

Procedure No.: SP-007

Date: March 4, 2015

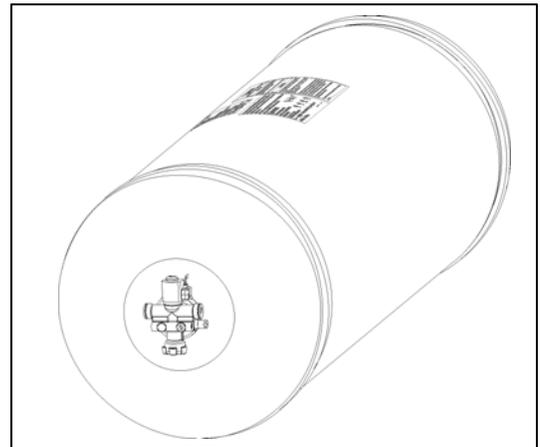
Subject: CNG Cylinder Venting

Models: All Quantum Type 4 CNG Cylinders

Background

Some customers may need to vent a Quantum fuel cylinder for any number of reasons. This generic procedure is intended to provide sufficient information to safely vent any Quantum CNG cylinder equipped with any valve approved for use in a Quantum cylinder.

Approximate labor time required for procedure will depend on cylinder volume and pressure.



Parts Information

None

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Cylinder Vent Procedure

The following procedure if used, to drain the fuel from any Quantum CNG fuel cylinder, will not cause damage to the cylinder or any valve installed in a Quantum cylinder.

Important:

This procedure recommends the use of a 0.042" (1.07mm) orifice; this orifice size should protect any valve installed in the cylinder from being damaged by the venting process.

Venting the Quantum cylinder with an orifice larger than 0.042" (1.07mm) is not recommended and may result in permanent damage to your Quantum cylinder.

WARNING

Failure to use an orifice in the venting system may subject the valve and cylinder to extremely low temperatures during venting resulting in severe damage to (or failure of) these components. Use an orifice specified by the valve or cylinder manufacturer when venting. Failure to follow this instruction may result in serious injury or death.

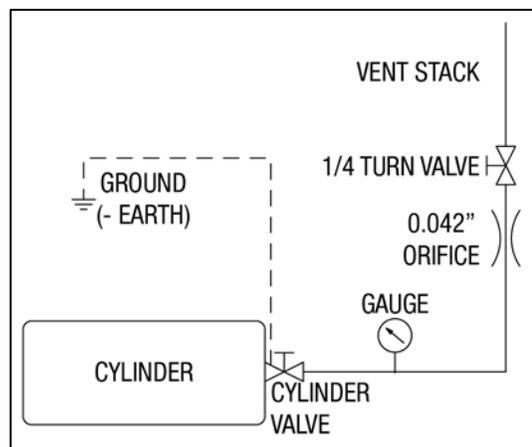
WARNING

During the venting process static may build up in the cylinder or vent system, if this static creates a spark the fuel may be ignited. The cylinder and vent system must be properly grounded to an earth ground. Failure to follow this instruction may result in serious injury or death.

The graphic to the right shows the typical cylinder venting components and the recommended configuration.

The venting operation should be performed by qualified personnel and in a manner that meets all federal, state and local regulatory requirements. The main considerations for safe venting are listed below:

- The transfer or venting of gas from a cylinder must be done in a manner that complies with all applicable codes and regulations concerning the transfer of fuel or release of gas to atmosphere.
- Must be performed outdoors in an open area.
- Must be a minimum of 100 feet away from a source of ignition.
- Must use a venting system that meets the valve or cylinder manufacturer's specifications for the vent rate. In the absence of another specification Quantum recommends the use of a 0.042" orifice in the vent system.



⚠ WARNING

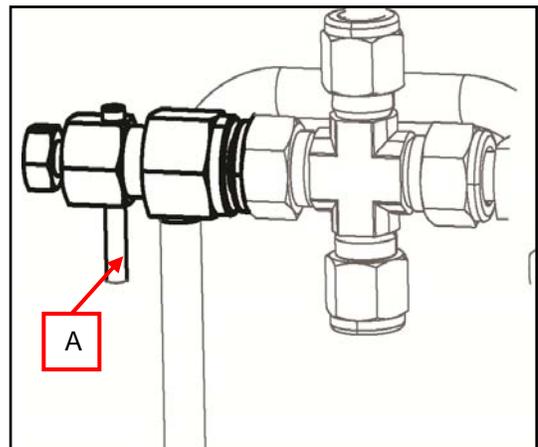
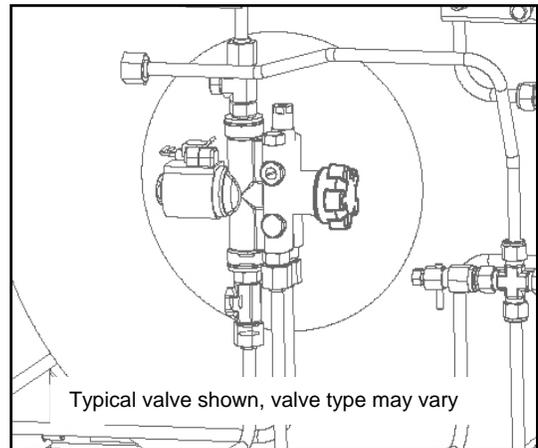
Natural gas is highly flammable. In order to reduce the risk of fire and personal injury, keep sparks, flames, and smoking materials away from the vehicle while you perform any Compressed Natural Gas (CNG) fuel system service. Failure to follow this instruction may result serious injury or death.

1. Verify the vehicle ignition is OFF.
2. Close the CNG cylinder manual shut off valve.

⚠ WARNING

The Compressed Natural Gas (CNG) system operates at pressures up to 3,600 psi (24820 kPa). Relieve the CNG fuel system pressure before servicing CNG fuel system components. Failure to follow this instruction may result serious injury or death.

3. Connect a hose to the system vent valve drain port (A) (if equipped).
4. Verify the CNG fuel system ¼ turn manual valve(s) are in the open position.
5. Relieve the pressure from the CNG fuel system by opening the system vent valve (if equipped) or by loosening a fitting on the high pressure side of the CNG fuel system.
6. Close the vent valve bleed screw.
Torque 50 lb. in. ±10 lb. in (57 dNm ±11 dNm).
7. Connect a vent line capable of withstanding cylinder pressure to the CNG cylinder valve outlet port.



The cylinder vent line must include a manual valve. It is strongly recommended that the vent line also includes a 0.042" (1.07mm) orifice and gauge between the orifice and the CNG cylinder.

8. Connect the vent line to a facility approved venting system or vent stack.

⚠ WARNING

During the venting process static may build up in the cylinder or vent system, if this static creates a spark the fuel may be ignited. The cylinder and vent system must be properly grounded to an earth ground. Failure to follow this instruction may result serious injury or death.

9. Clamp an earth ground to the vent line or cylinder valve to prevent static build up from occurring.
10. Verify the manual valve in the vent line is in the closed position

11. Activate the automatic cylinder valve or slowly open the manual cylinder valve to pressurize the vent line.
12. Check the vent system connections for leaks.
13. Slowly open the manual valve in the vent line until fuel begins to flow. If the cylinder valve is equipped with an excess flow device it may be activated, simply close the manual valve and wait for the excess flow device to reset and repeat step 10.
14. The CNG fuel cylinder is completely vented when all of the following conditions have been met:
 - Gas flow is no longer audible from the vent stack.
 - The gauge on the vent hose reads 0 (zero) pressure.
 - The temperature of the cylinder and valve assembly is high enough to ensure that there is no ice present in the cylinder, cylinder valve or vent system. If ambient temperature is lower than 7°C (45°F), warm the fuel cylinder and vent assembly by placing in a warm environment or spraying with warm water.

Contact Quantum Technologies Technical Assistance at 1-800-816-8691 if you require further assistance.