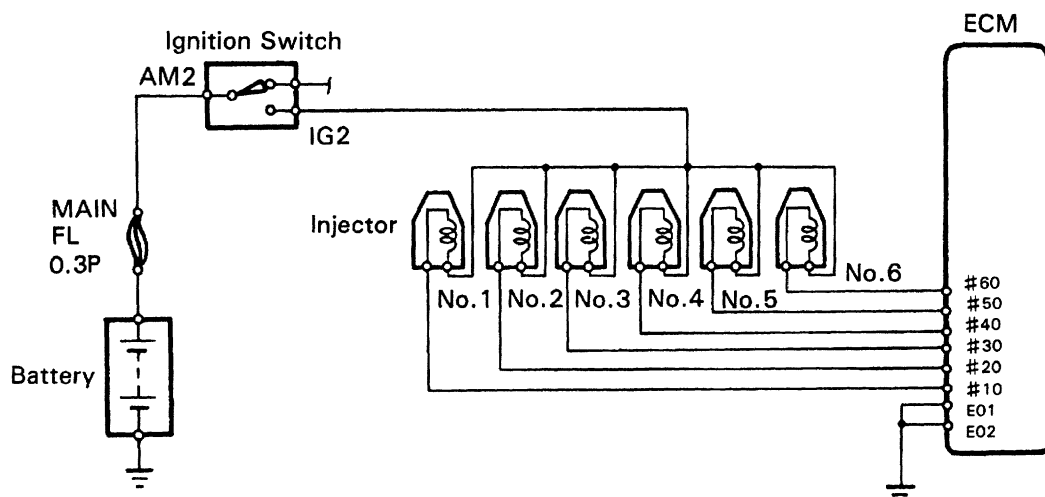
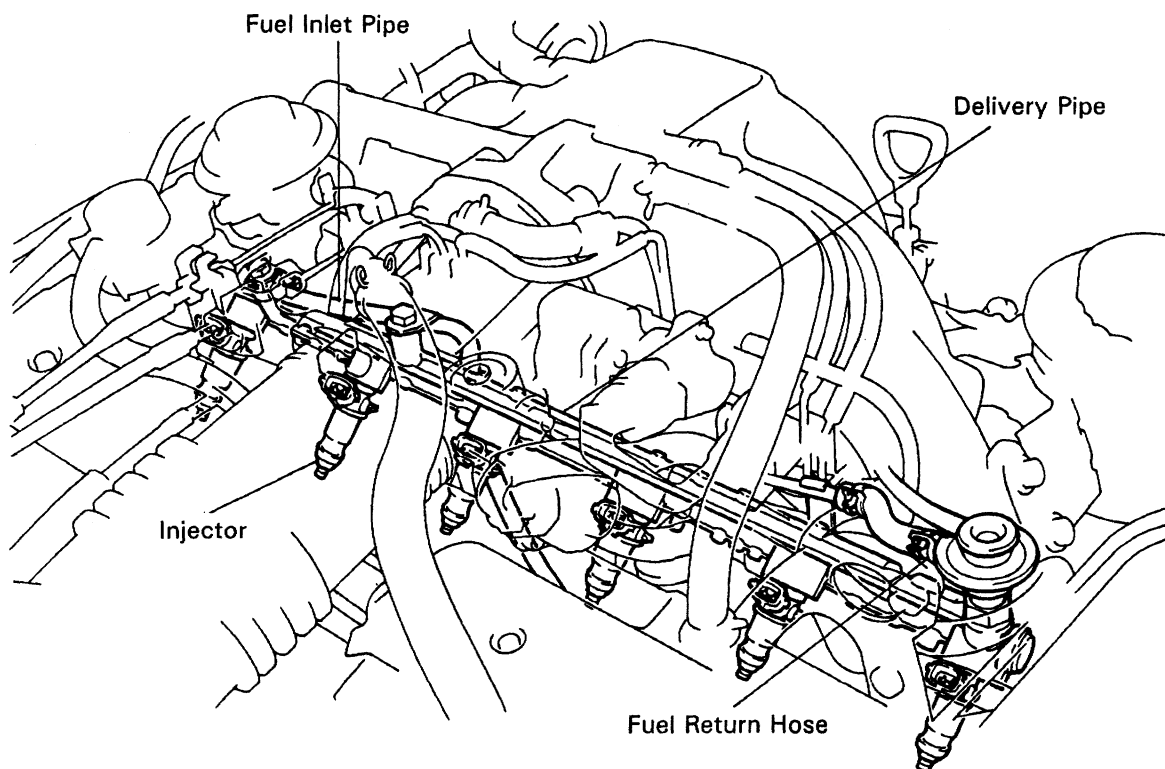
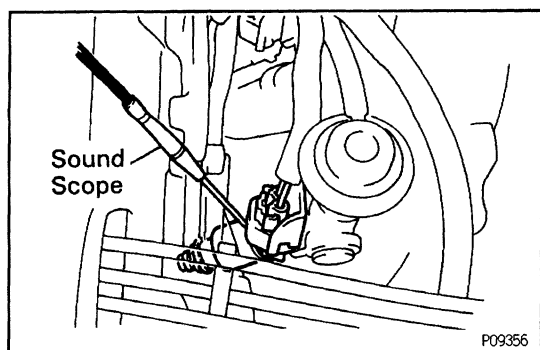


INJECTOR

EG12V-05



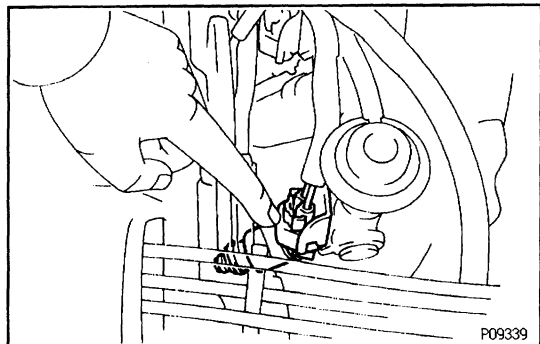


ON-VEHICLE INSPECTION

1. INSPECT INJECTOR OPERATION

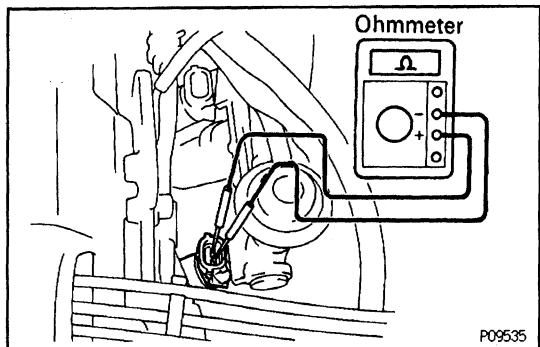
Check operation sound from each injector.

(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 [EG-284](#))

(b) Disconnect the injector connectors.

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

Resistance:

12 to 16Ω at 20° C (68° F)

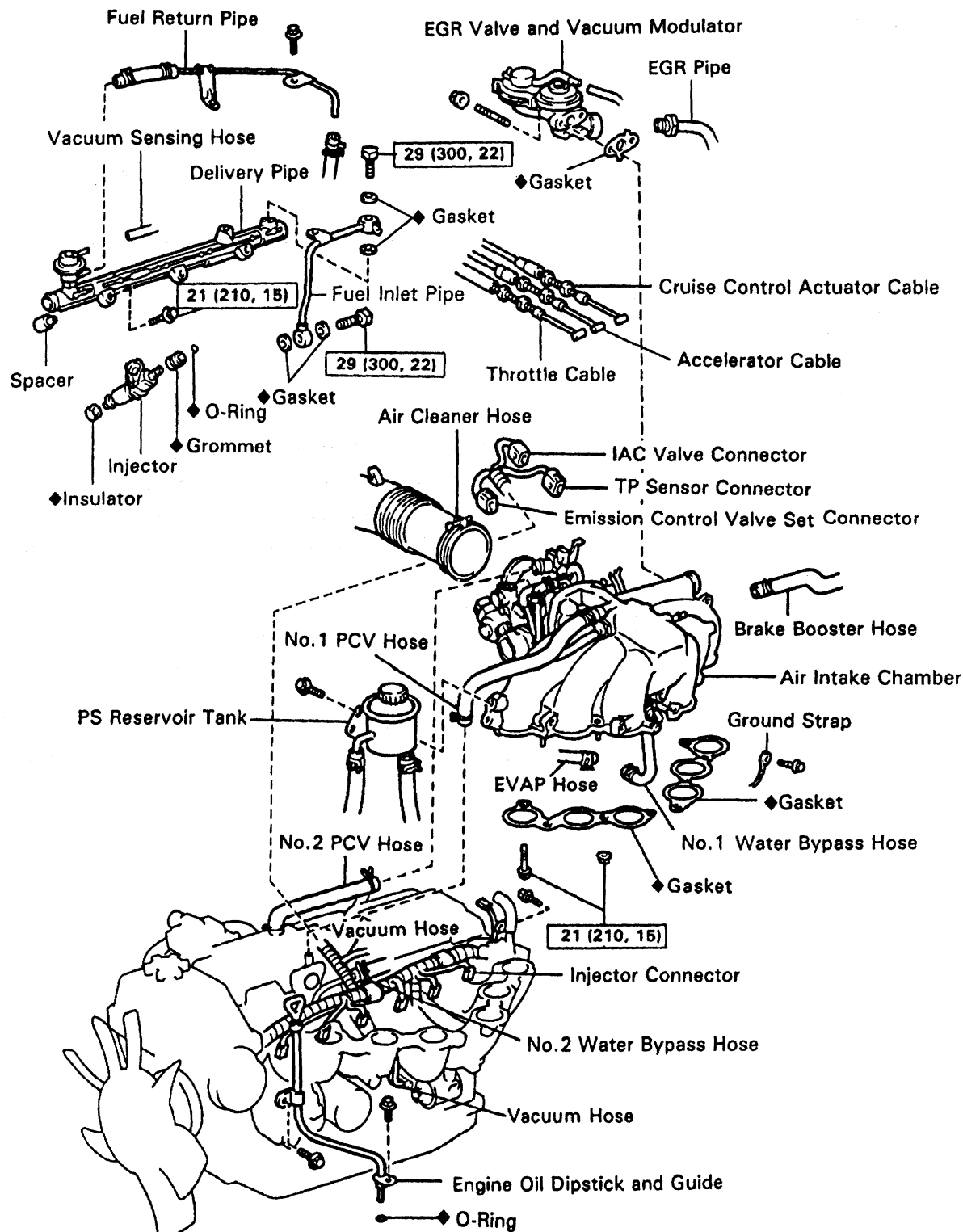
If the resistance is not as specified, replace the injector.

(d) Reconnect the injector connectors.

(e) Reinstall the throttle body. (See page [EG-284](#))

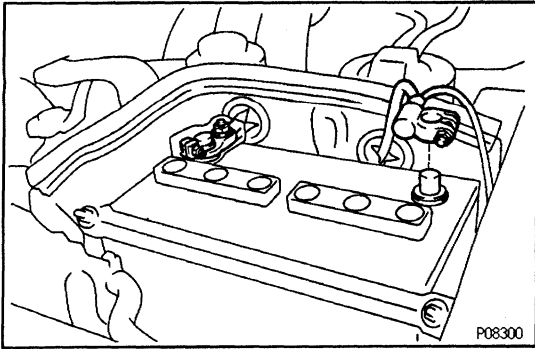
COMPONENTS FOR REMOVAL AND INSTALLATION

EG130-05



N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

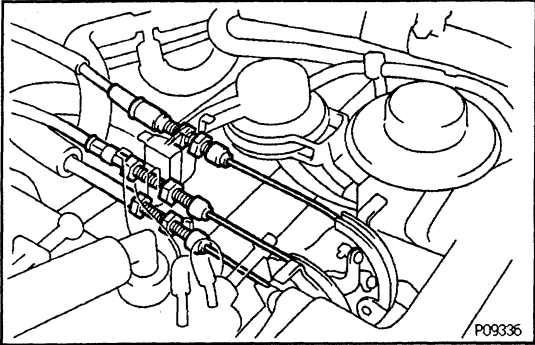


INJECTORS REMOVAL

(See Components for Removal and Installation)

1. DISCONNECT NEGATIVE TERMINAL CABLE FROM BATTERY

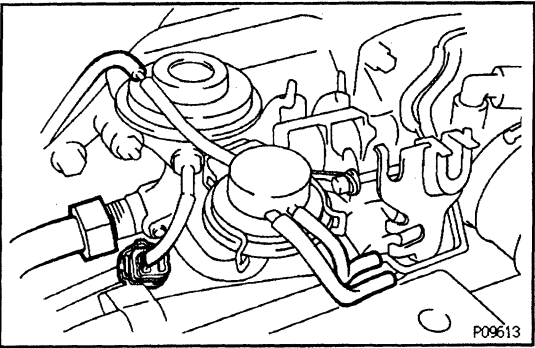
2. DRAIN ENGINE COOLANT



3. DISCONNECT CRUISE CONTROL ACTUATOR CABLE

4. DISCONNECT ACCELERATOR CABLE

5. DISCONNECT THROTTLE CABLE

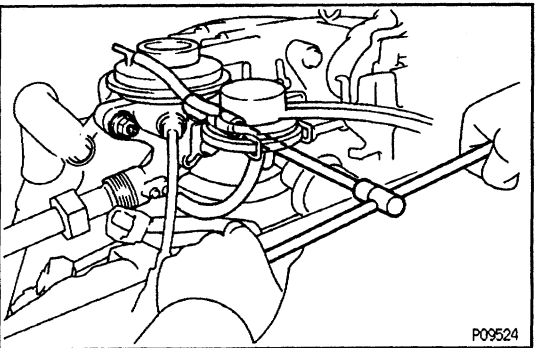


6. REMOVE EGR VALVE AND VACUUM MODULATOR

(a) Disconnect the 3 vacuum hoses.

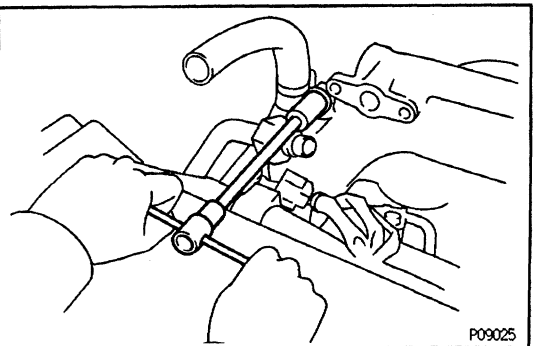
(b) Disconnect the EGR gas temp. sensor connector.

(c) Loosen the EGR pipe union nut.

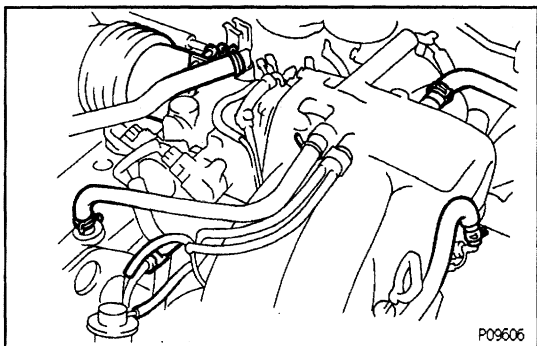


(d) Remove the 2 nuts holding the EGR valve to the air intake chamber.

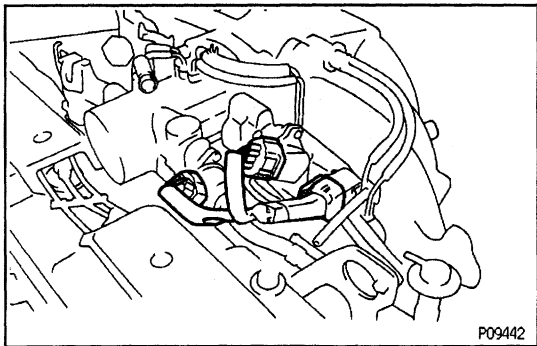
(e) Remove the 2 stud bolts, EGR valve and vacuum modulator assembly and gasket.



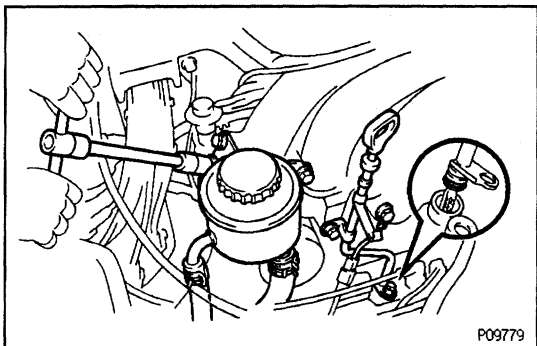
7. REMOVE BOLT HOLDING HEATER INLET PIPE AND AIR INTAKE CHAMBER



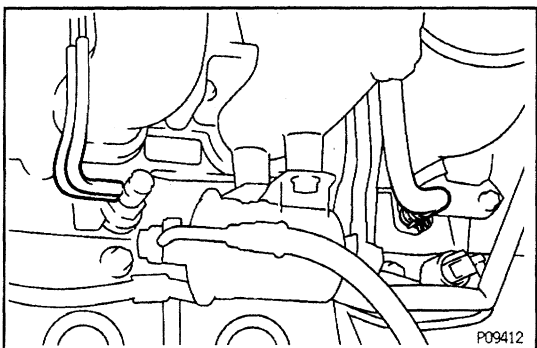
- 8. DISCONNECT AIR CLEANER HOSE
- 9. DISCONNECT NO.1 AND NO.2 PCV HOSES
- 10. DISCONNECT VACUUM HOSES
- 11. DISCONNECT NO.2 WATER BYPASS HOSE
- 12. DISCONNECT EVAP HOSE
- 13. DISCONNECT BRAKE BOOSTER HOSE



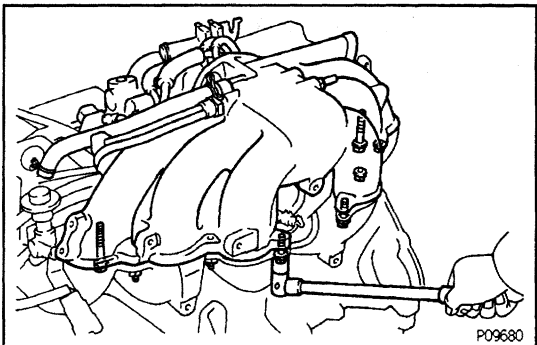
- 14. DISCONNECT THROTTLE POSITION SENSOR CONNECTOR
- 15. DISCONNECT IDLE AIR CONTROL VALVE CONNECTOR
- 16. DISCONNECT CONNECTOR FOR EMISSION CONTROL VALVE SET ASSEMBLY



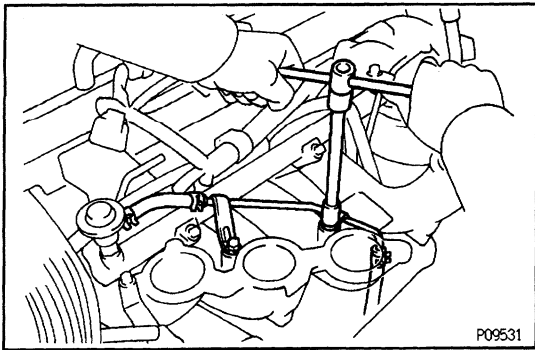
- 17. DISCONNECT PS RESERVOIR TANK
Remove the 3 bolts and disconnect the reservoir tank.
- 18. REMOVE ENGINE OIL DIPSTICK AND GUIDE
 - (a) Remove the 2 mounting bolts.
 - (b) Pull out the dipstick together with dipstick guide.
 - (c) Remove the O-ring from the dipstick guide.
- 19. DISCONNECT GROUND STRAP



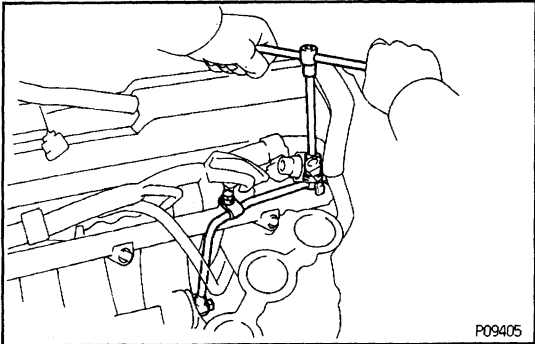
- 20. REMOVE AIR INTAKE CHAMBER
 - (a) Disconnect the 2 vacuum hoses from the TVV.
 - (b) Disconnect the No.1 water bypass hose from the cylinder head .



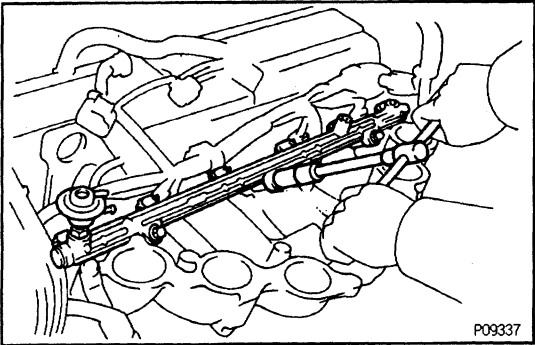
- (c) Remove the 4 bolts, 4 nuts, air intake chamber and 2 gaskets.

**21. REMOVE FUEL RETURN PIPE**

- (a) Disconnect the fuel hose from the fuel pressure regulator.
- (b) Remove the 2 bolts and fuel return pipe.

**22. REMOVE FUEL INLET PIPE**

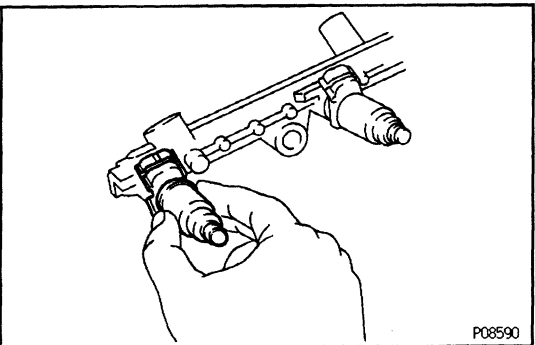
Remove the 2 union bolts, bolt, 4 gaskets and fuel pipe.

**23. REMOVE DELIVERY PIPE AND INJECTORS**

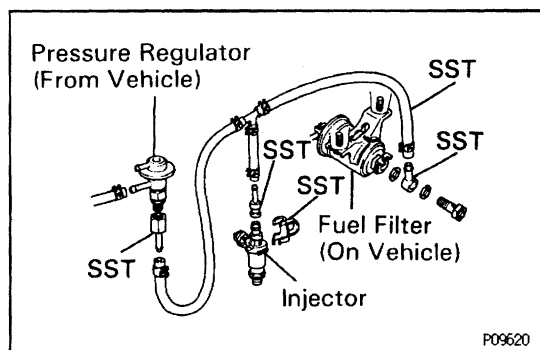
- (a) Disconnect the 6 injector connectors.
- (b) Remove the 3 bolts and delivery pipe together with the 6 injectors.

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

- (c) Remove the 6 insulators and 3 spacers from the intake manifold.



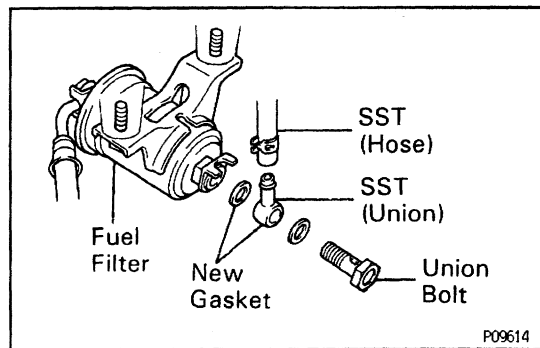
- (d) Pull out the 6 injectors from the delivery pipe.
- (e) Remove the O-ring and grommet from each injector.



INJECTORS INSPECTION

1. INSPECT INJECTOR INJECTION

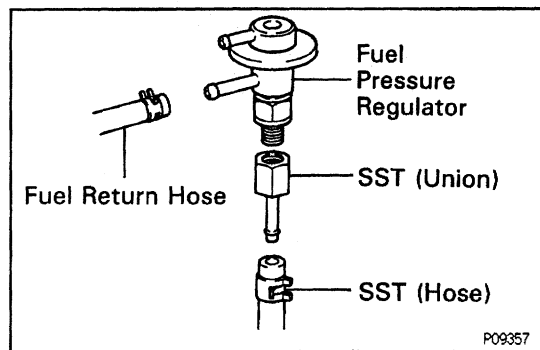
CAUTION: Keep injector clean of sparks during the test.



- (a) Connect SST (union and hose) to the fuel filter outlet with 2 new gaskets and the union bolt.

SST 09268-41045 (90405-09015)

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



- (b) Remove the fuel pressure regulator.

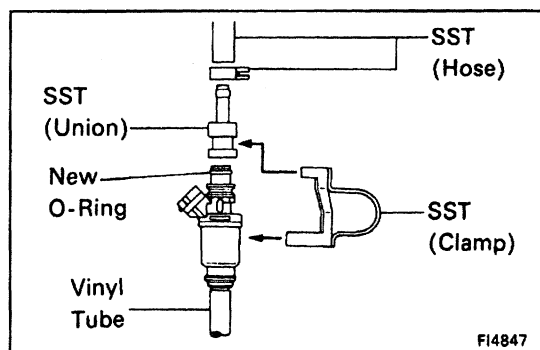
- (c) install a new O-ring to the fuel inlet of pressure regulator.

- (d) Connect SST (hose) to the fuel inlet of the pressure regulator with SST (union).

SST 09268-41045 (09268-52010)

Torque: 25 N·m (250 kgf·cm, 18 ft·lbf)

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



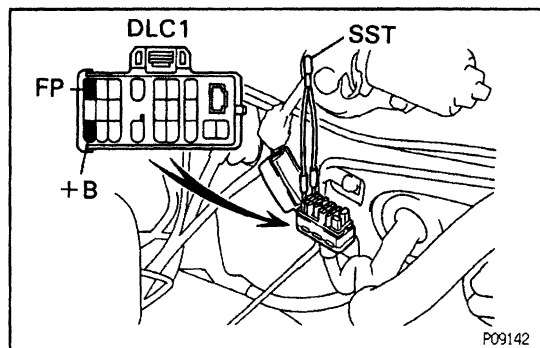
- (f) Install the grommet and a new O-ring to the injector.

- (g) Connect SST (union and hose) to the injector, and hold the injector and union with SST (clamp).

SST 09268-41045

- (h) Put the injector into the graduated cylinder.

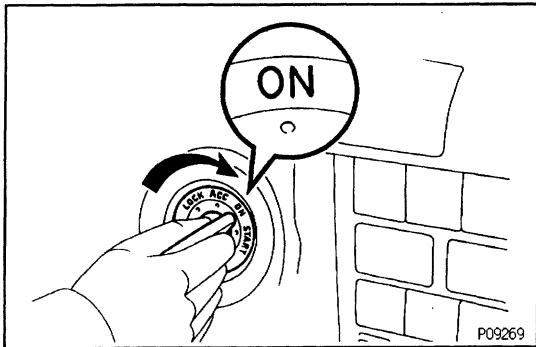
HINT: Install a suitable vinyl hose onto the injector to prevent gasoline from splashing out.



- (i) Using SST, connect terminals +B and FP of the DLC1.

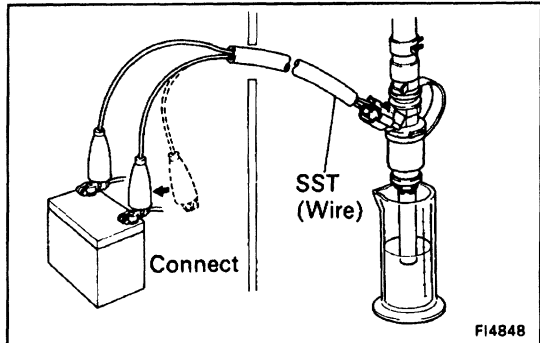
SST 09843-18020

- (j) Reconnect the battery negative (-) cable.



(k) Turn the ignition switch ON.

NOTICE: Do not start the engine.



- (l) 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

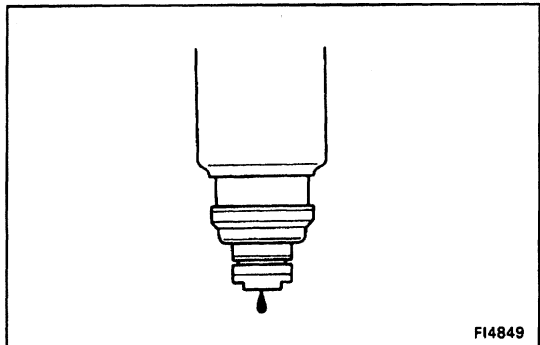
Volume:

66 - 82 cm³ (4.0 - 5.0 cu in.) per 15 seconds

Difference between each injector:

5 cm³ (0.3 cu in.) or less

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



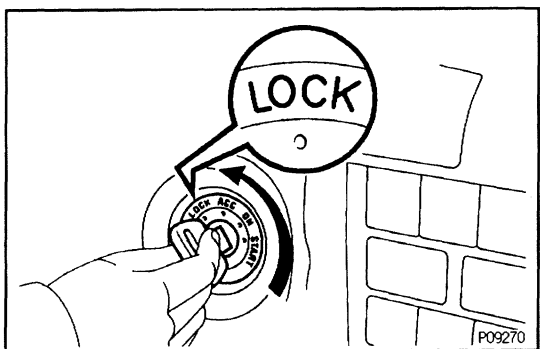
2. INSPECT LEAKAGE

- (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:

One drop or less per minute



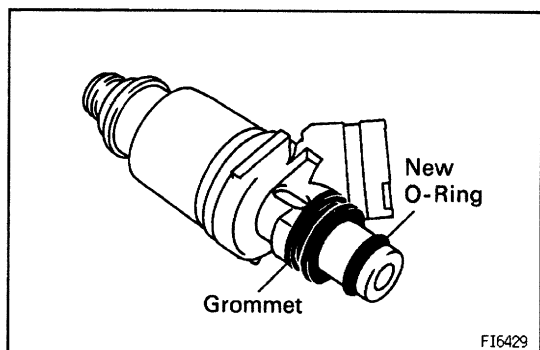
- (b) Turn the ignition switch to LOCK.

- (c) Disconnect the battery negative (-) cable.

- (d) Remove SST.

SST 09268-41045, 09843-18020

- (e) Reinstall the fuel pressure regulator to the delivery pipe.

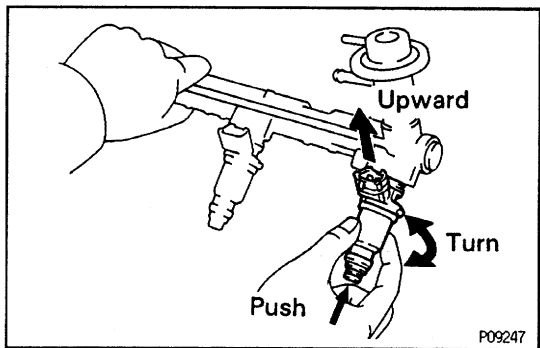


INJECTORS INSTALLATION

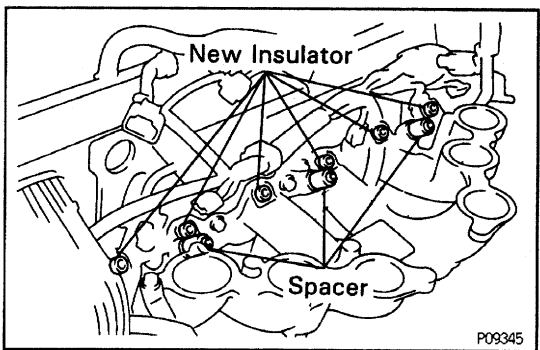
(See Components for Removal and Installation)

1. INSTALL INJECTORS AND DELIVERY PIPE

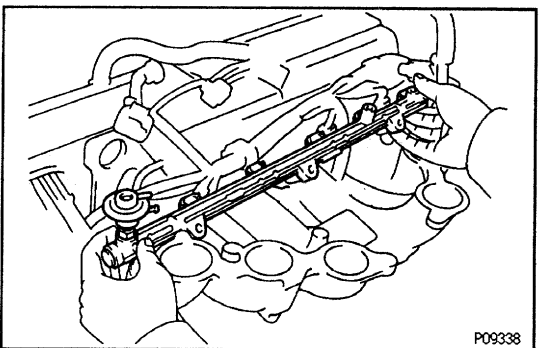
- (a) Install a new grommet to the injector.
- (b) Apply a light coat of gasoline to a new O-ring and install it to the injector.



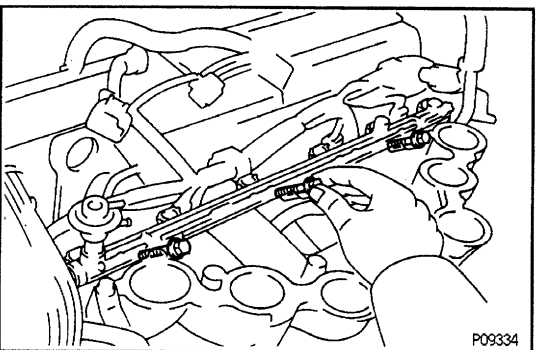
- (c) While turning the injector left and right, install it to the delivery pipe. Install the 6 injectors.
- (d) Position the injector connector upward.



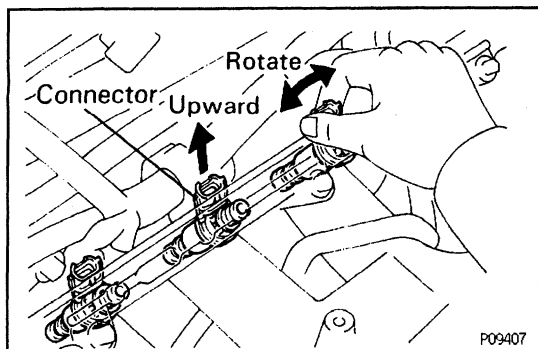
- (e) Place 6 new insulators and the 3 spacers in position on the intake manifold.



- (f) Place the 6 injectors together with the delivery pipe in position on the intake manifold.

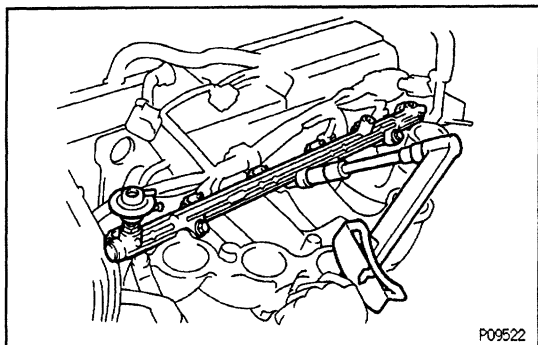


- (g) Temporarily install the 3 bolts holding the delivery pipe to the intake manifold.



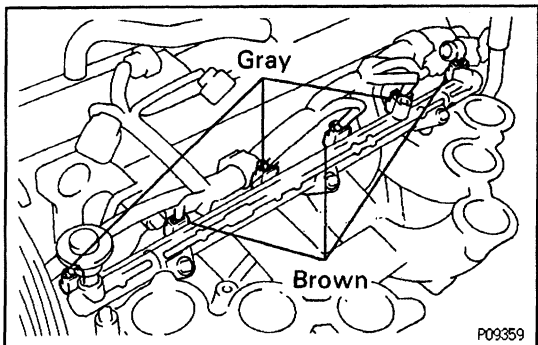
(h) Check that the injectors rotate smoothly.
HINT: If injectors do not rotate smoothly, the probable cause is incorrect installation of O-rings. Replace the O-rings.

(i) Position the injector connector upward.

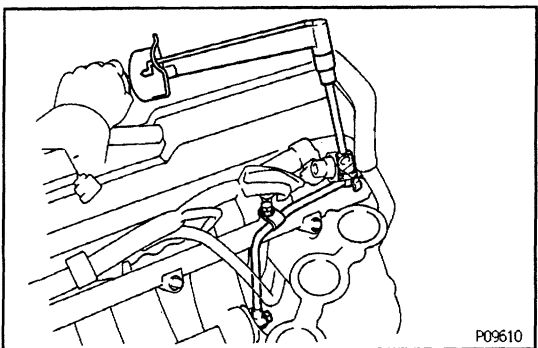


(j) Tighten the 3 bolts holding the delivery pipe to the intake manifold.

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



(k) Connect the 6 injector connectors as shown.



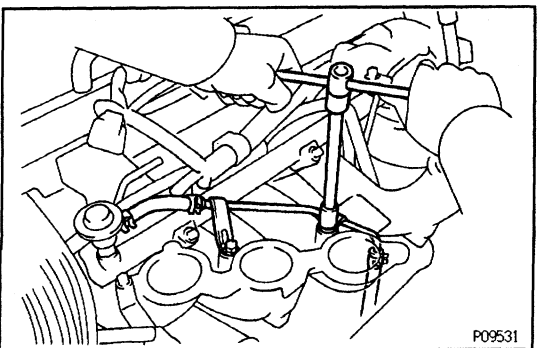
2. INSTALL FUEL INLET PIPE

Install the fuel inlet pipe with 4 new gaskets, the 2 union bolts and bolt.

Torque:

29 N-m (300 kgf-cm, 22 ft-lbf) for union bolt

20 N-m (200 kgf-cm, 14 ft-lbf) for bolt

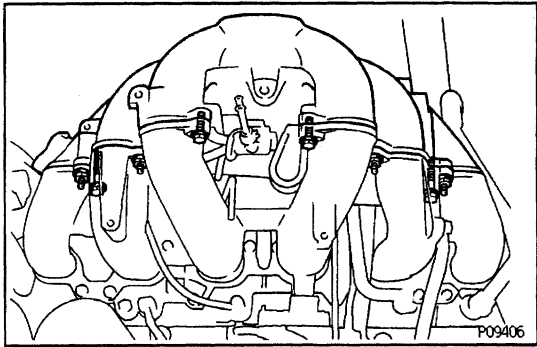


3. INSTALL FUEL RETURN PIPE

(a) Install the fuel return pipe with the 2 bolts.

Torque: 20 N-m (200 kgf-cm, 14 ft-lbf)

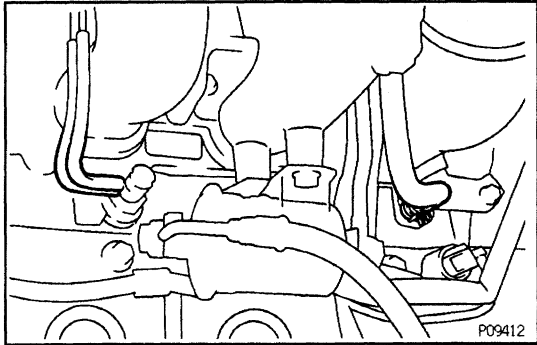
(b) Connect the fuel hose to the fuel pressure regulator.



4. INSTALL AIR INTAKE CHAMBER

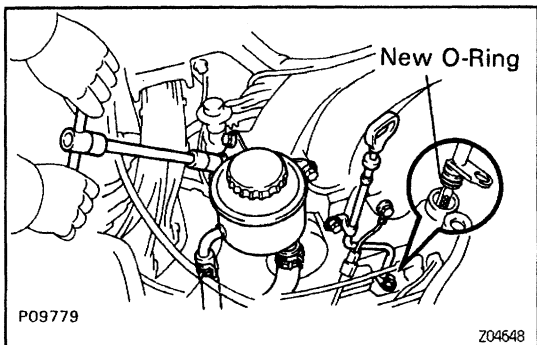
(a) Install 2 new gaskets and the air intake chamber with the 4 bolts and 4 nuts.

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



(b) Connect the No.1 water bypass hose to the cylinder head.

(c) Connect the 2 vacuum hoses to the TVV.



5. CONNECT GROUND STARP

6. INSTALL ENGINE OIL DIPSTICK AND GUIDE

(a) Install a new O-ring to the dipstick guide.

(b) Apply light coat of engine oil on the O-ring.

(c) Push in the dipstick guide into the guide hole of the oil pan.

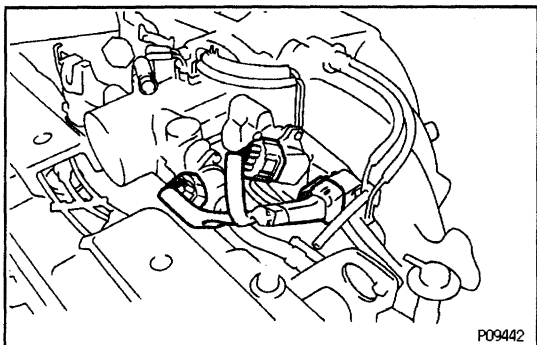
(d) Install the dipstick guide with the 2 bolts.

Torque: 20 N-m (200 kgf-cm, 14 ft-lbf)

7. CONNECT PS RESERVOIR TANK

Connect the reservoir tank with the 3 bolts.

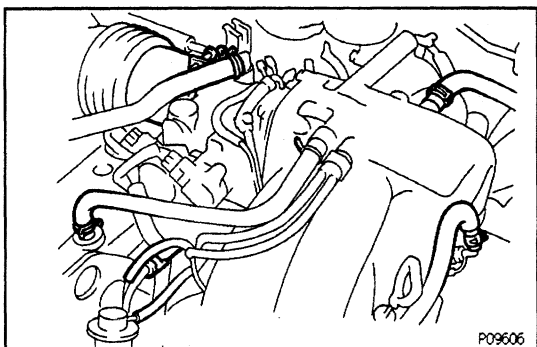
Torque: 18 N-m (185 kgf-cm, 13 ft-lbf)



8. CONNECT CONNECTOR FOR EMISSION CONTROL VALVE SET ASSEMBLY

9. CONNECT IDLE AIR CONTROL VALVE CONNECTOR

10. CONNECT THROTTLE POSITION SENSOR CONNECTOR



11. CONNECT BRAKE BOOSTER HOSE

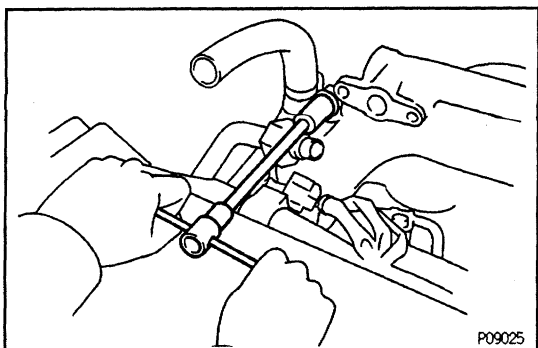
12. CONNECT EVAP HOSE

13. CONNECT NO.2 WATER BYPASS HOSE

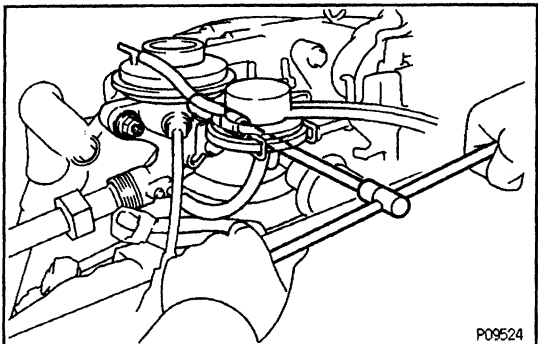
14. CONNECT VACUUM HOSES

15. CONNECT NO.1 AND NO.2 PCV HOSES

16. CONNECT AIR CLEANER HOSE

**17. INSTALL BOLT HOLDING HEATER INLET PIPE AND AIR INTAKE CHAMBER**

Torque: 20 N-m (200 kgf-14 ft-lbf)

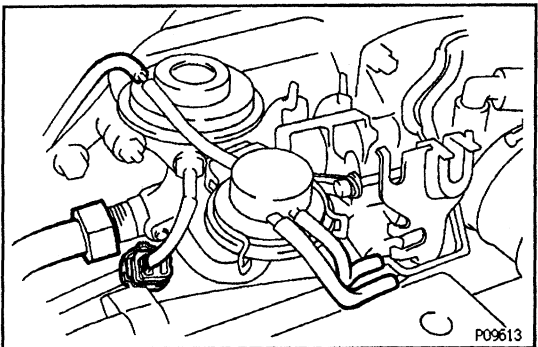
**18. INSTALL EGR VALVE AND VACUUM MODULATOR**

(a) Temporarily install a new gasket, and EGR valve and vacuum modulator assembly with the 2 stud bolts.

Torque: 10 N-m (105 kgf-cm, 8 ft-lbf)

(b) Install the 2 nuts holding the EGR valve to the air intake chamber.

Torque: 19 N-m (195 kgf-cm, 14 ft-lbf)

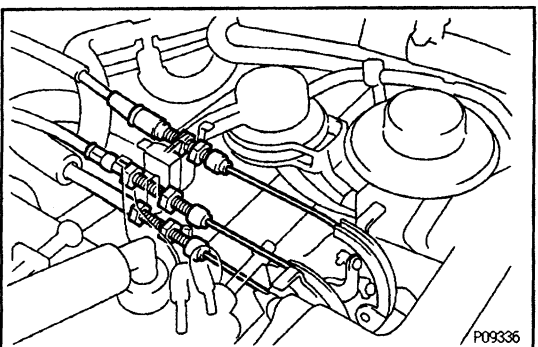


(c) Tighten the union nut of the EGR pipe.

Torque: 64 N-m (650 kgf-cm, 47 ft-lbf)

(d) Connect the EGR gas temp. sensor connector.

(e) Connect the 3 vacuum hoses.

**19. CONNECT THROTTLE CABLE****20. CONNECT ACCELERATOR CABLE****21. CONNECT CRUISE CONTROL ACTUATOR CABLE****22. FILL WITH ENGINE COOLANT****23. CONNECT NEGATIVE TERMINAL CABLE TO BATTERY****24. RECHECK ENGINE COOLANT LEVEL**