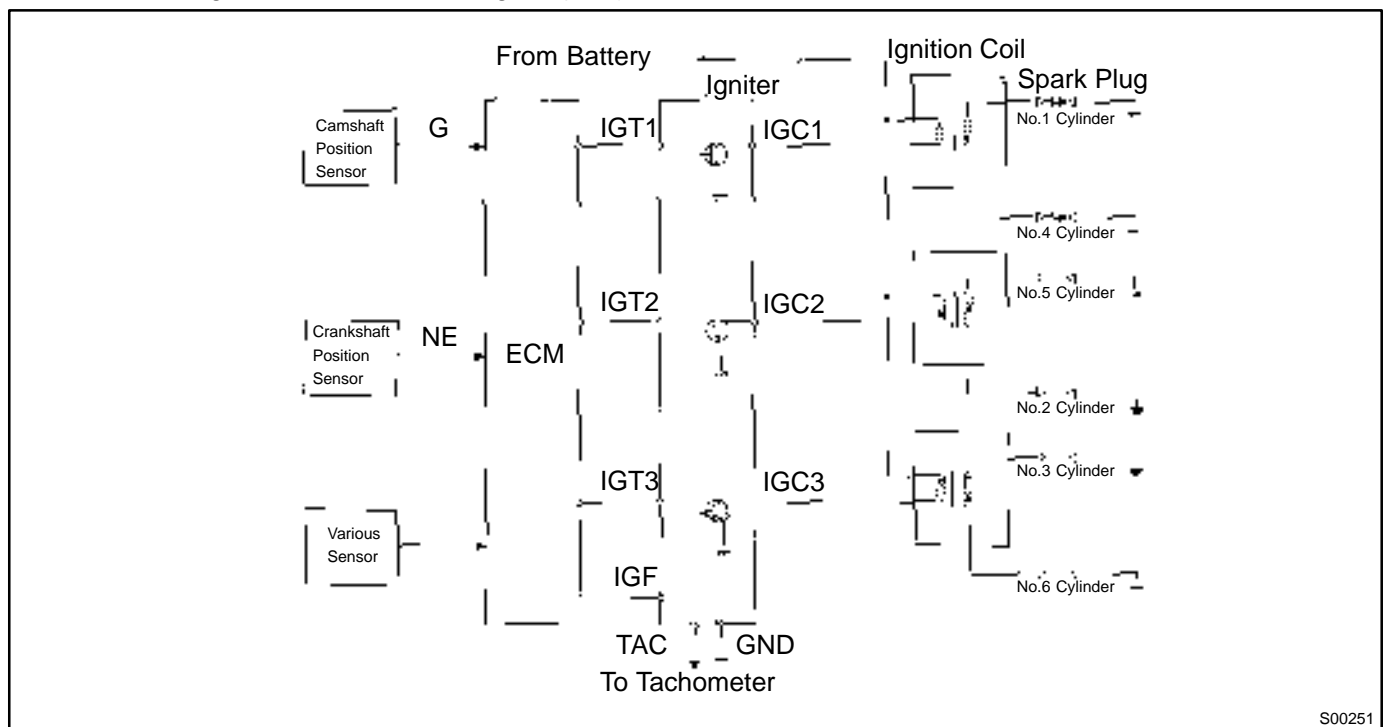


<b>DTC</b>	<b>P1300</b>	<b>Igniter Circuit Malfunction</b>
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## CIRCUIT DESCRIPTION

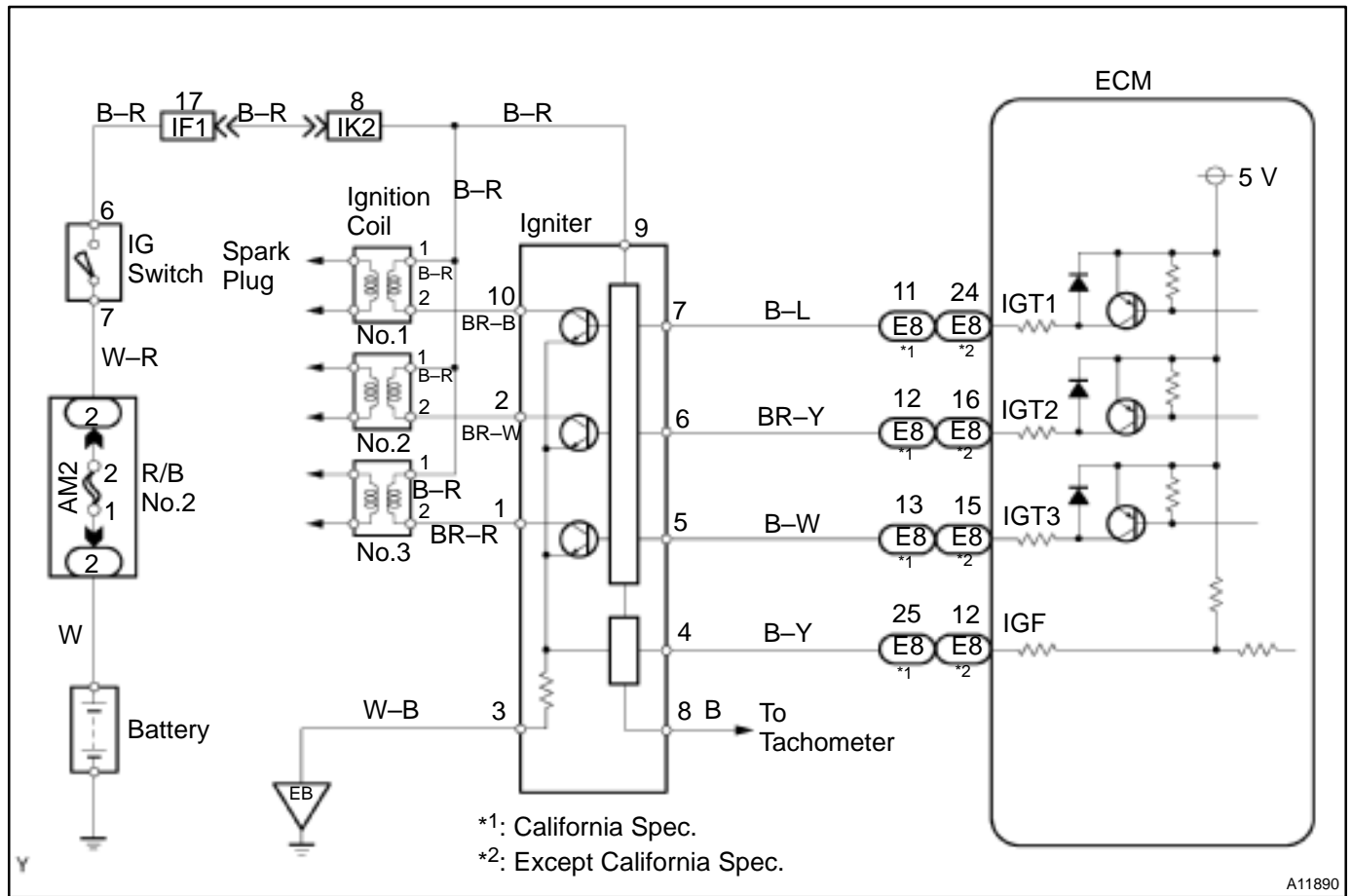
A DIS (Direct Ignition System) has been adopted. The DIS improves the ignition timing accuracy, reduces high-voltage loss, and enhances the overall reliability of the ignition system by eliminating the distributor. The DIS is a 2-cylinder simultaneous ignition system which ignites 2 cylinders simultaneously 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 spark plugs. The sparks of the 2 spark plugs pass simultaneously from the center electrode to the ground electrode. The ECM determines ignition timing and outputs the ignition signals (IGT) for each cylinder. Based on IGT signals, the igniter controls the primary ignition signals (IGC) for all ignition coils. At the same time, the igniter also sends an ignition confirmation signal (IGF) as a fail-safe measure to the ECM.



S00251

DTC No.	DTC Detecting Condition	Trouble Area
P1300	Condition (a) is repeated 3 times consecutively during 6 consecutively IGT signals while engine is running: (a) IGF signal is not input to ECM for 2 or more ignitions	<ul style="list-style-type: none"> <li>• Ignition system</li> <li>• Open or short in IGF or IGT circuit from igniter to ECM</li> <li>• Igniter</li> <li>• Ignition coil</li> <li>• ECM</li> </ul>

# WIRING DIAGRAM



## INSPECTION PROCEDURE

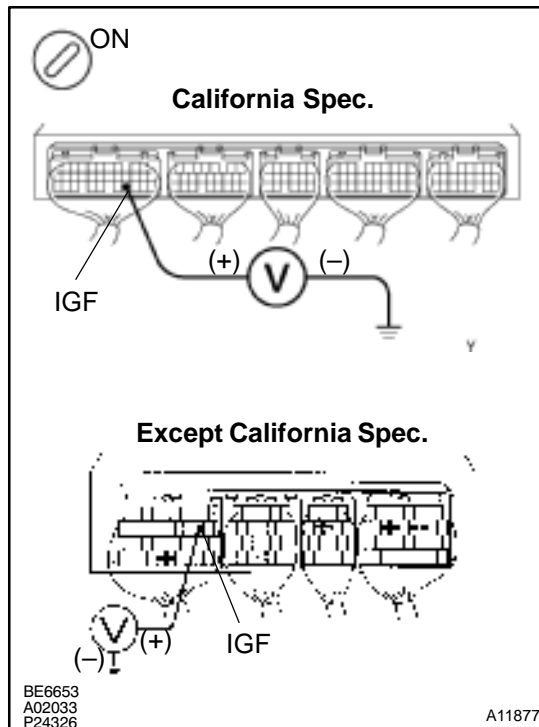
### HINT:

Read freeze frame data using TOYOTA hand-held tester or OBD II scan tool. 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 of misfiring cylinder (See page <a href="#">DI-254</a> ).
OK	<div data-bbox="679 1547 798 1653">NG</div> <div data-bbox="798 1547 1487 1653">Go to step 4.</div>
2	Check for open and short in harness and connector in IGF signal circuit between ECM and igniter (See page <a href="#">IN-28</a> ).
OK	<div data-bbox="679 1951 798 2056">NG</div> <div data-bbox="798 1951 1487 2056">Repair or replace harness or connector.</div>

OK

- 3** Disconnect igniter connector, and check voltage between terminal IGF of ECM connector and body ground.

**PREPARATION:**

- (a) Disconnect the igniter connector.
- (b) Remove the glove compartment (See page SF-56).
- (c) Turn the ignition switch ON.

**CHECK:**

Measure the voltage between terminal IGF of the ECM connector and body ground.

**OK:**

**Voltage: 4.5 – 5.5 V**

OK

Replace igniter.

NG

Check and replace ECM (See page [IN-28](#)).

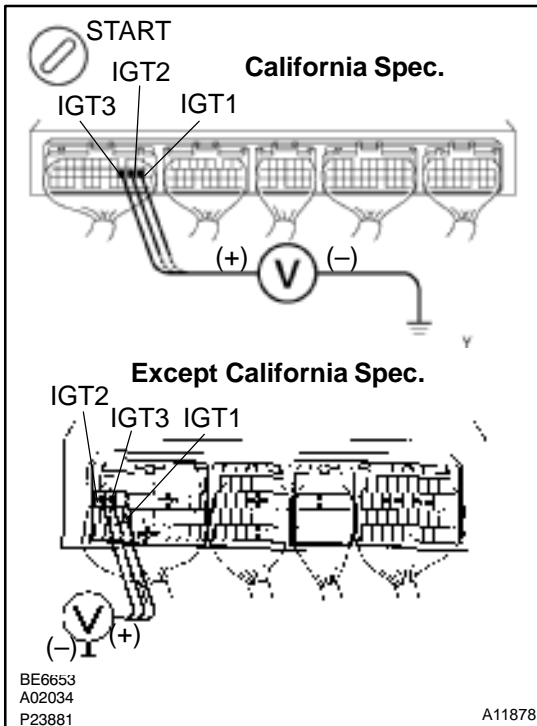
- 4** Check for open and short in harness and connector in IGT signal circuit between ECM and igniter (See page [IN-28](#)).

NG

Repair or replace harness or connector.

OK

# 5 Check voltage between terminals IGT1 – IGT3 of ECM connector and body ground.



## PREPARATION:

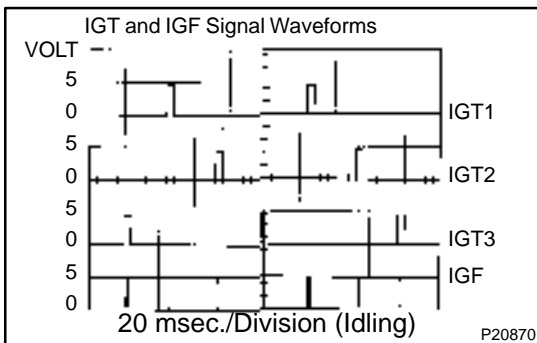
Remove the glove compartment (See page SF-56).

## CHECK:

Measure the voltage between terminal IGT1 – IGT3 of the ECM 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 OSCILLOSCOPE

During idling, check the waveforms between terminals IGT1 – IGT3 and E1, and IGF and E1 of the ECM connector.

## HINT:

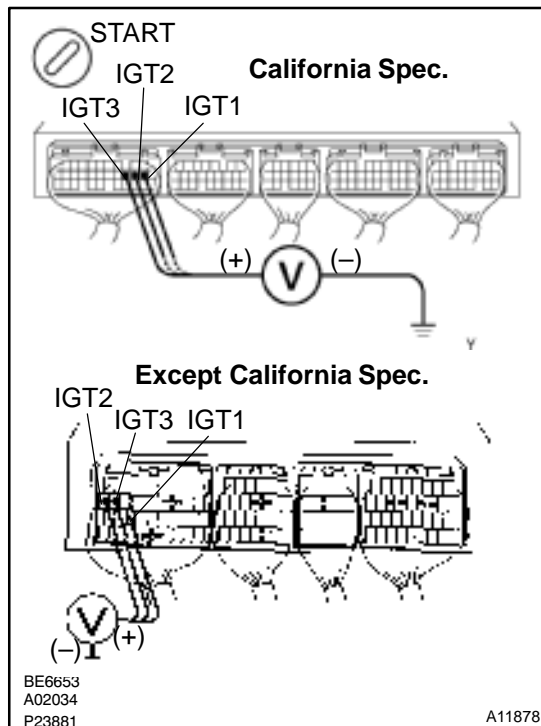
The correct waveforms are as shown.

**NG**

**Check and replace ECM (See page IN-28).**

**OK**

- 6 Disconnect igniter connector, and check voltage between terminals IGT1 – IGT3 of ECM connector and body ground.**

**PREPARATION:**

- (a) Disconnect the igniter connector.  
 (b) Remove the glove compartment (See page SF-56).

**CHECK:**

Measure the voltage between terminals IGT1 – IGT3 of the ECM connector and body ground when the engine is cranked.

**OK:**

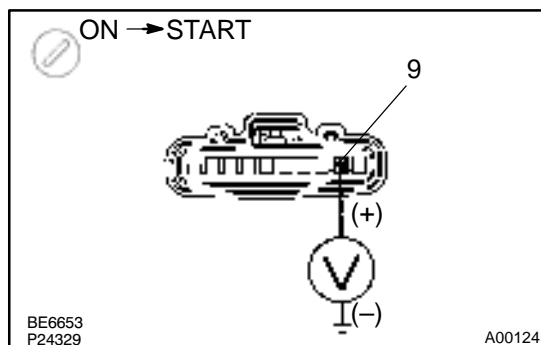
**Voltage: More than 0.1 V and less than 5.0 V**

**NG**

**Check and replace ECM (See page IN-28).**

**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 body ground when the ignition switch is turned to ON and START position.

**OK:**

**Voltage: 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 <a href="#">IN-28</a> ).
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NG	Repair or replace harness or connector.
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OK
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9	Check ignition coil (See page IG-1).
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NG	Replace ignition coil.
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OK
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Replace igniter.
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