Executive Order VR-202-L
Healy Phase II EVR System
Including In-Station Diagnostic (ISD) System

Exhibit 10
INCON VRM Operability Test Procedure

The following procedures shall be used at field sites to determine the operability of the INCON VRM system to satisfy the requirements documented in VAPOR RECOVERY CERTIFICATION PROCEDURE, CP-201, CERTIFICATION PROCEDURE FOR VAPOR RECOVERY SYSTEMS AT GASOLINE DISPENSING FACILITIES. Testing the VRM equipment in accordance with this procedure will verify the equipment's operability for Vapor Containment Monitoring and Vapor Collection Monitoring.

The INCON Vapor Recovery Monitoring system uses Self Testing functions to verify the proper selection, setup, and operation of the console modules and sensors. Upon a detection of a failed module or sensor, the VRM system will follow the assessment period alarming sequencing for the particular device and will shutdown the dispenser(s).

- Vapor Flow Meter or Probe Module Failure will issue a Daily A/L Warning/Failure after day 1 and 2. A shutdown of the dispenser will follow day 2.
- A Vapor Pressure Sensor or 4-20mA Module failure will follow the Weekly Pressure Monitoring Warning/Failure after week 1 and 2. A shutdown of all the dispensers will follow week 2.
- A shutdown of the console, incorrect setup mapping of sensors, or failure of Console Modules not listed above will not complete test or report passing test results.

Franklin Fueling recommends printing a copy of the VRM DAILY report and viewing the VRM STATUS page on either the touch-screen display or web page periodically to determine that compliance tests are being completed in accordance with local and state regulations.

A step-by-step worksheet for recording data from the following operability tests is provided at the end of this Exhibit.

VRM Operability Testing

The Vapor Recovery Monitoring (VRM) Operability Testing procedures are intended to assist the installer with verifying all the vapor recovery equipment is functioning and operational.

Upon finishing an installation of an INCON VRM System, a certified technician will need to run the procedures listed in Section 2 below.

Note: The following procedures and checks are only related to the INCON VRM system; see the Executive Order for all inspections and test required for all certified equipment.

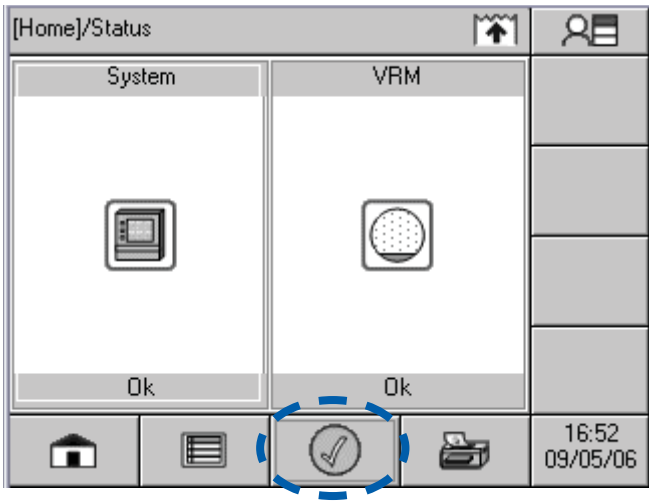
Procedures for after Installation or major Upgrade:

1. Active Alarm Check and Printout
2. Dispenser Shutdown Test
3. Vapor Flow Meter A/L Check
4. Vapor Pressure Sensor Ambient Test

Active Alarm Check and Printout

The purpose of checking the active alarm list is to see if there are any current alarms in the system. If there are then these issues may need to be corrected before running any operability tests.

To check the active alarm list, look to see if the alarm icon on the LCD of the Console is showing a Check Mark or Exclamation Point. If the Alarm icon is showing a Check Mark as shown below, then there are no active alarms. If there is an Exclamation Point Icon showing then press the icon to view the alarms. At this point a printout of the alarms can be done by pressing the Print Icon.

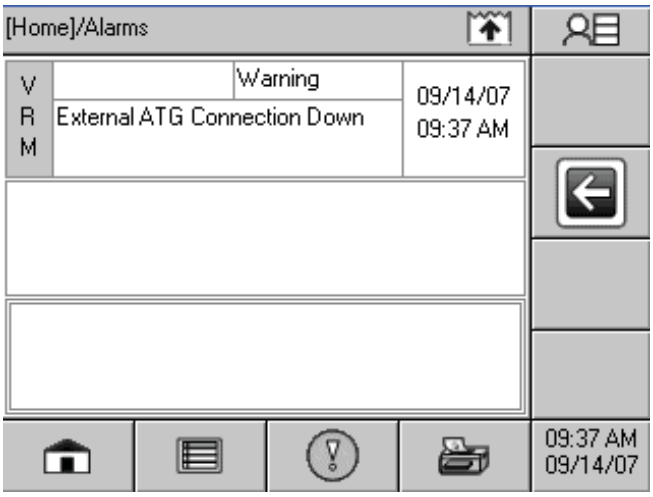


External ATG Connection Alarm Test (if not using internal inventory probes)
An External Automatic Tank Gauge (ATG) Connection Alarm Test will verify the proper setup to the External ATG. Use the following instructions to do the External ATG Connection Check.

Tools Needed

- No tools are required for this test

1. Disconnect the serial cable from either the External ATG or the INCON Vapor Recovery Monitoring system.
2. Verify the alarm "External ATG Connection" is generated within one minute. See Figure to the right. Also verify the Yellow LED is now Flashing.
3. Re-connect the serial cable.
4. Re-run the **Active Alarm Check and Printout** procedure. Note it may take up to one minute for the alarm to clear. Verify the Yellow LED goes OFF.



Dispenser Shutdown Mapping Verification

This is a procedure to test the shutdown feature of the INCON VRM System. The purpose is to verify the dispenser mapping for proper shutdown.

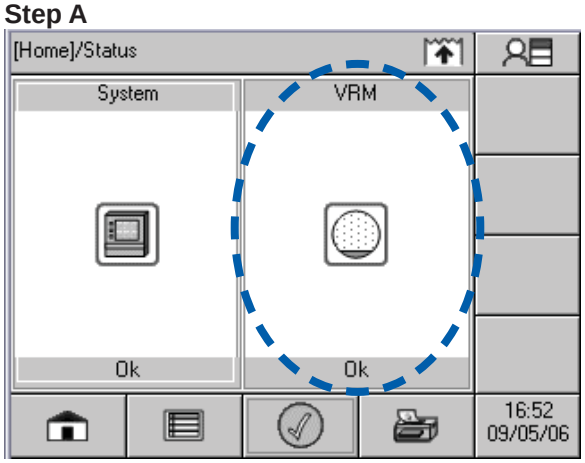
This procedure can be done from either the touch-screen or the web page.

Dispenser Shutdown Test via Touch Screen Display:

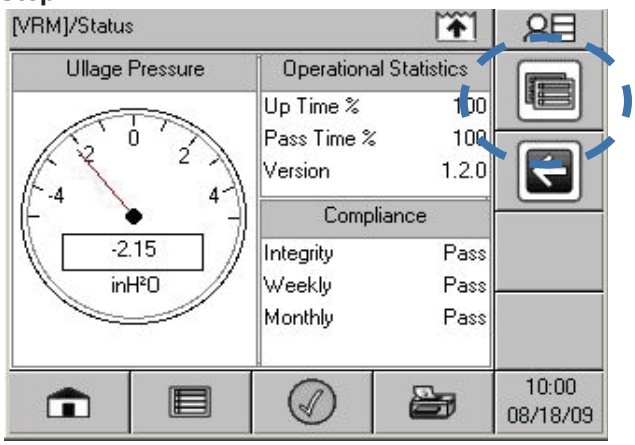
1. Navigate to the dispenser status page by the following steps (see Figure 1):
   a. Selecting the VRM Application icon
   b. Selecting the Sub-menu icon
   c. Selecting the Control icon
   d. You should see this screen

Figure 1 – Steps to Shutdown and Re-enable a Dispenser

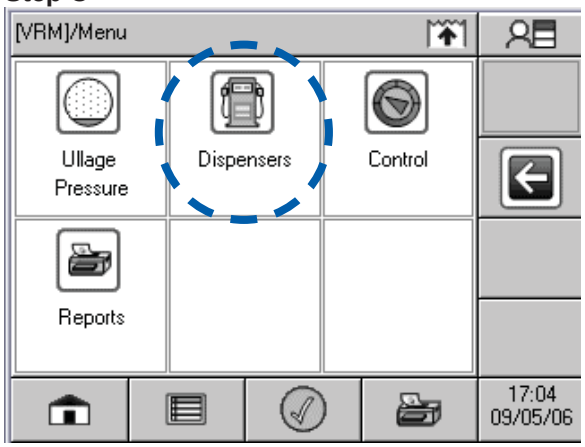
Step A



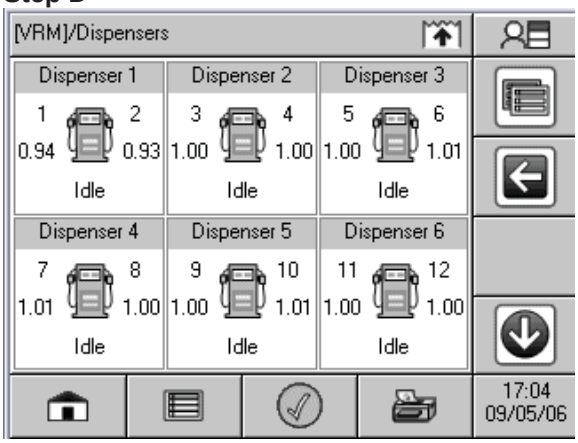
Step B



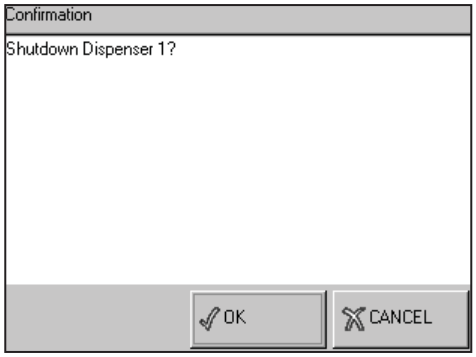
Step C



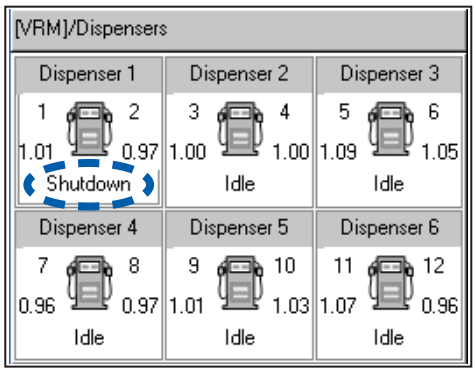
Step D



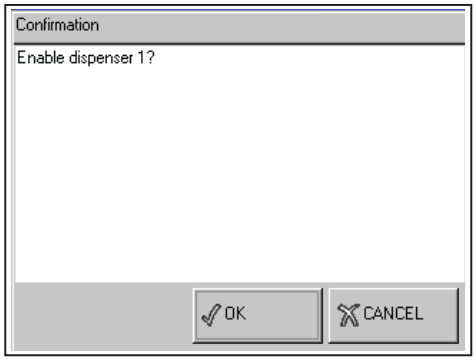
2. Once at the Dispenser Status page, if you touch one of the dispenser icons, a message will ask you if you want to disable that dispenser. If you press the OK button then the dispenser will shutdown.



3. Verify the Dispenser under test is disabled and fuel cannot be pumped. From the Dispenser Status page, the dispenser under test should show “Shutdown”. See picture to right.



4. Once verified, if you press the same Dispenser again, a message will ask if you want enable Dispenser 1. Select “Yes” and the dispenser should come back to normal operation.



5. If the Dispenser under test did not shutdown or the wrong dispenser shutdown, then the wiring and setup should be checked and Steps 1 - 4 run again.

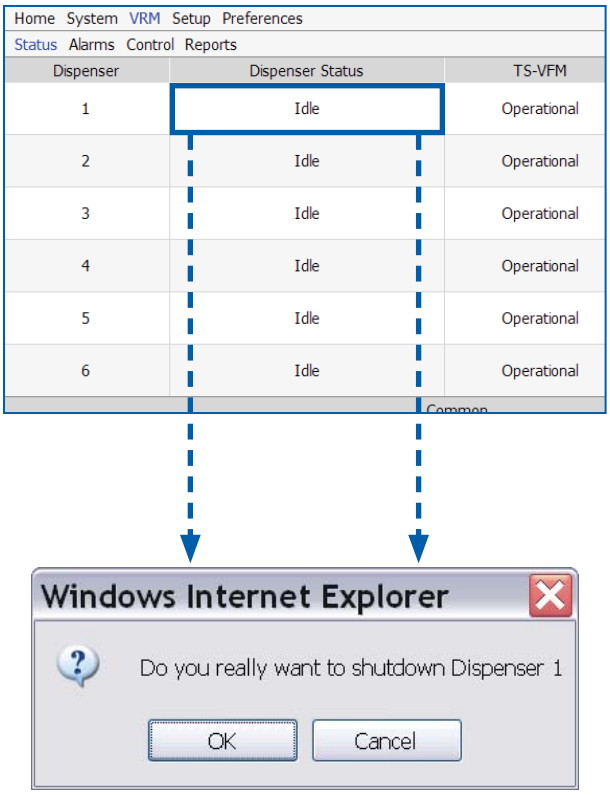
6. Repeat Steps 1 - 5 for all dispensers and record the results in the Test Form.

Dispenser Shutdown Test via Web Pages

The dispenser shutdown test can alternatively be run through the web pages. The following procedure can be done from either the LCD or the web page.

From the Web Page:

1. This procedure requires administrator privileges.
2. Navigate to the dispenser status page.
   http://Ip_address/vrm_status.html
3. In the **Dispenser Status** column, select the Dispenser under test. A message will appear asking if you want to disable the dispenser, click “OK”.
4. Verify the Dispenser under test is disabled and fuel cannot be pumped. From the Dispenser Status page, the dispenser under test should show “Shutdown”.
5. Once verified, if you press the same Dispenser again, a message will ask if you want enable Dispenser 1. Select “Yes” and the dispenser should come back to normal operation.



6. If the Dispenser under test did not shutdown or the wrong dispenser was shutdown, then the wiring and setup should be checked and Steps 1 - 4 run again.
7. Repeat Steps 1 - 5 for all dispensers and record the results in the Test Form.

Vapor Flow Meter V/L Check (Assist)

To verify the Vapor Flow Meters (VFM) is operating correctly, a technician will need to run the TP-201.5 as listed in the executive order.

Note 1: Only one fueling point/hose is needed to verify each VFM.

Follow this procedure to validate the INCON VFM is within proper range of a reference measurement. Fill out the INCON VRM Operability Test Form as required. These procedures must be run for each VFM. When generating an V/L on a fueling point/hose, be sure to stop dispensing from the opposite side of the dispenser. Other dispensers may be allowed to run normally.

1. Beginning at the first dispenser, run a V/L per Exhibit 5 of Executive Order VR-202-L.
   a. Record on the Test Form the V/L value from the reference test fixture.
   b. Record on the Test Form the V/L value from the INCON Console.
      This value is located on the Dispenser Status page, refer to Figure 1 to navigate to that screen. This status page will show the last V/L run for each fueling point/hose. Note that the very next fueling transaction on the same fueling point/hose will overwrite the screen V/L value.
   c. Subtract the V/L value from Steps A and B and record the difference on the Test Form.
2. Is the value from Step c less than -0.15 or greater than +0.15? If yes, then proceed to the next step. Otherwise, the test passes.
3. Following Exhibit 5, run an additional two V/Ls.
   d. Record on the Test Form the two V/L values from the reference test fixture.
   e. Calculate the average of the three V/L values from the reference fixture.
   f. Record on the Test Form the two V/L values from the INCON Console.
   g. Calculate the average of the three V/L values from the INCON Console.
   h. Subtract the average V/L value of Step E from Step G.
4. Is the value from Step H less than -0.15 or greater than +0.15? If yes, then proceed to the next step. Otherwise, the test passes.
5. Repeat this procedure, beginning at Step 1 through 4 for the fueling point/hose on the opposite side of this dispenser. if the second fueling point/hose does not pass, then proceed to the next step.
6. Run the A/B Sheet vacuum (Healy VP1000 vacuum pump) test to confirm dispenser piping tightness (Side B, Step 3). If the tightness test fails then make the proper repairs and repeat steps the above 1 through 4. If the tightness test passes then proceed to next step.

7. Authorize the dispenser for fueling and close the ball valve at the pump inlet. The VP1000 should begin to run but do not dispense any fuel. Look into the site glass indicator on the side of the Vapor Flow Meter and verify the indicator is not spinning. if the indicator is spinning then there may be leak between the Healy Ball Valve and the Vapor Flow Meter. Make necessary repairs and repeat Steps 1 through 4. If the indicator is not spinning then the Vapor Flow Meter doest not comply with Exhibit 2.

Vapor Pressure Sensor Offset Check (Ambient Check)

A Vapor Pressure Sensor (VPS) offset check will need to be done to verify the pressure sensor's zero offset. This procedure is to be done after installation. This procedure may be done as part of troubleshooting a failure conditions as directed in the INCON VRM Trouble-shooting and Diagnostics Manual. Use the following instructions to do the offset check.

Tools Needed:

- Adjustable Wrench

1. Turn the pressure sensor valve to the closed position. This isolates the pressure sensor from the ullage space.
2. Remove the calibration port plug with an adjustable wrench and leave the port open to atmosphere. Refer to Figure 2.
3. On the touch-screen display at the console or on the Web page, go to the *VRM»Status* page. See Figure 1, Step A. With the pressure sensor open to atmosphere check to see if the pressure is within ±0.10"wcg, if it is not then the VPS will need to be calibrated. If the pressure sensor needs to be calibrated then go on to the remaining steps.
4. On the LCD of the console, go to the VRM Control page, refer to Figure 3.
   a. Press the CONTROL icon. This allows access to the control menu screen.
   b. Press the CALIBRATE ZERO OFFSET icon. This will zero the pressure reading for atmospheric pressure.
   c. Press anywhere in the upper calibration box. Select "Yes" or "No" to calibrate the sensor.
5. Verify on the VRM Status page that the pressure reading is now showing 0.00"wcg ±0.10.
6. Replace the calibration port plug and turn the ball valve to the open position.

Figure 2 – Vapor Pressure Sensor Test Port

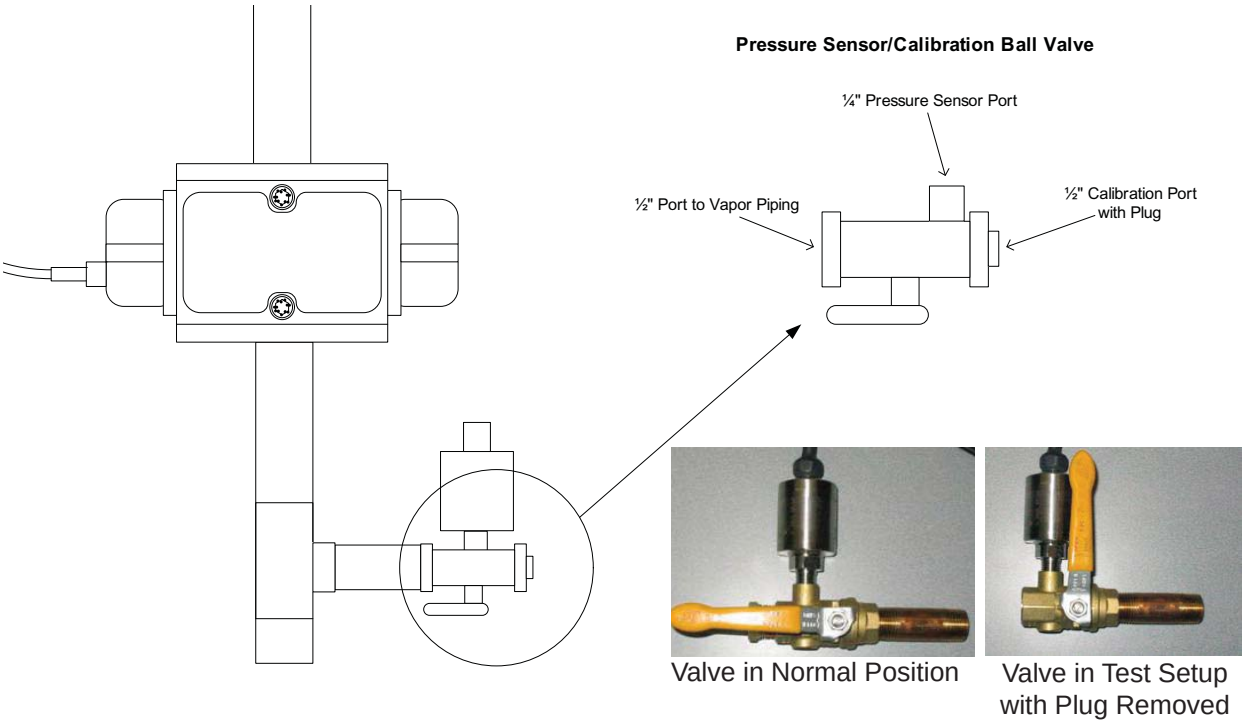
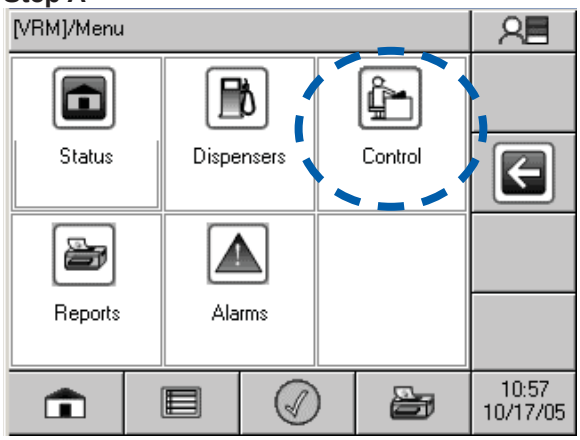
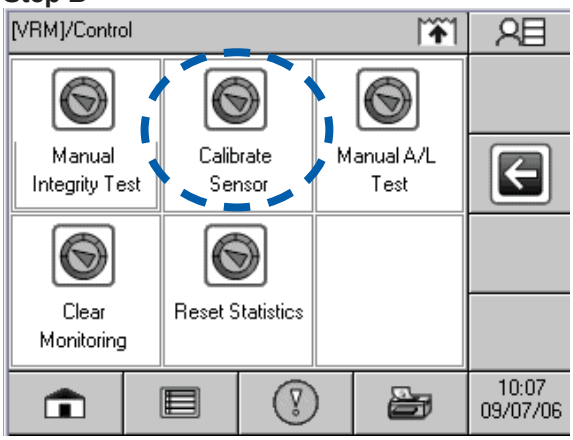


Figure 3 – Steps to Calibrate the Vapor Pressure Sensor

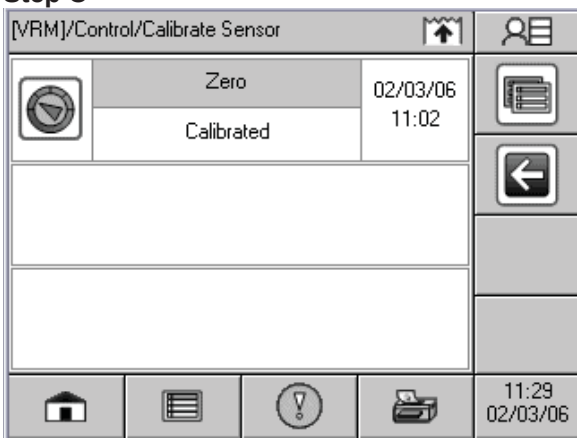
Step A



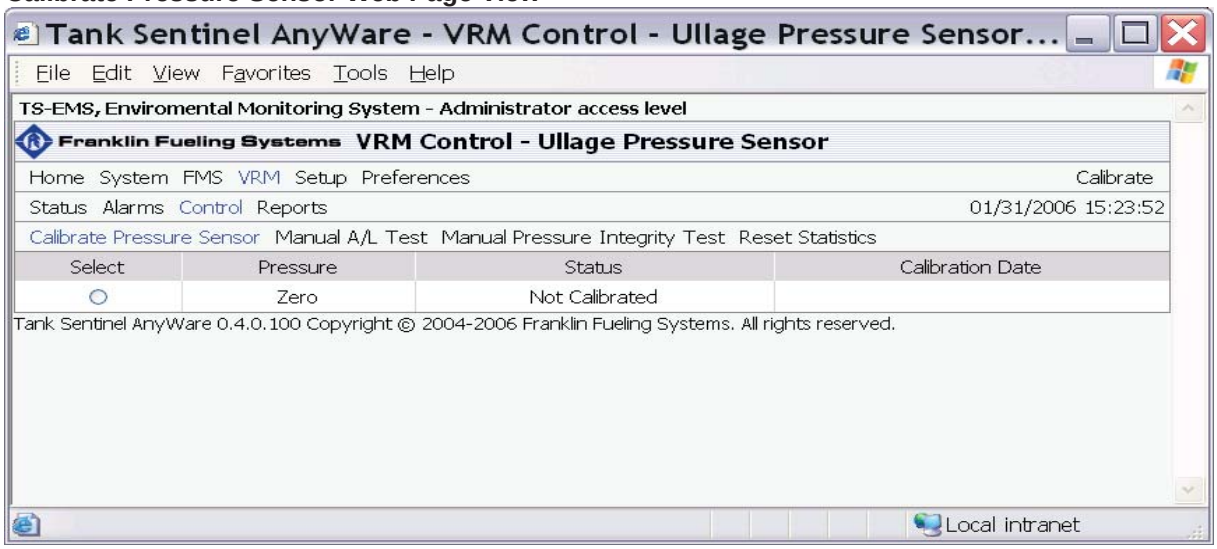
Step B



Step C



Calibrate Pressure Sensor Web Page View



START-UP/NEW INSTALLATION FORM
INCON VAPOR RECOVERY MONITORING SYSTEM

DATE_____

BOTH SIDES OF THIS TEST FORM MUST BE COMPLETED FOR ALL NEW INSTALLATIONS

This form is not intended to be the Operability Test Procedure, rather its use is to provide the technician/installer with a form to record results. Follow the procedure as described in the Healy Phase II EVR System Including In-Station Diagnostics (ISD) System, Exhibit 10.

INCON VRM Startup Test Form – Side A

Service Company Name	Telephone Number
Service Technician	INCON Tech Cert #
Station Address	City
Dispenser Number	Vapor Pressure Sensor Serial #

Vapor Pressure Sensor Zero Offset Check		Check	Initials
A-1	Refer to the Vapor Pressure Sensor Offset Check procedures in this Exhibit.		
	1. Sensor test valve in closed position?		
	2. Calibration port plug was removed from test valve? Refer to Figure 2.		
	3. Record the pressure of the ullage containment area from the **VRM** > **Status** page. Vapor Containment Area Pressure: Is the Vapor Pressure within ±0.10? If YES, then proceed to Step 4, otherwise the sensor needs to be calibrated and proceed to Step 5.	_____ Yes/No	
	4. Calibration port plug is installed and the ball valve is open?		
	5. The pressure offset was cleared though the Control Menu. Refer to Figure 4.		
	6. Is the pressure now within ±0.10? If NO, then refer to the VRM Troubleshooting and Diagnostics Manual.	Yes/No	

External ATG Connection Check		Check	Initials
A-2	Refer to the External ATG Connection Alarm Test procedure in this Exhibit.		
	1. Serial Cable between External ATG and INCON Console was disconnected?		
	2. “External ATG Connection” alarm was generated? Yellow LED Flashing?		
	3. Serial Cable between External ATG and INCON Console was reconnected?.		
	4. “External ATG Connection” alarm has cleared? Yellow LED is OFF?		

START-UP/NEW INSTALLATION FORM
INCON VAPOR RECOVERY MONITORING SYSTEM

DATE_____

BOTH SIDES OF THIS TEST FORM MUST BE COMPLETED FOR ALL NEW INSTALLATIONS
EACH DISPENSER/VFM MUST HAVE A SEPARATE COPY OF THIS SIDE

INCON ISD Operability Test Form – Side B

Service Company Name	Telephone Number
Service Technician	INCON Tech Cert #
Station Address	City
Dispenser Number	Vapor Flow Meter Serial #

Dispenser Mapping Test		Check	Initials
B-1	Refer to the Dispenser Shutdown Mapping Verification section of the ISD Operability Test Procedure.		
	Dispenser was shutdown properly?		
	Fuel was unable to be dispensed from nozzles?		
	Dispenser was re-enabled from console?		
	Fuel is able to be dispensed from nozzles?		

Vapor Flow Meter A/L Check		Yes/No	Initials
B-2	Refer to the Vapor Flow Meter V/L Check section of this ISD Operability Test Procedure. **Note 1**: This procedure is only required to be done on one fueling point/hose per dispenser.		
	1. Record the V/L from the test fixture and from the INCON VRM System. a. V/L Value from Test Fixture: b. V/L Value from ISD VRM: c. Difference between Steps A and B:	 _____ _____ _____	
	2. Is the value of Step C greater than +0.15 or less than -0.15? If YES, then proceed to Step 3, otherwise the check passes.		
	3. Re-run the V/L test with the Air Inlet of the test fixture closed off. d. V/L Value # 2 from Reference: V/L Value # 3 from Reference: e. Average V/L from Reference: f. V/L Value # 2 from VRM Console: V/L Value # 3 from VRM Console: g. Average V/L from VRM Console: h. Difference between Steps E and G:	 _____ _____ _____ _____ _____ _____ _____	
	4. Is the value from Step H less than -0.15 or greater than +0.15? If YES, then proceed to the next step. Otherwise, the test passes.	_____	
	5. Repeat this procedure, beginning at Step 1 through 4 for the fueling point/hose on the opposite side of this dispenser. if the second fueling point/hose does not pass, then proceed to the next step.	_____	
	6. Run the A/B Sheet vacuum (Healy VP1000 vacuum pump) test to confirm dispenser piping tightness (Side B, Step 3). If the tightness test fails then make the proper repairs and repeat steps the above 1 through 4. If the tightness test passes then proceed to Step 6.	_____	
	7. Authorize the dispenser for fueling and close the ball valve at the pump inlet. The VP1000 should begin to run but do not dispense any fuel. Look into the site glass indicator on the side of the Vapor Flow Meter and verify the indicator is not spinning. if the indicator is spinning then there may be leak between the Healy Ball Valve and the Vapor Flow Meter. Make necessary repairs and repeat Steps 1 through 4. If the indicator is not spinning then the Vapor Flow Meter doest not comply with Exhibit 2	_____	