

A
FL
C
D
E

SECTION **FL**

FUEL SYSTEM

CONTENTS

| | | |
|--|---|---|
| <p>PREPARATION 2</p> <p style="padding-left: 20px;">Commercial Service Tool 2</p> <p>FUEL SYSTEM 3</p> <p style="padding-left: 20px;">Checking Fuel Lines 3</p> <p style="padding-left: 20px;">General Precautions 3</p> <p>FUEL FILTER (ZD30DD) 4</p> <p style="padding-left: 20px;">Fuel Filter (ZD30DD) 4</p> <p style="padding-left: 20px;">Removal and Installation 4</p> <p style="padding-left: 40px;">REMOVAL 4</p> <p style="padding-left: 40px;">INSTALLTION 4</p> <p style="padding-left: 40px;">INSPECTION AFTER INSTALLATION 4</p> <p style="padding-left: 20px;">Fuel Filter Switch 4</p> <p style="padding-left: 40px;">REMOVAL 4</p> <p style="padding-left: 40px;">INSPECTION AFTER REMOVAL 5</p> <p style="padding-left: 40px;">INSTALLATION 5</p> <p style="padding-left: 20px;">Air Bleeding 5</p> <p style="padding-left: 20px;">Draining Water 5</p> <p>FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP (KA24DE) 7</p> <p style="padding-left: 20px;">Removal and Installation 7</p> | <p style="padding-left: 20px;">REMOVAL 7</p> <p style="padding-left: 20px;">INSPECTION AFTER REMOVAL 8</p> <p style="padding-left: 20px;">INSTALLATION 9</p> <p style="padding-left: 20px;">INSPECTION AFTER INSTALLATION 9</p> <p style="padding-left: 20px;">Disassembly and Assembly 10</p> <p style="padding-left: 40px;">DISASSEMBLY 10</p> <p style="padding-left: 40px;">ASSEMBLY 11</p> <p>FUEL LEVEL SENSOR UNIT (ZD30DD) 12</p> <p style="padding-left: 20px;">Removal and Installation 12</p> <p style="padding-left: 40px;">REMOVAL 12</p> <p style="padding-left: 40px;">INSTALLATION 13</p> <p style="padding-left: 40px;">INSPECTION AFTER INSTALLATION 14</p> <p>FUEL TANK 15</p> <p style="padding-left: 20px;">Removal and Installation 15</p> <p style="padding-left: 40px;">REMOVAL 16</p> <p style="padding-left: 40px;">INSTALLATION 17</p> <p style="padding-left: 40px;">INSPECTION AFTER INSTALLATION 17</p> <p>SERVICE DATA AND SPECIFICATIONS (SDS) 18</p> <p style="padding-left: 20px;">Standard and Limit 18</p> <p style="padding-left: 20px;">Tightening torque 18</p> | <p>F</p> <p>G</p> <p>H</p> <p>I</p> <p>J</p> <p>K</p> <p>L</p> <p>M</p> |
|--|---|---|

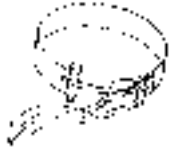
PREPARATION

PREPARATION

PFP:00002

Commercial Service Tool

EBS00ALJ

| Tool number | Description | |
|--------------------|---|---------------------------------|
| Tool name | | |
| Fuel filter wrench |  | Removing fuel filter for ZD30DD |
| | PBIC0519E | |

FUEL SYSTEM

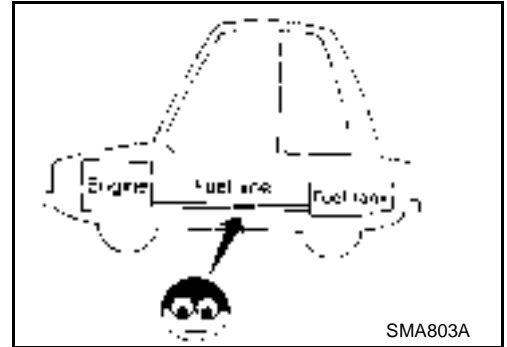
FUEL SYSTEM

PPF:17503

Checking Fuel Lines

EBS008ZU

Inspect fuel lines, filler cap and tank for improper attachment, leaks, cracks, damage, loose connections, chafing or deterioration. If necessary, repair or replace faulty parts.



General Precautions

EBS008ZV

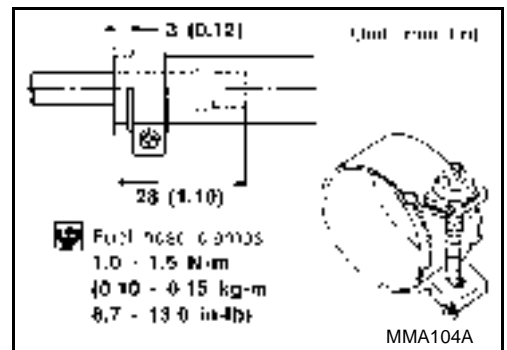
WARNING:

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

- Put a "CAUTION: FLAMABLE" sign in workshop.
- Be sure to work in a well-ventilated area and furnish workshop with a CO₂ fire extinguisher.
- Do not smoke while servicing fuel system. Keep open flames and spark away from work area.

CAUTION:

- Before removing fuel line parts, carry out the following procedures:
 - a) Put drained fuel in an explosion-proof container and put the lid on securely. Keep the container in safe area.
 - b) Disconnect battery ground cable.
- Always replace O-ring 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 installing tubes, run engine 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 [EC-23, "Evaporative Emission System"](#).



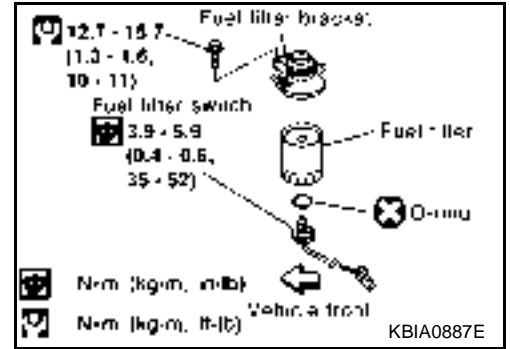
FUEL FILTER (ZD30DD)

PFP:16400

FUEL FILTER (ZD30DD)

Fuel Filter (ZD30DD)

EBS008ZZ



Removal and Installation

REMOVAL

1. Remove floor cover from rear of RH seat.
2. Disconnect harness connector from fuel filter switch.
3. Remove fuel hose from fuel filter bracket.

CAUTION:

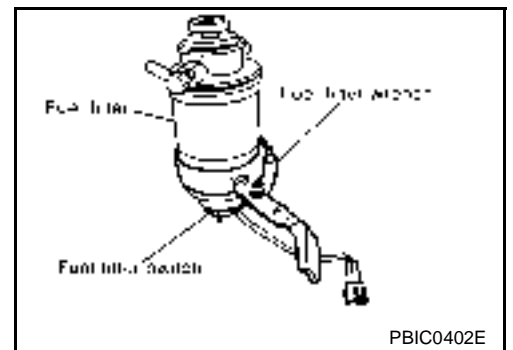
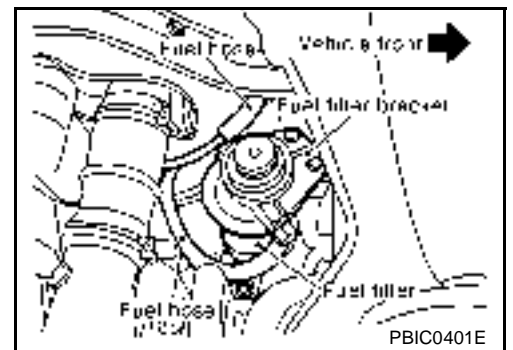
Plug the pipe to prevent fuel from draining.

4. Remove fuel filter with bracket.

CAUTION:

Do not splash fuel during removal. If fuel is splashed, immediately wipe it off.

5. Using band-type filter wrench (commercial service tool), remove fuel filter.
6. Turn fuel filter upside down to drain fuel.
7. Remove fuel filter switch from fuel filter. Refer to [FL-4, "Fuel Filter Switch"](#).



INSTALLTION

Install in reverse order of removal, paying attention to following:

- Screw the fuel filter by hand until packing contacts sealing surface of bracket. Then tighten it by turning approximately 2/3 turn.
- After installation, bleed air from fuel path. Refer to [FL-5, "Air Bleeding"](#).

INSPECTION AFTER INSTALLATION

Run engine and check for fuel leakage at connections.

Fuel Filter Switch

REMOVAL

1. move fuel filter. Refer to [FL-4, "Removal and Installation"](#).
2. Remove fuel filter switch from fuel filter.

EBS00901

FUEL FILTER (ZD30DD)

INSPECTION AFTER REMOVAL

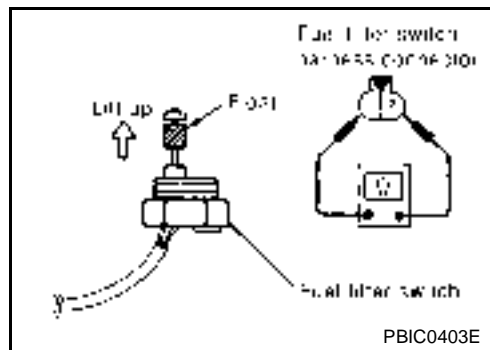
- Check continuity between harness connectors No. 1 and No. 2 when float is lifted and when not lifted.

Standard:

Lifted : Continuity should exist.

Not lifted : Continuity should not exist.

- If out of specification, replace fuel filter switch.



INSTALLATION

Following instructions below, install in reverse order of removal.

- Replace O-ring on fuel filter switch with new one.

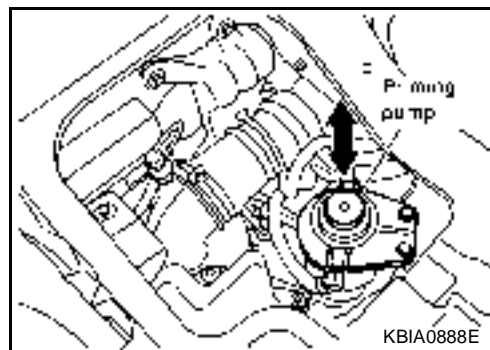
 : 3.9 - 5.9 N·m (0.4 - 0.6 kg-m, 35 - 52 in-lb)

Air Bleeding

EBS00902

After fuel filter is replaced and after fuel system components are removed/installed, bleed air from fuel path as follows:

- Move priming pump up and down to bleed air from fuel path.
- When air is bled, pumping of priming pump becomes heavy. Stop operation at that time.
- If air cannot be bled easily (pumping of priming pump does not become heavy), disconnect feed-side of hose between fuel filter and electronically controlled fuel injection pump. After that, operate priming pump and confirm that fuel comes out.



CAUTION:

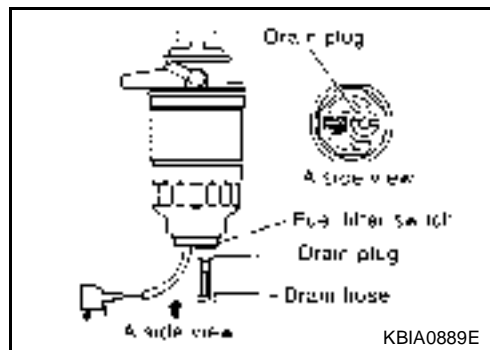
Prepare a tray to collect fuel. Prevent fuel from adhering to rubber parts, especially the engine mount insulator.

Draining Water

EBS00903

If malfunction indicator lamp lights up (not flashes) during engine operation, drain coolant from fuel filter as follows.

1. Remove floor cover from rear of RH seat.
2. Connect drain hose [vinyl hose of inside diameter 6 mm (0.24 in), which reaches floor] to engine coolant drain cock at the bottom of fuel filter switch.
3. Prepare a tray at the drain hose open end. (Refer to step 4 for tray capacity.)
4. Loosen engine coolant drain cock, and operate priming pump to drain coolant from fuel filter.



NOTE:

Remaining engine coolant amount when warning lamp lights up: approximately 90 - 150 ml (3.2 - 5.3 Imp fl oz).

CAUTION:

- Coolant in filter is drained with fuel. Prepare larger capacity pan than value shown above.
 - Drained coolant is mixed with fuel. Prevent fuel from adhering to rubber parts such as engine mount insulator.
5. After draining, disconnect drain hose, then close engine coolant drain cock by hand.

CAUTION:

If drain cock is tightened excessively, it may be damaged and fuel will leak. Do not use tools to tighten drain cock.

6. Bleed air in fuel piping. Refer to [FL-5, "Air Bleeding"](#).

FUEL FILTER (ZD30DD)

7. Start engine, then confirm that malfunction indicator lamp goes off.

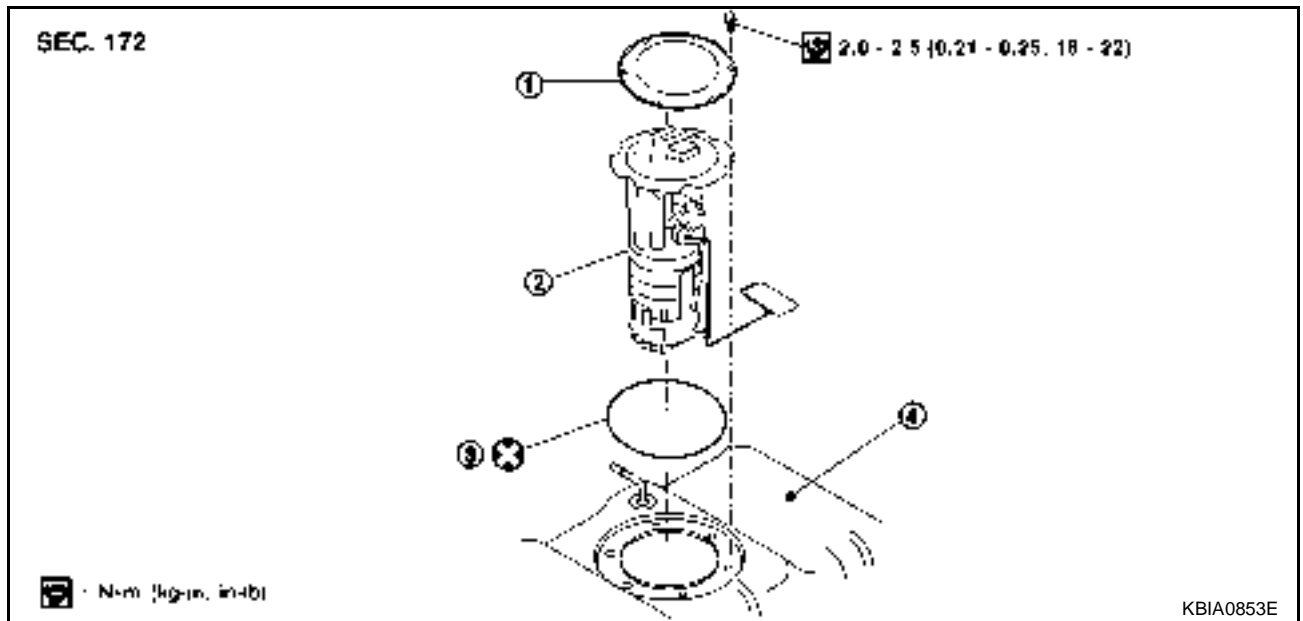
FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP (KA24DE)

FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP (KA24DE)

PFP:17042

Removal and Installation

EBS009KY



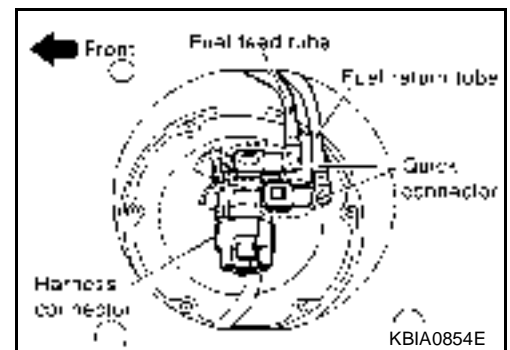
- | | |
|------------|--|
| 1 Retainer | 2 Fuel level sensor unit, fuel filter and fuel pump assembly |
| 3 O-ring | 4 Fuel tank |

REMOVAL

WARNING:

Be sure to read "General Precautions" when working on fuel system. Refer to [FL-3, "General Precautions"](#).

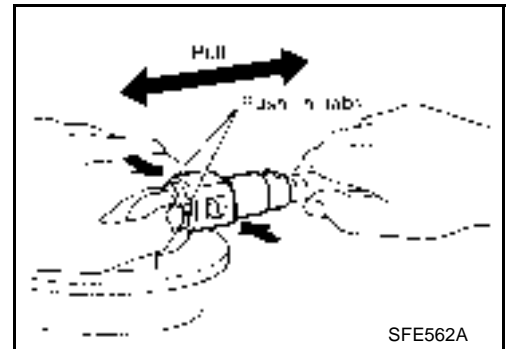
1. Release fuel pressure.
Refer to [EC-27, "Fuel Pressure Release"](#).
2. Open fuel filler lid.
3. Open the filler cap and release the pressure inside the fuel tank.
4. Open the trunk lid and remove the trunk front finisher.
5. Disconnect battery ground cable.



6. Disconnect the harness connector, fuel feed tube and fuel return tube.

FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP (KA24DE)

- Remove the quick connectors of the fuel tube as follows.



NOTE:

The followings are also applied to the quick connector of EVAP tube.

- 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.

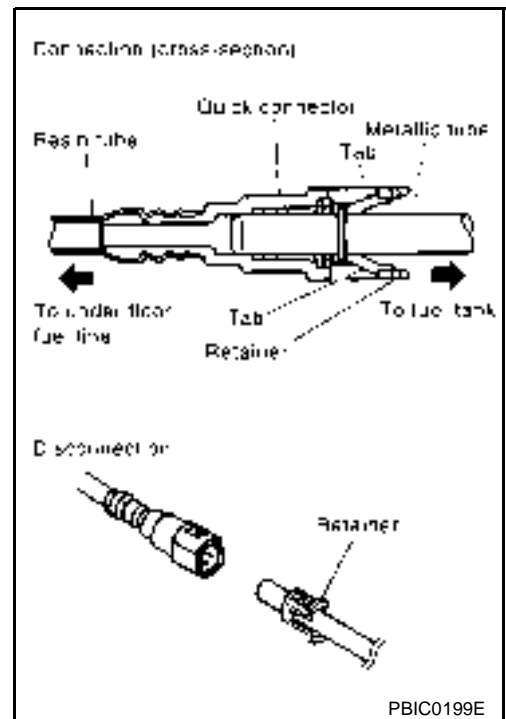
CAUTION:

- 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 test the tube during installation and removal.
- Only when the tube is replaced, remove the remaining retainer.
- When the tube is replaced, also replace the retainer with a new one.

Retainer color:

Feed tube : Orange

Return tube : White

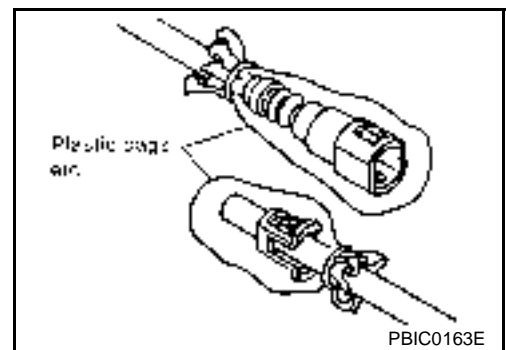


- To keep clean the connecting portion and to avoid damage and foreign materials, cover them completely with plastic bags or something similar.

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

CAUTION:

- Do not bend the float arm during removal.
- Avoid impacts such as falling when handling components.



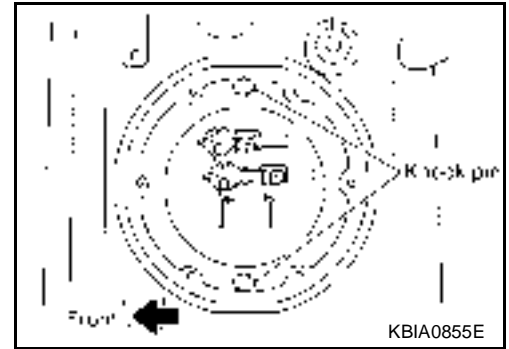
INSPECTION AFTER REMOVAL

Make sure the fuel pump strainer is free from foreign materials. If any are found, remove them.

FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP (KA24DE)

INSTALLATION

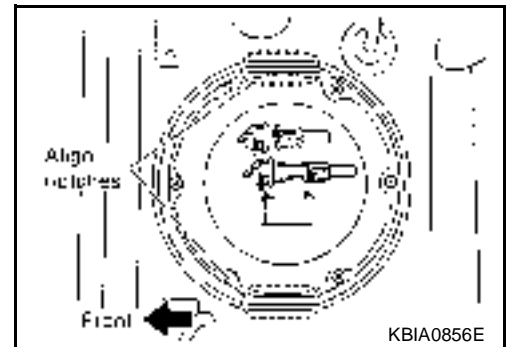
- Install in the reverse order of removal.
- Set the fuel tube connector of the fuel level sensor unit facing the direction shown in the figure.



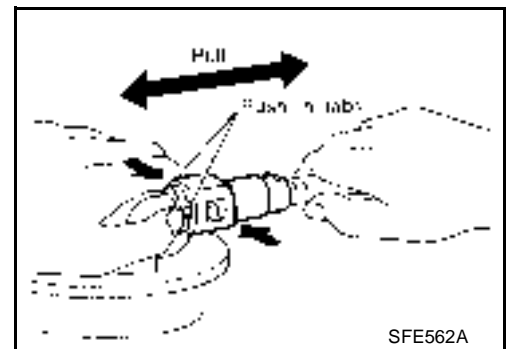
- Install it by matching the cut out position on its outer circumferences and the fuel tank.
- Tighten the mounting bolts evenly.

CAUTION:

Use the genuine bolts or equivalent.



- Connect the quick connector as follows.
 1. Check the connection for damage and foreign materials.
 2. Align the connector with the tube, then insert the connector straight into the tube until a click is heard.
 3. After connecting, make sure that the connection is secure by following the steps below.
 - a. Visually confirm that the two retainer tabs are connected to the connector.
 - b. Pull the tube and the connector to make sure they are securely connected.



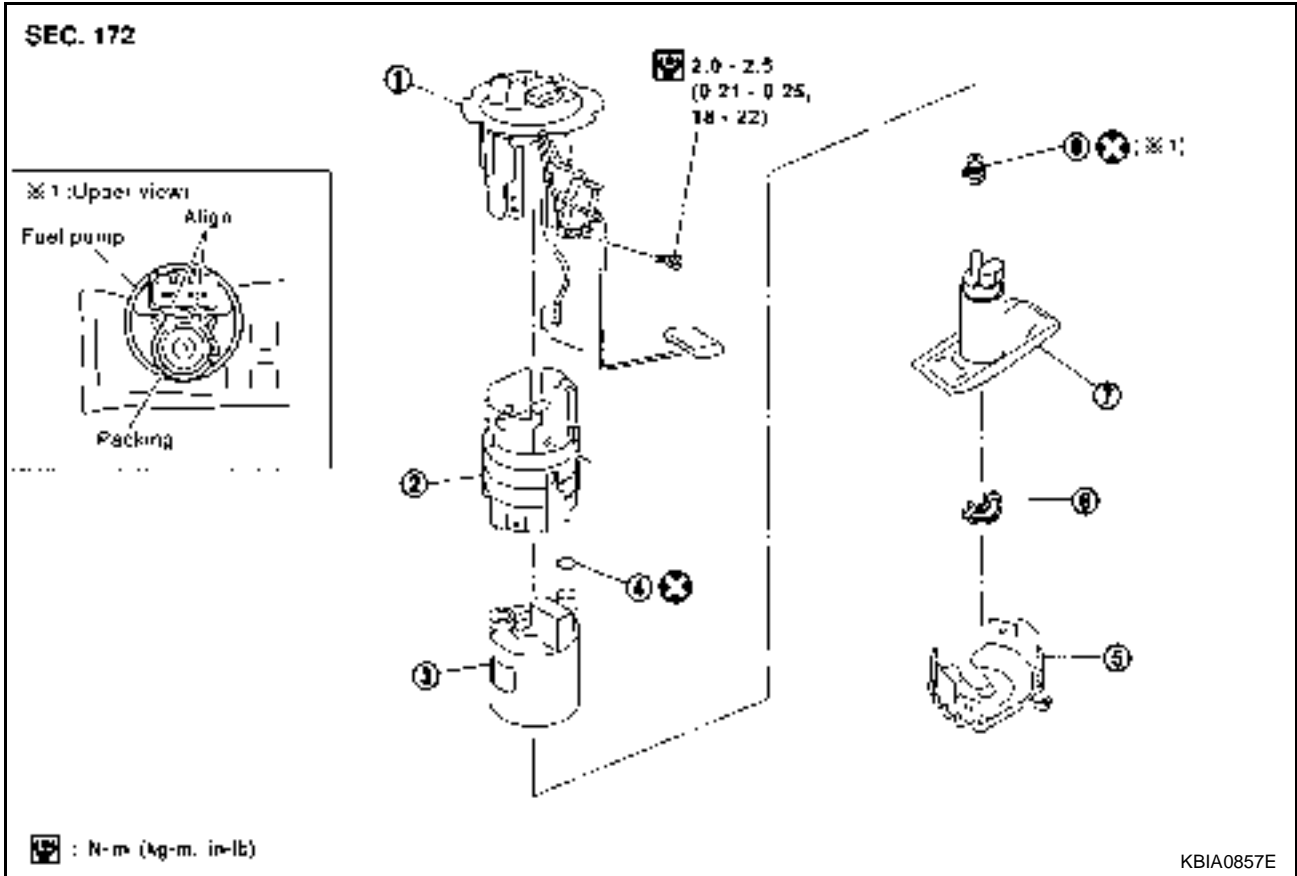
INSPECTION AFTER INSTALLATION

Start the engine and rev it up, make sure there is no fuel leakage at connections.

FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP (KA24DE)

Disassembly and Assembly

EBS009KZ



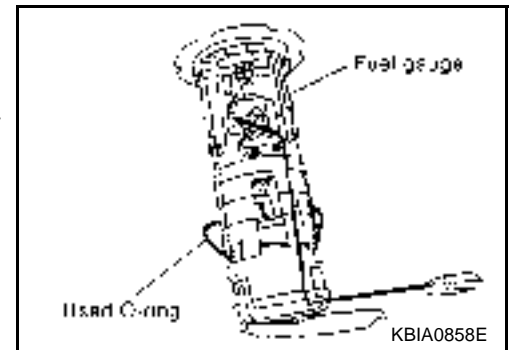
- | | | |
|--------------------------|-------------|---------------|
| 1 Fuel level sensor unit | 2 Protector | 3 Fuel filter |
| 4 O-ring | 5 Bracket | 6 Rubber |
| 7 Fuel pump | 8 Packing | |

DISASSEMBLY

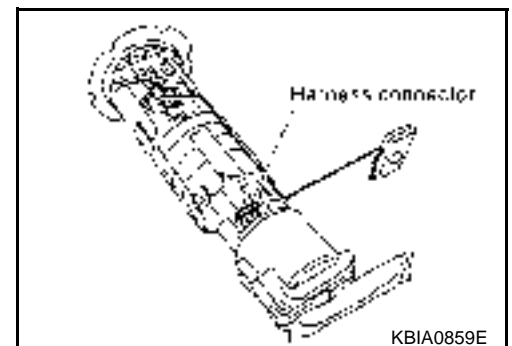
1. Follow procedure below to separate fuel gauge.
 - a. Fit a used O-ring into space between fuel gauge and fuel filter. Undo catches and separate fuel gauge and fuel filter.
 - For reference when reassembling, put a mating mark on outer edges of fuel gauge and fuel filter with some means which cannot be erased by fuel.

CAUTION:

If lateral force is applied when separating, resin tube between fuel gauge and fuel filter may be broken. Fuel gauge must be separated by pulling straight away from fuel filter.



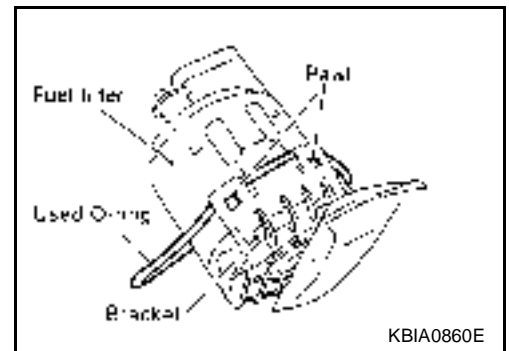
- b. Disconnect harness connector at fuel pump side.



FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP (KA24DE)

2. Separate fuel pump from fuel filter and bracket.

- Fit a used O-ring into space between fuel filter and bracket. Undo catches and separate fuel filter and bracket.
- For reference when reassembling, put a mating mark on outer edges of fuel filter and bracket with some means which cannot be erased by fuel.



ASSEMBLY

Observe the following precautions and install in reverse order of removal.

- Assemble parts using reference marks made when parts were disassembled.
- Align catches when assembling each part. Be sure that a click sound is heard to indicate that parts are securely assembled.
- Securely connect fuel pump harness connector.

CAUTION:

- **Install fuel pump mount rubber between fuel pump and bracket without looseness.**

A

FL

C

D

E

F

G

H

I

J

K

L

M

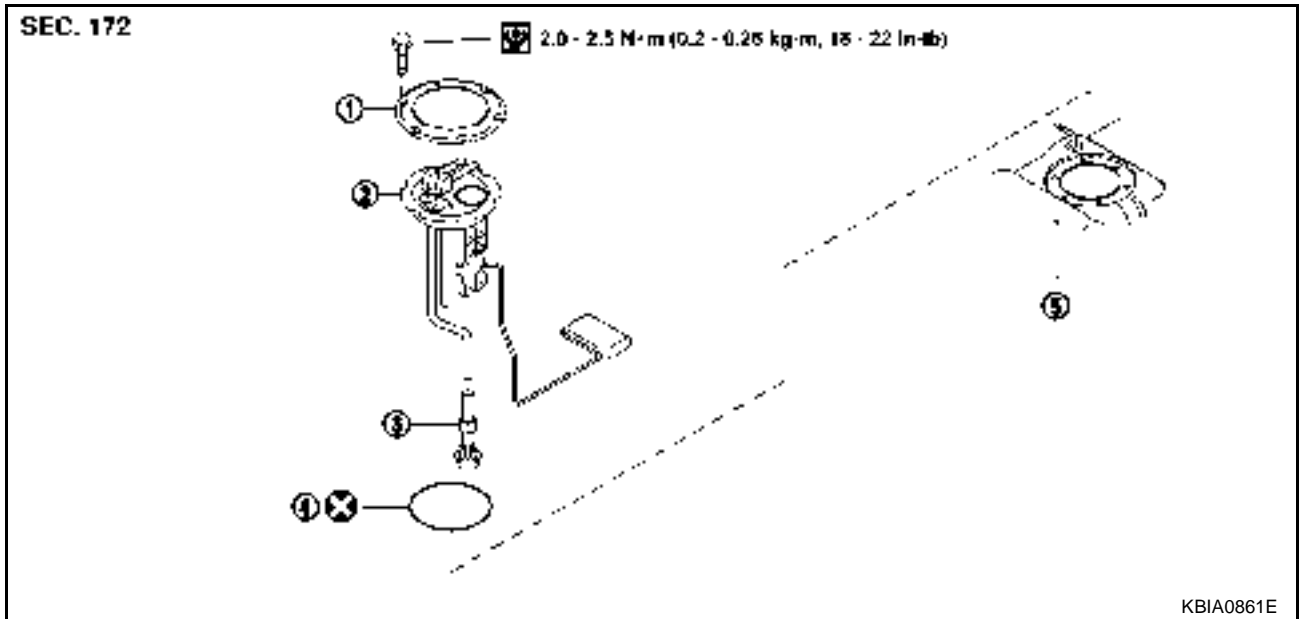
FUEL LEVEL SENSOR UNIT (ZD30DD)

FUEL LEVEL SENSOR UNIT (ZD30DD)

PFP:25060

Removal and Installation

EBS00904



- | | | |
|------------|--------------------------|-------------|
| 1 Retainer | 2 Fuel level sensor unit | 3 Fuel tube |
| 4 O-ring | 5 Fuel tank | |

REMOVAL

WARNING:

Be sure to read "General Precautions" when working on fuel system. Refer to [FL-3, "General Precautions"](#).

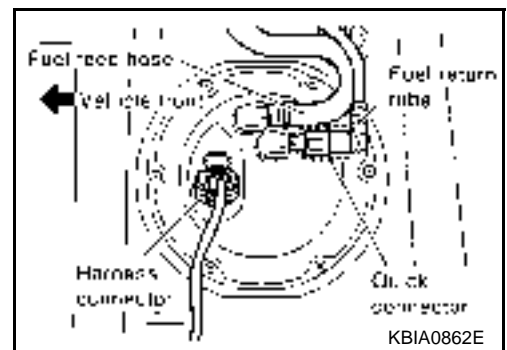
1. Open fuel filler lid.
2. Open the filler cap and release the pressure inside the fuel tank.
3. Peel off floor carpet, then remove inspection hole cover.

NOTE:

Depending on luggage compartment condition (seat arrangement and luggage load), remove fuel tank first, and then remove fuel gauge.

4. Disconnect the harness connector, fuel feed tube and fuel return tube.

Remove the quick connectors of the fuel tube as follows.



FUEL LEVEL SENSOR UNIT (ZD30DD)

NOTE:

The followings are also applied to the quick connector of EVAP tube.

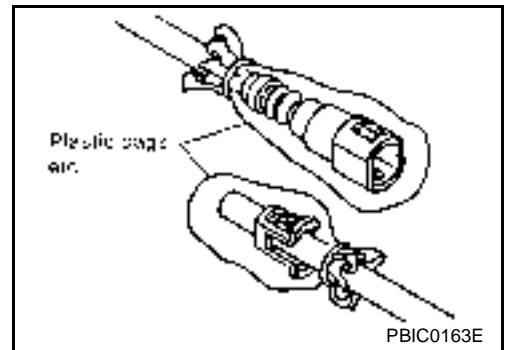
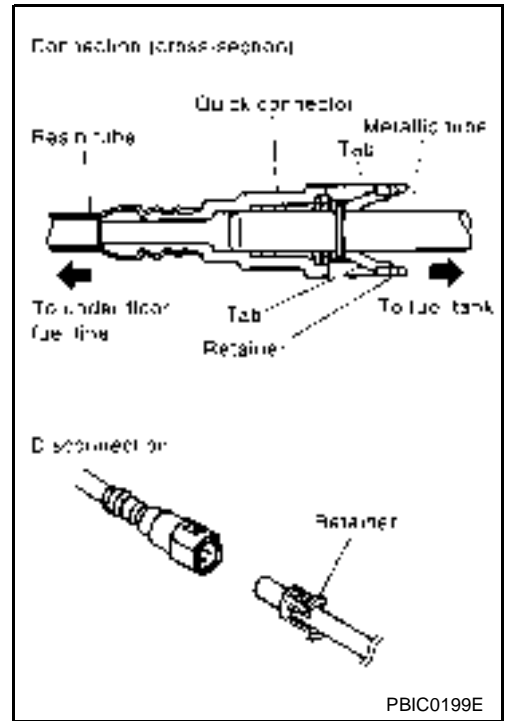
- Hold the sides of the connector, push in tubs and pull out the tube.
- If the connector and the tube are stuck together, push and pull several times until they start to move. Then disconnect them by pulling.

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 test the tube during installation and removal.
- Only when the tube is replaced, remove the remaining retainer.
- When the tube is replaced, also replace the retainer with a new one.

Retainer color: White

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



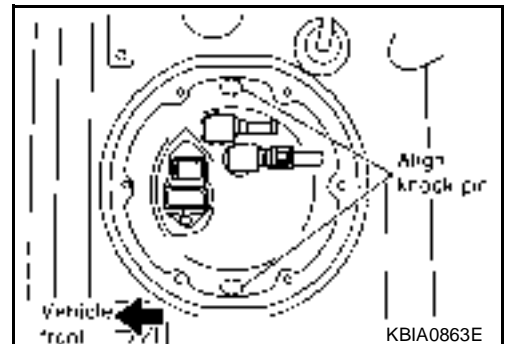
5. Remove fuel level sensor unit.

CAUTION:

- Do not bend the float arm during removal.
- Avoid impacts such as falling when handling components.

INSTALLATION

- Install in the reverse order of removal.
- Set fuel level sensor unit with its connector facing in the direction shown in figure. Align knock pins with holes on tank. Then install the fuel level sensor unit.

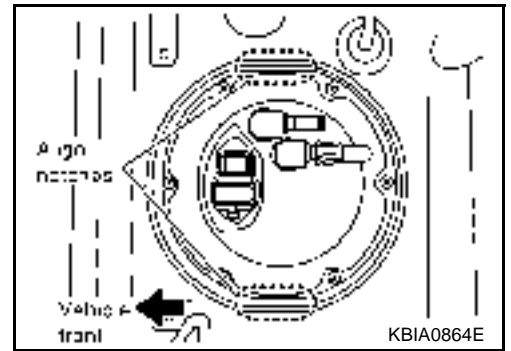


FUEL LEVEL SENSOR UNIT (ZD30DD)

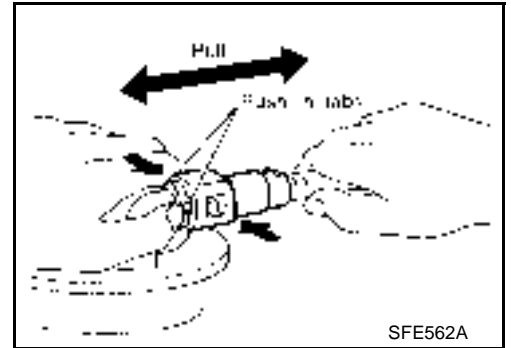
- Align cut out portion on retainer outer edge with that on fuel tank, and install retainer.
- Tighten the mounting bolts evenly.

CAUTION:

Use **NISSAN** genuine bolts or equivalent.



- Connect the quick connector as follows.
 1. Check the connection for damage and foreign materials.
 2. Align the connector with the tube, then insert the connector straight into the tube until a click is heard.
 3. After connecting, make sure that the connection is secure by following the steps below.
- Visually confirm that the two retainer tabs are connected to the connector.
- Pull the tube and the connector to make sure they are securely connected.



INSPECTION AFTER INSTALLATION

Start the engine and rev it up, make sure there is no fuel leakage at connections.

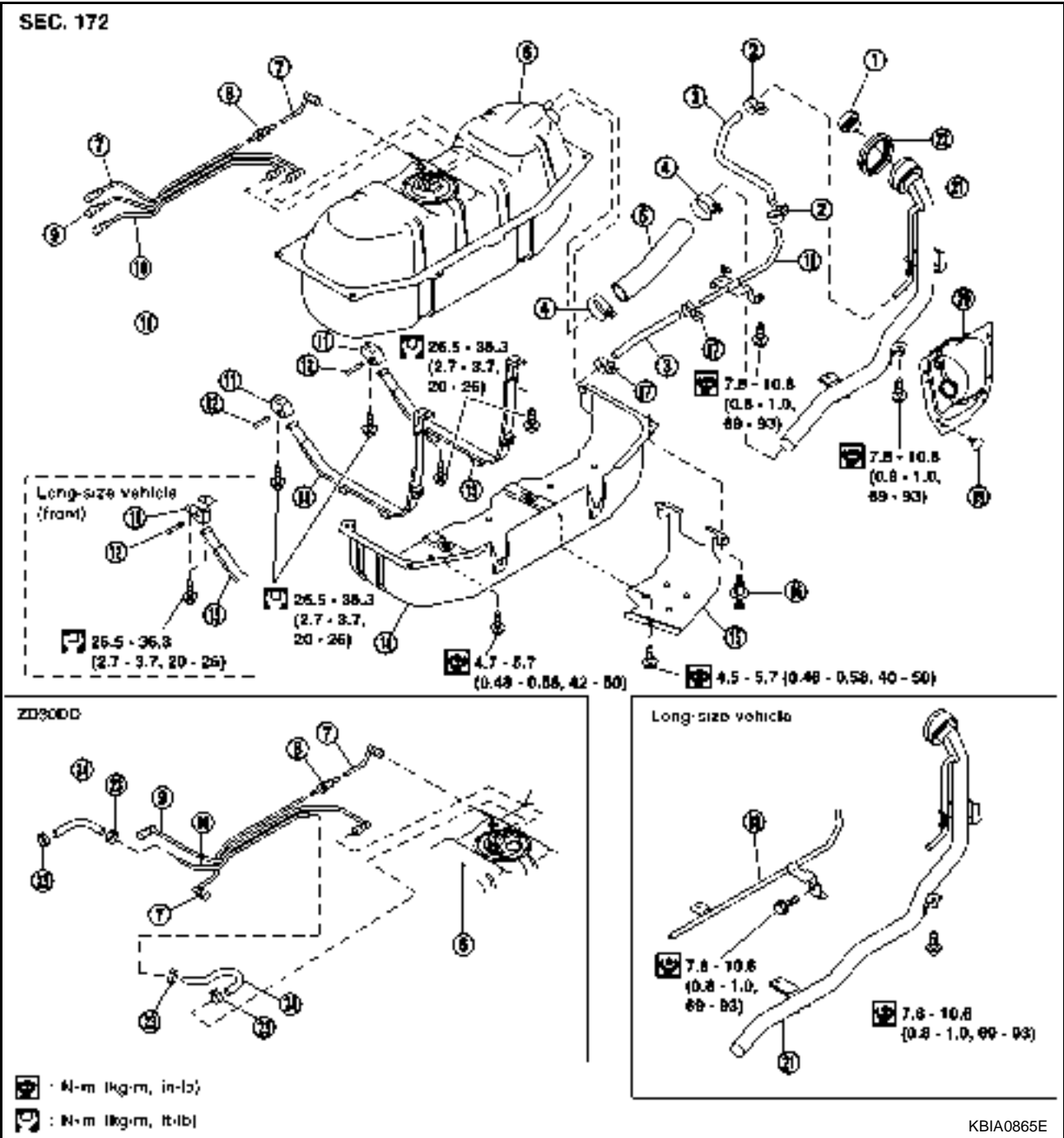
FUEL TANK

FUEL TANK

PFP:17202

Removal and Installation

EBS008ZW



- | | | |
|-------------------|---------------|--------------------|
| 1 Filler cap | 2 Clamp | 3 Vent hose |
| 4 Clamp | 5 Filler hose | 6 Fuel tank |
| 7 Evaporator tube | 8 Check valve | 9 Fuel return tube |
| 10 Fuel feed tube | 11 Bracket | 12 Pin |
| 13 Mounting band | 14 Protector | 15 Insulator |
| 16 Clip | 17 Clamp | 18 Vent tube |
| 19 Clip | 20 Protector | 21 Filler tube |
| 22 Grommet | 23 Clamp | 24 Fuel feed hose |

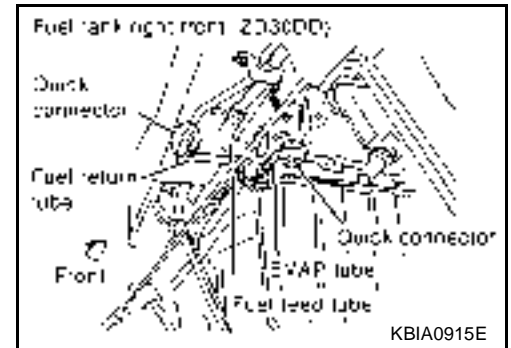
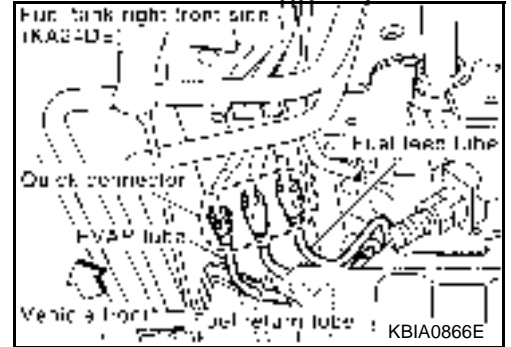
FUEL TANK

REMOVAL

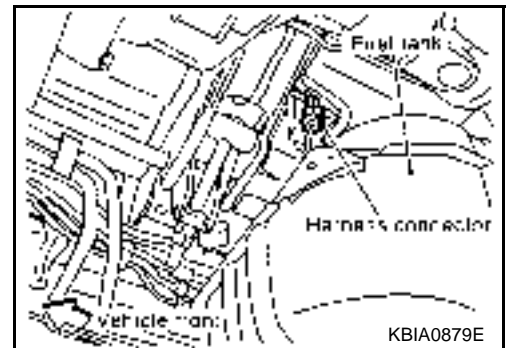
WARNING:

Be sure to read "General Precautions" when working on fuel system. Refer to [FL-3, "General Precautions"](#) .

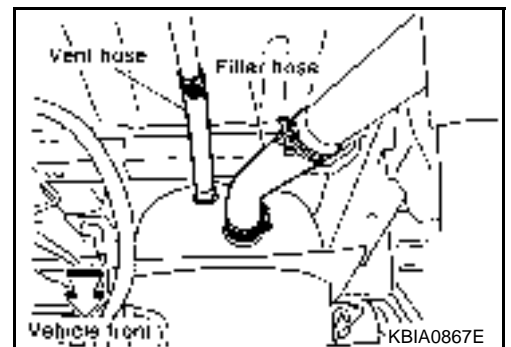
1. Release fuel pressure (KA24DE). Refer to [EC-27, "Fuel Pressure Release"](#) .
2. Open fuel filler lid.
3. Open the filler cap and release the pressure inside the fuel tank.
4. Remove fuel tank protector and insulator.
5. Disconnect fuel feed tube, fuel return tube, and evaporator tube from front-right of fuel tank.
 - Refer to [FL-7, "FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP \(KA24DE\)"](#) .



6. Disconnect harness connector from front-left of fuel tank.



7. Disconnect filler hose and vent hose from rear of fuel tank.

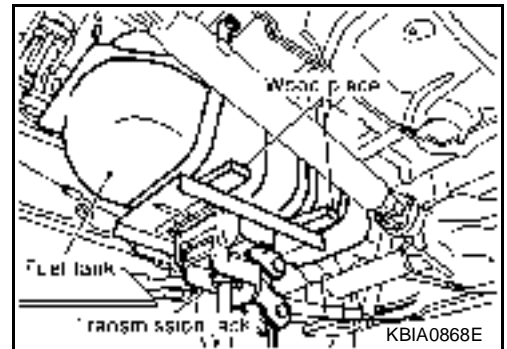


FUEL TANK

8. Using transmission jack, support bottom of fuel tank securely. Then remove mounting band (front and rear) from tank.
- To secure tank, insert wooden block under tank (avoiding mounting band).
9. While supporting fuel tank by hand, lower transmission jack carefully, and remove fuel tank.

CAUTION:

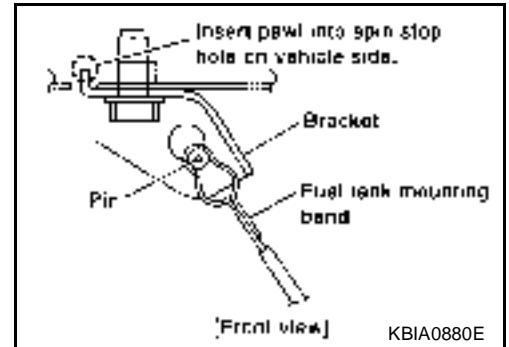
While removing tank, check all connections are disconnected. Also make certain that components do not come in contact with other components.



INSTALLATION

Install in reverse order of removal, paying attention to followings.

- Insert bracket tab securely into stopper hole on vehicle-side.
- Install fuel tank mounting band with its identification mark "FS" or "FL" on front side of vehicle.
- Check fuel tank mounting band pins are securely inserted. Also check pins are inserted in smaller-diameter holes on mounting band and bracket.



- Insert each hose to the dimensions shown below, and secure them with clamps.

Filler hose : 35 mm (1.38 in)

Others : 25 mm (0.98 in)

- When installing clamps, do not allow clamps to contact bulge (bump) of tube.
- Tighten each clamp (both ends) of filler hose, leaving an end distance as follows:

Fuel tank side : 8 - 12 mm (0.31 - 0.47 in)

Filler tube side : 7 - 11 mm (0.28 - 0.43 in)

- Refer to [FL-7, "FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP \(KA24DE\)"](#) or [FL-12, "FUEL LEVEL SENSOR UNIT \(ZD30DD\)"](#).

INSPECTION AFTER INSTALLATION

Run engine and check for fuel leakage at connections.

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

PFP:00030

Standard and Limit

EBS008ZX

| | |
|--------------------|-------------------------------------|
| Fuel tank capacity | Approximately 65 ℓ (14-1/4 Imp gal) |
|--------------------|-------------------------------------|

Tightening torque

EBS008ZY

Unit: N·m (kg-m, ft-lb)
Unit: N·m (kg-m, in-lb)*

| | |
|------------------------------|-----------------------------------|
| Fuel filter bracket (ZD30DD) | 12.7 - 15.7 (1.3 - 1.6, 10 - 11) |
| Fuel filter switch (ZD30DD) | 3.9 - 5.9 (0.4 - 0.6, 35 - 52)* |
| Fuel level sensor unit | 2.0 - 2.5 (0.2 - 0.26, 18 - 22)* |
| Fuel tank mounting band | 26.5 - 36.3 (2.7 - 3.7, 20 - 26) |
| Filler tube | 7.8 - 10.8 (0.8 - 1.1, 69 - 93)* |
| Fuel tank protector | 4.5 - 5.7 (0.46 - 0.58, 40 - 50)* |