

SECTION

FL

FUEL SYSTEM

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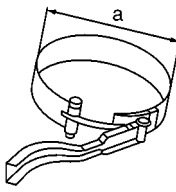
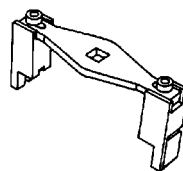
PREPARATION

PREPARATION

PFP:00002

Commercial Service Tools

EBS00SIY

Tool name		Description
Fuel filter wrench	 MBIA0064E	Removing fuel filter a: Max. 100 mm (3.94 in) dia.
Fuel tank lock ring wrench	 ZZA0122D	Removing and installing fuel tank lock ring

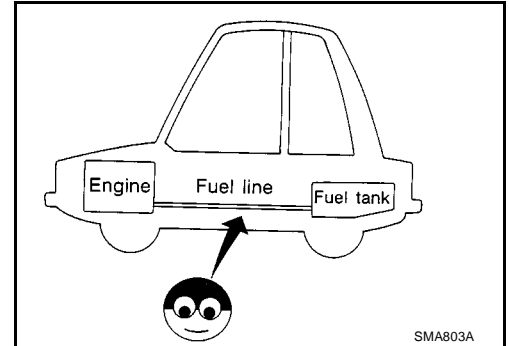
FUEL SYSTEM

PFP:17503

Checking Fuel Lines

EBS00SIW

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.



EBS00SIX

General Precautions

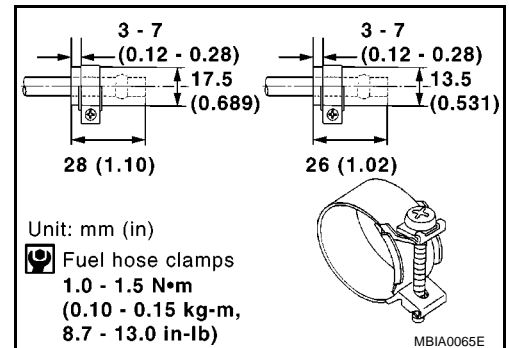
WARNING:

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) 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 - 7 mm (0.12 - 0.27 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.



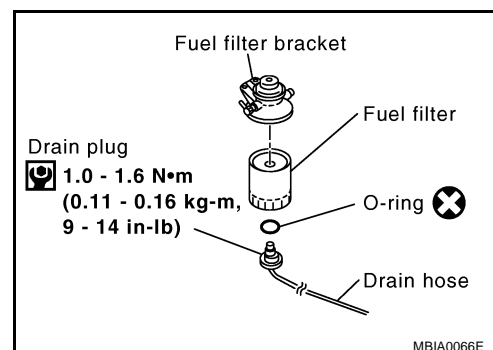
FUEL FILTER (YD22DDTI)

FUEL FILTER (YD22DDTI)

PFP:16400

Removal and Installation REMOVAL

EBS00SIZ



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

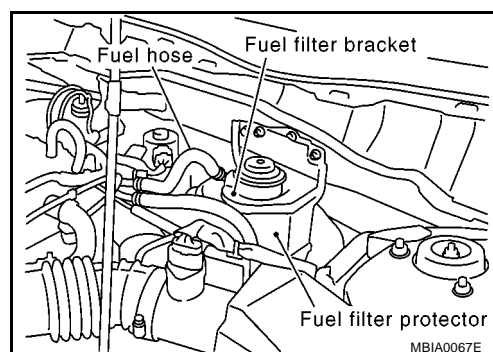
CAUTION:

Plug the pipe to prevent fuel from draining.

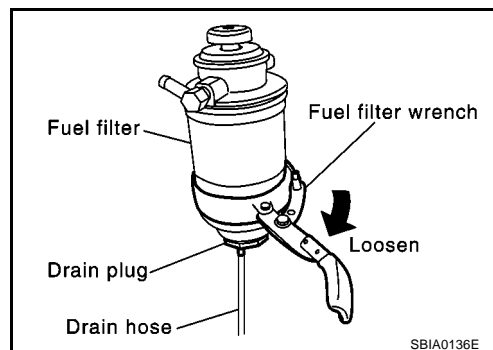
4. Remove fuel filter with bracket.

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.

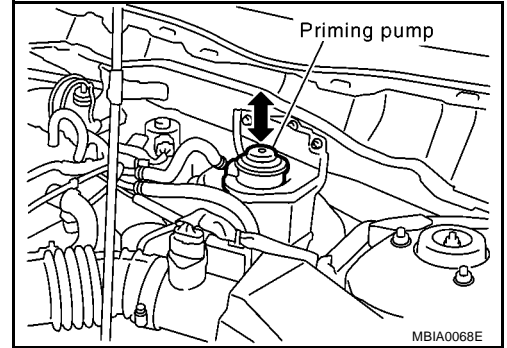
FUEL FILTER (YD22DDTI)

Air Bleeding

EBS00SJ0

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

EBS00SJ1

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.

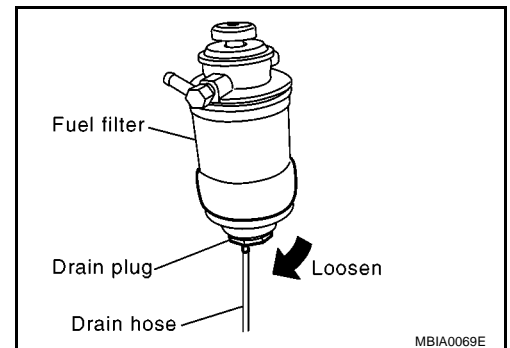
CAUTION:

- 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 FILTER (F9Q)

FUEL FILTER (F9Q)

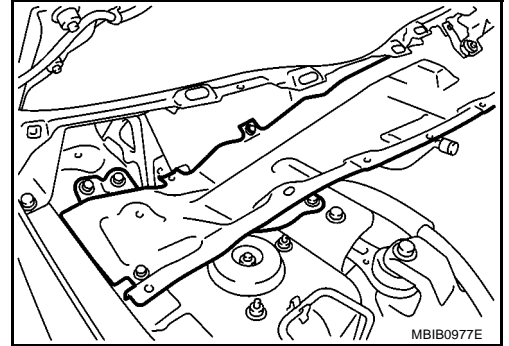
PFP:16400

Removal and Installation

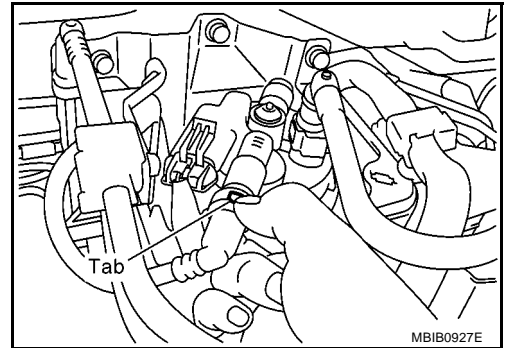
EBS00SIQ

REMOVAL

1. Remove wiper arms and wiper motor. Refer to [WW-12, "Removal and Installation for Wiper Motor and Linkage"](#) or [WW-33, "Removal and Installation for Wiper Motor and Linkage"](#) (with rain sensor).
2. Remove brackets as shown.



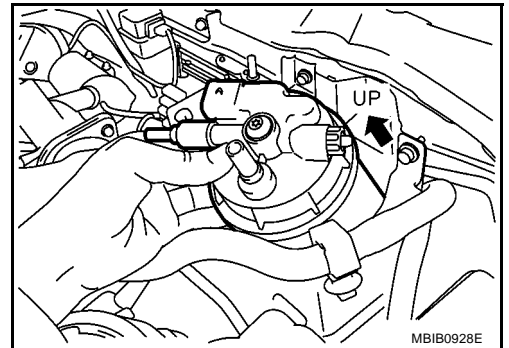
3. Remove quick connectors as shown.



4. Remove fuel filter from fuel filter bracket.

CAUTION:

Do not spill the fuel during removal. If the fuel is spill, immediately wipe it off. Be especially careful to prevent the fuel from adhering to the insulators of the engine mounts.



INSTALLATION

- Install in the reverse order of removal.
- After installation, operate the priming bulb vertically to perform air bleeding. Refer to [FL-7, "Air Bleeding"](#).

INSPECTION AFTER INSTALLATION

Run engine and check for fuel leakage at connections.

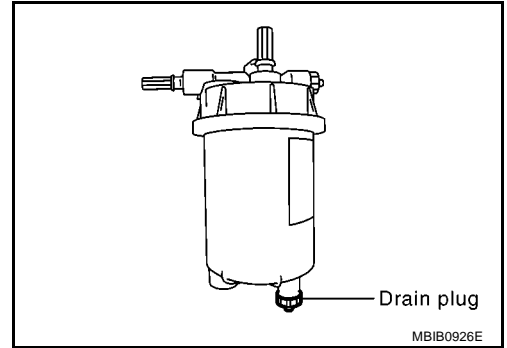
FUEL FILTER (F9Q)

Draining Water

1. Prepare a tray at the drain plug.
2. Open drain valve at the bottom of fuel filter.

CAUTION:

- Water in filter is drained with fuel. Prepare larger capacity tray than fuel filter volume.
 - Drained water is mixed with fuel. Prevent fuel from adhering to rubber parts.
3. After draining, close drain plug.
 4. Bleed air in fuel piping and check for fuel leakage. Refer to [FL-5](#), "[Air Bleeding](#)".
 5. Start engine.



FUEL FILTER CHECK

Check fuel filter for fuel leakage, damage and other non-standard conditions.

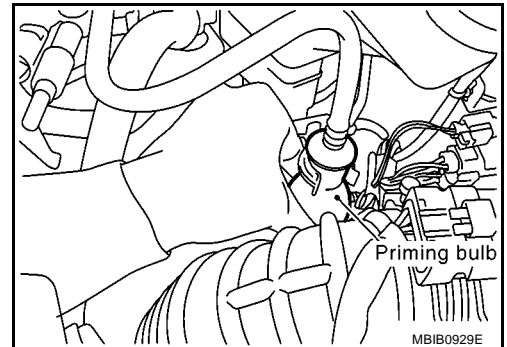
Air Bleeding

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

1. Prime the circuit using the priming bulb.
2. Perform engine cranking with repeating several times until engine starting.

CAUTION:

- Do not crank the engine for more than 30 seconds.
- Prepare a tray to collect fuel. Prevent fuel from adhering to rubber parts, especially the engine mounting insulator.



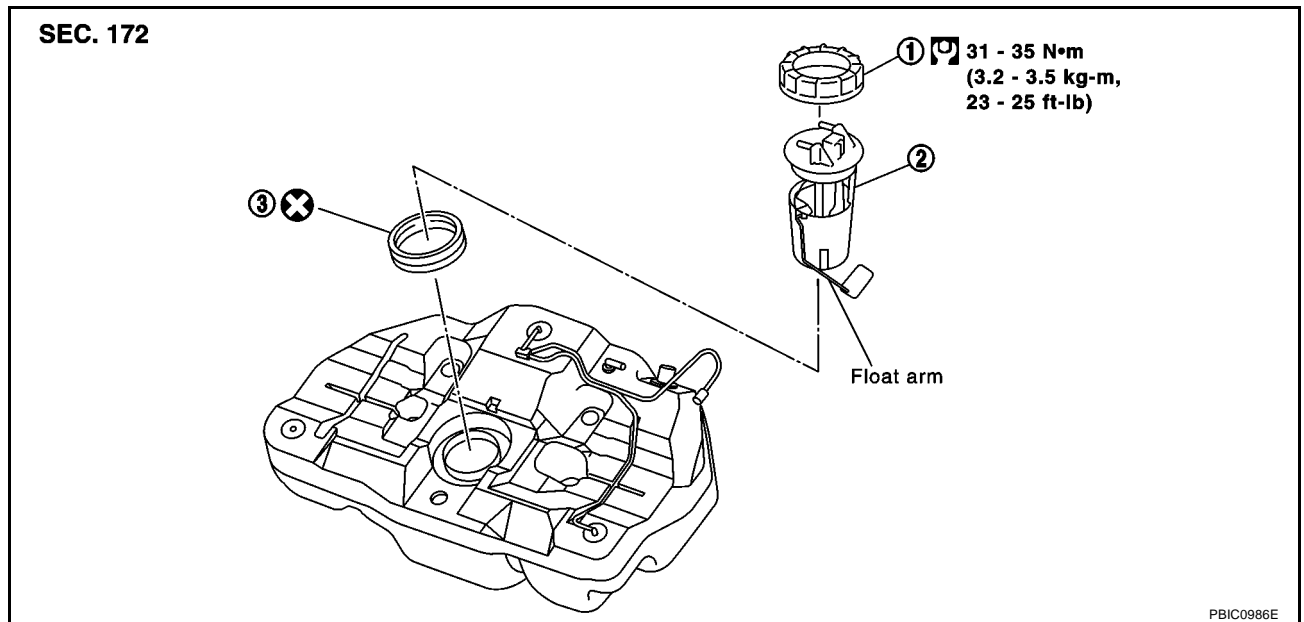
FUEL LEVEL SENSOR UNIT (YD22DDTI)

FUEL LEVEL SENSOR UNIT (YD22DDTI)

PFP:17042

Removal and Installation

EBS00SIU



1. Lock ring

2. Fuel level sensor unit

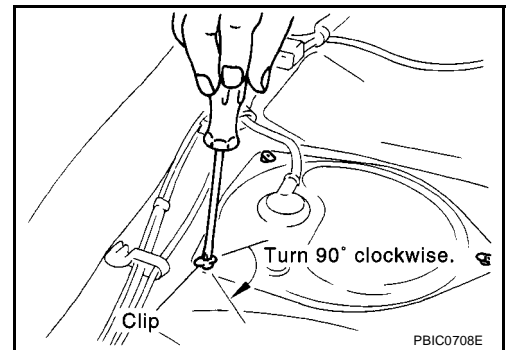
3. Fuel gauge packing

REMOVAL

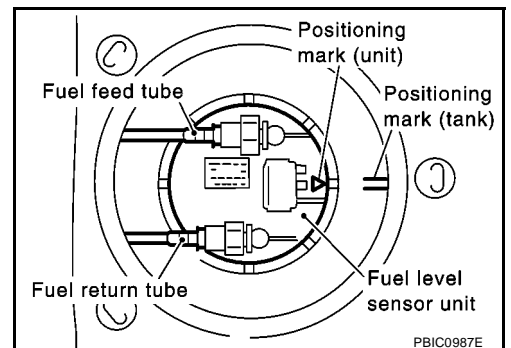
WARNING:

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.

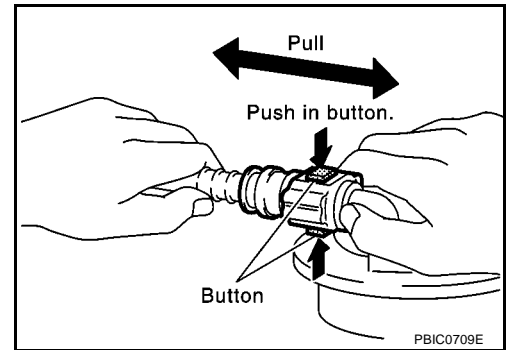


FUEL LEVEL SENSOR UNIT (YD22DDTI)

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

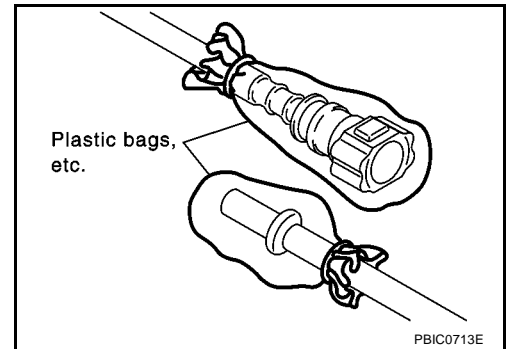
NOTE:

- 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.

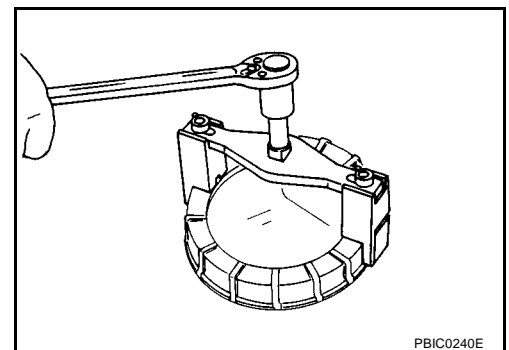


CAUTION:

- 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.



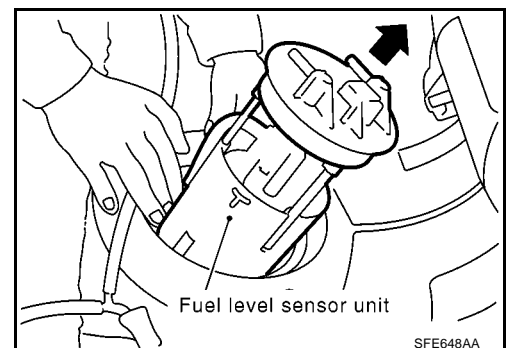
7. Using a lock ring wrench, remove the lock ring.



8. Remove fuel level sensor unit.

CAUTION:

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

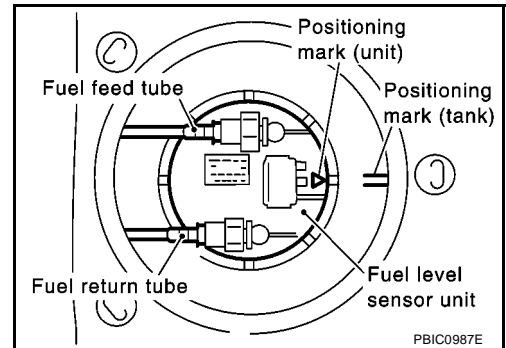


FUEL LEVEL SENSOR UNIT (YD22DDTI)

INSTALLATION

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

- 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 LEVEL SENSOR UNIT (F9Q)

FUEL LEVEL SENSOR UNIT (F9Q)

PPF:17042

Removal and Installation

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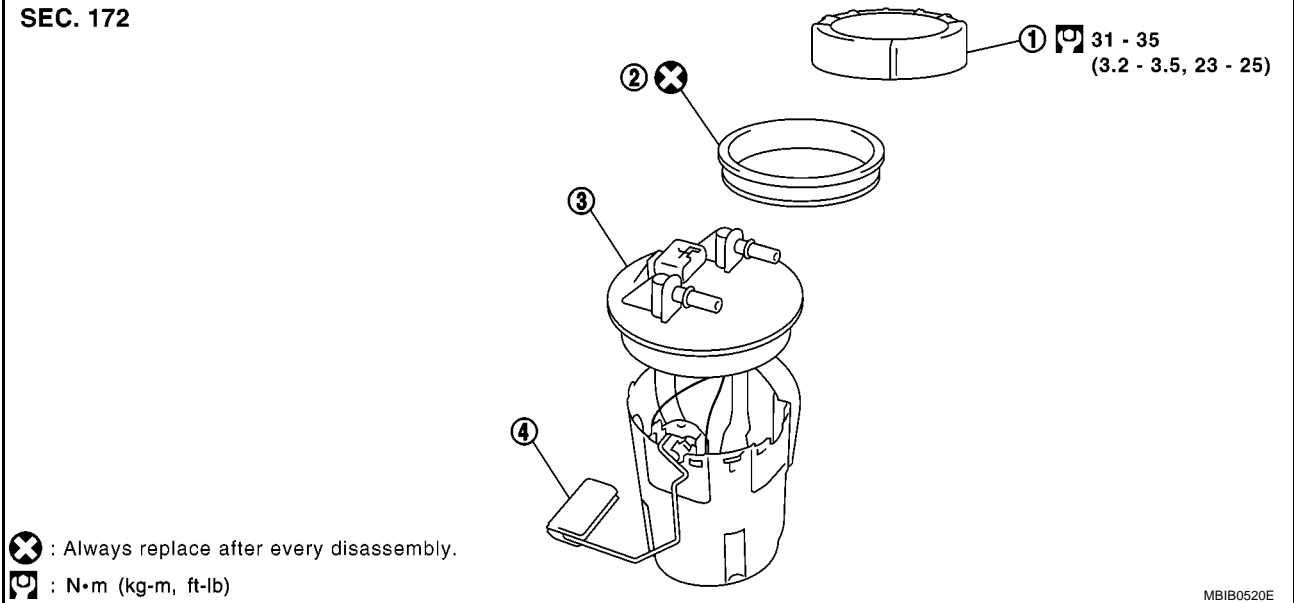
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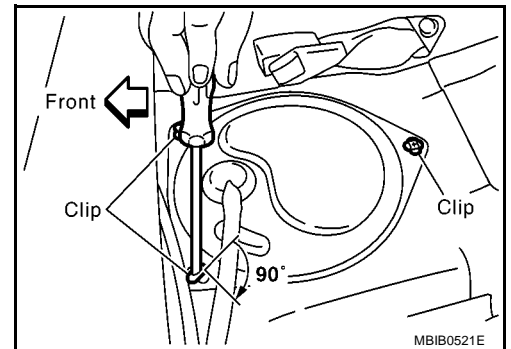
SEC. 172



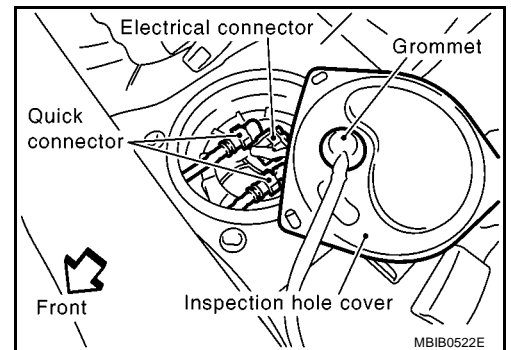
1. Rock ring
2. O-ring
3. Fuel level sensor unit
4. Float arm

REMOVAL

1. Disconnect battery ground cable.
2. Open fuel filler lid and filler cap.
3. Remove rear seat cushion. Refer to BT section in P12 ESM "SM2E00-1P12E0E".
4. Remove inspection hole cover under the rear seat.

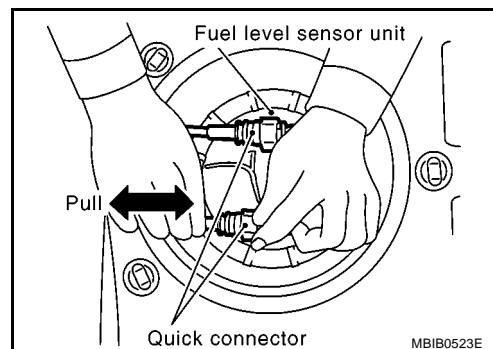


5. Disconnect electrical connector.

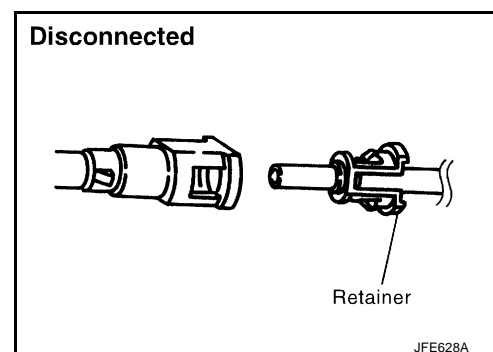
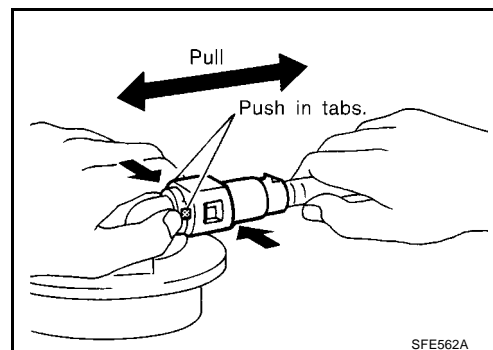


FUEL LEVEL SENSOR UNIT (F9Q)

6. Disconnect the quick connectors.



- Hold the connector while pushing in tabs, and pull out the tube.



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.
- When the tube is replaced, also replace the retainer with a new one.

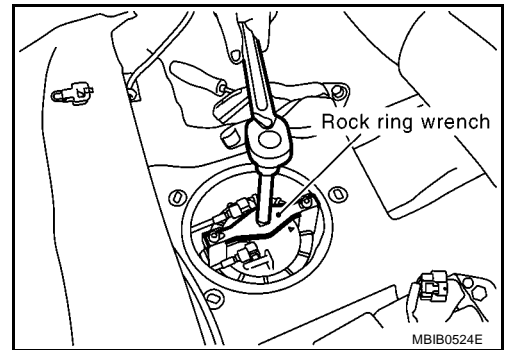
Retainer color:

Red (Feed hose side)

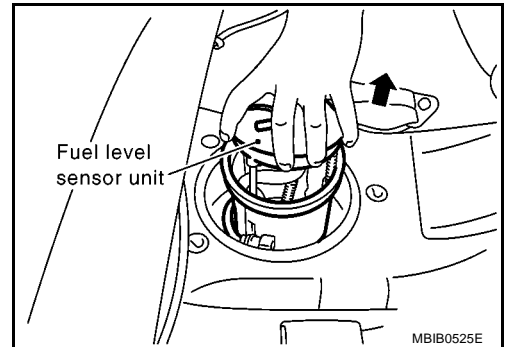
White (Return hose side)

FUEL LEVEL SENSOR UNIT (F9Q)

7. Remove retainer using lock ring wrench (commercial service tool) as shown.



8. Pull out the fuel level sensor unit.
 - **Do not damage the arm of the fuel level sensor unit.**



INSTALLATION

Install in the reverse order of removal.

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FUEL TANK (YD22DDTI)

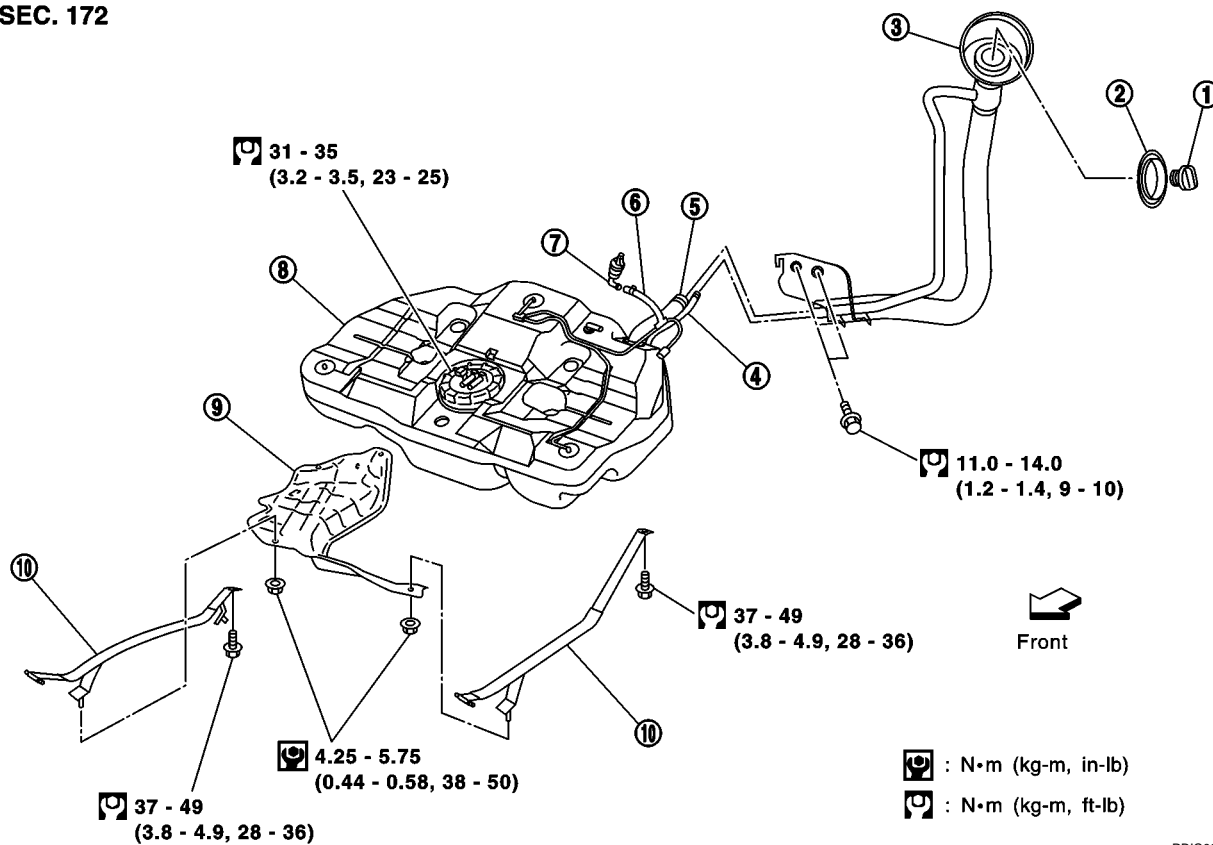
FUEL TANK (YD22DDTI)

PFP:17202

Removal and Installation

EBS00SIV

SEC. 172



PBIC0948E

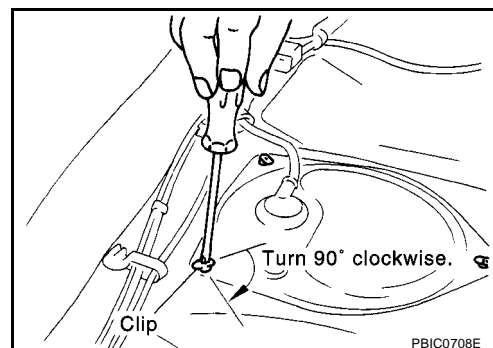
- | | | |
|-------------------------------|---------------------|------------------------|
| 1. Fuel filler cap | 2. Grommet | 3. Fuel filler tube |
| 4. Vent hose | 5. Fuel filler hose | 6. EVAP hose |
| 7. Fuel valve assembly | 8. Fuel tank | 9. Fuel tank protector |
| 10. Fuel tank tightening band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

REMOVAL

WARNING:

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

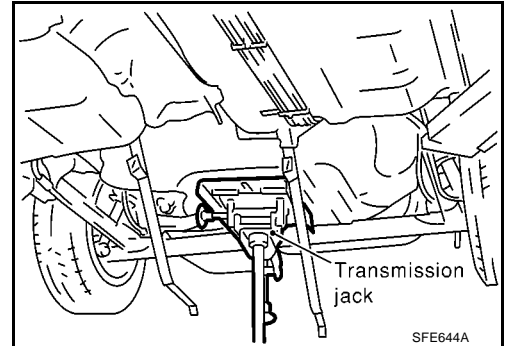
1. Disconnect battery ground cable.
2. Open the fuel filler cap and release the pressure inside the fuel tank.
3. Remove rear seat bottom.
4. Peel off floor carpet, then remove inspection hole cover.



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

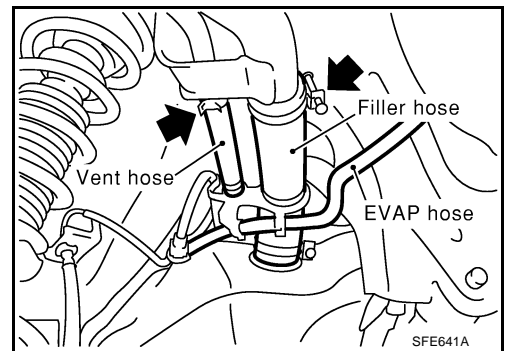
FUEL TANK (YD22DDTi)

7. Remove the quick connector. For disconnection procedure of the quick connector, refer to [FL-8, "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.

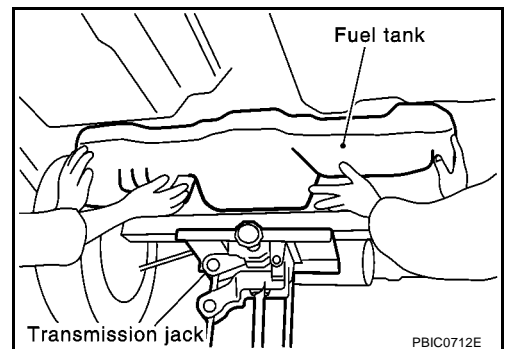


11. Disconnect fuel filler hose, EVAP hose and vent hose at fuel tank side.

For disconnection procedure of the quick connector, refer to [FL-8, "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-8, "FUEL LEVEL SENSOR UNIT \(YD22DDTi\)"](#).

FUEL TANK (YD22DDTI)

INSPECTION AFTER INSTALLATION

Run engine and check for fuel leaks at connections.

FUEL TANK (F9Q)

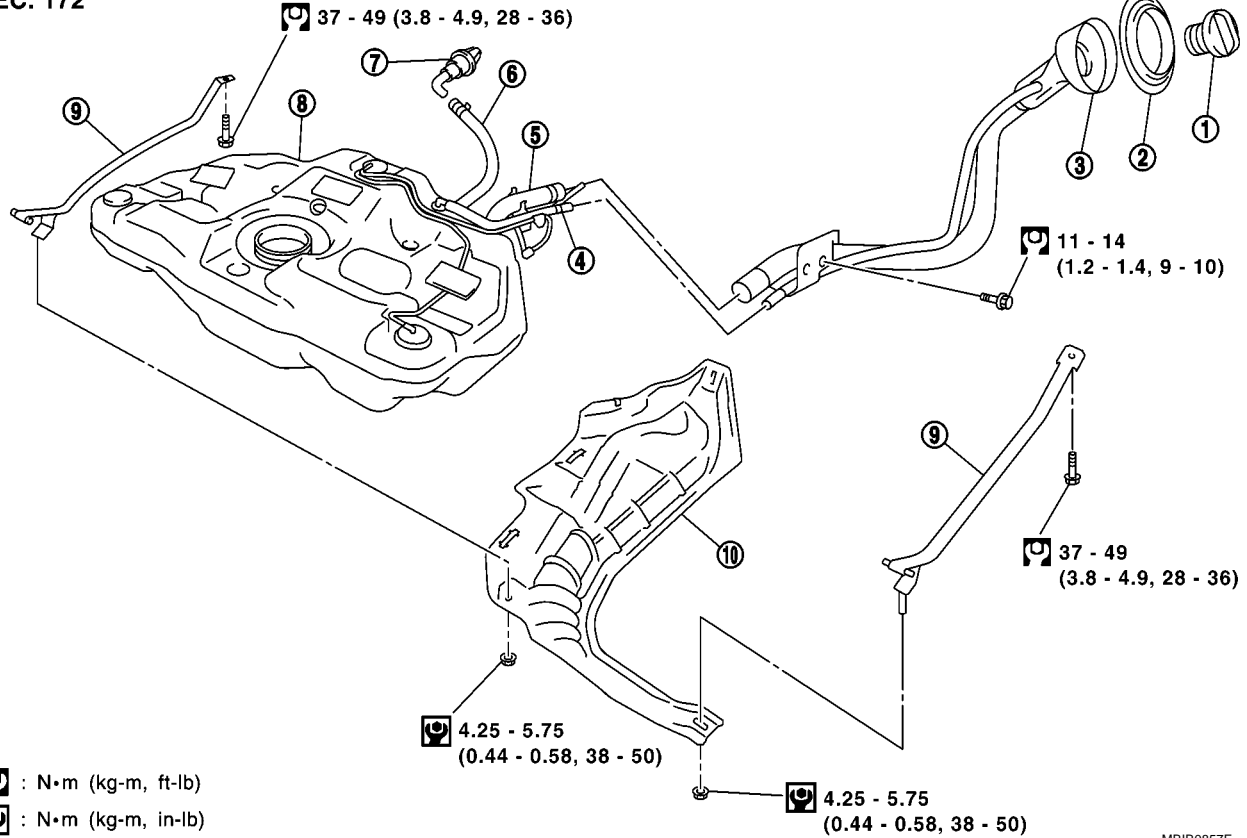
FUEL TANK (F9Q)

PFP:17202

Removal and Installation

EBS00SIT

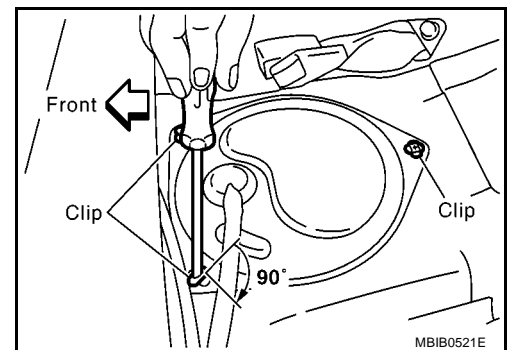
SEC. 172



- | | | |
|---------------------|---------------------|----------------------------|
| 1. Fuel filler cap | 2. Grommet | 3. Fuel filler tube |
| 4. Vent hose | 5. Fuel filler hose | 6. EVAP hose |
| 7. Fuel check valve | 8. Fuel tank | 9. Fuel tank mounting band |
| 10. Heat insulator | | |

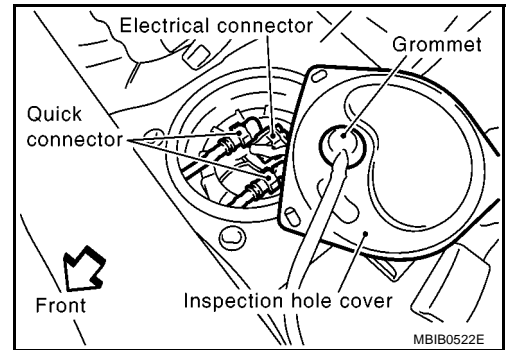
REMOVAL

1. Disconnect battery ground cable.
2. Open fuel filler lid and filler cap.
3. If necessary, drain fuel from fuel tank.
4. Remove rear seat cushion. Refer to BT section in P12 ESM "SM2E00-1P12E0E".
5. Remove inspection hole cover under the rear seat.

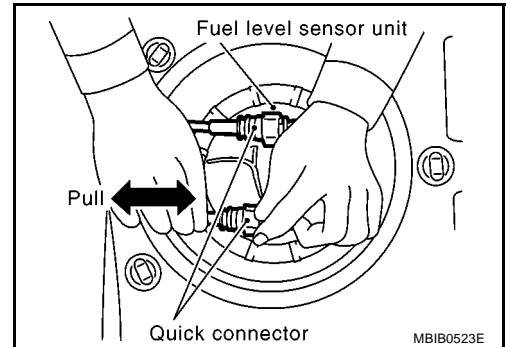


FUEL TANK (F9Q)

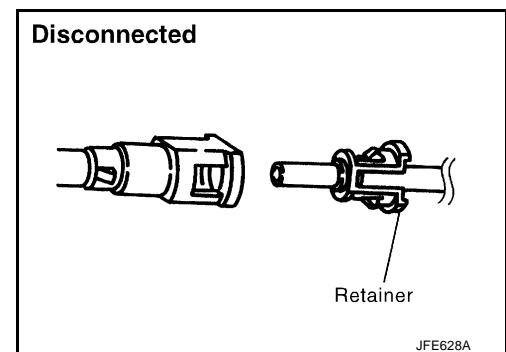
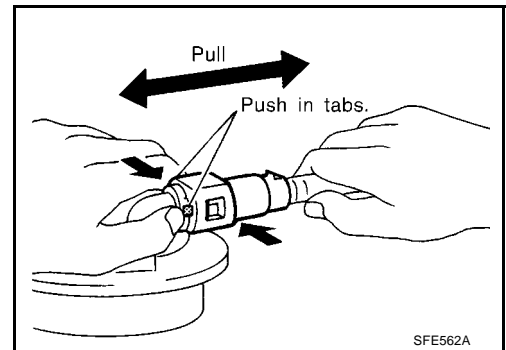
6. Disconnect electrical connector.



7. Disconnect the quick connector as follows.



- Hold the connector while pushing in tabs, and pull out the tube.



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.
- When the tube is replaced, also replace the retainer with a new one.

FUEL TANK (F9Q)

Retainer color:

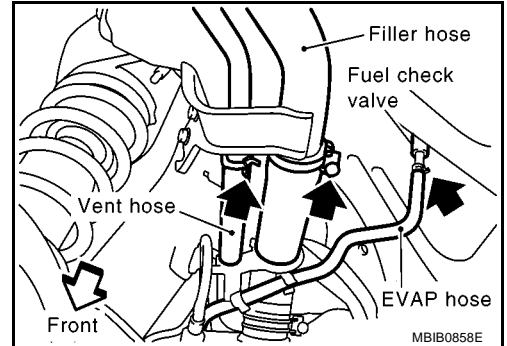
Red (Feed hose side)

White (Return hose side)

8. Remove exhaust center tube. Refer to [EX-2, "Removal and Installation"](#) .
9. From rear left area of fuel tank, remove filler hose, vent hose, and fuel check valve.

CAUTION:

To prevent fuel from flowing out, install a blind cap immediately after the fuel hose is disconnected.

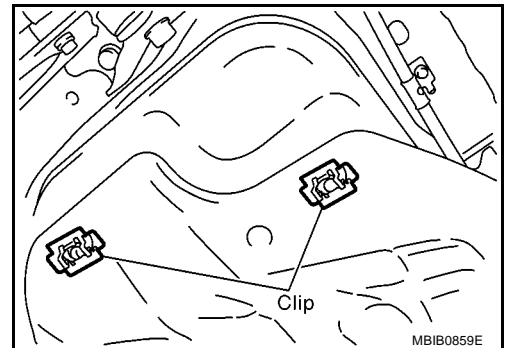


10. Lower the fuel tank by 70 to 80 mm (2.76 to 3.15 in), remove the nuts and clips holding the protector, and then remove the protector.

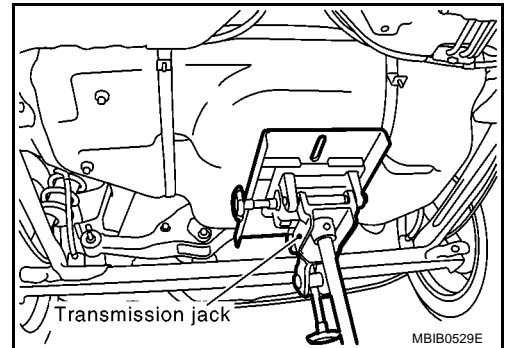
- To remove the clips shown in the figure.

NOTE:

Always replace after every disassembly.



11. Set a suitable transmission jack under fuel tank.
12. Remove fuel tank mounting band bolts while supporting fuel tank.

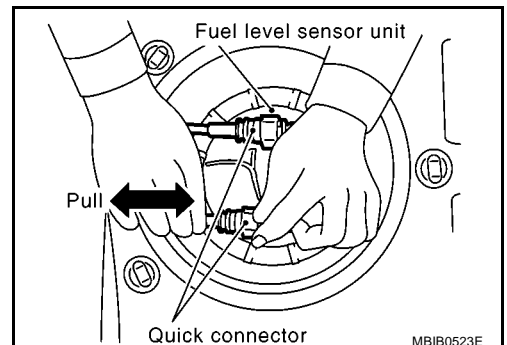


13. Remove fuel tank.

INSTALLATION

Install in the reverse order of removal. Connect the quick connector as follows:

- Insert tube into the center of the connector until you hear a click.
- After connecting quick connector, make sure the connection is firmly made using the following method.
- Pull on the fuel tube and connector to make sure they are firmly connected.
- Start the engine, increase engine speed and verify that there are no leaks.



SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

PFP:00030

Standard and Limit

EBS00SJ2

Fuel tank capacity (YD engine models)	Approx. 62 ℓ (13 - 5/8 Imp gal)
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Tightening Torque

EBS00SJ3

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

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