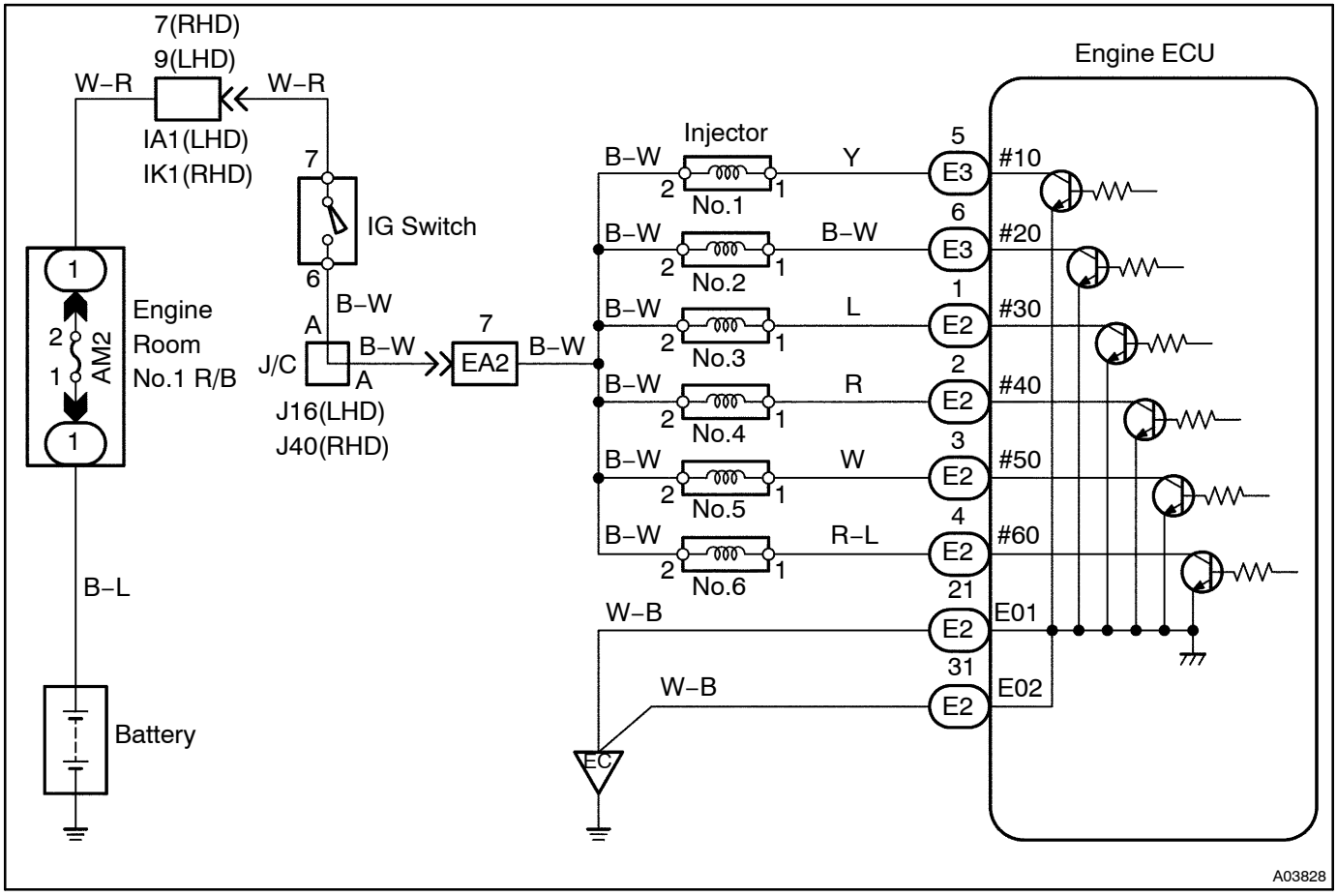
DI2ST–02

Injector Circuit

CIRCUIT DESCRIPTION

The injectors are provided to the intake manifold. They inject fuel into the cylinders based on the signals from engine ECU.

WIRING DIAGRAM

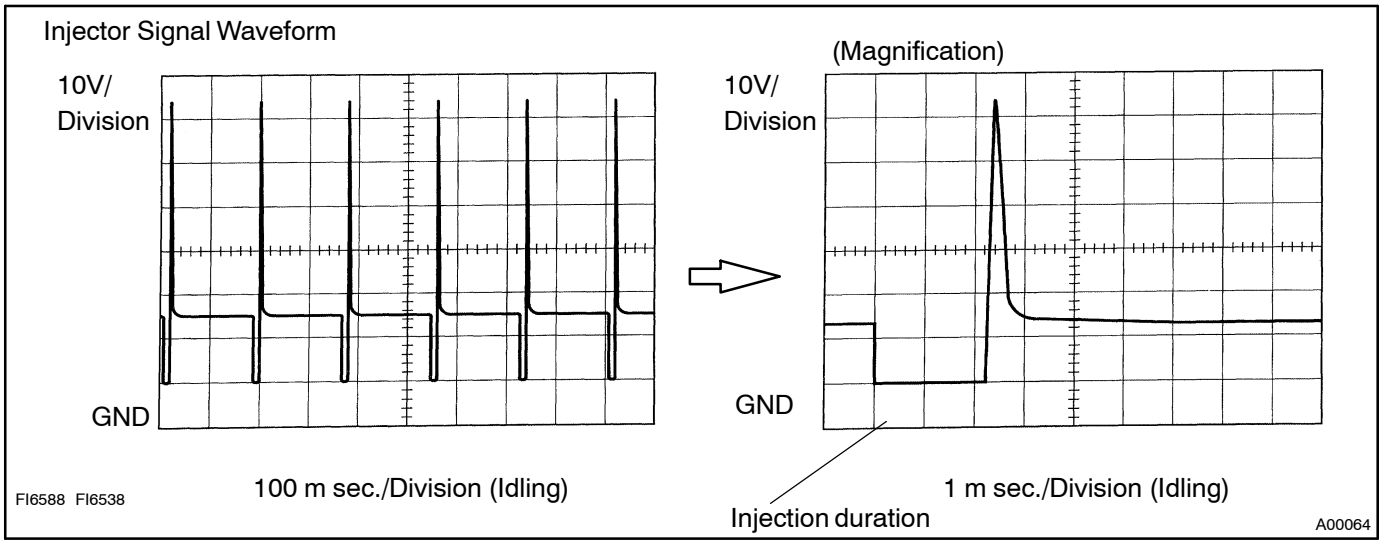


Reference INSPECTION USING OSCILLOSCOPE

With the engine idling, measure between terminals #1 ~ #6 and E01 of the engine ECU connector.

HINT:

The correct waveforms are as shown.



INSPECTION PROCEDURE

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

CHECK:

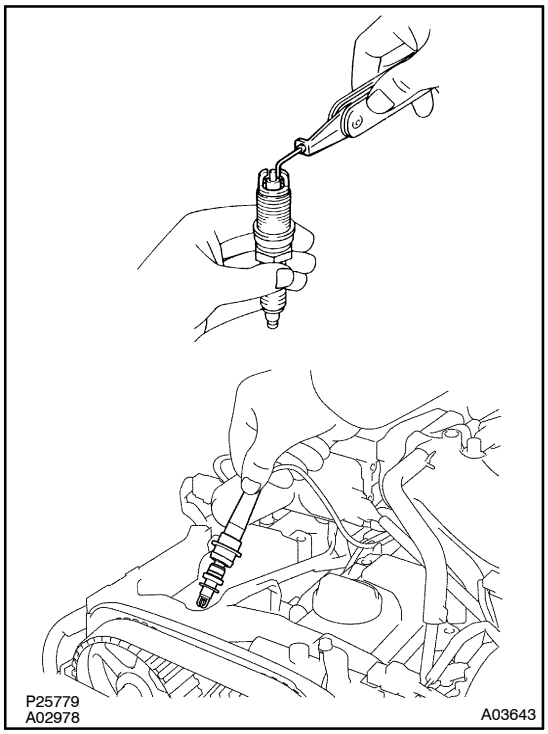
(a) Check the connection conditions of wire harness and connector.

(b) 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

2	**Check spark plug and spark of misfiring cylinder.**



PREPARATION:

(a) Disconnect the high–tension cord or ignition coil (See page IG–7).

(b) Remove the spark plug.

CHECK:

(a) Check the spark plug type.

(b) Check the carbon deposits electrode.

(c) Check electrode gap.

OK:

(a) Twin ground electrodes type
Recommended spark plug:
DENSO Made PK16TR11
NGK Made BKR5EKPB11
(b) No large carbon deposit present
Not wet with gasoline or oil
(c) Electrode gap: 1.1 ~ 1.3 mm (0.043 ~ 0.051 in.)

PREPARATION:

(a) Install the spark plug to the high–tension cord or ignition coil.

(b) Disconnect the injector connector.

(c) Hold the end about 12.5 mm (0.5 in.) from the ground.

CHECK:

Check if spark occurs while the 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.

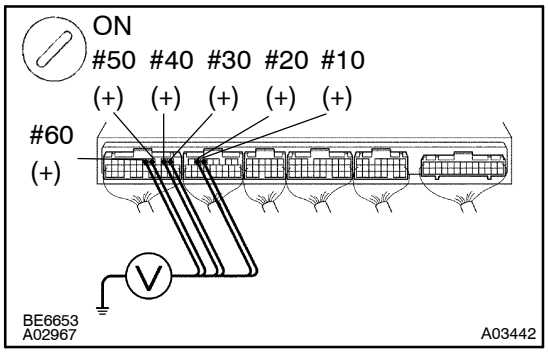
OK:

Spark jumps across electrode gap.

NG	**Replace or check ignition system (See page IG–1).**

OK

3	Check voltage of engine ECU terminal for injector of failed cylinder.



PREPARATION:

(a) Remove the engine room engine ECU hood and cover.

(b) Turn the ignition switch ON.

CHECK:

Measure voltage between applicable terminal of the engine ECU connector and body ground.

OK:

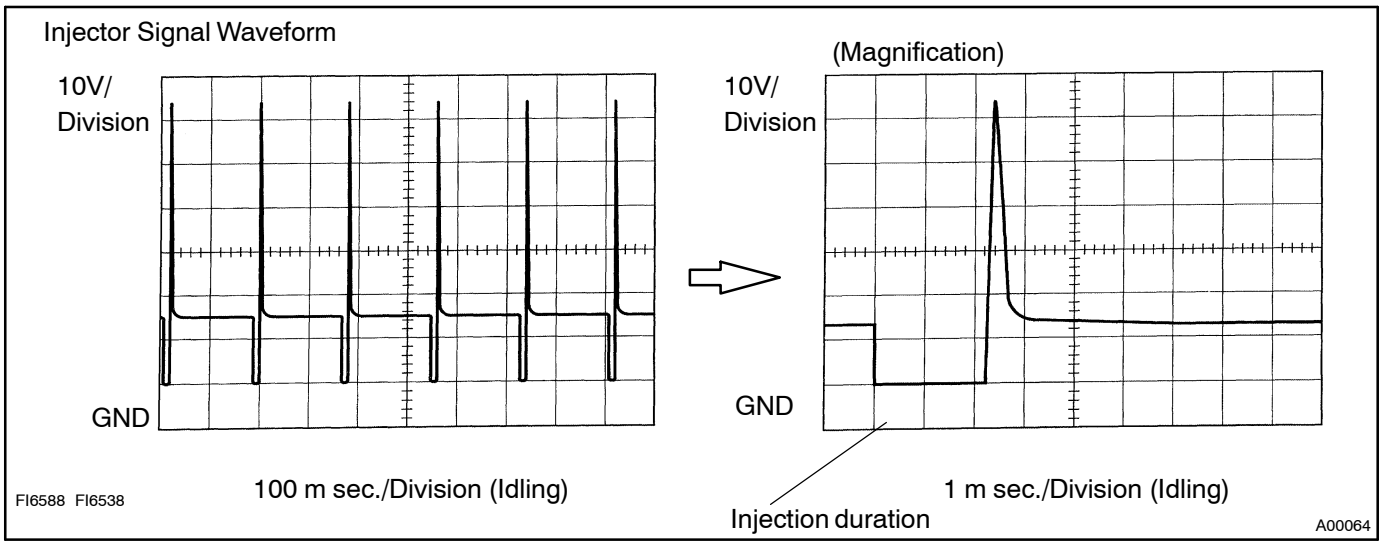
Voltage: 9 ~ 14 V

Reference INSPECTION USING OSCILLOSCOPE

With the engine idling, measure between terminals #10 ~ #60 and E01 of the engine ECU connector.

HINT:

The correct waveforms are as shown.



OK	Go to step 5.

NG

4	Check resistance of injector of misfiring cylinder (see page FI–19).

NG → Replace injector.

OK

Check for open and short in harness and connector between injector and engine ECU (See page IN–29).

5	Check fuel pressure (See page FI–6).

NG → Check and repair fuel pump, pressure regulator, fuel pipeline and filter (See page FI–6).

OK

6	Check injector injection (See page FI–22).

NG → Replace injector.

OK

7	Check mass air flow meter and engine coolant temp. sensor (See page FI–31 and CO–29).

NG → Repair or replace.

OK

Check compression pressure (See page EM–5), valve clearance (See page EM–6) and valve timing (See page EM–21).