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| DTC | P0037 | OXYGEN SENSOR HEATER CONTROL CIRCUIT LOW (BANK 1 SENSOR 2) |
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| DTC | P0038 | OXYGEN SENSOR HEATER CONTROL CIRCUIT HIGH (BANK 1 SENSOR 2) |
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| DTC | P0057 | OXYGEN SENSOR HEATER CONTROL CIRCUIT LOW (BANK 2 SENSOR 2) |
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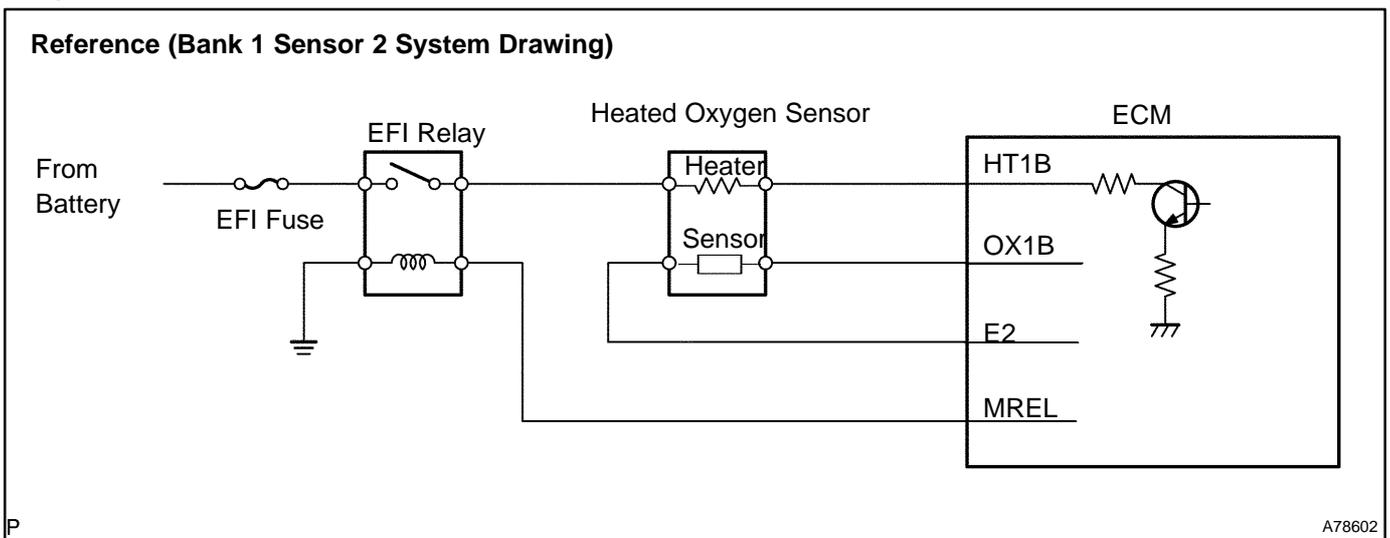
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| DTC | P0058 | OXYGEN SENSOR HEATER CONTROL CIRCUIT HIGH (BANK 2 SENSOR 2) |
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CIRCUIT DESCRIPTION

Refer to DTC P0136 on page 05-73 .

HINT:

The ECM provides a pulse width modulated control circuit to adjust current through the heater. The heated oxygen sensor heater circuit uses a relay on the B+ side of the circuit.



| DTC No. | DTC Detection Condition | Trouble Area |
|----------------|--|--|
| P0037 P0057 | Heated current is 0.2 A or less when heater operates with +B > 10.5 V and < 11.5 V (1 trip detection logic) Heated current is 0.25 A or less when heater operates with +B ≥ 11.5 V (1 trip detection logic) | <ul style="list-style-type: none"> • Open or short in heater circuit of heated oxygen sensor • Heated oxygen sensor heater • EFI relay • ECM |
| P0038 P0058 | When heater operates, heated current exceeds 2 A (1 trip detection logic) | |

HINT:

- Bank 1 refers to the bank that includes cylinder No.1.
- Bank 2 refers to the bank that does not include cylinder No.1.
- Sensor 1 refers to the sensor closest to the engine assembly.
- Sensor 2 refers to the sensor farthest away from the engine assembly.

WIRING DIAGRAM

Refer to DTC P0136 on page 05-73 .

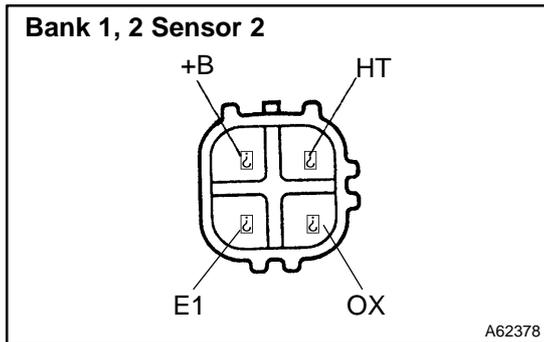
4RUNNER Supplement (RM1034U)

INSPECTION PROCEDURE

HINT:

- If different DTCs that are related to a different system are output simultaneously while terminal E2 is used as a ground terminal, terminal E2 may be open.
- Read freeze frame data using the hand-held tester or the 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 INSPECT HEATED OXYGEN SENSOR(HEATER RESISTANCE)



- Disconnect the heated oxygen sensor connector.
- Measure the resistance between the terminals of the heated oxygen sensor connector.

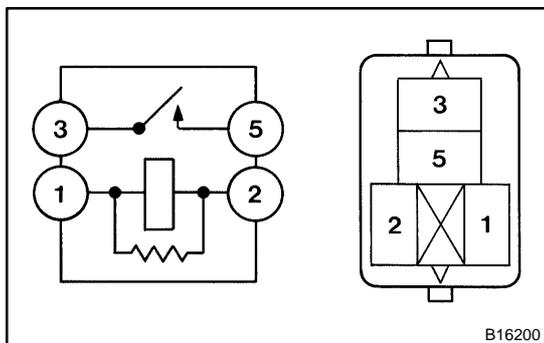
Standard (Bank 1, 2 sensor 2):

| Terminal No. | Resistance |
|-----------------|----------------------------|
| 1 (HT) - 2 (+B) | 5 to 10 Ω at 20 °C (68 °F) |
| 1 (HT) - 4 (E1) | No Continuity |

NG → REPLACE HEATED OXYGEN SENSOR

OK

2 INSPECT EFI RELAY



- Remove the EFI relay from the engine room R/B.
- Inspect the EFI relay.

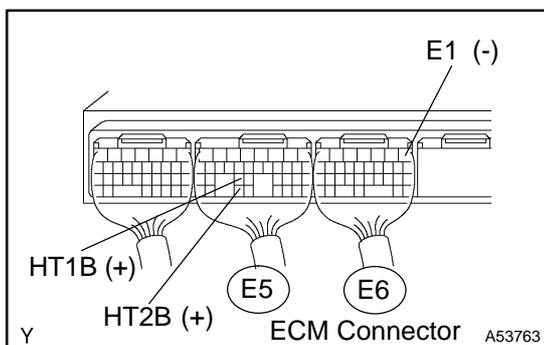
Standard:

| Terminal No. | Specified condition |
|--------------|---|
| 1 - 2 | Continuity |
| 3 - 5 | No Continuity |
| | Continuity (Apply battery voltage terminals 1 and 2) |

NG → REPLACE EFI RELAY

OK

3 INSPECT ECM(HT1B OR HT2B VOLTAGE)



- Turn the ignition switch ON.
- Measure the voltage between the applicable terminals of the E5 and E6 ECM connectors.

Standard:

| Symbols (Terminal No.) | Specified condition |
|--------------------------|---------------------|
| HT1B (E5-25) - E1 (E6-1) | 9 to 14 V |
| HT2B (E5-33) - E1 (E6-1) | |

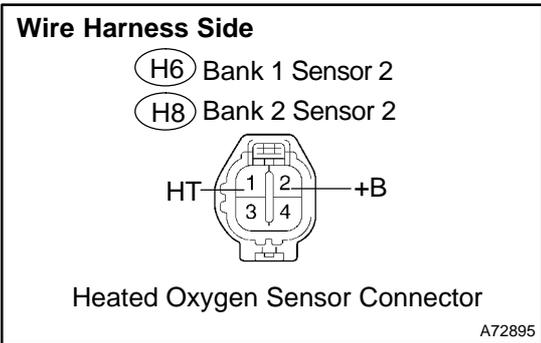
HINT:

- The HT1B means the heated oxygen sensor bank 1 sensor 2.
- The HT2B means the heated oxygen sensor bank 2 sensor 2.

OK CHECK AND REPLACE ECM (See page 01-35)

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



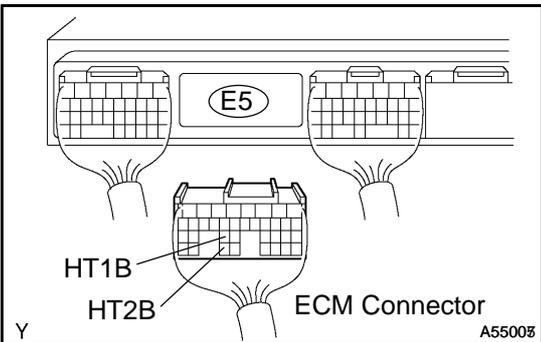
- (a) Check the harness and connector between the ECM and heated oxygen sensor connectors.
- (1) Disconnect the H6 or H8 heated oxygen sensor connector.
 - (2) Disconnect the E5 ECM connector.
 - (3) Check for continuity between the wire harness side connectors.

Standard (Check for open):

| Symbols (Terminal No.) | Specified condition |
|--------------------------|---------------------|
| HT (H6-1) - HT1B (E5-25) | Continuity |
| HT (H8-1) - HT2B (E5-33) | |

Standard (Check for short):

| Symbols (Terminal No.) | Specified condition |
|---|---------------------|
| HT (H6-1) or HT1B (E5-25) - Body ground | No continuity |
| HT (H8-1) or HT2B (E5-33) - Body ground | |



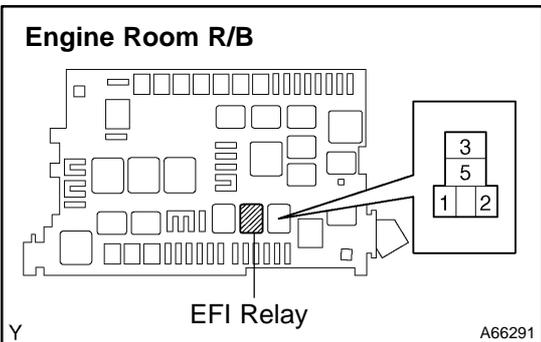
- (b) Check the harness and connector between the heated oxygen sensor connector and EFI relay.
- (1) Disconnect the H6 or H8 heated oxygen sensor connector.
 - (2) Remove the EFI relay from the engine room R/B.
 - (3) Check for continuity between the wire harness side connectors.

Standard (Check for open):

| Symbols (Terminal No.) | Specified condition |
|---------------------------|---------------------|
| +B (H6-2) - EFI relay (3) | Continuity |
| +B (H8-2) - EFI relay (3) | |

Standard (Check for short):

| Symbols (Terminal No.) | Specified condition |
|--|---------------------|
| +B (H6-2) or EFI relay (3) - Body ground | No continuity |
| +B (H8-2) or EFI relay (3) - Body ground | |



NG REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

CHECK AND REPLACE ECM (See page 01-35)