



QUICK CARD

CNG-Powered Vehicles

Automotive Repair Industry

Compressed Natural Gas (CNG) vehicles – also known as Natural Gas Vehicles (NGV) have become more readily available as manufacturers build new vehicles and existing gasoline-powered vehicles are converted to CNG. Employees and employers in the automotive repair industry need to understand the basic safety requirements before working on CNG vehicles.

CNG Basics

Technicians should be aware of the differences between gasoline-fueled and CNG vehicles:

- A CNG fuel tank is usually in the rear or trunk area of the vehicle, but on heavier vehicles the fuel tank may be in a sleep cabin, in the truck bed, on the roof or underneath bunks.
- The fuel tank typically holds three cylinders of natural gas, which is stored under pressure, usually 3,000-3,600 psi.
- CNG vehicles display a blue diamond CNG label on the vehicle's exterior front, rear bumper or tailgate. The gas storage cylinders are also labeled to identify the vehicle.

Inspection Requirements

The Federal Motor Vehicle Safety Standard (FMVSS 304) requires regular visual inspection of CNG cylinders for damage or deterioration:

- After a motor vehicle accident or fire, and
- Every 36 months or 36,000 miles, whichever comes first

If your shop does not have a qualified CNG inspector on staff, contact the CNG vehicle manufacturer, local gas utilities or container manufacturers that offer inspection services. Visible registration tags are required after each inspection, stating the date of the last inspection and when the next inspection is due.

Avoiding CNG Hazards

Like any gasoline-powered or alternative fuel vehicle, CNG vehicles present potential hazards to automotive repair technicians, including:

- Ignition sources (ignition temperature is twice as high as gasoline)
- Contact with fuel
- Asphyxiation (the gas is odorized so you can detect the smell of “rotten eggs” before asphyxiation occurs)
- High-pressure CNG line

To avoid these hazards, technicians must turn off the engine to stop CNG flow – especially before working on the vehicle. Most CNG vehicles have several ways of turning off the engine, so check the manufacturer’s specific directions.

CNG Safety Features

Automatic release valve - installed on newer CNG systems. Under excessive heat or pressure, the valve opens and releases the natural gas into the atmosphere, allowing the pressure in the gas storage cylinders to normalize. In the case of fire, the release valve allows natural gas to escape from the vehicle before it can ignite.

Manual shut-off valve - installed on new and older CNG vehicles. The valve is usually located under the vehicle, near the CNG tank to allow users to shut off the system for repairs. In some vehicles, the manual shut-off valve is identified by a red handle. Always check with the manufacturer for specific instructions and location of the valve.

For more information on this subject, refer to the CCAR-GreenLink® web site at www.ccar-greenlink.org.

References:

- OSHA Compressed Gases standard, 29 CFR 1910.101
- Department of Transportation Hazardous Materials Regulations (49 CFR parts 171-179 and 14 CFR part 103)
- Compressed Gas Association Pamphlets: C-6-2007, C-8-2005, P-1-2008, S-1.1-1963 and 1965 addenda, and S-1.2-2009
- National Fire Protection Association 52, Vehicular Gaseous Fuel Systems Code, 2010 Edition