

|            |              |                                                                       |
|------------|--------------|-----------------------------------------------------------------------|
| <b>DTC</b> | <b>P0130</b> | <b>Heated Oxygen Sensor Circuit Malfunction<br/>(Bank 1 Sensor 1)</b> |
|------------|--------------|-----------------------------------------------------------------------|

|            |              |                                                                       |
|------------|--------------|-----------------------------------------------------------------------|
| <b>DTC</b> | <b>P0150</b> | <b>Heated Oxygen Sensor Circuit Malfunction<br/>(Bank 2 Sensor 1)</b> |
|------------|--------------|-----------------------------------------------------------------------|

## CIRCUIT DESCRIPTION

Refer to DTC P0125 (Insufficient Coolant Temp. for Closed Loop Fuel Control) on page [DI-45](#).

| DTC No.        | DTC Detecting Condition                                                                                                                                   | Trouble Area                                                                                              |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| P0130<br>P0150 | Voltage output of heated oxygen sensor remains at 0.35 V or more, or 0.70 V or less, during idling after the engine is warmed up (2 trip detection logic) | <ul style="list-style-type: none"> <li>• Heated oxygen sensor</li> <li>• Fuel trim malfunction</li> </ul> |

### HINT:

Bank 1 refers to bank that includes cylinder No.1.

Bank 2 refers to bank that does not include cylinder No.1.

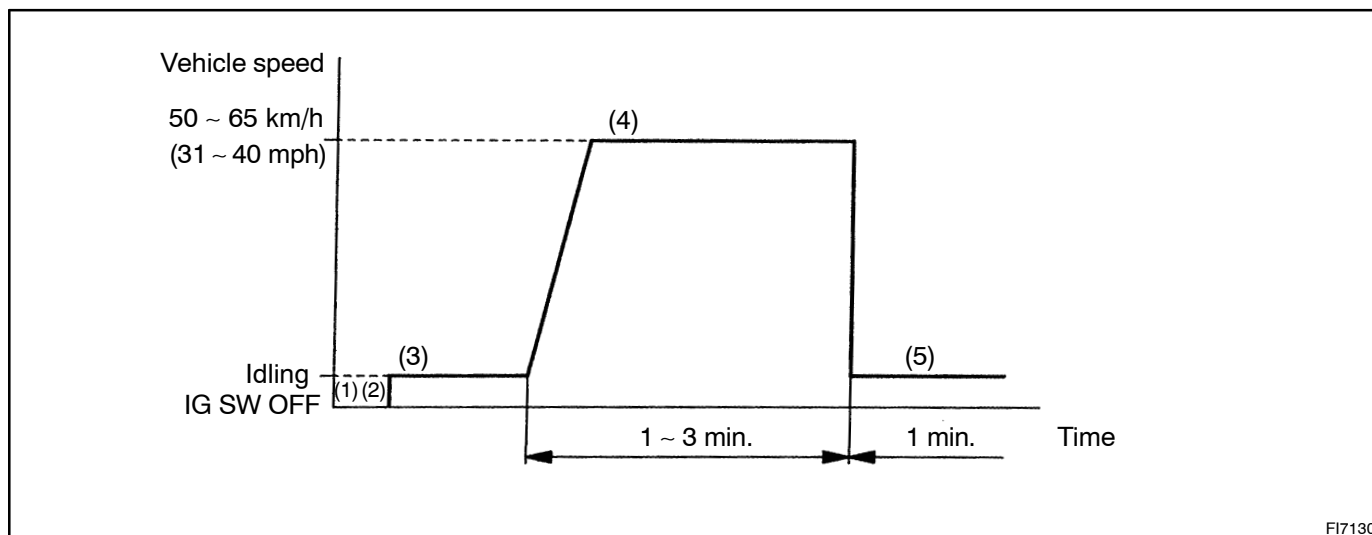
Sensor 1 refers to the sensor closer to the engine body.

The heated oxygen sensor's output voltage and the short-term fuel trim value can be read using the OBD II scan tool or LEXUS hand-held tester.

## WIRING DIAGRAM

Refer to DTC P0125 (Insufficient Coolant Temp. for Closed Loop Fuel Control) on page [DI-45](#) for the WIRING DIAGRAM.

## CONFIRMATION DRIVING PATTERN



- (1) Connect the LEXUS hand-held tester to the DLC3.
- (2) Switch the LEXUS 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 LEXUS 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 LEXUS 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 | <b>Check for open and short in harness and connector between ECM and heated oxygen sensor (See page <a href="#">IN-34</a>).</b> |
|---|---------------------------------------------------------------------------------------------------------------------------------|

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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 LEXUS 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-57](#)).

3

|   |                                                             |
|---|-------------------------------------------------------------|
| 3 | Check output voltage of heated oxygen sensor during idling. |
|---|-------------------------------------------------------------|

**PREPARATION:**

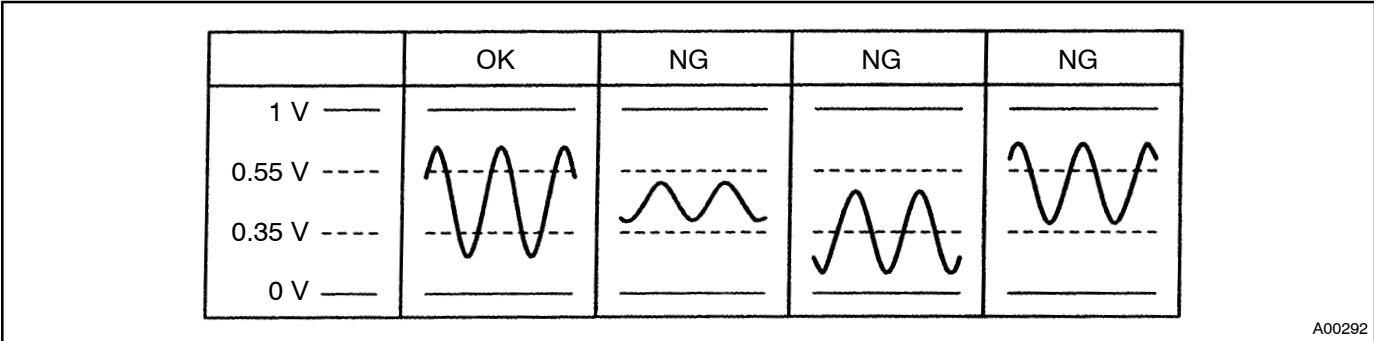
Warm up the heated oxygen sensor with the engine at 2,500 rpm for approx. 90 sec.

**CHECK:**

Use the OBD II scan tool or LEXUS hand-held tester 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).**



OK

Perform confirmation driving pattern.

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Replace heated oxygen sensor.