

## GROUP 13C

# FUEL SUPPLY

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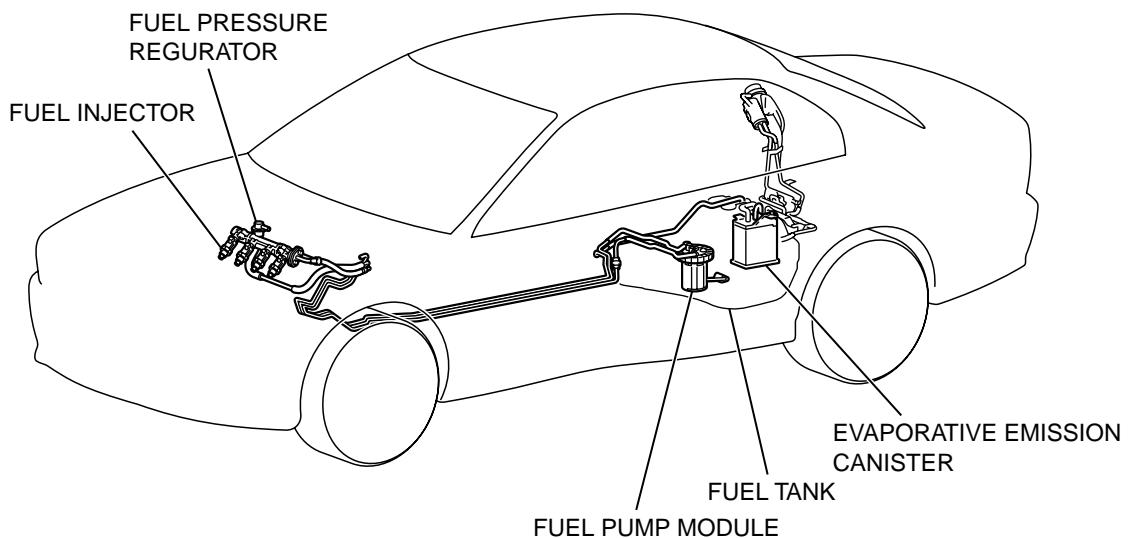
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## GENERAL DESCRIPTION

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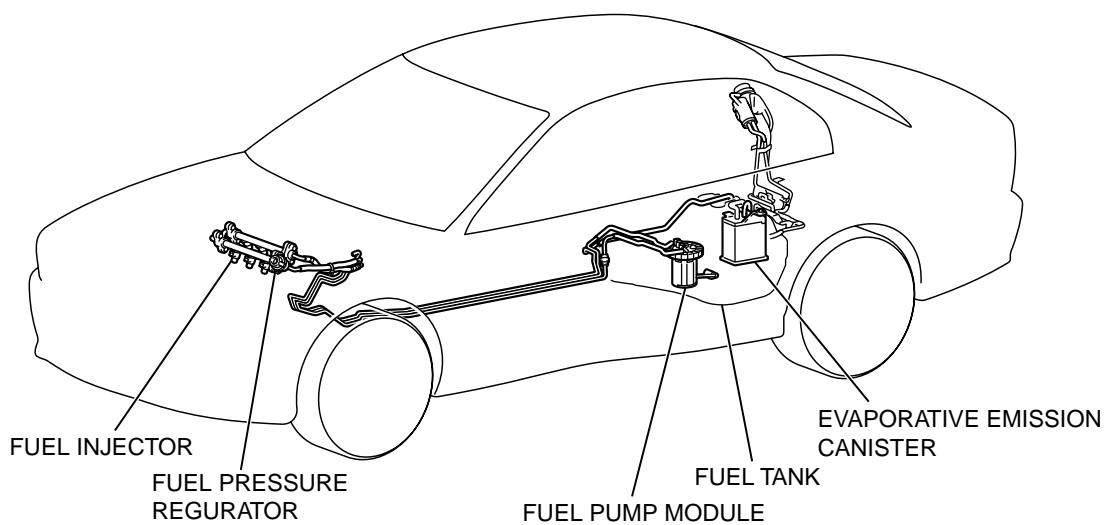
- The fuel tank is located under the floor of the rear seats to provide increased safety and a wider luggage space.
- A fuel cut-off valve has been adopted to prevent fuel from leaking out in case of a collision.
- A plastic fuel tank has been adopted to reduce weight, and improve anti-corrosion effectiveness.
- A fuel pump module, which unifies fuel pump, fuel filter, reservoir cup and fuel gauge unit, has been adopted to lighten weight and improve serviceability.

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# FUEL SUPPLY DIAGNOSIS

## FUEL SUPPLY DIAGNOSIS

### INTRODUCTION

The fuel supply device is used to supply an appropriate mixture to the engine. The device is configured of the fuel tank, fuel filter, fuel pump and the fuel pipe that couples each part. An evaporative emission control system is also provided to prevent pollution from the evaporated fuel.

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Engine malfunctions caused by insufficient fuel supply and evaporative emission control system operation malfunctions can be caused by faults in the vapor line, fuel pipe, hose, or fuel tank pressure control valve, etc.

### TROUBLESHOOTING STRATEGY

Use these steps to plan your diagnostic strategy. If you follow them carefully, you will be sure that you have exhausted most of the possible ways to find a fuel supply fault.

1. Gather information from the customer.

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2. Verify that the condition described by the customer exists.
3. Find the malfunction by following the Symptom Chart.
4. Verify malfunction is eliminated.

### SYMPTOM CHART

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SYMPTOMS	INSPECTION PROCEDURE	REFERENCE PAGE
Engine malfunctions due to insufficient fuel supply	1	<a href="#">P.13C-3</a>
Evaporative emission control system malfunctions (when fuel cap is removed, pressure releasing noise is heard)	2	<a href="#">P.13C-4</a>

### SYMPTOM PROCEDURES

#### Inspection Procedure 1: Engine malfunctions due to insufficient fuel supply

##### DIAGNOSIS

##### STEP 1. Check for bending, twisting or clogging of the fuel pipe or hose.

Q: Are the fuel pipe and hose in good condition?

YES : Go to Step 2.

NO : Repair or replace. Then go to Step 6.

##### STEP 3. Check whether water has entered the fuel filter.

Q: Is the fuel filter in good condition?

YES : Go to Step 4.

NO : Replace the fuel filter, and clean the fuel tank and fuel line. Then go to Step 6.

##### STEP 2. Check for clogging of the fuel filter or in-tank fuel filter.

Q: Is the fuel filter or in-tank fuel filter in good condition?

YES : Go to Step 3.

NO : Replace. Then go to Step 6.

##### STEP 4. Check the inside of the fuel tank for contamination and rust.

Q: Is the fuel tank in good condition?

YES : Go to Step 5.

NO : Replace. Then go to Step 6.

##### STEP 5. Check the fuel pump module operation.

Q: Is the fuel pump module operation in good condition?

YES : Then go to Step 6.

NO : Replace. Then go to Step 6

**STEP 6. Check symptoms.****Q: Is the engine malfunction eliminated?**

YES : Finish

NO : Return to Step 1.

**Inspection Procedure 2: Evaporative emission control system malfunctions (when fuel cap is removed, pressure releasing noise is heard)****DIAGNOSIS****STEP 1. Check that the vapor line piping is correct. (hose not damaged, no kinks,etc.)****Q: Is the vapour line correct?**

YES : Go to Step 2.

NO : Repair it. Then go to Step 5.

**STEP 2. Check for breakage, bending or clogging of the vapor line.****Q: Is the vapour line in good condition?**

YES : Go to Step 3.

NO : Repair or replace. Then go to Step 5.

**STEP 3. Check the fuel cap for damage.****Q: Is the fuel cap in good condition?**

YES : Go to Step 4.

NO : Replace the cap. Then go to Step 5.

**STEP 4. Check the operation of the fuel tank pressure control valve.****Q: Is the fuel tank pressure control valve operating correctly?**

YES : Go to Step 5.

NO : Replace the valve. Then go to Step 5.

**STEP 5. Check symptoms.****Q: Is the evaporative emission control system operating correctly?**

YES : Finish

NO : Return to step 1.

**SPECIAL TOOLS**

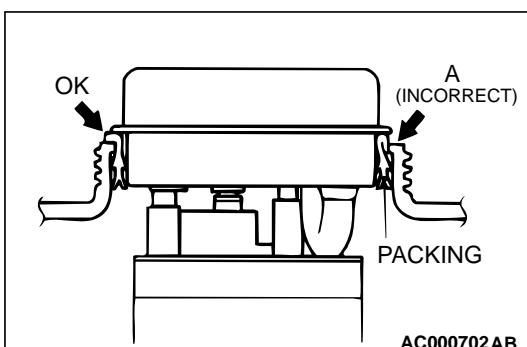
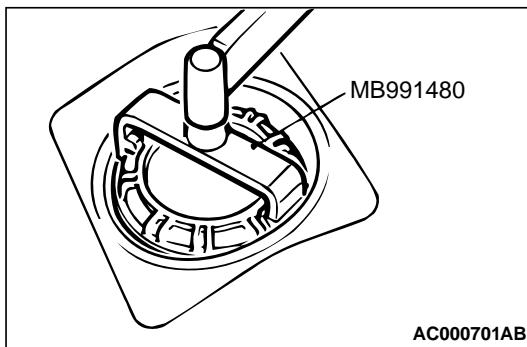
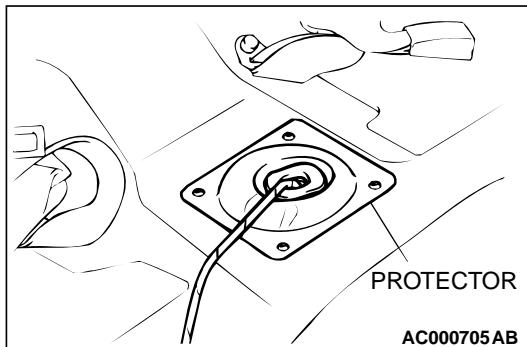
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TOOL	TOOL NUMBER AND NAME	SUPERSESSION	APPLICATION
 MB991480	MB991480 Tank cap wrench	–	Cap removal and installation
 MB991348	MB991348 Test harness set	–	Fuel tank differential pressure sensor check

## ON-VEHICLE SERVICE

## FUEL PUMP MODULE REPLACEMENT

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1. Remove the rear seat cushion. (Refer to GROUP 52A – Rear seat [P.52A-20](#).)
2. Remove the protector.
3. Bleed the residual pressure from inside the fuel pipe line to prevent the fuel from spraying out. [Refer to GROUP 13A<2.4L> [P.13A-442](#), 13B<3.0L> [P.13B-523](#) – On-vehicle Service – Fuel Pump Connector Disconnection (How to Reduce Pressurized Fuel Line.)]

4. Disconnect the hose and connector connections, and then use special tool MB991480 to remove the fuel pump module.

**⚠ CAUTION**

Install the packing to the fuel tank, and then install the fuel pump module to the fuel tank. Installing the packing to the fuel pump module will damage the packing lip when installing the fuel pump module to the fuel tank, and fuel leakage will occur.

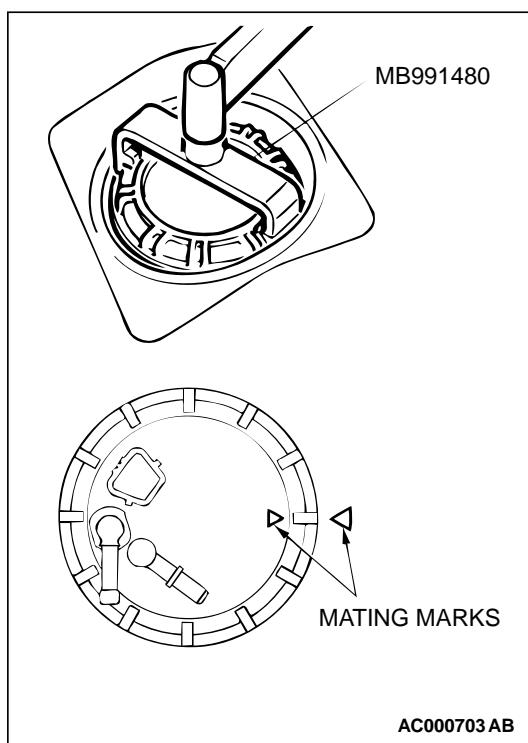
5. Check that the fuel tank is not damaged or deformed, and then securely install the packing to the fuel tank.

*NOTE: If the packing is damaged or deformed, replace with new packing.*

**⚠ CAUTION**

- Do not tilt the fuel pump module when installing.
- The packing should not be folded over as shown by "A" in the illustration.

6. Apply soap water to the inside of the packing, and then install the fuel pump module.

**CAUTION**

When Tightening, be careful not to let the fuel pump module turn together with the cap. If the mating marks are misaligned, the float may measure a remaining amount of fuel in correctly, causing the low fuel warning light to malfunction.

7. Use special tool MB991480 to align the mating marks on the fuel tank and fuel pump module, and tighten the cap.
8. Check for leaks from the installation section of the fuel pump module by the following procedure.
  - (1) Apply soapy water to the inside diameter of the cap.
  - (2) Choke the vapor hose and main hose, apply an internal pressure of 10 kPa (1.45 psi) or less from the return hose and check that no bubbles form in the soapy water.
9. Connect the connector, and then install the protector.
10. Install the rear seat cushion. (Refer to GROUP 52A – Rear Seat [P.52A-20](#).)

## FUEL TANK

### FUEL TANK REMOVAL AND INSTALLATION

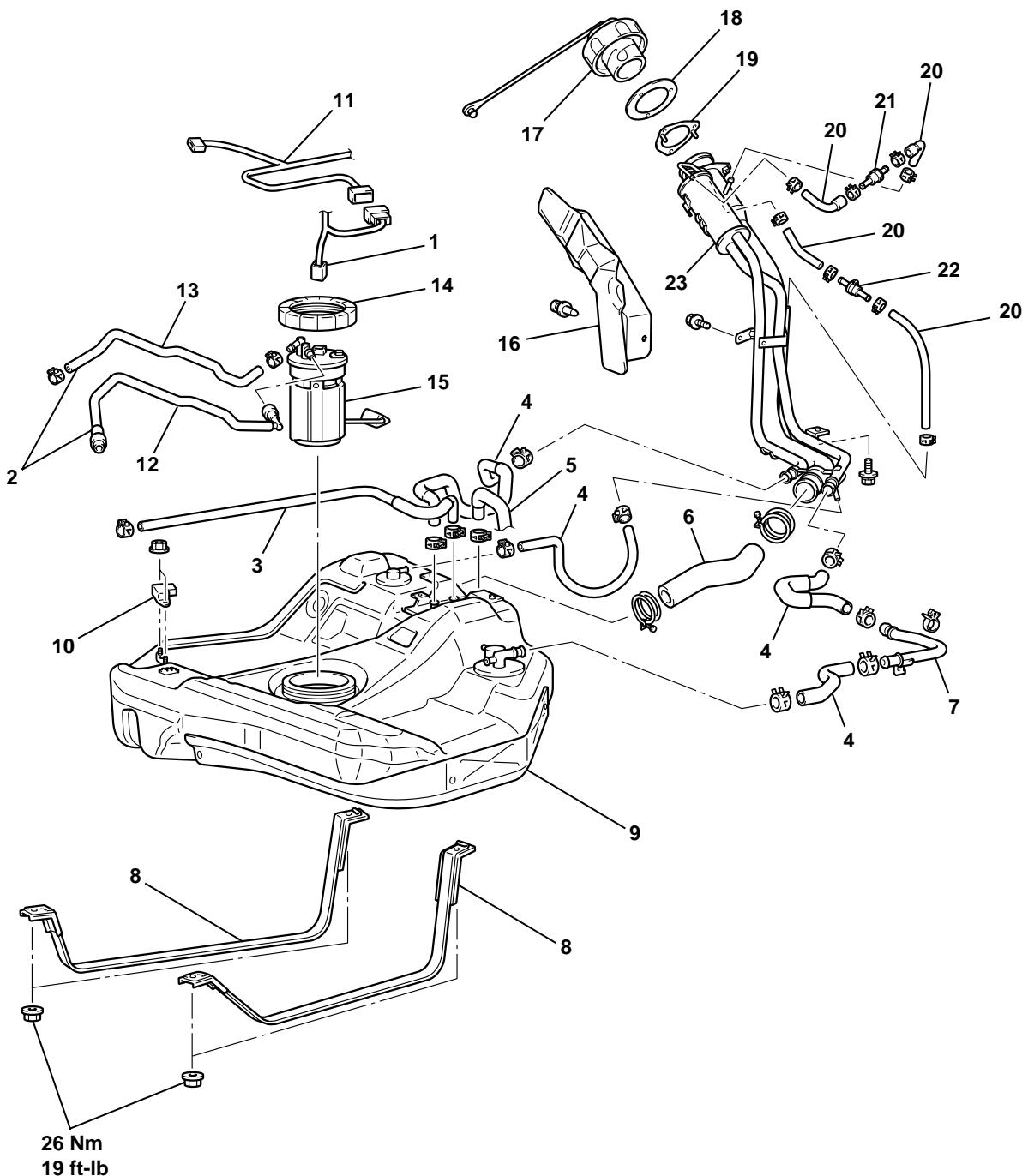
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**Pre-removal Operation**

- Draining Fuel
- Reduce the inner Pressure of Fuel Line and Hose [Refer to GROUP 13A <2.4L> [P.13A-442](#), 13B <3.0L> [P.13B-523](#) – On-vehicle service – fuel pump Connector Disconnection (How to Reduce Pressurized Fuel Line).]
- Center Exhaust Pipe Removal (Refer to GROUP 15<2.4L> [P.15-18](#), <3.0L> [P.15-19](#).)
- Evaporator Hose Removal (Refer to GROUP 17 – Evaporator [P.17-95](#).)

**Post-installation Operation**

- Evaporator Hose Installation (Refer to GROUP 17 – Evaporator [P.17-95](#).)
- Center Exhaust Pipe Installation (Refer to GROUP 15<2.4L> [P.15-18](#), <3.0L> [P.15-19](#).)
- Refilling Fuel
- Checking for Fuel Leaks



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**REMOVAL STEPS**

1. BODY HARNESS CONNECTION
2. HOSE CONNECTION
3. PURGE HOSE
4. VAPOR HOSE
5. VENT HOSE
6. FILLER HOSE
7. PIPE ASSEMBLY
8. BAND ASSEMBLY
9. FUEL TANK ASSEMBLY
10. DIFFERENTIAL PRESSURE SENSOR
11. FUEL HARNESS

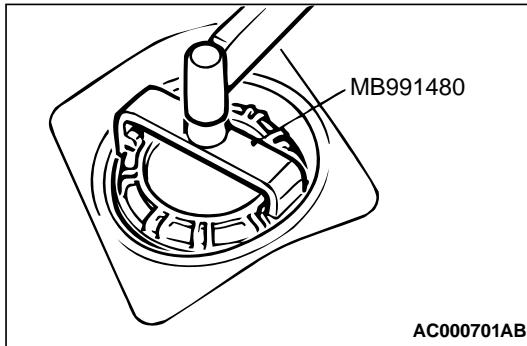
**REMOVAL STEPS (Continued)**

<p>&gt;&gt;B&lt;&lt;</p> <p>&lt;&lt;A&gt;&gt; &gt;&gt;A&lt;&lt;</p>	<ol style="list-style-type: none"> <li>12. HIGH-PRESSURE FUEL HOSE</li> <li>13. FUEL RETURN HOSE</li> <li>14. CAP</li> <li>15. FUEL PUMP MODULE</li> <li>16. FILLER NECK PROTECTOR</li> <li>17. FUEL CAP</li> <li>18. REINFORCEMENT</li> <li>19. PACKING</li> <li>20. VAPOR HOSE</li> <li>21. CHECK VALVE ASSEMBLY (1WAY)</li> <li>22. CHECK VALVE ASSEMBLY (2WAY)</li> <li>23. FUEL FILLER NECK ASSEMBLY</li> </ol>
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## REMOVAL SERVICE POINT

## &lt;&lt;A&gt;&gt; CAP REMOVAL

Use special tool MB991480 to remove the cap.



## INSTALLATION SERVICE POINTS

## &gt;&gt;A&lt;&lt; CAP INSTALLATION

**⚠ CAUTION**

Install the packing to the fuel tank, and then install the fuel pump module to the fuel tank. Installing the packing to the fuel pump module will damage the packing lip when installing the fuel pump module to the fuel tank, and fuel leakage will occur.

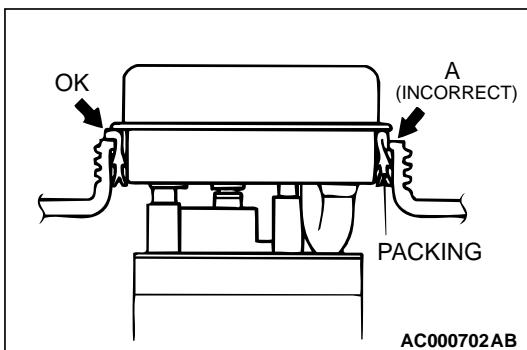
1. Check that the fuel tank is not damaged or deformed, and then securely install the packing to the fuel tank.

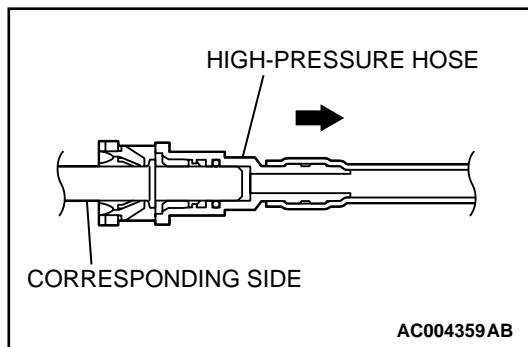
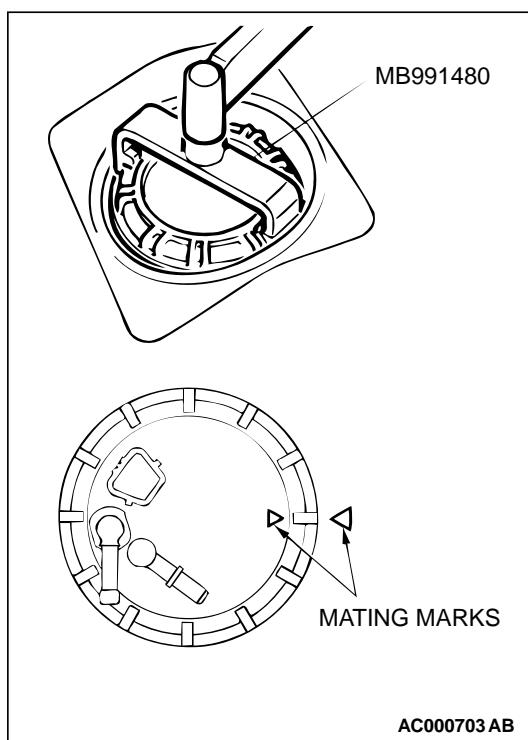
*NOTE: If the packing is damaged or deformed, replace with new packing.*

**⚠ CAUTION**

- Do not tilt the fuel pump module when installing.
- The packing should not be folded over as shown by "A" in the illustration.

2. Apply soap water to the inside of the packing, and then install the fuel pump module.



**⚠ CAUTION**

When Tightening, be careful not to let the fuel pump module turn together with the cap. If the mating marks are misaligned, the float may measure a remaining amount of fuel in correctly, causing the low fuel warning light to malfunction.

3. Use special tool MB991480 to align the mating marks on the fuel tank and fuel pump module, and tighten the cap.

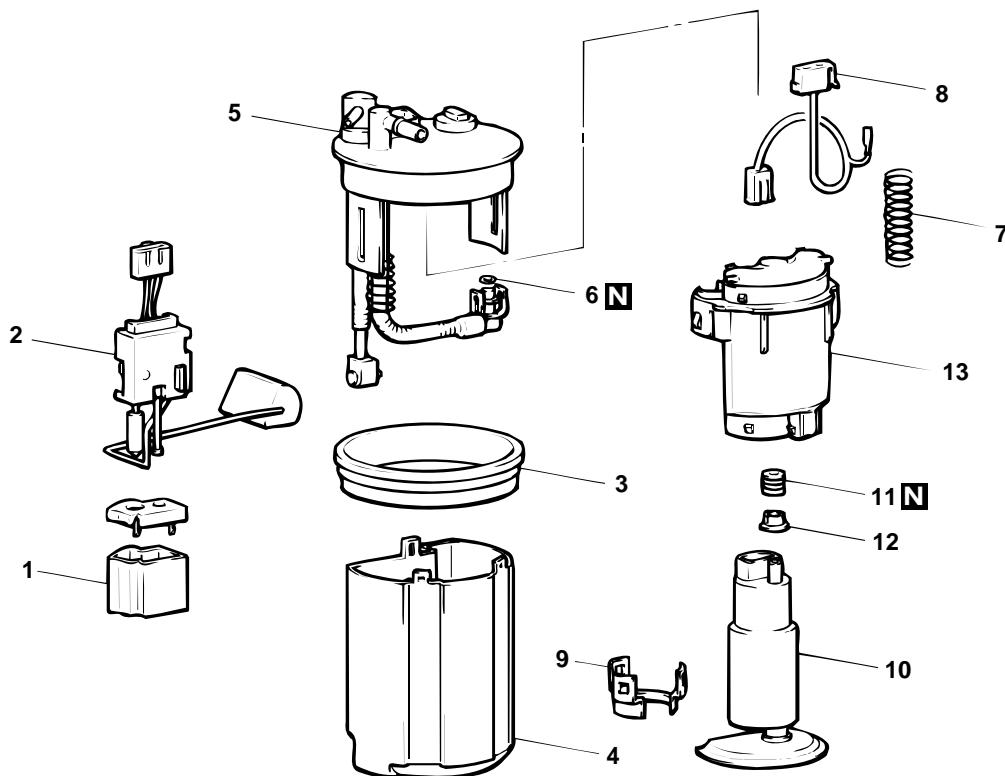
**>>B<< HIGH-PRESSURE FUEL HOSE INSTALLATION****⚠ CAUTION**

Connect the high-pressure hose, and then pull it gently in the direction of removal to check that the hose is firmly connected.

## DISASSEMBLY AND ASSEMBLY

## FUEL PUMP MODULE

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## REMOVAL STEPS

1. THERMISTOR CASE
2. FUEL GAUGE UNIT
3. PACKING
4. RESERVOIR CUP
5. PUMP SUPPORT ASSEMBLY
- >>A<< 6. O-RING
7. SPRING

## REMOVAL STEPS (Continued)

8. PUMP HARNESS
9. LOCK BRACKET
10. FUEL PUMP
- >>A<< 11. GROMMET
12. SPACER
13. FUEL FILTER

## ASSEMBLY SERVICE POINT

## &gt;&gt;A&lt;&lt; GROMMET/O-RING INSTALLATION

Apply a film of gasoline to the grommet and O-ring to prevent them from damaging or deforming, and then install them.

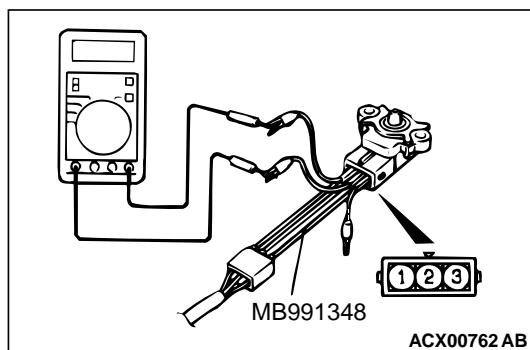
## FUEL GAUGE UNIT CHECK

Refer to GROUP 54A – Combination Meter [P.54A-63](#).

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FUEL TANK DIFFERENTIAL PRESSURE SENSOR  
CHECK

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1. Disconnect the fuel tank differential pressure sensor connector and connect special tool MB991348 between the terminals of the disconnected connector.
2. Turn the ignition switch to "ON" and measure the output voltage between terminals 2 and 3.

**Standard value: 2.0 – 3.0 V**

## SPECIFICATIONS

## FASTENER TIGHTENING SPECIFICATION

M1135003900117

ITEMS	SPECIFICATION
Fuel supply	Band assembly nut 26 Nm (19 ft-lb)

## SERVICE SPECIFICATION

M1135000300075

ITEMS	STANDARD VALUE
Fuel tank differential pressure sensor output voltage V	2.0 – 3.0

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**NOTES**