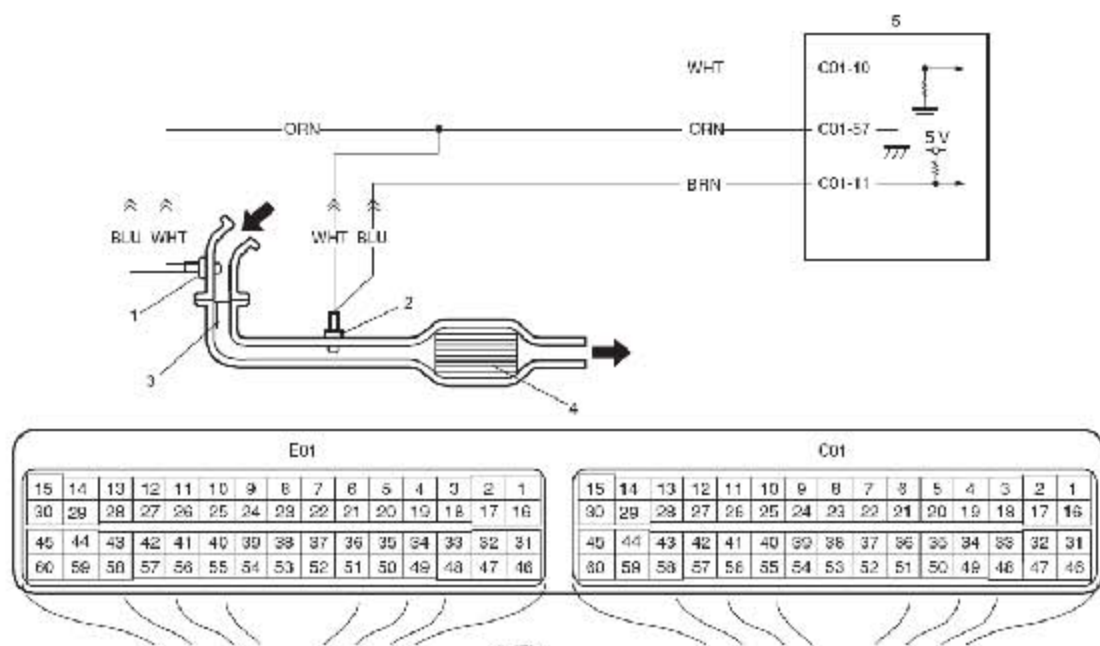


P0420: Catalyst System Efficiency below Threshold

Wiring Diagram



1. HO2S-1	3. Warm up three way catalytic converter	5. ECM
2. HO2S-2	4. Three way catalytic converter	

Circuit Description

ECM monitors oxygen concentration in the exhaust gas which has passed the warm up three way catalytic converter by HO2S-2. When the catalyst is functioning properly, the variation cycle of HO2S-2 output voltage (oxygen concentration) is slower than that of HO2S-1 output voltage because of the amount of oxygen in the exhaust gas which has been stored in warm up three way catalytic converter.

DTC Detecting Condition and Trouble Area

DTC detecting condition	Trouble area
<ul style="list-style-type: none"> • While vehicle running at constant speed under other than high load. • Time from rich or lean switching command is output till HO2S-2 output voltage crosses 0.45 V is less than specified value. (2 driving cycle detection logic, monitoring once / 1 driving) 	<ul style="list-style-type: none"> • Exhaust gas leak • Warm up three way catalytic converter malfunction • HO2S-2 malfunction • HO2S-1 malfunction

DTC Confirmation Procedure

- 1) Connect scan tool to DLC with ignition switch turned OFF.
- 2) Turn ON ignition switch and clear DTC using scan tool.
- 3) Increase vehicle speed to 40 – 50 mph, 60 – 80 km/h.
- 4) Keep above vehicle speed for 10 min. or more (Throttle valve opening is kept constant in this step).
- 5) Stop vehicle.
- 6) For european market model, check whether catalyst monitoring readiness/monitoring test has completed or not by using scan tool. If evaporative system readiness/monitoring test has not completed, check vehicle conditions (environmental) and repeat Steps 3) through 5).
- 7) Check DTC and pending DTC.

DTC Troubleshooting

Step	Action	Yes	No
1	Was "Engine and Emission Control System Check" performed?	Go to Step 2.	Go to "Engine and Emission Control System Check".
2	Exhaust system visual check 1) Check exhaust system for leaks, damage and loose connection. Is it in good condition?	Go to Step 3.	Repair or replace defective part.

Step	Action	Yes	No
3	HO2S-2 output voltage check 1) Check output voltage of HO2S-2 referring to "DTC P0137 / P0138: O2 Sensor (HO2S) Circuit Low Voltage / High Voltage (Sensor-2)". Is check result satisfactory?	Replace exhaust manifold (built in warm up three way catalytic converter) and exhaust center pipe (built in three way catalytic converter).	Check "BRN" and / or "ORN" wires for open and short, and connections for poor connection. If wires and connections are OK, replace HO2S-2.

LAUNCH