DI563–09

DTC	P0133/21	Oxygen Sensor Circuit Slow Response (Bank 1 Sensor 1)

DTC	P0153/28	Oxygen Sensor Circuit Slow Response (Bank 2 Sensor 1)

CIRCUIT DESCRIPTION

Refer to DTC P0125/91 on page DI–38.

DTC No.	DTC Detecting Condition	Trouble Area
P0133/21 P0153/28	Response time for oxygen sensor's voltage output to change from rich to lean, or from lean to rich, is 1.1 sec. or more during idling after engine is warmed up (2 trip detection logic)	• Open or short in oxygen sensor circuit • Oxygen sensor • Air induction system • Fuel pressure • Injector • Engine ECU

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.

WIRING DIAGRAM

Refer to DTC P0125/91 on page DI–38.

INSPECTION PROCEDURE

When using hand–held tester:

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 was warmed up or not, the air–fuel ratio was lean or rich, etc. at the time of the malfunction.

1	**Are there any other codes (besides DTC P0133 or P0153) being output?**

YES ⟩ **Go to relevant DTC chart (See page DI–21).**

NO

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

PREPARATION:

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

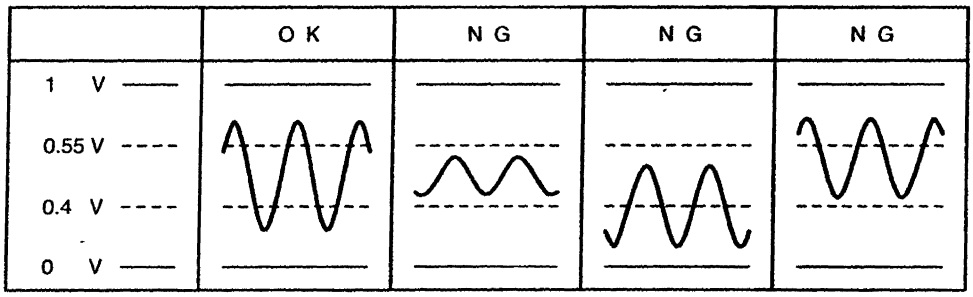
CHECK:

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).



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OK	Go to step 7.

NG

3	Check for open and short in harness and connector between engine ECU and oxygen sensor (See page IN–30).

NG	Repair or replace harness or connector.

OK

4	Check air induction system (See Pub. No. RM588E on page FI–1).

NG	Repair or replace.

OK

5	Check fuel pressure (See Pub. No. RM588E on page FI–6).

NG	Check and repair fuel pump, pressure regulator, fuel pipe line and filter (See Pub. No. RM588E on page FI–1).

OK

6	Check injector injection (See Pub. No. RM588E on page FI–22).

NG → Replace injector.

OK

Replace oxygen sensor.

7	Perform confirmation driving pattern (See page DI–38).

GO

8	Is there DTC P0133 or P0153 being output again?

NO → Check for intermittent problems (See page DI–17).

YES

Check and replace engine ECU (See page IN–30).

When not using hand–held tester:

1	Are there any other codes (besides code 21 or 28) being output?

YES → Go to relevant DTC chart (See page DI–21).

NO

Replace oxygen sensor.