

GEN III V8 PCM - DTC P0443 EVAP PURGE SOLENOID CONTROL CIRCUIT

CIRCUIT DESCRIPTION

An ignition voltage is supplied directly to the EVAP solenoid relay coil. The PCM controls the solenoid by earthing the control circuit via an internal switch called a driver. The primary function of the driver is to supply the earth for the controlled component. Each driver has a fault line, which the PCM monitors. The voltage of the control circuit should be low (near 0 volt), when the PCM commands a component ON. The voltage potential of the circuit should be high (near the battery voltage), when the PCM commands the control circuit to a components OFF. If the fault detection circuit senses a voltage other than what the PCM is expected, the fault line status changes causing the DTC to set.

CONDITIONS FOR RUNNING THE DTC

- The engine speed is greater than 400 RPM.
- The ignition voltage is between 6.0 and 16.0 volts.

CONDITIONS FOR SETTING THE DTC

- The PCM detects that the commanded state of the circuit and the actual state of the circuit does not match.
- The conditions are present for at least ten seconds.

ACTION TAKEN WHEN THE DTC SETS

- The PCM illuminates the Check Powertrain Lamp when the diagnostic runs and fails.
- The PCM records the operating conditions at the time the diagnostic fails. The PCM stores this information in the Freeze Frame/Failure Records.

CONDITIONS FOR CLEARING THE CPL/DTC

- The PCM turns the Check Powertrain Lamp OFF after one ignition cycle that the diagnostic runs and does not fail.
- A last test failed (current DTC) clears when the diagnostic runs and does not fail.
- Use a Tech 2 scan tool in order to clear the CPL/DTC.

DIAGNOSTIC AIDS

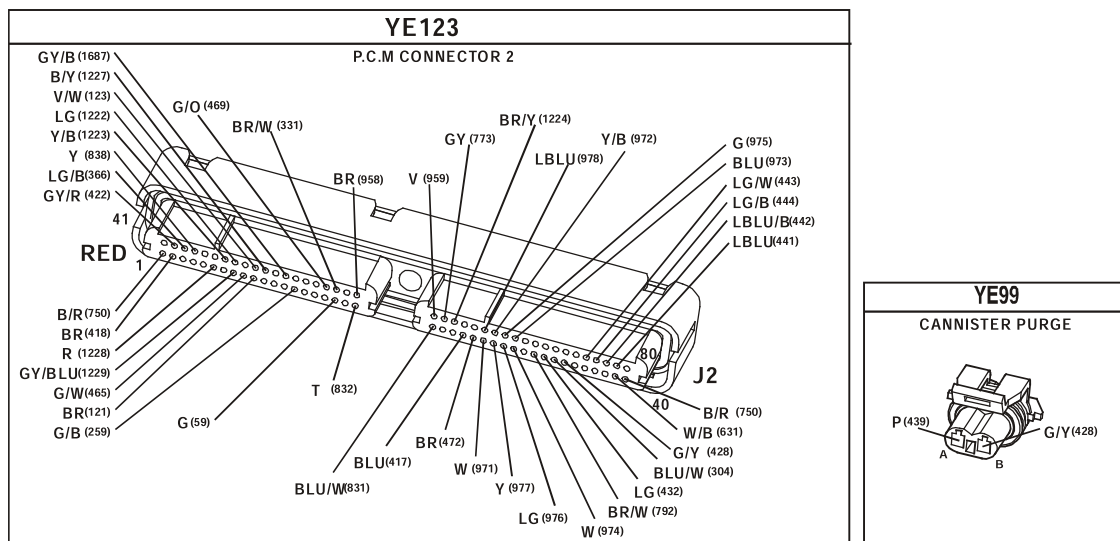
- Using Freeze Frame/Failure Records data may aid in locating an intermittent condition. If you cannot duplicate the DTC, the information included in the Freeze Frame/Failure Records data can aid in determining the distance traveled since the DTC set. The Fail Counter and Pass Counter can also aid determining how many ignition cycles the diagnostic reported a pass and/or fail. Operate the vehicle within the same freeze frame conditions (RPM, load, vehicle speed, temperature etc.) that you observed. This will isolate when the DTC failed.
- For an intermittent, refer to [Section 6C3-2B Symptoms](#), of the VX Series Service Information.

TEST DESCRIPTION

The numbers below refer to the step numbers on the diagnostic table.

NOTE: The engine must be running in order to command the EVAP Purge Solenoid Valve ON and OFF.

- Listen for an audible click when the solenoid operates. Be sure that both the ON and the OFF states are commanded. Repeat the commands as necessary.
- This check can detect a partial short which would cause excessive current flow. Leaving the circuit energised for 2 minutes allows the coil to warm up. When warm, the coil may open (Amps drop to 0), or short (goes above 0.75 Amp).
- If no trouble is found in the control circuit or the connection at the PCM, the PCM may be faulty, however, this is an extremely unlikely failure.



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Step	Action	Value(s)	Yes	No
1	Did you perform the Powertrain On-Board Diagnostic (OBD) System Check?		Go to Step 2	Go to Powertrain OBD System Check Table
2	1. Idle the engine at the normal operating temperature. 2. Command the solenoid ON and OFF using the scan tool. Does the solenoid turn ON and OFF when commanded?		Go to Step 3	Go to Step 5
3	1. Turn OFF the ignition. 2. Disconnect the PCM RED connector. 3. Turn ON the ignition leaving the engine OFF. 4. Measure the current, from the solenoid control circuit in the PCM harness connector, to earth for 2 minutes using the DMM J 39200 on the 10 Amp scale. Does the current draw measure less than the specified value shown but not 0?	0.75 A	Go to Diagnostic Aids	Go to Step 4

GEN III V8 PCM - DTC P0443 EVAP PURGE SOLENOID CONTROL CIRCUIT (CONTINUED)

Step	Action	Value(s)	Yes	No
4	<ol style="list-style-type: none"> 1. Turn OFF the ignition. 2. Disconnect the solenoid. 3. Measure the resistance, from the solenoid control circuit in the PCM harness connector, to earth using the DMM J 39200. <p>Does the DMM display infinite resistance?</p>		Go to Step 12	Go to Step 10
5	<ol style="list-style-type: none"> 1. Turn OFF the ignition. 2. Disconnect the solenoid. 3. Connect the test lamp J 34142-B between the terminals in the solenoid harness connector. 4. Idle the engine at the normal operating temperature. 5. Command the solenoid ON and OFF using the scan tool. <p>Does the test lamp turn ON and OFF when commanded?</p>		Go to Step 8	Go to Step 6
6	<p>With the test lamp connected to earth, probe the ignition feed circuit in the solenoid harness connector.</p> <p>Is the test lamp illuminated?</p>		Go to Step 7	Go to Step 11
7	<ol style="list-style-type: none"> 1. Turn OFF the ignition. 2. Reconnect the solenoid. 3. Disconnect the RED PCM connector. 4. Turn ON the ignition leaving the engine OFF. 5. With a fused jumper wire connected to earth, probe the solenoid control circuit in the PCM harness connector. <p>Does the solenoid operate?</p>		Go to Step 9	Go to Step 10
8	<p>Check the connection at the solenoid?</p> <p>Was a problem found and corrected?</p>		Go to Step 14	Go to Step 12
9	<p>Check the connection at the PCM.</p> <p>Was a problem found and corrected?</p>		Go to Step 14	Go to Step 13
10	<p>Repair open or short to earth in the solenoid control circuit.</p> <p>Is the action complete?</p>		Go to Step 14	
11	<p>Repair the faulty solenoid ignition feed circuit.</p> <p>Is the action complete?</p>		Go to Step 14	
12	<p>Replace the solenoid.</p> <p>Is the action complete?</p>		Go to Step 14	
13	<ol style="list-style-type: none"> 1. Replace PCM. 2. Refer to Section 6C3-3 Service Operations, of the VX Series Service Information, for PCM Programming and PCM/PIM/BCM Security Link Procedure. <p>Is action complete?</p>		Go to Step 14	
14	<ol style="list-style-type: none"> 1. Select the Diagnostic Trouble Code (DTC) option and the Clear DTC Information option using the Tech 2 scan tool. 2. Idle the engine at the normal operating temperature. 3. Select the Diagnostic Trouble Code (DTC) option, the DTC Information option and The Failed This Ignition option using the Tech 2 scan tool. 4. Operate the vehicle, within the Conditions for Running the DTC, as specified in the supporting text, if applicable. <p>Does the Tech 2 scan tool indicate that this DTC reset?</p>		Go to Step 2	Go to Step 15
15	<p>Using the Tech 2 scan tool, check for any other DTCs.</p> <p>Does the Tech 2 scan tool display any DTCs that you have not diagnosed?</p>		Go to the applicable <i>DTC</i> table	System OK