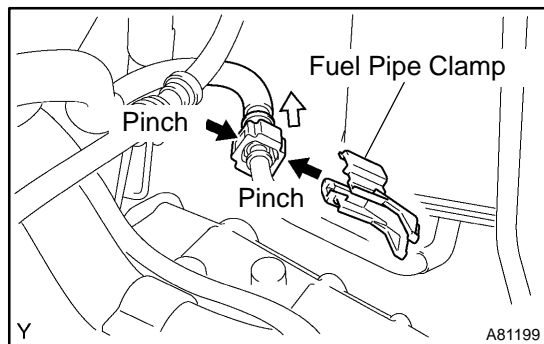


KNOCK SENSOR (1MZ-FE/3MZ-FE)

100K1-02

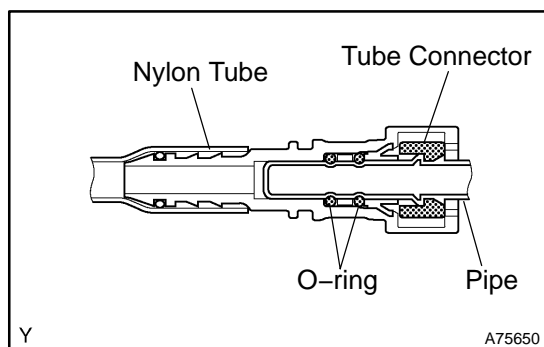
REPLACEMENT

1. DISCHARGE FUEL SYSTEM PRESSURE (See page 11-26)
2. DRAIN ENGINE COOLANT (See page 16-27)
3. REMOVE V-BANK COVER SUB-ASSY (See page 10-18)
4. REMOVE AIR CLEANER CAP SUB-ASSY (See page 10-18)
5. REMOVE EMISSION CONTROL VALVE SET (See page 11-38)
6. REMOVE INTAKE AIR SURGE TANK (See page 11-38)



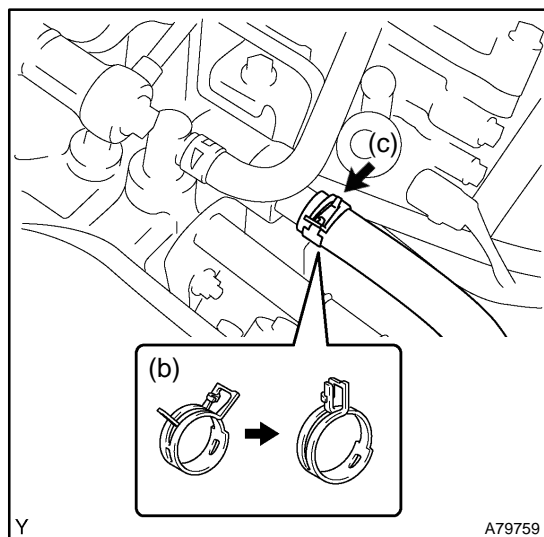
7. REMOVE INTAKE MANIFOLD

- (a) Disconnect the fuel pipe No. 1.
 - (1) Remove the fuel pipe clamp.
 - (2) Pinch the tube connector and then pull out the fuel pipe No. 1.

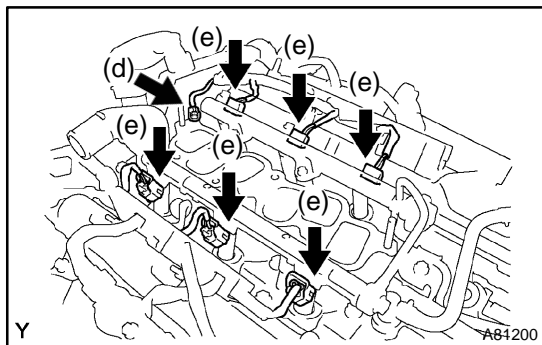


NOTICE:

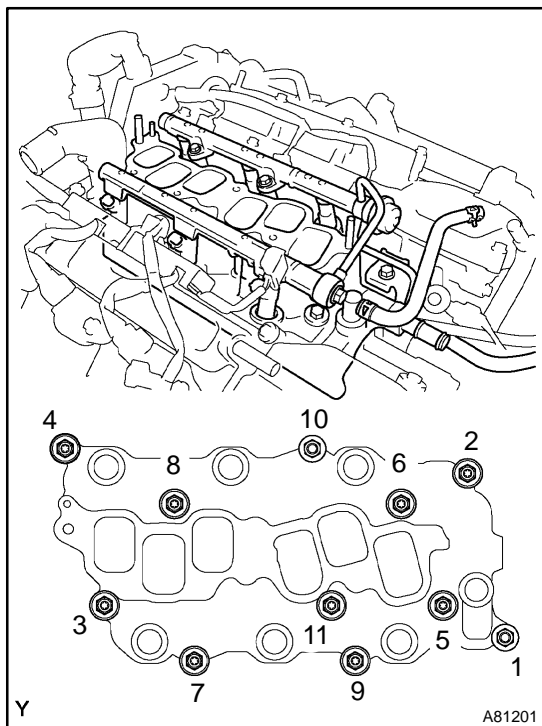
- Check the connector for dirt, mud or other contamination. Clean if necessary.
- Be sure to keep the tube connector, pipe and O-ring clean. They can become contaminated easily.
- Do not use tools when disconnecting the fuel pipe.
- Do not bend or twist the nylon tube. Protect the connector by covering it with a vinyl or plastic bag.
- When the pipe and the connector are stuck, push and pull the connector to release it. Then pull the connector out carefully.



- (b) Lock the hose clamp, as shown in the illustration.
- (c) Disconnect the heater inlet water hose.



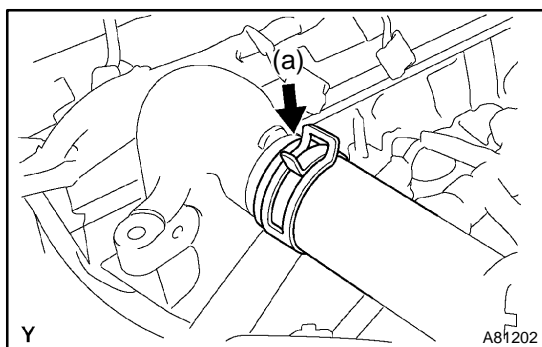
- (d) Remove the nut and disconnect the ground cable.
- (e) Disconnect the 6 fuel injector connectors.



- (f) Loosen and remove the intake manifold's 9 bolts and 2 nuts little by little in the numerical order shown in the illustration.
- (g) Remove the intake manifold.

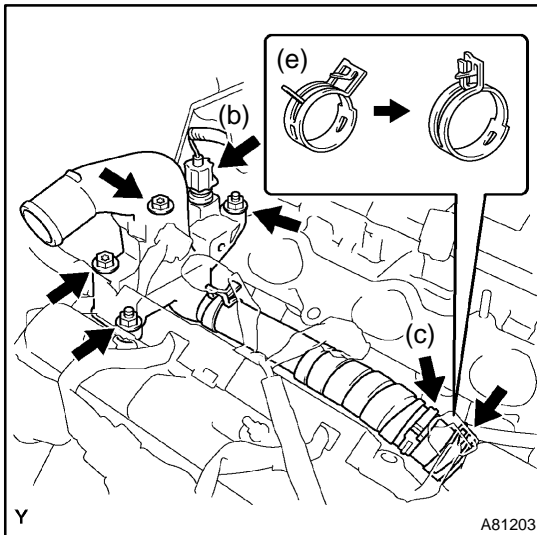
NOTICE:

Fully removing each bolt and nut one by one may damage the intake manifold, bolts and nuts.

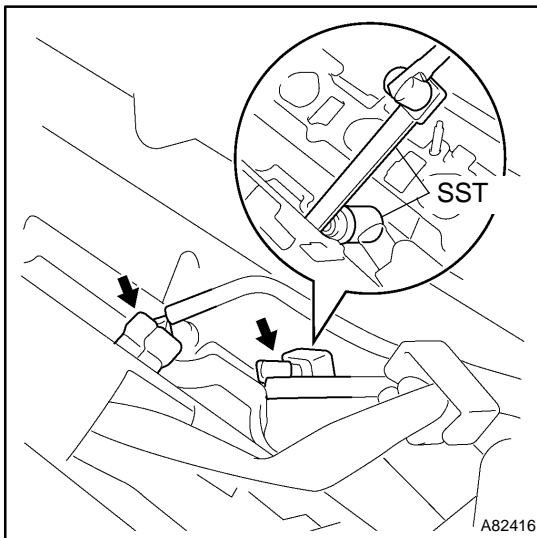


8. REMOVE WATER OUTLET

- (a) Disconnect the radiator hose inlet.

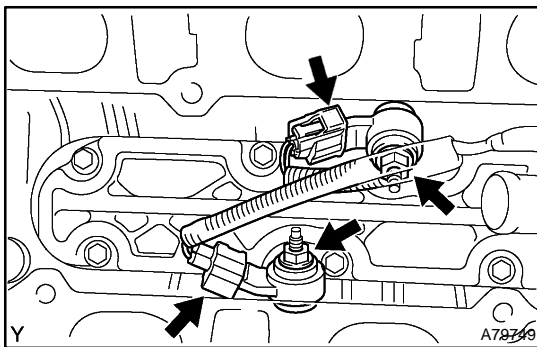


- (b) Disconnect the ECT sensor connector.
- (c) Remove the clamp.
- (d) Remove the 2 bolts, 2 nuts and 2 washers.
- (e) Lock the hose clamp as shown in the illustration. Then remove the water outlet together with the water bypass hose No. 1.
- (f) Remove the 2 gaskets from the 2 cylinder heads.



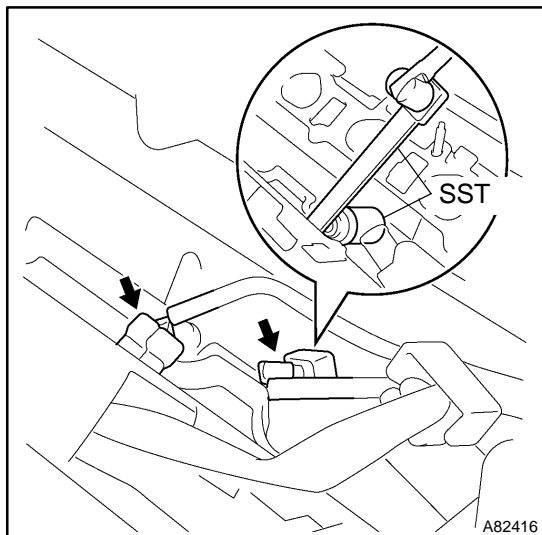
9. REMOVE KNOCK SENSOR (1MZ-FE ENGINE TYPE)

- (a) Disconnect the 2 knock sensor connectors.
- (b) Using SST, remove the 2 knock sensors.
SST 09249-63010, 09816-30010

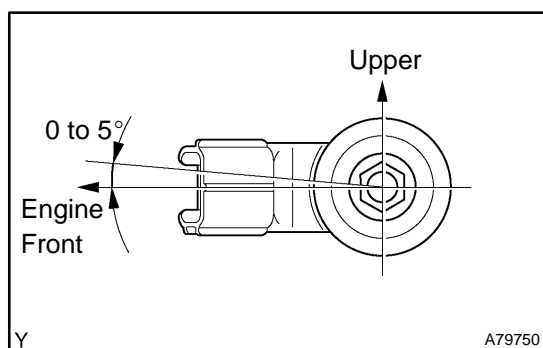


10. REMOVE KNOCK SENSOR (3MZ-FE ENGINE TYPE)

- (a) Disconnect the 2 knock sensor connectors.
- (b) Remove the 2 nuts and 2 knock sensors.

**11. INSTALL KNOCK SENSOR (1MZ-FE ENGINE TYPE)**

- (a) Using SST, install the 2 knock sensors.
SST 09249-63010, 09816-30010
Torque: 39 N·m (398 kgf·cm, 29 ft·lbf)
- (b) Connect the 2 knock sensors.

**12. INSTALL KNOCK SENSOR (3MZ-FE ENGINE TYPE)**

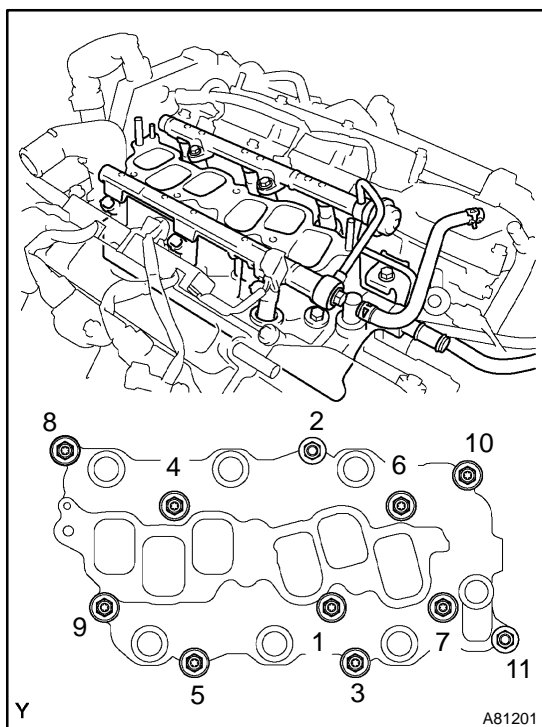
- (a) Install the 2 knock sensors with the 2 nuts, as shown in the illustration.

Torque: 20 N·m (199 kgf·cm, 14 ft·lbf)

- (b) Connect the 2 knock sensor connectors.

13. INSTALL WATER OUTLET

- (a) Install 2 new gaskets to the 2 cylinder heads.
- (b) Install the water outlet together with the water bypass hose No. 1 and unlock the hose clamp.
- (c) Tighten the 2 bolts, 2 nuts and 2 washers.
Torque: 15 N·m (153 kgf·cm, 11 ft·lbf)
- (d) Install the clamp.
- (e) Connect the ECT sensor connector.
- (f) Connect the radiator hose inlet.

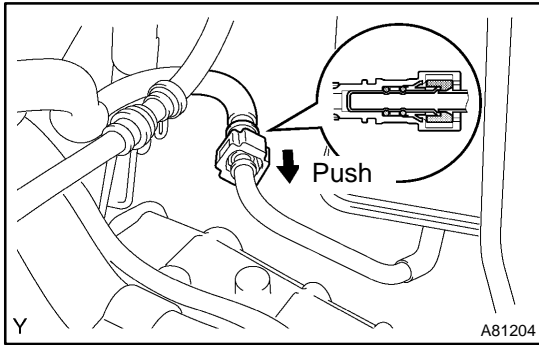
**14. INSTALL INTAKE MANIFOLD**

- (a) Tighten the intake manifold's 9 bolts and 2 nuts little by little in the numerical order shown in the illustration.
Torque: 15 N·m (153 kgf·cm, 11 ft·lbf)

NOTICE:

In this case, fully tightening one of these bolts or nuts without partially tightening the other bolts or nuts in the group may damage the intake manifold, bolts and nuts.

- (b) Retighten the water outlet mounting bolts and nuts.
Torque: 15 N·m (153 kgf·cm, 11 ft·lbf)
- (c) Install the ground cable with the nut.
Torque: 8.4 N·m (86 kgf·cm, 74 in·lbf)
- (d) Connect the heater inlet water hose.



- (e) Connect the fuel pipe No. 1.
- (1) Push the quick connector into the pipe until it makes "click" sound.

NOTICE:

- Check if there is any damage or contamination on the connected part.
 - After connecting, confirm that the connector and pipe are securely connected by trying to pull them apart.
- (2) Install the fuel pipe clamp.

15. INSTALL INTAKE AIR SURGE TANK (See page 11-38)
16. INSTALL EMISSION CONTROL VALVE SET (See page 11-38)
17. INSTALL AIR CLEANER CAP SUB-ASSY (See page 10-18)
18. CHECK CONNECTION OF VACUUM HOSE
19. ADD ENGINE COOLANT (See page 16-27)
20. CHECK FOR ENGINE COOLANT LEAKS (See page 16-21)
21. CHECK FOR FUEL LEAKS (See page 11-29)
22. INSTALL V-BANK COVER SUB-ASSY (See page 10-18)