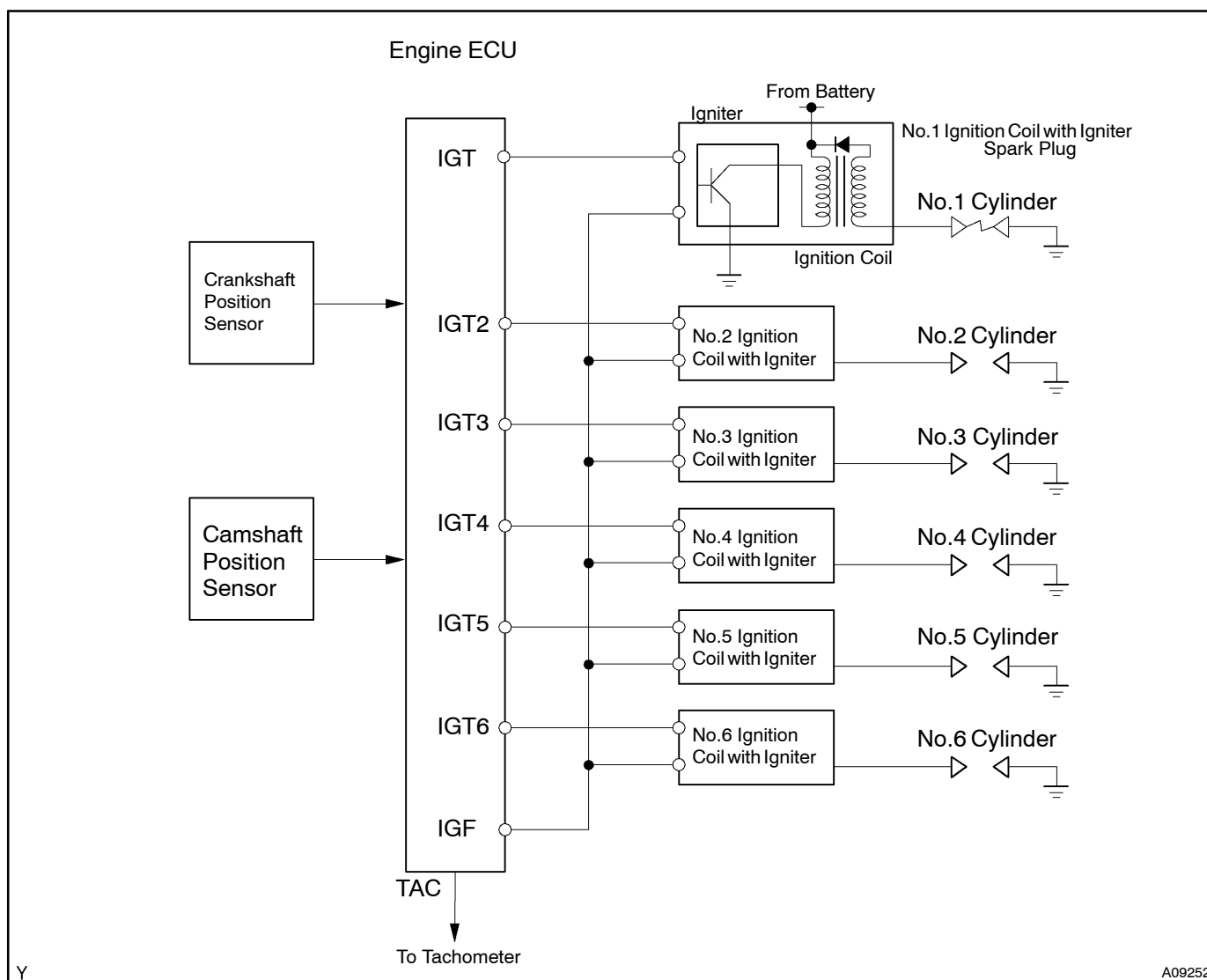


DTC	P1300/14	Igniter Circuit Malfunction (No.1)
DTC	P1305/15	Igniter Circuit Malfunction (No.2)
DTC	P1310/14	Igniter Circuit Malfunction (No.3)
DTC	P1315/14	Igniter Circuit Malfunction (No.4)
DTC	P1320/14	Igniter Circuit Malfunction (No.5)
DTC	P1325/14	Igniter Circuit Malfunction (No.6)

CIRCUIT DESCRIPTION

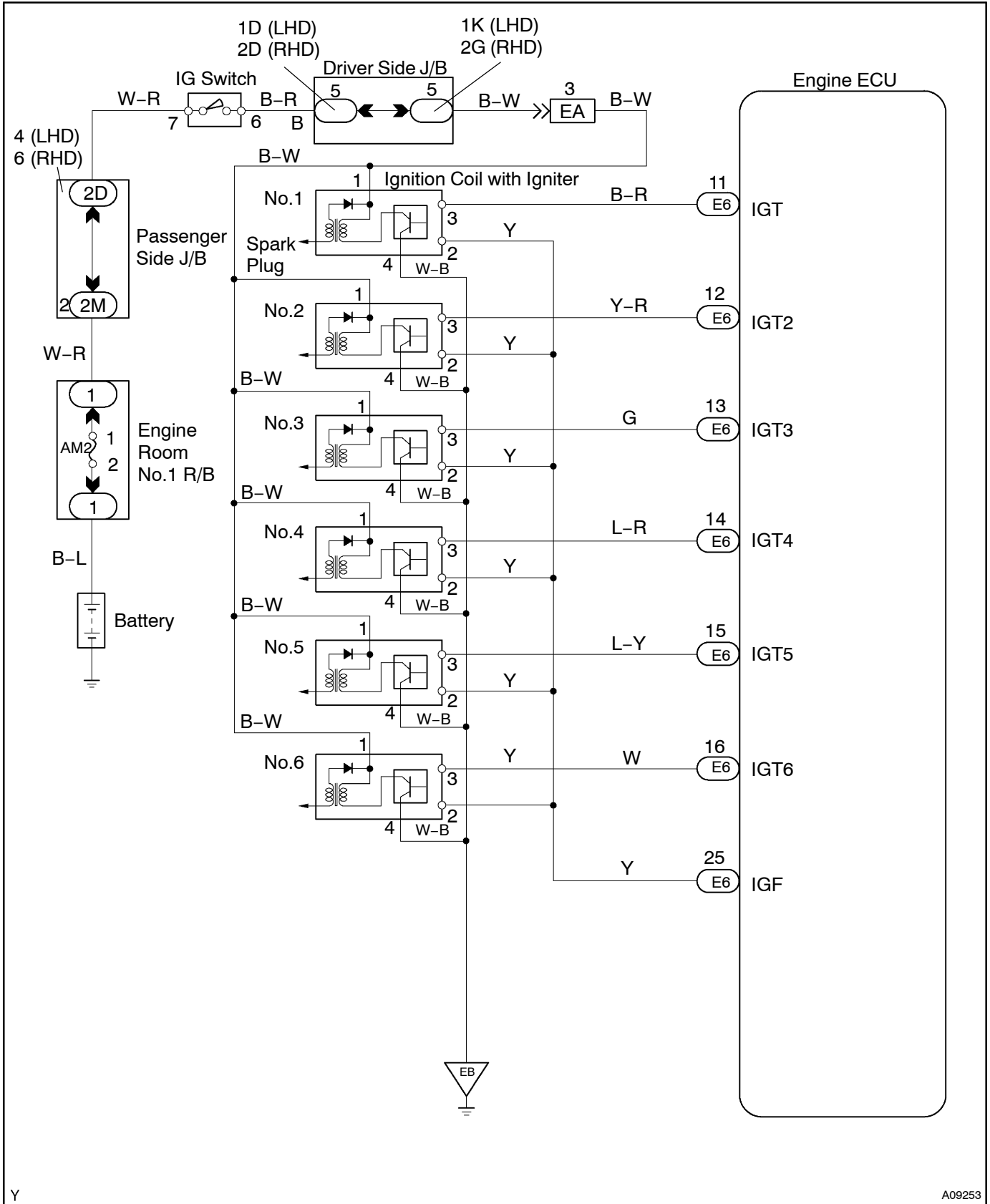
A Direct Ignition System (DIS) has been adopted. The DIS improves the ignition timing accuracy, reduces high-voltage loss, and enhances the overall reliability of the ignition system by eliminating the distributor. The DIS is a 1-cylinder ignition system which ignites one cylinder with one ignition coil. In the 1-cylinder ignition system, the one spark plug is connected to the end of the secondary winding. High voltage generated in the secondary winding is applied directly to the spark plug. The spark of the spark plug pass from the center electrode to the ground electrode.

The engine ECU determines ignition timing and outputs the ignition signals (IGT) for each cylinder. Based on IGT signals, the power transistors in the igniter cuts off the current to the primary coil in the ignition coil is supplied to the spark plug that are connected to the end of the secondary coil. At the same time, the igniter also sends an ignition confirmation signal (IGF) as a fail-safe measure to the engine ECU.



DTC No.	DTC Detecting Condition	Trouble Area
P1300/14 P1305/15 P1310/14 P1315/14 P1320/14 P1325/14	No IGF signal to engine ECU while engine is running	<ul style="list-style-type: none"> • Ignition system • Open or short in IGF and IGT1 – IGT6 circuit from ignition coil with igniter to engine ECU • No.1 – No.6 ignition coil with igniter • Engine ECU

WIRING DIAGRAM



Y

A09253

INSPECTION PROCEDURE

HINT:

- If DTC P1300/14 is displayed, check No. 1 ignition coil with igniter circuit.
- If DTC P1305/15 is displayed, check No. 2 ignition coil with igniter circuit.
- If DTC P1310/14 is displayed, check No. 3 ignition coil with igniter circuit.
- If DTC P1315/14 is displayed, check No. 4 ignition coil with igniter circuit.
- If DTC P1320/14 is displayed, check No. 5 ignition coil with igniter circuit.
- If DTC P1325/14 is displayed, check No. 6 ignition coil with igniter circuit.
- Read freeze frame data using hand-held tester. Because freeze frame 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 Check spark plug and spark (See page IG-1).

NG

Go to step 4.

OK

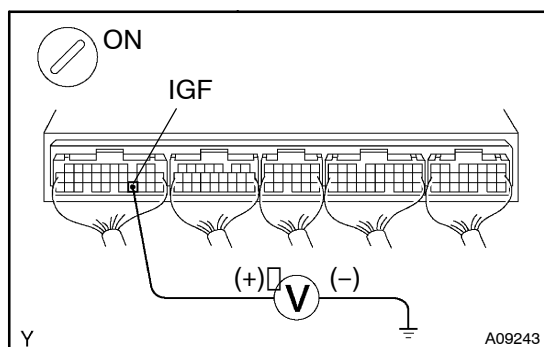
2 Check for open and short in harness and connector in IGF and IGT signal circuit between engine ECU and ignition coil with igniter (See page IN-32).

NG

Repair or replace harness or connector.

OK

3 Disconnect ignition coil with igniter connector, and check voltage between terminals IGF of engine ECU connector and body ground.



PREPARATION:

- (a) Remove the engine ECU hood.
- (b) Disconnect the ignition coil with the igniter connector.
- (c) Turn the ignition switch ON.

CHECK:

Measure the voltage between terminals IGF of the engine ECU connector and body ground.

OK:

Voltage: 4.5 – 5.5 V

OK

Replace ignition coil with igniter.

NG

Check and replace engine ECU (See page IN-32).

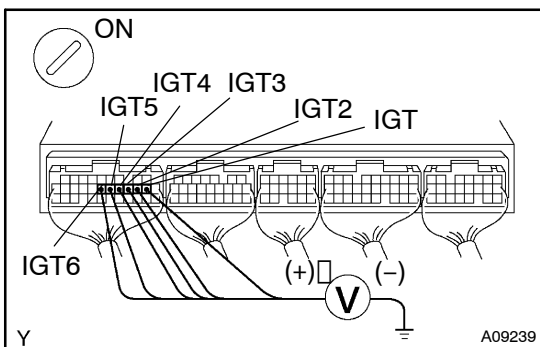
- 4 Check for open and short in harness and connector in IGT signal circuit between engine ECU and ignition coil with igniter (See page IN-32).

NG

Repair or replace harness or connector.

OK

- 5 Check voltage between terminals IGT - IGT6 of engine ECU connector and body ground.

**PREPARATION:**

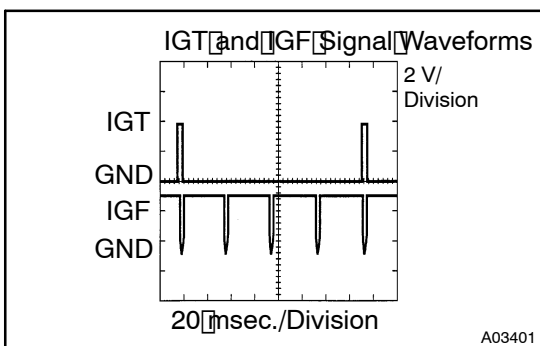
Remove the engine ECU hood.

CHECK:

Measure the voltage between terminals IGT - IGT6 of the engine ECU connector and body ground when the engine is cranked.

OK:

Voltage: More than 0.1V and less than 4.5V

**Reference: INSPECTION USING OSCILLOSCOPE**

During cranking or idling, check the waveforms between terminals IGT - IGT6 and E1, and IGF and E1 of the engine ECU connector.

HINT:

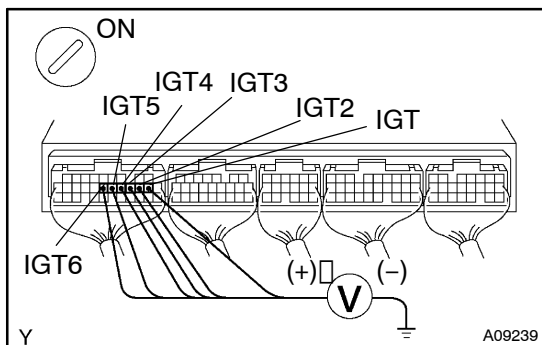
Correct waveform appears as shown, with rectangle waves.

NG

Check and replace engine ECU (See page IN-32).

OK

6 Disconnect ignition coil with igniter connector and check voltage between terminals IGT - IGT6 of engine ECU connector and body ground.

**PREPARATION:**

- (a) Remove the engine ECU hood.
 (b) Disconnect the ignition coil with the igniter connector.

CHECK:

Measure the voltage between terminals IGT - IGT6 of the engine ECU connector and body ground when the engine is cranked.

OK:

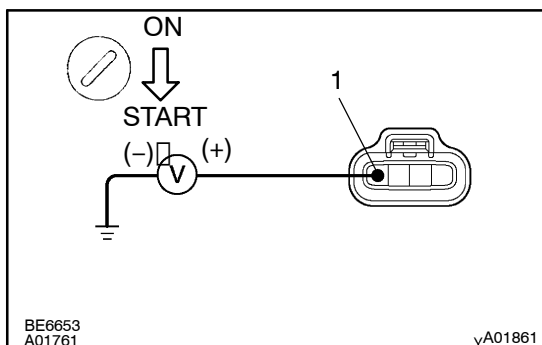
Voltage: More than 0.1 V and less than 4.5 V

NG

Check and replace engine ECU (See page IN-32).

OK

7 Check ignition coil with igniter power source circuit.

**PREPARATION:**

Disconnect the ignition coil with the igniter connector.

CHECK:

Measure the voltage between terminal 1 of the ignition coil with the igniter connector and body ground when the ignition switch is turned to ON and START position.

OK:

Voltage: 9 - 14 V

OK

Repair ignition coil with igniter power source circuit.

NG

8 Check for open and short in harness and connector between ignition switch and ignition coil with igniter (See page IN-32).

NG

Repair or replace harness or connector.

OK

Replace ignition coil with igniter.