

Executive Order G-70-186

Exhibit 5

Fillneck Vapor Pressure Regulation Fueling Test

1.0 Applicability

This test procedure is used to verify proper operation of the nozzle boot pressure regulation unique to the Healy Model 400 ORVR nozzle.

2.0 Principle

The nozzle vapor pressure regulation is verified during refueling into a tight simulated vehicle fuel tank with saturated vapors or into an actual vehicle.

3.0 Range

If a mechanical pressure gauge is employed, the full scale range of the pressure gauge shall be 1 inch pressure to 1 inch vacuum inches water column (-1.0 – 0.0 +1.0). Maximum incremental graduations of the pressure gauge shall be 0.5 inches WC, and the minimum accuracy of the gauge shall be three percent (3%) of full scale. The minimum diameter of the pressure gauge shall be four inches.

4.0 Interferences

- 4.1 No tears or holes are allowed in or on the nozzle boot or face seal.
- 4.2 The face seal must completely seal the test tank fillneck.

5.0 Apparatus

- 5.1 Measuring Device. Use a gauge mounted on a test tank to measure vapor regulation pressure during fueling. ([See Exhibit 5, Figure 5.1](#))

6.0 Pre-Test Procedures.

- 6.1 Verify that the system vacuum source is operating in the 65" to 85" WC operating range.
- 6.2 Ensure that the high vacuum vapor return lines are tight. ([See Exhibit 4](#)).
- 6.3 All pressure measuring device(s) shall be bench calibrated using either a reference gauge or an incline manometer. Calibration shall be performed at 20, 50 and 80 percent of full scale. Accuracy shall be within two percent (2%) at each calibration point. Instrument Calibrations shall be conducted and verified a frequency not to exceed 90 days.

7.0 Testing

- 7.1 Position test tank next to dispenser nozzle being tested.
- 7.2 Dispense 1-2 gallons of gasoline into test tank.
- 7.3 Remove nozzle and replace fill cap.
- 7.4 Roll tank back and forth vigorously for thirty seconds to splash saturate the vapor head space in the tank.
- 7.5 Remove the fillpipe cap and insert nozzle, making a seal between the nozzle boot and the test tank fillpipe opening. Dispense gasoline (normally 3-5 gallons).
- 7.6 Observe pressure gauge during fueling. A properly operating system will show readings of between -0.25" and +0.25" WC during the fueling event. Failure of the nozzles to operate within the pressure regulation limits may be due to problems with the vacuum system or leaks in the vapor return lines, hoses or nozzles.

Note: The fillneck pressure may exceed +0.25" at the beginning of the test due to initial vapor growth within tank. This effect should subside within the first gallon of fuel dispensed.

- 7.7 Repeat test for additional nozzles. Drain test tank as necessary.

8.0 Reporting-

- 8.1 Record observed operating levels measured for each nozzle tested along with type and model of pressure measuring device used including: range, accuracy and date of last calibration.

**Exhibit 5
Figure 1**

