



Service Bulletin

PRELIMINARY INFORMATION

Subject: EVAP Emissions Small Leak Diagnosis (DTC P0442)

Models: 2016 and Prior Passenger Cars and Trucks

This PI was superseded to update Model Years. Please discard PIT4943C.

The following diagnosis might be helpful if the vehicle exhibits the symptom(s) described in this PI.

Condition/Concern

The following diagnosis might be helpful if the vehicle exhibits the symptom(s) described in this PI. Vehicles are illuminating the service engine soon (MIL) due to a P0442 diagnostic trouble code (DTC), but a system leak cannot be verified through the system testing instructions identified in SI. The difficulty in determining the cause of the EVAP leak results in improper repairs and customers potentially returning for service with the same issue. This information is intended to complement the system testing process detailed in the SI, thereby allowing more issues to be identified during a customer's initial visit.

Recommendation/Instructions

The following information outlines the process to perform an EVAP emissions leak test using the Evaporative Emissions System Tester (EEST) GE 41413-A or J 41413-A. The J 41413-200 is the same tester, just an older number and the upper label/decals on the EEST will still reflect this -200 number. Please review the Techlink article from May 2013 titled "Using the Evaporative Emissions System Tester" for additional tips on using the EEST when leak testing.

1. Do not disturb any of the fuel system components after verification of a P0442 on a vehicle.
2. Connect the scan tool to the vehicle and command the EVAP system CLOSED.
3. When possible change the tank pressure sensor units from in_H2O to mm_Hg for better resolution.
4. Start the vehicle and monitor the tank pressure sensor output value for approximately two minutes.

Note: If the following step does NOT change an intermittent condition with the purge solenoid may still be exposed by cycling the purge solenoid and reperforming the test.

5. If the tank pressure sensor value DOES change (shows vacuum):
 - 5.1. Remove the purge solenoid from the vehicle.
 - 5.2. Pressurize the fuel tank side of the purge solenoid with the GE 41413-A / J 41413-A and necessary adaptors.
 - 5.3. Add smoke and allow pressure to stabilize for 2 minutes.
 - 5.4. If smoke is allowed to pass through the purge solenoid, replace the purge solenoid.
6. If the tank pressure sensor value in step 5 DOES NOT change
 - 6.1. Install CH-48096 adaptor between the purge line from the canister and the purge solenoid. Do not use any other adaptor or pressurization method.
 - 6.2. With the EVAP system CLOSED, pressurize the system through the CH 48096 adaptor and allow the system to completely stabilize, by observing the Press / Vac Gauge for a minimum of 5 minutes.
 - 6.3. Add smoke to the system with GE 41413-A / J 41413-A after system stabilization.
 - 6.4. Review all of the critical interfaces for any smoke and/or UV Trace fluid:
 - Purge solenoid
 - Engine side (remove quick connect or unbolt from manifold)
 - Fuel cap or capless fill door
 - Canister vent solenoid filter or fresh-air line Note: An intermittent condition with the vent solenoid may be exposed by cycling the vent solenoid and reperforming the test.

- Any EVAP line quick connects (also inspect/ tug test to ensure that quick connects are fully seated and latched)
 - Additional locations
7. If unable to locate a leak by smoke testing, a condition may exist where a leak in the EVAP system only exists under a vacuum condition. This type of leak may be detected by using the scan tool Purge/Seal function to create a vacuum in the EVAP system and then observe the FTP sensor parameter for vacuum decay.
 8. Make appropriate repairs base upon test results.

TIPS:

- When servicing the EVAP system, test pressure must not exceed 13 in H2O (0.5 PSI) as pressure in excess of this could cause system components to perform inaccurately, which can lead to mis-diagnosis.
- The EEST (GE 41413-A or J 41413-A) is a very accurate machine, when properly maintained. When working with such low pressures it is very important to use an EVAP testing tool that is very accurate. The use of aftermarket EVAP testing tools may not have the same pressure regulation, quality or accuracy, which can lead to mis-diagnosis.
- A large temperature difference between the vehicle, shop and EEST will seriously affect the accuracy of the tests. Significant differences in temperature between them can result in a flow or pressure change during testing, causing misleading results. Always allow the vehicle temperature to adjust to the shop and EEST temperature, which can lead to mis-diagnosis.

Warranty Information

The correction for this concern may be one of several repairs. For vehicles repaired under warranty, please use the appropriate warranty labor operation based on the actual cause and repair.

Please follow this diagnostic or repair process thoroughly and complete each step. If the condition exhibited is resolved without completing every step, the remaining steps do not need to be performed.

GM bulletins are intended for use by professional technicians, NOT a "do-it-yourselfer". They are written to inform these technicians of conditions that may occur on some vehicles, or to provide information that could assist in the proper service of a vehicle. Properly trained technicians have the equipment, tools, safety instructions, and know-how to do a job properly and safely. If a condition is described, DO NOT assume that the bulletin applies to your vehicle, or that your vehicle will have that condition. See your GM dealer for information on whether your vehicle may benefit from the information.



WE SUPPORT VOLUNTARY TECHNICIAN CERTIFICATION