

<b>DTC</b>	<b>P0135/21</b>	<b>OXYGEN SENSOR HEATER CIRCUIT (BANK 1 SENSOR 1)</b>
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<b>DTC</b>	<b>P0141/27</b>	<b>OXYGEN SENSOR HEATER CIRCUIT (BANK 1 SENSOR 2)</b>
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## CIRCUIT DESCRIPTION

Refer to DTC P0130/21 on page 05-322.

DTC No.	DTC Detection Condition	Trouble Area
P0135/21 P0141/27	Voltage of HT1B (ECM terminal) is low for 0.5 second when heated oxygen sensor heater is turned OFF	<ul style="list-style-type: none"> <li>• Open or short in heater circuit of heated oxygen sensor</li> <li>• Heated oxygen sensor heater</li> <li>• EFI relay</li> <li>• ECM</li> </ul>

## WIRING DIAGRAM

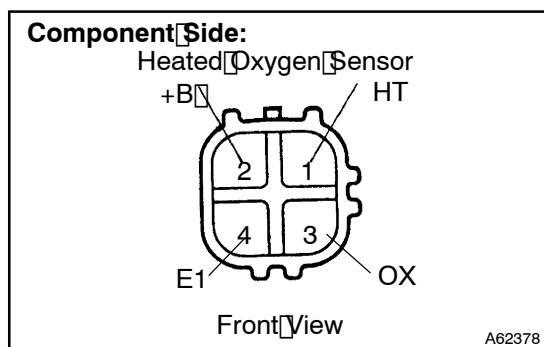
Refer to DTC P0130/21 on page 05-322.

## INSPECTION PROCEDURE

HINT:

- If different DTCs related to different systems that have terminal E2 as the ground terminal are output simultaneously, terminal E2 may have an open circuit.
- Read freeze frame data using the intelligent tester II. Freeze frame data record the engine condition when malfunctions are detected. When troubleshooting, freeze frame data can help determine if the vehicle was moving or stationary, if the engine was warmed up or not, if the air-fuel ratio was lean or rich, and other data from the time the malfunction occurred.

<b>1</b>	<b>INSPECT HEATED OXYGEN SENSOR(HEATER RESISTANCE)</b>
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- Disconnect the H9 or H10 heated oxygen sensor connector.
- Measure the resistance between the terminals of the heated oxygen sensor connector.

### Standard (Sensor 1):

Tester Connection	Specified Condition
1 (HT) – 2 (+B)	5 to 10 $\Omega$ at 20°C (68°F)
1 (HT) – 4 (E1)	10 k $\Omega$ or higher

### Standard (Sensor 2):

Tester Connection	Specified Condition
1 (HT) – 2 (+B)	11 to 16 $\Omega$ at 20°C (68°F)
1 (HT) – 4 (E1)	10 k $\Omega$ or higher

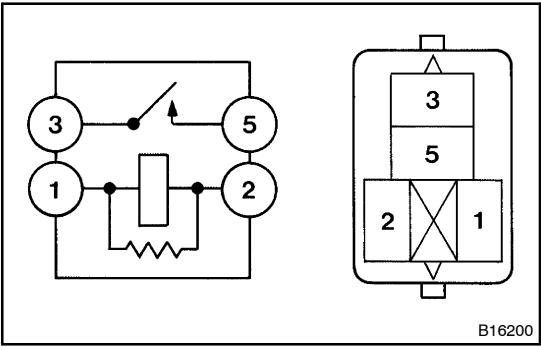
- Reconnect the heated oxygen sensor connector.

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**REPLACE HEATED OXYGEN SENSOR**

**OK**

2 INSPECT EFI RELAY



- (a) Remove the EFI relay from the engine room R/B.  
(b) Check the EFI relay resistance.

Standard:

Tester Connection	Specified Condition
3 - 5	10 kΩ or higher
3 - 5	Below 1 Ω (Apply battery voltage to terminals 1 and 2)

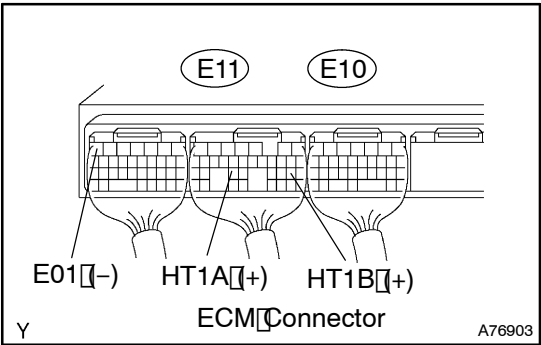
- (c) Reinstall the EFI relay.

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REPLACE EFI RELAY

OK

3 INSPECT ECM (HT1A OR HT1B) VOLTAGE



- (a) Turn the ignition switch to ON.  
(b) Measure the voltage between the applicable terminals of the E10 and E11 ECM connectors.

Standard

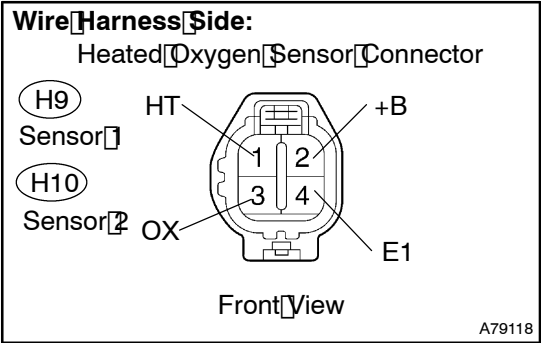
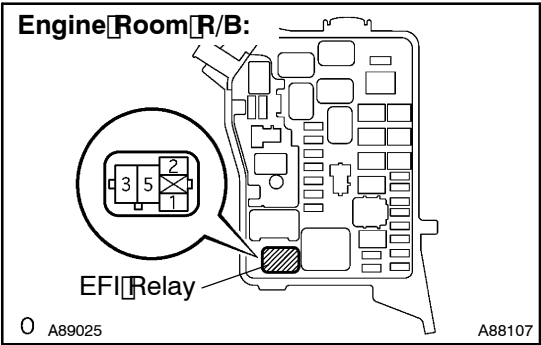
Tester Connection	Specified Condition
HT1A (E10-25) - E01 (E11-7)	9 to 14 V
HT1B (E10-21) - E01 (E11-7)	9 to 14 V

OK

REPLACE ECM (See page 10-30)

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4 CHECK HARNESS AND CONNECTOR (HEATED OXYGEN SENSOR-EFI RELAY)



- (a) Remove the EFI relay from the engine room R/B.
- (b) Disconnect the H9 or H10 heated oxygen sensor connector.
- (c) Check the resistance.

Standard (Check for open) (Sensor 1):

Tester Connection	Specified Condition
Engine Room R/B (EFI relay terminal 3) - B (H9-2)	Below 1 Ω

Standard (Check for short) (Sensor 1):

Tester Connection	Specified Condition
Engine Room R/B (EFI relay terminal 3) or B (H9-2) - Body ground	10 kΩ or higher

Standard (Check for open) (Sensor 2):

Tester Connection	Specified Condition
Engine Room R/B (EFI relay terminal 3) - B (H10-2)	Below 1 Ω

Standard (Check for short) (Sensor 2):

Tester Connection	Specified Condition
Engine Room R/B (EFI relay terminal 3) or B (H10-2) - Body ground	10 kΩ or higher

- (d) Reconnect the heated oxygen sensor connector.
- (e) Reinstall the EFI relay.

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REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE ECM (See page 10-30)