

FUEL INJECTOR CIRCUIT

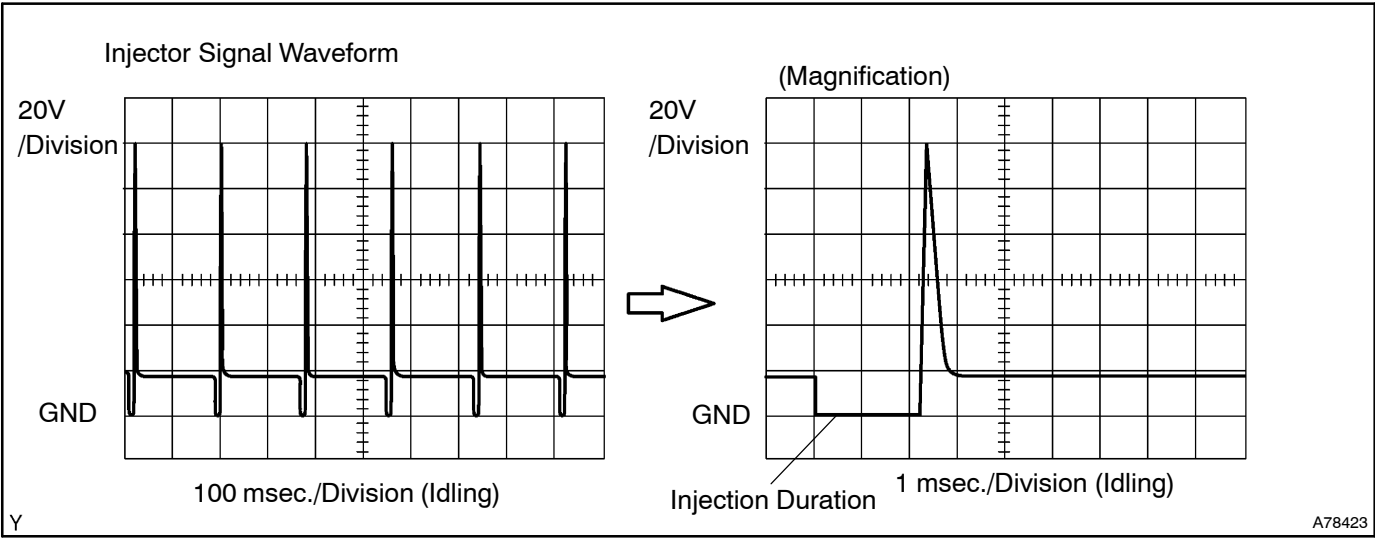
CIRCUIT DESCRIPTION

The fuel injectors are located on the intake manifold. They inject fuel into the cylinders based on the signals from the ECM.

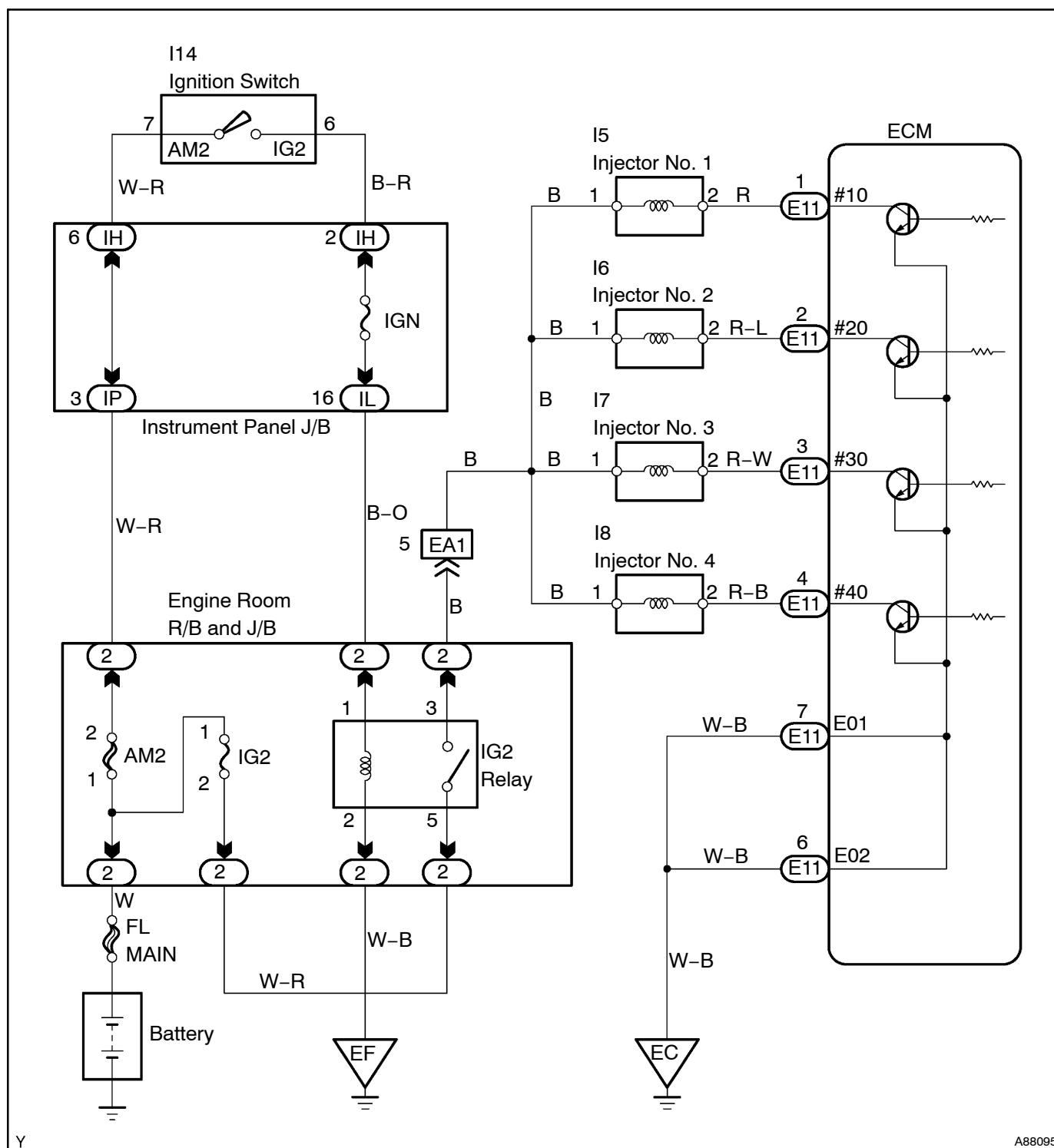
Reference: Inspection using the oscilloscope
With the engine idling, check the waveform between terminals #10 to #40 and E01 of the ECM connectors.

Item	Contents
Terminal	#10 to #40 - E01
Equipment Setting	20V/Division, 100 or 1 ms/Division
Condition	Idling

HINT:
The correct waveform is as shown in the diagram below.



WIRING DIAGRAM

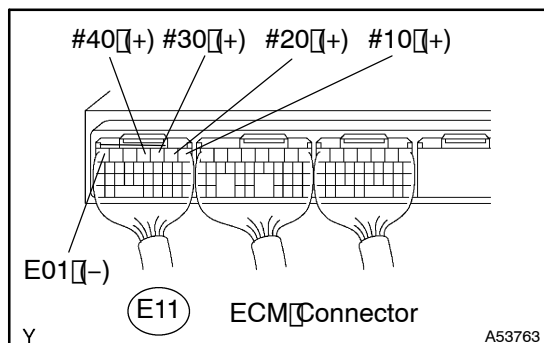


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INSPECTION PROCEDURE

1 INSPECT ECM (#10, #20, #30 OR #40 VOLTAGE)



- (a) Turn the ignition switch to ON.
 (b) Measure the voltage between the terminals of the E11 ECM connector.

Standard:

Tester Connection	Specified Condition
#10 (E11-1) - E01 (E11-7)	9 to 14 V
#20 (E11-2) - E01 (E11-7)	9 to 14 V
#30 (E11-3) - E01 (E11-7)	9 to 14 V
#40 (E11-4) - E01 (E11-7)	9 to 14 V

OK

Go to step 7

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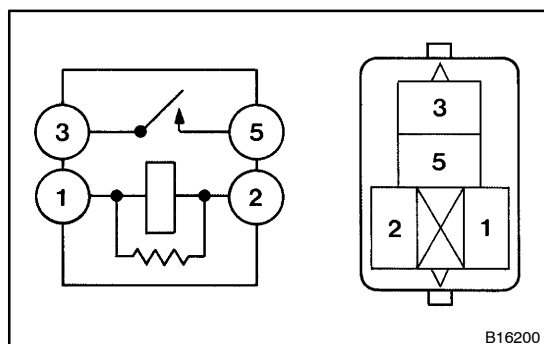
2 INSPECT FUEL INJECTOR ASSY (CHECK RESISTANCE) (See page 11-8)

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REPLACE FUEL INJECTOR ASSY

OK

3 INSPECT IG2 RELAY



- (a) Remove the IG2 relay from the engine room R/B and J/B.
 (b) Check the IG2 relay resistance.

Standard:

Tester Connection	Specified Condition
3 - 5	10 kΩ or higher
3 - 5	Below 1 Ω (Apply battery voltage to terminals 1 and 2)

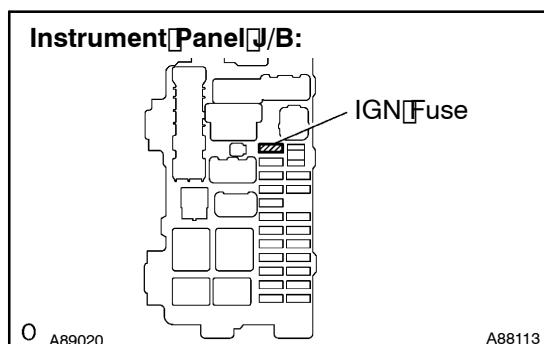
- (c) Reinstall the IG2 relay.

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REPLACE IG2 RELAY

OK

4 CHECK FUSE (IGN FUSE)



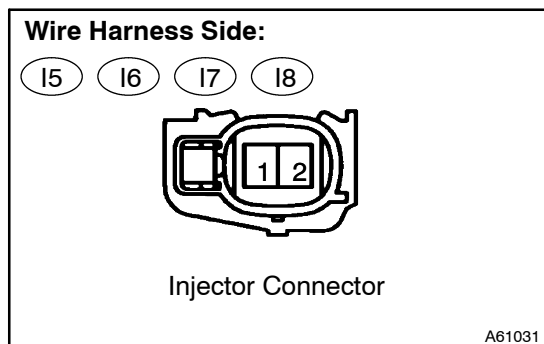
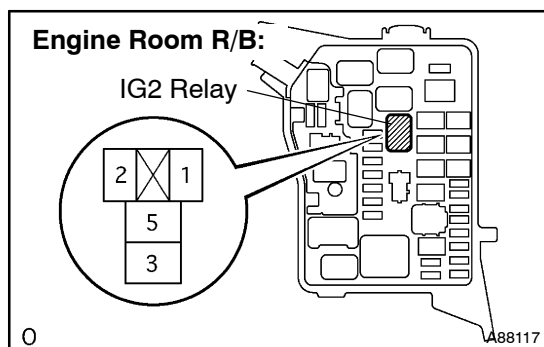
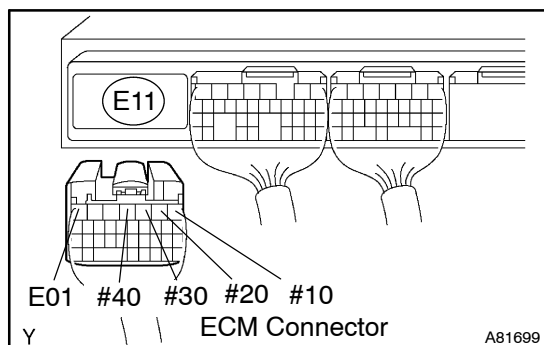
- (a) Remove the IGN fuse from the instrument panel J/B.
 (b) Check the IGN fuse resistance.

Standard: Below 1 Ω

- (c) Reinstall the IGN fuse.

NG**CHECK FOR SHORT IN ALL HARNESSSES AND
COMPONENTS CONNECTED TO FUSE****OK**

5 CHECK HARNESS AND CONNECTOR OF MISFIRING CYLINDER(INJECTOR - ECM, INJECTOR - IG2 RELAY)



(a) Check the harness and connectors between the injector and ECM.

- (1) Disconnect the I5, I6, I7 and/or I8 injector connector.
- (2) Disconnect the E11 ECM connector.
- (3) Check the resistance.

Standard (Check for open):

Tester Connection	Specified Condition
Injector (I5-2) - #10 (E11-1)	Below 1 Ω
Injector (I6-2) - #20 (E11-2)	Below 1 Ω
Injector (I7-2) - #30 (E11-3)	Below 1 Ω
Injector (I8-2) - #40 (E11-4)	Below 1 Ω

Standard (Check for short):

Tester Connection	Specified Condition
Injector (I5-2) or #10 (E11-1) - Body ground	10 k Ω or higher
Injector (I6-2) or #20 (E11-2) - Body ground	10 k Ω or higher
Injector (I7-2) or #30 (E11-3) - Body ground	10 k Ω or higher
Injector (I8-2) or #40 (E11-4) - Body ground	10 k Ω or higher

- (4) Reconnect the injector connector.
- (5) Reconnect the ECM connector.

(b) Check the harness and connectors between the injector and IG2 relay.

- (1) Disconnect the I5, I6, I7 and/or I8 injector connector.
- (2) Remove the IG2 relay from the engine room R/B.
- (3) Check the resistance.

Standard (Check for open):

Tester Connection	Specified Condition
Injector (I5-1) - Engine room R/B (IG2 relay terminal 3)	Below 1 Ω
Injector (I6-1) - Engine room R/B (IG2 relay terminal 3)	Below 1 Ω
Injector (I7-1) - Engine room R/B (IG2 relay terminal 3)	Below 1 Ω
Injector (I8-1) - Engine room R/B (IG2 relay terminal 3)	Below 1 Ω

Standard (Check for short):

Tester Connection	Specified Condition
Injector (I5-1) or Engine room R/B (IG2 relay terminal 3) - Body ground	10 k Ω or higher
Injector (I6-1) or Engine room R/B (IG2 relay terminal 3) - Body ground	10 k Ω or higher
Injector (I7-1) or Engine room R/B (IG2 relay terminal 3) - Body ground	10 k Ω or higher
Injector (I8-1) or Engine room R/B (IG2 relay terminal 3) - Body ground	10 k Ω or higher

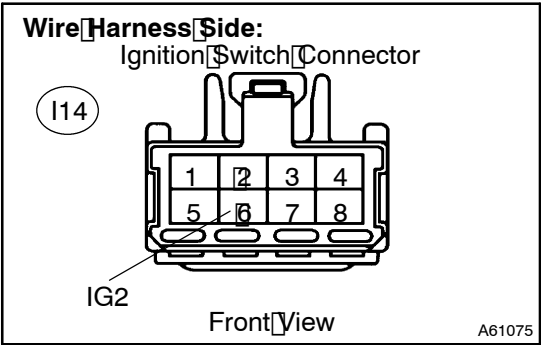
- (4) Reconnect the injector connector.
- (5) Reinstall the IG2 relay.

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REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

6 CHECK HARNESS AND CONNECTOR (IGNITION SWITCH – IG2 RELAY)

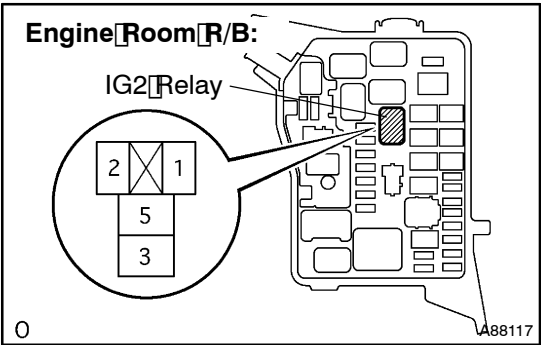


- (a) Disconnect the 14 Ignition switch connector.
(b) Remove the IG2 relay from the engine room R/B.
(c) Check the resistance.
Standard (Check for open):

Tester Connection	Specified Condition
IG2 (14-6) – Engine room R/B (IG2 relay terminal)	Below 1 Ω

Standard (Check for short):

Tester Connection	Specified Condition
IG2 (14-6) or Engine room R/B (IG2 relay terminal) – Body ground	10 kΩ or higher



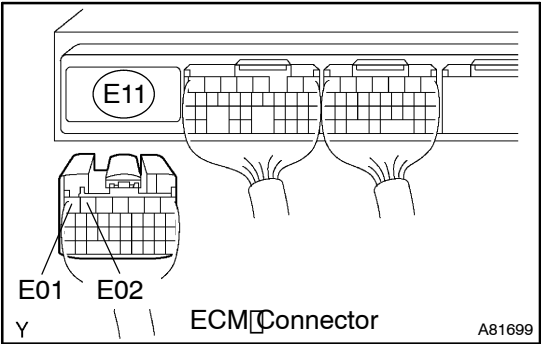
- (d) Reconnect the Ignition switch connector.
(e) Reinstall the IG2 relay.

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

CHECK ECM POWER SOURCE CIRCUIT (See page 05-218)

7 INSPECT ECM



- (a) Disconnect the E11 ECM connector.
(b) Check the resistance.
Standard (Check for open):

Tester Connection	Specified Condition
E01 (E11-7) – Body ground	Below 1 Ω
E02 (E11-6) – Body ground	Below 1 Ω

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

8	INSPECT FUEL INJECTOR ASSY (CHECK FUEL INJECTION VOLUME) (See page 11-8)
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NG	REPLACE FUEL INJECTOR ASSY
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OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (See page 05-12)
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