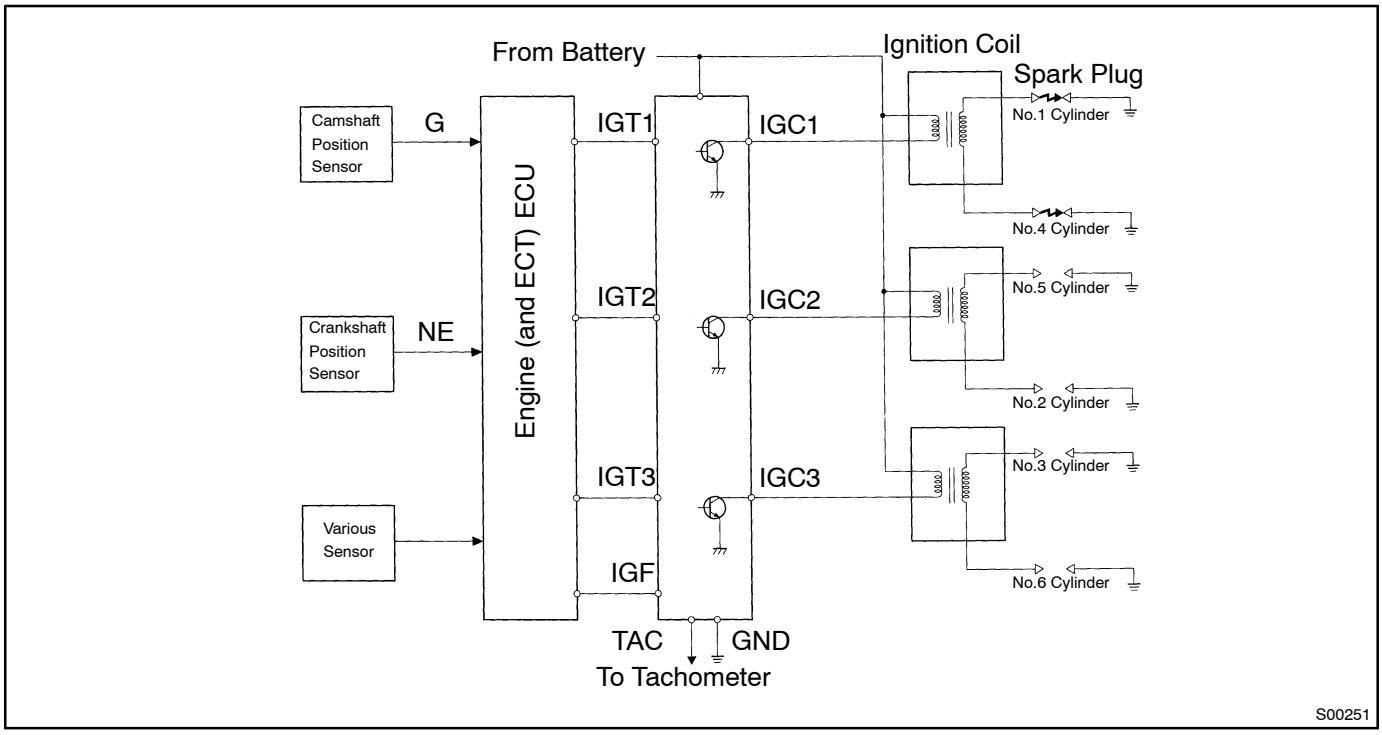
DI6B1–03

DTC	P1300/14	Igniter Circuit Malfunction

CIRCUIT DESCRIPTION

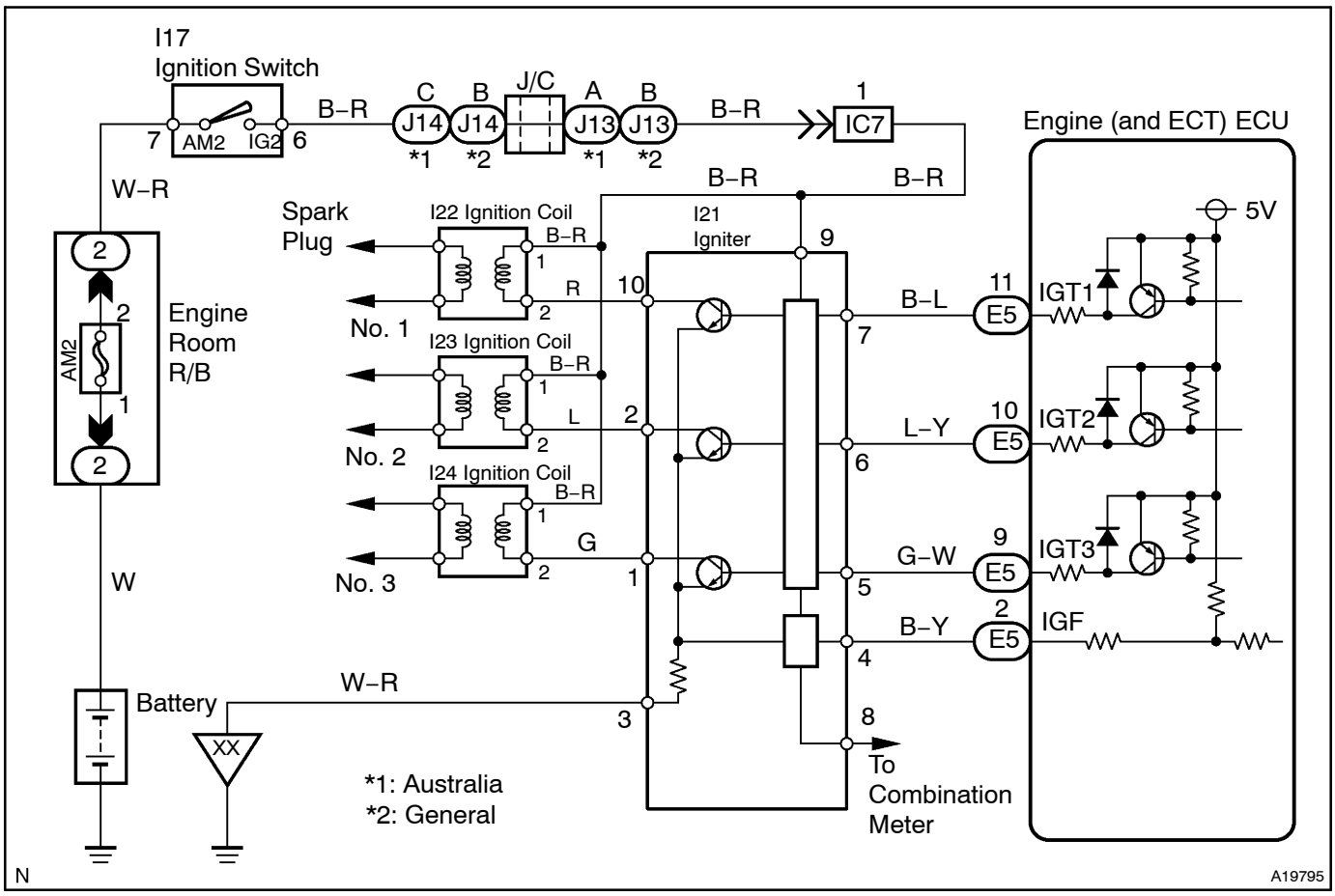
DIS (Direct Ignition System) improves the ignition timing accuracy, reduces high–voltage loss, and enhances the overall reliability of the ignition system by eliminating the distributor.

The DIS is a 2–cylinder simultaneous ignition system which ignites 2 cylinders simultaneously with one 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 spark plugs. The sparks of the 2 spark plugs pass simultaneously from the center electrode to the ground electrode. The engine (and ECT) ECU determines the ignition timing and outputs the ignition signals (IGT) to each cylinder. Based on these IGT signals, the igniter controls the primary ignition signals (IGC) for all the ignition coils. At the same time, the igniter also sends an ignition confirmation signal (IGF) as a fail–safe measure to the engine (and ECT) ECU.



DTC No.	DTC Detecting Condition	Trouble Area
P1300/14	Condition (a) is repeated 3 times consecutively during 6 consecutive IGT signals while engine is running (a) IGF signal is not input to engine (and ECT) ECU for 2 or more ignitions	• Open or short in IGF and IGT circuit from igniter to engine (and ECT) ECU • Igniter • Ignition coil • Engine (and ECT) ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

Read the freeze frame data on the hand–held tester. which is recorded when a malfunction is detected on the engine. When troubleshooting, it is useful to determine 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 a malfunction.

1	**Check spark plug and spark (See Pub. No. RM519E, page IG–3).**

NG → **Go to step 4.**

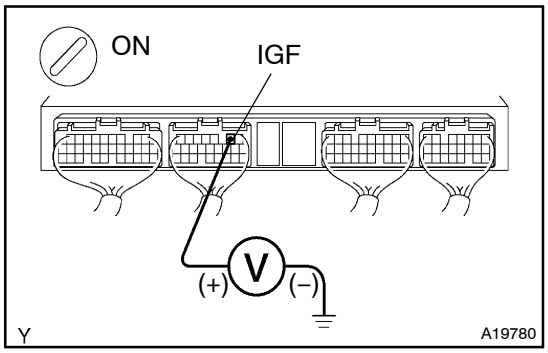
OK

2	**Check for open and short in harness and connector in IGF signal circuit between engine (and ECT) ECU and igniter (See page IN–20).**

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

OK

3	**Disconnect igniter connector and check voltage between terminal IGF of engine (and ECT) ECU connector and body ground.**



PREPARATION:

(a) Disconnect the igniter connector.
(b) Remove the glove compartment door.
(c) Turn the ignition switch ON.

CHECK:

Measure the voltage between terminal IGF of the engine (and ECT) ECU connector and the body ground.

OK:

4.5 – 5.5 V

OK → **Replace igniter.**

NG

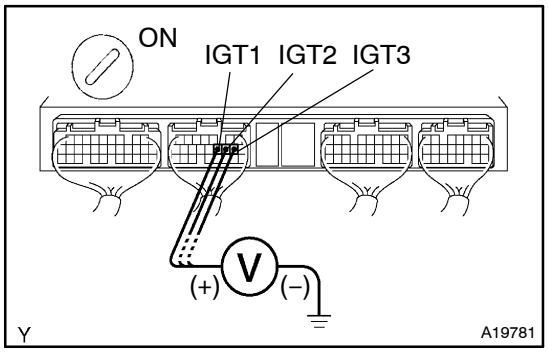
Check and replace engine (and ECT) ECU (See page IN–20).

4	**Check for open and short in harness and connector in IGT 1 – 3 signal circuit between engine (and ECT) ECU and igniter (See page IN–20).**

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

OK

5	Check voltage between terminals IGT 1 – 3 of engine (and ECT) ECU connector and body ground.



PREPARATION:

(a) Remove the glove compartment door.

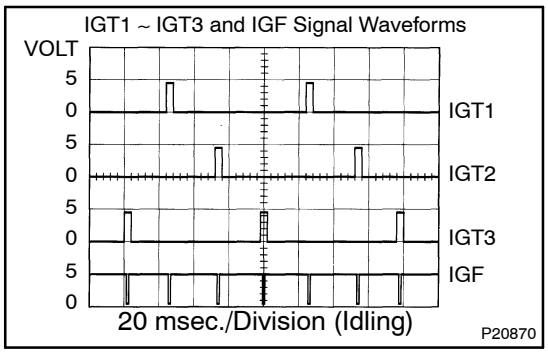
(b) Start the engine.

CHECK:

Measure the voltage between terminal IGT 1 – 3 of the engine (and ECT) ECU connector and the body ground.

OK:

Voltage: 0.1 – 4.5V



Reference: INSPECTION USING OSCILLOSCOPE

During idling, check the waveform between terminals IGT 1 – 3, IGF and E1 of the engine (and ECT) ECU connector.

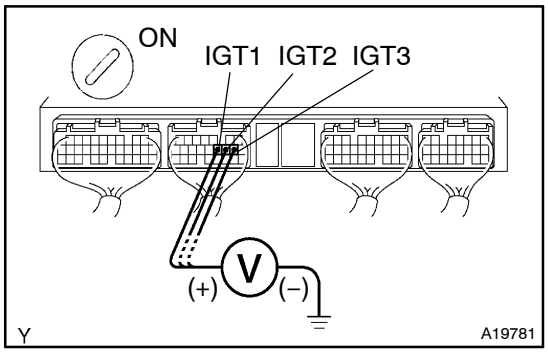
HINT:

The correct waveform is as shown in the illustration.

NG → **Check and replace engine (and ECT) ECU (See page IN–20).**

OK

6	Disconnect igniter connector and check voltage between terminals IGT 1 – 3 of engine (and ECT) ECU connector and body ground.



PREPARATION:

(a) Disconnect the igniter connector.

(b) Remove the glove compartment door.

CHECK:

Measure the voltage the between terminals IGT 1 – 3 of the engine (and ECT) ECU connector and the body ground when the engine is cranked.

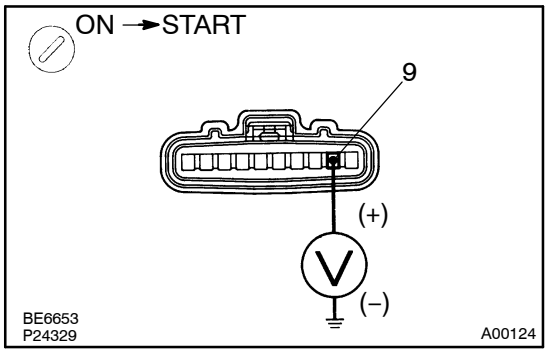
OK:

Voltage: 0.1 – 5.0V

NG → **Check and replace engine (and ECT) ECU (See page IN–20).**

OK

7	Check voltage between terminal 9 of igniter connector and body ground.



PREPARATION:
Disconnect the igniter connector.
CHECK:
Measure the voltage between terminal 9 of the igniter connector and the body ground when the ignition switch is turned from "ON" to "START" position.
OK:
9 – 14 V

NG → **Check and repair igniter power source circuit.**

OK

8	Check for open and short in harness and connector between ignition switch and ignition coil, and ignition coil and igniter (See page IN–20).

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

OK

9	Check ignition coil (See Pub. No. RM519E, page IG–7).

NG → **Replace ignition coil.**

OK

10	Check EFI relay (Marking: EFI).

NG → **Replace EFI relay (Marking: EFI).**

OK

Replace igniter.