DI31O–04

CIRCUIT INSPECTION

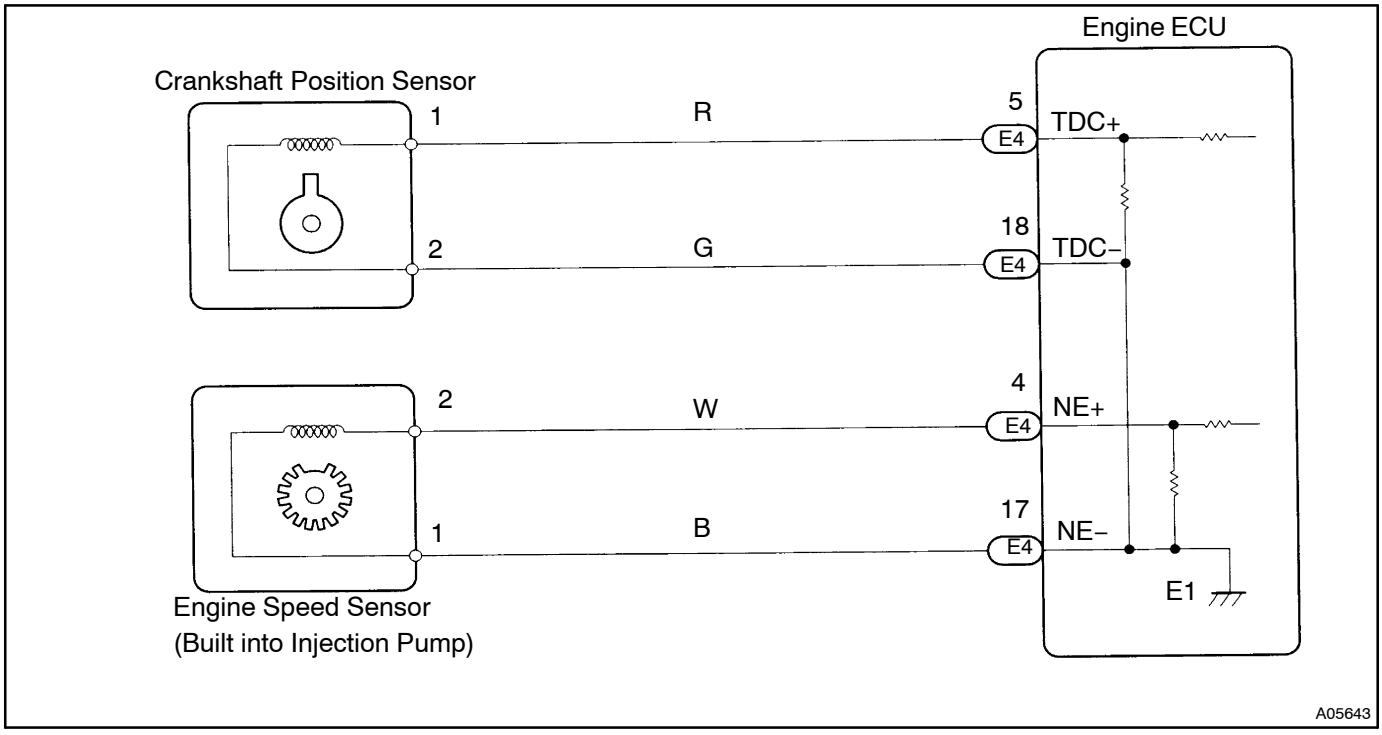
DTC	12	Engine Speed Sensor Circuit Malfunction (TDC or G1 Circuit)

CIRCUIT DESCRIPTION

The crankshaft position sensor in the Engine Control System contains signal plate and a pickup coil for TDC signal. The TDC signal plate has 1 tooth on its outer circumference. The TDC signal sensor generates 1 signal for every engine revolution. The engine ECU detects the top dead center by the TDC signals.
The engine speed sensor in the Engine Control System contains signal plate and a pickup coil for NE signal. The NE signal plate has 52 teeth and is mounted in the injection pump. The NE signal sensor generates 52 signals of engine 2 revolutions. The engine ECU detects the engine speed and cam lift position of the injection pump.
The engine ECU uses TDC signal and NE signals for injection timing control. And NE signal is used for injection volume control, also.

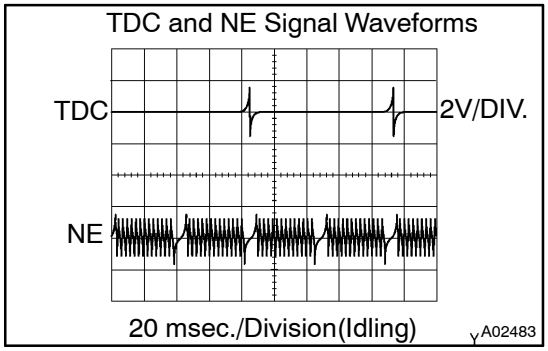
DTC No.	DTC Code Detecting Condition	Trouble Area
12	No TDC signal to engine ECU during cranking	• Open or short in crankshaft position sensor circuit • Crankshaft position speed sensor • Engine ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Check resistance of crankshaft position sensor (See page ED–20).**



Reference: INSPECTION USING OSCILLOSCOPE
During cranking or idling, check the waveform between terminals TDC+ and TDC– of the engine ECU connector.
HINT:
The correct wavaforms are as shown.

NG → **Replace crankshaft position sensor.**

OK

2	**Check for open and short in harness and connector between engine ECU and crankshaft position sensor (See page IN–20).**

NG → **Repair or replace harness or connector.**

OK

3	**Inspect crankshaft position sensor installation.**

NG → **Tighten crankshaft position sensor.**

OK

Check and replace engine ECU (See page IN–20).