



**Type 2 CNG Pony Tank Operation Manual**  
**Agility Fuel Solutions 24403000**  
**ENP-249**  
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## Preface

The Pony Tank is a temporary fuel supply for moving natural gas vehicles a short distance or loading finished trucks on a transporter.

This manual is designed as a supporting document to mechanics and operators trained in the operation procedures and maintenance of the compressed gas fuel system provided by Agility.

No attempt should be made to fill, install, or maintain systems until this manual and all referenced supporting documentation have been read and fully understood.

## Trademark Notice

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## Warning Statements Used in this Manual

### **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.

### **NOTICE**

Best practices or hints to help an operation or procedure go smoothly.

## CAUTION

**Pony Tanks are not approved for use on public roads.**

## 1. Safety

In the interest of ensuring the safety of all personnel involved with compressed natural gas (CNG) fuel storage systems, this section outlines general guidelines that must be followed when operating and servicing equipment provided by Agility Fuel Solutions.

### 1.1. Qualified Personnel

CNG systems should be maintained and inspected exclusively by trained personnel in accordance with applicable codes. As with all pressure vessels, CNG storage and fuel delivery systems are inherently dangerous and should be treated as such. Individuals involved in any aspect of CNG fuel system maintenance, emergency response, servicing, or testing must be properly trained and certified. Individuals who are not trained and certified in all aspects concerning CNG fuel delivery systems are not permitted to service, maintain, test, or inspect a system in any way.

### 1.2. Safety Equipment

1. CNG safety signage should be visible at all applicable locations as stipulated by federal, state, and municipal law.
2. Natural gas rated fire extinguishers should be accessible and visible throughout all servicing and fueling areas. Be sure that fire extinguishers are charged, up to date, and rated correctly.
3. Areas designated for CNG fueling systems must have adequate lighting that complies with NFPA code.
4. Protective footwear and eyewear should be worn by all personnel in close proximity to a CNG system.
5. When locating the source of a leak only use certified leak detecting solutions and equipment such as Swagelok Snoop®. Any other product or solutions are unacceptable.
6. Only use tools that are in good working order with proper calibration.
7. Wear appropriate attire while servicing or maintaining any CNG system.

### 1.3. General Safety Precautions

1. Follow all maintenance procedures in order; do not skip steps unless there is explicit permission to do so.
2. Never use an open flame as a source of illumination in proximity to a CNG system.
3. Any process or procedure that generates sparks, flames, or heated particles should not be practiced in areas designated for CNG.
4. If a CNG system does require a process or procedure that generates sparks, flames, or significant heat, conduct the procedure in an isolated area and make sure that the CNG system has been completely purged with an inert gas.

5. CNG fuel delivery systems are to be serviced in designated areas that comply with all federal, state, and municipal laws and regulations.
6. CNG servicing and fueling areas must be well ventilated as stipulated by federal, state, and municipal law.
7. Perform all maintenance and service procedures in a dust free environment.
8. Never attempt to depressurize or vent a system by loosening a fitting.

## 1.4. CNG Precautions

The following safety precautions should be considered at all times when operating natural gas fuel systems and equipment:

1. A portable fire extinguisher must be installed on the vehicle in an easily accessible location.
2. Do not start the engine if a natural gas leak is detected!
3. Ensure that all systems are grounded before transferring CNG fuel from one vehicle to another. Transferring CNG may cause a buildup of static electricity which could discharge and ignite the fuel.
4. Never attempt to open system components that are under pressure.
5. System pressure must not exceed 3000 psi for public vehicles in Canada.
6. For all other vehicles the system pressure must not exceed 3600 psi (i.e. Private captive fleets).
7. Do not smoke or produce an open flame within 30 feet of a CNG vehicle or a CNG dispensing/filling station.
8. Always ground a vehicle prior to defueling.
9. If a CNG vehicle has been out of service for an extended period, turn cylinder valves to the "OFF/CLOSED" position and run the engine until it stalls. This will burn the residual fuel in the closed off lines.

## 1.5. Codes and Compliances

For complete and detailed information concerning CNG codes and regulations please refer to the following:

**USA:** NFPA 52

**Canada:** CAN/CGA B109

**North America:** ANSI/AGA NGV 3.1/CGA 12 and NGV 12.3-M95

## 1.6. First Responder Guide

**NOTICE**

Refer to the *Agility Fuel Solutions First Responder Guide, ENP-084* for CNG and LNG firefighter first responder information.

## 1.7. Emergency Response for Gas Leaks

### **CAUTION** **WARNING**

**CNG storage pressure is nominally 3600 psi or greater when full. DO NOT cut fuel supply plumbing.**

If the vehicle has sustained damage or a gas leak is detected:

1. Do not approach if any sources of ignition are present, including but not limited to: fire, sparks, electrostatic charges, lights, electronic devices.
2. Do not smoke. Do not use road flares.
3. If it is safe to do so, close the main shutoff valve and the cylinder valves. Check the fuel system near the damaged area for leaks, by smell, sight, and sound. CNG is odorized.
4. If the vehicle or system is indoors, open windows and doors to allow ventilation.
5. Avoid turning on any lights or electronics which may spark. Pay special attention to overhead sources of ignition; natural gas is lighter than air.
6. Beware that gas may continue to leak once ignition is turned off and manual shutoff valves are closed.

## 1.8. CNG Fire Procedures

In the event of a CNG fire it is imperative that the operator acts quickly and efficiently by observing to the following steps:

1. Always call 9-1-1 or emergency services first.
2. Evacuate the area.

### **CAUTION** **WARNING**

**If the Pony Tank is damaged or has been involved in an accident or fire, the system and cylinders must be inspected by a certified (CGA C-6.4) or other qualified CNG fuel system inspector.**

## 1.9. Welding and Hot Work Precautions



**Before performing any hot work procedure, make sure the fuel system is leak-free by performing a leak test with a suitable leak detection solution.**

For any welding in or near a CNG storage system, follow these safety recommendations:

1. Ensure the vehicle is parked in a well-ventilated area. Do not park the vehicle in an area where natural gas may accumulate.
2. If welding or hot work is performed more than six feet/two meters away from the CNG vehicle, it is not necessary to defuel the system. However, the fuel should be contained in the cylinders as follows:
  - a. Ensure that the vehicle is in a well-ventilated area – do not park the vehicle in an area where natural gas may accumulate.
  - b. Depressurize the system as described in Section 5.4.
3. Hot work closer than six feet/two meters from the CNG cylinders, they must be **de-fueled**.
  - a. Cover all CNG components, including the cylinders and fuel lines, with fireproof blankets or a metal shield. Isolation must prevent sparks and slag from hitting the cylinders.
4. A single spark or weld slag could compromise CNG components.
5. If the cylinder is hit by a spark or slag, the vehicle must be taken out of service and inspected.

## 2. System Specifications

Description	Specifications
Storage System:	
Dimensions:	
Length	970 mm (50.5 in.)
Width	269 mm (14 in.)
Height	432 mm (22.5 in.)
Service/Maintenance	Inspect as outlined by System Maintenance Section
Storage Cylinder:	
Cylinder	250 bar/3600 psi, 10.0 x 40.0
Dimensions:	
Length	1016 mm (40.0 in)
Diameter	254 mm (10.0)
Weight	34 Kg (74 lb)
Construction	
Liner	6061 seamless aluminum liner
Shell	Carbon fiber and epoxy reinforcing laminate
Designation	Type 2
Service Life	15 years from manufacturing inspection date
Internal Volume per cylinder	35 L (2,115 cubic in)
Service Pressure	250 bar (3,600 psig) at 21°C (70°F) maximum
CNG Capacity per cylinder	10.2 scm (361 scf)
Gasoline Equivalent per cylinder	10.98 Liters (2.9 US gal)
Diesel Equivalent per cylinder	9.84 Liters (2.6 US gal)
Service/Maintenance	Inspect compressed gas cylinders as outlined by manufacturer specifications

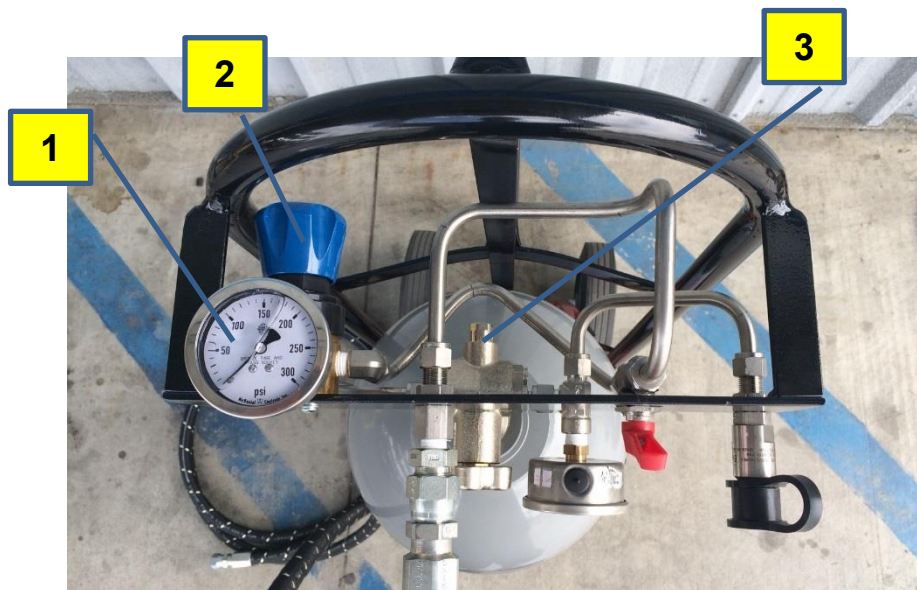


### 3. Pony Tank Components

The Pony Tank is engineered to meet applicable safety standards. Pony Tank components are shown in Figures 1 and 2.



*Figure 1. Major components, front view: (1) low pressure gauge, (2) ball valve, (3) fill receptacle and dust cap, (4) high pressure gauge, (5) manual valve, (6) CNG cylinder, (7) flex hose, 20-ft.*



*Figure 2. Major components, top view: (1) low pressure gauge, (2) CNG regulator, (3) pressure relief device (PRD).*

## 4. Bill of Materials

Item	Qty.	Part Number	Description
1	1	10300283	Gauge, 0-300 psi
2	1	10306840	2 way ball valve
3	1	10300121	Fill valve
3	1	10300134	Dust cap, rubber
4	1	10300284	Gauge, 0-6000 psi
5	1	10300102	Manual cylinder valve
6	1	10101002	Cylinder, 3600 psi, CNG
7	20 ft	10802019	Low pressure hose
8	1	10300099	CNG regulator
9	1	10300228	Pressure relief device (PRD)
--	1	10702084	Hand truck
--	1	10702057	Tank bracket, 10-in.
--	2	10802025	Isolator 2-in. (15.5-in. Each)

## 5. User Controls



*Figure 3. Pony Tank controls: (1) Low pressure gauge, (2) 2-way ball valve, (3) re-fuel receptacle, (4) high pressure gauge and (5) manual cylinder valve. Not shown: Regulator handle, located at the rear.*

The low pressure gauge indicates the regulated pressure going to the vehicle engine.

The 2-Way valve is either open or closed. The short end of the valve handle has an arrow which points to the flow direction. **Open** is when the arrow points toward the regulator, allowing fuel to flow from the regulator to the hose. **Closed** is when the handle is straight up and down, preventing fuel flow.

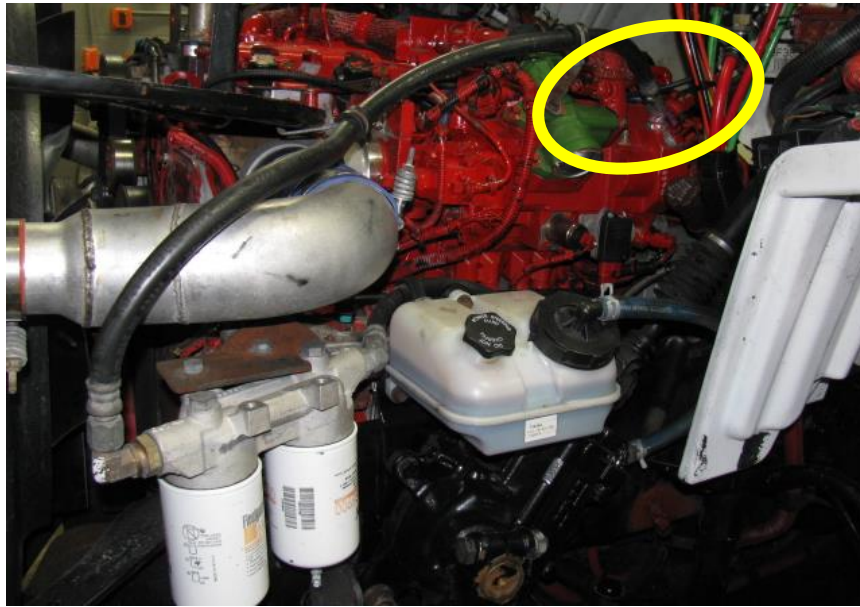
The CNG fill receptacle is where the system is refueled. After filling the cylinder, replace the dust cap to prevent contaminants from entering the fill receptacle.

The high pressure gauge indicates cylinder pressure when the cylinder valve is open.

The manual cylinder valve isolates the gas in the cylinder from all other plumbing.

## 6. Pony Tank Operation and Maintenance

1. Place the Pony Tank near the vehicle, making sure it is stable and the hose is not kinked or can be caught on the vehicle or other objects.
2. Open the cylinder valve.
3. Make sure the high pressure gauge indicates there is enough CNG in the Pony Tank.
  - a. Minimum Pony Tank pressure: 500 psi (refuel the Pony Tank).
  - b. Maximum Pony Tank pressure: 3600 psi.
4. Attach the hose and quick connect fitting to the engine fuel inlet, see Figure 4.
  - a. Route the hose safely so it does not get tangled in moving parts.



**Figure 4. Connect the hose to the engine low pressure fuel inlet. This is after the low pressure filters.**

5. Open the Pony Tank valve.
6. Observe the low pressure gauge. It should match the engine requirements, 125 psi (85 psi to 87 psi for Cummins Near Zero engines).
7. Start the engine, see below.
8. When the Pony Tank is no longer needed:
  - a. Close the cylinder valve.
  - b. Close the 2-way valve.
  - c. Disconnect the fuel hose from the engine.
  - d. Replace any parts removed from the vehicle engine (fuel hose from low pressure filter to the engine).
  - e. Loosely coil the hose on the Pony Tank frame.

## 6.1. Starting Vehicle

Starting a natural gas vehicle requires a delay between the battery power being turned on and starter motor activation.

1. Ensure system has been properly leak tested and no leaks exist.
2. Follow vehicle start up procedures provided by the vehicle manufacturer.
3. Turn vehicle ignition key to ON position for 60 seconds before starting engine.

## 7. Maintenance

### **⚠ CAUTION ⚠ WARNING**

- A. System components must not be under pressure during servicing to prevent serious injury or death.
- B. CNG components and fittings are designed to be used exclusively in CNG applications. Parts must be ordered through Agility Fuel Solutions or an approved Agility OEM dealer. Any other parts may be unsafe and will void the warranty. All replacement parts and components must receive approval prior to installation.

Item	Frequency
Leak Test with Methane Detector	Every month
Component Inspection	Every month
Cylinders	Inspect cylinders every 3 years or as required by cylinder manufacturer

## 8. Leak Testing

A methane detector or CNG compatible leak testing solution shall be used monthly to determine if leaks have occurred during operation. All joints should be inspected.

If a leak is detected, fuel lines or components have been replaced or an excessive amount of fuel is being consumed, perform a leak test on the CNG system plumbing and components.

## 9. Depressurizing System

1. Turn the manual cylinder shut off valve clockwise to the off position.
2. Turn the 2-way valve to the ON position.
3. Turn on vehicle and run engine until it stops. If running the engine is not possible, cycle the 2-way valve open and closed until the pressure gauges read zero.
4. Ensure vehicle is off and proper vehicle lock-out procedures are followed.
5. Check gauges on Fill Panel to ensure all pressure is relieved.

6. System is now fully de-pressurized up to the quick connect coupler, but there may be pressure remaining downstream. Be careful when loosening fittings as a small amount of gas may leak out. This is normal.

## 10. Re-Pressurizing System

1. Vehicle should be turned off and keys removed from the ignition.
2. Ensure leak test is performed if any parts were loosened or replaced.
3. Slowly turn the Cylinder Shut off Valve counter-clockwise to the ON position.
4. Slowly open the 2-way valve.

## 11. General Component Inspection

A visual inspection of components ensures that components are not damaged:

- Ensure that fuel supply tubes and flexible lines are in good condition.
- Ensure that no fuel leaks are present at any fittings or components.
- Visually inspect structural components for signs of wear, fatigue or cracks.
- Inspect fastened joints for loose fasteners.

## 12. Pressure Test

For routine maintenance, the entire fuel system can be leak tested with compressed natural gas using leak detection solution and/or a methane detector.

If any components are replaced or if the vehicle is involved in an accident, the natural gas in the system must be removed by running the engine until it stops. Once all natural gas is removed and components replaced or repaired, a pressure test with Nitrogen is required before re-filling with natural gas.

### 12.1. Pressure Test Using Inert Gas

Nitrogen testing is used to ensure a leak-free system before shipment of new Pony Tanks. Information is included here for reference.

1. Before starting the pressure test with Nitrogen, it is assumed that the system has been fully de-pressurized.
2. Once system is fully plumbed (assuming it is being installed) or fully repaired, ensure that the engine ignition is in the off position (use OEM lockout procedure), and the vehicle is 15 feet away from any open flame or source of ignition.
3. Turn the Cylinder Shut off Valves (one on each cylinder) clockwise to the off position.
4. Turn the "Manual Shut Off Valve" on the fill panel to the ON position.
5. Connect the pressure test equipment to the system fueling receptacle using a NGV1 fueling nozzle plumbed to a Nitrogen source with flex hose rated to the system service pressure of 3600 psi. Slowly fill the system with Nitrogen to a pressure of 100 psi. While filling the system listen for any signs of leaks. Stop if leaks are detected.
6. Perform the 100 psi leak test using leak detection solution or equivalent alternate method.

7. If a leak is detected, disconnect the Nitrogen fill line from the system fueling receptacle, de-pressurize the system pressure and repair problem and repeat from step #5 above.
8. If no leak is detected, slowly increase pressure to 1500 psi. Increase the pressure at no more than 500 psi per minute, until a system pressure of 1500 psi is reached. If a leak is detected in this time, disconnect the Nitrogen fill line from the system fueling receptacle, bleed the system pressure, repair the problem and repeat from step 5 above.
9. Perform the 1500 psi leak test using leak detection solution or equivalent alternate method.
10. Continue to increase the pressure 3625 psi. Increase the pressure at no more than 500 psi per minute.
11. Once the system is pressurized to 3625 psi disconnect the Nitrogen fill line from the system fueling receptacle.
12. Perform the 3625 psi leak test using Snoop soap solution, or equivalent alternate method.
13. After all Nitrogen leak tests have been performed, the pressure shall remain constant at 3625 psi for 10 minutes with no signs of a pressure drop. If the system pressure drops in this 10 minute time frame, start at step 5 above and repeat procedure.
14. At this point, the system has been properly pressure tested up to the primary solenoid lock off valve. To test the connections downstream of the solenoid valve, hook up a 12 volt battery to energize it. This will allow nitrogen to flow through the rest of the system and up to the secondary solenoid shut off valve supplied by the engine manufacturer. **DO NOT TURN THE ENGINE ON** to activate the primary solenoid lock off valve for this part of the test – make sure to use a 12 volt battery other than the one on the vehicle. Leak test using approved leak detection solution.
15. Once the 100 psi, 1500 psi and 3625 psi tests have been performed and approved, the Nitrogen can be vented to atmosphere using the bleed valve. Be careful not to bleed system pressure too fast as this could cause injury.

## **CAUTION**

**Ensure that all safety guidelines are followed prior to fueling the system with CNG.**