

## Installation of Actuator

Triac actuators are mounted directly to valves or adapted to the valve by means of an intermediate bracket and coupler. The coupler adapts the " output of the actuator to the valve shaft. Standard mounting kits provide for mounting the actuator in the direction of the pipe. Pipe-lines can be horizontal, vertical, or other positions.

After mounting, it may be necessary to adjust the end of travel stop for proper open or closed valve position. Pneumatically stroke the actuator several times to assure proper operation with no binding of the coupler.

## Air Supply

Pneumatic piping to the actuator and associated accessories should follow the best practices for instrument pneumatic piping systems, ie line free of water, oil, pipe sealant or other contaminants. The operating medium is to be filtered dry air or inert gas which is filtered to 50 micron particles size or less. It is extremely important that the actuator be powered with the proper air pressure and air volume. Maximum working pressure is 150 PSI.

The spring housing on spring return actuators, if not piped, will breath through the right hand port. It's important that it not be exposed to a corrosive atmosphere. Please contact Triac Controls for possible solutions if this condition exists.

## Lubrication

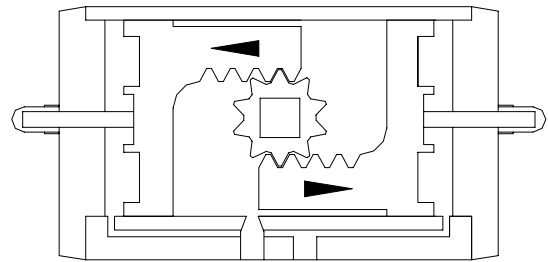
Triac actuator are factory lubricated for life and additional lubrication is not normally required. However, for actuators performing 100,000 cycles or more , an oil mist lubricator is recommended. Oil mist lubrication requires a mineral oil type ISO VG32 Class 1 for useage in temperature range 15 to 158 Deg. F. Oil mist lubricator must be set to the lowest setting. Once begun, the oil mist lubrication cannot be discontinued.

Caution: If the actuator is equipped with a pneumatic positioner or pneumatic controller, oil mist lubricated air cannot be used unless the instrument manufacturer indicates that the instrument is compatible with lubricated air.

## Orientation of Pistons

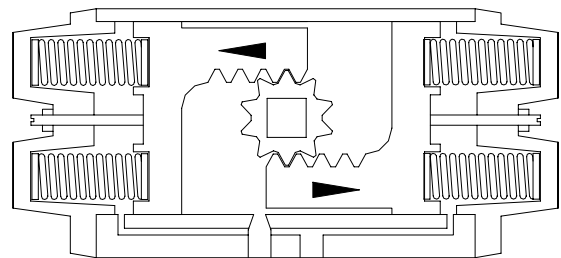
### Double Acting

The pistons of standard DA actuators are mounted as shown below. This provides for travel adjustment in the clockwise direction. The pistons are then in their outermost position and the end of travel stop can be fine adjusted + or - 3 degrees



### Spring Return (Fail CW)

The pistons of standard SR actuators are mounted as shown below. When the actuator is in the counter-clockwise "opened" valve position (springs fully compressed) the end of travel stop, can be fine adjusted + or - 3 degrees.



## Travel Adjustment

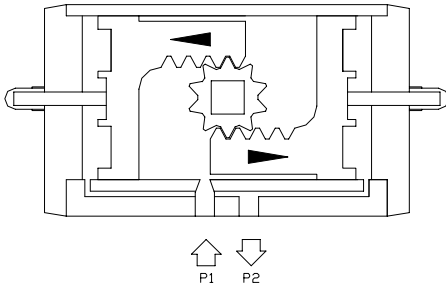
The + or - 3 degree adjustment of the end of travel stop is accomplished by loosening the lock nut on the end cap and turning the adjustment screw clockwise for reduced rotary motion and counterclockwise for increasing motion. There are two adjustment screws, **it is very important that both screws are in contact with their respective piston.**

## Operation

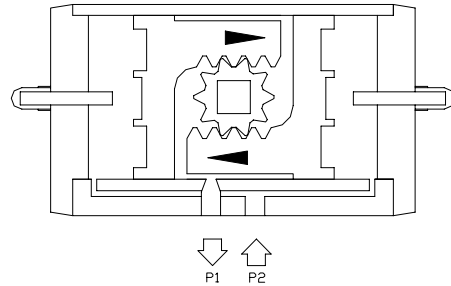
(Viewed from top of actuator)

### Double Acting

Applying air pressure to port 1 drives the piston(s) outward, which turns the drive shaft counterclockwise as the air volume on the outside of the piston(s) exhausts through port 2.

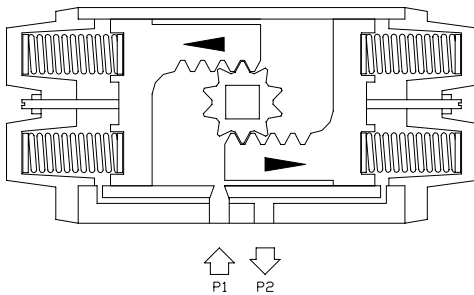


Applying air pressure to port 2 drives the piston(s) inward, which turns the drive shaft clockwise as the air

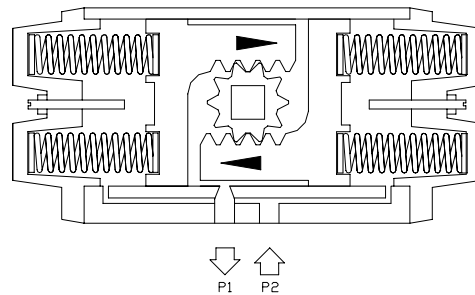


### Spring Return (Fail CW)

Applying air pressure to port 1 drives the piston(s) outward, which compresses the springs and turns the drive shaft counterclockwise as the air volume on the outside of the piston(s) exhausts through port 2.



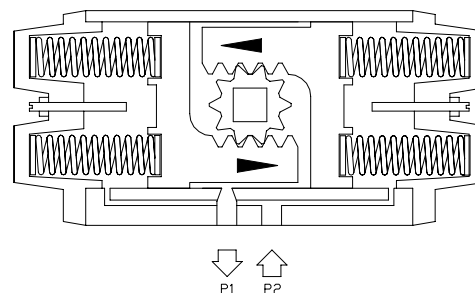
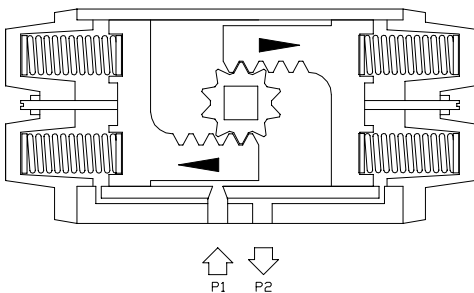
Exhausting the air pressure from port 1 allows stored energy of the springs to drive pistons inward, turning the drive shaft clockwise. Air volume on the outside of the pistons vents through port 2.



### Spring Return (Fail CCW)

Applying air pressure to port 1 drives the piston(s) outward, which compresses the springs and turns the drive shaft clockwise as the air volume on the outside of the piston(s) exhausts through port 2.

Exhausting the air pressure from port 1 allows stored energy of the springs to drive pistons inward, turning the drive shaft counterclockwise. Air volume on the outside of the pistons vents through port 2.



## Maintenance Instructions

### CAUTION

*Before removing any components of the actuator, ensure that all pneumatic and electrical power supplies are disconnected.*

### Disassembly Procedures

1. Disconnect air supply and electric to depressure actuator.
2. Disassemble actuator from valve.
3. Apply air to Port B to ensure that pistons are driven to the center.
4. Loosen end cap bolts (13). On spring return units, springs should push end caps out. Springs are contained on spool and tension will be relaxed when end cap is removed. (Always use caution, when removing springs.)
5. Remove end caps (03).
6. Rotate pinion counterclockwise to drive pistons out of the actuator body (01).
7. Remove pinion snap ring.
8. Drive pinion through the bottom of the actuator with a rubber mallet.
9. Remove bearings by slipping them over pinion.

### Changing from "Spring Closed" to "Spring Open"

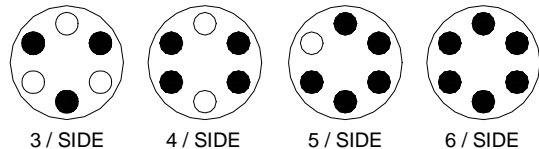
1. Complete disassembly instructions to step 6, removal of piston(s).
2. Rotate pinion 90 degrees clockwise.
3. Grease cylinder surface with multi-purpose grease..
4. Rotate piston(s) 180 degrees about their axis and reinstall them.
5. Rotate shaft 90 degrees clockwise to draw pistons in and confirm proper engagement.
6. When the actuator is converted to fail open, the adjustment of the end position will take place in the "closed" valve position. See page 1 for travel adjustment.

### Re-assembly Procedures

1. Inspect all parts for wear and replace any worn parts as needed. Replace all O-rings.
2. Clean all components and lightly grease cylinder bore, and seals with multi-purpose grease.
3. Reverse disassembly procedure.
4. Take care to ensure that end cap O-rings are not pinched.
5. The travel adjustment can be accomplished by following the procedure on page 1.

### Springs

1. Install the correct number of springs for the desired torque output.
2. Springs will line up with pockets in the piston and end caps.
3. "Balance" springs across pistons.



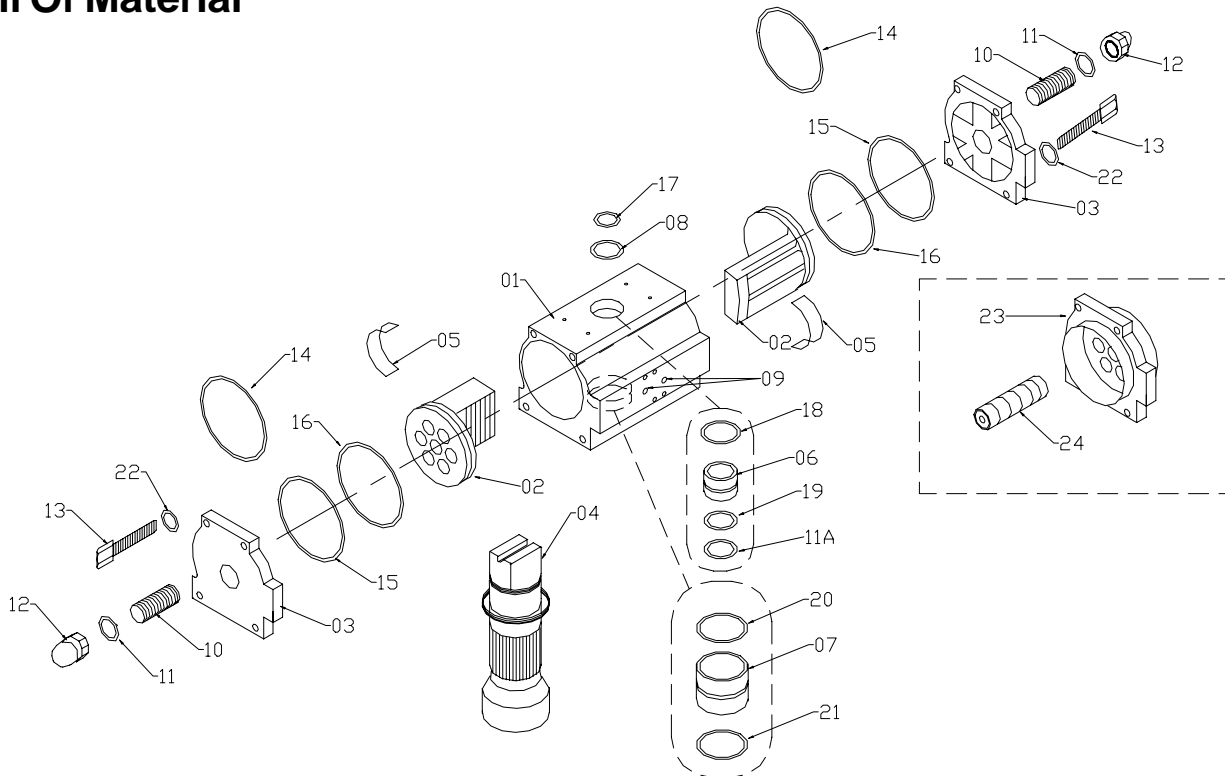
### Complete Buna Repair Kits

Actuator	Kit Part #
TR20	RKB0020
TR40	RKB0040
TR80	RKB0080
TR130	RKB0130
TR200	RKB0200
TR300	RKB0300
TR500	RKB0500
TR850	RKB0850
TR1200	RKB1200
TR1750	RKB1750

### Seal Kits

Actuator	Buna Seals	Viton Seals	Low Temp
	(-20°F to +175°F)	(0°F to +300°F)	(-45°F to +175°F)
TR20	BOK0020	VOK0020	LTOK0020
TR40	BOK0040	VOK0040	LTOK0040
TR80	BOK0080	VOK0080	LTOK0080
TR130	BOK0130	VOK0130	LTOK0130
TR200	BOK0200	VOK0200	LTOK0200
TR300	BOK0300	VOK0300	LTOK0300
TR500	BOK0500	VOK0500	LTOK0500
TR850	BOK0850	VOK0850	LTOK0850
TR1200	BOK1200	VOK1200	LTOK1200
TR1750	BOK1750	VOK1750	LTOK1750

**Bill of Material**



Part #	Description	Quantity	Material	Protection	Repair Kit
1	Body	1	Aluminum Alloy	Hard Anodized	
2	Piston	2	Aluminum Alloy	Dichromate Dipped	
3	End Caps	2	Aluminum Alloy	Epoxy Coated	
4	Drive Shaft/Pinion	1	Carbon Steel	Electroless Nickel Plated	
5	Guide Plate	2	Nylon 6		Included
6	Bushing -Top	1	Polyamid + PTFE		Included
7	Bushing- Bottom	1	Polyamid + PTFE		Included
8	Washer	1	Stainless Steel		Included
9	Dust Plug	2	PE		
10	Screw- Travel stop	2	Stainless Steel		
11	O-Ring	2	Buna - N		Included
11a	Washer	1	Teflon		Included
12	Nut Cap	2	Stainless Steel		
13	End Cap Bolts	8	Stainless Steel		
14	O-Ring/End caps	2	Buna - N		Included
15	O-Ring/Piston	2	Buna - N		Included
16	Bushing -Piston	2	Teflon		Included
17	Snap Ring	1	Stainless Steel		Included
18	O-Ring	1	Buna - N		Included
19	O-Ring	1	Buna - N		Included
20	O-Ring	1	Buna - N		Included
21	O-Ring	1	Buna - N		Included
22	O-Ring	2	Buna - N		Included
23	End Cap - Spring Return	2	Aluminum Alloy	Epoxy Coated	
24	Spring Cartridge	Varies	Carbon Steel/Nylon	Epoxy Coated	