



Fuel Door/Charge Port Component Freeze Test and Capless Fuel Filler Water Detection Test – Component Level

1 Introduction

Note: Nothing in this standard supercedes applicable laws and regulations.

Note: In the event of conflict between the English and domestic language, the English language shall take precedence.

1.1 Purpose. To determine how the fuel door or charge port operates when subjected to wet conditions at freezing temperatures. In addition, determine if water enters the capless fuel filler inlet at several defined fixture inclinations that simulate various parking angles or shipping attitudes.

1.2 Applicability. This procedure applies to all fuel door systems and charge ports.

2 References

Note: Only the latest approved standards are applicable unless otherwise specified.

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

None

3 Resources

3.1 Facilities.

3.1.1 Calibration. The test facilities and equipment shall be in good working order and shall have a valid calibration label.

3.1.2 Alternatives. Alternative test facilities and equipment may also be used. However, all measuring variables as specified in this standard shall be determined correctly with respect to their physical definition.

3.2 Equipment.

3.2.1 Environmental chamber capable of maintaining a constant test temperature of -12 °C (10.4 °F).

3.2.2 Angle meter.

3.2.3 Water detection paste, Kolor Kut or equivalent.

3.3 Test Vehicle/Test Piece. Fuel door and/or charge port assemblies. An appropriate size section of the vehicle bodyside panel with the fuel filler/charge port opening is required to perform this test. This is required to obtain the proper water flow around the fuel door assembly. For capless fuel filler systems, the fuel filler inlet assembly is required.

3.3.1 Fixturing. A fixture that holds the fuel door assembly and the fuel filler inlet in the correct vehicle attitudes as shown in Figure 1. This fixture must include a water dispersion device (gutter) to control the flow of water as shown in Figure 2. The size of the holes in the water gutter are 2.5 mm (³/₃₂ in) and 4.0 mm (⁵/₃₂ in) in diameter and spaced as shown in Figure 2. Position the gutter so the flowing water contacts the vehicle bodyside above the fuel door opening. The fuel door and/or charge port fixture must accommodate various attitudes as defined in the procedure and shown in Figure A1 through Figure A4 in Appendix A. This is required to obtain the proper water flow around the fuel door assembly. In addition, the water gutter must remain horizontal in all test positions as shown in Figure 3. A plastic tray to collect water that drains off of the fixture.

3.3.2 Water Source. A water source such as a sink faucet or garden hose is required to add water to the water gutter during the test.

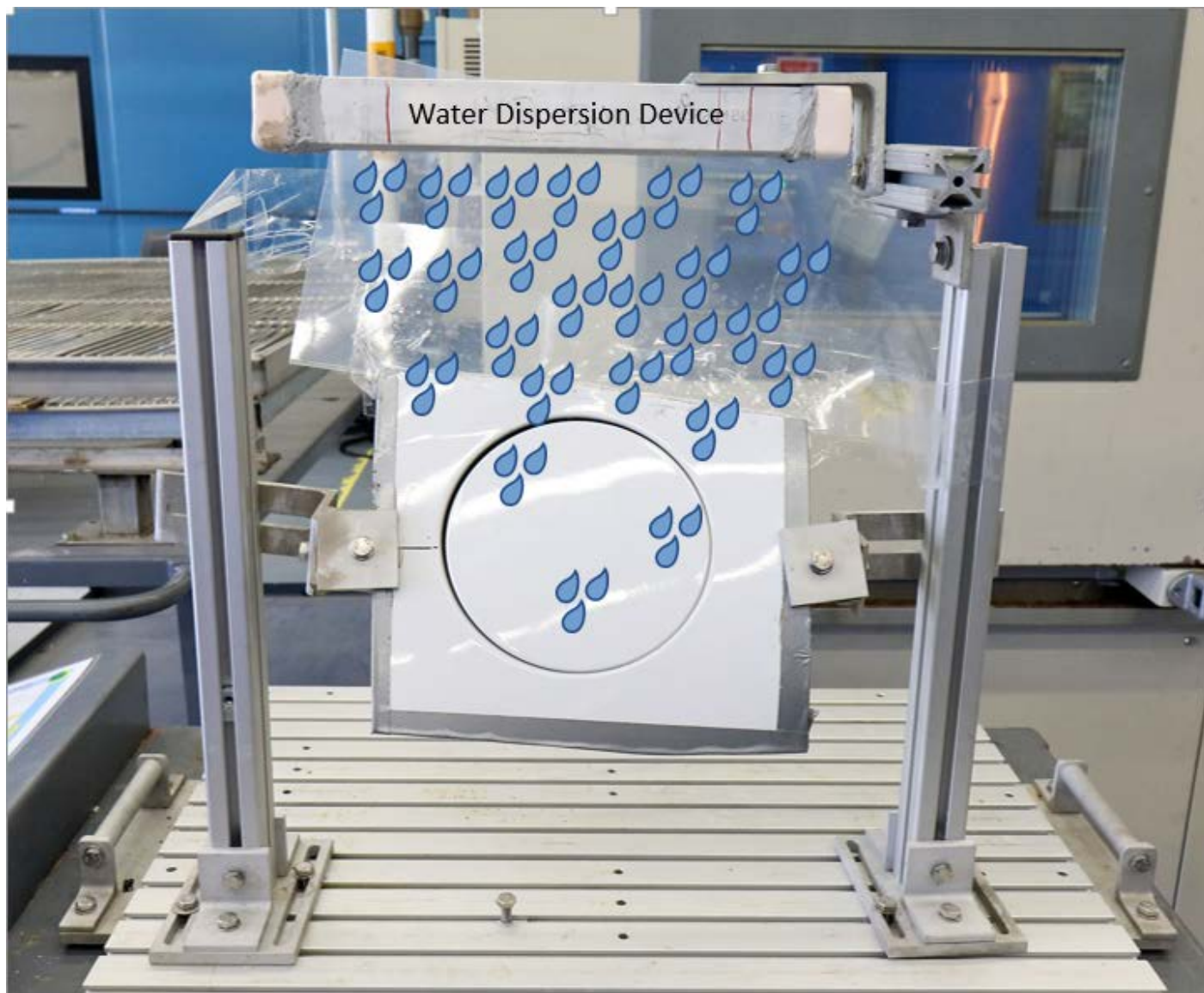


Figure 1: Test Fixture

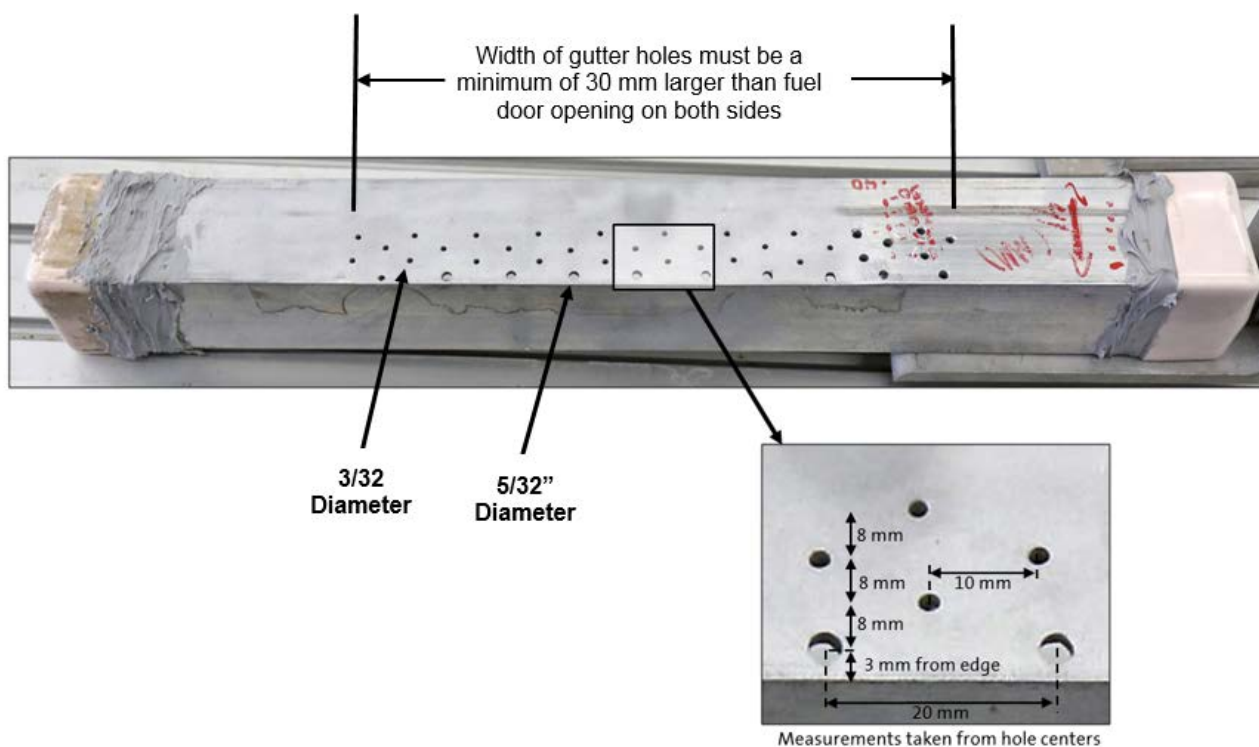


Figure 2: Water Dispersion Device

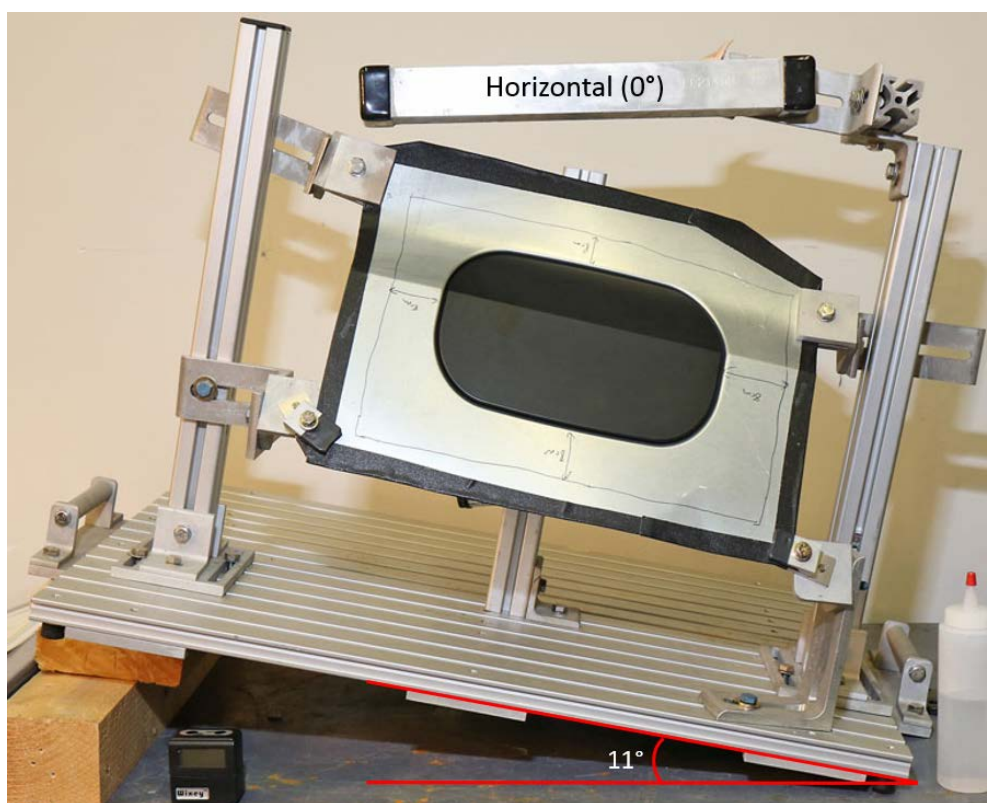


Figure 3: Horizontal Water Gutter at 11° Test Position

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