***BU-3176***

# *MAINTENANCE INSTRUCTIONS FOR B-1697*, B-1708*-ATO5 AIR-OPERATED NEEDLE VALVES*

TABLE OF CONTENTS


| SECTION | TITLE | PAGE NUMBER |
|---|---|---|
| 1.0 | Reference | 2 |
| 2.0 | Purpose | 2 |
| 3.0 | Scope | 2 |
| 4.0 | Instructions | 2-3 |
| 5.0 | Record of Revision | 4 |

1.0 REFERENCE

1.1 Assembly Drawings C-1341 and C-1488.

1.2 BU-3057 - Maintenance instructions for ATO* and ATC* air actuators.

2.0 PURPOSE

2.1 To establish maintenance instructions for B-1697*, B-1708*-ATO5 air operated needle valves.

3.0 SCOPE

3.1 This maintenance instruction (BU-3176) is to be used for all B-1697*, B-1708*-ATO5 valves.

4.0 INSTRUCTIONS

*CAUTION: Vent all pressure from system and actuator before removing valve for maintenance.*

4.1 Disassembly

4.1.1 Remove valve from system and place in a vise equipped with "soft jaws".

4.1.2 Loosen the hex nut securing actuator adjustment screw. Loosen adjustment screw to relieve spring pressure.

4.1.3 Connect a flexible air line to the ¼" NPT female connection in the actuator. Pressurize actuator with 75 to 80 psi air and maintain pressure throughout valve maintenance.

4.1.4 Loosen and remove hex socket cap screws (item 10) that hold the valve body (item 1) and bottom mounting plate (item 13) together.

4.1.5 Loosen hex jam nut (item 11) and rotate actuator and bottom plate subassembly counterclockwise until coupling (item 12) disengages from the upper stem (item 3).

4.1.6 Remove actuator and bottom plate subassembly from valve body (item 1). Refer to BU-3057 for instructions on the maintenance of the actuator assembly.

4.1.7 Place an appropriate open-ended wrench on the flats of the packing gland (item 9). Turn open-ended wrench counterclockwise until the gland is loosened. Pull packing gland with upper stem from body (item 1).

4.1 Disassembly (continued)

4.1.8 Remove hex nut (item 11) from upper stem. Lift packing gland from stem.

4.1.9 Drive out the stem assembly dowel pin (item 8) connecting the upper stem (item 3) to the lower stem (item 4).

4.1.10 Remove top packing washer (item 6), packing (item 7), and bottom washer (item 5) from lower stem (item 4).

4.1.11 Inspect all components for any visible signs of wear and discard worn items.

4.2 Assembly

4.2.1 The assembly technician shall, as a minimum, check all repair kit components for the cleanliness and damage such as nicks, dents or scratches.

4.2.2 The assembly technician shall lubricate selected components of the valve assembly with an approved lubricant as follows:

4.2.2.1 The lower stem (item 4) shank in the area of the packing.

4.2.2.2 The external threads of the packing gland (item 9).

4.2.3 Slip the bottom washer (item 5), 2 pcs. packing (item 7) and top packing washer (item 6) over shank of lower stem (item 4).

4.2.4 Engage the upper stem (item 3) with the shank of the lower stem (item 4). Align the "pre-drilled" holes and carefully press the dowel pin (item 8) into the pre-drilled holes to secure the upper and lower stem sections.

4.2.5 Place the packing gland (item 9) over the upper stem. Pull the threaded-end of the upper stem (item 3) up through the packing gland so that the stem is fully extended. Thread into body and tighten to approximately 55 lb-ft, +/- 10%. Thread hex nut (item 11) to shoulder on the upper stem.

4.2.6 Grasping the actuator and plate assembly, carefully align and engage the upper stem with the coupling (item 12). Rotate the actuator and bottom plate sub-assembly clockwise until the bottom plate (item 13) contacts the body.

4.2.7 Install and tighten the hex socket cap screws (item 10) that hold the bottom plate (item 13) to the body (item 1).

4.2 Assembly (continued)

4.2.8 Tighten the hex jam nut (item 11) against coupling (item 12).

4.2.9 Depressurize actuator assembly. Adjust jam nut at the top of the actuator to provide the approximate spring compression as shown on the valve assembly drawing or in the catalog.

*General Note: Butech Pressure Systems recommends that refurbished valves be pressure tested before being returned to service.*

## RECORD OF REVISION

| **Error! Bookmark not defined.** REV NO | DESCRIPTION OF CHANGE | DATE | BY | APPR |
|---|---|---|---|---|
| 0 | Original document | 5/21/02 | DTG | DTG |
| 1 | Updated format for electronic file. | 2/16/04 | RWF | DTG |