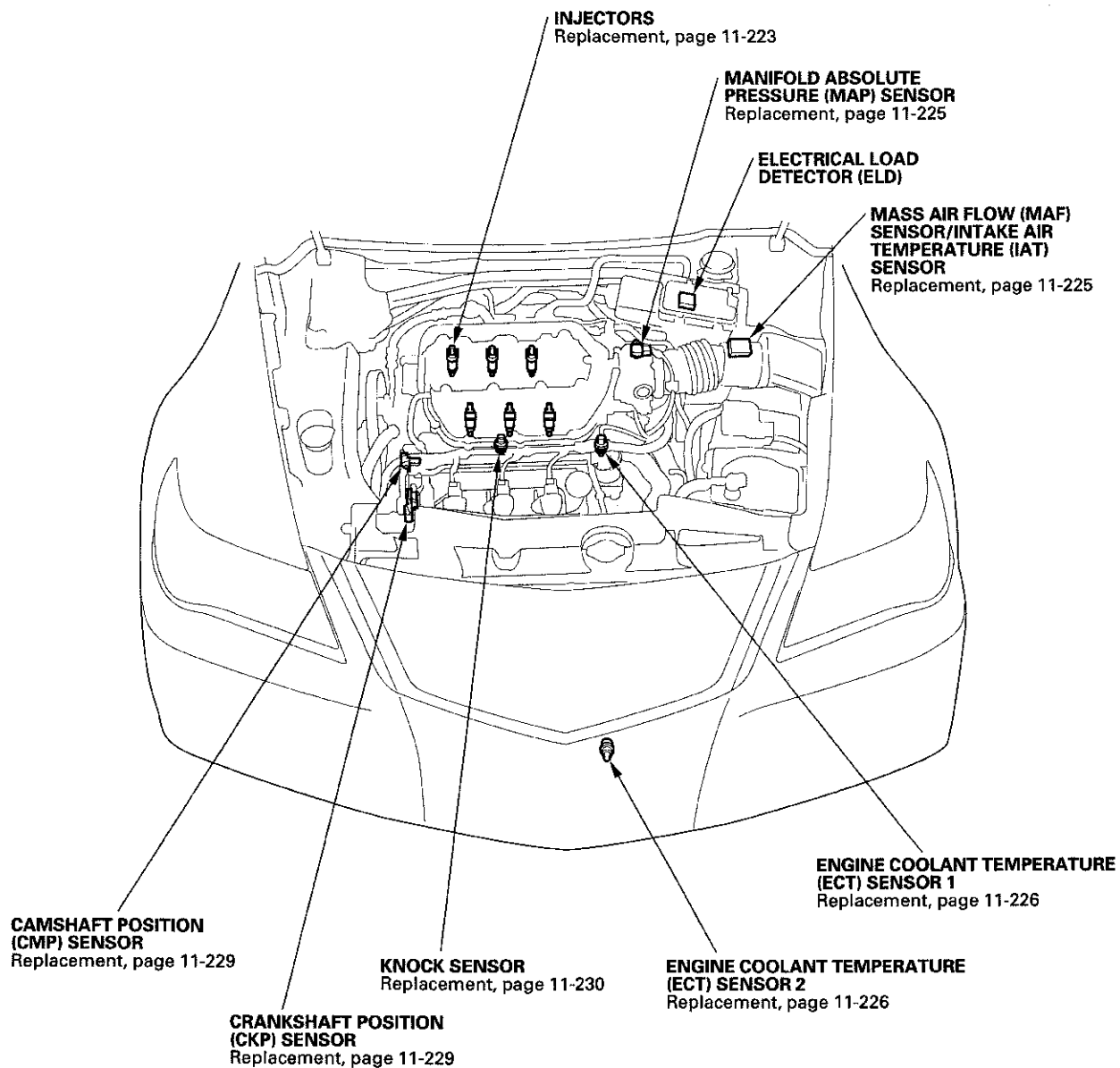
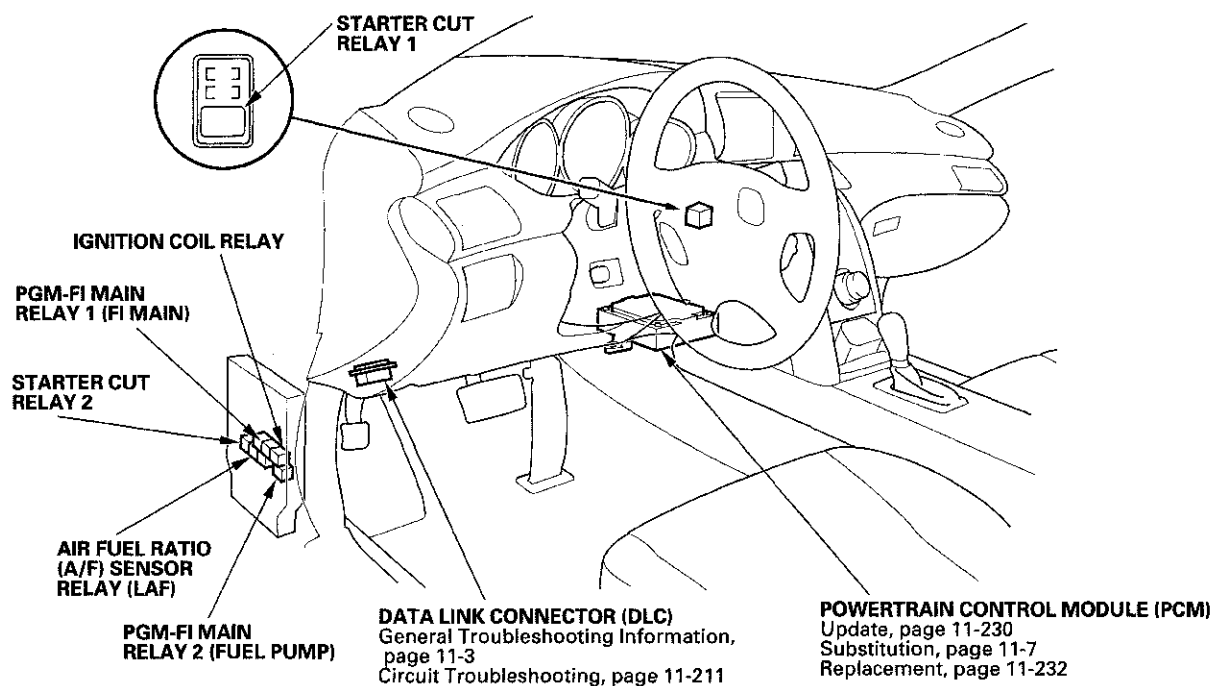
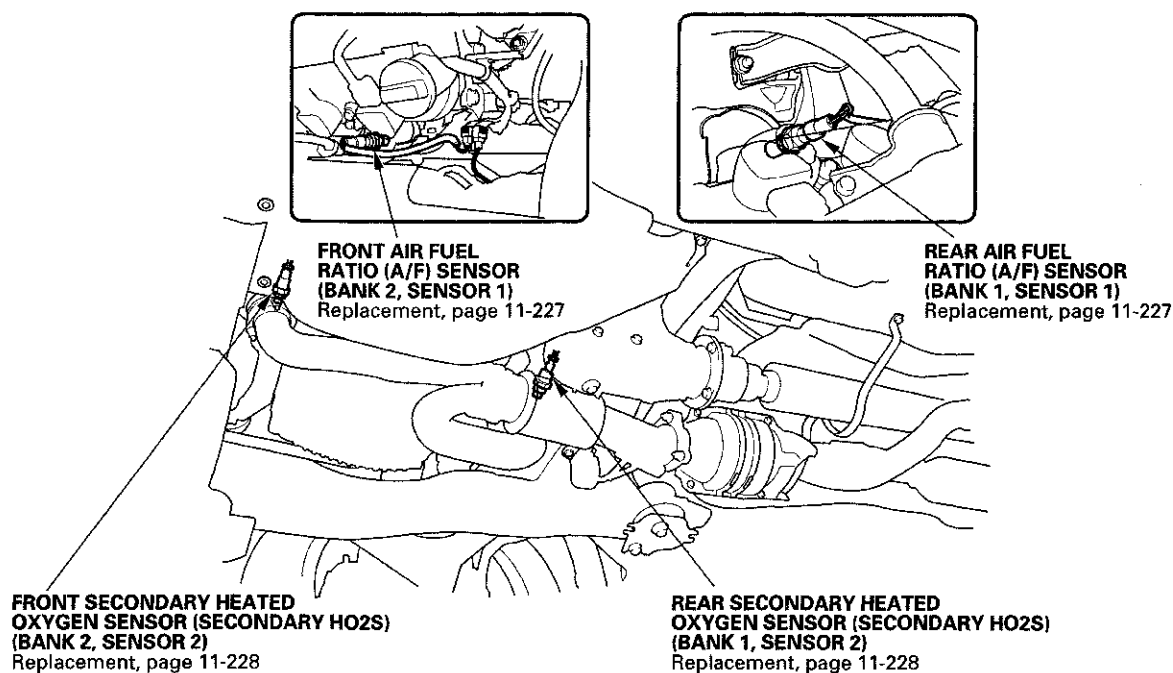


PGM-FI System

Component Location Index





PGM-FI System

DTC Troubleshooting

DTC P0101: MAF Sensor Circuit Range/Performance Problem

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If DTC P1128, P1129, P2228, and/or P2229 are stored at the same time as DTC P0101, troubleshoot those DTCs first, then recheck for DTC P0101.

1. Check for poor connections or damage to these parts:

- PCV hose
- Intake air duct
- Air cleaner
- Purge (PCS) line
- Brake booster
- Brake booster hose

Are the parts OK?

YES—Go to step 2.

NO—Repair or replace the damaged part(s), then go to step 15.

2. Check for damage or looseness at the air duct in the air cleaner.

Is it OK?

YES—Go to step 3.

NO—Reconnect or replace the air duct in the air cleaner, then go to step 15.

3. Check for a dirty air cleaner element.

Is it dirty?

YES—Replace the air cleaner element (see page 11-367), then go to step 15.

NO—Go to step 4.

4. Turn the ignition switch to LOCK (0).

5. Turn the ignition switch to ON (II).

6. Check the MAF SENSOR in the DATA LIST with the HDS.

Is there about 0.2 gm/s or 0.5 V?

YES—Go to step 7.

NO—Go to step 13.

7. Start the engine.

8. Vary the engine speed is between 2,000 rpm and 3,000 rpm.

9. Check the MAF SENSOR in the DATA LIST with the HDS.

Does the reading change?

YES—Go to step 10.

NO—Go to step 13.

10. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle.

11. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

- ENGINE SPEED
- VSS
- MAP SENSOR
- MAF SENSOR

12. Monitor the OBD STATUS for DTC P0101 in the DTCs MENU with the HDS.

Does the screen indicate FAILED?

YES—Go to step 13.

NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the PCM. If the screen indicates NOT COMPLETED, go to step 11 and recheck.



13. Turn the ignition switch to LOCK (0).
14. Replace the MAF sensor/IAT sensor (see page 11-225).
15. Turn the ignition switch to ON (II).
16. Reset the PCM with the HDS.
17. Do the PCM idle learn procedure (see page 11-313).
18. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
 - ENGINE SPEED
 - VSS
 - MAP SENSOR
 - MAF SENSOR
19. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0101 indicated?

YES—Check for poor connections or loose terminals at the MAF sensor and the PCM, then go to step 1.

NO—Go to step 20.
20. Monitor the OBD STATUS for DTC P0101 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 19, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the MAF sensor/IAT sensor and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, go to step 18.

DTC P0102: MAF Sensor Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II), and wait 2 seconds.
2. Check the MAF SENSOR in the DATA LIST with the HDS.

Is about 0 gm/s, or 0.1 V or less indicated?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the PCM. ■

3. Check the No. 20 IGN SOL (15 A) fuse in the under-dash fuse/relay box.

Is the fuse OK?

YES—Go to step 4.

NO—Repair short in the wire between the MAF sensor/IAT sensor or the PCM and the No. 20 IGN SOL (15 A) fuse. Also replace the No. 20 IGN SOL (15 A) fuse, then go to step 20.

4. Turn the ignition switch to LOCK (0).
5. Disconnect the MAF sensor/IAT sensor 5P connector.
6. Turn the ignition switch to ON (II).

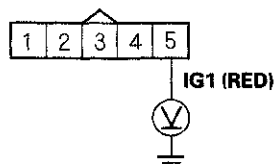
(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

7. Measure the voltage between MAF sensor/IAT sensor 5P connector terminal No. 5 and body ground.

MAF SENSOR/IAT SENSOR 5P CONNECTOR



Wire side of female terminals

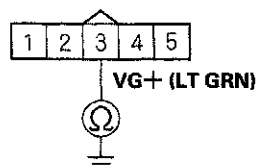
Is there battery voltage?

YES—Go to step 8.

NO—Repair open in the wire between the No. 20 IGN SOL (15 A) fuse and the MAF sensor/IAT sensor, then go to step 21.

8. Turn the ignition switch to LOCK (0).
9. Measure the resistance between MAF sensor/IAT sensor 5P connector terminal No. 3 and body ground.

MAF SENSOR/IAT SENSOR 5P CONNECTOR



Wire side of female terminals

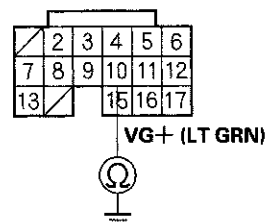
Is there 190–210 k Ω ?

YES—Go to step 15.

NO—Go to step 10.

10. Jump the SCS line with the HDS.
11. Disconnect PCM connector D (17P).
12. Check for continuity between PCM connector terminal D10 and body ground.

PCM CONNECTOR D (17P)



Wire side of female terminals

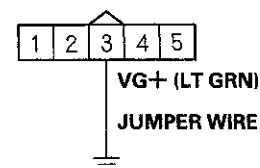
Is there continuity?

YES—Repair short in the wire between the PCM (D17) and the MAF sensor/IAT sensor, then go to step 22.

NO—Go to step 13.

13. Connect MAF sensor/IAT sensor 5P connector terminal No. 3 to body ground with a jumper wire.

MAF SENSOR/IAT SENSOR 5P CONNECTOR

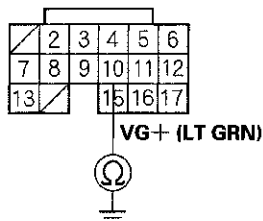


Wire side of female terminals



14. Check for continuity between PCM connector terminal D10 and body ground.

PCM CONNECTOR D (17P)



Wire side of female terminals

Is there continuity?

YES—Go to step 27.

NO—Repair open in the wire between the PCM (D17) and the MAF sensor/IAT sensor, then go to step 22.

15. Substitute a known-good MAF sensor/IAT sensor (see page 11-225).
16. Reconnect all connectors.
17. Turn the ignition switch to ON (II).
18. Clear the DTC with the HDS.
19. Start the engine. Hold the engine speed at 2,000 rpm without load (in P or N).
20. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0102 indicated?

YES—Reinstall the original MAF sensor/IAT sensor, and go to step 28.

NO—Replace the original MAF sensor/IAT sensor (see page 11-225), then go to step 21.

21. Turn the ignition switch to LOCK (0).
22. Reconnect all connectors.
23. Turn the ignition switch to ON (II).
24. Reset the PCM with the HDS.
25. Do the PCM idle learn procedure (see page 11-313).
26. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0102 indicated?

YES—Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

27. Reconnect all connectors.
28. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
29. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0102 indicated?

YES—Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

PGM-FI System

DTC Troubleshooting (cont'd)

DTC P0103: MAF Sensor Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II), and wait 2 seconds.
2. Check the MAF SENSOR in the DATA LIST with the HDS.

Is about 202 gm/s, or 4.89 V or more indicated?

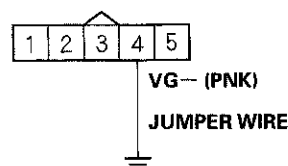
YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAF sensor and the PCM. ■

3. Turn the ignition switch to LOCK (0).
4. Jump the SCS line with the HDS.
5. Disconnect the MAF sensor/IAT sensor 5P connector.
6. Disconnect PCM connector D (17P).

7. Connect MAF sensor/IAT sensor 5P connector terminal No. 4 to body ground with a jumper wire.

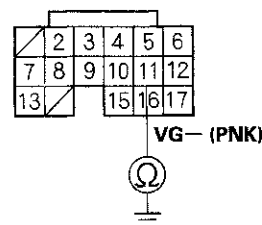
MAF SENSOR/IAT SENSOR 5P CONNECTOR



Wire side of female terminals

8. Check for continuity between PCM connector terminal D11 and body ground.

PCM CONNECTOR D (17P)



Wire side of female terminals

Is there continuity?

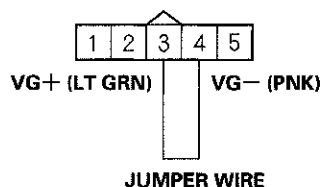
YES—Go to step 9.

NO—Repair open in the wire between the PCM (D11) and the MAF sensor/IAT sensor, then go to step 16.



9. Reconnect PCM connector D (17P).
10. Connect MAF sensor/IAT sensor 5P connector terminals No. 3 and No. 4 with a jumper wire.

MAF SENSOR/IAT SENSOR 5P CONNECTOR



Wire side of female terminals

11. Turn the ignition switch to ON (II).
12. Clear the DTC with the HDS.
13. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0103 indicated?

YES—Go to step 21.

NO—Go to step 14.

14. Turn the ignition switch to LOCK (0).
15. Replace the MAF sensor/IAT sensor (see page 11-225).
16. Reconnect all connectors.
17. Turn the ignition switch to ON (II).
18. Reset the PCM with the HDS.
19. Do the PCM idle learn procedure (see page 11-313).

20. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0103 indicated?

YES—Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

21. Turn the ignition switch to LOCK (0).
22. Reconnect all connectors.
23. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
24. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0103 indicated?

YES—Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

PGM-FI System

DTC Troubleshooting (cont'd)

DTC P0107: MAP Sensor Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Check the MAP SENSOR in the DATA LIST with the HDS.

Is about 3 kPa (1.0 in.Hg, 26 mmHg), or 0.23 V or less indicated?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAP sensor and the PCM. ■

3. Turn the ignition switch to LOCK (0).
4. Disconnect the MAP sensor 3P connector.
5. Turn the ignition switch to ON (II).
6. Check the MAP SENSOR in the DATA LIST with the HDS.

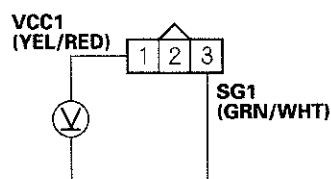
Is about 3 kPa (1.0 in.Hg, 26 mmHg), or 0.23 V or less indicated?

YES—Go to step 9.

NO—Go to step 7.

7. Measure the voltage between MAP sensor 3P connector terminals No. 1 and No. 3.

MAP SENSOR 3P CONNECTOR



Wire side of female terminals

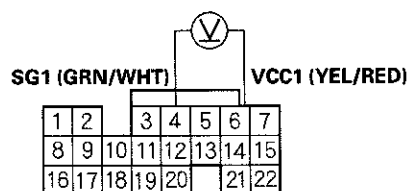
Is there about 5 V?

YES—Go to step 13.

NO—Go to step 8.

8. Measure the voltage between PCM connector terminals C4 and C6.

PCM CONNECTOR C (22P)



Wire side of female terminals

Is there about 5 V?

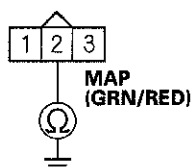
YES—Repair open in the wire between the PCM (C6) and the MAP sensor, then go to step 15.

NO—Go to step 20.



9. Turn the ignition switch to LOCK (0).
10. Jump the SCS line with the HDS.
11. Disconnect PCM connector C (22P).
12. Check for continuity between MAP sensor 3P connector terminal No. 2 and body ground.

MAP SENSOR 3P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (C5) and the MAP sensor, then go to step 15.

NO—Go to step 20.

13. Turn the ignition switch to LOCK (0).
14. Replace the MAP sensor (see page 11-225).
15. Reconnect all connectors.
16. Turn the ignition switch to ON (II).
17. Reset the PCM with the HDS.
18. Do the PCM idle learn procedure (see page 11-313).

19. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0107 indicated?

YES—Check for poor connections or loose terminals at the MAP sensor and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

20. Reconnect all connectors.
21. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
22. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0107 indicated?

YES—Check for poor connections or loose terminals at the MAP sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

PGM-FI System

DTC Troubleshooting (cont'd)

DTC P0108: MAP Sensor Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

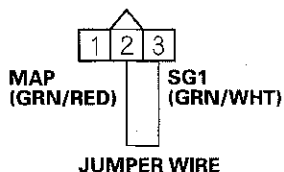
1. Turn the ignition switch to ON (II).
2. Check the MAP SENSOR in the DATA LIST with the HDS.

Is 160 kPa (47.1 in.Hg, 1,197 mmHg), or 4.49 V or more indicated?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAP sensor and the PCM. ■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the MAP sensor 3P connector.
5. Connect MAP sensor 3P connector terminals No. 2 and No. 3 with a jumper wire.

MAP SENSOR 3P CONNECTOR



Wire side of female terminals

6. Turn the ignition switch to ON (II).
7. Check the MAP SENSOR in the DATA LIST with the HDS.

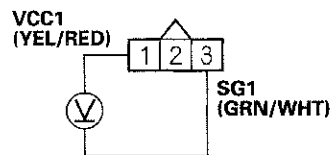
Is 160 kPa (47.1 in.Hg, 1,197 mmHg), or 4.49 V or more indicated?

YES—Go to step 8.

NO—Go to step 19.

8. Remove the jumper wire from the MAP sensor 3P connector.
9. Measure the voltage between MAP sensor 3P connector terminals No. 1 and No. 3.

MAP SENSOR 3P CONNECTOR



Wire side of female terminals

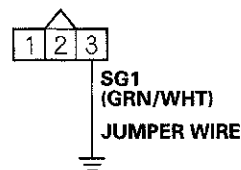
Is there about 5 V?

YES—Go to step 15.

NO—Go to step 10.

10. Turn the ignition switch to LOCK (0).
11. Jump the SCS line with the HDS.
12. Disconnect PCM connector C (22P).
13. Connect MAP sensor 3P connector terminal No. 3 to body ground with a jumper wire.

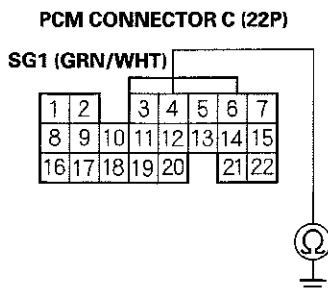
MAP SENSOR 3P CONNECTOR



Wire side of female terminals



14. Check for continuity between PCM connector terminal C4 and body ground.



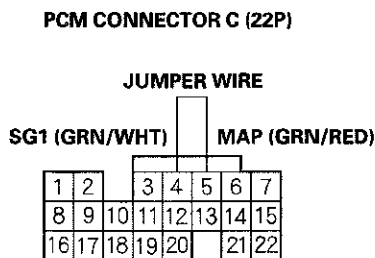
Wire side of female terminals

Is there continuity?

YES—Go to step 26.

NO—Repair open in the wire between the PCM (C4) and the MAP sensor, then go to step 21.

15. Turn the ignition switch to LOCK (0).
16. Connect PCM connector terminals C4 and C5 with a jumper wire.



Wire side of female terminals

17. Turn the ignition switch to ON (II).
18. Check the MAP SENSOR in the DATA LIST with the HDS.

Is 160 kPa (47.1 in.Hg, 1,197 mmHg), or 4.49 V or more indicated?

YES—Go to step 26.

NO—Repair open in the wire between the PCM (C5) and the MAP sensor, then go to step 21.

19. Turn the ignition switch to LOCK (0).
20. Replace the MAP sensor (see page 11-225).
21. Reconnect all connectors.
22. Turn the ignition switch to ON (II).
23. Reset the PCM with the HDS.
24. Do the PCM idle learn procedure (see page 11-313).
25. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0108 indicated?

YES—Check for poor connections or loose terminals at the MAP sensor and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

26. Reconnect all connectors.
27. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
28. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0108 indicated?

YES—Check for poor connections or loose terminals at the MAP sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

PGM-FI System

DTC Troubleshooting (cont'd)

DTC P0111: IAT Sensor Circuit Range/Performance Problem

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Check for poor connections or loose terminals at ECT sensors 1 and 2, and the MAF sensor/IAT sensor.

Are the connections and terminals OK?

YES—Go to step 2.

NO—Repair the connections or terminals, then go to step 15.

2. Remove the MAF sensor/IAT sensor (see page 11-225).
3. Allow the IAT sensor to cool to the ambient temperature.
4. Note the ambient temperature.
5. Connect the MAF sensor/IAT sensor to its 5P connector, but do not install it.
6. Turn the ignition switch to ON (II).
7. Note the value of the IAT SENSOR quickly in the DATA LIST with the HDS.
8. Compare the value of the IAT SENSOR to the ambient temperature.

Does the value of the IAT SENSOR differ 5.4 °F (3 °C) or more from the ambient temperature?

YES—Go to step 13.

NO—Go to step 9.

9. Disconnect the MAF sensor/IAT sensor from its 5P connector.

10. Using a heat gun, blow hot air on the MAF sensor/IAT sensor for a few seconds. Do not apply the heat longer than a few seconds or you will damage the sensor.

11. Connect the MAF sensor/IAT sensor to its 5P connector, but do not install it.

12. Check the IAT SENSOR in the DATA LIST with the HDS.

Does the IAT SENSOR change 58 °F (32 °C) or more from the ambient temperature?

YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the PCM. ■

NO—Go to step 13.

13. Turn the ignition switch to LOCK (0).
14. Replace the MAF sensor/IAT sensor (see page 11-225).
15. Turn the ignition switch to ON (II).
16. Reset the PCM with the HDS.
17. Do the PCM idle learn procedure (see page 11-313).
18. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0111 indicated?

YES—Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■



DTC P0112: IAT Sensor Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Check the IAT SENSOR in the DATA LIST with the HDS.

Is about 356 °F (180 °C) or more, or 0.08 V or less indicated?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the PCM. ■

3. Turn the ignition switch to LOCK (0).
4. Disconnect the MAF sensor/IAT sensor 5P connector.
5. Turn the ignition switch to ON (II).
6. Check the IAT SENSOR in the DATA LIST with the HDS.

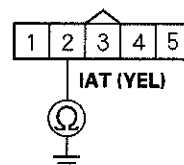
Is about 356 °F (180 °C) or more, or 0.08 V or less indicated?

YES—Go to step 7.

NO—Go to step 11.
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect PCM connector A (31P).

10. Check for continuity between MAF sensor/IAT sensor 5P connector terminal No. 2 and body ground.

MAF SENSOR/IAT SENSOR 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the MAF sensor/IAT sensor and the PCM (A5), then go to step 13.

NO—Go to step 18.

11. Turn the ignition switch to LOCK (0).
12. Replace the MAF sensor/IAT sensor (see page 11-225).
13. Reconnect all connectors.
14. Turn the ignition switch to ON (II).
15. Reset the PCM with the HDS.
16. Do the PCM idle learn procedure (see page 11-313).
17. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0112 indicated?

YES—Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

18. Reconnect all connectors.
19. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
20. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0112 indicated?

YES—Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0113: IAT Sensor Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Check the IAT SENSOR in the DATA LIST with the HDS.

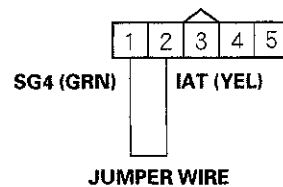
Is about -40°F (-40°C) or less, or 4.92 V or more indicated?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the PCM. ■

3. Turn the ignition switch to LOCK (0).
4. Disconnect the MAF sensor/IAT sensor 5P connector.
5. Connect MAF sensor/IAT sensor 5P connector terminals No. 1 and No. 2 with a jumper wire.

MAF SENSOR/IAT SENSOR 5P CONNECTOR



Wire side of female terminals

6. Turn the ignition switch to ON (II).
7. Check the IAT SENSOR in the DATA LIST with the HDS.

Is about -40°F (-40°C) or less, or 4.92 V or more indicated?

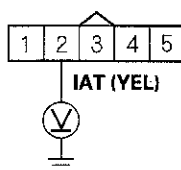
YES—Go to step 8.

NO—Go to step 18.



8. Turn the ignition switch to LOCK (0).
9. Remove the jumper wire from the MAF sensor/IAT sensor 5P connector.
10. Turn the ignition switch to ON (II).
11. Measure the voltage between MAF sensor/IAT sensor 5P connector terminal No. 2 and body ground.

MAF SENSOR/IAT SENSOR 5P CONNECTOR



Wire side of female terminals

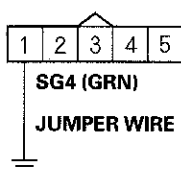
Is there about 5 V?

YES—Go to step 12.

NO—Go to step 17.

12. Turn the ignition switch to LOCK (0).
13. Jump the SCS line with the HDS.
14. Disconnect PCM connector E (31P).
15. Connect MAF sensor/IAT sensor 5P connector terminal No. 1 to body ground with a jumper wire.

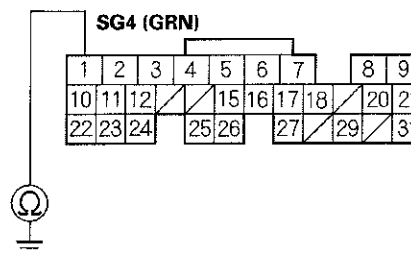
MAF SENSOR/IAT SENSOR 5P CONNECTOR



Wire side of female terminals

16. Check for continuity between PCM connector terminal E1 and body ground.

PCM CONNECTOR E (31P)



Wire side of female terminals

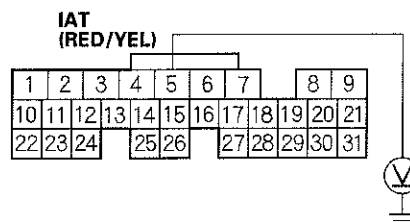
Is there continuity?

YES—Go to step 25.

NO—Repair open in the wire between the PCM (E1) and the MAF sensor/IAT sensor, then go to step 20.

17. Measure the voltage between PCM connector terminal A5 and body ground.

PCM CONNECTOR A (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the PCM (A5) and the MAF sensor/IAT sensor, then go to step 20.

NO—Go to step 25.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

18. Turn the ignition switch to LOCK (0).
19. Replace the MAF sensor/IAT sensor (see page 11-225).
20. Reconnect all connectors.
21. Turn the ignition switch to ON (II).
22. Reset the PCM with the HDS.
23. Do the PCM idle learn procedure (see page 11-313).
24. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0113 indicated?

YES—Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

25. Reconnect all connectors.
26. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
27. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0113 indicated?

YES—Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0116: ECT Sensor 1 Circuit Range/Performance Problem

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (III).
2. Check ECT SENSOR 1 in the DATA LIST with the HDS.

Is about 176 °F (80 °C) or higher, or 0.78 V or less indicated?

YES—Go to step 6.

NO—Go to step 3.

3. Note the value of ECT SENSOR 1 in the DATA LIST with the HDS.
4. Start the engine. Hold the engine speed at 3,000 rpm without load (P or N) until the radiator fan comes on, then let it idle.
5. Check ECT SENSOR 1 in the DATA LIST with the HDS.

Does ECT SENSOR 1 change 18 °F (10 °C) or more?

YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1 and the PCM. ■

NO—Go to step 11.
6. Note the value of ECT SENSOR 1 in the DATA LIST with the HDS.
7. Turn the ignition switch to LOCK (0).
8. Open the hood, and let the engine cool for 3 hours.
9. Turn the ignition switch to ON (II).



10. Check ECT SENSOR 1 in the DATA LIST with the HDS.

Does ECT SENSOR 1 change 18 °F (10 °C) or more?

YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1 and the PCM. ■

NO—Go to step 11.

11. Turn the ignition switch to LOCK (0).
12. Replace ECT sensor 1 (see page 11-226).
13. Turn the ignition switch to ON (II).
14. Reset the PCM with the HDS.
15. Do the PCM idle learn procedure (see page 11-313).
16. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0116 indicated?

YES—Check for poor connections or loose terminals at ECT sensor 1 and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0117: ECT Sensor 1 Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Check ECT SENSOR 1 in the DATA LIST with the HDS.

Is about 356 °F (180 °C) or more, or 0.08 V or less indicated?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1 and the PCM. ■

3. Turn the ignition switch to LOCK (0).
4. Disconnect the ECT sensor 1 2P connector.
5. Turn the ignition switch to ON (II).
6. Check ECT SENSOR 1 in the DATA LIST with the HDS.

Is about 356 °F (180 °C) or more, or 0.08 V or less indicated?

YES—Go to step 7.

NO—Go to step 11.

7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect PCM connector C (49P).

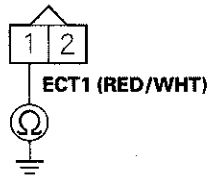
(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

10. Check for continuity between ECT sensor 1 2P connector terminal No. 1 and body ground.

ECT SENSOR 1 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between ECT sensor 1 and the PCM (A14), then go to step 13.

NO—Go to step 18.

11. Turn the ignition switch to LOCK (0).
12. Replace ECT sensor 1 (see page 11-226).
13. Reconnect all connectors.
14. Turn the ignition switch to ON (II).
15. Reset the PCM with the HDS.
16. Do the PCM idle learn procedure (see page 11-313).

17. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0117 indicated?

YES—Check for poor connections or loose terminals at ECT sensor 1 and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

18. Reconnect all connectors.

19. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).

20. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0117 indicated?

YES—Check for poor connections or loose terminals at ECT sensor 1 and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■



DTC P0118: ECT Sensor 1 Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Check ECT SENSOR 1 in the DATA LIST with the HDS.

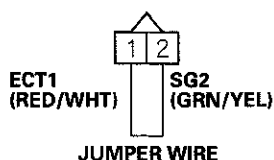
Is about -40°F (-40°C) or less, or 4.90 V or more indicated?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1 and the PCM. ■

3. Turn the ignition switch to LOCK (0).
4. Disconnect the ECT sensor 1 2P connector.
5. Connect ECT sensor 1 2P connector terminals No. 1 and No. 2 with a jumper wire.

ECT SENSOR 1 2P CONNECTOR



Wire side of female terminals

6. Turn the ignition switch to ON (II).
7. Check ECT SENSOR 1 in the DATA LIST with the HDS.

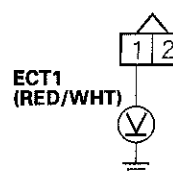
Is about -40°F (-40°C) or less, or 4.90 V or more indicated?

YES—Go to step 8.

NO—Go to step 18.

8. Turn the ignition switch to LOCK (0).
9. Remove the jumper wire from ECT sensor 1 2P connector.
10. Turn the ignition switch to ON (II).
11. Measure the voltage between ECT sensor 1 2P connector terminal No. 1 and body ground.

ECT SENSOR 1 2P CONNECTOR



Wire side of female terminals

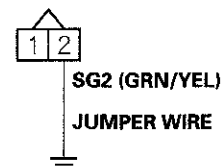
Is there about 5 V?

YES—Go to step 12.

NO—Go to step 17.

12. Turn the ignition switch to LOCK (0).
13. Jump the SCS line with the HDS.
14. Disconnect PCM connector C (22P).
15. Connect ECT sensor 1 2P connector terminal No. 2 to body ground with a jumper wire.

ECT SENSOR 1 2P CONNECTOR



Wire side of female terminals

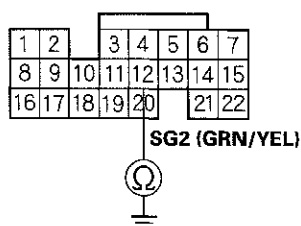
(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

16. Check for continuity between PCM connector terminal C12 and body ground.

PCM CONNECTOR C (22P)



Wire side of female terminals

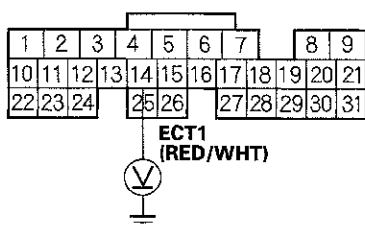
Is there continuity?

YES—Go to step 25.

NO—Repair open in the wire between the PCM (C12) and ECT sensor 1, then go to step 20.

17. Measure the voltage between PCM connector terminal A14 and body ground.

PCM CONNECTOR A (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the PCM (A14) and ECT sensor 1, then go to step 20.

NO—Go to step 25.

18. Turn the ignition switch to LOCK (0).
19. Replace ECT sensor 1 (see page 11-226).
20. Reconnect all connectors.
21. Turn the ignition switch to ON (II).
22. Reset the PCM with the HDS.
23. Do the PCM idle learn procedure (see page 11-313).
24. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0118 indicated?

YES—Check for poor connections or loose terminals at ECT sensor 1 and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

25. Reconnect all connectors.
26. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
27. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0118 indicated?

YES—Check for poor connections or loose terminals at ECT sensor 1 and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■



DTC P0125: ECT Sensor 1 Malfunction/Slow Response

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Start the engine, and let it idle for 5 minutes or more.
2. Check ECT SENSOR 1 in the DATA LIST with the HDS.

Is about 10 °F (–12 °C) or less indicated?

YES—Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the PCM. If the connections and the terminals are OK, replace ECT sensor 1 (see page 11-226), then go to step 8.

NO—Go to step 3.

3. Turn the ignition switch to LOCK (0).
4. Allow the engine to cool to 104 °F (40 °C) or less.
5. Make sure the temperature difference between ECT SENSOR 1 and ECT SENSOR 2 is about 50 °F (10 °C) in the DATA LIST with the HDS.
6. Start the engine, and let it idle until ECT SENSOR 1 goes up to about 158 °F (70 °C).

Does ECT sensor 2 also read about 158 °F (70 °C)?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the PCM. ■

7. Check the thermostat (see page 10-4).

Is the thermostat OK?

YES—Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the PCM. If the connections and the terminals are OK, replace ECT sensor 1 (see page 11-226), then go to step 8.

NO—Replace the thermostat (see page 10-8), then go to step 8.

8. Turn the ignition switch to ON (II).
9. Reset the PCM with the HDS.
10. Turn the ignition switch to LOCK (0).
11. Allow the engine to cool to 104 °F (40 °C) or less.
12. Make sure the temperature difference between ECT SENSOR 1 and ECT SENSOR 2 is about 50 °F (10 °C) in the DATA LIST with the HDS.
13. Start the engine, and let it idle until ECT SENSOR 1 goes up to about 158 °F (70 °C).

Does ECT sensor 2 also read about 158 °F (70 °C)?

YES—Go to step 1 and recheck.

NO—Troubleshooting is complete. ■

PGM-FI System

DTC Troubleshooting (cont'd)

DTC P0128: Cooling System Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Make sure the blower switch is off.
4. Check the FAN CTRL in the DATA LIST with the HDS.

Is it OFF?

YES—Go to step 5.

NO—Wait until the FAN CTRL is off, then go to step 5.

5. Check the radiator fan operation.

Does the radiator fan keep running?

YES—Check the cooling system (see page 10-2). If the cooling system is OK, go to step 19.

NO—Go to step 6.

6. Let the engine cool until the coolant temperature is 104 °F (40 °C) or less.
7. Note the value of ECT SENSOR 1 and ECT SENSOR 2 in the DATA LIST with the HDS.
8. Start the engine, and let it idle.
9. Let the engine idle until ECT SENSOR 1 goes up 49 °F (27 °C) or more from the recorded temperature.
10. Check ECT SENSOR 2 in the DATA LIST with the HDS.

11. Compare the recorded value of ECT SENSOR 2 and the present value of ECT SENSOR 2.

Did temperature rise 17 °F (9.5 °C) or more?

YES—Test the thermostat (see page 10-4), then go to step 12.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the PCM. ■

12. Turn the ignition switch to ON (II).
13. Reset the PCM with the HDS.
14. Let the engine cool until the coolant temperature is between 21 °F (−6 °C) and 104 °F (40 °C).
15. Do the PCM idle learn procedure (see page 11-313).
16. Test-drive at a steady speed between 15—75 mph (24—120 km/h) for 10 minutes.
17. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0128 indicated?

YES—Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the PCM, then go to step 1.

NO—Go to step 18.

18. Monitor the OBD STATUS for DTC P0128 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 17, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, go to step 14.



19. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
20. Let the engine cool until the coolant temperature is between 21 °F (−6 °C) and 104 °F (40 °C).
21. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle.
22. Test-drive at a steady speed between 15–75 mph (24–120 km/h) for 10 minutes.
23. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0128 indicated?

YES—Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then go to step 20. If the PCM was substituted, go to step 1.

NO—Go to step 24.

24. Monitor the OBD STATUS for DTC P0128 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs were indicated in step 23, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then go to step 20. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, go to step 20.

DTC P0133: Rear A/F Sensor (Bank 1, Sensor 1) Malfunction/Slow Response

DTC P0153: Front A/F Sensor (Bank 2, Sensor 1) Malfunction/Slow Response

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If DTC P0139 and/or P0159* is stored at the same time as DTC P0133 and/or P0153*, troubleshoot DTC P0139 and/or P0159* first, then recheck for DTC P0133 and/or P0153*.
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle.
4. Test-drive under these conditions:
 - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
 - Transmission in D
 - Drive the vehicle at 25 mph (40 km/h) or less for 5 minutes, then drive at a steady speed of 32 mph (52 km/h) or more and engine speed between 1,250–2,200 rpm
5. Monitor the OBD STATUS for DTC P0133 and/or P0153* in the DTCs MENU with the HDS.

Does the screen indicate FAILED?

YES—Go to step 6.

NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 3 and recheck.

6. Turn the ignition switch to LOCK (0).
7. Replace the A/F sensor (Sensor 1) (see page 11-227).

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

8. Turn the ignition switch to ON (II).
9. Reset the PCM with the HDS.
10. Do the PCM idle learn procedure (see page 11-313).
11. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle.
12. Test-drive under these conditions:
 - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
 - Transmission in D
 - Drive the vehicle at 25 mph (40 km/h) or less for 5 minutes, then drive at a steady speed of 32 mph (52 km/h) or more and engine speed between 1,250—2,200 rpm
13. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0133 and/or P0153 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1.

NO—Go to step 14.
14. Monitor the OBD STATUS for DTC P0133 and/or P0153* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 13, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 11.

DTC P0134: Rear A/F Sensor (Bank 1, Sensor 1) Heater System Malfunction

DTC P0154: Front A/F Sensor (Bank 2, Sensor 1) Heater System Malfunction

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If DTC P2251 and/or P2254* is stored at the same time as DTC P0134 and/or P0154*, troubleshoot DTC P2251 and/or P2254* first, then recheck for P0134 and/or P0154*.
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle without load (in P or N) for at least 1 minute.
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0134 and/or P0154 indicated?*

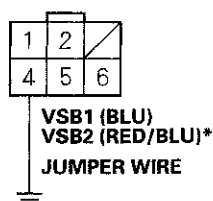
YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1), the A/F sensor relay (LAF), and the PCM. ■
5. Turn the ignition switch to LOCK (0).
6. Jump the SCS line with the HDS.
7. Disconnect the A/F sensor (Sensor 1) 6P connector.
8. Disconnect PCM connector B (24P).



9. Connect A/F sensor (Sensor 1) 6P connector terminal No. 4 to body ground with a jumper wire.

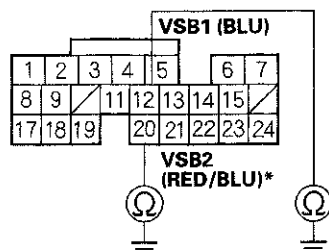
A/F SENSOR (SENSOR 1) 6P CONNECTOR



Wire side of female terminals

10. Check for continuity between PCM connector terminal B12 (B20)* and body ground.

PCM CONNECTOR B (24P)



Wire side of female terminals

Is there continuity?

YES—Go to step 11.

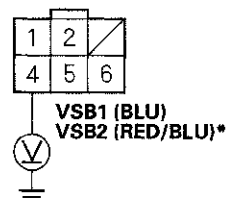
NO—Repair open in the wire between the PCM (B12 (B20)*) and the A/F sensor (Sensor 1), then go to step 15.

11. Reconnect PCM connector B (24P).

12. Start the engine, and let it idle without load (in P or N) for at least 1 minute.

13. Measure the voltage between A/F sensor (Sensor 1) 6P connector terminal No. 4 and body ground.

A/F SENSOR (SENSOR 1) 6P CONNECTOR



Wire side of female terminals

Is there about 0.2 V or less?

YES—Go to step 21.

NO—Go to step 14.

14. Replace the A/F sensor (Sensor 1) (see page 11-227).

15. Reconnect all connectors.

16. Turn the ignition switch to ON (II).

17. Reset the PCM with the HDS.

18. Do the PCM idle learn procedure (see page 11-313).

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

19. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0134 and/or P0154 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1), the and the PCM, then go to step 1.

NO—Go to step 20.

20. Monitor the OBD STATUS for DTC P0134 and/or P0154* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 19, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1), the A/F sensor relay (LAF), and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

21. Turn the ignition switch to LOCK (0).

22. Reconnect all connectors.

23. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).

24. Start the engine, and let it idle without load (in P or N) for at least 1 minute.

25. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0134 and/or P0154 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1), the A/F sensor relay (LAF), and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then go to step 24. If the PCM was substituted, go to step 1.

NO—Go to step 26.

26. Monitor the OBD STATUS for DTC P0134 and/or P0154* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs were indicated in step 25, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1), the A/F sensor relay (LAF), and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then go to step 24. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.



DTC P0135: Rear A/F Sensor (Bank 1, Sensor 1) Heater Circuit Malfunction

DTC P0155: Front A/F Sensor (Bank 2, Sensor 1) Heater Circuit Malfunction

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0135 and/or P0155 indicated?*

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1), the A/F sensor relay (LAF), and the PCM. ■

5. Turn the ignition switch to LOCK (0).
6. Check the No. 4 A/F SENSOR (15 A) fuse in the driver's under-dash fuse/relay box.

Is the fuse OK?

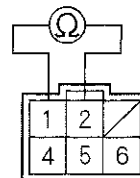
YES—Go to step 7.

NO—Repair short in the wire between the front A/F sensor, the rear A/F sensor, the front secondary HO2S, the rear secondary HO2S, the EVAP canister vent shut valve, the A/F sensor relay, and the fuse, then replace the blown fuse, and go to step 24.

7. Disconnect the A/F sensor (Sensor 1) 6P connector.

8. At the sensor side, measure the resistance between A/F sensor (Sensor 1) 6P connector terminals No. 1 and No. 2.

A/F SENSOR (SENSOR 1) 6P CONNECTOR



Terminal side of male terminals

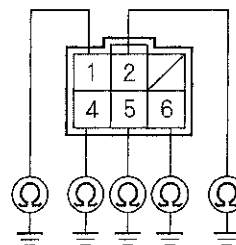
Is there 2.5–2.9 Ω at room temperature?

YES—Go to step 9.

NO—Go to step 22.

9. At the sensor side, check for continuity between each terminal of the A/F sensor (Sensor 1) 6P connector and body ground.

A/F SENSOR (SENSOR 1) 6P CONNECTOR



Terminal side of male terminals

Is there continuity to ground at any of the terminals?

YES—Go to step 22.

NO—Go to step 10.

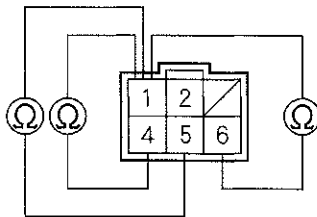
(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

10. At the sensor side, check for continuity between A/F sensor (Sensor 1) 6P connector terminals No. 1 and No. 4, No. 1 and No. 5, No. 1 and No. 6 individually.

A/F SENSOR (SENSOR 1) 6P CONNECTOR



Terminal side of male terminals

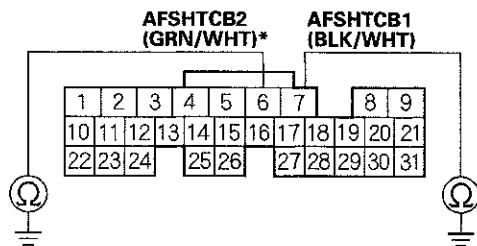
Is there continuity?

YES—Go to step 22.

NO—Go to step 11.

11. Jump the SCS line with the HDS.
12. Disconnect PCM connector A (31P).
13. Check for continuity between PCM connector terminal A7 (A6)* and body ground.

PCM CONNECTOR A (31P)



Wire side of female terminals

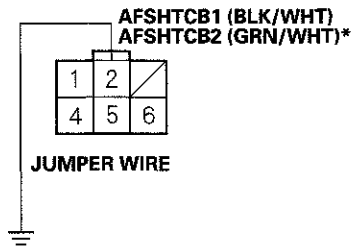
Is there continuity?

YES—Repair short in the wire between the PCM (A7 (A6)*) and the A/F sensor (Sensor 1), then go to step 23.

NO—Go to step 14.

14. Connect A/F sensor (Sensor 1) 6P connector terminal No. 2 to body ground with a jumper wire.

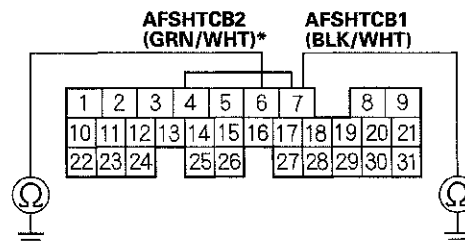
A/F SENSOR (SENSOR 1) 6P CONNECTOR



Wire side of female terminals

15. Check for continuity between PCM connector terminal A7 (A6)* and body ground.

PCM CONNECTOR A (31P)



Wire side of female terminals

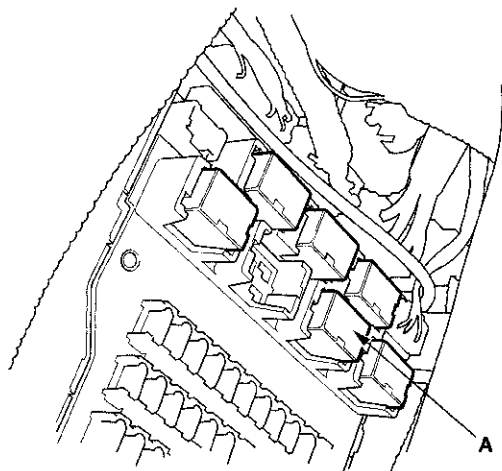
Is there continuity?

YES—Go to step 16.

NO—Repair open in the wire between the PCM (A7 (A6)*) and the A/F sensor (Sensor 1), then go to step 23.

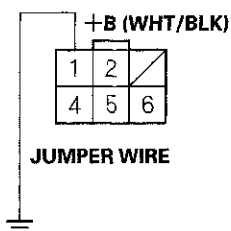


16. Remove the A/F sensor relay (LAF) (A) from the driver's under-dash fuse/relay box.



17. Connect A/F sensor (Sensor 1) 6P connector terminal No. 1 to body ground with a jumper wire.

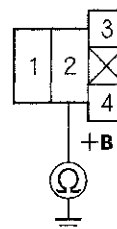
A/F SENSOR (SENSOR 1) 6P CONNECTOR



Wire side of female terminals

18. Check for continuity between A/F sensor relay (LAF) 4P connector terminal No. 2 and body ground.

A/F SENSOR RELAY (LAF) 4P CONNECTOR



Terminal side of female terminals

Is there continuity?

YES—Go to step 19.

NO—Repair open in the wire between the A/F sensor (Sensor 1) and the A/F sensor relay (LAF), then go to step 23.

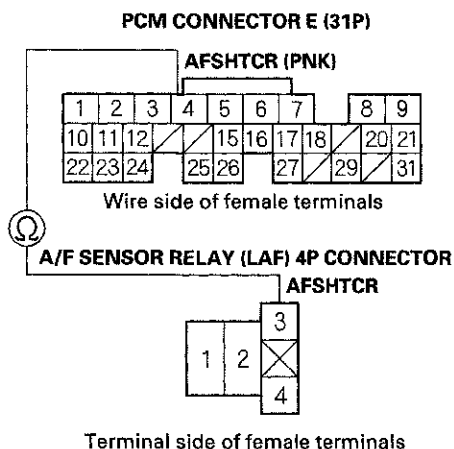
19. Disconnect PCM connector E (31P).

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

20. Check for continuity between PCM connector terminal E4 and A/F sensor relay (LAF) 4P connector terminal No. 3.



Is there continuity?

YES—Go to step 21.

NO—Repair open in the wire between the PCM (E4) and the A/F sensor relay (LAF), then go to step 23.

21. Test the A/F sensor relay (LAF) (see page 22-93).

Is the A/F sensor relay OK?

YES—Go to step 29.

NO—Replace the A/F sensor relay (LAF), then go to step 23.

22. Replace the A/F sensor (Sensor 1) (see page 11-227).

23. Reconnect all connectors.

24. Turn the ignition switch to ON (II).

25. Reset the PCM with the HDS.

26. Do the PCM idle learn procedure (see page 11-313).

27. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0135 and/or P0155 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1), the A/F sensor relay (LAF), the under-dash fuse/relay box, and the PCM, then go to step 1.

NO—Go to step 28.

28. Monitor the OBD STATUS for DTC P0135 and/or P0155* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 27, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1), the A/F sensor relay (LAF), the driver's under-dash fuse/relay box, and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.



29. Reconnect all connectors.

30. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).

31. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0135 and/or P0155 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1), the A/F sensor relay (LAF), the driver's under-dash fuse/relay box, and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 32.

32. Monitor the OBD STATUS for DTC P0135 and/or P0155* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs were indicated in step 31, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1), the A/F sensor relay (LAF), the driver's under-dash fuse/relay box, and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

DTC P0137: Rear Secondary HO2S (Bank 1, Sensor 2) Circuit Low Voltage

DTC P0157: Front Secondary HO2S (Bank 2, Sensor 2) Circuit Low Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle.
4. Check HO2S S2 in the DATA LIST with the HDS.

Does the voltage stay at 0.29 V or less?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at secondary HO2S (Sensor 2) and the PCM. ■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the secondary HO2S (Sensor 2) 4P connector.
7. Turn the ignition switch to ON (II).
8. Check HO2S S2 in the DATA LIST with the HDS.

Does the voltage stay at 0.29 V or less?

YES—Go to step 9.

NO—Go to step 13.

9. Turn the ignition switch to LOCK (0).
10. Jump the SCS line with the HDS.
11. Disconnect PCM connector B (24P).

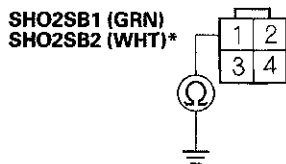
(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

12. Check for continuity between secondary HO2S (Sensor 2) 4P connector terminal No. 1 and body ground.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Is there continuity?

YES—Repair short in the wire between the PCM (B9 (B18)*) and secondary HO2S (Sensor 2), then go to step 15.

NO—Go to step 23.

13. Turn the ignition switch to LOCK (0).
14. Replace secondary HO2S (Sensor 2) (see page 11-228).
15. Reconnect all connectors.
16. Turn the ignition switch to ON (II).
17. Reset the PCM with the HDS.
18. Do the PCM idle learn procedure (see page 11-313).
19. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle.

20. Test-drive under these conditions:

- Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
- Transmission in D
- Engine speed between 1,500—3,000 rpm
- Drive 1 minute or more

21. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0137 and/or P0157 indicated?*

YES—Check for poor connections or loose terminals at secondary HO2S (Sensor 2) and the PCM, then go to step 1.

NO—Go to step 22.

22. Monitor the OBD STATUS for DTC P0137 and/or P0157* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 21, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at secondary HO2S (Sensor 2) and the PCM, then go to step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 20.



23. Reconnect all connectors.
24. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
25. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle.
26. Test-drive under these conditions:
 - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
 - Transmission in D
 - Engine speed between 1,500—3,000 rpm
 - Drive 1 minute or more
27. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0137 and/or P0157 indicated?*

YES—Check for poor connections or loose terminals at secondary HO2S (Sensor 2) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then go to step 25. If the PCM was substituted, go to step 1.

NO—Go to step 28.

28. Monitor the OBD STATUS for DTC P0137 and/or P0157* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs were indicated in step 27, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at secondary HO2S (Sensor 2) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then go to step 25. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, go to step 25.

DTC P0138: Rear Secondary HO2S (Bank 1, Sensor 2) Circuit High Voltage

DTC P0158: Front Secondary HO2S (Bank 2, Sensor 2) Circuit High Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle.
4. Check HO2S S2 in the DATA LIST with the HDS.

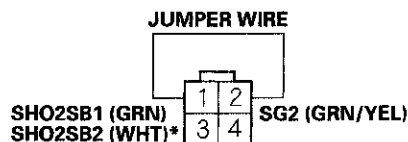
Does the voltage stay at 1.25 V or more?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at secondary HO2S (Sensor 2) and the PCM. ■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the secondary HO2S (Sensor 2) 4P connector.
7. Connect secondary HO2S (Sensor 2) 4P connector terminals No. 1 and No. 2 with a jumper wire.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Wire side of female terminals

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

8. Turn the ignition switch to ON (II).
9. Check HO2S S2 in the DATA LIST with the HDS.

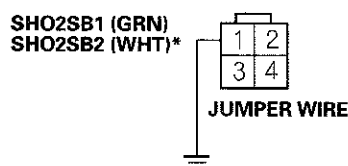
Does the voltage stay at 1.25 V or more?

YES—Go to step 10.

NO—Go to step 19.

10. Turn the ignition switch to LOCK (0).
11. Remove the jumper wire from the secondary HO2S (Sensor 2) 4P connector.
12. Connect secondary HO2S (Sensor 2) 4P connector terminal No. 1 to body ground with a jumper wire.

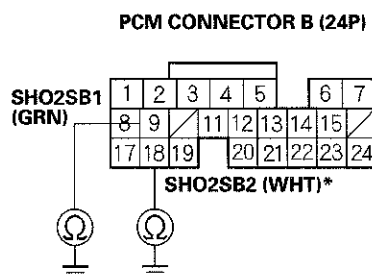
SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Wire side of female terminals

13. Turn the ignition switch to ON (II).
 14. Check HO2S S2 in the DATA LIST with the HDS.
- Does the voltage stay at 1.25 V or more?*
- YES**—Go to step 15.
- NO**—Repair open in the wire between the PCM (C12) and secondary HO2S (Sensor 2), then go to step 21.
15. Turn the ignition switch to LOCK (0).
 16. Jump the SCS line with the HDS.
 17. Disconnect PCM connector B (24P).

18. Check for continuity between PCM connector terminal B9 (B18)* and body ground.



Wire side of female terminals

Is there continuity?

YES—Go to step 29.

NO—Repair open in the wire between the PCM (B9 (B18)*) and secondary HO2S (Sensor 2), then go to step 21.

19. Turn the ignition switch to LOCK (0).
20. Replace secondary HO2S (Sensor 2) (see page 11-228).
21. Reconnect all connectors.
22. Turn the ignition switch to ON (II).
23. Reset the PCM with the HDS.
24. Do the PCM idle learn procedure (see page 11-313).
25. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle.
26. Test-drive under these conditions:
 - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
 - Transmission in D
 - Engine speed between 1,500—3,000 rpm
 - Drive 1 minute or more



27. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0138 and/or P0158 indicated?*

YES—Check for poor connections or loose terminals at secondary HO2S (Sensor 2) and the PCM, then go to step 1.

NO—Go to step 28.

28. Monitor the OBD STATUS for DTC P0138 and/or P0158* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 27, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at secondary HO2S (Sensor 2) and the PCM, then go to step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 25.

29. Reconnect all connectors.

30. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).

31. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle.

32. Test-drive under these conditions:

- Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
- Transmission in D
- Engine speed between 1,500—3,000 rpm
- Drive 1 minute or more

33. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0138 and/or P0158 indicated?*

YES—Check for poor connections or loose terminals at secondary HO2S (Sensor 2) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then go to step 31. If the PCM was substituted, go to step 1.

NO—Go to step 33.

34. Monitor the OBD STATUS for DTC P0138 and/or P0158* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs were indicated in step 33, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at secondary HO2S (Sensor 2) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then go to step 31. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, go to step 31.

PGM-FI System

DTC Troubleshooting (cont'd)

DTC P0139: Rear Secondary HO2S (Bank 1, Sensor 2) Slow Response

DTC P0159: Front Secondary HO2S (Bank 2, Sensor 2) Slow Response

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle.

4. Test-drive under these conditions:

- Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
- Transmission in D
- Drive at a steady speed between 55—75 mph (88—120 km/h) for 1 minute, then decelerate (with the throttle fully closed) for 10 seconds

5. Monitor the OBD STATUS for DTC P0139 and/or P0159* in the DTCs MENU with the HDS.

Does the screen indicate FAILED?

YES—Go to step 6.

NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at secondary HO2S (Sensor 2) and the PCM. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 3 and recheck.

6. Turn the ignition switch to LOCK (0).
7. Replace secondary HO2S (Sensor 2) (see page 11-228).
8. Turn the ignition switch to ON (II).
9. Reset the PCM with the HDS.
10. Do the PCM idle learn procedure (see page 11-313).

11. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle.

12. Test-drive under these conditions:

- Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
- Transmission in D
- Drive at a steady speed between 55—75 mph (88—120 km/h) for 1 minute, then decelerate (with the throttle fully closed) for 10 seconds

13. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0139 and/or P0159 indicated?*

YES—Check for poor connections or loose terminals at secondary HO2S (Sensor 2) and the PCM, then go to step 1.

NO—Go to step 14.

14. Monitor the OBD STATUS for DTC P0139 and/or P0159* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 13, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at secondary HO2S (Sensor 2) and the PCM, then go to step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 11.



DTC P0141: Rear Secondary HO2S (Bank 1, Sensor 2) Heater Circuit Malfunction

DTC P0161: Front Secondary HO2S (Bank 2, Sensor 2) Heater Circuit Malfunction

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0141 and/or P0161 indicated?*

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at secondary HO2S (Sensor 2), the A/F sensor relay (LAF), and the PCM. ■

5. Turn the ignition switch to LOCK (0).
6. Check the No. 4 A/F SENSOR (15 A) fuse in the driver's under-dash fuse/relay box.

Is the fuse OK?

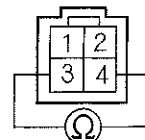
YES—Go to step 7.

NO—Repair short in the wire between the front A/F sensor, the rear A/F sensor, the front secondary HO2S, the rear secondary HO2S, the EVAP canister vent shut valve, the A/F sensor relay, and the fuse, then replace the blown fuse, and go to step 23.

7. Disconnect the secondary HO2S (Sensor 2) 4P connector.

8. At the secondary HO2S (Sensor 2) side, measure the resistance between secondary HO2S (Sensor 2) 4P connector terminals No. 3 and No. 4.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Terminal side of male terminals

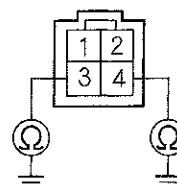
Is there 5.4—6.6 Ω at room temperature?

YES—Go to step 9.

NO—Go to step 21.

9. At the secondary HO2S (Sensor 2) side, check for continuity between body ground and secondary HO2S (Sensor 2) 4P connector terminals No. 3 and No. 4 individually.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Go to step 21.

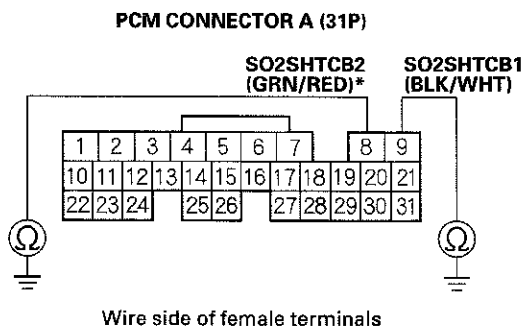
NO—Go to step 10.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

10. Jump the SCS line with the HDS.
11. Disconnect PCM connector A (31P).
12. Check for continuity between PCM connector terminal A9 (A8)* and body ground.



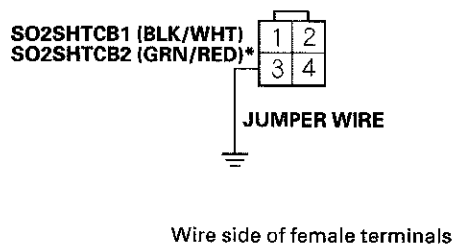
Is there continuity?

YES—Repair short in the wire between the PCM (E9 (E8)*) and secondary HO2S (Sensor 2), then go to step 22.

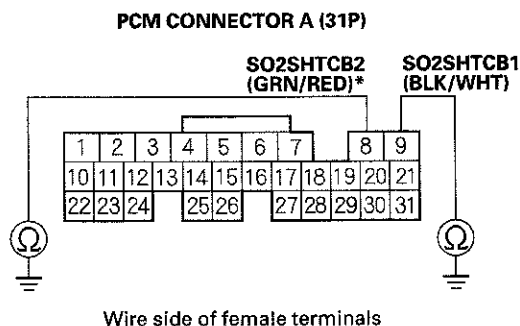
NO—Go to step 13.

13. Connect secondary HO2S (Sensor 2) 4P connector terminal No. 3 to body ground with a jumper wire.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



14. Check for continuity between PCM connector terminal A9 (A8)* and body ground.

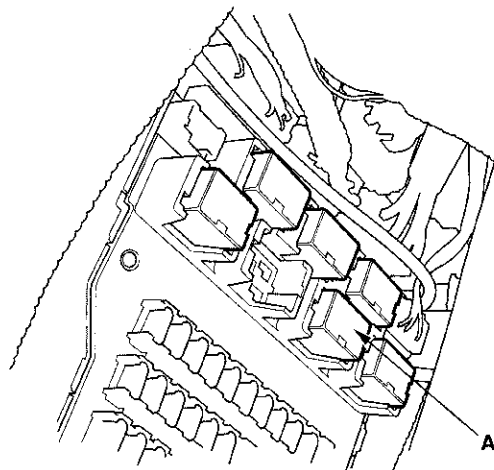


Is there continuity?

YES—Go to step 15.

NO—Repair open in the wire between the PCM (A9 (A8)*) and secondary HO2S (Sensor 2), then go to step 22.

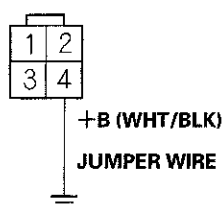
15. Remove the left kick panel (see step 3 on page 20-67), then remove the A/F sensor relay (LAF) (A) from the driver's under-dash fuse/relay box.





16. Connect secondary HO2S (Sensor 2) 4P connector terminal No. 4 to body ground with a jumper wire.

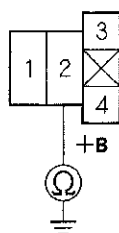
SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Wire side of female terminals

17. Check for continuity between A/F sensor relay (LAF) 4P connector terminal No. 2 and body ground.

A/F SENSOR RELAY (LAF) 4P CONNECTOR



Terminal side of female terminals

Is there continuity?

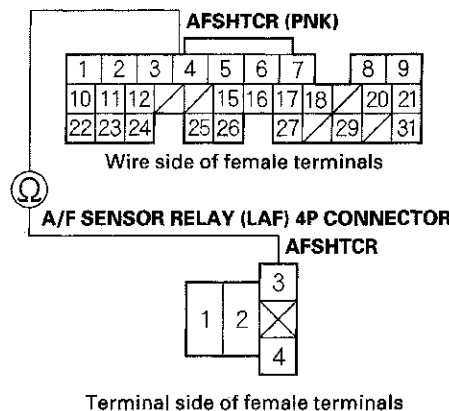
YES—Go to step 18.

NO—Repair open in the wire between secondary HO2S (Sensor 2) and the A/F sensor relay (LAF), then go to step 22.

18. Disconnect PCM connector E (31P).

19. Check for continuity between PCM connector terminal E4 and A/F sensor relay (LAF) 4P connector terminal No. 3.

PCM CONNECTOR E (31P)



Is there continuity?

YES—Go to step 20.

NO—Repair open in the wire between the PCM (E4) and the A/F sensor relay (LAF), then go to step 22.

20. Test the A/F sensor relay (LAF) (see page 22-93).

Is the A/F sensor relay (LAF) OK?

YES—Go to step 28.

NO—Replace the A/F sensor relay (LAF), then go to step 22.

21. Replace secondary HO2S (Sensor 2) (see page 11-228).
22. Reconnect all connectors.
23. Turn the ignition switch to ON (II).
24. Reset the PCM with the HDS.
25. Do the PCM idle learn procedure (see page 11-313).

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

26. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0141 and/or P0161 indicated?*

YES—Check for poor connections or loose terminals at secondary HO2S (Sensor 2), the A/F sensor relay (LAF), and the PCM, then go to step 1.

NO—Go to step 27.

27. Monitor the OBD STATUS for DTC P0141 and/or P0161* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 26, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at secondary HO2S (Sensor 2), the A/F sensor relay (LAF), and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

28. Reconnect all connectors.

29. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).

30. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0141 and/or P0161 indicated?*

YES—Check for poor connections or loose terminals at secondary HO2S (Sensor 2), the A/F sensor relay (LAF), and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 31.

31. Monitor the OBD STATUS for DTC P0141 and/or P0161* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs were indicated in step 30, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at secondary HO2S (Sensor 2), the A/F sensor relay (LAF), and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.



DTC P0171: Rear Bank (Bank 1) Fuel System Too Lean

DTC P0172: Rear Bank (Bank 1) Fuel System Too Rich

DTC P0174: Front Bank (Bank 2) Fuel System Too Lean

DTC P0175: Front Bank (Bank 2) Fuel System Too Rich

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Poor fuel quality can also cause DTC P0171 and/or P0174.
- If some of the DTCs listed below are stored at the same time as DTC P0171, P0172, P0174, and/or P0175, troubleshoot those DTCs first, then recheck for P0171, P0172, P0174, and/or P0175.

P0101, P0102, P0103: Mass air flow (MAF) sensor
P0107, P0108, P1128, P1129: Manifold absolute pressure (MAP) sensor
P0133, P0153, P1172, P1174, P2195, P2197, P2237, P2238, P2240, P2241, P2243, P2245, P2247, P2249, P2251, P2252, P2254, P2255, P2A00, P2A03: Air fuel ratio (A/F) sensor (Sensor 1)
P0134, P0135, P0154, P0155: Air fuel ratio (A/F) sensor (Sensor 1) heater
P0137, P0138, P0139, P0157, P0158, P0159, P2270, P2271, P2272, P2273: Secondary HO2S (Sensor 2)
P0141, P0161: Secondary HO2S (Sensor 2) heater
P2646, P2647, P2648, P2649: VTEC system
P0401, P0404, P0406, P2413: Exhaust gas recirculation (EGR) system
P2279: Intake air leakage

1. Check the fuel pressure (see page 11-335).

Is the fuel pressure OK?

YES—Go to step 2.

NO—Check these items:

- If the pressure is too high, replace the fuel pressure regulator (see page 11-348), then go to step 2.
- If the pressure is too low, check the fuel pump, the fuel pressure regulator, the fuel filter, and the fuel lines for restrictions, then go to step 6.

2. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle.

3. Check under these conditions:

- Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
- Transmission in P or N
- All electrical loads off

4. Monitor the ENGINE SPEED in the DATA LIST with the HDS, and hold the engine speed at 2,500 rpm. Once the engine speed is met, hold the accelerator pedal steady for more than 10 seconds.

Did the engine speed vary more than 100 rpm from 2,500 rpm?

YES—Repeat step 4.

NO—Go to step 5.

5. While holding the engine speed at 2,500 rpm, check the MAF SENSOR in the DATA LIST with the HDS.

Is there about 12.8–15.6 gm/s?

YES—Check the engine valve clearances, and adjust them if needed (see page 6-10). If the valve clearances are OK, replace the injectors (see page 11-223), then go to step 6.

NO—Replace the MAF sensor/IAT sensor (see page 11-225), then go to step 6.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

6. Turn the ignition switch to ON (II).
7. Reset the PCM with the HDS.
8. Do the PCM idle learn procedure (see page 11-313).
9. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle.
10. Test-drive under these conditions:
 - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
 - Transmission in D
 - Drive at a steady speed between 15—75 mph (24—120 km/h) for 15 minutes.

NOTE: DTC P0171, P0172, P0174, and/or P0175 may take up to 80 minutes of test driving to set. Using the HDS, monitor the long term fuel trim (LT FUEL TRIM). If the LT FUEL TRIM stays within 0.8—1.21, there is no problem at this time.

11. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0171, P0172, P0174, or P0175 indicated?

YES—Go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0300: Random Misfire and Any Combination of the Following:

DTC P0301: No. 1 Cylinder Misfire Detected

DTC P0302: No. 2 Cylinder Misfire Detected

DTC P0303: No. 3 Cylinder Misfire Detected

DTC P0304: No. 4 Cylinder Misfire Detected

DTC P0305: No. 5 Cylinder Misfire Detected

DTC P0306: No. 6 Cylinder Misfire Detected

Special Tools Required

- Pressure gauge adapter 07NAJ-P07010A
- A/T low pressure gauge w/panel 07406-0070301
- A/T pressure hose, 2,210 mm 07MAJ-PY4011A
- A/T pressure hose, adapter 07MAJ-PY40120
- Oil pressure hose 07ZAJ-S5AA200

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If the misfire is frequent enough to trigger detection of increased emissions during two consecutive driving cycles, the MIL will come on, and DTC P0300 (and some combination of P0301 through P0306) will be stored.
- If the misfire is frequent enough to damage the catalyst, the MIL will blink whenever the misfire occurs, and DTC P0300 (and some combination of P0301 through P0306) will be stored. When the misfire stops, the MIL will remain on.
- Troubleshoot the following DTCs first, if any of them were stored along with the random misfire DTC(s) (Because parts can sometimes fail without setting DTCs, you should also do a physical inspection of the systems listed below.):

P0101, P0102, P0103: Mass air flow (MAF)
P0107, P0108, P1128, P1129: Manifold absolute pressure (MAP) sensor
P0171, P0172, P0174, P0175: Fuel system
P0335, P0339, P0385, P0389: Crankshaft position (CKP) sensor A/B
P0506, P0507: Idle control system
P0340, P0344: Camshaft position (CMP) sensor
P2646, P2647, P2648, P2649: VTEC system
P0401, P0404, P0406, P2413: Exhaust gas recirculation (EGR) system



1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle without load (in P or N).
4. Monitor the OBD STATUS for DTC P0301, P0302, P0303, P0304, P0305, or P0306 in the DTCs MENU with the HDS.

Does the screen indicate FAILED?

YES—Go to step 9.

NO—If the screen indicates PASSED, go to step 5. If the screen indicates EXECUTING, keep idling until a result comes on. If the screen indicates OUT OF CONDITION, wait for several minutes, then recheck.

5. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE in the DATA LIST for 10 minutes with the HDS.

Does CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE show misfire counts?

YES—Go to step 9.

NO—Go to step 6.

6. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

- ENGINE SPEED
- VSS
- REL TP SENSOR
- CLV (calculated load value)
- ECT SENSOR 1
- APP SENSOR

7. Monitor the OBD STATUS for DTC P0301, P0302, P0303, P0304, P0305, or P0306 in the DTCs MENU with the HDS.

Does the screen indicate FAILED?

YES—Go to step 9.

NO—If the screen indicates PASSED, go to step 8. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to step 6 and recheck.

8. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE in the DATA LIST for 10 minutes with the HDS.

Does CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE show misfire counts?

YES—Go to step 9.

NO—Intermittent failure, the system is OK at this time. ■

9. Turn the ignition switch to LOCK (0).

10. Check the fuel quality.

Is the quality good?

YES—Go to step 11.

NO—Drain the tank, and fill it with known-good fuel, then go to step 23.

11. Inspect the spark plugs (see page 4-24). If the spark plugs are fouled or worn, replace them.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

12. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

- ENGINE SPEED
- VSS
- REL TP SENSOR
- CLV (calculated load value)
- ECT SENSOR 1
- APP SENSOR

13. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE in the DATA LIST for 10 minutes with the HDS.

Does CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE show misfire counts?

YES—Go to step 14.

NO—Go to step 23.

14. Check the fuel pressure (see page 11-335).

Is the fuel pressure OK?

YES—Go to step 15.

NO—

- If the pressure is too high, replace the fuel pressure regulator (see page 11-348), then go to step 23.
- If the pressure is too low, check the fuel pump, the fuel feed lines, and the fuel filter. If they are OK, replace the fuel pressure regulator (see page 11-348), then go to step 23.

15. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle.

16. Check under these conditions:

- Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
- Transmission in P or N
- All electrical loads off

17. Monitor the ENGINE SPEED in the DATA LIST with the HDS, and hold the engine speed at 2,500 rpm. Once the engine speed is met, hold the accelerator pedal steady for more than 10 seconds.

Did the engine speed vary more than 100 rpm from 2,500 rpm?

YES—Repeat step 17.

NO—Go to step 18.

18. While holding the engine speed at 2,500 rpm, check the MAF SENSOR in the DATA LIST with the HDS.

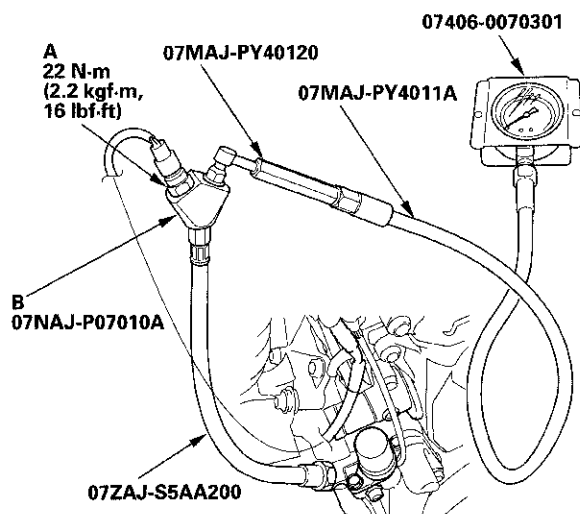
Is there about 12.8–15.6 gm/s?

YES—Go to step 19.

NO—Replace the MAF sensor/IAT sensor (see page 11-225), then go to step 23.



19. Remove the rocker arm oil pressure switch (A), and attach the special tools as shown, then attach the rocker arm oil pressure switch to the pressure gauge adapter (B).



20. Reconnect the rocker arm oil pressure switch 2P connector.
21. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on.
22. Check the oil pressure at engine speeds of 1,000 and 2,000 rpm. Keep the measuring time as short as possible (less than 1 minute) because the engine is running without load.

Is the oil pressure below 49 kPa (0.5 kgf/cm², 7 psi)?

YES—Go to step 23.

NO—Inspect the VTEC system, then go to step 23.

23. Turn the ignition switch to ON (II).
24. Reset the PCM with the HDS.
25. Clear the CKP pattern with the HDS.
26. Do the PCM idle learn procedure (see page 11-313).
27. Do the CKP pattern learn procedure (see page 11-5).
28. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

- ENGINE SPEED
- VSS
- REL TP SENSOR
- CLV (calculated load value)
- ECT SENSOR 1
- APP SENSOR

29. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0300 and any combination of DTC P0301, P0302, P0303, P0304, P0305, or P0306 indicated?

YES—Check for poor connections or loose terminals at the ignition coils, the injectors, and the PCM, then go to the DTC P0301, P0302, P0303, P0304, P0305, or P0306 troubleshooting (see page 11-114).

NO—Go to step 30.

30. Monitor the OBD STATUS for DTC P0301, P0302, P0303, P0304, P0305, or P0306 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 29, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the ignition coils, the injectors, and the PCM, then go to step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 28.

PGM-FI System

DTC Troubleshooting (cont'd)

DTC P0301: No. 1 Cylinder Misfire Detected

DTC P0302: No. 2 Cylinder Misfire Detected

DTC P0303: No. 3 Cylinder Misfire Detected

DTC P0304: No. 4 Cylinder Misfire Detected

DTC P0305: No. 5 Cylinder Misfire Detected

DTC P0306: No. 6 Cylinder Misfire Detected

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle without load for 2 minutes (in P or N).
4. Monitor the OBD STATUS for DTC P0301, P0302, P0303, P0304, P0305, or P0306 in the DTCs MENU with the HDS.

Does the screen indicate FAILED?

YES—Go to step 9.

NO—If the screen indicates PASSED, go to step 5. If the screen indicates EXECUTING, keep idling until a result comes on. If the screen indicates OUT OF CONDITION, wait for several minutes, and recheck.

5. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE in the DATA LIST for 10 minutes with the HDS.

Does CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE show misfire counts?

YES—Go to step 9.

NO—Go to step 6.

6. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

- ENGINE SPEED
- VSS
- REL TP SENSOR
- CLV (calculated load value)
- GEAR POSITION
- ECT SENSOR 1

7. Monitor the OBD STATUS for DTC P0301, P0302, P0303, P0304, P0305, or P0306 in the DTCs MENU with the HDS.

Does the screen indicate FAILED?

YES—Go to step 9.

NO—If the screen indicates PASSED, go to step 8. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 6.

8. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE in the DATA LIST for 10 minutes with the HDS.

Does CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE show misfire counts?

YES—Go to step 9.

NO—Intermittent failure, the system is OK at this time. Check the fuel and ignition system circuit connectors for loose wires or poor connections. ■

9. Turn the ignition switch to LOCK (0).
10. Exchange the ignition coil from the problem cylinder with one from another cylinder.
11. Reconnect all connectors.



12. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

- ENGINE SPEED
- VSS
- REL TP SENSOR
- CLV (calculated load value)
- GEAR POSITION
- ECT SENSOR 1

13. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE in the DATA LIST for 10 minutes with the HDS.

Does CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE show misfire counts?

YES—Go to step 14.

NO—Intermittent failure due to poor contact at the ignition coil contactor (no misfire at this time). Make sure that the ignition coil connectors are secure. ■

14. Determine which cylinder had the misfire.

Does the misfire occur in the cylinder where the ignition coil was moved?

YES—Replace the faulty ignition coil (see page 4-21), then go to step 55.

NO—Go to step 15.

15. Turn the ignition switch to LOCK (0).
16. Exchange the spark plug from the problem cylinder with the one from another cylinder.
17. Reconnect all connectors.

18. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

- ENGINE SPEED
- VSS
- REL TP SENSOR
- CLV (calculated load value)
- GEAR POSITION
- ECT SENSOR 1

19. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE in the DATA LIST for 10 minutes with the HDS.

Does CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE show misfire counts?

YES—Go to step 20.

NO—Intermittent failure due to spark plug fouling (no misfire at this time). ■

20. Determine which cylinder had the misfire.

Does the misfire occur in the cylinder where the spark plug was moved?

YES—Replace the faulty spark plug, then go to step 55.

NO—Go to step 21.

21. Turn the ignition switch to LOCK (0).
22. Disconnect the ignition coil 3P connector from the problem cylinder.
23. Turn the ignition switch to ON (II).

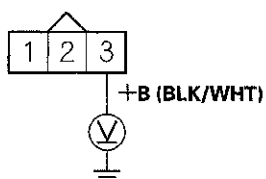
(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

24. Measure the voltage between ignition coil 3P connector terminal No. 3 and body ground.

IGNITION COIL 3P CONNECTOR



Wire side of female terminals

Is there battery voltage?

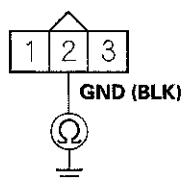
YES—Go to step 25.

NO—Repair open in the wire between the ignition coil and the ignition coil relay, then go to step 55.

25. Turn the ignition switch to LOCK (0).

26. Check for continuity between ignition coil 3P connector terminal No. 2 and body ground.

IGNITION COIL 3P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 27.

NO—Repair open in the wire between the ignition coil and G101, then go to step 55.

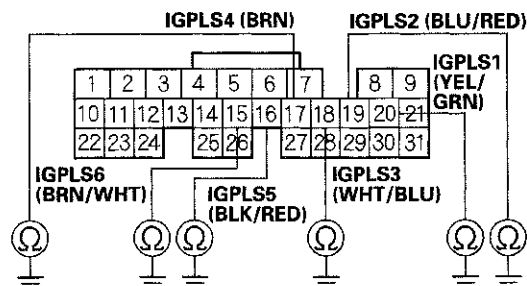
27. Jump the SCS line with the HDS.

28. Disconnect PCM connector A (31P).

29. Check for continuity between body ground and the appropriate PCM connector terminal (see table).

PROBLEM CYLINDER	DTC	PCM TERMINAL	WIRE COLOR
No. 1	P0301	A20	YEL/GRN
No. 2	P0302	A19	BLU/RED
No. 3	P0303	A18	WHT/BLU
No. 4	P0304	A17	BRN
No. 5	P0305	A16	BLK/RED
No. 6	P0306	A15	BRN/WHT

PCM CONNECTOR A (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM and the ignition coil, then go to step 55.

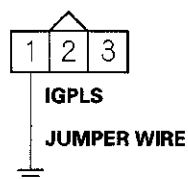
NO—Go to step 30.



30. Connect appropriate ignition coil 3P connector terminal No. 1 to body ground with a jumper wire (see table).

PROBLEM CYLINDER	DTC	WIRE COLOR
No. 1	P0301	YEL/GRN
No. 2	P0302	BLU/RED
No. 3	P0303	WHT/BLU
No. 4	P0304	BRN
No. 5	P0305	BLK/RED
No. 6	P0306	BRN/WHT

IGNITION COIL 3P CONNECTOR

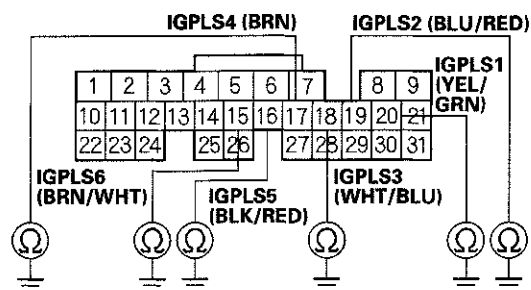


Wire side of female terminals

31. Check for continuity between body ground and the appropriate PCM connector terminal (see table).

PROBLEM CYLINDER	DTC	PCM TERMINAL	WIRE COLOR
No. 1	P0301	A20	YEL/GRN
No. 2	P0302	A19	BLU/RED
No. 3	P0303	A18	WHT/BLU
No. 4	P0304	A17	BRN
No. 5	P0305	A16	BLK/RED
No. 6	P0306	A15	BRN/WHT

PCM CONNECTOR A (31P)



Wire side of female terminals

Is there continuity?

YES—Go to step 32.

NO—Repair open in the wire between the PCM and the ignition coil, then go to step 55.

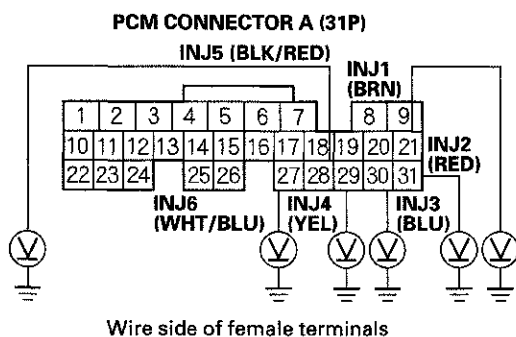
(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

32. Turn the ignition switch to ON (II).
33. Measure the voltage between body ground and the appropriate PCM connector terminal (see table).

PROBLEM CYLINDER	DTC	PCM TERMINAL	WIRE COLOR
No. 1	P0301	A21	BRN
No. 2	P0302	A31	RED
No. 3	P0303	A30	BLU
No. 4	P0304	A29	YEL
No. 5	P0305	A28	BLK/RED
No. 6	P0306	A27	WHT/BLU



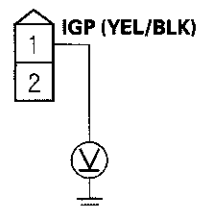
Is there battery voltage?

YES—Go to step 43.

NO—Go to step 34.

34. Turn the ignition switch to LOCK (0).
35. Remove the intake manifold (see page 9-3).
36. Disconnect the injector 2P connector from the problem cylinder.
37. Turn the ignition switch to ON (II).
38. Measure the voltage between injector 2P connector terminal No. 1 and body ground.

INJECTOR 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

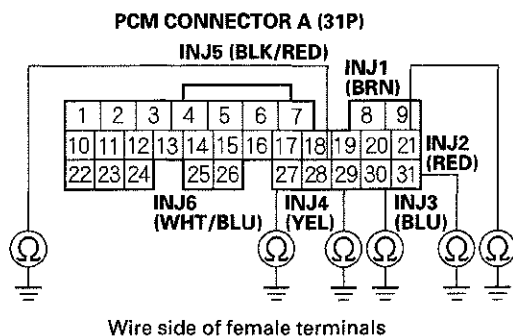
YES—Go to step 39.

NO—Repair open in the wire between the injector and PGM-FI main relay 1 (FI MAIN), then go to step 55.



39. Turn the ignition switch to LOCK (0).
40. Check for continuity between body ground and the appropriate PCM connector terminal (see table).

PROBLEM CYLINDER	DTC	PCM TERMINAL	WIRE COLOR
No. 1	P0301	A21	BRN
No. 2	P0302	A31	RED
No. 3	P0303	A30	BLU
No. 4	P0304	A29	YEL
No. 5	P0305	A28	BLK/RED
No. 6	P0306	A27	WHT/BLU



Is there continuity?

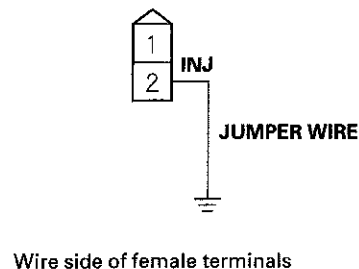
YES—Repair short in the wire between the PCM and the injector, then go to step 55.

NO—Go to step 41.

41. Connect appropriate injector 2P connector terminal No. 2 to body ground with a jumper wire (see table).

PROBLEM CYLINDER	DTC	WIRE COLOR
No. 1	P0301	BRN
No. 2	P0302	RED
No. 3	P0303	BLU
No. 4	P0304	YEL
No. 5	P0305	BLK/RED
No. 6	P0306	WHT/BLU

INJECTOR 2P CONNECTOR



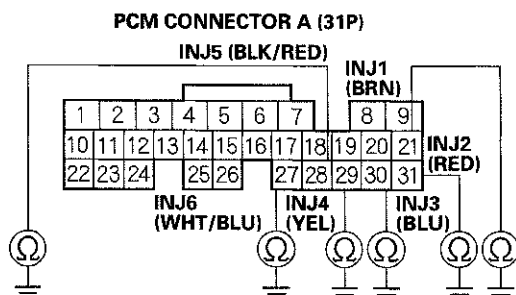
(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

42. Check for continuity between body ground and the appropriate PCM connector terminal (see table).

PROBLEM CYLINDER	DTC	PCM TERMINAL	WIRE COLOR
No. 1	P0301	A21	BRN
No. 2	P0302	A31	RED
No. 3	P0303	A30	BLU
No. 4	P0304	A29	YEL
No. 5	P0305	A28	BLK/RED
No. 6	P0306	A27	WHT/BLU



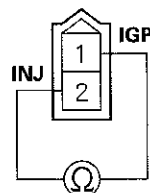
Is there continuity?

YES—Go to step 43.

NO—Repair open in the wire between the PCM and the injector, then go to step 55.

43. Measure the resistance between injector 2P connector terminals No. 1 and No. 2.

INJECTOR 2P CONNECTOR



Terminal side of male terminals

Is there 10—13 Ω ?

YES—Go to step 44.

NO—Replace the injector (see page 11-223), then go to step 55.

44. Exchange the injector from the problem cylinder with the one from another cylinder. Also check the injector fuel inlet screen for debris, and clean it if needed.
45. Reconnect all connectors, and install the intake manifold (see page 9-4).
46. Turn the ignition switch to ON (II).
47. Clear the DTCs with the HDS.
48. Start the engine, and let it idle without load (in Park or neutral) for 2 minutes.



49. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

- ENGINE SPEED
- VSS
- REL TP SENSOR
- CLV (calculated load value)
- GEAR POSITION
- ECT SENSOR 1

50. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE in the DATA LIST for 10 minutes with the HDS.

Does CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE show misfire counts?

YES—Go to step 51.

NO—Intermittent failure due to poor contact in the injector connector (no misfire at this time). Check for poor connections or loose terminals at the injector. ■

51. Determine which cylinder had the misfire.

Does the misfire occur in the cylinder where the injector was moved?

YES—Replace the faulty injector (see page 11-223), then go to step 55.

NO—Go to step 52.

52. Turn the ignition switch to LOCK (0).

53. Do an engine compression and a cylinder leakdown test (see page 6-7).

Did the engine pass both tests?

YES—Go to step 54.

NO—Repair the engine, then go to step 55.

54. Do the VTEC rocker arm test (see page 6-8).

Did the engine pass the test?

YES—Go to step 63.

NO—Repair the VTEC rocker arm, then go to step 55.

55. Reconnect all connectors.

56. Reset the PCM with the HDS.

57. Clear the CKP pattern with the HDS.

58. Do the PCM idle learn procedure (see page 11-313).

59. Do the CKP pattern learn procedure (see page 11-5).

60. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

- ENGINE SPEED
- VSS
- REL TP SENSOR
- CLV (calculated load value)
- GEAR POSITION
- ECT SENSOR 1

61. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0301, P0302, P0303, P0304, P0305, or P0306 indicated?

YES—Check for poor connections or loose terminals at the ignition coil, the injector, and the PCM, then go to step 1.

NO—Go to step 62.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

62. Monitor the OBD STATUS for DTC P0301, P0302, P0303, P0304, P0305, or P0306 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 61, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the ignition coil, the injector, and the PCM, then go to step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 60.

63. Reconnect all connectors.

64. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).

65. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

- ENGINE SPEED
- VSS
- REL TP SENSOR
- CLV (calculated load value)
- GEAR POSITION
- ECT SENSOR 1

66. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0301, P0302, P0303, P0304, P0305, or P0306 indicated?

YES—Check for poor connections or loose terminals at the ignition coil, the injector, and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then go to step 65. If the PCM was substituted, go to step 1.

NO—Go to step 67.

67. Monitor the OBD STATUS for DTC P0301, P0302, P0303, P0304, P0305, or P0306 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs were indicated in step 66, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the ignition coil, the injector, and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then go to step 65. If the PCM was substituted, go to step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 65.



DTC P0325: Knock Sensor Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle.
4. Hold the engine speed at 3,000—4,000 rpm for at least 10 seconds.
5. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0325 indicated?

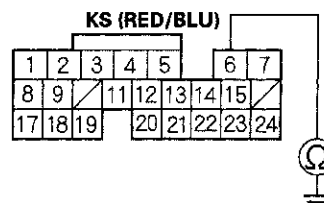
YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the knock sensor and the PCM. ■

6. Turn the ignition switch to LOCK (0).
7. Jump the SCS line with the HDS.
8. Disconnect the knock sensor subharness 1P connector.
9. Disconnect PCM connector B (24P).

10. Check for continuity between PCM connector terminal B6 and body ground.

PCM CONNECTOR B (24P)



Wire side of female terminals

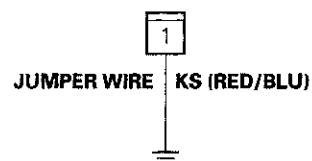
Is there continuity?

YES—Repair short in the wire between the PCM (B6) and the knock sensor subharness, then go to step 19.

NO—Go to step 11.

11. Connect the knock sensor subharness 1P connector terminal to body ground with a jumper wire.

KNOCK SENSOR SUBHARNESS 1P CONNECTOR



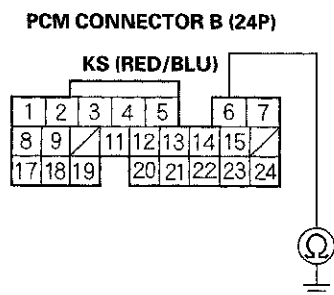
Wire side of female terminals

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

12. Check for continuity between PCM connector terminal B6 and body ground.



Wire side of female terminals

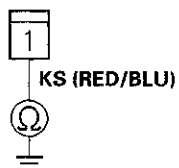
Is there continuity?

YES—Go to step 13.

NO—Repair open in the wire between the PCM (B6) and the knock sensor subharness, then go to step 19.

13. Remove the intake manifold (see page 9-3) and the injector base (see page 9-6).
14. Disconnect the knock sensor 1P connector.
15. Check for continuity between the knock sensor subharness 1P connector terminal and body ground.

KNOCK SENSOR SUBHARNESS 1P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the knock sensor subharness, then go to step 18.

NO—Go to step 16.

16. Check for an open in the knock sensor subharness.

Is the harness OK?

YES—Go to step 17.

NO—Repair open in the knock sensor subharness, then go to step 19.

17. Replace the knock sensor (see page 11-230).
18. Install the injector base (see page 9-6) and the intake manifold (see page 9-4).
19. Reconnect all connectors.
20. Turn the ignition switch to ON (II).
21. Reset the PCM with the HDS.
22. Do the PCM idle learn procedure (see page 11-313).
23. Hold the engine speed at 3,000—4,000 rpm for at least 10 seconds.
24. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0325 indicated?

YES—Check for poor connections or loose terminals at the knock sensor and the PCM, go to step 26.

NO—Go to step 25.

25. Monitor the OBD STATUS for DTC P0325 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 24, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the knock sensor and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, go to step 23.



26. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
27. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle.
28. Hold the engine speed at 3,000—4,000 rpm for at least 10 seconds.
29. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0325 indicated?

YES—Check for poor connections or loose terminals at the ignition coil, the injector, and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then go to step 28. If the PCM was substituted, go to step 1.

NO—Go to step 30.

30. Monitor the OBD STATUS for DTC P0325 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs were indicated in step 29, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the ignition coil, the injector, and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then go to step 28. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, go to step 28.

DTC P0335: CKP Sensor A No Signal

DTC P0385: CKP Sensor B No Signal

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to CKP sensor B.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for Pending or Confirmed DTCs with the HDS.

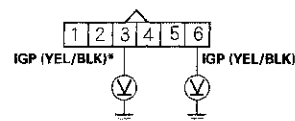
Is DTC P0335 and/or P0385 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at CKP sensor A/B and the PCM. ■

5. Turn the ignition switch to LOCK (0).
6. Disconnect CKP sensor A/B 6P connector (see page 11-229).
7. Turn the ignition switch to ON (II).
8. Measure the voltage between CKP sensor A/B 6P connector terminal No. 6 (No. 3)* and body ground.

CKP SENSOR A/B 6P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 9.

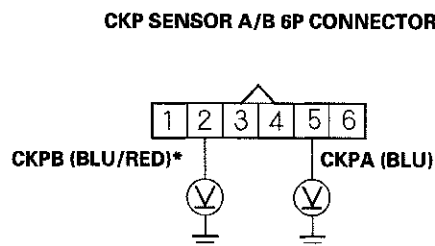
NO—Repair open in the wire between CKP sensor A/B and PGM-FI main relay 1 (FI MAIN), then go to step 18.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

9. Measure the voltage between CKP sensor A/B 6P connector terminal No. 5 (No. 2)* and body ground.

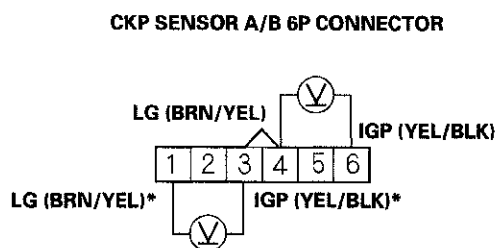


Is there about 5 V?

YES—Go to step 10.

NO—Go to step 11.

10. Measure the voltage between CKP sensor A/B 6P connector terminals No. 4 (No. 1)* and No. 6 (No. 3)*.

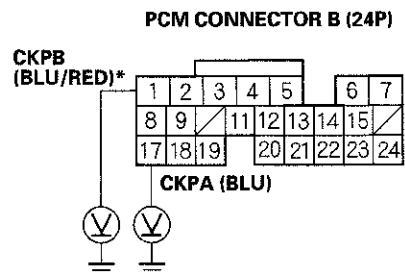


Is there battery voltage?

YES—Go to step 16.

NO—Repair open in the wire between CKP sensor A/B and G101, then go to step 18.

11. Measure the voltage between PCM connector terminal B17 (B1)* and body ground.

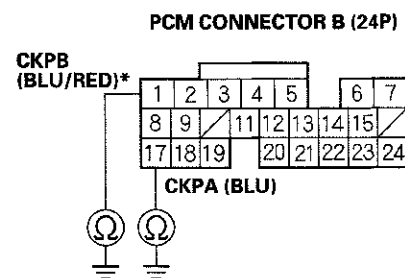


Is there about 5 V?

YES—Repair open in the wire between the PCM (B17 (B1)*) and CKP sensor A/B, then go to step 18.

NO—Go to step 12.

12. Turn the ignition switch to LOCK (0).
13. Jump the SCS line with the HDS.
14. Disconnect PCM connector B (24P).
15. Check for continuity between PCM connector terminal B17 (B1)* and body ground.



Is there continuity?

YES—Repair short in the wire between the PCM (B17 (B1)*) and CKP sensor A/B, then go to step 18.

NO—Go to step 25.



16. Turn the ignition switch to LOCK (0).
17. Replace CKP sensor A/B (see page 11-229).
18. Reconnect all connectors.
19. Turn the ignition switch to ON (II).
20. Reset the PCM with the HDS.
21. Clear the CKP pattern with the HDS.
22. Do the PCM idle learn procedure (see page 11-313).
23. Do the CKP pattern learn procedure (see page 11-5).
24. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0335 and/or P0385 indicated?*

YES—Check for poor connections or loose terminals at CKP sensor A/B and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

25. Reconnect all connectors.
26. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
27. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0335 and/or P0385 indicated?*

YES—Check for poor connections or loose terminals at CKP sensor A/B and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0339: CKP Sensor A Circuit Intermittent Interruption

DTC P0389: CKP Sensor B Circuit Intermittent Interruption

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to CKP sensor B.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
 - ENGINE SPEED
 - VSS
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0339 and/or P0389 indicated?*

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at CKP sensor A/B and the PCM. ■

5. Check for poor connections or loose terminals at these locations:
 - CKP sensor A/B
 - PCM
 - Engine ground
 - Body ground

Are the connections OK?

YES—Go to step 6.

NO—Reconnect or repair the connectors or terminals, then go to step 9.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

6. Check for damage to the CKP sensor A/B pulse plate on the timing belt drive pulley (see page 6-28).

Is there damage?

YES—Replace CKP sensor A/B pulse plate/timing belt drive pulley (see page 6-28), then go to step 9.

NO—Go to step 7.

7. Turn the ignition switch to LOCK (0).
8. Replace the CKP sensor (see page 11-229).
9. Turn the ignition switch to ON (II).
10. Reset the PCM with the HDS.
11. Clear the CKP pattern with the HDS.
12. Do the PCM idle learn procedure (see page 11-313).
13. Do the CKP pattern learn procedure (see page 11-5).
14. Start the engine, and let it idle 10 seconds.
15. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0339 and/or P0389 indicated?*

YES—Check for poor connections or loose terminals at CKP sensor A/B and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0340: CMP Sensor No Signal

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for Pending or Confirmed DTCs with the HDS.

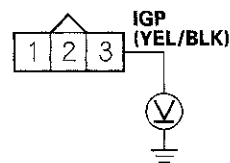
Is DTC P0340 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the CMP sensor and the PCM. ■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the CMP sensor 3P connector.
7. Turn the ignition switch to ON (II).
8. Measure the voltage between CMP sensor 3P connector terminal No. 3 and body ground.

CMP SENSOR 3P CONNECTOR



Wire side of female terminals

Is there battery voltage?

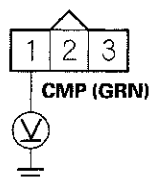
YES—Go to step 9.

NO—Repair open in the wire between the CMP sensor and PGM-FI main relay 1 (FI MAIN), then go to step 18.



9. Measure the voltage between CMP sensor 3P connector terminal No. 1 and body ground.

CMP SENSOR 3P CONNECTOR



Wire side of female terminals

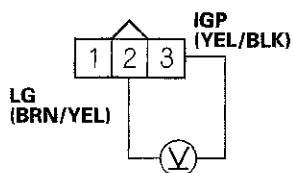
Is there about 5 V?

YES—Go to step 10.

NO—Go to step 11.

10. Measure the voltage between CMP sensor 3P connector terminals No. 2 and No. 3.

CMP SENSOR 3P CONNECTOR



Wire side of female terminals

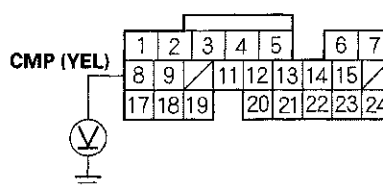
Is there battery voltage?

YES—Go to step 16.

NO—Repair open in the wire between the CMP sensor and G101, then go to step 18.

11. Measure the voltage between PCM connector terminal B8 and body ground.

PCM CONNECTOR B (24P)



Wire side of female terminals

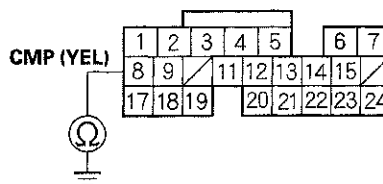
Is there about 5 V?

YES—Repair open in the wire between the PCM (B8) and the CMP sensor, then go to step 18.

NO—Go to step 12.

12. Turn the ignition switch to LOCK (0).
13. Jump the SCS line with the HDS.
14. Disconnect PCM connector B (24P).
15. Check for continuity between PCM connector terminal B8 and body ground.

PCM CONNECTOR B (24P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (B8) and the CMP sensor, then go to step 18.

NO—Go to step 26.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

16. Turn the ignition switch to LOCK (0).
17. Replace the CMP sensor (see page 11-229).
18. Reconnect all connectors.
19. Turn the ignition switch to ON (II).
20. Reset the PCM with the HDS.
21. Clear the CKP pattern with the HDS.
22. Do the PCM idle learn procedure (see page 11-313).
23. Do the CKP pattern learn procedure (see page 11-5).
24. Start the engine.
25. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0340 indicated?

YES—Check for poor connections or loose terminals at the CMP sensor and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

26. Reconnect all connectors.
27. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
28. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0340 indicated?

YES—Check for poor connections or loose terminals at the CMP sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0344: CMP Sensor Circuit Intermittent Interruption

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Test-drive the vehicle for 10 minutes in the range of these recorded freeze data parameters:

- ENGINE SPEED
- VSS

4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0344 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the CMP sensor and the PCM. ■

5. Check for poor connections or loose terminals at these locations:

- CMP sensor
- PCM
- Engine ground
- Body ground

Are the connections OK?

YES—Go to step 6.

NO—Reconnect or repair the connectors or terminals, then go to step 9.



6. Check for damage to the CMP sensor pulse projection on the front camshaft pulley (see page 11-229).

Is there damage?

YES—Replace the front camshaft pulley (see page 6-34), then go to step 9.

NO—Go to step 7.

7. Turn the ignition switch to LOCK (0).
8. Replace the CMP sensor (see page 11-229).
9. Turn the ignition switch to ON (II).
10. Reset the PCM with the HDS.
11. Clear the CKP pattern with the HDS.
12. Do the PCM idle learn procedure (see page 11-313).
13. Do the CKP pattern learn procedure (see page 11-5).
14. Test-drive the vehicle for 10 minutes in the range of these recorded freeze data parameters:
 - ENGINE SPEED
 - VSS
15. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0344 indicated?

YES—Check for poor connections or loose terminals at the CMP sensor and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P050A: Cold Start Idle Air Control System Performance Problem

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Check for Pending or Confirmed DTCs with the HDS.

Are any Pending or Confirmed DTCs other than P050A indicated?

YES—Go to the indicated DTC's troubleshooting. ■

NO—Go to step 3.

3. Check for poor connections or blockage at the intake air duct.

Is it OK?

YES—Go to step 4.

NO—Reconnect or repair the intake air duct, then go to step 19.

4. Check for damage at the air cleaner housing.

Is it OK?

YES—Go to step 5.

NO—Replace the air cleaner housing (see page 11-366), then go to step 19.

5. Check for dirt or debris in the air cleaner element.

Is it dirty?

YES—Replace the air cleaner element or remove the debris (see page 11-367), then go to step 19.

NO—Go to step 6.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

6. Let the engine cool until the value of ECT SENSOR 1 is 122 °F (50 °C) or less.
7. Clear the DTC with the HDS.
8. Start the engine, and let it idle for 10 seconds or more.
9. Monitor the OBD STATUS for DTC P050A in the DTCs MENU with the HDS.

Does the screen indicate FAILED?

YES—Go to step 10.

NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. If the screen indicates EXECUTING, keep idling until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to step 6.
10. Do the ETCS TEST in the INSPECTION MENU with the HDS.

Is the THROTTLE ACTUATOR CONTROL VALVE normal?

YES—Go to step 11.

NO—Replace the throttle body (see page 11-369), then go to step 19.
11. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle.
12. While holding the engine speed at 2,500 rpm for 30 seconds, check the MAF SENSOR in the DATA LIST with the HDS.

Is there about 12.8—15.6 gm/s?

YES—Go to step 13.

NO—Replace the MAF sensor/IAT sensor (see page 11-225), then go to step 19.
13. Turn the ignition switch to LOCK (0).
14. Allow the engine to cool to the ambient temperature.
15. Note the ambient temperature.
16. Turn the ignition switch to ON (II).
17. Note the value of the IAT SENSOR quickly in the DATA LIST with the HDS.
18. Compare the value of the IAT SENSOR and the ambient temperature.

Does the value of the IAT SENSOR differ 5.4 °F (3 °C) or more from the ambient temperature?

YES—Replace the MAF sensor/IAT sensor (see page 11-225), then go to step 19.

NO—Check for dirt, carbon, or damage in the throttle bore. If there is dirt or carbon, clean the throttle body (see page 11-366), then go to step 19. If there is damage to the throttle bore, replace the throttle body (see page 11-369), then go to step 19.



19. Turn the ignition switch to ON (II).
20. Reset the PCM with the HDS.
21. Do the PCM idle learn procedure (see page 11-313).
22. Let the engine cool until the value of ECT SENSOR 1 is 122 °F (50 °C) or less.
23. Start the engine, and let it idle for 10 seconds or more.
24. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P050A indicated?

YES—Check for poor connections or loose terminals at the throttle body, the MAF sensor/IAT sensor, and the PCM, then go to step 1.

NO—Go to step 25.

25. Monitor the OBD STATUS for DTC P050A in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 24, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the throttle body, the MAF sensor/IAT sensor, and the PCM, then go to step 1. If the screen indicates EXECUTING, keep idling until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to step 22.

DTC P050B: Cold Start Ignition Timing Control System Performance Problem

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Check for Pending or Confirmed DTCs with the HDS.

Are any Pending or Confirmed DTCs other than P050B indicated?

YES—Go to the indicated DTC's troubleshooting. ■

NO—Go to step 3.

3. Check for poor connections or blockage at the intake air duct.

Is it OK?

YES—Go to step 4.

NO—Reconnect or repair the intake air duct, then go to step 25.

4. Check for damage at the air cleaner housing.

Is it OK?

YES—Go to step 5.

NO—Replace the air cleaner housing (see page 11-366), then go to step 25.

5. Check for dirt or debris in the air cleaner element.

Is it dirty?

YES—Replace the air cleaner element or remove the debris (see page 11-367), then go to step 25.

NO—Go to step 6.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

6. Let the engine cool until the value of ECT SENSOR 1 is 122 °F (50 °C) or less.
7. Clear the DTC with the HDS.
8. Start the engine, and let it idle for 10 seconds or more.
9. Monitor the OBD STATUS for DTC P050B in the DTCs MENU with the HDS.

Does the screen indicate FAILED?

YES—Go to step 10.

NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. If the screen indicates EXECUTING, keep idling until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to step 6.

10. Inspect the ignition timing (see page 4-20).

Is the ignition timing OK?

YES—Go to step 12.

NO—Go to step 11.

11. Check for damage at the CKP sensor (see page 11-229) and the CKP sensor pulser plate (see page 6-28).

Is the CKP sensor and/or the CKP sensor pulser plate damaged?

YES—Replace the CKP sensor (see page 11-229) and/or the CKP sensor pulser plate (see page 6-28), then go to step 6.

NO—Go to step 31.

12. Do the ETCS TEST in the INSPECTION MENU with the HDS.

Is the THROTTLE ACTUATOR CONTROL VALVE normal?

YES—Go to step 13.

NO—Replace the throttle body (see page 11-369), then go to step 25.

13. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle.

14. Monitor the ENGINE SPEED in the DATA LIST with the HDS, and hold the engine speed at 2,500 rpm for at least 30 seconds.

15. While holding the engine speed at 2,500 rpm, check the MAF SENSOR in the DATA LIST with the HDS.

Is there about 12.8—15.6 gm/s?

YES—Go to step 16.

NO—Replace the MAF sensor/IAT sensor (see page 11-225), then go to step 25.

16. Turn the ignition switch to LOCK (0).

17. Drain the coolant (see page 10-6).

18. Remove ECT sensor 1 (see page 11-226), and ECT sensor 2 (see page 11-226).

19. Allow the sensors to cool to the ambient temperature.

20. Note the ambient temperature.

21. Connect ECT sensor 1 and ECT sensor 2 to their 2P connectors, but do not install them.

22. Turn the ignition switch to ON (II).

23. Note the value of ECT SENSOR 1 and ECT SENSOR 2 quickly in the DATA LIST with the HDS.



24. Compare the value of ECT SENSOR 1 and the ambient temperature, and the value of ECT SENSOR 2 and the ambient temperature individually.

Does either sensor differ more than 5.4 °F (3 °C) from the ambient temperature?

YES—Replace the sensor that differed more than 5.4 °F (3 °C) from the ambient temperature, then go to step 25.

NO—Check and repair any problems with the following items. Repair or replace them if it is necessary, then go to step 25. If it is OK, go to step 32.

- Engine compression and cylinder leakdown
- VTEC system
- Engine oil
- A/C system
- Power steering

25. Turn the ignition switch to ON (II).

26. Reset the PCM with the HDS.

27. Do the PCM idle learn procedure (see page 11-313).

28. Let the engine cool until the value of ECT SENSOR 1 is 122 °F (50 °C) or less.

29. Start the engine, and let it idle for 10 seconds or more.

30. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P050B indicated?

YES—Check for poor connections or loose terminals at the CKP sensor, the throttle body, the MAF sensor/IAT sensor, ECT sensor 1, ECT sensor 2, and the PCM, then go to step 1.

NO—Go to step 31.

31. Monitor the OBD STATUS for DTC P050B in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 30, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the CKP sensor, the throttle body, the MAF sensor/IAT sensor, ECT sensor 1, ECT sensor 2, and the PCM, then go to step 1. If the screen indicates EXECUTING, keep idling until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to step 28.

32. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).

33. Do the PCM idle learn procedure (see page 11-313).

34. Let the engine cool until the value of ECT SENSOR 1 is 122 °F (50 °C) or less.

35. Start the engine, and let it idle for 10 seconds or more.

36. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P050B indicated?

YES—Check for poor connections or loose terminals at the CKP sensor, the throttle body, the MAF sensor/IAT sensor, ECT sensor 1, ECT sensor 2, and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then go to step 34. If the PCM was substituted, go to step 1.

NO—Go to step 37.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

37. Monitor the OBD STATUS for DTC P050B in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs were indicated in step 36, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the CKP sensor, the throttle body, the MAF sensor/IAT sensor, ECT sensor 1, ECT sensor 2, and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then go to step 34. If the PCM was substituted, go to step 1. If the screen indicates EXECUTING, keep idling until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to step 34.

DTC P0562: Charging System Low Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If any high current load accessories are installed, this DTC can be set.
- If DTC P16BB and/or P16BC is stored at the same time as DTC P0562, troubleshoot DTC P16BB and/or P16BC first, then recheck for DTC P0562.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check under these conditions:
 - A/C on
 - Temperature control at maximum cool
 - Blower fan at maximum speed
 - Rear window defogger on
 - Headlights on high beam
5. Hold the engine speed at 2,000 rpm (in P or N) for 1 minute.
6. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0562 indicated?

YES—Replace the alternator (see page 4-36), then go to step 7.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the alternator and the under-hood fuse/relay box, and check the battery performance (see page 22-90). ■

7. Turn the ignition switch to ON (II).
8. Reset the PCM with the HDS.
9. Do the PCM idle learn procedure (see page 11-313).
10. Start the engine.



11. Check under these conditions:

- A/C on
- Temperature control at maximum cool
- Blower fan at maximum speed
- Rear window defogger on
- Headlights on high beam

12. Hold the engine speed at 2,000 rpm (in P or N) for 1 minute.

13. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0562 indicated?

YES—Check for poor connections or loose terminals at the alternator and the under-hood fuse/relay box, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0563: PCM Power Source Circuit Unexpected Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Wait 10 seconds.
5. Turn the ignition switch to ON (II).
6. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0563 indicated?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at PGM-FI main relay 1 (FI MAIN) and the No. 8 FI ECU (PCM) (15 A) fuse in the under-hood fuse/relay box and the PCM. ■

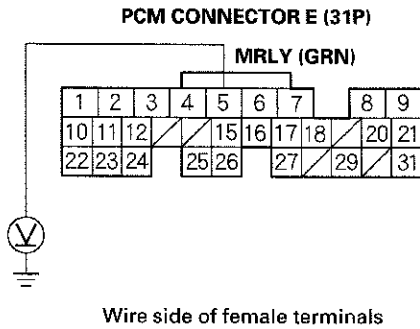
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect PCM connector E (31P).

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

10. Measure the voltage between PCM connector terminal E5 and body ground.

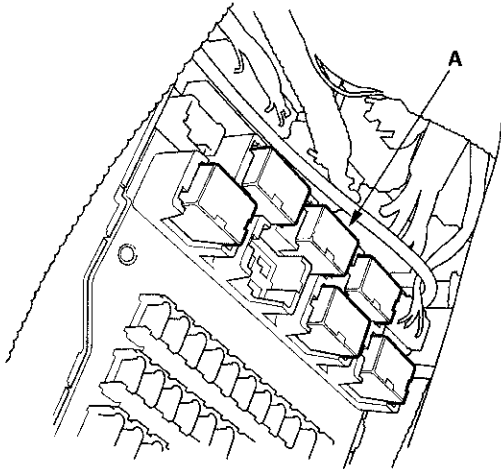


Is there battery voltage?

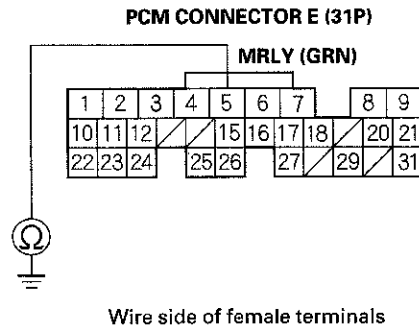
YES—Go to step 13.

NO—Go to step 11.

11. Remove the left kick panel (see step 3 on page 20-67). Then remove PGM-FI main relay 1 (FI MAIN) (A) from the driver's under-dash fuse/relay box.



12. Check for continuity between PCM connector terminal E5 and body ground.



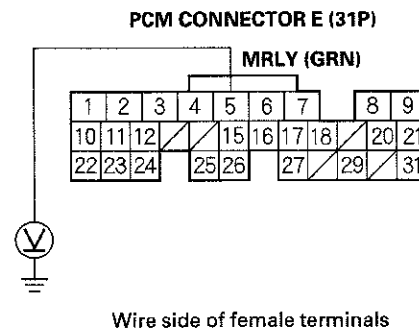
Is there continuity?

YES—Repair short in the wire between the PCM (E5) and PGM-FI main relay 1 (FI MAIN), then go to step 20.

NO—Go to step 19.

13. Reconnect PCM connector E (31P).

14. Measure the voltage between PCM connector terminal E5 and body ground.



Is there battery voltage?

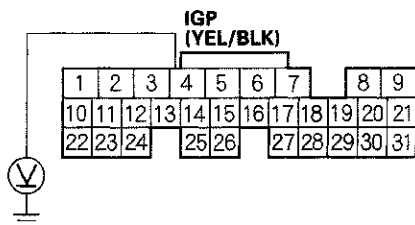
YES—Go to step 15.

NO—Go to step 27.



15. Disconnect PCM connector A (31P).
16. Measure the voltage between PCM connector terminal A4 and body ground.

PCM CONNECTOR A (31P)



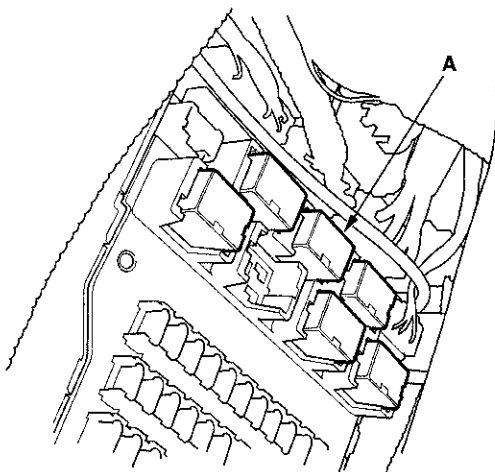
Wire side of female terminals

Is there battery voltage?

YES—Go to step 17.

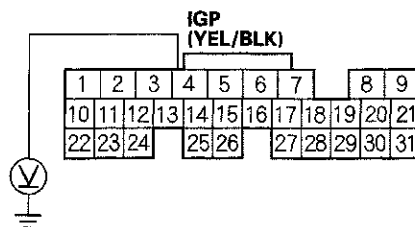
NO—Go to step 27.

17. Remove the left kick panel (see step 3 on page 20-67). Then remove PGM-FI main relay 1 (FI MAIN) (A) from the driver's under-dash fuse/relay box.



18. Measure the voltage between PCM connector terminal A4 and body ground.

PCM CONNECTOR A (31P)



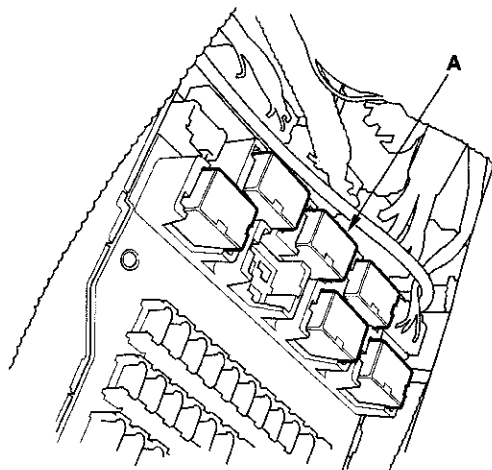
Wire side of female terminals

Is there battery voltage?

YES—Repair short to power in the wire between the PCM (A4) and PGM-FI main relay 1 (FI MAIN), then go to step 20.

NO—Go to step 19.

19. Replace PGM-FI main relay 1 (FI MAIN) (A).



20. Reconnect all connectors.
21. Turn the ignition switch to ON (II).
22. Reset the PCM with the HDS.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

23. Turn the ignition switch to LOCK (0).
24. Wait 10 seconds.
25. Do the PCM idle learn procedure (see page 11-313).
26. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0563 indicated?

YES—Check for poor connections or loose terminals at PGM-FI main relay 1 (FI MAIN) and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

27. Reconnect all connectors.
28. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
29. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0563 indicated?

YES—Check for poor connections or loose terminals at PGM-FI main relay 1 (FI MAIN) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0602: PCM Programming Error

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- This DTC is indicated when a PCM update is not completed.
- Do not turn the ignition switch to ACC (I) or to LOCK (0) while updating the PCM. If you do, the PCM can be damaged.

1. Do the PCM update procedure (see page 11-230).
2. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0602 indicated?

YES—Replace the original PCM (see page 11-232).

■

NO—The update is complete. ■



DTC P0615: Starter Cut Relay STRLD Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0615 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at starter cut relay 1, starter cut relay 2, and the PCM. ■

5. Turn the ignition switch to LOCK (0).
6. Check the No. 32 STRLD (7.5 A) fuse in the auxiliary under-dash fuse/relay holder.

Is the fuse OK?

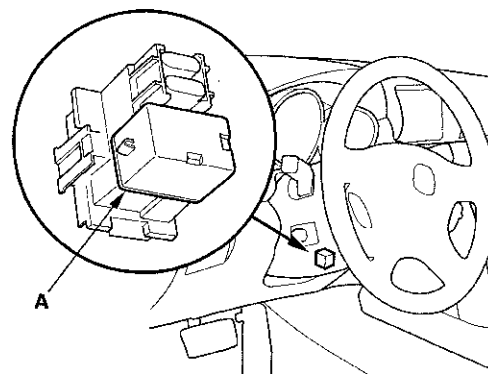
YES—Go to step 7.

NO—Replace the No. 32 STRLD (7.5 A) fuse in the auxiliary under-dash fuse/relay holder, then go to step 12.

7. Jump the SCS line with the HDS.

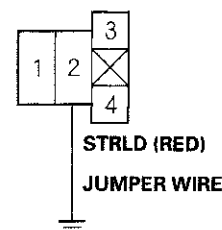
8. Disconnect PCM connector D (17P).

9. Remove starter cut relay 1 (A) from auxiliary under-dash fuse/relay holder.



10. Connect starter cut relay 1 4P connector terminal No. 2 to body ground with a jumper wire.

STARTER CUT RELAY 1 4P CONNECTOR



Terminal side of female terminals

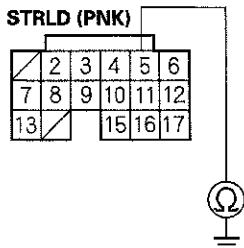
(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

11. Check for continuity between PCM connector terminal D5 and body ground.

PCM CONNECTOR D (17P)



Wire side of female terminals

Is there continuity?

YES—Go to step 17.

NO—Repair open in the wire between the PCM (D5) and starter cut relay 1, then go to step 12.

12. Reconnect all connectors.
13. Turn the ignition switch to ON (II).
14. Reset the PCM with the HDS.
15. Do the PCM idle learn procedure (see page 11-313).
16. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0615 indicated?

YES—Check for poor connections or loose terminals at starter cut relay 1 and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

17. Reconnect all connectors.

18. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).

19. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0615 indicated?

YES—Check for poor connections or loose terminals at starter cut relay 1 and the PCM, then go to step 1. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■



DTC P062F: PCM Internal Control Module Keep Alive Memory (KAM) Error

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check for Pending or Confirmed DTCs with the HDS.

Are any Pending or Confirmed DTCs indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. ■

4. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
5. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P062F indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0630: VIN Not Programmed or Mismatch

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- This DTC is stored only when the PCM does not have the VIN information of the vehicle. Use the HDS to input the missing VIN information.

1. Turn the ignition switch to ON (II).
2. Check the VIN with the HDS.

Does the HDS show the vehicle's VIN?

YES—Go to step 5.

NO—Go to step 3.

3. Input the VIN to the PCM with the HDS.

Does the screen show COMPLETE?

YES—Go to step 5.

NO—Go to step 4.

4. Check for DTCs with the HDS.

Is DTC P062F indicated?

YES—Do the troubleshooting for P062F (see page 11-143). ■

NO—Go to step 9.

5. Clear the DTC with the HDS.
6. Turn the ignition switch to LOCK (0).
7. Turn the ignition switch to ON (II), and wait 5 seconds.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

8. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0630 indicated?

YES—Go to step 9.

NO—Intermittent failure, the system is OK at this time. ■

9. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).

10. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0630 indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0685: PCM Power Control Circuit/ Internal Circuit Malfunction

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If the problem doesn't return after you clear the DTC, or if this DTC is stored intermittently, check for loose terminals at the IGP line connectors before replacing the PCM.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle for 30 seconds.
4. Turn the ignition switch to LOCK (0).
5. Start the engine, and let it idle for 30 seconds.
6. Turn the ignition switch to LOCK (0).
7. Turn the ignition switch to ON (II).
8. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0685 indicated?

YES—Go to step 9.

NO—Intermittent failure, the system is OK at this time. ■

9. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
10. Start the engine, and let it idle for 30 seconds.
11. Turn the ignition switch to LOCK (0).
12. Start the engine, and let it idle for 30 seconds.
13. Turn the ignition switch to LOCK (0).
14. Turn the ignition switch to ON (II).



15. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0685 indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 11-7), then go to step 10. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P1109: BARO Sensor Circuit Out of Range High

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Reset the PCM with the HDS.
2. Start the engine.
3. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1109 indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

4. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
5. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1109 indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

PGM-FI System

DTC Troubleshooting (cont'd)

DTC P1116: ECT Sensor 1 Circuit Range/Performance Problem

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If DTC P0111 is stored at the same time as DTC P1116, troubleshoot DTC P0111 first, then recheck for DTC P1116.

1. Check for poor connections or loose terminals at ECT sensor 1 and ECT sensor 2.

Are the connections and the terminals OK?

YES—Go to step 2.

NO—Repair the connections or terminals, then go to step 27.

2. Turn the ignition switch to ON (II).
3. Check for Pending or Confirmed DTCs with the HDS.

Are DTC P1116 and P2183 indicated at the same time?

YES—Go to step 15.

NO—Go to step 4.

4. Start the engine, and let it idle for 10 minutes.
5. Check ECT SENSOR 1 in the DATA LIST with the HDS.

Is about 129 °F (54 °C) or less, or 1.54 V or more indicated?

YES—Replace ECT sensor 1 (see page 11-226), then go to step 27.

NO—Go to step 6.

6. Turn the ignition switch to LOCK (0).
7. Drain the coolant (see page 10-6).
8. Remove ECT sensor 1 (see page 11-226).
9. Allow ECT sensor 1 to cool to the ambient temperature.

10. Note the ambient temperature.

11. Connect ECT sensor 1 to its 2P connector, but do not install it.

12. Turn the ignition switch to ON (II).

13. Note the value of ECT SENSOR 1 quickly in the DATA LIST with the HDS.

14. Compare the value of ECT SENSOR 1 and the ambient temperature.

Does the value of ECT SENSOR 1 differ 5.4 °F (3 °C) or more from the ambient temperature?

YES—Replace ECT sensor 1 (see page 11-226), then go to step 27.

NO—Intermittent failure, the system is OK at this time. Reinstall ECT sensor 1, and refill the cooling system (see step 9 on page 10-7). Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the PCM. ■

15. Start the engine, and let it idle for 10 minutes.

16. Check ECT SENSOR 1 in the DATA LIST with the HDS.

Is about 118 °F (48 °C) or less, or 1.75 V or more indicated?

YES—Replace ECT sensor 1 (see page 11-226), then go to step 27.

NO—Go to step 17.

17. Let the engine idle 10 minutes.

18. Check ECT SENSOR 2 in the DATA LIST with the HDS.

Is about 131 °F (55 °C) or less, or 1.50 V or more indicated?

YES—Replace ECT sensor 2 (see page 11-226), then go to step 27.

NO—Go to step 19.



19. Turn the ignition switch to LOCK (0).
20. Drain the coolant (see page 10-6).
21. Remove ECT sensor 1 (see page 11-226), and ECT sensor 2 (see page 11-226).
22. Allow the sensors to cool to the ambient temperature.
23. Note the ambient temperature.
24. Connect ECT sensor 1 and ECT sensor 2 to their 2P connectors, but do not install them.
25. Note the value of ECT SENSOR 1 and ECT SENSOR 2 quickly in the DATA LIST with the HDS.
26. Compare the value of ECT SENSOR 1 and the ambient temperature, and the value of ECT SENSOR 2 and the ambient temperature individually.

Does one of sensor differ more than 5.4 °F (3 °C) from the ambient temperature?

YES—Replace the sensor that differed more than 5.4 °F (3 °C) from the ambient temperature, then go to step 27.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the PCM. ■
27. Turn the ignition switch to ON (II).
28. Reset the PCM with the HDS.
29. Do the PCM idle learn procedure (see page 11-313).
30. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0116 indicated?

YES—Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P1128: MAP Sensor Signal Lower Than Expected

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Before troubleshooting, check for poor connections or a blockage at the intake air duct.

1. Turn the ignition switch to ON (II).
2. Check the MAP SENSOR in the DATA LIST with the HDS.

Is there less than 54.1 kPa (16.0 in.Hg, 406 mmHg) or 1.61 V held for more than 5 seconds?

YES—Go to step 7.

NO—Go to step 3.

3. Clear the DTC with the HDS.
4. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle.
5. Test-drive under these conditions:
 - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
 - Transmission in D
 - Engine speed about 1,100 rpm or more
 - Vehicle speed about 25 mph (40 km/h) under half throttle
6. Monitor the OBD STATUS for DTC P1128 in the DTCs MENU with the HDS.

Does the screen indicate FAILED?

YES—Go to step 7.

NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAP sensor and the PCM. If the screen indicates NOT COMPLETED, go to step 4 and recheck.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

7. Turn the ignition switch to LOCK (0).
8. Replace the MAP sensor (see page 11-225).
9. Turn the ignition switch to ON (II).
10. Reset the PCM with the HDS.
11. Do the PCM idle learn procedure (see page 11-313).
12. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle.
13. Test-drive under these conditions:
 - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
 - Transmission in D
 - Engine speed about 1,100 rpm or more
 - Vehicle speed about 25 mph (40 km/h) under half throttle
14. Check for Pending or Confirmed DTCs with the HDS.
15. Monitor the OBD STATUS for DTC P1128 in the DTCs MENU with the HDS.

Is DTC P1128 indicated?

YES—Check for poor connections or loose terminals at the MAP sensor and the PCM, then go to step 1.

NO—Go to step 15.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 14, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the MAP sensor and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, go to step 12.

DTC P1129: MAP Sensor Signal Higher than Expected

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Check for vacuum leaks in these parts:

- PCV valve
- PCV hose
- EVAP canister purge valve
- Throttle body
- Intake manifold
- Brake booster
- Brake booster hose

Are there any vacuum leaks?

YES—Repair or replace parts with vacuum leaks, then go to step 9.

NO—Go to step 2.

2. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle.
3. Check the MAP SENSOR in the DATA LIST with the HDS.

Is there more than 36.9 kPa (11.0 in.Hg, 277 mmHg) or 1.14 V held for more than 5 seconds?

YES—Go to step 7.

NO—Go to step 4.

4. Clear the DTC with the HDS.
5. Test-drive under these conditions:
 - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
 - Transmission in D
 - Engine speed between 1,100—5,900 rpm
 - Drive at a steady speed between 55—75 mph (88—120 km/h) for 10 seconds, then decelerate (with the throttle fully closed) for 5 seconds



6. Monitor the OBD STATUS for DTC P1129 in the DTCs MENU with the HDS.

Does the screen indicate FAILED?

YES—Go to step 7.

NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAP sensor and the PCM. If the screen indicates NOT COMPLETED, go to step 5 and recheck.

7. Turn the ignition switch to LOCK (0).
8. Replace the MAP sensor (see page 11-225).
9. Turn the ignition switch to ON (II).
10. Reset the PCM with the HDS.
11. Do the PCM idle learn procedure (see page 11-313).
12. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle.

13. Test-drive under these conditions:

- Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
- Transmission in D
- Engine speed between 1,100—5,900 rpm
- Drive at a steady speed between 55—75 mph (88—120 km/h) for 10 seconds, then decelerate (with the throttle fully closed) for 5 seconds

14. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1129 indicated?

YES—Check for poor connections or loose terminals at the MAP sensor and the PCM, then go to step 1.

NO—Go to step 15.

15. Monitor the OBD STATUS for DTC P1129 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 14, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the MAP sensor and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, go to step 12.

PGM-FI System

DTC Troubleshooting (cont'd)

DTC P1172: Rear A/F Sensor (Bank 1, Sensor 1) Circuit Out of Range High

DTC P1174: Front A/F Sensor (Bank 2, Sensor 1) Circuit Out of Range High

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle.
4. Monitor the OBD STATUS for P1172 and/or P1174* in the DTCs MENU with the HDS.

Does the screen indicate FAILED?

YES—Go to step 5.

NO—If the screen indicates **PASSED**, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the screen indicates **EXECUTING**, keep driving until a result comes on. If the screen indicates **OUT OF CONDITION**, go to step 3 and recheck.

5. Turn the ignition switch to LOCK (0).
6. Replace the A/F sensor (Sensor 1) (see page 11-227).
7. Turn the ignition switch to ON (II).
8. Reset the PCM with the HDS.
9. Do the PCM idle learn procedure (see page 11-313).
10. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle.

11. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1172 and/or P1174 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1.

NO—Go to step 12.

12. Monitor the OBD STATUS for DTC P1172 and/or P1174* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 11, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates **FAILED**, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1. If the screen indicates **EXECUTING** or **OUT OF CONDITION**, keep idling until a result comes on.



DTC P1297: ELD Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Check the ELD in the DATA LIST with the HDS.

Is 72 A or more indicated?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ELD and the PCM. ■

3. Turn the ignition switch to LOCK (0).
4. Disconnect the ELD 3P connector.
5. Turn the ignition switch to ON (II).
6. Check the ELD in the DATA LIST with the HDS.

Is 72 A or more indicated?

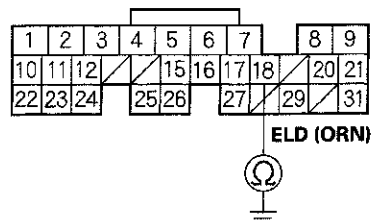
YES—Go to step 7.

NO—Go to step 11.

7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect PCM connector E (31P).

10. Check for continuity between PCM connector terminal E18 and body ground.

PCM CONNECTOR E (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (E18) and the ELD, then go to step 13.

NO—Go to step 20.

11. Turn the ignition switch to LOCK (0).
12. Replace the under-hood fuse/relay box (see page 22-84).
13. Reconnect all connectors.
14. Turn the ignition switch to ON (II).
15. Reset the PCM with the HDS.
16. Do the PCM idle learn procedure (see page 11-313).
17. Start the engine.
18. Turn on the headlights.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

19. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1297 indicated?

YES—Check for poor connections or loose terminals at the ELD unit and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

20. Reconnect all connectors.

21. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).

22. Start the engine.

23. Turn on the headlights.

24. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1297 indicated?

YES—Check for poor connections or loose terminals at the ELD unit and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then go to step 22. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P1298: ELD Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Start the engine, and let it idle.
2. Check the ELD in the DATA LIST with the HDS.

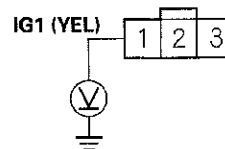
Is 0.2 A or less indicated?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ELD and the PCM. ■

3. Turn the ignition switch to LOCK (0).
4. Disconnect the ELD 3P connector.
5. Turn the ignition switch to ON (II).
6. Measure the voltage between ELD 3P connector terminal No. 1 and body ground.

ELD 3P CONNECTOR



Wire side of female terminals

Is there battery voltage?

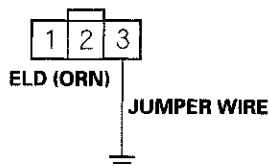
YES—Go to step 7.

NO—Repair open in the wire between the No. 18 ACG (15 A) fuse in the driver's under-dash fuse/relay box and the ELD, then go to step 14.



7. Turn the ignition switch to LOCK (0).
8. Connect ELD 3P connector terminal No. 3 to body ground with a jumper wire.

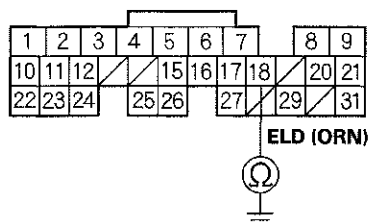
ELD 3P CONNECTOR



Wire side of female terminals

9. Jump the SCS line with the HDS.
10. Disconnect PCM connector E (31P).
11. Check for continuity between PCM connector terminal E18 and body ground.

PCM CONNECTOR E (31P)



Wire side of female terminals

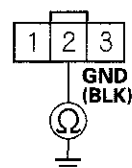
Is there continuity?

YES—Go to step 12.

NO—Repair open in the wire between the PCM (E18) and the ELD, then go to step 14.

12. Check for continuity between ELD 3P connector terminal No. 2 and body ground.

ELD 3P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 13.

NO—Repair open in the wire between the ELD and G301, then go to step 14.

13. Replace the under-hood fuse/relay box (see page 22-84).
14. Reconnect all connectors.
15. Turn the ignition switch to ON (II).
16. Reset the PCM with the HDS.
17. Do the PCM idle learn procedure (see page 11-313).
18. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1298 indicated?

YES—Go to step 19.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

19. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
20. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1298 indicated?

YES—Check for poor connections or loose terminals at the ELD unit and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P1549: Charging System High Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If a high voltage battery (24 V, etc.) is connected to the vehicle, this DTC can be stored.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check under these conditions:
 - A/C off
 - Headlights off
 - Rear window defogger off
5. Hold the engine speed at 2,000 rpm (in P or N) for 1 minute.
6. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1549 indicated?

YES—Replace the alternator (see page 4-36), then go to step 7.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the alternator and the under-hood fuse/relay box. ■

7. Turn the ignition switch to ON (II).
8. Reset the PCM with the HDS.
9. Do the PCM idle learn procedure (see page 11-313).



10. Start the engine.

11. Check under these conditions:

- A/C off
- Headlights off
- Rear window defogger off

12. Hold the engine speed at 2,000 rpm (in P or N) for 1 minute.

13. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1549 indicated?

YES—Check for poor connections or loose terminals at the alternator and the under-hood fuse/relay box, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P16BB: Alternator B Terminal Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).

2. Clear the DTC with the HDS.

3. Start the engine.

4. Check under these conditions:

- A/C on
- Temperature control on maximum cool
- Blower fan at maximum speed
- Rear window defogger on
- Headlights on high beam

5. Hold the engine speed at 2,000 rpm (in P or N) for 1 minute.

6. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P16BB indicated?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the alternator and the under-hood fuse/relay box, and check the battery performance (see page 22-90). ■

7. Check for poor connections or loose terminals at the alternator B terminal and the under-hood fuse/relay box terminal (T101).

Are the connections and terminals OK?

YES—Go to step 8.

NO—Repair the connections or terminals, then go to step 9.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

8. Check for an open in the cable (+B line) between the alternator B terminal and under-hood fuse/relay box terminal (T101).

Is the cable OK?

YES—Replace the alternator (see page 4-36), then go to step 9.

NO—Repair open in the cable (+B line) between the alternator and the under-hood fuse/relay box, then go to step 9.

9. Turn the ignition switch to ON (II).
10. Reset the PCM with the HDS.
11. Do the PCM idle learn procedure (see page 11-313).
12. Start the engine.
13. Check under these conditions:
- A/C on
 - Temperature control on maximum cool
 - Blower fan at maximum speed
 - Rear window defogger on
 - Headlights on high beam
14. Hold the engine speed at 2,000 rpm (in P or N) for 1 minute.
15. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P16BB indicated?

YES—Check for poor connections or loose terminals at the alternator and the under-hood fuse/relay box, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P16BC: Alternator FR Terminal Circuit/IGP Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Check for poor connections or loose terminals at the alternator 4P connector.

Are the connections and terminals OK?

YES—Go to step 2.

NO—Repair the connections or terminals, then go to step 20.

2. Turn the ignition switch to ON (II).
3. Clear the DTC with the HDS.
4. Start the engine.
5. Check under these conditions:
- A/C on
 - Temperature control on maximum cool
 - Blower fan at maximum speed
 - Rear window defogger on
 - Headlights on high beam
6. Hold the engine speed at 2,000 rpm (in P or N) for 1 minute.
7. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P16BC indicated?

YES—Go to step 8.

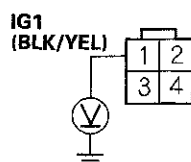
NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the alternator. ■

8. Turn the ignition switch to LOCK (0).
9. Disconnect the alternator 4P connector.
10. Turn the ignition switch to ON (II).



11. Measure the voltage between alternator 4P connector terminal No. 1 and body ground.

ALTERNATOR 4P CONNECTOR



Wire side of female terminals

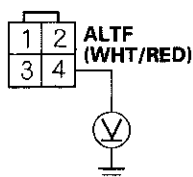
Is there battery voltage?

YES—Go to step 12.

NO—Repair open in the wire between the alternator (IG1 line) and the No. 18 ACG (15 A) fuse in the driver's under-dash fuse/relay box, then go to step 18.

12. Measure the voltage between alternator 4P connector terminal No. 4 and body ground.

ALTERNATOR 4P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Replace the alternator (see page 4-36), then go to step 18.

NO—Go to step 13.

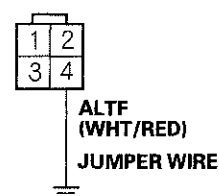
13. Turn the ignition switch to LOCK (0).

14. Jump the SCS line with the HDS.

15. Disconnect PCM connector A (31P).

16. Connect alternator 4P connector terminal No. 4 to body ground with a jumper wire.

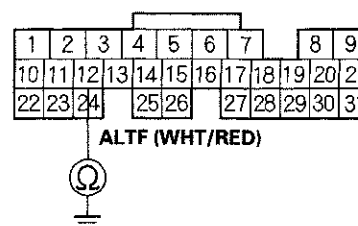
ALTERNATOR 4P CONNECTOR



Wire side of female terminals

17. Check for continuity between PCM connector terminal A12 and body ground.

PCM CONNECTOR A (31P)



Wire side of female terminals

Is there continuity?

YES—Go to step 27.

NO—Repair open in the wire between the PCM (A12) and the alternator, then go to step 19.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

18. Turn the ignition switch to LOCK (0).
19. Reconnect all connectors.
20. Turn the ignition switch to ON (II).
21. Reset the PCM with the HDS.
22. Do the PCM idle learn procedure (see page 11-313).
23. Start the engine.
24. Check under these conditions:
 - A/C on
 - Temperature control on maximum cool
 - Blower fan at maximum speed
 - Rear window defogger on
 - Headlights on high beam
25. Hold the engine speed at 2,000 rpm (in P or N) for 1 minute.
26. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P16BC indicated?

YES—Check for poor connections or loose terminals at the alternator and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

27. Reconnect all connectors.
28. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
29. Start the engine.
30. Check under these conditions:
 - A/C on
 - Temperature control at maximum cool
 - Blower fan at maximum speed
 - Rear window defogger on
 - Headlights on high beam
31. Hold the engine speed at 2,000 rpm (in P or N) for 1 minute.
32. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P16BC indicated?

YES—Check for poor connections or loose terminals at the alternator and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then go to step 29. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■



DTC P16BD: Starter Relay 2 Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

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

Is DTC P16BD indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at starter relay 2 and the PCM. ■

4. Replace starter relay 2.
5. Reset the PCM with the HDS.
6. Do the PCM idle learn procedure (see page 11-313).
7. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P16BD indicated?

YES—Check for poor connections or loose terminals at starter relay 2 and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P16BE: Starter Relay 1 Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

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

Is DTC P16BE indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at starter relay 1 and the PCM. ■

4. Replace starter relay 1.
5. Reset the PCM with the HDS.
6. Do the PCM idle learn procedure (see page 11-313).
7. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P16BE indicated?

YES—Check for poor connections or loose terminals at starter relay 1 and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

PGM-FI System

DTC Troubleshooting (cont'd)

DTC P16BF: Starter Cut Relay STRLY Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS, and wait 5 seconds.
3. Check for STARTER CUT RELAY in the DATA LIST with the HDS.

Is OFF indicated?

YES—Go to step 4.

NO—Go to step 12.

4. Turn the ignition switch to START (III).
5. While holding the ignition switch in START (III), check the STARTER CUT CONTROL RETURN in the DATA LIST with the HDS.

Is OFF indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at starter cut relay 1, starter cut relay 2, and the PCM. ■

6. Turn the ignition switch to LOCK (0).
7. Remove starter cut relay 1 from the auxiliary under-dash fuse/relay box (see page 22-76) and starter cut relay 2 from the driver's under-dash fuse/relay box (see page 22-75).

8. Test the starter cut relays (see page 22-93).

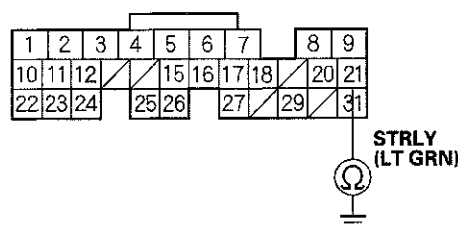
Are the relays OK?

YES—Go to step 9.

NO—Replace starter cut relay 1 and/or starter cut relay 2, then go to step 19.

9. Jump the SCS line with the HDS.
10. Disconnect PCM connector E (31P).
11. Check for continuity between PCM connector terminal E21 and body ground.

PCM CONNECTOR E (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (E21) and starter cut relay 1 or starter cut relay 2, then go to step 19.

NO—Go to step 19.

12. Turn the ignition switch to LOCK (0).
13. Remove starter cut relay 1 from the auxiliary under-dash fuse/relay box (see page 22-76) and starter cut relay 2 from the driver's under-dash fuse/relay box (see page 22-75).
14. Test the starter cut relays (see page 22-93).

Are the relays OK?

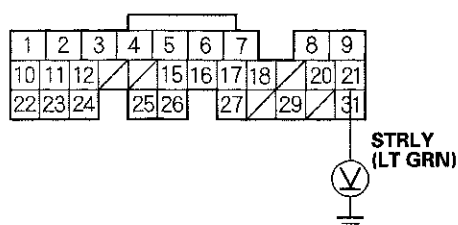
YES—Go to step 15.

NO—Replace starter cut relay 1 and/or starter cut relay 2, then go to step 19.



15. Jump the SCS line with the HDS.
16. Disconnect PCM connector E (31P).
17. Turn the ignition switch to ON (II).
18. Measure the voltage between PCM connector terminal E21 and body ground.

PCM CONNECTOR E (31P)



Wire side of female terminals

Is there 1.0 V or more?

YES—Repair short in the wire between the PCM (E21) and starter cut relay 1 or starter cut relay 2, then go to step 19.

NO—Go to step 24.

19. Reconnect all connectors.
20. Turn the ignition switch to ON (II).
21. Reset the PCM with the HDS.
22. Do the PCM idle learn procedure (see page 11-313).
23. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P16BF indicated?

YES—Check for poor connections or loose terminals at starter cut relay 1, starter cut relay 2, and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

24. Turn the ignition switch to LOCK (0).
25. Reconnect all connectors.
26. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
27. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P16BF indicated?

YES—Check for poor connections or loose terminals at starter cut relay 1, starter cut relay 2, and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

PGM-FI System

DTC Troubleshooting (cont'd)

DTC P2183: ECT Sensor 2 Circuit Range/Performance Problem

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If DTC P0111 is stored at the same time as DTC P2183, troubleshoot DTC P0111 first, then recheck for DTC P2183.

1. Check for poor connections or loose terminals at ECT sensor 1 and ECT sensor 2.

Are the connections and terminals OK?

YES—Go to step 2.

NO—Repair the connections or terminals, then go to step 27.

2. Turn the ignition switch to ON (II).
3. Check for Pending or Confirmed DTCs with the HDS.

Are DTC P1116 and P2183 indicated at the same time?

YES—Go to step 15.

NO—Go to step 4.

4. Start the engine, and let it idle for 10 minutes.
5. Check ECT SENSOR 2 in the DATA LIST with the HDS.

Is about 131 °F (55 °C) or less, or 1.50 V or more indicated?

YES—Replace ECT sensor 2 (see page 11-226), then go to step 27.

NO—Go to step 6.

6. Turn the ignition switch to LOCK (0).
7. Drain the coolant (see page 10-6).
8. Remove ECT sensor 2 (see page 11-226).
9. Allow ECT sensor 2 to cool to the ambient temperature.
10. Note the ambient temperature.

11. Connect ECT sensor 2 to its 2P connector, but do not install it.

12. Turn the ignition switch to ON (II).

13. Note the value of ECT SENSOR 2 quickly in the DATA LIST with the HDS.

14. Compare the value of ECT SENSOR 2 and the ambient temperature.

Does ECT SENSOR 2 differ 5.4 °F (3 °C) or more from the ambient temperature?

YES—Replace ECT sensor 2 (see page 11-226), then go to step 27.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the PCM. ■

15. Start the engine, and let it idle for 10 minutes.

16. Check ECT SENSOR 1 in the DATA LIST with the HDS.

Is about 118 °F (48 °C) or less, or 1.75 V or more indicated?

YES—Replace ECT sensor 1 (see page 11-226), then go to step 27.

NO—Go to step 17.

17. Let the engine idle 10 minutes.

18. Check ECT SENSOR 2 in the DATA LIST with the HDS.

Is about 131 °F (55 °C) or less, or 1.50 V or more indicated?

YES—Replace ECT sensor 2 (see page 11-226), then go to step 27.

NO—Go to step 19.



19. Turn the ignition switch to LOCK (0).
20. Drain the coolant (see page 10-6).
21. Remove ECT sensor 1 (see page 11-226), and ECT sensor 2 (see page 11-226).
22. Allow the sensors to cool to the ambient temperature.
23. Note the ambient temperature.
24. Connect ECT sensor 1 and ECT sensor 2 to their 2P connectors, but do not install them.
25. Note the value of ECT SENSOR 1 and ECT SENSOR 2 quickly in the DATA LIST with the HDS.
26. Compare the value of ECT SENSOR 1 and the ambient temperature, and the value of ECT SENSOR 2 and the ambient temperature individually.

Does one of the sensors differ more than 5.4 °F (3 °C) from the ambient temperature?

YES—Replace the sensor that differed more than 5.4 °F (3 °C) from the ambient temperature, then go to step 27.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the PCM. ■

27. Turn the ignition switch to ON (II).
28. Reset the PCM with the HDS.
29. Do the PCM idle learn procedure (see page 11-313).
30. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2183 indicated?

YES—Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

PGM-FI System

DTC Troubleshooting (cont'd)

DTC P2184: ECT Sensor 2 Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Check ECT SENSOR 2 in the DATA LIST with the HDS.

Is about 356 °F (180 °C) or more, or 0.08 V or less indicated?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 2 and the PCM. ■

3. Turn the ignition switch to LOCK (0).
4. Disconnect ECT sensor 2 2P connector.
5. Turn the ignition switch to ON (II).
6. Check ECT SENSOR 2 in the DATA LIST with the HDS.

Is about 356 °F (180 °C) or more, or 0.08 V or less indicated?

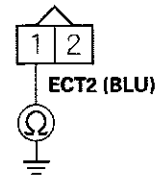
YES—Go to step 7.

NO—Go to step 11.

7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect PCM connector B (24P).

10. Check for continuity between ECT sensor 2 2P connector terminal No. 1 and body ground.

ECT SENSOR 2 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between ECT sensor 2 and the PCM (B24), then go to step 13.

NO—Go to step 18.

11. Turn the ignition switch to LOCK (0).
12. Replace ECT sensor 2 (see page 11-226).
13. Reconnect all connectors.
14. Turn the ignition switch to ON (II).
15. Reset the PCM with the HDS.
16. Do the PCM idle learn procedure (see page 11-313).
17. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2184 indicated?

YES—Check for poor connections or loose terminals at ECT sensor 2 and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■



18. Reconnect all connectors.
19. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
20. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2184 indicated?

YES—Check for poor connections or loose terminals at ECT sensor 2 and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P2185: ECT Sensor 2 Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Check ECT SENSOR 2 in the DATA LIST with the HDS.

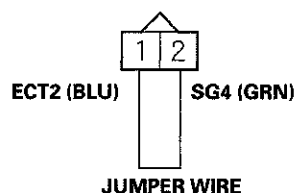
Is about -40°F (-40°C) or less, or 4.90 V or more indicated?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 2 and the PCM. ■

3. Turn the ignition switch to LOCK (0).
4. Disconnect ECT sensor 2 2P connector.
5. Connect ECT sensor 2 2P connector terminals No. 1 and No. 2 with a jumper wire.

ECT SENSOR 2 2P CONNECTOR



Wire side of female terminals

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

6. Turn the ignition switch to ON (II).
7. Check ECT SENSOR 2 in the DATA LIST with the HDS.

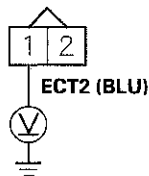
Is about -40°F (-40°C) or less, or 4.90 V or more indicated?

YES—Go to step 8.

NO—Go to step 18.

8. Turn the ignition switch to LOCK (0).
9. Remove the jumper wire from ECT sensor 2 2P connector.
10. Turn the ignition switch to ON (II).
11. Measure the voltage between ECT sensor 2 2P connector terminal No. 1 and body ground.

ECT SENSOR 2 2P CONNECTOR



Wire side of female terminals

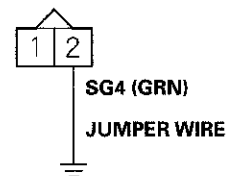
Is there about 5 V?

YES—Go to step 12.

NO—Go to step 17.

12. Turn the ignition switch to LOCK (0).
13. Jump the SCS line with the HDS.
14. Disconnect PCM connector E (31P).
15. Connect ECT sensor 2 2P connector terminal No. 2 to body ground with a jumper wire.

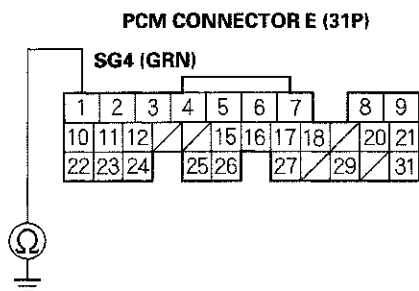
ECT SENSOR 2 2P CONNECTOR



Wire side of female terminals



16. Check for continuity between PCM connector terminal E1 and body ground.

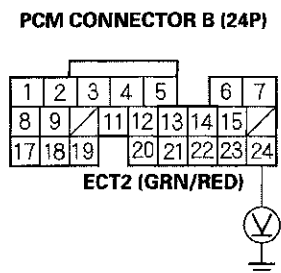


Is there continuity?

YES—Go to step 25.

NO—Repair open in the wire between the PCM (E1) and ECT sensor 2, then go to step 20.

17. Measure the voltage between PCM connector terminal B24 and body ground.



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the PCM (B24) and ECT sensor 2, then go to step 20.

NO—Go to step 25.

18. Turn the ignition switch to LOCK (0).

19. Replace ECT sensor 2 (see page 11-226).

20. Reconnect all connectors.

21. Turn the ignition switch to ON (II).

22. Reset the PCM with the HDS.

23. Do the PCM idle learn procedure (see page 11-313).

24. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2185 indicated?

YES—Check for poor connections or loose terminals at ECT sensor 2 and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

25. Reconnect all connectors.
26. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
27. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2185 indicated?

YES—Check for poor connections or loose terminals at ECT sensor 2 and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P2195: Rear A/F Sensor (Bank 1, Sensor 1) Signal Stuck Lean

DTC P2197: Front A/F Sensor (Bank 2, Sensor 1) Signal Stuck Lean

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to the front bank (Bank 2).
- If the vehicle was out of fuel and the engine stalled before this DTC was stored, refuel, and clear the DTC with the HDS.
- If DTC P2101, P2108, P2118, P2135, P2138, P2176, U0107, or a combination of P2122 and P2127, P2122 and P2138 or P2127 and P2138 is stored at the same time as DTC P2195 (P2197)*, troubleshoot those DTCs first, then recheck for DTC P2195 (P2197)*.

1. Check for dirt or debris in the MAF sensor/IAT sensor.

Is it dirty?

YES—Remove the debris. If needed, replace the MAF sensor/IAT sensor (see page 11-225).

NO—Go to step 2.

2. Check the installation of the A/F sensor (Sensor 1).

Is the A/F sensor loose or disconnected from the exhaust pipe?

YES—Go to step 7.

NO—Go to step 3.

3. Turn the ignition switch to ON (II).
4. Clear the DTC with the HDS.
5. Start the engine, and let it idle for 2 minutes.



6. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2195 and/or P2197 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 14.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

7. Turn the ignition switch to LOCK (0).
8. Reinstall the A/F sensor (Sensor 1) (see page 11-227).
9. Turn the ignition switch to ON (II).
10. Reset the PCM with the HDS.
11. Do the PCM idle learn procedure (see page 11-313).
12. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2195 and/or P2197 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1.

NO—Go to step 13.

13. Monitor the OBD STATUS for DTC P2195 and/or P2197* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 12, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

14. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).

15. Start the engine, and let it idle for 2 minutes.

16. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2195 and/or P2197 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then go to step 15. If the PCM was substituted, go to step 1.

NO—Go to step 17.

17. Monitor the OBD STATUS for DTC P2195 and/or P2197* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs were indicated in step 16, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then go to step 15. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

PGM-FI System

DTC Troubleshooting (cont'd)

DTC P2227: BARO Sensor Circuit Range/Performance Problem

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If DTC P0107, P0108, P1128, and/or P1129 are stored at the same time as DTC P2227, troubleshoot those DTCs first, then recheck for DTC P2227.

1. Turn the ignition switch to ON (II), and wait 2 seconds.
2. Check the BARO SENSOR in the DATA LIST with the HDS.

Is about 101 kPa (29.9 in.Hg, 760 mmHg), or about 2.9 V at sea level indicated?

YES—Go to step 3.

NO—Go to step 8.

3. Clear the DTC with the HDS.
4. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle.
5. Test-drive under these conditions:
 - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
 - Transmission in D
 - Throttle position between 14 deg and 45 deg for at least 3 seconds

6. Monitor the OBD STATUS for DTC P2227 in the DTCs MENU with the HDS.

Does the screen indicate FAILED?

YES—Go to step 7.

NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. If the screen indicates NOT COMPLETED, go to step 4 and recheck.

7. Check the intake air system for clogging or the restrictions (foreign material, dirty air cleaner element, etc).

Is the intake air system clogged or restricted?

YES—Remove the clog or restriction, then go to step 9.

NO—Go to step 8.

8. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
9. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle.
10. Test-drive under these conditions:
 - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
 - Transmission in D
 - Throttle position between 14 deg and 45 deg for at least 3 seconds



11. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2227 indicated?

YES—Check for poor connections or loose terminals at the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then go to step 9. If the PCM was substituted, go to step 1.

NO—Go to step 12.

12. Monitor the OBD STATUS for DTC P2227 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs were indicated in step 11, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then go to step 9. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, go to step 9.

DTC P2228: BARO Sensor Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Check the BARO SENSOR in the DATA LIST with the HDS.

Is about 53 kPa (15.6 in.Hg, 397 mmHg), or 1.58 V or less indicated?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. ■

3. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2228 indicated?

YES—Check for poor connections or loose terminals at the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted in step 3, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

PGM-FI System

DTC Troubleshooting (cont'd)

DTC P2229: BARO Sensor Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Check the BARO SENSOR in the DATA LIST with the HDS.

Is about 160 kPa (47.2 in.Hg, 1,200 mmHg), or 4.5 V or more indicated?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. ■

3. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2229 indicated?

YES—Check for poor connections or loose terminals at the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted in step 3, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P2237: Rear A/F Sensor (Bank 1, Sensor 1) IP Circuit High Voltage

DTC P2240: Front A/F Sensor (Bank 2, Sensor 1) IP Circuit High Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle for 2 minutes.
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2237 and/or P2240 indicated?*

YES—Go to step 5.

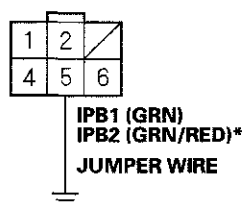
NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. ■

5. Turn the ignition switch to LOCK (0).
6. Jump the SCS line with the HDS.
7. Disconnect the A/F sensor (Sensor 1) 6P connector.
8. Disconnect PCM connector B (24P).



9. Connect A/F sensor (Sensor 1) 6P connector terminal No. 5 to body ground with a jumper wire.

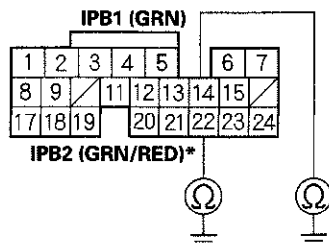
A/F SENSOR (SENSOR 1) 6P CONNECTOR



Wire side of female terminals

10. Check for continuity between PCM connector terminal B14 (B22)* and body ground.

PCM CONNECTOR B (24P)



Wire side of female terminals

Is there continuity?

YES—Go to step 11.

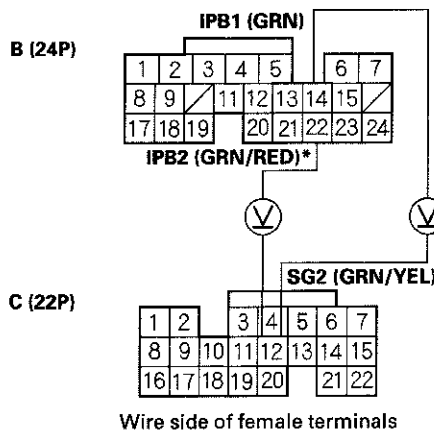
NO—Repair open in the wire between the PCM (B14 (B22)*) and the A/F sensor (Sensor 1), then go to step 16.

11. Remove the jumper wire from the A/F sensor (Sensor 1) 6P connector, then reconnect PCM connector B (24P).

12. Turn the ignition switch to ON (II).

13. Measure the voltage between PCM connector terminals B14 (B22)* and C12.

PCM CONNECTORS



Wire side of female terminals

Is there about 0.2 V or less?

YES—Go to step 22.

NO—Go to step 14.

14. Turn the ignition switch to LOCK (0).
15. Replace the A/F sensor (Sensor 1) (see page 11-227).
16. Reconnect all connectors.
17. Turn the ignition switch to ON (II).
18. Reset the PCM with the HDS.
19. Do the PCM idle learn procedure (see page 11-313).
20. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2237 and/or P2240 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1.

NO—Go to step 21.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

21. Monitor the OBD STATUS for DTC P2237 and/or P2240* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 20, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

22. Turn the ignition switch to LOCK (0).
23. Reconnect all connectors.
24. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
25. Start the engine, and let it idle.
26. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2237 and/or P2240 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 27.

27. Monitor the OBD STATUS for DTC P2237 and/or P2240* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs were indicated in step 26, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then go to step 25. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

DTC P2238: Rear A/F Sensor (Bank 1, Sensor 1) IP Circuit Low Voltage

DTC P2241: Front A/F Sensor (Bank 2, Sensor 1) IP Circuit Low Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle for 2 minutes.
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2238 and/or P2241 indicated?*

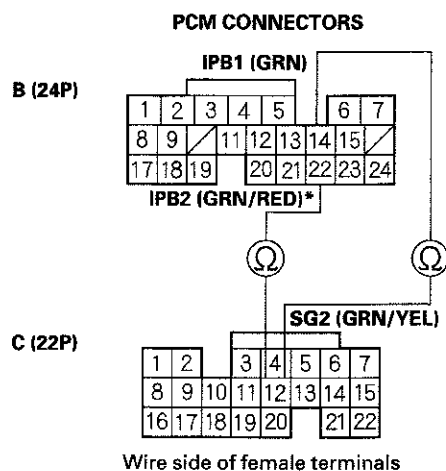
YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. ■

5. Turn the ignition switch to LOCK (0).
6. Jump the SCS line with the HDS.
7. Disconnect the A/F sensor (Sensor 1) 6P connector.
8. Disconnect PCM connector B (24P).



9. Check for continuity between PCM connector terminals B14 (B22)* and C12.



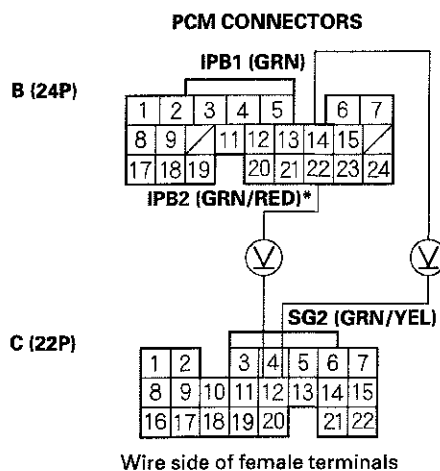
Is there continuity?

YES—Repair short in the wire between the PCM (B14 (B22)*) and the A/F sensor (Sensor 1), then go to step 15.

NO—Go to step 10.

10. Reconnect PCM connector B (24P).
11. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle for 2 minutes.

12. Measure the voltage between PCM connector terminals B14 (B22)* and C12.



Is there about 0.2 V or less?

YES—Go to step 21.

NO—Go to step 13.

13. Turn the ignition switch to LOCK (0).
14. Replace the A/F sensor (Sensor 1) (see page 11-227).
15. Reconnect all connectors.
16. Turn the ignition switch to ON (II).
17. Reset the PCM with the HDS.
18. Do the PCM idle learn procedure (see page 11-313).
19. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2238 and/or P2241 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1.

NO—Go to step 20.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

20. Monitor the OBD STATUS for DTC P2238 and/or P2241* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 19, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

21. Turn the ignition switch to LOCK (0).
22. Reconnect all connectors.
23. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
24. Start the engine, and let it idle.
25. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2238 and/or P2241 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 26.

26. Monitor the OBD STATUS for DTC P2238 and/or P2241* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs were indicated in step 25, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then go to step 24. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

DTC P2243: Rear A/F Sensor (Bank 1, Sensor 1) VCENT Circuit High Voltage

DTC P2247: Front A/F Sensor (Bank 2, Sensor 1) VCENT Circuit High Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle for 2 minutes.
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2243 and/or P2247 indicated?*

YES—Go to step 5.

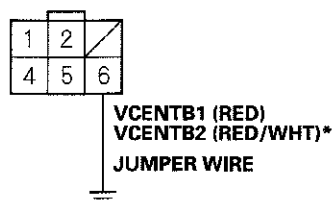
NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. ■

5. Turn the ignition switch to LOCK (0).
6. Jump the SCS line with the HDS.
7. Disconnect the A/F sensor (Sensor 1) 6P connector.
8. Disconnect PCM connector B (24P).



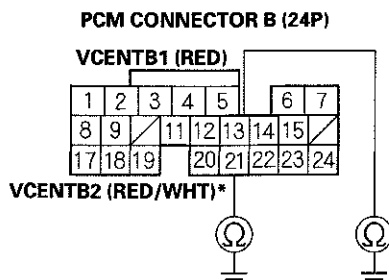
9. Connect A/F sensor (Sensor 1) 6P connector terminal No. 6 to body ground with a jumper wire.

A/F SENSOR (SENSOR 1) 6P CONNECTOR



Wire side of female terminals

10. Check for continuity between PCM connector terminal B13 (B21)* and body ground.



Wire side of female terminals

Is there continuity?

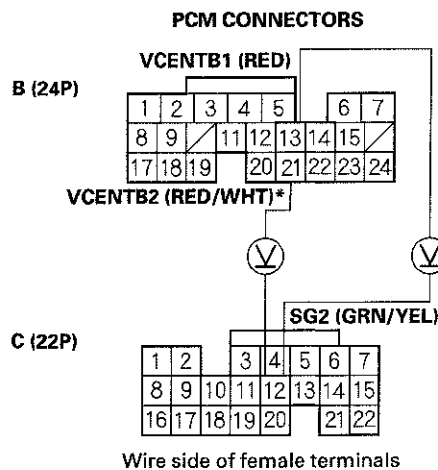
YES—Go to step 11.

NO—Repair open in the wire between the PCM (B13 (B21)*) and the A/F sensor (Sensor 1), then go to step 16.

11. Remove the jumper wire from the A/F sensor (Sensor 1) 6P connector, then reconnect PCM connector B (24P).

12. Turn the ignition switch to ON (II).

13. Measure the voltage between PCM connector terminals B13 (B21)* and C12.



Wire side of female terminals

Is there about 0.2 V or less?

YES—Go to step 22.

NO—Go to step 14.

14. Turn the ignition switch to LOCK (0).
15. Replace the A/F sensor (Sensor 1) (see page 11-227).
16. Reconnect all connectors.
17. Turn the ignition switch to ON (II).
18. Reset the PCM with the HDS.
19. Do the PCM idle learn procedure (see page 11-313).
20. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2243 and/or P2247 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1.

NO—Go to step 21.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

21. Monitor the OBD STATUS for DTC P2243 and/or P2247* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 20, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

22. Turn the ignition switch to LOCK (0).
23. Reconnect all connectors.
24. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
25. Start the engine, and let it idle.
26. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2243 and/or P2247 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 27.

27. Monitor the OBD STATUS for DTC P2243 and/or P2247* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs were indicated in step 26, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then go to step 25. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

DTC P2245: Rear A/F Sensor (Bank 1, Sensor 1) VCENT Circuit Low Voltage

DTC P2249: Front A/F Sensor (Bank 2, Sensor 1) VCENT Circuit Low Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle for 2 minutes.
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2245 and/or P2249 indicated?*

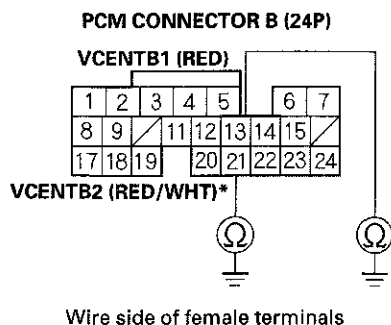
YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. ■

5. Turn the ignition switch to LOCK (0).
6. Jump the SCS line with the HDS.
7. Disconnect the A/F sensor (Sensor 1) 6P connector.
8. Disconnect PCM connector B (24P).



9. Check for continuity between PCM connector terminal B13 (B21)* and body ground.



Is there continuity?

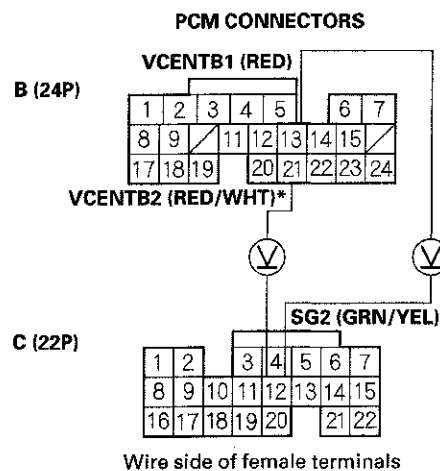
YES—Repair short in the wire between the PCM (B13 (B21)*) and the A/F sensor (Sensor 1), then go to step 15.

NO—Go to step 10.

10. Reconnect PCM connector B (24P).

11. Turn the ignition switch to ON (II).

12. Measure the voltage between PCM connector terminals B13 (B21)* and C12.



Is there about 0.2 V or less?

YES—Go to step 21.

NO—Go to step 13.

13. Turn the ignition switch to LOCK (0).
14. Replace the A/F sensor (Sensor 1) (see page 11-227).
15. Reconnect all connectors.
16. Turn the ignition switch to ON (II).
17. Reset the PCM with the HDS.
18. Do the PCM idle learn procedure (see page 11-313).
19. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2245 and/or P2249 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1.

NO—Go to step 20.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

20. Monitor the OBD STATUS for DTC P2245 and/or P2249* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 19, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

21. Turn the ignition switch to LOCK (0).
22. Reconnect all connectors.
23. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
24. Start the engine, and let it idle.
25. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2245 and/or P2249 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 26.

26. Monitor the OBD STATUS for DTC P2245 and/or P2249* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs were indicated in step 25, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then go to step 24. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

DTC P2251: Rear A/F Sensor (Bank 1, Sensor 1) VS Circuit High Voltage

DTC P2254: Front A/F Sensor (Bank 2, Sensor 1) VS Circuit High Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If DTC P2251 and/or P2254* is stored at the same time as DTC P0134 and/or P0154*, troubleshoot DTC P2251 and/or P2254* first, then recheck for P0134 and/or P0154*.
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle for 2 minutes.
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2251 and/or P2254 indicated?*

YES—Go to step 5.

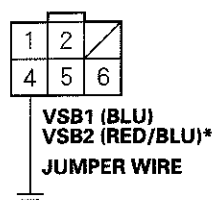
NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. ■

5. Turn the ignition switch to LOCK (0).
6. Jump the SCS line with the HDS.
7. Disconnect the A/F sensor (Sensor 1) 6P connector.
8. Disconnect PCM connector B (24P).



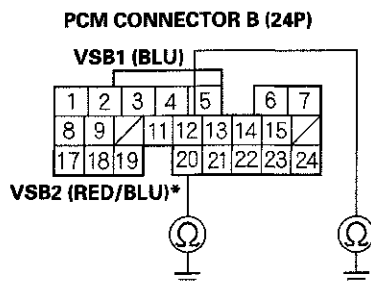
9. Connect A/F sensor (Sensor 1) 6P connector terminal No. 4 to body ground with a jumper wire.

A/F SENSOR (SENSOR 1) 6P CONNECTOR



Wire side of female terminals

10. Check for continuity between PCM connector terminal B12 (B20)* and body ground.



Wire side of female terminals

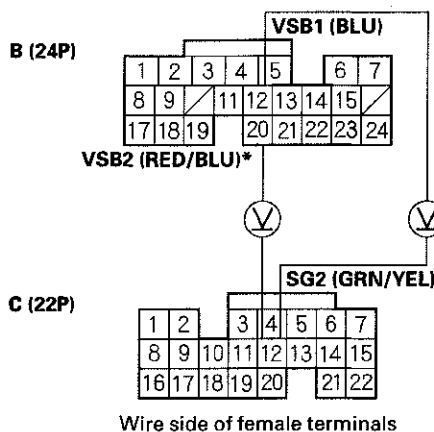
Is there continuity?

YES—Go to step 11.

NO—Repair open in the wire between the PCM (B12 (B20)*) and the A/F sensor (Sensor 1), then go to step 16.

11. Remove the jumper wire from the A/F sensor (Sensor 1) 6P connector, then reconnect PCM connector B (24P).
12. Turn the ignition switch to ON (II).
13. Measure the voltage between PCM connector terminals B12 (B20)* and C12.

PCM CONNECTORS



Wire side of female terminals

Is there about 0.2 V or less?

YES—Go to step 22.

NO—Go to step 14.

14. Turn the ignition switch to LOCK (0).
15. Replace the A/F sensor (see page 11-227).
16. Reconnect all connectors.
17. Turn the ignition switch to ON (II).
18. Reset the PCM with the HDS.
19. Do the PCM idle learn procedure (see page 11-313).
20. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2251 and/or P2254 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1.

NO—Go to step 21.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

21. Monitor the OBD STATUS for DTC P2251 and/or P2254* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 20, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

22. Turn the ignition switch to LOCK (0).
23. Reconnect all connectors.
24. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
25. Start the engine, and let it idle.
26. Check for Pending or Confirmed DTCs with the HDS.

If DTC P2251 and/or P2254 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 27.

27. Monitor the OBD STATUS for DTC P2251 and/or P2254* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs were indicated in step 26, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then go to step 25. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

DTC P2252: Rear A/F Sensor (Bank 1, Sensor 1) VS Circuit Low Voltage

DTC P2255: Front A/F Sensor (Bank 2, Sensor 1) VS Circuit Low Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle for 2 minutes.
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2252 and/or P2255 indicated?*

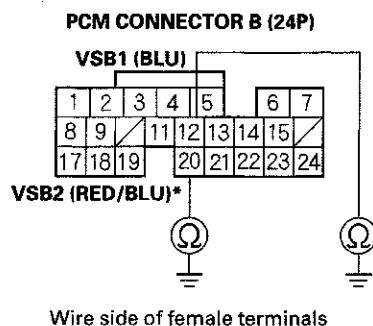
YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. ■

5. Turn the ignition switch to LOCK (0).
6. Jump the SCS line with the HDS.
7. Disconnect the A/F sensor (Sensor 1) 6P connector.
8. Disconnect PCM connector B (24P).



9. Check for continuity between PCM connector terminal B12 (B20)* and body ground.



Is there continuity?

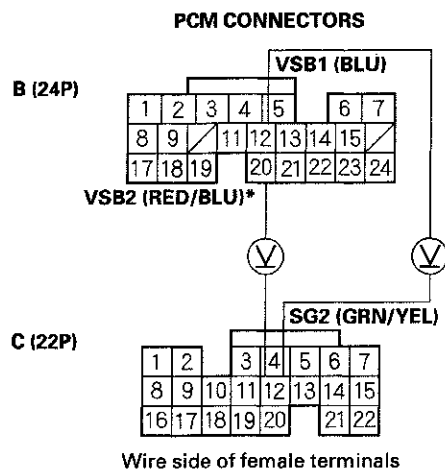
YES—Repair short in the wire between the PCM (B12 (B20)*) and the A/F sensor (Sensor 1), then go to step 15.

NO—Go to step 10.

10. Reconnect PCM connector B (24P).

11. Turn the ignition switch to ON (II).

12. Measure the voltage between PCM connector terminals B12 (B20)* and C12.



Is there about 0.2 V or less?

YES—Go to step 21.

NO—Go to step 13.

13. Turn the ignition switch to LOCK (0).

14. Replace the A/F sensor (Sensor 1) (see page 11-227).

15. Reconnect all connectors.

16. Turn the ignition switch to ON (II).

17. Reset the PCM with the HDS.

18. Do the PCM idle learn procedure (see page 11-313).

19. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2252 and/or P2255 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1.

NO—Go to step 20.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

20. Monitor the OBD STATUS for DTC P2252 and/or P2255* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 19, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

21. Turn the ignition switch to LOCK (0).
22. Reconnect all connectors.
23. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
24. Start the engine, and let it idle.
25. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2252 and/or P2255 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1.

NO—Go to step 26.

26. Monitor the OBD STATUS for DTC P2252 and/or P2255* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs were indicated in step 25, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then go to step 24. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

DTC P2610: PCM Internal Power Off Timer Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2610 indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

4. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
5. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2610 indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■



DTC P2A00: Rear A/F Sensor (Bank 1, Sensor 1) Circuit Range/Performance Problem

DTC P2A03: Front A/F Sensor (Bank 2, Sensor 1) Circuit Range/Performance Problem

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle.
4. Test-drive under these conditions:
 - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
 - Transmission in D
 - Vehicle speed between 25—55 mph (40—88 km/h) for 5 minutes
 - Drive at a steady speed between 55—75 mph (88—120 km/h) for 10 seconds, then decelerate (with the throttle fully closed) for 6 seconds
5. Monitor the OBD STATUS for DTC P2A00 and/or P2A03* in the DTCs MENU with the HDS.

Does the screen indicate FAILED?

YES—Go to step 6.

NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 3 and recheck.

6. Turn the ignition switch to LOCK (0).
7. Replace the A/F sensor (Sensor 1) (see page 11-227).
8. Turn the ignition switch to ON (II).
9. Reset the PCM with the HDS.
10. Do the PCM idle learn procedure (see page 11-313).
11. Test-drive under these conditions:
 - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
 - Transmission in D
 - Vehicle speed between 25—55 mph (40—88 km/h) for 5 minutes
 - Drive at a steady speed between 55—75 mph (88—120 km/h) for 10 seconds, then decelerate (with the throttle fully closed) for 6 seconds
12. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2A00 and/or P2A03 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1.

NO—Go to step 13.

13. Monitor the OBD STATUS for DTC P2A00 and/or P2A03* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 12, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 11.

DTC Troubleshooting (cont'd)

DTC U0073: F-CAN Malfunction (BUS-OFF)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check for Pending or Confirmed DTCs with the HDS.

Is DTC U0073 indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. ■

4. Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7).
5. Check for Pending or Confirmed DTCs with the HDS.

Is DTC U0073 indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-232). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC U0114: F-CAN Malfunction (PCM-SH-AWD Control Unit)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Check for Pending or Confirmed DTCs with the HDS.

Are DTC U0073 and U0114 indicated at the same time?

YES—Go to the troubleshooting for DTC U0073 (see page 11-186). ■

NO—Go to step 3.

3. Clear the DTC with the HDS.
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC U0114 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the SH-AWD control unit and the PCM. ■

5. Check for communication to the SH-AWD system with the HDS.

Does the HDS communicate with the SH-AWD control unit?

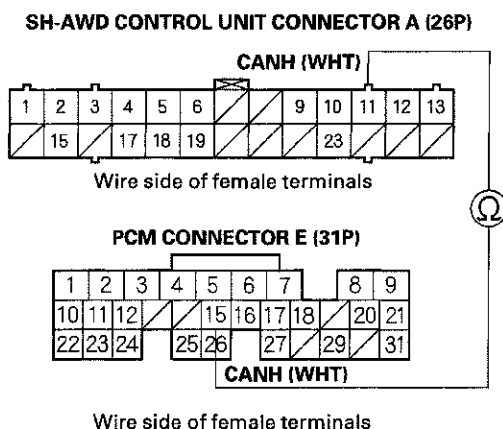
YES—Go to step 6.

NO—Go to the DLC circuit troubleshooting (see page 11-211). ■

6. Turn the ignition switch to LOCK (0).
7. Jump the SCS line with the HDS.
8. Disconnect SH-AWD control unit connector A (26P).
9. Disconnect PCM connector E (31P).



10. Check for continuity between PCM connector terminal E15 and SH-AWD control unit connector A (26P) terminal No. 11.

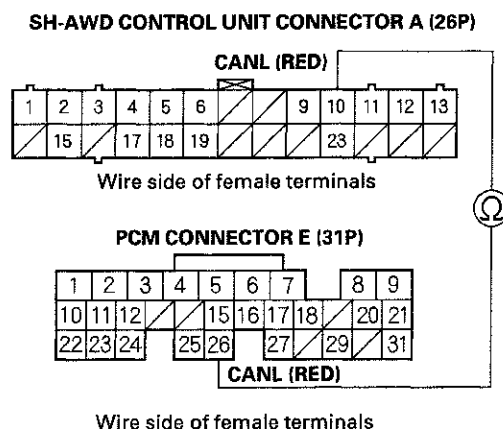


Is there continuity?

YES—Go to step 11.

NO—Repair open in the wire between the PCM (E15) and the SH-AWD control unit, then go to step 12.

11. Check for continuity between PCM connector terminal E26 and SH-AWD control unit connector A (26P) terminal No. 10.



Is there continuity?

YES—Substitute a known-good SH-AWD control unit (see page 15-99), then go to step 12 and recheck. If DTC U0114 is not indicated after substitution, replace the original SH-AWD control unit (see page 15-99), then go to step 12.

NO—Repair open in the wire between the PCM (E26) and the SH-AWD control unit, then go to step 12.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

12. Reconnect all connectors.
13. Turn the ignition switch to ON (II).
14. Reset the PCM with the HDS.
15. Do the PCM idle learn procedure (see page 11-313).
16. Check for Pending or Confirmed DTCs with the HDS.

Is DTC U0114 indicated?

YES—Check for poor connections or loose terminals at the SH-AWD control unit and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC U0122: F-CAN Malfunction (PCM-VSA Modulator-Control Unit)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Check for Pending or Confirmed DTCs with the HDS.

Are DTC U0073 and U0122 indicated at the same time?

YES—Go to the troubleshooting for DTC U0073 (see page 11-186). ■

NO—Go to step 3.

3. Clear the DTC with the HDS.
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC U0122 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the VSA modulator-control unit and the PCM. ■

5. Check for communication to the VSA system with the HDS.

Does the HDS communicate with the VSA modulator-control unit?

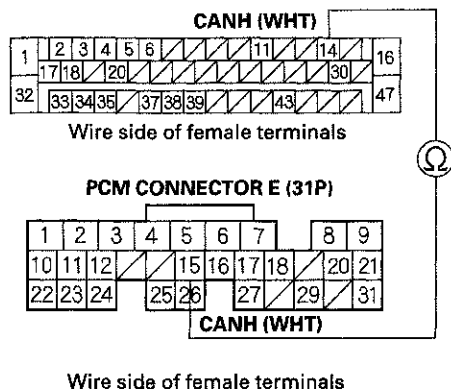
YES—Go to step 6.

NO—Go to the DLC circuit troubleshooting (see page 11-211). ■



6. Turn the ignition switch to LOCK (0).
7. Jump the SCS line with the HDS.
8. Disconnect the VSA modulator-control unit 47P connector.
9. Disconnect PCM connector E (31P).
10. Check for continuity between PCM connector terminal E15 and VSA modulator-control unit 47P connector terminal No. 14.

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



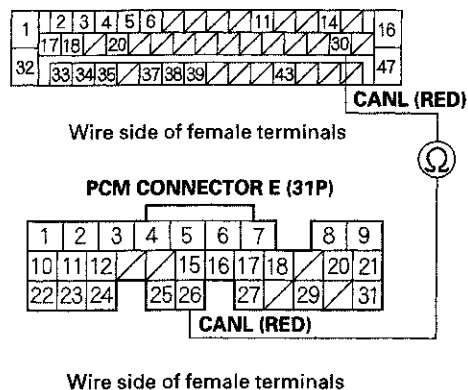
Is there continuity?

YES—Go to step 11.

NO—Repair open in the wire between the PCM (E15) and the VSA modulator-control unit, then go to step 12.

11. Check for continuity between PCM connector terminal E26 and VSA modulator-control unit 47P connector terminal No. 30.

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Is there continuity?

YES—Substitute a known-good VSA modulator-control unit (see page 19-105), then go to step 12 and recheck. If DTC U0122 is not indicated after substitution, replace the original VSA modulator-control unit (see page 19-105), then go to step 12.

NO—Repair open in the wire between the PCM (E26) and the VSA modulator-control unit, then go to step 12.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

12. Reconnect all connectors.
13. Turn the ignition switch to ON (II).
14. Reset the PCM with the HDS.
15. Do the PCM idle learn procedure (see page 11-313).
16. Check for Pending or Confirmed DTCs with the HDS.

Is DTC U0122 indicated?

YES—Check for poor connections or loose terminals at the VSA modulator-control unit and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC U0155: F-CAN Malfunction (PCM-Gauge Control Module)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (III).
2. Clear the DTC with the HDS.
3. Check for Pending or Confirmed DTCs with the HDS.

Is DTC U0155 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 PCM. ■

4. Check for body electrical DTCs in the DTCs MENU with the HDS.

Is DTC B1168, B1169, and/or B1178 indicated?

YES—Go to step 5.

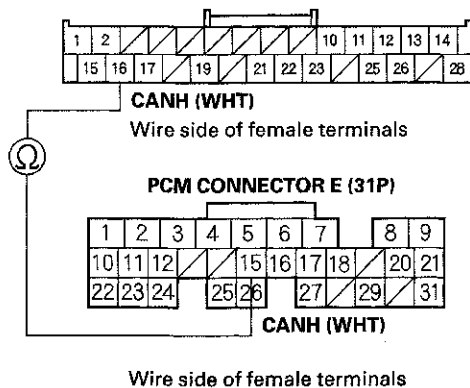
NO—Do the gauge control module input test (see page 22-155). ■

5. Turn the ignition switch to LOCK (0).
6. Jump the SCS line with the HDS.
7. Remove the gauge control module (see page 22-419), and disconnect the gauge control module connector B (28P).
8. Disconnect PCM connector E (31P).



9. Check for continuity between PCM connector terminal E15 and gauge control module connector B (28P) terminal No. 16.

GAUGE CONTROL MODULE CONNECTOR B (28P)



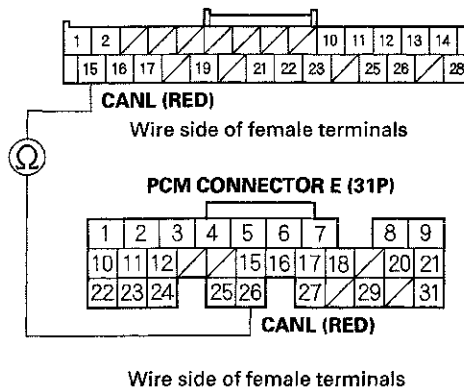
Is there continuity?

YES—Go to step 10.

NO—Repair open in the wire between the PCM (E15) and the gauge control module, then go to step 11.

10. Check for continuity between PCM connector terminal E26 and gauge control module connector B (28P) terminal No. 15.

GAUGE CONTROL MODULE CONNECTOR B (28P)



Is there continuity?

YES—Substitute a known-good gauge control module (see page 22-419), then go to step 11 and recheck. If DTC U0155 is not indicated after substitution, replace the original gauge control module (see page 22-419), then go to step 11.

NO—Repair open in the wire between the PCM (E26) and the gauge control module, then go to step 11.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

11. Reconnect all connectors.
12. Turn the ignition switch to ON (II).
13. Reset the PCM with the HDS.
14. Do the PCM idle learn procedure (see page 11-313).
15. Check for Pending or Confirmed DTCs with the HDS.

Is DTC U0155 indicated?

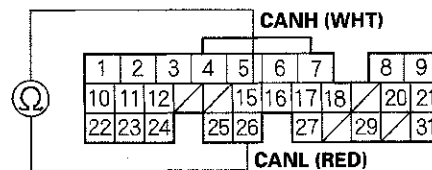
YES—Check for poor connections or loose terminals at the gauge control module and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

F-CAN Circuit Troubleshooting

1. Turn the ignition switch to LOCK (0).
2. Jump the SCS line with the HDS.
3. Disconnect PCM connector E (31P).
4. Measure the resistance between PCM connector terminals E15 and E26.

PCM CONNECTOR E (31P)



Wire side of female terminals

Is there about 85–103 Ω?

YES—Go to step 55.

NO—Go to step 5.

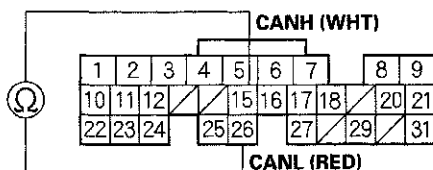


5. Disconnect these connectors:

- Gauge control module connector B (28P) (see page 22-419).
- VSA modulator-control unit 47P connector (see page 19-105).
- E-pretensioner unit connector B (14P) (if equipped) (see page 24-221).
- ACC (adaptive cruise control) unit 20P connector (if equipped) (see page 25-86).
- Steering angle sensor 5P connector (see page 19-102).
- TPMS control unit connector B (20P) (see page 18-88).
- Navigation unit connector B (32P) (see page 23-255).
- AcuraLink control unit (XM receiver) connector A (32P) (if equipped) (see page 23-111).
- SH-AWD control unit connector A (26P) (see page 15-99).

6. Check for continuity between PCM connector terminals E15 and E26.

PCM CONNECTOR E (31P)



Wire side of female terminals

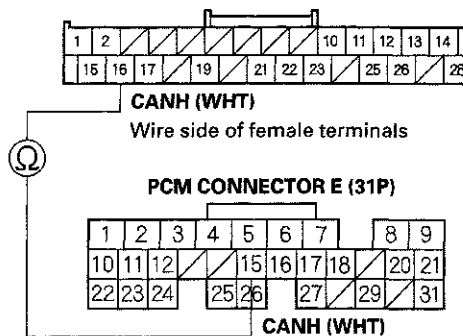
Is there continuity?

YES—Repair short in the wire between PCM connector terminals E15 and E26. ■

NO—Go to step 7.

7. Check for continuity between PCM connector terminal E15 and gauge control module connector B (28P) terminal No. 16.

GAUGE CONTROL MODULE CONNECTOR B (28P)



Wire side of female terminals

Is there continuity?

YES—Go to step 8.

NO—Repair open in the wire between the PCM (E15) and the gauge control module. ■

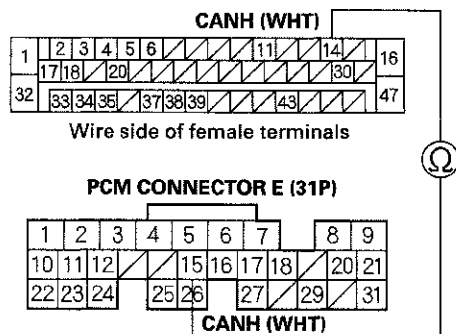
(cont'd)

PGM-FI System

F-CAN Circuit Troubleshooting (cont'd)

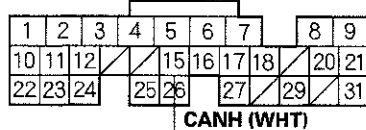
8. Check for continuity between PCM connector terminal E15 and VSA modulator-control unit 47P connector terminal No. 14.

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Wire side of female terminals

PCM CONNECTOR E (31P)



Wire side of female terminals

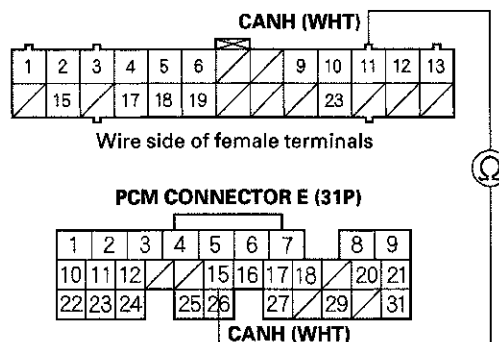
Is there continuity?

YES—Go to step 9.

NO—Repair open in the wire between the PCM (E15) and the VSA modulator-control unit. ■

9. Check for continuity between PCM connector terminal E15 and SH-AWD control unit connector A (26P) terminal No. 11.

SH-AWD CONTROL UNIT CONNECTOR A (26P)



Wire side of female terminals

PCM CONNECTOR E (31P)



Wire side of female terminals

Is there continuity?

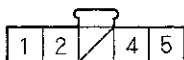
YES—Go to step 10.

NO—Repair open in the wire between the PCM (E15) and the SH-AWD control unit. ■



10. Check for continuity between PCM connector terminal E15 and steering angle sensor 5P connector terminal No. 4.

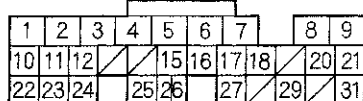
STEERING ANGLE SENSOR 5P CONNECTOR



CANH (WHT)

Wire side of female terminals

PCM CONNECTOR E (31P)



CANH (WHT)

Wire side of female terminals

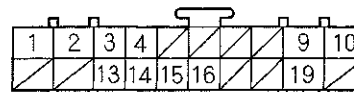
Is there continuity?

YES—Go to step 11.

NO—Repair open in the wire between the PCM (E15) and the steering angle sensor. ■

11. Check for continuity between PCM connector terminal E15 and TPMS control unit connector B (20P) terminal No. 19.

TPMS CONTROL UNIT CONNECTOR B (20P)



CANH (WHT)

Wire side of female terminals

PCM CONNECTOR E (31P)



CANH (WHT)

Wire side of female terminals

Is there continuity?

YES—Go to step 12.

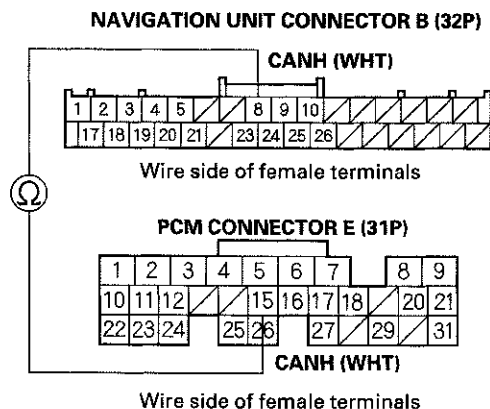
NO—Repair open in the wire between the PCM (E15) and the TPMS control unit. ■

(cont'd)

PGM-FI System

F-CAN Circuit Troubleshooting (cont'd)

12. Check for continuity between PCM connector terminal E15 and navigation unit connector B (32P) terminal No. 8.



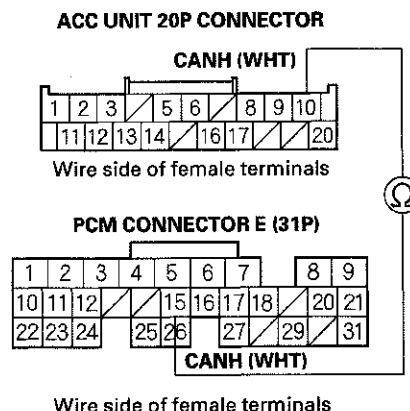
Is there continuity?

YES—

- With ACC (adaptive cruise control): Go to step 13.
- With AcuraLink, without ACC: Go to step 15.
- Without ACC, without AcuraLink: Go to step 16.

NO—Repair open in the wire between the PCM (E15) and the navigation unit. ■

13. Check for continuity between PCM connector terminal E15 and ACC unit 20P connector terminal No. 10.



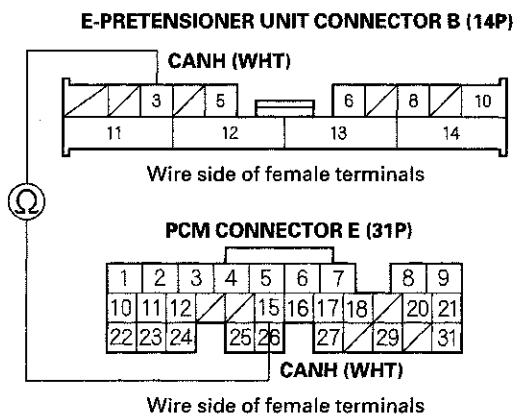
Is there continuity?

YES—Go to step 14.

NO—Repair open in the wire between the PCM (E15) and the ACC unit. ■



14. Check for continuity between PCM connector terminal E15 and e-pretensioner unit connector B (14P) terminal No. 3.



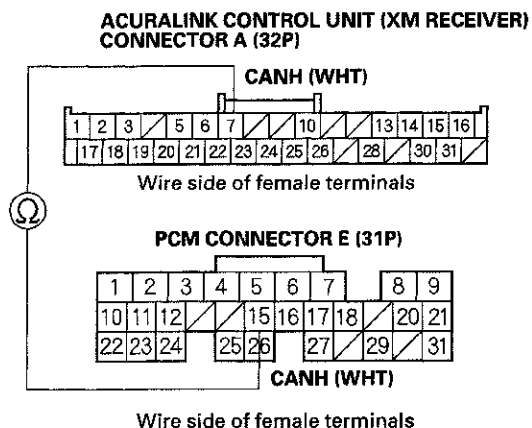
Is there continuity?

YES—

- With AcuraLink: Go to step 15.
- Without AcuraLink: Go to step 16.

NO—Repair open in the wire between the PCM (E15) and the e-pretensioner unit. ■

15. Check for continuity between PCM connector terminal E15 and AcuraLink control unit (XM receiver) connector A (32P) terminal No. 7.



Is there continuity?

YES—Go to step 16.

NO—Repair open in the wire between the PCM (E15) and the AcuraLink control unit (XM receiver). ■

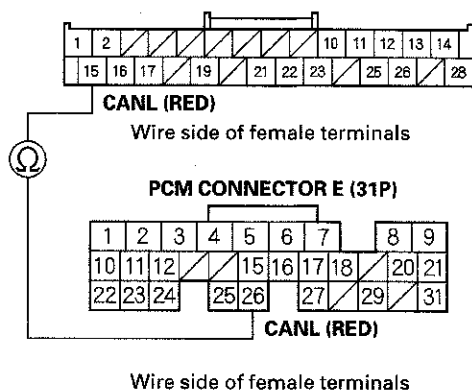
(cont'd)

PGM-FI System

F-CAN Circuit Troubleshooting (cont'd)

16. Check for continuity between PCM connector terminal E26 and gauge control module connector B (28P) terminal No. 15.

GAUGE CONTROL MODULE CONNECTOR B (28P)



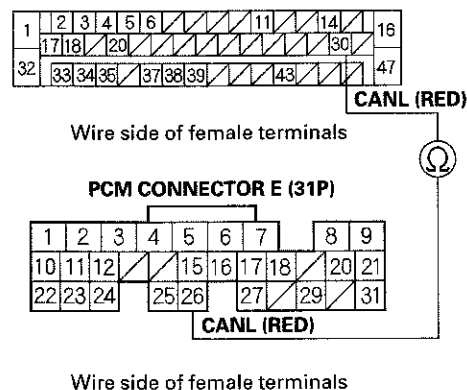
Is there continuity?

YES—Go to step 17.

NO—Repair open in the wire between the PCM (E26) and the gauge control module. ■

17. Check for continuity between PCM connector terminal E26 and VSA modulator-control unit 47P connector terminal No. 30.

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Is there continuity?

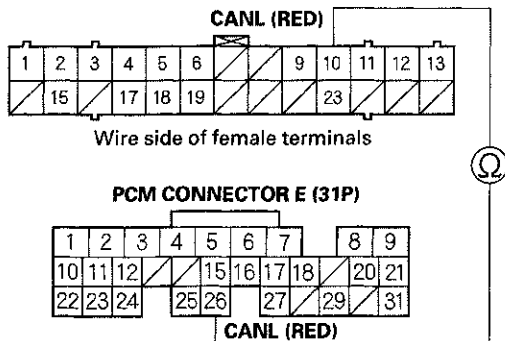
YES—Go to step 18.

NO—Repair open in the wire between the PCM (E26) and the VSA modulator-control unit. ■

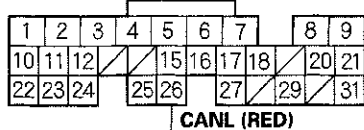


18. Check for continuity between PCM connector terminal E26 and SH-AWD control unit connector A (26P) terminal No. 10.

SH-AWD CONTROL UNIT CONNECTOR A (26P)



PCM CONNECTOR E (31P)



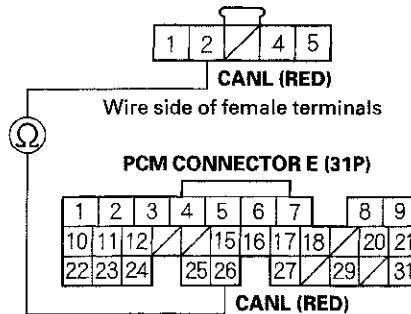
Is there continuity?

YES—Go to step 19.

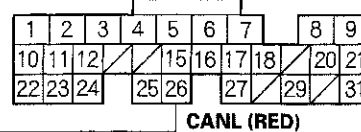
NO—Repair open in the wire between the PCM (E26) and the SH-AWD control unit. ■

19. Check for continuity between PCM connector terminal E26 and steering angle sensor 5P connector terminal No. 2.

STEERING ANGLE SENSOR 5P CONNECTOR



PCM CONNECTOR E (31P)



Is there continuity?

YES—Go to step 20.

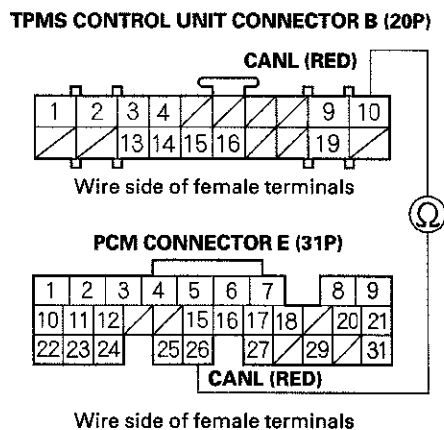
NO—Repair open in the wire between the PCM (E26) and the steering angle sensor. ■

(cont'd)

PGM-FI System

F-CAN Circuit Troubleshooting (cont'd)

20. Check for continuity between PCM connector terminal E26 and TPMS control unit connector B (20P) terminal No. 10.

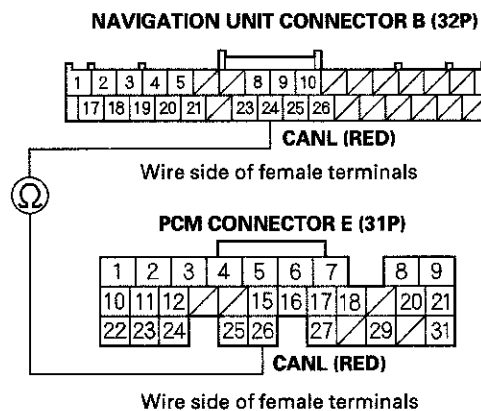


Is there continuity?

YES—Go to step 21.

NO—Repair open in the wire between the PCM (E26) and the TPMS control unit. ■

21. Check for continuity between PCM connector terminal E26 and navigation unit connector B (32P) terminal No. 24.



Is there continuity?

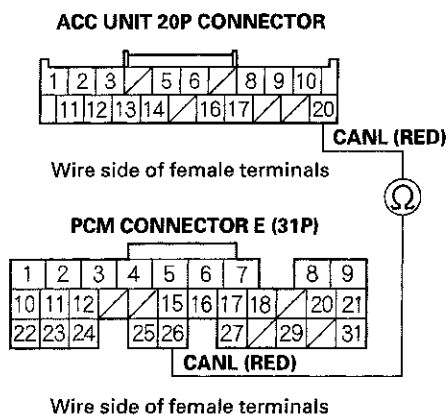
YES—

- With ACC (adaptive cruise control): Go to step 22.
- With AcuraLink, without ACC: Go to step 24.
- Without ACC, without AcuraLink: Go to step 25.

NO—Repair open in the wire between the PCM (E26) and the navigation unit. ■



22. Check for continuity between PCM connector terminal E26 and ACC unit 20P connector terminal No. 20.

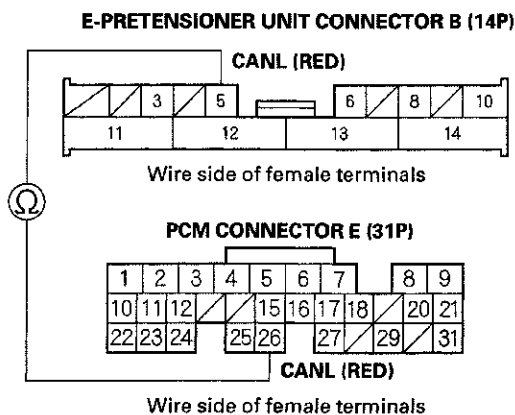


Is there continuity?

YES—Go to step 23.

NO—Repair open in the wire between the PCM (E26) and the ACC unit. ■

23. Check for continuity between PCM connector terminal E26 and e-pretensioner unit connector B (14P) terminal No. 5.



Is there continuity?

YES—

- With AcuraLink: Go to step 24.
- Without AcuraLink: Go to step 25.

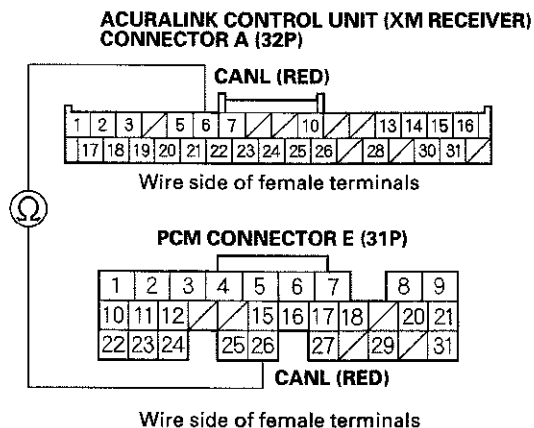
NO—Repair open in the wire between the PCM (E26) and the e-pretensioner unit. ■

(cont'd)

PGM-FI System

F-CAN Circuit Troubleshooting (cont'd)

24. Check for continuity between PCM connector terminal E26 and AcuraLink control unit (XM receiver) connector A (32P) terminal No. 6.

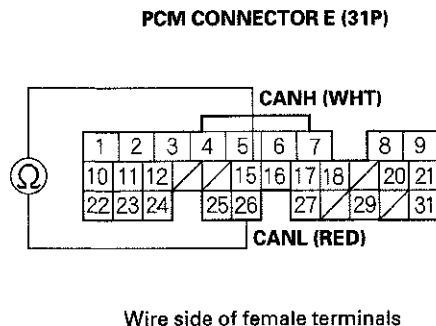


Is there continuity?

YES—Go to step 25.

NO—Repair open in the wire between the PCM (E26) and the AcuraLink control unit (XM receiver). ■

25. Remove the jumper wire from the PCM connector.
26. Reconnect gauge control module connector B (28P).
27. Measure the resistance between PCM connector terminals E15 and E26.



Is there about 2.34–2.86 k Ω ?

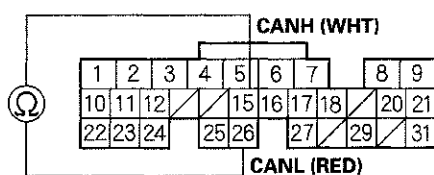
YES—Go to step 28.

NO—Substitute a known-good gauge control module (see page 22-419), and reconnect PCM connector E. If the HDS identifies the vehicle, replace the original gauge control module (see page 22-419). ■



28. Disconnect gauge control module connector B (28P).
29. Reconnect the VSA modulator-control unit 47P connector.
30. Measure the resistance between PCM connector terminals E15 and E26.

PCM CONNECTOR E (31P)



Wire side of female terminals

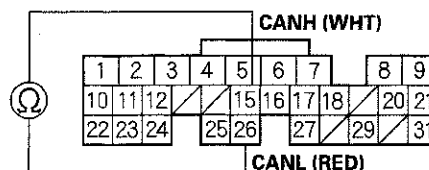
Is there about 108–132 Ω?

YES—Go to step 31.

NO—Substitute a known-good VSA modulator-control unit (see page 19-105), and reconnect PCM connector E. If the HDS identifies the vehicle, replace the original VSA modulator-control unit (see page 19-105). ■

31. Disconnect the VSA modulator-control unit 47P connector.
32. Reconnect SH-AWD control unit connector A (26P).
33. Measure the resistance between PCM connector terminals E15 and E26.

PCM CONNECTOR E (31P)



Wire side of female terminals

Is there about 2.34–2.86 kΩ?

YES—Go to step 34.

NO—Substitute a known-good SH-AWD control unit (see page 15-99), and reconnect PCM connector E. If the HDS identifies the vehicle, replace the original SH-AWD control unit (see page 15-99). ■

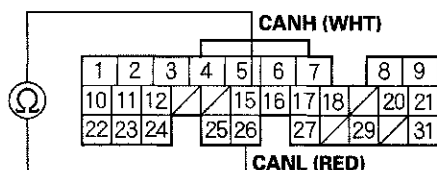
(cont'd)

PGM-FI System

F-CAN Circuit Troubleshooting (cont'd)

34. Disconnect SH-AWD control unit connector A (26P).
35. Reconnect the steering angle sensor 5P connector.
36. Measure the resistance between PCM connector terminals E15 and E26.

PCM CONNECTOR E (31P)



Wire side of female terminals

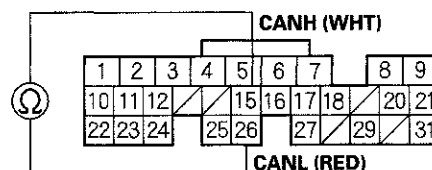
Is there about 2.34–2.86 k Ω ?

YES—Go to step 37.

NO—Substitute a known-good steering angle sensor (see page 19-102), and reconnect PCM connector E. If the HDS identifies the vehicle, replace the original steering angle sensor (see page 19-102). ■

37. Disconnect the steering angle sensor 5P connector.
38. Reconnect TPMS control unit connector B (20P).
39. Measure the resistance between PCM connector terminals E15 and E26.

PCM CONNECTOR E (31P)



Wire side of female terminals

Is there about 2.34–2.86 k Ω ?

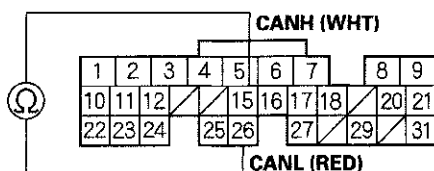
YES—Go to step 40.

NO—Substitute a known-good TPMS control unit (see page 18-88), and reconnect PCM connector E. If the HDS identifies the vehicle, replace the original TPMS control unit (see page 18-88). ■



40. Disconnect TPMS control unit connector B (20P).
41. Reconnect navigation unit connector B (32P).
42. Measure the resistance between PCM connector terminals E15 and E26.

PCM CONNECTOR E (31P)



Wire side of female terminals

Is there about 2.34–2.86 kΩ?

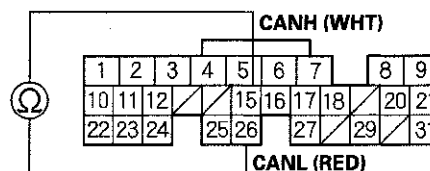
YES—

- With ACC (adaptive cruise control): Go to step 43.
- With AcuraLink, without ACC: Go to step 49.
- Without ACC, without AcuraLink: Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7), then recheck. If the HDS identifies the vehicle with a known-good PCM, replace the original PCM (see page 11-232). ■

NO—Substitute a known-good navigation unit (see page 23-255), and reconnect PCM connector E. If the HDS identifies the vehicle, replace the original navigation unit (see page 23-255). ■

43. Disconnect navigation unit connector B (32P).
44. Reconnect the ACC unit 20P connector.
45. Measure the resistance between PCM connector terminals E15 and E26.

PCM CONNECTOR E (31P)



Wire side of female terminals

Is there about 2.34–2.86 kΩ?

YES—Go to step 46.

NO—Substitute a known-good ACC unit (see page 25-86), then reconnect PCM connector E. If the HDS identifies the vehicle, replace the original ACC unit (see page 25-86). ■

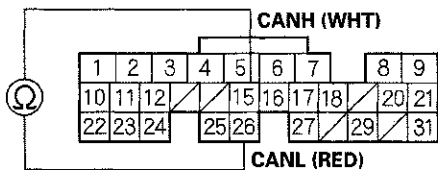
(cont'd)

PGM-FI System

F-CAN Circuit Troubleshooting (cont'd)

46. Disconnect the ACC unit 20P connector.
47. Reconnect e-pretensioner unit connector B (14P).
48. Measure the resistance between PCM connector terminals E15 and E26.

PCM CONNECTOR E (31P)



Wire side of female terminals

Is there about 2.34–2.86 k Ω ?

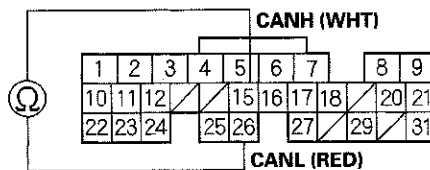
YES—

- With AcuraLink: Go to step 49.
- Without AcuraLink: Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7), then recheck. If the HDS identifies the vehicle with a known-good PCM, replace the original PCM (see page 11-232). ■

NO—Substitute a known-good e-pretensioner unit (see page 24-221), then reconnect PCM connector E. If the HDS identifies the vehicle, replace the original e-pretensioner unit (see page 24-221). ■

49. Disconnect e-pretensioner unit connector B (14P).
50. Reconnect AcuraLink control unit (XM receiver) connector A (32P).
51. Measure the resistance between PCM connector terminals E15 and E26.

PCM CONNECTOR E (31P)



Wire side of female terminals

Is there about 2.34–2.86 k Ω ?

YES—Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7), then recheck. If the HDS identifies the vehicle with a known-good PCM, replace the original PCM (see page 11-232). ■

NO—Substitute a known-good AcuraLink control unit (XM receiver) (see page 23-111), then reconnect PCM connector E. If the HDS identifies the vehicle, replace the original AcuraLink control unit (XM receiver) (see page 23-111). ■

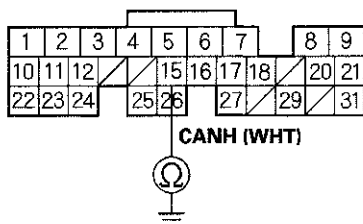


52. Disconnect these connectors:

- Gauge control module connector B (28P) (see page 22-419).
- VSA modulator-control unit 47P connector (see page 19-105).
- E-pretensioner unit connector B (14P) (if equipped) (see page 24-221).
- ACC (adaptive cruise control) unit 20P connector (if equipped) (see page 25-86).
- Steering angle sensor 5P connector (see page 19-102).
- TPMS control unit connector B (20P) (see page 18-88).
- Navigation unit connector B (32P) (see page 23-255).
- AcuraLink control unit (XM receiver) connector A (32P) (if equipped) (see page 23-111).
- SH-AWD control unit connector A (26P) (see page 15-99).

53. Check for continuity between PCM connector terminal E15 and body ground.

PCM CONNECTOR E (31P)



Wire side of female terminals

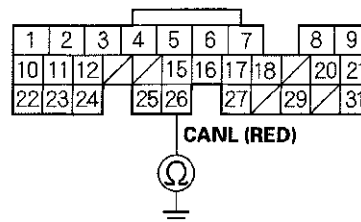
Is there continuity?

YES—Repair short in the wire between the PCM (E15) and the gauge control module, the VSA modulator-control unit, the SH-AWD control unit, the ACC unit, the e-pretensioner unit, the AcuraLink control unit (XM receiver), the steering angle sensor, the TPMS control unit, the navigation unit, or the DLC. ■

NO—Go to step 54.

54. Check for continuity between PCM connector terminal E26 and body ground.

PCM CONNECTOR E (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (E26) and the gauge control module, the VSA modulator-control unit, the SH-AWD control unit, the ACC unit, the e-pretensioner unit, the AcuraLink control unit (XM receiver), the steering angle sensor, the TPMS control unit, the navigation unit, or the DLC. ■

NO—Go to step 55.

(cont'd)

PGM-FI System

F-CAN Circuit Troubleshooting (cont'd)

55. Reconnect all connectors.

56. Connect the HDS to the DLC (see page 11-3).

57. Disconnect gauge control module connector B (28P).

58. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?

YES—Replace the gauge control module (see page 22-419). ■

NO—Go to step 59.

59. Turn the ignition switch to LOCK (0).

60. Reconnect gauge control module connector B (28P).

61. Disconnect the VSA modulator-control unit 47P connector.

62. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?

YES—Replace the VSA modulator-control unit (see page 19-105). ■

NO—Go to step 63.

63. Turn the ignition switch to LOCK (0).

64. Reconnect the VSA modulator-control unit 47P connector.

65. Disconnect SH-AWD control unit connector A (26P).

66. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?

YES—Replace the SH-AWD control unit (see page 15-99). ■

NO—Go to step 67.

67. Turn the ignition switch to LOCK (0).

68. Reconnect SH-AWD control unit connector A (26P).

69. Disconnect the steering angle sensor 5P connector.

70. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?

YES—Replace the steering angle sensor (see page 19-102). ■

NO—Go to step 71.

71. Turn the ignition switch to LOCK (0).

72. Reconnect the steering angle sensor 5P connector.

73. Disconnect TPMS control unit connector B (20P).

74. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?

YES—Replace the TPMS control unit (see page 18-88). ■

NO—Go to step 75.



75. Turn the ignition switch to LOCK (0).
76. Reconnect TPMS control unit connector B (20P).
77. Disconnect navigation unit connector B (32P).
78. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?

YES—Replace the navigation unit (see page 23-255). ■

NO—

- With ACC (adaptive cruise control): Go to step 79.
- With AcuraLink, without ACC: Go to step 83.
- Without ACC, without AcuraLink: Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7), then recheck. If the HDS identifies the vehicle with a known-good PCM, replace the original PCM (see page 11-232). ■

79. Turn the ignition switch to LOCK (0).
80. Reconnect navigation unit connector B (32P).
81. Disconnect the ACC unit 20P connector.
82. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?

YES—Replace the ACC unit (see page 25-86). ■

NO—Go to step 83.

83. Turn the ignition switch to LOCK (0).
84. Reconnect the ACC unit 20P connector.
85. Disconnect e-pretensioner unit connector B (14P).
86. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?

YES—Replace the e-pretensioner unit (see page 24-221). ■

NO—

- With AcuraLink: Go to step 87.
- Without AcuraLink: Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7), then recheck. If the HDS identifies the vehicle with a known-good PCM, replace the original PCM (see page 11-232). ■

87. Turn the ignition switch to LOCK (0).
88. Reconnect e-pretensioner unit connector B (14P).
89. Disconnect AcuraLink control unit (XM receiver) connector A (32P).
90. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?

YES—Replace the AcuraLink control unit (XM receiver) (see page 23-111). ■

NO—Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7), then recheck. If the HDS identifies the vehicle with a known-good PCM, replace the original PCM (see page 11-232). ■

PGM-FI System

MIL Circuit Troubleshooting

1. Turn the ignition switch to ON (II).
2. Do the gauge self-diagnostic function (see page 22-396).

Does the MIL indicator flash?

YES—Go to step 3.

NO—Substitute a known-good gauge control module, and recheck. If the symptom/indication goes away with a known-good gauge control module, replace the original gauge control module (see page 22-419). ■

3. Connect the HDS to the DLC (see page 11-3).
4. Check the SCS in the DATA LIST with the HDS.

Is a short indicated?

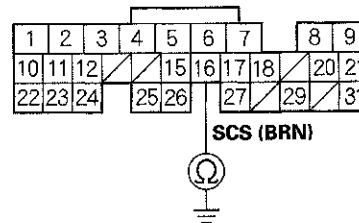
YES—Go to step 5.

NO—Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM (see page 11-232). ■

5. Turn the ignition switch to LOCK (0).
6. Disconnect PCM connector E (31P), then disconnect the HDS.

7. Check for continuity between PCM connector terminal E16 and body ground.

PCM CONNECTOR E (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (E16) and the DLC. ■

NO—Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM (see page 11-232). ■



DLC Circuit Troubleshooting

NOTE: If you suspect the HDS or the HDS DLC cable may be the source of the communication problem, verify that they are working properly by connecting them to a known-good, like vehicle and system, and checking for communication problems.

1. Turn the ignition switch to LOCK (0).
2. Connect the HDS to the DLC (see page 11-3).
3. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?

YES—Go to step 4.

NO—Go to step 25.

4. Check for Pending or Confirmed DTCs in the PGM-FI system with the HDS.

Are any Pending or Confirmed DTCs indicated?

YES—Go to the indicated DTC's troubleshooting. ■

NO—

- If the HDS does not communicate with the SRS, go to step 5.
- If the HDS does not communicate with the VSA system, go to step 7.
- If the HDS does not communicate with the TPMS, go to step 9.
- If the HDS does not communicate with the SH-AWD system, go to step 11.
- If the HDS does not communicate with the ACC system, go to step 13.
- If the HDS does not communicate with the IMMOBI (immobilizer) system, go to step 15.
- If the HDS does not communicate with the BODY ELECTRICAL system, go to step 17.

5. Turn the ignition switch to LOCK (0).
6. Turn the ignition switch to ON (II), and watch the SRS indicator.

Does the SRS indicator stay on?

YES—Go to the SRS general troubleshooting information (see page 24-23). ■

NO—Go to step 19.

7. Turn the ignition switch to LOCK (0).
8. Turn the ignition switch to ON (II), and watch the VSA indicator.

Does the VSA indicator stay on?

YES—Go to the VSA system's general troubleshooting information (see page 19-46). ■

NO—Go to step 19.

9. Turn the ignition switch to LOCK (0).
10. Turn the ignition switch to ON (II), and watch the TPMS indicator.

Does the TPMS indicator stay on?

YES—Go to the TPMS general troubleshooting information (see page 18-47). ■

NO—Go to step 19.

11. Turn the ignition switch to LOCK (0).
12. Turn the ignition switch to ON (II), and watch the SH-AWD indicator.

Does the SH-AWD indicator stay on?

YES—Go to the SH-AWD general troubleshooting information (see page 15-4). ■

NO—Go to step 19.

(cont'd)

PGM-FI System

DLC Circuit Troubleshooting (cont'd)

13. Turn the ignition switch to LOCK (0).

14. Turn the ignition switch to ON (II), and watch the ACC indicator.

Does the ACC indicator stay on?

YES—Go to the ACC general troubleshooting information (see page 25-5). ■

NO—Go to step 19.

15. Turn the ignition switch to LOCK (0).

16. Turn the ignition switch to ON (II), and watch the immobilizer indicator.

Does the immobilizer indicator stay on or flash?

YES—Go to the immobilizer system's troubleshooting (see page 22-498). ■

NO—Go to step 19.

17. Do the gauge self-diagnostic function (see page 22-396).

18. Check the gauge display.

Is Error 2 indicated?

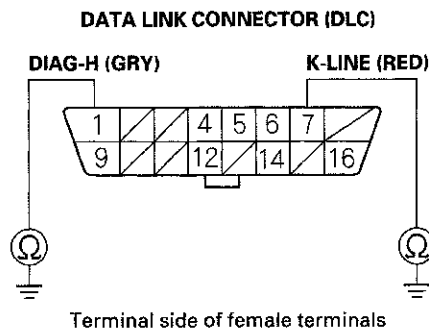
YES—Check for B-CAN system DTCs (see page 22-103). ■

NO—Go to step 19.

19. Turn the ignition switch to LOCK (0) then do the battery terminal disconnection procedure (see page 22-91), and wait at least 3 minutes before starting work.

20. Disconnect the HDS from the DLC.

21. Check for continuity between body ground and DLC terminals No. 1 and No. 7 individually.



Is there continuity?

YES—Go to step 22.

NO—Go to step 23.

22. Continue to check for continuity between body ground and DLC terminals No. 1 and No. 7 individually, while disconnecting these connectors, one at a time:

- SRS unit connector A (28P)
- VSA modulator-control unit 47P connector
- TPMS control unit connector B (20P)
- Immobilizer-keyless control unit 7P connector
- SH-AWD control unit connector A (26P)
- ACC (adaptive cruise control) unit 20P connector
- Driver's under-dash fuse/relay box connector P (30P)
- Keyless access control unit connector A (31P)

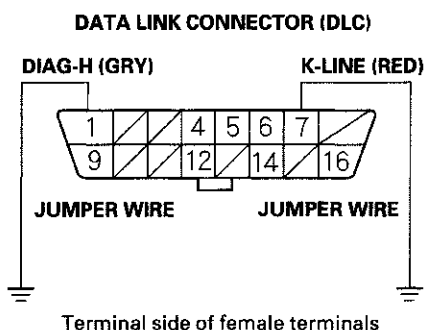
Does continuity go away when one of the above connectors is disconnected?

YES—Replace the part that caused an open when it was disconnected. ■

NO—Repair short in the wire between the DLC No. 7 (K-line) and the VSA modulator-control unit, the SRS unit, the TPMS control unit, the immobilizer-keyless control unit, the SH-AWD control unit, the ACC unit, and the driver's under-dash fuse/relay box, or between the DLC No. 1 (DIAG-H line) and the immobilizer control unit, or the keyless access control unit. ■



23. Connect DLC terminals No. 1 and No. 7 to body ground with a jumper wire.



24. Check for continuity between body ground and the following connector terminals, with all listed control units disconnected.

Connector	Terminal
SRS unit A (28P)	No. 24 (RED)
VSA modulator-control unit 47P	No. 11 (BLU)
TPMS control unit B (20P)	No. 9 (LT BLU)
Immobilizer-keyless control unit 7P	No. 3 (GRY)
SH-AWD control unit A (26P)	No. 15 (LT BLU)
ACC unit 20P	No. 8 (BLU)
Driver's under-dash fuse/relay box connector P (30P)	No. 6 (RED)
Keyless access control unit A (31P)	No. 6 (GRY)

Is there continuity between the DLC terminal and each of the terminals in the chart?

YES—Replace the part that does not communicate with the HDS. ■

NO—Repair open in the wire between the DLC (K-line and DIAG-H line) and the appropriate connector. ■

25. Check for B-CAN system DTCs without the HDS (see page 22-103).

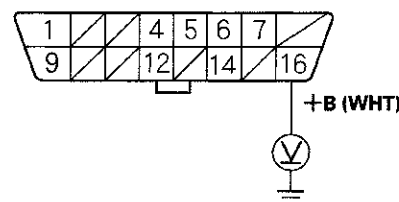
Is DTC B1168, B1169, and/or B1178 indicated?

YES—Go to step 37.

NO—Go to step 26.

26. Turn the ignition switch to LOCK (0).
27. Disconnect the HDS from the DLC.
28. Measure the voltage between DLC terminal No. 16 and body ground.

DATA LINK CONNECTOR (DLC)



Is there battery voltage?

YES—Go to step 29.

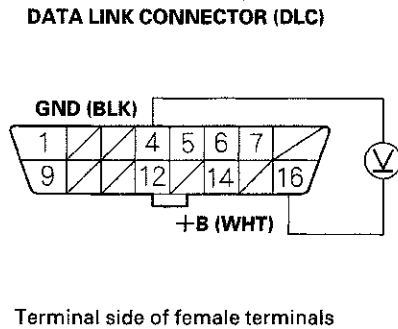
NO—Repair open in the wire between DLC terminal No. 16 and the No. 7 BACK UP (10 A) fuse in the driver's under-dash fuse/relay box. ■

(cont'd)

PGM-FI System

DLC Circuit Troubleshooting (cont'd)

29. Measure the voltage between DLC terminals No. 4 and No. 16.



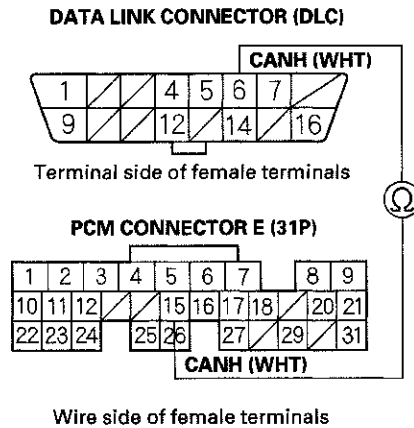
Is there battery voltage?

YES—Go to step 30.

NO—Repair open in the wire between DLC terminal No. 4 and body ground (G501) (see page 22-32). ■

30. Connect the HDS to the DLC (see page 11-3).
31. Jump the SCS line with the HDS.
32. Disconnect PCM connector E (31P).
33. Disconnect the HDS from the DLC.

34. Check for continuity between PCM connector terminal E15 and DLC terminal No. 6.



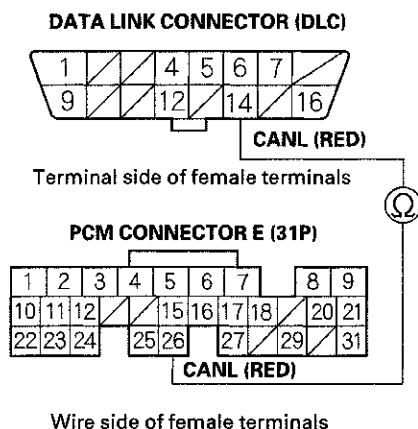
Is there continuity?

YES—Go to step 35.

NO—Repair open in the wire between the PCM (E15) and DLC terminal No. 6. ■



35. Check for continuity between PCM connector terminal E26 and DLC terminal No. 14.



Is there continuity?

YES—Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM (see page 11-232). ■

NO—Repair open in the wire between the PCM (E26) and DLC terminal No. 14. ■

36. Try to start the engine.

Does the engine start and idle smoothly?

YES—Go to the F-CAN circuit troubleshooting (see page 11-192). ■

NO—Go to step 37.

37. Turn the ignition switch to LOCK (0).

38. Check the No. 23 +B IG MAIN (50 A) fuse in the under-hood fuse/relay box.

Is the fuse OK?

YES—Repair open in the wire between the No. 23 +B IG MAIN (50 A) fuse and the ignition switch. If the wire is OK, go to step 39.

NO—Repair short in the wire between the No. 23 +B IG MAIN (50 A) fuse and the ignition switch. Also replace the No. 23 +B IG MAIN (50 A) fuse in the under-hood fuse/relay box. ■

39. Inspect the No. 23 IGP (7.5 A) fuse in the driver's under-dash fuse/relay box.

Is the fuse OK?

YES—Go to step 45.

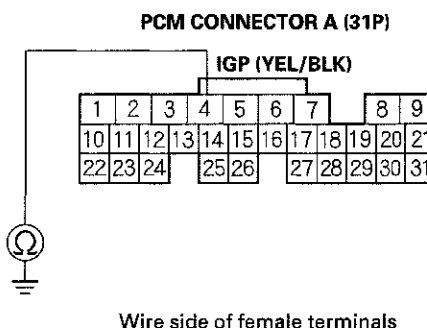
NO—Go to step 40.

40. Remove the blown No. 23 IGP (7.5 A) fuse from the driver's under-dash fuse/relay box.

41. Jump the SCS line with the HDS.

42. Disconnect PCM connector A (31P).

43. Check for continuity between PCM connector terminal A4 and body ground.



Wire side of female terminals

Is there continuity?

YES—Go to step 44.

NO—Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM (see page 11-232). Also replace the No. 23 IGP (7.5 A) fuse in the driver's under-hood fuse/relay box. ■

(cont'd)

PGM-FI System

DLC Circuit Troubleshooting (cont'd)

44. While disconnecting each of the parts or connectors below, one at a time, check for continuity between PCM connector terminal A4 and body ground.

- Each injector 2P connector
- Camshaft position (CMP) sensor 3P connector
- Crankshaft position (CKP) sensor A/B 6P connector
- Driver's under-dash fuse/relay box connector X (39P)

Does continuity go away when one of the above parts or connectors is disconnected?

YES—Replace the part that made the short to body ground go away when disconnected. If the part is the PCM, update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM (see page 11-232). Also replace the No. 23 IGP (7.5 A) fuse in the driver's under-dash fuse/relay box. ■

NO—Repair short in the wire between the PCM (A4) and the injector, the CMP sensor, the CKP sensor, or the driver's under-dash fuse/relay box. Also replace the No. 23 IGP (7.5 A) fuse in the driver's under-dash fuse/relay box. ■

45. Inspect the No. 19 FUEL PUMP (20 A) fuse from the driver's under-dash fuse/relay box.

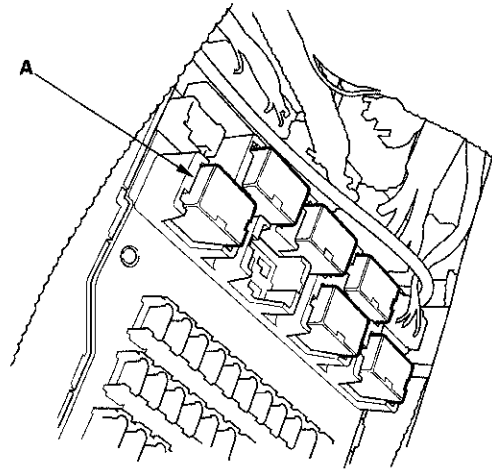
Is the fuse OK?

YES—Go to step 55.

NO—Go to step 46.

46. Remove the blown No. 19 FUEL PUMP (20 A) fuse from the driver's under-dash fuse/relay box.

47. Remove PGM-FI main relay 2 (A) from the driver's under-dash fuse/relay box.



48. Test PGM-FI main relay 2 (FUEL PUMP).

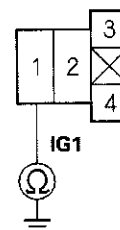
Is the relay OK?

YES—Go to step 49.

NO—Replace PGM-FI main relay 2 (FUEL PUMP). Also replace the No. 19 FUEL PUMP (20 A) fuse. ■

49. Check for continuity between PGM-FI main relay 2 (FUEL PUMP) 4P connector terminal No. 1 and body ground.

PGM-FI MAIN RELAY 2 (FUEL PUMP) 4P CONNECTOR



Terminal side of female terminals

Is there continuity?

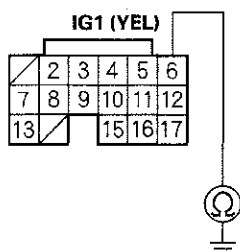
YES—Go to step 50.

NO—Go to step 53.



50. Jump the SCS line with the HDS.
51. Disconnect PCM connector D (17P).
52. Check for continuity between PCM connector terminal D6 and body ground.

PCM CONNECTOR D (17P)



Wire side of female terminals

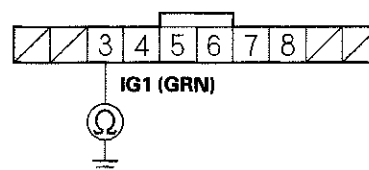
Is there continuity?

YES—Repair short in the wire between the No. 19 FUEL PUMP (20 A) fuse and the PCM (D6), or between the No. 19 FUEL PUMP (20 A) fuse and PGM-FI main relay 2. Also replace the No. 19 FUEL PUMP (20 A) fuse in the driver's under-dash fuse/relay box. ■

NO—Replace the No. 19 FUEL PUMP (20 A) fuse in the driver's under-dash fuse/relay box, and update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM (see page 11-232). ■

53. Disconnect the fuel pump control module 10P connector (see page 11-349).
54. Check for continuity between fuel pump control module 10P connector terminal No. 3 and body ground.

FUEL PUMP CONTROL MODULE 10P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the fuel pump control module and PGM-FI main relay 2 (FUEL PUMP). Also replace the No. 19 FUEL PUMP (20 A) fuse. ■

NO—Check the fuel pump control module, and replace it if needed (see page 11-349). Also replace the No. 19 FUEL PUMP (20 A) fuse. ■

55. Jump the SCS line with the HDS.
56. Disconnect PCM connectors D (17P) and E (31P).
57. Turn the ignition switch to ON (II).

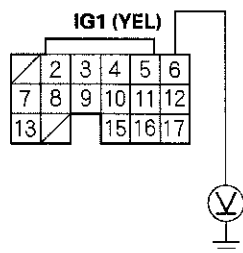
(cont'd)

PGM-FI System

DLC Circuit Troubleshooting (cont'd)

58. Measure the voltage between PCM connector terminal D6 and body ground.

PCM CONNECTOR D (17P)



Wire side of female terminals

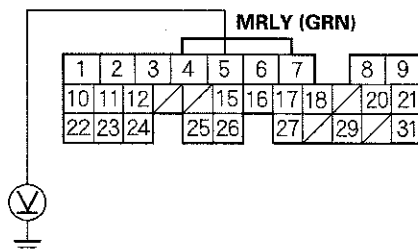
Is there battery voltage?

YES—Go to step 59.

NO—Repair open in the wire between the No. 19 FUEL PUMP (20 A) fuse and the PCM (D6). ■

59. Measure the voltage between PCM connector terminal E5 and body ground.

PCM CONNECTOR E (31P)



Wire side of female terminals

Is there battery voltage?

YES—Go to step 66.

NO—Go to step 60.

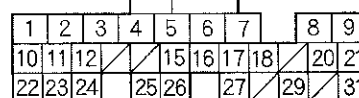
60. Turn the ignition switch to LOCK (0).

61. Disconnect the driver's under-dash fuse/relay box connector X (39P).

62. Check for continuity between PCM connector terminal E5 and driver's under-dash fuse/relay box connector X (39P) terminal No. 1.

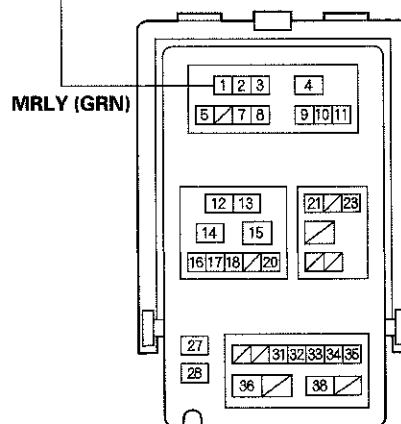
PCM CONNECTOR E (31P)

MRLY (GRN)



Wire side of female terminals

DRIVER'S UNDER-DASH FUSE/RELAY BOX CONNECTOR X (39P)



Wire side of female terminals

Is there continuity?

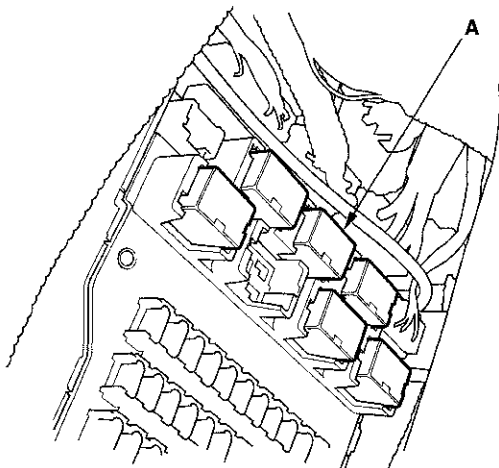
YES—Go to step 62.

NO—Repair open in the wire between the PCM (E5) and the driver's under-dash fuse/relay box. ■

63. Reconnect the driver's under-dash fuse/relay box connector X (39P).

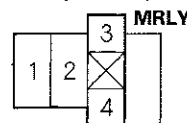


64. Remove PGM-FI main relay 1 (FI MAIN) (A) from the driver's under-dash fuse/relay box connector X (39P).



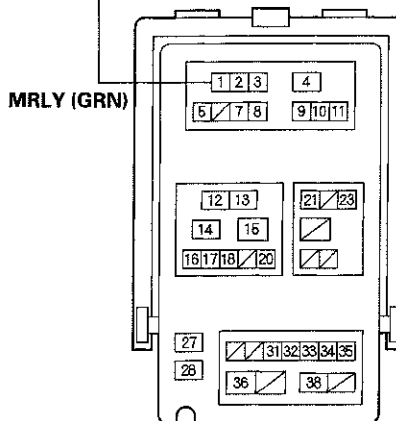
65. Check for continuity between PGM-FI main relay 1 (FI MAIN) 4P connector terminal No. 3 and driver's under-dash fuse/relay box connector X (39P) terminal No. 1.

PGM-FI MAIN RELAY 1 (FI MAIN) 4P CONNECTOR



Terminal side of female terminals Ω

DRIVER'S UNDER-DASH FUSE/RELAY BOX CONNECTOR X (39P)



Wire side of female terminals

Is there continuity?

YES—Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM (see page 11-232). ■

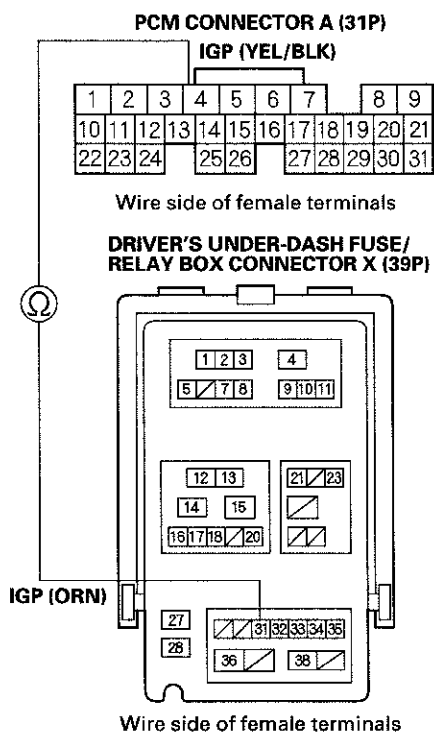
NO—Replace the driver's under-dash fuse/relay box (see page 22-88). ■

(cont'd)

PGM-FI System

DLC Circuit Troubleshooting (cont'd)

66. Turn the ignition switch to LOCK (0).
67. Disconnect the driver's under-dash fuse/relay box connector X (39P).
68. Check for continuity between PCM connector terminal A4 and driver's under-dash fuse/relay box 39P connector terminal No. 31.



Is there continuity?

YES—Go to step 69.

NO—Repair open in the wire between the PCM (A4) and the driver's under-dash fuse/relay box. ■

69. Test PGM-FI main relay 1 in the driver's under-dash fuse/relay box (see page 22-88).

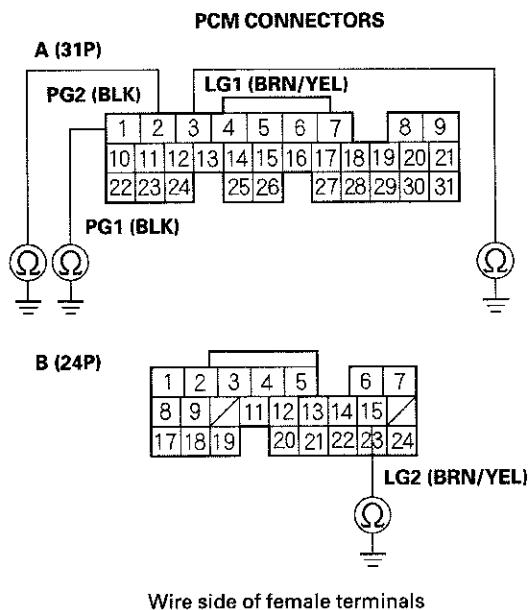
Is PGM-FI main relay 1 OK?

YES—Go to step 70.

NO—Replace PGM-FI main relay 1. ■

70. Disconnect PCM connector B (24P).

71. Check for continuity between body ground and PCM connector terminals A1, A2, A3, and B15 individually.



Is there continuity?

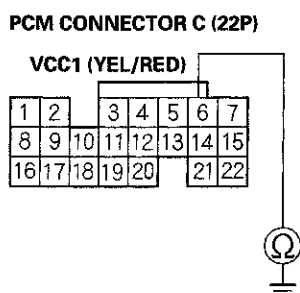
YES—Go to step 72.

NO—Repair open in the wire between the PCM (A1, A2, A3, B15) and G101. ■



72. Disconnect PCM connector C (22P).

73. Check for continuity between PCM connector terminal C6 and body ground.



Is there continuity?

YES—Go to step 74.

NO—Go to step 75.

74. Continue to check for continuity between PCM connector terminal C6 and body ground, while disconnecting these parts, one at a time:

- MAP sensor 3P connector
- Output shaft (countershaft) speed sensor 3P connector

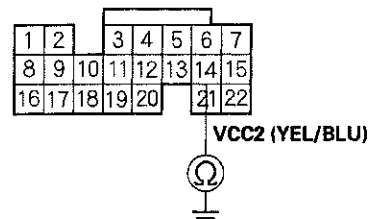
Does continuity go away when one of the above parts is disconnected?

YES—Replace the part that caused an open when it was disconnected. ■

NO—Repair short in the wire between the PCM (C6) and the MAP sensor, or the output shaft (countershaft) speed sensor. ■

75. Check for continuity between PCM connector terminal C14 and body ground.

PCM CONNECTOR C (22P)



Wire side of female terminals

Is there continuity?

YES—Go to step 76.

NO—Go to step 77.

76. Continue to check for continuity between PCM connector terminal C14 and body ground, while disconnecting these parts, one at a time:

- EGR valve 5P connector
- Input shaft (mainshaft) speed sensor 3P connector
- IMT actuator 5P connector

Does continuity go away when one of the above parts is disconnected?

YES—Replace the part that caused an open when it was disconnected. ■

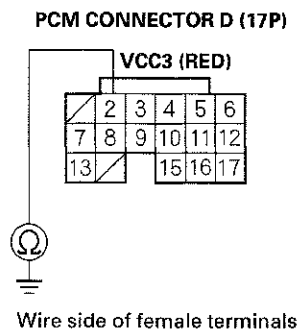
NO—Repair short in the wire between the PCM (C14) and the EGR valve, the input shaft (mainshaft) speed sensor, or the IMT actuator. ■

(cont'd)

PGM-FI System

DLC Circuit Troubleshooting (cont'd)

77. Check for continuity between PCM connector terminal D2 and body ground.



Is there continuity?

YES—Go to step 78.

NO—Go to step 77.

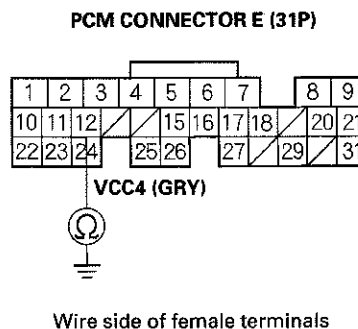
78. Continue to check for continuity between PCM connector terminal D2 and body ground, while disconnecting the APP sensor 6P connector.

Is there continuity?

YES—Repair short in the wire between the PCM (D2) and APP sensor A. ■

NO—Replace the accelerator pedal module (see page 11-282). ■

79. Check for continuity between PCM connector terminal E12 and body ground.



Is there continuity?

YES—Go to step 80.

NO—Update the PCM if it does not have the latest software (see page 11-230), or substitute a known-good PCM (see page 11-7), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM (see page 11-232). ■

80. Continue to check for continuity between PCM connector terminal E12 and body ground, while disconnecting these connectors, one at a time:

- APP sensor 6P connector
- FTP sensor 3P connector

Does continuity go away when one of the above parts is disconnected?

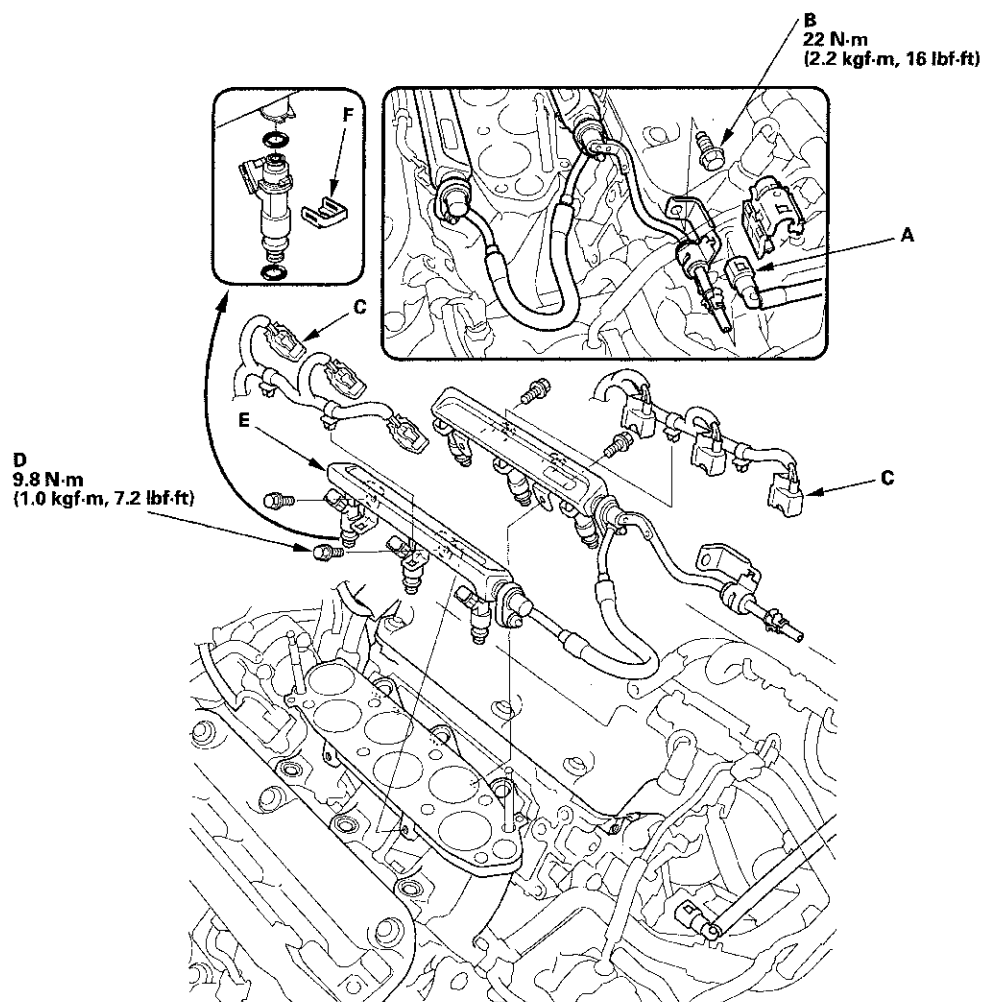
YES—Replace the part that caused an open when it was disconnected. ■

NO—Repair short in the wire between the PCM (E12) and APP sensor B or the FTP sensor. ■



Injector Replacement

1. Relieve the fuel pressure (see page 11-332).
2. Remove the intake manifold (see page 9-3).
3. Disconnect the quick-connect fitting (A) (see page 11-341).



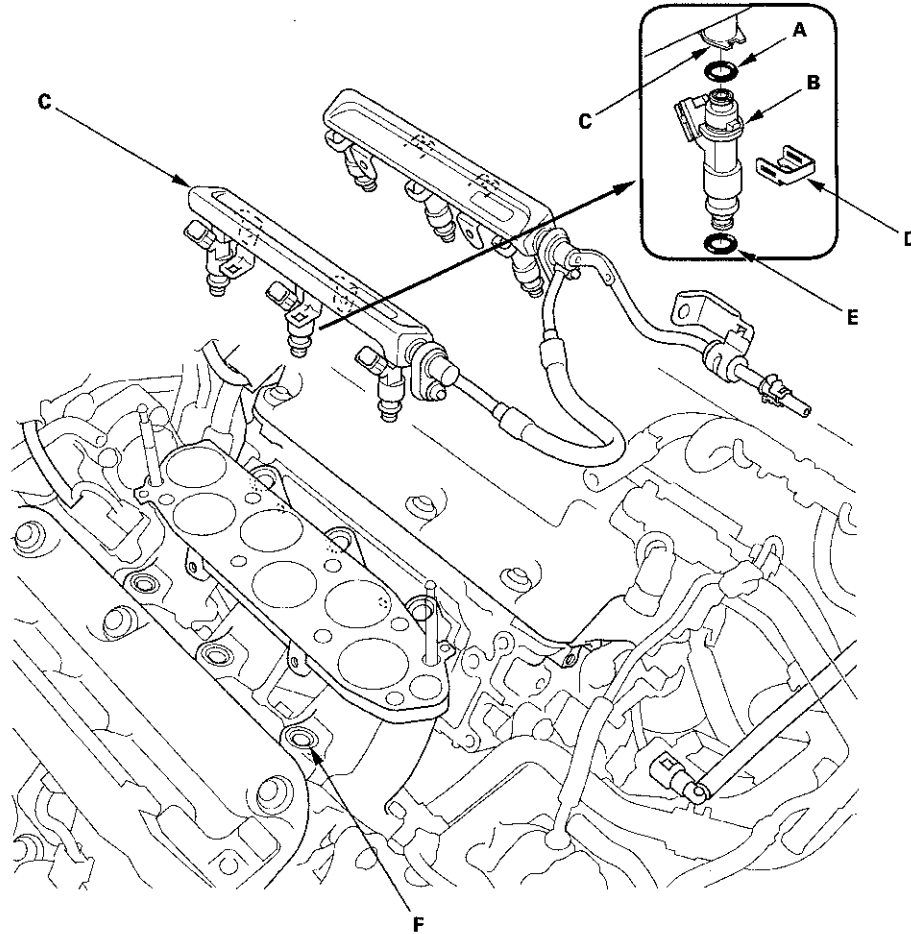
4. Remove the fuel joint hose mounting bolt (B).
5. Disconnect the connectors (C) from the injectors.
6. Remove the fuel rail mounting bolts (D) from the fuel rails (E).
7. Remove the fuel rails and the injectors from the injector base.
8. Remove the injector clips (F) from the fuel rails.
9. Remove the injectors from the fuel rails.

(cont'd)

PGM-FI System

Injector Replacement (cont'd)

10. Coat the new O-rings (black) (A) with clean engine oil, and insert the injectors (B) into the fuel rails (C).

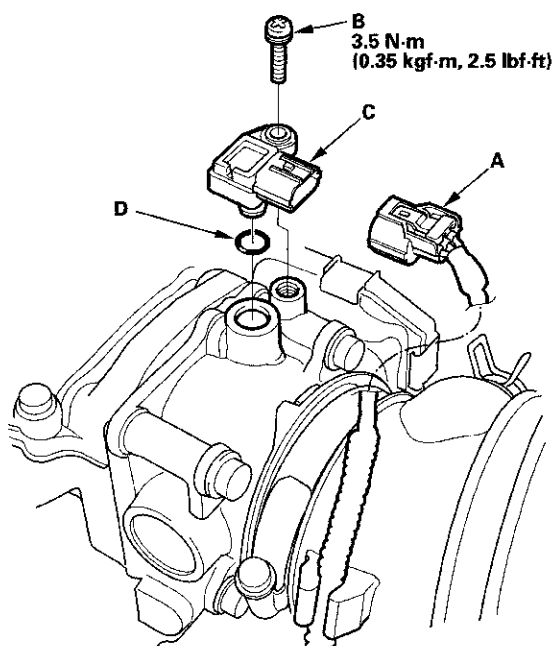


11. Install the injector clips (D).
12. Coat the new injector O-rings (green) (E) with clean engine oil.
13. Install the fuel rails and the injectors in the injector base (F).
14. Install the fuel rail mounting bolts, and connect the injector connectors.
15. Install the fuel joint hose mounting bolt.
16. Connect the quick-connect fitting (see page 11-344).
17. Turn the ignition switch to ON (II), but do not operate the starter. After the fuel pump runs for about 2 seconds, the fuel rail will be pressurized. Repeat this two or three times, then check for fuel leaks.
18. Install the intake manifold with a new gasket (see page 9-4).



MAP Sensor Replacement

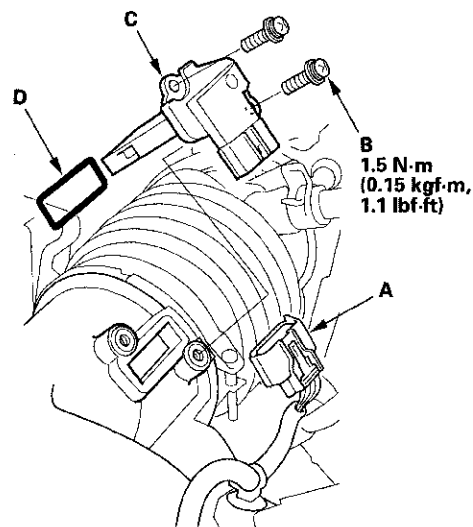
1. Remove the engine cover (see step 2 on page 9-3).
2. Disconnect the MAP sensor connector (A).



3. Remove the screw (B).
4. Remove the MAP sensor (C).
5. Install the parts in the reverse order of removal with a new O-ring (D).

MAF Sensor/IAT Sensor Replacement

1. Disconnect the MAF sensor/IAT sensor 5P connector (A).

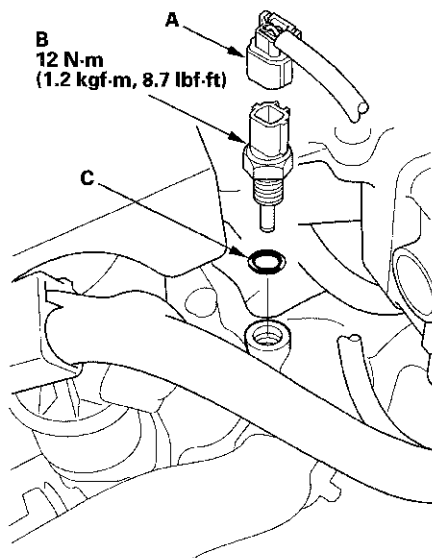


2. Remove the screws (B).
3. Remove the MAF sensor/IAT sensor (C).
4. Install the parts in the reverse order of removal with a new gasket (D).

PGM-FI System

ECT Sensor 1 Replacement

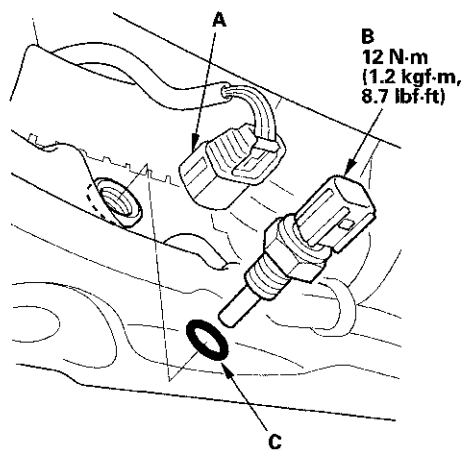
1. Drain the engine coolant (see page 10-6).
2. Remove the engine cover (see step 2 on page 9-3).
3. Disconnect the ECT sensor 1 2P connector (A).



4. Remove ECT sensor 1 (B).
5. Install the parts in the reverse order of removal with a new O-ring (C), then refill the radiator with engine coolant (see page 10-6).

ECT Sensor 2 Replacement

1. Remove the splash shield (see page 20-177).
2. Drain the engine coolant (see page 10-6).
3. Disconnect the ECT sensor 2 2P connector (A).



4. Remove ECT sensor 2 (B).
5. Install the parts in the reverse order of removal with a new O-ring (C), then refill the radiator with engine coolant (see page 10-6).



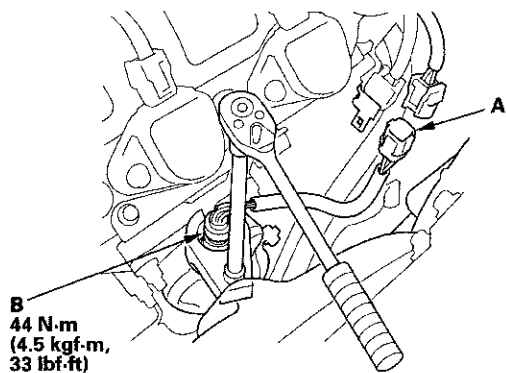
A/F Sensor Replacement

Special Tools Required

O2 sensor wrench, Snap-on YA8875 or SWR2, or equivalent, commercially available

Front Bank (Bank2)

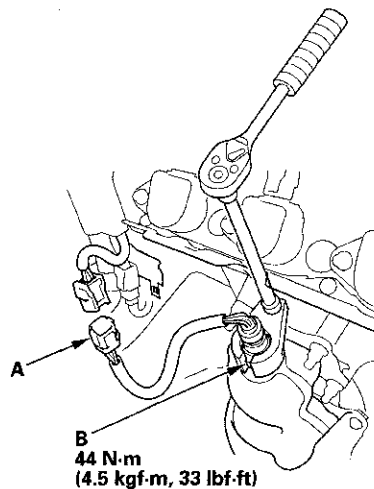
1. Disconnect the front A/F sensor 6P connector (A), then remove the A/F sensor (B).



2. Install the parts in the reverse order of removal.

Rear Bank (Bank1)

1. Disconnect the rear A/F sensor 6P connector (A), then remove the A/F sensor (B).



2. Install the parts in the reverse order of removal.

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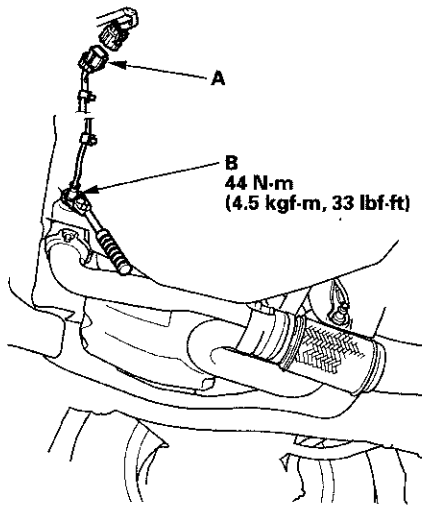
Secondary HO2S Replacement

Special Tools Required

O2 sensor socket wrench, Snap-on YA8875 or SWR2, or equivalent, commercially available

Front Bank (Bank 2)

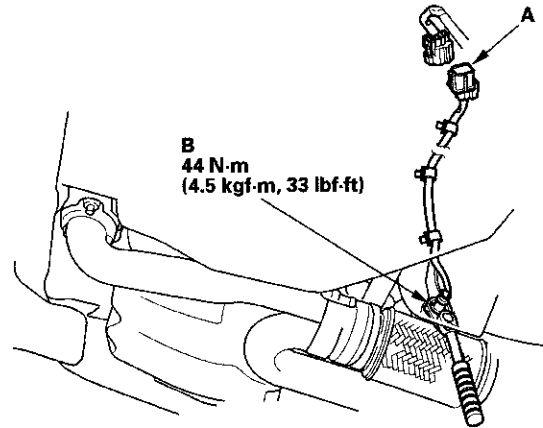
1. Disconnect the front secondary HO2S 4P connector (A).



2. Raise the vehicle on a lift, then remove the front secondary HO2S (B) with an O2 sensor socket wrench.
3. Install the parts in the reverse order of removal.

Rear Bank (Bank 1)

1. Raise the vehicle on a lift.
2. Disconnect the rear secondary HO2S 4P connector (A), then remove the rear secondary HO2S (B) with an O2 sensor socket wrench.

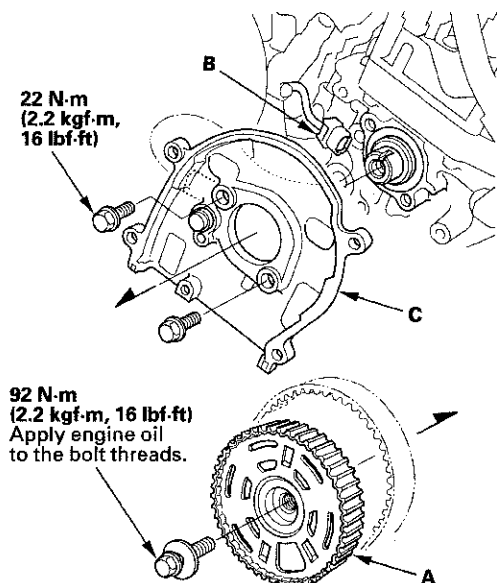


3. Install the parts in the reverse order of removal.

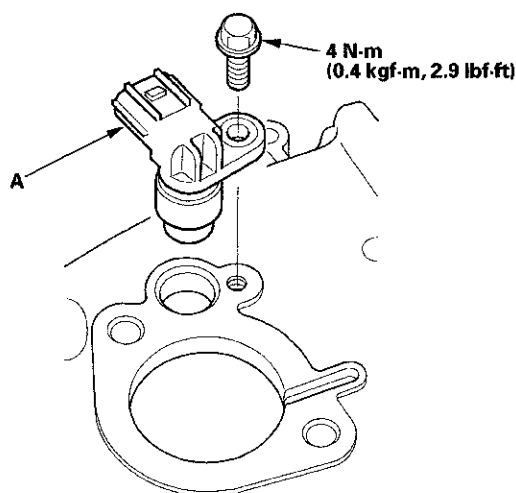


CMP Sensor Replacement

1. Remove the timing belt (see page 6-16).
2. Remove the front camshaft pulley (CMP sensor pulse plate) (A).



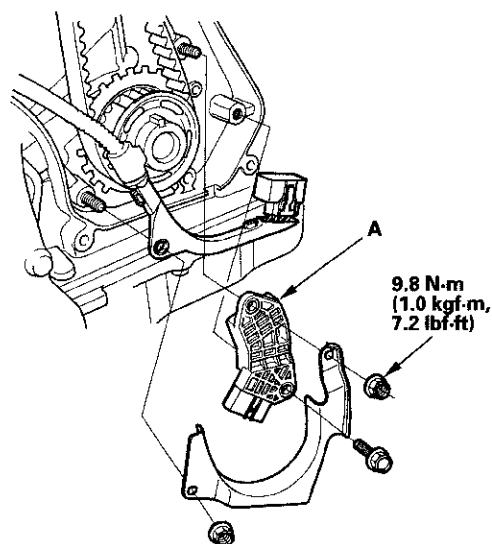
3. Disconnect the CMP sensor connector (B), then remove the back cover (C).
4. Remove the CMP sensor (A) from the back cover.



5. Install the parts in the reverse order of removal. Install the timing belt (see page 6-18).
6. Do the CKP pattern clear/CKP pattern learn procedure (see page 11-5).

CKP Sensor Replacement

1. Move the auto-tensioner to remove tension from the drive belt, then remove the belt (see page 6-16).
2. Remove the crankshaft pulley (see page 6-14).
3. Remove the upper and lower timing belt covers from the engine (see page 6-16).
4. Remove CKP sensor A/B (A) from the oil pump.

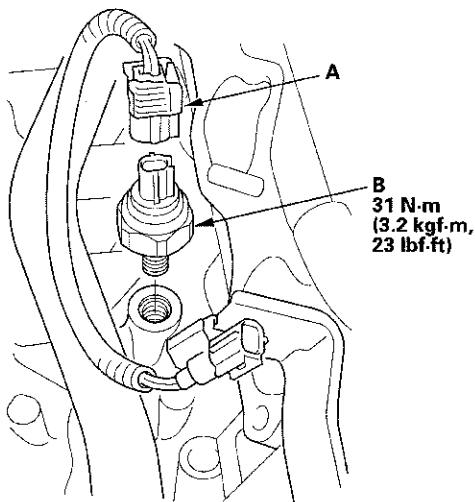


5. Install the parts in the reverse order of removal.
6. Do the CKP pattern clear/CKP pattern learn procedure (see page 11-5).

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Knock Sensor Replacement

1. Remove the intake manifold (see page 9-3).
2. Remove the injector base (see page 9-6).
3. Disconnect the knock sensor connector (A).



4. Remove the knock sensor (B).
5. Install the parts in the reverse order of removal.

PCM Update

Special Tools Required

- Honda diagnostic system (HDS) tablet tester
- Honda interface module (HIM) and an iN workstation with the latest HDS software version
- HDS pocket tester
- GNA600 and an iN workstation with the latest HDS software version

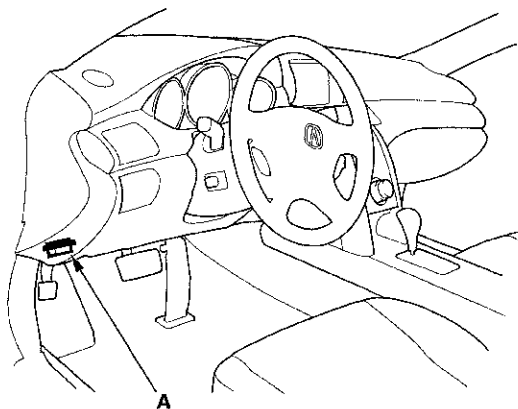
Any one of the above updating tools can be used.

NOTE:

- Make sure the HDS/iN workstation has the latest software version.
- Before you update the PCM, make sure the battery in the vehicle is fully charged, and connect a jumper battery (not a battery charger) to maintain system voltage.
- Never turn the ignition switch to ACC (I) or to LOCK (0) during the update. If there is a problem with the update, leave the ignition switch in ON (II).
- To prevent PCM damage, do not operate anything electrical (headlights, audio system, brakes, A/C, power windows, door locks, etc.) during the update.
- To ensure the latest program is installed, do a PCM update whenever the PCM is substituted or replaced.
- You cannot update a PCM with a program it already has. It will only accept a new program.
- If you need to diagnose the Honda interface module (HIM) because the HIM's red (#3) light came on or was flashing during the update, leave the ignition switch in ON (II) when you disconnect the HIM from the data link connector (DLC). This will prevent PCM damage.



1. Turn the ignition switch to ON (II), but do not start the engine.
2. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



3. Make sure the HDS communicates with the PCM and other vehicle systems. If it doesn't, go to the DLC circuit troubleshooting (see page 11-211). If you are returning from the DLC circuit troubleshooting, skip steps 4 and 5 and clean the throttle body after updating the PCM.
4. Select the INSPECTION MENU with the HDS.
5. Select the ETCS TEST, then select the TP POSITION CHECK, and follow the HDS screen prompts.

NOTE: If the TP POSITION CHECK indicates FAILED, continue this procedure.

6. Exit the HDS diagnostic system, then select the update mode, and follow the screen prompts to update the PCM.

7. If the software in the PCM is the latest, disconnect the HDS/HIM/GNA600 from the DLC, and go back to the procedure that you were doing. If the software in the PCM is not the latest, follow the instructions on the screen. If prompted to choose the PGM-FI system or the A/T system, make sure you update both.

NOTE: If the PCM update system requires you to cool the PCM, follow the screen prompts. If there is a problem during the update procedure (programming takes over 15 minutes, status bar goes over 100 %, D or immobilizer indicator flashes, HDS tablet freezes, etc.), follow these steps to minimize the chance of damaging the PCM:

- Leave the ignition switch in the ON (II) position.
- Connect a jumper battery (do not connect a battery charger).
- Shut down the HDS.
- Disconnect the HDS from the DLC.
- Reboot the HDS.
- Reconnect the HDS to the DLC, and try the update procedure again.

8. If the TP POSITION CHECK failed in step 5, clean the throttle body (see page 11-366).
9. Do the PCM idle learn procedure (see page 11-313).
10. Do the CKP pattern learn procedure (see page 11-5).

PGM-FI System

PCM Replacement

Special Tools Required

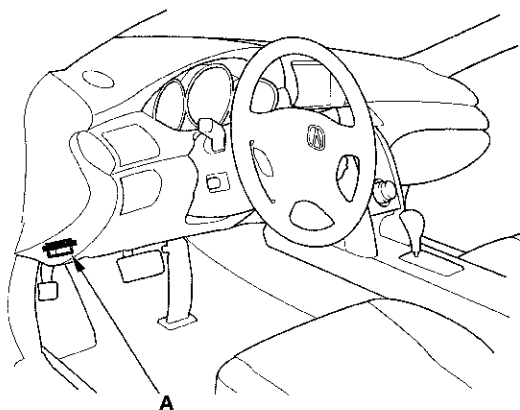
- Honda diagnostic system (HDS) tablet tester
- Honda interface module (HIM) and an iN workstation with the latest HDS software version
- HDS pocket tester
- GNA600 and an iN workstation with the latest HDS software version

Any one of the above updating tools can be used.

NOTE:

- Make sure the HDS/iN workstation has the latest software version.
- If you are replacing the PCM after substituting a known-good PCM, reinstall the original PCM, then do this procedure.
- During the procedure, if any READ DATA, WRITE DATA, or other data checks fail, note the failure, then continue.

1. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the PCM and other vehicle systems. If it doesn't, go to the DLC circuit troubleshooting (see page 11-211). If you are returning from DLC circuit troubleshooting, skip steps 4 through 9, 17 through 19, 22, and 23, then do this after replacing the PCM:
 - Replace the engine oil (see page 8-11) and the engine oil filter (see page 8-12).
 - Clean the throttle body (see page 11-366).
4. Select the PGM-FI system with the HDS.
5. Select the INSPECTION MENU with the HDS.

6. Select the ETCS TEST, then select the TP POSITION CHECK, and follow the screen prompts.

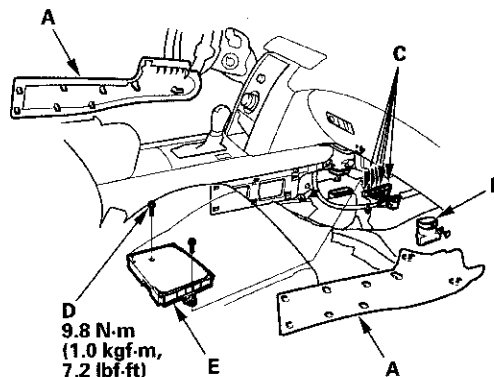
NOTE: If the TP POSITION CHECK indicates FAILED, continue with this procedure.

7. Select the REPLACE PCM MENU, then select READ DATA, and follow the screen prompts.

NOTE:

- Doing this step copies (READS) the engine oil life data from the original PCM so you can later download (WRITE) it into the new PCM.
- If the READ DATA indicates FAILED, continue with this procedure.

8. Turn the ignition switch to LOCK (0).
9. Do the battery terminal disconnection procedure (see page 22-91).
10. Remove the front console covers (A) (see step 5 on page 20-93), and pull back the carpet.



11. Remove the ducts (B).
12. Disconnect the PCM connectors (C).
13. Remove the bolts (D), then remove the PCM (E).
14. Install the parts in the reverse order of removal.
15. Do the battery terminal reconnection procedure (see page 22-91).
16. Turn the ignition switch to ON (II).



17. Manually input the VIN to the PCM with the HDS.

NOTE: DTC P0630 VIN Not Programmed or Mismatch may be stored because the VIN has not been programmed into the PCM, ignore it, and continue this procedure.

18. If the READ DATA (engine oil life) failed in step 7, go to step 21. Otherwise, go to step 19.

19. Select the PGM-FI system with the HDS.

20. Select the REPLACE PCM MENU, then select WRITE DATA, and follow the screen prompts.

NOTE: If the WRITE DATA indicates FAILED, continue this procedure.

21. Select IMMOBI system with the HDS.

22. Enter the immobilizer PCM code that you got from the iN, and use the PCM replacement procedure in the HDS; it allows you to start the engine.

23. If the TP POSITION CHECK failed in step 6, clean the throttle body (see page 11-366), then go to step 24.

24. If the READ DATA failed in step 7 or the WRITE DATA failed in step 20, replace the engine oil (see page 8-11) and engine oil filter (see page 8-12), then go to step 25.

25. Select PGM-FI system, and reset the PCM with the HDS.

26. Update the PCM if it does not have the latest software (see page 11-230).

27. Do the PCM idle learn procedure (see page 11-313).

28. Do the CKP pattern learn procedure (see page 11-5).