

DTC	P0325	Knock Sensor 1 Circuit Malfunction
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DTC	P0330	Knock Sensor 2 Circuit Malfunction
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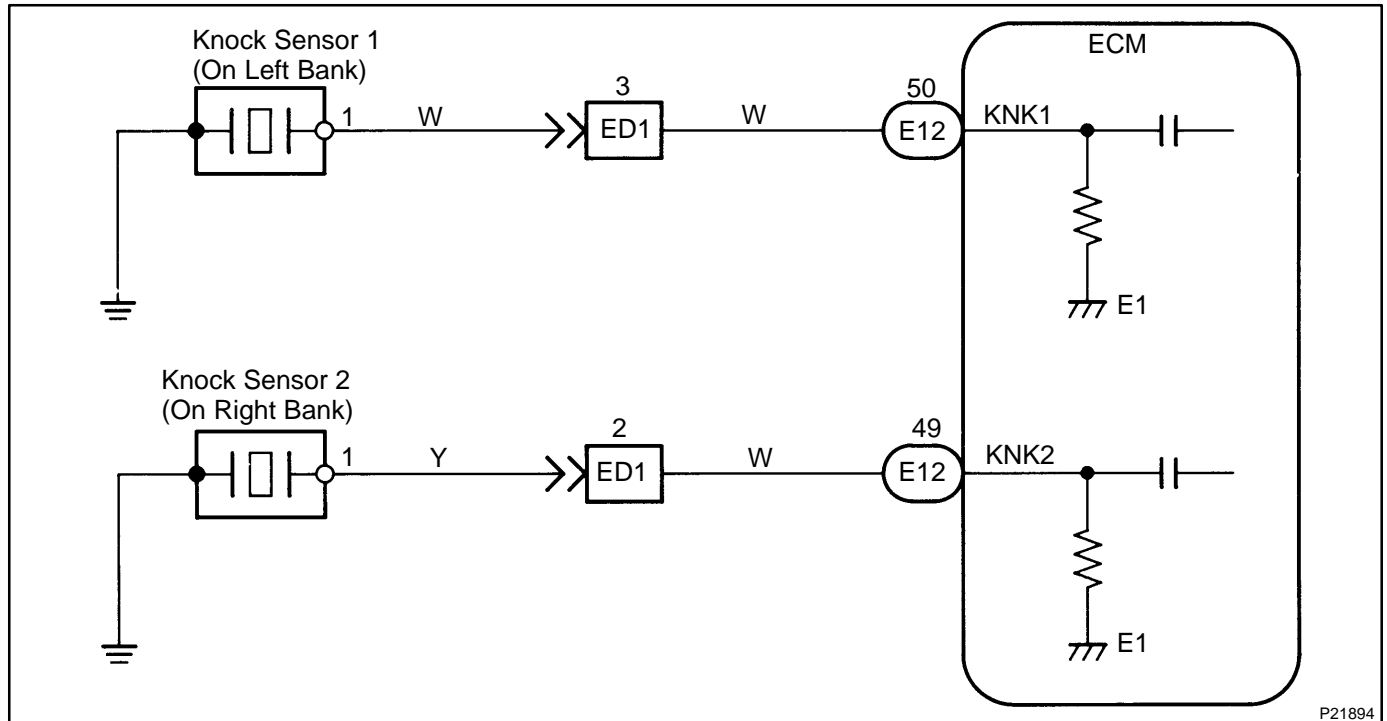
CIRCUIT DESCRIPTION

Knock sensors are fitted one each to the right bank and left bank of the cylinder block to detect engine knocking. This sensor contains a piezoelectric element which generates a voltage when it becomes deformed, which occurs when the cylinder block vibrates due to knocking. If engine knocking occurs, ignition timing is retarded to suppress it.

DTC No.	DTC Detecting Condition	Trouble Area
P0325	No knock sensor 1 signal to ECM with engine speed 1,700 – 5,600 rpm	<ul style="list-style-type: none"> • Open or short in knock sensor 1 circuit • Knock sensor 1 (looseness) • ECM
P0330	No knock sensor 2 signal to ECM with engine speed 1,700 – 5,600 rpm	<ul style="list-style-type: none"> • Open or short in knock sensor 2 circuit • Knock sensor 2 (looseness) • ECM

If the ECM detects the above diagnosis conditions, it operates the fail safe function in which the corrective retard angle value is set to the maximum value.

WIRING DIAGRAM



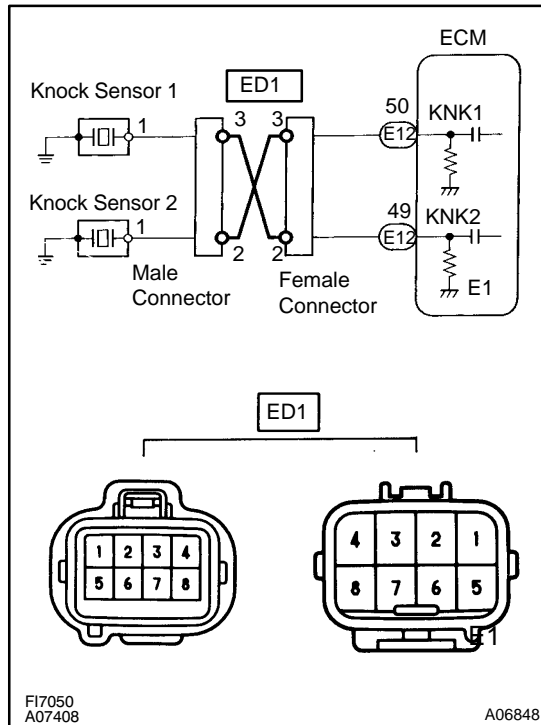
P21894

INSPECTION PROCEDURE

HINT:

- DTC P0325 is for right bank knock sensor circuit.
- DTC P0330 is for left bank knock sensor circuit.

- 1 **Connect the OBD II scan tool or LEXUS hand-held tester and check the knock sensor circuit.**



PREPARATION:

- (a) Connect the OBD II scan tool or LEXUS hand-held tester to the DLC3.
- (b) Disconnect the wire to wire connector ED1.
- (c) Connect the terminals of the disconnected ED1 male connector and ED1 female as follows.

Male connector ↔ Female connector
Terminal 3 ↔ Terminal 2
Terminal 2 ↔ Terminal 3

- (d) Turn ignition switch ON and OBD II scan tool or LEXUS hand-held tester main switch ON.
- (e) After the engine is warmed up, perform quick racing (4,000 rpm) 3 times.

CHECK:

Check the DTC.

RESULT:

Type I	DTC same as when vehicle brought in. P0325 → P0325 or P0330 → P0330
Type II	DTC different to when vehicle brought in. P0325 → P0330 or P0330 → P0325

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Go to step 2.

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Go to step 3.

- 2 **Check for open and short in harness and connector between ED1 connector and ECM (See page IN-29).**

NG

Repair or replace harness or connector.

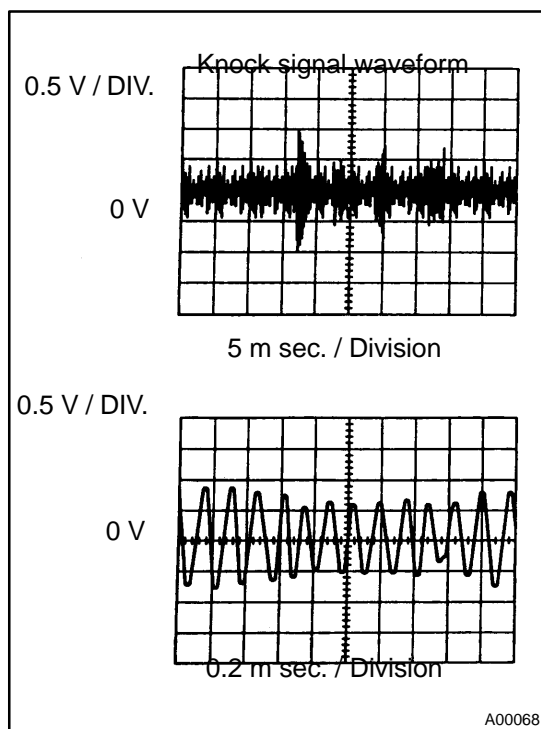
OK

Check and replace ECM (See page IN-29).

3	Check for open and short in harness and connector between ED1 connector and knock sensor (See page IN-29).
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HINT:

- If DTC P0325 has changed to P0330, check the knock sensor circuit on the right bank side.
- If DTC P0330 has changed to P0325, check the knock sensor circuit on the left bank side.

NG**Repair or replace harness or connector.****OK****Replace knock sensor.****Reference: INSPECTION USING OSCILLOSCOPE**

- With the engine racing (4,000 rpm) measure between terminals KNK1, KNK2 of ECM and body ground.

HINT:

The correct waveform appears as shown in the illustration on the left.

- Spread the time on the horizontal axis, and confirm that period of the wave is 151 μ sec.
(Normal mode vibration frequency of knock sensor: 6.6 KHz).

HINT:

If normal mode vibration frequency is not 6.6 KHz, the sensor is malfunctioning.