DI6JJ–03

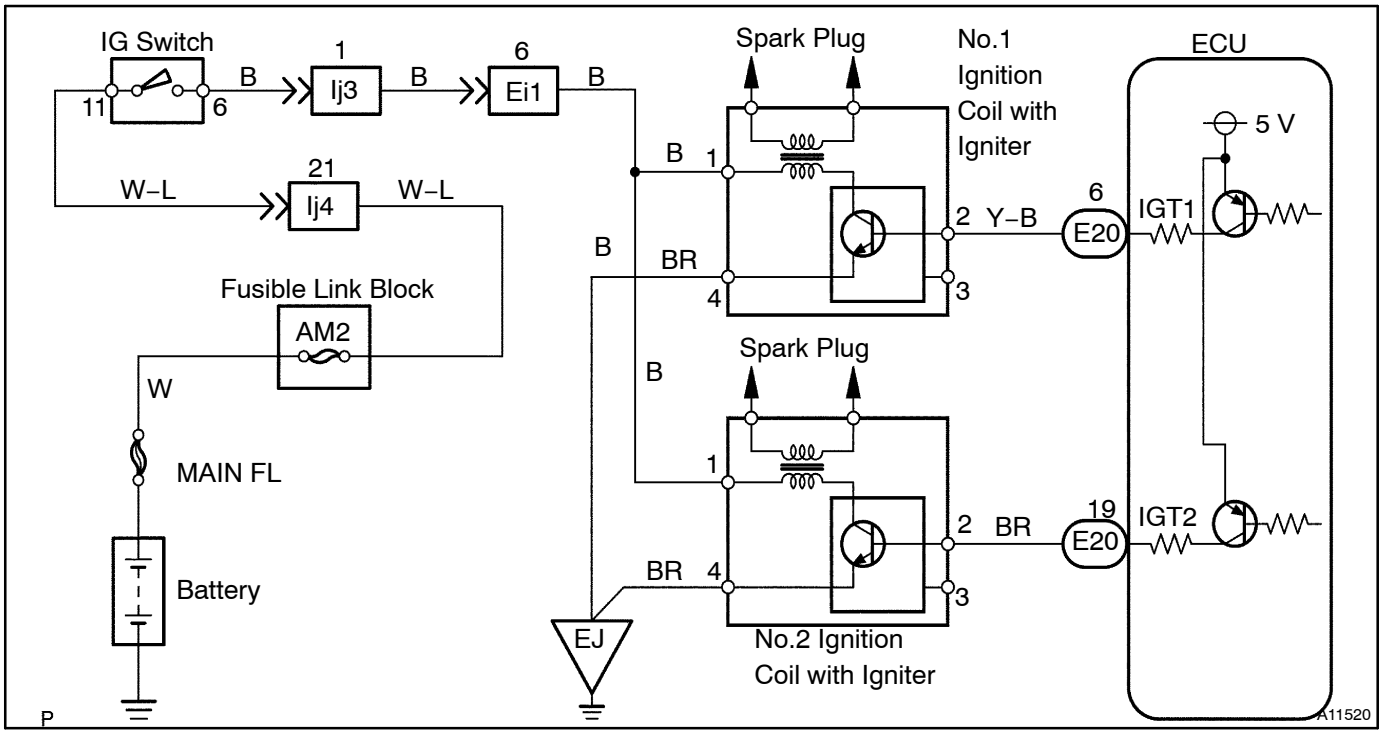
Ignition Signal Circuit

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 2–cylinder simultaneous ignition system which ignites 2 cylinders simultaneously with 1 ignition coil. In the 2–cylinder simultaneous ignition system, each of the 2 spark plugs is connected to the end of the secondary winding, High voltage generated in the secondary winding is applied directly to the 2 spark plugs. The sparks of the 2 spark plugs pass simultaneously 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 signal, the power transistors in the igniter cuts off the current to the primary coil in the ignition coil is supplied simultaneously to the 2 spark plugs via the high–tension cords that are connected to the both ends of the secondary coil.
HINT:

- No.1 ignition coil is for cylinder No.1 and No.4.
- No.2 ignition coil is for cylinder No.2 and No.3.

WIRING DIAGRAM



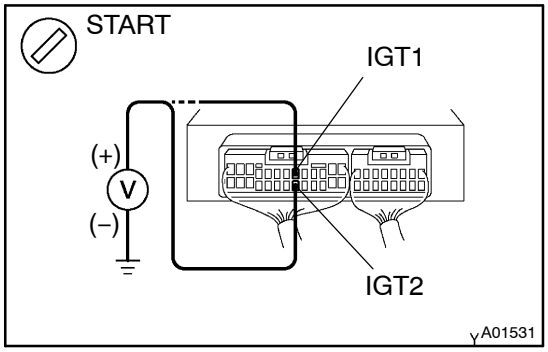
INSPECTION PROCEDURE

1	**Check spark plug and spark of misfiring cylinder (See page IG–1).**

NG	**Check for open and short in harness and connector between engine ECU and ignition coil with igniter (See page IN–19).**

OK

2	Check voltage between terminals IGT1, IGT2 of engine ECU connector and body ground.

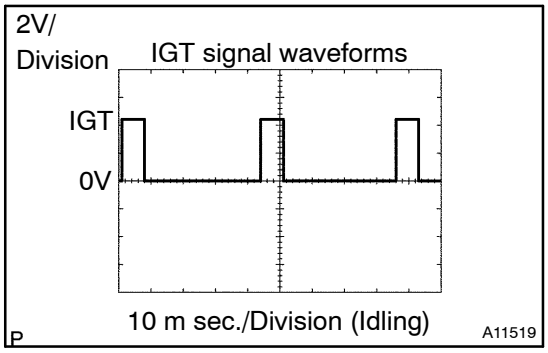


PREPARATION:
Disconnect the engine ECU from the bracket (See page FI–36).

CHECK:
Measure the voltage between terminal IGT1, IGT2 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

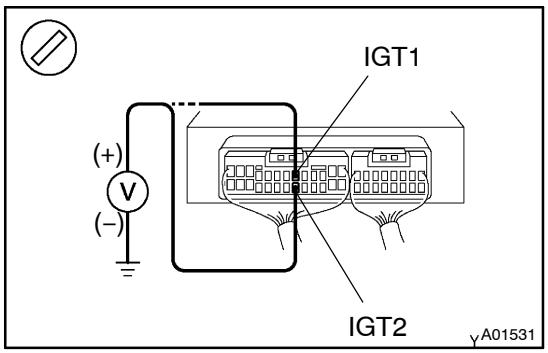


Reference: INSPECTION USING OSILLOSCOPE
During idling, check the waveform between terminals IGT1 and E1, and IGT2 and E1 of the engine ECU connector.
HINT:
The correct waveform is as shown.

NG → **Check and replace engine ECU (See page FI–37).**

OK

3	Disconnect ignition coil with igniter connector, and check voltage between terminals IGT1, IGT2 of engine ECU connector and body ground.



PREPARATION:
(a) Disconnect the ignition coil with the igniter connector.
(b) Disconnect the engine ECU from the bracket (See page FI–36).

CHECK:
Measure the voltage between terminals IGT1, IGT2 of the engine ECU connector and body ground when the engine is cranked.

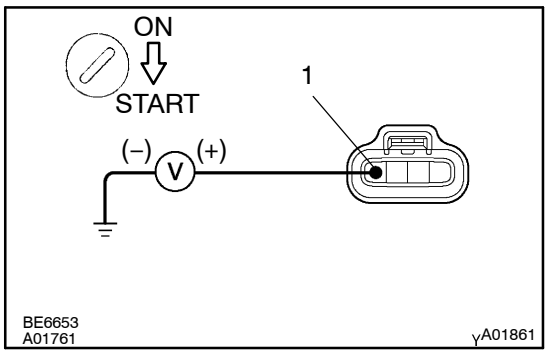
OK:

Voltage: More than 0.1 V and less than 5V

NG → **Check and replace engine ECU (See page FI–37).**

OK

4	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

NG → **Check and repair ignition coil with igniter power source circuit.**

OK

5	Check for open and short in harness and connector between ignition switch and ignition coil with igniter (See page IN–19).

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

OK

Replace ignition coil with igniter.