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# SECTION **FL**

## FUEL SYSTEM

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# PRECAUTIONS

< SERVICE INFORMATION >

## SERVICE INFORMATION

### PRECAUTIONS

#### Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:000000007332040

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the SRS and SB section of this Service Manual.

#### **WARNING:**

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SRS section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

#### PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

#### **WARNING:**

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

#### Precaution Necessary for Steering Wheel Rotation After Battery Disconnect

INFOID:000000007332041

#### **NOTE:**

- This Procedure is applied only to models with Intelligent Key system and NATS (NISSAN ANTI-THEFT SYSTEM).
- Remove and install all control units after disconnecting both battery cables with the ignition knob in the "LOCK" position.
- Always use CONSULT to perform self-diagnosis as a part of each function inspection after finishing work. If DTC is detected, perform trouble diagnosis according to self-diagnostic results.

For models equipped with the Intelligent Key system and NATS, an electrically controlled steering lock mechanism is adopted on the key cylinder.

For this reason, if the battery is disconnected or if the battery is discharged, the steering wheel will lock and steering wheel rotation will become impossible.

If steering wheel rotation is required when battery power is interrupted, follow the procedure below before starting the repair operation.

#### OPERATION PROCEDURE

1. Connect both battery cables.

#### **NOTE:**

Supply power using jumper cables if battery is discharged.

2. Use the Intelligent Key or mechanical key to turn the ignition switch to the "ACC" position. At this time, the steering lock will be released.
3. Disconnect both battery cables. The steering lock will remain released and the steering wheel can be rotated.
4. Perform the necessary repair operation.

## PRECAUTIONS

### < SERVICE INFORMATION >

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5. When the repair work is completed, return the ignition switch to the "LOCK" position before connecting the battery cables. (At this time, the steering lock mechanism will engage.)
6. Perform a self-diagnosis check of all control units using CONSULT.

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# PREPARATION

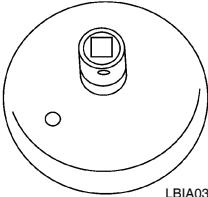
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## PREPARATION

### Special Service Tool

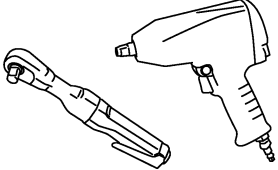
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The actual shapes of the Kent-Moore tools may differ from those of the special tools illustrated here.

Tool number (Kent-Moore No.) Tool name	Description
KV991J0090 (J-46214) Fuel tank lock ring tool  LBIA0353E	Removing and installing fuel tank lock ring

### Commercial Service Tool

INFOID:000000007332043

Tool name	Description
Power tools  PBIC0190E	Loosening bolts and nuts

# FUEL SYSTEM

< SERVICE INFORMATION >

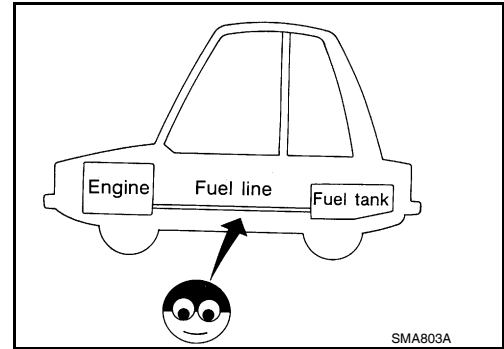
## FUEL SYSTEM

### Checking Fuel Line

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

If necessary, repair or replace damaged parts.



### General Precaution

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#### **WARNING:**

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

- Put a "CAUTION: FLAMMABLE" sign in the work area.
- Be sure to work in a well ventilated area and have a CO<sub>2</sub> fire extinguisher.
- Do not smoke while working on the fuel system. Keep open flames and sparks away from the work area.
- Put drained fuel in an explosion-proof container and put the lid on securely. Keep the container in safe area.

#### **CAUTION:**

- Use gasoline required by the regulations for octane number. Refer to [GI-4, "Precaution for Fuel \(Unleaded Regular Gasoline Recommended\)"](#).
- Before removing fuel line parts, perform the following procedures:
  - Release fuel pressure from the fuel lines. Refer to [EC-89, "Fuel Pressure Check"](#).
  - Disconnect the battery ground cable.
- Always replace O-rings and clamps with new ones.
- Do not kink or twist tubes when they are being installed.
- Perform work on level surface.
- Do not tighten hose clamps excessively to avoid damaging hoses.
- After connecting fuel tube quick connectors, make sure quick connectors are secure. Ensure that connector and resin tube do not contact any adjacent parts.
- After installing tubes, make sure there is no fuel leakage at connections in the following steps.
  - Apply fuel pressure to fuel lines by turning ignition switch ON (without starting the engine). Then check for fuel leaks at the fuel tube connections.
  - Start engine and rev it up and check for fuel leaks 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 "Evaporative Emission System" parts, refer to [FL-15, "Removal and Installation"](#).
- For servicing "On Board Refueling Vapor Recovery (ORVR)" parts, refer to [EC-40, "Component Inspection"](#).

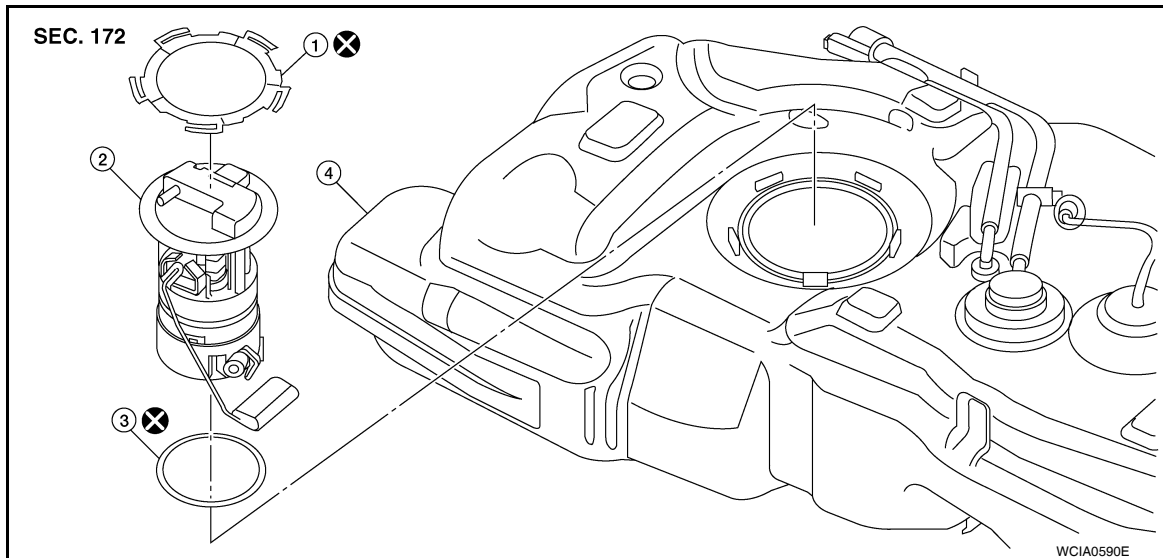
# FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY

< SERVICE INFORMATION >

## FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY

### Component

INFOID:000000007332046



1. Lock ring
2. Fuel level sensor unit, fuel filter and fuel pump assembly
3. O-ring seal
4. Fuel tank

### Removal and Installation

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#### NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

#### REMOVAL

#### WARNING:

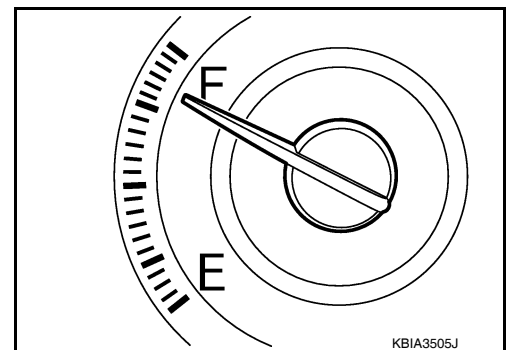
Be sure to read "General Precautions" before working on the fuel system. Refer to [FL-5, "General Precaution"](#).

1. Check fuel level with the vehicle on a level surface. If the fuel gauge indicates more than the level as shown (7/8 full), drain fuel from the fuel tank until the fuel gauge indicates level as shown (7/8 full).

#### NOTE:

Fuel will be spilled when removing fuel pump assembly if fuel level is above the fuel pump assembly installation surface.

- As a guide, fuel level is at the level as shown or below when approximately 12 ℓ (3 1/8 US gal, 2 5/8 Imp gal) of fuel is drained from a full fuel tank.
- In case fuel pump does not operate, perform the following procedure.

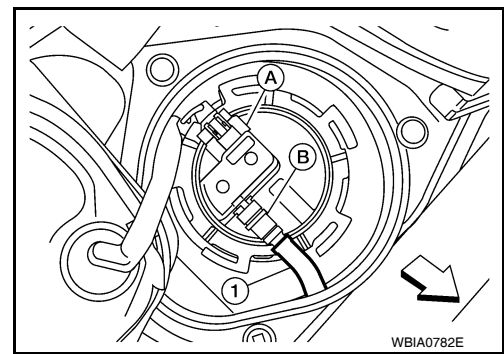


- a. Insert fuel tubing of less than 25 mm (0.98 in) in diameter into fuel filler tube through fuel filler opening to drain fuel from fuel filler tube.
  - b. Disconnect fuel filler hose from fuel filler tube. Refer to [FL-10](#).
  - c. Insert fuel tubing into fuel tank through fuel filler hose to drain fuel from fuel tank.
2. Open fuel door and unscrew the fuel filler cap to release the pressure inside the fuel tank.
  3. Release the fuel pressure from the fuel lines. Refer to [EC-89, "Fuel Pressure Check"](#).
  4. Disconnect the negative battery cable. Refer to [SC-7, "Removal and Installation"](#).
  5. Remove rear seat bottom. Refer to [SE-22, "Removal and Installation"](#).
  6. Turn the four retainers 90° in a clockwise direction and remove the fuel pump inspection hole cover.

# FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY

## < SERVICE INFORMATION >

7. Disconnect electrical connector (A) and fuel feed hose quick connector (B).
- Fuel feed hose (1)
  - ↶ : Vehicle front

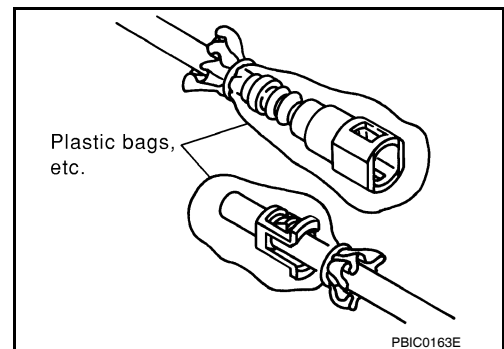
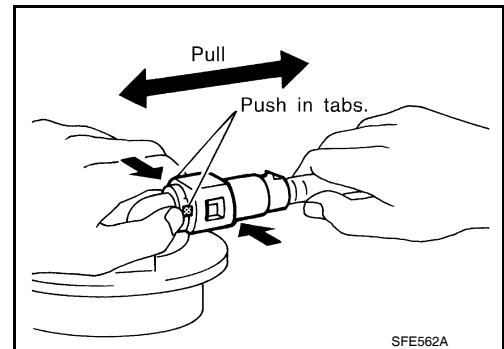


- Disconnect the quick connector using the following procedure.

- Hold the sides of the connector, push in tabs and pull out the tube.
- If quick connector and tube on fuel pump assembly are stuck, push and pull several times until they move. Disconnect them by pulling.

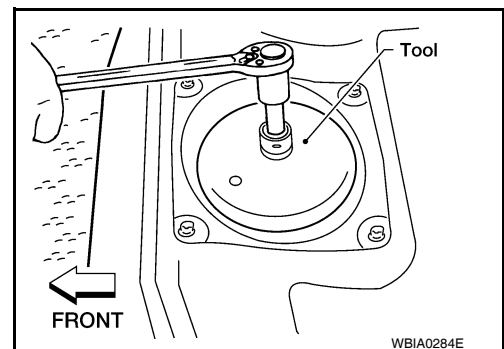
### CAUTION:

- The tube can be removed when the tabs are completely depressed. Do not twist it more than necessary.
- Do not use any tools to remove the quick connector.
- Keep resin tube away from heat. Be especially careful when welding near the resin tube.
- Prevent acid liquid such as battery electrolyte, from getting on resin tube.
- Do not bend or twist resin tube during installation and removal.
- To keep the connecting portion clean, free of foreign materials and to avoid damage, cover them completely with plastic bags or something similar.
- Do not insert plug to prevent damage to O-ring seal in quick connector.



8. Remove the lock ring using Tool as shown.

**Tool number** : KV991J0090 (J-46214)



9. Remove fuel level sensor unit, fuel filter and fuel pump assembly.

### CAUTION:

- Discard the o-ring seal, do not reuse the O-ring seal.
- Do not bend float arm during removal.
- Do not allow foreign materials to fall into fuel tank. Use a lint free cloth when handling components.
- Avoid impacts such as dropping when handling components.

# FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY

## < SERVICE INFORMATION >

### INSPECTION AFTER REMOVAL

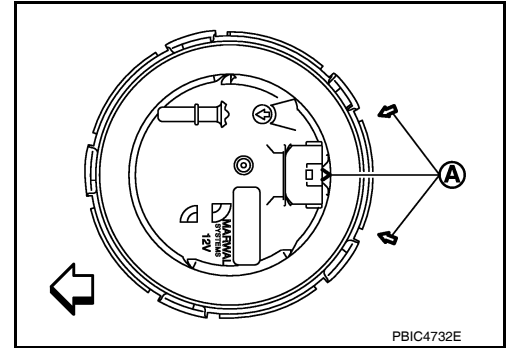
Make sure that the fuel level sensor unit, fuel filter and fuel pump is free from defects and foreign materials.

### INSTALLATION

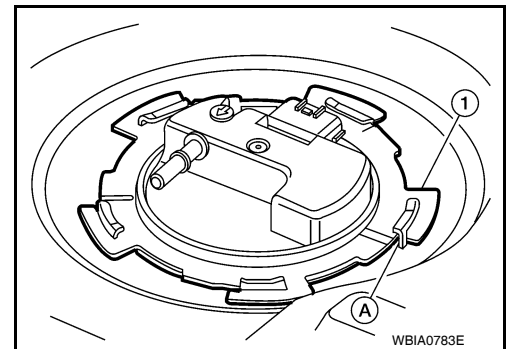
Installation is in the reverse order of removal.

Fuel Level Sensor Unit, Fuel Filter and Fuel Pump Assembly

1. Install O-ring seal to fuel tank without twisting.
2. Install fuel level sensor unit by aligning mating marks (A) on fuel tank and fuel level sensor unit as shown.
  - ⇐: Front



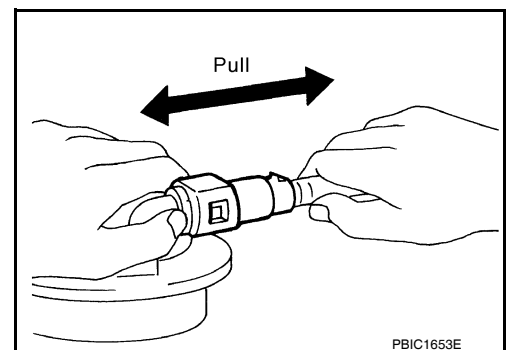
- Turn the lock ring (1) until the lock ring is fully rotated into the fuel tank lock tabs (A) as shown.



### Quick Connector

Connect fuel feed tube quick connector using the following procedure.

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, make sure that the connection is secure using the following procedure.
  - Visually confirm that the two retainer tabs are secured to the connector.
  - Pull the tube and the connector to make sure they are securely connected.



4. Connect electrical harness connector.

### Inspection Hole Cover

- Before installing inspection hole cover, confirm that there are no fuel leaks. Refer to "INSPECTION AFTER INSTALLATION".

1. Install inspection hole cover with the front mark (arrow) facing front of vehicle.
2. Lock clips by turning counterclockwise.

### INSPECTION AFTER INSTALLATION



# FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY

## < SERVICE INFORMATION >

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Use the following procedure to check for fuel leaks.

1. Turn ignition switch "ON" (without starting the engine), to check the connections for fuel leaks with the electric fuel pump applying pressure to the fuel piping.
2. Start the engine and let it idle to check that there are no fuel leaks at the fuel system connections.

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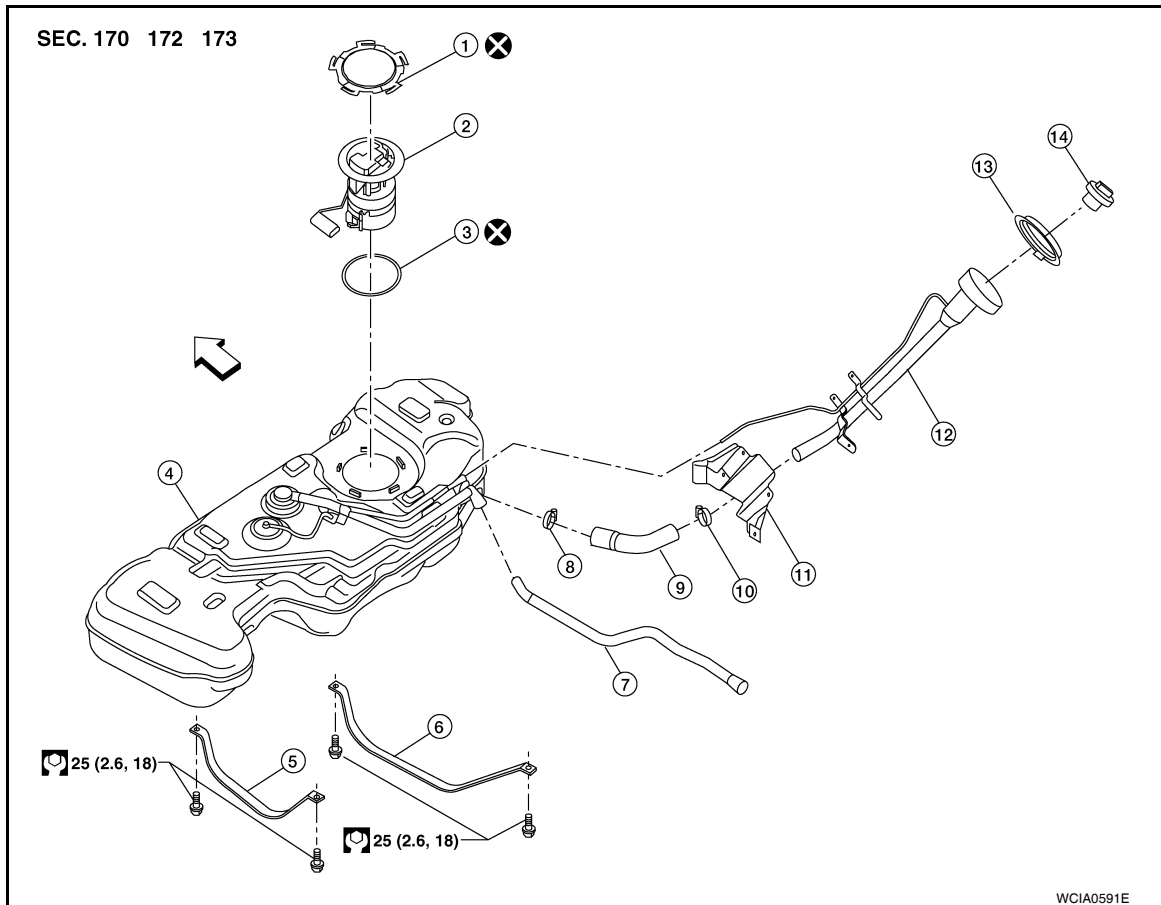
# FUEL TANK

< SERVICE INFORMATION >

## FUEL TANK

### Component

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- |                |                             |                        |
|----------------|-----------------------------|------------------------|
| 1. Lock ring   | 2. Fuel pump                | 3. O-ring seal         |
| 4. Fuel tank   | 5. Fuel tank band (LH)      | 6. Fuel tank band (RH) |
| 7. EVAP hose   | 8. Hose clamp               | 9. Fuel filler hose    |
| 10. Hose clamp | 11. Fuel filler pipe shield | 12. Fuel filler tube   |
| 13. Grommet    | 14. Fuel filler cap         | ← Front of vehicle     |

## Removal and Installation

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### NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

### REMOVAL

#### WARNING:

Be sure to read "General Precautions" when working on the fuel system. Refer to [FL-5, "General Precaution"](#).

1. Drain fuel from fuel tank if necessary. Refer to [FL-6, "Removal and Installation"](#).

#### CAUTION:

- Because fuel tank becomes unstable when installing/removing, fuel should be drained if the level exceeds specification [FL-6, "Removal and Installation"](#).
  - Situate vehicle on a flat and solid surface.
2. Open fuel door and unscrew the fuel filler cap to release the pressure inside the fuel tank.
  3. Release the fuel pressure from the fuel lines. Refer to [EC-89, "Fuel Pressure Check"](#).
  4. Remove rear seat bottom. Refer to [SE-22, "Removal and Installation"](#).

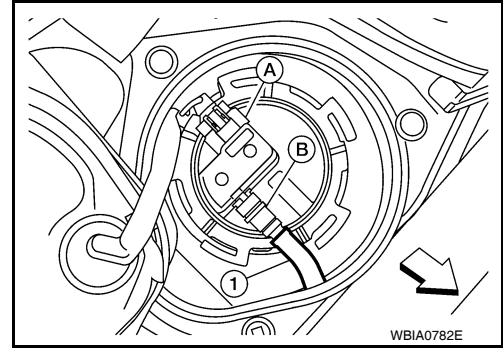
# FUEL TANK

## < SERVICE INFORMATION >

5. Turn the three retainers 90° in a clockwise direction and remove the fuel pump inspection hole cover. Disconnect electrical connector (A) and fuel feed hose quick connector (B).

- Fuel feed hose (1)

⇐ : Vehicle front

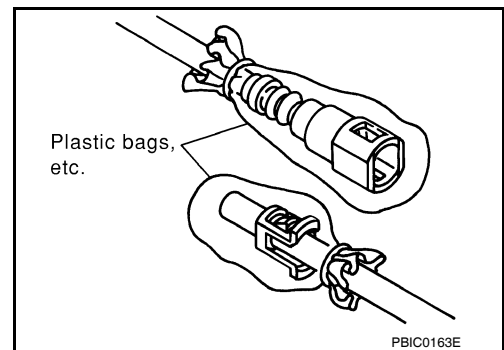
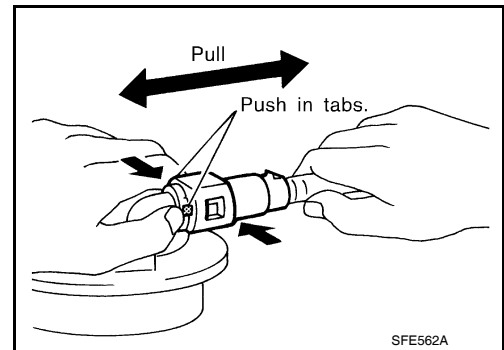


- Disconnect the quick connector using the following procedure.

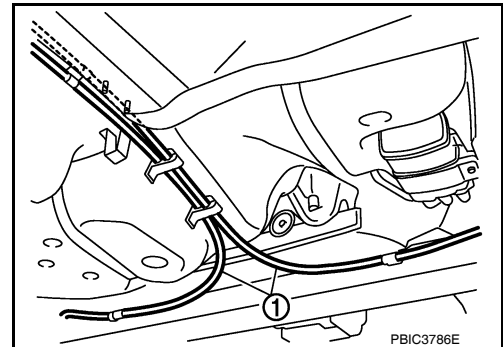
- Hold the sides of the connector, push in tabs and pull out the tube.
- If quick connector and tube on fuel pump assembly are stuck, push and pull several times until they move. Disconnect them by pulling.

### CAUTION:

- The tube can be removed when the tabs are completely depressed. Do not twist it more than necessary.
- Do not use any tools to remove the quick connector.
- Keep resin tube away from heat. Be especially careful when welding near the resin tube.
- Prevent acid liquid such as battery electrolyte, from getting on resin tube.
- Do not bend or twist resin tube during installation and removal.
- To keep the connecting portion clean, free of foreign materials and to avoid damage, cover them completely with plastic bags or something similar.
- Do not insert plug to prevent damage to O-ring seal in quick connector.



6. Remove center muffler. Refer to [EX-5. "Component"](#).
7. Remove exhaust heat shields.
8. Disconnect parking brake cables (1) from the lower surface of fuel tank and axle and position the parking brake cables (1) out of the way.



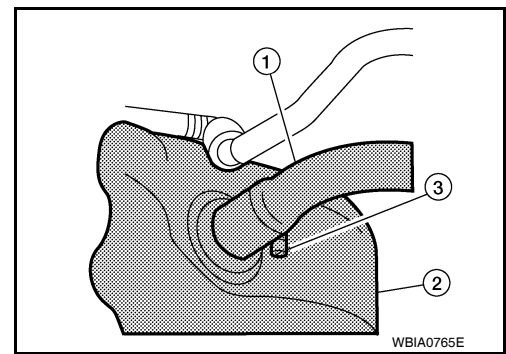
# FUEL TANK

## < SERVICE INFORMATION >

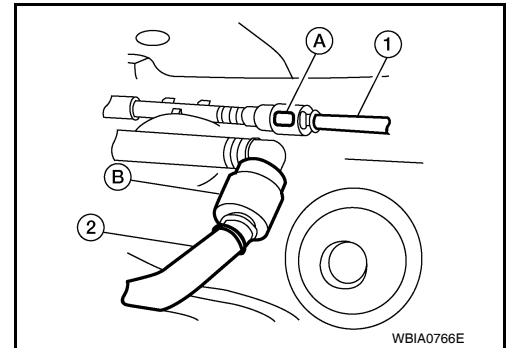
9. Loosen fuel filler hose clamp (3) and remove fuel filler hose (1) from fuel tank (2).

**CAUTION:**

**When removing fuel filler hose (1) at the fuel filler tube, mark components for alignment.**

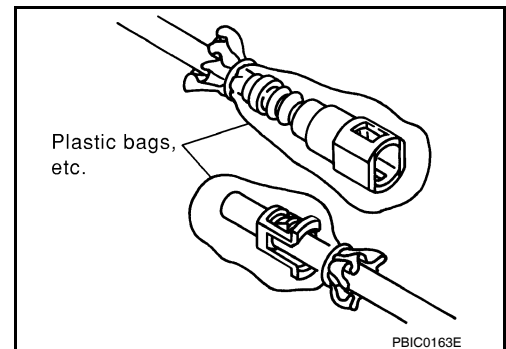


10. Remove vent hose (1) and EVAP hose (2) at rear of fuel tank.
- Disconnect vent hose and EVAP hose quick connectors using the following procedures.
- a. Pinch retaining tabs (A) of vent hose quick connector and remove vent hose (1).
- b. Slide sleeve (B) of EVAP hose quick connector and remove EVAP hose (2).
- If hoses are stuck, push and pull several times until they move freely, and disconnect.



**CAUTION:**

- The tube can be removed when the tabs are completely depressed. Do not twist it more than necessary.
- Do not use any tools to remove the quick connector.
- Keep the resin tube away from heat. Be especially careful when welding near the tube.
- Prevent acid liquid such as battery electrolyte, from getting on the resin tube.
- Do not bend or twist the tube during installation and removal.
- Do not insert plug that may cause damage to O-ring seal in quick connector.
- To keep the connecting portion clean and to avoid damage and foreign materials, cover them completely with plastic bags or something similar.



11. Support center of fuel tank (1) with transmission jack (A).

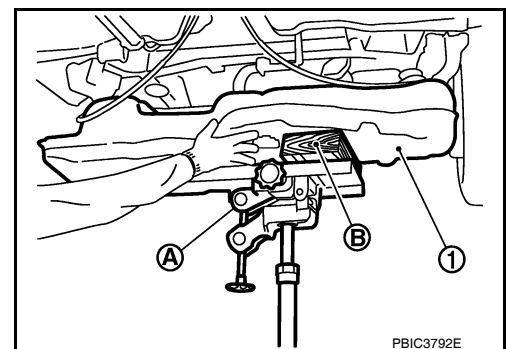
**CAUTION:**

**Securely support the fuel tank with a suitable tool (B).**

12. Remove fuel tank bands (RH and LH).
13. Lower transmission jack carefully to remove fuel tank while supporting it by hand.

**CAUTION:**

**Fuel tank may be in an unstable position because of the shape of fuel tank bottom. Be sure to support tank securely.**



## INSTALLATION

Installation is in the reverse order of removal.

# FUEL TANK

## < SERVICE INFORMATION >

### EVAP Canister

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, make sure that the connection is secure.
  - Pull the tube and the connector to make sure they are securely connected.

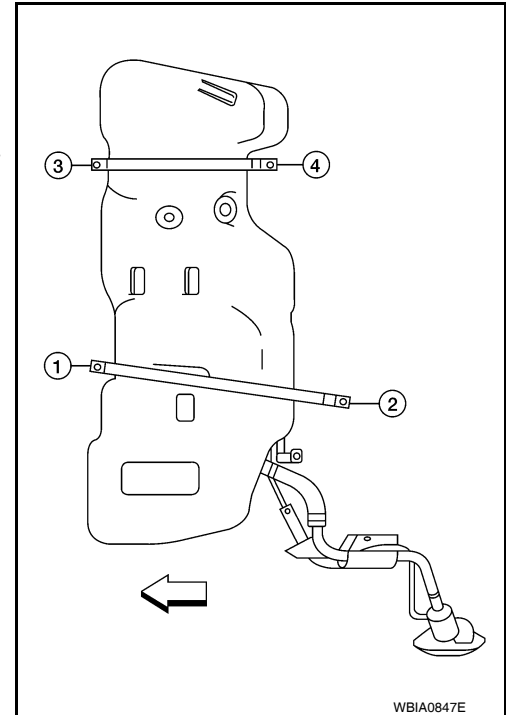
### Fuel Tank Bands

Install the fuel tank bands in the proper position by referring to the identification stamp mark “R” and “L” on the end

1. While supporting the fuel tank, install bolts 1, 3 and 4 to support the tank, but do not fully tighten.

← : Front

2. Install bolt 2 while positioning the fuel tank toward the front of the vehicle. Tighten bolt 2 to specified torque.
3. Tighten bolts 1, 3 and 4 to specified torque.



### Fuel Filler Hose

#### **CAUTION:**

**Do not allow fuel filler tube to contact the suspension during installation.**

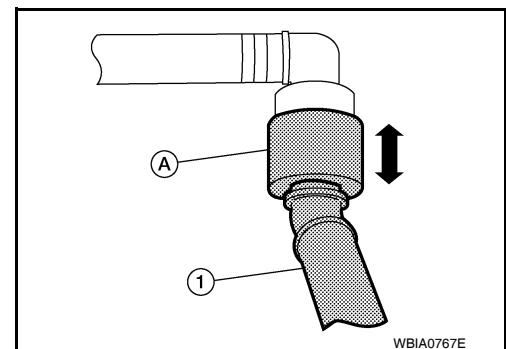
- Insert fuel filler hose to the length below.

**Fuel filler install length : 35mm (1.38 in)**

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

### EVAP Hose

1. Check connections for damage or foreign material.
2. Align the matching quick connector (A) with the center of EVAP hose (1), and insert quick connector (A) straight until it clicks.
3. After connecting, pull on quick connector (A) and EVAP hose (1) by hand. Make sure connections are secure.



### INSPECTION AFTER INSTALLATION

Use the following procedure to check for fuel leaks.

1. Turn ignition switch “ON” (without starting the engine), to check the connections for fuel leaks with the electric fuel pump applying pressure to the fuel piping.

## FUEL TANK

### < SERVICE INFORMATION >

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2. Start the engine and let it idle to check that there are no fuel leaks at the fuel system connections.

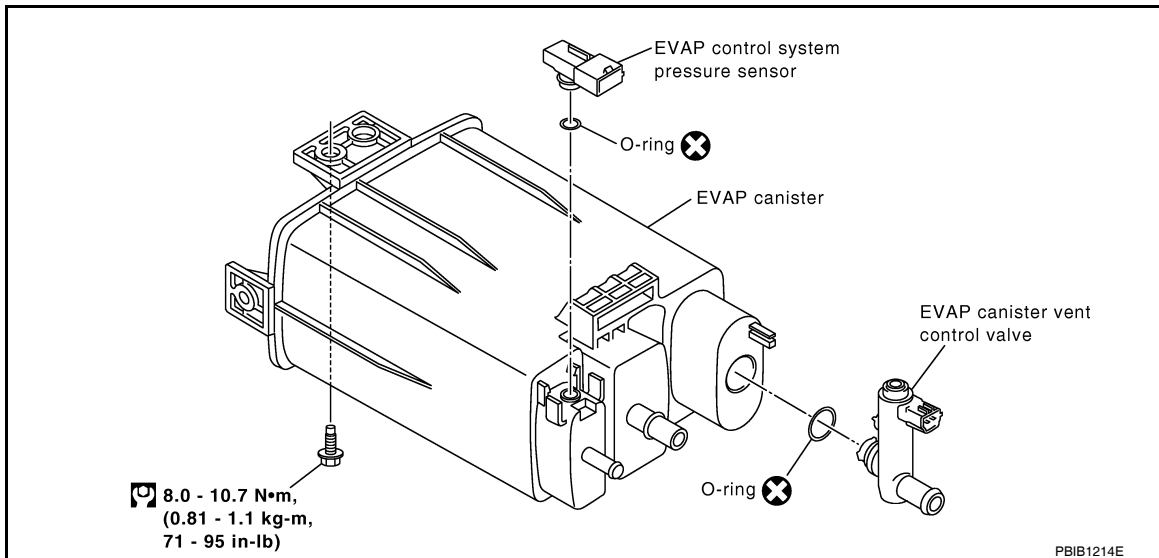
# EVAPORATIVE EMISSION SYSTEM

< SERVICE INFORMATION >

## EVAPORATIVE EMISSION SYSTEM

### Exploded View

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### Removal and Installation

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#### EVAP CANISTER

##### Removal

1. Remove EVAP canister cover.
2. Disconnect the EVAP control pressure sensor connector.
3. Disconnect EVAP canister purge hose, and drain the hose.
4. Remove the EVAP canister retaining bolt.
5. Disconnect fuel tank EVAP breather hose.
6. Disconnect EVAP canister vent control valve connector.
7. Disconnect the EVAP canister vent control valve hose.
8. Remove the EVAP canister.
9. Remove the EVAP vent control valve and O-ring, if necessary.

##### Installation

Installation is in the reverse order of removal.

**CAUTION:**

**Do not reuse O-rings.**

#### EVAP CANISTER CONTROL PRESSURE SENSOR

##### Removal

1. Remove EVAP canister cover.
2. Disconnect the EVAP control system pressure sensor connector.
3. Remove the EVAP control system pressure sensor and O-ring.

##### Installation

Installation is in the reverse order of removal.

**CAUTION:**

**Do not reuse O-rings.**

#### EVAP CANISTER VENT CONTROL VALVE

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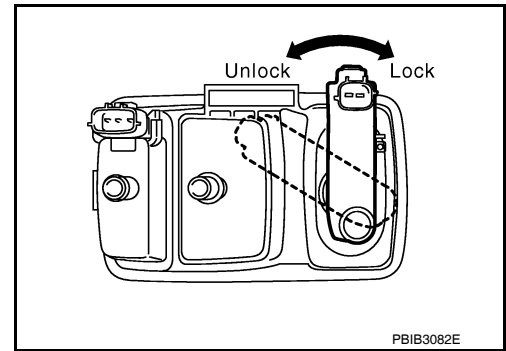
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## EVAPORATIVE EMISSION SYSTEM

### < SERVICE INFORMATION >

1. Remove EVAP canister cover.
2. Disconnect EVAP canister vent control valve connector.
3. Disconnect the EVAP canister purge hose, and drain the hose.
4. Turn EVAP canister vent control valve counterclockwise to unlock.
5. Remove the EVAP canister vent control valve.



### Installation

Installation is in the reverse order of removal.

### **CAUTION:**

**Do not reuse O-rings.**



# SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE INFORMATION >

## SERVICE DATA AND SPECIFICATIONS (SDS)

Standard and Limit

INFOID:000000007332054

FUEL TANK

A

FL

Unit: ℓ (US gal, Imp gal)

Fuel tank capacity	50.0 (13 1/4, 11)
Fuel recommendation	Refer to <a href="#">MA-13</a>

C

D

E

F

G

H

I

J

K

L

M

N

O

P