

**SUPPLEMENT FOR 6 CYLINDER
ENGINE MODEL**

This service manual has been prepared to provide SUBARU service personnel with the necessary information and data for the correct maintenance and repair of SUBARU vehicles.

This manual includes the procedures for maintenance, disassembling, reassembling, inspection and adjustment of components and diagnostics for guidance of experienced mechanics.

Please peruse and utilize this manual fully to ensure complete repair work for satisfying our customers by keeping their vehicle in optimum condition. When replacement of parts during repair work is needed, be sure to use SUBARU genuine parts.

All information, illustration and specifications contained in this manual are based on the latest product information available at the time of publication approval.

FOREWORD**FW****HOW TO USE THIS MANUAL****HU****SPECIFICATIONS****SPC****PRECAUTION****PC****NOTE****NT****IDENTIFICATION****ID****RECOMMENDED MATERIALS****RM****PRE-DELIVERY INSPECTION****PI****PERIODICAL MAINTENANCE****PM**

**SUPPLEMENT FOR 6 CYLINDER
ENGINE MODEL****FUEL INJECTION (FUEL SYSTEMS) FU(H6)****EMISSION CONTROL
(AUX. EMISSION CONTROL DEVICES) EC(H6)****INTAKE (INDUCTION) IN(H6)****MECHANICAL ME(H6)****EXHAUST EX(H6)****COOLING CO(H6)****LUBRICATION LU(H6)****SPEED CONTROL SYSTEMS SP(H6)****IGNITION IG(H6)****START/CHARGING SYSTEMS SC(H6)****ENGINE (DIAGNOSTICS) EN(H6)****REAR SUSPENSION RS****WIRING SYSTEM WI**

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

EC(H6)

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GENERAL DESCRIPTION

Emission Control (Aux. Emission Control Devices)

1. General Description S140001

A: CAUTION S140001A03

- Wear working clothing, including a cap, protective goggles, and protective shoes during operation.
- Remove contamination including dirt and corrosion before removal, installation or disassembly.
- Keep the disassembled parts in order and protect them from dust or dirt.
- Before removal, installation or disassembly, be sure to clarify the failure. Avoid unnecessary removal, installation, disassembly, and replacement.
- Be careful not to burn your hands, because each part on the vehicle is hot after running.
- Be sure to tighten fasteners including bolts and nuts to the specified torque.
- Place shop jacks or safety stands at the specified points.
- Before disconnecting electrical connectors of sensors or units, be sure to disconnect negative terminal from battery.

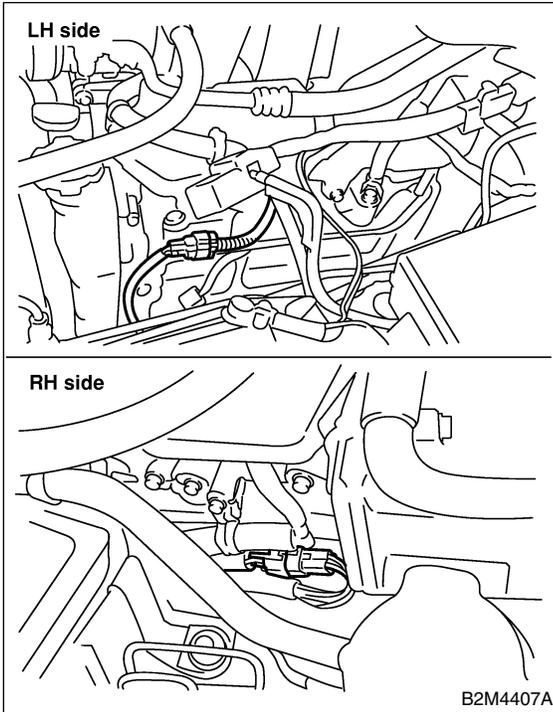
FRONT CATALYTIC CONVERTER

Emission Control (Aux. Emission Control Devices)

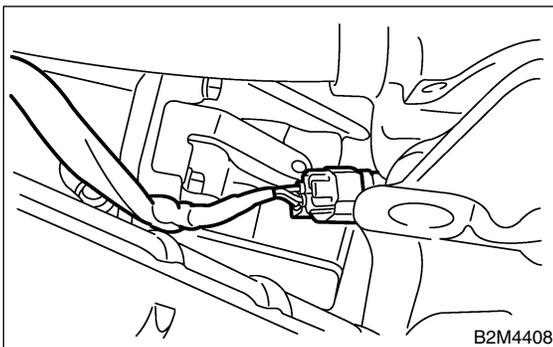
2. Front Catalytic Converter S140017

A: REMOVAL S140017A18

- 1) Set the vehicle on the lift.
- 2) Remove battery.
- 3) Remove air cleaner case and air intake duct.
<Ref. to IN(H6)-5, REMOVAL, Air Cleaner.> and
<Ref. to IN(H6)-7, REMOVAL, Air Intake Duct.>
- 4) Disconnect front oxygen (A/F) sensor connectors.

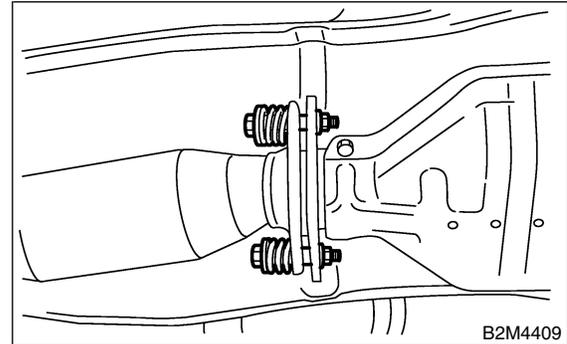


- 5) Lift-up the vehicle.
- 6) Remove under cover.
- 7) Remove front oxygen A/F sensor harness from the clips attached to both right and left cylinder head covers.
- 8) Disconnect connector from rear oxygen sensor connector.

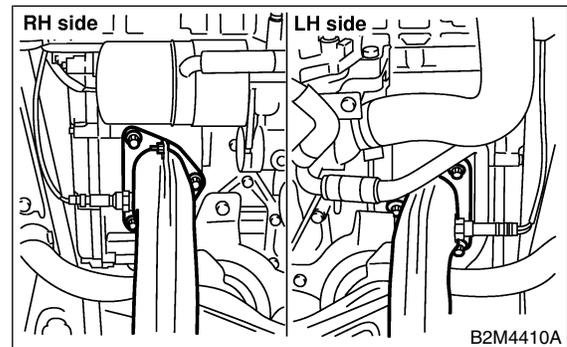


- 9) Separate front exhaust pipe from rear exhaust pipe.

CAUTION:
Be careful, exhaust pipe is hot.

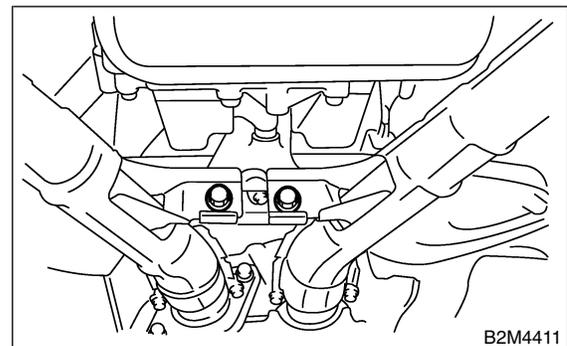


- 10) Remove bolts which hold front exhaust pipe onto cylinder heads.



- 11) Remove front exhaust pipe from hanger bracket.

CAUTION:
Be careful not to pull down front exhaust pipe.



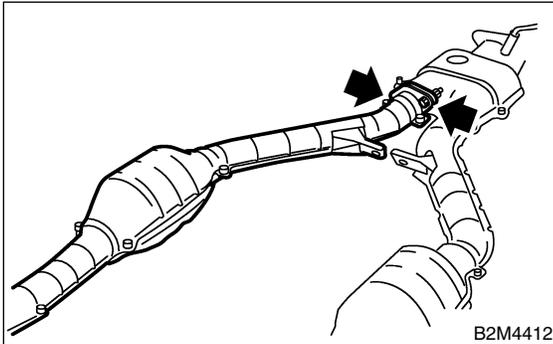
FRONT CATALYTIC CONVERTER

Emission Control (Aux. Emission Control Devices)

12) Separate front catalytic converter (RH) from front exhaust pipe.

NOTE:

The rear catalytic converter is integrated with front catalytic converter. Therefore, the procedure for removing rear catalytic converter is the same as the description above.



B: INSTALLATION

S140017A11

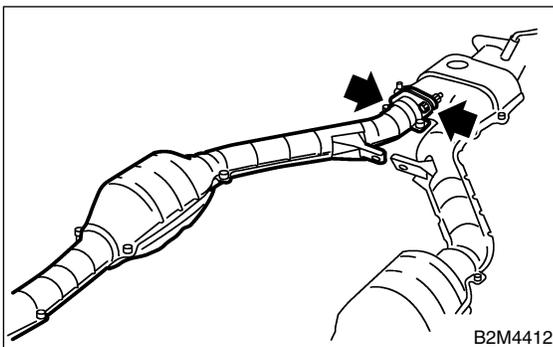
CAUTION:

Replace gaskets with new ones.

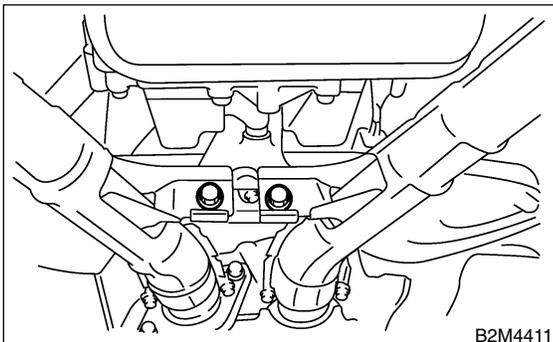
1) Install front catalytic converter (RH) to front exhaust pipe.

Tightening torque:

30 N·m (3.1 kgf·m, 22.4 ft·lb)



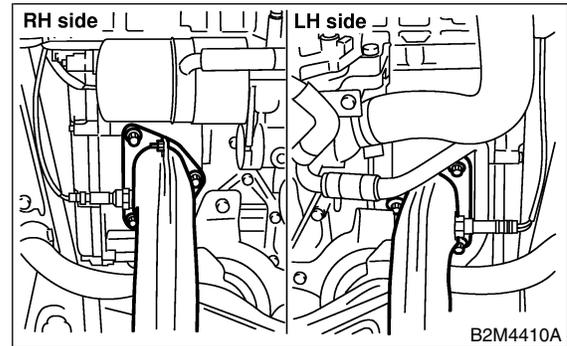
2) Install front exhaust pipe. And temporarily tighten bolt which installs front exhaust pipe to hanger bracket.



3) Tighten bolts which hold front exhaust pipe onto cylinder heads.

Tightening torque:

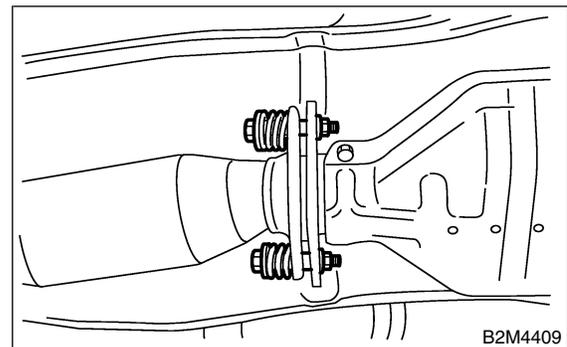
30 N·m (3.1 kgf·m, 22.4 ft·lb)



4) Install front exhaust pipe to rear exhaust pipe.

Tightening torque:

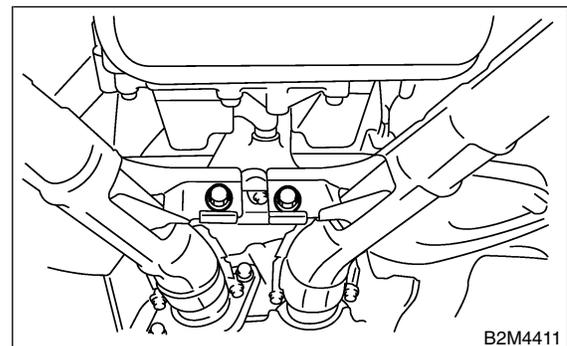
18 N·m (1.8 kgf·m, 13.0 ft·lb)



5) Tighten bolt which holds front exhaust pipes to hanger bracket.

Tightening torque:

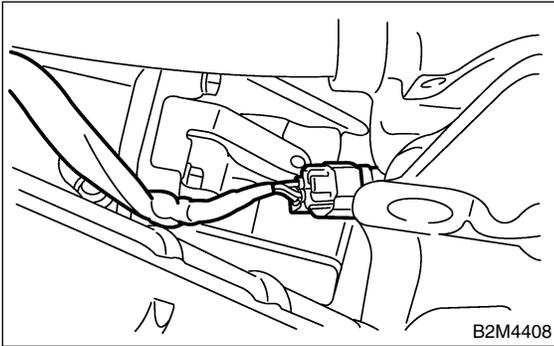
35 N·m (3.6 kgf·m, 26.0 ft·lb)



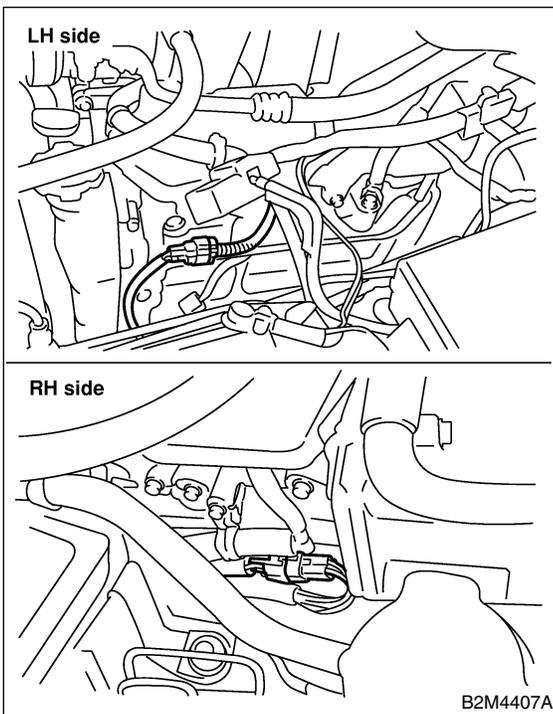
FRONT CATALYTIC CONVERTER

Emission Control (Aux. Emission Control Devices)

- 6) Connect connector to rear oxygen sensor connector.



- 7) Install front oxygen A/F sensor harness to the clips attached to the cylinder head covers.
- 8) Install under cover.
- 9) Lower the vehicle.
- 10) Connect front oxygen (A/F) sensor connector.



- 11) Install air cleaner case and air intake duct.
<Ref. to IN(H6)-5, INSTALLATION, Air Cleaner.>
and <Ref. to IN(H6)-7, INSTALLATION, Air Intake Duct.>
- 12) Install battery.

NOTE:

The rear catalytic converter is integrated with front catalytic converter. Therefore, the procedure for installing rear catalytic converter is the same as the description above.

C: INSPECTION S140017A10

- 1) Make sure there are no exhaust leaks from connections and welds.
- 2) Make sure there are no holes or rusting.

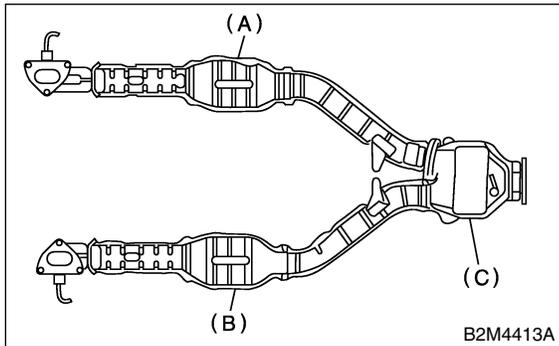
REAR CATALYTIC CONVERTER

Emission Control (Aux. Emission Control Devices)

3. Rear Catalytic Converter S140036

A: REMOVAL S140036A18

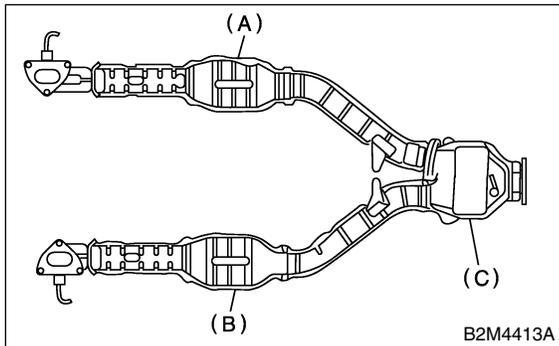
The front and rear catalytic converter are integrated into one unit. Therefore, the removal and installation procedures are the same as the those for the front catalytic converter. <Ref. to EC(H6)-3 REMOVAL, Front Catalytic Converter.>



- (A) Front catalytic converter RH
- (B) Front catalytic converter LH
- (C) Rear catalytic converter

B: INSTALLATION S140036A11

The front and rear catalytic converter are integrated into one unit. Therefore, the removal and installation procedures are the same as the ones described under front catalytic converter. <Ref. to EC(H6)-4 INSTALLATION, Front Catalytic Converter.>



- (A) Front catalytic converter RH
- (B) Front catalytic converter LH
- (C) Rear catalytic converter

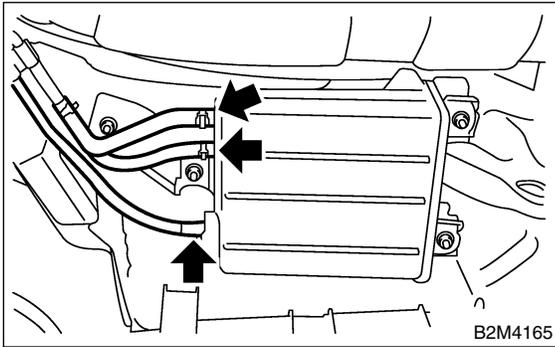
C: INSPECTION S140036A10

- 1) Make sure there are no exhaust leaks from connections and welds.
- 2) Make sure there are no holes or rusting.

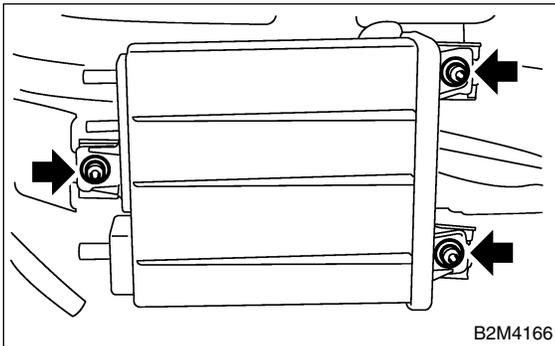
4. Canister S140037

A: REMOVAL S140037A18

- 1) Lift-up the vehicle.
- 2) Loosen two clamps which hold two canister hoses, and disconnect evaporation hose from canister.



- 3) Remove canister from body.

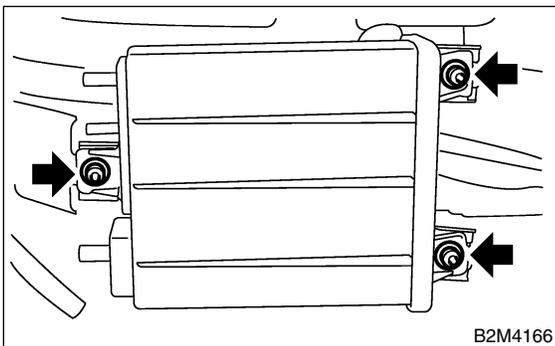


B: INSTALLATION S140037A11

Install in the reverse order of removal.

Tightening torque:

23 N·m (2.3 kgf-m, 17 ft-lb)



C: INSPECTION S140037A10

Make sure the canister and canister hoses are not cracked or loose.

PURGE CONTROL SOLENOID VALVE

Emission Control (Aux. Emission Control Devices)

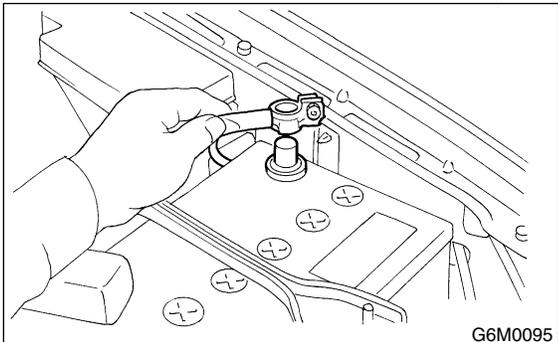
5. Purge Control Solenoid Valve

S140035

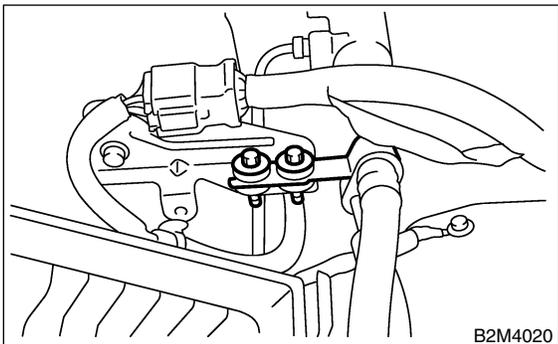
A: REMOVAL

S140035A18

- 1) Disconnect battery ground cable.



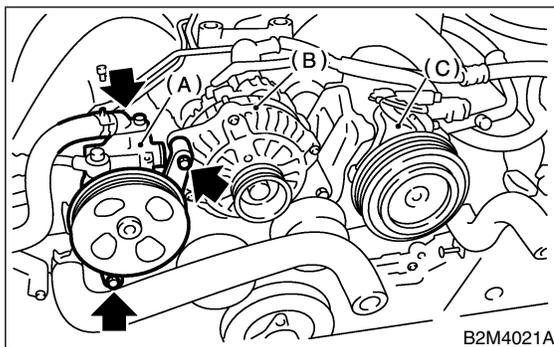
- 2) Remove power steering pump from bracket.
 - (1) Remove air intake duct and air cleaner case. <Ref. to IN(H6)-5, REMOVAL, Air Cleaner.> and <Ref. to IN(H6)-7, REMOVAL, Air Intake Duct.>
 - (2) Remove V-belt. <Ref. to ME(H6)-31, REMOVAL, V-belt.>
 - (3) Remove power steering oil pipe with bracket.



- (4) Remove bolts which install power steering pump bracket.

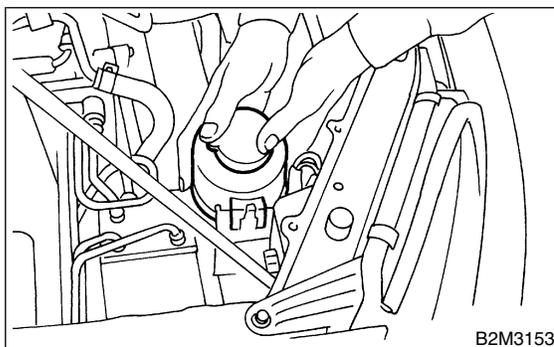
CAUTION:

Do not separate hose and pipe from the pump main unit.

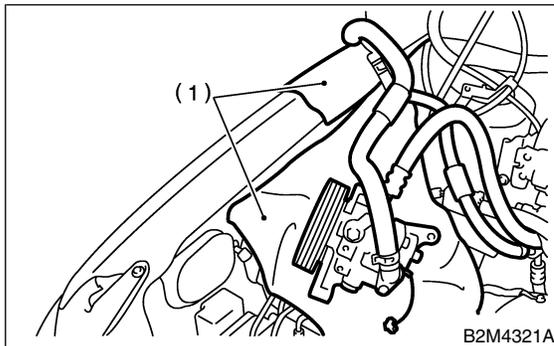


- (A) Power steering pump
- (B) Generator
- (C) A/C compressor

- (5) Remove power steering tank from the bracket by pulling it upward.



- (6) Place power steering pump on the right side wheel apron.

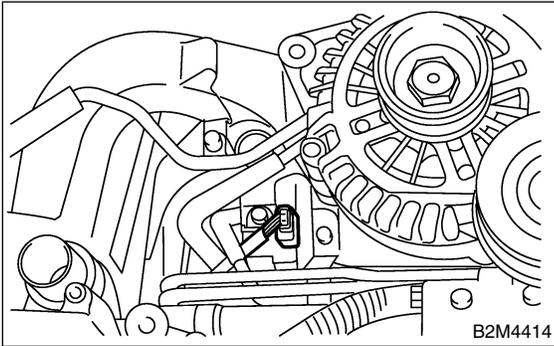


- (1) Cloth

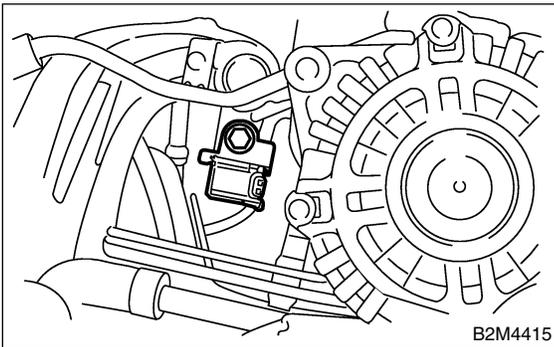
PURGE CONTROL SOLENOID VALVE

Emission Control (Aux. Emission Control Devices)

3) Disconnect connector and hoses from purge control solenoid valve.



4) Remove bolt which installs purge control solenoid valve onto intake manifold.

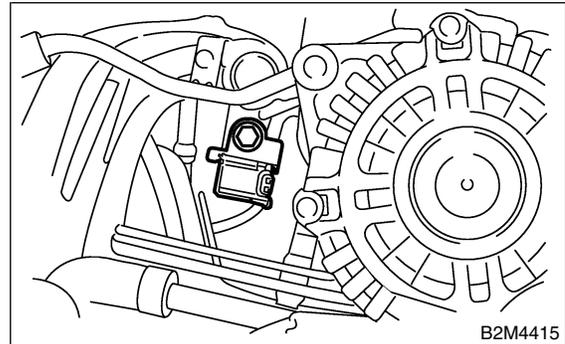


5) Take out purge control solenoid valve through the bottom of the intake manifold.

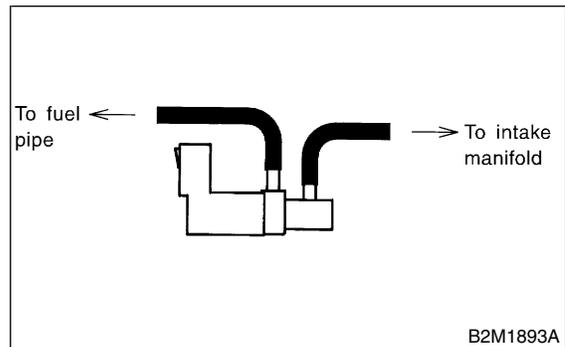
B: INSTALLATION S140035A11

Install in the reverse order of removal.

Tightening torque:
16 N·m (1.6 kgf-m, 11.6 ft-lb)



CAUTION:
Carefully connect the evaporation hoses.



C: INSPECTION S140035A10

Make sure hoses are not cracked or loose.

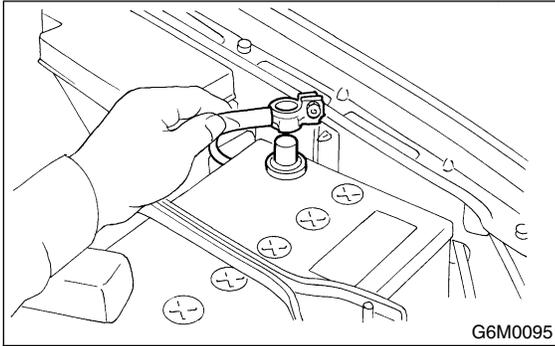
EGR VALVE

Emission Control (Aux. Emission Control Devices)

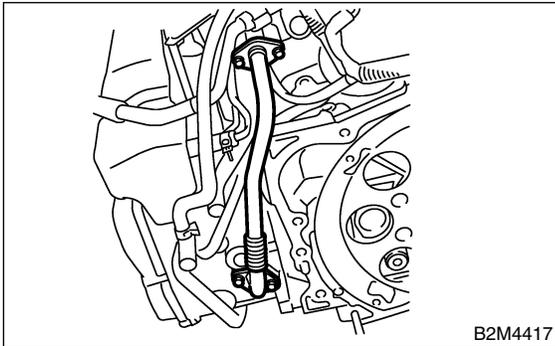
6. EGR Valve S140738

A: REMOVAL S140738A18

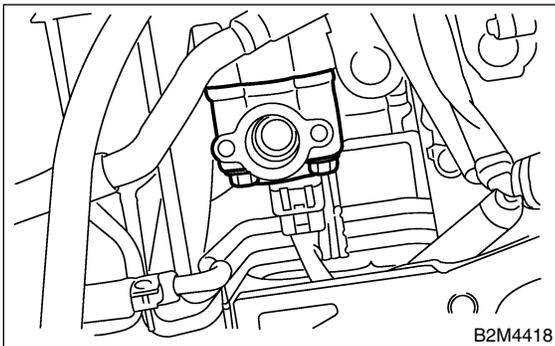
- 1) Disconnect battery ground cable.



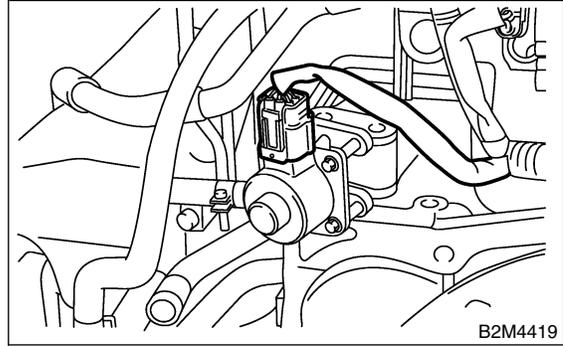
- 2) Remove air intake chamber. <Ref. to IN(H6)-6, REMOVAL, Air Intake Chamber.>
- 3) Remove starter. <Ref. to SC(H6)-6, REMOVAL, Starter.>
- 4) Remove EGR pipe from EGR valve and cylinder head.



- 5) Remove EGR valve from intake manifold.



- 6) Disconnect connector from EGR valve.

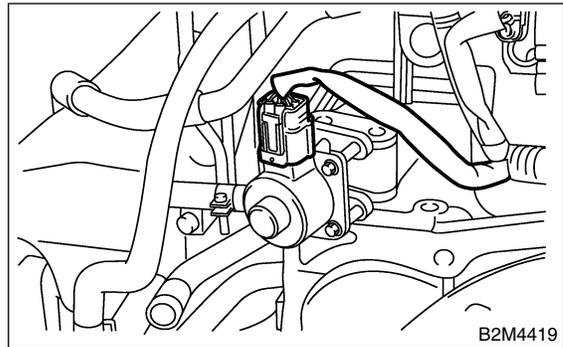


B: INSTALLATION S140738A11

NOTE:

Replace old gaskets with new one.

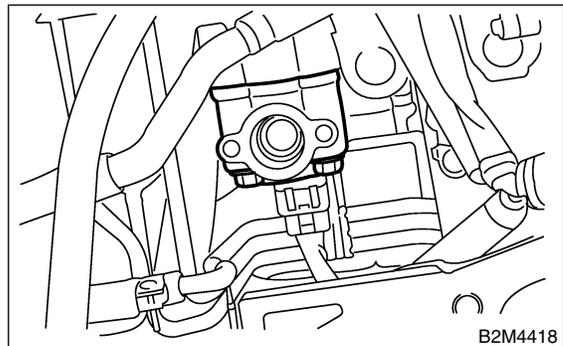
- 1) Connect connector EGR valve.



- 2) Install EGR valve to intake manifold.

Tightening torque:

19 N·m (1.9 kgf·m, 14 ft·lb)



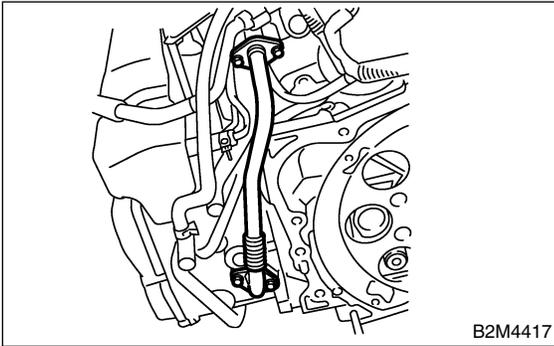
- 3) Install EGR pipe to EGR valve and cylinder head.

EGR VALVE

Emission Control (Aux. Emission Control Devices)

Tightening torque:

6.4 N·m (0.65 kgf-m, 4.7 ft-lb)



- 4) Install starter. <Ref. to SC(H6)-6, INSTALLATION, Starter.>
- 5) Install air intake chamber. <Ref. to IN(H6)-6, INSTALLATION, Air Intake Chamber.>
- 6) Connect battery ground cable.

C: INSPECTION S140738A10

- 1) Check the EGR valve for proper valve movement.
- 2) Check the EGR pipe, etc., for blockages or cracks.

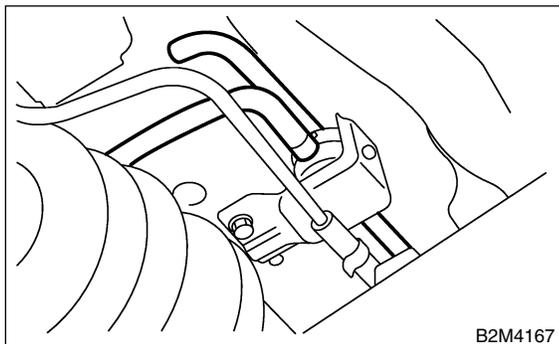
TWO-WAY VALVE

Emission Control (Aux. Emission Control Devices)

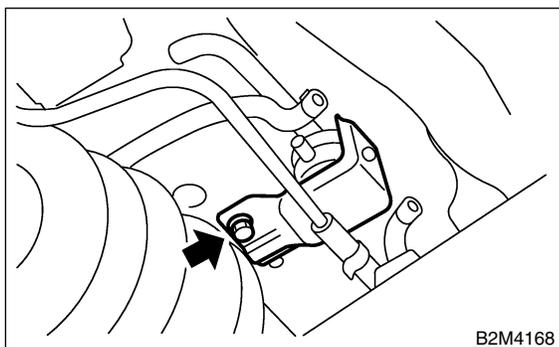
7. Two-way Valve S140707

A: REMOVAL S140707A18

- 1) Lift-up the vehicle.
- 2) Disconnect hoses from two-way valve.



- 3) Remove two-way valve with bracket as a single unit from body.



- 4) Remove two-way valve from bracket.

B: INSTALLATION S140707A11

Install in the reverse order of removal.

C: INSPECTION S140707A10

Make sure that hoses are not cracked or loose.