DTC P0125 INSUFFICIENT COOLANT TEMPERATURE FOR CLOSED LOOP FUEL CONTROL

CIRCUIT DESCRIPTION

Refer to DTC P0115 on page 05–77.

DTC No.	DTC Detection Condition	Trouble Area
P0125	If THW or THA less than –6.6˚C (20˚F) at engine start, 20 min. or more after starting engine, engine coolant temp. sensor value is 20˚C (68˚F) or less (2 trip detection logic)	• Cooling system • Engine coolant temperature sensor • Thermostat
	If THW and THA is between –6.6˚C (20˚F) and 10˚C (50˚F) at engine start, 5 min. or more after starting engine, engine coolant temp. sensor value is 20˚C (68˚F) or less (2 trip detection logic)	
	If THW and THA greater than 10˚C (50˚F) at engine start, 2 min. or more after starting engine, engine coolant temp. sensor value is 20˚C (68˚F) or less (2 trip detection logic)	

MONITOR DESCRIPTION

The engine coolant temperature (ECT) sensor is used to monitor the temperature of the engine coolant. The resistance of the sensor varies with the actual coolant temperature. The ECM applies a voltage to the sensor and the varying resistance of the sensor causes the signal voltage to vary. The ECM monitors the ECT signal voltage after engine start–up. If, after sufficient time has passed, the sensor still reports that the engine is not warm enough for closed–loop fuel control, the ECM interprets this as a fault in the sensor or cooling system.

Example:

The engine coolant temperature was 0°C (32°F) at engine start. After 5 minutes running time, the coolant temperature sensor still indicates that the engine is not warm enough to begin the air–fuel ratio feedback control. The ECM interprets this as a fault in the sensor or cooling system and will set a DTC.

MONITOR STRATEGY

Related DTCs	P0125	Insufficient coolant temperature for closed loop fuel control
Required sensors/components	Main sensors	Engine coolant temperature sensor, cooling system, thermostat
	Related sensors	Mass air flow sensor
Frequency of operation	Continuous	
Duration	2 minute (at 10°C (50°F) or more engine start temperature) 5 minute (at "–6.6°C (20°F)" to "10°C (50°F)" engine start temperature) 20 minute (at less than –6.6°C (20°F) engine start temperature)	
MIL operation	2 driving cycles	
Sequence of operation	None	

TYPICAL ENABLING CONDITIONS

Item	Specification	
	Minimum	Maximum
The monitor will run whenever the following DTCs are not present	See "List of Disable a Monitor" table (On page 05–24)	
Intake air amount per second	0.1 g/sec	–
Fuel cut	OFF	

TYPICAL MALFUNCTION THRESHOLDS

Detection Criteria	Threshold
Time until "engine coolant temperature" detection temperature reaches feedback start temperature	
When the temperature at the time of engine starting is 10°C (50°F) or more	Engine coolant temperature is less than "closed–loop enable temperature" when 2 minute or more after engine start
When the temperature at the time of engine starting is "–6.6°C (20°F)" to "10°C (50°F)"	Engine coolant temperature is less than "closed–loop enable temperature" when 5 minute or more after engine start
When the temperature at the time of engine starting is –6.6°C (20°F) or less	Engine coolant temperature is less than "closed–loop enable temperature" when 20 minute or more after engine start

WIRING DIAGRAM

Refer to DTC P0115 on page 05–77.

INSPECTION PROCEDURE

HINT:

- If DTCs "P0115, P0116, P0117, P0118 and P0125" are output simultaneously, engine coolant temperature sensor circuit may be open or short. Perform the troubleshooting of DTC "P0115, P0117 or P0118" first.
- Read freeze frame data using the hand–held tester or the OBD II scan tool. Freeze frame data records the engine conditions when a malfunction is detected. When troubleshooting, it is useful for determining whether the vehicle was running or stopped, the engine was warmed up or not, the air–fuel ratio was lean or rich, etc. at the time of the malfunction.

1 CHECK OTHER DTCS OUTPUT(IN ADDITION TO DTC P0125)

(a) Connect the hand–held tester or the OBD II scan tool to the DLC3.
(b) Turn the ignition switch ON and push the hand–held tester or the OBD II scan tool main switch ON.
(c) Select the item "DIAGNOSIS / OBD/MOBD / DTC INFO / CURRENT CODES".
(d) Read the DTCs using the hand–held tester or the OBD II scan tool.

Result:

Display (DTC output)	Proceed to
Only "P0125" is output	A
"P0125" and other DTCs are output	B

HINT:

If any other codes besides "P0125" is output, perform the troubleshooting for those DTCs first.

B → **GO TO RELEVANT DTC CHART (See page 05–34)**

A

2 INSPECT THERMOSTAT (See page 16–3)

NG → **REPLACE THERMOSTAT (See page 16–12)**

OK

REPLACE ENGINE COOLANT TEMPERATURE SENSOR