Note: This procedure is intended for panel mount of AP/AZ/AK/3657/4657 Series valves.
Note: Recommended panel hole diameter: 0.78 inch (19.8 mm).

A. Required Tools and Equipment

- 1/8 inch hex bit and 20 in·lbf (2.3 Nm) torque wrench. Optionally a 1/8 inch hex key may be used if an appropriate torque wrench cannot be obtained.
- 5/64 inch hex bit and 20 in·lbf (2.3 Nm) torque wrench. Optionally a 5/64 inch hex key may be used if an appropriate torque wrench cannot be obtained.
- 1 inch wrench (open end or adjustable).

B. Knob Removal (Refer to Figure 1)

1. Remove the valve from the double plastic bag.
3. Carefully peel off the model number label which covers two set screws (#4) on the side of the indicator plate (#2). To preserve the label for later re-use, temporarily apply it to the plastic bag valve was packaged in.
3. Close the valve by turning the knob (#1) fully clockwise. The valve is completely closed when the roller on the side of the indicator plate (#2) slides into the vertical slot on the bottom of the knob. At the same time word "CLOSED" becomes fully visible through the knob window.
   Note: Remember the orientation of the knob in the "closed" position so that it may be re-oriented in the same position during re-assembly.
4. Use a 1/8 inch hex key to unscrew the shoulder screw (#3). Remove the lock stem (#6) together with the shoulder screw from the valve.
5. Remove the spring (#5) from the valve.
6. Lift up the knob (#1) to remove it from the valve.
7. Use a 5/64 inch hex key to loosen the two set screws (#4) a couple of turns.
8. Lift up the indicator plate (#2) to remove it from the valve.

C. Panel Mount (Refer to Figure 1)

1. Remove the panel mount nut (#8) from the unit.
2. Place the valve through the panel hole, position the valve as desired, connect the valve into piping system and replace the panel mount nut onto the unit.
3. Using a 1inch wrench, tighten the panel mount nut firmly against the panel.

D. Knob Replacement (Refer to Figure 1)

1. Place the knob (#1) on top of the indicator plate (#2) so that the vertical slot on the bottom of the knob fits onto the roller on the side of the indicator plate.
   Note: the word "CLOSED" should be visible through the knob window.
2. Holding both parts just above the stem (#7), orient the knob window to the desired "closed" location and then slide the knob down to engage the spline connection with the stem. Verify again that the roller is inside the vertical slot and "CLOSED" reads through the knob window.
3. Holding the indicator plate down, tighten the two set screws (#4) to 20 in·lbf (2.3 Nm) using a 5/64 inch hex bit. Place the spring (#5) inside the knob center hole, and then put

the lock stem (#6) on the top of the spring.

4. Secure the knob with the shoulder screw (#3), tightening it to 20 in·lbf (2.3 Nm) using a 1/8 inch hex bit.

E. Labeling

1. Re-apply the model number label around the indicator plate (#2).

F. Valve Testing

1. Open and close the valve several times to verify the actuator operates correctly. The valve actuator should have no excessive friction. Leave the valve in the closed position.
2. Connect the valve inlet to 60-100 psig (4.1 - 6.9 bar) pressure nitrogen source line. Pressurize the valve inlet. Verify there is no audible leakage across-the-seat. Open the valve and verify there is no flow restriction in the valve. Close the valve.
3. Perform a helium leak test to verify that the valve does not leak across-the-seat. Leak test procedures depend greatly on equipment and operator preference. Refer to SEMI F1 for typical leak testing protocols. If it is not possible to perform a helium leak test, then a pressure decay test could be performed using inert gas.

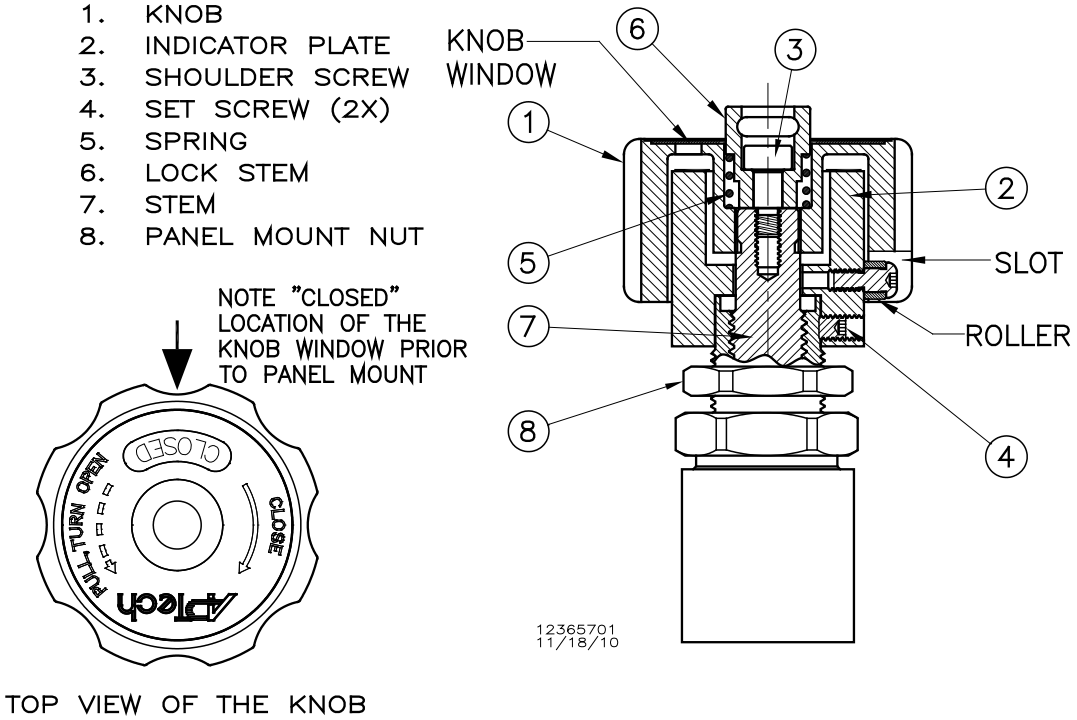

Figure 1. AP3657 Valve Assembly Diagram.

Revised By: Roman Sheykhet Engineering Approval By:	Date: 04.04.18	EAR # 6658