Executive Orders VR-203-I and VR-204-I
VST Phase II EVR System

Exhibit 9
VST ECS
Determination of
Processor Activation Pressure

Definitions common to all certification and test procedures are in:

D-200 Definition for Vapor Recovery Procedures

For the purpose of this procedure, the term "ARB" refers to the California Air Resources Board, and the term, "ARB Executive Officer" refers to the Executive Officer of the ARB or his or her authorized representative or designee.

1. Purpose and Applicability

1.1 The purpose of this test procedure is to determine compliance with the VST processor activation (e.g. turns on) pressure requirement of Exhibit 2.

1.2 This procedure is applicable for compliance testing.

2. Principle and Summary of Test Procedure

The UST pressure at which the VST membrane processor activates is determined by using a test assembly connected to the pressure sensor as shown in Figure 1 of this procedure (the pressure sensor is located in the dispenser closest to the tanks). The test assembly consists of an oral syringe (or other device capable of introducing low pressures up to approximately 0.5 inches WC) and an electronic pressure measuring device such as a digital manometer connected into a tee at the pressure sensor. This test can be performed while product is being dispensed into motor vehicles.

3. Biases and Interference's

3.1 No transfer of gasoline from any cargo tanks to the USTs shall occur within three hours prior to conducting this test.

3.2 This test shall not be conducted if TP-201.3 was conducted within the last three hours.

3.3 This test shall not be conducted if the processor is operating (audible indication that the processor is running).

4. Equipment, Range and Accuracy

4.1 Digital Manometer (Electronic Pressure Measuring Device)

A digital (electronic) manometer with 0.01 inches WC, or better, resolution. The sensor must have a minimum measuring range of +/- 10 inches WC. The sensor must also be accurate to 0.05 inches WC for any pressure measurement made during the prescribed tests. For a manometer with a +/- 10 inches WC measurement range, this requires a 0.25% basic accuracy.

4.2 Oral Syringe (used in determining processor activation pressure)

Use a 3 cubic centimeter (cc) or 6cc oral syringe or equivalent that is capable of introducing air pressure at approximately 0.1 inches WC increments up to a maximum pressure of 0.5 inches WC (see Figure 1).

5 Calibration Requirements

5.1 A copy of the most current calibration of the electronic pressure measuring device shall be kept with the equipment.

5.2 All electronic pressure measuring devices shall be bench tested for accuracy using a reference gauge, incline manometer or National Institute of Standards and Technology (NIST) traceable standard at least once every 180 consecutive days. Accuracy checks shall be performed, with nitrogen, at a minimum of three (3) points (e.g., 20, 50 and 80 percent of full scale) each for both positive and negative pressure readings. Accuracy shall meet the requirements of Section 4.

6 Pre-Test Procedure

6.1 Turn on digital manometer and allow instrument to warm up for five minutes.

6.2 Zero out digital manometer using adjustment pod on top of instrument in accordance with manufacturer's instructions. Drift may be minimized by re-zeroing immediately after use by venting both pressure ports to atmosphere and adjusting the knob until the display reads exactly zero.

6.3 Prepare test assembly as shown in Figure 1. Lubricate seal of oral syringe plunger with petroleum jelly (or other lubricant). Use Tygon tubing (or equivalent) from the oral syringe (or equivalent) to the pressure sensor and to the digital manometer as shown in Figure 1. Plug or cap the end of the Tygon tubing (used to connect to the tee on the pressure sensor) and pressurize test assembly to approximately 2.0-5.0 inches WC for at least 5 seconds. There shall be no indications of vapor leaks when using liquid leak detection solution.

6.4 Remove the cap from the ambient reference port of the Vapor Pressure Sensor valve and connect the Tygon tubing (or equivalent) of the test assembly to the tee on the Vapor Pressure Sensor Valve as shown in Figure 1.

7 Test Procedure

7.1 Close the ball valve located at the tee to the pressure sensor to isolate the pressure sensor from the UST ullage (see Atmospheric Valve Position in Figure 2).

7.2 Slowly press the oral syringe (or equivalent) until a pressure of 0.10 inches WC is obtained. Maintain this pressure for at least 5 seconds. Does the VST membrane processor activate? If the membrane processor does not activate, continue increasing pressure at 0.1 inches WC intervals and hold for at least 5 seconds per interval or until the processor activates, up to a maximum pressure of 0.5 inches WC.

NOTE: Listen for audible indication that the processor activated (or turned on).

7.3 Record the VST membrane processor activation pressure on Form 1, Data Form for VST Processor Activation Pressure Test.

7.4 Verify that the processor activation pressure value is less than or equal to 0.4 inches WC. If the pressure value is not less than or equal to 0.4 inches WC, the VST processor is not in compliance with the activation pressure requirements of Exhibit 2.

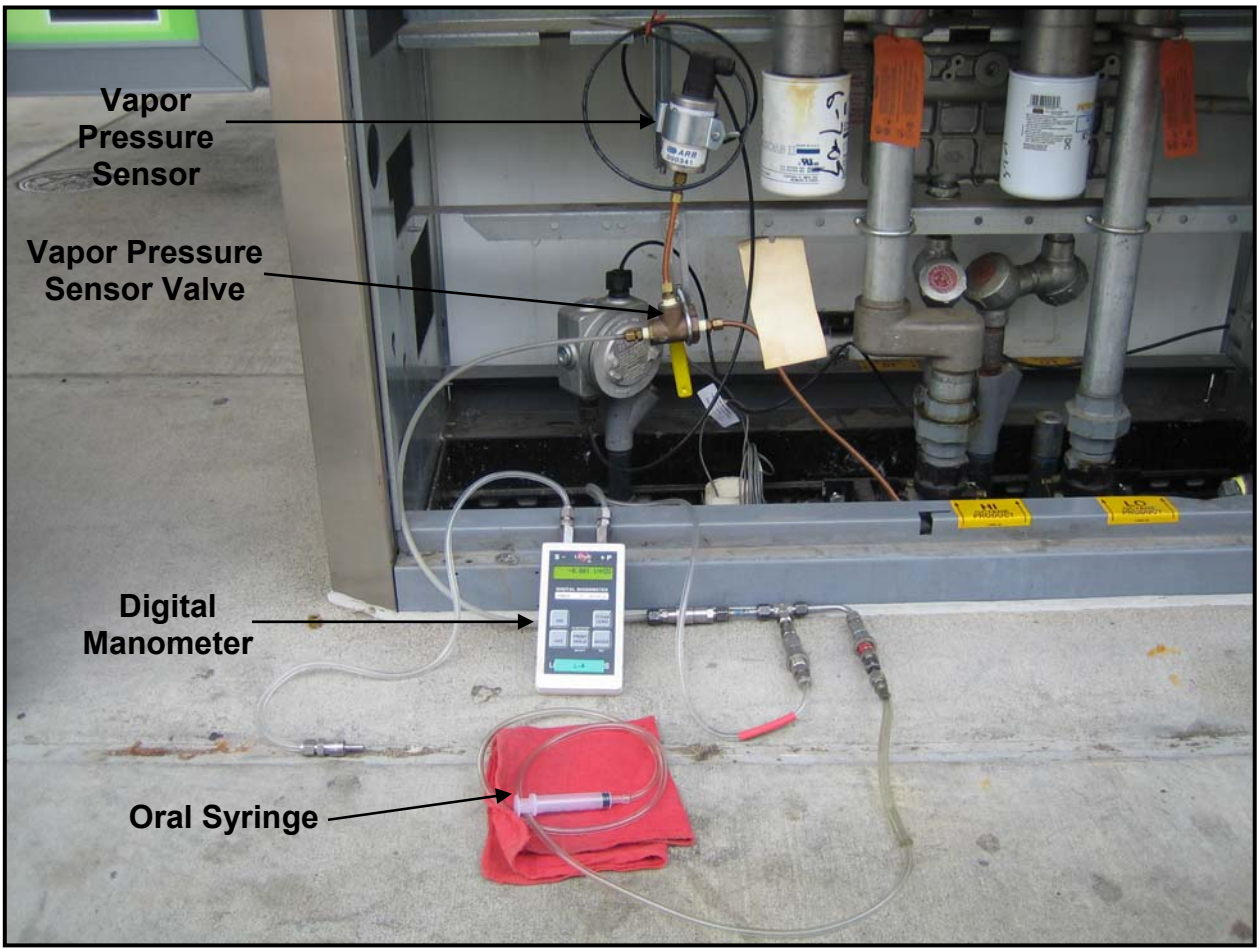
7.5 Replace the cap on the ambient reference port of the Vapor Pressure Sensor valve. Restore the Vapor Pressure Sensor valve by turning it 90 degrees so that the flow arrows point to both the Vapor Pressure Sensor sensing port and the UST vapor space sensing line (see Normal Valve Position in Figure 2).

8 Alternate Procedures and Reporting Forms

8.1 This procedure shall be conducted as specified. Any modifications to this test procedure shall not be used unless prior written approval has been obtained from the ARB Executive Officer, pursuant to Section 14 of CP-201.

8.2 District may require the use of alternate forms, provided they include the same minimum parameters as identified in Form 1.

Figure 1: Typical Field Installation of Test Assembly for Determining VST Processor Activation



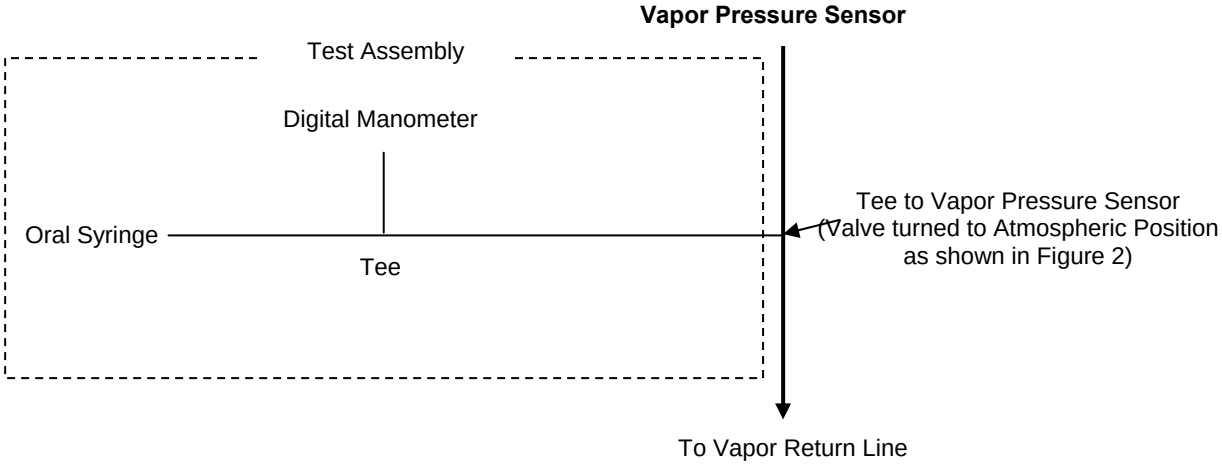
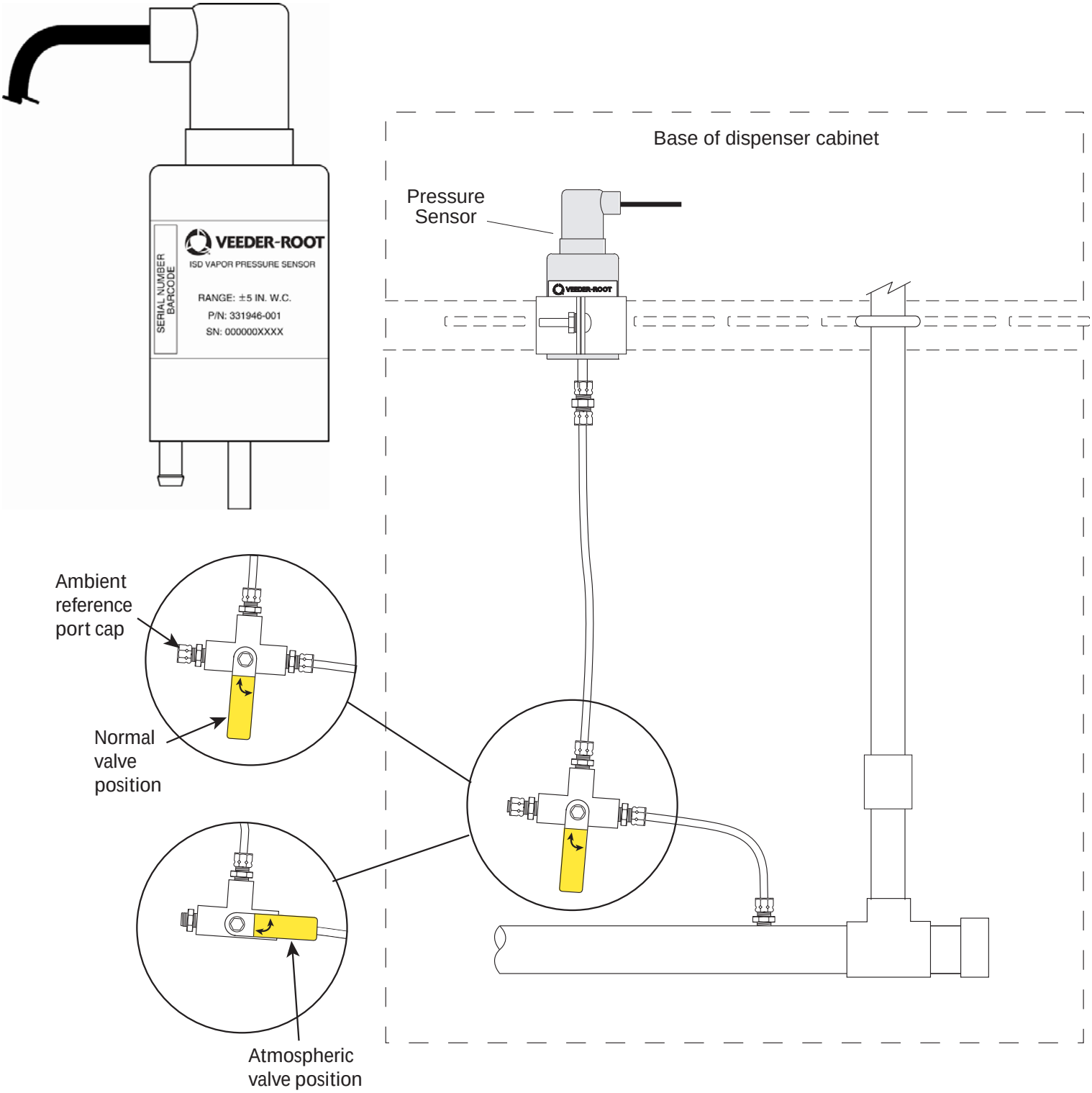


Figure 2: Vapor Pressure Sensor Valve Position



Form 1

Data Form for VST Processor Activation Pressure Test

DATE OF TEST _____

SERVICE COMPANY NAME	**SERVICE COMPANY'S TELEPHONE**
SERVICE TECHNICIAN	**VST or VEEDER-ROOT TECH CERTIFICATION # (as applicable)** **ICC or DISTRICT TRAINING CERTIFICATION (as applicable)**
STATION NAME	**DISTRICT PERMIT #**
STATION ADDRESS **CITY**	**STATE** **ZIP**

PRESSURE SENSOR LOCATION: DISPENSER FUELING POINT (FP) NUMBERS	**FP #_____**	**PRESSURE SENSOR SERIAL NUMBER: _____**

STEP 8.1	**VALVE SET TO ATMOSPHERIC VALVE POSITION (PER FIG. 2)?**	☐
STEP 8.3	**VST PROCESSOR ACTIVATION PRESSURE: _____Inches WC**	
STEP 8.4	**Is the VST Processor Activation Pressure ≤ 0.4 inches WC?** ☐ **Yes** ☐ **No** **IF NO: THE VST PROCESSOR IS NOT IN COMPLIANCE WITH THE ACTIVATION PRESSURE REQUIREMENTS OF EXHIBIT 2.**	
STEP 8.5	**REFERENCE PORT CAP REPLACED?** **VALVE SET TO NORMAL VALVE POSITION (PER FIG 2)?**	☐ ☐