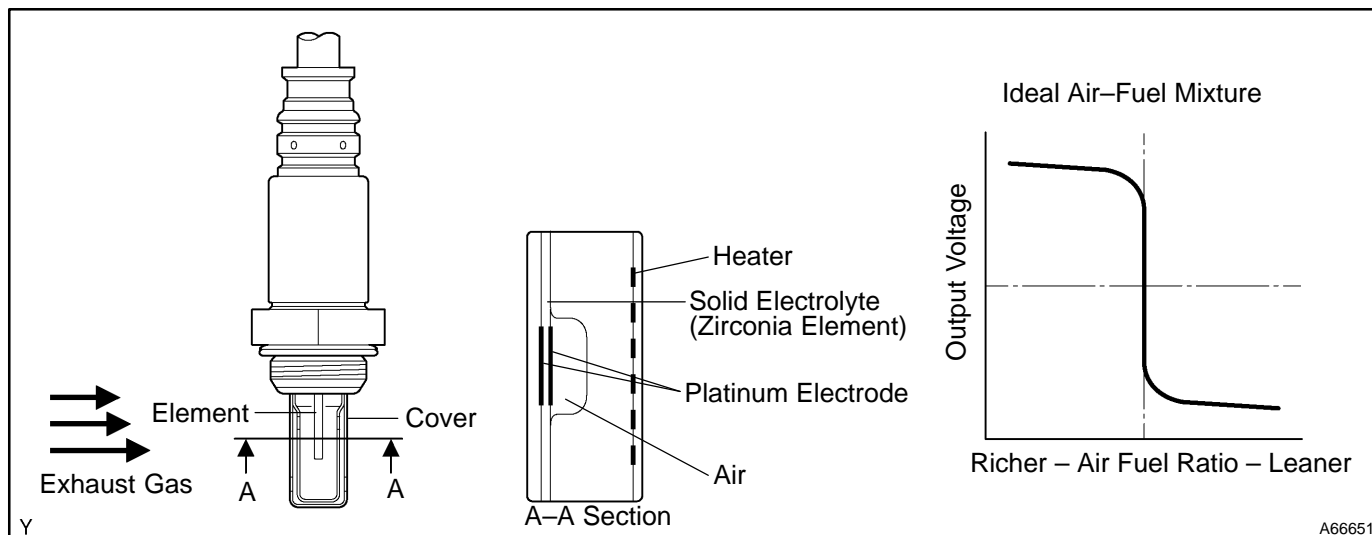| DTC	P0125	INSUFFICIENT COOLANT TEMP. FOR CLOSED LOOP FUEL CONTROL

CIRCUIT DESCRIPTION

To obtain a high purification rate of the CO, HC and NOx components of the exhaust gas, a three–way catalytic converter is used. For the most efficient use of the three–way catalytic converter, the air–fuel ratio must be precisely controlled so that it is always close to the stoichiometric air–fuel ratio.

The oxygen sensor has the characteristic that it provides output voltage* being approximately proportional to the existing air–fuel ratio. The oxygen sensor output voltage* is used to provide feedback for the ECM to control the air–fuel ratio.

By the oxygen sensor output, the ECM can determine the deviation amount from the stoichiometric air–fuel ratio and control the proper injection time immediately. If the oxygen sensor is out of order, ECM is unable to perform the accurate air–fuel ratio control.

The oxygen sensor is equipped with a heater which heats the zirconia element. The heater is controlled by the ECM. When the intake air volume is low (the temperature of the exhaust gas is low), the current flows to the heater to heat the sensor for the accurate oxygen concentration detection.

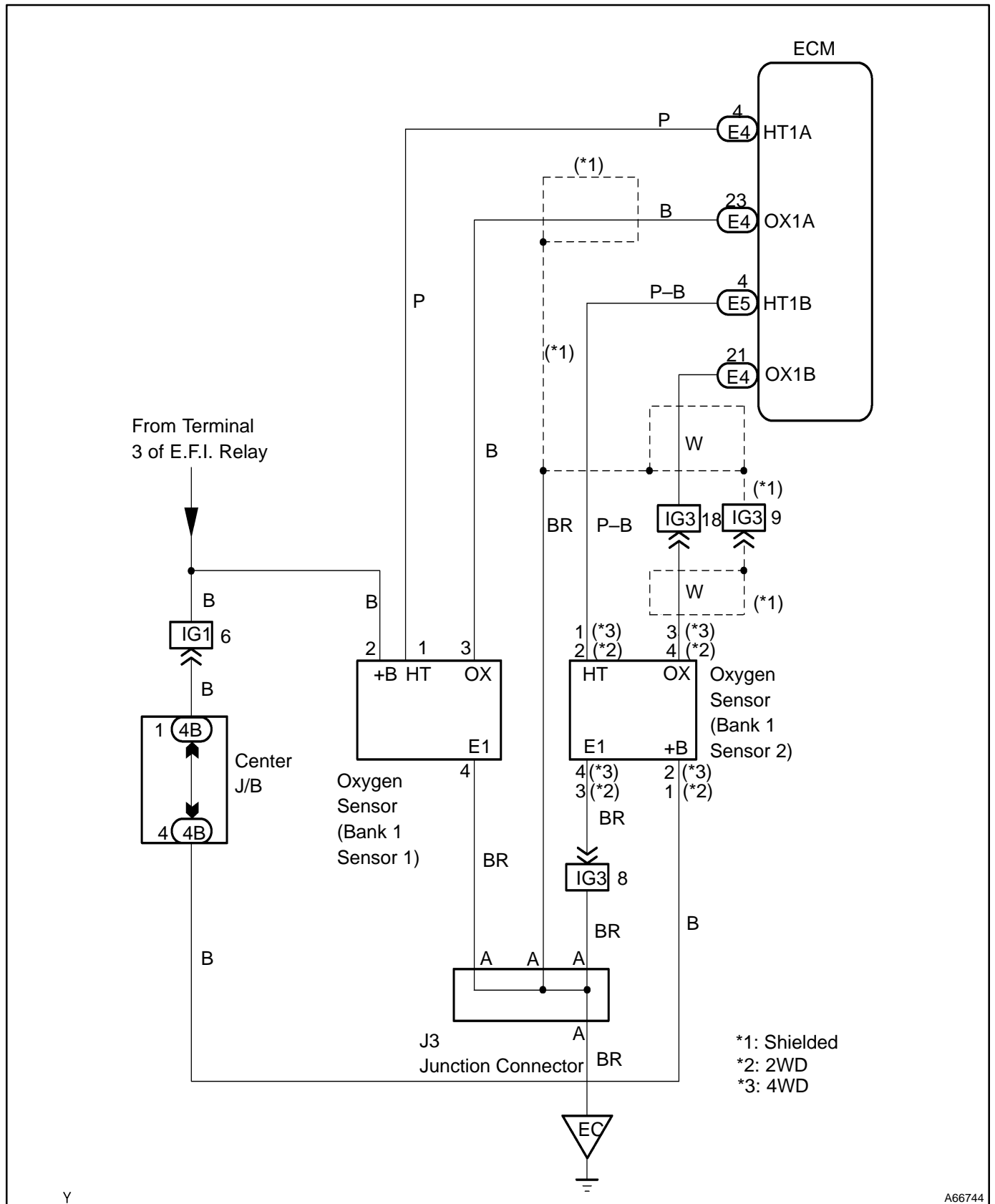*: The voltage value changes at the inside of the ECM only.

DTC No	DTC Detecting Condition	Trouble Area
P0125	After engine is warmed up, oxygen sensor output* does not change when conditions (a), (b), (c) and (d) continue for at least 1.5 min: *: Output value changes at inside of the ECM only (a) Engine speed: 1,500 rpm or more (b) Vehicle speed: 40 – 100 km/h (25 – 62 mph) (c) Throttle valve is not fully closed (d) 140 sec. or more after starting engine	• PCV hose • Open or short in oxygen sensor circuit • Oxygen sensor • Air induction system • Fuel pressure • Injector • Gas leak on exhaust system • ECM

HINT:

After confirming DTC P0125, use the hand–held tester or OBD II scan tool to confirm output voltage of the oxygen sensor from the CURRENT DATA.

WIRING DIAGRAM

ECM

P | 4 E4 | HT1A

(*1)

B | 23 E4 | OX1A

(*1)

P–B | 4 E5 | HT1B

21 E4 | OX1B

W

From Terminal
3 of E.F.I. Relay

B

(*1)

BR | P–B | IG3 18 | IG3 9 | (*1)

W | (*1)

B

IG1 6

B

2 | 1 | 3
+B HT OX

1 (*3) | 3 (*3)
2 (*2) | 4 (*2)
HT | OX

Oxygen
Sensor
(Bank 1
Sensor 2)

1 (4B)

Center
J/B

E1
4

E1 | +B

4 (4B)

Oxygen
Sensor
(Bank 1
Sensor 1)

4 (*3) | 2 (*3)
3 (*2) | 1 (*2)

BR

BR

IG3 8

BR

B

B

A | A | A

J3
Junction Connector

A

BR

*1: Shielded
*2: 2WD
*3: 4WD

EC

Y

A66744

INSPECTION PROCEDURE

HINT:

Read freeze frame data using the hand–held tester or OBD II scan tool. Because 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(BESIDES P0125)

Result:

	A	B
RESULT	Only P0125 is output.	P0125 and other codes are output.

HINT:

If any other cord besides P0125 are output, perform the troubleshoot on that DTC before.

B >	GO TO RELEVANT DTC CHART

A

2	READ VALUE OF OBD II SCAN TOOL OR HAND–HELD TESTER(OUTPUT VOLTAGE OF OXYGEN SENSOR)

(a) Warm up the oxygen sensor with the engine speed at 2,500 rpm for approx. 90 sec.

(b) Use the hand–held tester or OBD II scan tool to read the output voltage of the oxygen sensor during idling.

Oxygen sensor output voltage:

Alternates repeatedly between less than 0.4 V and more than 0.55 V (See the following table)
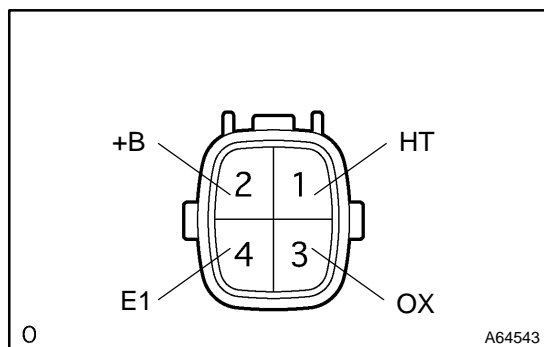

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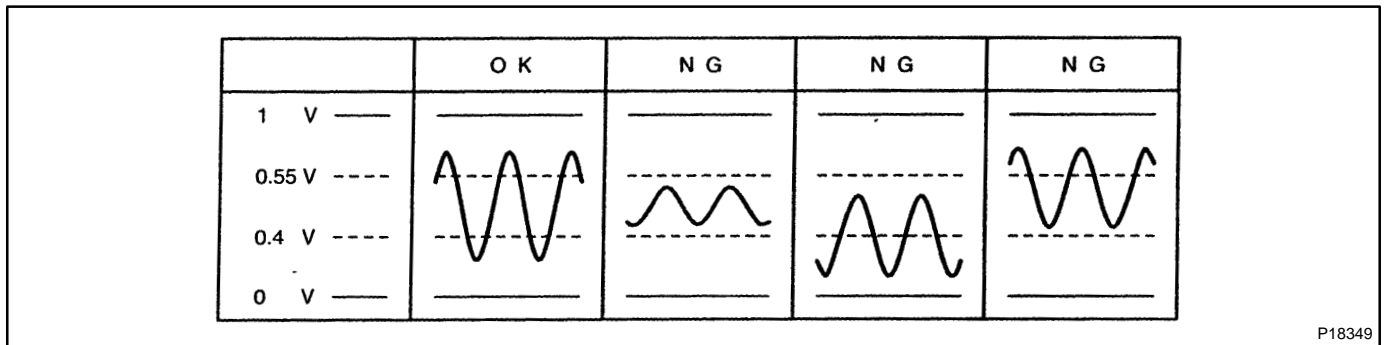
OK >	Go to step 10

NG

3	CHECK CONNECTION OF PCV HOSE

NG >	REPAIR OR REPLACE PCV HOSE

OK

| 4 | CHECK WIRE HARNESS OR CONNECTOR(ECM–OXYGEN SENSOR) |

NG > REPAIR OR REPLACE WIRE HARNESS OR CONNECTOR

OK

| 5 | INSPECT OXYGEN SENSOR(OXYGEN SENSOR HEATER RESISTANCE) |

(a) Disconnect the oxygen sensor connector.
(b) Measure resistance between the terminals HT and +B of the oxygen sensor.
Resistance: 5 – 10 Ω (20$°$C)

O   A64543

NG > REPLACE OXYGEN SENSOR

OK

| 6 | CHECK AIR INDUCTION SYSTEM (See page 12–1) |

NG > REPAIR OR REPLACE AIR INDUCTION SYSTEM

OK

| 7 | CHECK FUEL PRESSURE (See page 11–5) |

NG > REPAIR OR REPLACE FUEL SYSTEM

OK

| 8 | INSPECT FUEL INJECTOR ASSY (See page 11–7) |

NG > REPLACE FUEL INJECTOR ASSY

OK

| 9 | CHECK EXHAUST GAS LEAK |

NG > REPAIR OR REPLACE EXHAUST GAS LEAKAGE POINT

OK

| REPLACE OXYGEN SENSOR |

10	PERFORM CONFIRMATION DRIVING PATTERN

GO

11	READ OUTPUT DTC(BESIDES P0125)

Result:

	A	B
RESULT	P0125 is not output.	P0125 is output.

B ⟩ CHECK FOR INTERMITTENT PROBLEMS

A

12	CONFIRM VEHICLE RUNS OUT OF FUEL IN THE PAST

NO ⟩ CHECK AND REPLACE ECM

YES

DTC IS CAUSED RUNNING OUT OF FUEL