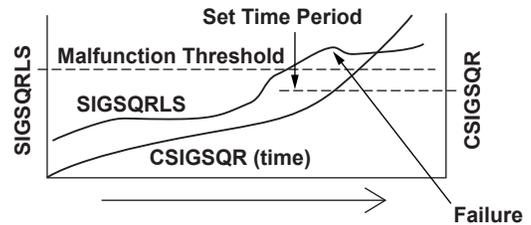
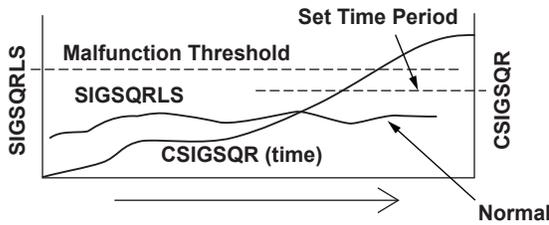
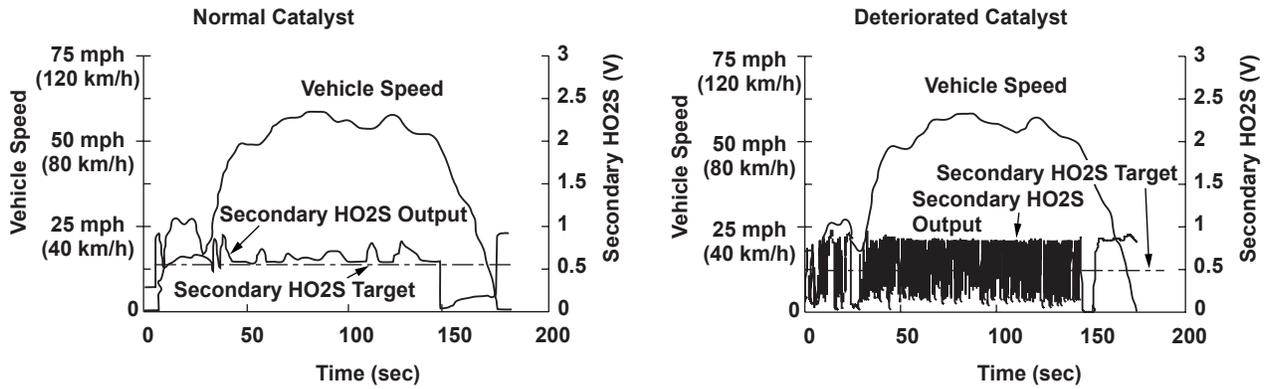


Advanced Diagnostics

DTC P0420: Catalyst System Efficiency Below Threshold



P0420-0071

General Description

The three way catalytic converter (TWC) converts hydrocarbons (HC), carbon monoxide (CO), and oxides of nitrogen (NOx) in the exhaust gas to water vapor, carbon dioxide (CO₂), and dinitrogen (N₂).

The TWC efficiency does not depend entirely on the engine conditions or the deterioration level of the TWC. It can be optimized by stabilizing the secondary HO₂S output.

For the SULEV, to make the secondary HO₂S output constant, the air/fuel ratio is controlled by monitoring the TWC conditions based on the air/fuel ratio upstream and downstream of the TWC.

If the TWC deteriorates, the air/fuel ratio downstream (the secondary HO₂S output) often differs from the target secondary HO₂S output, and the status is represented by the parameter (SIGSQRLS).

Therefore, if the SIGSQRLS exceeds a specified value for a set time period, a malfunction is detected and a DTC is stored.

Monitor Execution, Sequence, Duration, DTC Type

Execution	Once per driving cycle
Sequence	After judged OK for the secondary HO ₂ S
Duration	50 seconds or less
DTC Type	Two drive cycles, MIL ON

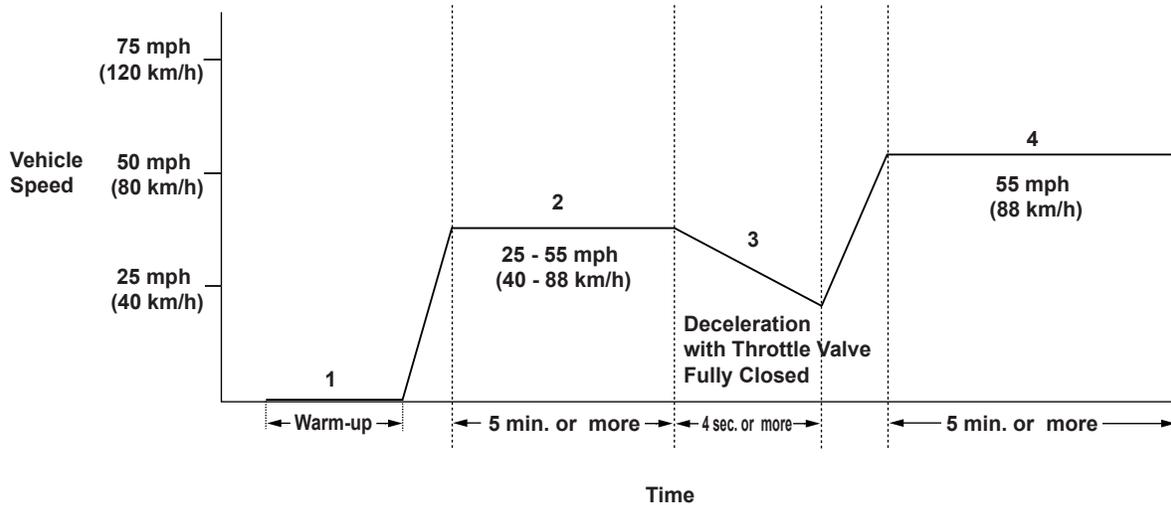
Enable Conditions

Condition	Minimum	Maximum
Engine coolant temperature	158°F (70°C)	—
Intake air temperature	-13°F (-25°C)	—
Engine speed	1,000 rpm	3,500 rpm
MAP value	24 kPa (180 mmHg, 7.1 in.Hg)	88 kPa (661 mmHg, 26.0 in.Hg)
Vehicle speed	3 mph (5 km/h)	—
Fuel trim	0.73	1.47
Fuel feedback	Closed loop control at stoichiometric ratio	
Monitoring priority	EVAP	
No active DTCs	ECM/PCM, A/F Sensor, A/F Sensor Heater, Secondary HO2S, Secondary HO2S Heater, MAP, ECT, IAT, EGR, BARO, VSS, EVAP, CMP, IMRC, VTEC System, Fuel System, VTC System, Misfire	
Others	The TWC temperature is high enough	
	Other than when there is excessive vapor generation (fuel level is 40 - 80%)	

Malfunction Threshold

The number of detections is 304 or more.

Driving Pattern



P0420-0251

1. Start the engine. Hold the engine at 3,000 rpm with no load (in park or neutral) until the radiator fan comes on.
2. Drive the vehicle at a speed between 25 - 55 mph (40 - 88 km/h) for at least 5 minutes.
3. Then, decelerate with the throttle valve fully closed for at least 4 seconds.
4. Set a vehicle speed of 55 mph (88 km/h) on the cruise control, and drive for at least 5 minutes.

- If you have difficulty duplicating the DTC, retest after turning off electrical components such as the audio system and A/C, and try a different gear position.
- Drive the vehicle in this manner only if the traffic regulations and ambient conditions allow.

Diagnosis Details

Conditions for illuminating the MIL

When a malfunction is detected during the first drive cycle, a Temporary DTC is stored in the ECM/PCM memory. If the malfunction recurs during the next (second) drive cycle, the MIL comes on and the DTC and the freeze frame data are stored.

Conditions for clearing the MIL

The MIL will be cleared if the malfunction does not recur during three consecutive trips in which the diagnostic runs. The MIL, the DTC, the Temporary DTC, and the freeze frame data can be cleared by using the scan tool Clear command or by disconnecting the battery.