



CNG Field Service Bulletin

Venting (Defueling) and Re-Filling

Agility Fuel Solutions Cylinders

ENP-649

February 21, 2018

1. Introduction

This service bulletin is a supplement to the safe venting (defueling) guidelines in the Agility Fuel Solutions publication ENP-391, “Safely Working on CNG Fuel Systems.”

Always remember, anyone operating or servicing any CNG system must be properly trained. Operating and service personnel are responsible for ensuring the fuel cylinder is handled in a safe and responsible manner at all times.

Personnel must check and comply with all local, state and city fire codes before starting the defueling process.

Warning Messages Used in this Bulletin

WARNING

Personal injury or death may occur if procedures are not followed.

CAUTION

Damage to equipment, fuel system or vehicle is possible if instructions are not followed.

2. Tools and Materials Needed

Common CNG fuel system hand tools for repair and maintenance

3. Procedure: Defueling

WARNING

Sources of ignition (e.g., fire, hot exhaust system components, arcing of electrical switches, static electricity) may result in fire or explosion of the natural gas and may result in serious injury.

1. Before defueling a system, it is always good practice to minimize pressure by driving the vehicle to near-empty, rather than venting to atmosphere. Defueling back into a fuel station is a good alternative, if the station is equipped to do so.
2. Chock the vehicle wheels to prevent movement.
3. Ground the vehicle to prevent static discharge and sparks.
4. The defueling hose must be rated and approved for high pressure natural gas.
5. There are no flow restrictions during venting (defueling) an Agility cylinder that affects its performance or suitability for service.

6. Rapid venting of natural gas normally causes a significant temperature reduction inside natural gas vehicle fuel cylinders. Internal temperatures lower than -100°F (-73°C) have been measured.
7. CNG should be vented slowly to avoid freezing plumbing components which will decrease flow.
8. The residual gas in the container after initial venting expands as the cylinder warms to its surrounding temperature. This causes a buildup of pressure if the cylinder is not allowed to vent throughout the defuel process.
 - a. Keep the manual cylinder valve (or solenoid valve) open during this warming stage to ensure the cylinder is defueled as completely as possible.
 - b. Since the liner in the Agility Type 4 cylinder can get very cold during the defuel process, it is important to wait 4 hours after venting before re-pressurizing the cylinder to prevent liner damage.
9. Do not allow a vacuum to form in the cylinder at any time. If a vacuum occurs, the cylinder should be opened to atmosphere and conditioned at a temperature above 60°F (16°C) for 8 hours before being pressurized.

4. Refueling Defueled or New Cylinders

There are no fill flow restrictions for Agility cylinders when:

1. The ambient temperature is greater than 10°F (-12°C), or
2. The cylinder is in natural gas vehicle service with a residual pressure greater than 100 psi (649 kPa / 7 bar), or
3. The cylinder has been conditioned, see below.

5. Cold Cylinders: A Special Condition

CAUTION

Agility fuel cylinders are not approved for exposure to liquid methane. Liquid methane can form when filling from a cold, high pressure cascade into an empty cylinder.

Agility fuel cylinders at less than 100 psi (649 kPa / 7 bar) and at an ambient temperature of 10°F (-12°C) or less are called “cold cylinders.”

This condition could occur after maintenance work is performed on the fuel system, or during the installation of new cylinders in cold climates.

To correct this condition, partially fill the cylinder, wait for a few minutes, and then re-fuel normally as follows:

1. Fill to 450 psi \pm 50 psi (3103 kPa \pm 345 kPa, 31 bar \pm 3 bar) directly from a compressor (not from a cascade or compressor-less transfer station).
2. Wait 1 hour.
3. Re-fuel normally.

6. Other Useful Information

Safely Working on CNG Fuel Systems, ENP-391

Pony Tank Operation Manual, ENP-005

Pony Pallet Operation Manual, ENP-372

Type 2 Pony Tank Operation Manual, ENP-249

Truck and Tractor CNG Fuel System Operation Manual, ENP-007

Service Facility Fuel Handling Equipment, ENP-380

7. Warranty Information

Does not apply.

If you have any questions, contact Customer Care at +1 949 267 7745 or toll free at +1 855 500 2445 or e-mail: support@agilityfs.com

Parts can be ordered via e-mail: parts@agilityfs.com

Proprietary Statement

The information provided within this document is proprietary and confidential. All prior versions, including updates and revisions forwarded separately, are proprietary. The information provided by Agility Fuel Solutions to its customers and clients is solely for the use of those customers and clients. No portion of this manual may be reproduced or distributed without express written consent of Agility Fuel Solutions. Agility Fuel Solutions reserves the right to utilize the intellectual property contained within this publication as content for any other publication produced by Agility Fuel Solutions.

Trademark Notice

Agility[®] and TUFFSHELL are registered trademarks of Agility Fuel Solutions. Drop-N-Go[™] is a trademark of Agility Fuel Solutions. Trademarks of other manufacturers are the property of their respective companies.

Agility Fuel Solutions

3335 Susan Street, Suite 100

Costa Mesa, CA 92626

www.agilityfuelsolutions.com