

2007 Honda Element EX

2007-2008 ENGINE PERFORMANCE Fuel Supply System - Element

2007-2008 ENGINE PERFORMANCE

Fuel Supply System - Element

COMPONENT LOCATION INDEX

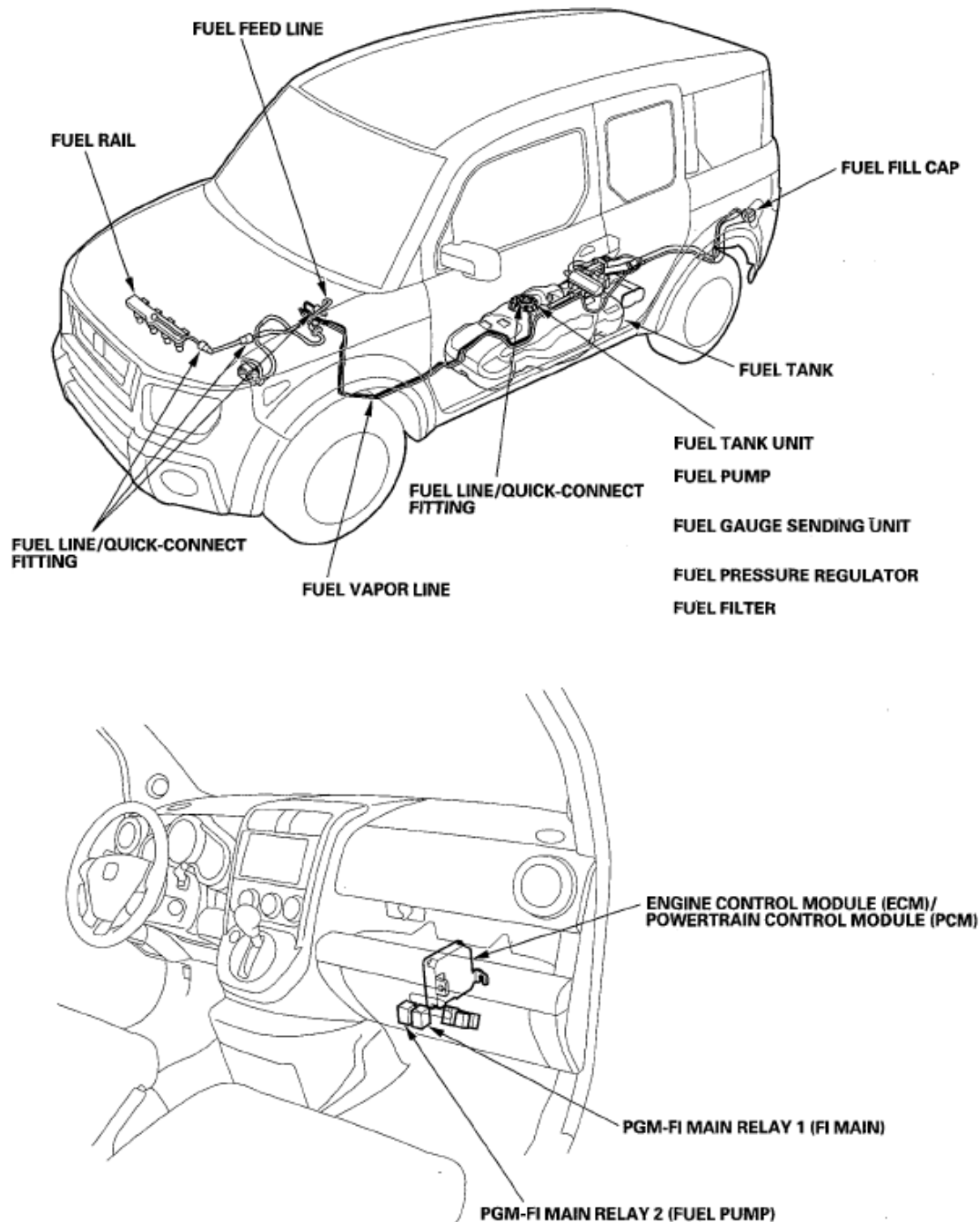


Fig. 1: Identifying Fuel Supply System Component Location

Courtesy of AMERICAN HONDA MOTOR CO., INC.

DTC TROUBLESHOOTING

DTC P0461: FUEL LEVEL SENSOR (FUEL GAUGE SENDING UNIT) RANGE/PERFORMANCE PROBLEM

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see GENERAL TROUBLESHOOTING INFORMATION).
- Because it requires 162 miles (260 km) of driving without refueling to complete this diagnosis, DTC P0461 cannot be duplicated during this troubleshooting.

1. Test the fuel gauge sending unit (see FUEL GAUGE SENDING UNIT TEST).

Is the fuel gauge sending unit OK?

YES -Check for poor connections or loose terminals at the fuel gauge sending unit and the gauge assembly.

NO -Replace the fuel gauge sending unit (see FUEL PUMP/FUEL GAUGE SENDING UNIT REPLACEMENT), then go to step 2.

2. Turn the ignition switch ON (II).
3. Reset the ECM/PCM with the HDS.
4. Do the ECM/PCM idle learn procedure (see ECM/PCM IDLE LEARN PROCEDURE).
5. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0461 indicated?

YES -Check for poor connections or loose terminals at the fuel gauge sending unit and the gauge control module, then go to step 1.

NO -Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.

DTC P0462: FUEL LEVEL SENSOR (FUEL GAUGE SENDING UNIT) CIRCUIT LOW VOLTAGE

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see GENERAL TROUBLESHOOTING INFORMATION).

1. Turn the ignition switch ON (II).

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2. Clear the DTC with the HDS, and wait 5 seconds.
3. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0462 indicated?

YES -Go to step 4.

NO -Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the gauge control module and the fuel gauge sending unit.

4. Turn the ignition switch OFF.
5. Remove the center console (see **CENTER CONSOLE REMOVAL/INSTALLATION**).
6. Fold back the rear floor covering to reach the access panel (see **REAR FLOOR COVERING**). Remove the access panel from the floor (see **FUEL TANK UNIT REMOVAL/INSTALLATION**).
7. Disconnect the fuel tank unit 5P connector.
8. Turn the ignition switch ON (II).
9. Clear the DTC with the HDS, and wait 5 seconds.
10. Check for Temporary DTCs or DTCs with the HDS.

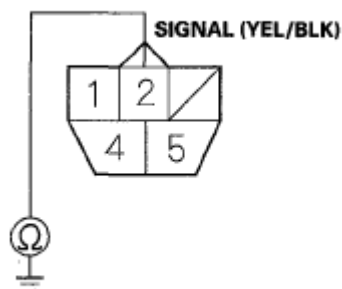
Is DTC P0463 indicated?

YES -Replace the fuel gauge sending unit (see **FUEL PUMP/FUEL GAUGE SENDING UNIT REPLACEMENT**), then go to step 22.

NO -Go to step 11.

11. Turn the ignition switch OFF.
12. Remove the gauge control module (see **REWRITING THE ODO DATA AND TRANSFERRING MAINTENANCE MINDER ON A NEW GAUGE CONTROL MODULE**).
13. Disconnect the gauge control module 36P connector.
14. Check for continuity between fuel tank unit 5P connector terminal No. 2 and body ground.

FUEL TANK UNIT 5P CONNECTOR



Wire side of female terminals

Fig. 2: Checking Continuity Between Fuel Tank Unit 5P Connector Terminal No. 2 And Body Ground

Courtesy of AMERICAN HONDA MOTOR CO., INC.

Is there continuity?

YES -Repair short in the wire between the gauge control module (signal line) and the fuel gauge sending unit, then go to step 24.

NO -Go to step 15.

15. Reconnect the gauge control module 36P connector.
16. Remove the fuel tank unit (see **FUEL TANK UNIT REMOVAL/INSTALLATION**).
17. Connect the fuel tank unit 5P connector.
18. Turn the ignition switch ON (II).
19. Clear the DTC with the HDS.
20. Set the float (A) to the E position.

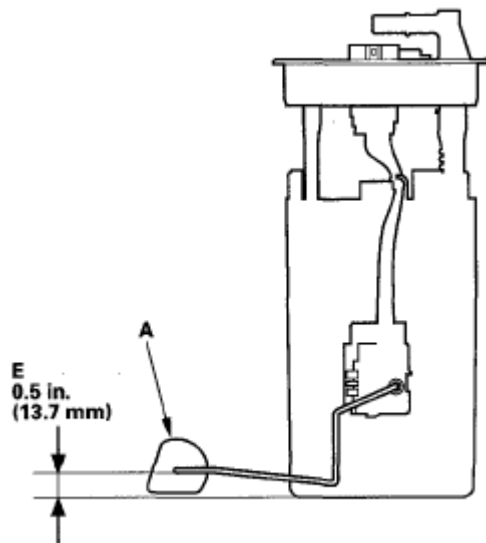


Fig. 3: Setting Float To E Position

Courtesy of AMERICAN HONDA MOTOR CO., INC.

21. Check the fuel gauge.

Does the gauge move to the empty position?

YES -Go to step 29.

NO -Replace the gauge control module (see **REWRITING THE ODO DATA AND TRANSFERRING MAINTENANCE MINDER ON A NEW GAUGE CONTROL MODULE**), then

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go to step 22.

22. Turn the ignition switch OFF.
23. Install the parts in the reverse order of removal.
24. Reconnect all connectors.
25. Turn the ignition switch ON (II).
26. Reset the ECM/PCM with the HDS.
27. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**).
28. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0462 indicated?

YES -Check for poor connections or loose terminals at the gauge control module and the fuel gauge sending unit, then go to step 1.

NO -Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.

29. Install the parts in the reverse order of removal.
30. Reconnect all connectors.
31. Update the ECM/PCM if it does not have the latest software (see **UPDATING THE ECM/PCM**), or substitute a known-good ECM/PCM (see **SUBSTITUTING THE ECM/PCM**).
32. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0462 indicated?

YES -Check for poor connections or loose terminals at the gauge control module and the fuel gauge sending unit. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see **SUBSTITUTING THE ECM/PCM**), then recheck. If the ECM/PCM was substituted, go to step 1.

NO -If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see **ECM/PCM REPLACEMENT**). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.

DTC P0463: FUEL LEVEL SENSOR (FUEL GAUGE SENDING UNIT) CIRCUIT HIGH VOLTAGE

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see **GENERAL TROUBLESHOOTING INFORMATION**).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS, and wait 5 seconds.
3. Check for Temporary DTCs or DTCs with the HDS.

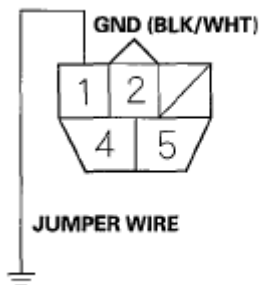
Is DTC P0463 indicated?

YES -Go to step 4.

NO -Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the gauge control module and the fuel gauge sending unit.

4. Turn the ignition switch OFF.
5. Remove the center console (see **CENTER CONSOLE REMOVAL/INSTALLATION**).
6. Fold back the rear floor covering to reach the access panel (see **REAR FLOOR COVERING**). Remove the access panel from the floor (see **FUEL TANK UNIT REMOVAL/INSTALLATION**).
7. Disconnect the fuel tank unit 5P connector.
8. Connect fuel tank unit 5P connector terminal No. 1 to body ground with a jumper wire.

FUEL TANK UNIT 5P CONNECTOR



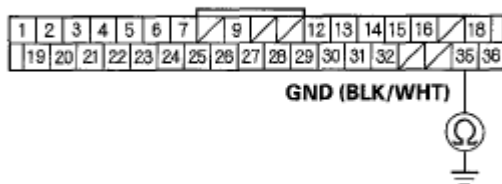
Wire side of female terminals

Fig. 4: Connecting Fuel Tank Unit 5P Connector Terminal No. 1 To Body Ground With Jumper Wire

Courtesy of AMERICAN HONDA MOTOR CO., INC.

9. Remove the gauge control module (see **REWRITING THE ODO DATA AND TRANSFERRING MAINTENANCE MINDER ON A NEW GAUGE CONTROL MODULE**).
10. Disconnect the gauge control module 36P connector.
11. Check for continuity between gauge control module 36P connector terminal No. 35 and body ground.

GAUGE CONTROL MODULE 36P CONNECTOR



Wire side of female terminals

Fig. 5: Checking Continuity Between Gauge Control Module 36P Connector Terminal No. 35 And Body Ground

Courtesy of AMERICAN HONDA MOTOR CO., INC.

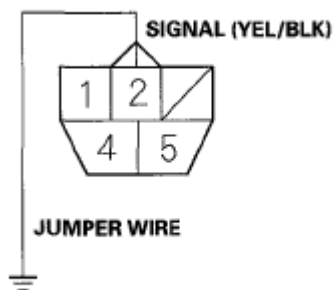
Is there continuity?

YES -Go to step 12.

NO -Repair open in the wire between the gauge control module (GND line) and the fuel gauge sending unit, then go to step 26.

12. Disconnect the gauge control module 36P connector.
13. Connect fuel tank unit 5P connector terminal No. 2 to body ground with a jumper wire.

FUEL TANK UNIT 5P CONNECTOR



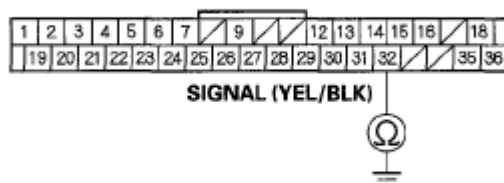
Wire side of female terminals

Fig. 6: Connecting Fuel Tank Unit 5P Connector Terminal No. 2 To Body Ground With Jumper Wire

Courtesy of AMERICAN HONDA MOTOR CO., INC.

14. Check for continuity between gauge control module 36P connector terminal No. 32 and body ground.

GAUGE CONTROL MODULE 36P CONNECTOR



Wire side of female terminals

Fig. 7: Checking Continuity Between Gauge Control Module 36P Connector Terminal No. 32 And Body Ground

Courtesy of AMERICAN HONDA MOTOR CO., INC.

Is there continuity?

YES -Go to step 15.

NO -Repair open in the wire between the gauge control module (signal line) and the fuel gauge sending unit, then go to step 26.

15. Remove the jumper wire from the fuel tank unit 5P connector.
16. Remove the fuel tank unit (see **FUEL TANK UNIT REMOVAL/INSTALLATION**).
17. Test the fuel gauge sending unit (see **FUEL GAUGE SENDING UNIT TEST**).

Is the fuel gauge sending unit OK?

YES -Go to step 18.

NO -Replace the fuel gauge sending unit (see **FUEL PUMP/FUEL GAUGE SENDING UNIT REPLACEMENT**), then go to step 24.

18. Connect the fuel tank unit 5P connector.
19. Reconnect the gauge control module 36P connector.
20. Turn the ignition switch ON (II).
21. Clear the DTC with the HDS.
22. Set the float (A) to the F position.

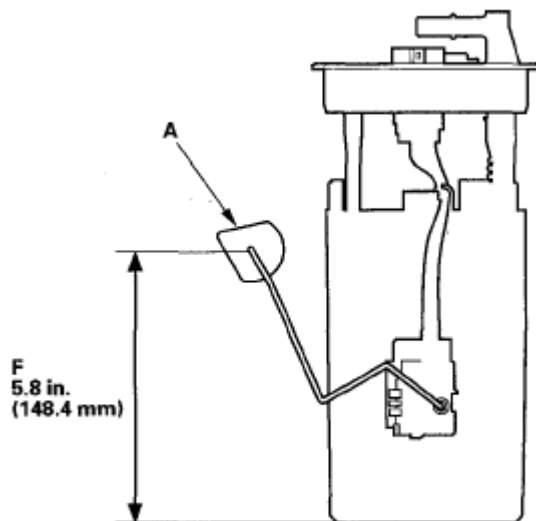


Fig. 8: Setting Float To F Position

Courtesy of AMERICAN HONDA MOTOR CO., INC.

23. Check the fuel gauge.

Does the gauge move to the full position?

YES -Go to step 31.

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NO -Replace the gauge control module (see **REWRITING THE ODO DATA AND TRANSFERRING MAINTENANCE MINDER ON A NEW GAUGE CONTROL MODULE**), then go to step 24.

24. Turn the ignition switch OFF.
25. Install the parts in the reverse order of removal.
26. Reconnect all connectors.
27. Turn the ignition switch ON (II).
28. Reset the ECM/PCM with the HDS.
29. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**).
30. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0463 indicated?

YES -Check for poor connections or loose terminals at the gauge control module and the fuel gauge sending unit, then go to step 1.

NO -Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.

31. Install the parts in the reverse order of removal.
32. Reconnect all connectors.
33. Update the ECM/PCM if it does not have the latest software (see **UPDATING THE ECM/PCM**), or substitute a known-good ECM/PCM (see **SUBSTITUTING THE ECM/PCM**).
34. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0463 indicated?

YES -Check for poor connections or loose terminals at the gauge control module and the fuel gauge sending unit. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see **SUBSTITUTING THE ECM/PCM**), then recheck. If the ECM/PCM was substituted, go to step 1.

NO -If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see **ECM/PCM REPLACEMENT**). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.

FUEL PUMP CIRCUIT TROUBLESHOOTING

If you suspect a problem with the fuel pump, check that the fuel pump actually runs; when it is on, you will hear some noise if you listen to the fuel fill port with the fuel fill cap removed. The fuel pump should run for 2 seconds when the ignition switch is first turned on. If the fuel pump does not make noise, check as follows:

1. Turn the ignition switch OFF.
2. Remove the glove box (see **GLOVE BOX REMOVAL/INSTALLATION**), then remove PGM-FI

main relay 2 (FUEL PUMP) (A).



Fig. 9: Identifying PGM-FI Main Relay 2
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Turn the ignition switch ON (II).
4. Measure voltage between PGM-FI main relay 2 (FUEL PUMP) 5P connector terminal No. 5 and body ground.

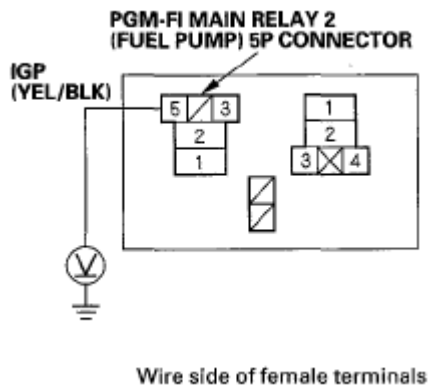


Fig. 10: Measuring Voltage Between PGM-FI Main Relay 2 5P Connector Terminal No. 5 And Body Ground
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

Is there battery voltage?

YES -Go to step 5.

NO -Repair open in the wire between PGM-FI main relay 1 (FI MAIN) and PGM-FI main relay 2 (FUEL PUMP).

5. Measure voltage between PGM-FI main relay 2 (FUEL PUMP) 5P connector terminal No. 1 and body ground.

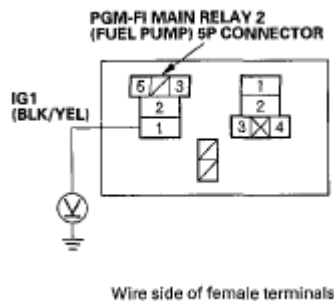


Fig. 11: Measuring Voltage Between PGM-FI Main Relay 2 5P Connector Terminal No. 1 And Body Ground

Courtesy of AMERICAN HONDA MOTOR CO., INC.

Is there battery voltage?

YES -Go to step 6.

NO -Repair open in the wire between the under-dash fuse/relay box No. 17 FUEL PUMP (15 A) fuse and PGM-FI main relay 2 (FUEL PUMP).

6. Turn the ignition switch OFF.
7. Jump the SCS line with the HDS.
8. Disconnect ECM/PCM connector E (31P).
9. Check for continuity between PGM-FI main relay 2 (FUEL PUMP) 5P connector terminal No. 3 and ECM/PCM connector terminal E17.

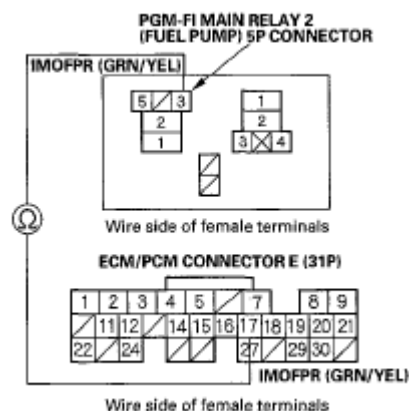


Fig. 12: Checking Continuity Between PGM-FI Main Relay 2 5P Connector Terminal No. 3 And ECM/PCM Connector Terminal E17

Courtesy of AMERICAN HONDA MOTOR CO., INC.

Is there continuity?

YES -Go to step 10.

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NO -Repair open in the wire between PGM-FI main relay 2 (FUEL PUMP) and the ECM/PCM (E17).

10. Reinstall PGM-FI main relay 2 (FUEL PUMP).
11. Connect ECM/PCM connector terminal E7 to body ground with a jumper wire.

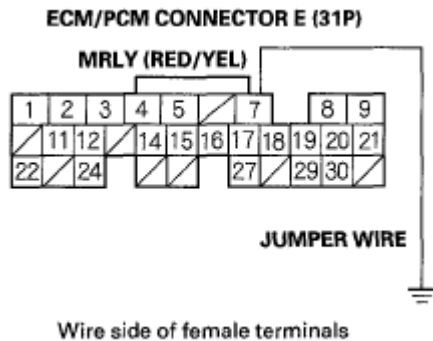


Fig. 13: Connecting ECM/PCM Connector Terminal E7 To Body Ground With Jumper Wire
Courtesy of AMERICAN HONDA MOTOR CO., INC.

12. Turn the ignition switch ON (II).
13. Measure voltage between ECM/PCM connector terminal E17 and body ground.

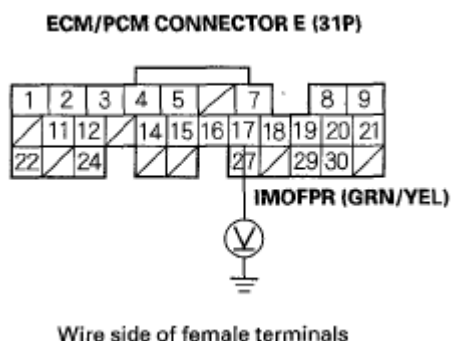


Fig. 14: Measuring Voltage Between ECM/PCM Connector Terminal E17 And Body Ground
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Is there battery voltage?

YES -Go to step 14.

NO -Replace PGM-FI main relay 2 (FUEL PUMP).

14. Turn the ignition switch OFF.
15. Remove the jumper wire, then reconnect ECM/PCM connector E (31P).
16. Open the SCS line with the HDS.
17. Turn the ignition switch ON (II), and measure voltage between ECM/PCM connector terminal E17 and body ground within 2 seconds.

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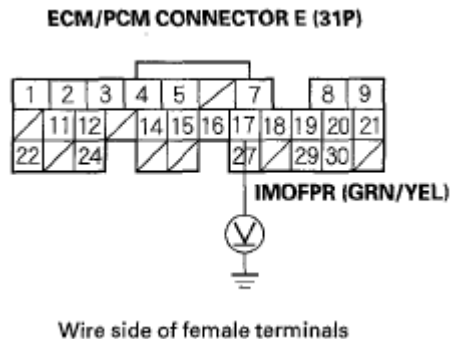


Fig. 15: Measuring Voltage Between ECM/PCM Connector Terminal E17 And Body Ground
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Is there battery voltage for 2 seconds?

YES -Update the ECM/PCM if it does not have the latest software (see UPDATING THE ECM/PCM), or substitute a known-good ECM/PCM (see SUBSTITUTING THE ECM/PCM), then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM (see ECM/PCM REPLACEMENT).

NO -Go to step 18.

18. Turn the ignition switch OFF.
19. Remove the center console (see CENTER CONSOLE REMOVAL/INSTALLATION).
20. Fold back the rear floor covering to reach the access panel (see REAR FLOOR COVERING). Remove the access panel from the floor (see FUEL TANK UNIT REMOVAL/INSTALLATION).
21. Turn the ignition switch ON (II), and measure voltage between fuel pump 5P connector terminal No. 5 and body ground within 2 seconds.

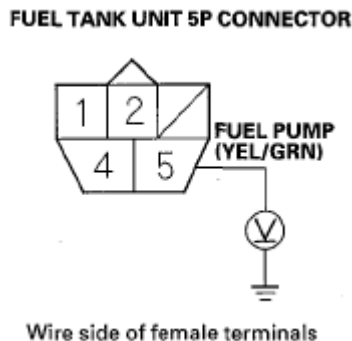


Fig. 16: Measuring Voltage Between Fuel Pump 5P Connector Terminal No. 5 And Body Ground
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Is there battery voltage for 2 seconds?

YES -Go to step 27.

NO -Go to step 22.

22. Turn the ignition switch OFF.
23. Remove PGM-FI main relay 2 (FUEL PUMP).
24. Connect PGM-FI main relay 2 (FUEL PUMP) 5P connector terminals No. 1 and No. 2 with a jumper wire.

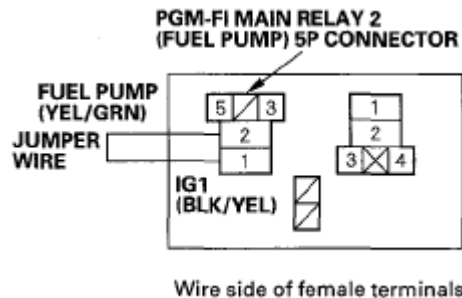


Fig. 17: Connecting PGM-FI Main Relay 2 5P Connector Terminals No. 1 And 2 With Jumper Wire

Courtesy of AMERICAN HONDA MOTOR CO., INC.

25. Turn the ignition switch ON (II).
26. Measure voltage between fuel pump 5P connector terminal No. 5 and body ground.

FUEL TANK UNIT 5P CONNECTOR

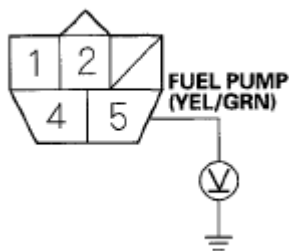


Fig. 18: Measuring Voltage Between Fuel Pump 5P Connector Terminal No. 5 And Body Ground

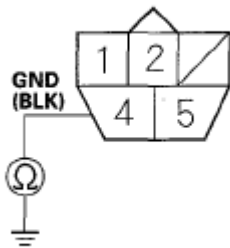
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Is there battery voltage?

YES -Replace PGM-FI main relay 2 (FUEL PUMP).

NO -Repair open in the wire between PGM-FI main relay 2 (FUEL PUMP) and the fuel pump 5P connector.

27. Turn the ignition switch OFF.
28. Check for continuity between fuel pump 5P connector terminal No. 4 and body ground.

FUEL TANK UNIT 5P CONNECTOR

Wire side of female terminals

Fig. 19: Checking Continuity Between Fuel Pump 5P Connector Terminal No. 4 And Body Ground
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

Is there continuity?

YES -Replace the fuel pump (see **Fuel Tank Unit Removal/Installation**).

NO -Repair open in the wire between the fuel pump 5P connector and G552.

FUEL PRESSURE RELIEVING

Before disconnecting fuel lines or hoses, relieve pressure from the system by disabling the fuel pump and then disconnecting the fuel tube/quick connect fitting in the engine compartment.

WITH THE HDS

1. Make sure you have the anti-theft code for the audio system.
2. Turn the ignition switch OFF.
3. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.

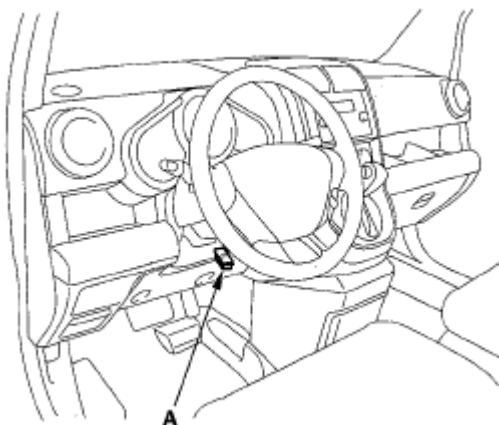


Fig. 20: Connecting HDS To Data Link Connector (DLC)
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Turn the ignition switch ON (II).
5. Make sure the HDS communicates with the ECM/PCM. If it doesn't, go to the DLC circuit troubleshooting (see **DLC CIRCUIT TROUBLESHOOTING**).
6. Turn the ignition switch OFF.
7. Remove the fuel fill cap to relieve the pressure in the fuel tank.
8. Turn the ignition switch ON (II).
9. From the INSPECTION MENU of the HDS, select Fuel Pump OFF, then start the engine, and let it idle until it stalls.
10. Turn the ignition switch OFF.

NOTE:

- Do not allow the engine to idle above 1,000 rpm or the ECM/PCM will continue to operate the fuel pump.
- A DTC or a Temporary DTC may be set during this procedure. Check for DTCs, and clear them as needed (see **IF THE MIL DID NOT STAY ON**).

11. Turn the ignition switch OFF.
12. Disconnect the negative cable from the battery.
13. Remove the quick-connect fitting cover (A).

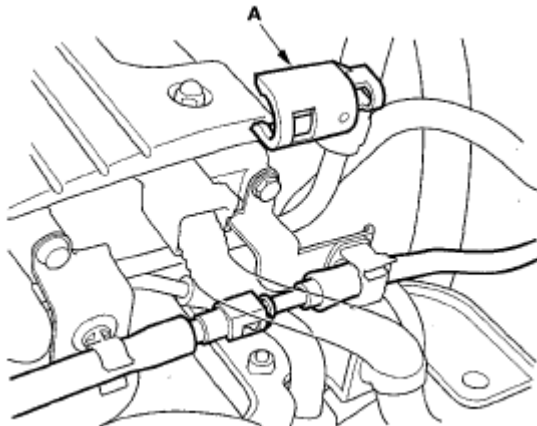


Fig. 21: Identifying Quick-Connect Fitting Cover
Courtesy of AMERICAN HONDA MOTOR CO., INC.

14. Check the fuel quick-connect fitting for dirt, and clean it if needed.
15. Place a rag or shop towel over the quick-connect fitting (A).

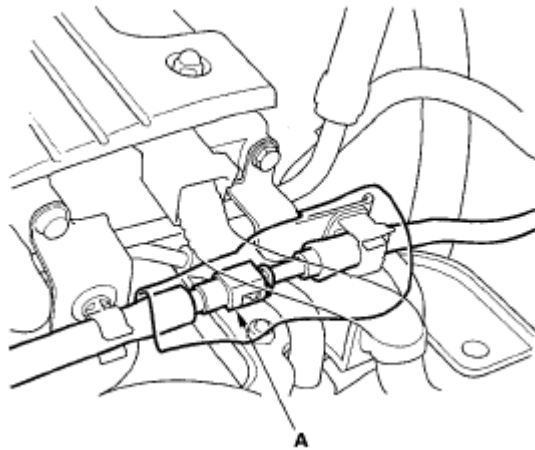


Fig. 22: Identifying Quick-Connect Fitting

Courtesy of AMERICAN HONDA MOTOR CO., INC.

16. Disconnect the quick-connect fitting (A): Hold the connector (B) with one hand, and squeeze the retainer tabs (C) with the other hand to release them from the locking tabs (D). Pull the connector off.

NOTE:

- Be careful not to damage the line (E) or other parts.
- Do not use tools.
- If the connector does not move, keep the retainer tabs pressed down, and alternately pull and push the connector until it comes off easily.
- Do not remove the retainer from the line; once removed, the retainer must be replaced with a new one.

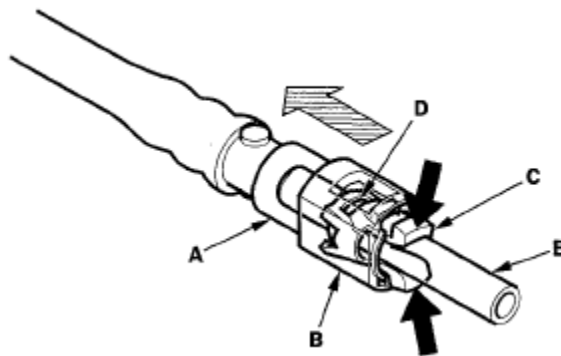


Fig. 23: Pulling Connector

Courtesy of AMERICAN HONDA MOTOR CO., INC.

17. After disconnecting the quick-connect fitting, check it for dirt or damage (see step 4).
18. Reconnect the negative cable to the battery, then do this:
- Enter the anti-theft code for the audio system.
 - Set the clock.

WITHOUT THE HDS

1. Make sure you have the anti-theft code for the audio system.
2. Remove the glove box (see **GLOVE BOX REMOVAL/INSTALLATION**), then remove PGM-FI main relay 2 (FUEL PUMP) (A) from the under-dash fuse/relay box.



Fig. 24: Identifying PGM-FI Main Relay 2 (FUEL PUMP)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Start the engine, and let it idle until it stalls.

NOTE: If any DTCs are stored, clear and ignore them.

4. Turn the ignition switch OFF.
5. Remove the fuel fill cap.
6. Disconnect the negative cable from the battery.
7. Remove the quick-connect fitting cover (A).

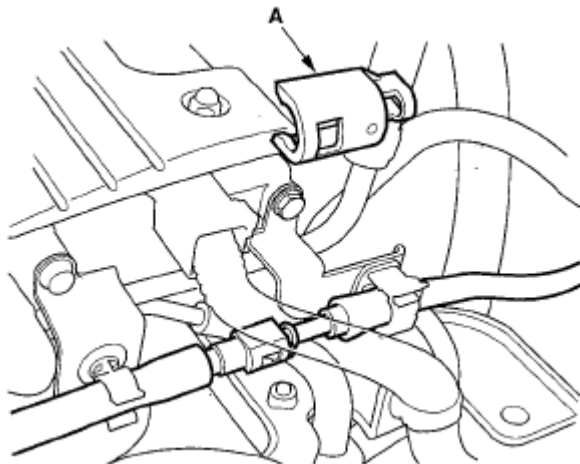


Fig. 25: Identifying Quick-Connect Fitting Cover
Courtesy of AMERICAN HONDA MOTOR CO., INC.

8. Check the fuel quick-connect fitting for dirt, and clean it if needed.
9. Place a rag or shop towel over the quick-connect fitting (A).

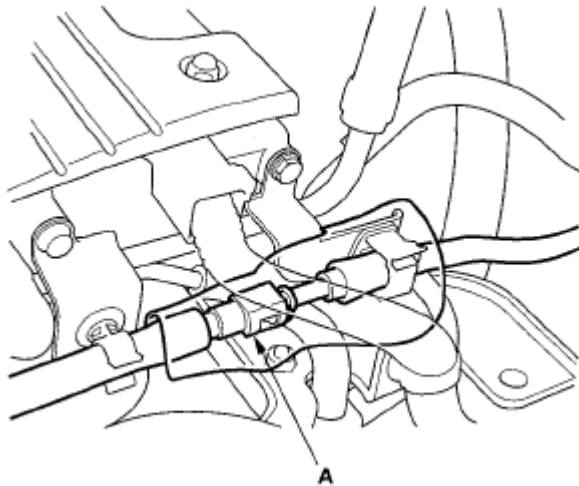


Fig. 26: Identifying Fuel Quick-Connect Fitting For Dirt And Clean
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

10. Disconnect the quick-connect fitting (A): Hold the connector (B) with one hand, and squeeze the retainer tabs (C) with the other hand to release them from the locking tabs (D). Pull the connector off.

NOTE:

- Be careful not to damage the line (E) or other parts.
- Do not use tools.
- If the connector does not move, keep the retainer tabs pressed down, and alternately pull and push the connector until it comes off easily.
- Do not remove the retainer from the line; once removed, the retainer must be replaced with a new one.

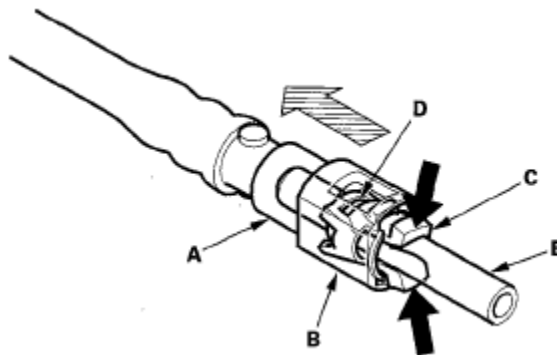


Fig. 27: Pulling Connector
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

11. After disconnecting the quick-connect fitting, check it for dirt or damage (see step 4).

12. Reconnect the negative cable to the battery, then do this:
 - Enter the anti-theft code for the audio system.
 - Set the clock.

FUEL PRESSURE TEST

Special Tools Required

- Fuel pressure gauge 07406-004000B
 - Fuel pressure gauge attachment set 07AAJ-S6MA150
1. Relieve the fuel pressure (see **FUEL PRESSURE RELIEVING**).
 2. Disconnect the quick-connect fitting. Attach the fuel pressure gauge set and the fuel pressure gauge.

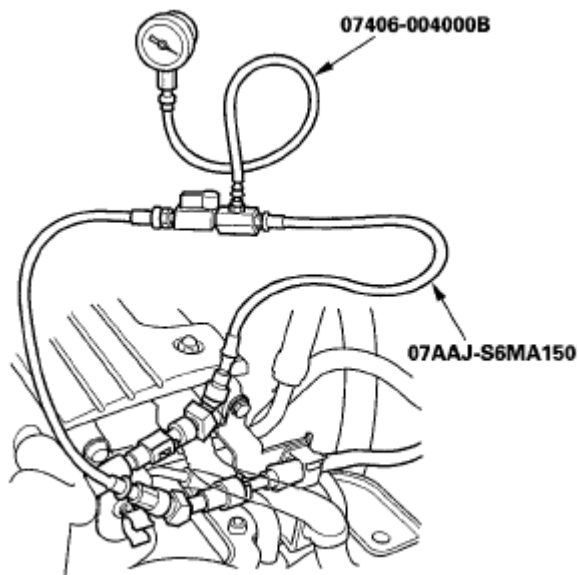


Fig. 28: Attaching Fuel Pressure Gauge Set And Fuel Pressure Gauge
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Start the engine, and let it idle.
 - If the engine starts, go to step 5.
 - If the engine does not start, go to step 4.
4. Check to see if the fuel pump is running: listen to the fuel filler port with the fuel fill cap removed. The fuel pump should run for 2 seconds when the ignition switch is first turned on.
 - If the pump runs, go to step 5.
 - If the pump does not run, do the fuel pump circuit troubleshooting (see **FUEL PUMP CIRCUIT TROUBLESHOOTING**).
5. Read the fuel pressure gauge. The pressure should be:

320-370 kPa (3.3-3.8 kgf/cm² , 47-54 psi)

- If the pressure is OK, the test is complete.
- If the pressure is out of specification, replace the fuel pressure regulator (see **FUEL PRESSURE REGULATOR REPLACEMENT**) and the fuel filter (see **FUEL PRESSURE REGULATOR REPLACEMENT**), then recheck the fuel pressure.

FUEL TANK DRAINING

1. Remove the fuel tank unit (see **FUEL TANK UNIT REMOVAL/INSTALLATION**).
2. Using a hand pump, a hose, and a container suitable for fuel, draw the fuel from the fuel tank.
3. Reinstall the fuel tank unit (see **INSTALLATION**).

FUEL LINE INSPECTION

Check the fuel system lines and hoses for damage, leaks, and deterioration. Replace any damaged parts.

Make sure the connections are secure and the quick-connect fitting covers are firmly locked in place.

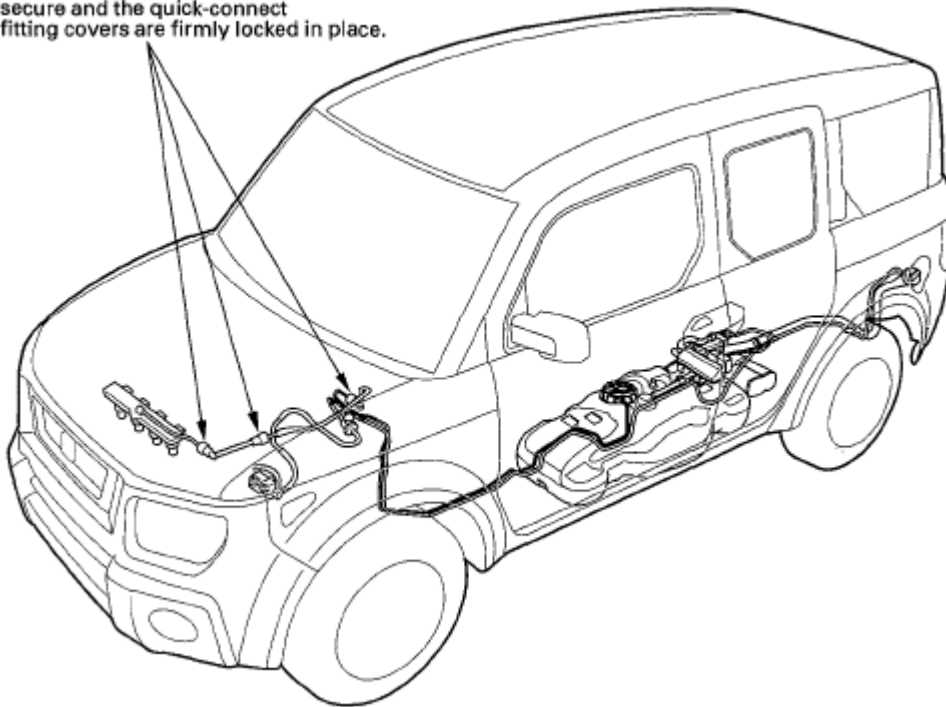


Fig. 29: Identifying Fuel Lines

Courtesy of AMERICAN HONDA MOTOR CO., INC.

Check all clamps, and retighten any if necessary.

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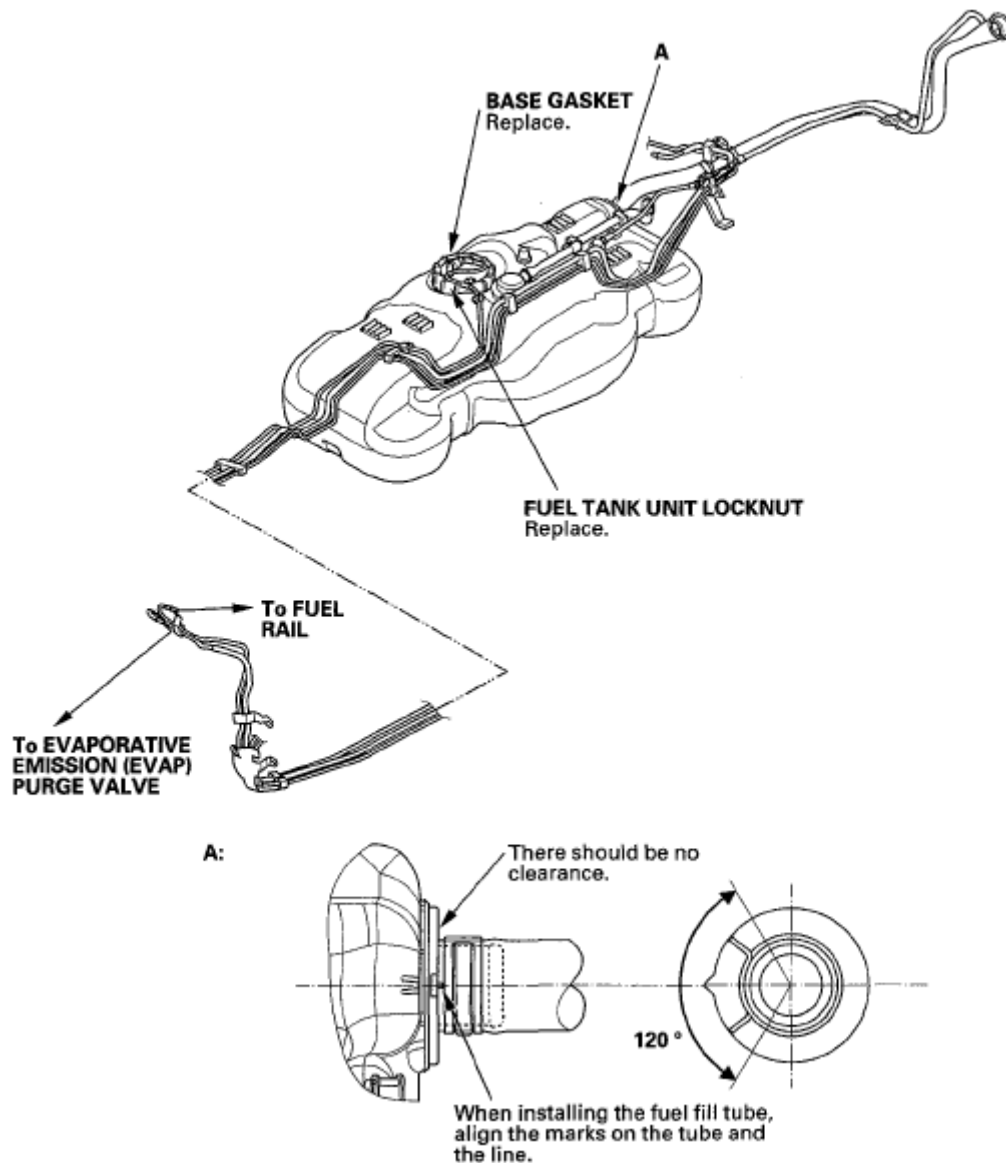


Fig. 30: Identifying Fuel Supply System Parts Location
Courtesy of AMERICAN HONDA MOTOR CO., INC.

FUEL LINE/QUICK-CONNECT FITTING PRECAUTIONS

The fuel line/quick-connect fittings (A), (B), (C), (D), connect the fuel rail (E) to the fuel feed hose (F), the fuel feed hose to the fuel feed hose (G), the fuel feed hose to the fuel line (H), the fuel line (I) to the fuel tank unit (J), and the fuel vapor line (K) to the EVAP canister (L). When removing or installing the fuel feed hose, the fuel tank unit, or the fuel tank, it is necessary to disconnect or connect the quick-connect fittings. Pay attention to the following:

- The fuel feed hoses, the fuel line, the fuel vapor line, and quick-connect fittings are not heat-resistant; be careful not to damage them during welding or other heat-generating procedures.

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- The fuel feed hoses, fuel line, fuel vapor line, and the quick-connect fittings are not acid-proof; do not touch them with a shop towel that was used for wiping battery electrolyte. Replace them if they come in contact with electrolyte or something similar.
- When connecting or disconnecting the fuel feed hoses, the fuel line, the fuel vapor line, and the quick-connect fittings, be careful not to bend or twist them excessively. Replace them if they are damaged.

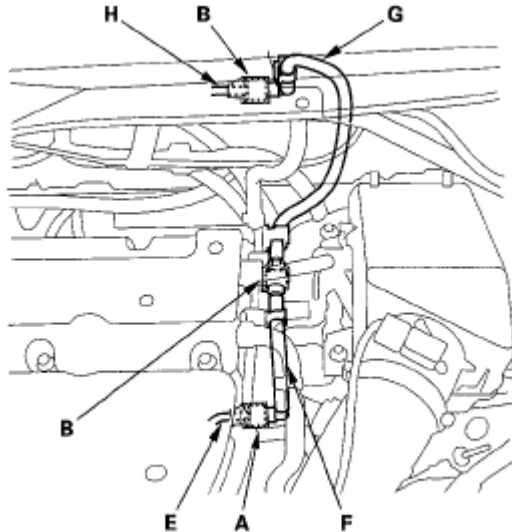


Fig. 31: Identifying Fuel Line Parts Location
Courtesy of AMERICAN HONDA MOTOR CO., INC.

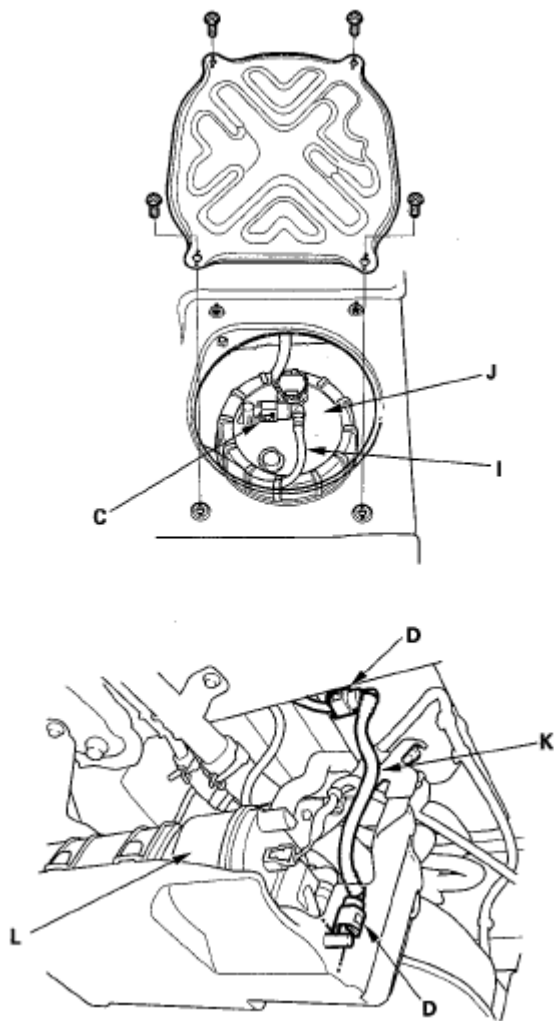


Fig. 32: Identifying Fuel Line Parts Location
Courtesy of AMERICAN HONDA MOTOR CO., INC.

A disconnected quick-connect fitting can be reconnected, but the retainer on the mating line cannot be reused once it has been removed from the line. Replace the retainer when:

- replacing the fuel rail.
- replacing the fuel line.
- replacing the fuel pump.
- replacing the fuel filter.
- replacing the fuel gauge sending unit.
- replacing the EVAP purge line.
- replacing the EVAP canister.
- it has been removed from the line.
- it is damaged.

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RETAINER SPECIFICATION

Location	Manufacturer	Retainer color	Line diameter
A	Tokai	Blue green	0.31 in. (8.0 mm)
B	Tokai	Green	0.25 in. (6.35 mm)
C	Sanoh	White	0.37 in. (9.5 mm)
D	Tokai	Orange	0.37 in. (9.5 mm)

FUEL LINE/QUICK-CONNECT FITTING REMOVAL

NOTE: Before you work on the fuel lines and fittings, read the "Fuel Line/Quick-Connect Fitting Precautions" (see FUEL LINE/QUICK-CONNECT FITTING PRECAUTIONS).

1. Relieve the fuel pressure (see FUEL PRESSURE RELIEVING).
2. Check the fuel quick-connect fittings (A) for dirt, and clean it if needed.

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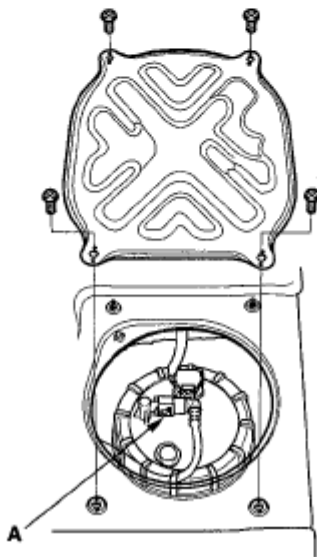
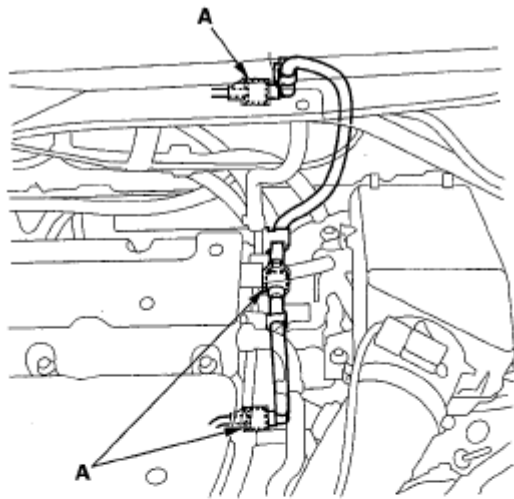


Fig. 33: Identifying Fuel Quick-Connect Fittings
Courtesy of AMERICAN HONDA MOTOR CO., INC.

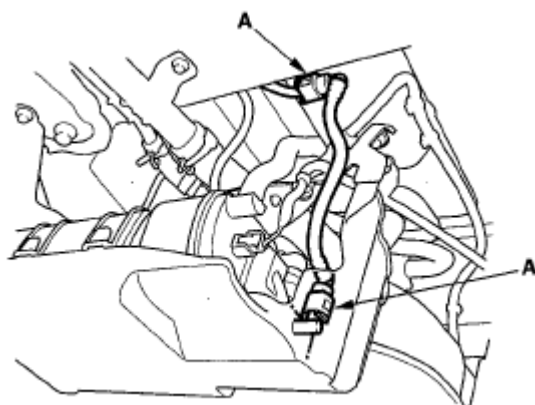


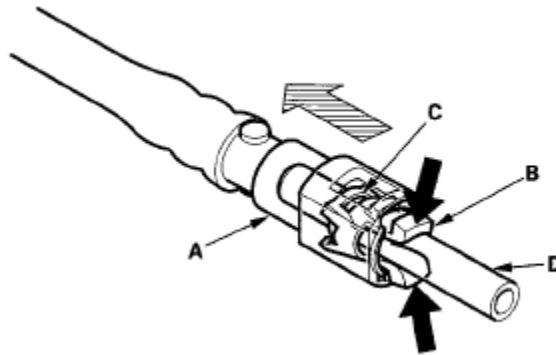
Fig. 34: Identifying Fuel Quick-Connect Fittings

Courtesy of AMERICAN HONDA MOTOR CO., INC.

- Place a rag or shop towel over the quick-connect fitting. Hold the connector (A) with one hand, and squeeze the retainer tabs (B) with the other hand to release them from the locking tabs (C). Pull the connector off.

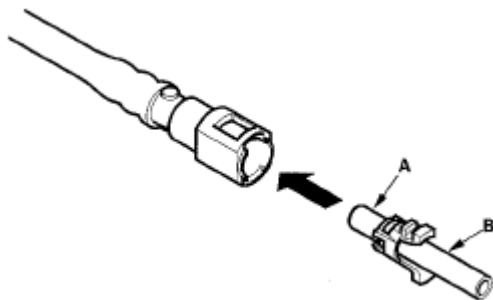
NOTE:

- Be careful not to damage the line (D) or other parts. Do not use tools.
- If the connector does not move, keep the retainer tabs pressed down, and alternately pull and push the connector until it comes off easily.
- Do not remove the retainer from the line; once removed, the retainer must be replaced with a new one.

**Fig. 35: Pulling Connector**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

- Check the contact area (A) of the line (B) for dirt or damage.
 - If the surface is dirty, clean it.
 - If the surface is rusty or damaged, replace the fuel pump, the fuel filter, or the fuel feed line.

**Fig. 36: Checking Contact Area Of Line For Dirt Or Damage**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

- To prevent damage and keep foreign matter out, cover the disconnected connector and line ends with plastic bags (A).

NOTE: The retainer cannot be reused once it has been removed from the line. Replace the retainer when:

- replacing the fuel rail.
- replacing the fuel feed line.
- replacing the fuel pump.
- replacing the fuel filter.
- replacing the fuel gauge sending unit.
- replacing the EVAP purge line.
- replacing the EVAP canister.
- it has been removed from the line.
- it is damaged.

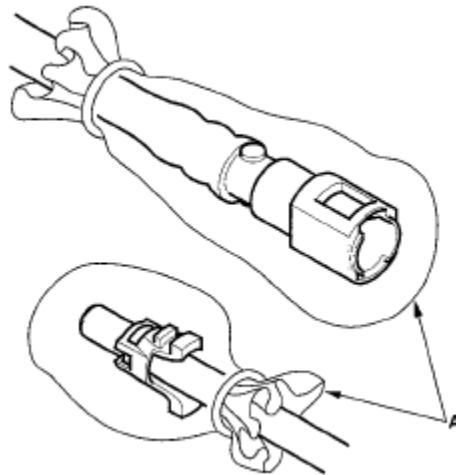


Fig. 37: Covering Connector With Plastic Bags
Courtesy of AMERICAN HONDA MOTOR CO., INC.

FUEL LINE/QUICK-CONNECT FITTING INSTALLATION

NOTE: Before you work on the fuel lines and fittings, read the "Fuel Line/Quick-Connect Fitting Precautions" (see FUEL LINE/QUICK-CONNECT FITTING PRECAUTIONS).

1. Check the contact area (A) of the line (B) for dirt or damage, and clean it if needed.

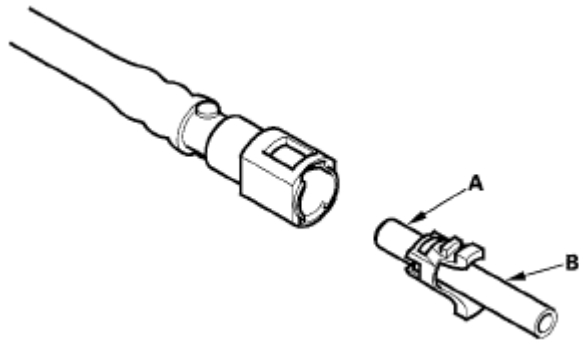


Fig. 38: Identifying Contact Area Of Line
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Insert a new retainer (A) into the connector (B) if the retainer is damaged, or after:
 - replacing the fuel rail.
 - replacing the fuel feed line.
 - replacing the fuel pump.
 - replacing the fuel filter.
 - replacing the fuel gauge sending unit.
 - removing the retainer from the line.
 - replacing the EVAP purge line.
 - replacing the EVAP canister.
 - Use the same manufacturer retainer and the same size retainer when the replacing the retainer (see **FUEL LINE/QUICK-CONNECT FITTING PRECAUTIONS**).

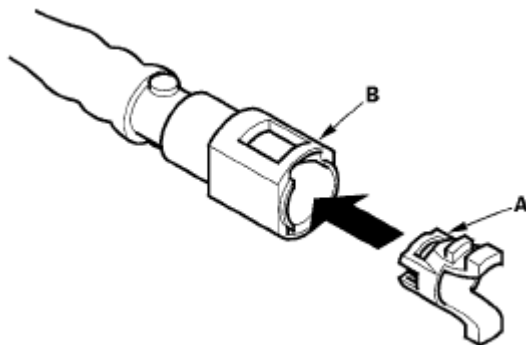


Fig. 39: Inserting Retainer Into Connector
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Before connecting a new fuel line/quick-connect fitting assembly (A), remove the old retainer from the mating line.

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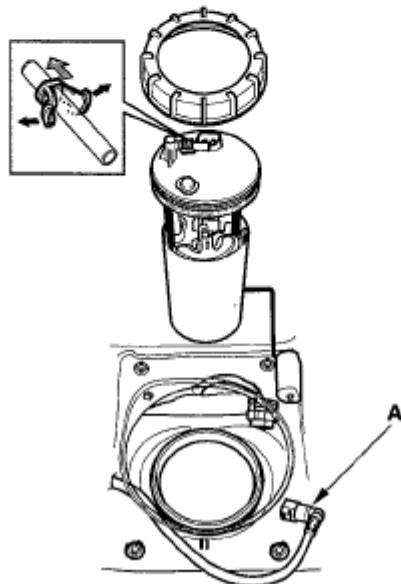
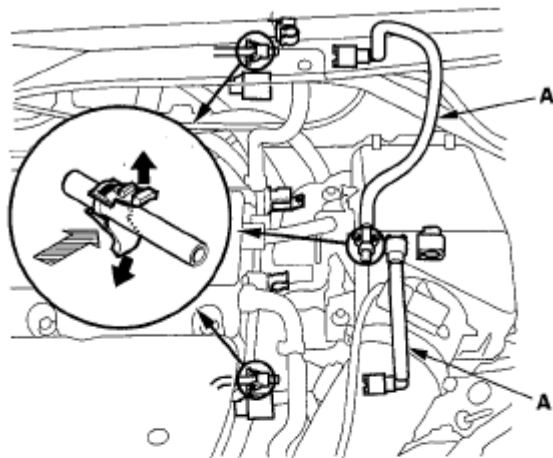


Fig. 40: Connecting Fuel Line/Quick-Connect Fitting Assembly
Courtesy of AMERICAN HONDA MOTOR CO., INC.

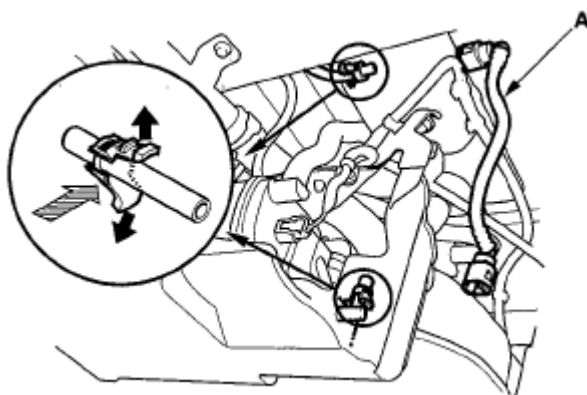


Fig. 41: Connecting Fuel Line/Quick-Connect Fitting Assembly
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

- Align the quick-connect fittings with the line (A), and align the retainer locking tabs (B) with the connector (C) grooves. Then press the quick-connect fittings onto the line until both retainer tabs lock with a clicking sound.

NOTE: If it is hard to connect, put a small amount of new engine oil on the line end.

Connection with new retainer

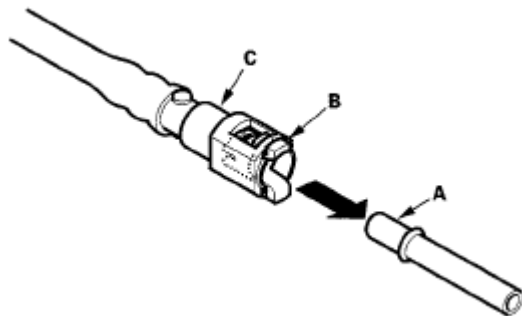


Fig. 42: Aligning Quick-Connect Fittings With Line And Align Retainer Locking Tabs With Connector
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

Connection to new fuel line

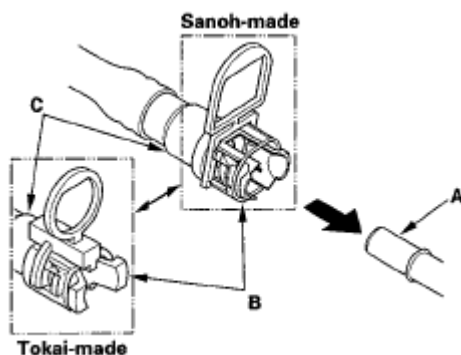


Fig. 43: Identifying Connection To Fuel Line
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

Connection to existing retainer

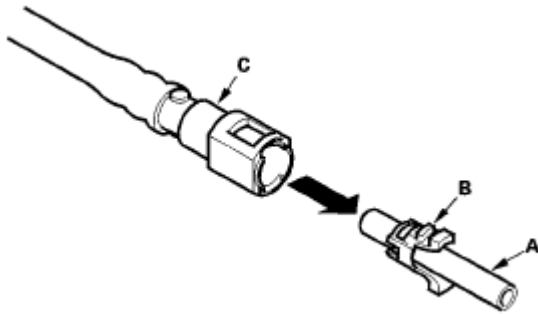


Fig. 44: Identifying Connection To Existing Retainer
Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. When you are reconnecting the connector with the old retainer, make sure the connection is secure and the tabs (A) are firmly locked into place; check visually and also by pulling the connector (B). When you are replacing the fuel line with a new one, make sure you remove the ring pull (C) upwards after you confirm the connection is secure.

NOTE: Before you remove the ring pull, make sure the fuel line connection is secure. If the connection is not secure, the ring pull could break when you try to remove it.

Reconnection to existing retainer

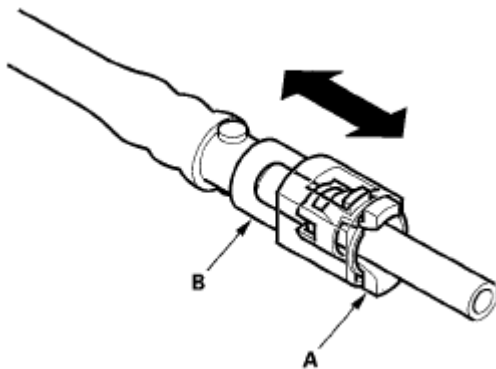


Fig. 45: Identifying Reconnection To Existing Retainer
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Connection to new fuel line

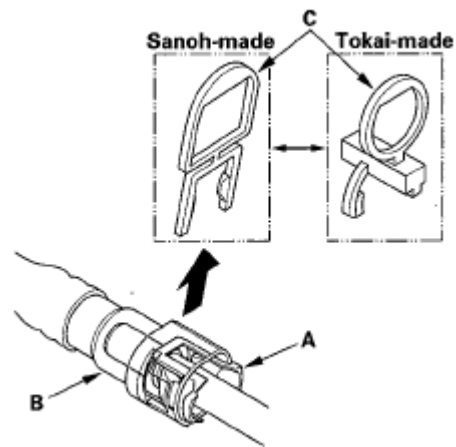


Fig. 46: Identifying Connection To New Fuel Line
Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. Reconnect the negative cable to the battery, and turn the ignition switch ON (II) (but do not operate the starter motor). The fuel pump will run for about 2 seconds, and fuel pressure will rise. Repeat two or three times, and check that there is no leakage in the fuel supply system.

FUEL TANK UNIT REMOVAL/INSTALLATION

Special Tools Required

Fuel sender wrench 07AAA-S0XA100

REMOVAL

1. Relieve the fuel pressure (see **FUEL PRESSURE RELIEVING**).
2. Remove the fuel fill cap.
3. Remove the center console (see **CENTER CONSOLE REMOVAL/INSTALLATION**).
4. Fold back the floor mat until the access panel is accessible. Remove the access panel (A) from the floor.

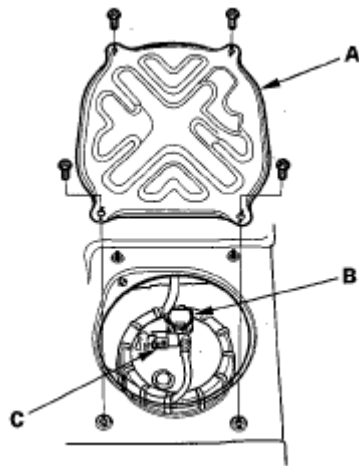


Fig. 47: Identifying Access Panel And Floor
Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. Disconnect the fuel tank unit 5P connector (B).
6. Disconnect the quick-connect fitting (C) from the fuel tank unit.
7. Using the special tool, loosen the lock-nut (A).

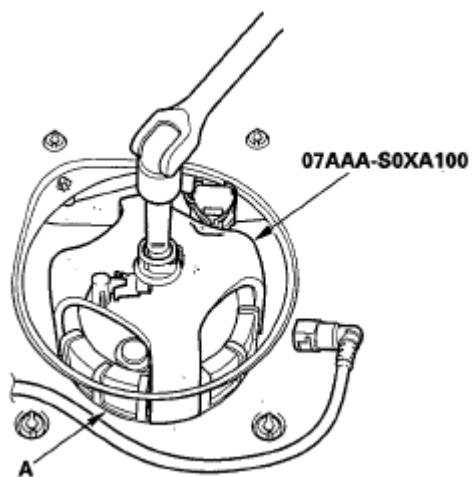


Fig. 48: Identifying Special Tool And Lock-nut
Courtesy of AMERICAN HONDA MOTOR CO., INC.

8. Remove the lock-nut (A) and the fuel tank unit (B).

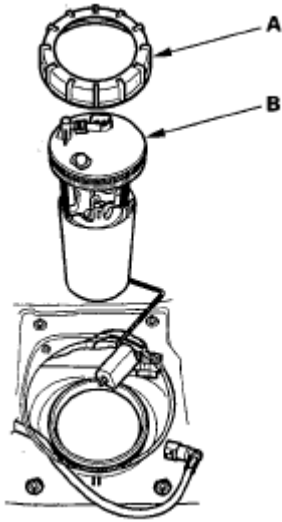


Fig. 49: Identifying Lock-nut And Fuel Tank Unit
Courtesy of AMERICAN HONDA MOTOR CO., INC.

INSTALLATION

1. Temporarily attach a new base gasket (A) to the fuel tank unit (B), then insert the fuel tank unit into the fuel tank.

NOTE:

- Be careful not to damage the new base gasket.
- Be careful not to bend the fuel gauge sending unit.
- Do not coat the base gasket with oil.

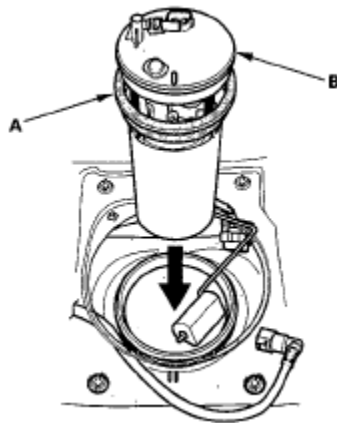


Fig. 50: Installing Base Gasket To Fuel Tank Unit
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Set the base gasket (A) from the fuel tank unit to the fuel tank.

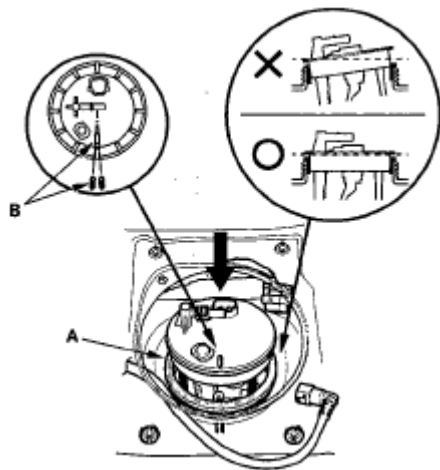


Fig. 51: Setting Base Gasket Fuel Tank Unit To Fuel Tank
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

- Align the marks (B) on the fuel tank and the fuel tank unit, then insert the fuel tank unit into the fuel tank until the fuel tank unit rest on top of the sticking on a base gasket.

NOTE: To avoid a fuel leak, check the base gasket, visually or by hand, to make sure it is not pinched.

- Using the tool, tighten a new lock-nut (A) to the specified torque.

NOTE:

- After tightening, make sure the marks are still aligned.
- After installation, check the base gasket visually or by hand to be sure the gasket is not pinched.

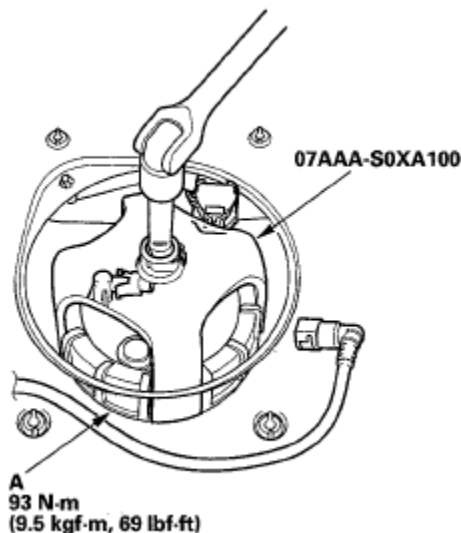


Fig. 52: Tightening Lock-nut With Torque Specification

Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. Connect the fuel tank unit 5P connector, then connect the quick-connect fitting.
6. Turn the ignition switch ON (II) (but do not operate the starter motor). The fuel pump will run for about 2 seconds, and fuel pressure will rise. Repeat this two or three times, then check that there is no leakage in the fuel supply system.
7. Install the access panel.
8. Install the center console (see CENTER CONSOLE REMOVAL/INSTALLATION).
9. Install the fuel fill cap.

FUEL PRESSURE REGULATOR REPLACEMENT

1. Remove the fuel tank unit (see FUEL TANK UNIT REMOVAL/INSTALLATION).
2. Remove the clip (A).

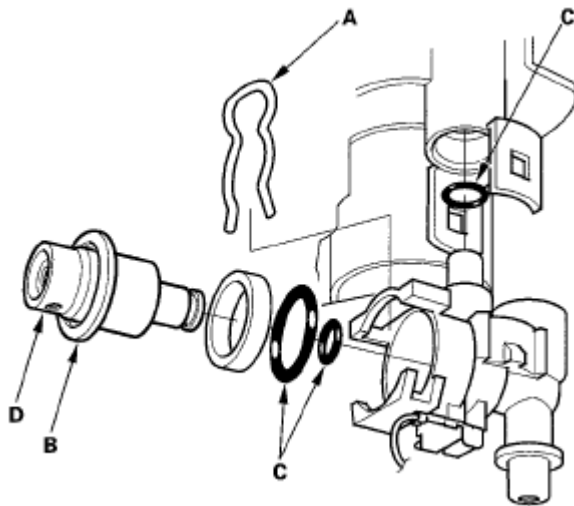


Fig. 53: Identifying Fuel Pressure Regulator, O-Ring, Drain Hole And Clip
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Remove the fuel pressure regulator (B).
4. Install the parts in the reverse order of removal with new O-rings (C).

Make sure the regulator is installed with the drain hole (D) facing down.

NOTE: Coat the O-rings with clean engine oil. Do not pinch the O-rings during installation. Never apply brake fluid, vegetable oil, or alcohol-based oil to the O-rings.

FUEL FILTER REPLACEMENT

The fuel filter should be replaced whenever the fuel pressure drops below the specified value (see **FUEL PRESSURE TEST**), after making sure that the fuel pump and the fuel pressure regulator are OK.

1. Remove the fuel tank unit (see **FUEL TANK UNIT REMOVAL/INSTALLATION**).
2. Remove the fuel filter set (A).

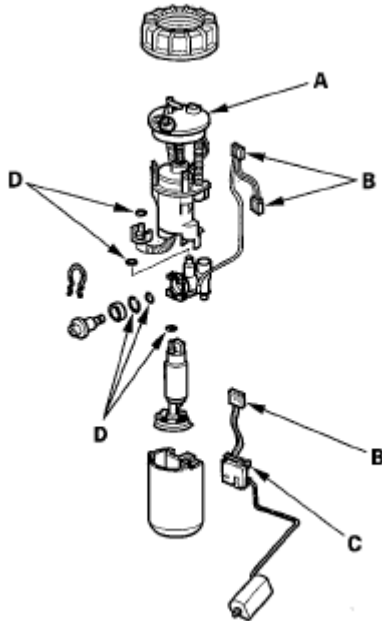


Fig. 54: Identifying Fuel Filter Set, Connector And Fuel Gauge Sending Unit
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Check these items before installing the fuel tank unit:
 - When connecting the wire harness, make sure the connection is secure and the connectors (B) are firmly locked into place.
 - When installing the fuel gauge sending unit (C), make sure the connection is secure and the connectors is firmly locked into place. Be careful not to bend or twist it excessively.
4. Install the parts in the reverse order of removal with new O-rings (D).

FUEL PUMP/FUEL GAUGE SENDING UNIT REPLACEMENT

1. Remove the fuel tank unit (see **FUEL TANK UNIT REMOVAL/INSTALLATION**).
2. Remove the fuel level sensor (fuel sending unit) (A) from the fuel tank unit (B).

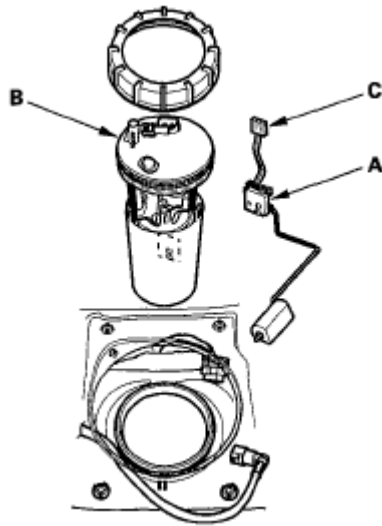


Fig. 55: Identifying Fuel Level Sensor And Fuel Tank Unit
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Check these items before installing the fuel tank unit:
 - When connecting the wire harness, make sure the connection is secure and the connectors (C) are firmly locked into place.
 - When installing the fuel gauge sending unit, make sure the connection is secure and the connector is firmly locked into place. Be careful not to bend or twist it excessively.
4. Install the parts in the reverse order of removal. When installing the fuel tank unit (see **INSTALLATION**).

FUEL TANK REPLACEMENT

1. Drain the fuel tank (see **FUEL TANK DRAINING**).
2. Reinstall the fuel tank unit.
3. Raise the vehicle, and support it with jackstands.
4. Disconnect the filler neck, the fuel vapor hose (A), the fuel fill tube (B) and the fuel vapor hose (C). To avoid damaging the hoses, slide back the clamps, then twist the hoses as you pull them.

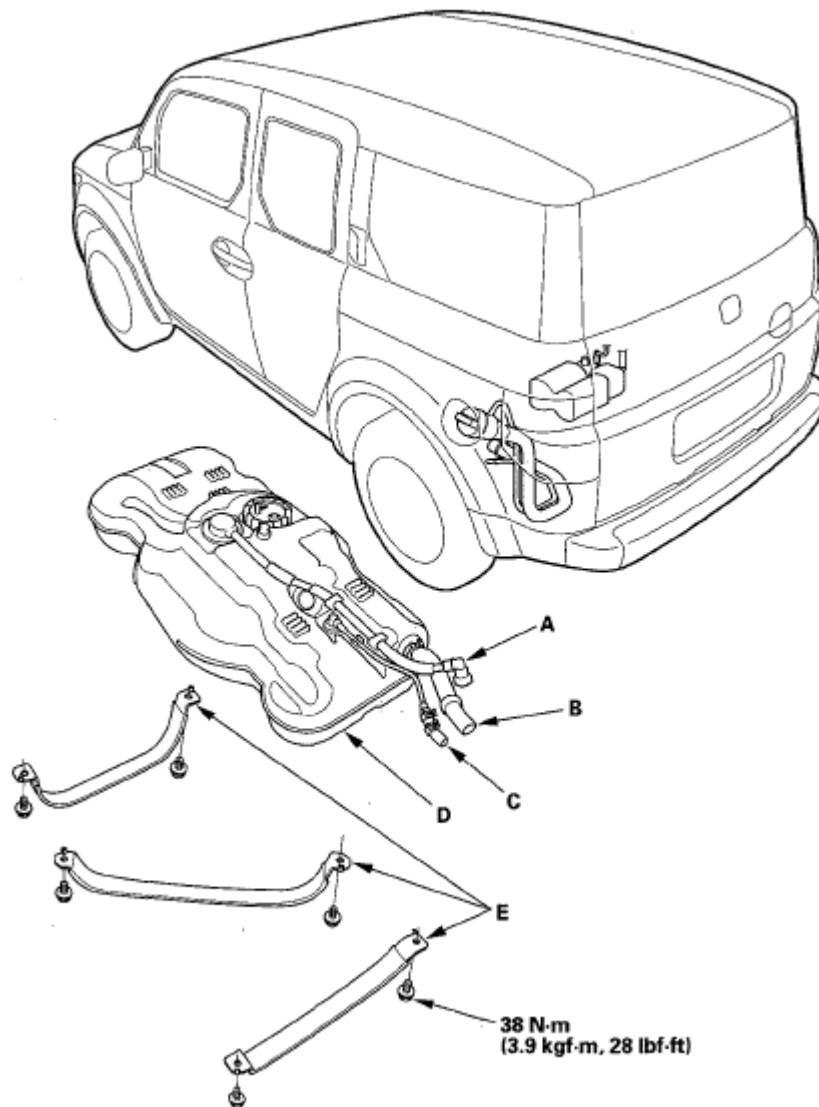


Fig. 56: Identifying Fuel Tank Parts With Torque Specification
Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. Place a jack or other support under the tank (D).
6. Remove the strap bolts and the straps (E).
7. Remove the fuel tank.
8. Install the parts in the reverse order of removal.

FUEL FILL PIPE REMOVAL/INSTALLATION

1. Drain the fuel tank (see **FUEL TANK DRAINING**).
2. Remove the fuel fill cap.
3. Remove the fuel fill pipe cover (A).

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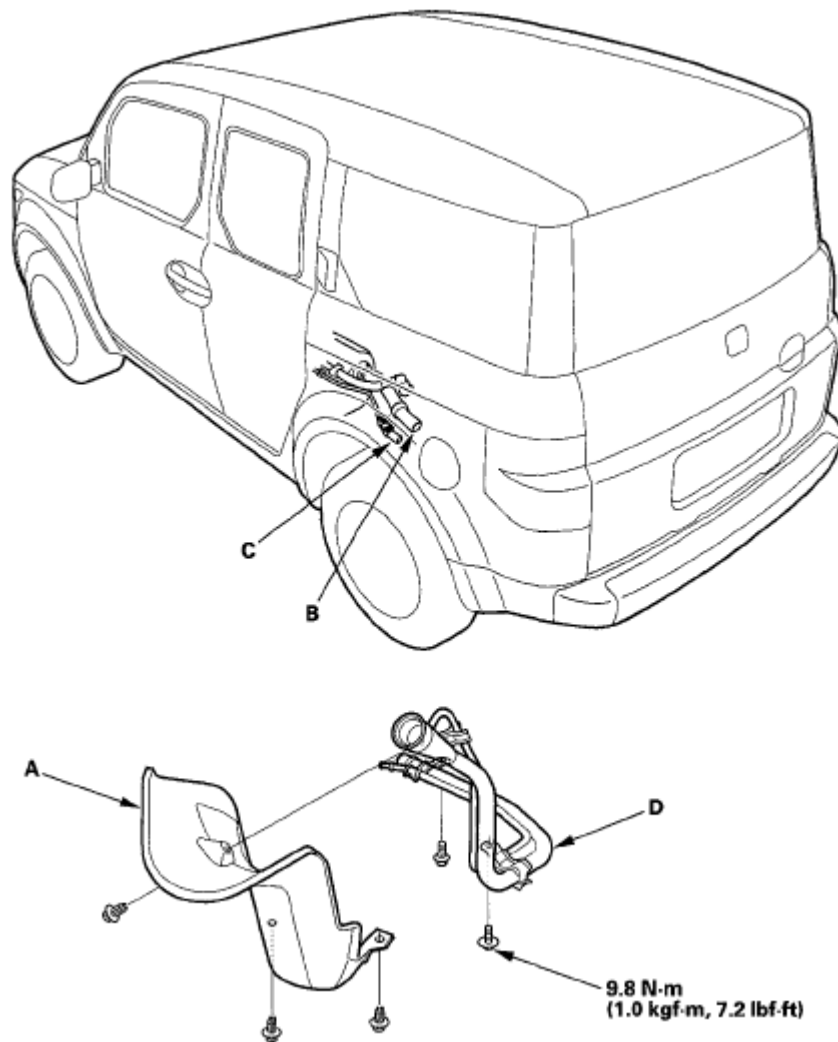


Fig. 57: Identifying Fuel Fill Pipe And Parts With Torque Specification
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Disconnect the fuel fill tube (B) and the fuel vapor hose (C).
5. Remove the fuel fill pipe (D).
6. Install the parts in the reverse order of removal.

FUEL GAUGE SENDING UNIT TEST

NOTE: For the fuel gauge system circuit diagram, refer to the Gauges Circuit Diagram (see CIRCUIT DIAGRAM).

1. Check the No. 10 METER (7.5 A) fuse in the under-dash fuse/relay box before testing.
2. Check for body electrical system DTCs (see SELF-DIAGNOSTIC FUNCTION).
 - If no problem is found, go to step 3.

- If DTC B1175 (see **DTC B1175: FUEL LEVEL SENSOR (FUEL GAUGE SENDING UNIT) CIRCUIT OPEN**) or B1176 (see **DTC B1176: FUEL LEVEL SENSOR (FUEL GAUGE SENDING UNIT) CIRCUIT SHORT**) is indicated, go to the indicated DTC's troubleshooting.
3. Turn the ignition switch OFF.
 4. Remove the center console (see **CENTER CONSOLE REMOVAL/INSTALLATION**).
 5. Fold back the floor mat until the access panel is accessible. Remove the access panel (A) from the floor.

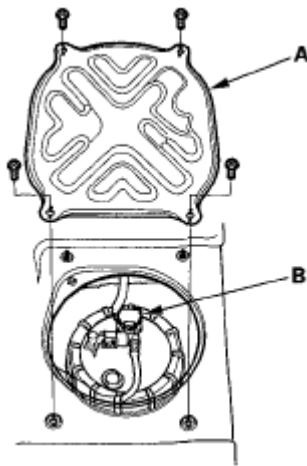
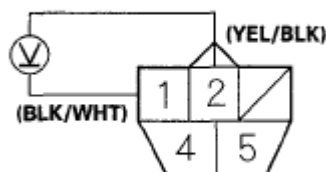


Fig. 58: Identifying Access Panel And Fuel Tank Unit 5P Connector
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. Disconnect the fuel tank unit 5P connector (B).
7. Measure voltage between fuel tank unit 5P connector terminals No. 1 and No. 2 with the ignition switch ON (II). There should be battery voltage.
 - If the voltage is OK, go to step 8.
 - If the voltage is not as specified, check for:
 - a short in the YEL/BLK wire to ground.
 - an open in the YEL/BLK or BLK/WHT wire.

FUEL TANK UNIT 5P CONNECTOR



Wire side of female terminals

Fig. 59: Measuring Voltage Between Fuel Tank Unit 5P Connector Terminals No. 1 And No. 2

Courtesy of AMERICAN HONDA MOTOR CO., INC.

8. Turn the ignition switch OFF.
9. Remove the fuel tank unit from the fuel tank (see **FUEL TANK UNIT REMOVAL/INSTALLATION**).
10. Measure resistance between fuel tank unit 5P connector terminals No. 1 and No. 2 with the float at E (EMPTY), LOW (LOW FUEL INDICATOR), 1/2 (HALF FULL), and F (FULL) positions.

If you do not get the following readings, replace the fuel gauge sending unit (see **FUEL PUMP/FUEL GAUGE SENDING UNIT REPLACEMENT**).

FLOAT POSITION RESISTANCE REFERENCE

Float Position	F 5.8 in. (148.4 mm)	1/2 3.2 in. (80.4 mm)	LOW 1.2 in. (30.4 mm)	E 0.5 in. (13.7 mm)
Resistance (ohms)	19 to 21	233.1 to 243.1	528.9 to 692.6	770 to 790

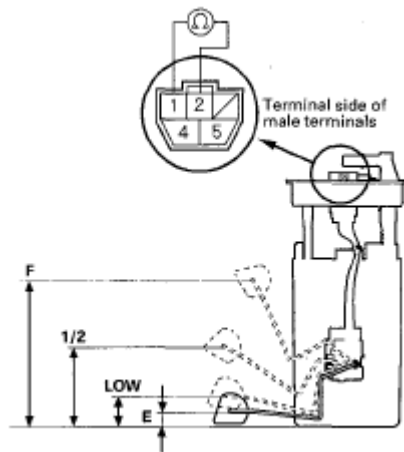


Fig. 60: Measuring Resistance Between Fuel Tank Unit 5P Connector Terminals No. 1 And No. 2
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

11. Reconnect the fuel tank unit 5P connector.
12. Remove the No. 9 BACK UP (10 A) fuse from the under-hood fuse/relay box for at least 10 seconds, then reinstall it.
13. Turn the ignition switch ON (II).
14. Check that the pointer of the fuel gauge indicates "F" with the float at F.
 - If the pointer of the fuel gauge does not indicate "F", replace the gauge assembly.
 - If the gauge is OK, the test is complete.

NOTE:

- The pointer of the fuel gauge returns to the bottom of the gauge dial when the ignition switch is OFF, regardless of the fuel level.

- **Remove the No. 9 BACK UP (10 A) fuse from the under-hood fuse/relay box for at least 10 seconds after completing troubleshooting, otherwise it may take up to 20 minutes for the fuel gauge to indicate the correct fuel level.**

LOW FUEL INDICATOR TEST

1. Do the gauge self-diagnostic test (see **SELF-DIAGNOSTIC FUNCTION**).
 - If the low fuel indicator flashes, go to step 2.
 - If the low fuel indicator does not flash, replace the gauge control module (see **REWRITING THE ODO DATA AND TRANSFERRING MAINTENANCE MINDER ON A NEW GAUGE CONTROL MODULE**).
2. Check for body electrical system DTCs.
 - If any DTCs are indicated, do the indicated DTC's troubleshooting.
 - If no DTCs are indicated, go to step 3.
3. Do the fuel gauge sending unit test (see **FUEL GAUGE SENDING UNIT TEST**).