



Technology Committee Bulletin

November 6, 2007

Safety Warning

Acid Exposure of Comdyne Vehicular CNG Cylinders

Recently a Comdyne CNG cylinder ruptured during fueling, killing the driver. The cylinder was located under the rear of a shuttle van which had been rear-ended by a sedan, under-riding the van bumper. The cylinder ruptured later when the vehicle was fueled following the collision repair. The critical damage to the cylinder was the result of battery acid splashed from the sedan onto the cylinder, but some impact damage cannot be ruled out.

The cylinder was manufactured by Comdyne. This cylinder design can rupture at normal operating pressures after exposure to a strong acid, such as battery acid. Comdyne cylinders continuously exposed to simulated battery acid in a laboratory ruptured after five to ten hours, depending on pressure.

Comdyne cylinders exposed to acid in a collision or other mishap should be depressurized as soon as possible to prevent rupture.

An emergency defueling procedure is provided in the *Natural Gas Vehicle Cylinder Care and Maintenance Handbook* (see www.cleanvehicle.org, click on "Safety Warning, Acid Exposure of Comdyne Vehicular CNG Cylinders," and scroll to the second page of the document).

The cylinders should then be removed from service, rendered unusable, and disposed of.

Safe methods for disposal of CNG cylinders are described in CGA C-6.4 available at http://www.cganet.com/publication_detail.asp?id=C-6.4.

Federal rules for new cylinders require the label "This container should be visually inspected after a motor vehicle accident or fire and at least every 36 months or 36,000 miles, whichever comes first, for damage and deterioration." This minimum safety inspection is not sufficient for a Comdyne CNG cylinder exposed to battery acid.

Acid damage does not necessarily leave detectable visible evidence until just before rupture. Without an effective method to detect acid damage, safety requires that any Comdyne cylinder exposed to acid be immediately emptied and destroyed.

Other brands of CNG cylinders may be damaged by battery acid but the Comdyne is addressed here because it has repeatedly demonstrated a short time to rupture after acid exposure. CVEF recommends that any CNG cylinder that has been exposed to battery acid be examined in accordance with either the vehicle or cylinder manufacturer's recommendations. The cylinder manufacturer's address and telephone number appear on the federally-required cylinder label.

If you cannot contact the manufacturer, contact Hank Seiff at hseiff@cleanvehicle.org (703) 534-6151. For more information on CNG cylinder inspection, see <http://www.cleanvehicle.org/technology/cylinder.shtml>.