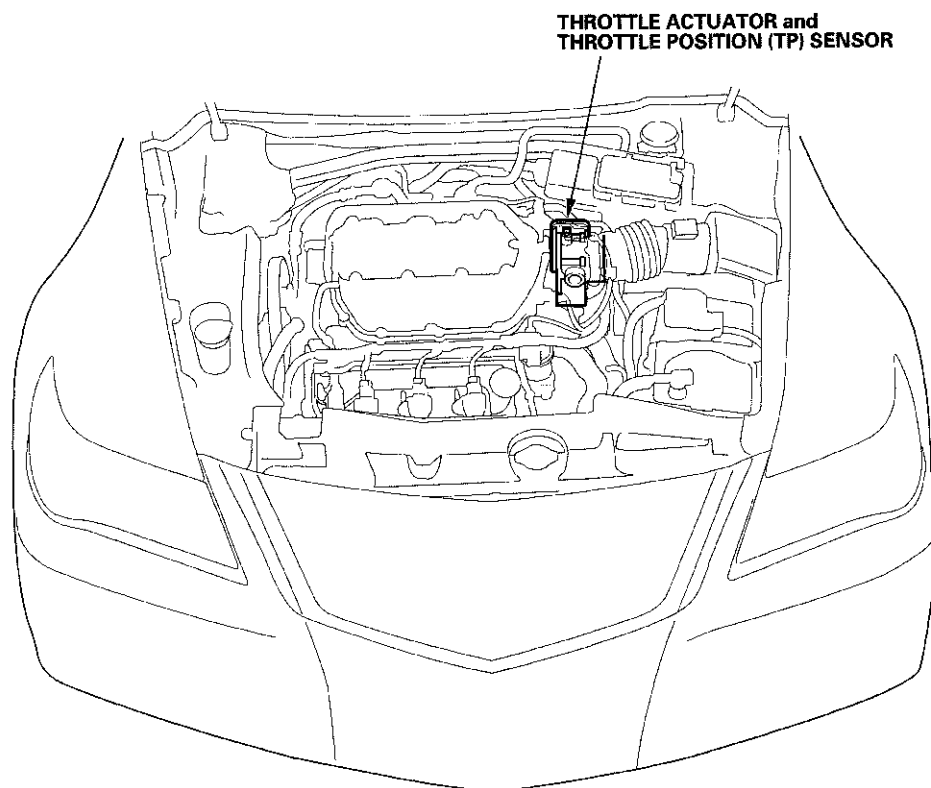
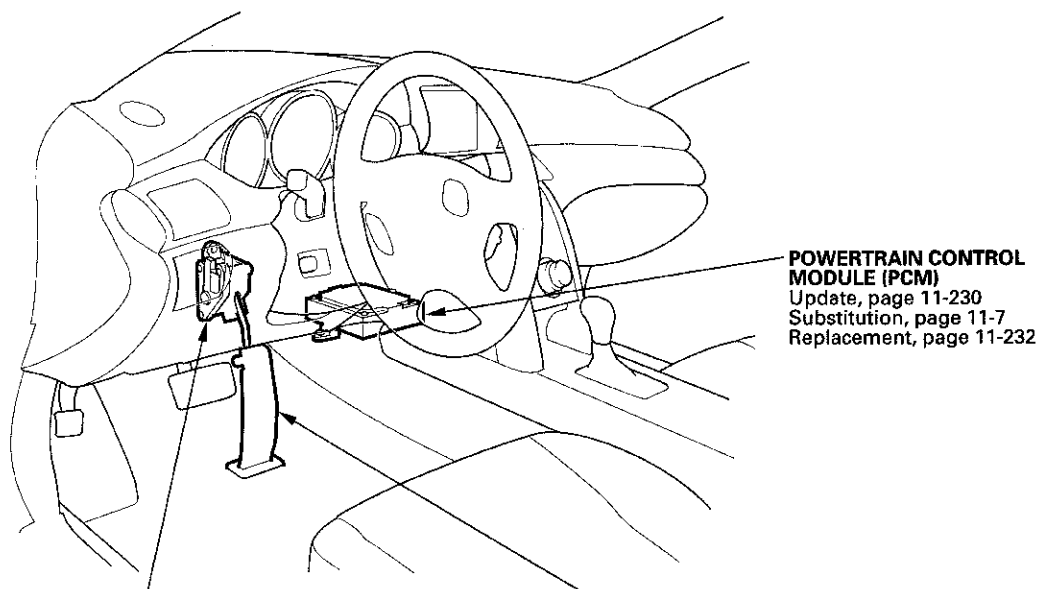
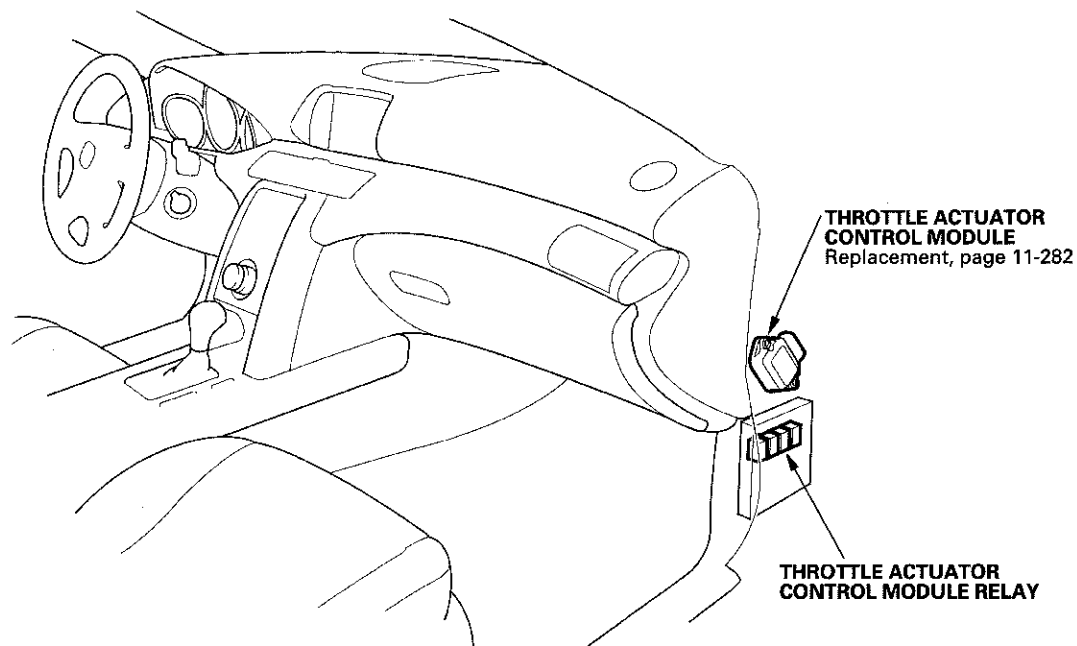


Electronic Throttle Control System

Component Location Index





**ACCELERATOR PEDAL POSITION
(APP) SENSOR**
Signal Inspection, page 11-281

ACCELERATOR PEDAL MODULE
Removal/Installation, page 11-282

Electronic Throttle Control System

DTC Troubleshooting

DTC P0122: TP Sensor A 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. Check TP SENSOR A in the DATA LIST with the HDS.

Is there about 0.3 V or less?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the throttle actuator control module. ■

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

Are DTC P0122 and P0222 indicated at the same time?

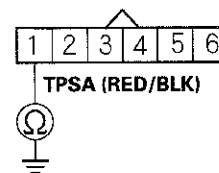
YES—Check for, and repair any poor connections or loose terminals at the throttle body, the throttle actuator control module, and the PCM, then go to step 21. If the connections and terminals are OK, go to step 11.

NO—Go to step 5.

5. Turn the ignition switch to LOCK (0).
6. Disconnect the throttle body 6P connector.
7. Disconnect the C251 connector (13P) between the PCM subharness and the throttle actuator control module subharness.

8. Check for continuity between throttle body 6P connector terminal No. 1 and body ground.

THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

Is there continuity?

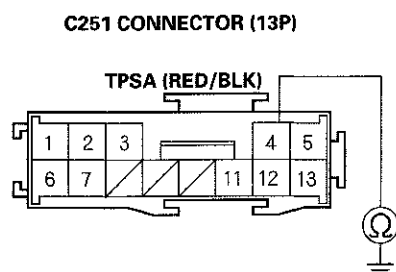
YES—Repair short in the wire between the throttle body and the C251 connector (TPSA line), then go to step 21.

NO—Go to step 9.

9. Disconnect the throttle actuator control module 16P connector.



10. Check for continuity between C251 connector (13P) terminal No. 4 and body ground.



Terminal side of male terminals

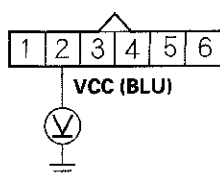
Is there continuity?

YES—Repair short in the wire between the throttle actuator control module and the C251 connector (TPSA line), then go to step 21.

NO—Go to step 26.

11. Measure the voltage between throttle body 6P connector terminal No. 2 and body ground.

THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Go to step 19.

NO—Go to step 12.

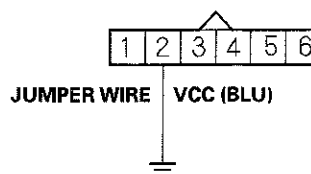
12. Turn the ignition switch to LOCK (0).

13. Disconnect the throttle body 6P connector.

14. Disconnect the C251 connector (13P) between the PCM subharness and the throttle actuator control module subharness.

15. Connect throttle body 6P connector terminal No. 2 to body ground with a jumper wire.

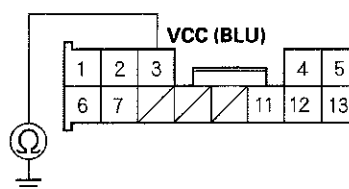
THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

16. Check for continuity between C251 connector (13P) terminal No. 3 and body ground.

C251 CONNECTOR (13P)



Wire side of female terminals

Is there continuity?

YES—Go to step 17.

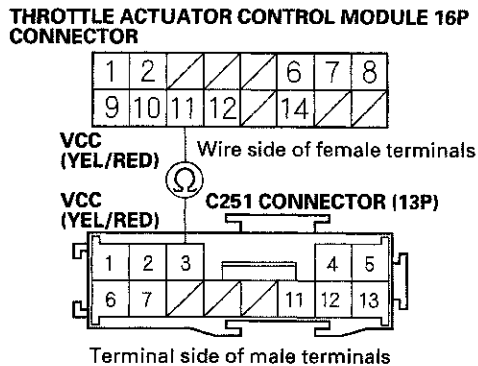
NO—Repair open in the wire between the throttle body and the throttle actuator control module (VCC line), then go to step 21.

(cont'd)

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

17. Disconnect the throttle actuator control module 16P connector (see page 11-282).
18. Check for continuity between throttle actuator control module 16P connector terminal No. 11 and C251 connector (13P) terminal No. 3.



Is there continuity?

YES—Go to step 26.

NO—Repair open in the wire between the throttle actuator control module (VCC line) and the C251 connector, then go to step 21.

19. Turn the ignition switch to LOCK (0).
20. Replace the throttle body (see page 11-369).
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 P0122 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the throttle actuator control module, 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 P0122 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the throttle actuator control module. 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 P0123: TP Sensor A 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. Clear the DTC with the HDS.
3. Check TP SENSOR A in the DATA LIST with the HDS.

Is there about 4.8 V or more?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the throttle actuator control module. ■

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

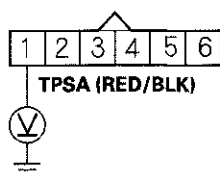
Are DTC P0123 and P0223 indicated at the same time?

YES—Go to step 13.

NO—Go to step 5.

5. Measure the voltage between throttle body 6P connector terminal No. 1 and body ground.

THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

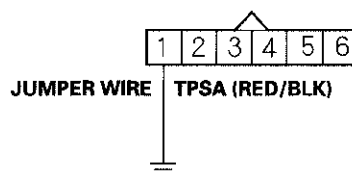
Is there about 5 V?

YES—Go to step 20.

NO—Go to step 8.

6. Turn the ignition switch to LOCK (0).
7. Disconnect the throttle body 6P connector.
8. Disconnect the C251 connector (13P) between the PCM subharness and the throttle actuator control module subharness.
9. Connect throttle body 6P connector terminal No. 1 to body ground with a jumper wire.

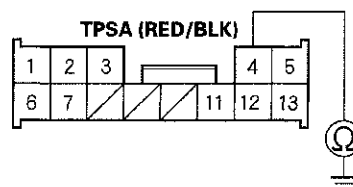
THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

10. Check for continuity between C251 connector (13P) terminal No. 4 and body ground.

C251 CONNECTOR (13P)



Wire side of female terminals

Is there continuity?

YES—Go to step 11.

NO—Repair open in the wire between the throttle body and the C251 connector (TPSA line), then go to step 22.

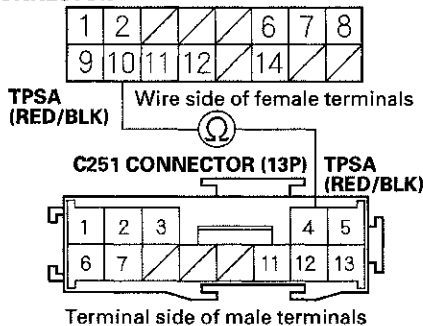
(cont'd)

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

11. Disconnect the throttle actuator control module 16P connector (see page 11-282).
12. Check for continuity between throttle actuator control module 16P connector terminal No. 10 and C251 connector (13P) terminal No. 4.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Is there continuity?

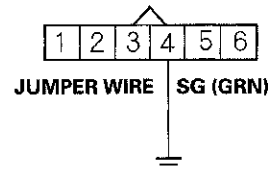
YES—Go to step 27.

NO—Repair open in the wire between the throttle actuator control module and the C251 connector (TPSA line), then go to step 22.

13. Turn the ignition switch to LOCK (0).
14. Disconnect the throttle body 6P connector.
15. Disconnect the C251 connector (13P) between the PCM subharness and the throttle actuator control module subharness.

16. Connect throttle body 6P connector terminal No. 4 to body ground with a jumper wire.

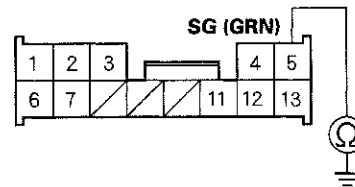
THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

17. Check for continuity between C251 connector (13P) terminal No. 5 and body ground.

C251 CONNECTOR (13P)



Wire side of female terminals

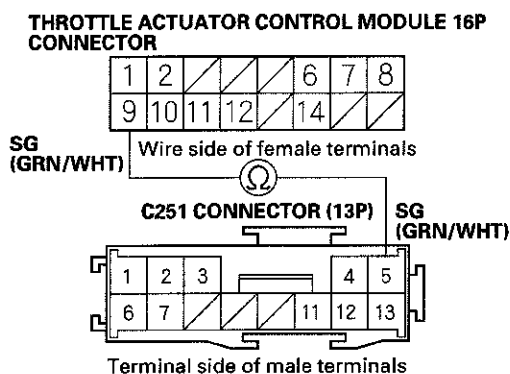
Is there continuity?

YES—Go to step 18.

NO—Repair open in the wire between the throttle body and the C251 connector (SG line), then go to step 22.



18. Disconnect the throttle actuator control module 16P connector (see page 11-282).
19. Check for continuity between throttle actuator control module 16P connector terminal No. 9 and C251 connector (13P) terminal No. 5.



Is there continuity?

YES—Go to step 27.

NO—Repair open in the wire between the throttle actuator control module (SG line) and the C251 connector, then go to step 22.

20. Turn the ignition switch to LOCK (0).
21. Replace the throttle body (see page 11-369).
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 P0123 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the throttle actuator control module, 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 P0123 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the throttle actuator control module. 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. ■

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

DTC P0222: TP Sensor B 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. Check TP SENSOR B in the DATA LIST with the HDS.

Is there about 0.3 V or less?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the throttle actuator control module. ■

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

Are DTC P0122 and P0222 indicated at the same time?

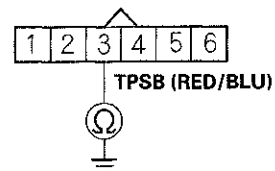
YES—Check for, and repair any poor connections or loose terminals at the throttle body, the throttle actuator control module, and the PCM, then go to step 21. If the connections and terminals are OK, go to step 11.

NO—Go to step 5.

5. Turn the ignition switch to LOCK (0).
6. Disconnect the throttle body 6P connector.
7. Disconnect the C251 connector (13P) between the PCM subharness and the throttle actuator control module subharness.

8. Check for continuity between throttle body 6P connector terminal No. 3 and body ground.

THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

Is there continuity?

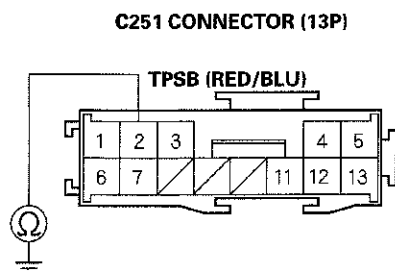
YES—Repair short in the wire between the throttle body and the C251 connector (TPSB line), then go to step 21.

NO—Go to step 9.

9. Disconnect the throttle actuator control module 16P connector.



10. Check for continuity between C251 connector (13P) terminal No. 2 and body ground.



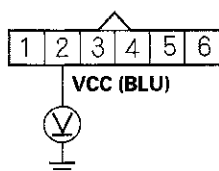
Is there continuity?

YES—Repair short in the wire between the throttle actuator control module and the C251 connector (TPSB line), then go to step 21.

NO—Go to step 26.

11. Measure the voltage between throttle body 6P connector terminal No. 2 and body ground.

THROTTLE BODY 6P CONNECTOR



Is there about 5 V?

YES—Go to step 19.

NO—Go to step 12.

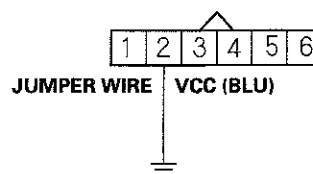
12. Turn the ignition switch to LOCK (0).

13. Disconnect the throttle body 6P connector.

14. Disconnect the C251 connector (13P) between the PCM subharness and the throttle actuator control module subharness.

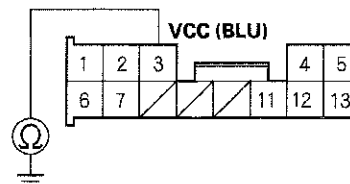
15. Connect throttle body 6P connector terminal No. 2 to body ground with a jumper wire.

THROTTLE BODY 6P CONNECTOR



16. Check for continuity between C251 connector (13P) terminal No. 3 and body ground.

C251 CONNECTOR (13P)



Is there continuity?

YES—Go to step 21.

NO—Repair open in the wire between the throttle body and the throttle actuator control module (VCC line), then go to step 21.

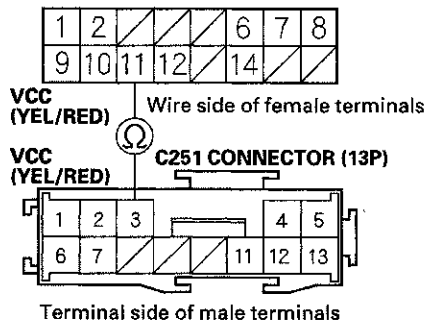
(cont'd)

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

17. Disconnect the throttle actuator control module 16P connector (see page 11-282).
18. Check for continuity between throttle actuator control module 16P connector terminal No. 11 and C251 connector (13P) terminal No. 3.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Is there continuity?

YES—Go to step 26.

NO—Repair open in the wire between the throttle actuator control module (VCC line) and the C251 connector, then go to step 21.

19. Turn the ignition switch to LOCK (0).
20. Replace the throttle body (see page 11-369).
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 P0222 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the throttle actuator control module, 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 P0222 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the throttle actuator control module. 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 P0223: TP Sensor B 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. Clear the DTC with the HDS.
3. Check TP SENSOR B in the DATA LIST with the HDS.

Is there about 4.8 V or more?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the throttle actuator control module. ■

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

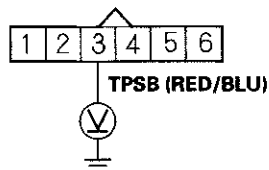
Are DTC P0123 and P0223 indicated at the same time?

YES—Go to step 13.

NO—Go to step 5.

5. Measure the voltage between throttle body 6P connector terminal No. 3 and body ground.

THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

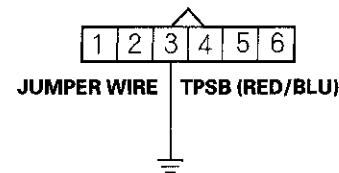
Is there about 5 V?

YES—Go to step 20.

NO—Go to step 6.

6. Turn the ignition switch to LOCK (0).
7. Disconnect the throttle body 6P connector.
8. Disconnect the C251 connector (13P) between the PCM subharness and the throttle actuator control module subharness.
9. Connect throttle body 6P connector terminal No. 3 to body ground with a jumper wire.

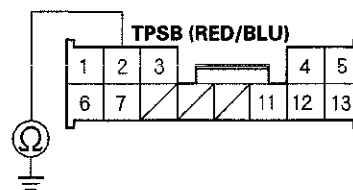
THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

10. Check for continuity between C251 connector (13P) terminal No. 2 and body ground.

C251 CONNECTOR (13P)



Wire side of female terminals

Is there continuity?

YES—Go to step 11.

NO—Repair open in the wire between the throttle body and the C251 connector (TPSB line), then go to step 22.

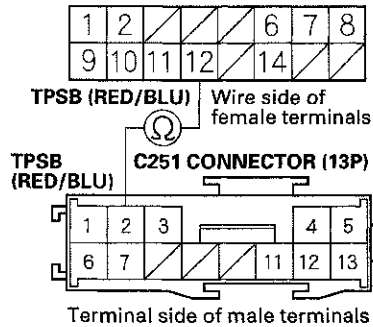
(cont'd)

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

11. Disconnect the throttle actuator control module 16P connector (see page 11-282).
12. Check for continuity between throttle actuator control module 16P connector terminal No. 12 and C251 connector (13P) terminal No. 2.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Is there continuity?

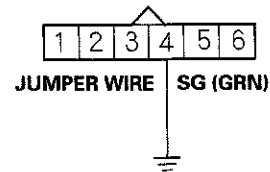
YES—Go to step 27.

NO—Repair open in the wire between the throttle actuator control module and the C251 connector (TPSB line), then go to step 22.

13. Turn the ignition switch to LOCK (0).
14. Disconnect the throttle body 6P connector.
15. Disconnect the C251 connector (13P) between the PCM subharness and the throttle actuator control module subharness.

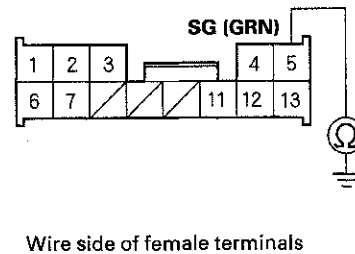
16. Connect throttle body 6P connector terminal No. 4 to body ground with a jumper wire.

THROTTLE BODY 6P CONNECTOR



17. Check for continuity between C251 connector (13P) terminal No. 5 and body ground.

C251 CONNECTOR (13P)



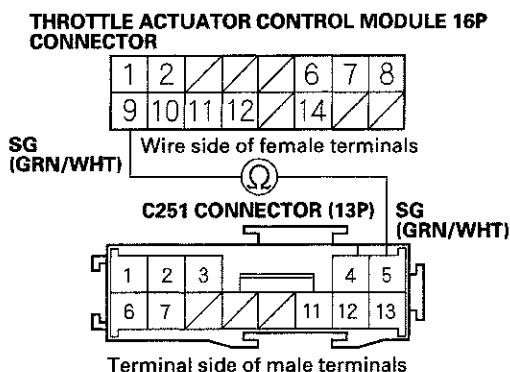
Is there continuity?

YES—Go to step 18.

NO—Repair open in the wire between the throttle body and the C251 connector (SG line), then go to step 22.



18. Disconnect the throttle actuator control module 16P connector (see page 11-282).
19. Check for continuity between throttle actuator control module 16P connector terminal No. 9 and C251 connector (13P) terminal No. 5.



Is there continuity?

YES—Go to step 27.

NO—Repair open in the wire between the throttle actuator control module (SG line) and the C251 connector, then go to step 22.

20. Turn the ignition switch to LOCK (0).
21. Replace the throttle body (see page 11-369).
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 P0223 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the throttle actuator control module, 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 P0223 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the throttle actuator control module. 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. ■

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

DTC P1683: Throttle Valve Default Position Spring Performance Problem

CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch to ON (II) or while the ignition switch is in ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

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. Turn the ignition switch to LOCK (0), and wait 10 seconds.
5. Turn the ignition switch to ON (II).
6. Check for Pending or Confirmed DTCs with the HDS.

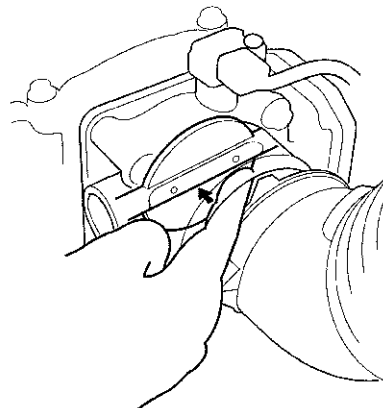
Is DTC P1683 indicated?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the throttle actuator control module. ■

7. Turn the ignition switch to LOCK (0).
8. Disconnect the intake air duct from the throttle body.

9. Push the throttle valve closed as shown.



10. Release the throttle valve.

Does the throttle valve return?

YES—Clean the throttle body (see page 11-366), then go to step 12 and recheck. If DTC P1683 is indicated, go to step 11.

NO—Go to step 11.

11. Replace the throttle body (see page 11-369).
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. Turn the ignition switch to LOCK (0), and wait 10 seconds.
16. Turn the ignition switch to ON (II).
17. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1683 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the throttle actuator control module, 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 P1684: Throttle Valve Return Spring Performance Problem

⚠ CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch to ON (II) or while the ignition switch is in ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

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. Turn the ignition switch to LOCK (0), and wait 10 seconds.
5. Turn the ignition switch to ON (II).
6. Check for Pending or Confirmed DTCs with the HDS.

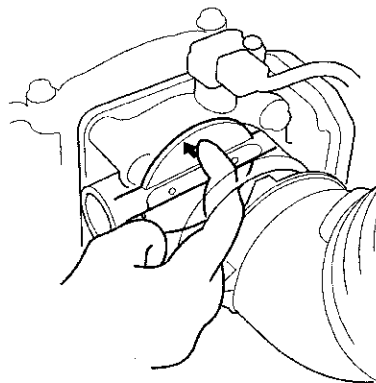
Is DTC P1684 indicated?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the throttle actuator control module. ■

7. Turn the ignition switch to LOCK (0).
8. Disconnect the intake air duct from the throttle body.

9. Push the throttle valve open as shown.



10. Release the throttle valve.

Does the throttle valve return?

YES—Clean the throttle body (see page 11-366), then go to step 12 and recheck. If DTC P1684 is indicated, go to step 11.

NO—Go to step 11.

11. Replace the throttle body (see page 11-369).
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. Turn the ignition switch to LOCK (0), and wait 10 seconds.
16. Turn the ignition switch to ON (II).
17. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1684 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the throttle actuator control module, 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. ■

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

DTC P2101: Throttle Actuator System Malfunction

CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch to ON (II) or while the ignition switch is in ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

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. Do the ETCS TEST in the INSPECTION MENU with the HDS.
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2101 indicated?

YES—Go to step 7.

NO—Go to step 5.

5. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
 - ENGINE SPEED
 - VSS
 - APP SENSOR
6. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2101 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 throttle body and the throttle actuator control module, then clean the throttle body (see page 11-366). ■

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

8. Disconnect the intake air duct from the throttle body.

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

10. Clear the DTC with the HDS.

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

12. Visually check the throttle valve operation.

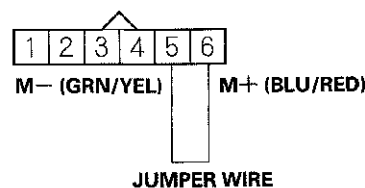
Does the throttle valve operate smoothly?

YES—Clean the throttle body (see page 11-366), then go to step 22 and recheck. If DTC P2101 is indicated, go to step 20.

NO—Go to step 13.

13. Turn the ignition switch to LOCK (0).
14. Disconnect the throttle body 6P connector.
15. Disconnect the C251 connector (13P) between the PCM subharness and the throttle actuator control module subharness.
16. Connect throttle body 6P connector terminals No. 5 and No. 6 with a jumper wire.

THROTTLE BODY 6P CONNECTOR

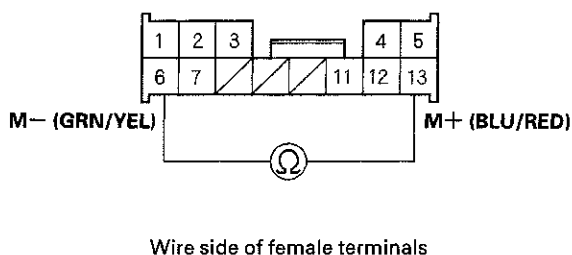


Wire side of female terminals



17. Check for continuity between C251 connector (13P) terminals No. 6 and No. 13.

C251 CONNECTOR (13P)



Is there continuity?

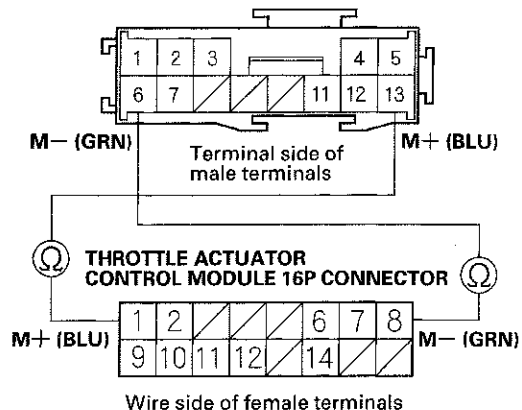
YES—Go to step 18.

NO—Repair open in the wire between the throttle body and the C251 connector (motor drive lines), then go to step 22.

18. Disconnect the throttle actuator control module 16P connector (see page 11-282).

19. Check for continuity between throttle actuator control module 16P connector terminal No. 1 and C251 connector (13P) terminal No. 13, and then between throttle actuator control module 16P connector terminals No. 8 and C251 connector (13P) terminal No. 6.

C251 CONNECTOR (13P)



Is there continuity?

YES—Go to step 28.

NO—Repair open in the wires between the throttle actuator control module and the C251 connector (motor drive lines), then go to step 22.

20. Turn the ignition switch to LOCK (0).
21. Replace the throttle body (see page 11-369).
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. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
- ENGINE SPEED
 - VSS
 - APP SENSOR

(cont'd)

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

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

Is DTC P2101 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the throttle actuator control module, then clean the throttle body (see page 11-366), and go to step 1.

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

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 P2101 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the throttle actuator control module. 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 P2108: Throttle Actuator Control Module 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. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II).
5. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2108 indicated?

YES—Substitute a known-good throttle actuator control module (see page 11-282), and recheck. If DTC P2108 is not indicated, replace the original throttle actuator control module (see page 11-282). ■

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body, the throttle actuator control module, and the PCM. ■



DTC P2118: Throttle Actuator Current 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 (II).
2. Clear the DTC with the HDS.
3. Slowly press the accelerator pedal to the floor.
4. Check for Pending or Confirmed DTCs with the HDS.

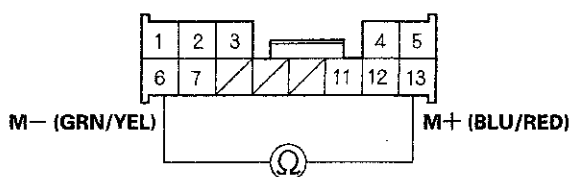
Is DTC P2118 indicated?

YES—Go to step 5.

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

5. Turn the ignition switch to LOCK (0).
6. Disconnect the C251 connector (13P) between the PCM subharness and the throttle actuator control module subharness.
7. Measure the resistance between C251 connector (13P) terminals No. 6 and No. 13.

C251 CONNECTOR (13P)



Wire side of female terminals

Is there about 1.0 Ω or less?

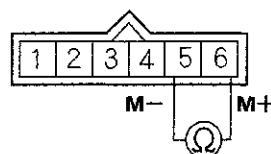
YES—Go to step 8.

NO—Go to step 10.

8. Disconnect the throttle body 6P connector.

9. Measure the resistance between throttle body 6P connector terminals No. 5 and No. 6 with the throttle fully closed.

THROTTLE BODY 6P CONNECTOR



Terminal side of male terminals

Is there about 1.0 Ω or less?

YES—Go to step 12.

NO—Repair short in the wires between the throttle body and the C251 connector (motor drive lines), then go to step 13.

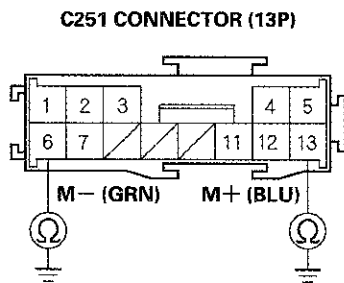
10. Disconnect the throttle actuator control module 16P connector (see page 11-282).

(cont'd)

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

11. Check for continuity between body ground and C251 connector (13P) terminals No. 6 and No. 13 individually.



Is there continuity?

YES—Repair short in the wires between the throttle actuator control module and the C251 connector (motor drive lines), then go to step 8.

NO—Go to step 21.

12. Replace the throttle body (see page 11-369).
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. Turn the ignition switch to LOCK (0).
18. Turn the ignition switch to ON (II).
19. Slowly press the accelerator pedal to the floor.

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

Is DTC P2118 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the throttle actuator control module, 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. Reconnect all connectors.
22. 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).
23. Turn the ignition switch to LOCK (0).
24. Turn the ignition switch to ON (II).
25. Slowly press the accelerator pedal to the floor.
26. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2118 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the throttle actuator control module. 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 P2122: APP Sensor A (TP Sensor D) 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 APP SENSOR A in the DATA LIST with the HDS.

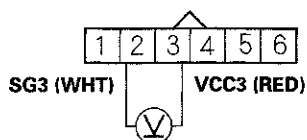
Is there about 0.1 V or less?

YES—Go to step 3.

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

3. Turn the ignition switch to LOCK (0).
4. Disconnect the APP sensor 6P connector.
5. Turn the ignition switch to ON (II).
6. Measure the voltage between APP sensor 6P connector terminals No. 2 and No. 3.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

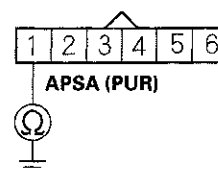
Is there about 5 V?

YES—Go to step 7.

NO—Go to step 17.

7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect PCM connector D (17P).
10. Check for continuity between APP sensor 6P connector terminal No. 1 and body ground.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

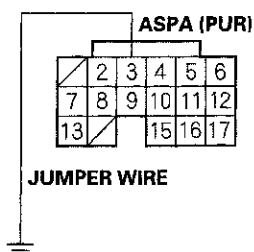
Is there continuity?

YES—Repair short in the wire between APP sensor A and the PCM (D3), then go to step 20.

NO—Go to step 11.

11. Connect PCM connector terminal D3 to body ground with a jumper wire.

PCM CONNECTOR D (17P)



Wire side of female terminals

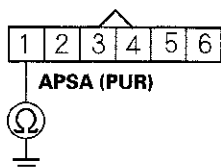
(cont'd)

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

12. Check for continuity between APP sensor 6P connector terminal No. 1 and body ground.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

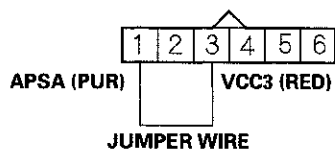
Is there continuity?

YES—Go to step 13.

NO—Repair open in the wire between APP sensor A and the PCM (D3), then go to step 20.

13. Reconnect PCM connector D (17P).
14. Connect APP sensor 6P connector terminals No. 1 and No. 3 with a jumper wire.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

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

16. Check APP SENSOR A in the DATA LIST with the HDS.

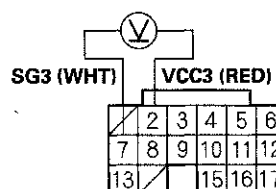
Is there about 0.1 V or less?

YES—Go to step 25.

NO—Go to step 18.

17. Measure the voltage between PCM connector terminals D2 and D7.

PCM CONNECTOR D (17P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the PCM (D22) and APP sensor A, then go to step 20.

NO—Go to step 25.



18. Turn the ignition switch to LOCK (0).
19. Replace the accelerator pedal module (see page 11-282).
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 P2122 indicated?

YES—Check for poor connections or loose terminals at APP sensor A 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. Turn the ignition switch to LOCK (0).
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 P2122 indicated?

YES—Check for poor connections or loose terminals at APP sensor A 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 P2123: APP Sensor A (TP Sensor D) 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 APP SENSOR A in the DATA LIST with the HDS.

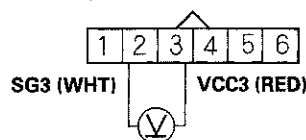
Is there about 4.9 V or more?

YES—Go to step 3.

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

3. Turn the ignition switch to LOCK (0).
4. Disconnect the APP sensor 6P connector.
5. Turn the ignition switch to ON (II).
6. Measure the voltage between APP sensor 6P connector terminals No. 2 and No. 3.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Go to step 8.

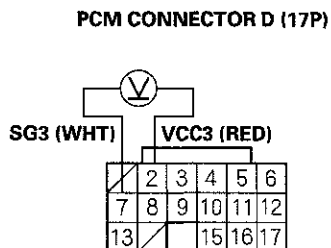
NO—Go to step 7.

(cont'd)

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

7. Measure the voltage between PCM connector terminals D2 and D7.



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the PCM (D7) and APP sensor A, then go to step 10.

NO—Go to step 15.

8. Turn the ignition switch to LOCK (0).
9. Replace the accelerator pedal module (see page 11-282).
10. Reconnect all connectors.
11. Turn the ignition switch to ON (II).
12. Reset the PCM with the HDS.
13. Do the idle learn procedure (see page 11-313).

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

Is DTC P2123 indicated?

YES—Check for poor connections or loose terminals at APP sensor A 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. ■

15. Turn the ignition switch to LOCK (0).
16. Reconnect all connectors.
17. 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).
18. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2123 indicated?

YES—Check for poor connections or loose terminals at APP sensor A 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 P2127: APP Sensor B (TP Sensor E) 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 APP SENSOR A in the DATA LIST with the HDS.

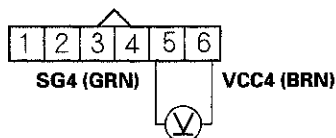
Is there about 0.1 V or less?

YES—Go to step 3.

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

3. Turn the ignition switch to LOCK (0).
4. Disconnect the APP sensor 6P connector.
5. Turn the ignition switch to ON (II).
6. Measure the voltage between APP sensor 6P connector terminals No. 5 and No. 6.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

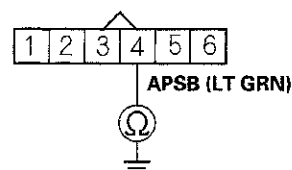
Is there about 5 V?

YES—Go to step 7.

NO—Go to step 17.

7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect PCM connector D (17P).
10. Check for continuity between APP sensor 6P connector terminal No. 4 and body ground.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

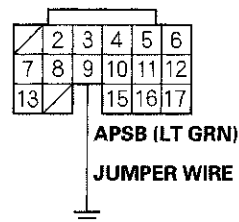
Is there continuity?

YES—Repair short in the wire between APP sensor B and the PCM (D9), then go to step 20.

NO—Go to step 11.

11. Connect PCM connector terminal D9 to body ground with a jumper wire.

PCM CONNECTOR D (17P)



Wire side of female terminals

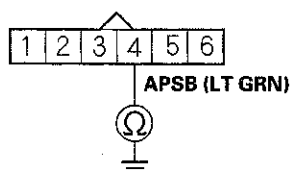
(cont'd)

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

12. Check for continuity between APP sensor 6P connector terminal No. 4 and body ground.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

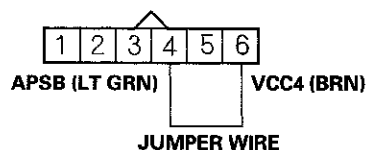
Is there continuity?

YES—Go to step 13.

NO—Repair open in the wire between APP sensor B and the PCM (D9), then go to step 20.

13. Reconnect PCM connector D (17P).
14. Connect APP sensor 6P connector terminals No. 4 and No. 6 with a jumper wire.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

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

16. Check APP SENSOR B in the DATA LIST with the HDS.

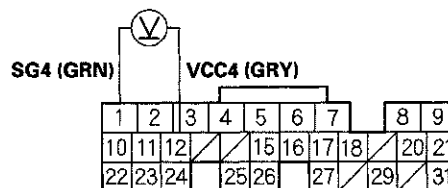
Is there about 0.1 V or less?

YES—Go to step 25.

NO—Go to step 18.

17. Measure the voltage between PCM connector terminals E1 and E12.

PCM CONNECTOR E (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the PCM (E12) and APP sensor B, then go to step 20.

NO—Go to step 25.



18. Turn the ignition switch to LOCK (0).
19. Replace the accelerator pedal module (see page 11-282).
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 P2127 indicated?

YES—Check for poor connections or loose terminals at APP sensor 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. Turn the ignition switch to LOCK (0).
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 P2127 indicated?

YES—Check for poor connections or loose terminals at APP sensor 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 P2128: APP Sensor B (TP Sensor E) 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 APP SENSOR B in the DATA LIST with the HDS.

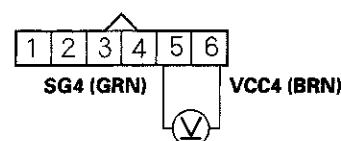
Is there about 4.9 V or more?

YES—Go to step 3.

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

3. Turn the ignition switch to LOCK (0).
4. Disconnect the APP sensor 6P connector.
5. Turn the ignition switch to ON (II).
6. Measure the voltage between APP sensor 6P connector terminals No. 5 and No. 6.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Go to step 8.

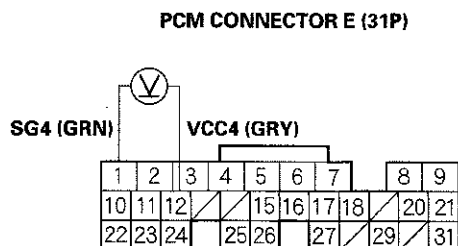
NO—Go to step 7.

(cont'd)

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

7. Measure the voltage between PCM connector terminals E1 and E12.



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the PCM (E1) and APP sensor B, then go to step 10.

NO—Go to step 15.

8. Reconnect all connectors.
9. Turn the ignition switch to ON (II).
10. Replace the accelerator pedal module (see page 11-282).
11. Turn the ignition switch to ON (II).
12. Reset the PCM with the HDS.
13. Do the PCM idle learn procedure (see page 11-313).

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

Is DTC P2128 indicated?

YES—Check for poor connections or loose terminals at APP sensor 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. ■

15. Turn the ignition switch to LOCK (0).
16. Reconnect all connectors.
17. 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).
18. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2128 indicated?

YES—Check for poor connections or loose terminals at APP sensor 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 P2135: TP Sensor A/B Incorrect Voltage Correlation

CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch to ON (II) or while the ignition switch is in ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

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. Do the ETCS TEST in the INSPECTION MENU with the HDS.
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2135 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 throttle body and the throttle actuator control module. ■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the intake air duct from the throttle body.
7. Turn the ignition switch to ON (II).

8. Visually check the throttle valve operation while you clear the DTC with the HDS.

Does the valve temporarily move to its fully closed position?

YES—Go to step 16.

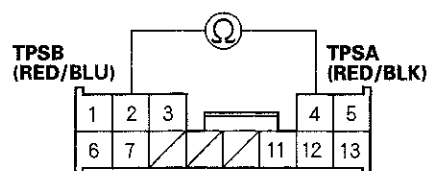
NO—Go to step 9.

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

10. Disconnect the C251 connector (13P) between the PCM subharness and the throttle actuator control module subharness.

11. Check for continuity between C251 connector (13P) terminals No. 2 and No. 4.

C251 CONNECTOR (13P)



Wire side of female terminals

Is there continuity?

YES—Go to step 12.

NO—Go to step 14.

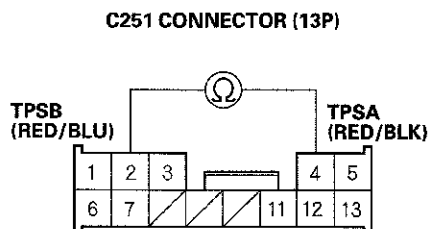
12. Disconnect the throttle body 6P connector.

(cont'd)

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

13. Check for continuity between C251 connector (13P) terminals No. 2 and No. 4.



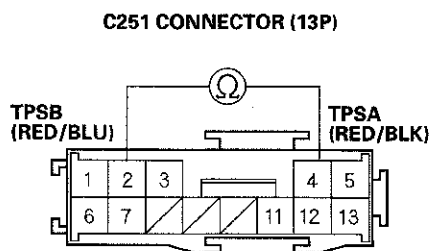
Wire side of female terminals

Is there continuity?

YES—Repair short in the wires between the TPSA line and the TPSB line, then go to step 18.

NO—Go to step 16.

14. Disconnect the throttle actuator control module 16P connector (see page 11-282).
15. Check for continuity between C251 connector (13P) terminals No. 2 and No. 4.



Terminal side of male terminals

Is there continuity?

YES—Repair short in the wires between the TPSA line and the TPSB line of the throttle actuator control module subharness, then go to step 18.

NO—Go to step 23.

16. Turn the ignition switch to LOCK (0).
17. Replace the throttle body (see page 11-369).
18. Reconnect all connectors.
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. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2135 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the throttle actuator control module, 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. ■

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. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2135 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the throttle actuator control module. 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 P2138: APP Sensor A/B (TP Sensor D/E) Incorrect Voltage Correlation

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 HDS.
3. Press the accelerator pedal to the floor.
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2138 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 APP sensor and the PCM. ■

5. Check APP SENSOR A and APP SENSOR B in the DATA LIST with the HDS.

Are they the same voltage?

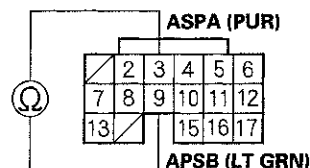
YES—Go to step 6.

NO—Go to step 12.

6. Turn the ignition switch to LOCK (0).
7. Jump the SCS line with the HDS.
8. Disconnect PCM connector D (17P).

9. Check for continuity between PCM connector terminals D3 and D9.

PCM CONNECTOR D (17P)



Wire side of female terminals

Is there continuity?

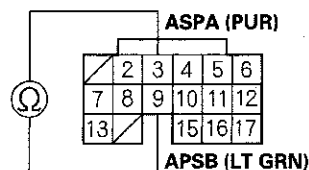
YES—Go to step 10.

NO—Go to step 22.

10. Disconnect the APP sensor 6P connector.

11. Check for continuity between PCM connector terminals D3 and D9.

PCM CONNECTOR D (17P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wires between PCM connector terminals D3 (APSA line) and D4 (APSB line), then go to step 14.

NO—Go to step 13.

(cont'd)

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

12. Turn the ignition switch to LOCK (0).
13. Replace the accelerator pedal module (see page 11-282).
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. Turn the ignition switch to LOCK (0).
19. Turn the ignition switch to ON (II).
20. Press the accelerator pedal to the floor.
21. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2138 indicated?

YES—Check for poor connections or loose terminals at APP 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. ■

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. Turn the ignition switch to LOCK (0).
25. Turn the ignition switch to ON (II).
26. Press the accelerator pedal to the floor.

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

Is DTC P2138 indicated?

YES—Check for poor connections or loose terminals at APP sensor A/B 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—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 P2176: Throttle Actuator Control System Idle Position Not Learned

CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch to ON (II) or while the ignition switch is in ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

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 P2135 or P2552 is stored at the same time as DTC P2176, troubleshoot DTC P2135 or P2552 first, then recheck for DTC P2176.

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

Is DTC P2176 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 throttle body and the throttle actuator control module, then clean the throttle body (see page 11-366). ■

6. Turn the ignition switch to LOCK (0).
7. Disconnect the intake air duct from the throttle body.

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

9. Clear the DTC with the HDS.

10. Visually check the throttle valve operation while performing the ETCS TEST in the INSPECTION MENU with the HDS.

Does the throttle valve move to its fully closed position?

YES—Go to step 11.

NO—Go to step 12.

11. Check for sludge or carbon on the throttle valve.

Is there sludge or carbon on the throttle valve?

YES—Clean the throttle body (see page 11-366), then go to step 22 and recheck.

NO—Go to step 19.

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

13. Disconnect the throttle body 6P connector.

14. Disconnect the C251 connector (13P) between the PCM subharness and the throttle actuator control module subharness.

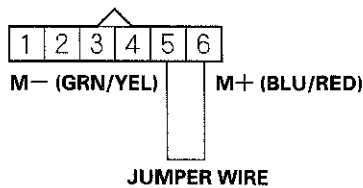
(cont'd)

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

15. Connect throttle body 6P connector terminals No. 5 and No. 6 with a jumper wire.

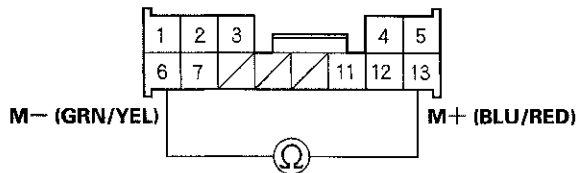
THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

16. Check for continuity between C251 connector (13P) terminals No. 6 and No. 13.

C251 CONNECTOR (13P)



Wire side of female terminals

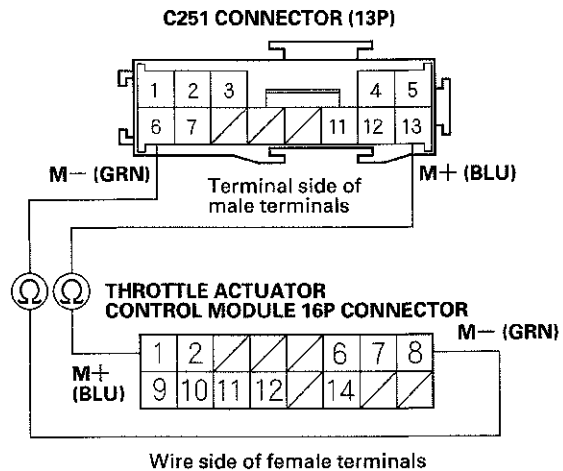
Is there continuity?

YES—Go to step 17.

NO—Repair open in the wires between the throttle body and the C251 connector (motor drive lines), then go to step 21.

17. Disconnect the throttle actuator control module 16P connector (see page 11-282).

18. Check for continuity between throttle actuator control module 16P connector terminal No. 1 and C251 connector (13P) terminal No. 13, and then between throttle actuator control module 16P connector terminals No. 8 and C251 connector (13P) terminal No. 6.



Is there continuity?

YES—Go to step 28.

NO—Repair open in the wires between the throttle actuator control module and the C251 connector (motor drive lines), then go to step 21.



19. Turn the ignition switch to LOCK (0).
20. Replace the throttle body (see page 11-369).
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. Turn the ignition switch to LOCK (0).
26. Turn the ignition switch to ON (II), and wait 10 seconds.
27. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2176 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the throttle actuator control module, then clean the throttle body (see page 11-369), and go to step 1.

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

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 P2176 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the throttle actuator control module. 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 P2552: Throttle Actuator Control Module Relay Malfunction

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

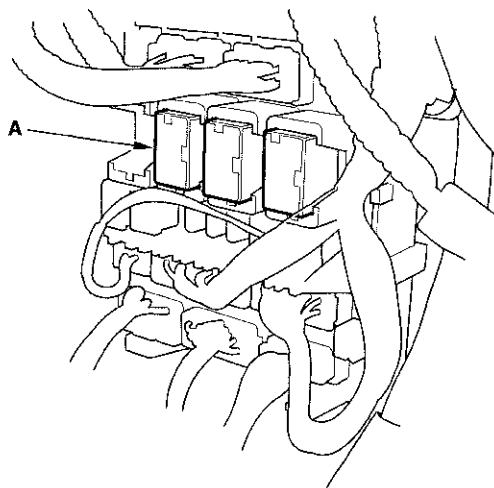
1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Do the ETCS TEST in the INSPECTION MENU with the HDS.

Is the RELAY circuit OK?

YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle actuator control module relay, the throttle actuator control module, and the PCM. ■

NO—Go to step 4.

4. Turn the ignition switch to LOCK (0).
5. Remove the throttle actuator control module relay (A) from the passenger's under-dash fuse/relay box.



(cont'd)

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

6. Test the throttle actuator control module relay (see page 22-93).

Is the relay OK?

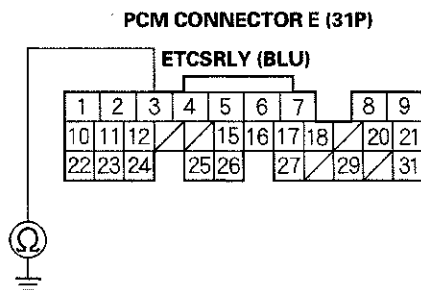
YES—Go to step 7.

NO—Replace the throttle actuator control module relay, then go to step 10.

7. Jump the SCS line with the HDS.

8. Disconnect PCM connector E (31P).

9. Check for continuity between PCM connector terminal E3 and body ground.



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the throttle actuator control module relay and the PCM (E3), then go to step 10.

NO—Go to step 17.

10. Reconnect PCM connector E (31P).

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

12. Reset the PCM with the HDS.

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

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

15. Turn the ignition switch to ON (II), and wait 10 seconds.

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

Is DTC P2552 indicated?

YES—Check for poor connections or loose terminals at the throttle actuator control module, the throttle actuator control module relay, 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 P2552 indicated?

YES—Check for poor connections or loose terminals at the throttle actuator control module, the throttle actuator control module relay, 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 U0107: Lost Communication With Throttle Actuator Control Module

⚠ CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch to ON (II) or while the ignition switch is ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

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 U0107 indicated?

YES—Check for, and repair any poor connections or loose terminals at the throttle body, the throttle actuator control module, and the PCM, then go to step 62. If the connections and terminals are OK, go to step 6.

NO—Go to step 4.

4. Start the engine.
5. Check for Pending or Confirmed DTCs with the HDS.

Is DTC U0107 indicated?

YES—Go to step 48.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body, the throttle actuator control module relay, the throttle actuator control module, and the PCM. ■

6. Clear the DTC with the HDS.
7. Turn the ignition switch to LOCK (0).
8. Disconnect the intake air duct from the throttle body.
9. Press the accelerator pedal to the floor.

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

11. Check the throttle valve operation.

Does the throttle valve open after it closes?

YES—Go to step 12.

NO—Go to step 13.

12. Check the throttle valve again.

Does the throttle valve open fully?

YES—Go to step 42.

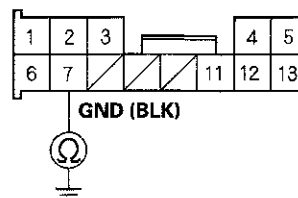
NO—Go to step 36.

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

14. Disconnect the C251 connector (13P) between the PCM subharness and the throttle actuator control module subharness.

15. Check for continuity between C251 connector (13P) terminal No. 7 and body ground.

C251 CONNECTOR (13P)



Wire side of female terminals

Is there continuity?

YES—Go to step 16.

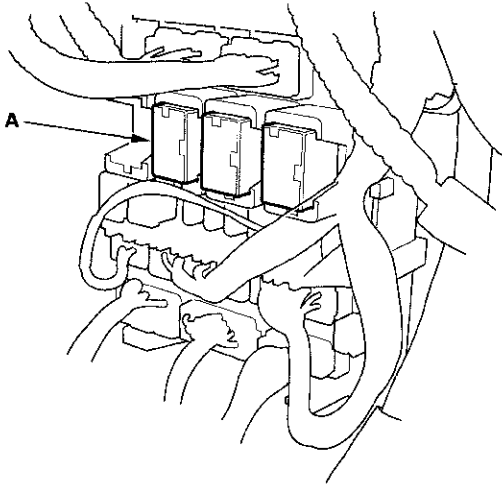
NO—Repair open in the wire between the C251 connector and G101, then go to step 63.

(cont'd)

Electronic Throttle Control System

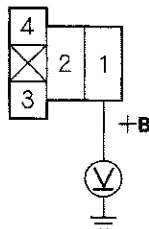
DTC Troubleshooting (cont'd)

16. Remove the throttle actuator control module relay (A) from the passenger's under-dash fuse/relay box.



17. Measure the voltage between throttle actuator control module relay 4P connector terminal No. 1 and body ground.

THROTTLE ACTUATOR CONTROL
MODULE RELAY 4P CONNECTOR



Terminal side of female terminals

Is there battery voltage?

YES—Go to step 19.

NO—Go to step 18.

18. Check the No. 1 THROTTLE ACTUATOR CONTROL (15 A) fuse in the driver's under-dash fuse/relay box.

Is the fuse OK?

YES—Repair open in the wire between the throttle actuator control module relay (+B line) and the No. 1 THROTTLE ACTUATOR CONTROL (15 A) fuse, then replace the fuse, and go to step 63.

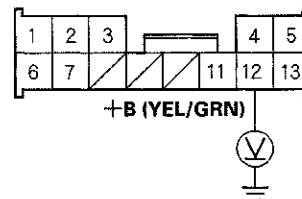
NO—Repair short in the wire between the throttle actuator control module relay (+B line) and the No. 1 THROTTLE ACTUATOR CONTROL (15 A) fuse, then go to step 63.

19. Install the throttle actuator control module relay.

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

21. Measure the voltage between C251 connector (13P) terminal No. 12 and body ground.

C251 CONNECTOR (13P)



Wire side of female terminals

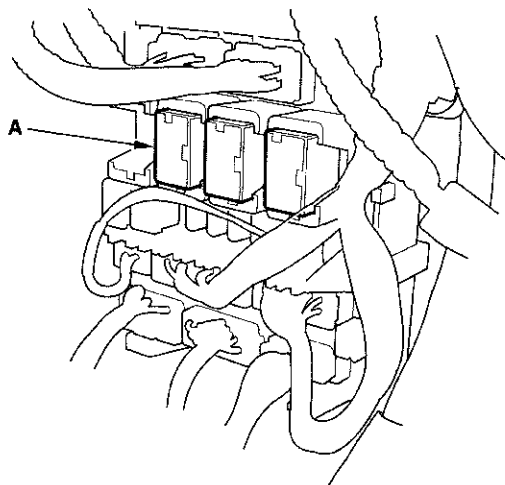
Is there battery voltage for about 2 seconds?

YES—Go to step 52.

NO—Go to step 22.



22. Turn the ignition switch to LOCK (0).
23. Remove the throttle actuator control module relay (A) from the passenger's under-dash fuse/relay box.



24. Test the throttle actuator control module relay (see page 22-93).

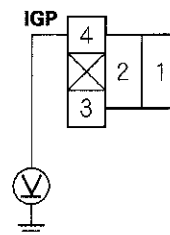
Is the relay OK?

YES—Go to step 25.

NO—Replace the throttle actuator control module relay, then go to step 63.

25. Turn the ignition switch to ON (II).
26. Measure the voltage between throttle actuator control module relay 4P connector terminal No. 4 and body ground.

**THROTTLE ACTUATOR CONTROL
MODULE RELAY 4P CONNECTOR**



Terminal side of female terminals

Is there battery voltage?

YES—Go to step 27.

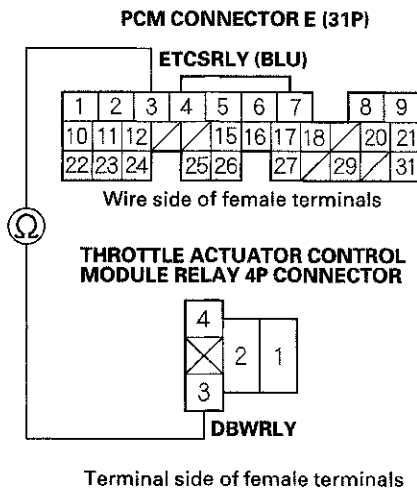
NO—Repair open in the wire between the throttle actuator control module relay and PGM-FI main relay 1 (FI MAIN), then go to step 62.

(cont'd)

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

27. Turn the ignition switch to LOCK (0).
28. Jump the SCS line with the HDS.
29. Disconnect PCM connector E (31P).
30. Check for continuity between PCM connector terminal E3 and throttle actuator control module relay 4P connector terminal No. 3.



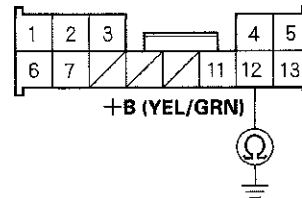
Is there continuity?

YES—Go to step 31.

NO—Repair open in the wire between the PCM (E3) and the throttle actuator control module relay, then go to step 63.

31. Check for continuity between C251 connector (13P) terminal No. 12 and body ground.

C251 CONNECTOR (13P)



Wire side of female terminals

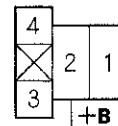
Is there continuity?

YES—Repair short in the wire between the throttle actuator control module and the throttle actuator control module relay (+B line), then go to step 63.

NO—Go to step 32.

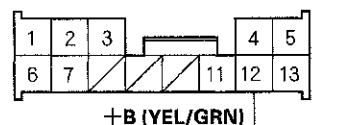
32. Check for continuity between throttle actuator control module relay 4P connector terminal No. 2 and C251 connector (13P) terminal No. 12.

**THROTTLE ACTUATOR CONTROL
MODULE RELAY 4P CONNECTOR**



Terminal side of female terminals

C251 CONNECTOR (13P)



Wire side of female terminals

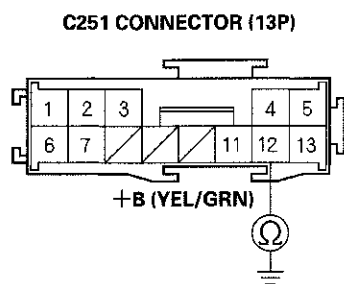
Is there continuity?

YES—Go to step 33.

NO—Repair open in the wire between the throttle actuator control module relay and the C251 connector (+B line), then go to step 63.



33. Disconnect the throttle actuator control module 16P connector (see page 11-282).
34. Check for continuity between C251 connector (13P) terminal No. 12 and body ground.

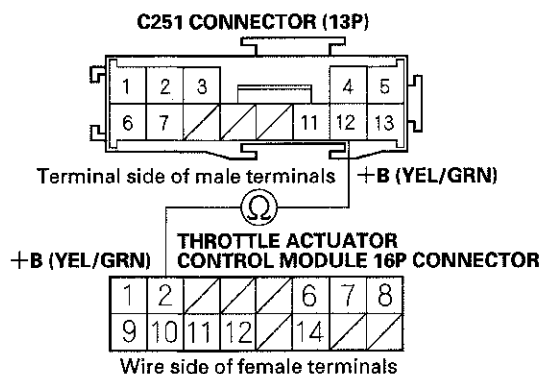


Is there continuity?

YES—Repair short in the wire between the throttle actuator control module and the C251 connector, then go to step 63.

NO—Go to step 35.

35. Check for continuity between throttle actuator control module 16P connector terminal No. 2 and C251 connector (13P) terminal No. 12.



Is there continuity?

YES—Go to step 68.

NO—Repair open in the wire between the throttle actuator control module and the C251 connector, then go to step 63.

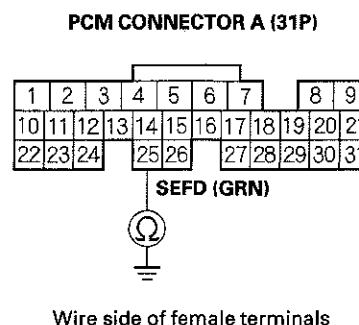
36. Turn the ignition switch to LOCK (0).

37. Jump the SCS line with the HDS.

38. Disconnect the C251 connector (13P) between the PCM subharness and the throttle actuator control module subharness.

39. Disconnect PCM connector A (31P).

40. Check for continuity between PCM connector terminals A25 and body ground.



Is there continuity?

YES—Repair short in the wire between the PCM (A25) and the C251 connector, then go to step 63.

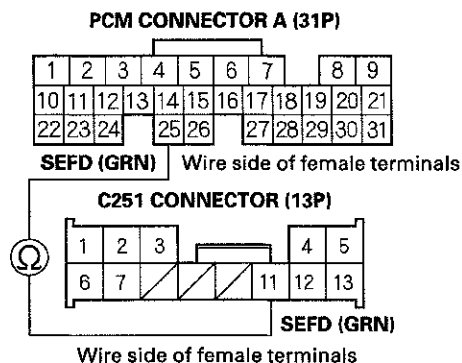
NO—Go to step 41.

(cont'd)

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

41. Check for continuity between PCM connector terminal A25 and C251 connector (13P) terminal No. 11.



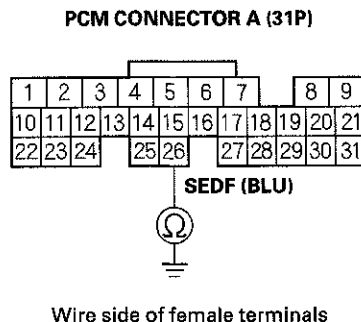
Is there continuity?

YES—Go to step 56.

NO—Repair open in the wire between the PCM (A25) and the C251 connector, then go to step 63.

42. Turn the ignition switch to LOCK (0).
43. Jump the SCS line with the HDS.
44. Disconnect the C251 connector (13P) between the PCM subharness and the throttle actuator control module subharness.
45. Disconnect PCM connector A (31P).

46. Check for continuity between PCM connector terminal A26 and body ground.

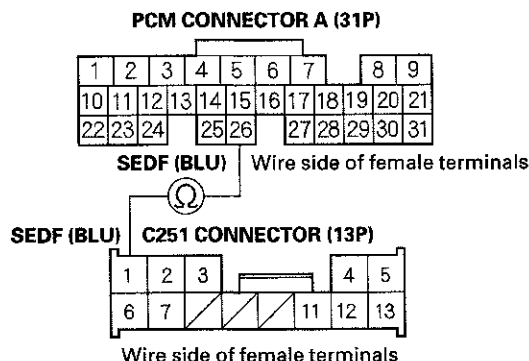


Is there continuity?

YES—Repair short in the wire between the PCM (A26) and the C251 connector, then go to step 63.

NO—Go to step 47.

47. Check for continuity between PCM connector terminal A26 and C251 connector (13P) terminal No. 1.



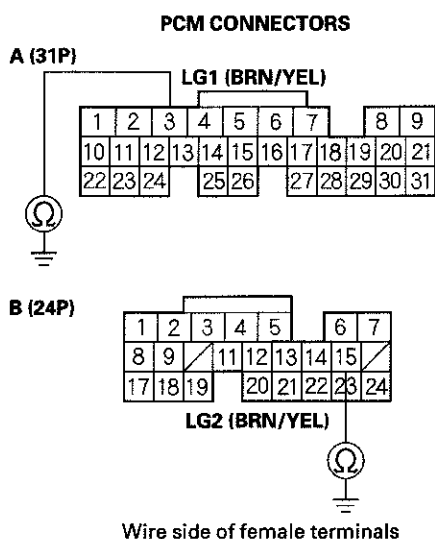
Is there continuity?

YES—Go to step 59.

NO—Repair open in the wire between the PCM (A26) and the C251 connector, then go to step 63.



48. Turn the ignition switch to LOCK (0).
49. Jump the SCS line with the HDS.
50. Disconnect PCM connectors A (31P) and B (24P).
51. Check for continuity between body ground and PCM connector terminals A3 and B15 individually.

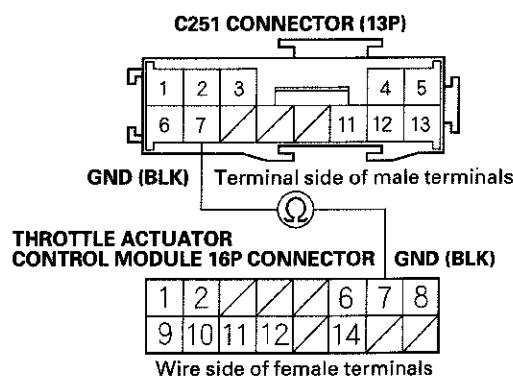


Is there continuity?

YES—Check for poor connections or loose terminals at the throttle body, the throttle actuator control module relay, the throttle actuator control module, and the PCM, then go to step 1.

NO—Repair open in the wire between the PCM (A3, B15) and G101, then go to step 63.

52. Disconnect the throttle actuator control module 16P connector (see page 11-282).
53. Check for continuity between throttle actuator control module 16P connector terminal No. 7 and C251 connector (13P) terminal No. 7.

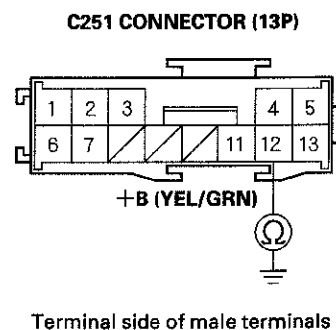


Is there continuity?

YES—Go to step 54.

NO—Repair open in the wire between the throttle actuator control module and the C251 connector, then go to step 63.

54. Check for continuity between C251 connector (13P) terminal No. 12 and body ground.



Is there continuity?

YES—Repair short in the wire between the throttle actuator control module and the C251 connector, then go to step 63.

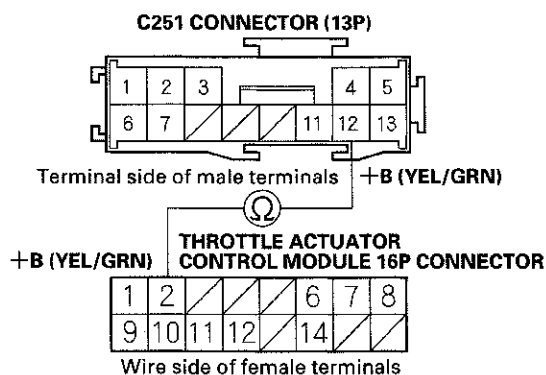
NO—Go to step 55.

(cont'd)

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

55. Check for continuity between throttle actuator control module 16P connector terminal No. 2 and C251 connector (13P) terminal No. 12.



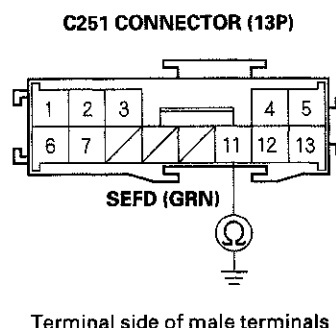
Is there continuity?

YES—Substitute a known-good throttle actuator control module (see page 11-282), then go to step 63 and recheck. If DTC U0107 is not indicated, replace the original throttle actuator control module (see page 11-282), then go to step 63.

NO—Repair open in the wire between the throttle actuator control module and the C251 connector, then go to step 63.

56. Disconnect the throttle actuator control module 16P connector (see page 11-282).

57. Check for continuity between C251 connector (13P) terminals No. 11 and body ground.



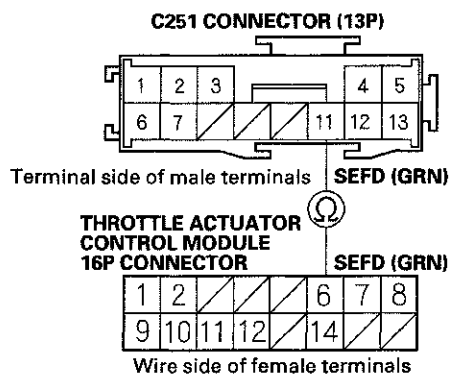
Is there continuity?

YES—Repair short in the wire between the throttle actuator control module and the C251 connector, then go to step 63.

NO—Go to step 58.



58. Check for continuity between throttle actuator control module 16P connector terminal No. 6 and C251 connector (13P) terminal No. 11.



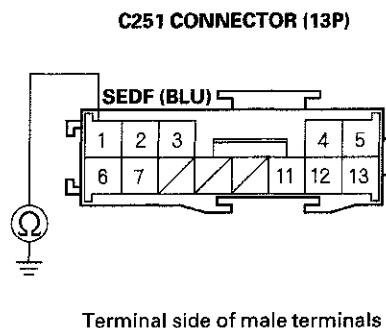
Is there continuity?

YES—Substitute a known-good throttle actuator control module (see page 11-282), then go to step 63 and recheck. If DTC U0107 is not indicated, replace the original throttle actuator control module (see page 11-282), then go to step 63.

NO—Repair open in the wire between the throttle actuator control module and the C251 connector, then go to step 63.

59. Disconnect the throttle actuator control module 16P connector (see page 11-282).

60. Check for continuity between C251 connector (13P) terminals No. 1 and body ground.



Is there continuity?

YES—Repair short in the wire between the throttle actuator control module and the C251 connector, then go to step 63.

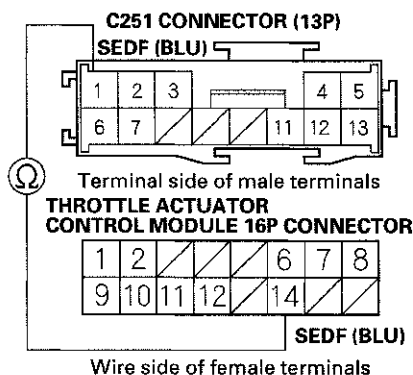
NO—Go to step 61.

(cont'd)

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

61. Check for continuity between throttle actuator control module 16P connector terminal No. 14 and C251 connector (13P) terminal No. 1.



Is there continuity?

YES—Substitute a known-good throttle actuator control module (see page 11-282), then go to step 63 and recheck. If DTC U0107 is not indicated, replace the original throttle actuator control module (see page 11-282), then go to step 63.

NO—Repair open in the wire between the throttle actuator control module and the C251 connector, then go to step 63.

62. Turn the ignition switch to LOCK (0).
63. Reconnect all connectors.
64. Turn the ignition switch to ON (II).
65. Reset the PCM with the HDS.
66. Do the PCM idle learn procedure (see page 11-313).

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

Is DTC U0107 indicated?

YES—Check for poor connections or loose terminals at the throttle body, the throttle actuator control module relay, the throttle actuator 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. ■

68. Reconnect all connectors.

69. 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).

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

Is DTC U0107 indicated?

YES—Check for poor connections or loose terminals at the throttle body, the throttle actuator control module relay, the throttle actuator control module, 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. ■

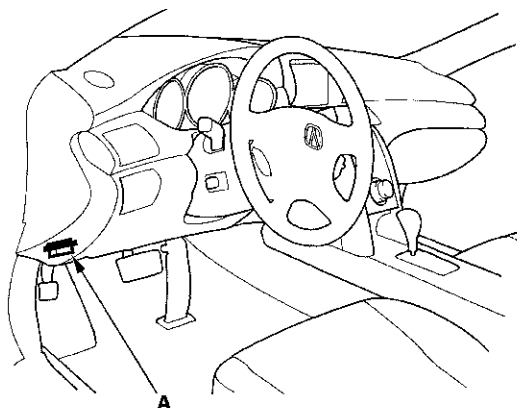


APP Sensor Signal Inspection

NOTE:

- This procedure checks the APP sensor in its fully closed position. In any other position, the APP sensor stores DTCs which are covered in other troubleshooting procedures.
- Check for Pending or Confirmed DTCs with the HDS before doing this procedure. If any DTCs are indicated, troubleshoot them first, then do this procedure.
- Press the accelerator pedal several times to check its operation. If it does not operate properly, check the pedal. If you find a problem, replace the accelerator pedal module (see page 11-282).

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. If it does not, go to the DLC circuit troubleshooting (see page 11-211).
4. Make sure the accelerator pedal is not pressed, then check the APP SENSOR in the DATA LIST with the HDS.
 - If it is 0 %, the APP sensor is OK.
 - If it is not 0 %, update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 11-7), then go to step 5.

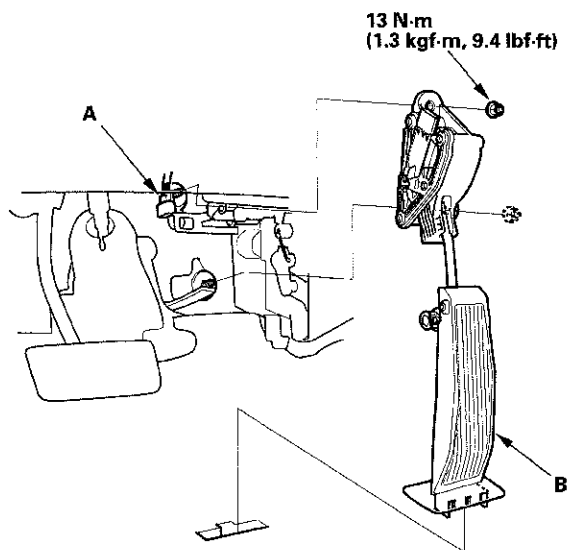
5. Make sure the accelerator pedal is not pressed, then check the APP SENSOR in the DATA LIST with the HDS.

- If it is 0 %, the APP sensor is OK.
- If it is not 0 %, replace the accelerator pedal module (see page 11-282), then go to step 1.

Electronic Throttle Control System

Accelerator Pedal Module Removal/Installation

1. Disconnect the APP sensor connector (A).

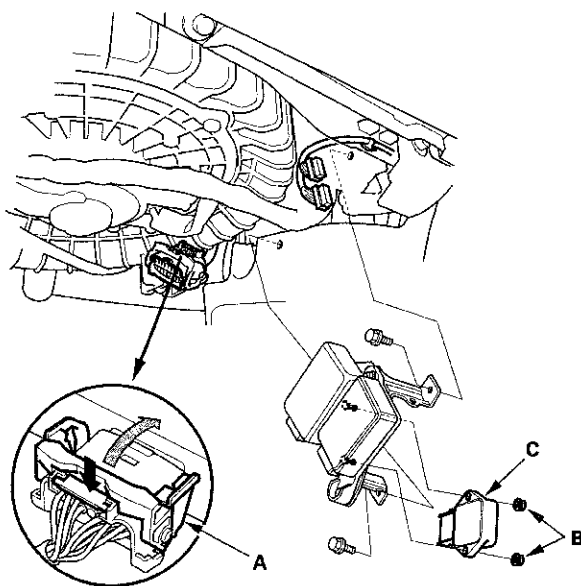


2. Release the lock tab on the base of the accelerator pedal, then remove the accelerator pedal module (B).
3. Install the parts in the reverse order of removal.

Throttle Actuator Control Module Replacement

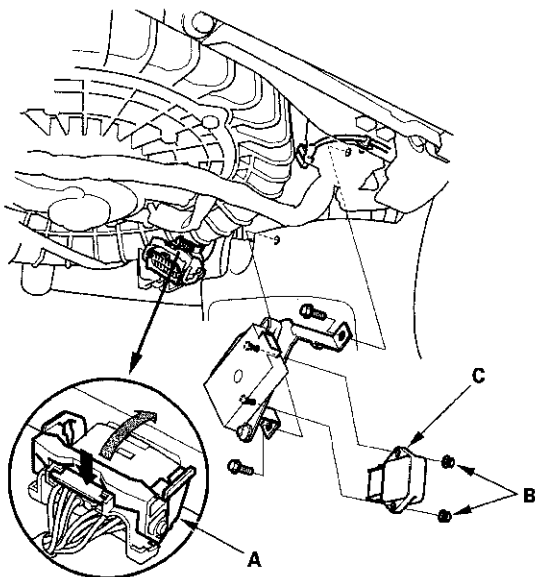
1. Remove the right kick panel (see step 3 on page 20-67).
2. Remove the glove box (see page 20-103).
3. Remove the HandsFreeLink control unit (see page 23-339) and the adaptive cruise control (ACC) unit and its bracket (if equipped) (see page 25-86).
4. Disconnect the throttle actuator control module 16P connector (A).

With Adaptive Cruise Control (ACC) System





Without Adaptive Cruise Control (ACC) System



5. Remove the nuts (B) and the throttle actuator control module (C).
6. Install the parts in the reverse order of removal.