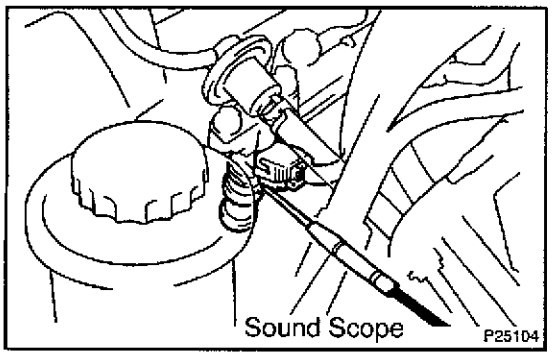


INJECTOR (2RZ–FE, 3RZ–FE)

FI002–01

ON–VEHICLE INSPECTION

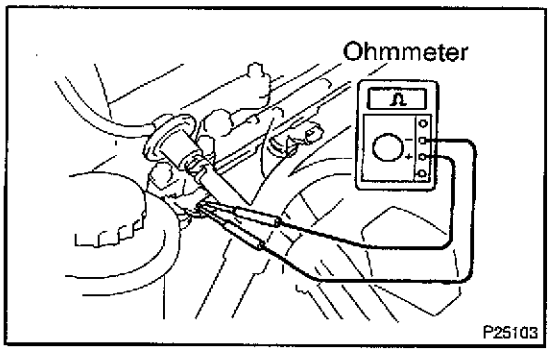
1. INSPECT INJECTOR OPERATION

Check operation sound from each injector.

(a) With the engine running or cranking, use a sound scope to check that there is normal operating noise in proportion to engine speed.

(b) If you have no sound scope, you can check the injector transmission operation with your finger.

If no sound or unusual sound is heard, check the wiring connector, injector or injection signal from the ECM.



2. INSPECT INJECTOR RESISTANCE

(a) Remove the throttle body.
(See page FI–42)

(b) Disconnect the injector connectors.

(c) Using an ohmmeter, measure the resistance between the terminals.

Resistance: At 20°C (68°F): 12 – 16 Ω

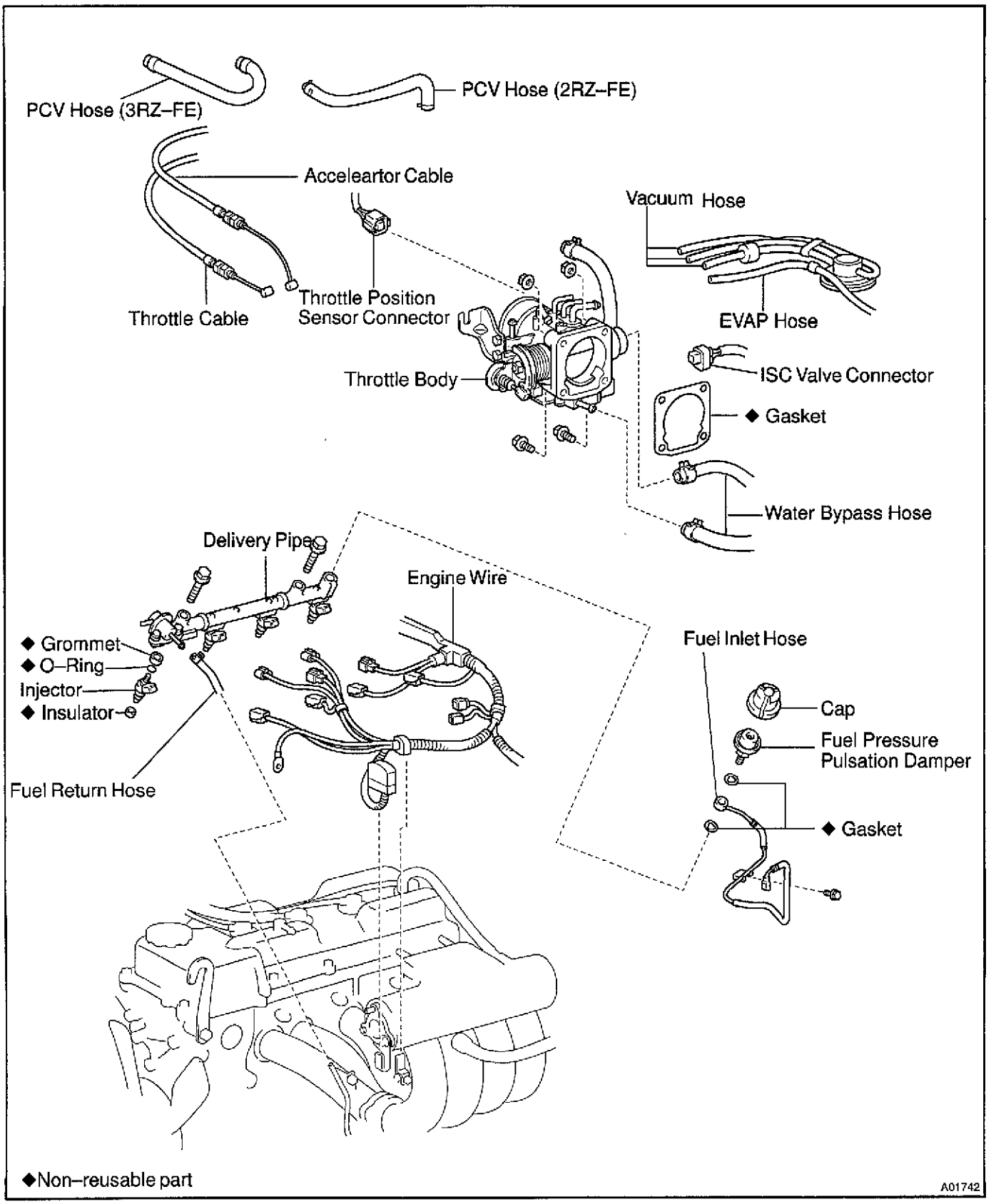
If the resistance is not as specified, replace the injector.

(d) Reconnect the injector connectors.

(e) Install the throttle body.
(See page FI–44)

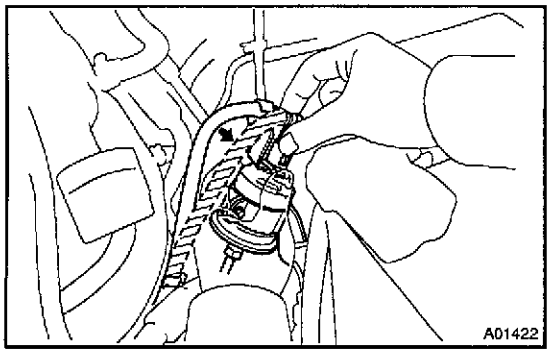
COMPONENTS

FI01D–01



FI011-01

REMOVAL



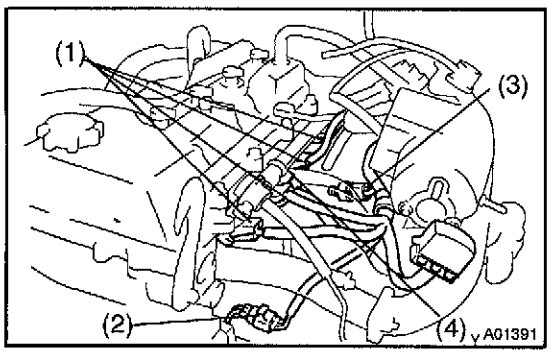
1. DISCONNECT FUEL INLET PIPE

(a) Remove the fuel hose from the clamp.

(b) Disconnect the fuel inlet pipe (fuel tube connector) from the fuel filter.

CAUTION:

- **Perform disconnecting operations of the fuel tube connector (quick type) after observing the precautions.**
- **As there is retained pressure in the fuel pipe line, prevent it from splashing inside the engine compartment.**

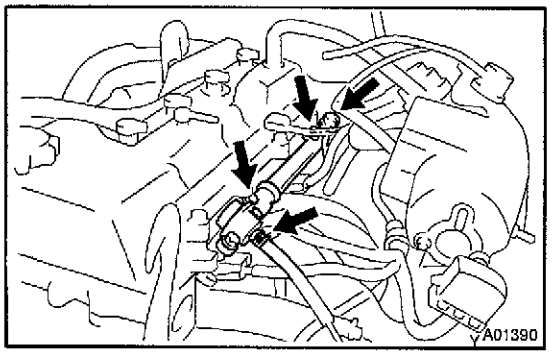


2. REMOVE THROTTLE BODY
(See page FI–42)

3. DISCONNECT ENGINE WIRE

(a) Disconnect these connectors:
- (1) 4 injector connectors
- (2) Crankshaft position sensor connector
- (3) Knock sensor connector
- (4) Camshaft position sensor

(b) Disconnect the DLC1 and wire clamp from the brackets.



4. REMOVE DELIVERY PIPE AND INJECTORS

(a) Disconnect the vacuum sensing hose from the fuel pressure regulator.

(b) Disconnect the fuel return hose from the fuel pressure regulator.

(c) Remove the union bolt and 2 gaskets, and disconnect the fuel inlet pipe from the delivery pipe.

HINT:

- Put a suitable container or shop rag under the delivery pipe.
- Slowly loosen the union bolt.

(d) Remove the 2 bolts and delivery pipe together with the 4 injectors.

NOTICE:

Be careful not to drop the injectors when removing the delivery pipe.

(e) Remove the 4 insulators from the 4 spacers.

(f) Pull out the 4 injectors from the delivery pipe.

(g) Remove the O–ring and grommet from each injector.

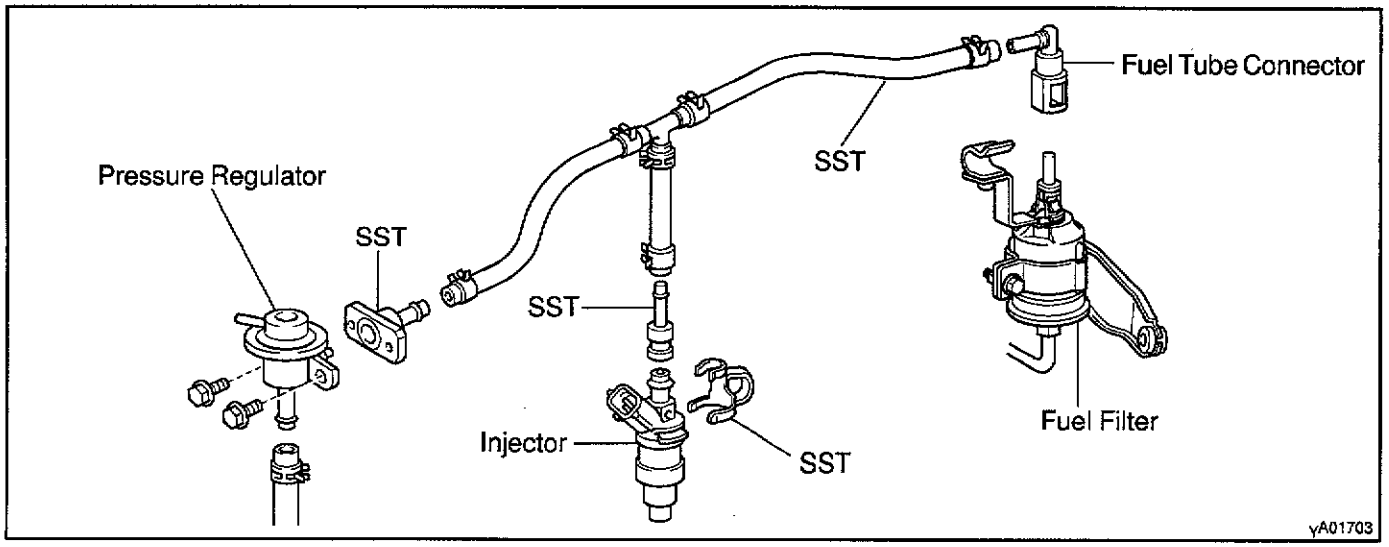
FI012-01

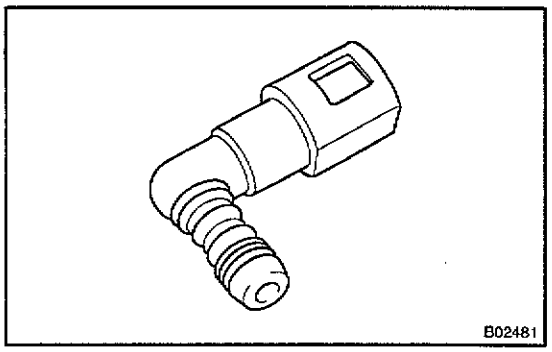
INSPECTION

1. INSPECT INJECTOR INJECTION

CAUTION:

Keep injector clean of sparks during the test.





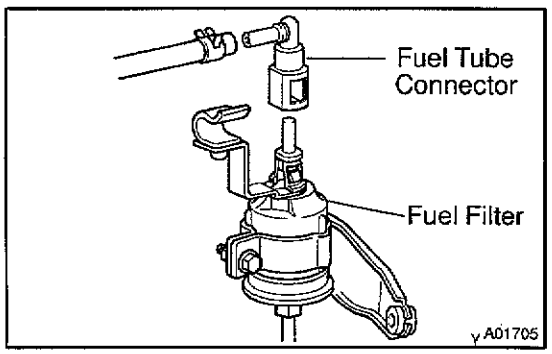
(a) Purchase the new fuel pipe and take out the fuel tube connector from its pipe.

Part No.:

1RZ–FE: 23801 – 75060

2RZ–FE: 23801 – 75070

3RZ–FE: 23801 – 75080



(b) Connect SST (hose) and fuel tube connector to the fuel filter outlet.

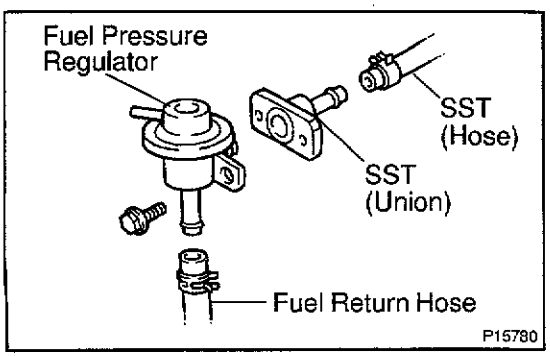
SST 09268–41046

CAUTION:

Perform connecting operations of the fuel tube connector (quick type) after observing the precautions.

HINT:

Use the vehicle's fuel filter.



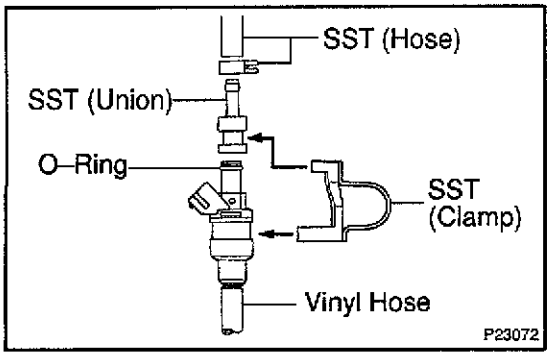
(c) Remove the fuel pressure regulator from the delivery pipe.

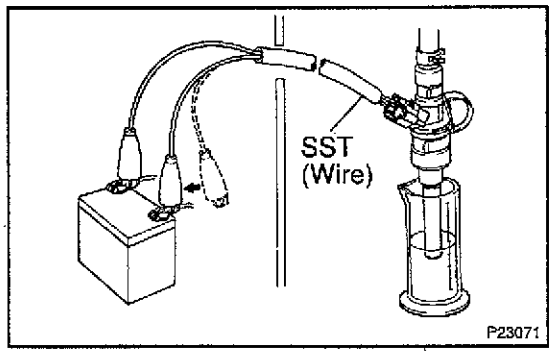
(d) Install the O–ring to the fuel inlet of pressure regulator.

(e) Connect SST (hose) to the fuel inlet of the pressure regulator with SST (union) and the 2 bolts.

SST 09268–41046 (09268–41091)

(f) Connect the fuel return hose to the fuel outlet of the pressure regulator.





(g) Install the O–ring to the injector.

(h) Connect SST (union and hose) to the injector, and hold the injector and union with SST (clamp).
SST 09268–41046

(i) Put the injector into a graduated cylinder.

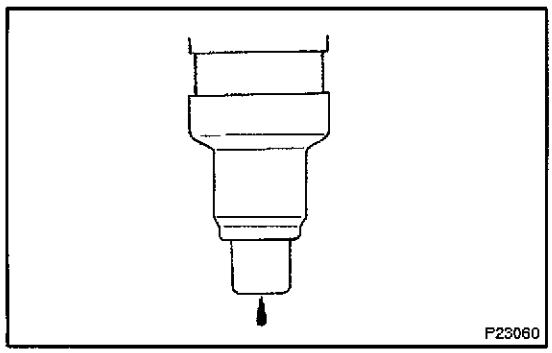
HINT:

Install a suitable vinyl hose onto the injector to prevent gasoline from splashing out.

(j) Connect the hand–held tester to the DLC3.
(See page FI–6)

(k) Connect SST (wire) to the injector and battery for 15 seconds, and measure the injection volume with a graduated cylinder. Test each injector 2 or 3 times.
SST 09842–30070
2RZ–FE:
Volume: 64 – 78 cm^3 (4.0 – 4.8 cu in.) per 15 seconds
Difference between each injector:
14 cm^3 (0.3 cu in.) or less
3RZ–FE:
Volume: 72 – 78 cm^3 (4.4 – 5.2 cu in.) per 15 seconds
Difference between each injector:
14 cm^3 (0.3 cu in.) or less

If the injection volume is not as specified, replace the injector.



2. INSPECT LEAKAGE

(a) In the condition above, disconnect the test probes of SST (wire) from the battery and check the fuel leakage from the injector.
SST 09842–30070
Fuel drop: 1 drop or less per 3 minutes

(b) Turn the ignition switch to OFF.

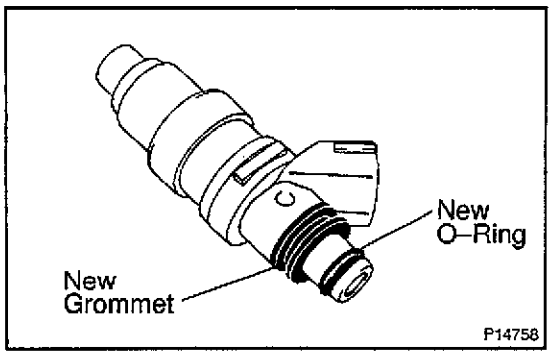
(c) Disconnect the negative (–) terminal cable from the battery.

(d) Remove the SST and hand–held tester.
SST 09268–41045

(e) Reinstall the fuel pressure regulator and fuel inlet pipe.

FI013-01

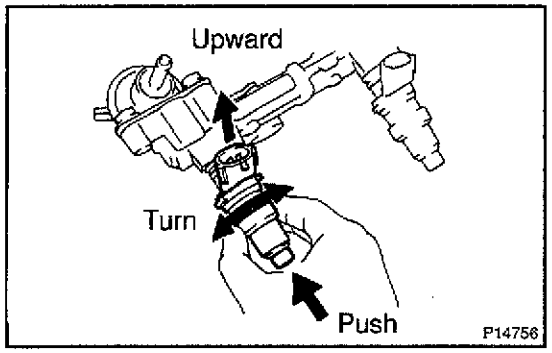
INSTALLATION



1. INSTALL INJECTORS TO DELIVERY PIPE

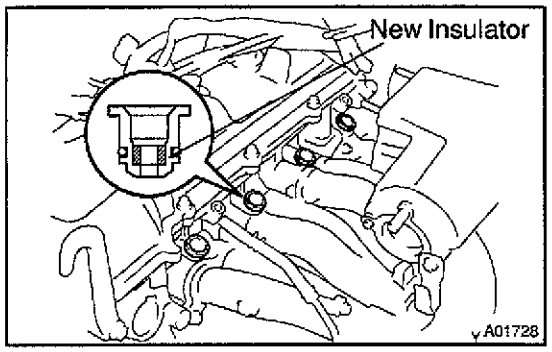
(a) Install a new grommet to the injector.

(b) Apply a light coat of gasoline to a new O–ring and install it to the injector.



(c) While turning the injector left and right, install it to the delivery pipe. Install the 4 injectors.

(d) Position the injector connector upward.

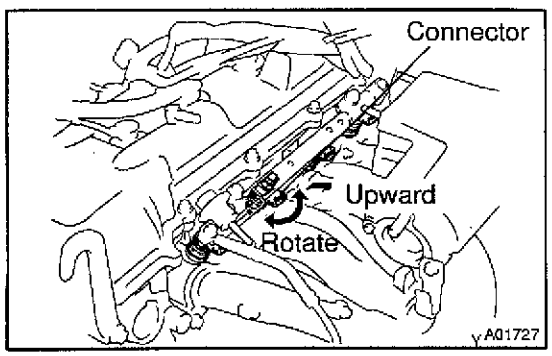


2. INSTALL INJECTORS AND DELIVERY PIPE

(a) Place the 4 new insulators and in position on the spacers.

(b) Place the 4 injectors together with the delivery pipe in position on the cylinder head.

(c) Temporarily install the 2 bolts holding the delivery pipe to the cylinder head.



(d) Check that the injectors rotate smoothly.

HINT:

If injectors do not rotate smoothly, the probable cause is incorrect installation of O–rings. Replace the O–rings.

(e) Position the injector connector upward.

(f) Tighten the 2 bolts holding the delivery pipe to the cylinder head.

Torque: 21 N·m (210 kgf·cm, 15 ft·lbf)

(g) Connect the fuel inlet pipe to the delivery pipe with 2 new gaskets and the pulsation dumper.

Torque: 29 N·m (300 kgf·cm, 22 ft·lbf)

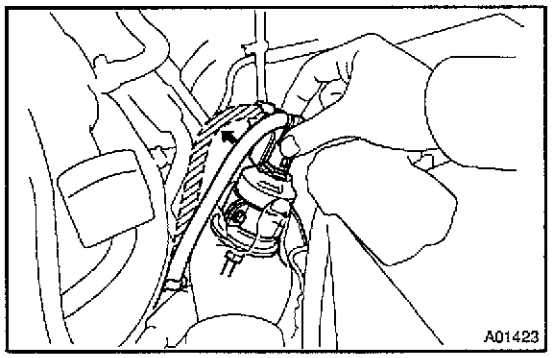
(h) Connect the fuel return hose to the fuel pressure regulator.

(i) Connect the vacuum sensing hose to the fuel pressure regulator.

3. CONNECT ENGINE WIRE

4. INSTALL THROTTLE BODY

(See page FI–44)



5. CONNECT FUEL INLET PIPE

(a) Connect the fuel inlet pipe (fuel tube connector) to the fuel filter.

CAUTION:

Perform connecting operations of the fuel tube connector (quick type) after observing the precautions.

(b) Install the fuel hose to the clamp.