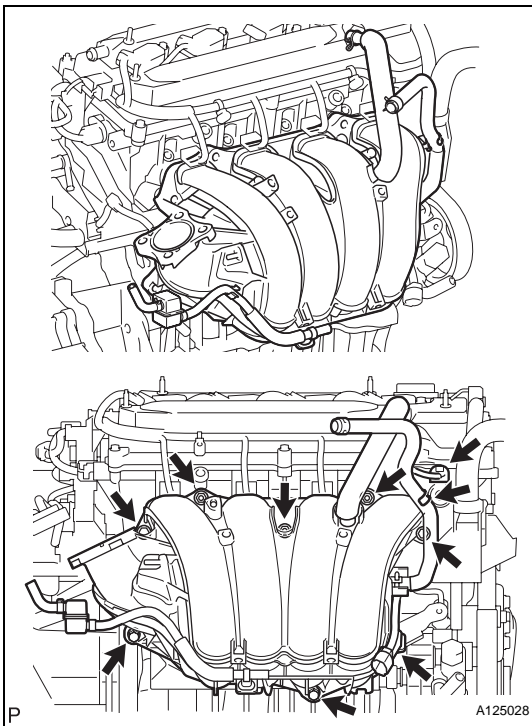


## REMOVAL

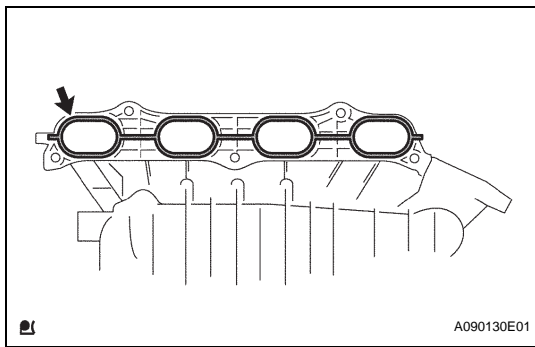
1. **DISCHARGE FUEL SYSTEM PRESSURE** (See page [FU-9](#))
2. **DRAIN COOLANT** (See page [CO-6](#))
3. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**  
**CAUTION:**  
 Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to prevent airbag and seat belt pretensioner activation.
4. **REMOVE NO. 1 ENGINE COVER** (See page [ES-410](#))
5. **REMOVE AIR CLEANER CAP** (See page [ES-411](#))
6. **REMOVE THROTTLE BODY** (See page [ES-412](#))
7. **REMOVE FUEL DELIVERY PIPE** (See page [FU-10](#))
8. **DISCONNECT FUEL TUBE**
9. **REMOVE HEATER WATER INLET HOSE**
  - (a) Remove the hose clamp.
  - (b) Remove the heater water inlet hose from the heater radiator unit and cylinder head.
10. **REMOVE HEATER WATER OUTLET HOSE**
  - (a) Remove the heater water outlet hose from the heater radiator unit and water by-pass pipe.
11. **REMOVE INTAKE MANIFOLD**
  - (a) Disconnect the union to check valve hose from the brake booster.
  - (b) Disconnect the camshaft timing oil control valve connector.
  - (c) Remove the wire harness clamp.
  - (d) Remove the union to check valve hose from the vacuum hose clamp.
  - (e) Remove the 5 bolts, 2 nuts and intake manifold.

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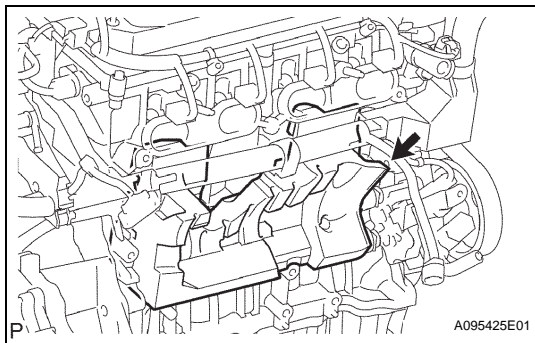


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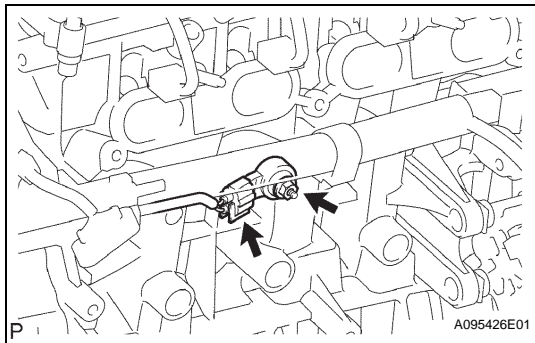


(f) Remove the gasket from the intake manifold.



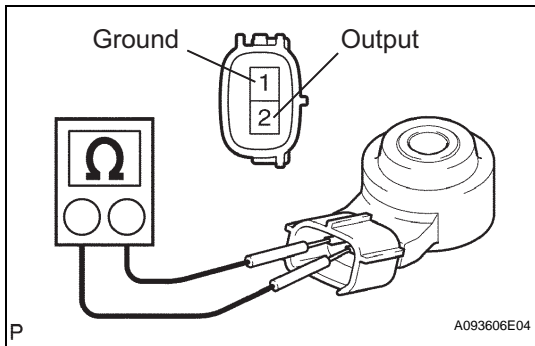
**12. REMOVE INTAKE MANIFOLD INSULATOR**

(a) Remove the intake manifold insulator from the cylinder block.



**13. REMOVE KNOCK SENSOR**

(a) Disconnect the sensor connector.  
 (b) Remove the nut and sensor.



**INSPECTION**

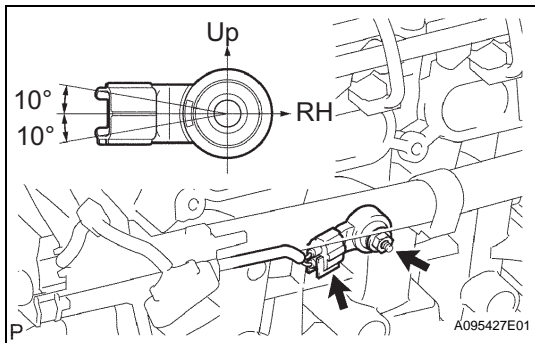
**1. INSPECT KNOCK SENSOR**

(a) Measure the resistance of the sensor.

**Standard resistance**

Tester Connection	Specified Condition
1 (Ground) - 2 (Output)	120 to 280 kΩ at 20°C (68°F)

If the result is not as specified, replace the knock sensor.



**INSTALLATION**

**1. INSTALL KNOCK SENSOR**

(a) Install the sensor with the nut.

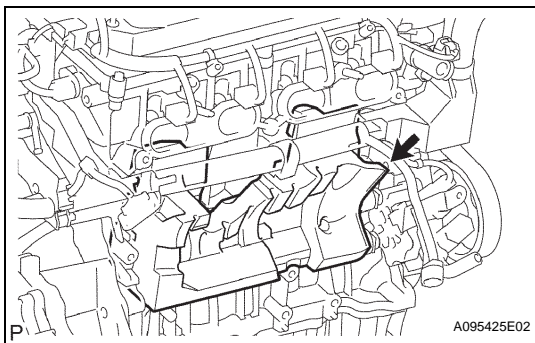
**Torque: 20 N\*m (205 kgf\*cm, 15 ft.\*lbf)**

**NOTICE:**

**Make sure that the knock sensor is in the correct position.**

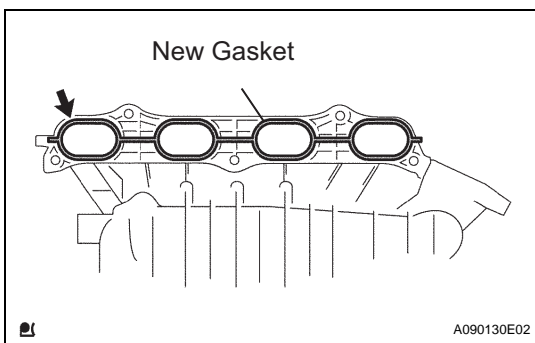
(b) Connect the sensor connector.

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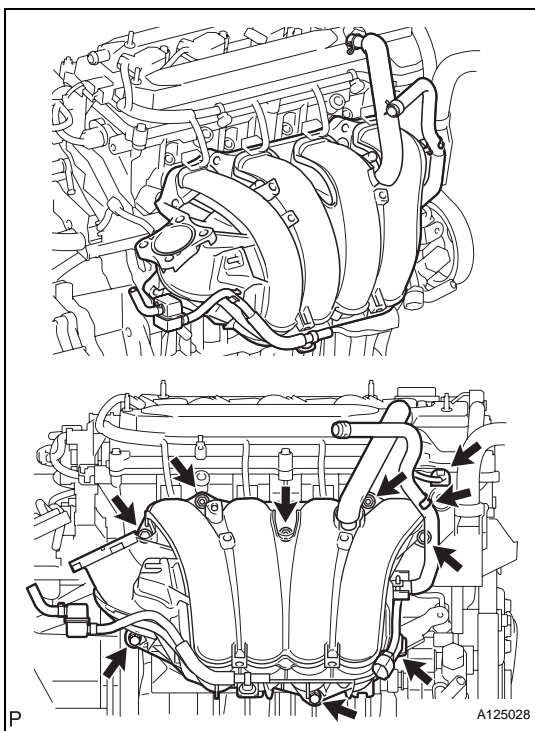
## 2. INSTALL INTAKE MANIFOLD INSULATOR

- (a) Install the intake manifold insulator onto the cylinder block.



## 3. INSTALL INTAKE MANIFOLD

- (a) Install a new gasket into the intake manifold.



- (b) Install the intake manifold with the 5 bolts and 2 nuts.  
**Torque: 30 N\*m (305 kgf\*cm, 22 ft.\*lbf)**
- (c) Fit the union to check valve hose into the vacuum hose clamp.
- (d) Install the wire harness clamp.
- (e) Connect the camshaft timing oil control valve connector.
- (f) Connect the union to check valve hose to the brake booster.

## 4. CONNECT HEATER WATER OUTLET HOSE

- (a) Install the heater water outlet hose to the water bypass pipe and heater radiator unit.

## 5. CONNECT HEATER WATER INLET HOSE

- (a) Install the heater water inlet hose to the cylinder head and heater radiator unit.
- (b) Install the hose clamp.

## 6. INSTALL FUEL TUBE

## 7. INSTALL FUEL DELIVERY PIPE (See page [FU-13](#))

## 8. INSTALL THROTTLE BODY (See page [ES-413](#))

## 9. INSTALL AIR CLEANER CAP (See page [ES-413](#))

## 10. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

## 11. ADD ENGINE COOLANT (See page [CO-6](#))

## 12. CHECK FOR ENGINE COOLANT LEAKAGE (See page [CO-1](#))

## 13. CHECK FOR FUEL LEAKAGE (See page [FU-14](#))

## 14. INSTALL NO. 1 ENGINE COVER (See page [ES-414](#))