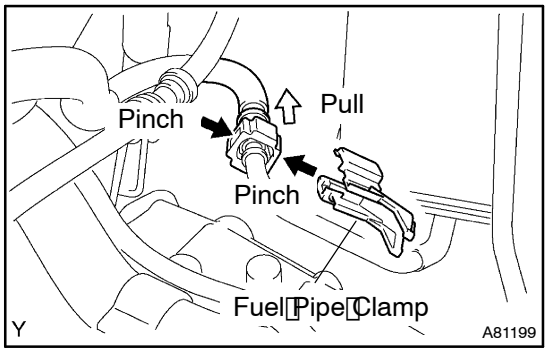
# KNOCK SENSOR (3MZ–FE)

100NW–01

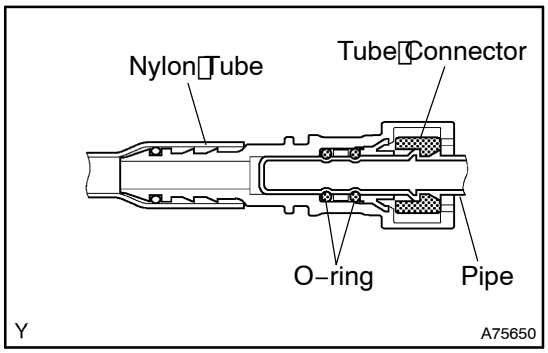
## REPLACEMENT

1. **DISCHARGE FUEL SYSTEM PRESSURE (See page 11–1)**
2. **DRAIN ENGINE COOLANT (See page 16–7)**
3. **REMOVE V–BANK COVER SUB–ASSY (See page 14–24)**
4. **REMOVE AIR CLEANER CAP SUB–ASSY (See page 14–24)**
5. **REMOVE EMISSION CONTROL VALVE SET (See page 14–24)**
6. **REMOVE INTAKE AIR SURGE TANK (See page 14–24)**



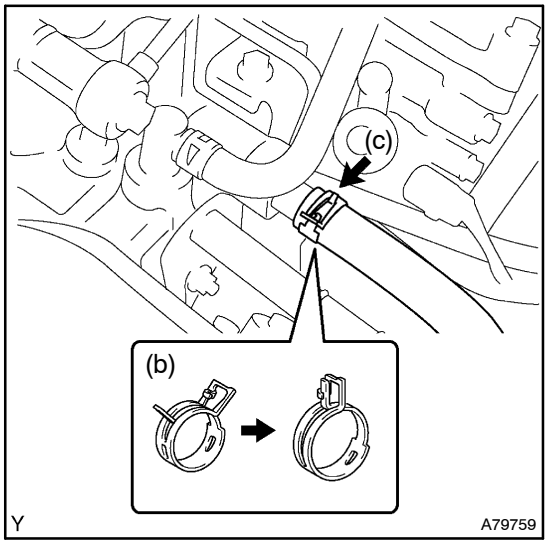

**7. REMOVE INTAKE MANIFOLD**

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

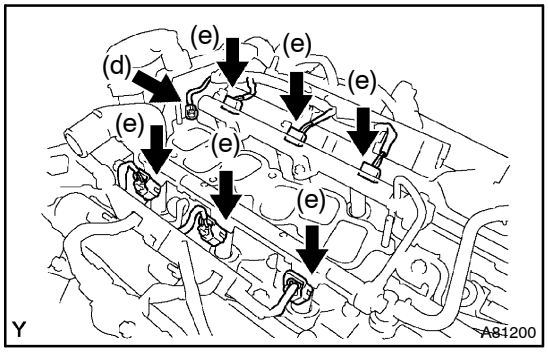



**NOTICE:**

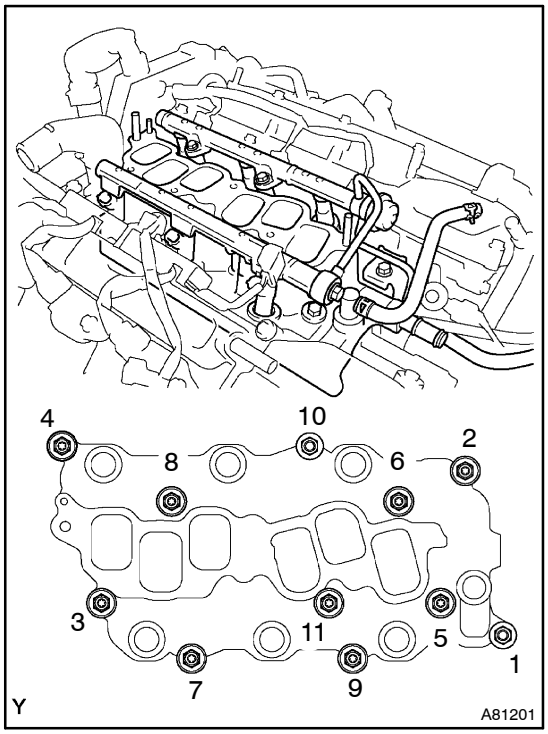
- **Check the connector for dirt, mud or other contamination. Clean if necessary.**
- **Be sure to keep the tube connector, pipe and O–ring clean. They can become contaminated easily.**
- **Do not use tools when disconnecting the fuel pipe.**
- **Do not bend or twist the nylon tube. Protect the connector 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.

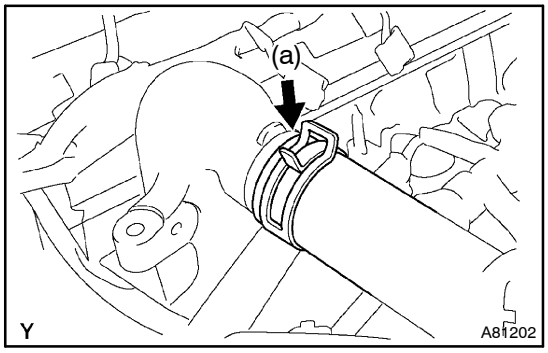



(f) Loosen and remove the intake manifold's 9 bolts and 2 nuts little by little in the numerical order shown in the illustration.
(g) Remove the intake manifold.

**NOTICE:**

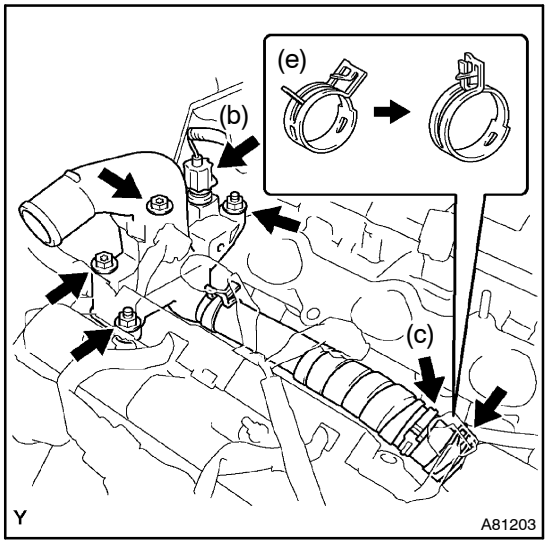
**Fully removing each bolt and nut one by one may damage the intake manifold, bolts and nuts.**

## 8. REMOVE ENGINE MOVING CONTROL ROD

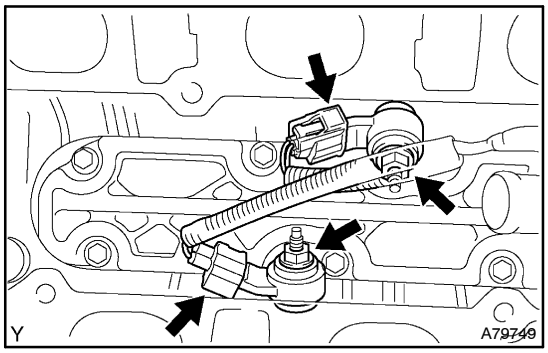



## 9. REMOVE WATER OUTLET

(a) Disconnect the radiator hose inlet.

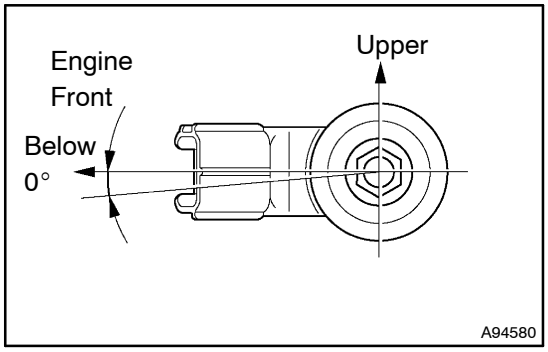



(b) Disconnect the ECT sensor connector.
(c) Remove the clamp.
(d) Remove the 2 bolts, 2 nuts and 2 washers.
(e) Lock the hose clamp as shown in the illustration. Then remove the water outlet together with the water by–pass hose No. 1.
(f) Remove the 2 gaskets from the 2 cylinder heads.




**10. REMOVE KNOCK SENSOR**

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




**11. INSTALL KNOCK SENSOR**

(a) Install the 2 sensors with the 2 nuts as shown in the illustration.
**Torque: 20 N·m (204 kgf·cm, 15 ft·lbf)**

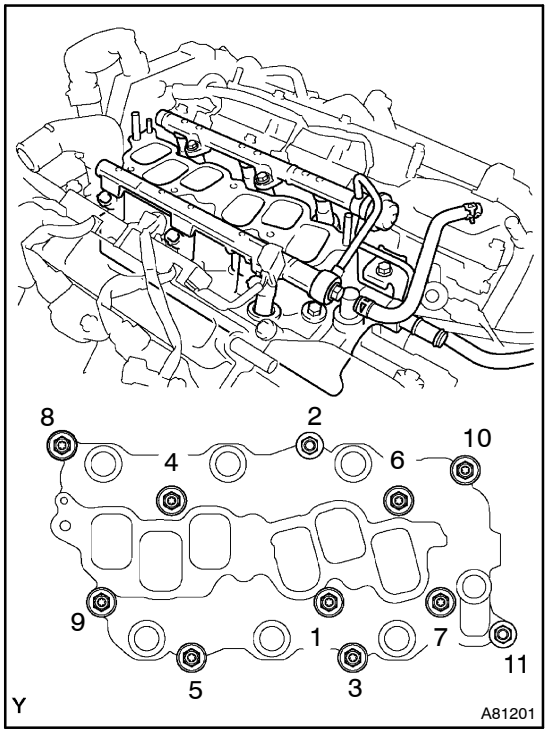
HINT:
Angling the knock sensor below the horizontal (below 0°) is recommended.

(b) Connect the 2 sensor connectors.

**12. INSTALL WATER OUTLET**

(a) Install 2 new gaskets to the 2 cylinder heads.
(b) Install the water outlet together with the water by–pass 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.

**13. INSTALL ENGINE MOVING CONTROL ROD** (See page 14–24)




**14. INSTALL INTAKE MANIFOLD**

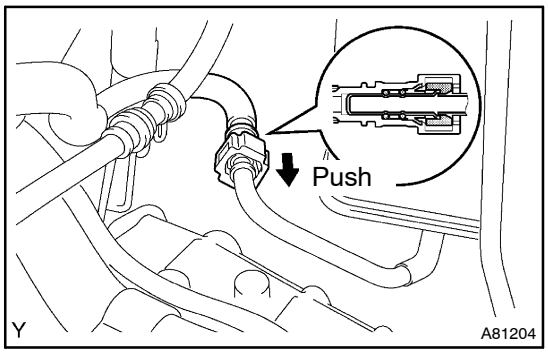
(a) Tighten the intake manifolds's 9 bolts and 2 nuts little by little in the numerical order shown in the illustration.
**Torque: 15 N·m (153 kgf·cm, 11 ft·lbf)**

**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 for 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 14–24)**
**16. INSTALL EMISSION CONTROL VALVE SET (See page 14–24)**
**17. INSTALL AIR CLEANER CAP SUB–ASSY (See page 14–24)**
**18. CHECK CONNECTION OF VACUUM HOSE**
**19. ADD ENGINE COOLANT (See page 16–7)**
**20. CHECK FOR ENGINE COOLANT LEAKS (See page 16–1)**
**21. CHECK FOR FUEL LEAKS**
**22. INSTALL V–BANK COVER SUB–ASSY (See page 14–24)**