DI2UP–03

DTC	P1300	Igniter Circuit Malfunction (No.1)

DTC	P1305	Igniter Circuit Malfunction (No.2)

DTC	P1310	Igniter Circuit Malfunction (No.3)

DTC	P1315	Igniter Circuit Malfunction (No.4)

DTC	P1320	Igniter Circuit Malfunction (No.5)

DTC	P1325	Igniter Circuit Malfunction (No.6)

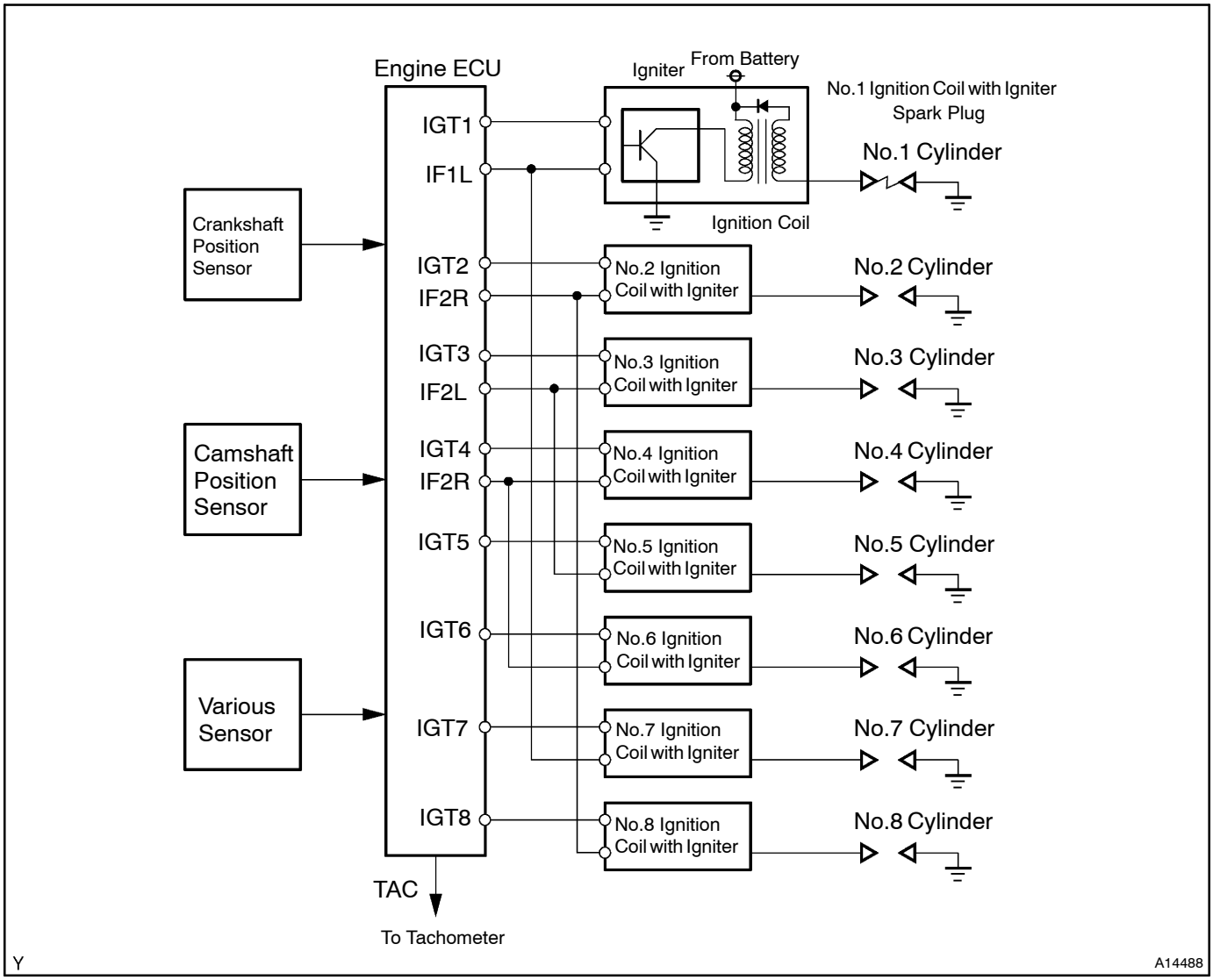
DTC	P1330	Igniter Circuit Malfunction (No.7)

DTC	P1340	Igniter Circuit Malfunction (No.8)

CIRCUIT DESCRIPTION

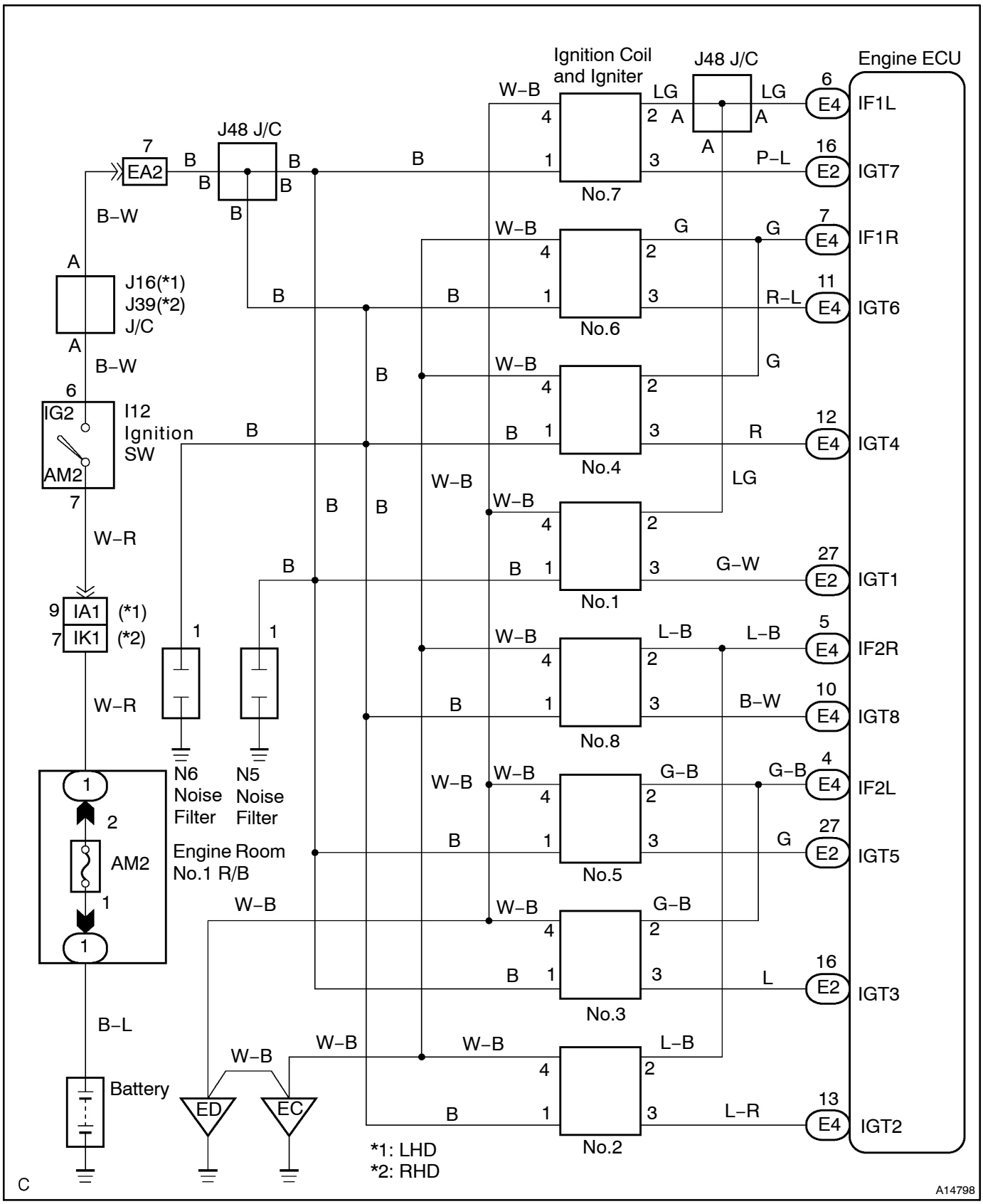
A DIS (Direct Ignition System) has been adopted. The DIS improves the ignition timing accuracy, reduces high–voltage loss, and enhances the the overall reliability of the ignition system by eliminating the distributor. The DIS is a 1–cylinder ignition system which ignites one cylinder with one ignition 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 elecrtode 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 P1305 P1310 P1315 P1320 P1325 P1330 P1340	No IF signal to engine ECU while engine is running	• Open or short in IF1L, IF2L, IF1R or IF2R and IGT1 – 8 circuit from ignition coil with igniter • No.1 – No.8 ignition coil with igniter • Engine ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

- If DTC P1300 is displayed, check No.1 ignition coil with igniter circuit.
- If DTC P1305 is displayed, check No.2 ignition coil with igniter circuit.
- If DTC P1310 is displayed, check No.3 ignition coil with igniter circuit.
- If DTC P1315 is displayed, check No.4 ignition coil with igniter circuit.
- If DTC P1320 is displayed, check No.5 ignition coil with igniter circuit.
- If DTC P1325 is displayed, check No.6 ignition coil with igniter circuit.
- If DTC P1330 is displayed, check No.7 ignition coil with igniter circuit.
- If DTC P1340 is displayed, check No.8 ignition coil with igniter circuit.
- If DTC P1300 and P1330 are output simultaneously, IF1L circuit may be open or short.
- If DTC P1315 and P1325 are output simultaneously, IF1R circuit may be open or short.
- If DTC P1310 and P1320 are output simultaneously, IF2L circuit may be open or short.
- If DTC P1305 and P1340 are output simultaneously, IF2R circuit may be open or short.
- Read freeze frame data using OBD scan tool or 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 warmed up or not, the air–fuel ratio 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.**

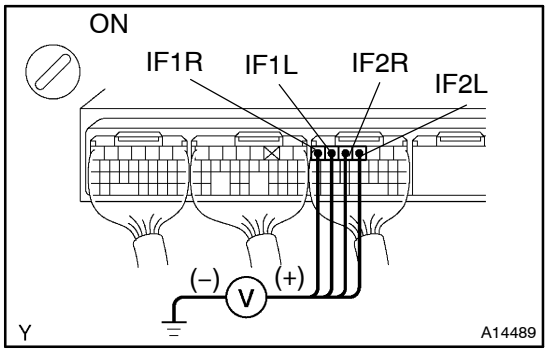
OK

2	**Check for open and short in harness and connector in IF and IGT signal circuit between engine ECU and ignition coil with igniter (See page IN–30).**

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

OK

3	Disconnect ignition coil with igniter connector and check voltage between terminals IF1L, IF2L, IF1R, IF2R of engine ECU connector and body ground.



PREPARATION:

(a) Remove the engine ECU hood and cover (See page FI–74).

(b) Disconnect the ignition coil with igniter connector.

(c) Turn the ignition switch ON.

CHECK:

Measure voltage between terminals IF1L, IF2L, IF1R, IF2R of the engine ECU connector and body ground.

OK:

Voltage: 4.5 – 5.5 V

OK	Replace ignition coil with igniter.

NG

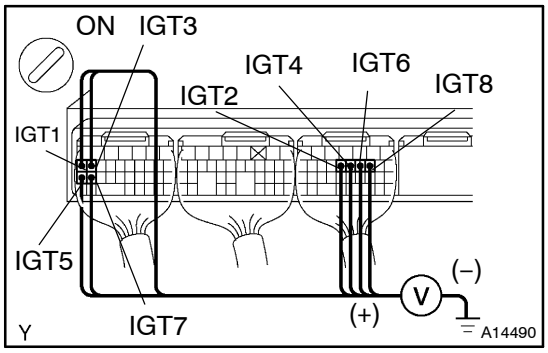
Check and replace engine ECU (See page IN–30).

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–30).

NG	Repair or replace harness or connector.

OK

5	Check voltage between terminals IGT1 – 8 of engine ECU connector and body ground.



PREPARATION:

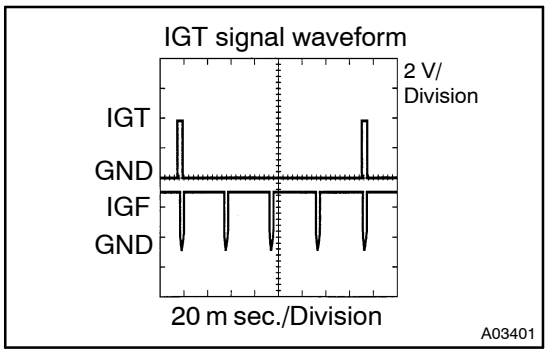
Remove the engine ECU hood and cover (See page FI–74).

CHECK:

Measure voltage between terminals IGT1 – 8 of the engine ECU connector and body ground when engine is cranked.

OK:

Voltage: More than 0.1 V and less than 4.5 V



Reference: INSPECTION USING OSCILLOSCOPE

During cranking or idling, check waveform between terminals IGT1 – 8 and E1 of the engine ECU connector.

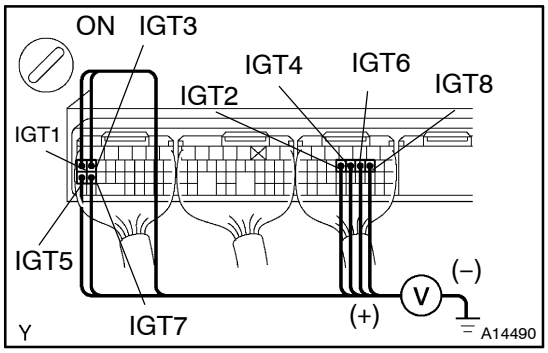
HINT:

Correct waveform appears as sohwn, with rectangle waves.

NG	Check and replace engine ECU (See page IN–30).

OK

6	Disconnect ignition coil with igniter connector and check voltage between terminals IGT1 – 8 of engine ECU connector and body ground.



PREPARATION:

(a) Remove the engine ECU hood and cover (See page FI–74).

(b) Disconnect the ignition coil with igniter connector.

CHECK:

Measure voltage between terminals IGT1 – 8 of the engine ECU connector and body ground when engine is cranked.

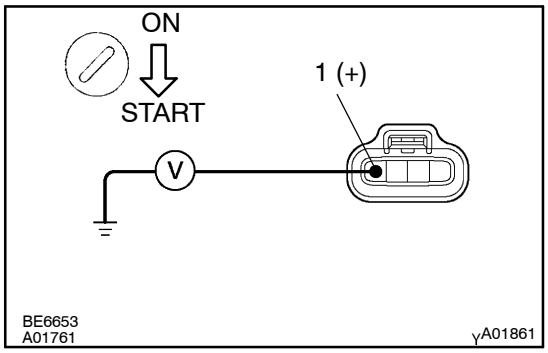
OK:

Voltage: More than 0.1 V and less than 4.5 V

NG	Check and replace engine ECU (See page IN–30).

OK

7	Check ignition coil with igniter power source circuit.



PREPARATION:

Disconnect the ignition coil with igniter connector.

CHECK:

Measure voltage between terminal 1 of ignition coil with igniter connector and body ground, when 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–30).

NG	Repair or replace harness or connector.

OK

Replace ignition coil with igniter.