DTC	P0130/21	Oxygen Sensor Circuit Malfunction (Bank 1 Sensor 1)

DTC	P0150/28	Oxygen Sensor Circuit Malfunction (Bank 2 Sensor 1)

CIRCUIT DESCRIPTION

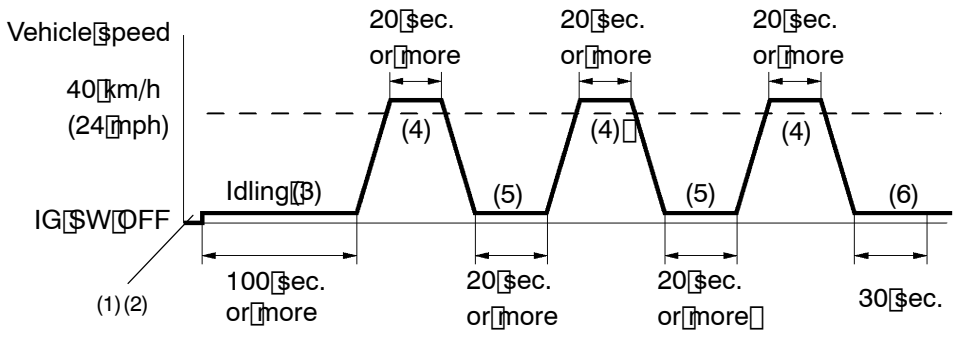
Refer to DTC P0125 on page DI–50.

DTC No..	DTC Detecting Condition	Trouble Area
P0130/21 P0150/28	Condition (a) and (b) continues for 60 secs. or more: (a) Voltage output of oxygen sensor remains at 0.35 V or more, or 0.70 V or less, during idling after engine is warmed up. (b) Oxygen sensor output voltage amplitude is less than 0.3 V.	• Oxygen sensor • Fuel trim malfunction

HINT:

Sensor 1 refers to the sensor closer to the engine body. The oxygen sensor's output voltage and the short–term fuel trim value can be read using the hand–held tester.

CONFIRMATION DRIVING PATTERN



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(1) Connect the hand–held tester to the DLC3.
(2) Switch the hand–held tester from normal mode to check mode (See page DI–4).
(3) Start the engine and let the engine idle for 100 seconds or more.
(4) Drive the vehicle at 40 km/h (24 mph) or more for 20 seconds or more.
(5) Let the engine idle for 20 seconds or more.
(6) Let the engine idle for 30 seconds.

HINT:

If a malfunction exists, the check engine warning light 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 hand–held tester, turn the ignition switch OFF after performing steps (3) to (6), then perform steps (3) to (6) again.

WIRING DIAGRAM

Refer to DTC P0125 on page DI–50.

INSPECTION PROCEDURE

HINT:

Read freeze frame data using hand–held tester. 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	**Are there any other codes (besides DTC P0130/21 or P0150/28) being output?**

YES → **Go to relevant DTC chart.**

NO

2	**Check the output voltage of oxygen sensor during idling.**

PREPARATION:

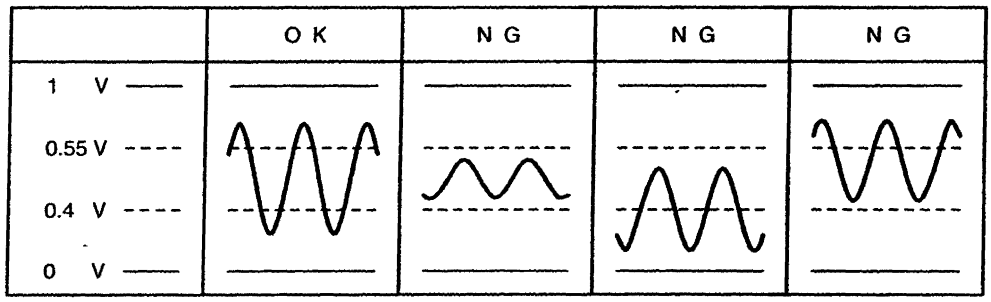
Warm up the oxygen sensor with the engine at 2,500 rpm for approx. 90 sec.

CHECK:

Use the hand–held tester to read the output voltage of the oxygen sensor during idling.

OK:

Oxygen sensor output voltage:
Alternates repeatedly between less than 0.4 V and more than 0.55 V (See the following table).



OK → **Go to step 7.**

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3	Check for open and short in harness and connector between engine ECU and oxygen sensor (bank 1, 2 sensor 1) (See page IN-35).

NG → Repair or replace harness or connector.

OK

4	Check air induction system (See page FI-1).

NG → Repair or replace induction system.

OK

5	Check fuel pressure (See page FI-5).

NG → Check and repair fuel pump, fuel pipe line and filter (See page FI-5).

OK

6	Check injector injection (See page FI-18).

NG → Replace injector.

OK

Replace oxygen sensor (bank 1, 2 sensor 1).

7	Perform confirmation driving pattern.

Go

8	Are there DTC P0130/21 or P0150/28 being output again?

YES → Check for intermittent problems (See page DI–4).

No

Check and replace engine ECU.