GENERAL DESCRIPTION

- The fuel tank is located under the floor of the rear seats to provide increased protection and a more luggage space.
- A fuel tank rollover valve assembly has been adopted to prevent fuel from leaking out in case of a collision.
- A fuel pump module, including fuel pump, fuel filter, reservoir cup and fuel level sensor (main), has been adopted to lighten weight and improve serviceability.

FUEL SUPPLY DIAGNOSIS

INTRODUCTION TO FUEL SUPPLY DIAGNOSIS

The fuel system is used to supply an appropriate mixture to the engine. The system consists of the fuel tank, fuel filter, fuel pump and fuel pipe that each part. An evaporative emission control system is provided to prevent evaporated fuel from escaping into the atmosphere.

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.

FUEL SUPPLY DIAGNOSTIC TROUBLESHOOTING STRATEGY

Use these steps to plan your diagnostic strategy. If you follow them carefully, you will be sure to find most of the fuel supply faults.

1. Gather information from the customer.
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

<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>INSPECTION PROCEDURE</th>
<th>REFERENCE PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine malfunctions due to insufficient fuel supply</td>
<td>1</td>
<td>P.13B-3</td>
</tr>
</tbody>
</table>

TSB Revision
SYMPTOM PROCEDURES

INSPECTION PROCEDURE 1: Engine Malfunctions Due to Insufficient Fuel Supply

TROUBLESHOOTING HINTS (The most likely causes for this case:)
- Fuel injector failed.
- Open or shorted fuel injector circuit, or loose connector.
- Bent, twisted or clogged fuel pipe or hose.
- Malfunction of the fuel pump module.

DIAGNOSIS

Required Special Tools:
- MB991502: Scan Tool (MUT-II)
- MB991958: Scan Tool (MUT-III Sub Assembly)
  - MB991824: V.C.I.
  - MB991827: USB Cable
  - MB991911: Main Harness B
- MB991637: Fuel Pressure Gauge Set
- MD998709: Adaptor Hose
- MD998742: Hose Adaptor
STEP 1. Using scan tool MB991502 or MB991958, read the diagnostic trouble code (DTC).

**CAUTION**

To prevent damage to scan tool MB991502 or MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502 or MB991958.

1. Ensure that the ignition switch is at the "LOCK" (OFF) position.
2. When scan tool MB991502 is used, connect scan tool MB991502 to the data link connector.
3. If scan tool MB991958 is used, connect it as described below.
   a. Start up the personal computer.
   b. Connect special tool MB991827 to special tool MB991824 and the personal computer.
   c. Connect special tool MB991911 to special tool MB991824.
   d. Connect special tool MB991911 to the data link connector.
   e. Turn the power switch of special tool MB991824 to the "ON" position.
      
      **NOTE:** When special tool MB991824 is energized, special tool MB991824 indicator light will be illuminated in a green color.
   f. Start the MUT-III system on the personal computer.
4. Turn the ignition switch to the "ON" position.
5. Check for MFI system diagnostic trouble code. (refer to GROUP 13A, MFI Diagnosis - How to Read and Erase Diagnostic Trouble Code P.13A-6).
6. Turn the ignition switch to the "LOCK" (OFF) position.

**Q: Is any DTC set?**

**YES :** Remove scan tool MB991502 or MB991958 in a reverse of the installation procedure. Refer to GROUP 13A, MFI Diagnosis – Diagnostic Trouble Code Chart P.13A-25.

**NO :** Go to Step 2.
STEP 2. Check the fuel pressure.
(1) Release residual pressure from the fuel line to prevent fuel spray. (Refer to GROUP 13A, On-Vehicle Service – Fuel Pump Connector Disconnection (How to Reduce Pressurized Fuel Lines P.13A-765).

**WARNING**
To prevent a fire, cover the hose connection with shop towels to prevent splashing of fuel that could be caused by some residual pressure in the fuel pipe line.

(2) Disconnect the fuel high-pressure hose at the fuel rail side.
(3) Assemble the fuel pressure measurement tools as follows.
(4) When using the fuel pressure gauge
   a. Remove the union joint and bolt from special tool MD998709 (adaptor hose) and instead attach special tool MD998742 (hose adaptor) to the adaptor hose.
   b. Place a suitable O-ring or gasket on assembled special tools MD998709 and MD998742 and install the fuel pressure gauge.
   c. Install the assembled fuel pressure measurement tools between the fuel rail and fuel high-pressure hose.

(5) When using the special tool MB991637 (fuel pressure gauge set)
   a. Remove the union joint and bolt from special tool MD998709 (adaptor hose) and instead attach special tool MD998742 (hose adaptor) to the adaptor hose.
   b. Install special tool MB991637 (fuel pressure gauge set) to assembled special tools MD998709 and MD998742 via a gasket.
   c. Install the assembled fuel pressure measurement tools between the fuel rail and fuel high-pressure hose.

(6) Turn the ignition switch to the "ON" position.
(7) Use scan tool MB991502 or MB991958, check the MFI system Actuator test 07 to drive the fuel pump. Check that there is no fuel leaking from any section when the fuel pump is operating.
(8) Stop the fuel pump.
(9) Start the engine and run at idle.
(10) Measure fuel pressure while the engine is running at idle.
    **Standard value: Approximately 230 kPa (33 psi) at curb idle**
FUEL SUPPLY DIAGNOSIS

(11) Disconnect the vacuum hose from the fuel pressure regulator and measure fuel pressure with the hose end closed with your finger.

**Standard value:** 289 – 309 kPa (42 – 45 psi) at curb idle

(12) Check to see that fuel pressure at idle does not drop even after the engine has been revved several times.

(13) Revving the engine repeatedly, hold the fuel return hose lightly with your fingers to feel that fuel pressure is present in the return hose.

**NOTE:** If the fuel flow rate is low, there will be no fuel pressure in the return hose.

(14) If any of fuel pressure measured in steps 10 to 13 is out of specification, troubleshoot and repair according to the table below.

### SYMPTOM PROBABLE CAUSE REMEDY

<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>PROBABLE CAUSE</th>
<th>REMEDY</th>
</tr>
</thead>
</table>
| Fuel pressure too low
Fuel pressure drops after racing
No fuel pressure in fuel return hose | Clogged fuel filter | Replace fuel filter |
| Fuel leaking to return side due to poor fuel regulator valve seating or settled spring | Replace fuel pressure regulator |
| Low fuel pump delivery pressure | Replace fuel pump |
| Fuel pressure too high | Binding valve in fuel pressure regulator | Replace fuel pressure regulator |
| Clogged fuel return hose or pipe | Clean or replace hose or pipe |
| Damaged vacuum hose or clogged nipple | Replace vacuum hose or clean nipple |
| Defective fuel pressure regulator | Replace fuel pressure regulator |
| Same fuel pressure when vacuum hose is connected and when disconnected | |

(15) Stop the engine and observe fuel pressure gauge reading. It is normal if the reading does not drop within two minutes. If it does, observe the rate of drop and troubleshoot and repair according to the table below. Start, then stop the engine.

a. Squeeze the fuel return line closed to confirm leak-down occurs from defective fuel pressure regulator.
b. Squeeze the fuel supply line closed to confirm leak-down occurs from defective fuel pump check valve.
c. If pressure continues to drop with both fuel lines squeezed closed, fuel injector(s) are leaking.

### SYMPTOM PROBABLE CAUSE REMEDY

<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>PROBABLE CAUSE</th>
<th>REMEDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel pressure drops gradually after engine is stopped</td>
<td>Leaky fuel injector</td>
<td>Replace fuel injector</td>
</tr>
<tr>
<td>Leaky fuel regulator valve seat</td>
<td>Replace fuel pressure regulator</td>
<td></td>
</tr>
<tr>
<td>Fuel pressure drops sharply immediately after engine is stopped</td>
<td>Check valve in fuel pump is held open</td>
<td>Replace fuel pump</td>
</tr>
</tbody>
</table>

(16) Release residual pressure from the fuel pipe line. [Refer to GROUP 13A, On-vehicle Service – Fuel Pump Connector Disconnection (How to Reduce Pressurized Fuel Lines P.13A-765).]
WARNING
Cover the hose connection with shop towels to prevent splash of fuel that could be caused by some residual pressure in the fuel pipe line.

(17) Remove the fuel pressure gauge or special tool MB991637, and special tools MD998709 and MD998742 from the fuel rail.
(18) Replace the O-ring at the end of the fuel high-pressure hose with a new one.
(19) Fit the fuel high-pressure hose into the fuel rail and tighten the bolts to specified torque.

Tightening torque: 5.0 ± 1.0 N·m (44 ± 9 in-lb)

(20) Check for fuel leaks.
   a. Use scan tool MB991502 or MB991958 to operate the fuel pump.
   b. Check the fuel line for leaks, and repair as needed.
(21) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Are the fuel pressure test in good condition?
   YES : Go to Step 3.
   NO : Remove scan tool MB991502 or MB991958 in a reverse of the installation procedure. Repair or replace damage parts. Then go to Step 6.

STEP 3. 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 4.
   NO : Remove scan tool MB991502 or MB991958 in a reverse of the installation procedure. Repair or replace the damage fuel pipe or hose. Then go to Step 6.
STEP 4. Check the fuel pump module operation.
   (1) Turn the ignition switch to the "ON" position.
   (2) Check the operating of the fuel pump by using scan tool MB991502 or MB991958 to force-drive the fuel pump.
   (3) If the fuel pump will not operate, check by using the following procedure. If normal, check the fuel pump drive circuit.
      a. Turn the ignition switch to the "LOCK" (OFF) position.
      b. Remove the rear seat assembly. (Refer to GROUP 52A, Rear Seat Assembly P.52A-22).
      c. Remove the service hole cover.
      d. Disconnect the fuel pump module connector.
      e. When the fuel pump drive connector is attached directly to the battery, check if the sound of the fuel pump operation can be heard.
      
      NOTE: As the fuel pump is an in-tank type, the fuel pump sound is hard to hear. Remove the fuel tank filler tube cap and check from the tank inlet.
      f. Check for fuel pressure by pinching the fuel hose with fingertips.
      g. Connect the fuel pump module connector.
      h. Install the service hole cover.
      i. Install the rear seat assembly. (Refer to GROUP 52A, Rear Seat Assembly P.52A-22).
   (4) Turn the ignition switch to the "LOCK" (OFF) position, and then remove scan tool MB991502 or MB991958 in the reverse order of installation.

   Q: Is the fuel pump module operation in good condition?
      YES : Then go to Step 5.
      NO : Replace the fuel pump module (Refer to P.13B-10). Then go to Step 6.

STEP 5. Check the inside of the fuel tank for contamination and rust.
   (1) Drain fuel.
   (2) Remove the fuel tank. (Refer to P.13B-14).
   (3) Check the inside of the fuel tank.

   Q: Is the fuel tank in good condition?
      YES : Install the fuel tank. (Refer to P.13B-14). Go to Step 6.
      NO : Replace the fuel filter, and clean the fuel tank and fuel line. Then go to Step 6.

STEP 6. Retest the system.

   Q: Is the engine malfunction eliminated?
      YES : Finish.
      NO : Return to Step 1.
<table>
<thead>
<tr>
<th>TOOL</th>
<th>TOOL NUMBER AND NAME</th>
<th>SUPERSESSION</th>
<th>APPLICATION</th>
</tr>
</thead>
</table>
|      | MB991502            | MB991496-OD  | • Reading diagnostic trouble code  
|      | Scan tool <MUT-II>  |              | • MFI system inspection          |
|      | MB991958            |              | • Reading diagnostic trouble code  
| A    | MB991824            |              | • MFI system inspection          |
| B    | MB991827            |              |            |
| C    | MB991910            |              |            |
| D    | MB991911            |              |            |
| E    | MB991914            |              |            |
| F    | MB991825            |              |            |
| G    | MB991826            |              |            |
|      | MB991825            |              |            |
|      | MB991958            |              |            |

**MUT-III Sub Assembly**

A: Vehicle Communication Interface (V.C.I).
B: MUT-III USB Cable
C: MUT-III Main Harness
   A (Vehicles with CAN communication system)
   B (Vehicles without CAN communication system)
   C (for Chrysler models only)
D: MUT-III Main Harness
E: MUT-III Main Harness
F: MUT-III Adapter Harness
G: MUT-III Trigger Harness
FUEL SUPPLY
ON-VEHICLE SERVICE

<table>
<thead>
<tr>
<th>TOOL</th>
<th>TOOL NUMBER AND NAME</th>
<th>SUPERSESSION</th>
<th>APPLICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MD998709 Adaptor hose</td>
<td>MIT210196</td>
<td>Measurement of fuel pressure</td>
</tr>
<tr>
<td></td>
<td>MD998742 Hose adaptor</td>
<td>MD998742-01</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MB991637 Fuel pressure gauge set</td>
<td>Tool not available</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MB991348 Test harness set</td>
<td>MB991348-01</td>
<td>Fuel tank differential pressure sensor check</td>
</tr>
</tbody>
</table>

ON-VEHICLE SERVICE

FUEL PUMP OPERATION CHECK

Refer to GROUP 13A, On-vehicle Service P.13A-766.

FUEL PUMP MODULE REPLACEMENT

1. Remove the rear seat cushion assembly. (Refer to GROUP 52A, Rear Seat Assembly P.52A-22).
2. Remove the service hole cover.
3. Disconnect the harness connector.
   
   **NOTE:** Check the fuel pump (Refer to GROUP 13A, On-vehicle Service P.13A-766). If defective, replace the fuel pump, which is incorporated in the fuel pump module.
4. Disconnect fuel high-pressure hose, suction hose and fuel return hose.
CAUTION
When withdrawing the fuel pump module from the fuel tank, be careful not damage the module unit and the float.
5. Unscrew the mounting nuts to remove the fuel pump module.
6. Replace the fuel pump (Refer to P.13B-18).

CAUTION
When installing the fuel pump module into the fuel tank, be careful not damage the module unit and the float.
7. Install the fuel pump module. Tighten the mounting nuts to the specified torque.

Tightening torque: \(2.5 \pm 0.5 \text{ N\cdot m} (23 \pm 4 \text{ in-lb})\)

CAUTION
Snap the fuel high-pressure hose one-touch joint into place, then pull back slightly on the hose to assure it is secure. However, the connection should have a play of approximately 3.0 mm (0.12 inch).
8. Connect the harness connector, fuel high-pressure hose, suction hose and fuel return hose.
9. Retain the service hole cover.
10. Install the rear seat cushion assembly (Refer to GROUP 52A, Rear Seat Assembly P.52A-22).

FUEL LEVEL SENSOR CHECK
Refer to GROUP 54A, Combination Meter Assembly and Vehicle Speed Sensor – On-vehicle Service P.54A-78.

FUEL LEVEL SENSOR REPLACEMENT
1. Remove the rear seat cushion assembly. (Refer to GROUP 52A, Rear Seat Assembly P.52A-22).
2. Remove the service hole cover.
3. Disconnect the harness connector, fuel high-pressure hose, suction hose and fuel return hose.

**CAUTION**

When withdrawing the fuel pump module or fuel pipe and gauge assembly from the fuel tank, be careful not damage the sensor unit and the float.

4. Unscrew the mounting nuts to remove the fuel pump module or fuel pipe and gauge assembly.

**NOTE:** Check the fuel level sensor (Refer to GROUP 54A, Combination Meter Assembly and Vehicle Speed Sensor – On-vehicle Service P.54A-78). If defective, replace it. (Refer to P.13B-18).
**ON-VEHICLE SERVICE**

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**FUEL SUPPLY**

**FUEL PUMP MODULE**

---

**CAUTION**

When inserting the fuel pump module or fuel pipe and gauge assembly into the fuel tank, be careful not damage the sensor unit and the float.

5. Install the fuel pump module or fuel pipe and gauge assembly. Tighten the mounting nuts to the specified torque.

   **Tightening torque:** $2.5 \pm 0.5 \text{ N} \cdot \text{m} (23 \pm 4 \text{ in-lb})$

---

**CAUTION**

Snap the fuel high-pressure hose one-touch joint into place, then pull back slightly on the hose to assure it is secure. However, the connection should have a play of approximately $3.0 \text{ mm} (0.12 \text{ inch})$.

6. Connect the harness connector, fuel high-pressure hose, suction hose and fuel return hose.

7. Retain the service hole cover.

8. Install the rear seat cushion assembly. (Refer to GROUP 52A, Rear Seat Assembly P.52A-22).

---

**FUEL TANK LEVELING VALVE CHECK**

1. Place a drain pan, and disconnect the fuel filler neck breather hose at pipe side.

   **NOTE:** *If fuel leaks from the fuel filler neck breather hose at this stage, the fuel tank leveling valve may be defective.*

2. Open the fuel tank filler cap, and fill the fuel tank up.

3. If fuel does not leak from the fuel tank filler neck breather hose with the fuel tank full, the fuel tank leveling valve is normal. If not so, the fuel tank leveling valve may be defective. Lower the fuel tank from the vehicle and replace the fuel tank leveling valve.

4. Reconnect the fuel filler neck breather hose at the pipe side.
**FUEL TANK**

**REMOVAL AND INSTALLATION**

<table>
<thead>
<tr>
<th>Pre-removal Operation</th>
<th>Pre-installation Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Draining Fuel</td>
<td>• Propeller Shaft Installa-</td>
</tr>
<tr>
<td>• Fuel Pump Connector</td>
<td>tion (Refer to GROUP 25, Propeller</td>
</tr>
<tr>
<td>Disconnection (How to</td>
<td>Shaft P.25-4).</td>
</tr>
<tr>
<td>Reduce Fuel Pressure)</td>
<td>• Center Exhaust Pipe Installa-</td>
</tr>
<tr>
<td>(Refer to GROUP 13A,</td>
<td>tion (Refer to GROUP 15,</td>
</tr>
<tr>
<td>On-vehicle Service</td>
<td>Exhaust Pipe and Main Muffler P.15-23).</td>
</tr>
<tr>
<td>P.13A-765)</td>
<td>• Refilling Fuel</td>
</tr>
<tr>
<td>• Center Exhaust Pipe</td>
<td>• Checking for Fuel Leaks</td>
</tr>
<tr>
<td>Removal (Refer to GROUP 15,</td>
<td></td>
</tr>
<tr>
<td>Exhaust Pipe and Main</td>
<td></td>
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<tr>
<td>Muffler P.15-23).</td>
<td></td>
</tr>
<tr>
<td>• Propeller Shaft</td>
<td></td>
</tr>
<tr>
<td>Removal (Refer to GROUP 25, Propeller</td>
<td></td>
</tr>
<tr>
<td>Shaft P.25-4).</td>
<td></td>
</tr>
</tbody>
</table>

**REMOVAL STEPS**

1. FUEL TANK FILLER TUBE CONNECTION

2. FUEL HIGH-PRESSURE HOSE CONNECTION

**REMOVAL STEPS (Continued)**

3. FUEL RETURN HOSE CONNECTION

4. FUEL TANK HARNESS CONNECTOR

---

**Diagram**

- FUEL TANK FILLER TUBE CONNECTION
- FUEL HIGH-PRESSURE HOSE CONNECTION
- FUEL RETURN HOSE CONNECTION

---

**Precautions and Notes**

- Draining Fuel
- Fuel Pump Connector Disconnection (How to Reduce Fuel Pressure)
- Center Exhaust Pipe Removal
- Propeller Shaft Removal
- Propeller Shaft Installation
- Center Exhaust Pipe Installation
- Refilling Fuel
- Checking for Fuel Leaks

---

**Force Values**

- 2.5 ± 0.5 N·m (23 ± 4 in-lb)
- 26 ± 4 N·m (19 ± 3 ft-lb)
REMOVAL STEPS (Continued)

- PARKING BRAKE CABLE CLAMP CONNECTION (REFER TO GROUP 36, PARKING BRAKE CABLE P.36-7).
- REAR WHEEL SPEED SENSOR HARNESS CONNECTOR AND HARNESS CLAMP CONNECTION (REFER TO GROUP 35B, WHEEL SPEED SENSOR).

<<A>>
5. FUEL TANK ASSEMBLY
6. FUEL TANK HEAT PROTECTOR
7. FUEL TANK HARNESS
8. SUCTION HOSE
9. FUEL HIGH-PRESSURE HOSE
10. FUEL RETURN HOSE
11. FUEL HIGH-PRESSURE HOSE
12. FUEL TANK PIPE ASSEMBLY
13. FUEL TANK RETURN HOSE
14. FUEL VAPOR HOSE
15. FUEL TANK VAPOR 1WAY VALVE
16. FUEL TANK VAPOR HOSE
17. FUEL TANK ROLLOVER VALVE ASSEMBLY
18. PACKING
19. FUEL TANK FILLER TUBE BREATHER HOSE
20. FUEL TANK LEVERING VALVE ASSEMBLY
21. PACKING
22. FUEL FILLER HOSE
23. FUEL TANK SHUT-OFF VALVE
24. O-RING
25. FUEL TEMPERATURE SENSOR
26. PACKING

<<B>> ||<<A>>
27. FUEL PIPE AND GAUGE ASSEMBLY
28. PACKING
29. RETAINER PLATE

<<B>> ||<<A>>
30. FUEL PUMP MODULE
31. PACKING
REMOVAL STEPS
32. FUEL TANK FILLER TUBE
   PROTECTOR
33. PURGE HOSE B CONNECTION
34. VAPOR HOSE CONNECTION
35. FUEL TANK FILLER CAP

REMOVAL STEPS (Continued)
36. FUEL TANK FILLER TUBE ASSEMBLY
37. PACKING
38. FUEL FILLER TUBE VAPOR HOSE
39. FUEL FILLER TUBE VAPOR 1WAY VALVE

Required Special Tool:
• MB991348: Test Harness Set

REMOVAL SERVICE POINTS

<<A>> FUEL TANK ASSEMBLY REMOVAL
1. Remove the differential support member and tilt the
differential carrier. (Refer to group 27B, Differential Carrier
P.27-28).
2. Hold the fuel tank assembly with a transaxle jack and
remove the nuts connected to the fuel tank assembly.
3. Remove the fuel tank assembly in the tilting direction to
avoid contact with the differential carrier.
<<B>> FUEL PIPE AND GAUGE ASSEMBLY/FUEL PUMP MODULE REMOVAL

⚠️ CAUTION
When withdrawing the fuel pipe and gauge assembly and fuel pump module from the fuel tank, be careful not damage the sensor unit and the float.

INSTALLATION SERVICE POINTS

>>A<< FUEL PUMP MODULE/FUEL PIPE AND GAUGE ASSEMBLY INSTALLATION

⚠️ CAUTION
When inserting the fuel pump module and fuel pipe and gauge assembly into the fuel tank, be careful not damage the sensor unit and the float.
FCAL TANK

13B-18

FUEL SUPPLY
FUEL TANK

>>B<< FUEL HIGH-PRESSURE HOSE INSTALLATION

CAUTION
After connecting the quick action joint of the fuel high-pressure hose, pull the joint lightly away from the quick action joint to confirm that it is secure. In addition, confirm that there is a play of approximately 3.0 mm (0.12 inch) at the joint.

FUEL PUMP MODULE DISASSEMBLY AND ASSEMBLY

<FUEL PUMP MODULE>

DISASSEMBLY STEPS
1. FUEL LEVEL SENSOR (MAIN)
2. FUEL PUMP HARNESS
3. FUEL PUMP BRACKET
4. FUEL PUMP CUSHION
5. FUEL PUMP

DISASSEMBLY STEPS
6. SPACER
7. GROMMET
8. FUEL FEED ASSIST PUMP
9. FUEL HOSE
10. CAP

AC210872AB

AC100963AC
DISASSEMBLY STEPS

11. O-RING
12. FUEL FILTER ASSEMBLY

<FUEL PIPE AND GAUGE ASSEMBLY>

DISASSEMBLY STEPS
13. PACKING
14. FUEL FILTER
15. FUEL LEVEL SENSOR (SUB)
16. CONNECTOR
17. O-RING

DISASSEMBLY STEPS
18. FUEL TANK DIFFERENTIAL PRESSURE SENSOR
19. PACKING
20. FUEL PIPE ASSEMBLY

ASSEMBLY SERVICE POINT

>>A<< O-RING/GROMMET INSTALLATION
Apply gasoline on the O-ring and the grommet before mounting them to prevent damage or twisting.
INSPECTION

FUEL SHUT-OFF VALVE CHECK
Check that the flapper of the fuel shut-off valve opens and closes as shown in the illustration.

FUEL TANK ROLLOVER VALVE ASSEMBLY CHECK
1. Shake the fuel tank rollover valve assembly up and down to check the float inside the fuel tank rollover valve assembly is not seized.

2. Obtain a container, which is full of water.
3. Invert the fuel tank rollover valve assembly, and submerge it slowly in the water while placing your fingers over the nozzle.
4. Check that no more air bubbles appears from the fuel tank rollover valve assembly, and withdraw it slowly.
5. Open the fuel tank rollover valve assembly nozzle. If no water flows out from the nozzle aperture, the valve is normal. If water flows out, the float or spring inside the fuel tank rollover valve is defective. Replace the fuel tank rollover valve assembly.

FUEL TANK DIFFERENTIAL PRESSURE SENSOR CHECK

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 SPECIFICATIONS

<table>
<thead>
<tr>
<th>ITEMS</th>
<th>SPECIFICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel high-pressure hose bolt</td>
<td>$5.0 \pm 1.0 \text{ N} \cdot \text{m}$ ($44 \pm 9 \text{ in-lb}$)</td>
</tr>
<tr>
<td>Fuel level sensor (sub) screw</td>
<td>$1.2 \pm 0.2 \text{ N} \cdot \text{m}$ ($11 \pm 1 \text{ in-lb}$)</td>
</tr>
<tr>
<td>Fuel pipe and gauge assembly nut</td>
<td>$2.5 \pm 0.5 \text{ N} \cdot \text{m}$ ($23 \pm 4 \text{ in-lb}$)</td>
</tr>
<tr>
<td>Fuel pump module nut</td>
<td>$2.5 \pm 0.5 \text{ N} \cdot \text{m}$ ($23 \pm 4 \text{ in-lb}$)</td>
</tr>
<tr>
<td>Fuel tank differential pressure sensor nut</td>
<td>$3.2 \pm 0.2 \text{ N} \cdot \text{m}$ ($28 \pm 2 \text{ in-lb}$)</td>
</tr>
<tr>
<td>Fuel tank levelling valve assembly nut</td>
<td>$2.5 \pm 0.5 \text{ N} \cdot \text{m}$ ($23 \pm 4 \text{ in-lb}$)</td>
</tr>
<tr>
<td>Fuel tank nut</td>
<td>$26 \pm 4 \text{ N} \cdot \text{m}$ ($19 \pm 3 \text{ in-lb}$)</td>
</tr>
<tr>
<td>Fuel tank pipe assembly nut</td>
<td>$2.5 \pm 0.5 \text{ N} \cdot \text{m}$ ($23 \pm 4 \text{ in-lb}$)</td>
</tr>
<tr>
<td>Fuel tank rollover valve assembly nut</td>
<td>$2.5 \pm 0.5 \text{ N} \cdot \text{m}$ ($23 \pm 4 \text{ in-lb}$)</td>
</tr>
<tr>
<td>Fuel temperature sensor nut</td>
<td>$2.5 \pm 0.5 \text{ N} \cdot \text{m}$ ($23 \pm 4 \text{ in-lb}$)</td>
</tr>
</tbody>
</table>

### SERVICE SPECIFICATION

<table>
<thead>
<tr>
<th>ITEMS</th>
<th>STANDARD VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel pressure kPa (psi)</td>
<td></td>
</tr>
<tr>
<td>Vacuum hose connected</td>
<td>Approximately $230 (33)$ at curb idle</td>
</tr>
<tr>
<td>Vacuum hose disconnected</td>
<td>$289 – 309 (42 – 45)$ at curb idle</td>
</tr>
<tr>
<td>Fuel tank differential pressure sensor output voltage V</td>
<td>$2.0 – 3.0$</td>
</tr>
</tbody>
</table>