

DTC P0449: Evaporative Emission (EVAP) Vent Solenoid Control Circuit

Diagnostic Fault Information

Circuit	Short to Ground	High Resistance	Open	Short to Voltage	Signal Performance
Battery Positive - Vent Supply	P0449	P0449	P0449	--	--
EVAP Vent Solenoid Control	P0449	P0449	P0449	P0449	--

Circuit/System Description

An ignition voltage is supplied directly to the evaporative emission (EVAP) canister purge solenoid valve. The engine control module (ECM) grounds the EVAP canister purge solenoid valve control circuit through an internal switch called a driver. The ECM monitors the status of the driver. The EVAP canister purge solenoid valve is pulse width modulated (PWM). A scan tool will display the amount of ON time as a percentage.

Battery voltage is supplied to the EVAP canister solenoid valve. The ECM grounds the EVAP canister vent solenoid valve control circuit through an internal switch called a driver. The ECM monitors the status of the driver. A scan tool will display the commanded state of the EVAP canister vent solenoid valve as ON or OFF.

Conditions for Running the DTC

- The ignition is ON.
- The system voltage is between 9-18 volts.
- DTC P0449s run continuously when the above conditions are met.

Conditions for Setting the DTC

The ECM detects that the commanded state of the driver and the actual state of the control circuit do not match for a minimum of 5 seconds.

Action Taken When the DTC Sets

- DTC P0449 is a Type A DTC.

Conditions for Clearing the MIL/DTC

- DTC P0449 is a Type A DTC.

Circuit/System Verification

1. Ignition ON, engine OFF, command the EVAP vent solenoid ON and OFF with a scan tool.
2. Listen for a click when the valve operates. Verify that both the ON, and the OFF states are commanded.
3. Operate the vehicle within the Conditions for Running the DTC. You may also operate the vehicle within the conditions that you observed from the Freeze Frame/Failure Records data.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the EVAP canister purge or vent solenoid valve.
2. Ignition ON, verify that a test lamp illuminates between the voltage supply circuit terminal A and ground.
⇒If the test lamp does not illuminate, test the voltage supply circuit for a short to ground or an open/high resistance. If the circuit tests normal and the voltage supply circuit fuse is open, test or replace the EVAP canister purge solenoid.
3. Connect a test lamp between the voltage supply circuit terminal A and the control circuit terminal B.
4. Command the EVAP canister purge solenoid valve to 50 percent with a scan tool, or the EVAP canister vent solenoid valve ON and OFF. The test lamp should respond to the command.
⇒If the test lamp is always ON, test the control circuit for a short to ground. If the circuit tests normal, replace the ECM.
⇒If the test lamp is always OFF, test the control circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the ECM.

DTC P0455: Evaporative Emission (EVAP) System Large Leak Detected

Circuit/System Description

The ECM tests the Evaporative Emission (EVAP) System for a large leak or restrictions to the purge path in the EVAP system. When the enabling criteria has been met the ECM commands the EVAP canister vent solenoid valve ON and the EVAP canister purge solenoid valve ON, allowing vacuum into the EVAP system. The ECM monitors the fuel tank pressure (FTP) sensor voltage to verify that the system is able to reach a predetermined level of vacuum within a set amount of time.

Conditions for Running the DTC

- Before the ECM can report DTC P0455 failed, DTC P0496 must run and pass.
- DTCs P0106, P0107, P0108, P0116, P0117, P0118, P0120, P0121, P0122, P0123, P0220, P0222, P0223, P0442, P0443, P0449, P0451, P0452, P0453, P0454, P0464, P0496, P0608, P0609, P0641, P0651, P1516, P2101, P2119, P2120, P2122, P2123, P2125, P2127, P2128, P2135, P2138 are not set.

- The ignition voltage is between 11-18 volts.
- The barometric pressure (BARO) is more than 74 kPa.
- The fuel level is between 15-85 percent.
- The engine coolant temperature (ECT) is less than 35°C (95°F).
- The intake air temperature (IAT) is between 4-30°C (39-86°F).
- DTC P0455 runs once per cold start when the above conditions are met.

Conditions for Setting the DTC

The EVAP system is not able to achieve or maintain a calibrated level of vacuum within a set amount of time.

Action Taken When the DTC Sets

DTC P0455 is a Type B DTC.

Conditions for Clearing the MIL/DTC

DTC P0455 is a Type B DTC.

Diagnostic Aids

- Inspect for a loose, missing, damaged, or incorrect fuel fill cap.
- Inspect for a damaged fuel filler neck seal surface.
- A blockage or restriction in the EVAP purge solenoid valve, purge pipe, EVAP canister, or vapor pipe, can cause this DTC to set.
- The EVAP system can be filled with smoke more quickly and completely by opening the system opposite the end where the smoke is injected. For example, when injecting smoke at the service port remove the fuel fill cap, or temporarily leave the vent open, until smoke is observed, then close the system and continue testing. If using a fuel cap adapter at the filler neck, use the [J 41413-VLV](#) at the service port to allow the system to fill faster.
- To help locate intermittent leaks using the [J 41413-200](#) , move all EVAP components while observing smoke with the [J 41413-SPT](#) .
- Individual components can be isolated and tested using adapters in the [J 41413-300](#) .
- 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 parameter for vacuum decay.

Important:

- Larger volume fuel tanks and/or those with lower fuel levels may require several minutes for the floating indicator to stabilize.
- Refer to the [J 41413-200](#) operation manual for detailed instructions in [Evaporative Emission System Diagnosis](#).
 1. Connect the [J 41413-200](#) to the vehicle EVAP service port. For vehicles without a service port, disconnect the purge tube at the quick connector on the EVAP canister side of the purge solenoid valve and install the [CH-48096](#) .
 2. Use a scan tool to seal the EVAP system.
 3. Use the flow meter on the [J 41413-200](#) , calibrated to 0.51 millimeter (0.020 inch) to determine that there is no leak in the EVAP system.
 - ⇒If a leak is detected, use the [J 41413-200](#) to apply smoke to the EVAP system at the service port or the purge tube until the leak is located using the [J 41413-SPT](#) .
 4. To test for a restriction, connect the [J 41413-200](#) nitrogen/smoke hose to the to the [J 41413-311](#) brass cone adapter. Disconnect the hose at the fuel cap end of the [GE-41415-50](#) . Connect the [J 41413-311](#) to the disconnected hose on the [GE-41415-50](#) . Install the [GE-41415-50](#) filler neck end only to the vehicle.
 5. Allow the engine to idle.
 6. Use the Purge/Seal function to seal the system with a scan tool.
 7. Command the EVAP canister purge solenoid valve to 30 percent.
 8. The vacuum/pressure gage on the [J 41413-200](#) and the FTP parameter on the scan tool should both show vacuum.
 - ⇒If the vacuum/pressure gage shows vacuum, but the FTP parameter does not show vacuum, replace the FTP sensor.
 - ⇒If neither the FTP parameter nor the vacuum/pressure gage shows vacuum, repair the restriction in the purge path. Refer to [Evaporative Emissions Hose Routing Diagram](#).
 9. Verify that the vacuum increases to the abort limit on the scan tool or more than 3.2 volts, and the values are similar between the scan tool and the vacuum/pressure gage on the [J 41413-200](#) .
 - ⇒If the values are not similar, or the voltage did not reach 3.2 volts, replace the FTP sensor.