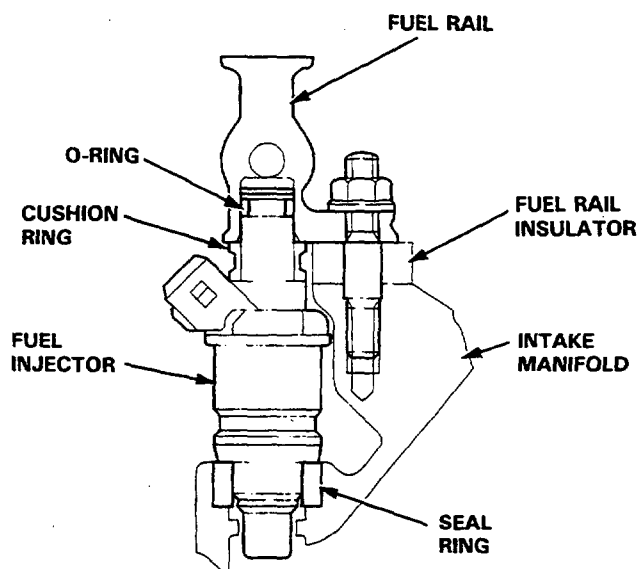
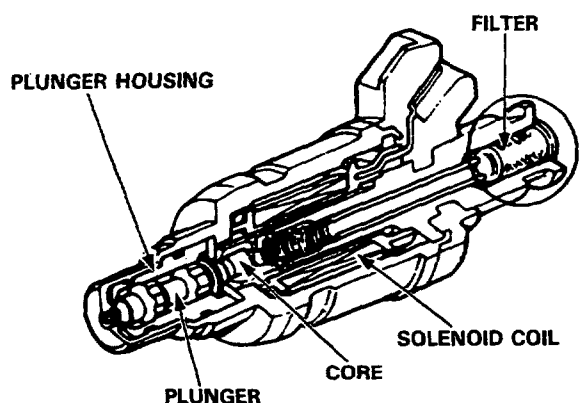




Fuel Injectors

Description

The Fuel Injectors are a solenoid-actuated constant-stroke pintle type consisting of a solenoid, plunger needle valve and housing. When current is applied to the solenoid coil, the valve lifts up and pressurized fuel is injected. Because the needle valve lift and the fuel pressure are constant, the injection quantity is determined by the length of time that the valve is open (i.e., the duration the current is supplied to the solenoid coil). The Fuel Injector is sealed by an O-ring and seal ring at the top and bottom. These seals also reduce operating noise.



(cont'd)

Fuel Supply System

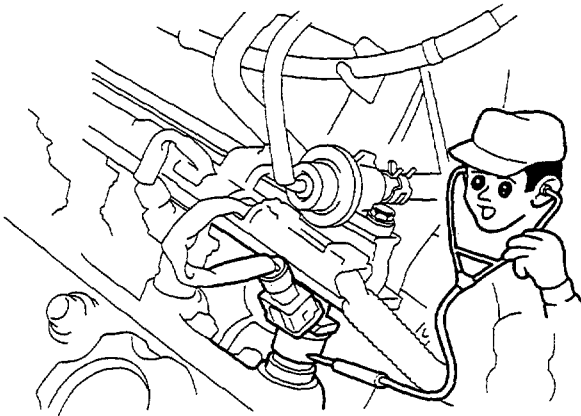
Fuel Injectors (cont'd)

Testing

NOTE: Check the following items before testing: idle speed, ignition timing and idle CO%

If the engine runs:

1. With the engine idling, disconnect each fuel injector connector individually and inspect the change in the idle speed.
 - If the idle speed drop is almost the same for each cylinder, the fuel injectors are normal.
 - If the idle speed or quality remains the same when you disconnect a particular fuel injector, replace the fuel injector and retest.
2. Check the clicking sound of each fuel injector by means of a stethoscope when the engine is idling.



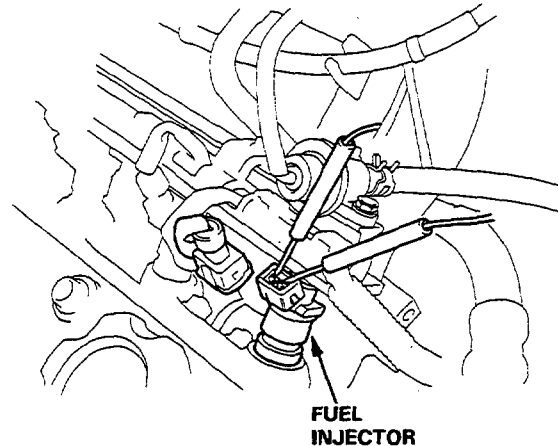
- If any fuel injector fails to make the typical clicking sound, check the sound again after replacing the fuel injector.
- If clicking sound is still absent, check the following:
 - Whether there is any short-circuiting, wire breakage or poor connection in the YEL/BLK wire between the PGM-FI main relay and the fuel injector.
 - Whether there is any short-circuiting, wire breakage or poor connection in the wire between the fuel injector and the ECM.

If all is OK, check the ECM (see page 11-22) and PGM-FI main relay (see page 11-89).

If the engine cannot be started:

1. Remove the connector of the fuel injector, and measure the resistance between the 2 terminals of the fuel injector.

Resistance should be: 10—13 Ω



- If the resistance is not as specified, replace the fuel injector.
- If the resistance is as specified, check the fuel pressure (see page 11-80).
- If the fuel pressure is as specified, check the following:
 - Whether there is any short-circuiting, wire breakage or poor connection in the YEL/BLK wire between the PGM-FI main relay and the fuel injector.
 - Whether there is any short-circuiting, wire breakage or poor connection in the wire between the fuel injector and the ECM.

If all is OK, check the ECM (see page 11-22).



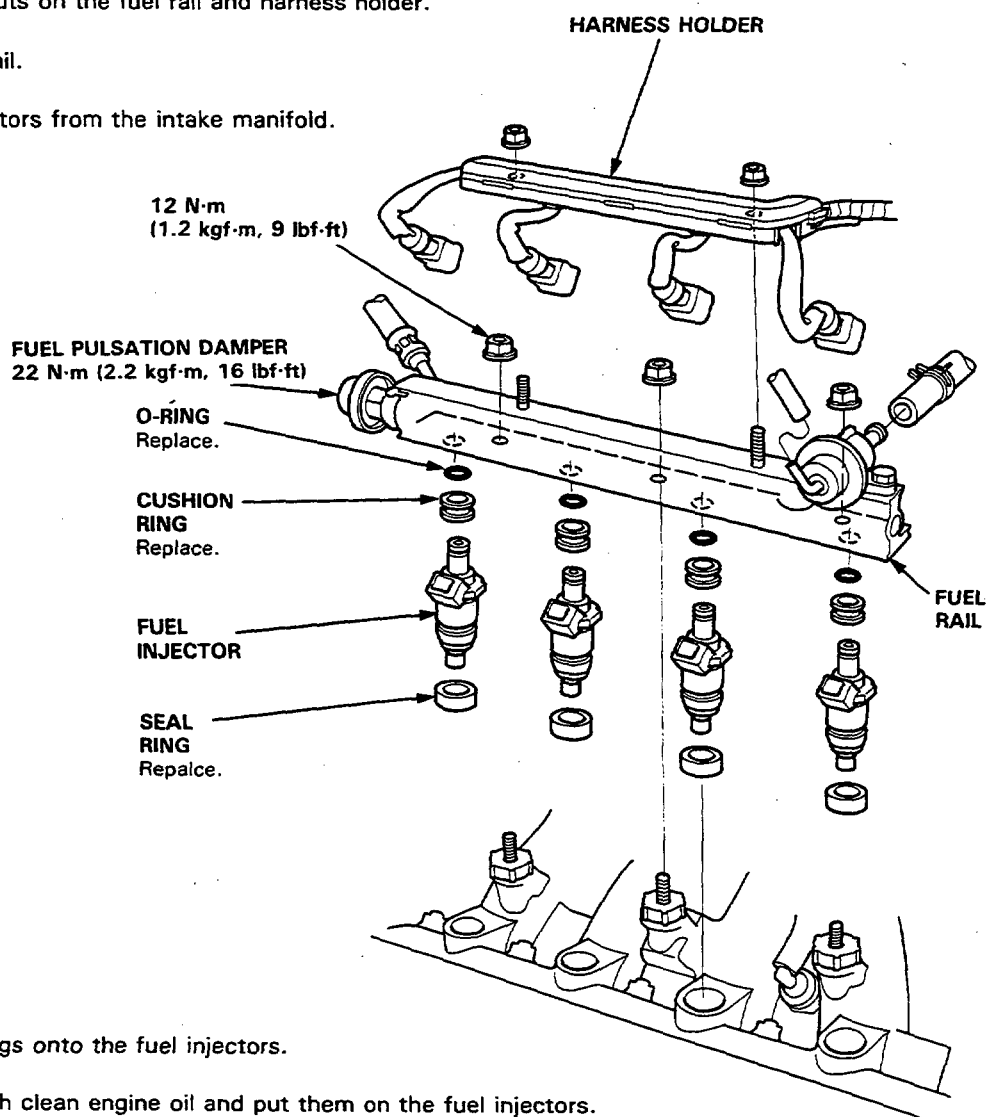
Replacement

⚠ WARNING Do not smoke while working on the fuel system. Keep open flames away from your work area.

1. Relieve the fuel pressure (see page 11-80).
2. Disconnect the connectors from the fuel injectors.
3. Disconnect the vacuum hose and fuel return hose from the fuel pressure regulator.

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

4. Disconnect the fuel pulsation damper and fuel hose from the fuel rail.
5. Loosen the retainer nuts on the fuel rail and harness holder.
6. Disconnect the fuel rail.
7. Remove the fuel injectors from the intake manifold.



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

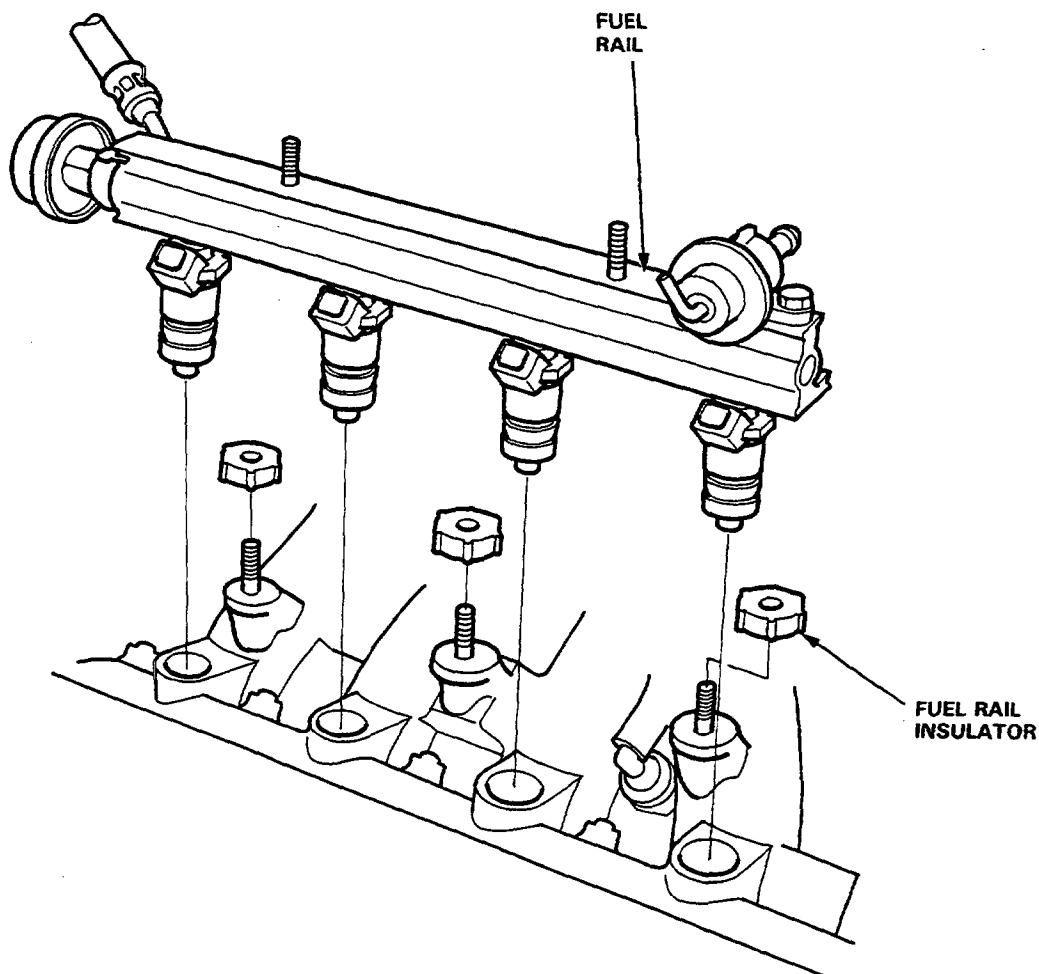
(cont'd)

Fuel Supply System

Fuel Injectors (cont'd)

12. Install the fuel injectors and fuel rail assembly in the intake manifold.

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



13. Align the center line on the connector with the mark on the fuel rail.
(D15Z3 engine only)

14. Install and tighten the retainer nuts.

15. Connect the fuel hose and fuel pulsation damper to the fuel rail with new washers.

16. Connect the vacuum hose and fuel return hose to the fuel pressure regulator.

17. Install the connectors on the fuel injectors.

18. 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.

