TECH TUESDAY

Tip of the Week

Sherwood Valve Bonnet Assembly Replacement - LP Gas Cylinder Valves

BONNET REPLACEMENT PROCEDURES

Step 1 - Bonnet Removal

1. Remove all traces of LP gas from the cylinder using the procedures specified in NFPA Pamphlet #58 and NPGA Installation and Service Guide Book #4003. Secure the cylinder with the chain wrench or cylinder vise so it cannot be moved.
2. Use the screwdriver (or #25 Torx driver) to remove the handwheel screw and handwheel. Use the socket and wrench to remove the bonnet assembly (left hand thread) by turning it clockwise. Destroy the old bonnet assembly so it cannot be reused.

Tools Required

- ☐ Chain wrench or cylinder vise
- ☐ Medium slotted screwdriver (or #25 Torx® screwdriver)
- ☐ Hex socket, 7⁄8”
- ☐ Torque wrench, 50 to 60 foot-pounds
- ☐ Commercial leak-test solution*

  * Must be approved for use on brass and with LP gas

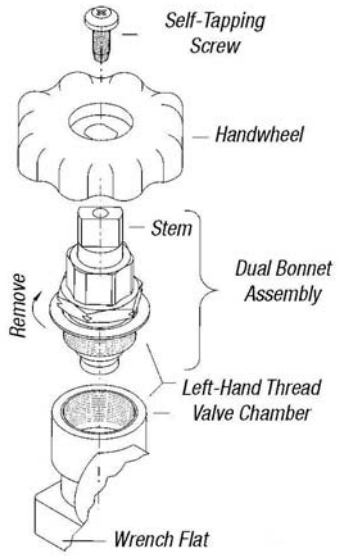

Figure 1

Step 2 - Inspection

1. A damaged shut-off seat may not allow a positive seal. Use a light to inspect the valve shut-off seat located at the bottom of the bonnet-connection opening. The outer rim of the seat is about 3⁄8” in diameter. If the seat is nicked, scratched, or distorted, replace the entire valve. Destroy the old valve so it cannot be reused.
2. Inspect all threaded connections. Replace the entire valve if threaded connection is damaged or worn. Destroy the old valve so it cannot be reused. 3. Inspect the safety-relief device. If the openings are clogged with foreign matter or if it shows any sign of tampering, replace the entire valve. Destroy the old valve so it cannot be reused. Never attempt to repair or clean a safety-relief device.

Step 3 - Re-Assembly

1. Before installing the bonnet assembly into the valve body, make sure the stem is turned fully counterclockwise at the top of the bonnet, as shown in Figure 1.

The stem threads will be exposed as shown. This prevents the valve seat from damaging the nylon stem seat as the bonnet is tightened.

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BONNET REPLACEMENT PROCEDURES (cont.)

2. Screw the new bonnet assembly (left-hand thread) counterclockwise into the valve body. Use the socket and torque wrench to tighten the bonnet between 50 and 60 foot-pounds. Thread sealant is not necessary since the bonnet seat provides a metal-to-metal seal.
3. Re-install the handwheel and handwheel screw onto the bonnet. The screw is self tapping and the new stem is not threaded. Tighten the screw until it bottoms and the handwheel is tight.

Step 4 - Testing

1. Turn the handwheel through its full range to verify easy operation. If there is any binding or grinding, replace the entire valve. Destroy the old valve so it cannot be reused.
2. Pressurize the cylinder with LP gas at 50 to 150 psig. Plug the outlet. Open the valve halfway and thoroughly check the bonnet nut, stem, and cylinder-to-valve connections for leaks using a mild ammonia-free soap-and-water solution or commercial leak-test solution.
3. If no leak was found, proceed to #4. If a leak was found, evacuate the cylinder according to NFPA Pamphlet #58 and NPGA Installation And Service Guide Book #4003. Remove and destroy the entire valve so it cannot be reused. Install a new valve.
4. Turn the handwheel clockwise until the bonnet just bottoms on the seat. Tighten the handwheel approximately one tenth of a turn further. Carefully remove the outlet plug. Thoroughly check the outlet for leaks using a leak-test solution. If a leak is found, evacuate the cylinder according to NFPA Pamphlet #58 and NPGA Installation and Service Guide Book #4003. Remove and destroy the entire valve so it cannot be reused. Install a new valve.
5. If no leaks were found, blow the outlet dry with clean, dry compressed air. The cylinder can now be filled according to NPGA Bulletin #129 or #130.

Safety Instructions
• Use an accurate torque wrench to tighten bonnet assembly
• Always destroy a damaged or worn valve and parts so they cannot be re-used
• Never Repair or clean a safety relief device

Notice: All Sherwood products must be used in strict compliance with the requirements and provisions of National Fire Protection Association Pamphlets #54 and #58, DOT, ANSI, and all applicable federal, state, provincial, and local standards, codes, regulations, and laws. It is the responsibility of the sellers, installation and maintenance personnel, and end users to remain knowledgeable of and in compliance with all standards, codes, regulations, and laws.

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