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

CIRCUIT DESCRIPTION

Refer to DTC P0125 on page DI–52.

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 characteristic of A/F sensor becomes deteriorated (2 trip detection logic)	• Oper or short in A/F sensor circuit • A/F sensors • Air induction system • Fuel pressure • Injector • Engine ECU

WIRING DIAGRAM

Refer to DTC P0125 on page DI–52.

INSPECTION PROCEDURE

HINT:

Read freeze frame data using the hand–held tester. Because 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?**

YES → **Go to relevant DTC chart.**

NO

2	**Connect hand–held tester, and read value for voltage output of A/F sensor.**

PREPARATION:

(a) Connect the hand–held tester to the DLC3.

(b) Warm up the A/F sensor with the engine at speed 2,500 rpm for approximately 90 seconds.

CHECK:

Read the voltage of the A/F sensor on the screen of the hand–held tester when performing all the following conditions.

HINT:

The voltage of the AFL+ terminal of the engine ECU is fixed at 3.3 V and the voltage of the AFL– terminal is fixed at 3.0 V. Therefore, it is impossible to check the A/F sensor output voltage at the terminals (AFL+/AFL–) of the engine ECU.

OK:

Condition	A/F Sensor Voltage Value
Engine idling	• Not remains at 3.30 V • Not remains at 3.8 V or more • Not remains at 2.8 V or less
Engine racing	
Driving at engine speed 1,500 rpm or more and vehicle speed 40 km/h (25 mph) or more, and operate throttle valve open and close.	

HINT:

- When the fuel is abundant,, there is a case that the output voltage of the A/F sensor is below 2.8 V. This is considered normal.
- When the fuel is cut, there is a case that the output voltage of the A/F sensor is above 3.8 V. This is considered normal.
- If the output voltage of the A/F sensor remains at 3.30 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 or more, or 2.8 V or less even after performing all the above conditions, the A/F sensor circuit may be short.

OK → **Go to step 8.**

NG

3	**Check for open and short in harness and connector between engine ECU and A/F sensor (See page IN–19).**

NG → **Repair or replace harness or connector.**

OK

4	**Check resistance of A/F sensor heater (See page FI–2).**

NG → **Replace A/F sensor.**

OK

5	Check air induction system (See page FI–1 of Pub. No. RM584E).

NG → Repair or replace.

OK

6	Check fuel pressure (See page FI–1 of Pub. No. RM652E).

NG → Check and repair fuel pump, fuel pipe line and filter (See page FI–1 of Pub. No. RM652E).

OK

7	Check injector injection (See page FI–17 of Pub. No. RM584E).

NG → Replace injector.

OK

Replace A/F sensor.

8	Perform confirmation driving pattern (See page DI–106).

Go

9	**Is there DTC P1133 being output again?**

YES → **Check and replace engine ECU (See page IN–19).**

NO

10	**Did vehicle run out of fuel in past?**

NO → **Check for intermittent problems (See page DI–3).**

YES

DTC P1133 is caused by shortage out of fuel.