

DTC 14 Ignition Signal Circuit

CIRCUIT DESCRIPTION

The ECM determines the ignition timing, turns on Tr₁ at a predetermined angle (°CA) before the desired ignition timing and outputs an ignition signal (IGT) "1" to the igniter.

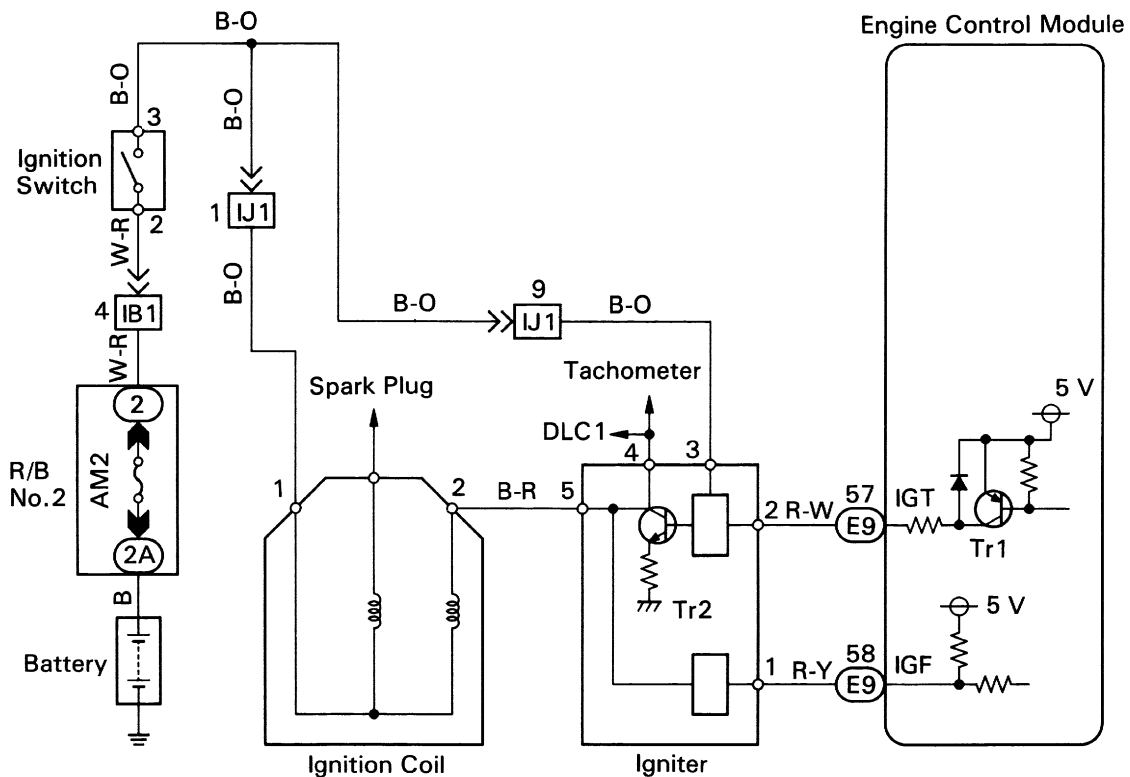
Since the width of the IGT signal is constant, the dwell angle control circuit in the igniter determines the time the control circuit starts primary current flow to the ignition coil based on the engine rpm and ignition timing one revolution ago, that is, the time the Tr₂ turns on.

When it reaches the ignition timing, the ECM turns Tr₁ off and outputs the IGT signal "0".

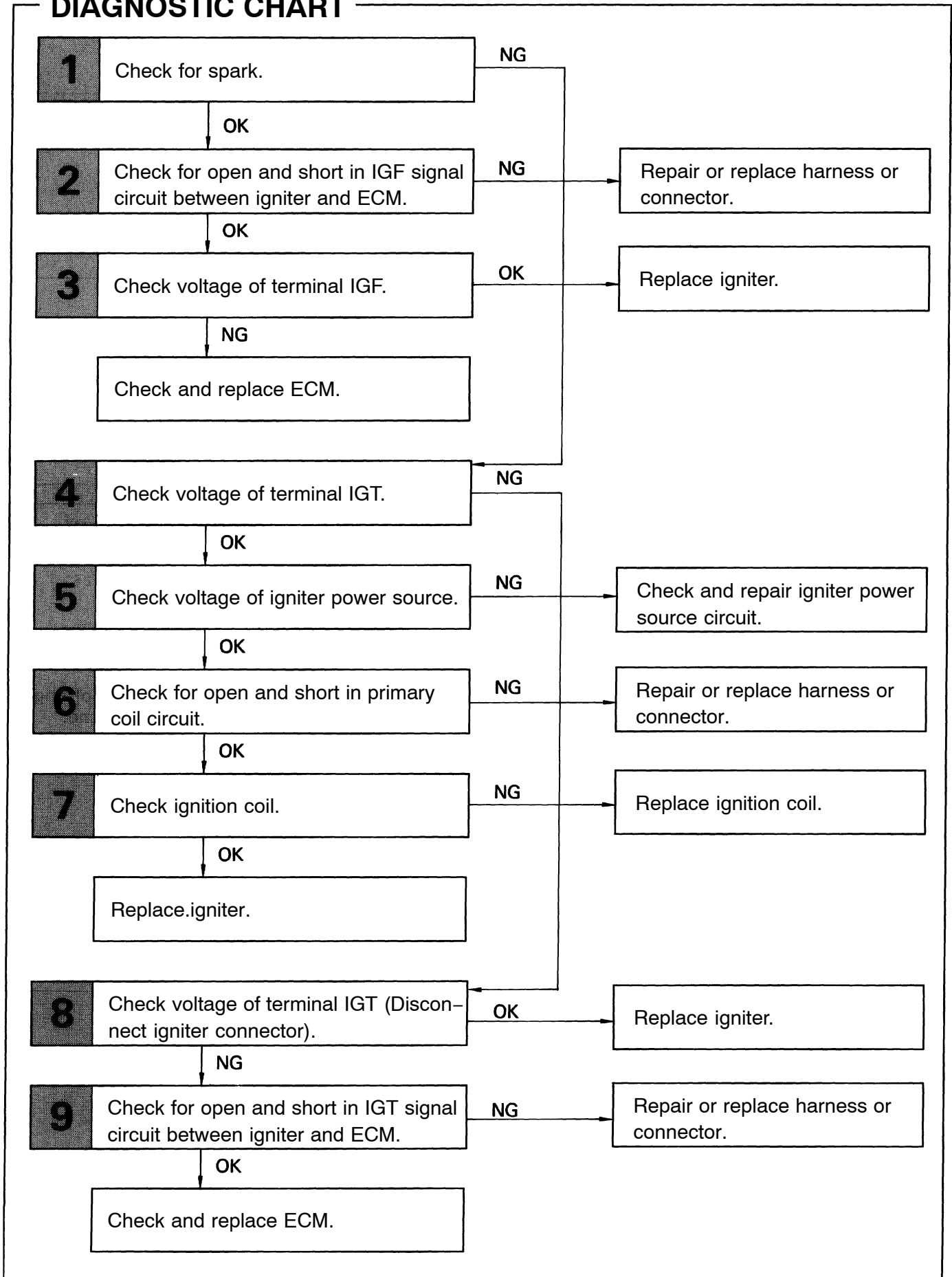
This turns Tr₂ off, interrupting the primary current flow and generating a high voltage in the secondary coil which causes the spark plug to spark. Also, by the counter electromotive force generated when the primary current is interrupted, the igniter sends an ignition confirmation signal (IGF) to the ECM. The ECM stops fuel injection as a fail safe function when the IGF signal is not input to the ECM.

DTC No.	Diagnostic Trouble Code Detecting Condition	Trouble Area
14	No IGF signal to ECM for 6 consecutive IGT signals.	<ul style="list-style-type: none"> • Open or short in IGF or IGT circuit from igniter to ECM. • Igniter • ECM

WIRING DIAGRAM



DIAGNOSTIC CHART



INSPECTION PROCEDURE

1

Check for spark.

C Disconnect the high-tension cord from the distributor, hold its end about 12.5 mm (0.5") from the ground, see if spark occurs while the engine is being cranked.

OK Spark should be generated.

Notice

To prevent excess fuel being injected from the injectors during this check. Don't crank the engine for more than 1 - 2 seconds at a time.

OK

NG Go to step **4**.

2

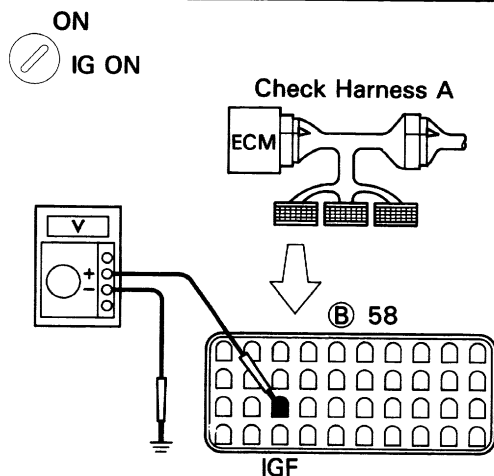
Check for open and short in harness and connector in IGF signal circuit between engine control module and igniter (See page [IN-35](#)).

OK

NG Repair or replace harness or connector.

3

Disconnect igniter connector and check voltage between terminal IGF of engine control module connector and body ground.



BE6653 FI6621

- P** (1) Disconnect igniter connector.
(2) Connect the Check Harness A. (See page [EG-648](#)).
(3) Turn ignition switch on.
- C** Measure voltage between terminal IGF of engine control module connector and body ground.

OK Voltage: 4.5 - 5.5 V

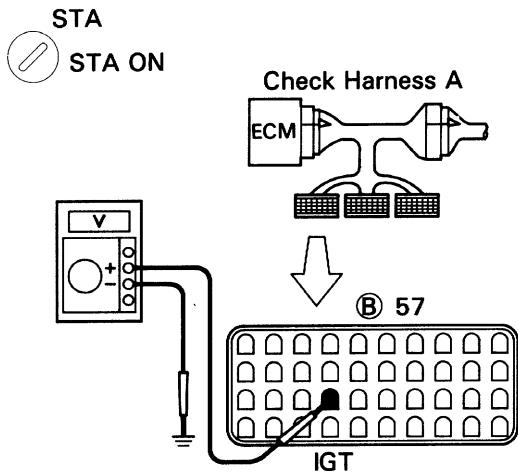
NG

OK Replace igniter.

Check and replace engine control module.

4

Check voltage between terminal IGT of engine control module connector and bod round.

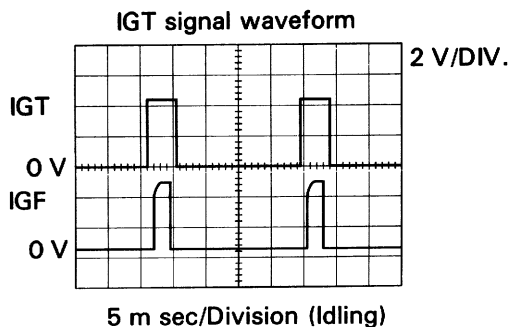


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- P** Connect the Check Harness A. (See page [EG-648](#)).
- C** Measure voltage between terminal IGT of engine control module connector and body ground when engine is cranked.
- OK** Voltage: 0.5 - 1.0 V (Neither 0 V nor 5 V)

Reference

INSPECTION USING OSCILLOSCOPE



FI6605

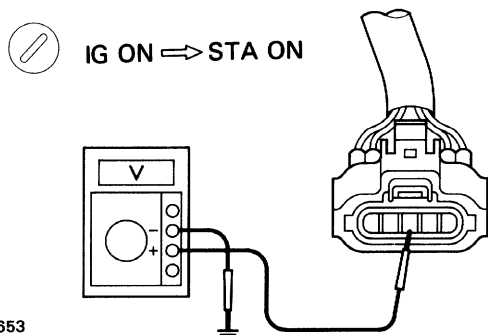
- During cranking or idling, check waveforms between terminal IGT and E 1 of engine control module. HINT: The correct waveform appears as shown in the illustration on the left, with rectangular waves.

OK

NG Go to step **8**.

5

Check voltage between terminal 3 of igniter connector and body ground.



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- P** Disconnect igniter connector.
- C** Measure voltage between terminal 3 of igniter connector and body ground, when ignition switch is turned to "ON" and "STA" position.
- OK** Voltage: 9 - 14 V

OK

NG Check and repair igniter power source circuit.

6

Check for open and short in harness and connector between ignition switch and ignition coil, ignition coil and igniter (See page [IN-35](#)).

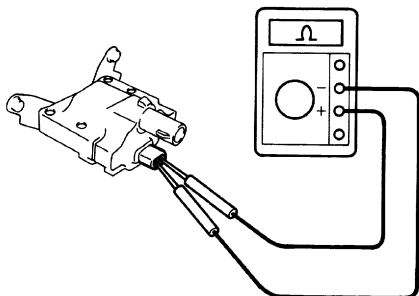
OK**NG**

Repair or replace harness or connector.

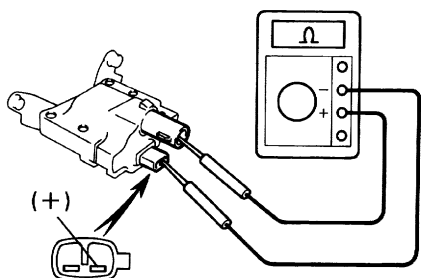
7

Check ignition coil.

Primary Coil



Secondary Coil



P11567
P11573

P

Disconnect ignition coil connector.

C

(1) Check primary coil.

Measure resistance between terminals of ignition coil connector.

(2) Check secondary coil.

Measure resistance between terminal 0 of ignition coil connector and high-tension terminal.

OK

		Resistance
(a) Primary Coil	Cold	0.21 - 0.33 Ω
	Hot	0.27 - 0.39 Ω
(b) Secondary Coil	Cold	6.4 - 11.1 k Ω
	Hot	8.2 - 13.0 k Ω

"Cold" is from -10°C (14°F) to 50°C (122°F) and "Hot" is from 50°C (122°F) to 100°C (212°F).

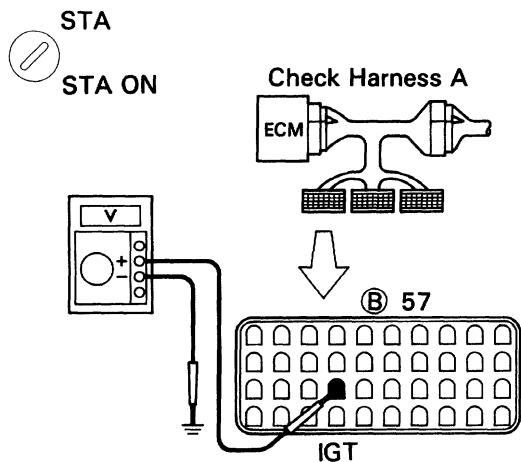
OK**NG**

Replace ignition coil.

Replace igniter.

8

Disconnect igniter connector and check voltage between terminal IGT of engine control module connector and bodyground.

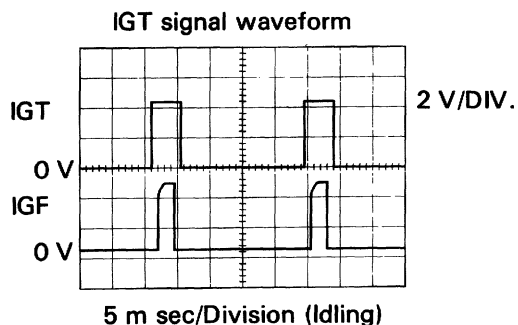


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- P** Disconnect igniter connector.
- C** Measure voltage between terminal IGT of engine control module connector and body ground when engine is cranked.
- OK** Voltage: 0.5 - 1.0 V
(Neither 0 V nor 5 V)

Reference

INSPECTION USING OSCILLOSCOPE



- During cranking or idling, check waveforms between terminal IGT and E i of engine control module.
HINT: The correct waveform appears as shown in the illustration on the left, with rectangular waves.

FI6605

NG

OK

Replace igniter.

9

Check for open and short in harness and connector in IGT signal circuit between engine control module and igniter (See page IN-35).

OK

NG

Repair or replace harness or connector.

Check and replace engine control module.