



CNG Training

Fueling & Vehicle Maintenance

2021



Background

Redmark:

- ❖ #1 provider of advanced fuel vehicles & fueling station services in the Rocky Mountain Region
- ❖ 30 years of AFV fleet industry experience: upfits of thousands of vehicles for hundreds of fleets (regionally and nationally)

Overview:

- ❖ Background
- ❖ CNG Fueling Training
- ❖ Keeping Your Shop Safe

Redmark Offerings

Fleet Vehicle Services

Ford QVM & eQVM Vehicles | CNG/LPG Upfits | HEV/PHEV Upfits | Repair & Maintenance | CSA Tank & Vehicle Inspections

Fueling & Charging Station Services

CNG & LPG Station Services, Upgrades & New Builds | Electric Charging Systems | Modular/Mobile Fueling | Fuel for Work Partnership

Specialty Support

National Parts Supply | Roadside & Backup Fueling & Charging | Training | CNG Trailer Maintenance & Repair | Truck Accessories





CNG Fueling Training

- ❖ CNG fueling training is designed to assist drivers of natural gas vehicles to safely fuel at public access fueling stations
- ❖ Fueling connector types covered:
 - Sleeve type
 - Swivel type

CNG Fueling Process

Sleeve Type

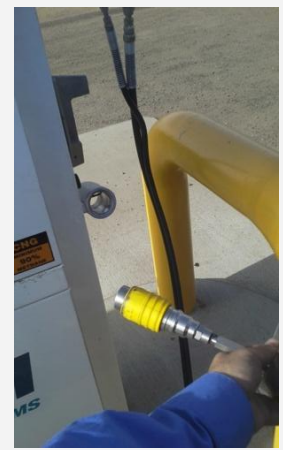
1. Open fuel door



2. Remove dust cap



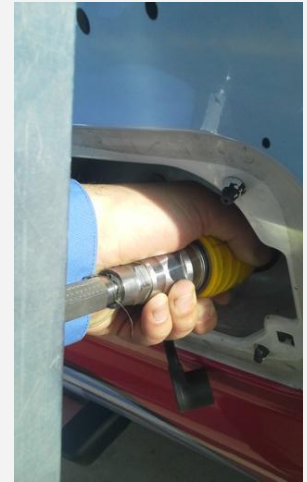
3. Remove dispenser hoses



4. Valve should be in OFF position



5. Pull Back Fueling Hose Sleeve & Push onto Connector



6. Release sleeve



7. Check for connection



8. Turn valve to FILL (it only turns one way)



9. Follow keypad instructions, insert fob/card

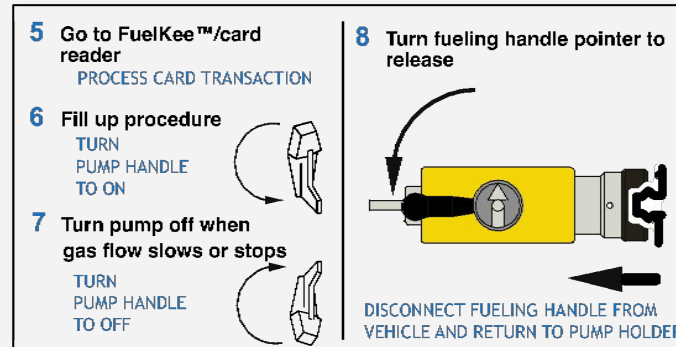
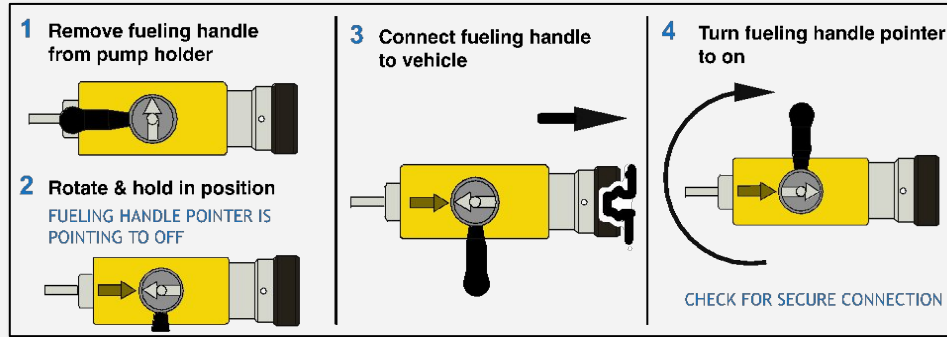


10. Turn Dispenser Handle to ON



Wait for fueling to stop or slow down significantly (note: dispenser will stop momentarily multiple times during fueling to check pressure). Then reverse the process to complete the fueling event.

Fueling Process - Swivel Type





Keeping Your Shop Safe

Resources:

Compressed Natural Gas Vehicle Maintenance Facility Modification Handbook

- ❖ Guidebook compiled by the US Dept. of Energy and other experts
- ❖ Free for download at:
https://www.afdc.energy.gov/uploads/publication/cng_maintenance_facility_mod.pdf

CDOT CNG Fueling Instructions video:

- ❖ <https://www.youtube.com/watch?v=hflfRGeHeBM&feature=youtu.be>

Vehicle Repair – Codes & Process

- There is a distinction drawn between major repair and minor repair work conducted within a maintenance facility in both the IFC and NFPA 30A. Both of these documents exempt all minor repair work from the requirements of each respective code with respect to NGV's.
- Three (3) things are required for a combustible event to occur.
 1. Oxygen (air)
 2. Fuel (natural gas)
 3. Ignition source

CODE	Major Repair Activities	Minor Repair Activities
IFC 2311.7	Work on the vehicle fuel system or use of open flames or welding.	All other repair work.
NFPA 30A 3.3.12	Work including engine overhauls, painting, body and fender work and any repairs requiring draining vehicle fuel tanks.	All work including lubrication, inspection, engine tune-ups, replacement of parts, fluid changes, brake system repairs, tire rotation and similar routine maintenance work.

Shop Ventilation & Ignition Sources

- Natural ventilation?
 - Local AHJ must approve - and then only as an exception to IFC 2311.7.1
- Mechanical ventilation
 - IFC 2311.7.1.1 outlines 1 cfm / 12 ft³ of room volume
 - 1 ft³ / minute / 12 ft³ * 60 minute / hour = 5 ACH
- Thermal Ignition
 - NFPA 30A 7.6.6 disallows open flame heaters or heating equipment with exposed surfaces having a temperature in excess of 750°F in areas subject to ignitable concentrations of gas.
- Electrical Ignition
 - NFPA 30A 8.2.1 requires that the area within 18” of the ceiling of a major repair garage for CNG NGV's be designated as a Class 1, Division 2 hazardous classified location unless the area has a ventilation rate of at least 4 ACH.



Our Contact Information

Redmark
5560 E. 58th Ave, Unit B
Commerce City, Colorado | 80022
info@redmark.com
www.redmark.com
(303) 287-6336