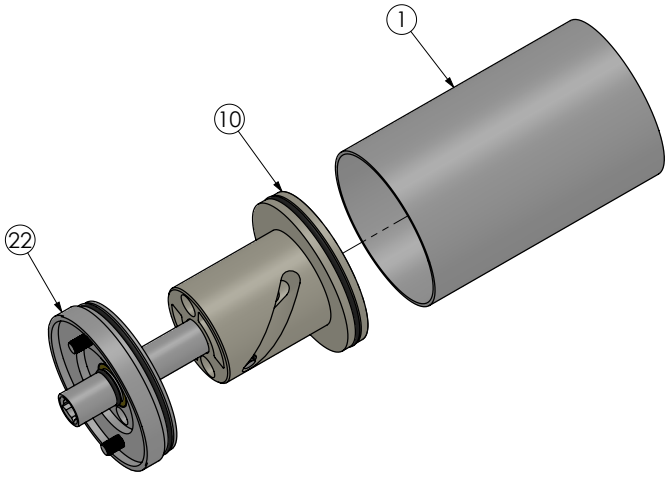

7. Insert axle (7), with track roller (8) installed, into helical slot (B) and through axle bore (A).



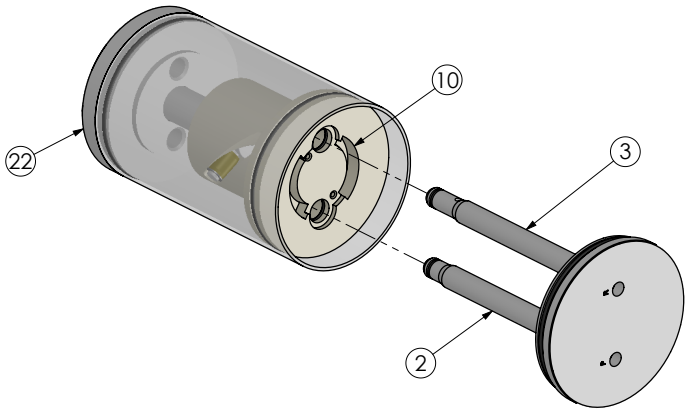

8. Slide the second track roller (8) onto the axle (7) and mount the second retaining ring (9).



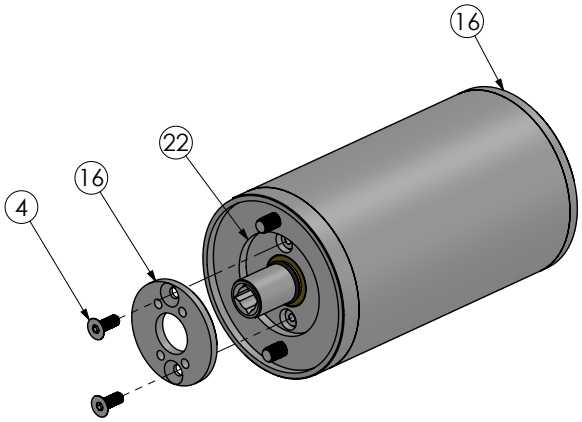

9. Slide the casing (1) over the piston (10) and onto the base plate (22).



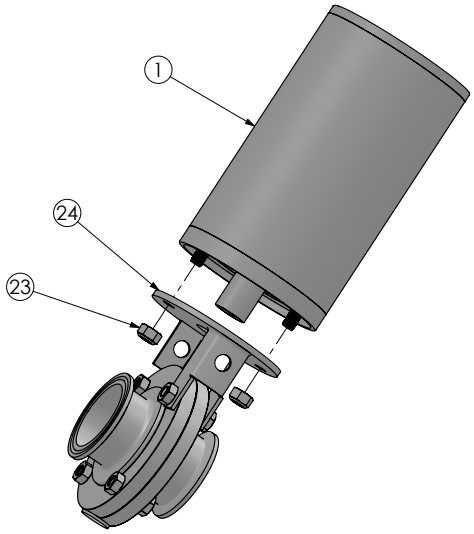
10. Insert the guide bars (2,3) into the bores on top of the piston (10) and align them with the bores in the base plate (22).




11. Insert the flange (16) into the bottom of the base plate (22) and align the counter sunk holes with the bores in the base plate (22). While pressing down on the top plate (13) install and firmly tighten the flat head screws (4).



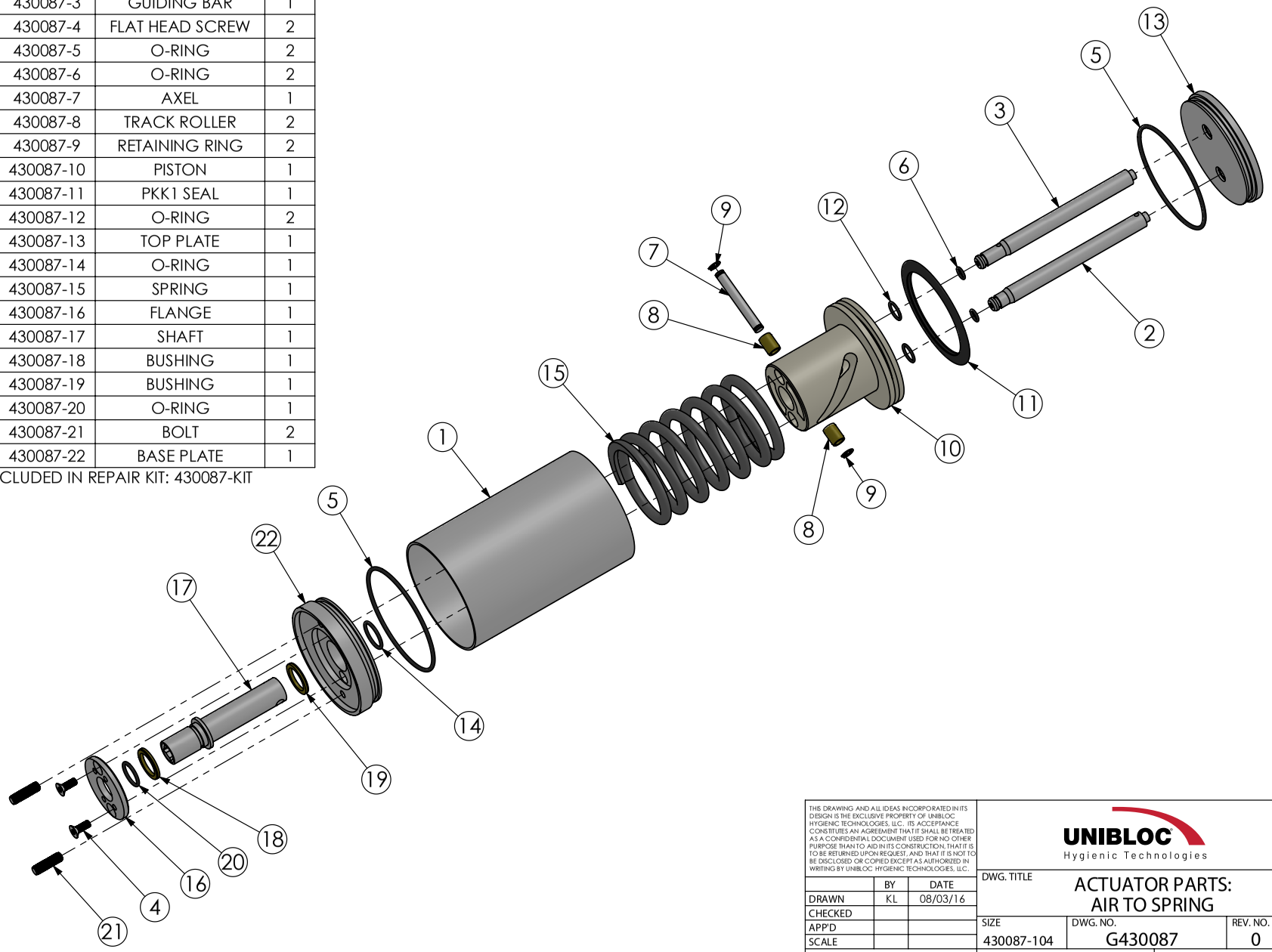

12. Reinstall the valve and bracket assembly (24) and tighten the two lock nuts (23).




13. It is important to test the actuator to ensure that it is properly functioning before placing it back into service.

| ITEM NO. | PART NO. | DESCRIPTION | QTY. |
|---|---|---|---|
| 1 | 430087-1 | CASING | 1 |
| 2 | 430087-2 | GUIDING BAR | 1 |
| 3 | 430087-3 | GUIDING BAR | 1 |
| 4* | 430087-4 | FLAT HEAD SCREW | 2 |
| 5* | 430087-5 | O-RING | 2 |
| 6* | 430087-6 | O-RING | 2 |
| 7 | 430087-7 | AXEL | 1 |
| 8 | 430087-8 | TRACK ROLLER | 2 |
| 9* | 430087-9 | RETAINING RING | 2 |
| 10 | 430087-10 | PISTON | 1 |
| 11* | 430087-11 | PKK1 SEAL | 1 |
| 12* | 430087-12 | O-RING | 2 |
| 13 | 430087-13 | TOP PLATE | 1 |
| 14* | 430087-14 | O-RING | 1 |
| 15 | 430087-15 | SPRING | 1 |
| 16 | 430087-16 | FLANGE | 1 |
| 17 | 430087-17 | SHAFT | 1 |
| 18* | 430087-18 | BUSHING | 1 |
| 19* | 430087-19 | BUSHING | 1 |
| 20* | 430087-20 | O-RING | 1 |
| 21* | 430087-21 | BOLT | 2 |
| 22 | 430087-22 | BASE PLATE | 1 |

* ITEMS INCLUDED IN REPAIR KIT: 430087-KIT






| | BY | DATE |
|---|---|---|
| DRAWN | KL | 08/03/16 |
| CHECKED | | |
| APP'D | | |
| SCALE | | |
| ALL DIMENSIONS IN MM, [IN] | | |

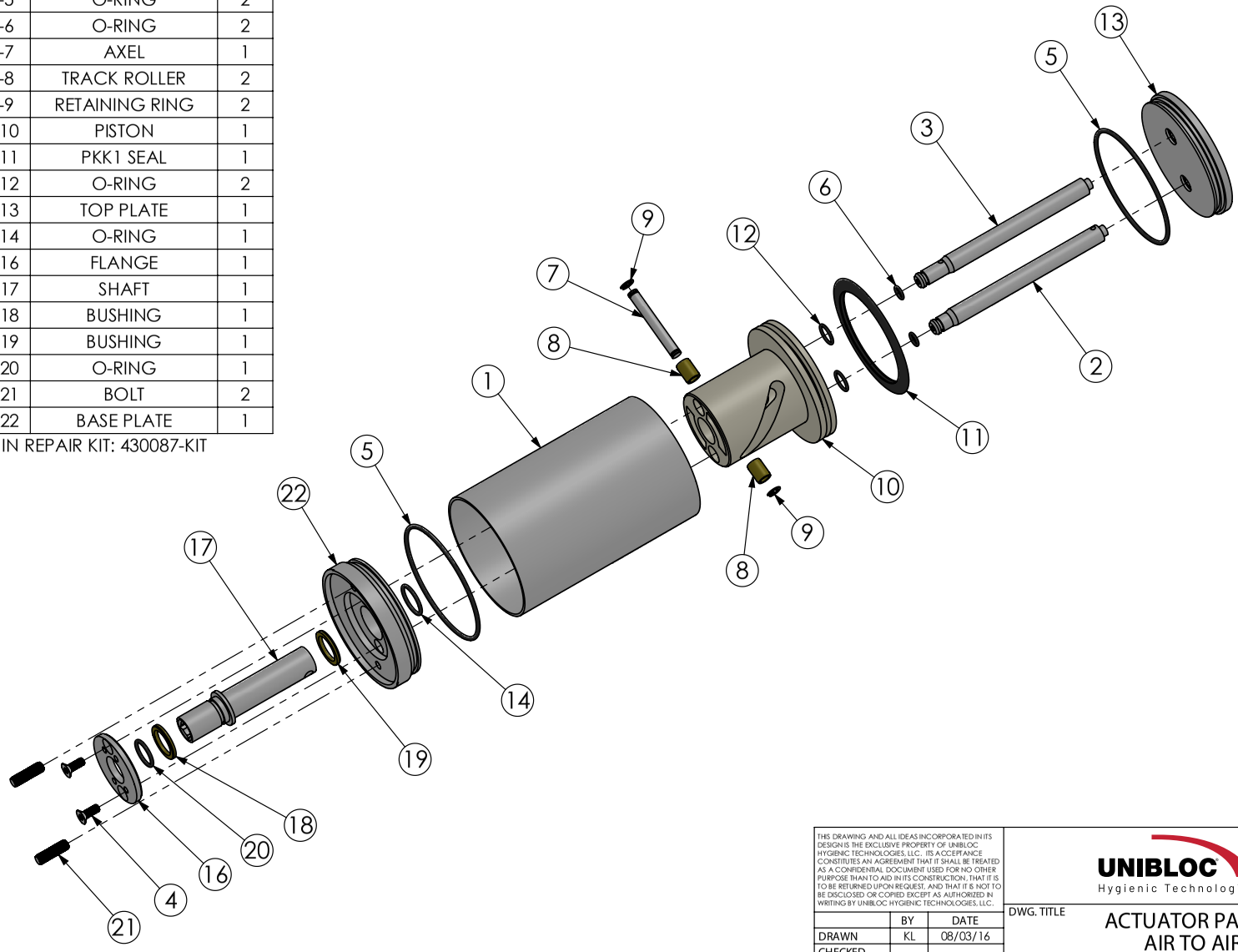
UNIBLOC Hygienic Technologies

DWG. TITLE: ACTUATOR PARTS: AIR TO SPRING

| SIZE | DWG. NO. | REV. NO. |
|---|---|---|
| 430087-104 | G430087 | 0 |
| RELEASE DATE: AUG. 3, 2016 | | SHEET 1 OF 2 |

| ITEM NO. | PART NO. | DESCRIPTION | QTY. |
|---|---|---|---|
| 1 | 430087-1 | CASING | 1 |
| 2 | 430087-2 | GUIDING BAR | 1 |
| 3 | 430087-3 | GUIDING BAR | 1 |
| 4* | 430087-4 | FLAT HEAD SCREW | 2 |
| 5* | 430087-5 | O-RING | 2 |
| 6* | 430087-6 | O-RING | 2 |
| 7 | 430087-7 | AXEL | 1 |
| 8 | 430087-8 | TRACK ROLLER | 2 |
| 9* | 430087-9 | RETAINING RING | 2 |
| 10 | 430087-10 | PISTON | 1 |
| 11* | 430087-11 | PKK1 SEAL | 1 |
| 12* | 430087-12 | O-RING | 2 |
| 13 | 430087-13 | TOP PLATE | 1 |
| 14* | 430087-14 | O-RING | 1 |
| 16 | 430087-16 | FLANGE | 1 |
| 17 | 430087-17 | SHAFT | 1 |
| 18* | 430087-18 | BUSHING | 1 |
| 19* | 430087-19 | BUSHING | 1 |
| 20* | 430087-20 | O-RING | 1 |
| 21* | 430087-21 | BOLT | 2 |
| 22 | 430087-22 | BASE PLATE | 1 |

* ITEMS INCLUDED IN REPAIR KIT: 430087-KIT






| | BY | DATE |
|---|---|---|
| DRAWN | KL | 08/03/16 |
| CHECKED | | |
| APP'D | | |
| SCALE | | |
| ALL DIMENSIONS IN MM, [IN] | | |

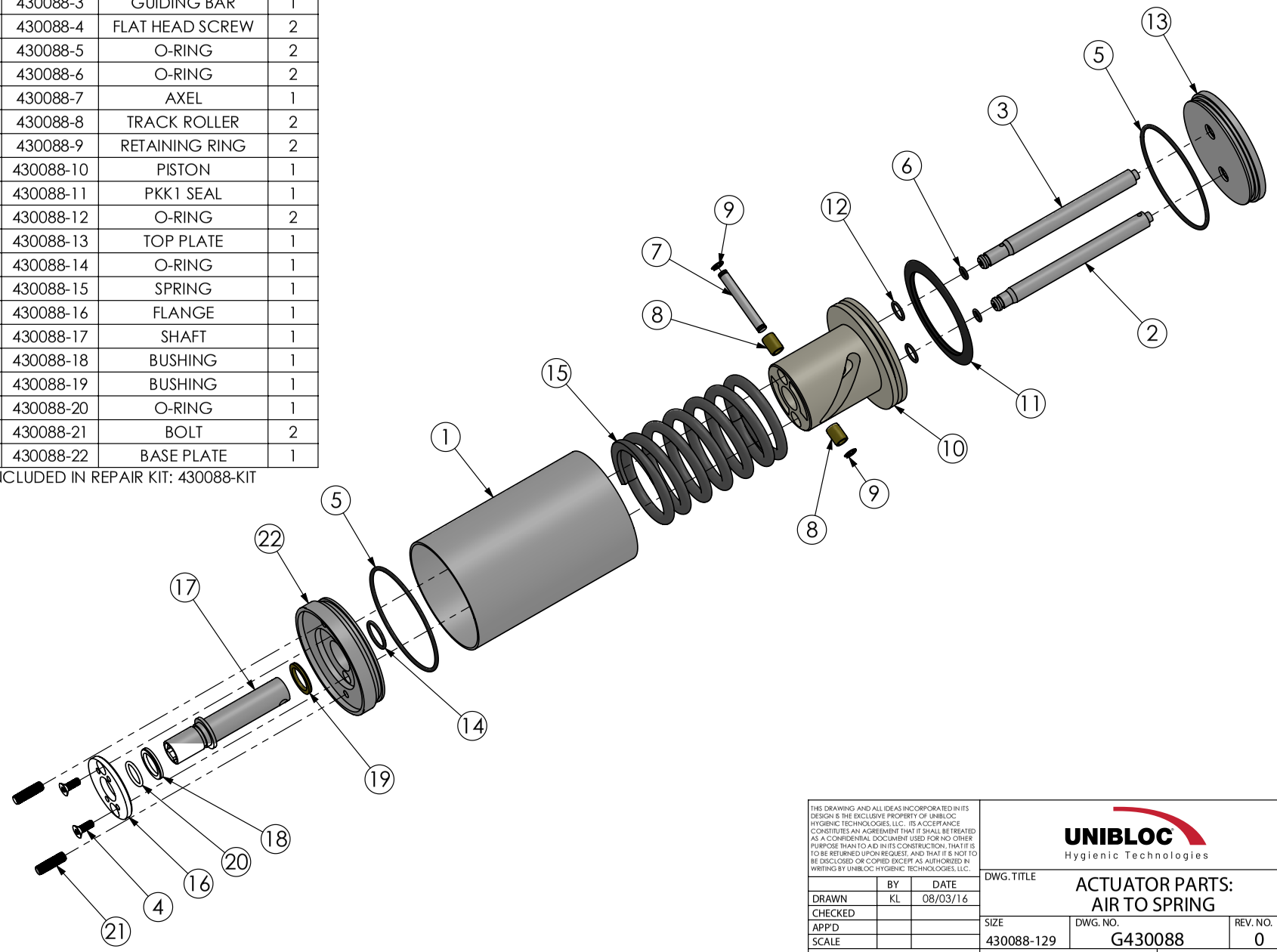
UNIBLOC
Hygienic Technologies

DWG. TITLE: ACTUATOR PARTS: AIR TO AIR

| SIZE | DWG. NO. | REV. NO. |
|---|---|---|
| 430084-104 | G430084 | 0 |
| RELEASE DATE | AUG. 3, 2016 | SHEET 1 OF 2 |

| ITEM NO. | PART NO. | DESCRIPTION | QTY. |
|---|---|---|---|
| 1 | 430088-1 | CASING | 1 |
| 2 | 430088-2 | GUIDING BAR | 1 |
| 3 | 430088-3 | GUIDING BAR | 1 |
| 4* | 430088-4 | FLAT HEAD SCREW | 2 |
| 5* | 430088-5 | O-RING | 2 |
| 6* | 430088-6 | O-RING | 2 |
| 7 | 430088-7 | AXEL | 1 |
| 8 | 430088-8 | TRACK ROLLER | 2 |
| 9* | 430088-9 | RETAINING RING | 2 |
| 10 | 430088-10 | PISTON | 1 |
| 11* | 430088-11 | PKK1 SEAL | 1 |
| 12* | 430088-12 | O-RING | 2 |
| 13 | 430088-13 | TOP PLATE | 1 |
| 14* | 430088-14 | O-RING | 1 |
| 15 | 430088-15 | SPRING | 1 |
| 16 | 430088-16 | FLANGE | 1 |
| 17 | 430088-17 | SHAFT | 1 |
| 18* | 430088-18 | BUSHING | 1 |
| 19* | 430088-19 | BUSHING | 1 |
| 20* | 430088-20 | O-RING | 1 |
| 21* | 430088-21 | BOLT | 2 |
| 22 | 430088-22 | BASE PLATE | 1 |

* ITEMS INCLUDED IN REPAIR KIT: 430088-KIT






| | BY | DATE |
|---|---|---|
| DRAWN | KL | 08/03/16 |
| CHECKED | | |
| APP'D | | |
| SCALE | | |
| ALL DIMENSIONS IN MM, [IN] | | |

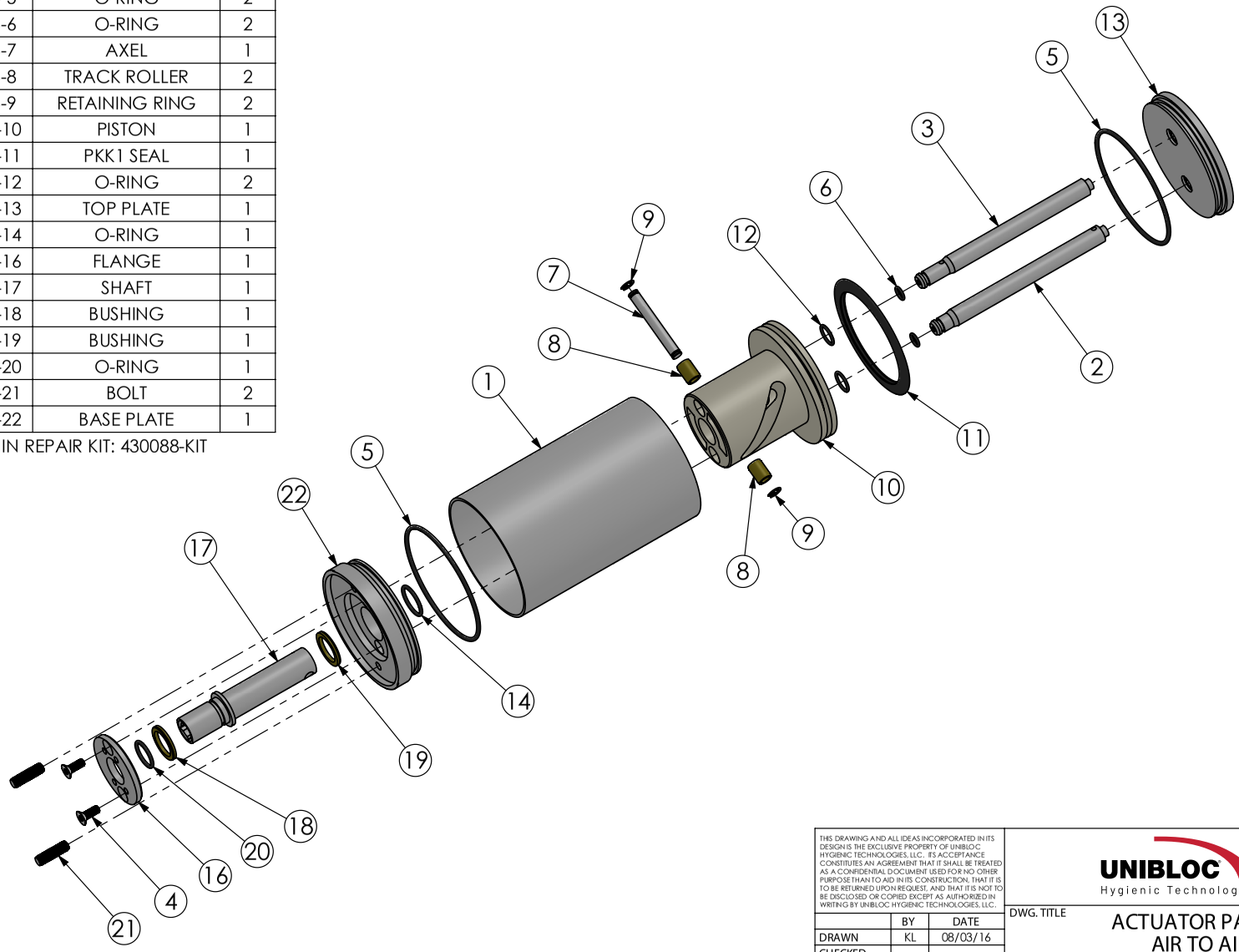
UNIBLOC
Hygienic Technologies

DWG. TITLE: ACTUATOR PARTS: AIR TO SPRING

| SIZE | DWG. NO. | REV. NO. |
|---|---|---|
| 430088-129 | G430088 | 0 |
| RELEASE DATE: AUG. 3, 2016 | | SHEET 1 OF 2 |

| ITEM NO. | PART NO. | DESCRIPTION | QTY. |
|---|---|---|---|
| 1 | 430088-1 | CASING | 1 |
| 2 | 430088-2 | GUIDING BAR | 1 |
| 3 | 430088-3 | GUIDING BAR | 1 |
| 4* | 430088-4 | FLAT HEAD SCREW | 2 |
| 5* | 430088-5 | O-RING | 2 |
| 6* | 430088-6 | O-RING | 2 |
| 7 | 430088-7 | AXEL | 1 |
| 8 | 430088-8 | TRACK ROLLER | 2 |
| 9* | 430088-9 | RETAINING RING | 2 |
| 10 | 430088-10 | PISTON | 1 |
| 11* | 430088-11 | PKK1 SEAL | 1 |
| 12* | 430088-12 | O-RING | 2 |
| 13 | 430088-13 | TOP PLATE | 1 |
| 14* | 430088-14 | O-RING | 1 |
| 16 | 430088-16 | FLANGE | 1 |
| 17 | 430088-17 | SHAFT | 1 |
| 18* | 430088-18 | BUSHING | 1 |
| 19* | 430088-19 | BUSHING | 1 |
| 20* | 430088-20 | O-RING | 1 |
| 21* | 430088-21 | BOLT | 2 |
| 22 | 430088-22 | BASE PLATE | 1 |

* ITEMS INCLUDED IN REPAIR KIT: 430088-KIT






| | BY | DATE |
|---|---|---|
| DRAWN | KL | 08/03/16 |
| CHECKED | | |
| APP'D | | |
| SCALE | | |

ALL DIMENSIONS IN MM, [IN]

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DWG. TITLE: ACTUATOR PARTS: AIR TO AIR

| SIZE | DWG. NO. | REV. NO. |
|---|---|---|
| 430085-129 | G430085 | 0 |

RELEASE DATE: AUG. 3, 2016 | SHEET 1 OF 2

# Notes:

# WARRANTY

Unibloc Hygienic Technologies, LLC ("Unibloc") warrants that its product will be free from defects in material and workmanship which results in noncompliance with the Specifications for such product. This warranty shall begin upon delivery and continue for a period of one (1) year from such date. If during this period the product does not comply with its specifications as a result of defects in material or workmanship, contact Unibloc to arrange return of the faulty product, shipping prepaid and fully insured, to an authorized Unibloc service facility. If upon inspection of the item in question, defects in workmanship or materials are revealed, Unibloc's sole obligation under this warranty shall be to supply a repair or replacement for any defective part of a product, and to return such product to the customer by shipping it EX WORKS (as defined in Incoterms 2020) the service facility. Unibloc shall not be required to supply any labor for repairs or replacement of parts. This warranty is void if the product has not been used as recommended or instructed, has been altered or used with unauthorized accessories, has been subject to misuse, abuse or accident, or has been damaged due to causes not related to poor workmanship or defective materials. All parts or components not manufactured by Unibloc are warranted only to the extent of the warranty of the respective manufacturers.

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