

SECTION

FL

FUEL SYSTEM

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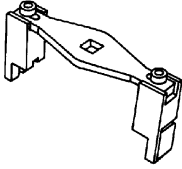
PREPARATION

PREPARATION

PFP:00002

Commercial Service Tool

EBS00GVM

Tool number Tool name	Description	
Fuel tank lock ring wrench	 ZZA0122D	Removing and installing fuel tank lock ring

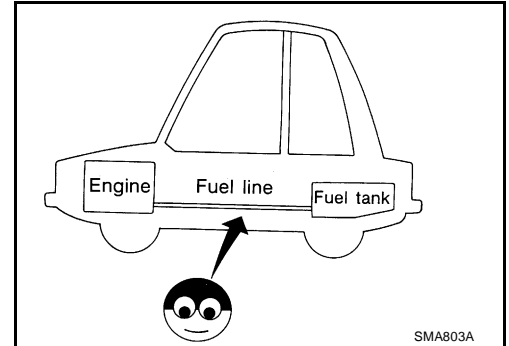
FUEL SYSTEM

PFP:17503

Checking Fuel Lines

EBS00GRB

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.



EBS00GRC

General Precautions

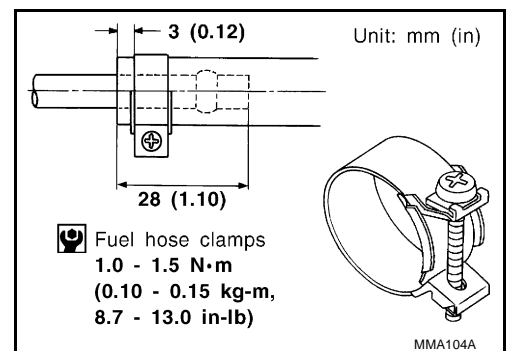
WARNING:

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

- Put a "CAUTION: FLAMMABLE" 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) Release fuel pressure from fuel line. Refer to [EC-56, "FUEL PRESSURE RELEASE"](#) (QG engine models WITH EURO-OBD), [EC-627, "FUEL PRESSURE RELEASE"](#) (QG engine models WITHOUT EURO-OBD), [EC-1022, "FUEL PRESSURE RELEASE"](#) (QR engine models WITH EURO-OBD), [EC-1499, "FUEL PRESSURE RELEASE"](#) (QR engine models WITHOUT EURO-OBD).
 - c) Disconnect battery ground cable.
- Always replace O-ring and clamps with new ones.
- Do not tighten hose clamps excessively to avoid damaging hoses.
- 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.
- For servicing "Evaporative Emission System" parts, refer to [EC-593, "EVAPORATIVE EMISSION SYSTEM"](#) (QG engine models WITH EURO-OBD), [EC-984, "EVAPORATIVE EMISSION SYSTEM"](#) (QG engine models WITHOUT EURO-OBD), [EC-1463, "EVAPORATIVE EMISSION SYSTEM"](#) (QR engine models WITH EURO-OBD), [EC-1783, "EVAPORATIVE EMISSION SYSTEM"](#) (QR engine models WITHOUT EURO-OBD).



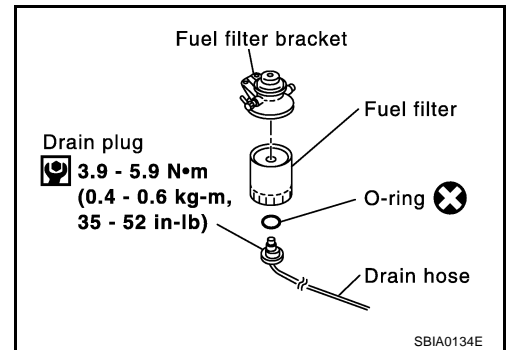
FUEL FILTER (YD22DDTI)

FUEL FILTER (YD22DDTI)

PFP:16400

Removal and Installation REMOVAL

EBS00GX5



1. Remove air duct and upper air cleaner case.
2. Remove fuel filter protector.
3. Disconnect fuel hoses from fuel filter bracket.

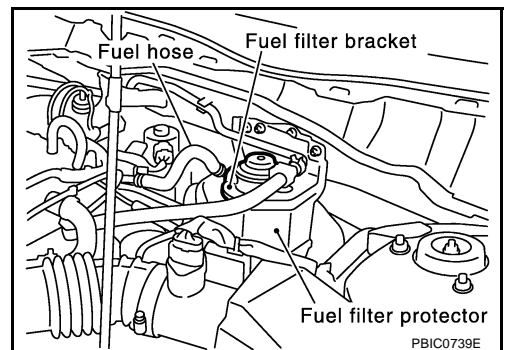
CAUTION:

Plug the pipe to prevent fuel from draining.

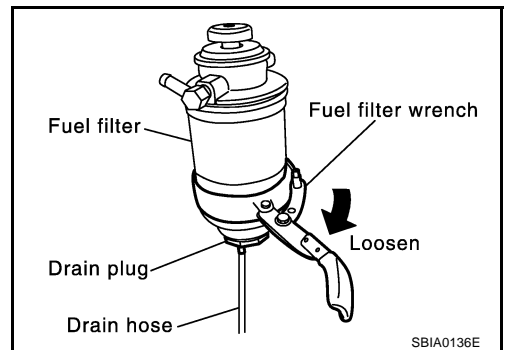
4. Remove fuel filter with bracket.

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 drain plug from fuel filter.



INSTALLATION

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

- Replace O-ring on drain plug with new one.
- Screw the fuel filter by hand until O-ring 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.

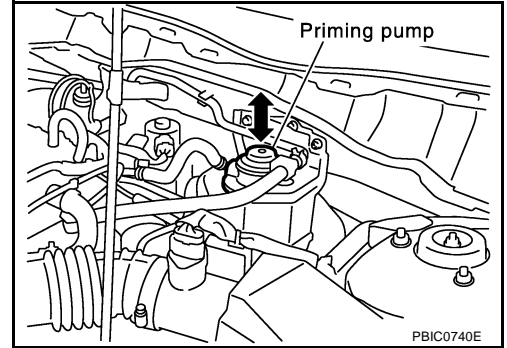
FUEL FILTER (YD22DDTI)

Air Bleeding

EBS00GX7

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

1. Move priming pump up and down to bleed air from fuel path.
2. When air is bled, pumping of priming pump becomes heavy stop operation at that time.
3. Crank the engine until it starts. Do not crank the engine for more than 30 seconds.
4. If the engine does not start, stop cranking and repeat step 1 above.
5. If the engine does not operate smoothly after it has started, race it two or three times.
6. 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

EBS00GX8

1. Prepare a tray at the drain hose open end.
2. Loosen drain cock turning counterclockwise in view from bottom, and operate priming pump to drain water from fuel filter.

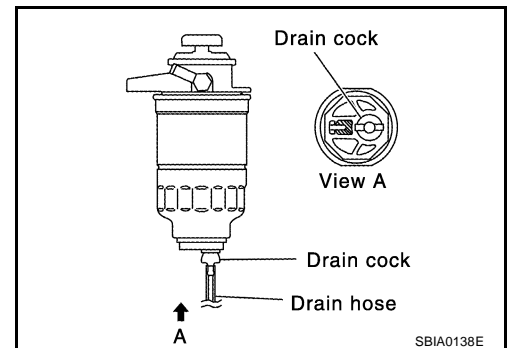
CAUTION:

- Coolant in filter is drained with fuel. Prepare larger capacity tray than fuel filter volume.
 - Drained coolant is mixed with fuel. Prevent fuel from adhering to rubber parts such as engine mount insulator.
3. After draining, close drain plug by hand.

CAUTION:

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

4. Bleed air in fuel piping and check for fuel leakage. Refer to [FL-5, "Air Bleeding"](#).
5. Start engine.



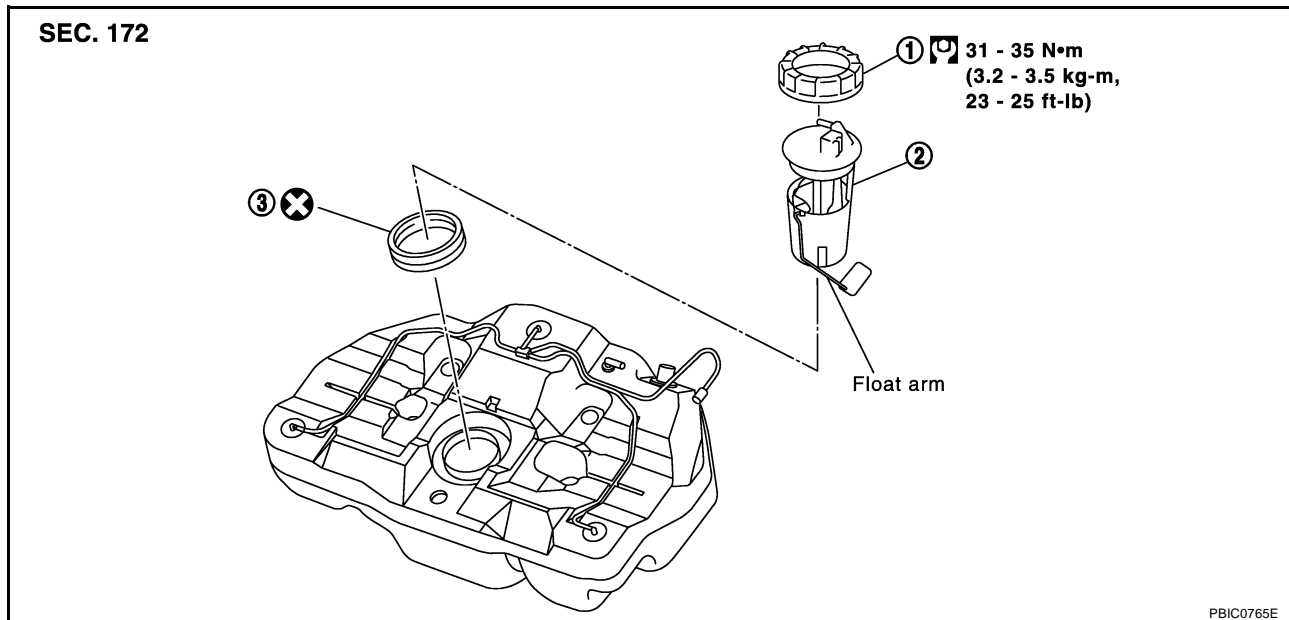
FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY (EXCEPT YD22DDTI)

FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY (EXCEPT YD22DDTI)

PFP:17042

Removal and Installation

EBS00GRD

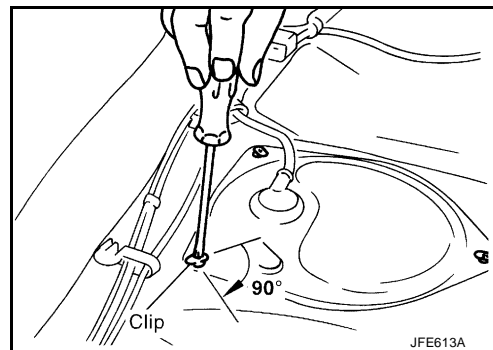


REMOVAL

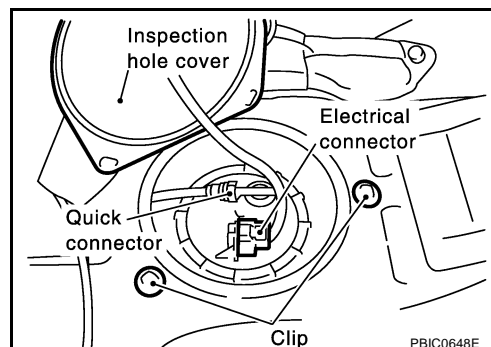
WARNING:

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

1. Release fuel pressure from fuel line.
Refer to [EC-56, "FUEL PRESSURE RELEASE"](#) (QG engine models WITH EURO-OBD), [EC-627, "FUEL PRESSURE RELEASE"](#) (QG engine models WITHOUT EURO-OBD), [EC-1022, "FUEL PRESSURE RELEASE"](#) (QR engine models WITH EURO-OBD), [EC-1499, "FUEL PRESSURE RELEASE"](#) (QR engine models WITHOUT EURO-OBD).
2. Open fuel filler lid.
3. Open the filler cap and release the pressure inside the fuel tank.
4. Remove rear seat cushion.
5. Remove inspection hole cover, harness connector and fuel feed hose.



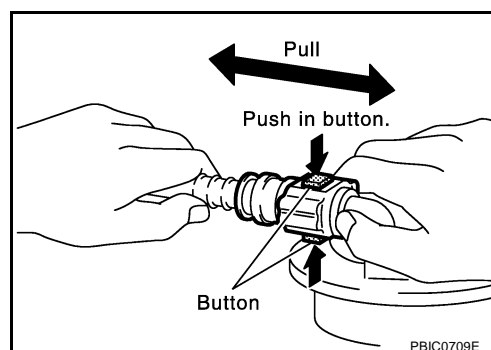
FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY (EXCEPT YD22DDTI)



- Remove the quick connector as follows.

NOTE:

- Hold the sides of the connector, push in tube 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.

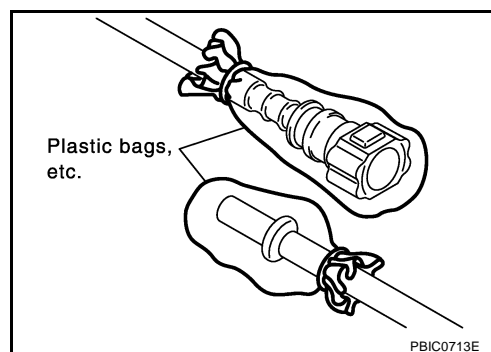


CAUTION:

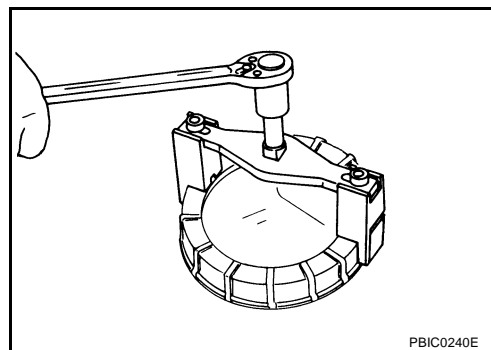
- The tube can be removed when the tabs are completely depressed. Do not twist it more than necessary.
- Do not use any tools to remove the quick connector.
- Keep the resin tube away from heat. Be especially careful when welding near the tube.
- Prevent acid liquid such as battery electrolyte etc. from getting on the resin tube.
- Do not bend or twist the tube during installation and removal.
- When the tube or fuel level sensor unit is replaced, also replace the retainer with a new one.

Feed tube : Black

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



6. Remove lock ring using a lock ring wrench (commercial service tool).



FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY (EXCEPT YD22DDTI)

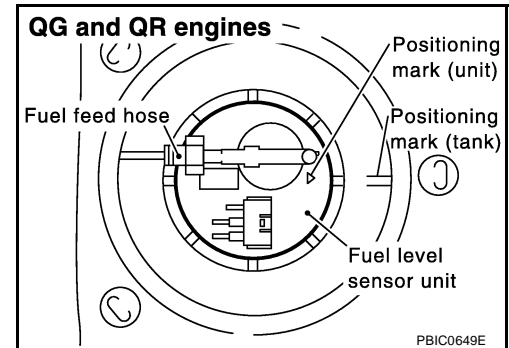
- Remove fuel level sensor unit, fuel filter and fuel pump assembly.

CAUTION:

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

INSTALLATION

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



- Set the fuel tube connector of the fuel level sensor unit facing the front side of the vehicle. Install it by matching the notches on its outer circumferences and the fuel tank.

CAUTION:

Use genuine bolts or the equivalent.

- Connect the quick connector as follows.
 - Check the connection for damage and foreign materials.
 - Align the connector with the tube, then insert the connector straight into the tube until a click is heard.
 - 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

Check fuel leakage in following steps.

- Turn ignition switch ON (with engine stopped) to apply fuel pressure to fuel lines. Then check for fuel leakage at connections.
- Start the engine and rev it up and make sure there is no fuel leakage at connections.

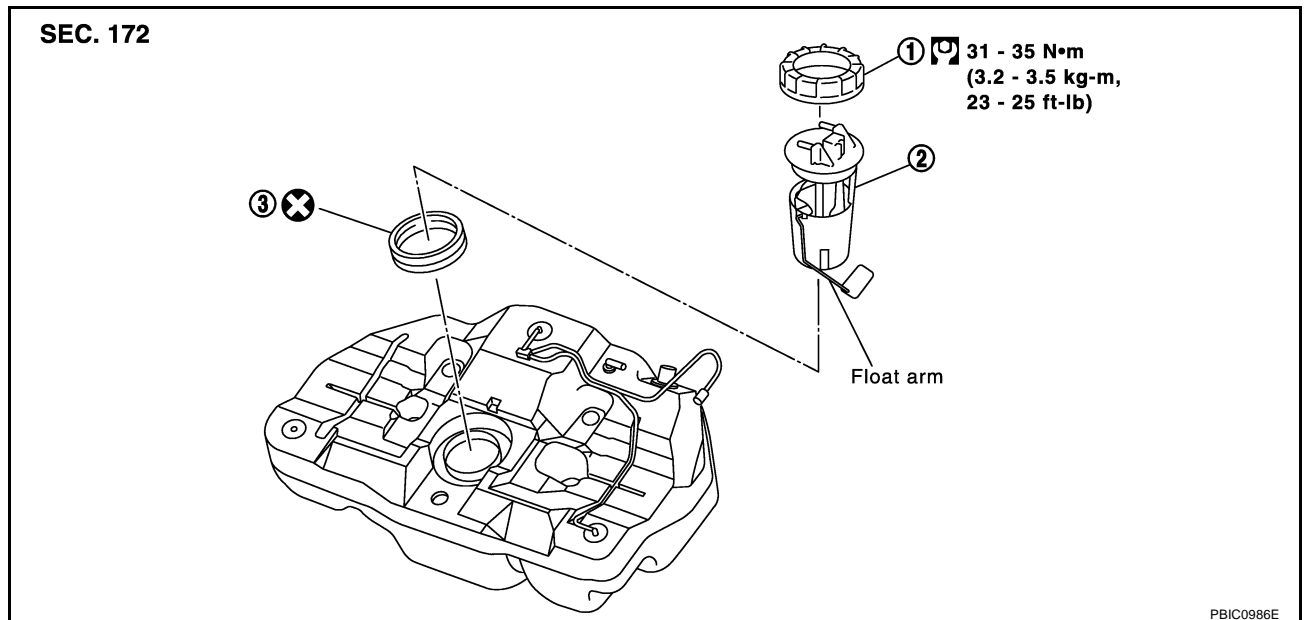
FUEL LEVEL SENSOR UNIT (YD22DDTI)

FUEL LEVEL SENSOR UNIT (YD22DDTI)

PPF:17042

Removal and Installation

EBS00GXC



1. Lock ring

2. Fuel level sensor unit

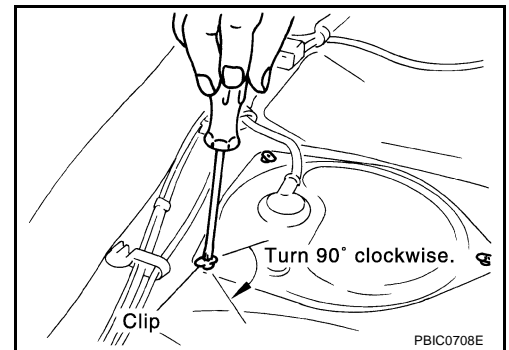
3. Fuel gauge packing

REMOVAL

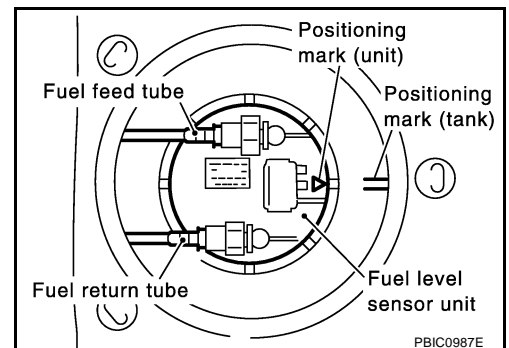
WARNING:

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

1. Disconnect battery ground cable.
2. Open fuel filler lid.
3. Open the filler cap and release the pressure inside the fuel tank.
4. Remove rear seat bottom.
5. Peel off floor carpet, then remove inspection hole cover.



6. Disconnect the harness connector, fuel feed tube and fuel return tube.
- a. Put mating marks on tubes and connectors for correct installation.

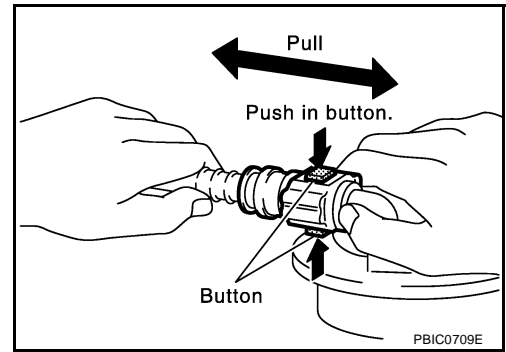


FUEL LEVEL SENSOR UNIT (YD22DDTI)

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

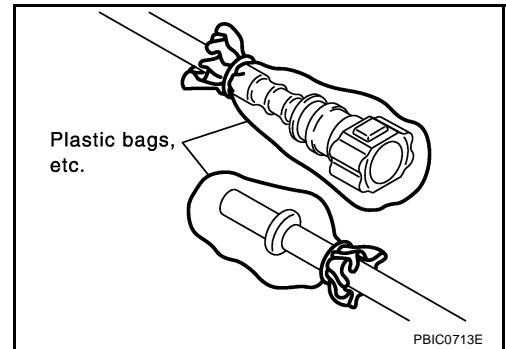
NOTE:

- Hold the sides of the connector, push in button 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.

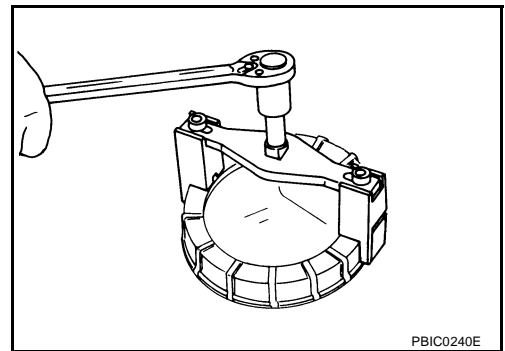


CAUTION:

- The tube can be removed when the button 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.
- To keep clean the connecting portion and to avoid damage and foreign materials, cover them completely with plastic bags or something similar.



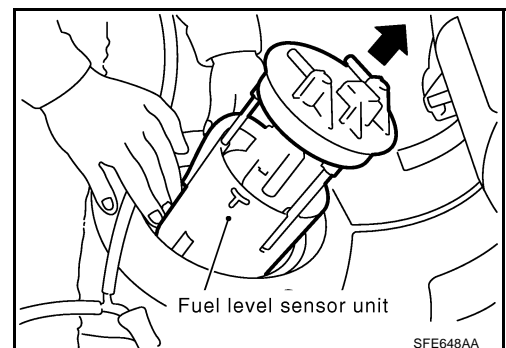
7. Using a lock ring wrench, remove the lock ring.



8. Remove fuel level sensor unit.

CAUTION:

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

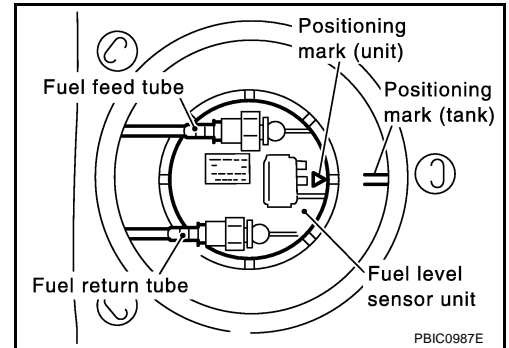


INSTALLATION

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

FUEL LEVEL SENSOR UNIT (YD22DDTI)

- 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.
- Pull the tube and the connector to make sure they are securely connected.
- Install fuel level sensor unit with mating mark (triangular protrusion) facing between two carved lines on fuel tank.
- Install the inspection hole cover with the front mark (arrow) facing front of the vehicle.



INSPECTION AFTER INSTALLATION

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

FUEL TANK

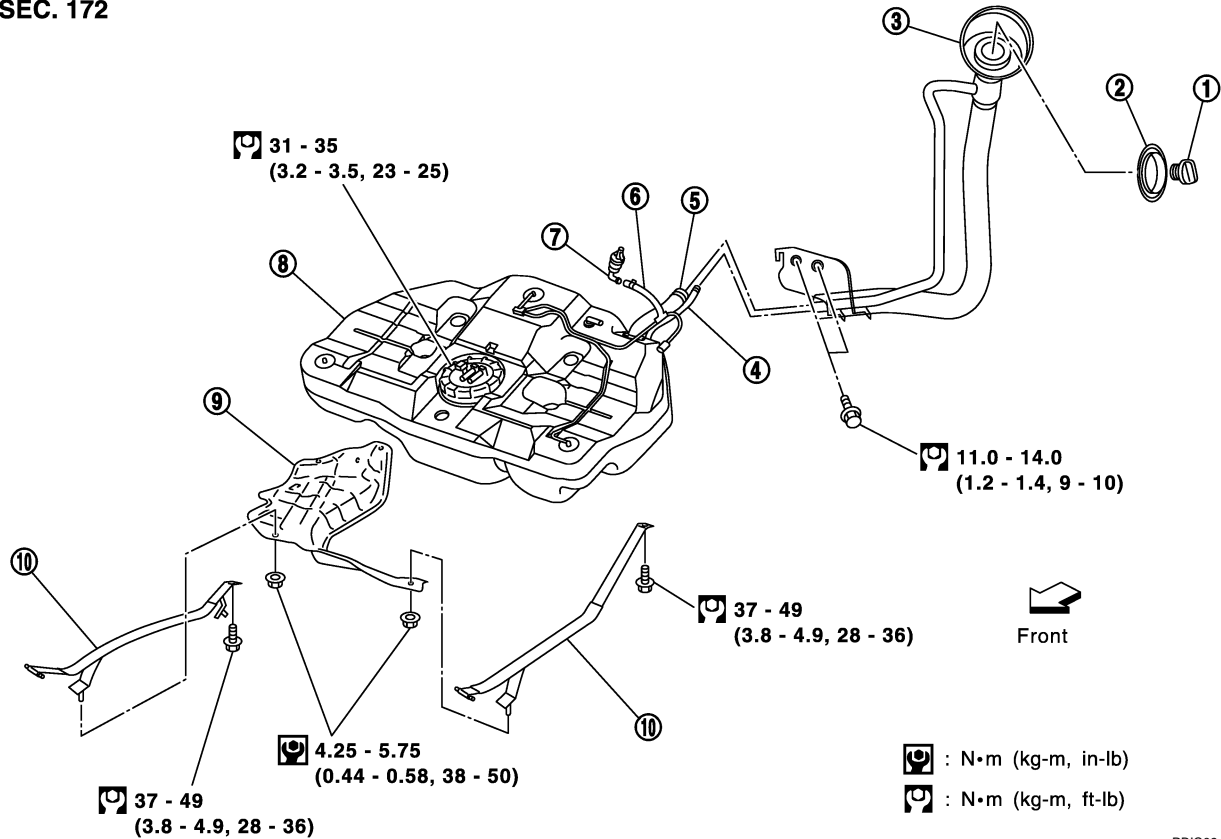
FUEL TANK

PFP:17202

Removal and Installation (YD22DDTi)

EBS00117

SEC. 172



PBIC0948E

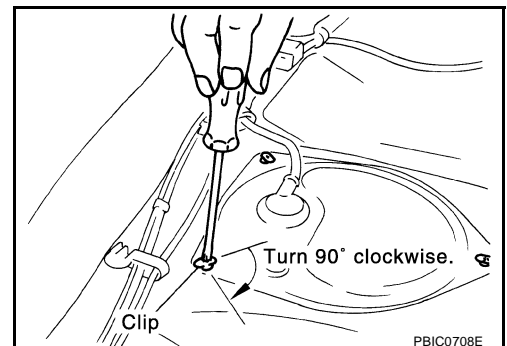
- | | | |
|-------------------------------|---------------------|------------------------|
| 1. Fuel filler cap | 2. Grommet | 3. Fuel filler tube |
| 4. Vent hose | 5. Fuel filler hose | 6. EVAP hose |
| 7. Fuel valve assembly | 8. Fuel tank | 9. Fuel tank protector |
| 10. Fuel tank tightening band | | |

REMOVAL

WARNING:

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

1. Disconnect battery ground cable.
2. Open the fuel filler cap and release the pressure inside the fuel tank.
3. Remove rear seat bottom.
4. Peel off floor carpet, then remove inspection hole cover.

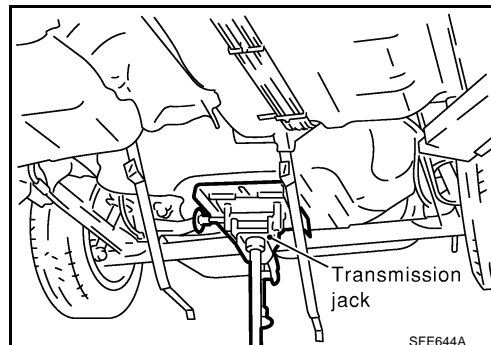


PBIC0708E

5. Disconnect the harness connector.
6. Drain fuel from fuel tank if necessary.

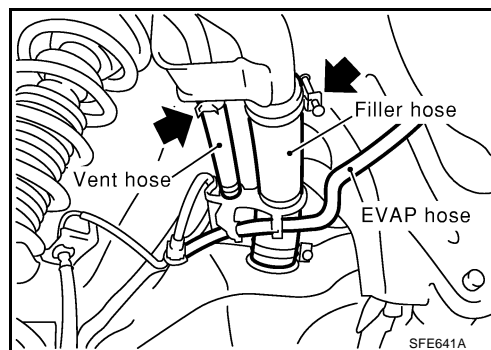
FUEL TANK

7. Remove the quick connector. For disconnection procedure of the quick connector, refer to [FL-9, "FUEL LEVEL SENSOR UNIT \(YD22DDTi\)"](#)
 - Put mating marks on hoses for correct installation.
8. Remove exhaust center tube and insulator.
9. Remove fuel tank protector.
10. Using a transmission jack, support the bottom of the fuel tank.

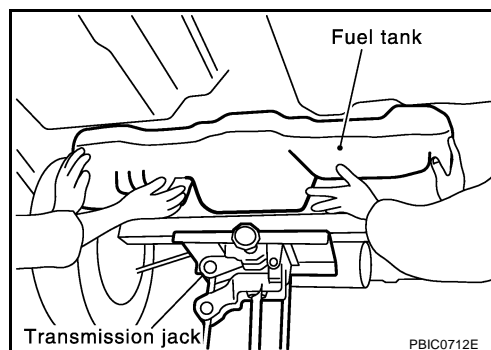


11. Disconnect fuel filler hose, EVAP hose and vent hose at fuel tank side.

For disconnection procedure of the quick connector, refer to [FL-9, "FUEL LEVEL SENSOR UNIT \(YD22DDTi\)"](#).



12. Remove fuel tank tightening band mounting bolts while supporting fuel tank.
13. Remove fuel tank.



INSTALLATION

- Install in the reverse order of removal paying attention to the following.
- The hose shall be inserted until it contacts with the stopper of the bracket end.
- Be sure hose clamp is not positioned on swelled area of fuel tube.
- Tighten fuel hose clamp so that the distance between its lugs becomes to the following.

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

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

- Push the mounting band pin to the vehicle side securely.
- Before fixing the fuel tank, temporarily install the fuel filler tube.

CAUTION:

Use genuine fuel filler tube mounting bolts or equivalent. Make sure to tighten them to the specified torque.

- To connect the quick connector, refer to [FL-9, "FUEL LEVEL SENSOR UNIT \(YD22DDTi\)"](#).

FUEL TANK

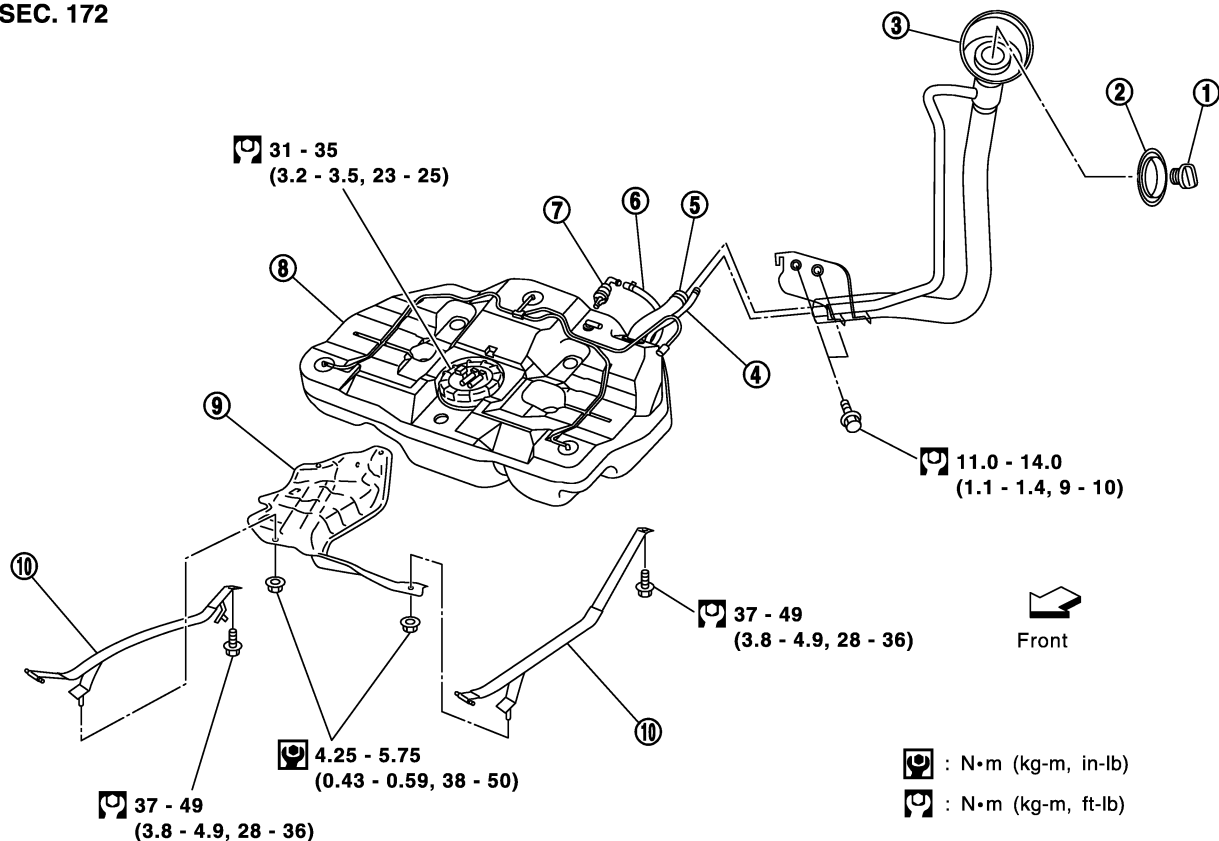
INSPECTION AFTER INSTALLATION

Run engine and check for fuel leaks at connections.

Removal and Installation (Except YD22DDTi)

EBS00GRF

SEC. 172



PBIC1074E

- | | | |
|--|----------------|------------------------|
| 1. Fuel filler cap | 2. Grommet | 3. Filler tube |
| 4. Vent hose | 5. Filler hose | 6. EVAP hose |
| 7. Check valve (QG engine models only) | 8. Fuel tank | 9. Fuel tank protector |
| 10. Fuel tank band | | |

REMOVAL

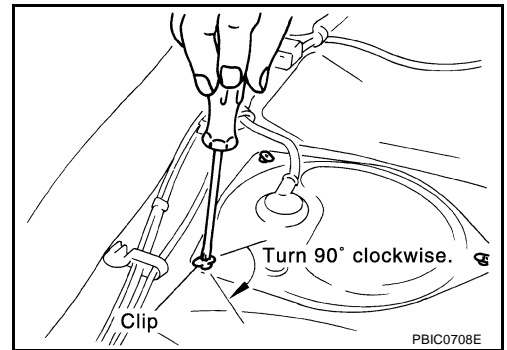
WARNING:

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

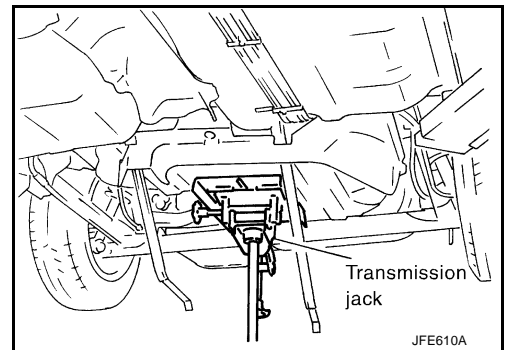
1. Release fuel pressure. Refer to [EC-56, "FUEL PRESSURE RELEASE"](#) (QG engine models WITH EURO-OBD), [EC-627, "FUEL PRESSURE RELEASE"](#) (QG engine models WITHOUT EURO-OBD), [EC-1022, "FUEL PRESSURE RELEASE"](#) (QR engine models WITH EURO-OBD), [EC-1499, "FUEL PRESSURE RELEASE"](#) (QR engine models WITHOUT EURO-OBD).
2. Open the fuel filler cap and release the pressure inside the fuel tank.
3. Remove rear seat cushion.

FUEL TANK

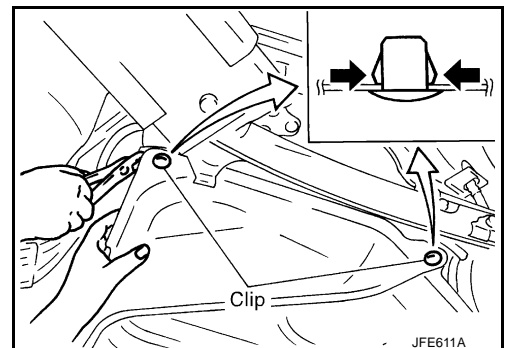
4. Remove inspection hole cover, harness connector and fuel feed hose.



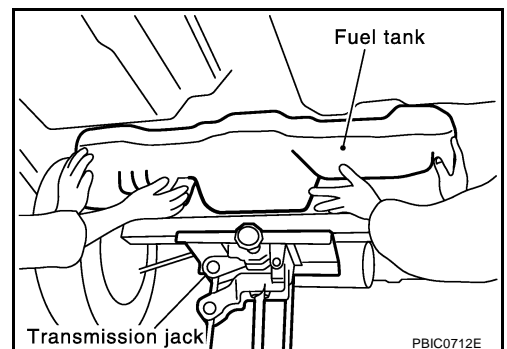
5. Drain fuel from fuel tank if necessary.
6. Remove the quick connector.
 - Put mating marks on hoses for correct installation.
7. Remove exhaust center tube.
8. From rear left area of fuel tank, remove filler hose, vent hose and EVAP hose.
9. Set a suitable transmission jack under fuel tank.
10. Remove fuel tank mounting band bolts while supporting fuel tank.



11. Lower the fuel tank by 70 to 80 mm (2.76 to 3.15 in), remove the nuts and clips holding the protector, and then remove the protector.
 - To remove the clips, use pliers to squeeze the extensions as shown by the arrows in the figure, and then remove the clip from above.
12. Remove the fuel tank mounting band.



13. Move the parking brake cable.
14. Lower the transmission jack carefully and avoid interfering with adjacent parts while removing the fuel tank.



FUEL TANK

INSTALLATION

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

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

Fuel filler hose : 35 mm (1.38 in)

The other hoses : 25 mm (0.98 in)

- Be sure hose clamp is not placed on swelled area of fuel tube.
- Tighten fuel hose clamp so that the distance between its lugs becomes to 8 to 10 mm (0.31 to 0.39 in).
- Before fixing the fuel tank, temporarily install the filler tube.

CAUTION:

Use genuine fuel filler tube mounting bolts or equivalent. Make sure to tighten them to the specified torque.

- To connect the quick connector, refer to [FL-8, "INSTALLATION"](#).

INSPECTION AFTER INSTALLATION

Check fuel leakage in following steps.

1. Turn ignition switch ON (with engine stopped). Apply fuel pressure to fuel lines. Then check for fuel leakage at connections.
2. Start the engine and rev it up and make sure there is no fuel leakage at connections.

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

PFP:00030

Standard and Limit

EBS00GRH

Fuel tank capacity (QG and QR engine models)	Approx. 50 ℓ (11 Imp gal)
Fuel tank capacity (YD engine models)	Approx. 62 ℓ (13 - 5/8 Imp gal)

Tightening Torque

EBS00GRI

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

Fuel tank tightening band	37.0 - 49.0 (3.8 - 4.9, 28 - 36)
Fuel filler tube	11.0 - 14.0 (1.2 - 1.4, 9 - 10)
Fuel tank protector	4.25 - 5.75 (0.44 - 0.58, 38 - 50)*
Lock ring	31.0 - 35.0 (3.2 - 3.5, 23 - 25)

SERVICE DATA AND SPECIFICATIONS (SDS)
