DTC	P0125	Insufficient Coolant Temperature for Closed Loop Fuel Control

DESCRIPTION

Refer to DTC P0115 (See page ES-133).

DTC No.	DTC Detection Condition	Trouble Area
P0125	Engine coolant temperature (ECT) does not reach closed-loop enabling temperature for 20 minutes (this period varies with engine start ECT)	• Cooling system • Engine coolant temperature sensor • Thermostat

MONITOR DESCRIPTION

The resistance of the ECT sensor varies in proportion to the actual ECT. The ECM supplies a constant voltage to the sensor and monitors the signal output voltage of the sensor. The signal voltage output varies according to the changing resistance of the sensor. After the engine is started, the ECT is monitored through this signal. If the ECT sensor indicates that the engine is not yet warm enough for closed-loop fuel control, despite a specified period of time having elapsed since the engine was started, the ECM interprets this as a malfunction in the sensor or cooling system and sets the DTC.

Example:

The ECT is 0°C (32°F) at engine start. After 5 minutes running time, the ECT sensor still indicates that the engine is not warm enough to begin closed-loop fuel (air-fuel ratio feedback) control. The ECM interprets this as a malfunction in the sensor or cooling system and sets the DTC.

MONITOR STRATEGY

Related DTCs	P0125: Insufficient engine coolant temperature for closed-loop fuel control
Required Sensors / Components (Main)	Thermostat, cooling system
Required Sensors / Components (Related)	Engine coolant temperature sensor and mass air flow meter
Frequency of Operation	Continuous
Duration	78 seconds: Engine coolant temperature at engine start -8.34°C (17°F) or more 131.3 seconds: Engine coolant temperature at engine start -19.45 to -8.34°C (-3 to 17°F) 20 minutes: Engine coolant temperature at engine start less than -19.45°C (-3°F)
MIL Operation	2 driving cycles
Sequence of Operation	None

TYPICAL ENABLING CONDITIONS

The monitor will run whenever these DTCs are not present	P0100, P0101, P0102, P0103 (MAF) sensor, P0110, P0111, P0112, P0113 (IAT sensor), P0115, P0116, P0117, P0118 (ECT sensor)
Fuel cut	OFF
Engine	Running

TYPICAL MALFUNCTION THRESHOLDS

Time until actual engine coolant temperature reaches closed-loop fuel control enabling temperature	78 seconds or more: Engine coolant temperature at engine start -8.34°C (17°F) or more 131.3 seconds or more: Engine coolant temperature at engine start -19.45 to -8.34°C (-3 to 17°F) 20 minutes or more: Engine coolant temperature at engine start less than -19.45°C (-3°F)

WIRING DIAGRAM

Refer to DTC P0115 (See page ES-134).

INSPECTION PROCEDURE

HINT:

- If any of DTCs P0115, P0116, P0117 or P0118 are set simultaneously with DTC P0125, the Engine Coolant Temperature (ECT) sensor may have an open or a short circuit. Troubleshoot those DTCs first.
- Read freeze frame data using the intelligent tester. The ECM records vehicle and driving condition information as freeze frame data the moment a DTC is stored. When troubleshooting, freeze frame data can be helpful in determining whether the vehicle was running or stopped, whether the engine was warmed up or not, whether the air-fuel ratio was lean or rich, as well as other data recorded at the time of a malfunction.

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

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch to the ON position.
(c) Turn the tester on.
(d) Select the following menu items: DIAGNOSIS / ENHANCED OBD II / DTC INFO / CURRENT CODES.
(e) Read the DTCs.

Result

Display (DTC Output)	Proceed to
P0125	A
P0125 and other DTCs	B

HINT:
If any DTCs other than P0125 are output, troubleshoot those DTCs first.

B → **GO TO DTC CHART (See page ES-56)**

A

2 INSPECT THERMOSTAT

(a) Remove the thermostat (See page CO-16).
(b) Check the valve opening temperature of the thermostat (See page CO-17).
Standard:
80 to 84°C (176 to 183°F)
HINT:
In addition to the above check, confirm that the valve is completely closed when the temperature is below the standard.
(c) Reinstall the thermostat (See page CO-17).

NG → **REPLACE THERMOSTAT (See page CO-16)**

OK

3	CHECK COOLING SYSTEM

(a) Check for defects in the cooling system that might cause the system to be too cold, such as abnormal radiator fan operation or any modifications.

NG → **REPAIR OR REPLACE COOLING SYSTEM**

OK

REPLACE ENGINE COOLANT TEMPERATURE SENSOR (See page ES-516)