

DTC	P0130	Heated Oxygen Sensor Circuit Malfunction (Bank 1 Sensor 1)
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DTC	P0150	Heated Oxygen Sensor Circuit Malfunction (Bank 2 Sensor 1)
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CIRCUIT DESCRIPTION

Refer to DTC P0125 (Insufficient Coolant Temp. for Closed Loop Fuel Control) on page [DI-46](#).

DTC No.	DTC Detecting Condition	Trouble Area
P0130 P0150	Voltage output of heated oxygen sensor remains at 0.35 V or more, or 0.70 V or less, during idling after engine is warmed up (2 trip detection logic)	• Heated oxygen sensor • Fuel trim malfunction

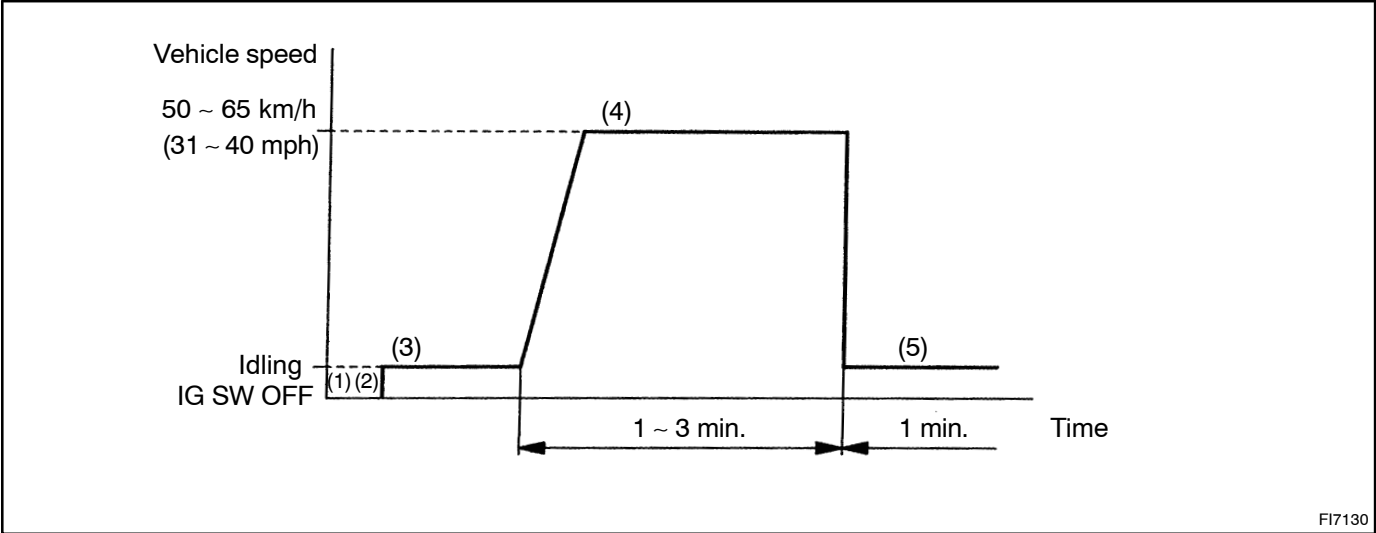
HINT:

- Bank 1 refers to bank that includes cylinder No.1.
- Bank 2 refers to bank that does not include cylinder No.1.
- Sensor 1 refers to the sensor closer to the engine body.
- The heated oxygen sensor's output voltage and the short-term fuel trim value can be read using the OBD II scan tool or TOYOTA hand-held tester.

WIRING DIAGRAM

Refer to DTC P0125 (Insufficient Coolant Temp. for Closed Loop Fuel Control) on page [DI-46](#).

CONFIRMATION DRIVING PATTERN



- (1) Connect the TOYOTA hand-held tester to the DLC3.
- (2) Switch the TOYOTA hand-held tester from normal mode to check mode (See page DI-3).
- (3) Start the engine and warm it up with all accessory switches OFF.
- (4) Drive the vehicle at 50 ~ 65 km/h (31 ~ 40 mph) for 1 ~ 3 min. to warm up the heated oxygen sensor.
- (5) Let the engine idle for 1 min.
- (6) Perform steps (3) to (5) three times.

HINT:
If a malfunction exists, the MIL will light up during step (6).

NOTICE:
If the conditions in this test are not strictly followed, detection of the malfunction will not be possible.
If you do not have a TOYOTA hand-held tester, turn the ignition switch OFF after performing steps (3) to (6), then perform steps (3) to (6) again.

INSPECTION PROCEDURE

HINT:
Read freeze frame data using TOYOTA hand-held tester or OBD II scan tool. Because freeze frame records the engine conditions when the malfunction is detected, when troubleshooting it is useful for determining whether the vehicle was running or stopped, the engine warmed up or not, the air-fuel ratio lean or rich, etc. at the time of the malfunction.

1	Check for open and short in harness and connector between ECM and heated oxygen sensor (See page IN-34).
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Repair or replace harness or connector.

OK

2 Check for heated oxygen sensor data.

PREPARATION:

- (a) Connect the OBD II scan tool or TOYOTA hand-held tester to the DLC3.
- (b) Warm up the engine to normal operating temp.

CHECK:

Read the heated oxygen sensor output voltage and short-term fuel trim.

RESULT:

Pattern	Heated oxygen sensor output voltage	Short-term fuel trim
1	Lean condition (Changes at 0.55 V or less)	Changes at about +20 %
2	Rich condition (Changes at 0.35 V or more)	Changes at about -20 %
3	Except 1 and 2	

1, 2

Check fuel trim system (See page [DI-58](#)).

3

3 Check output voltage of heated oxygen sensor during idling.

PREPARATION:

Warm up the heated oxygen sensor with the engine at 2,500 rpm for approx. 90 sec.

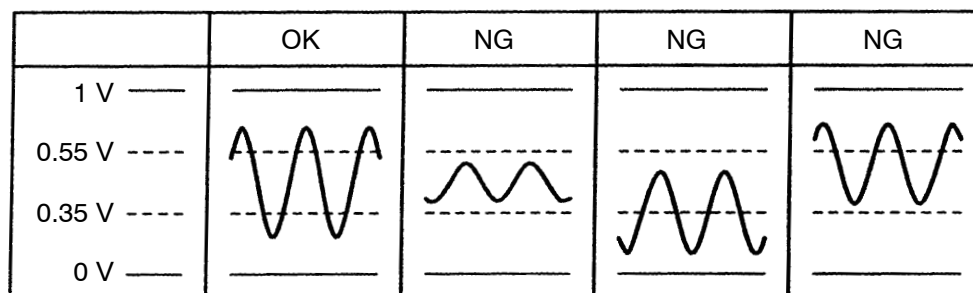
CHECK:

Use the OBD II scan tool or TOYOTA hand-held tester to read the output voltage of the heated oxygen sensor during idling.

OK:

Heated oxygen sensor output voltage:

Alternates repeatedly between less than 0.35 V and more than 0.55 V (See the following table).



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OK

Perform confirmation driving pattern.

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Replace heated oxygen sensor.