

DTC	P0134	Oxygen Sensor Circuit No Activity Detected (Bank 1 Sensor 1)
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DTC	P0154	Oxygen Sensor Circuit No Activity Detected (Bank 2 Sensor 1)
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CIRCUIT DESCRIPTION

Refer to DTC P0031 on [page DI-35](#).

DTC No.	DTC Detecting Condition	Trouble Area
P0134 P0154	After the engine is warmed up, front heated oxygen sensor output does not indicate RICH (more than 0.45 V) even once when the following conditions continue for 65 sec. or more: (a) Engine speed: 1,400 rpm or more (b) Vehicle speed: 25 mph (40 km/h) or more (c) Throttle valve does not fully closed (d) 180 sec. or more after starting engine (e) Engine coolant temperature more than 40°C (104°F) (1 trip detection logic)	• Open or short in front heated oxygen sensor circuit • Front heated oxygen sensor • Front heated oxygen sensor heater • EFI or ECD relay • Air induction system • Fuel pressure • PCV hose connection • PCV valve and hose • Injector • Gas leakage on exhaust system • PCV piping • Engine control ECU

HINT:

- Bank 1 refers to bank that includes cylinder No. 1.
- Bank 2 refers to bank that does not includes cylinder No. 1.
- Sensor 1 refers to the sensor closer to the engine assembly.
- After confirming DTC P0134 and P0154, check the output voltage of the heated oxygen sensor in the "DIAGNOSIS / OBD/MOBD / DATA LIST / ALL" using the hand-held tester. If output voltage of the heated oxygen sensor is always less than 0.1 V, heated oxygen sensor circuit may be open or short.

MONITOR DESCRIPTION

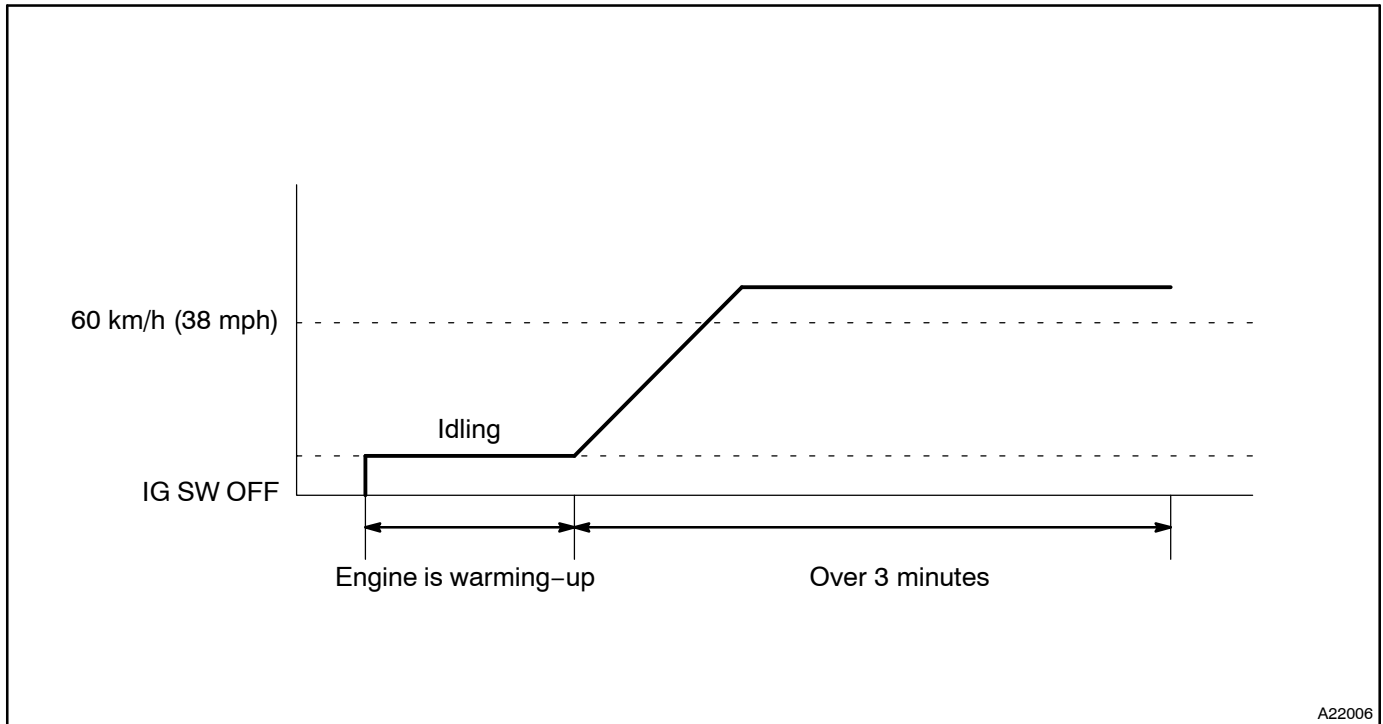
The engine control ECU uses the heated oxygen sensor to optimize the air-fuel mixture in closed-loop fuel control. This control helps decrease exhaust emissions by providing the catalyst with a nearly stoichiometric mixture.

The sensor detects the oxygen level in the exhaust gas and the engine control ECU uses this data to control the air-fuel ratio. The sensor output voltage ranges from 0 V to 1 V. If the signal voltage is less than 0.4 V, the air-fuel ratio is LEAN. If the signal voltage is more than 0.55 V, the air-fuel ratio is RICH. If the conditions for the closed-loop fuel control are met and after a specified time-period, the sensor's output signal never indicates RICH, the engine control ECU will conclude that the closed-loop fuel control is malfunctioning. The engine control ECU will illuminate the MIL and a DTC is set.

WIRING DIAGRAM

Refer to DTC P0031 on [page DI-35](#).

CONFIRMATION DRIVING PATTERN



- (a) Connect the hand-held tester to the DLC3.
- (b) Allow the engine to idle until the ECT reaches 40°C (104°F).
- (c) Allow the vehicle to run at 60 km/h (38 mph) or more for 3 minutes or more.

INSPECTION PROCEDURE

HINT:

Hand-held tester only:

The narrowing down the trouble area is possible by performing ACTIVE TEST of the following "A/F CONTROL" (Heated oxygen sensor or another can be distinguished).

- (a) Perform ACTIVE TEST by hand-held tester (A/F CONTROL).

HINT:

"A/F CONTROL" is the ACTIVE TEST which changes the injection volume to -12.5 % or +25 %.

- (1) Connect the hand-held tester to the DLC3 on the vehicle.
- (2) Turn the ignition switch ON.
- (3) Warm up the engine with the engine speed at 2,500 rpm for approximately 90 seconds.
- (4) Select the item "DIAGNOSIS / OBD/MOBD / ACTIVE TEST / A/F CONTROL".
- (5) Perform "A/F CONTROL" with the engine in an idle condition (press the right or left button).

RESULT:

Heated oxygen sensor reacts in accordance with increase and decrease of injection volume

+25 % → rich output: More than 0.5 V

-12.5 % → lean output: Less than 0.4 V

NOTICE:

However, there is a few seconds delay in the sensor 1 (front sensor) output. And there is a maximum 20 seconds delay in the sensor 2 (rear sensor).

	Output voltage of heated oxygen sensor (sensor 1: front sensor)	Output voltage of heated oxygen sensor (sensor 2: rear sensor)	Mainly suspect trouble area
Case 1	Injection volume +25 % -12.5 % Output voltage More than 0.5 V Less than 0.4 V OK	Injection volume +25 % -12.5 % Output voltage More than 0.5 V Less than 0.4 V OK	—
Case 2	Injection volume +25 % -12.5 % Output voltage Almost no reaction NG	Injection volume +25 % -12.5 % Output voltage More than 0.5 V Less than 0.4 V OK	Sensor 1: front sensor (sensor 1, heater, sensor 1 circuit)
Case 3	Injection volume +25 % -12.5 % Output voltage More than 0.5 V Less than 0.4 V OK	Injection volume +25 % -12.5 % Output voltage Almost no reaction NG	Sensor 2: rear sensor (sensor 2, heater, sensor 2 circuit)
Case 4	Injection volume +25 % -12.5 % Output voltage Almost no reaction NG	Injection volume +25 % -12.5 % Output voltage Almost no reaction NG	Extremely rich or lean of the actual air-fuel ratio (Injector, fuel pressure, gas leakage in exhaust system, etc.)

The following A/F CONTROL procedure enables the technician to check and graph the voltage output of the heated oxygen sensors (sensor 1 and 2).

For displaying the graph indication, enter "ACTIVE TEST / A/F CONTROL / USER DATA" then select "O2S B1S1 and O2S B1S2" by pressing "YES" button and push "ENTER" button before pressing "F4" button.

HINT:

- If different DTCs related to different systems terminal E2 as the ground terminal are output simultaneously, terminal E2 may be open.
- Read freeze frame data using the hand-held tester. 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.
- A high heated oxygen sensor (sensor 1) voltage (0.5 V or more) could be caused by a rich air fuel mixture. Check for conditions that would cause the engine to run rich.
- A low heated oxygen sensor (sensor 1) voltage (0.4 V or less) could be caused by a lean air fuel mixture. Check for conditions that would cause the engine to run lean.

1 Are there any other codes (besides DTCs P0134 and P0154) being output?

PREPARATION:

- (a) Connect the hand-held tester to the DLC3.
- (b) Turn the ignition switch ON and push the hand-held tester main switch ON.
- (c) When using hand-held tester, enter the following menus: DIAGNOSIS / OBD/MOBD / DTC INFO / CURRENT CODES.

CHECK:

Read the DTC using the hand-held tester.

RESULT:

Display (DTC Output)	Proceed to
"P0134 and/or P0154"	A
"P0134 or P0154" and other DTCs	B

HINT:

If any other codes besides P0134 and/or P0154 are output, perform the troubleshooting for those codes first.

B

Go to relevant DTC chart ([See page DI-19](#)).

A

2 Connect hand-held tester, and read value for voltage output of heated oxygen sensor (bank 1, 2 sensor 1).

PREPARATION:

- (a) Connect the the hand-held tester to the DLC3.
- (b) Warm up the engine until the engine coolant temperature (ECT) reaches 40 °C (104 °F).
- (c) When using hand-held tester, enter the following menu: DIAGNOSIS / OBD/MOBD / DATA LIST / ALL / O2S B1 S1 or B2 S1.

CHECK:

Read the voltage output of the heated oxygen sensors when the engine speed is suddenly increased.

HINT:

Quickly accelerate the engine to 4,000 rpm 3 times by using the accelerator pedal.

OK:

Heated oxygen sensor output a RICH signal (0.45 V or more) at least once.

OK

Go to step 12.

NG

3 Check connection of PCV piping.

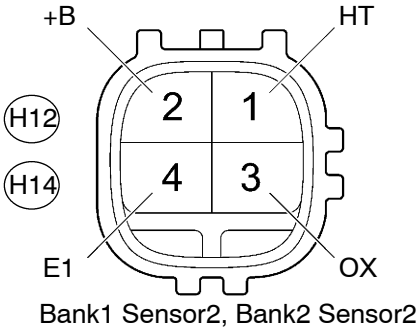
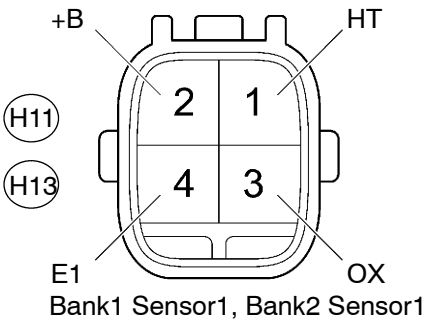
NG

Repair or replace PCV piping.

OK

4 Check resistance of heated oxygen sensor heater.

Components Side:



C

A20870

PREPARATION:

Disconnect the H11, H12, H13 or H14 heated oxygen sensor connector.

CHECK:

Measure resistance between terminals of the heated oxygen sensor.

OK:

Tester Connection	Specified Condition
HT (H11-1) - +B (H11-2)	11.7 to 14.3 Ω (20°C)
HT (H12-1) - +B (H12-2)	11.7 to 14.3 Ω (20°C)
HT (H13-1) - +B (H13-2)	11.7 to 14.3 Ω (20°C)
HT (H14-1) - +B (H14-2)	11.7 to 14.3 Ω (20°C)

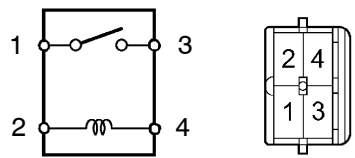
NG

Replace heated oxygen sensor.

OK

5 Check EFI or ECD relay.

EFI or ECD Relay



A21543

PREPARATION:

Remove the EFI or ECD relay from the engine room R/B.

CHECK:

Inspect the EFI or ECD relay.

OK:

Terminal No.	Condition	Specified Condition
1 - 3	Usually	10 kΩ or higher
	Apply B+ between terminals 2 and 4	Below 1 Ω

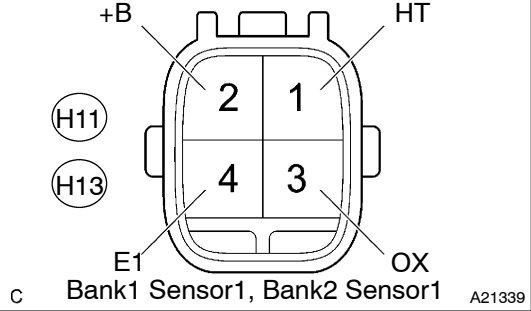
NG

Replace EFI or ECD relay.

OK

6 Check for open and short in harness and connector between engine control ECU and heated oxygen sensor (bank 1, 2 sensor 1).

Components Side:



PREPARATION:

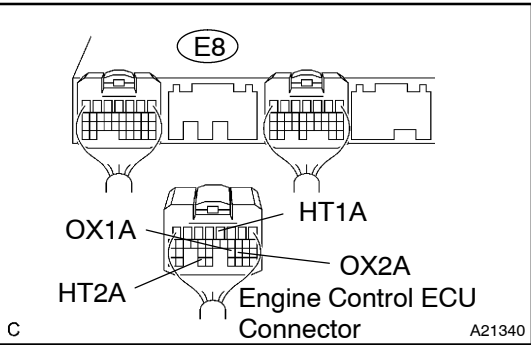
- (a) Disconnect the H11 or H13 heated oxygen sensor connector.
- (b) Disconnect the E8 engine control ECU connector.

CHECK:

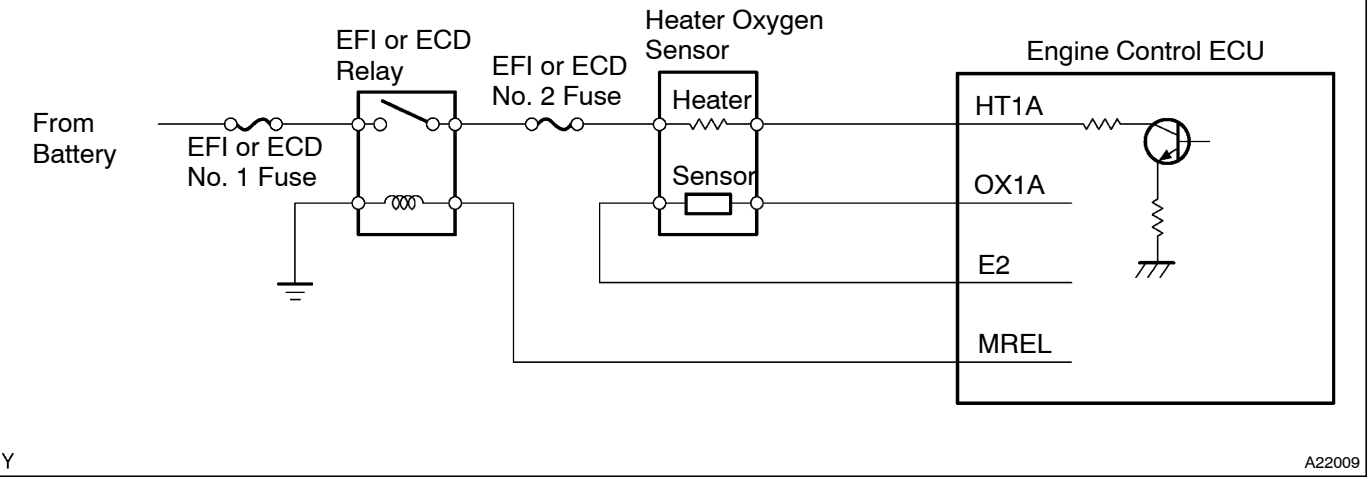
Measure the resistance between the wire harness side connectors.

OK:

Tester Connection	Specified Condition
OX (H11-3) - OX1A (E8-23)	Below 1 Ω
HT (H11-1) - HT1A (E8-4)	Below 1 Ω
OX (H13-3) - OX2A (E8-22)	Below 1 Ω
HT (H13-1) - HT2A (E8-33)	Below 1 Ω
OX (H11-3) or OX1A (E8-23) - Body ground	10 k Ω or higher
HT (H11-1) or HT1A (E8-4) - Body ground	10 k Ω or higher
OX (H13-3) or OX2A (E8-22) - Body ground	10 k Ω or higher
HT (H13-1) or HT2A (E8-33) - Body ground	10 k Ω or higher



Reference (Bank 1 Sensor 1 System Drawing)



NG

Repair or replace harness or connector.

OK

7 Check whether misfire is occurred or not by monitoring DTC and data list.

NG

Perform troubleshooting for misfire
(See page DI-130).

OK

8 Check air induction system (See Pub. No. RM630E, page FI-1).

NG

Repair or replace air induction system.

OK

9 Check fuel pressure (See Pub. No. RM630E, page FI-1).

NG

Check and repair fuel pump, pressure regulator,
fuel pipe line and filter (See Pub. No. RM630E,
page FI-7).

OK

10 Check injector injection (See Pub. No. RM630E, page FI-24)

NG

Replace injector.

OK

CHECK:

Check the air induction system for vacuum leaks.

CHECK:

Check the fuel pressure (high or low pressure).

11 Check exhaust system for gas leakage.

NG

Repair or replace exhaust gas leakage point.

OK

Replace heated oxygen sensor (bank 1, 2 sensor 1).

12 Perform confirmation driving pattern ([See page DI-104](#)).

HINT:

Clear all DTCs prior to performing the confirmation driving pattern.

Go

13 Are there DTCs P0134 and P0154 being output again?

YES

Replace engine control ECU (See Pub. No. RM630E, page FI-74).

NO

14 Confirm if vehicle has run out of fuel in past.

NO

Check for intermittent problems ([See page DI-3](#)).

YES

DTCs P0134 and P0154 are caused by running out of fuel.