providing world-class leak test and assembly verification solutions

LEAK TESTING GARDEN TRACTOR GAS TANKS

Problem:

A manufacturer of lawn & garden tractors needed to leak test a new fuel tank. The customer did not want to do a Mass Spec Leak test due to expense, and they didn't want to do a normal Pressure Decay Leak Test where you pressurize the inside of the part because the tank had too much volume to perform a good test.

Test Requirement:

Detect a leak equivalent to a 100 micron orifice at 7.5 PSI differential.

CTS Solution:

Cincinnati Test Systems supplied two single-station leak test stands performing a Vacuum Decay Leak Test around the outside of the fuel tank with the inside of the tank vented to atmosphere. This test technique was chosen because it has several advantages, including cost savings over a Mass Spec system.

In Pressure or Vacuum Decay Leak Testing, volume matters. If you are testing for a 5 SCCM leak in a volume the size of a golf ball, you get a lot of pressure drop. If you are testing for a 5 SCCM leak in a basketball, you get very little pressure drop.

To accomplish testing a 5 gallon tank, CTS manufactured a molded chamber to minimize the volume around the outside of the tank. The chamber was evacuated while the inside of the part was vented to atmosphere. Any leak path from the inside of the tank to the chamber surrounding the tank would cause it to lose vacuum or gain pressure from the atmosphere. The chamber also serves to support the tank and minimize stretching, thus increasing testing sensitivity and reducing the potential for test error. The Vacuum Decay Leak Test was conducted with a standard CTS Sentinel C-28 Instrument.

The Result:

With this solution, the customer was able to save money and still meet their test specifications!

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