

## DTC P0420 [LF]

B3E010201086W02

P0420	Catalyst system efficiency below threshold
<b>DETECTION CONDITION</b>	<ul style="list-style-type: none"> <li>The PCM compares the number of front HO2S and rear HO2S inversions for a predetermined time. The PCM monitors number of inversions rear HO2S performs while front HO2S inverts for a specified number of times when the following monitoring conditions are met. The PCM detects inversion ratio. If the inversion ratio is below threshold, the PCM determine that catalyst system has deteriorated.</li> </ul> <p><b>MONITORING CONDITION</b></p> <ul style="list-style-type: none"> <li>Engine speed is <b>1,410- 3,100 rpm</b>.</li> <li>Calculated TWC temperature in PCM is above <b>574 °C {1065 °F}</b>.</li> <li>Calculated load is <b>15- 50%</b> (at <b>2,000 rpm</b>)</li> </ul> <p><b>Diagnostic support note</b></p> <ul style="list-style-type: none"> <li>This is a intermittent monitor. (CATALYST)</li> <li>The MIL illuminates if the PCM detects the above malfunction conditions in two consecutive drive cycles or in one drive cycle while the DTC for the same malfunction has been stored in the PCM.</li> <li>DIAGNOSTIC MONITORING TEST RESULTS and PENDING CODE are stored if PCM detects the above malfunction condition during first drive cycle.</li> <li>FREEZE FRAME DATA is available.</li> <li>The DTC is stored in the PCM memory.</li> </ul>
<b>POSSIBLE CAUSE</b>	<ul style="list-style-type: none"> <li>TWC deterioration or malfunction</li> <li>Exhaust gas leakage</li> <li>Loose front HO2S</li> <li>Loose rear HO2S</li> </ul>

### Diagnostic procedure

STEP	INSPECTION	ACTION
1	<b>VERIFY FREEZE FRAME DATA HAS BEEN RECORDED</b> • Has FREEZE FRAME DATA been recorded?	Yes Go to the next step.
		No Record the FREEZE FRAME DATA on repair order, then go to the next step.
2	<b>VERIFY RELATED REPAIR INFORMATION AVAILABILITY</b> • Verify related service repair information availability. • Is any related repair information available?	Yes Perform repair or diagnosis according to the available repair information. • If the vehicle is not repaired, go to the next step.
		No Go to the next step.
3	<b>VERIFY RELATED PENDING CODE OR STORED DTC</b> • Turn the ignition switch off then to the ON position (Engine off). • Verify related pending code or stored DTCs. • Are other DTCs present?	Yes Go to appropriate DTC troubleshooting.
		No Go to the next step.
4	<b>INSPECT GAS LEAKAGE OF EXHAUST SYSTEM</b> • Visually inspect exhaust gas leakage in the exhaust system. • Is there gas leakage?	Yes Repair or replace the malfunctioning exhaust part, then go to Step 7.
		No Go to the next step.
5	<b>INSPECT INSTALLATION OF FRONT AND REAR OXYGEN SENSORS</b> • Inspect for looseness of front and rear oxygen	Yes Go to the next step.

	sensors. • Is it normal?	No	Retighten the sensor, then go to Step 7.
6	<b>INSPECT TWC</b> • Clear the DTC using the WDS or equivalent generic OBD function. • Turn the ignition switch off then back to the ON position. • Inspect the TWC.  (See <a href="#">EXHAUST SYSTEM INSPECTION [LF]</a> .)  • Is it normal?	Yes	Replace the heated oxygen sensor, then go to the next step.
		No	Replace the TWC, then go to the next step.
7	<b>VERIFY TROUBLESHOOTING OF DTC P0420 OR P0431 COMPLETED</b> • Make sure to reconnect all disconnected connectors. • Turn the ignition switch to the ON position (Engine off). • Clear the DTC from the memory using the WDS or equivalent. • Perform the HO2S heater, HO2S, and TWC Repair Verification Drive Mode. (See <a href="#">OBD DRIVE MODE [LF]</a> .) • Is the PENDING CODE for this DTC present?	Yes	Replace the PCM, then go to the next step. (See <a href="#">PCM REMOVAL/INSTALLATION [LF]</a> .)
		No	Go to the next step.
8	<b>VERIFY AFTER REPAIR PROCEDURE</b> • Perform the "After Repair Procedure". (See <a href="#">AFTER REPAIR PROCEDURE [LF]</a> .) • Are any DTC present?	Yes	Go to the applicable DTC troubleshooting. (See <a href="#">DTC TABLE [LF]</a> .)
		No	Troubleshooting completed.