

<b>DTC</b>	<b>P0125</b>	<b>INSUFFICIENT COOLANT TEMPERATURE FOR CLOSED LOOP FUEL CONTROL</b>
------------	--------------	--

## CIRCUIT DESCRIPTION

Refer to DTC P0115 on page [05-462](#) .

DTC No.	DTC Detection Condition	Trouble Area
P0125	When ECT or IAT is less than -19.45°C (-3°F) at engine start and 20 minutes or more after starting engine, ECT sensor value is 20°C (68°F) or less (2 trip detection logic)	<ul style="list-style-type: none"> <li>• Cooling system</li> <li>• ECT sensor</li> <li>• Thermostat</li> </ul>
P0125	When ECT and IAT are between -19.45°C (-3°F) and -8.34 °C (17°F) at engine start, 5 minutes or more after starting engine and ECT sensor value is 20°C (68°F) or less (2 trip detection logic)	<ul style="list-style-type: none"> <li>• Cooling system</li> <li>• ECT sensor</li> <li>• Thermostat</li> </ul>
P0125	When ECT and IAT greater than -8.34°C (17°F) at engine start and 2 minutes or more after starting engine, ECT sensor value is 20°C (68°F) or less (2 trip detection logic)	<ul style="list-style-type: none"> <li>• Cooling system</li> <li>• ECT sensor</li> <li>• Thermostat</li> </ul>

## 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 and sets a 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 air fuel ratio feedback control of the air-fuel ratio. The ECM interprets this as a fault in the sensor or cooling system and sets a DTC.

## MONITOR STRATEGY

Related DTCs	P0125: Insufficient ECT for Closed Loop
Required sensors / components (Main)	Thermostat, Cooling system
Required sensors / components (Related)	ECT sensor, MAF meter
Frequency of operation	Continuous
Duration	2 minutes: Engine start ECT is -8.34°C (17°F) or more 5 minutes: Engine start ECT is -19.45 to -8.34°C (-3 to 17°F) 20 minutes: Engine start ECT is less than -19.45°C (-3°F)
MIL operation	2 driving cycles
Sequence operation	None

## TYPICAL ENABLING CONDITIONS

The monitor will run whenever this DTC is not present	See page <a href="#">05-377</a>
Fuel cut	OFF
Engine	Running
Idle	OFF

## TYPICAL MALFUNCTION THRESHOLDS

Time until "actual ECT" reaches "Closed Loop ECT"	2 minutes: Engine start ECT is -8.34°C (17°F) or more 5 minutes: Engine start ECT is -19.45 to -8.34°C (-3 to 17°F) 20 minutes: Engine start ECT is less than -19.45°C (-3°F)
---	---

## INSPECTION PROCEDURE

### HINT:

- If DTC P0115, P0116, P0117, P0118 and P0125 are output simultaneously, ECT 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, freeze frame data can help determine if the vehicle was running or stopped, 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 OTHER DTC OUTPUT (IN ADDITION TO DTC P0125)

- (a) Read the DTC using the hand-held tester or the OBD II scan tool.

#### Result:

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

### HINT:

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

**B**

**GO TO RELEVANT DTC CHART (See page 05-412 )**

**A**

### 2 INSPECT THERMOSTAT (See page 16-21 )

- (a) Check the valve opening temperature of the thermostat.

**OK: Valve opening temperature: 80 to 84°C (176 to 183°F).**

### HINT:

Also check the valve is completely closed under opening temperature as above.

**NG**

**REPLACE THERMOSTAT (See page 16-31 )**

**OK**

### 3 CHECK COOLING SYSTEM

- (a) Check the cooling system for excessive cooling, such as abnormal radiator fan operation, modified cooling system and other defects.

**OK: There is no modification of cooling system.**

**NG**

**REPAIR OR REPLACE COOLING SYSTEM**

**OK**

### REPLACE ENGINE COOLANT TEMPERATURE SENSOR