

DTC	P0300	Random/Multiple Cylinder Misfire Detected
DTC	P0301	Cylinder 1 Misfire Detected
DTC	P0302	Cylinder 2 Misfire Detected
DTC	P0303	Cylinder 3 Misfire Detected
DTC	P0304	Cylinder 4 Misfire Detected
DTC	P0305	Cylinder 5 Misfire Detected
DTC	P0306	Cylinder 6 Misfire Detected
DTC	P0307	Cylinder 7 Misfire Detected
DTC	P0308	Cylinder 8 Misfire Detected

CIRCUIT DESCRIPTION

Misfire:

The ECM uses the crankshaft position sensor and camshaft position sensor to monitor changes in the crankshaft rotation for each cylinder.

The ECM counts the number of times the engine speed change rate indicates that misfire has occurred. When the misfire rate equals or exceeds the count indicating that the engine condition has deteriorated, the MIL lights up.

If the misfire rate is high enough and the driving conditions will cause catalyst overheating, the MIL blinks when misfiring occurs.

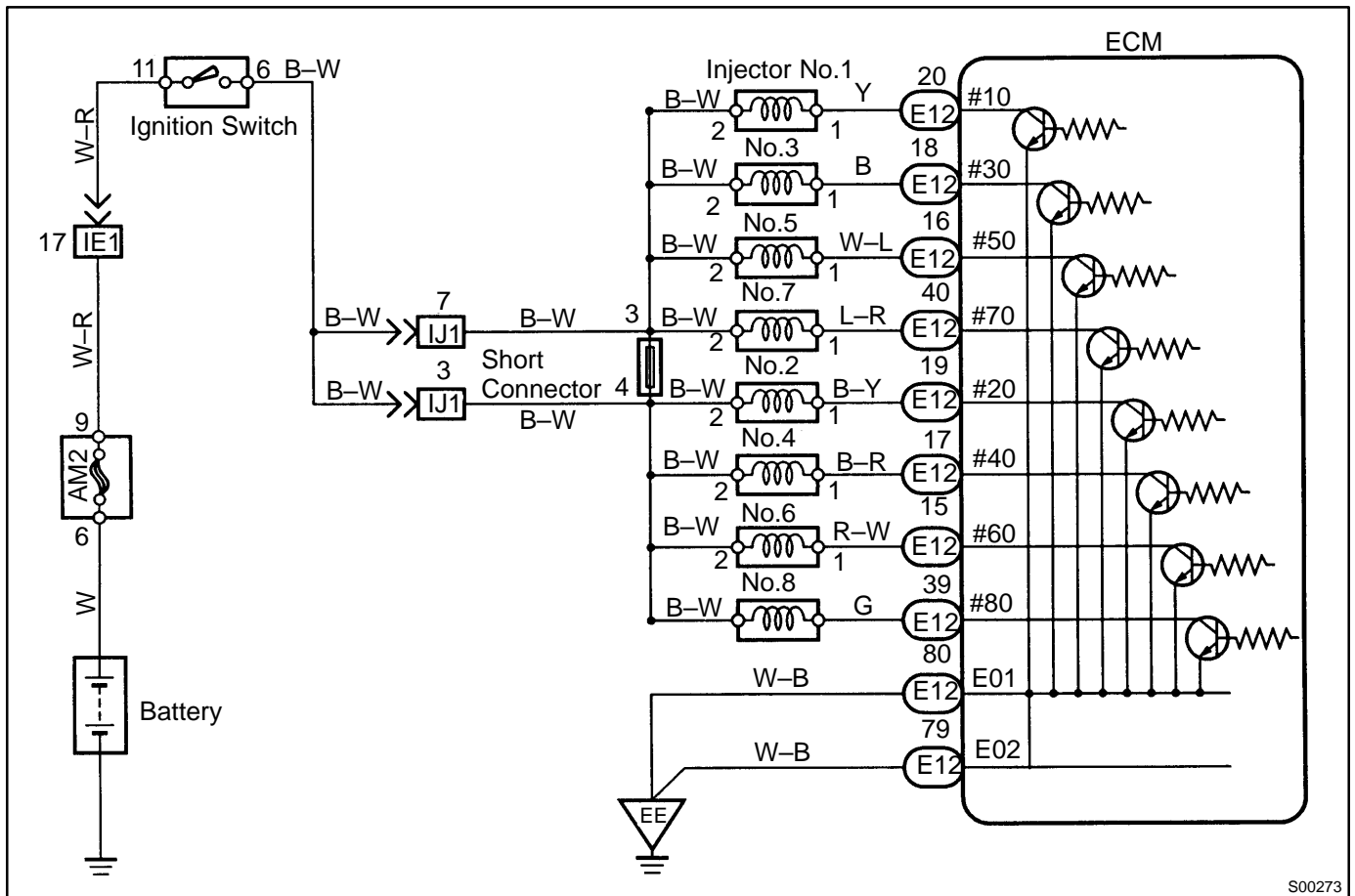
DIAGNOSTICS - ENGINE (1UZ-FE)

DTC No.	DTC Detecting Condition	Trouble Area
P0300	Misfiring of random cylinders is detected during the any particular 200 or 1,000 revolutions	<ul style="list-style-type: none">• Ignition system• Injector• Fuel line pressure• EGR System• Compression pressure• Valve clearance not to specification• Valve timing• Mass air flow meter• Engine coolant temp. sensor
P0301	For any particular 200 revolutions of the engine, misfiring is detected which can cause catalyst overheating (This causes MIL to blink)	
P0302		
P0303		
P0304		
P0305	For any particular 1,000 revolutions of the engine, misfiring is detected which causes a deterioration in emission (2 trip detection logic)	
P0306		
P0307		
P0308		

HINT:

When the 2 or more codes for a misfiring cylinder are recorded repeatedly but no Random Misfire code is recorded, it indicates that the misfires were detected and recorded at different times.

WIRING DIAGRAM



S00273

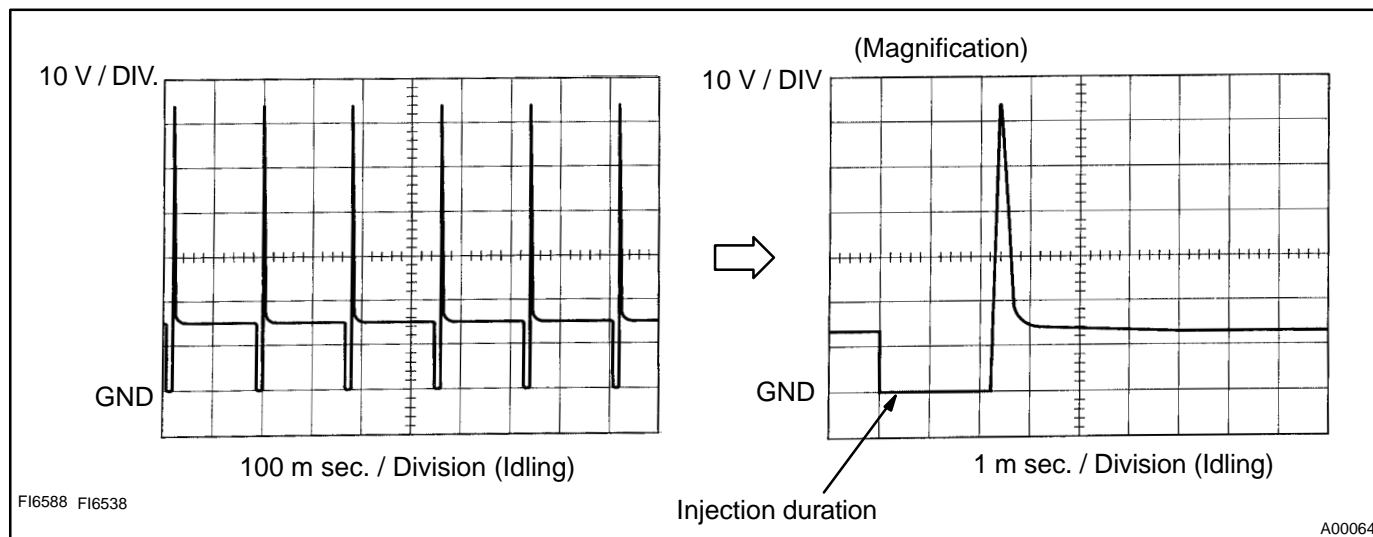
Reference INSPECTION USING OSCILLOSCOPE

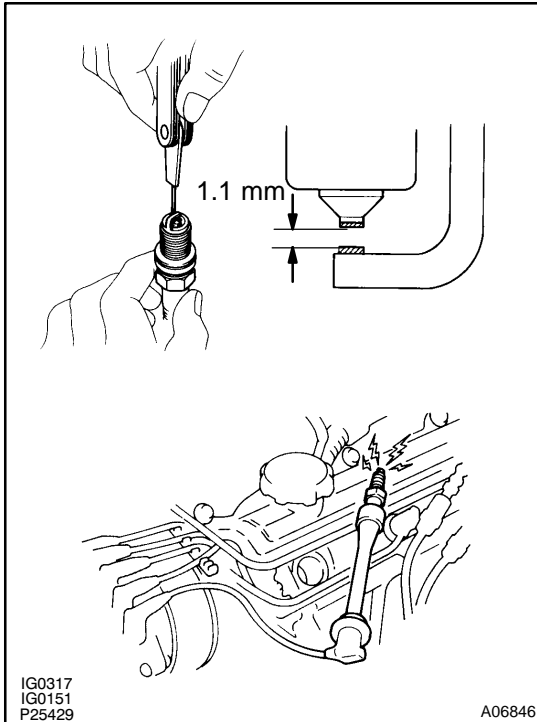
INJECTOR SIGNAL WAVEFORM

With the engine idling, measure between terminals #10 - #80 and E01 of ECM.

HINT:

The correct waveform is as shown.



INSPECTION PROCEDURE**1 Check spark plug and spark of misfiring cylinder.****PREPARATION:**

- (a) Disconnect high-tension cord.
- (b) Remove spark plug.

CHECK:

- (a) Check the carbon deposits on electrode.
- (b) Check electrode gap.

OK:

(1) No large carbon deposit present.

Not wet with gasoline or oil.

(2) Electrode gap: 1.1 – 1.3 mm (0.043 – 0.051 in.)

PREPARATION:

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

CHECK:

Check if spark occurs while engine is being cranked.

NOTICE:

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

OK:

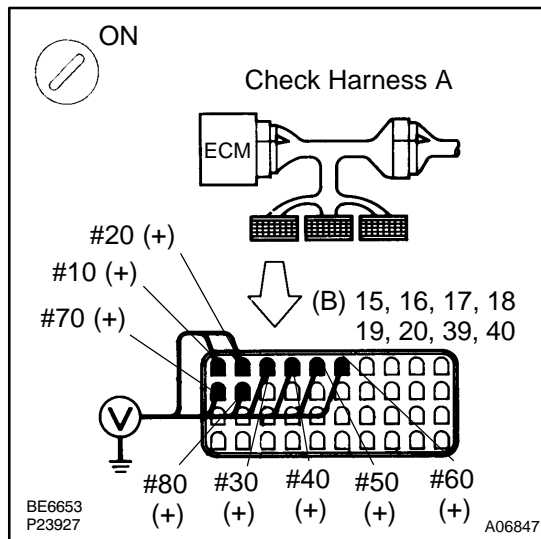
Spark jumps across electrode gap.

NG

Replace or check ignition system.

OK

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



PREPARATION:

- (a) Connect the Check Harness A.
- (b) Turn ignition switch ON.

CHECK:

Measure voltage between applicable terminal of ECM and body ground.

OK:

Voltage: 9 – 14 V

OK

Go to step 4.

NG

3 Check injector resistance of misfiring cylinder (See page SF-18).

NG

Replace injector.

OK

Check for open and short in harness and connector between injector and ECM (See page [IN-29](#)).

4 Check fuel pressure (See page SF-15).

NG

Check and repair fuel pump, pressure regulator, fuel pipe line and filter.

OK

5 Check injector injection (See page SF-18).

NG

Replace injector.

OK

6 Check EGR system (See page EC-11).

NG

Repair EGR system.

OK

7 Check mass air flow meter and engine coolant temp. sensor (See page [DI-172](#), [DI-181](#)).

NG

Repair or replace.

OK

Check the compression pressure (See page EM-3), valve clearance (See page EM-4) and valve timing (See page EM-14).