

Top Drive Lower Well Control Valve Installation

Discussion

The Lower Well Control Valve (LWCV) actuators (AY10782 and AY12221) must be installed correctly in order to work properly and safely. The actuator components (guards, anti-rotation bracket, etc.) should never be modified as this could result in improper installation and possible interference with the elevator link assembly. Follow the instructions carefully to ensure correct installation.

Install the LWCV Actuator



Caution!

Before connecting the LWCV to the quill, ensure that the actuator is oriented such that the cylinder fittings (for the hoses) face away from the BUW.

1. Place the actuator in the correct orientation for installation. The hose fittings facing away from the BUW and the tube assembly toward the BUW. See Figure 1 on page 2.



Note:

Notice that most of the illustrations are in pairs, illustrating “correct” and “incorrect” ways of performing a step.

2. Torque the LWCV onto the quill to torque values recommended in the top drive product manual Section 1 and install tool-joint clamps (clamps not shown in illustrations).

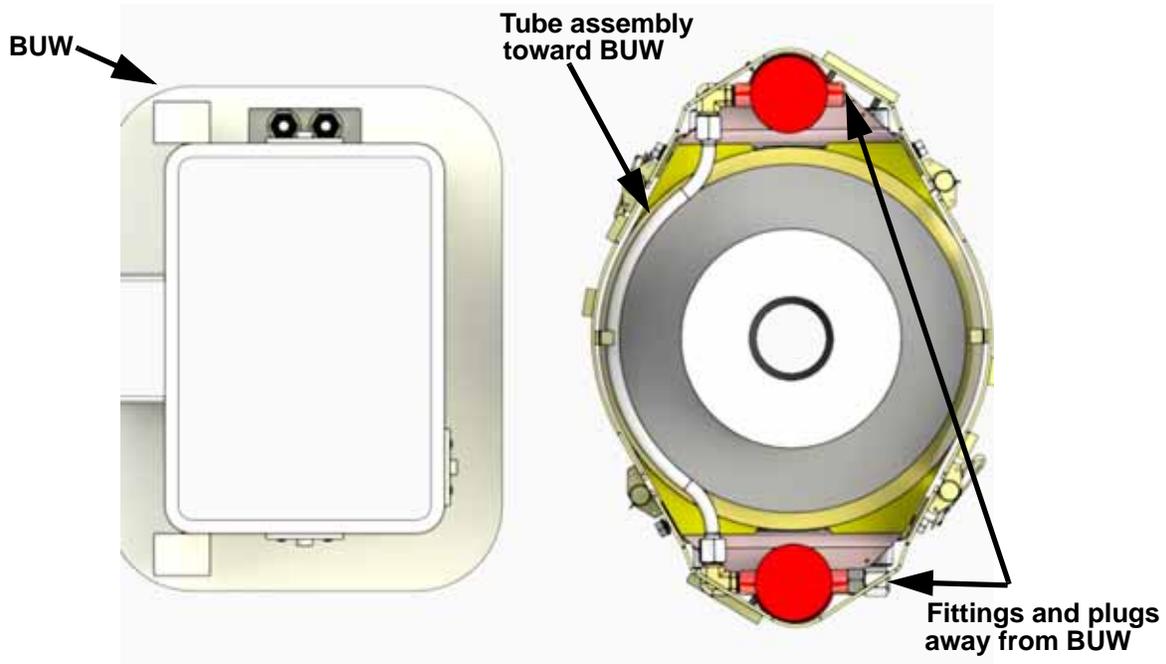


Figure 1: Top view, correct orientation.

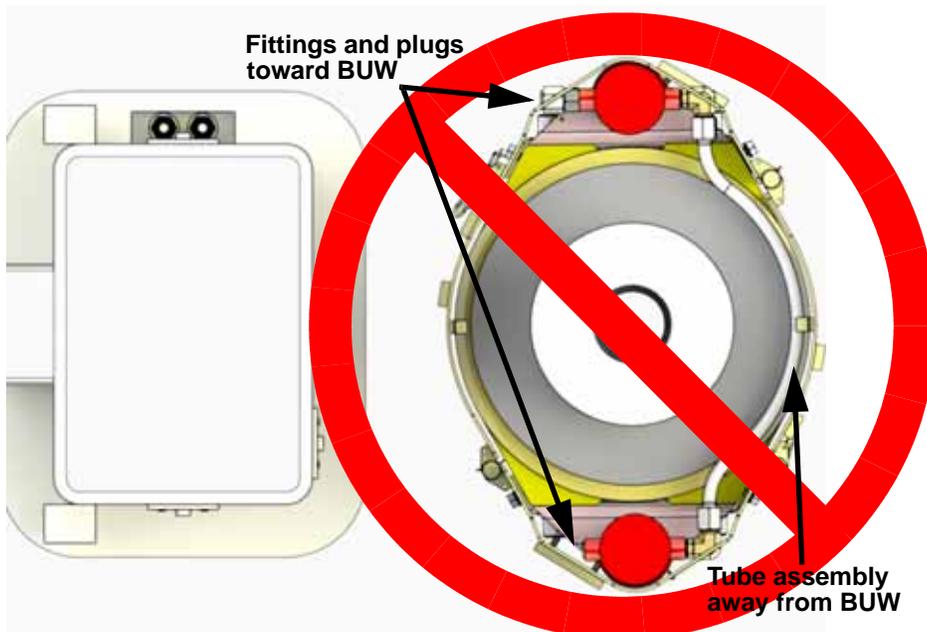


Figure 2: Top view, **INCORRECT** orientation of LWCV.

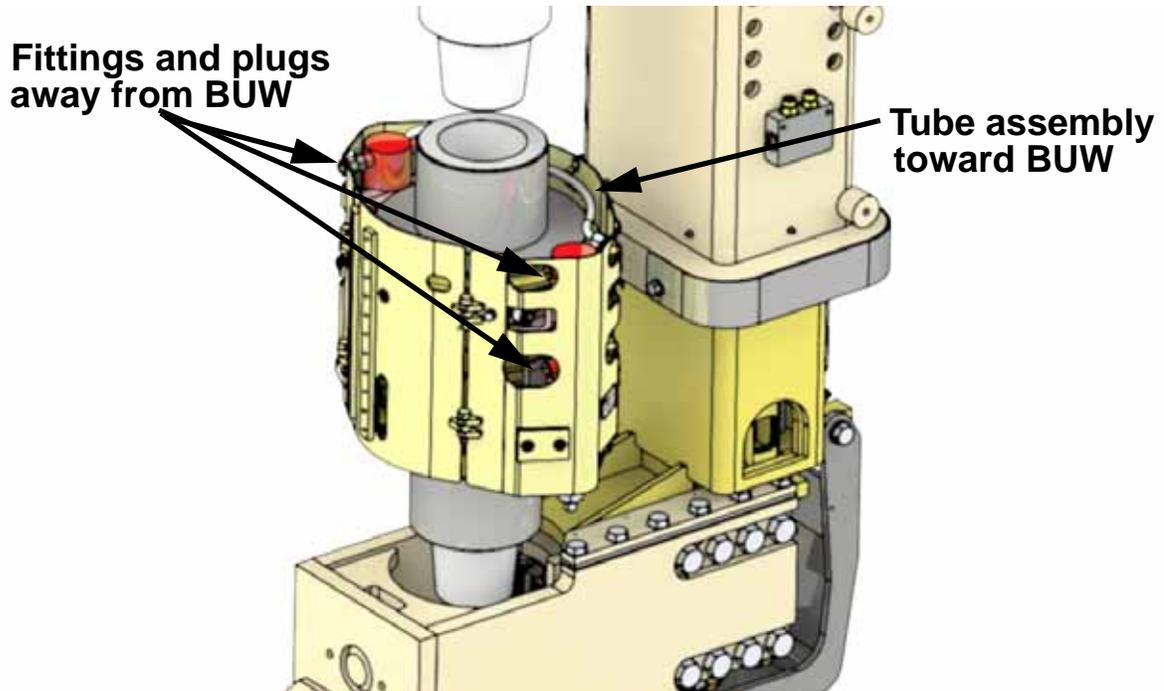


Figure 3: Angled view, correct orientation of LWCV.

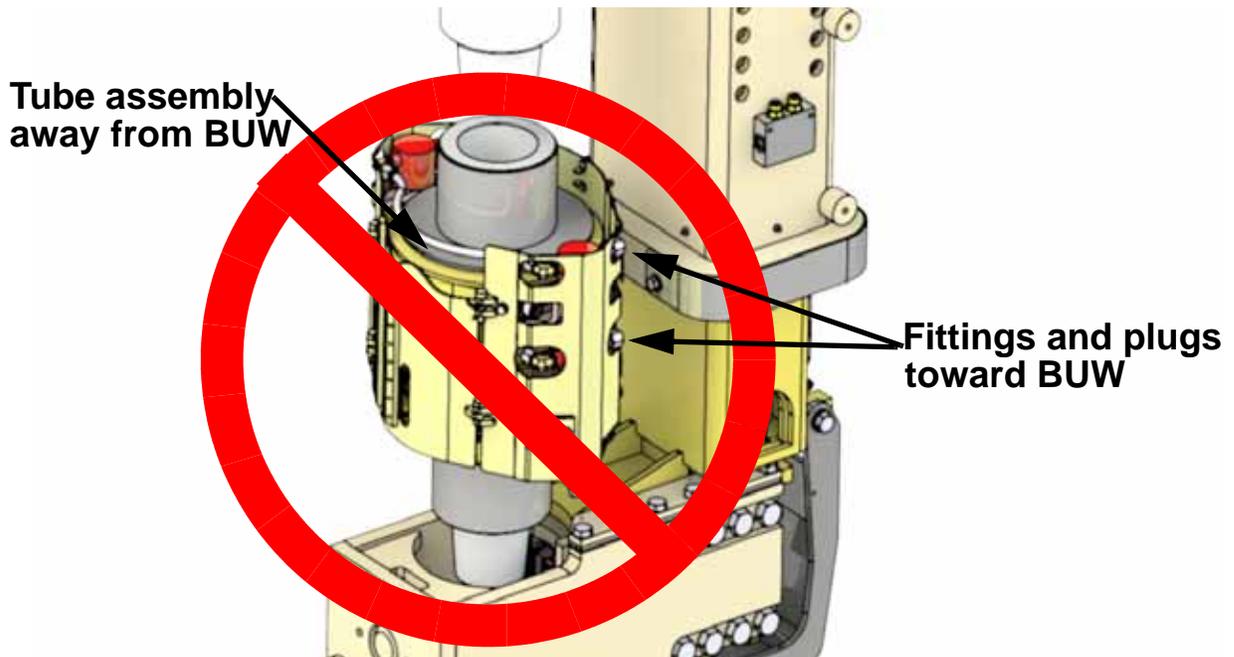


Figure 4: Angled view, **INCORRECT** orientation of LWCV.

3. Rotate the actuator so that the hose fittings are away from the BUW and the cylinder plugs are closer to the BUW. See Figure 5.

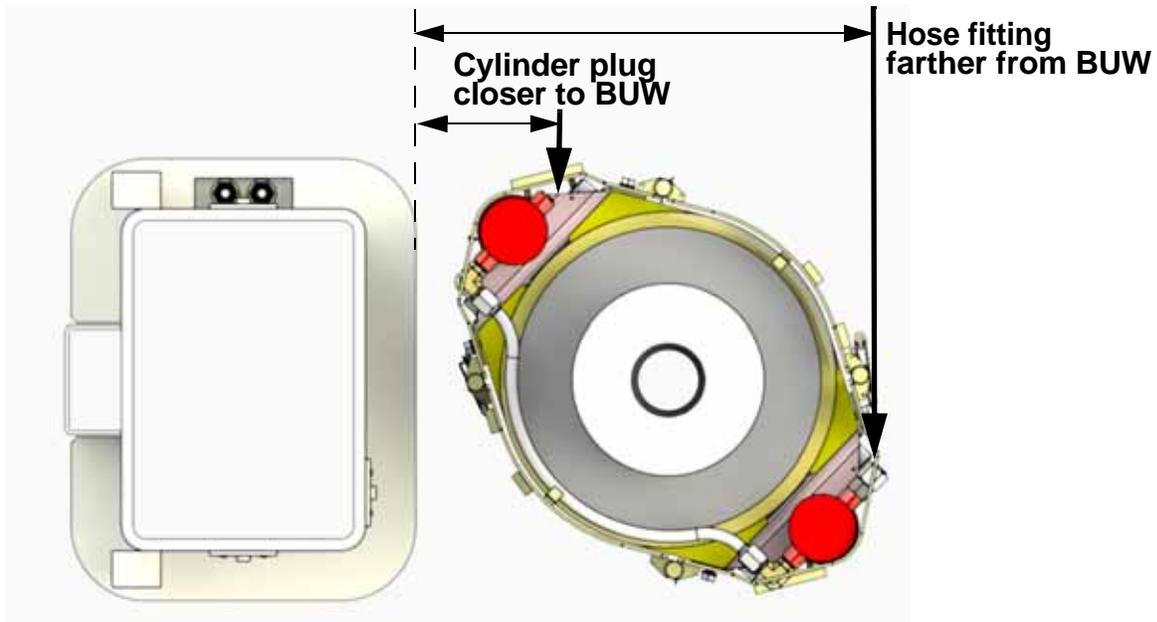


Figure 5: Top view, correct LWCV rotation.

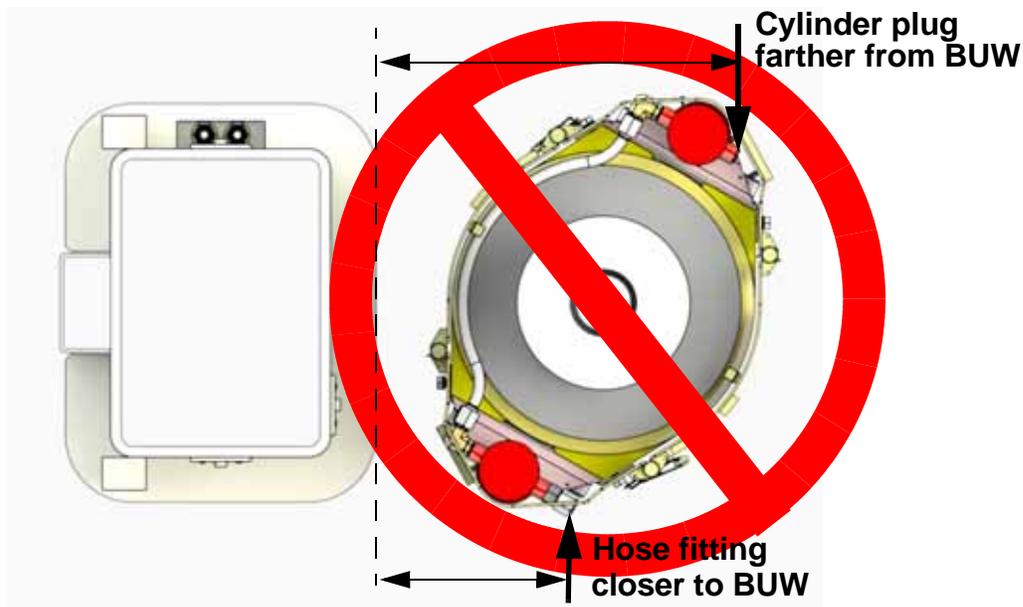


Figure 6: Top view, **INCORRECT** LWCV rotation.

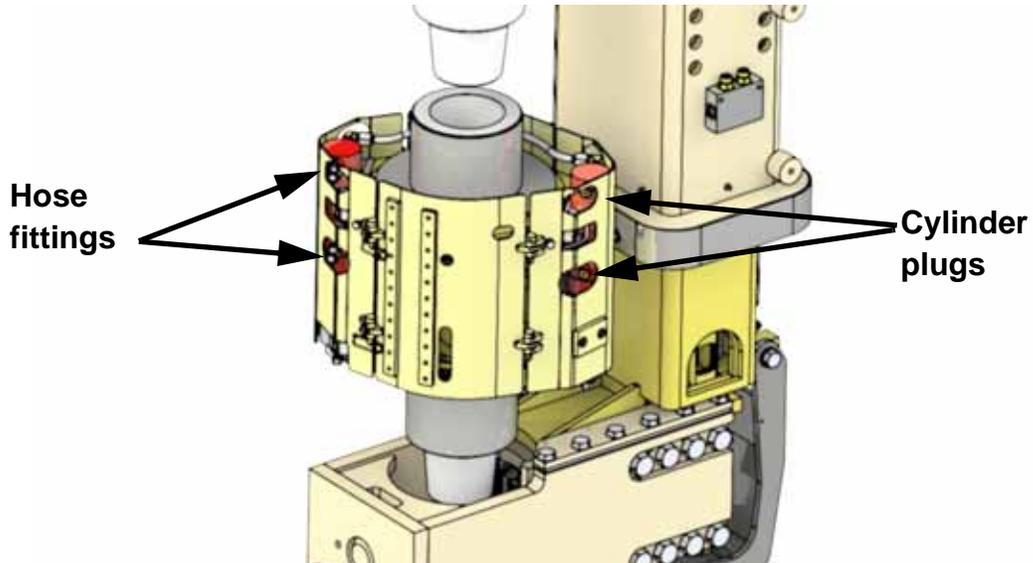


Figure 7: Angled view, correct LWCV rotation.

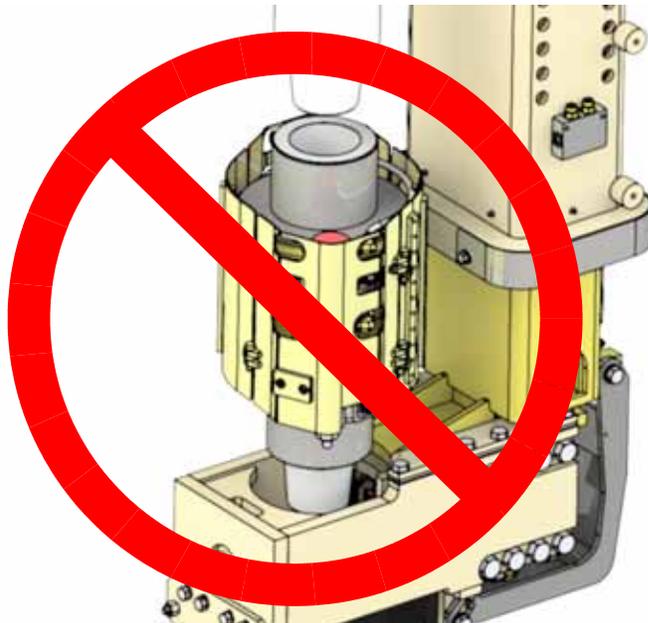


Figure 8: Angled view, **INCORRECT** LWCV rotation.

Install the LWCV Anti-rotation Bracket



Caution!

The anti-rotation bracket should have 1/8" clearance from the BUW tube. Follow this procedure carefully to achieve the correct spacing and thread contact of the fasteners.

1. Select the correct number of shims (DT17025) to achieve 1/8" spacing between the bracket and the BUW. See Figure 9 on page 7 and Figure 10 on page 8.
2. Use Table 1, below, to select the correct fasteners based on the number of shims used (max. 3 shims recommended). Include the thickness of the Nord-Lock SP washers (required) when determining the quantity of shims and the fastener length.

Table 1: Fastener Selection

Shim (DT17025) Qty.	Corresponding Fastener
0	Socket Head Capscrew, 3/8-16 UNC X 0.75, Wired
1	Socket Head Capscrew, 3/8-16 UNC X 0.88, Wired
2	Socket Head Capscrew, 3/8-16 UNC X 1.00, Wired
3	Socket Head Capscrew, 3/8-16 UNC X 1.125, Wired



Caution!

Check the stack-up of the shims and bracket to verify that the fasteners do not bottom out in the tapped hole. This could result in inadequate clamping force on the bracket and failure of the fasteners.

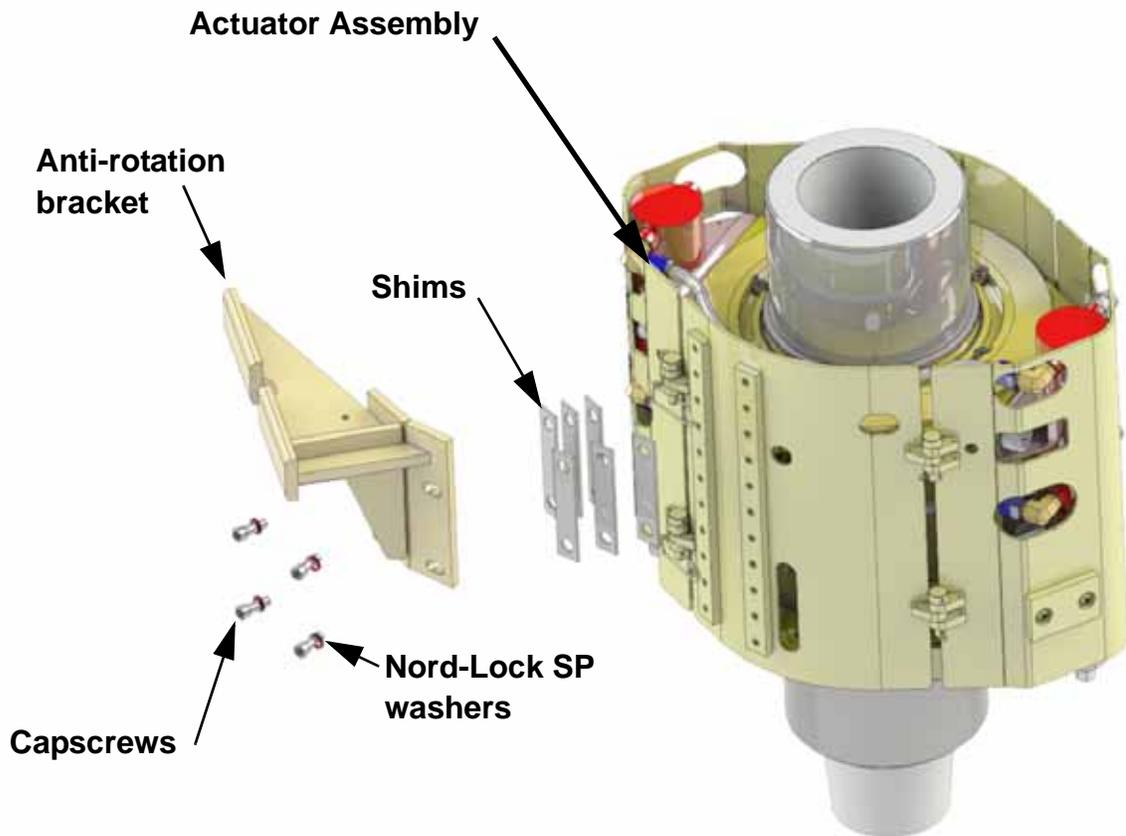


Figure 9: Anti-rotation installation.



Caution!

When properly installed, the actuator will be angled relative to the BUW and the hose fittings will be located at the farthest end away from the BUW.

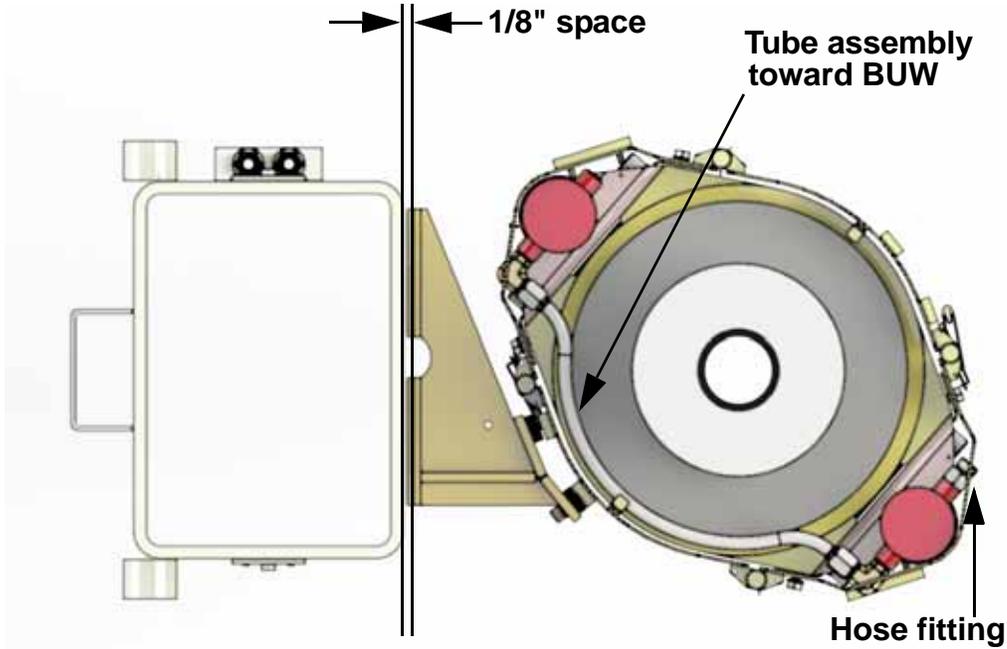


Figure 10: Top view, correct anti-rotation bracket installation.

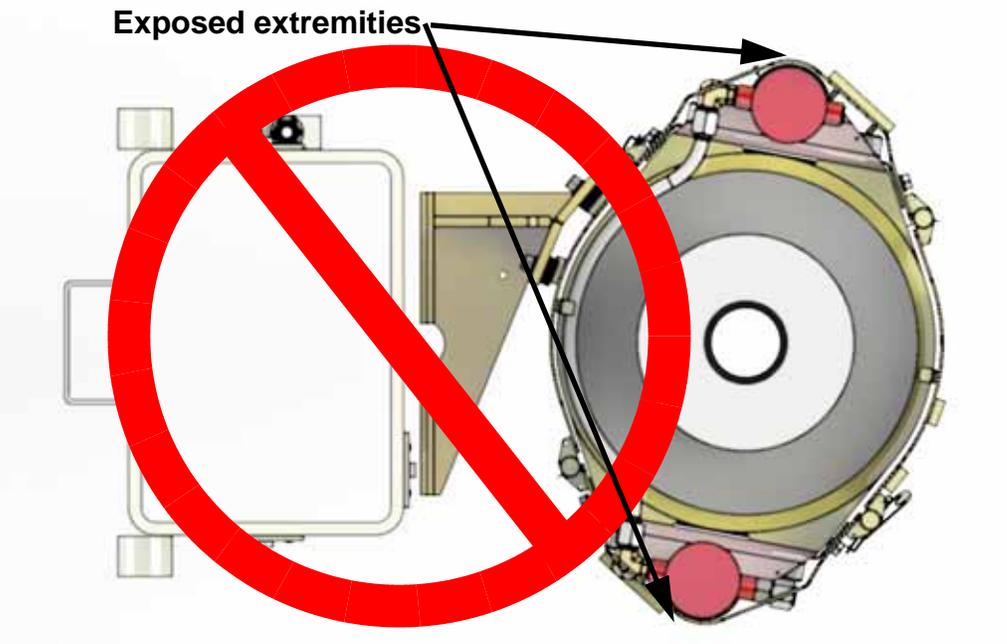


Figure 11: Top view, **INCORRECT** anti-rotation bracket installation.

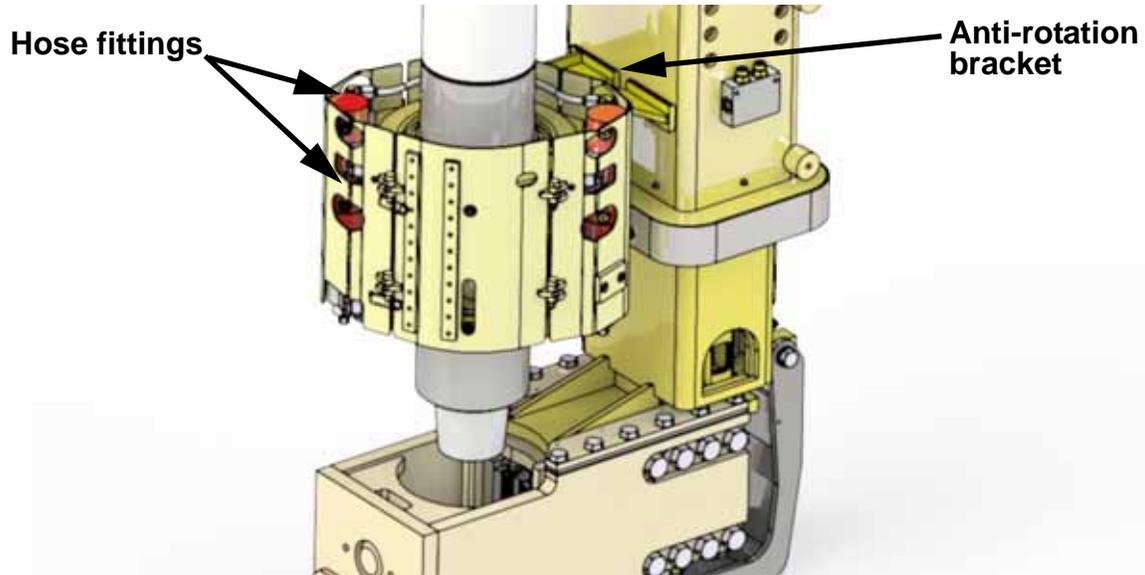


Figure 12: Angled view, correct installation of anti-rotation bracket.

Hose Assembly Installation

3. Install the hose assemblies from the actuator to the manifold on the BUW.
 - a. Connect the top cylinder port (hose fitting) on the LWCV to manifold port C1.
 - b. Connect the bottom cylinder port (hose fitting) on the LWCV to manifold port C2.

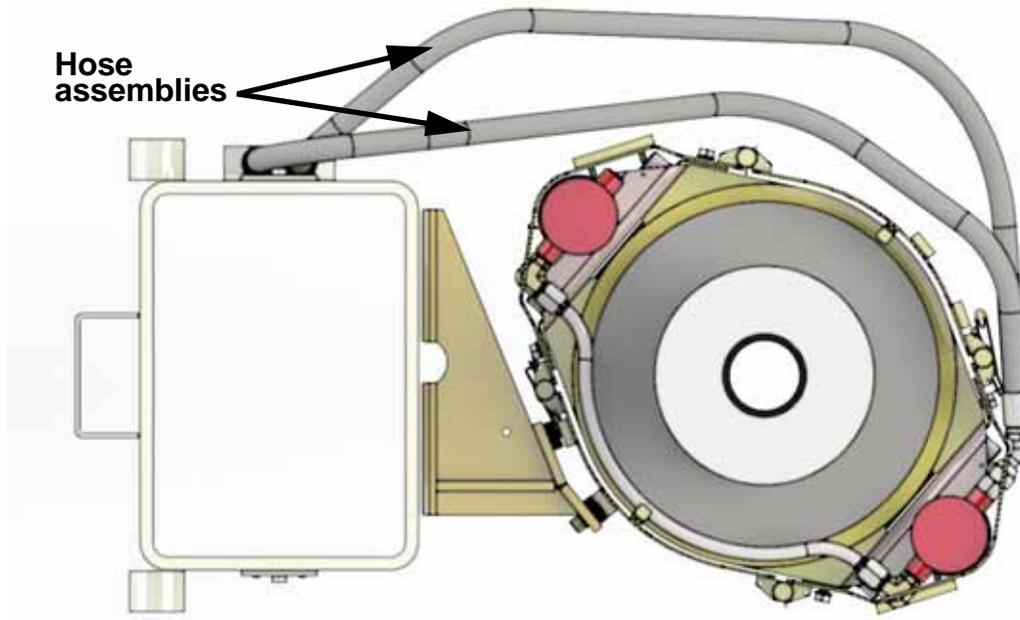


Figure 13: Top view, correct installation of hose assemblies.

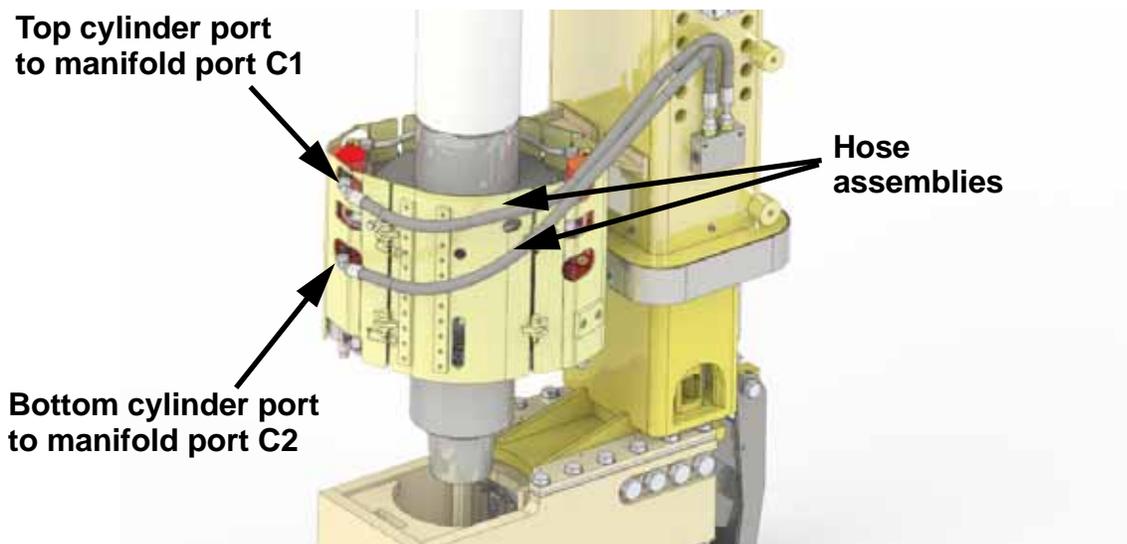


Figure 14: Angled view, correct hose assembly installation.

Secondary Retention

1. Refer to Figure 15 for illustration of secondary retention wiring.
2. Route 1/8" diameter wire rope through the 1/4" hole in the anti-rotation bracket and through the cutouts in the in the guard. (Ensure that the wire rope is clear from contact with any LWCV components other than the guard.)
3. Remove excessive slack and secure the wire rope with a 1/8" ferrule.
4. Route 1/16" wire rope through the 1/4" hole in the anti-rotation bracket and through the socket-head cap screws.
5. Remove all slack to ensure a tight loop and secure with 1/16" ferrule.

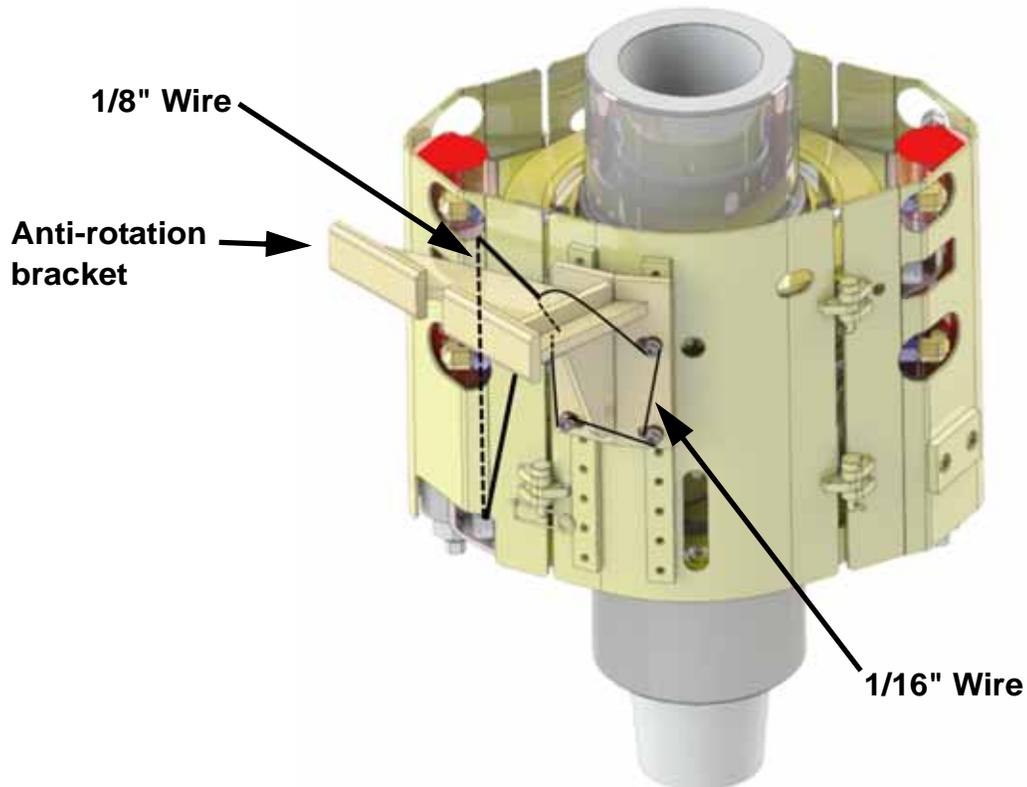


Figure 15: Secondary retention.

LWCV Actuator Guard Assembly



Warning!

Do not modify the guard assembly or any of its components.

If the guard or panels needs to be removed, make note of the following to ensure proper re-installation:

- The mounting pads for the anti-rotation bracket must be positioned on the left side of the panel.
- There is a slotted cutout in the panel which should be on the bottom of the actuator.

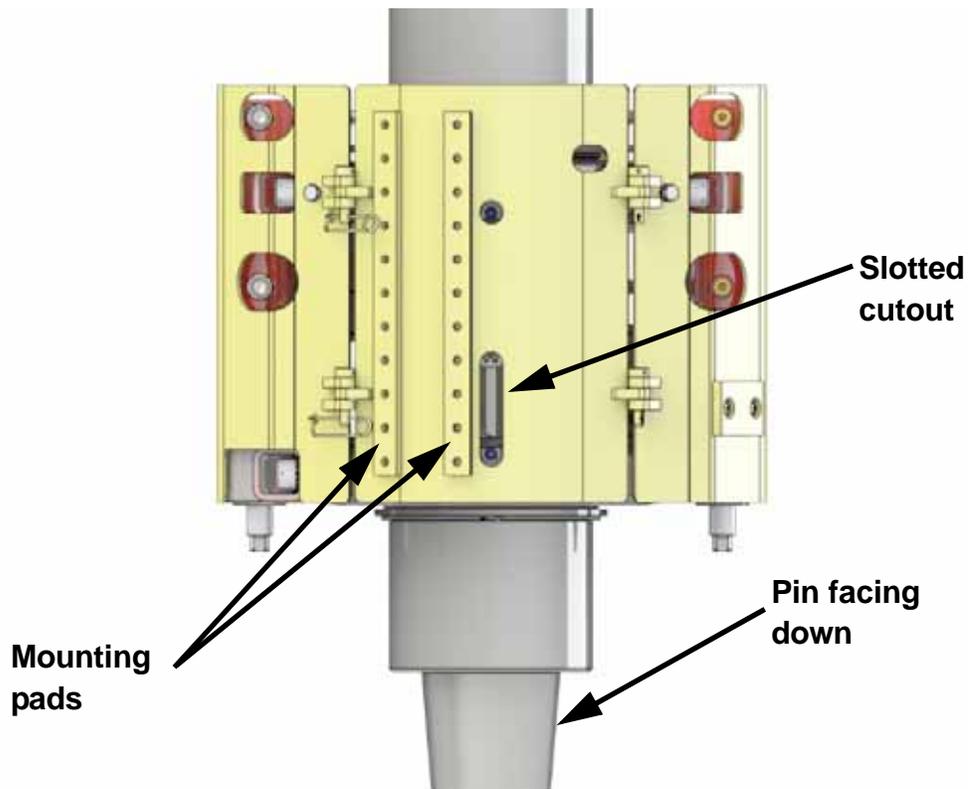


Figure 16: Straight-on view, correct guard panel orientation.

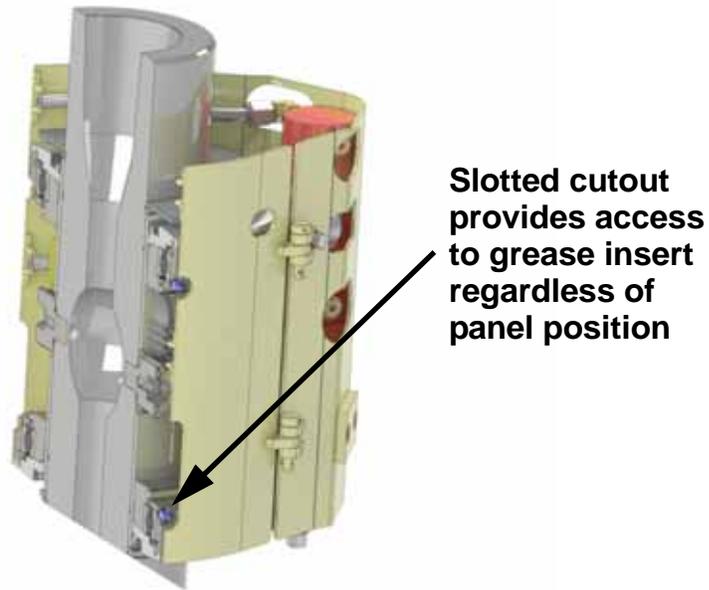


Figure 17: Section view, LWCV actuator assembly (correct guard panel orientation).

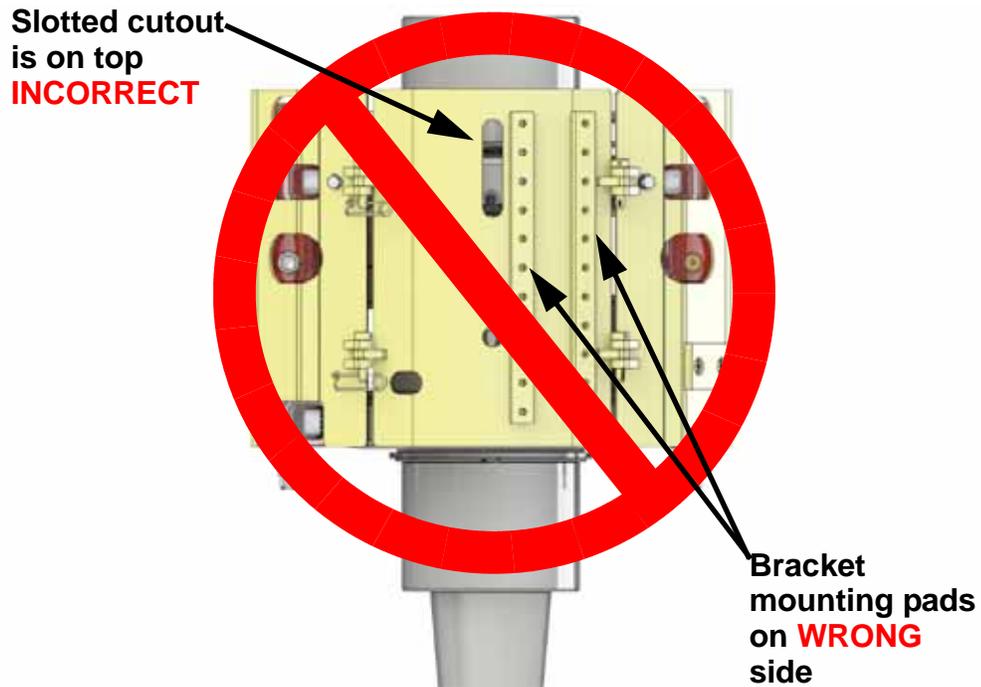


Figure 18: Straight-on view, **INCORRECT** guard panel orientation.



Model: 275T, 350T, 500T, 750T	Jul. 7, 2015
Serial #: All	

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