

Basic Natural Gas Vehicle Training

Module 3: Storage and Delivery

Lesson 2: Lock-off, ¼ Turn, Manual Valves, and P-R-D

Lecture: 20 Minutes

Lab: 20 Minutes

Classroom Instructional Objectives:

Upon completion of this unit of instruction the student will be able to:

- Identify three types of manual valves.
- Recognize manual shut off valves.
- Distinguish between manual shut off valves and ¼ turn valves.
- Evaluate the condition of pressure relief devices (PRD).
- Explain how to safely replace a PRD.
- Recognize the correct location of ¼ turn valves.
- Interpret and apply NFPA 52 regulations applicable to ¼ turn, manual and lock-off valves.
- Explain how to leak check ¼ turn, manual and lock-off valves.

Key Classroom Points:

- Explain the design, construction, and use of various valves in a CNG fuel system.
- Explain the structural differences between back seat, “o” ring, and bonnet stem seal valves.
- Provide specific examples of valves used in a CNG fueling system.
- Demonstrate the difference between manual shut off and ¼ turn valves and their application in a CNG fueling system.
- Explain the proper leak check procedures when inspecting valves.
- Stress the importance of the correct safety signage for compliance purposes.
- Explain the sections of NFPA 52 that are pertinent to valve usage.
- Explain how to remove and install PRDs.

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Lab Skill Objectives:

Upon completion of this unit of instruction the student will be able to:

- Explain the difference between lock-off, ¼ turn and manual valves.
- Demonstrate how to evaluate the condition of PRD devices.
- Identify lock-off, ¼ turn and manual valves.
- Demonstrate how to “leak check” CNG fueling system valves.
- Demonstrate the application of NFPA 52 regulations applicable to valve usage.

Key Lab Points:

- Demonstrate the difference in location and function between ¼ turn, manual shut off and lock-off valves.
- Demonstrate how to evaluate the working condition of PRD devices.
- Demonstrate the proper “leak check” procedures for CNG fueling system valves.
- Stress the specific sections of NFPA 52 that apply to compressed natural gas valve usage.

Classroom Materials:

- Attendance sheet
- Power Point presentation CD
- Lap-top
- Projector
- Instructor’s guide
- White board marking pens
- Projection screen

Handouts:

- Power Point slide materials
- Lab activity sheet 4

Instructor’s notes:
