



BU-3057
MAINTENANCE INSTRUCTIONS FOR ATO AND ATC AIR ACTUATORS

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1.0 REFERENCE

- 1.1 Applicable valve actuator assembly drawing.

2.0 PURPOSE

- 2.1 To establish maintenance instructions when replacing "o" rings in valve actuators.

3.0 SCOPE

- 3.1 These maintenance instructions are to be used for all ATC and ATO actuators.

4.0 INSTRUCTIONS

- 4.1 AIR-TO-OPEN ACTUATOR DISASSEMBLY.
 - 4.1.1 Place valve assembly in a vise equipped with "soft jaws" and tighten vise.
 - 4.1.2 Loosen jam nut (item 15) and back out hex socket cap screw (item 14) to relieve spring.
 - 4.1.3 Loosen and remove the hex socket set screws that hold the valve body and bottom plate together.
 - 4.1.4 Loosen and back off the hex jam nut from the stem coupling.
 - 4.1.5 Rotate actuator and bottom plate subassembly until coupling is disengaged from the upper stem.
 - 4.1.6 Remove valve subassembly from vise.
 - 4.1.7 Place valve actuator and bottom plate subassembly in vise equipped with "soft jaws" and tighten vise.
 - 4.1.8 Place appropriate spanner wrench on air actuator bonnet (item 2), turn counterclockwise to loosen.
 - 4.1.9 Rotate counterclockwise until bonnet (item 2) is disengaged from the housing (item 1).
 - 4.1.10 Remove bearing washer (item 6) and spring (item 8) from actuator subassembly.



- 4.1.11 Remove piston (item 3) and rod (item 4) subassembly from actuator subassembly. Using a packing puller, pierce "o" ring (item 9) and pull through the bottom of housing (item 1).
- 4.1.12 Remove "o" ring (item 11) from piston (item 3) and "o" ring (item 10) from housing (item 1).
- 4.1.13 Check all "o" ring grooves and sealing surfaces for damage.

4.2 AIR-TO-OPEN ACTUATOR ASSEMBLY

General Note: Lightly grease all replacement "o" rings before reassembling actuator.

- 4.2.1 Insert "o" ring (item 9) through the bottom of housing (item 1).
- 4.2.2 Place "o" ring (item 11) into piston (item 3) "o" ring groove.
- 4.2.3 Carefully align piston (item 3) and rod (item 4) subassembly with housing (item 1) before pressing into place.
- 4.2.4 After piston and rod subassembly is in place, place spring (item 8) and bearing (item 6) on piston (item 3).
- 4.2.5 Place "o" ring (item 10) into housing (item 1) "o" ring groove.
- 4.2.6 Carefully align bonnet (item 2) threads with housing (item 1) threads. Rotate clockwise and engage threads. Turn bonnet until finger tight.
- 4.2.7 Place appropriate spanner wrench on air actuator bonnet (item 2) turn clockwise until bonnet bottoms out on the housing (item 1) and then tighten.
- 4.2.8 Insert hex socket cap screw (item 14) with hex jam nut (item 15) attached into the bonnet (item 2). Engage threads and rotate hex socket set screw (item 14) until it bottoms out against the bearing washer (item 6).
- 4.2.9 Install an air line to "air-to-open" actuator and then pressurize.
- 4.2.10 Carefully align the upper stem of the valve assembly with the coupling attached to the hex socket set screw (item 13) on the air actuator and screw valve subassembly into place.



- 4.2.11 Install the hex socket set screws that hold the bottom plate and valve body together. Tighten screws as required.
- 4.2.12 Tighten locknut against the coupling attached to air actuator and then release air pressure.

NOTE: Valve is now in the closed position. Connect test line to inlet port of valve and pressurize. If valve leaks advance hex socket cap screw (item 14) until leak stops. Tighten the hex jam nut (item 15). Valve and actuator assembly is now ready for use.

4.3 AIR-TO-CLOSE ACTUATOR DISASSEMBLY

- 4.3.1 Place valve assembly in a vise equipped with "soft jaws" and tighten vise.
- 4.3.2 Loosen and remove the hex socket set screws that hold the valve body and bottom plate together.
- 4.3.3 Loosen and back off the hex jam nut from the stem coupling.
- 4.3.4 Rotate actuator and bottom plate subassembly until coupling is disengaged from the upper stem.
- 4.3.5 Remove valve subassembly from vise.
- 4.3.6 Place valve actuator and bottom plate subassembly in vise equipped with "soft jaws" and tighten vise.
- 4.3.7 Place appropriate spanner wrench on air actuator cover (item 2) and turn counterclockwise to loosen.
- 4.3.8 Rotate counterclockwise until cover (item 2) is disengaged from the housing (item 1).
- 4.3.9 Remove piston (item 3) and rod (item 4) subassembly from actuator subassembly. Using a packing puller pierce "o" ring (item 7) and pull through the bottom of the housing (item 1).
- 4.3.10 Remove "o" ring (item 8) from piston (item 3) and the "o" ring (item 9) from the housing (item 1).
- 4.3.11 Check all "o" ring grooves and sealing surfaces for damage.



4.4 AIR-TO-CLOSE ACTUATOR ASSEMBLY.

NOTE: Lightly grease all replacement "o" rings before reassembling actuator.

- 4.4.1 Insert "o" ring (item 7) through the bottom of housing (item 1).
- 4.4.2 Place "o" ring (item 8) on the piston (item 3) and "o" ring (item 9) into the groove of the housing (item 1).
- 4.4.3 Place spring (item 6) in housing (item 1).
- 4.4.4 Carefully align piston (item 3) and rod (item 4) subassembly with housing (item 1) before pressing into place.
- 4.4.5 Carefully align cover (item 2) threads with housing (item 1) threads. Rotate clockwise and engage threads. Turn cover until finger tight.
- 4.4.6 Place appropriate spanner wrench on air actuator cover (item 2), turn clockwise until cover bottoms out on the housing (item 1) and then tighten.
- 4.4.7 Carefully align the upper stem of the valve assembly with the coupling attached to the hex socket set screw (item 11) on the air actuator and screw valve subassembly into place.
- 4.4.8 Install the hex socket set screws that hold the bottom plate and valve body together. Tighten screws as required.
- 4.4.9 Tighten locknut against coupling attached to air actuator.
- 4.4.10 Install air line to "air-to-close" actuator and then pressurize.

NOTE: Valve is now in the closed position. Connect test line to inlet port of valve and pressurize. If valve leaks, increase actuator air pressure (125 psig max.) until leak stops. Release air pressure. Valve and actuator assembly is now ready for use.



RECORD OF REVISIONS

Error! Bookmark not defined.R EV NO	DESCRIPTION OF CHANGES	DATE	BY	APPR
0	Original document	6/16/97	RAC	
1	Para 4.1 and 4.2 read "Air-To-Close". Added new para 4.1.2. Renumbered paragraph. Revised para 4.1.11 and 4.3.9 for ease of removing "o" ring. Revised para 4.2.1 and 4.4.1 for ease of installing "o" ring. Para 4.3.10 - "piston" was "cover" Para 4.4.2 - "piston" was "cover"	6/23/97	DTG	