

DTC	P1133	A/F Sensor Circuit Response Malfunction (Bank 1 Sensor 1)
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CIRCUIT DESCRIPTION

Refer to DTC P0125 on page [DI-195](#).

DTC No.	DTC Detection Condition	Trouble Area
P1133	After engine is warmed up and during vehicle driving at engine speed 1,400 rpm or more and vehicle speed 60 km/h (38 mph) or more, if response characteristics of A/F sensor becomes deteriorated (2 trip detection logic)	<ul style="list-style-type: none"> • Oper or short in A/F sensor circuit • A/F sensors • Air induction system • Fuel pressure • Injector • ECM

WIRING DIAGRAM

Refer to DTC P0125 on page [DI-195](#).

INSPECTION PROCEDURE

HINT:

Read freeze frame data using hand-held tester or OBD II scan tool, as freeze frame data records the engine conditions when a 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 P1133) being output?
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YES

Go to relevant DTC chart (See page [DI-167](#)).

NO

2	Connect hand-held tester or OBD II scan tool, and read value of output voltage of A/F sensor.
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PREPARATION:

- (a) Connect the hand-held tester or OBD II scan tool to the DLC3.
- (b) Warm up the A/F sensor with the engine of speed 2,500 rpm for approx. 90 seconds.

CHECK:

Read the voltage of the A/F sensor on the screen of the hand-held tester or OBD II scan tool when performing all the following conditions.

HINT:

The voltage of the AF1+ terminal of the ECM is fixed at 3.3 V and the voltage of the AF1- terminal is fixed at 3.0 V. Therefore it is impossible to check the A/F sensor output voltage at the terminals (AF1+/AF1-) of the ECM.

OK:

Condition	A/F Sensor Voltage Value
Engine idling	<ul style="list-style-type: none"> • Not remains at 3.30 V (0.660 V*) • Not remains at 3.8 V (0.76 V*) or more • Not remains at 2.8 V (0.56 V*) or less *: When using OBD II scan tool (excluding hand-held tester)
Engine racing	
Driving at engine speed 1,500 rpm or more and vehicle speed 40 km/h (25 mph) or more, and operating throttle valve open and close	

HINT:

- Although there is a case that the output voltage of the A/F sensor is below 2.8 V (0.56 V*) during fuel enrichment, it is normal.
- Although there is a case that the output voltage of the A/F sensor is above 3.8 V (0.76 V*) during fuel cut, it is normal.
- If the output voltage of the A/F sensor remains at 3.30 V (0.660 V*) even after performing all the above conditions, the A/F sensor circuit may be open.
- If the output voltage of the A/F sensor remains at 3.8 V (0.76 V*) or more, or 2.8 V (0.56 V*) or less even after performing all the above conditions, the A/F sensor circuit may be short.

*: With the OBD II scan tool (excluding hand-held tester).

OK

Go to step 8.

NG

3

Check for open and short in harness and connector between ECM and A/F sensor (See page IN-28).

NG

Repair or replace harness or connector.

OK

4

Check resistance of A/F sensor heater (See page SF-55).

NG

Replace A/F sensor.

OK

5

Check air induction system (See page SF-1).

NG

Repair or replace.

OK

6 Check fuel pressure (See page SF-5).

NG

Check and repair fuel pump, pressure regulator, fuel pipe line and filter.

OK

7 Check injector injection (See page SF-19).

NG

Replace injector.

OK

Replace A/F sensor.

8 Perform confirmation driving pattern (See page DI-260).

Go

9 Is there DTC P1133 being output again?

YES

Check and replace ECM (See page IN-28).

NO

10 Did vehicle run out of fuel in past?

NO

Check for intermittent problems (See page DI-157).

YES

DTC P1133 is caused by shortage of fuel.