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SECTION FL
FUEL SYSTEM

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PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

General Precautions

INFOID:000000010585091

WARNING:

When replacing fuel line parts, be sure to observe the following.

- Put a “CAUTION: FLAMMABLE” sign in the workshop.
- Be sure to work in a well ventilated area and furnish workshop with a CO₂ fire extinguisher.
- Never smoke while servicing fuel system. Keep open flames and sparks away from the work area.

CAUTION:

- Use gasoline required by the regulations for octane number. Refer to [GI-36, "Fuel"](#).
- Before removing fuel line parts, perform out the following procedures:
 - Put drained fuel in an explosion-proof container and put the lid on securely. Keep the container in safe area.
 - Release fuel pressure from the fuel lines. Refer to [EC-627, "Inspection"](#) [VQ37VHR (FOR USA AND CANADA)] or [EC-1123, "Inspection"](#) [VQ37VHR (FOR MEXICO)] or [EC-1664, "Inspection"](#) (VK50VE).
 - Disconnect the battery cable from the negative terminal.
- Always replace O-rings with new ones.
- Never kink or twist tubes when they are being installed.
- Never tighten hose clamps excessively to avoid damaging hoses.
- After installing tubes, check there is no fuel leakage at connections in the following steps.
 - Apply fuel pressure to fuel lines with turning ignition switch “ON” (with engine stopped). Then check for fuel leakage at connections.
 - Start engine and rev it up and check for fuel leakage at connections.
- Use only a genuine NISSAN fuel filler cap as a replacement. If an incorrect fuel filler cap is used, the “MIL” may come on.
- For servicing “On Board Refueling Vapor Recovery (ORVR)” parts, refer to [EC-518, "Description"](#) [VQ37VHR (FOR USA AND CANADA)].

Precautions for Removing Battery Terminal

INFOID:000000010761725

- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.

NOTE:

ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.

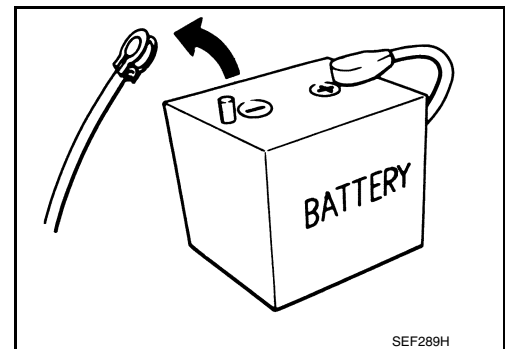
NOTE:

If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.

- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.

NOTE:

The removal of 12V battery may cause a DTC detection error.



PREPARATION

< PREPARATION >

PREPARATION

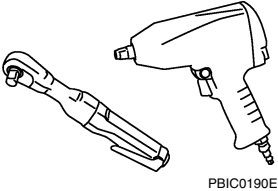
PREPARATION

Commercial Service Tools

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Tool name	Description
<p data-bbox="162 415 272 441">Power tool</p>  <p data-bbox="828 630 901 646">PBIC0190E</p>	<p data-bbox="1015 415 1266 441">Loosening bolts and nuts</p>

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FUEL SYSTEM

< PERIODIC MAINTENANCE >

PERIODIC MAINTENANCE

FUEL SYSTEM

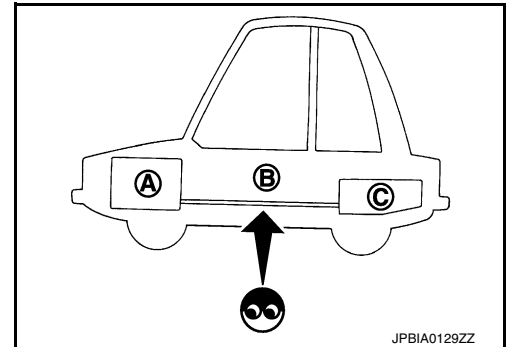
Inspection

INFOID:0000000010585093

- Inspect fuel lines, fuel filler cap and fuel tank for improper attachment, leakage, cracks, damage, loose connections, chafing or deterioration.

- A : Engine
- B : Fuel line
- C : Fuel tank

- If necessary, repair or replace damaged parts.



Quick Connector

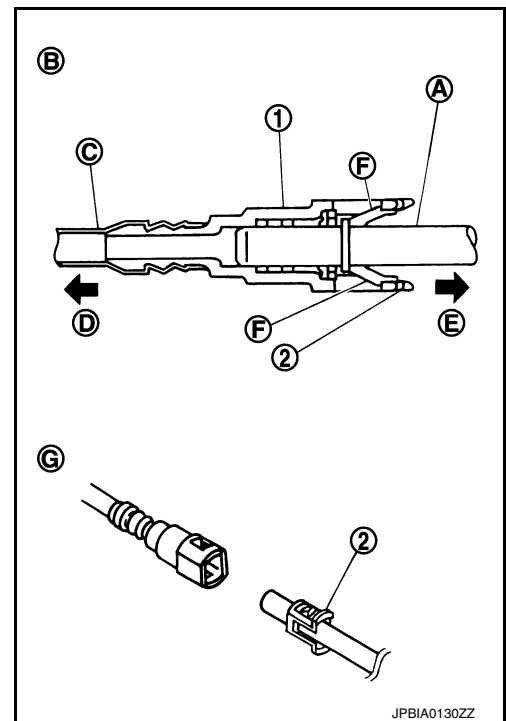
INFOID:0000000010585094

CAUTION:

- After connecting fuel tube quick connectors, check quick connectors are secure.

- 1 : Quick connector
- 2 : Retainer
- A : Hard tube (or the equivalent)
- B : Connection (cross-section)
- C : Resin tube
- D : To under floor fuel line
- E : To fuel tank
- F : Tab
- G : Disconnection

- Ensure that connector and resin tube never contact any adjacent parts.



FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY

< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY

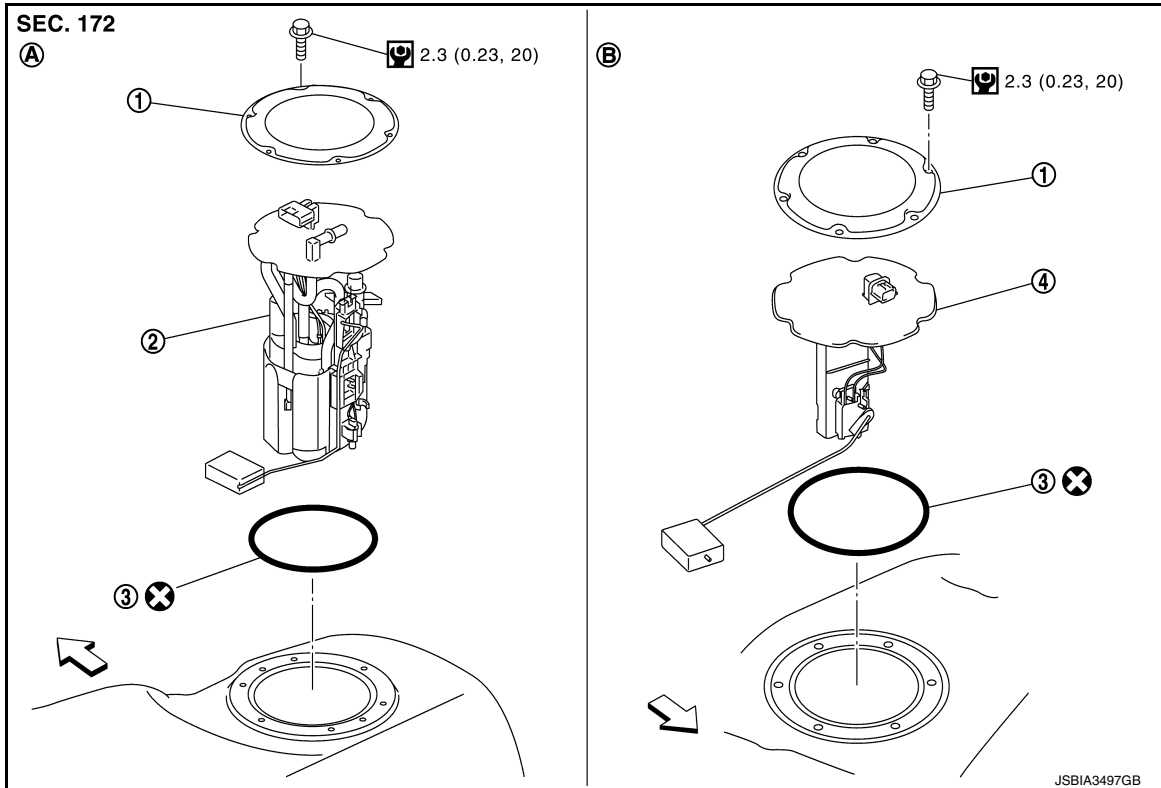
Exploded View

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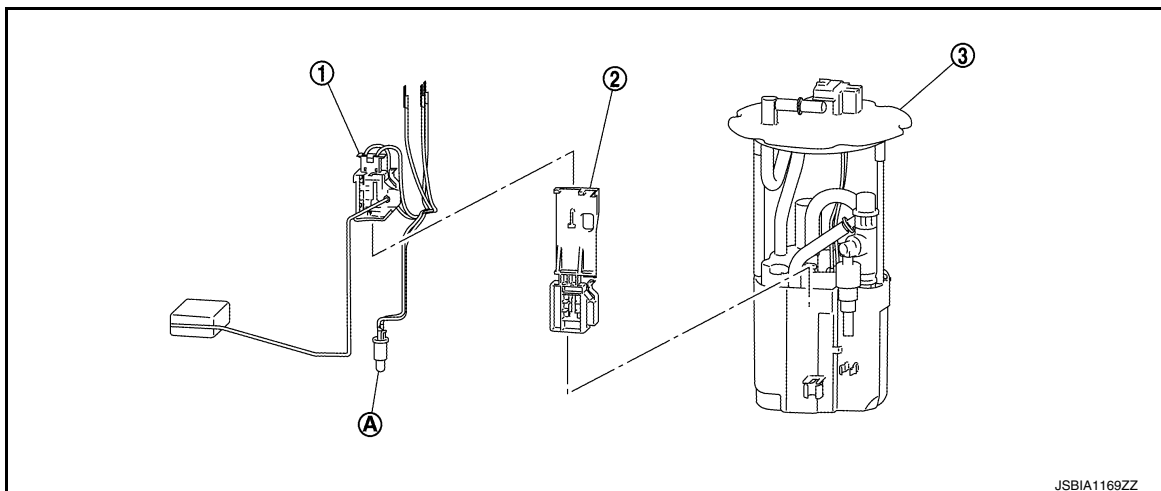
REMOVAL



- 1. Retainer
 - 2. Main fuel level sensor unit, fuel filter and fuel pump assembly
 - 3. O-ring
 - 4. Sub fuel level sensor unit
- A. Right side
B. Left side
← : Vehicle front

Refer to [GI-4, "Components"](#) for symbols in the figure.

DISASSEMBLY



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FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY

< REMOVAL AND INSTALLATION >

1. Main fuel level sensor unit
 2. Adapter
 3. Fuel filter and fuel pump assembly
- A. Fuel temperature sensor

Removal and Installation

INFOID:000000010585096

WARNING:

Read "General Precautions" when working on the fuel system. Refer to [FL-2, "General Precautions"](#).

REMOVAL

1. Check fuel level on fuel gauge. If fuel gauge indicates more than the level as shown in the figure (full or almost full), drain fuel from fuel tank until fuel gauge indicates level as shown in the figure or below.

NOTE:

Because fuel will be spilled when removing main and sub fuel level sensor units for the top of the fuel is above the main and sub fuel level sensor units installation surface.

- As a guide, fuel level becomes the position as shown in the figure or below when approximately 20 ℓ (5-1/4 US gal, 4-3/8 Imp gal) of fuel are drained from fuel tank.
- In a case that fuel pump does not operate, perform the following procedure.

- a. Insert hose of less than 25 mm (0.98 in) in diameter into fuel filler tube through fuel filler opening to draw fuel from fuel filler tube.
 - b. Disconnect fuel filler hose from fuel filler tube. Refer to [FL-11, "Exploded View"](#).
 - c. Insert fuel tube into fuel tank through fuel filler hose to draw fuel from fuel tank.
2. Release the fuel pressure from the fuel lines. Refer to [EC-627, "Inspection"](#) [VQ37VHR (FOR USA AND CANADA)] or [EC-1123, "Inspection"](#) [VQ37VHR (FOR MEXICO)] or [EC-1664, "Inspection"](#) (VK50VE).
 3. Open fuel filler lid.
 4. Open filler cap and release the pressure inside fuel tank.
 5. Remove rear seat cushion. Refer to [SE-135, "Exploded View"](#).
 6. Peel off floor carpet, then remove inspection hole cover (1) units by turning clips (2) clockwise by 90 degrees.

A : Direction mark

b : 90°

⇐ : Vehicle front

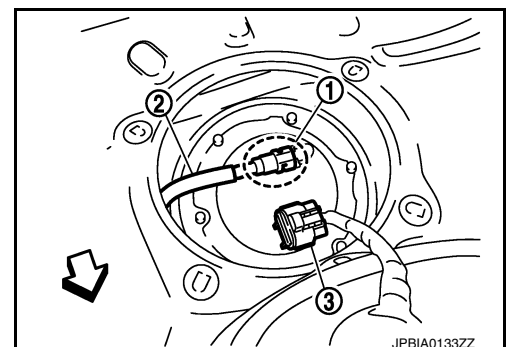
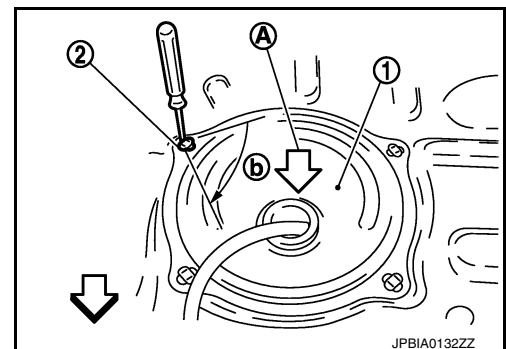
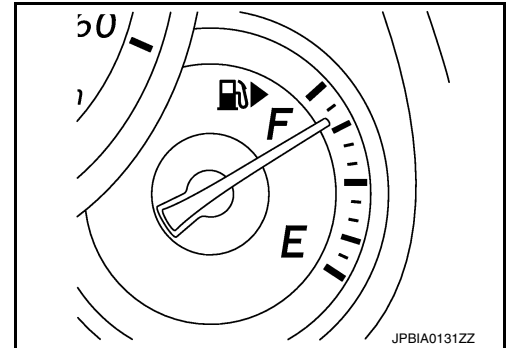
Right side : Main fuel level sensor unit, fuel filter and fuel pump assembly

Left side : Sub fuel level sensor unit

7. Disconnect harness connector (3) and fuel feed tube (2).

1 : Quick connector

⇐ : Vehicle front



Disconnect quick connector as follows:

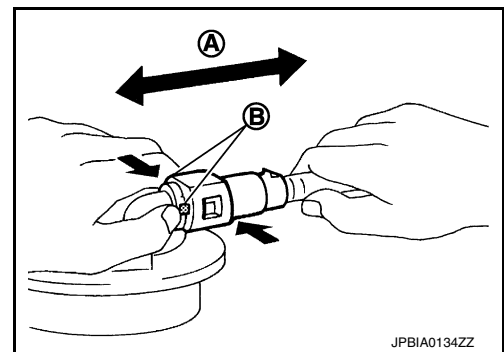
FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY

< REMOVAL AND INSTALLATION >

- Hold the sides of connector, push in tabs and pull out fuel feed tube.

A : Pull
B : Push in tabs

- If quick connector sticks to tube of main fuel level sensor unit, push and pull quick connector several times until they start to move. Then disconnect them by pulling.

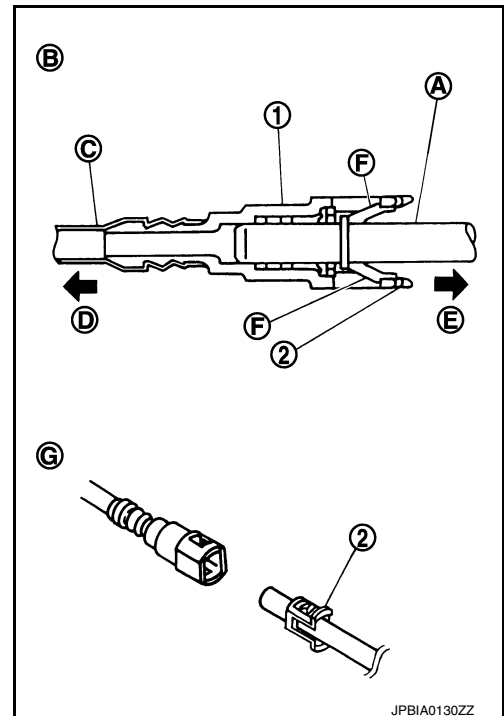


CAUTION:

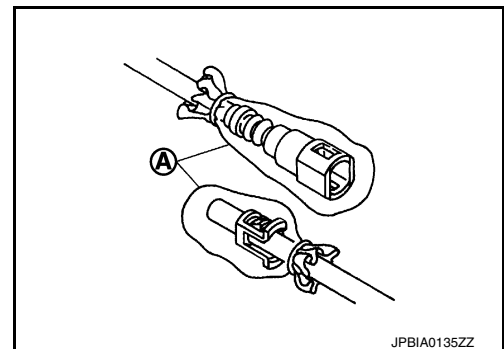
- Quick connector (1) can be disconnected when the tabs (F) are completely depressed. Never twist it more than necessary.

B : Connection (Cross-section)
D : To under floor fuel line
E : To fuel tank
G : Disconnection

- Never use any tools to disconnected quick connector.
- Keep resin tube (C) away from heat. Be especially careful when welding near the resin tube.
- Prevent acid liquid such as battery electrolyte, etc. from getting on resin tube.
- Never bend or twist resin tube during installation and disconnection.
- Never remove the remaining retainer (2) on hard tube (or the equivalent) (A) except when resin tube or retainer is replaced.
- When resin tube or hard tube (or the equivalent) is replaced, also replace retainer with new one.



- To keep the connecting portion clean and to avoid damage and foreign materials, cover them completely with plastic bags (A) or something similar.



- Remove main fuel level sensor unit, fuel filter and fuel pump assembly, and sub fuel level sensor unit as follows:

CAUTION:

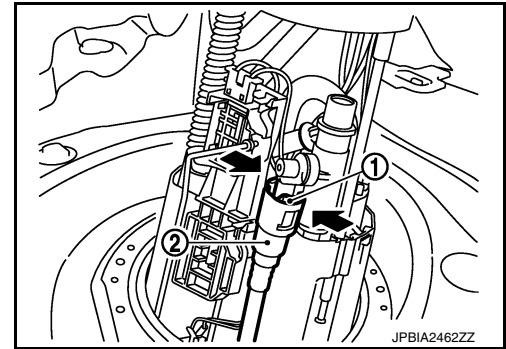
- Never bend float arm during removal.
- Avoid impacts such as falling when handling components.

- Removal of main fuel level sensor unit, fuel filter and fuel pump assembly:
 - Remove retainer.
 - Raise main fuel level sensor unit, fuel filter and fuel pump assembly, and disconnect quick connector.

FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY

< REMOVAL AND INSTALLATION >

- Push in tabs (1) and pull out fuel tube (2).



- b. Removal of sub fuel level sensor unit:
 - i. Remove retainer.
 - ii. Raise and release sub fuel level sensor unit to remove.

INSTALLATION

Note to the following, and install in the reverse order of removal.

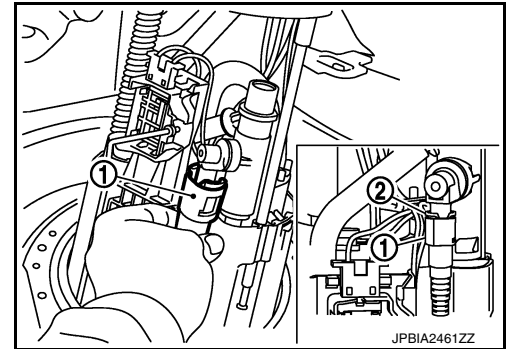
CAUTION:

Do not reuse O-rings

Fuel tube

- Install fuel tube (1). To connect quick connector, refer to “Quick Connector”.

2 : Retainer



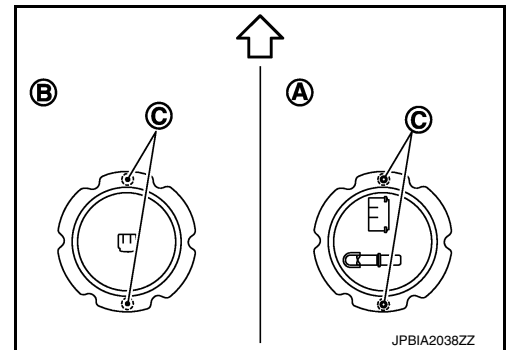
Main and Sub Fuel Level Sensor Unit

- Face main and sub fuel level sensor units as shown in the figure, and install them with the knock pin (C) on back aligned with pin hole on fuel tank.

A : Right side

B : Left side

⇐ : Vehicle front

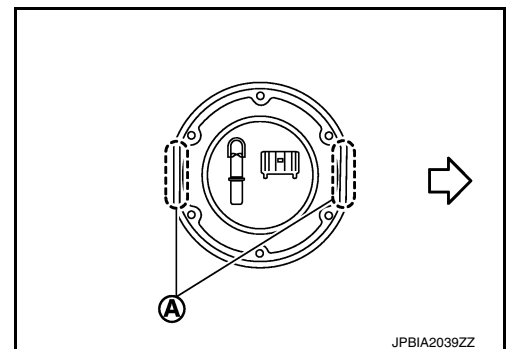


- Install retainer so that its notch becomes parallel with the notch on fuel tank.

A : Align notches

⇐ : Vehicle front

- Tighten retainer mounting bolts evenly.



FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY

< REMOVAL AND INSTALLATION >

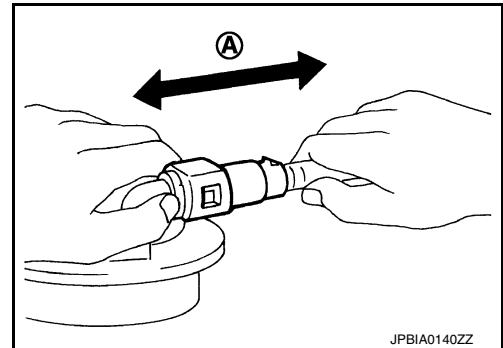
Quick Connector

• Connect quick connector as follows:

1. Check the connection for damage or any foreign materials.
2. Align the connector with the tube, then insert the connector straight into the tube until a click sound is heard.
3. After connecting, check that the connection is secure by following method.
 - Pull the tube and the connector to check they are securely connected.

A : Pull

- Visually confirm that the two retainer tabs are connected to the connector.



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Disassembly and Assembly

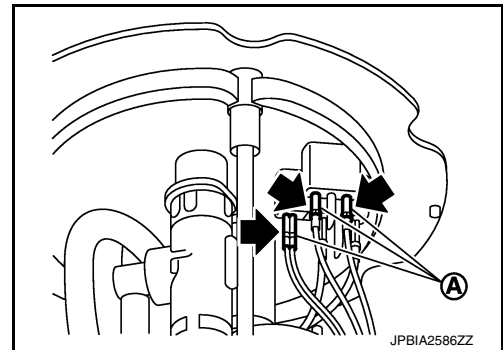
DISASSEMBLY

CAUTION:

Sub fuel level sensor unit cannot be disassembled and should be replaced as a unit.

Remove main fuel level sensor unit as follows:

1. Disconnect harness connector (A).
 - a. Hold connector by fingers and push stopper release tab.
 - b. Pull it out connector.



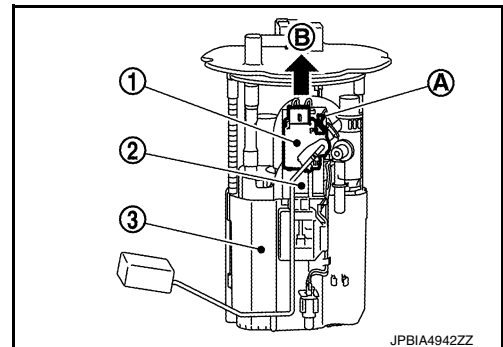
2. Remove main fuel level sensor unit (1) from adapter (2) as follows:

3 : Fuel filter and fuel pump assembly

- a. Push in tab (A) to release the lock.
- b. After fixing tabs are disengaged, slide main fuel level sensor unit out in direction shown by the arrow (B).

CAUTION:

- Be careful not to damage the main fuel level sensor unit.
- Never disassemble fuel filter and fuel pump assembly.



3. Remove adapter from the fuel filter and fuel pump assembly, if necessary, in the same procedure used in removing main fuel level sensor unit.

ASSEMBLY

CAUTION:

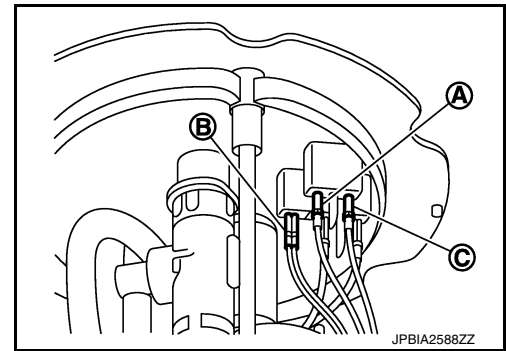
Sub fuel level sensor unit cannot be disassembled and should be replaced as a unit.

1. Check for damage of main fuel level sensor unit installation position on the side of fuel filter and fuel pump assembly.
2. Slide main fuel level sensor unit until it aligns to installation groove, then insert it until it stops.
 - After inserting, apply force in reverse direction (removal direction) to ensure it cannot be pulled out.

FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY

< REMOVAL AND INSTALLATION >

3. Connect the white (A), black (B), and red (C) harnesses so that they are in the positions shown in the figure.
 - Securely insert harness connector until it stops.



Inspection

INFOID:000000010585098

INSPECTION AFTER INSTALLATION

Use the following procedure to check for fuel leakage.

1. Turn ignition switch "ON" (with engine stopped), then check connections for leakage by applying fuel pressure to fuel piping.
2. Start engine and let it idle and check there are no fuel leakage at the fuel system connections.

FUEL TANK

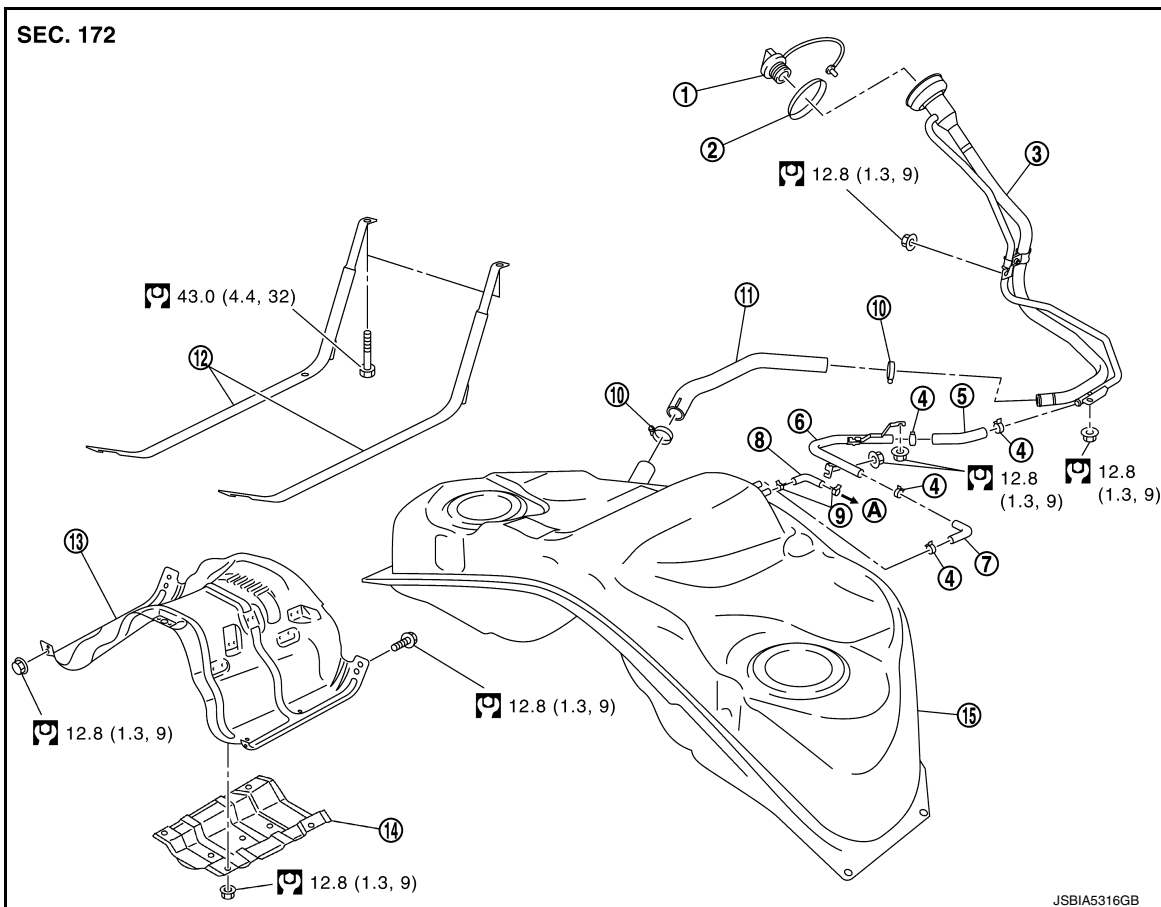
< REMOVAL AND INSTALLATION >

FUEL TANK

Exploded View

INFOID:000000010585099

FOR MEXICO



- | | | |
|-------------------------|----------------------|-----------------------------|
| 1. Fuel filler cap | 2. Grommet | 3. Fuel filler tube |
| 4. Clamp | 5. Vent hose | 6. Vent tube |
| 7. Vent hose | 8. EVAP hose | 9. Clamp |
| 10. Clamp | 11. Fuel filler hose | 12. Fuel tank mounting band |
| 13. Fuel tank protector | 14. Insulator | 15. Fuel tank |

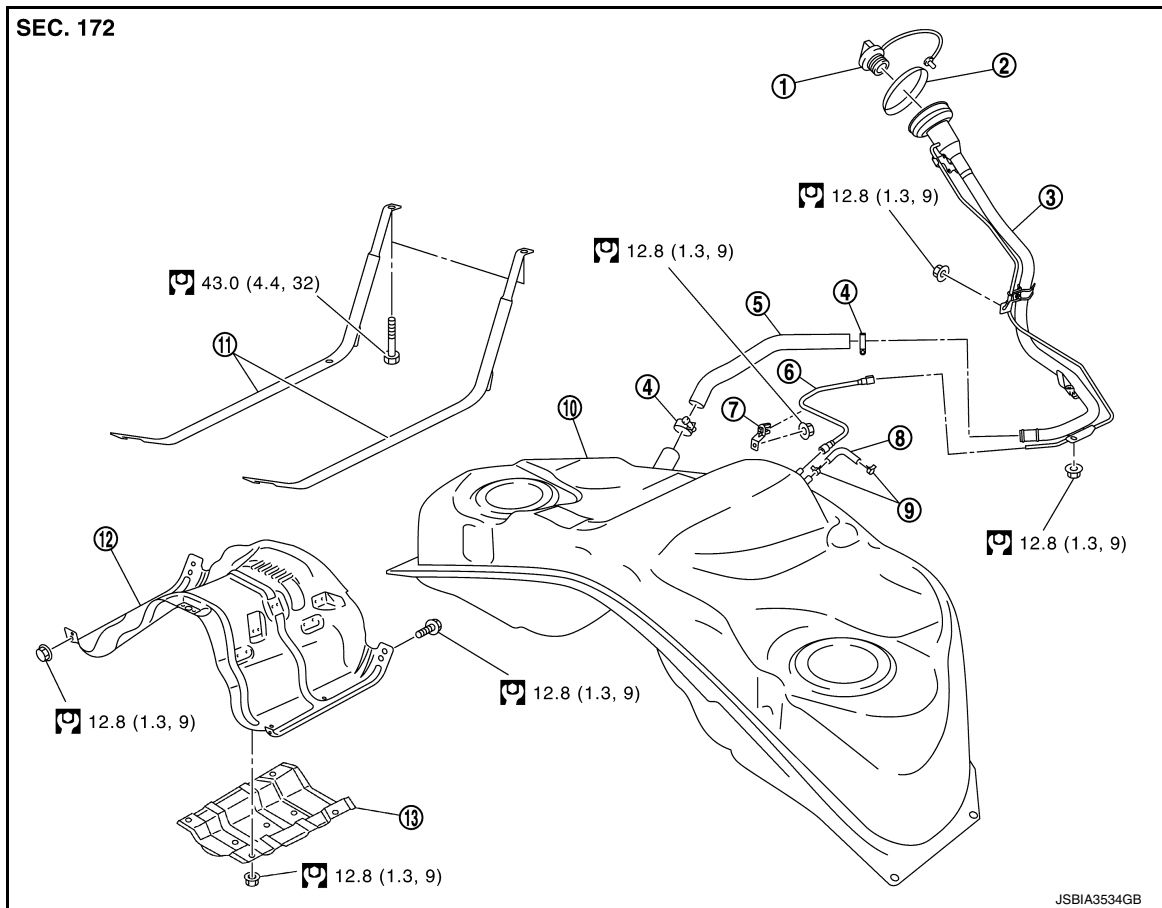
A. To EVAP canister

Refer to [GI-4. "Components"](#) for symbols in the figure.

FUEL TANK

< REMOVAL AND INSTALLATION >

EXCEPT FOR MEXICO



- | | | |
|--------------------|-----------------------------|-------------------------|
| 1. Fuel filler cap | 2. Grommet | 3. Fuel filler tube |
| 4. Clamp | 5. Fuel filler hose | 6. EVAP tube |
| 7. Clamp | 8. Vent hose | 9. Clamp |
| 10. Fuel tank | 11. Fuel tank mounting band | 12. Fuel tank protector |
| 13. Insulator | | |

Refer to [GI-4, "Components"](#) for symbols in the figure.

Removal and Installation

INFOID:000000010585100

WARNING:

Be sure to read "General Precautions" when working on the fuel system. Refer to [FL-2, "General Precautions"](#).

REMOVAL

- Drain fuel from fuel tank if necessary. Refer to [FL-6, "Removal and Installation"](#).
 - Perform work on level place.
1. Perform steps 2 to 7 of "REMOVAL" in "FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY" on main and sub fuel level sensor units. Refer to [FL-5, "Exploded View"](#).
 2. Remove exhaust front tube, center muffler and main muffler. Refer to [EX-5, "Exploded View"](#) (VQ37HR) or [EX-10, "Exploded View"](#) (VK50VE).
 3. Remove propeller shaft. Refer to [DLN-120, "Exploded View"](#) (3S80A-R), [DLN-130, "Exploded View"](#) (3F80A-1VL107) or [DLN-140, "Exploded View"](#) (3F-R-2VL107).
 4. Remove parking rear brake cables. Refer to [PB-6, "Exploded View"](#).
 5. Remove rear suspension member assembly. Refer to [RSU-17, "Exploded View"](#).

NOTE:

For this service, drive shaft, final drive, and rear suspension member are required not to be separate one another during removal.

FUEL TANK

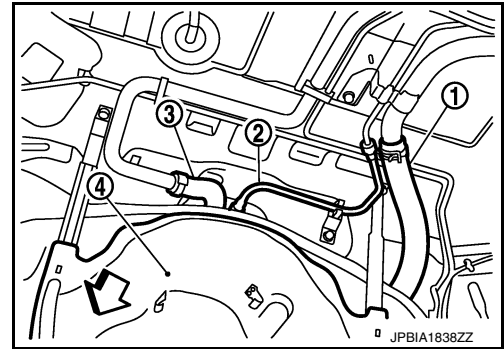
< REMOVAL AND INSTALLATION >

6. Disconnect fuel filler hose (1), EVAP tube (2) and vent hose (3).

4 : Fuel tank protector

↔ : Vehicle front

- To disconnect quick connector, refer to [FL-6, "Removal and Installation"](#).

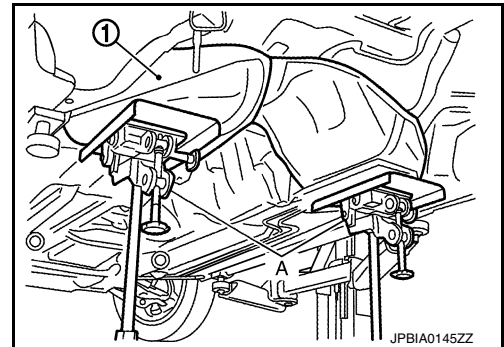


7. Remove fuel tank protector.

8. Support the lower part of fuel tank (1) with transmission jack (A).

CAUTION:

Support the position that fuel tank mounting bands never engage.



9. Remove fuel tank mounting bands.

10. Supporting with hands, descend transmission jack carefully, and remove fuel tank.

CAUTION:

- **Check that all connection points have been disconnected.**
- **Confirm there is no interference with vehicle.**

11. Remove fuel filler tube, if necessary.

INSTALLATION

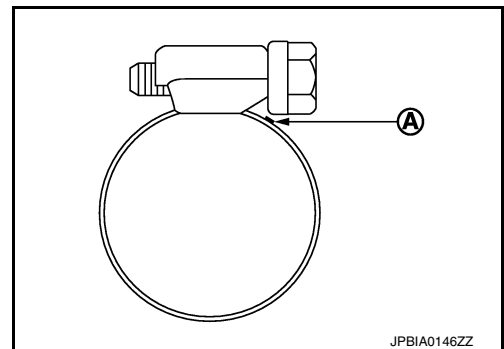
Note the following, and install in the reverse order of removal.

- Surely clamp fuel hoses and insert hose to the length below.

Fuel filler hose : 35 mm (1.38 in)

The other hoses : 25 mm (0.98 in)

- Be sure hose clamp is not placed on swelled area of fuel tube.
- Tighten the clamp hand with the top mark (A) until the mark is on the bolt head flange.



- To connect quick connector, refer to [FL-6, "Removal and Installation"](#).

Inspection

INFOID:0000000010585101

INSPECTION AFTER INSTALLATION

Use the following procedure to check for fuel leakage.

FUEL TANK

< REMOVAL AND INSTALLATION >

1. Turn ignition switch "ON" (with engine stopped), and check connections for leakage by applying fuel pressure to fuel piping.
 2. Start engine and rev it up and check there are no fuel leakage at the fuel system tube and hose connections.
- After removing/installing rear suspension assembly, check to adjust wheel alignment. Refer to [RSU-6, "Inspection"](#).

EVAP CANISTER

< REMOVAL AND INSTALLATION >

EVAP CANISTER

VQ37VHR

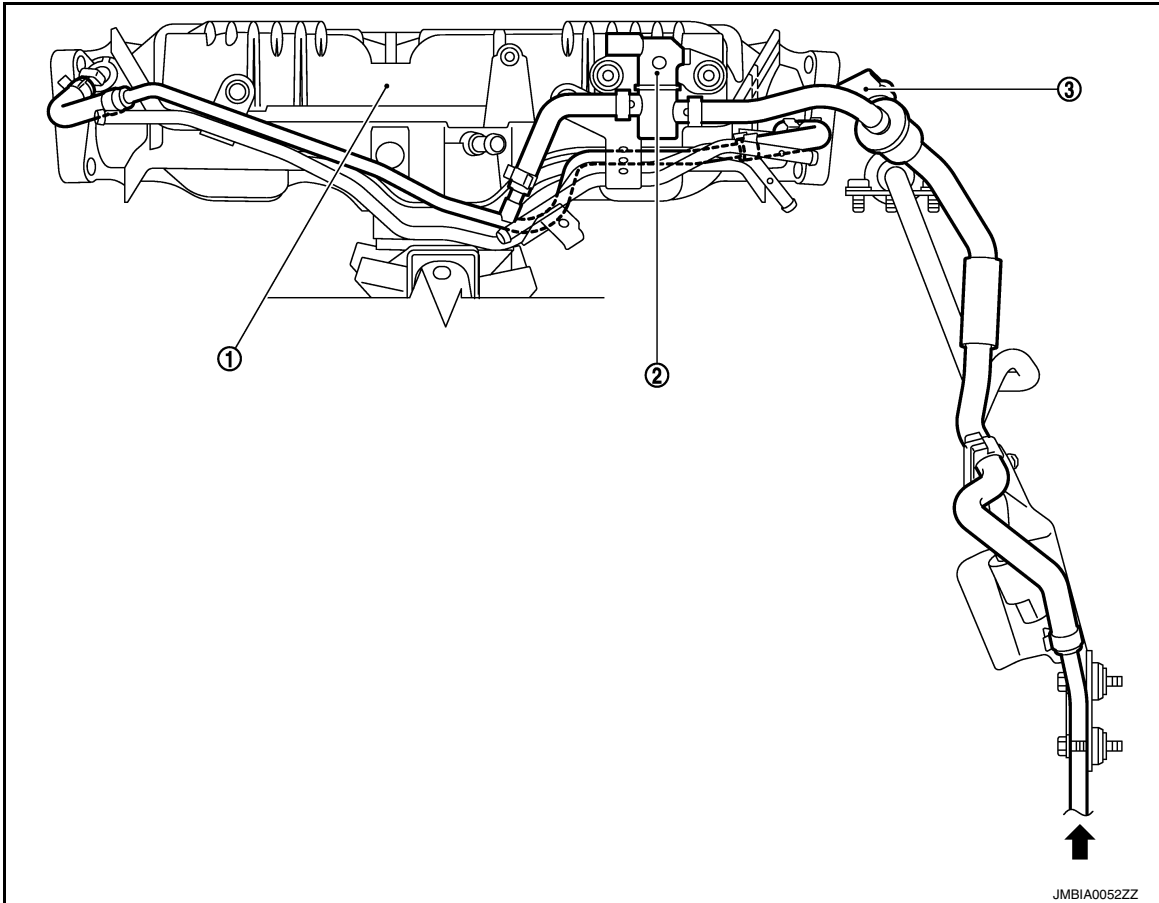
VQ37VHR : Hydraulic Layout

INFOID:000000010585102

FOR USA AND CANADA

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1. Intake manifold collector

2. EVAP canister purge volume control solenoid valve

3. EVAP service port

L

←: From next figure

M

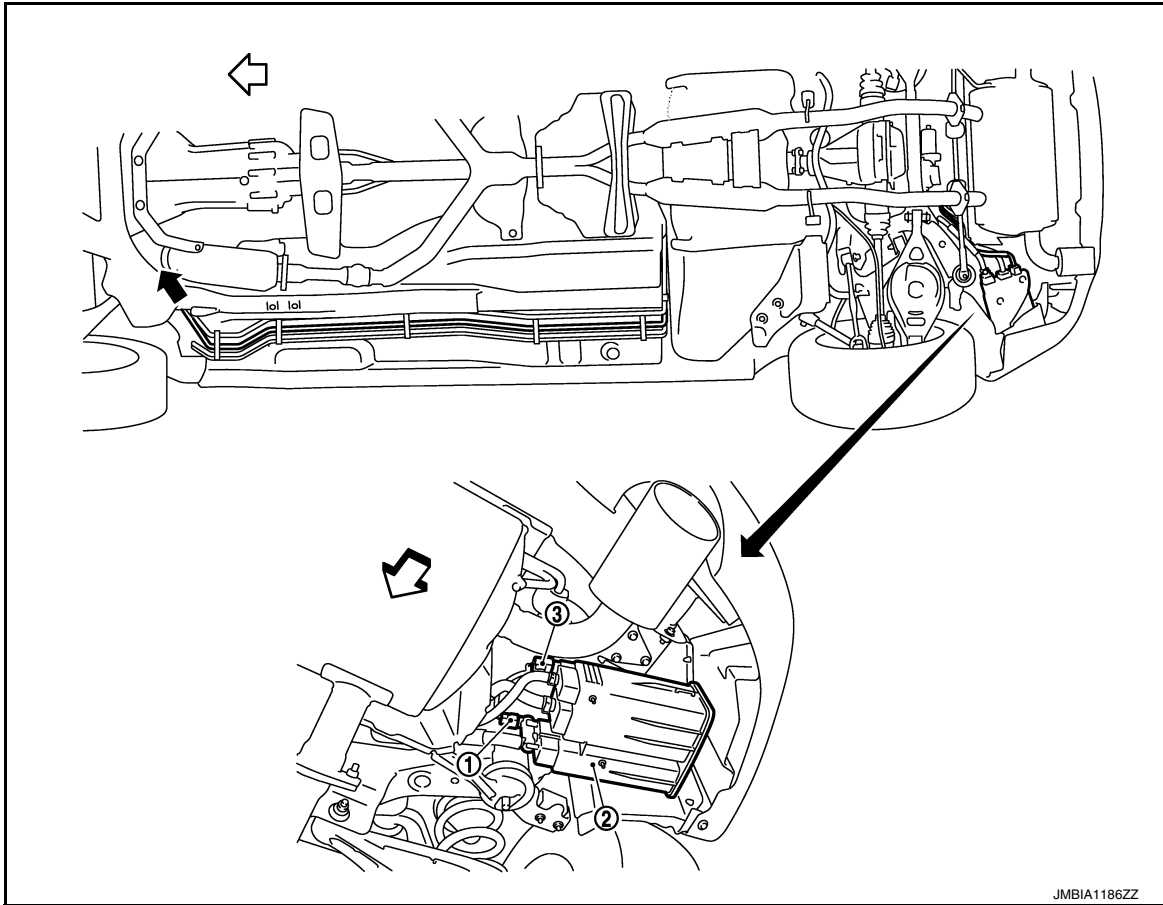
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EVAP CANISTER

< REMOVAL AND INSTALLATION >



1. EVAP canister

2. EVAP canister vent control valve

3. EVAP control system pressure sensor

⇐: Vehicle front

➡: To previous figure

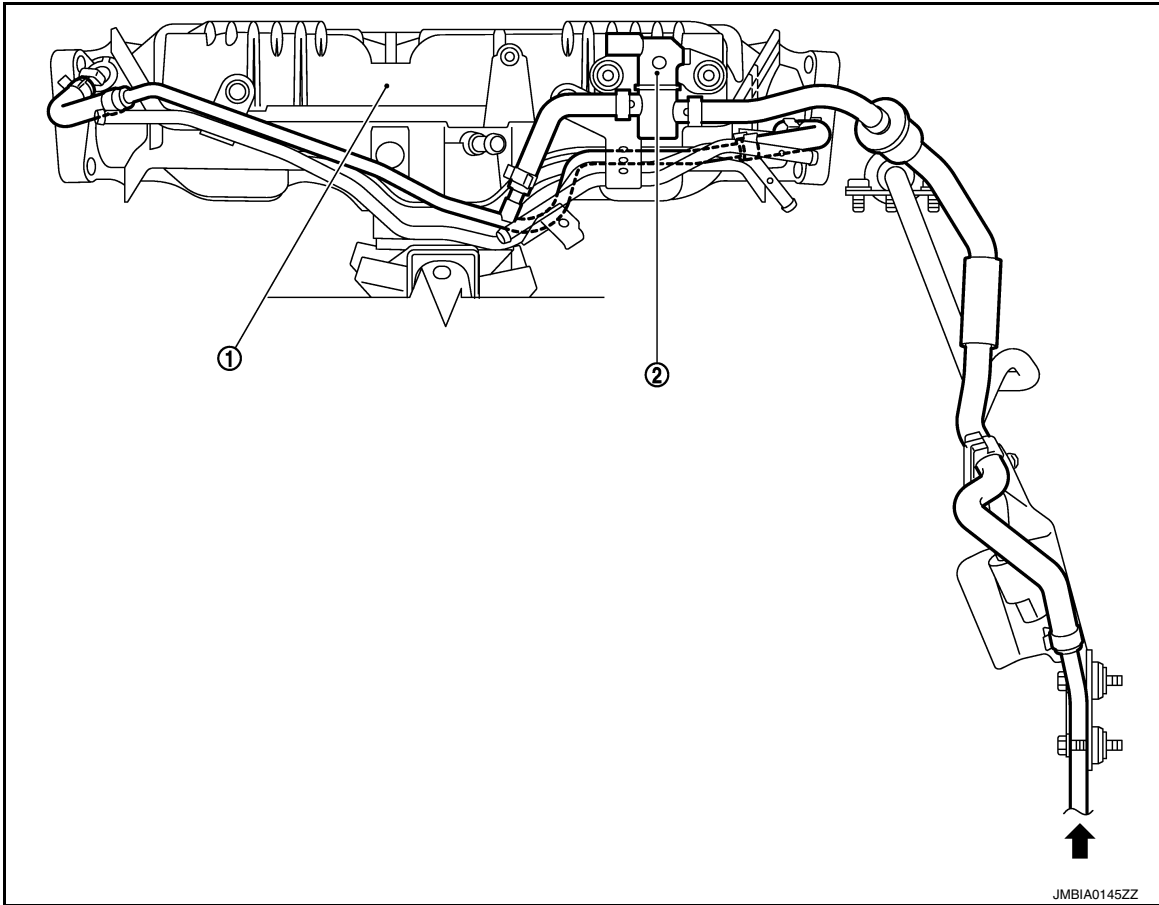
NOTE:

Do not use soapy water or any type of solvent while installing vacuum hose or purge hoses.

FOR MEXICO

EVAP CANISTER

< REMOVAL AND INSTALLATION >



1. Intake manifold collector

2. EVAP canister purge volume control solenoid valve

←: From next figure

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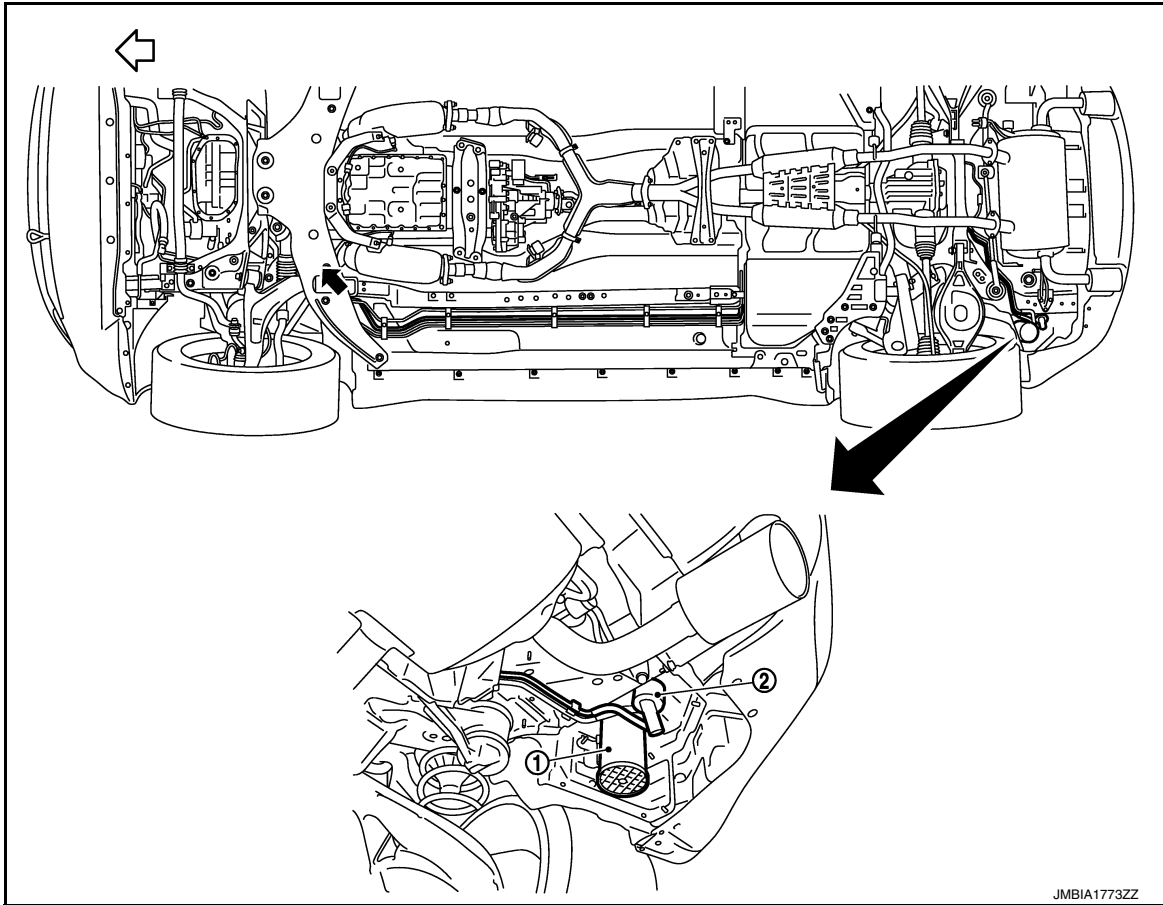
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EVAP CANISTER

< REMOVAL AND INSTALLATION >



JMBIA1773ZZ

1. EVAP canister

2. Water separator

⇐: Vehicle front

➡: To previous figure

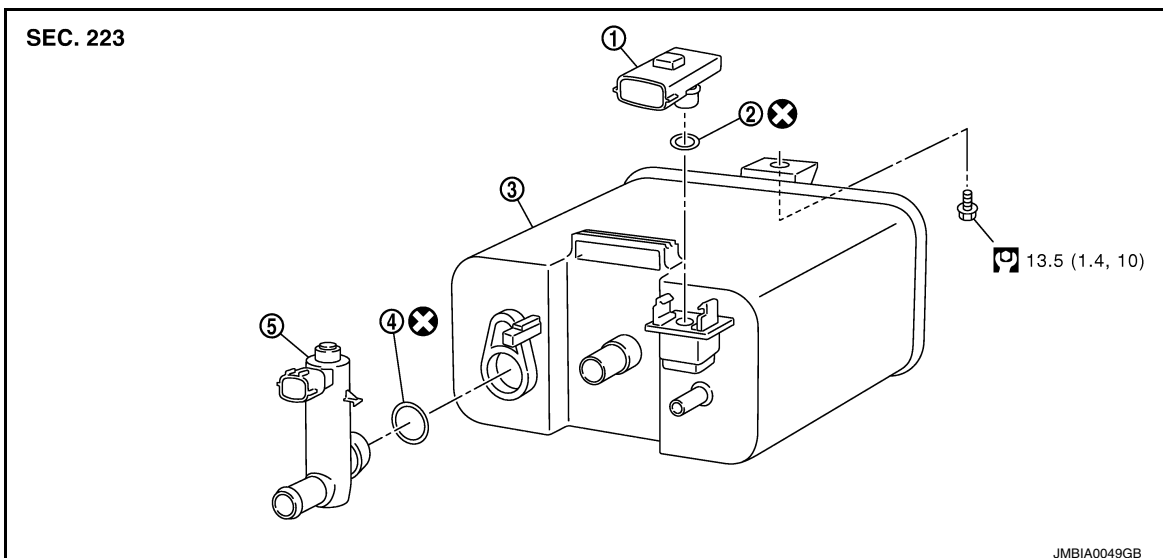
NOTE:

Do not use soapy water or any type of solvent while installing vacuum hose or purge hoses.

VQ37VHR : Exploded View

INFOID:000000010585103

DISASSEMBLY (FOR USA AND CANADA)



JMBIA0049GB

EVAP CANISTER

< REMOVAL AND INSTALLATION >

1. EVAP canister system pressure sensor
 2. O-ring
 3. EVAP canister
 4. O-ring
 5. EVAP canister vent control valve
- Refer to [GI-3, "Contents"](#) for symbols not described on the above.

VQ37VHR : Removal and Installation

INFOID:000000010585104

REMOVAL

1. Lift up the vehicle.
2. Remove EVAP canister fixing bolt.
3. Remove EVAP canister.

NOTE:

The EVAP canister vent control valve and EVAP canister system pressure sensor can be removed without removing the EVAP canister.

INSTALLATION

Install in the reverse order of removal.

NOTE:

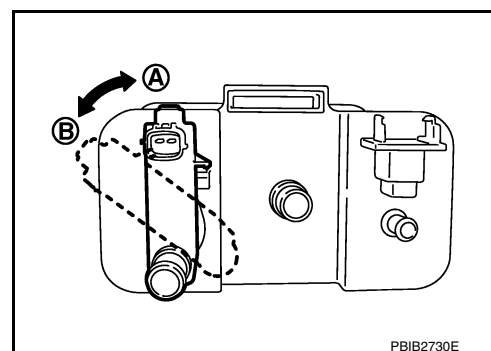
Tighten EVAP canister fixing bolt to the specified torque.

DISASSEMBLY

1. Turn EVAP canister vent control valve counterclockwise.

- A : Lock
- B : Unlock

2. Remove the EVAP canister vent control valve.



ASSEMBLY

Assemble in the reverse order of disassembly.

CAUTION:

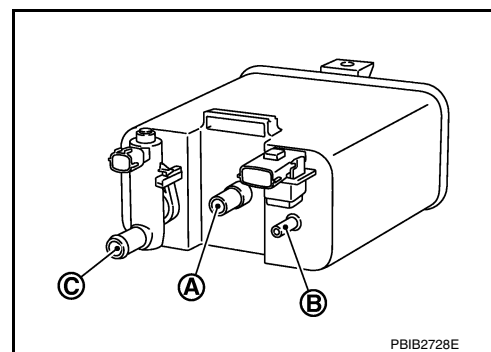
Always replace O-ring with a new one.

VQ37VHR : Inspection

INFOID:000000010585105

Check EVAP canister as follows:

1. Block port (B).
2. Blow air into port (A) and check that it flows freely out of port (C).
3. Release blocked port (B).
4. Apply vacuum pressure to port (B) and check that vacuum pressure exists at the ports (A) and (C).
5. Block port (A) and (B).
6. Apply pressure to port (C) and check that there is no leakage.



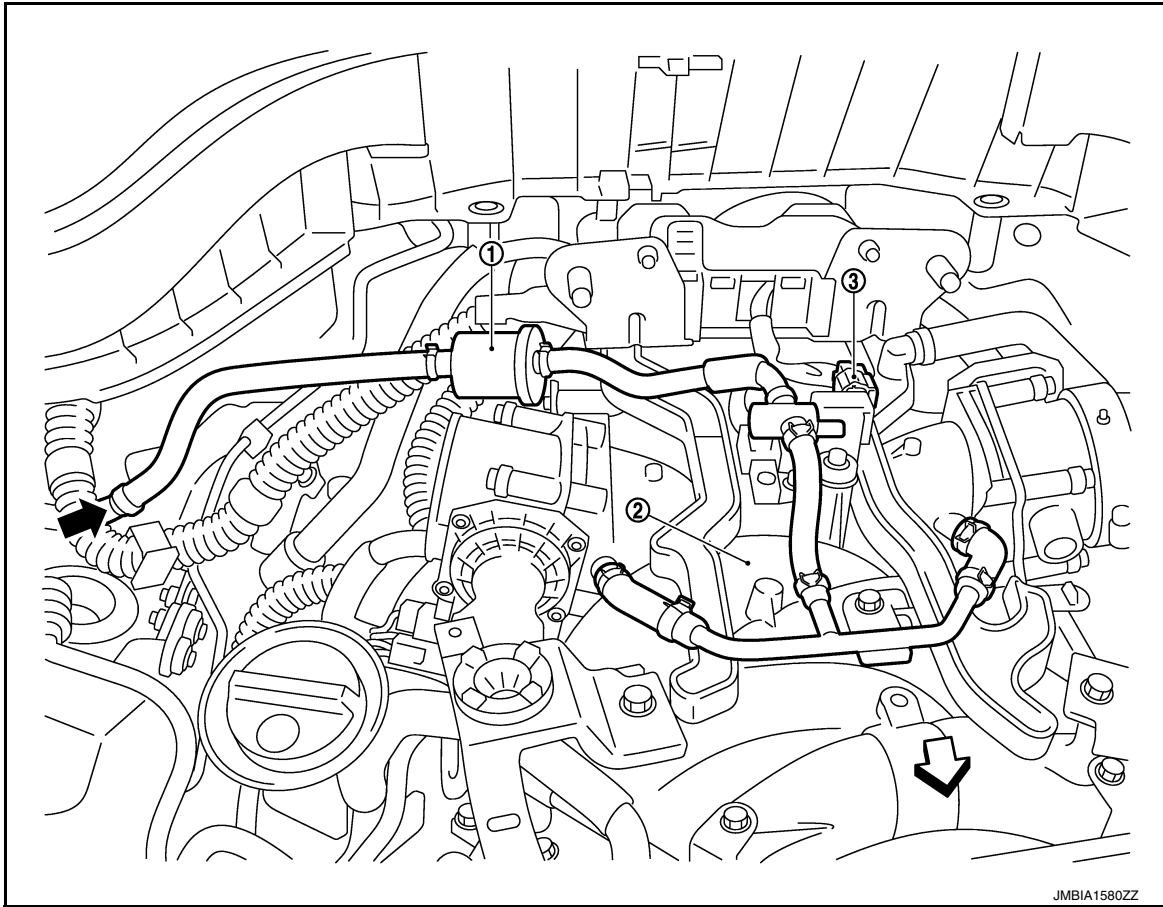
VK50VE

EVAP CANISTER

< REMOVAL AND INSTALLATION >

VK50VE : Hydraulic Layout

INFOID:000000010585106



1. EVAP purge resonator

2. Intake manifold collector

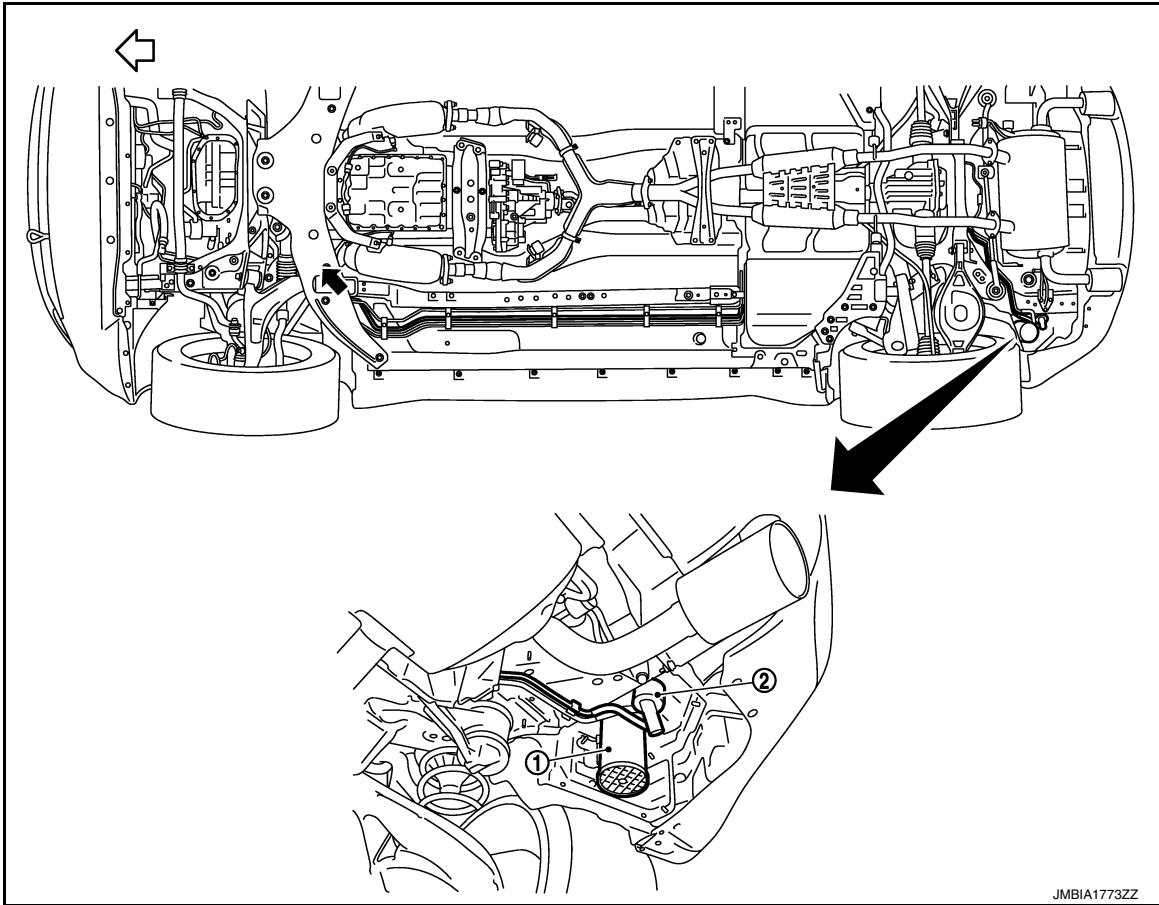
3. EVAP canister purge volume control solenoid valve

↶ : Vehicle front

➡ : From next figure

EVAP CANISTER

< REMOVAL AND INSTALLATION >



1. EVAP canister

2. Water separator

⇐ : Vehicle front

➡ : To previous figure

NOTE:

Do not use soapy water or any type of solvent while installing vacuum hose or purge hoses.

A

FL

C

D

E

F

G

H

I

J

K

L

M

N

O

P

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Fuel Tank

INFOID:0000000010585110

Standard and Limit

Fuel tank capacity	Approx. 90 ℓ (23-3/4 US gal, 19-3/4 Imp gal)
Fuel recommendation	Refer to GI-36