

Fuel Tank Durability Test Stand

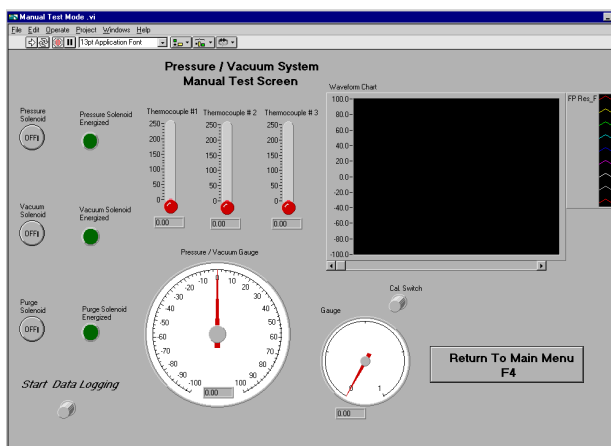
Are your fuel tanks leak free?

The APS Fuel Tank Durability Test Stand (Pressure Vacuum System or PVS) simulates pressure and vacuum variations which develop within vehicle fuel tank systems during vehicle operations. Typically these variations develop due to fuel motion, tank wall motion, engine vacuum and vapor pressure changes. The PVS determines the fatigue life of the fuel tank by alternately applying internal pressure and vacuum to the tank at a given rate.

Each cycle, comprised of one pressure and one vacuum run, executes four times per minute until the total number of cycles is completed. Typical specifications are 60 inches of water pressure and 28 inches of water vacuum.

A leak test performed between cycles is completed in user selectable intervals. This consists of pulling a vacuum to -25 inches of water column and holding it for 60 seconds. Within that time period, the vacuum decay experienced should not exceed the user defined setting to pass.

The PVS offers both automatic and manual modes of operation. The automatic mode uses predefined settings to complete all test procedures while the manual mode allows independent control of pressure, vacuum, purge and leak check settings. Additionally, 3 thermocouple connections allow the operator to measure temperature in user selectable areas.



User Friendly Interface

The PVS uses a Pentium®-PC based control system and operator interface. The software is a custom data acquisition package developed in National Instruments Bridgeview®, a SCADA package used for system control. Running on Windows XP Pro®, this system provides user friendly, intuitive screen graphics for ease of system operation. A RS232 port provides the interface between the computer and the National Instruments Fieldpoint® I/O hardware.

Customizable Variables

Number of Test Cycles	Each test cycle is a combination of one pressure and one vacuum cycle. The total number of test cycles the PVS must go through before completing the test is adjustable.
Peek Pressure Setting	The peek pressure that the tank is exposed to is adjustable in inches of water column. In automatic mode, once the peek pressure is reached, the pressure solenoid is automatically de-energized and the vacuum or purge solenoid is energized.
Peek Vacuum Setting	The peek vacuum that the tank is exposed to is adjustable in inches of water column. In automatic mode, once the peek vacuum is reached, the vacuum solenoid is automatically de-energized and the pressure or purge solenoid is energized.
Data Logging Rates	The data logging rate for all sample points is adjustable. This includes a pressure transducer reading, three thermocouple readings and a time and date stamp.
Purge to Vacuum	The pressure level triggers a switch from purge mode to vacuum mode and is adjustable to reduce cycle times.
Leak Check Test	The leak check test allows you to adjust how often the leak test procedure is repeated, the vacuum level in the tank, the leak test hold time, and the maximum allowable vacuum decay.

General Specifications

Maximum Pressure:	100" H ₂ O
Maximum Vacuum:	-100" H ₂ O
Compressed Air Connection:	3/8" Quick Connect
Vacuum Connection:	1/2" Swage Type Tube Fitting
Fuel Tank Connection:	1/2" Swage Type Tube Fitting
Enclosure Dimensions:	66"H x 24"W x 24"D
Power Requirements:	120VAC, Single Phase, 60Hz

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