



# Fuel Injectors [ 1.6 l ]

## Troubleshooting Flowchart



Self-diagnosis LED indicates code 16: A problem in the fuel injector circuit (with CATA).

(With CATA)



- Check Engine warning light has been reported on.
- LED indicates CODE 16.

Turn the ignition switch OFF.

Remove HAZARD fuse in the main fuse box for 10 seconds to reset ECU.

Turn the ignition switch to START position.

Does the engine start ?

NO

(With CATA)

YES

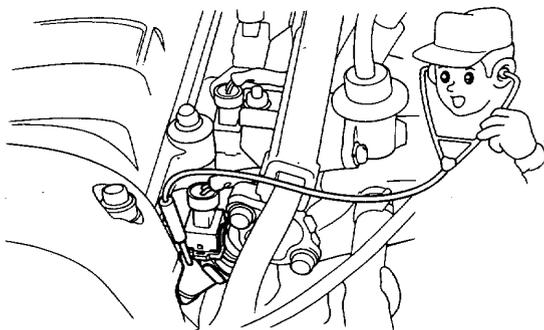
Is Check Engine warning light on and does LED indicate CODE 16?

NO

Intermittent failure, system is OK at this time (test drive may be necessary).  
Check for poor connections or loose wires at injectors, injector resistor.

YES

Check the clicking sound of each injector by means of a stethoscope when the engine is idling.



Do the injectors click ?

YES

Substitute a known-good ECU and re-check. If symptom/indication goes away, replace the original ECU.

NO

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(cont'd)

# Fuel Supply System

## Fuel Injectors [1.6 l] (cont'd)

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Turn the ignition switch OFF.

Disconnect the 2P connector from the injector that does not click.

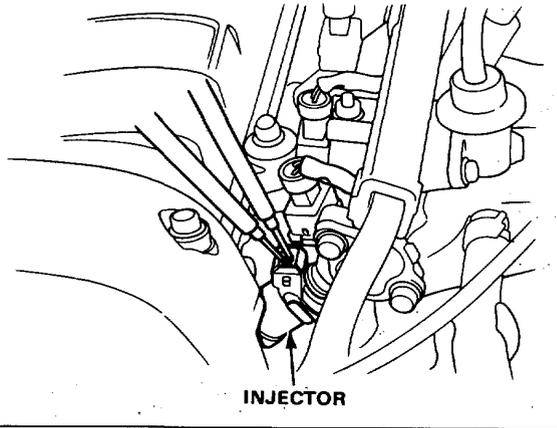
Measure resistance between the 2 terminals of the injector.

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Turn the ignition switch OFF.

Disconnect the 2P connector from each injector.

Measure resistance between the 2 terminals of the injector.



Is there 1.5—2.5Ω ?

NO

Replace the injector.

YES

Turn the ignition switch ON.

Measure voltage between RED/BLK (+) terminal on the 2P connector and body ground.

Is there battery voltage ?

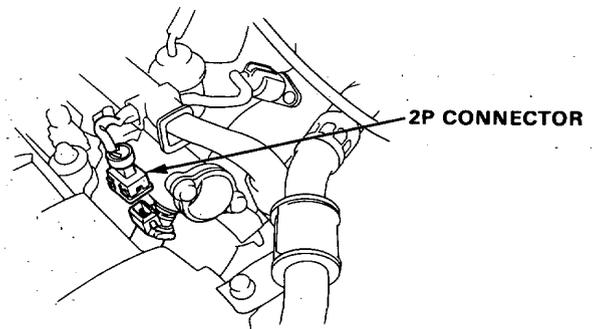
NO

Turn the ignition switch OFF.

YES

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(To page 6-145)





(From page 6-144)

Measure voltage between the following terminals,

- No. 1 injector: RED/BLK (+) terminal and BRN (-) terminal.
- No. 2 injector: RED/BLK (+) terminal and RED (-) terminal.
- No. 3 injector: RED/BLK (+) terminal and LT BLU (-) terminal
- No. 4 injector: RED/BLK (+) terminal and YEL (-) terminal

Is there battery voltage ? YES

Reconnect the 2P connector to the injector.

Turn the ignition switch OFF.

Connect the ECU test harness between the ECU and connector (page 6-75).

Turn the ignition switch ON.

Measure voltage between A2 (-) terminal and following terminals,

- No.1 injector: A1 (+) terminal.
- No.2 injector: A3 (+) terminal.
- No.3 injector: A5 (+) terminal.
- No.4 injector: A7 (+) terminal.

Is there battery voltage ? NO

Substitute a known-good ECU and recheck. If symptom/indication goes away, replace the original ECU.

Disconnect 6P connector on the injector resistor.

Turn the ignition switch ON.

Measure voltage between YEL/BLK (+) terminal and body ground.

Is there battery voltage ? NO

Repair open in the YEL/BLK wire between the injector resistor and the main relay.

YES

- Replace the injector resistor.
- Repair open in RED/BLK wire between 2P connector and resistor.

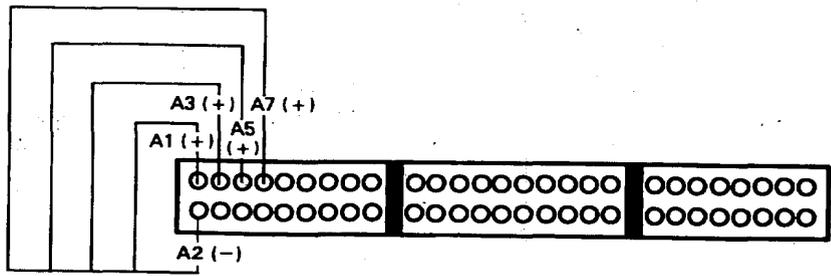
Disconnect (17P) connector from the ECU.

Is there battery voltage ? YES

Repair short in the wire between the ECU (A1, A3, A5 or A7) and the injector.

NO

Substitute a known-good ECU and recheck. If prescribed voltage is now available, replace the original ECU.



Repair open in the wire between the ECU (A1, A3, A5 or A7) and the injector.

(cont'd)

# Fuel Supply System

## Fuel Injectors [1.6 l ] (cont'd)

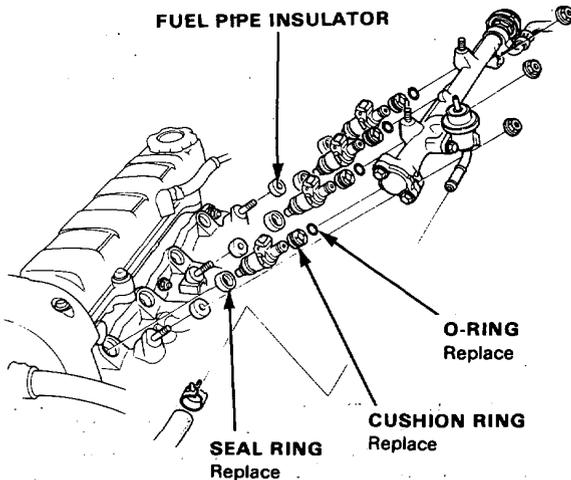
### Replacement

**⚠ WARNING** Do not smoke during the work. Keep open flames away from your work area.

1. Relieve fuel pressure (page 6-136).
2. Disconnect the connectors from the injectors.
3. Disconnect the vacuum hose and fuel return hose from the pressure regulator.

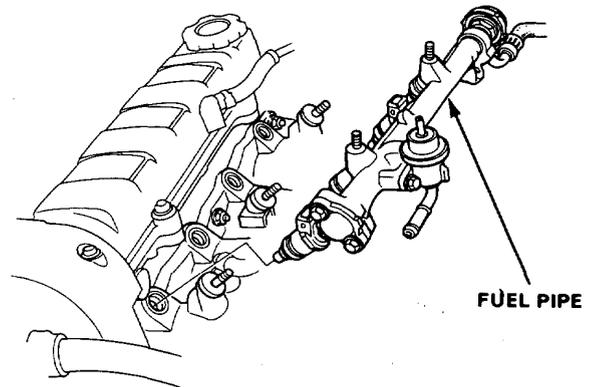
**NOTE:** Place a rag or shop towel over the hoses before disconnecting them.

4. Loosen the retainer nuts on the fuel pipe and harness holder.
5. Disconnect the fuel pipe.
6. Remove the injectors from the intake manifold.

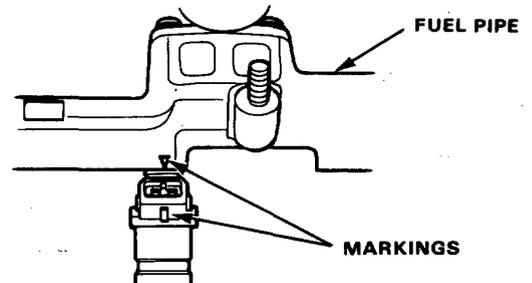


7. Slide new cushion rings onto the injectors.
8. Coat new O-rings with clean engine oil and put them on the injectors.
9. Insert the injectors into the fuel pipe first.
10. Coat new seal rings with clean engine oil and press them into the intake manifold.
11. Install the injectors and fuel pipe assembly in the manifold.

**CAUTION:** To prevent damage to the O-ring, install the injectors in the fuel pipe first, then install them in the intake manifold.



12. Align the center line on the connector with the mark on the fuel pipe.



13. Install and tighten the retainer nuts.
14. Connect the vacuum hose and fuel return hose to the pressure regulator.
15. Install the connectors on the injectors.
16. Turn the ignition switch ON but do not operate the starter. After the fuel pump runs for approximately two seconds, the fuel pressure in the fuel line rises. Repeat this two or three times, then check whether there is any fuel leakage.