

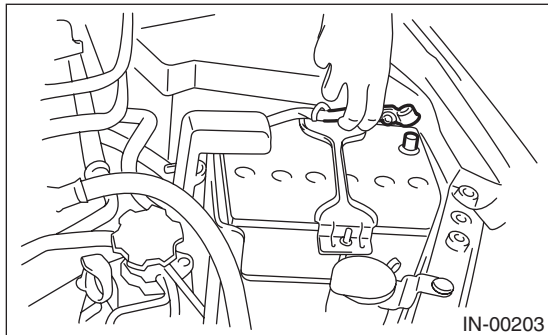
# Intake Manifold

## FUEL INJECTION (FUEL SYSTEMS)

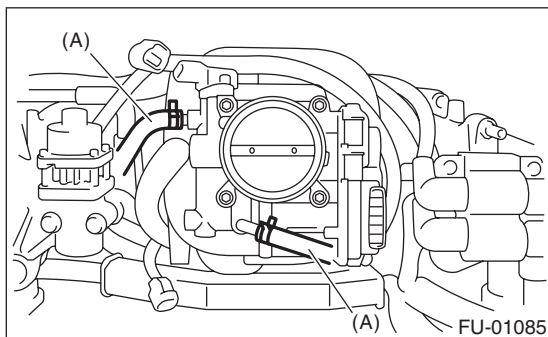
### 3. Intake Manifold

#### A: REMOVAL

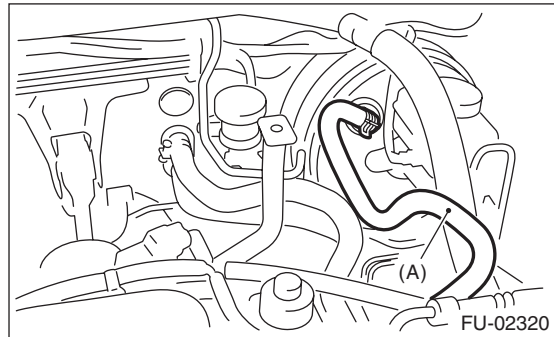
- 1) Set the vehicle on a lift.
- 2) Release the fuel pressure. <Ref. to FU(H4SO)-52, RELEASING OF FUEL PRESSURE, PROCEDURE, Fuel.>
- 3) Disconnect the ground cable from battery.



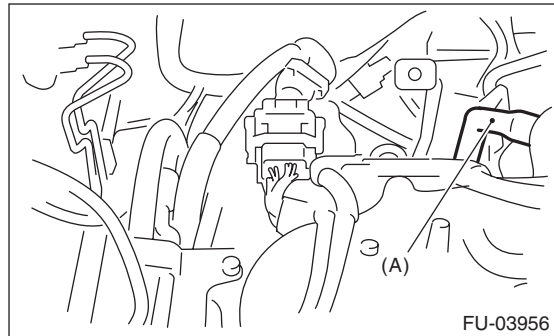
- 4) Open the fuel filler lid and remove the fuel filler cap.
- 5) Lift up the vehicle.
- 6) Remove the under cover RH.
- 7) Drain approximately 3.0 ℓ (3.2 US qt, 2.6 Imp qt) of coolant. <Ref. to CO(H4SO)-13, DRAINING OF ENGINE COOLANT, REPLACEMENT, Engine Coolant.>
- 8) Remove the air intake duct, air intake chamber and intake boot. <Ref. to IN(H4SO)-8, REMOVAL, Air Intake Duct.> <Ref. to IN(H4SO)-7, REMOVAL, Air Intake Chamber.>
- 9) Remove the generator. <Ref. to SC(H4SO)-16, REMOVAL, Generator.>
- 10) Disconnect the spark plug cord from the spark plug.
- 11) Disconnect the engine coolant hoses (A) from throttle body.



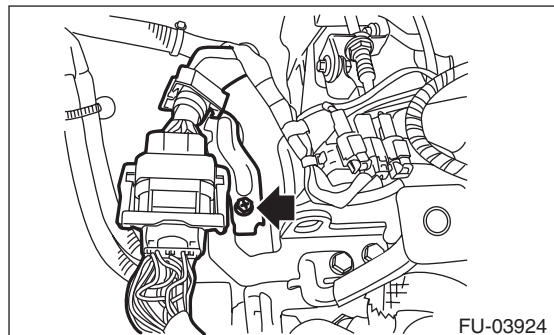
- 12) Disconnect the brake booster vacuum hose (A).



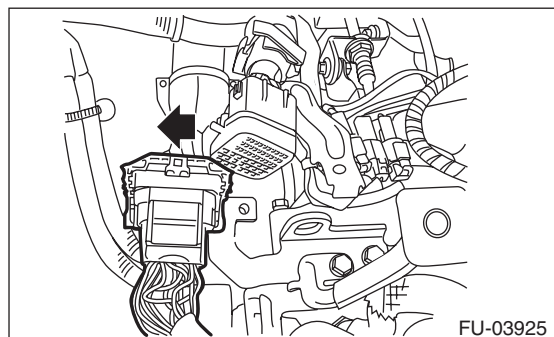
- 13) Disconnect the PCV hose (A) from intake manifold.



- 14) Remove the bolt, and disconnect the bulkhead harness connector from the engine harness connector and rear engine hanger.



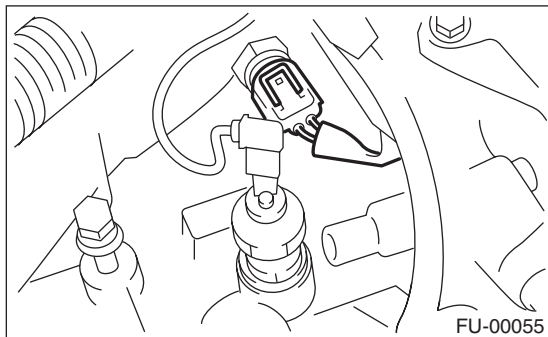
- 15) Slide the engine harness connector in the direction of the arrow and remove it from the rear engine hanger.



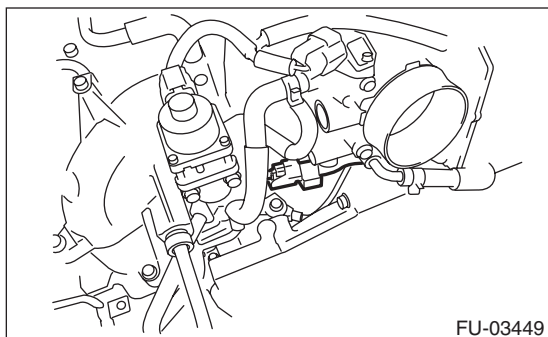
# Intake Manifold

## FUEL INJECTION (FUEL SYSTEMS)

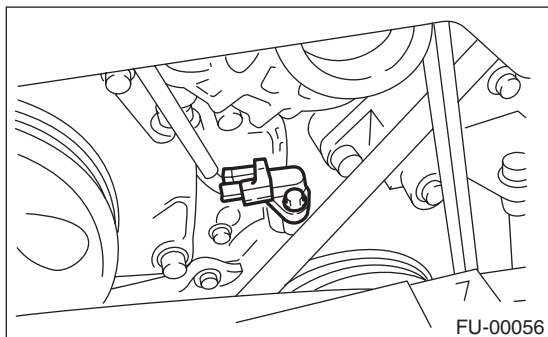
16) Disconnect the connectors from the engine coolant temperature sensor.



17) Disconnect the knock sensor connector.

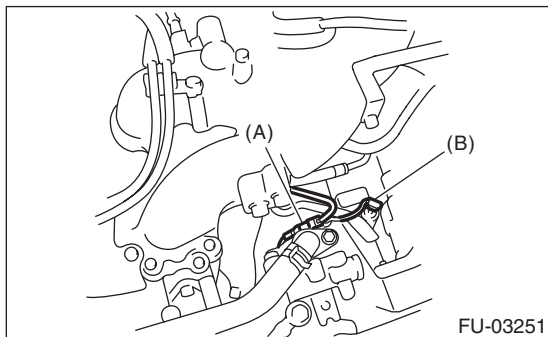


18) Disconnect the connector from crankshaft position sensor.

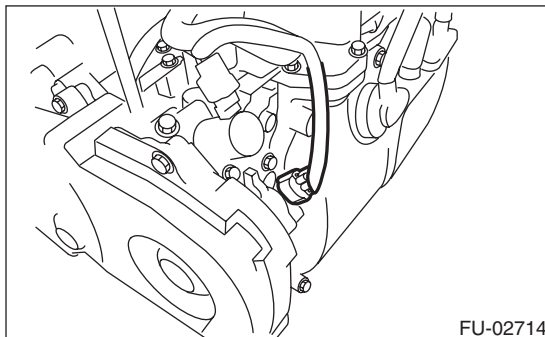


19) Disconnect the connector from power steering pump switch (A).

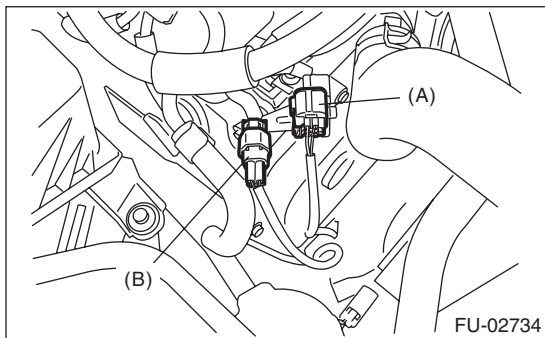
20) Disconnect the connector from the oil pressure switch (B).



21) Disconnect the connector from camshaft position sensor.



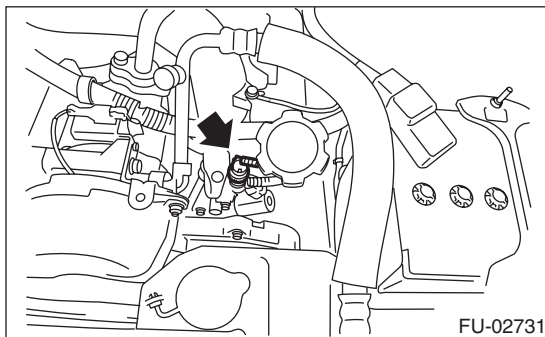
22) Disconnect the front oxygen (A/F) sensor connector (A) and rear oxygen sensor connector (B).



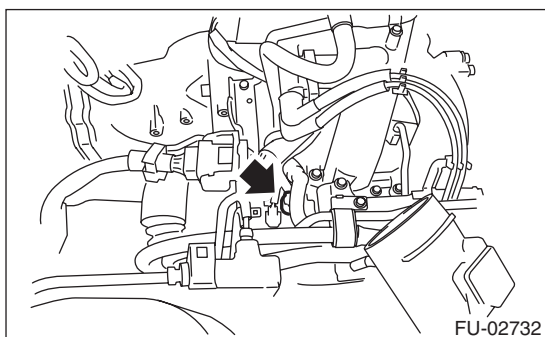
23) Disconnect the connector from the oil switching solenoid valve.

24) Disconnect the connector from the variable valve lift diagnosis oil pressure switch.

• LH side



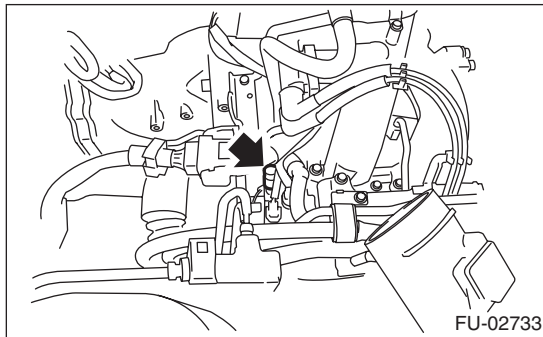
• RH side



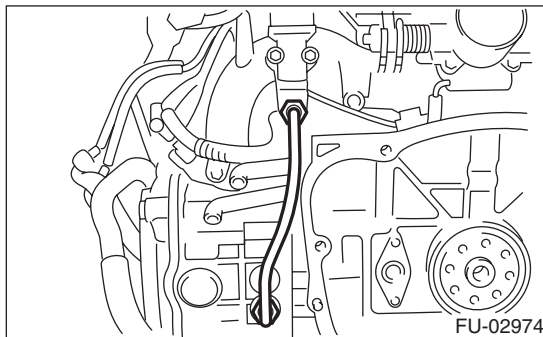
# Intake Manifold

## FUEL INJECTION (FUEL SYSTEMS)

25) Disconnect the connector from oil temperature sensor.



26) Remove the EGR pipe from intake manifold.



27) Disconnect the fuel hoses from the fuel pipe.

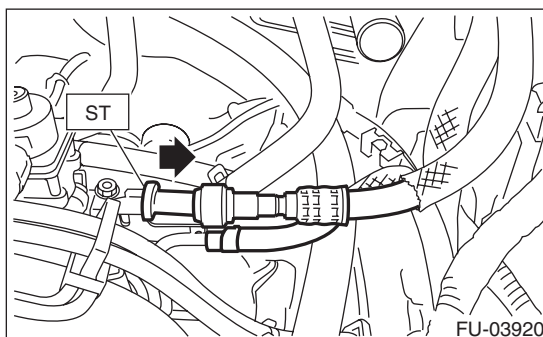
(1) Disconnect the quick connector of the fuel delivery hose by pushing the ST in the direction of the arrow.

ST 42099AE000 QUICK CONNECTOR RELEASE

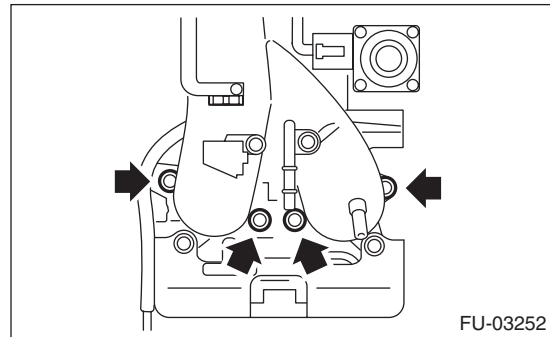
(2) Remove the clip and disconnect the evaporation hose from the fuel pipe.

### CAUTION:

- Be careful not to spill fuel.
- Catch the fuel from hoses using a container or cloth.



28) Remove the intake manifold from cylinder head.



## B: INSTALLATION

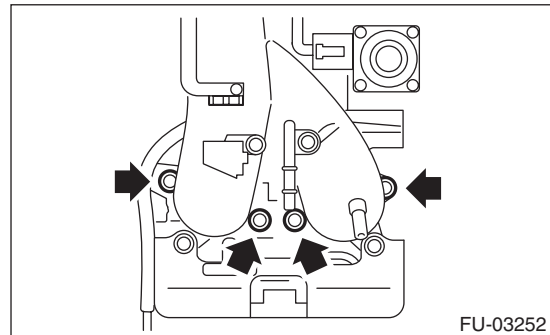
1) Install the intake manifold onto cylinder heads.

### NOTE:

Use a new gasket.

### Tightening torque:

**25 N·m (2.5 kgf-m, 18.4 ft-lb)**



2) Connect the fuel delivery hose and evaporation hose to the fuel pipe. <Ref. to FU(H4SO)-76, INSTALLATION, Fuel Delivery and Evaporation Lines.>

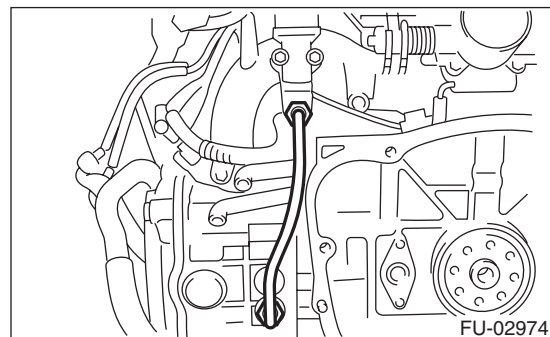
### NOTE:

If fuel hoses or clamps are damaged, replace them with new parts.

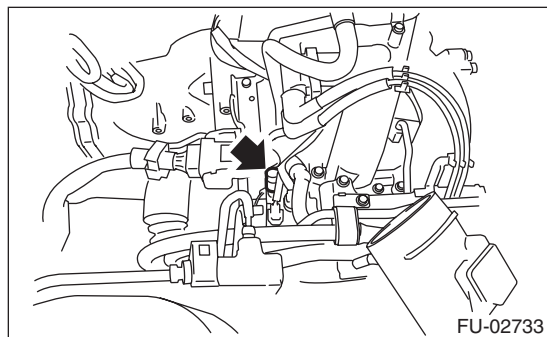
3) Install the EGR pipe to intake manifold.

### Tightening torque:

**34 N·m (3.5 kgf-m, 25.1 ft-lb)**

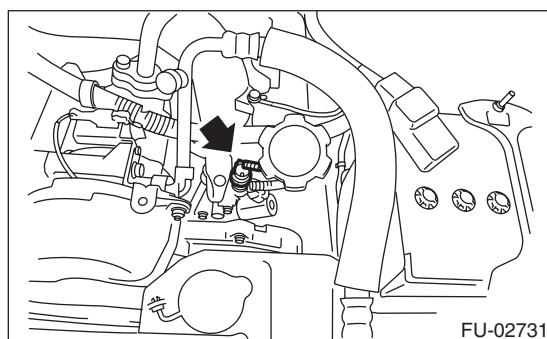


4) Connect the connector to the oil temperature sensor.

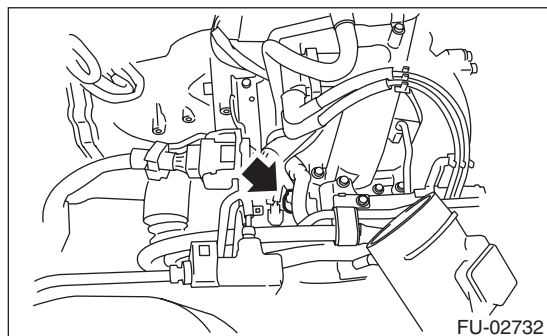


5) Connect the connector to the variable valve lift diagnosis oil pressure switch.

- LH side

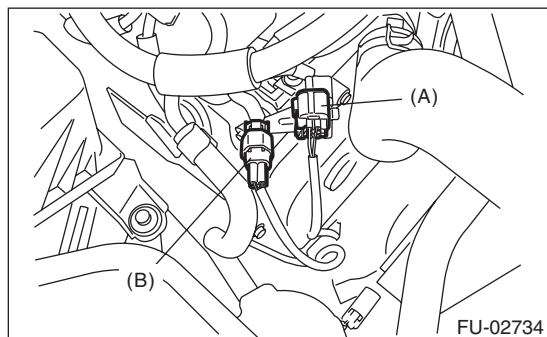


- RH side

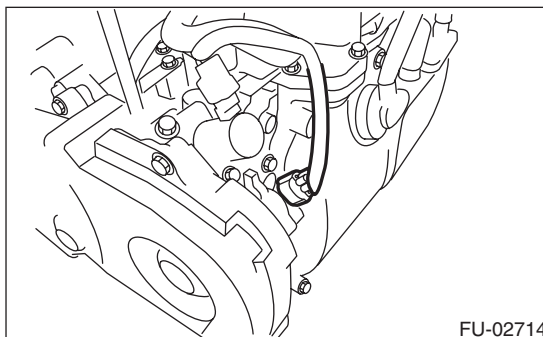


6) Connect the connector to oil switching solenoid valve.

7) Connect the front oxygen (A/F) sensor connector (A) and rear oxygen sensor connector (B).

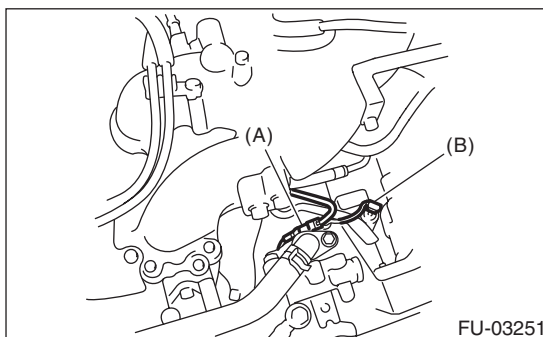


8) Connect the connectors to camshaft position sensor.

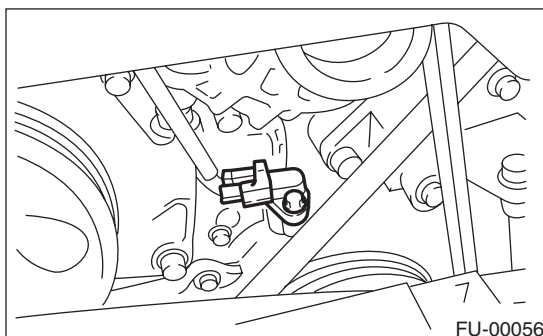


9) Connect the connector to the power steering pump switch (A).

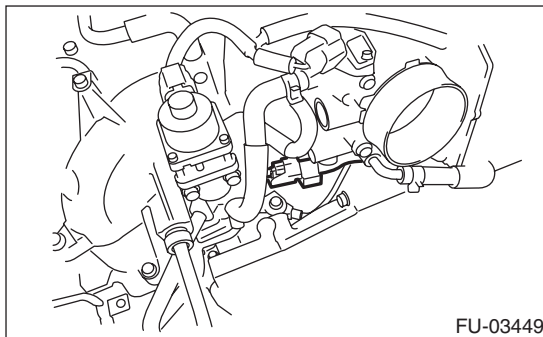
10) Connect the connector to the oil pressure switch (B).



11) Connect the connector to crankshaft position sensor.



12) Connect the knock sensor connector.

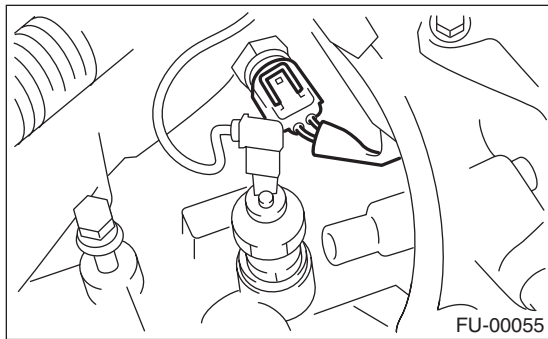




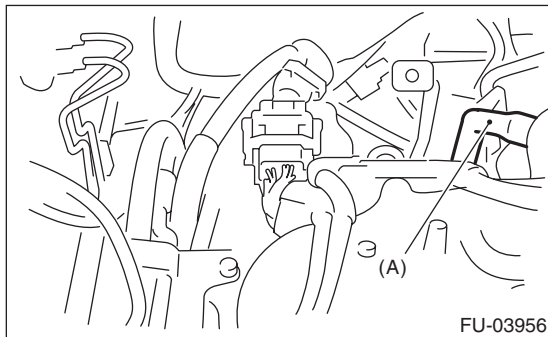
# Intake Manifold

## FUEL INJECTION (FUEL SYSTEMS)

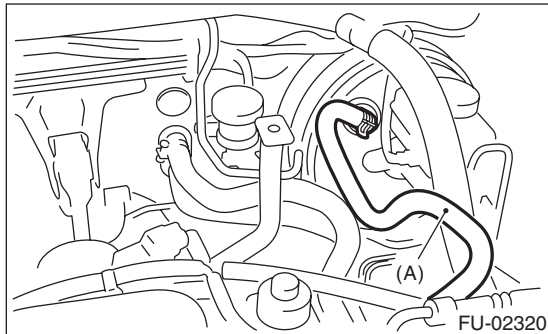
13) Connect the connector to engine coolant temperature sensor.



14) Connect the PCV hose (A) to intake manifold.



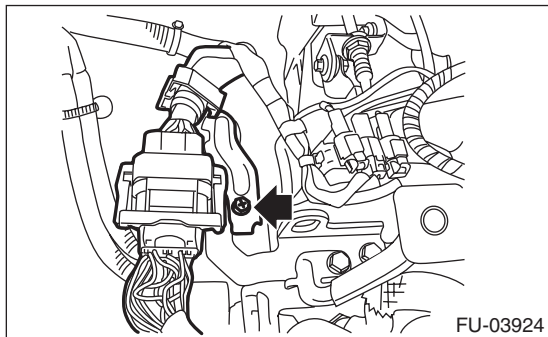
15) Connect the brake booster hose (A).



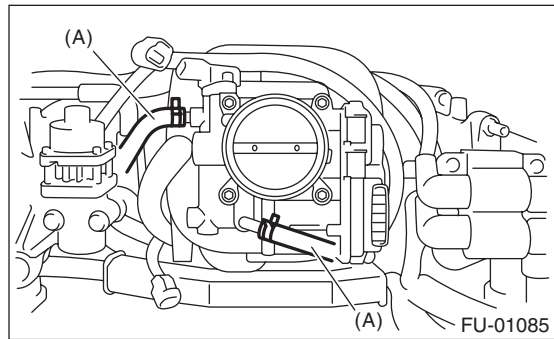
16) Connect the engine harness connector to the bulkhead harness connector and fasten to the rear engine hanger with bolt.

**Tightening torque:**

**6.4 N·m (0.7 kgf-m, 4.7 ft-lb)**



17) Connect the engine coolant hose (A) to throttle body.

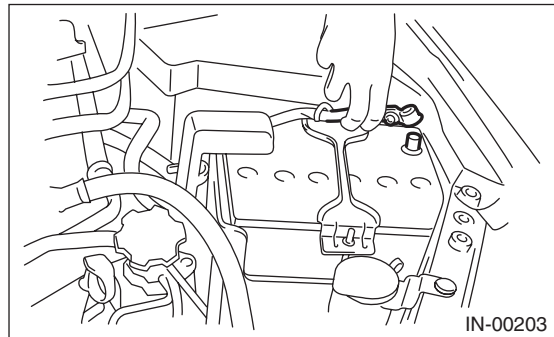


18) Connect the spark plug cords to spark plugs.

19) Install the generator. <Ref. to SC(H4SO)-16, INSTALLATION, Generator.>

20) Install the air intake duct, air intake chamber and intake boot. <Ref. to IN(H4SO)-8, INSTALLATION, Air Intake Duct.> <Ref. to IN(H4SO)-7, INSTALLATION, Air Intake Chamber.>

21) Connect the ground cable to battery.



22) Lift up the vehicle.

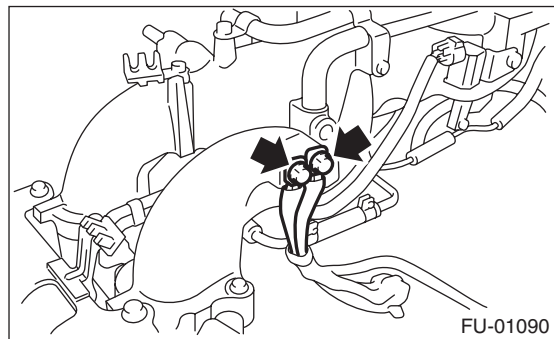
23) Install the under cover.

24) Lower the vehicle.

25) Fill engine coolant. <Ref. to CO(H4SO)-13, DRAINING OF ENGINE COOLANT, REPLACEMENT, Engine Coolant.>

## C: DISASSEMBLY

1) Disconnect the engine ground terminal from the intake manifold.

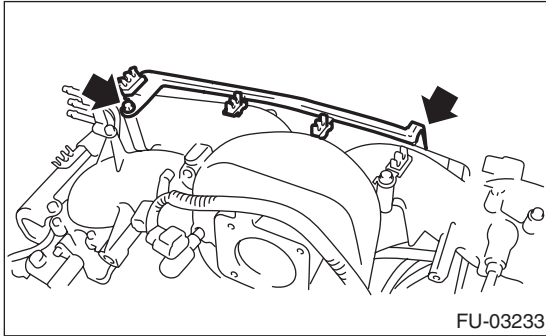


2) Remove the ignition coil and ignitor assembly. <Ref. to IG(H4SO)-6, REMOVAL, Ignition Coil and Ignitor Assembly.>

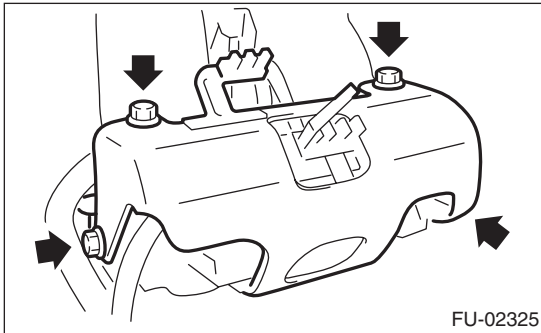
# Intake Manifold

## FUEL INJECTION (FUEL SYSTEMS)

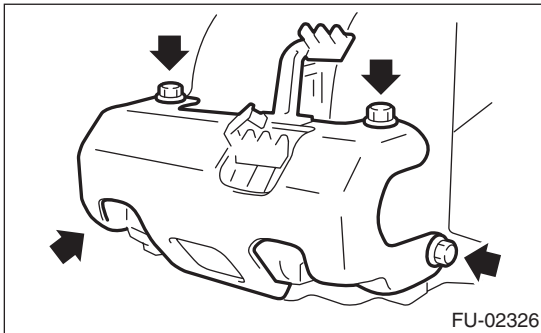
- 3) Remove the throttle body. <Ref. to FU(H4SO)-14, REMOVAL, Throttle Body.>
- 4) Remove the EGR valve. <Ref. to FU(H4SO)-35, REMOVAL, EGR Valve.>
- 5) Remove the plug cord stay.



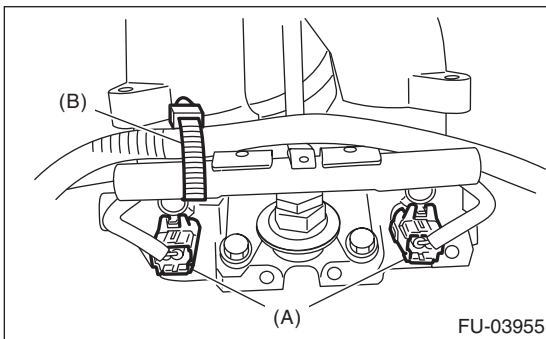
- 6) Remove the fuel pipe protector LH.



- 7) Remove the fuel pipe protector RH.

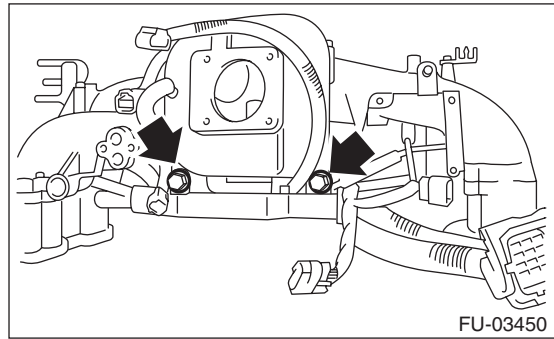


- 8) Disconnect the connectors (A) from fuel injector.
- 9) Remove the harness band (B) which holds the engine harness to the fuel injector pipe.



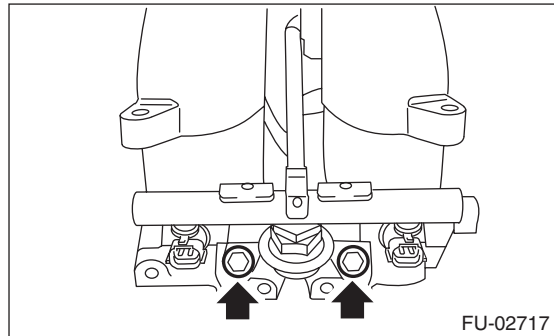
- 10) Remove the purge control solenoid valve. <Ref. to EC(H4SO)-9, REMOVAL, Purge Control Solenoid Valve.>

- 11) Remove the bolts which hold engine harness onto intake manifold.

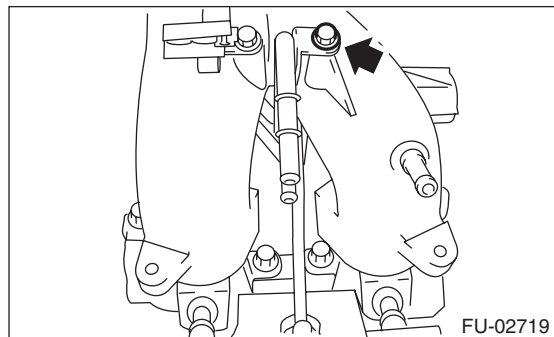
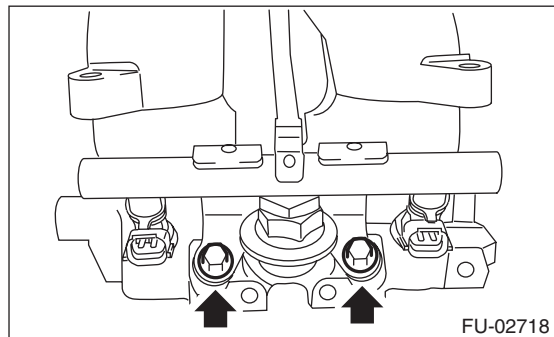


- 12) Remove the engine harness from intake manifold.
- 13) Remove the bolts which hold fuel injector pipe on the intake manifold as shown in the figure.

- RH side



- LH side

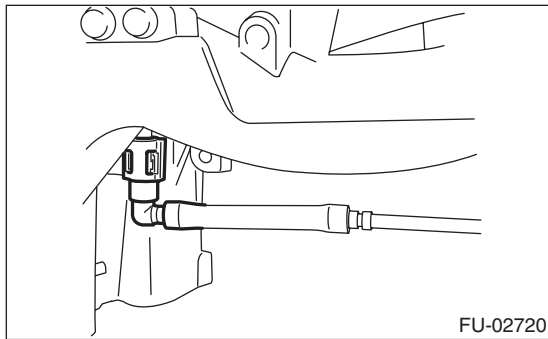


- 14) Remove the fuel injectors from the fuel injector pipe.

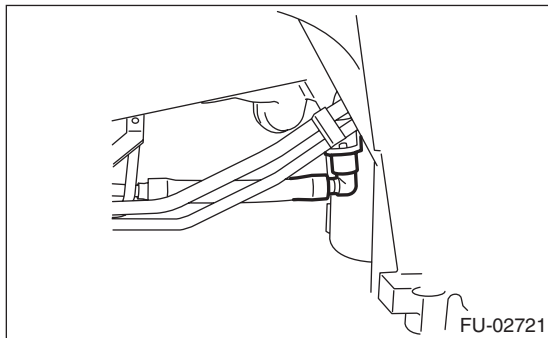
## Intake Manifold

### FUEL INJECTION (FUEL SYSTEMS)

15) Disconnect the quick connector which hold the fuel injector pipe RH to the fuel pipe.

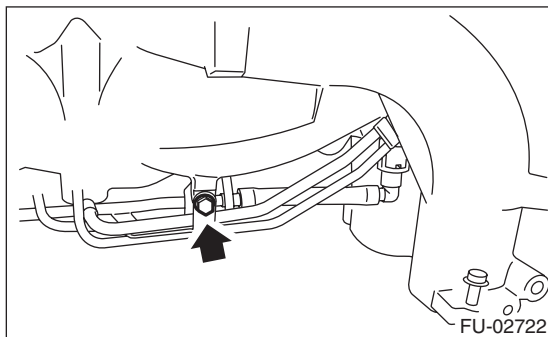


16) Disconnect the quick connector which hold the fuel injector pipe LH to the fuel pipe.



17) Remove the fuel injector pipe RH and LH.

18) Remove the bolts which hold fuel pipe onto intake manifold.



19) Remove the fuel pipe from intake manifold.

## D: ASSEMBLY

### NOTE:

When assembling the nipple, apply liquid gasket.

### Liquid gasket:

**THREE BOND 1105 (Part No. 004403010) or equivalent**

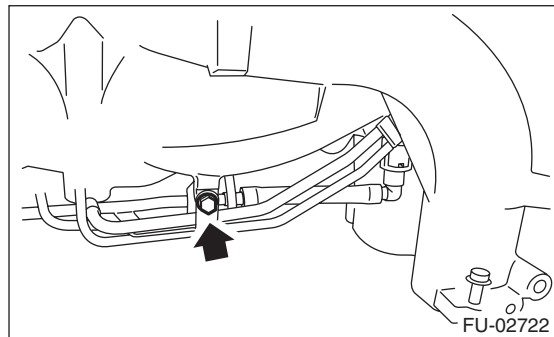
### Tightening torque:

**17 N·m (1.7 kgf-m, 12.5 ft-lb)**

1) Secure the fuel pipe to intake manifold with bolts.

### Tightening torque:

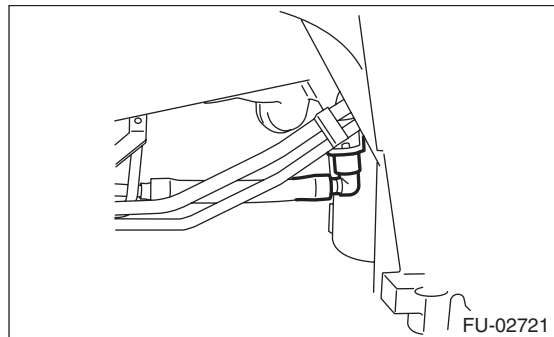
**6.4 N·m (0.7 kgf-m, 4.7 ft-lb)**



2) Connect the fuel pipe LH to the fuel pipe.

### NOTE:

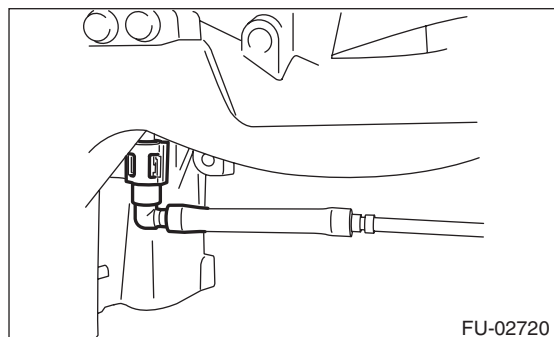
Connect the quick connector securely.



3) Connect the fuel pipe RH to the fuel pipe.

### NOTE:

Connect the quick connector securely.



4) Install the fuel injector.

5) Secure the fuel injector pipe to intake manifold with bolts.

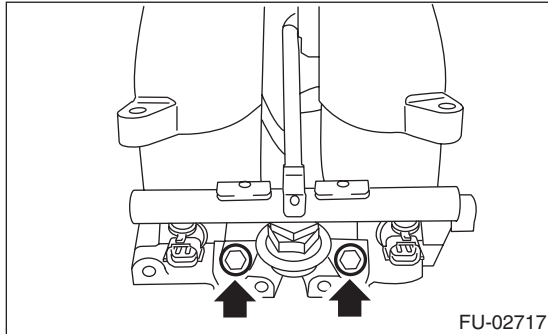
# Intake Manifold

## FUEL INJECTION (FUEL SYSTEMS)

- RH side

**Tightening torque:**

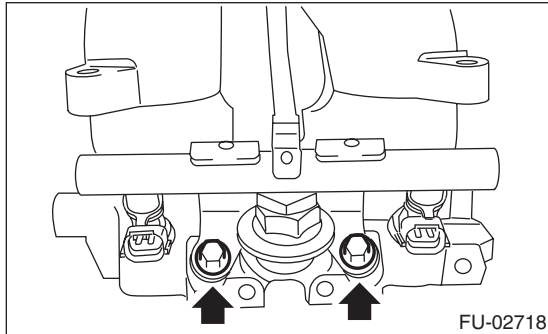
**19 N·m (1.9 kgf-m, 14.0 ft-lb)**



- LH side

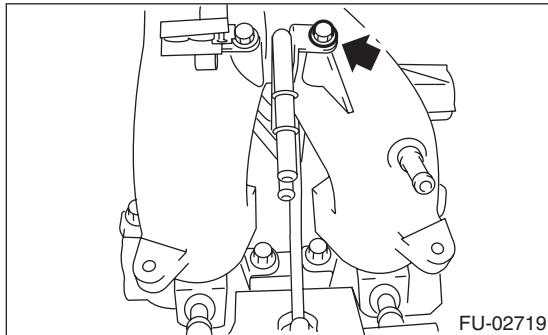
**Tightening torque:**

**19 N·m (1.9 kgf-m, 14.0 ft-lb)**



**Tightening torque:**

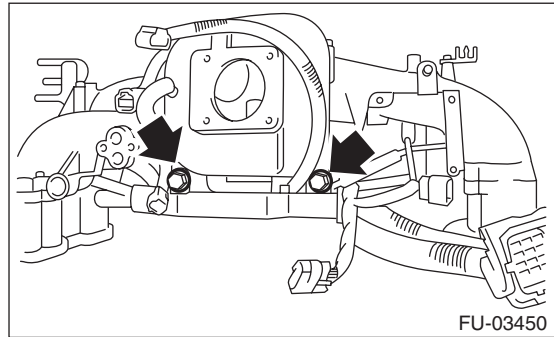
**6.4 N·m (0.7 kgf-m, 4.7 ft-lb)**



- 6) Install the engine harness to the intake manifold.
- 7) Secure the engine harness to intake manifold with bolts.

**Tightening torque:**

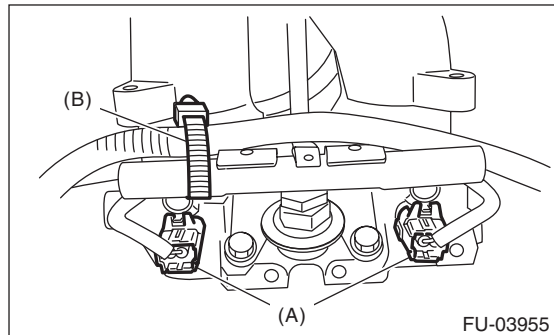
**19 N·m (1.9 kgf-m, 14.0 ft-lb)**



- 8) Install the purge control solenoid valve. <Ref. to EC(H4SO)-9, INSTALLATION, Purge Control Solenoid Valve.>

- 9) Connect the connectors (A) to fuel injector.

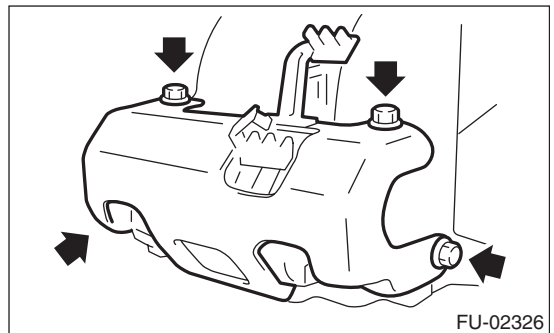
- 10) Hold the engine harness to fuel injector pipe by harness band (B).



- 11) Install the fuel pipe protector RH.

**Tightening torque:**

**19 N·m (1.9 kgf-m, 14.0 ft-lb)**



- 12) Install the fuel pipe protector LH.

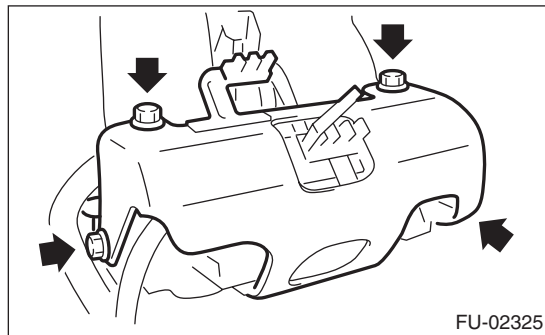


# Intake Manifold

## FUEL INJECTION (FUEL SYSTEMS)

### **Tightening torque:**

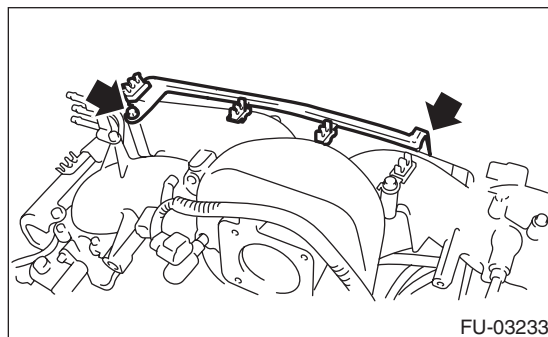
**19 N·m (1.9 kgf-m, 14.0 ft-lb)**



13) Install the plug cord stay.

### **Tightening torque:**

**6.4 N·m (0.7 kgf-m, 4.7 ft-lb)**



14) Install the EGR valve. <Ref. to FU(H4SO)-35, INSTALLATION, EGR Valve.>

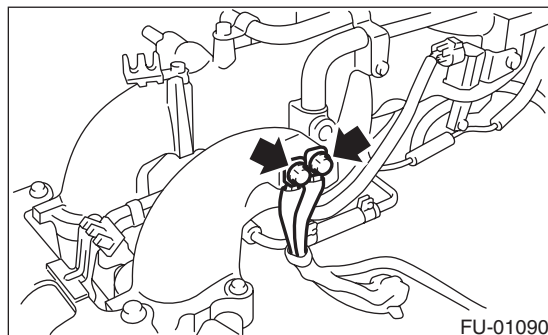
15) Install the throttle body to the intake manifold. <Ref. to FU(H4SO)-14, INSTALLATION, Throttle Body.>

16) Install the ignition coil and ignitor assembly. <Ref. to IG(H4SO)-6, INSTALLATION, Ignition Coil and Ignitor Assembly.>

17) Install the engine ground terminal to intake manifold.

### **Tightening torque:**

**19 N·m (1.9 kgf-m, 14.0 ft-lb)**



## **E: INSPECTION**

Make sure the fuel pipe and fuel hoses are not damaged and the connections are tightened firmly.