DI5CB-08

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

Refer to DTC P0125 on page DI-184.

DTC No.	DTC Detection Condition	Trouble Area
P1133		Oper or short in A/F sensor circuit
	After engine is warmed up and during vehicle driving at	• A/F sensors
	engine speed 1,400 rpm or more and vehicle speed 60	Air induction system
	km/h (38 mph) or more, if response characteristics of A/F	Fuel pressure
	sensor becomes deteriorated (2 trip detection logic)	Injector
		• ECM

## WIRING DIAGRAM

Refer to DTC P0125 on page DI-184.

## **INSPECTION PROCEDURE**

HINT:

Read freeze frame data using TOYOTA 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?



 $\rangle$  Go to relevant DTC chart (See page DI-156 ).

NO

# 2 Connect OBDII scan tool or TOYOTA hand-held tester, and read value of output voltage of A/F sensor.

#### PREPARATION:

(a) Connect the OBD II scan tool or TOYOTA hand-held tester to the DLC3.

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

#### CHECK:

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

HINT:

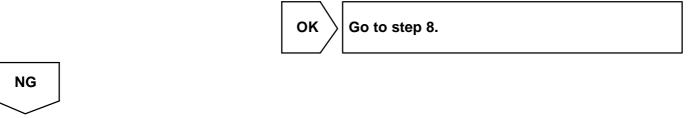
The voltage of the AF1+ terminal of the ECM is fixed at 3.3 V and the voltage of the AF1- terminal is fixed at 3.0 V. Therefore it is impossible to check the A/F sensor output voltage at the terminals (AF1+/AF1-) of the ECM.

<u>OK:</u>

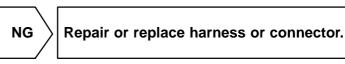
Condition	A/F Sensor Voltage Value
Engine idling	
Engine racing	Not remains at 3.30 V (0.660 V*)     Ontermains at 3.8 V (0.76 V*) or more
Driving at engine speed 1,500 rpm or more and vehicle speed 40 km/h (25 mph) or more, and operating throttle valve open and close.	<ul> <li>Not remains at 3.8 V (0.76 V<sup>-</sup>) or more</li> <li>Not remains at 2.8 V (0.56 V<sup>*</sup>) or less</li> <li>*: When using OBD II scan tool (excluding TOYOTA hand-held tester)</li> </ul>

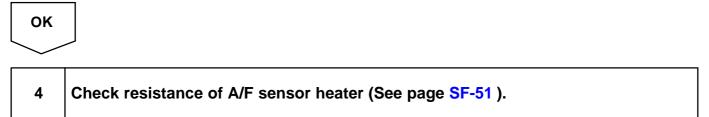
HINT:

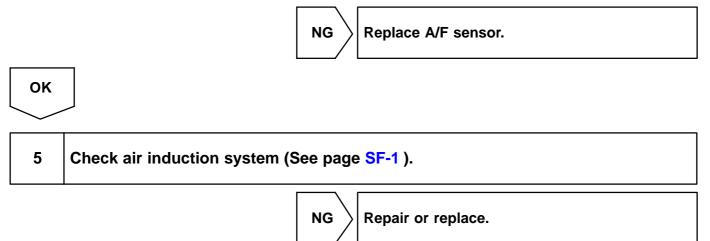
- Although there is a case that the output voltage of the A/F sensor is below 2.8 V (0.56 V\*) during fuel enrichment, it is normal.
- Although there is a case that the output voltage of the A/F sensor is above 3.8 V (0.76 V\*) during fuel cut, it is normal.
- If the output voltage of the A/F sensor 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 TOYOTA hand-held tester).

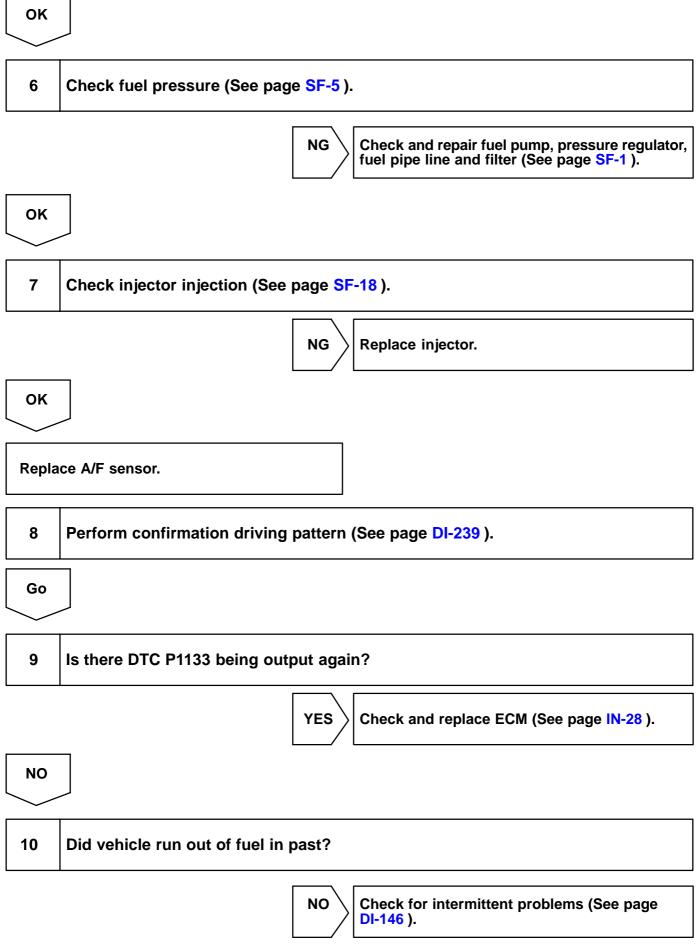


3 Check for open and short in harness and connector between ECM and A/F sensor (See page IN-28).









YES	
DTC P1133 is caused by shortage of fue	əl.