DTC	P1133/21	A/F SENSOR CIRCUIT RESPONSE MALFUNCTION(BANK1 SENSOR1)

CIRCUIT DESCRIPTION

Refer to DTC P0125/91 on page 05–173.

DTC No.	DTC Detecting Condition	Trouble Area
P1133/21	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 the response characteristic of A/F sensor becomes deteriorated (2 trip detection logic)	• Open or short in A/F sensor circuit • A/F sensor • Air induction system • Fuel pressure • Injector • ECM

WIRING DIAGRAM

Refer to DTC P0125/91 on page 05–173.

INSPECTION PROCEDURE

HINT:

Read freeze frame data using the hand–held tester, as freeze frame data 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	READ OUTPUT DTC

Result:

	A	B
RESULT	Only P1133/21 is output.	P1133/21 and other cords are/is output.

HINT:

If any other codes besides P1133/21 is output, perform the troubleshoot on that DTC before.

YES → **GO TO RELEVANT DTC CHART**

NO

2	READ VALUE OF HAND–HELD TESTER(VOLTAGE OUTPUT OF A/F SENSOR)

(a) Connect the hand–held tester to the DLC3.
(b) Warm up the A/F sensor with the engine speed at 2,500 rpm for approximately 90 seconds.
(c) Read the voltage of the A/F sensor on the screen of the hand–held tester when performing all the following conditions.

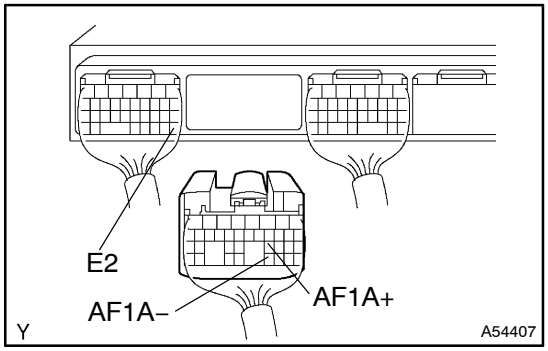
HINT:

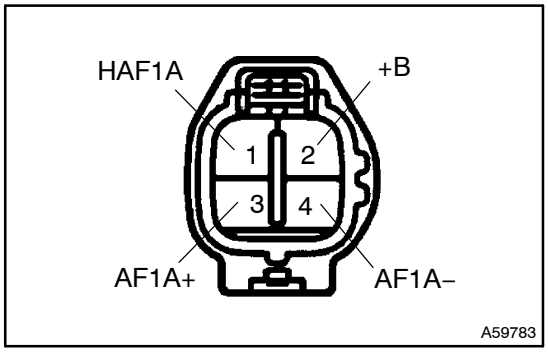
- Although there is a case that the output voltage of the A/F sensor is below 2.8 V (0.56 V*) during fuel enrichment, it is normal.
- Although there is a case that the output voltage of the A/F sensor is above 3.8 V (0.76 V*) during fuel cut, it is normal.
- If the output voltage of the A/F sensor remains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

OK → Go to step 8

NG

3	CHECK WIRE HARNESS OR CONNECTOR(ECM–A/F SENSOR)





(a) Disconnect the A/F sensor connector.
(b) Disconnect the ECM E9 connector.
(c) Check continuity between the terminals AF1A+ of the ECM connector and AF1A+ of the A/F sensor connector.
Resistance: 1 Ω or less
(d) Check for short between the terminals AF1A+ and E2 of the ECM connector.
Resistance: 1 MΩ or more
(e) Check continuity between the terminals AF1A– of the ECM connector and AF1A– of the A/F sensor connector.
Resistance: 1 Ω or less
(f) Check for short between the terminals AF1A+ and E2 of the ECM connector.
Resistance: 1 MΩ or more

NG → REPAIR OR REPLACE WIRE HARNESS OR CONNECTOR

OK

4	CHECK AIR FUEL RATIO SENSOR (See page 10–8)

NG → REPLACE AIR FUEL RATIO SENSOR

OK

5	CHECK AIR INDUCTION SYSTEM (See page 10–7)

NG → REPAIR OR REPLACE

OK

6	CHECK FUEL PRESSURE (See page 11–29)

NG → REPAIR OR REPLACE FUEL SYSTEM

OK

7	CHECK INJECTOR INJECTION (See page 11–29)

NG → REPLACE FUEL INJECTOR ASSY

OK

REPLACE AIR FUEL RATIO SENSOR

8	PERFORM CONFIRMATION DRIVING PATTERN (See page 05–173)

GO

9	READ OUTPUT DTC

Result:

	A	B
RESULT	P1133/21 is not output.	P1133/21 is output.

B → CHECK AND REPLACE ECM

A

10	CONFIRM VEHICLE RUNS OUT OF FUEL IN THE PAST

NO → CHECK FOR INTERMITTENT PROBLEMS

YES

DTC IS CAUSED RUNNING OUT OF FUEL