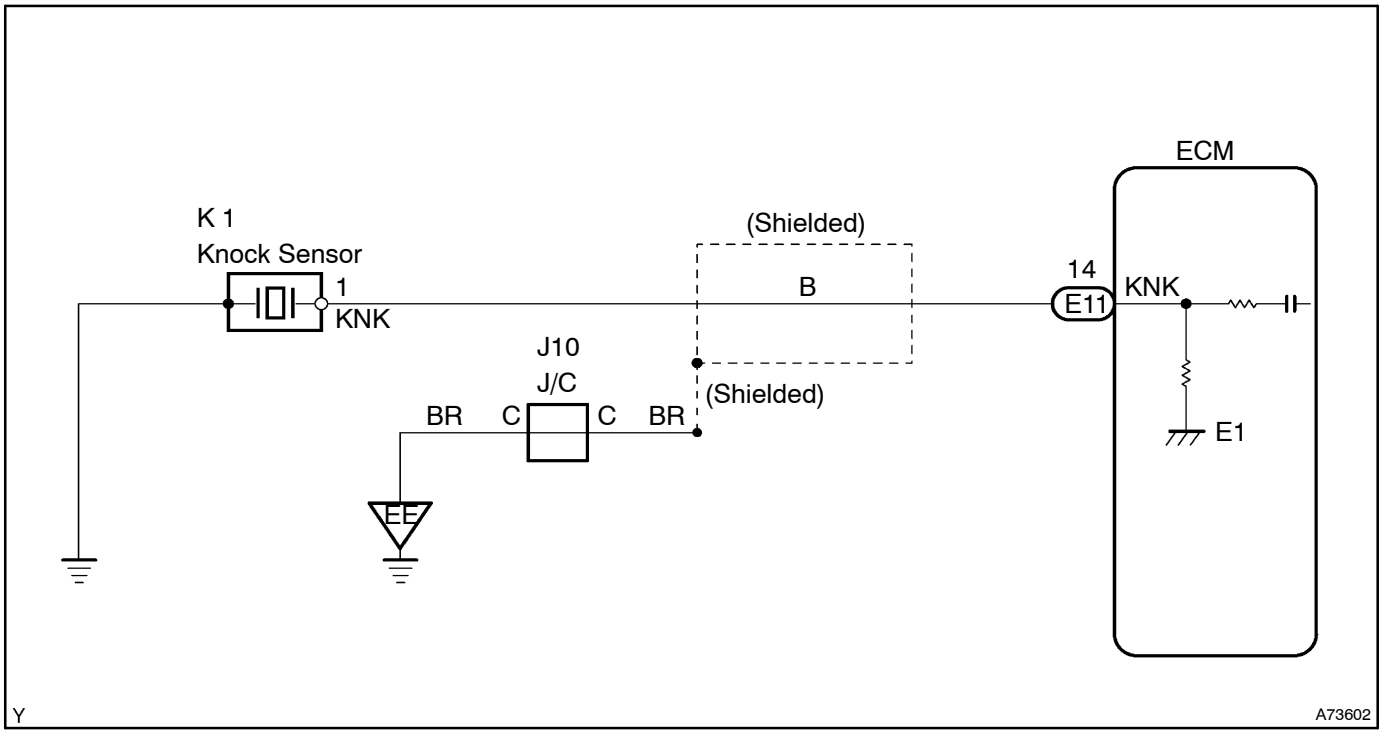
DTC 52 KNOCK SENSOR CIRCUIT

CIRCUIT DESCRIPTION

The knock sensor is fitted on 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.

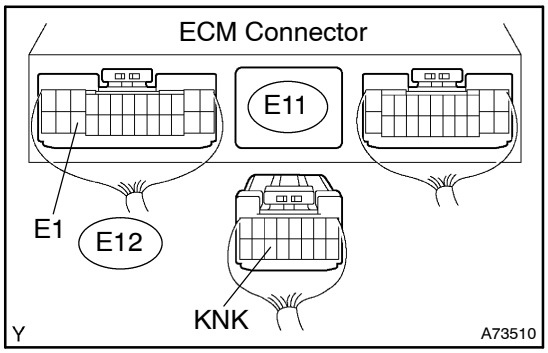
DTC No.	DTC Detecting Condition	Trouble Area
52	No knock sensor signal to ECM with engine speed between 1,800 and 5,000 rpm	• Open or short in knock sensor circuit • Knock sensor (looseness) • ECM

WIRING DIAGRAM



INSPECTION PROCEDURE

1 CHECK HARNESS AND CONNECTOR

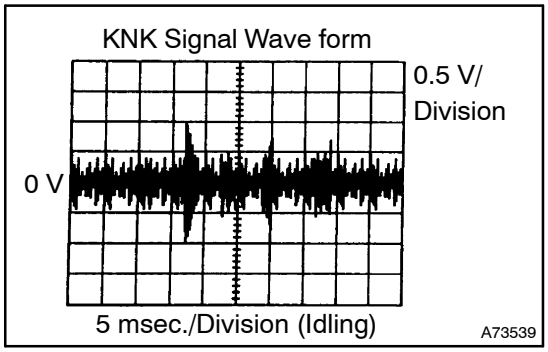


(a) Disconnect the E11 ECM connector.
(b) Check the continuity between the terminals.
Standard (Check for short):

Symbols (Terminal No.)	Specified condition
KNK (E11–14) ⇔ Other terminals and body ground	No continuity

(c) Reference (using the oscilloscope).
(1) During cranking or idling, check the waveform between the terminals of the E11 and E12 ECM connectors.
Standard:

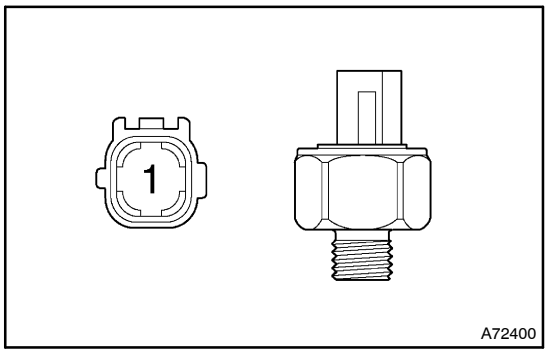
Symbols (Terminal No.)	Specified condition
KNK (E11–14) ⇔ E1 (E12–24)	Correct waveform is as shown



OK ⇒ **Go to step 3**

NG

2 INSPECT KNOCK SENSOR



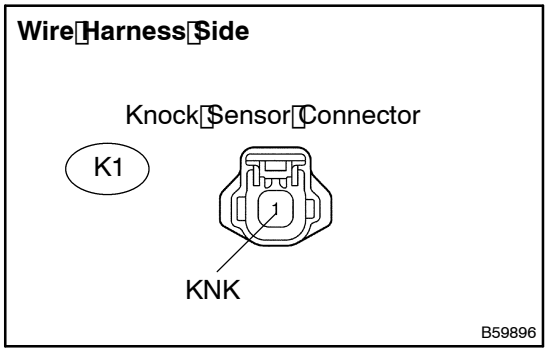
(a) Check continuity between the terminal and body.
Standard:

Terminal No.	Specified condition
1 ⇔ Body	No continuity

NG ⇒ **REPLACE KNOCK SENSOR (See page 01–36)**

OK

3 CHECK HARNESS AND CONNECTOR (KNOCK SENSOR ⇔ ECM)



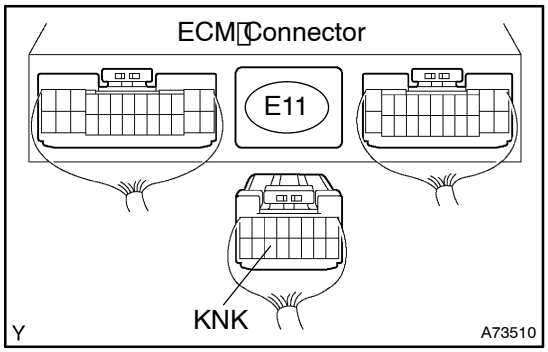
(a) Disconnect the K1 knock sensor connector.
(b) Disconnect the E11 ECM connector.
(c) Check the continuity between the wire harness side connectors.

Standard (Check for open):

Symbols (Terminal No.)	Specified condition
KNK (K1–1) ⇔ KNK (E11–14)	Continuity

Standard (Check for short):

Symbols (Terminal No.)	Specified condition
KNK (K1–1) or KNK (E11–14) ⇔ Other terminals and body ground	No continuity

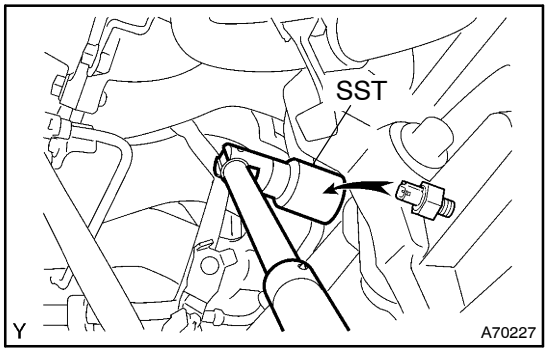


NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

4 CONFIRM THE MALFUNCTION DISAPPEAR WHEN A GOOD KNOCK SENSOR IS INSTALLED

SST 09816–30010, 09843–18020



(a) Using SST, replacement the knock sensor.
Torque: 44 N·m (450 kgf·cm, 33 ft·lbf)
(b) Perform the driving test.
(c) Read the DTC.

Result:

Result	Proceed to
52 is output	A
52 is not output	B

B → **SYSTEM OK**

A

CHECK AND REPLACE ECM (See page 01–36)