

1 Are there any other codes (besides DTC P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307 or P0308) being output?

YES Go to relevant DTC chart (See page [DI-15](#)).

NO

2 Check wire harness, connector and vacuum hose in engine room.

CHECK:

Check the disconnection, piping and break of vacuum hose.

NG Repair or replace, then confirm that there is no misfire (See confirmation driving pattern).

OK

3 Check connection of PCV piping.

NG Repair or replace PCV piping.

OK

4 Connect hand-held tester, and read the number of misfire.

PREPARATION:

- (a) Connect the hand-held tester to the DLC3.
- (b) Turn the ignition switch ON and push the hand-held tester main switch ON.
- (c) Start the engine.

CHECK:

Read the number of misfire on the hand-held tester.

HINT:

When a misfire is not reproduced, be sure to branch below based on the stored DTC.

RESULT:

	Type I	Type II
High Misfire Rate Cylinder	1 or 2 cylinder	More than 3 cylinders

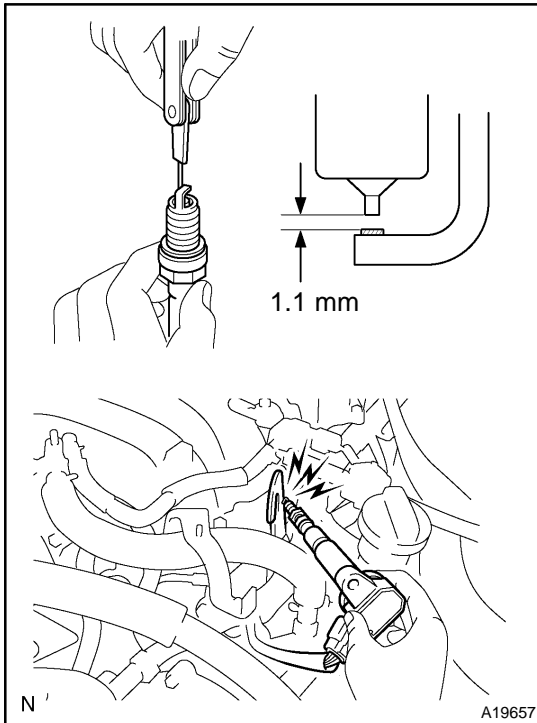
Type I

Go to step 5.

Type II

Go to step 14.

5

Check spark plug and spark of misfiring cylinder (See page [IG-1](#)).**PREPARATION:**

Remove the spark plug.

CHECK:

- (a) Check the spark plug type.
- (b) Check the electrode for carbon deposits.
- (c) Check the electrode gap.

OK:

(a) Twin ground electrodes type

Recommended spark plug:

DENSO made SK20R11

(b) No large carbon deposit present

Not wet with gasoline or oil

(c) Electrode gap: 1.1 mm (0.043 in.)

PREPARATION:

- (a) Install the spark plug to the high-tension cord or ignition coil.
- (b) Disconnect the injector connector.
- (c) Ground the spark plug.

CHECK:

Check if spark occurs while the engine is being cranked.

NOTICE:

To prevent excess fuel from being injected from the injectors during this test, don't crank the engine for more than 5 – 10 seconds at a time.

OK:

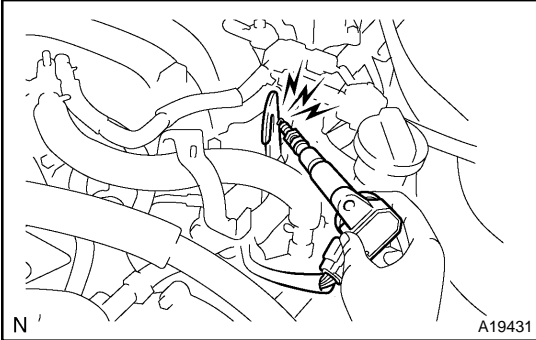
Spark jumps across electrode gap.

NG

Replace or check ignition system (See page [IG-1](#)).

OK

6	Check normal spark plug and spark of misfiring cylinder.
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**PREPARATION:**

- (a) Disconnect the spark plug.
- (b) Change the normal spark plug.
- (c) Install the normal spark plug to the ignition coil with igniter.
- (d) Disconnect the injector connector.
- (e) Ground the spark plug.

CHECK:

Check if spark occurs while the engine is being cranked.

NOTICE:

To prevent excess fuel from being injected from the injectors during this test, don't crank the engine for more than 5 – 10 seconds at a time.

OK:

Spark jumps across electrode gap.

OK	Replace spark plug.
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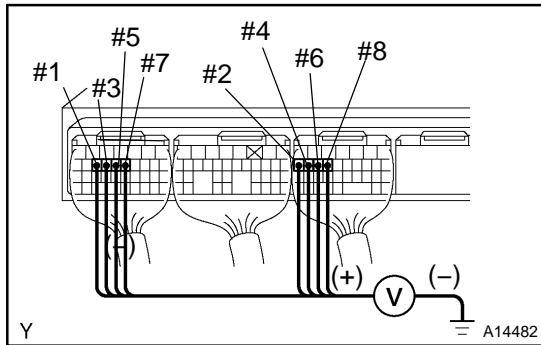
NG

7	Check for open and short in harness and connector between ignition coil and ECM (See page IN-34).
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OK	Replace ignition coil with igniter, then confirm that there is no misfire.
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NG

8 Check voltage of ECM terminal for injector of failed cylinder.



PREPARATION:

- (a) Remove the engine room ECU cover (See page [SF-86](#)).
- (b) Turn the ignition switch ON.

CHECK:

Measure the voltage between applicable terminal of the ECM connectors and body ground.

OK:

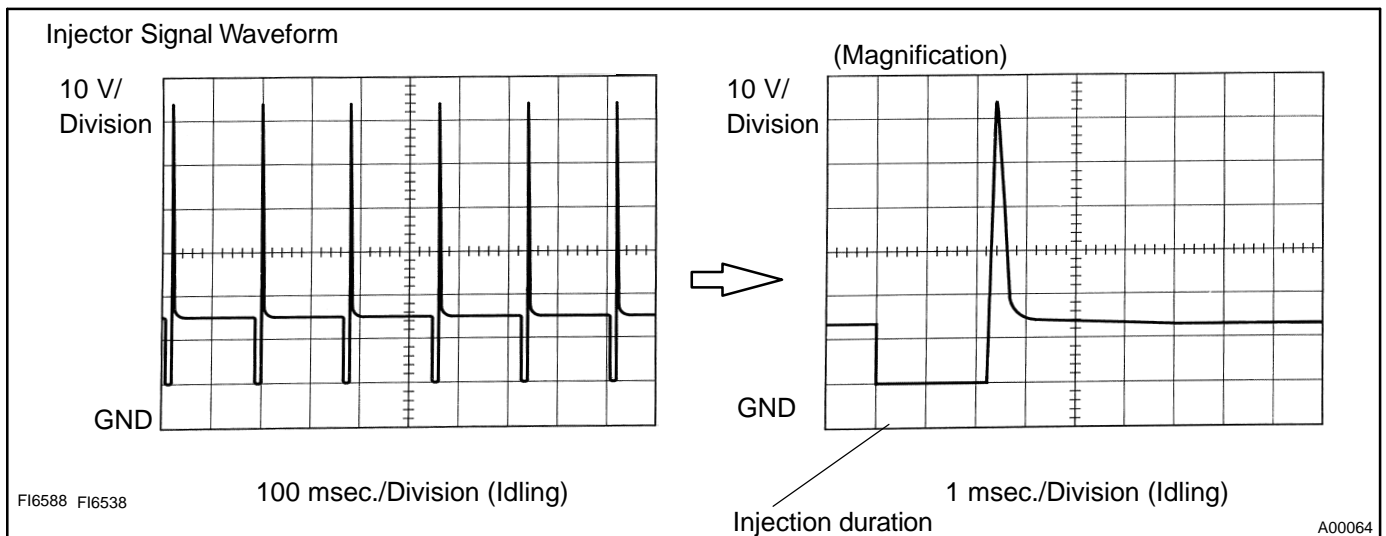
Voltage: 9 - 14 V

Reference: INSPECTION USING OSCILLOSCOPE

With the engine idling, check the waveform between terminals #1 - #8 and E01 of the ECM connectors.

HINT:

The correct waveform is as shown.



OK → Go to step 11.

NG

9 Check spark plug and spark of misfiring cylinder (See page [IG-1](#)).

NG → Replace injector.

OK

10	Check for open and short in harness and connector between TG2 and injector, injector and ECM of misfiring cylinder (See page IN-34).
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NG	Repair or replace harness or connector.
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OK

11	Check injector injection of misfiring cylinder (See page SF-23).
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NG	Replace injector.
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OK

12	Check compression pressure of misfiring cylinder (See page SF-23).
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NG	Repair or replace.
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OK

13	Check valve clearance of misfiring cylinder (See page EM-5).
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NG	Repair valve clearance.
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OK

14	Check result of step 4 switch step by number of misfire cylinder.
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High misfire rate cylinder	Proceed to
1 or 2 cylinders	A
more than 3 cylinders	B

B	Check for intermittent problems.
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A

15	Check valve timing (See page EM-23).
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NG	Adjust valve timing.
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OK

16	Check fuel pressure (See page SF-5).
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NG	Check and repair fuel pump, pressure regulator, fuel pipe line and filter (See page SF-1).
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OK

17	Check mass air flow meter (See page SF-33) and engine coolant temperature sensor (See page SF-75).
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NG	Repair or replace.
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OK

18 **Check result of step 4 switch step by number of misfire cylinder.**

High misfire rate cylinder	Proceed to
1 or 2 cylinders	A
more than 3 cylinders	B

B **Check for intermittent problems.**

A

Check intermittent problems (See page [DI-3](#)).