SECTION FL
FUEL SYSTEM

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1.6L/2.0L TURBO ENGINE

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PRECAUTION

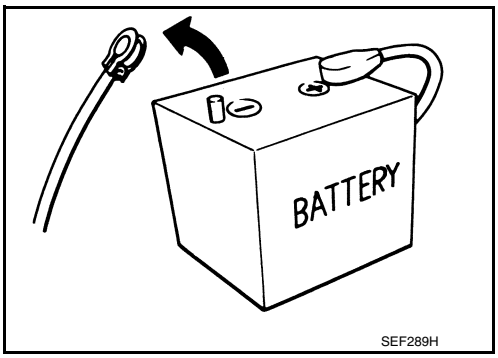
PRECAUTIONS

Precautions for Removing Battery Terminal

INFOID:0000000013537012

When disconnecting the battery terminal, pay attention to the following.
- Always use a 12V battery as power source.
- Never disconnect battery terminal while engine is running.
- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.
- For vehicles with the engine listed below, remove the battery terminal after a lapse of the specified time:

BR08DE	: 4 minutes	YD25DDTi	: 2 minutes
D4D engine	: 20 minutes	YS23DDT	: 4 minutes
HRA2DDT	: 12 minutes	YS23DDTT	: 4 minutes
K9K engine	: 4 minutes	ZD30DDTi	: 60 seconds
M9R engine	: 4 minutes	ZD30DDTT	: 60 seconds
R9M engine	: 4 minutes		
V9X engine	: 4 minutes		



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.
- After high-load driving, if the vehicle is equipped with the V9X engine, turn the ignition switch OFF and wait for at least 15 minutes to remove the battery terminal.

NOTE:
- Turbocharger cooling pump may operate in a few minutes after the ignition switch is turned OFF.
- Example of high-load driving
  - Driving for 30 minutes or more at 140 km/h (86 MPH) or more.
  - Driving for 30 minutes or more on a steep slope.
- 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.

General Precautions

INFOID:0000000013537013

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 CO_2 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-44, "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 FL-9, "Removal and Installation".**
  - **Disconnect the battery cable from the negative terminal.**
- **Always replace O-ring and clamps 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.**

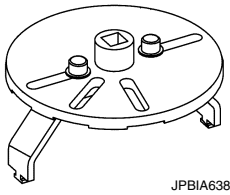
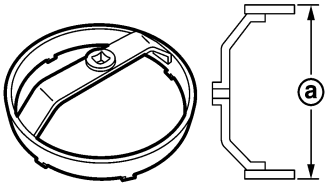
- **Start engine and rev it up and check for fuel leakage at connections.**
- **Use only a genuine NISSAN fuel filler cap as a replacement. If an incorrect fuel filler cap is used, the "MIL" may come on.**

PREPARATION

PREPARATION

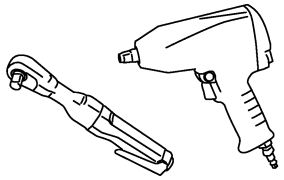
Special Service Tool

INFOID:0000000013537014

Tool number Tool name	Description
KV101207S0 Unified fuel lock ring wrench  JPBIA6384ZZ	Removing and installing fuel tank lock ring
KV10119801 Fuel tank lock ring wrench  JPBIA5562ZZ	Removing and installing fuel tank rock ring a: 187 mm (7.36 in)

Commercial Service Tools

INFOID:0000000013537015

Tool name	Description
Power tool  PBIC0190E	Loosening bolts and nuts

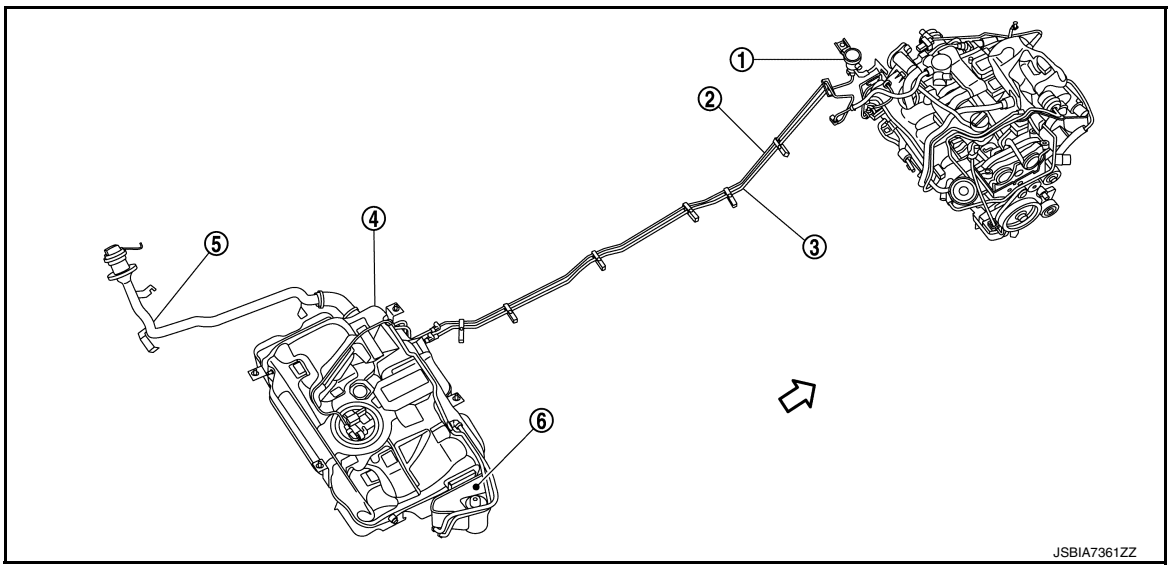
PERIODIC MAINTENANCE

FUEL SYSTEM

Hydraulic Layout

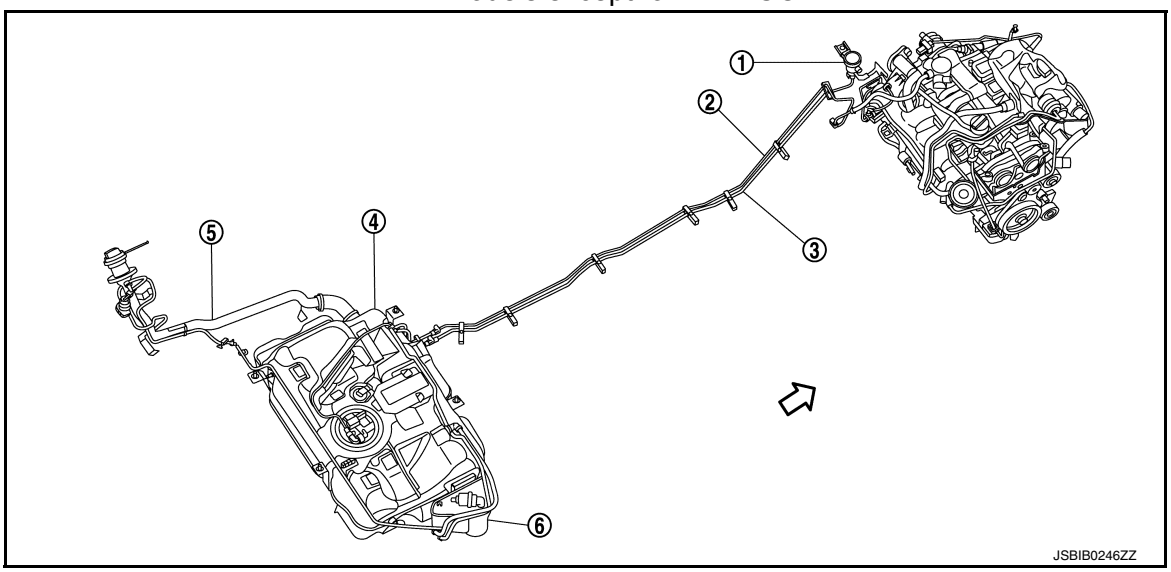
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2WD models for MEXICO



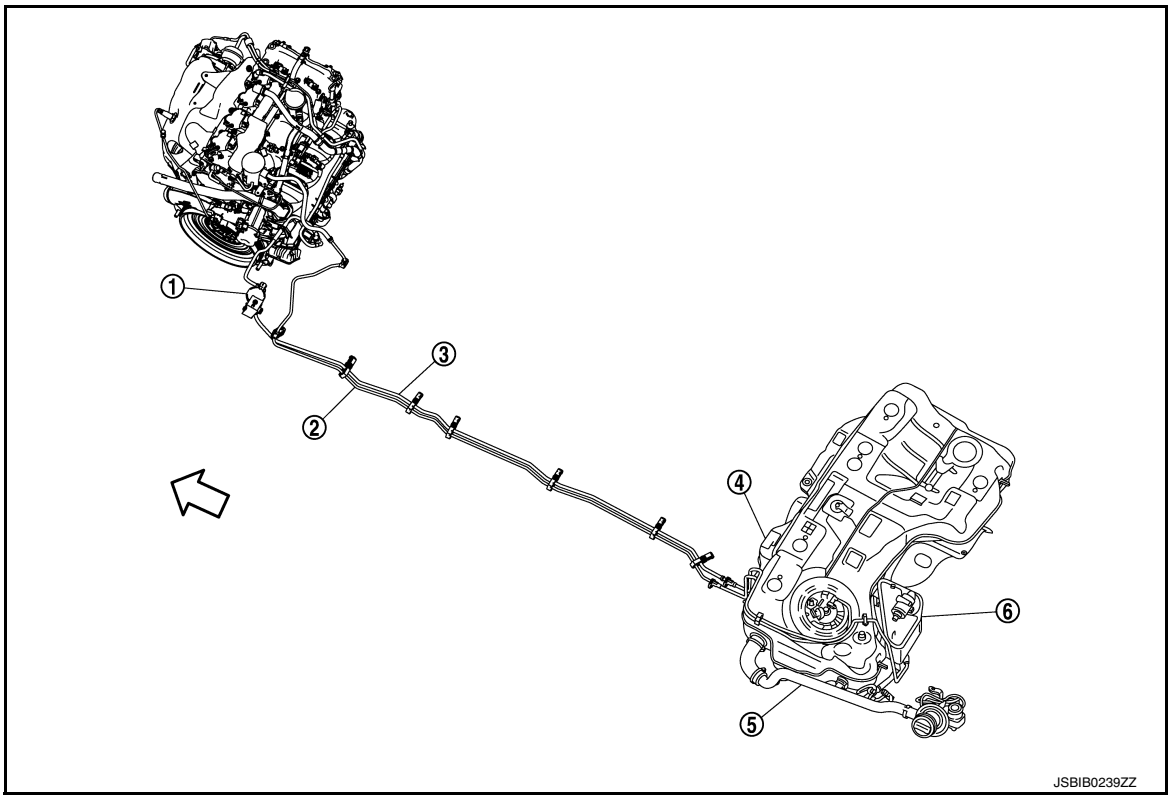
① EVAP purge control valve ② Fuel line ③ EVAP line
④ Fuel tank ⑤ Fuel filler tube ⑥ EVAP canister
⇦ : Vehicle front

2WD models except for MEXICO



① EVAP purge control valve ② Fuel line ③ EVAP line
④ Fuel tank ⑤ Fuel filler tube ⑥ EVAP canister
⇦ : Vehicle front

AWD models

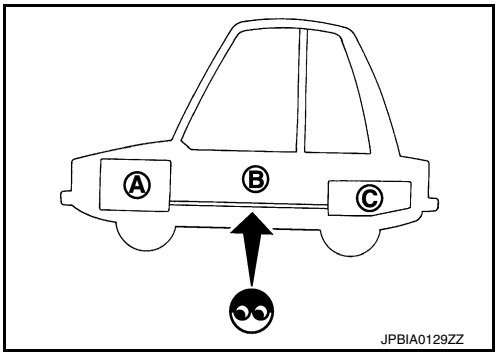


① EVAP purge control valve ② Fuel line ③ EVAP line
④ Fuel tank ⑤ Fuel filler tube ⑥ EVAP canister
⇦ : Vehicle front

Inspection

INFOID:0000000013537017

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



Ⓐ : Engine
Ⓑ : Fuel line
Ⓒ : Fuel tank

If necessary, repair or replace damaged parts.

Quick Connector

INFOID:0000000013537018

CAUTION:
- **After connecting fuel tube quick connectors, check quick connectors are secure.**
- **Ensure that connector and resin tube never contact any adjacent parts.**

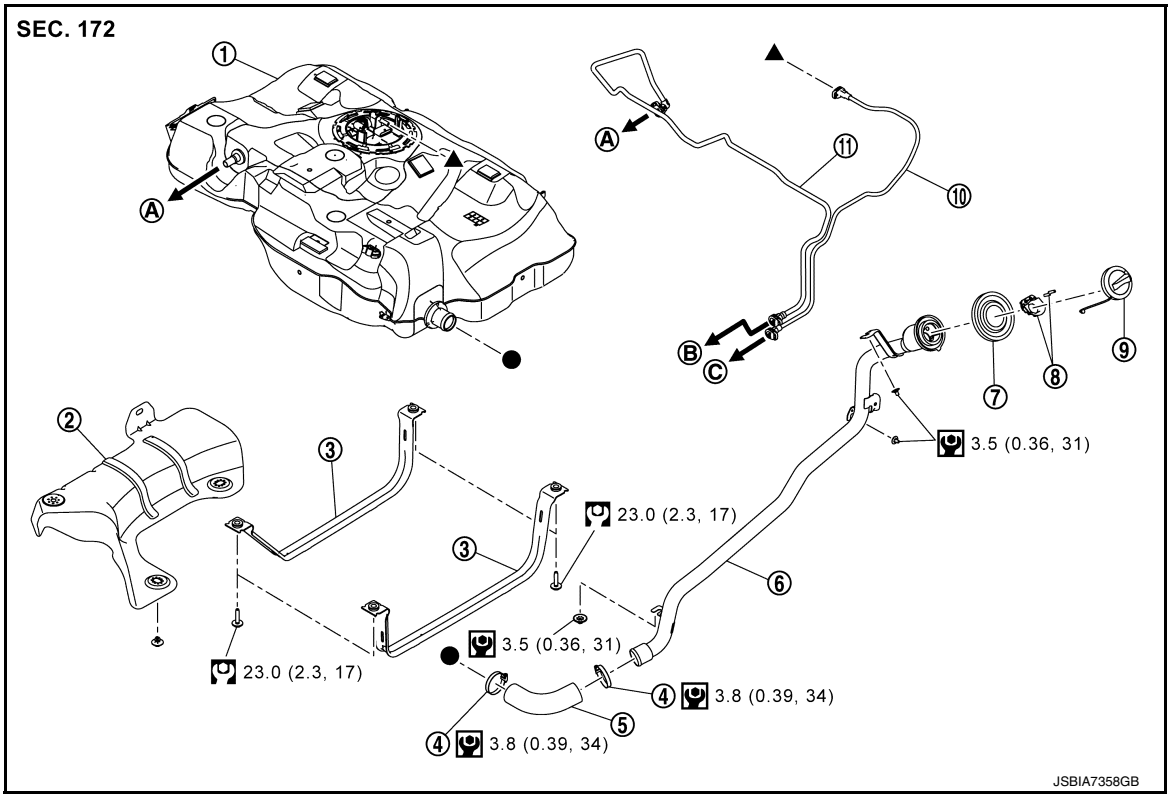
REMOVAL AND INSTALLATION

FUEL TANK

Exploded View

INFOID:0000000013537019

2WD models for MEXICO



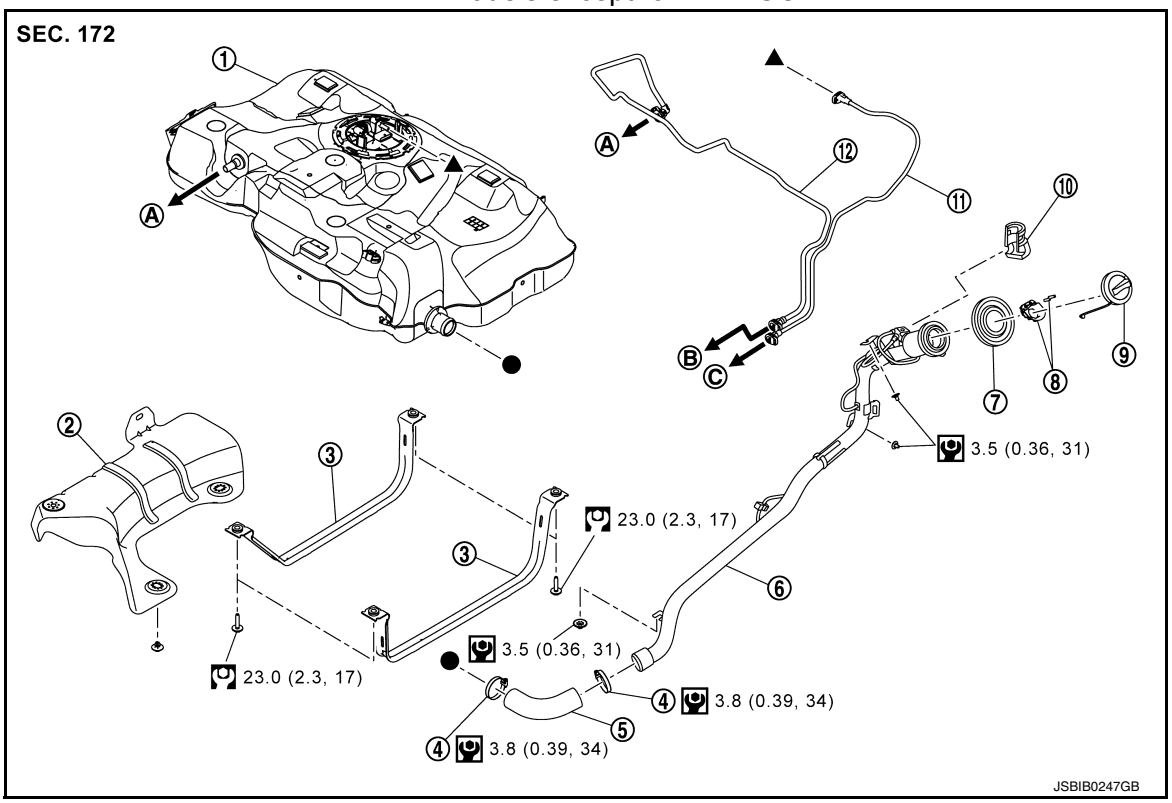
① Fuel tank	② Fuel tank insulator	③ Fuel tank mounting band
④ Clamp	⑤ Fuel filler hose	⑥ Fuel filler tube
⑦ Grommet	⑧ Guide shutter assembly	⑨ Fuel filler cap
⑩ Fuel tube	⑪ EVAP tube	
Ⓐ To EVAP canister	Ⓑ To EVAP purge control valve	Ⓒ To high pressure fuel pump

: N·m (kg-m, ft-lb)

: N·m (kg-m, in-lb)

●, ▲ : Indicates that the part is connected at points with same symbol in actual vehicle.

2WD models except for MEXICO



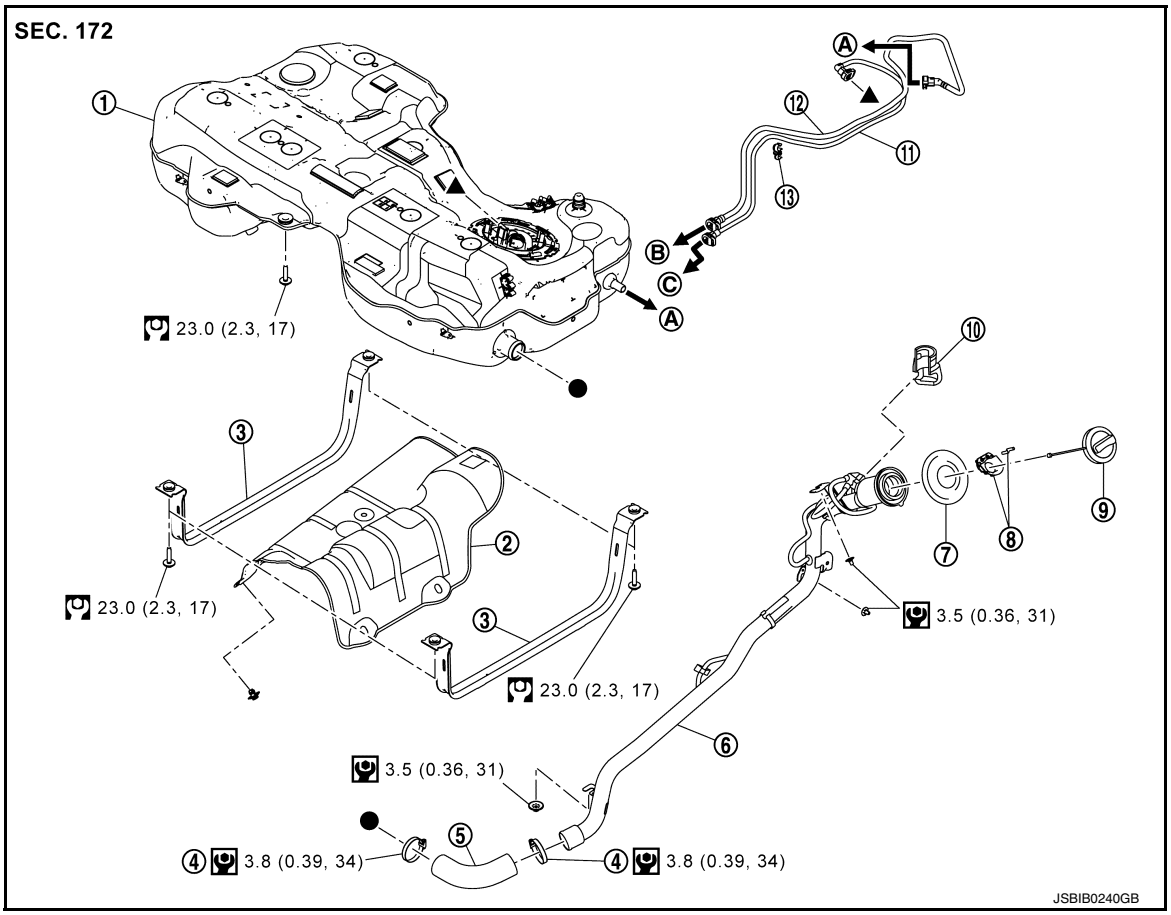
① Fuel tank	② Fuel tank insulator	③ Fuel tank mounting band
④ Clamp	⑤ Fuel filler hose	⑥ Fuel filler tube
⑦ Grommet	⑧ Guide shutter assembly	⑨ Fuel filler cap
⑩ Vent tube bracket	⑪ Fuel tube	⑫ EVAP tube
Ⓐ To EVAP canister	Ⓑ To EVAP purge control valve	Ⓒ To high pressure fuel pump

: N·m (kg-m, ft-lb)

: N·m (kg-m, in-lb)

●, ▲ : Indicates that the part is connected at points with same symbol in actual vehicle.

AWD models



① Fuel tank	② Fuel tank insulator	③ Fuel tank mounting band
④ Clamp	⑤ Fuel filler hose	⑥ Fuel filler tube
⑦ Grommet	⑧ Guide shutter assembly	⑨ Fuel filler cap
⑩ Vent tube bracket	⑪ Fuel tube	⑫ EVAP tube
⑬ Clamp		
Ⓐ To EVAP canister	Ⓑ To EVAP purge control valve	Ⓒ To high pressure fuel pump

: N·m (kg-m, ft-lb)

: N·m (kg-m, in-lb)

●, ▲ : Indicates that the part is connected at points with same symbol in actual vehicle.

Removal and Installation

INFOID:0000000013537020

WARNING:
Be sure to read “General Precautions” when working on the fuel system. Refer to FL-2, "General Precautions".

REMOVAL

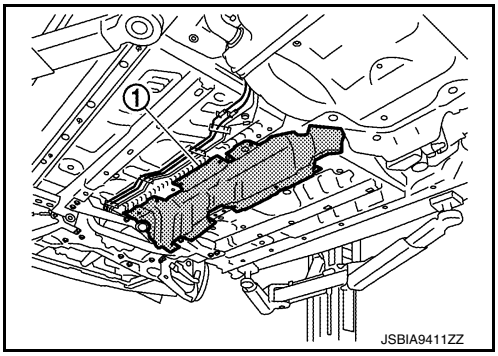
Fuel tank

1. Check DTC using CONSULT.
   NOTE:
   Before starting the work procedure, check if there is already-detected DTC to distinguish it from DTC detected during fuel pressure release.
2. Release fuel pressure as follows:

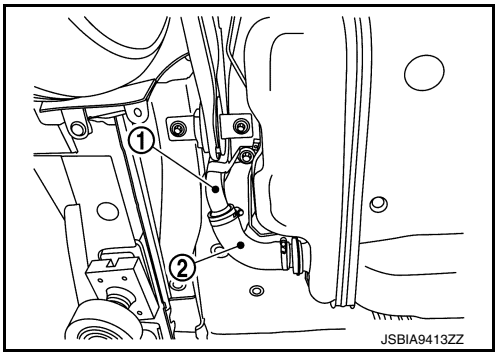
a. Remove fuel pump fuse.

b. Start the engine.
c. After engine stalls, crank it two or three times to release all fuel pressure.
d. Turn ignition switch OFF.

3. Drain fuel from fuel tank.
NOTE:
Perform work on level place.
4. Remove rear propeller shaft. Refer to DLN-87, "Removal and Installation". (AWD models)
5. Remove rear muffler assembly. Refer to EX-7, "Removal and Installation".
6. Remove rear under cover LH and RH. Refer to EXT-45, "FLOOR UNDER COVER : Exploded View".
7. Remove body insulator ①.
8. Remove fuel tank insulator.
9. Remove rear under cover rear. Refer to EXT-45, "FLOOR UNDER COVER : Exploded View".

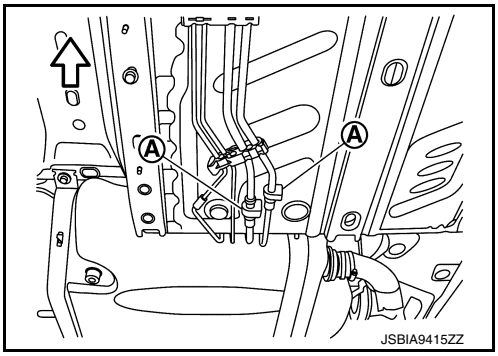


10. Disconnect fuel filler hose ② at fuel filler tube ① side.

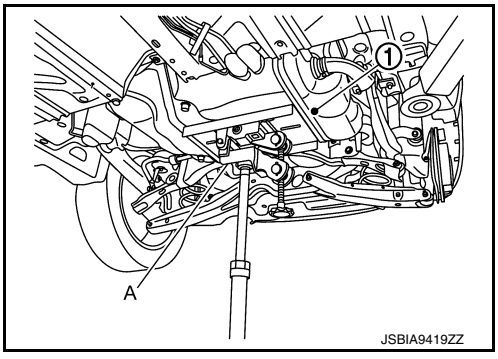


11. Disconnect quick connector Ⓐ.

⇦ : Vehicle front

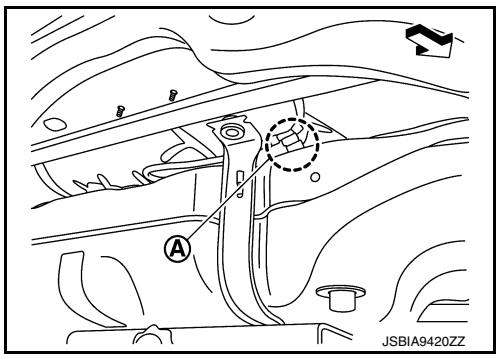


12. Support the center part of fuel tank ① with transmission jack (A).
13. Remove fuel tank mounting bands, and fuel tank is lowered a little.



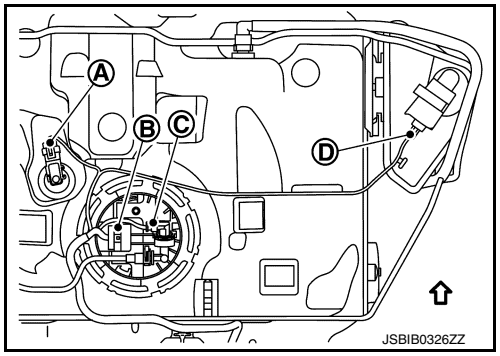
14. Disconnect fuel pump harness clamp Ⓐ from fuel tank.

⇦ : Vehicle front



15. Lower the fuel tank again to disconnect the harness connectors.

Ⓐ : Fuel tank pressure sensor harness connector (Except for MEXICO)
Ⓑ : Fuel pump harness connector
Ⓒ : Fuel pressure sensor harness connector
Ⓓ : EVAP canister vent control valve harness connector (Except for MEXICO)
⇦ : Vehicle front



NOTE:
The figure shows 2WD models.

16. Lower transmission jack carefully to remove fuel tank while holding it by hand.
CAUTION:
Fuel tank may be in an unstable condition because of the shape of fuel tank bottom. Never rely on jack too much. Be sure to hold tank securely.
17. Remove EVAP canister, if necessary. Refer to FL-14, "Removal and Installation".

Fuel filler tube

1. Drain fuel from fuel tank.
NOTE:
Perform work on level place.
2. Remove rear tire (LH). Refer to WT-70, "Exploded View"
3. Remove rear fender protector (LH). Refer to EXT-42, "REAR WHEEL HOUSE PROTECTOR : Removal and Installation".
4. Remove fuel filler lid base assembly. Refer to DLK-275, "FUEL FILLER LID : Removal and Installation"
5. Move grommet again.
6. Remove trailing arm (LH). Refer to RSU-15, "Removal and Installation".
7. Remove fuel hose.
8. Remove fuel filler tube.
9. Remove vent tube bracket.

Guide shutter assembly

1. Open the fuel filler lid.
2. Remove guide shutter assembly by using an appropriate tool.

INSTALLATION

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

Fuel Filler Hose

• Be sure hose clamp is not placed on swelled area of fuel filler tube.

Guide shutter assembly

• Press the pin of guide shutter assembly by fingers to install guide shutter assembly.

Inspection

INFOID:0000000013537021

INSPECTION AFTER INSTALLATION

Use the following procedure to check for fuel leakage.

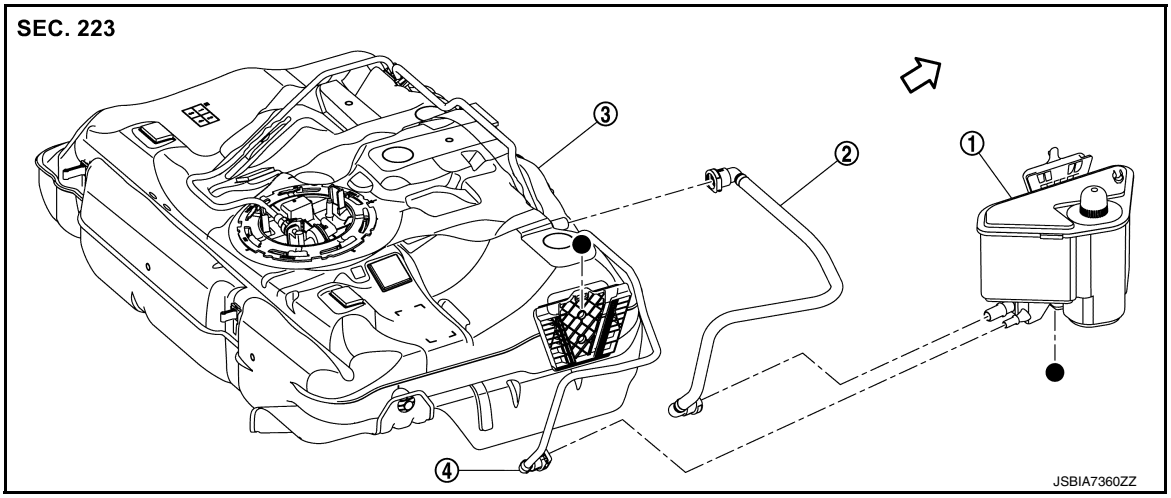
1. Turn ignition switch “ON” (with engine stopped), and check connections for leakage by applying fuel pressure to fuel piping.
2. Start engine and rev it up and check there are no fuel leakage at the fuel system tube and hose connections.

EVAP CANISTER

Exploded View

INFOID:0000000013537022

2WD models for MEXICO



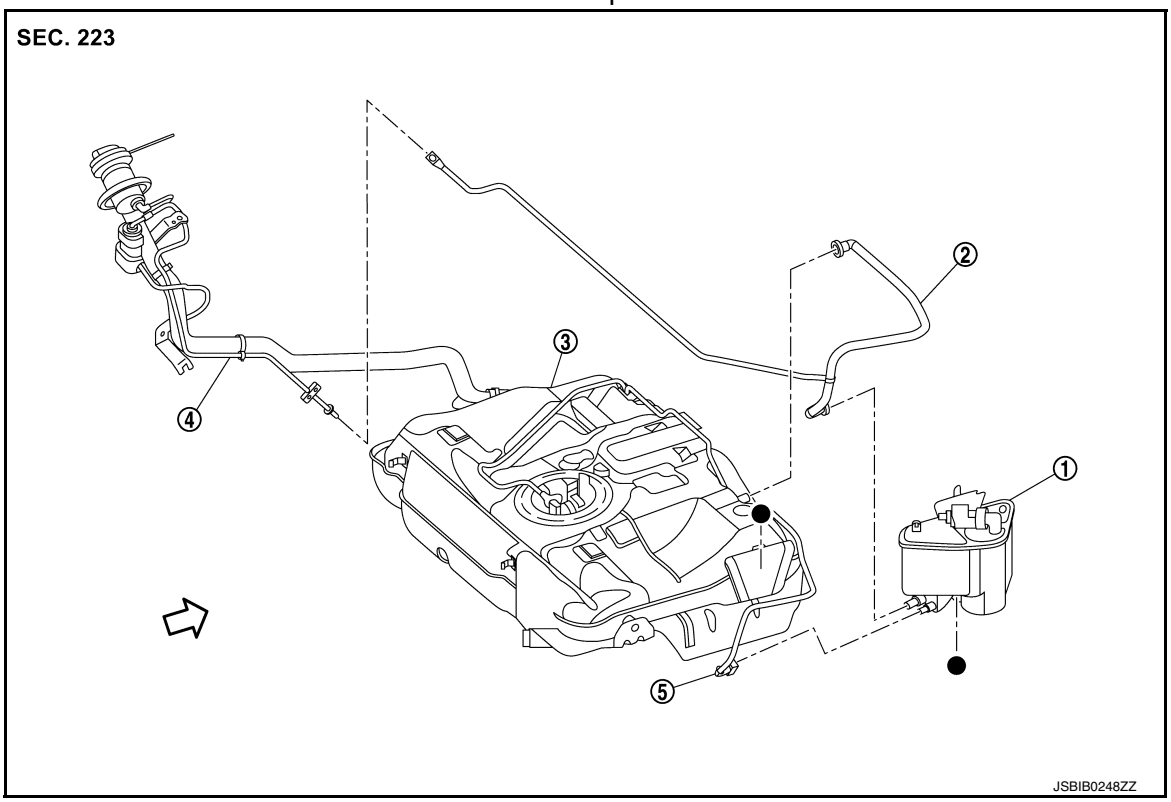
① EVAP canister ② EVAP tube ③ Fuel tank

④ EVAP tube

⇦ : Vehicle front

● : Indicates that the part is connected at points with same symbol in actual vehicle.

2WD models except for MEXICO



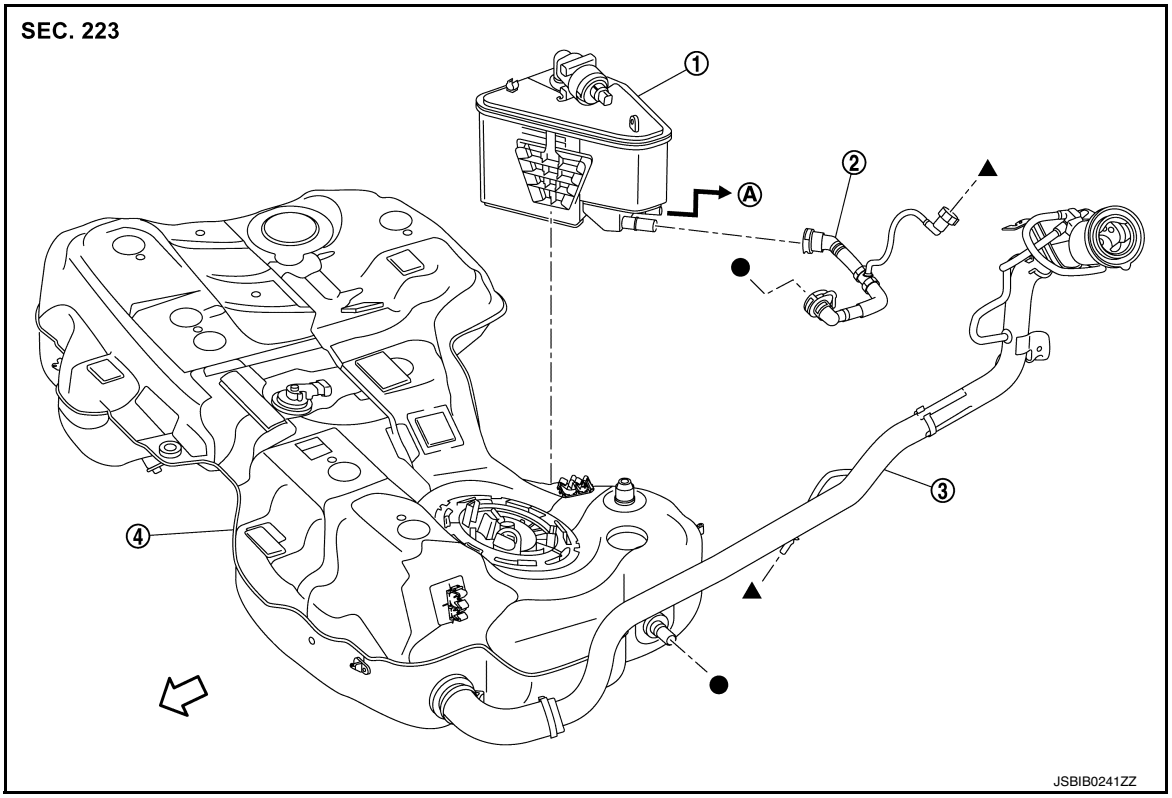
① EVAP canister ② EVAP tube ③ Fuel tank

④ Fuel filler tube ⑤ EVAP tube

⇦ : Vehicle front

● : Indicates that the part is connected at points with same symbol in actual vehicle.

AWD models



① EVAP canister ② EVAP tube ③ Fuel filler tube

④ Fuel tank

Ⓐ To EVAP purge control valve

⇦ : Vehicle front

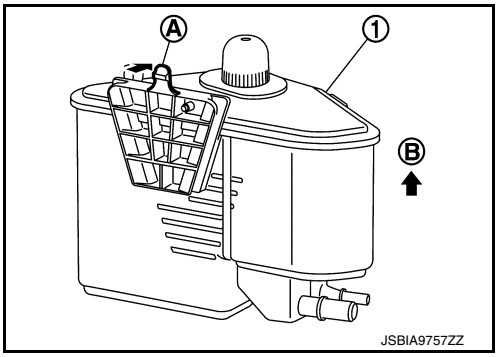
●, ▲ : Indicates that the part is connected at points with same symbol in actual vehicle.

Removal and Installation

INFOID:0000000013537023

REMOVAL

1. Disconnect EVAP tubes.
2. Disconnect EVAP canister vent control valve harness connector. (Except for MEXICO)
3. Push tab Ⓐ, and then remove EVAP canister ①, slide it in the direction Ⓑ.



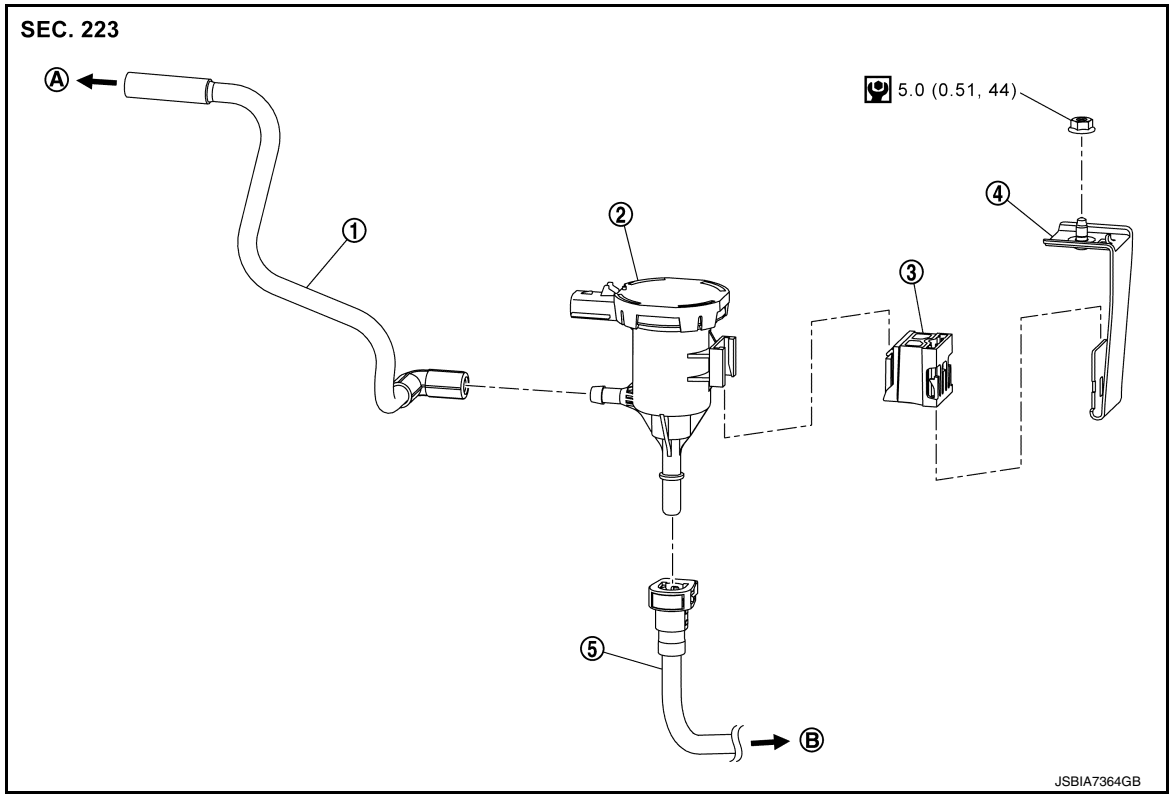
INSTALLATION

Install in the reverse order of removal.

EVAP PURGE CONTROL VALVE

Exploded View

INFOID:0000000013537024



① EVAP tube	② EVAP purge control valve	③ Adapter
④ Bracket	⑤ EVAP line	
Ⓐ To full-load vent line	Ⓑ To EVAP canister	

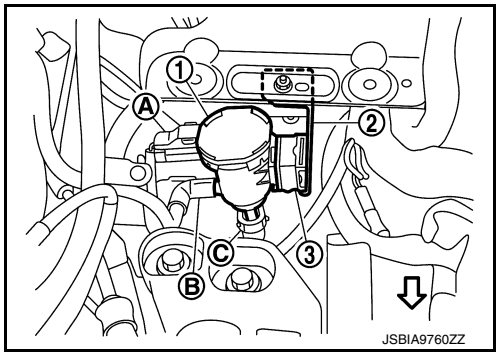
: N·m (kg-m, in-lb)

Removal and Installation

INFOID:0000000013537025

REMOVAL

1. Remove battery tray. Refer to PG-117, "MAIN BATTERY : Removal and Installation".
2. Disconnect harness connector Ⓐ and EVAP tube Ⓑ.



① : EVAP purge control valve
② : Bracket
③ : Adapter
Ⓒ : Quick connector
⇦ : Vehicle front

3. Remove quick connector. Refer to FL-6, "Quick Connector".
4. Remove EVAP purge control valve with bracket.
5. Remove bracket and adapter, if necessary.

INSTALLATION

Install in the reverse order of removal.

Inspection

INFOID:0000000013537026

Check EVAP purge control valve. Refer to EC-573, "Component Inspection (EVAP Purge Control Valve)".

UNIT DISASSEMBLY AND ASSEMBLY

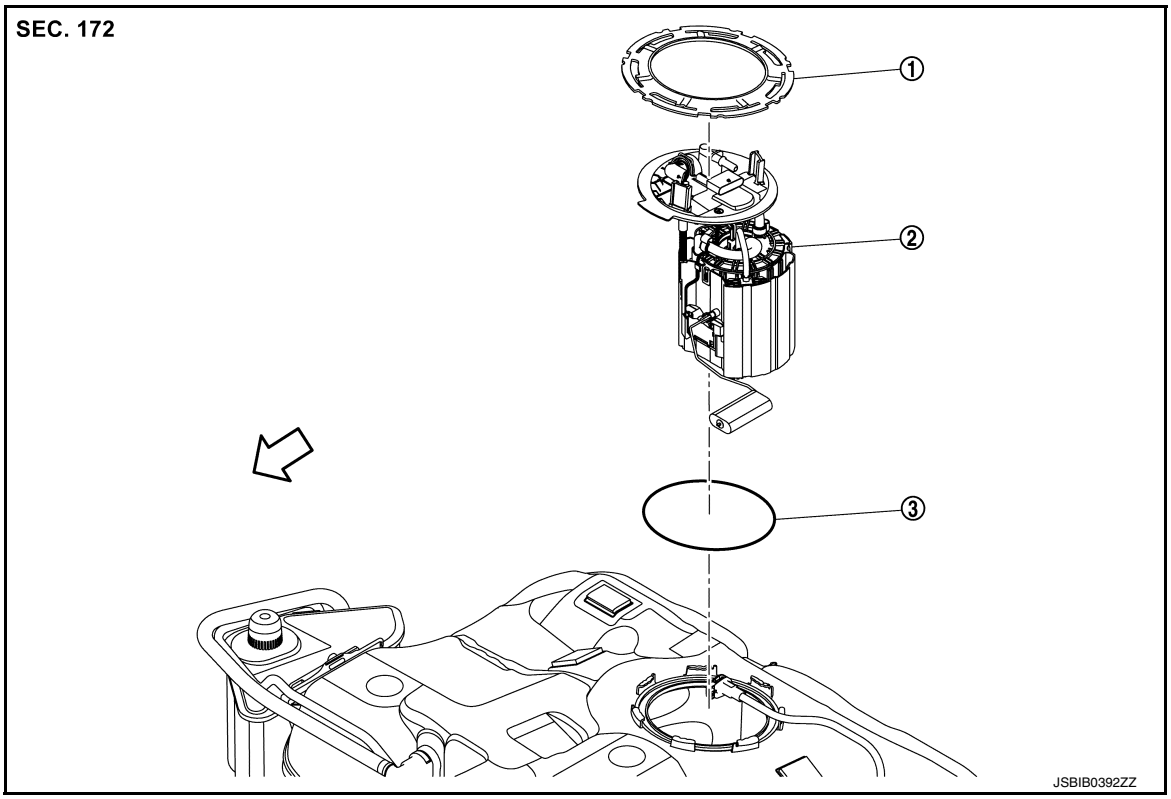
FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY

Exploded View

INFOID:0000000013537027

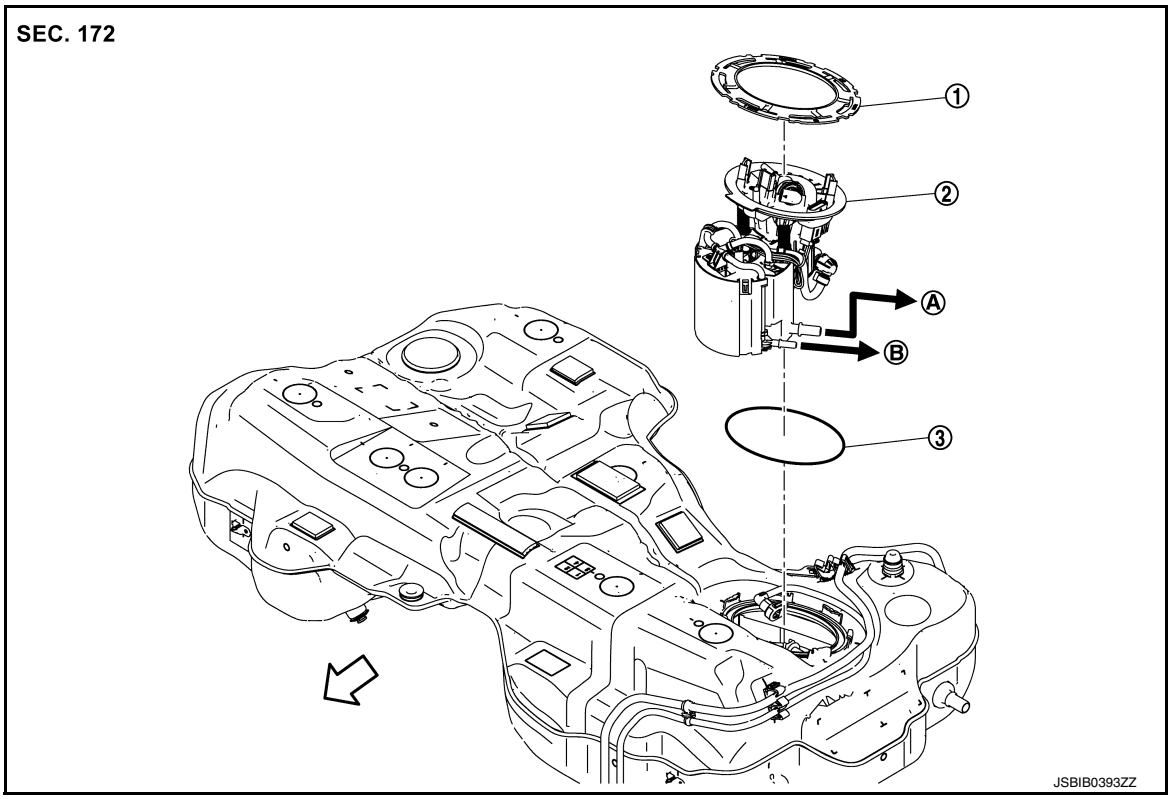
REMOVAL

2WD models



① Lock ring
② Fuel level sensor unit, fuel filter and fuel pump assembly
③ O-ring
⇦ : Vehicle front

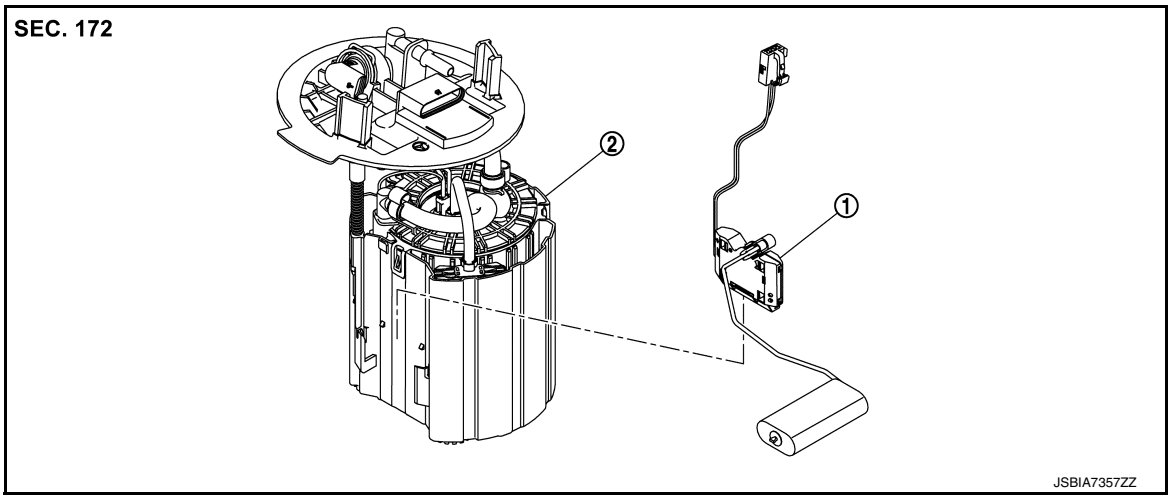
AWD models



① Lock ring
② Fuel filter and fuel pump assembly
③ O-ring
Ⓐ To transfer tube
Ⓑ To tube of tank inside
⇦ : Vehicle front

DISASSEMBLY

2WD models



① Fuel level sensor unit
② Fuel filter and fuel pump assembly

Removal and Installation

INFOID:0000000013537028

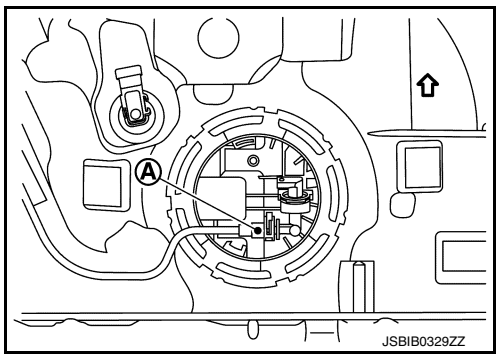
WARNING:
Read “General Precautions” when working on the fuel system. Refer to FL-2, "General Precautions".

REMOVAL

1. Remove fuel tank from vehicle. Refer to FL-9, "Removal and Installation".

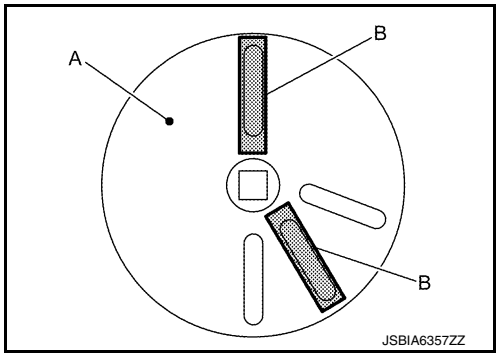
2. Disconnect quick connector Ⓐ.

⇦ : Vehicle front



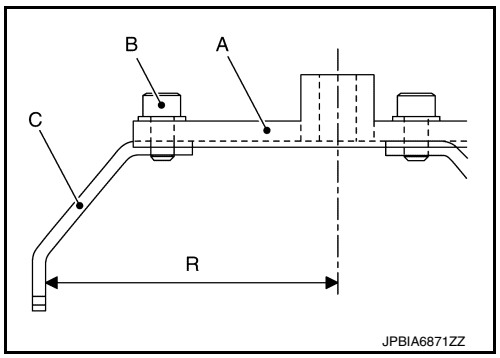
3. Remove lock ring according to the following instructions:

a. Install pawl (B) of unified fuel lock ring wrench [SST: KV101207S0] (A) to the position shown in the figure.



b. Temporarily tighten mounting bolt (B) of the pawl according to the measurement (R) from the center of unified fuel lock ring wrench [SST: KV101207S0] (A) to the end of pawl (C).

R : 88 mm (3.46 in)

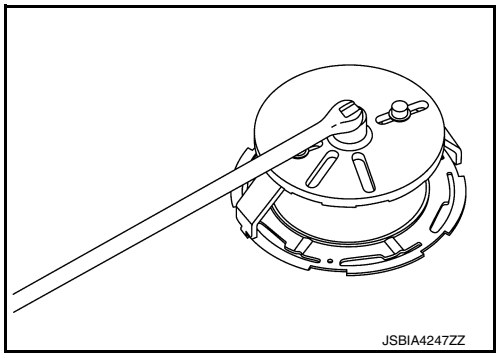


c. Set unified fuel lock ring wrench [SST: KV101207S0] to lock ring and tighten the mounting bolt of the pawl.

d. Remove lock ring.

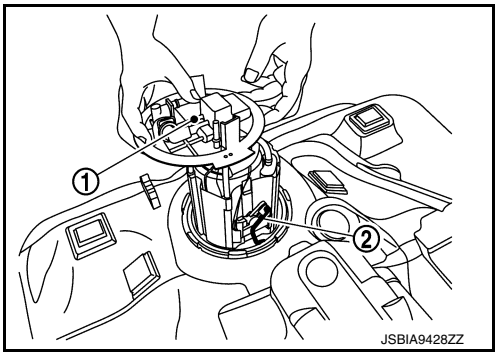
CAUTION:

- **To prevent lock ring wrench from being detached, securely hold down spinner handle by hand.**
- **To reduce impact caused by removal operation, use long spinner handle [handle length: 60 cm (23.62 in) or more] and slowly turn it counterclockwise.**



4. Remove fuel level sensor unit, fuel filter and fuel pump assembly ①.

CAUTION:
- **Never bend float arm ② during removal.**
- **Never pollute the inside by residue fuel. Draw out avoiding inclination by supporting with a cloth.**
- **Never cause impacts such by dropping when handling components.**



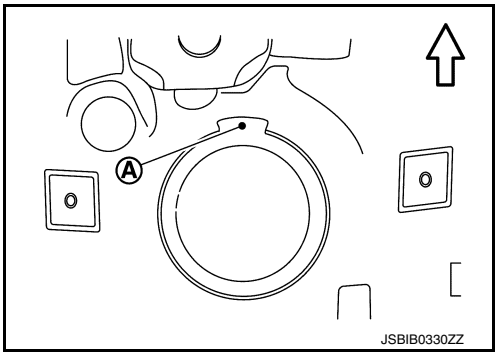
INSTALLATION

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

1. Install O-ring to fuel tank without any twist.
2. Install the fuel level sensor unit, fuel filter and fuel pump assembly on the fuel tank with the fuel level sensor unit, fuel filter and fuel pump assembly top surface Ⓐ faced the rear of the vehicle.

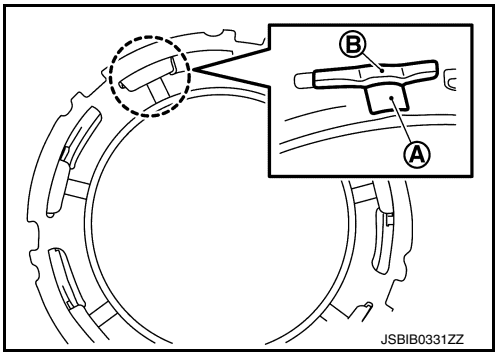
⇦ : Vehicle front

CAUTION:
- **Never allow O-ring to drop.**
- **Never bend float arm during installing.**



3. Install lock ring for fuel level sensor unit, fuel filter and fuel pump assembly with unified fuel lock ring wrench [SST: KV101207S0] by turning clockwise.

CAUTION:
- **Install lock ring horizontally.**
- **Turn the lock ring Ⓐ until it is engaged in the fuel tank side Ⓑ as shown in the figure.**

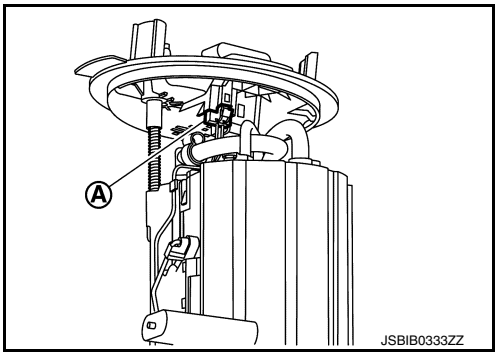


Disassembly and Assembly

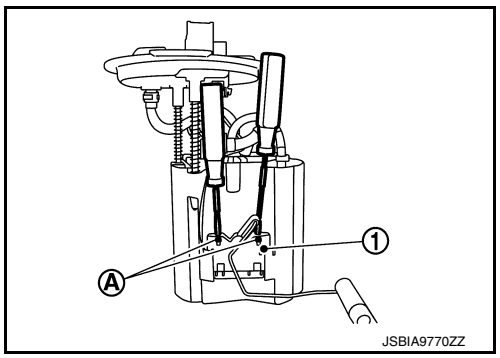
INFOID:0000000013537029

DISASSEMBLY

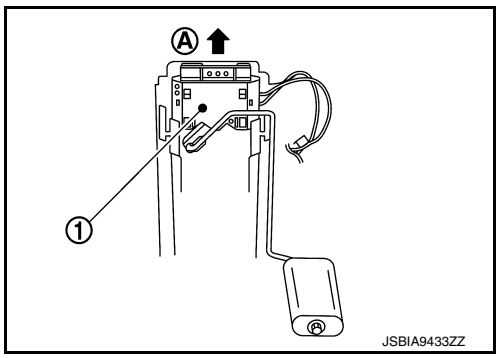
1. Disconnect fuel level sensor unit harness connector Ⓐ.



2. Press Ⓐ with a flat-blade screwdriver or an equivalent to release the lock and push out the fuel level sensor unit ① .



3. To remove the fuel level sensor unit ① , slide it in the direction Ⓐ of the arrow with the lock released.



ASSEMBLY

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

1. Check for damage of fuel level sensor unit installation position on the side of adapter.
2. Slide fuel level sensor unit 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.
3. Connect the harness connector.

Inspection

INFOID:0000000013537030

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.

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Fuel Tank

INFOID:0000000013537031

Standard and Limit

Fuel tank capacity	2WD	Approx. 50.0 ℓ (13-2/8 US gal, 11 Imp gal)
	4WD	Approx. 56.0 ℓ (14-6/8 US gal, 12-3/8 Imp gal)
Fuel recommendation		Refer to GI-44, "Fuel"