SECTION FL
FUEL SYSTEM

CONTENTS

PRECAUTION

PRECAUTIONS

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

INFOID:0000000008713164

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. Information necessary to service the system safely is included in the SR 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 SR 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.**

General Precaution

INFOID:0000000007991747

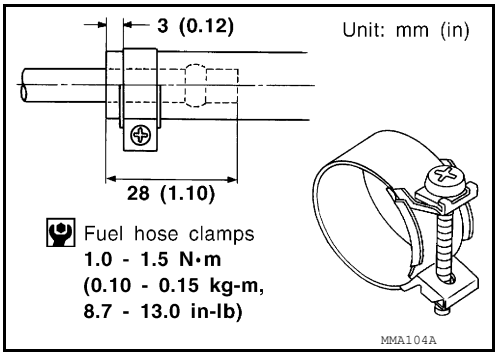
WARNING:

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

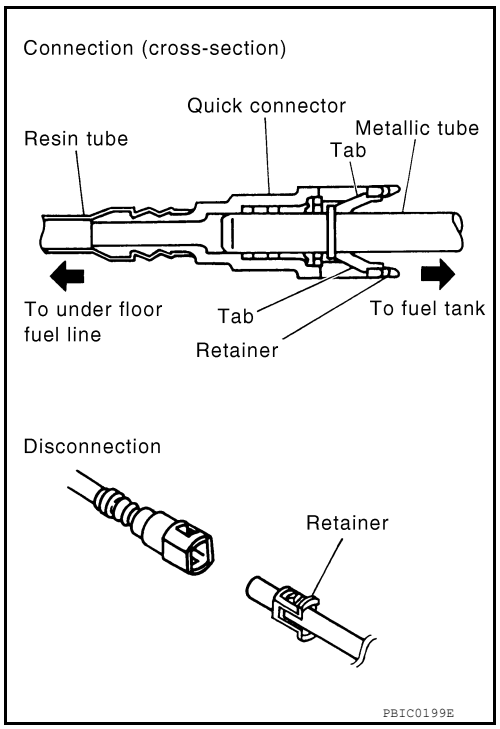
- **Put a “CAUTION: FLAMMABLE” sign in the work area.**
- **Be sure to work in a well ventilated area and have a CO^2 fire extinguisher.**
- **Do not smoke while working on the fuel system. Keep open flames and sparks away from the work area.**

CAUTION:

- **Before removing fuel line parts, carry 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-183, "Work Procedure" (QR25DE), EC-685, "Work Procedure" (VQ35DE).**
- **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.**
- **Do not tighten hose clamps excessively to avoid damaging hoses.**
  Tighten high-pressure rubber hose clamp so that clamp end is 3 mm (0.12 in) from hose end.
  Tightening torque specifications are the same for all rubber hose clamps.
  Ensure that screw does not contact adjacent parts.



- **After connecting the fuel tube quick connectors, make sure the quick connectors are secure.**
  Check that the connector and resin tube do not contact any adjacent parts.
  - **a) Apply fuel pressure to the fuel system by turning the ignition switch to ON (without starting the engine). Then check for fuel leaks at the fuel tube connections.**
  - **b) Start the engine and rev the engine, then check for fuel leaks at the fuel tube connections.**
- **After installing the tubes, run the engine and check for fuel leaks at the 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 toEC-62, "EVAPORATIVE EMISSION SYSTEM : System Description" (QR25DE for California), EC-62, "EVAPORATIVE EMISSION SYSTEM : System Description" (QR25DE except for California), EC-62, "EVAPORATIVE EMISSION SYSTEM : System Description" (QR25DE for Mexico), EC-579, "EVAPORATIVE EMISSION SYSTEM : System Description" (VQ35DE).**
- **For servicing "On Board Refueling Vapor Recovery (ORVR)" parts, refer to EC-39, "On Board Refueling Vapor Recovery (ORVR)" (QR25DE for California), EC-39, "On Board Refueling Vapor Recovery (ORVR)" (QR25DE except for California), EC-39, "On Board Refueling Vapor Recovery (ORVR)" (QR25DE for Mexico), EC-563, "On Board Refueling Vapor Recovery (ORVR)" (VQ35DE).**



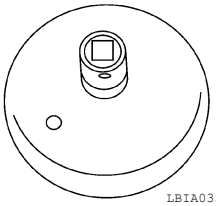
PREPARATION

PREPARATION

Special Service Tool

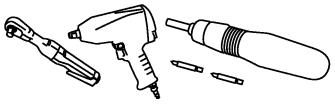
INFOID:0000000007991748

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

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

Commercial Service Tool

INFOID:0000000007991749

Tool name	Description
Power tool  PIIB1407E	Loosening nuts, screws and bolts

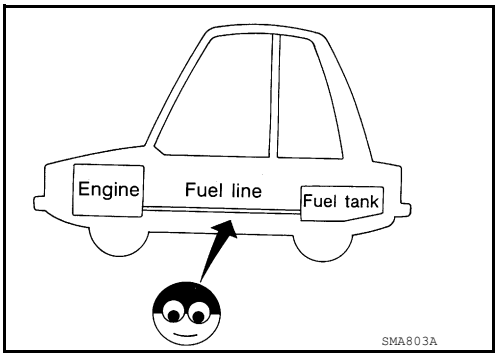
PERIODIC MAINTENANCE

FUEL SYSTEM

Inspection

INFOID:0000000007991750

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.

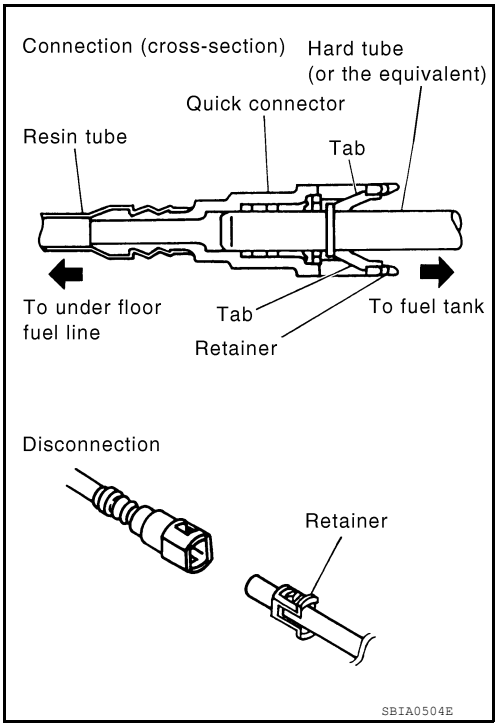


Quick Connector

INFOID:0000000007991751

CAUTION:

- **After connecting fuel tube quick connectors, make sure quick connectors are secure.**
- **Ensure that connector and resin tube do not contact any adjacent parts.**

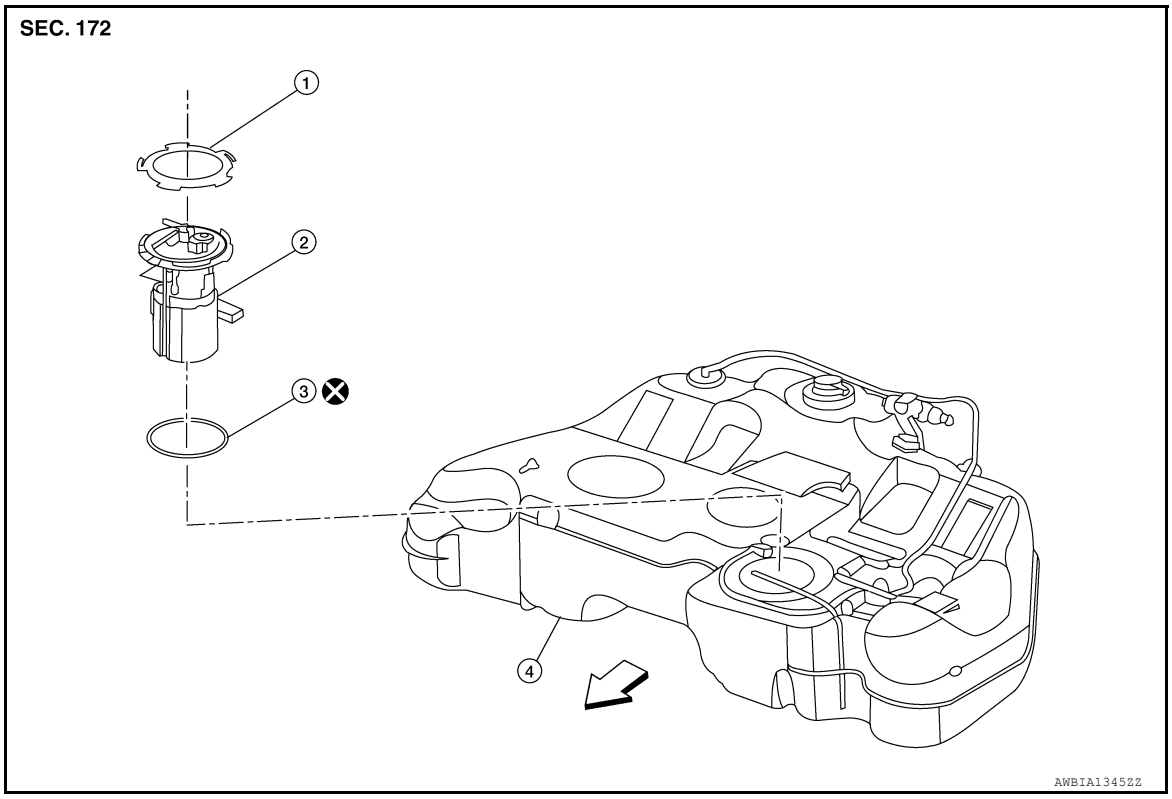


REMOVAL AND INSTALLATION

FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY

Exploded View

INFOID:0000000007991752



1. Lock ring
2. Fuel level sensor unit, fuel filter and fuel pump assembly
3. O-ring
4. Fuel Tank
⇦ Front

Removal and Installation

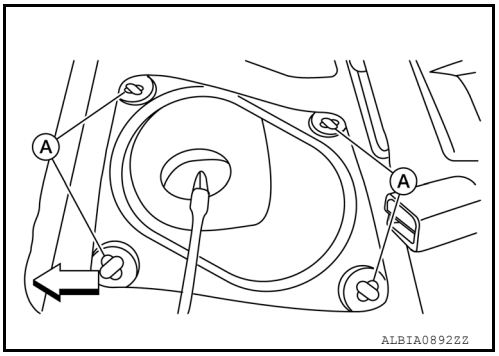
INFOID:0000000007991753

REMOVAL

WARNING:
Read “General Precautions” before working on the fuel system.
Refer to GI-31, "General Precautions".

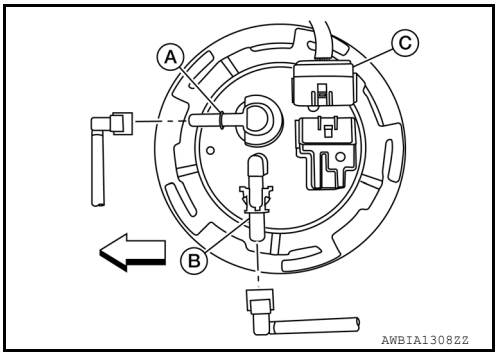
1. Disconnect the battery negative terminal.PG-72, "Removal and Installation (Battery)".
2. Unscrew the fuel filler cap to release the pressure inside the fuel tank.
3. Release the fuel pressure from the fuel lines. Refer to EC-183, "Work Procedure" (QR25DE), EC-183, "Work Procedure" (VQ35DE).
4. Remove the rear seat cushion. Refer to SE-37, "Removal and Installation - Seat Assembly".
5. Turn the four retainers (A) 90° in a clockwise direction and remove the fuel pump inspection hole cover.

⇦ :Front

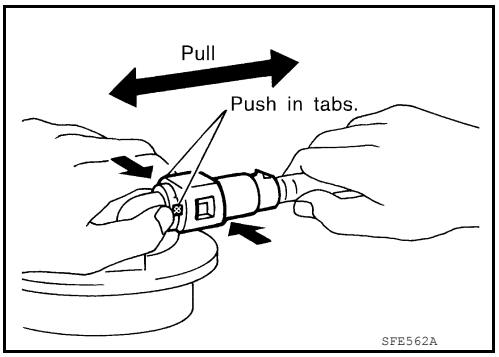


6. Disconnect the fuel level sensor unit, fuel filter and fuel pump assembly harness connector (C), EVAP hose quick connector (A), and the fuel feed hose quick connector (B) from the fuel level sensor unit, fuel filter, and fuel pump assembly.

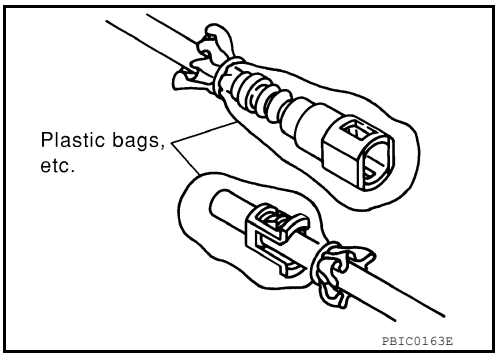
⇦ :Front



Remove the quick connector as follows:
- Hold the sides of the connector, push in tabs and pull out the tube.
- If the connector and the tube are stuck together, push and pull several times until they start to move. Then 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 the resin tube away from heat. Be especially careful when welding near the tube.**
- **Prevent acid liquid such as battery electrolyte, etc. from getting on the resin tube.**
- **Do not bend or twist the tube during installation and removal.**
- **Only when the tube is replaced, remove the remaining retainer on the tube or fuel level sensor, fuel filter, and fuel pump assembly.**
- **When the tube or fuel level sensor, fuel filter, and fuel pump assembly is replaced, also replace the retainer with a new one (green colored retainer).**
- **To keep the connecting portion clean and to avoid damage and foreign materials, cover them completely with plastic bags or something similar.**

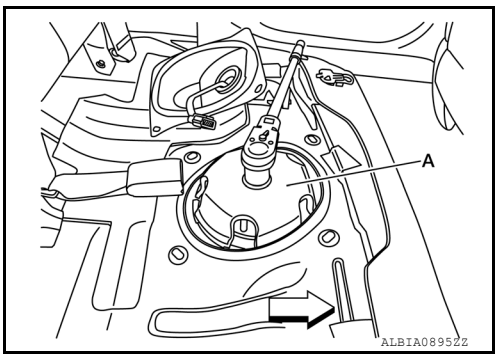


7. Remove the lock ring using a socket drive handle and Tool (A).

Tool number : KV991J0090 (J-46214)

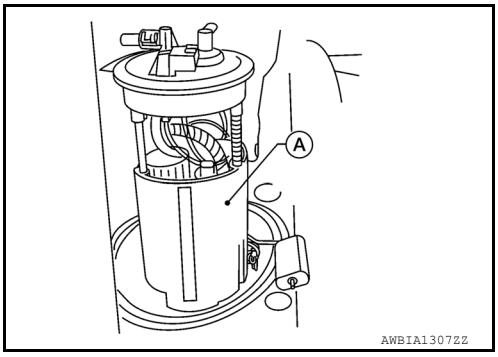
CAUTION:
Discard the lock ring if damaged or distorted.

⇦ :Front



8. Remove the fuel level sensor, fuel filter, and fuel pump assembly (A). Remove and discard the O-ring.

CAUTION:
- **Do not bend the float arm during removal.**
- **Discard the O-ring. Do not reuse O-ring.**



INSPECTION AFTER REMOVAL

Inspect the fuel level sensor, fuel filter, and fuel pump assembly for any defects and foreign materials. Replace as necessary.

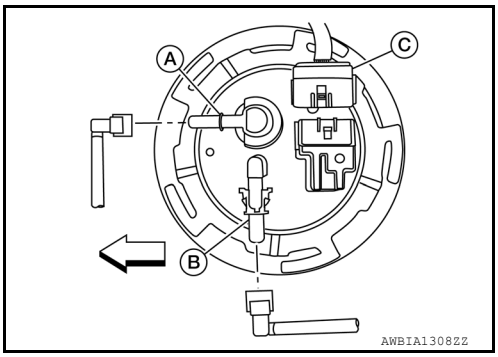
INSTALLATION

Installation is in the reverse order of removal.

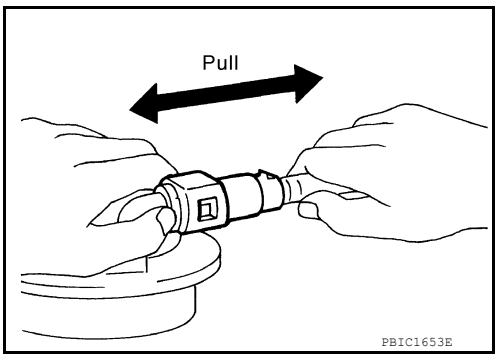
- Install the fuel level sensor, fuel filter, and fuel pump assembly with the fuel feed hose (B) facing the left side of the vehicle as shown. Use a new O-ring.

CAUTION:
Do not reuse O-ring.

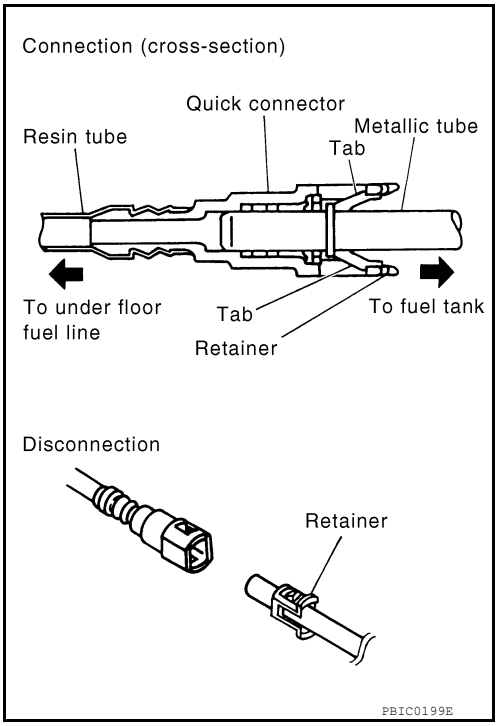
⇦ :Front



- Connect the quick connector as follows:
- Check the connection for damage or any foreign materials.
- Align the connector with the tube, then insert the connector straight into the tube until a click is heard.
- After the tube is connected, make sure the connection is secure by performing the following checks:
- Pull the tube and the connector to make sure they are securely connected.



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



Inspection

INFOID:0000000007991754

INSPECTION AFTER INSTALLATION

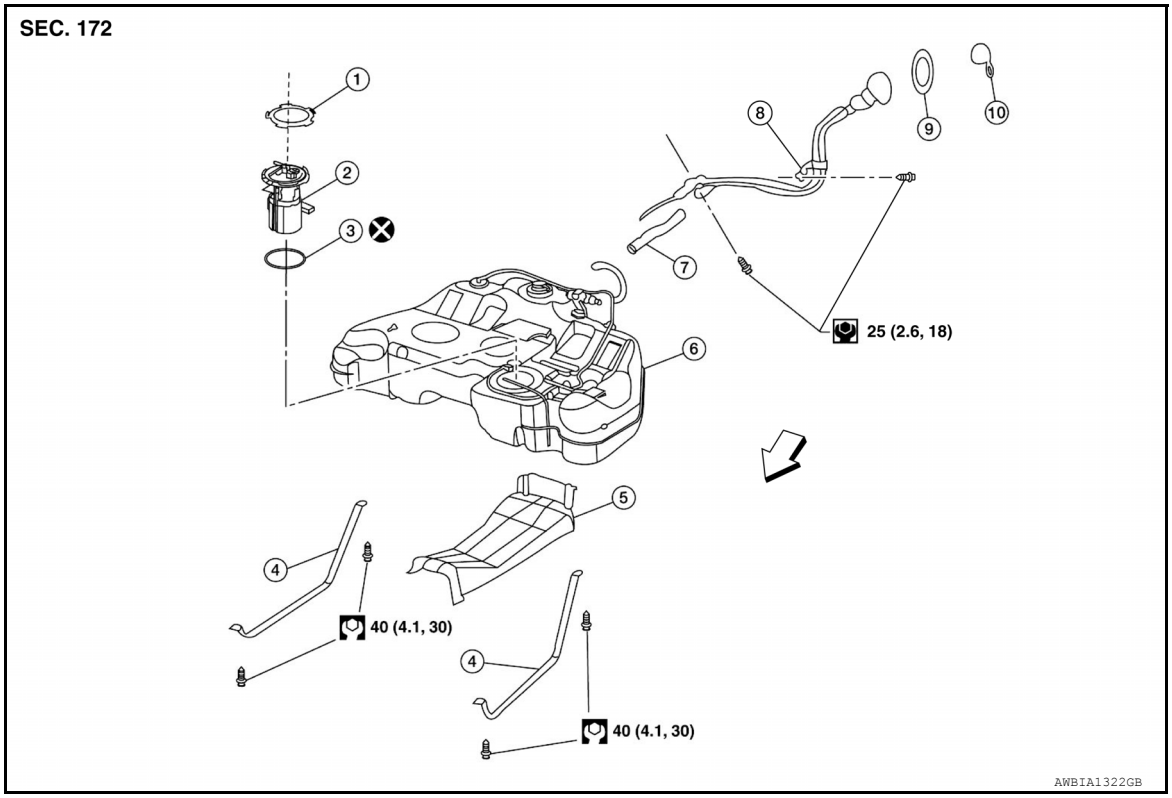
Use the following procedure to check for fuel leaks.

1. Turn ignition switch “ON” (with engine stopped), then check connections for fuel leaks by applying fuel pressure to fuel piping.
2. Start engine, raise idle, and verify there are no fuel leaks at the fuel system connections.

FUEL TANK

Exploded View

INFOID:0000000007991755



1.	Lock ring	2.	Fuel level sensor, fuel filter, and fuel pump assembly	3.	O-ring
4.	Fuel tank mounting straps	5.	Fuel tank protector	6.	Fuel tank
7.	Fuel filler hose	8.	Fuel filler hose	9.	Grommet
10.	Fuel filler cap	⇦	Front		

Removal and Installation

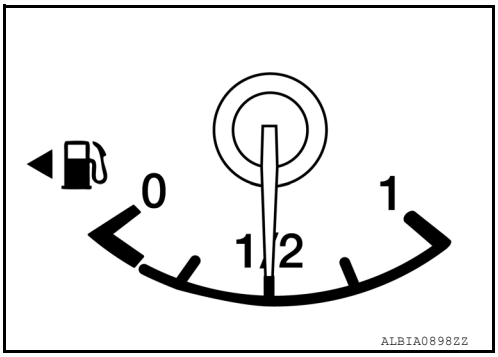
INFOID:0000000007991756

REMOVAL

WARNING:

Read “General Precautions” before working on the fuel system.
Refer to FL-2, "General Precaution".

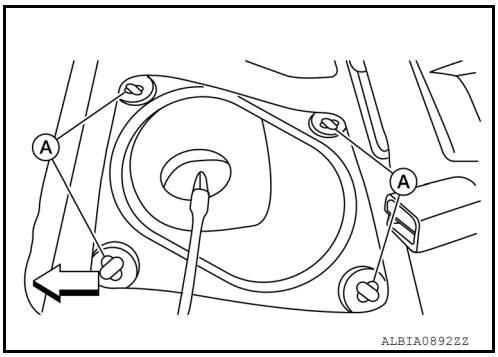
1. Disconnect the battery negative terminal. Refer to PG-72, "Removal and Installation (Battery)".
2. Check the fuel level with the vehicle on a level surface. If the fuel gauge indicates more than the level as shown (1/2 full), drain the fuel from the fuel tank until the fuel gauge indicates a level at or below as shown (1/2 full).
   - In case the fuel pump does not operate, use the following procedure.



a. Insert fuel tubing of less than 25 mm (0.98 in) diameter into the fuel filler tube through the fuel filler opening to drain fuel from the fuel filler tube.
b. Disconnect the fuel filler hose from the fuel filler tube.
c. Insert fuel tubing into the fuel tank through the fuel filler hose to drain fuel from the fuel tank.
   - As a guide, if the fuel tank is full the fuel level reaches or is less than the level on the fuel gauge as shown, when approximately 34 ℓ (9 US gal, 7 1/2 Imp gal) of fuel is drained from a full fuel tank.

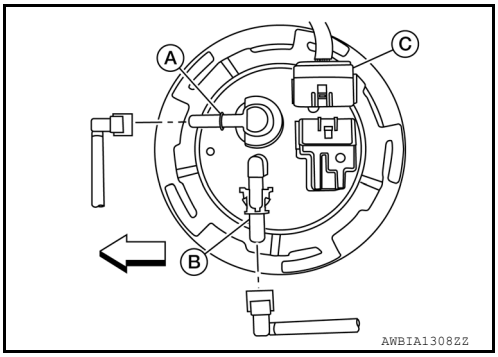
3. Open the fuel filler cap to release the pressure inside the fuel tank.
4. Release fuel pressure from fuel line. Refer to EC-183, "Work Procedure" (QR25DE), EC-685, "Work Procedure" (VQ35DE).
5. Remove rear seat cushion. Refer to SE-37, "Removal and Installation - Seat Assembly".
6. Turn the four retainers (A) 90° in a clockwise direction and remove the fuel pump inspection hole cover.

⇦ :Front

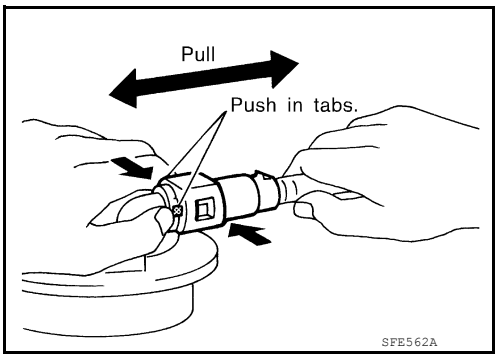


7. Disconnect the fuel level sensor, fuel filter, and fuel pump assembly harness connector (C), EVAP hose quick connector (A), and fuel feed hose (B) quick connector.

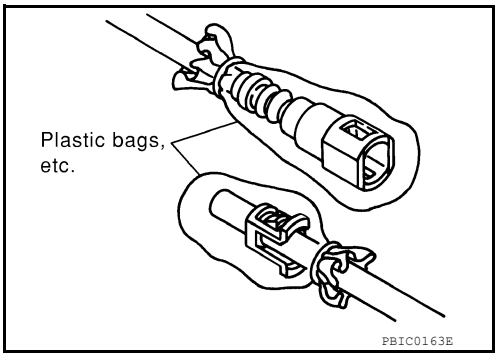
⇦ :Front



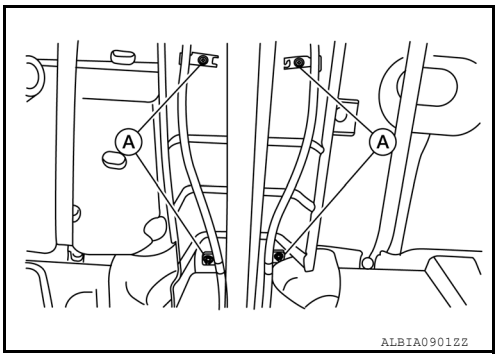
a. Disconnect the quick connectors as follows:
   - Hold the sides of the connector, push in tabs and pull out the tube.
   - If the connector and the tube are stuck together, push and pull several times until they start to move. Then disconnect them by pulling.



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 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.**
- **Only when the tube is replaced, remove the remaining retainer on the tube or fuel level sensor, fuel filter, and fuel pump assembly.**
- **When the tube or fuel level sensor, fuel filter, and fuel pump assembly is replaced, also replace the retainer with a new one (green colored retainer).**
- **To keep the connecting portion clean and to avoid damage and foreign materials, cover them completely with plastic bags or something similar.**



8. Remove rear wheel and tire using power tool. Refer to WT-52, "Adjustment".
9. Remove rear brake pads. Refer to BR-37, "BRAKE PAD : Removal and Installation"
10. Remove rear torque members and rear disc brake rotor.
11. Disconnect rear parking brake shoe, and remove rear cables from toggle lever. Refer to PB-9, "Removal and Installation"
12. Disconnect the 4 park brake rear cable mounting nuts (A) and position the rear park brake cables aside.



13. Remove the tunnel stay and center exhaust tube, without muffler(s). Refer to EX-6, "Removal and Installation" (QR25DE), EX-11, "Removal and Installation" (VQ35DE).
14. Remove the fuel tank protector.
15. Disconnect the fuel filler hose and the recirculation hose at the fuel tank side.
16. Disconnect the EVAP line at the canister.
17. Remove the EVAP canister filter bracket mounting bolt and position EVAP canister filter and EVAP canister filter mounting bracket aside.
18. Disconnect the fuel tank mounting straps while supporting the fuel tank with a suitable jack.
    CAUTION:
    Fuel tank may be in an unstable condition, due to the shape of the fuel tank bottom. Be sure to secure tank at all times.
19. Remove the fuel tank.
20. If replacing the fuel tank, remove the fuel level sensor, fuel filter and fuel pump assembly to transfer to the new fuel tank. Remove and discard the O-ring.
    CAUTION:
    - **Discard the O-ring. Do not reuse the O-ring.**
    - **Do not bend float arm during removal and installation.**

INSTALLATION

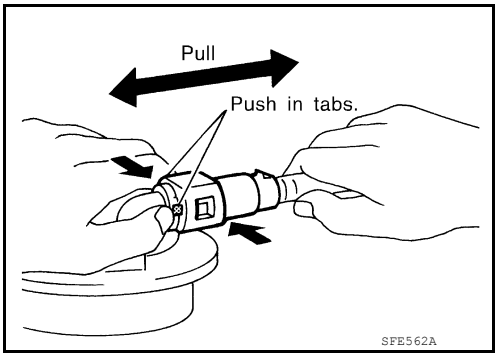
Install in the reverse order of removal paying attention to the following.

- Before tightening the fuel tank mounting straps, temporarily install the filler hose and the recirculation hose. Tighten all fuel tank mounting strap bolts to specification, then tighten the hose clamps.
- Connect the quick connector as follows:

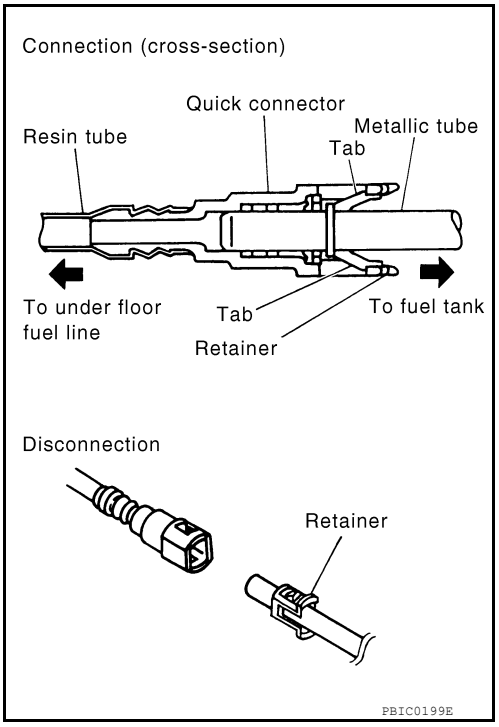
- Check the connection for damage or any foreign materials.
- Align the connector with the tube, then insert the connector straight into the tube until a click is heard.

- After the tube is connected, make sure the connection is secure by performing the following checks:

- Pull on the tube and the connector to make sure they are securely connected.



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



CAUTION:
Do not reuse O-ring.

Inspection

INFOID:0000000007991757

INSPECTION AFTER INSTALLATION

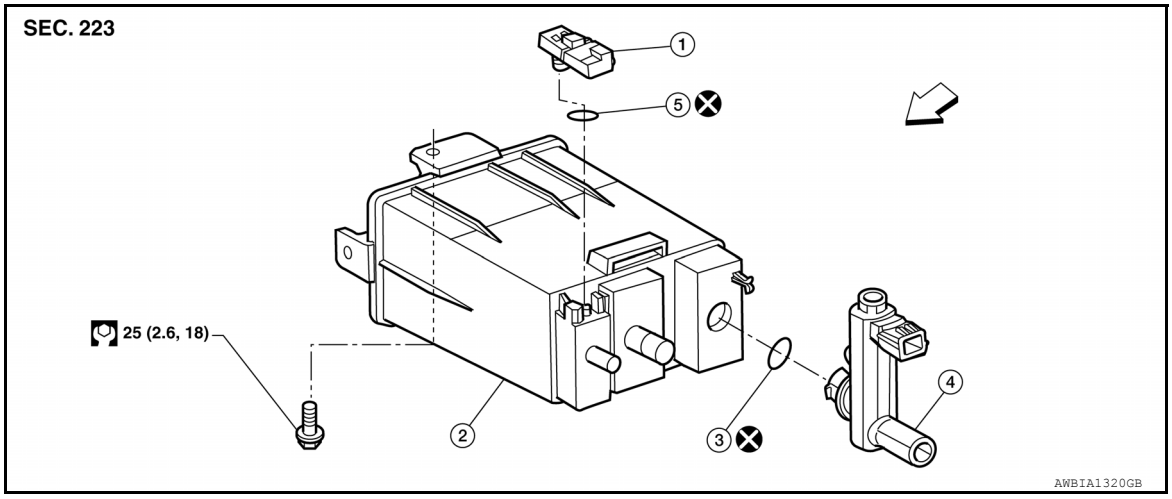
Use the following procedure to check for fuel leaks.

1. Turn ignition switch “ON” (with engine stopped), and check connections for leakage by applying fuel pressure to fuel piping.
2. Start engine, raise idle, and verify there are no fuel leaks at the fuel system connections.

EVAP CANISTER

Exploded View

INFOID:0000000007991758



1. EVAP control system pressure sensor
2. EVAP canister
3. O-ring
4. EVAP canister vent control valve
5. O-ring
⇦ Front

Removal and Installation

INFOID:0000000007991759

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

REMOVAL

1. Remove the fuel tank. Refer to FL-10, "Removal and Installation".
2. Disconnect the EVAP control system pressure sensor connector.
3. Remove the EVAP control system pressure sensor and O-ring, if necessary.
   CAUTION:
   Discard the O-ring. Do not reuse O-ring.
4. Disconnect the EVAP canister purge hose.
5. Remove the EVAP canister bolt.
6. Disconnect the fuel tank EVAP breather hose.
7. Disconnect the EVAP canister vent control valve connector.
8. Disconnect the EVAP canister vent control valve hose.
9. Remove the EVAP canister.
10. Remove the EVAP canister vent control valve and O-ring, if necessary.
    CAUTION:
    Discard the O-ring. Do not reuse O-ring.

INSTALLATION

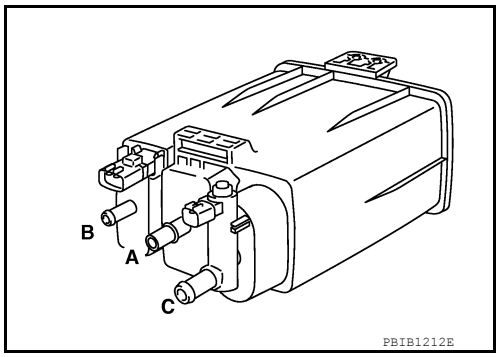
Installation is in the reverse order of removal.
NOTE:
Tighten EVAP canister bolt to the specified torque.
CAUTION:
Do not reuse O-ring.

Inspection

INFOID:0000000007991760

Check EVAP canister as follows:

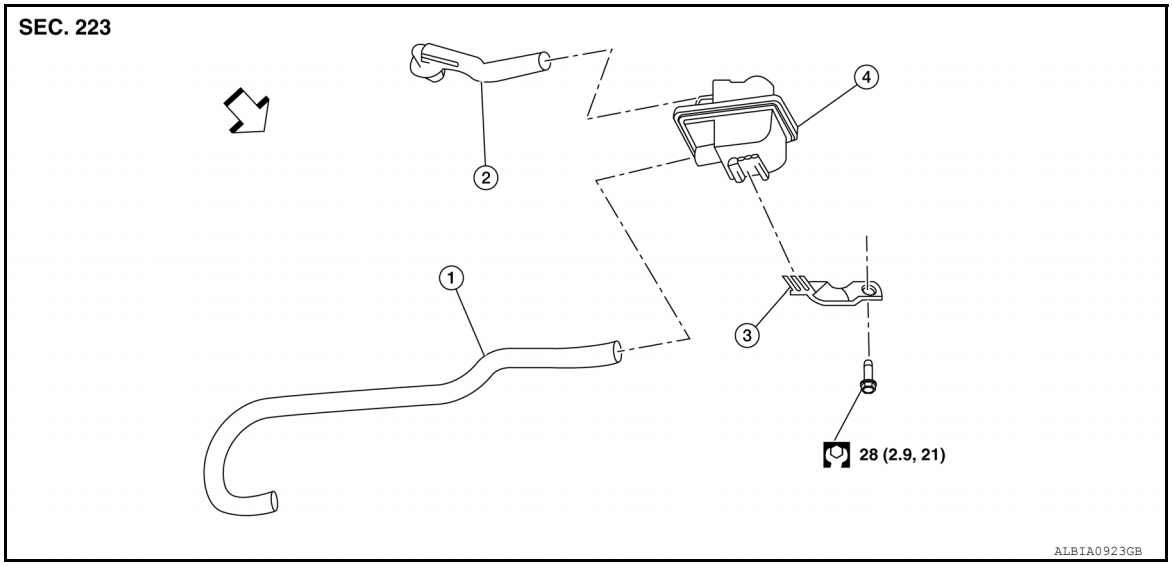
1. Block port (B).
2. Blow air into port (A) and check that it flows freely out of port (C).
3. Release blocked port (B).
4. Apply vacuum pressure to port (B) and check that vacuum pressure exists at the ports (A) and (C).
5. Block port (A) and (B).
6. Apply pressure to port (C) and check that there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



EVAP CANISTER FILTER

Exploded View

INFOID:0000000007991761



1. Canister drain hose
2. EVAP hose
3. EVAP filter bracket
4. Evap canister filter
⇦ Front

Removal and Installation

INFOID:0000000007991762

REMOVAL

1. Disconnect EVAP hose from EVAP canister.
2. Remove the EVAP canister bolt and position EVAP canister aside.
3. Remove breather hoses from EVAP canister filter.
4. Remove EVAP canister filter.

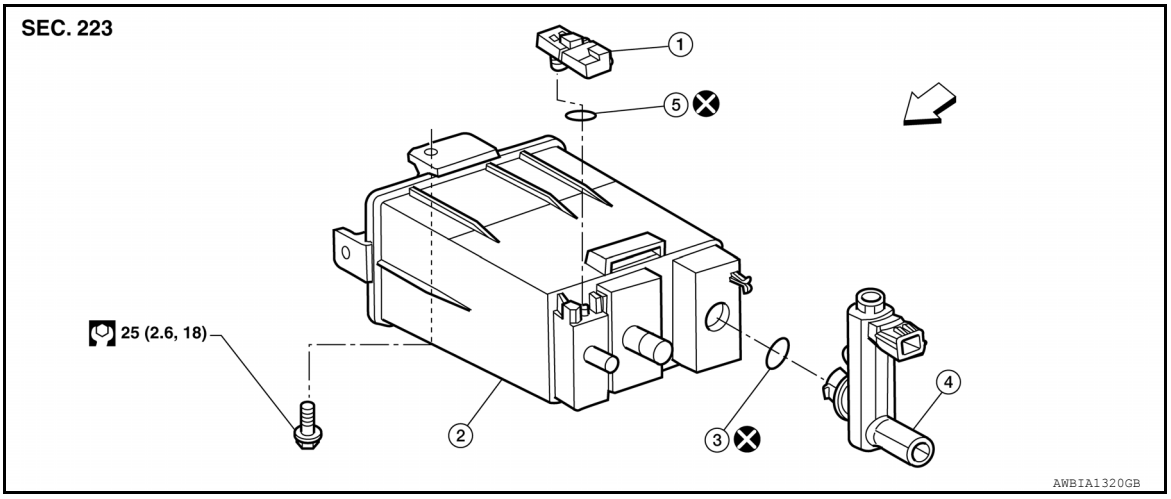
INSTALLATION

Installation is in the reverse order of removal.

EVAP CANISTER VENT CONTROL VALVE

Exploded View

INFOID:0000000007991763



1. EVAP control system pressure sensor
2. EVAP canister
3. O-ring
4. EVAP canister vent control valve
5. O-ring

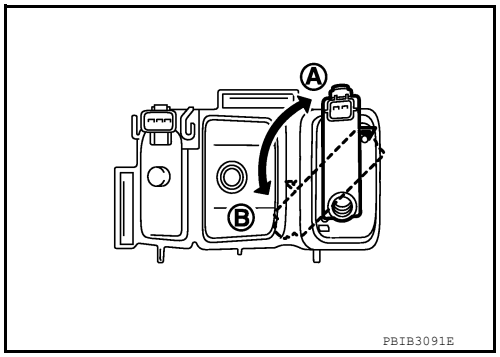
Removal and Installation

INFOID:0000000007991764

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

REMOVAL

1. Disconnect breather hose from EVAP canister.
2. Disconnect EVAP canister vent control valve.
3. Turn EVAP canister vent control valve counterclockwise.



A : Lock
B : Unlock

4. Remove the EVAP canister vent control valve and O-ring.
CAUTION:
Discard the O-ring. Do not reuse O-ring.

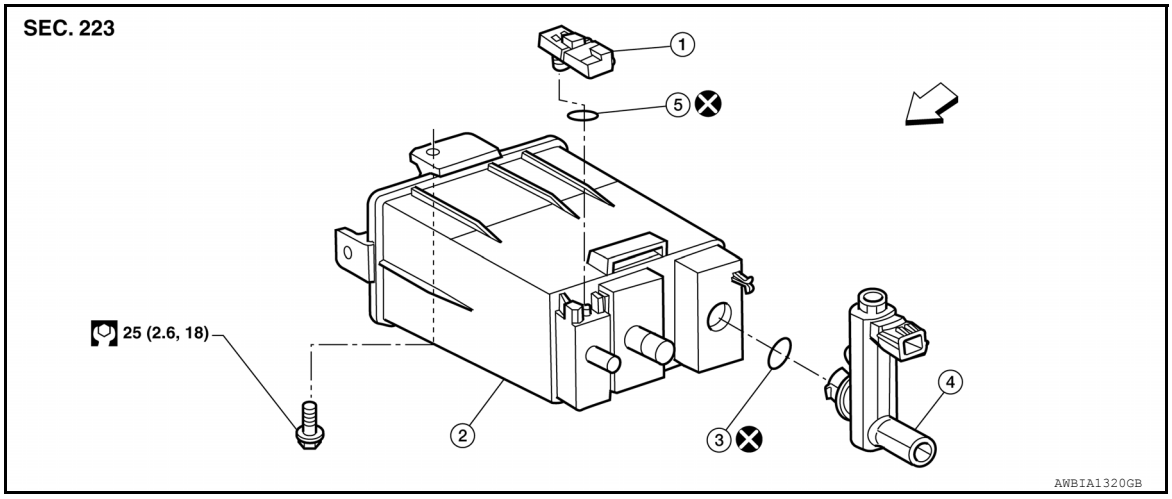
INSTALLATION

Installation is in the reverse order of removal.
CAUTION:
Do not reuse O-ring.

EVAP CONTROL SYSTEM PRESSURE SENSOR

Exploded View

INFOID:0000000007991765



1. EVAP control system pressure sensor
2. EVAP canister
3. O-ring
4. EVAP canister vent control valve
5. O-ring

Removal and Installation

INFOID:0000000007991766

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

REMOVAL

1. Disconnect EVAP hose from EVAP canister.
2. Disconnect EVAP control system pressure sensor.
3. Remove EVAP control system pressure sensor and O-ring.
   CAUTION:
   Discard the O-ring. Do not reuse O-ring.

INSTALLATION

Installation is in the reverse order of removal.
CAUTION:
Do not reuse O-ring.

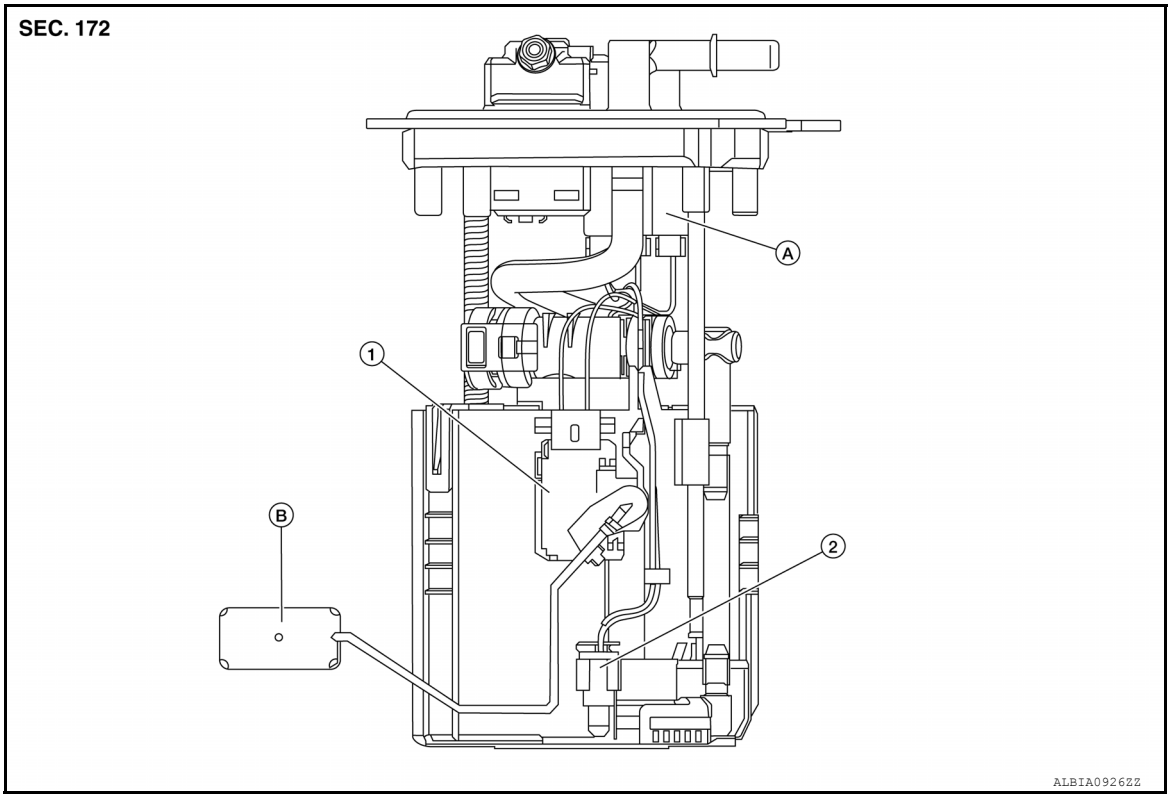
UNIT DISASSEMBLY AND ASSEMBLY

FUEL LEVEL SENSOR UNIT

Disassembly and Assembly

INFOID:0000000007991767

Fuel Level Sender Unit



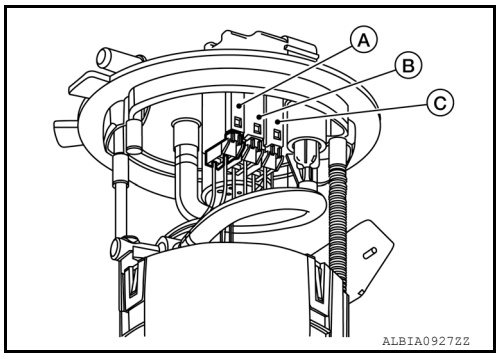
1. Level sending unit module
2. Fuel temperature sensor
A. Harness connector
B. Float arm assembly

Disassembly

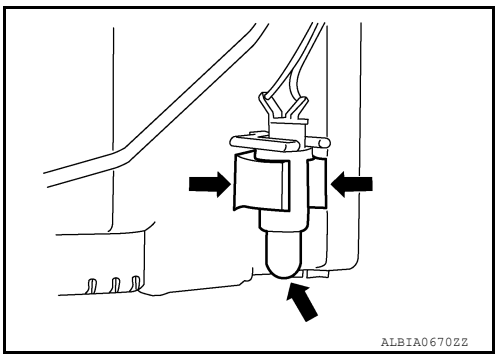
NOTE:
Before disassembly, note the proper placement of the wires to the correct terminals and correct wire routing to the terminals.

1. Disconnect the red, white (A) and double black connector (B).
   - Press the tabs on the terminals to release the locking tabs.

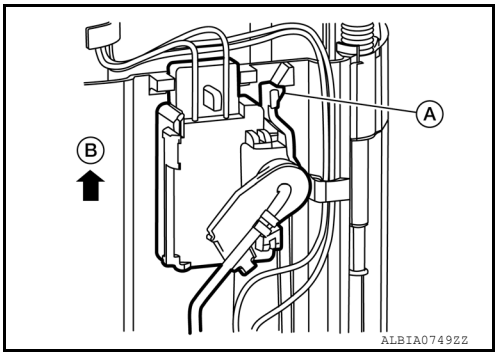
(C): Fuel pump harness connector



2. Release the two clips and remove the fuel temperature sensor from the pump assembly.



3. Release the tab (A) and slide the level sending unit module and float arm assembly (B) up to remove.



Assembly

Assembly is the reverse order of disassembly.

NOTE:

- Ensure proper placement of the wires to the correct terminals and correct wire routing to the terminals.
- After connecting terminals, ensure they are securely locked and can not be pulled out.
- When installing the level sending unit, push down until the tab is locked into place.

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Fuel Tank

INFOID:0000000007991768

Standard and Limit

Fuel tank capacity	Approx. 68 ℓ (18 US gal, 15 Imp gal)
Fuel recommendation	Refer to MA-20, "FOR USA AND CANADA : Fluids and Lubricants" (United States and Canada), MA-21, "FOR MEXICO : Fluids and Lubricants" (Mexico).