



A subsidiary of CIRCOR International, Inc.  
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**Installation, Operating and  
Maintenance Instructions  
Parts List**

**11.1.2.4  
Rev. 0**

**Stainless Steel Valve Actuator**

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**NOTE**

This instruction is for the actuator only. Please see the appropriate instruction for the valve.

**WARNING**

THIS ACTUATOR IS A PRESSURE VESSEL. LINE PRESSURE MUST BE COMPLETELY RELIEVED BEFORE REMOVING THE VALVE FROM THE PIPELINE OR BEFORE REMOVING THE ACTUATOR FROM AN INSTALLED VALVE. FAILURE TO RELIEVE PRESSURE MAY RESULT IN PERSONAL INJURY.

## GENERAL

Actuator has an internal spring. Actuator stem is normally extended and retracted when air pressure is applied.

## ACTUATOR ASSEMBLY

Ref Figure 2

### WARNING

UNLESS OTHERWISE SPECIFIED THIS ACTUATOR HAS BEEN LUBRICATED AT THE FACTORY WITH SILICONE BASED LUBRICANTS. DO NOT MAKE ANY SUBSTITUTIONS TO THE FACTORY LUBRICATION. TO DO SO MAY RESULT IN PERSONAL INJURY AND/OR EQUIPMENT DAMAGE.

1. Insure all O-rings are not damaged.
2. Lubricate O-rings and inside diameter of the cylinder (8) with special silicon lubricant supplied by Leslie (Ref No. A81852).
3. Install O-rings and stem guides on 14 and 9 (Figure 2).
4. Slowly slide stem (17) and piston (9) into base (14). Be careful that stem (17) threads and corners do not scrape base O-ring (16) or stem guide (15).
5. Slowly slide cylinder (8) over piston (9). Work O-rings (12 & 13) into cylinder (8).
6. Turn assembly vertically and place spring (7) into cylinder (8).
7. Place spring adjuster (6) into cylinder (8) and check that spring and adjuster are not sitting crooked in cylinder.
8. Place cover (5) on actuator and start four nuts (4).
9. Tighten four nuts in sequence shown in (figure 1) and tighten to specified torque.
10. Check start point set pressure (see section "START POINT ADJUSTMENT).

#### Bolt Tightening Torque

Actuator Bolts = 0.84 Ft-lbs.

Mounting Screws = 0.84 Ft-lbs.

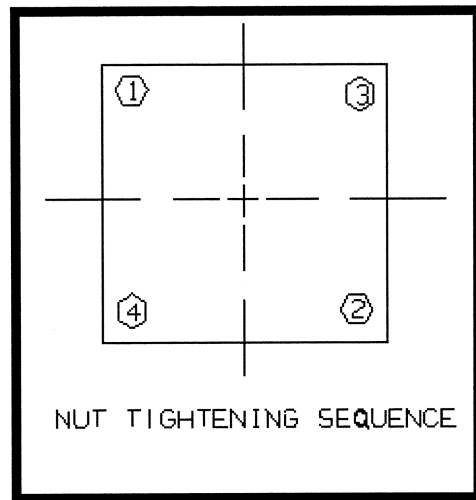


Figure1

## START POINT ADJUSTMENT

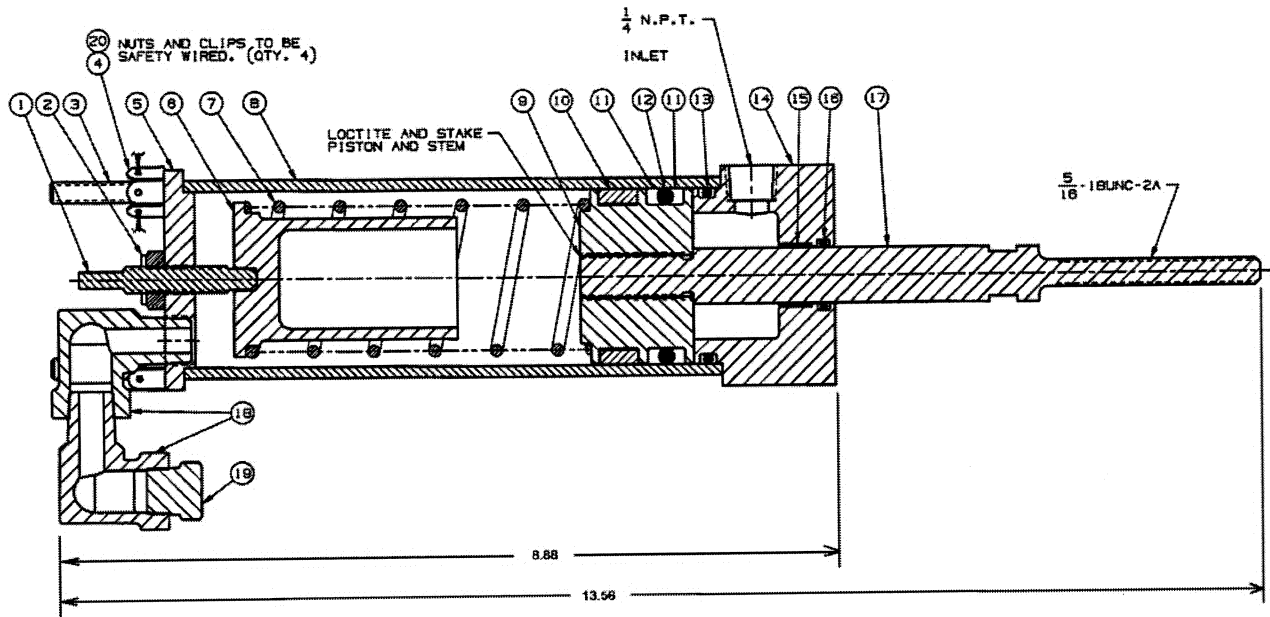
1. Connect an adjustable air supply to 1/4" NPT port in Fig 2.
2. Connect a dial indicator or suitable motion detection device to end of stem (17).
3. Slowly increase supply pressure.
4. Take note when stem (17) begins to move.
5. If stem (17) moves when pressure is over required start point, loosen spring adjuster lock nut (2) and turn spring adjuster (1) counter clockwise for one turn.
6. If stem (17) moves when pressure is lower than required start point, loosen spring adjuster lock nut (2) and turn spring adjuster (1) clockwise one turn.
7. Reduce supply pressure to zero and repeat steps 5 or 6 above until stem begins to move at required start point pressure.
8. Tighten lock nut (2) to maintain this start pressure.

## MAINTENANCE OF SYSTEM COMPONENTS

### WARNING

THIS ACTUATOR CONTAINS A COMPRESSED SPRING. THE POTENTIAL FOR PERSONAL INJURY EXISTS DURING THE DESASSEMBLY/REASSEMBLY PROCESS. CAREFULLY FOLLOW THESE INSTRUCTIONS TO ENSURE YOUR SAFETY

1. Disconnect actuator from valve and remove it from mounting bracket.
  - Spring adjuster lock nut (2) must be loosened and spring adjuster (1) removed. See section "START POINT ADJUSTMENT" after dis-assembly.
2. Cut or untwist safety-wire from Clips (20) and then bend tabs of the Clips (20) to allow a wrench on nuts (4).
3. One at a time, loosen four nuts (4) on top of the actuator and back cover (5) off slowly. Do not remove one nut and then another. Back all four nuts up at one time.
4. When all four nuts are at the end of threads remove one nut at a time and then remove cover.
5. Turn actuator upside down and let spring (7), and spring adjuster (6) out of cylinder (8).
6. Pull cylinder (8) off of piston (9) while holding stem (17).
7. Pull stem (17) and piston (9) slowly out of base (14).
8. Remove and replace all O-rings (12, 13, 16) and O-ring backup ring (11).
9. Inspect Teflon guides (10 & 15) for wear and damage. Replace them as needed.



**Figure 2**

PARTS LIST			
ITEM NO	QTY.	DESCRIPTION	MATERIAL
1	1	SCREW, SPRING ADJUSTER	Stainless
2	1	FLEX NUT 5/16-18UNC-2B	Commercial Stainless
3	4	TIE ROD	Stainless
4	4	HEX NUT '1/4-20UNC-2B	Commercial Stainless
5	1	COVER	Stainless
6	1	SPRING ADJUSTER	Stainless
7	1	SPRING	Stainless Spring Steel
8	1	TUBE	Stainless
9	1	PISTON	Stainless
10	1	PISTON SLEEVE	Commercial Teflon
11	2	BACK-UP RING	Commercial PTFE
12	1	O-RING	Fluorocarbon Rubber
13	1	O-RING	Fluorocarbon Rubber
14	1	BASE	Stainless
15	1	STEM GUIDE	Teflon
16	1	O-RING	Fluorocarbon Rubber
17	1	STEM	Stainless
18	2	90° STREET ELBOW '1/4NPT	Commercial Stainless
19	1	AIR VENT '1/4 NPT	Brass
20	1	SAFETY WIRE LOCKING CLIP	Commercial Spring Steel

# APPENDIX A

## Stainless Steel Valve Actuator WITH FALSE START DRAIN VALVE

Tighten two jam nuts against each or to lock them in place.

### ACTUATOR INSTALLATION

1. Actuator may be used to replace existing actuator in field or may be a new installation (Ref No U009005251 KIT,MGT).
2. Remove (Ref Figure 3):
  - Old actuator (12)(13).
  - Plunger rod disk (11).
  - Return spring (5).
  - Screw eyes (1)(2)(7)(8).
  - Travel stop screw and nut (3)(4).
  - Lever (6).
  - Replace and re-torque lever screws (9).
3. (Ref Figure 2A ) Insure that 2 jam nuts (22) and upper plunger rod disk (20) are on actuator shaft (17) before installing actuator. Plunger rod disk (20) rounded corners need to be pointing down to face valve lever.
4. Install new actuator. Insure that upper plunger rod disk (20) is resting on valve lever and will not over travel valve lever and bind. Secure actuator with four socket head mounting screws (24).
5. Install lower plunger rod disk (23) with rounded corners pointing up to face valve lever and install flex lock nut (21) on actuator shaft (17).
6. Adjust lower plunger rod disk (23) with flex lock nut (21) to touch valve lever when lever is in down position.
7. Adjust upper plunger rod disk (20) to just touching valve lever with lever in down position.
8. Adjust lower of jam nuts (22) to touch upper plunger rod disk (20). **DO NOT** tighten this jam nut against upper plunger rod disk(20).

### WARNING

ALWAYS USE THE PROPER WRENCH ON THE ACTUATOR SHAFT WRENCH FLATS WHEN HOLDING THE ACTUATOR SHAFT FROM TURNING. USING PLIERS OR CHANNEL LOCKS MAY CAUSE DAMAGE TO THE SHAFT AND THUS LIMIT THE ACTUATOR LIFE.

9. Apply 10 psig of air pressure to actuator and insure that plunger rod disks (22)(23) do not bind valve lever. If they do then loosen jam nuts (22) and adjust upper plunger rod disk (20) and tighten jam nuts (22) against each other again.
10. Refer to "START POINT ADJUSTMENT" section of this instruction.

### WARNING

DO NOT PLACE HANDS, FINGERS OR OBJECTS INTO VALVE PORTS OR LINKAGE DURING OPERATION CHECK

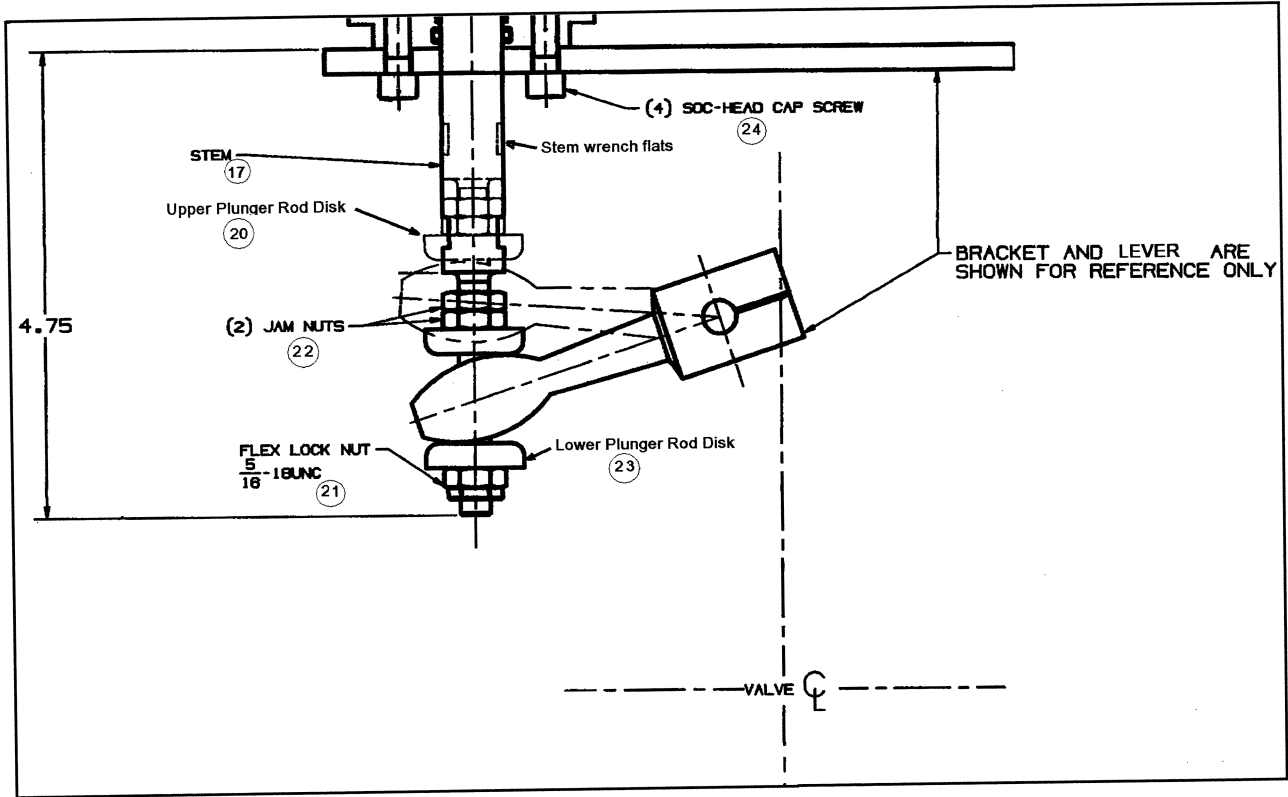
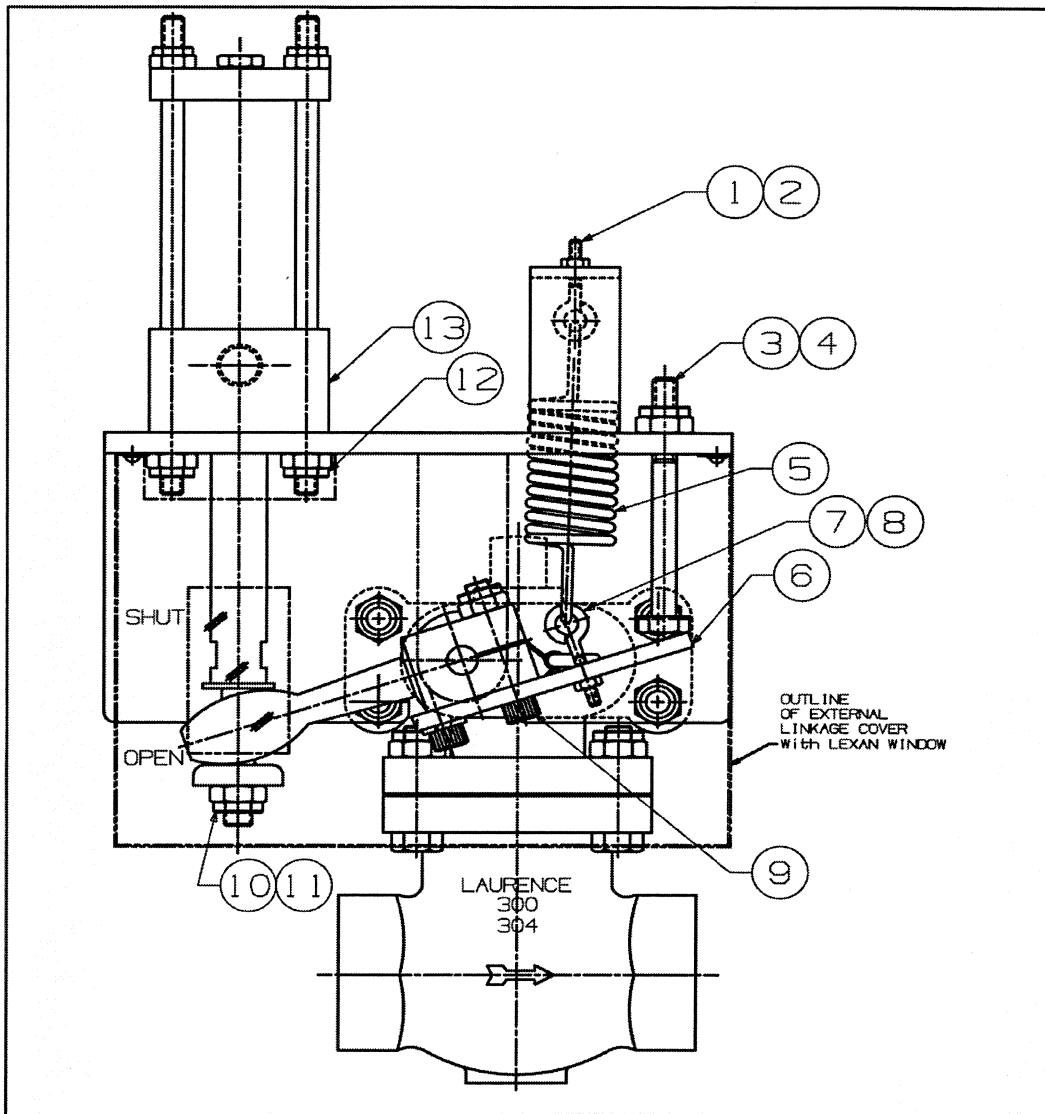


Figure 2A



**Figure 3**

*It is solely the responsibility of the system designer and the user to select products and materials suitable for their specific application requirements and to ensure proper installation, operation and maintenance of these products. Assistance shall be afforded with the selection of the materials based on the technical information supplied to Leslie Controls Inc.; however, the system designer and user retain final responsibility. The designer should consider applicable Codes, material compatibility, product ratings and application details in the selection and application. Improper selection, application or use of the products described herein can cause personal injury or property damage. If the designer or user intends to use the product for an application or use other than originally specified, he must reconfirm that the selection is suitable for the new operating conditions.*



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