

DTC	P0125	Insufficient Coolant Temperature for Closed Loop Fuel Control
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DESCRIPTION

Refer to DTC P0115 (see page [ES-89](#)).

DTC No.	DTC Detection Condition	Trouble Area
P0125	<ul style="list-style-type: none"> • Case 1: ECT above 10°C (50°F) at engine start and following conditions met (2 trip detection logic): <ul style="list-style-type: none"> (a) 1 minute elapsed since engine start (b) ECT sensor value remains below closed loop fuel control enabling temperature • Case 2: ECT between -6.6 and 10°C (20 and 50°F) at engine start and following conditions met (2 trip detection logic): <ul style="list-style-type: none"> (a) 1.7 minutes elapsed since engine start (b) ECT sensor value remains below closed loop fuel control enabling temperature • Case 3: Engine Coolant Temperature (ECT) less than -6.6°C (20°F) at engine start and following conditions met (2 trip detection logic): <ul style="list-style-type: none"> (a) 19 minutes elapsed since engine start (b) ECT sensor value remains below closed loop fuel control enabling temperature 	<ul style="list-style-type: none"> • Cooling system • Engine Coolant Temperature (ECT) sensor • Thermostat

ES**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 (case 1) P0125: Insufficient engine coolant temperature for closed loop (case 2) P0125: Insufficient engine coolant temperature for closed loop (case 3)
Required sensors/components (Main)	Engine coolant temperature sensor
Required sensors/components (Related)	Cooling system
Frequency of operation	Continuous
Duration	Maximum 19 minutes (Varies with ECT at engine start)
MIL operation	2 driving cycles
Sequence of operation	None

TYPICAL ENABLING CONDITIONS**Insufficient engine coolant temperature for closed loop (case 1)**

Monitor runs whenever following DTCs not present	P0100 - P0103 (MAF meter) P0110 - P0113 (IAT sensor) P0115 - P0118 (ECT sensor) P0128 (Thermostat)
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ECT at engine start	10°C (50°F) or more
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Insufficient engine coolant temperature for closed loop (case 2)

Monitor runs whenever following DTCs not present	P0100 - P0103 (MAF meter) P0110 - P0113 (IAT sensor) P0115 - P0118 (ECT sensor) P0128 (Thermostat)
ECT at engine start	-6.6 to 10°C (20 to 50°F)

Insufficient engine coolant temperature for closed loop (case 3)

Monitor runs whenever following DTCs not present	P0100 - P0103 (MAF meter) P0110 - P0113 (IAT sensor) P0115 - P0118 (ECT sensor) P0128 (Thermostat)
ECT at engine start	Less than -6.6°C (20°F)

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TYPICAL MALFUNCTION THRESHOLDS**Insufficient engine coolant temperature for closed loop (case 1)**

ECT sensor value	Less than closed loop enabling temperature for 55 seconds
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Insufficient engine coolant temperature for closed loop (case 2)

ECT sensor value	Less than closed loop enabling temperature for 103 seconds
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Insufficient engine coolant temperature for closed loop (case 3)

ECT sensor value	Less than closed loop enabling temperature for 1144 seconds
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COMPONENT OPERATING RANGE

ECT sensor value	Reaches 75°C (167°F) or more
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WIRING DIAGRAM

Refer to DTC P0115 (see page [ES-90](#)).

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 short circuit. Troubleshoot those DTCs first.
- Read freeze frame data using the intelligent tester. Freeze frame data records the engine condition when malfunctions are detected. When troubleshooting, freeze frame data can help determine if the vehicle was moving or stationary, if the engine was warmed up or not, if the air-fuel ratio was lean or rich, and other data from the time the malfunction occurred.

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

- Connect the intelligent tester to the DLC3.
- Turn the ignition switch ON and turn the tester ON.
- Enter the following menus: DIAGNOSIS / ENHANCED OBD II / DTC INFO / CURRENT CODES.
- Read 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

A

2

INSPECT THERMOSTAT

- (a) Remove the thermostat (see page [CO-12](#)).
- (b) Check the valve opening temperature of the thermostat.

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.

NG

REPLACE THERMOSTAT

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.

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REPAIR OR REPLACE COOLING SYSTEM

OK

REPLACE ENGINE COOLANT TEMPERATURE SENSOR

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