TRIAC
SS Series Stainless Steel Rack & Pinion Actuators

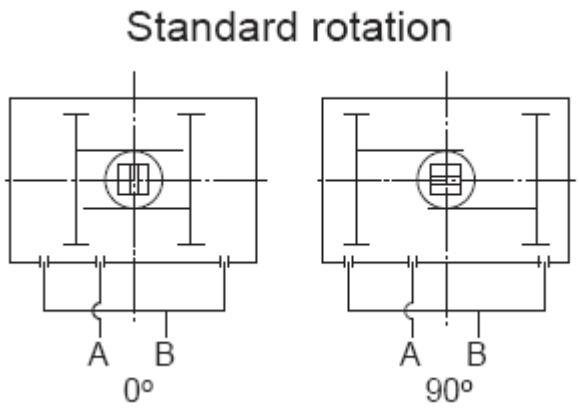
1. Installation of Actuator
Triac actuators are mounted directly to valves or adapted to the valve by means of an intermediate bracket and coupler. The coupler adapts the output of the actuator to the valve shaft. Standard mounting kits provide mounting of the actuator in the direction of the pipe. Pipelines can be horizontal, vertical, or other positions. When mounting the actuator to a valve using a mounting kit, the pinion drive, coupling device and valve stem should be centered and concentric to prevent any side loading to the bottom pinion radial bearing and valve stem seal area. 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.

2. Air Supply
Pneumatic piping to the actuator and associated accessories should follow the best practices for instrument pneumatic piping systems, i.e. 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 breathe 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.

3. Lubrication
Triac actuators 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 usage 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 are compatible with lubricated air.

4. 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.***



CAUTION

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

5. Disassembly Procedures

1. Disconnect air supply and electric to depressurize 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 (24). 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 (23).
6. Rotate pinion counterclockwise to drive pistons out of the actuator body (6).
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 section 4 for travel adjustment.

6. Re-assembly Procedures

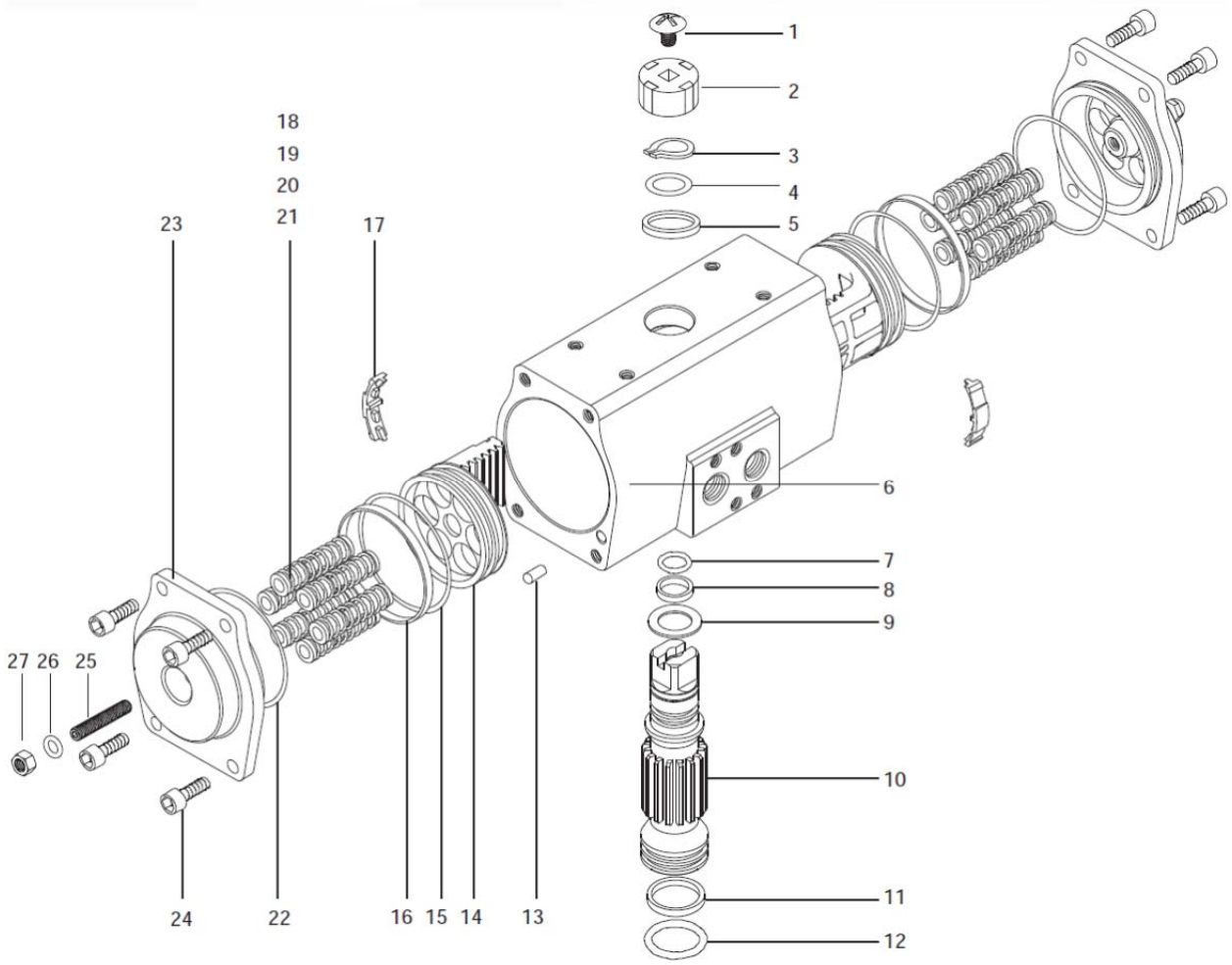
1. Inspect all parts for wear and replace any worn parts as needed. Replace all O-rings.
2. Clean all components and lightly grease cylinder bore, and seals with multi-purpose grease.
3. Reverse disassembly procedure.
4. Take care to ensure that end cap O-rings are not pinched.
5. The travel adjustment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

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.

7. Bill of Materials



No.	Description	Qty	Standard Material
1	Indicator screw	1	Plastic (ABS)
2	Indicator	1	Plastic (ABS)
3	Circlip	1	Stainless steel (316)
4	Thrust washer	1	Stainless steel (316)
5	Outside washer	1	Polyoxymethylene
6	Body	1	Stainless steel (316)
7	O-ring (Pinion top)	1	Viton/NBR
8	Bearing (Pinion top)	1	Polyoxymethylene
9	Inside washer	1	Polyoxymethylene
10	Pinion	1	Stainless steel (316)
11	Bearing (Pinion	1	Polyoxymethylene
12	O-ring (Pinion	1	Viton/NBR
13	Plug	2	NBR
14	Piston	2	Stainless steel (316)

No.	Description	Qty	Standard Material
15	O-ring (Piston)	2	Viton/NBR
16	Bearing (Piston)	2	Polyoxymethylene
17	Guide (Piston)	2	Nylon66
18	Spring	*	Spring steel
19	Spring Retainer (L)	*	Nylon66
20	Spring Retainer (R)	*	Nylon66
21	Retainer Connector	*	Brass
22	O-ring (End-Cap)	2	Viton/NBR
23	End-Cap	2	Stainless steel (316)
24	End-Cap Screw	8	Stainless steel (316)
25	Adjust Screw	2	Stainless steel (316)
26	O-ring (Adjust	2	Stainless steel (316)
27	Nut (Adjust Screw)	2	Viton/NBR

8. Repair Kits

Complete Buna Repair Kits	
Actuator	**Kit Item Number**
SS45	SS-RKB045
SS60	SS-RKB060
SS85	SS-RKB085
SS105	SS-RKB105
SS125	SS-RKB125
SS140	SS-RKB140
SS160	SS-RKB160

Seal Kits

Seal Kits Item Numbers			
Actuator Model	**BUNA Seal Kit** (-20°F to +175°F)	**VITON Seal Kit** (0°F to +300°F)	**LOW TEMP Seal Kit** (-45°F to +175°F)
SS45	SS-BOK045	SS-VOK045	SS-LTOK045
SS60	SS-BOK060	SS-VOK060	SS-LTOK060
SS85	SS-BOK085	SS-VOK085	SS-LTOK085
SS105	SS-BOK105	SS-VOK105	SS-LTOK105
SS125	SS-BOK125	SS-VOK125	SS-LTOK125
SS140	SS-BOK140	SS-VOK140	SS-LTOK140
SS160	SS-BOK160	SS-VOK160	SS-LTOK160

A-T Controls product, when properly selected, is designed to perform its intended function safely during its useful life. However, the purchaser or user of A-T Controls products should be aware that A-T Controls products might be used in numerous applications under a wide variety of industrial service conditions. Although A-T Controls can provide general guidelines, it cannot provide specific data and warnings for all possible applications. The purchaser / user must therefore assume the ultimate responsibility for the proper sizing and selection, installation, operation, and maintenance of A-T Controls products. The user should read and understand the installation operation maintenance (IOM) instructions included with the product, and train its employees and contractors in the safe use of A-T Controls products in connection with the specific application.

While the information and specifications contained in this literature are believed to be accurate, they are supplied for informative purposes only. Because A-T Controls is continually improving and upgrading its product design, the specifications, dimensions and information contained in this literature are subject to change without notice. Should any question arise concerning these specifications, the purchaser/user should contact A-T Controls.

For product specifications go to http://download.a-tcontrols.com/

A-T Controls, Inc. • 9955 International Boulevard, Cincinnati, OH 45246 • Phone: (513) 530-5175 • Fax: (513) 247-5462 • www.a-tcontrols.com