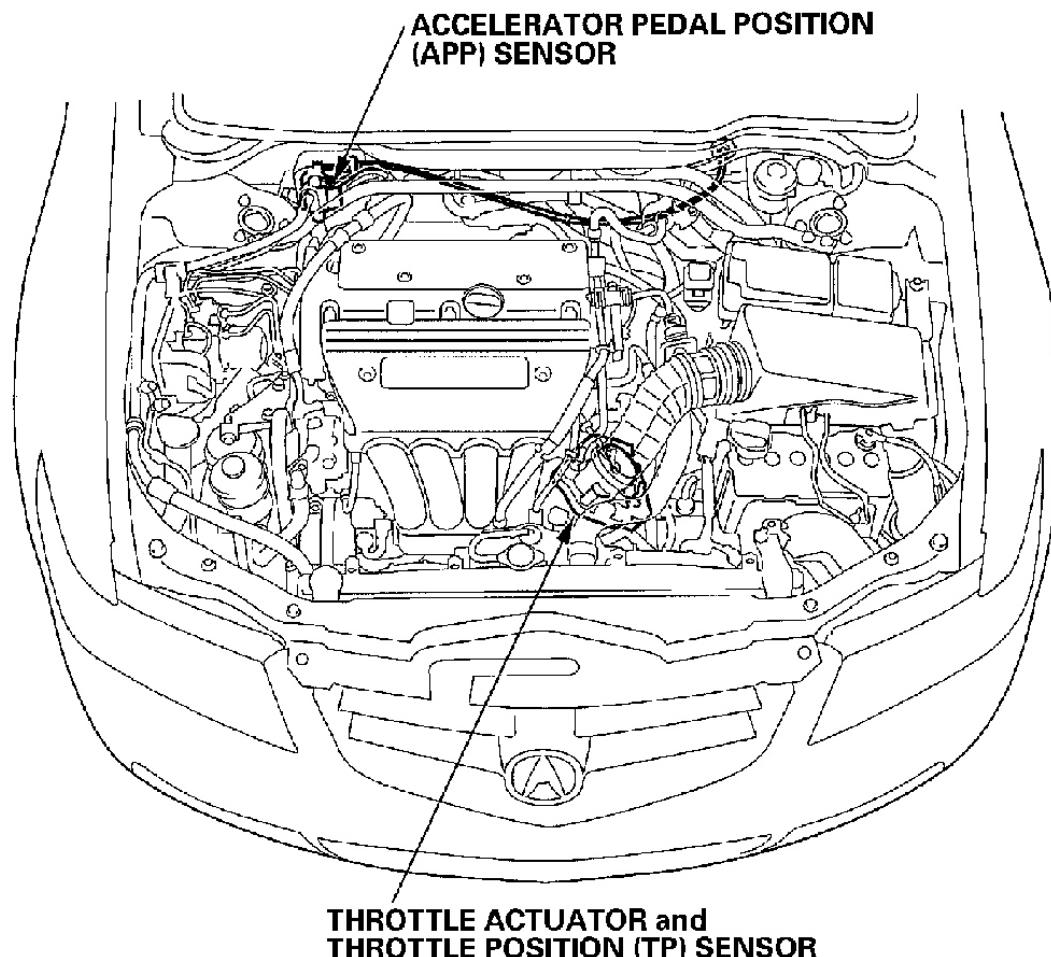


2004 ENGINE PERFORMANCE

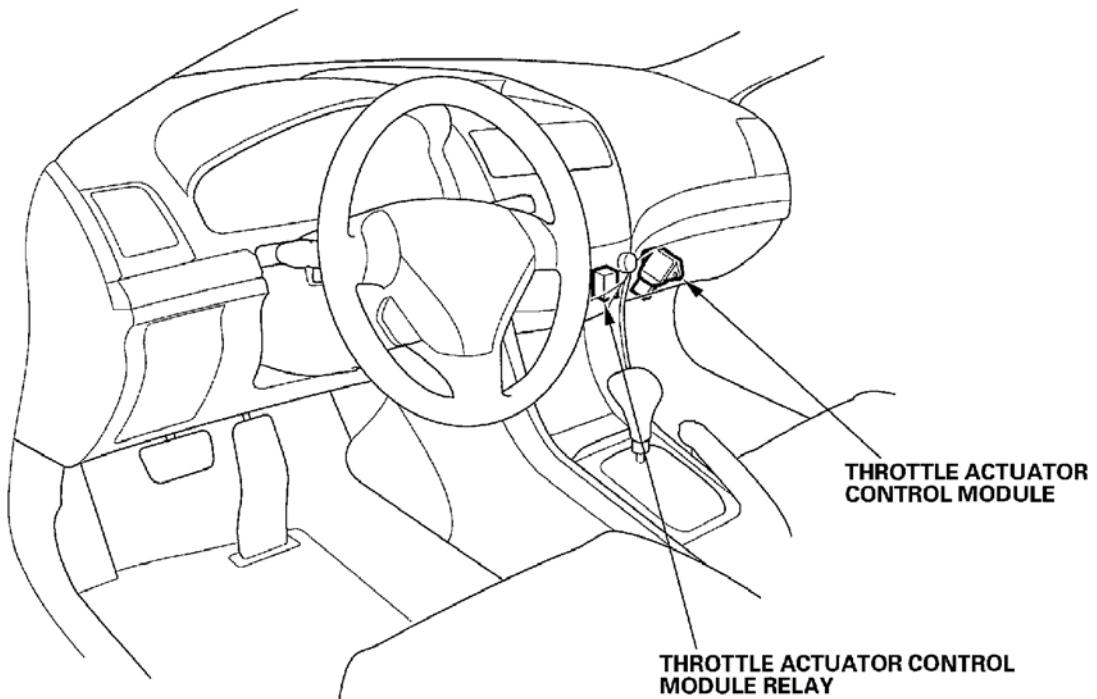
Electronic Throttle Control System - TSX

COMPONENT LOCATION INDEX



G01822190

Fig. 1: Locating Electronic Throttle Control System Components (1 Of 2)



G01822191

Fig. 2: Locating Electronic Throttle Control System Components (2 Of 2)

DTC TROUBLESHOOTING

DTC TROUBLESHOOTING INDEX

DTC	Description
DTC P0122	TP Sensor A Circuit Low Voltage
DTC P0123	TP Sensor A Circuit High Voltage
DTC P0222	TP Sensor B Circuit Low Voltage
DTC P0223	TP Sensor B Circuit High Voltage
DTC P2135	TP Sensor A/B Voltage Incorrect Correlation
DTC P2122	APP Sensor A Circuit Low Voltage
DTC P2123	APP Sensor A (Throttle Position Sensor D) Circuit High Voltage
DTC P2127	APP Sensor B Circuit Low Voltage
DTC P2128	APP Sensor B (Throttle Position Sensor E) Circuit High Voltage
DTC P2138	APP Sensor A/B Incorrect Voltage Correlation
DTC P1683	Throttle Valve Default Position Spring Performance Problem
DTC P1684	Throttle Valve Return Spring Performance Problem
DTC P2101	Throttle Actuator System Malfunction
DTC P2108	Throttle Actuator Control Module Problem
DTC P2118	Throttle Actuator Current Range/Performance Problem

DTC P2176	Throttle Actuator Control System Idle Position Not Learned
DTC P2552	Throttle Actuator Control Module Relay Malfunction
DTC U0107	Lost Communication With Throttle Actuator Control Module

DTC P0122: TP SENSOR A CIRCUIT LOW VOLTAGE

1. Turn the ignition switch ON (II).
2. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Are DTC P0122 and P0222 indicated at the same time?

YES - Check for poor connections or loose terminals at the throttle body, the throttle actuator control module, and at the ECM/PCM, then go to step 17 . If the connections are OK, go to step 9.

NO - Go to step 3.

3. Clear the DTC with the HDS.
4. Check TP SENSOR-A in the DATA LIST with the HDS.

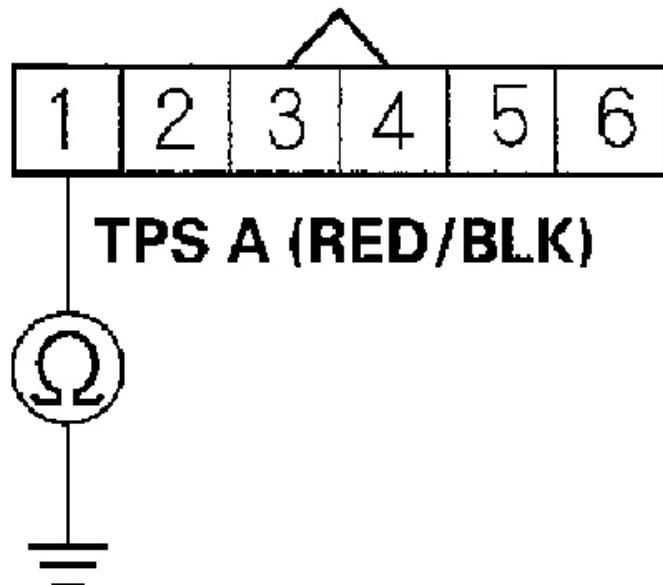
Is there about 0.3 V or less when the throttle is fully opened?

YES - Go to step 5.

NO - Intermittent failure, 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 OFF.
6. Disconnect the throttle body 6P connector.
7. Disconnect the throttle actuator control module 16P connector.
8. Check for continuity between throttle body 6P connector terminal No. 1 and body ground.

THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

G01822192

Fig. 3: Checking For Continuity Between Throttle Body 6P Connector Terminal No. 1 And Body Ground

Is there continuity?

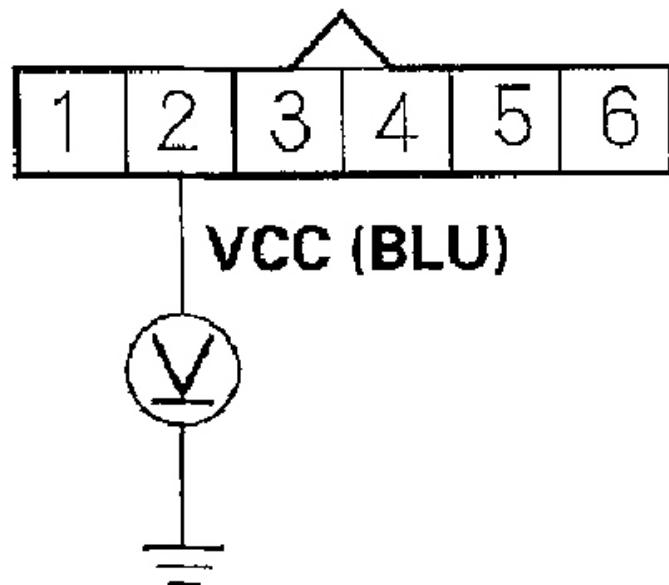
YES - Repair short in the wire between the throttle body and the throttle actuator control module (TPS A line), then go to step 17 .

NO - Substitute a known-good throttle actuator control module (see **THROTTLE ACTUATOR CONTROL MODULE REPLACEMENT**), then go to step 17 and recheck. If DTC P0122 is not indicated, replace the original throttle actuator control module, then go to step 17 . If DTC P0122 is

indicated, go to step 15 .

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

THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

G01822193

Fig. 4: Measuring Voltage Between Throttle Body 6P Connector Terminal No. 2 And Body Ground

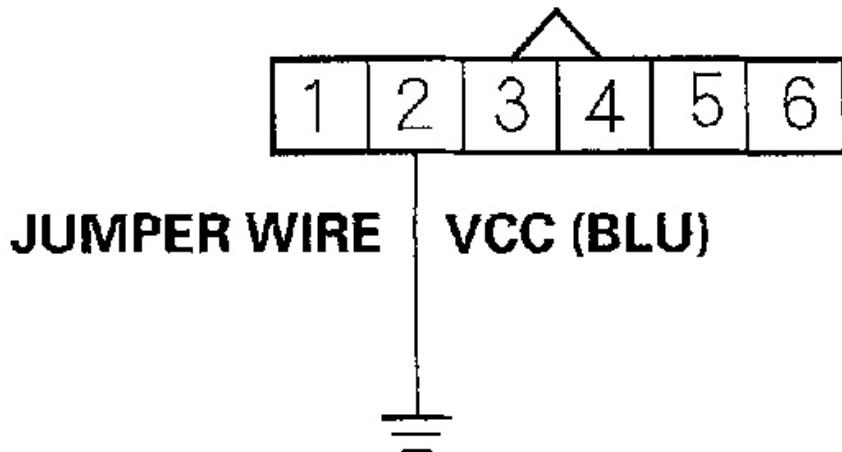
Is there about 5 V?

YES - Go to step 15.

NO - Go to step 10.

10. Turn the ignition switch OFF.
11. Disconnect the throttle actuator control module 16P connector.
12. Disconnect the throttle body 6P connector.
13. Connect throttle body 6P connector terminal No. 2 to body ground with a jumper wire.

THROTTLE BODY 6P CONNECTOR



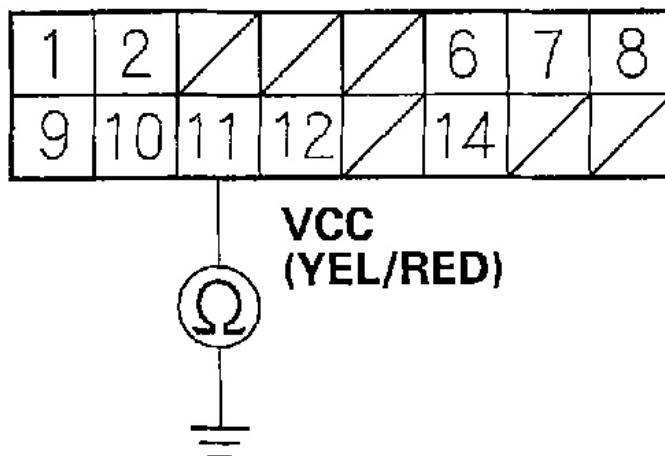
Wire side of female terminals

G01822194

Fig. 5: Connecting Throttle Body 6P Connector Terminal No. 2 To Body Ground With A Jumper Wire

14. Check for continuity between throttle actuator control module 16P connector terminal No. 11 and body ground.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Wire side of female terminals

G01822195

Fig. 6: Checking For Continuity Between Throttle Actuator Control Module 16P Connector Terminal No. 11 And Body Ground

Is there continuity?

YES - Substitute a known-good throttle actuator control module (see **THROTTLE ACTUATOR CONTROL MODULE REPLACEMENT**), then go to step 17 and recheck. If DTC P0122 is not indicated, replace the original throttle actuator control module, then go to step 17 . If DTC P0122 is indicated, go to step 15.

NO - Repair open in the wire between the throttle body and the throttle actuator control module (VCC line), then go to step 17.

15. Turn the ignition switch OFF.
16. Replace the throttle body (see **THROTTLE BODY REMOVAL/INSTALLATION**).
17. Turn the ignition switch ON (II).
18. Reset the ECM/PCM with the HDS.
19. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**).
20. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Are any Temporary DTCs or DTCs indicated?

YES - If DTC P0122 is indicated, check for poor connections or loose terminals at the throttle body and the throttle actuator control module, then go to step 1. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC troubleshooting.

NO - Troubleshooting is complete.

DTC P0123: TP SENSOR A CIRCUIT HIGH VOLTAGE

1. Turn the ignition switch ON (II).
2. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Are DTC P0123 and P0223 indicated at the same time?

YES - Go to step 11 .

NO - Go to step 3.

3. Clear the DTC with the HDS.
4. Check TP SENSOR-A in the DATA LIST with the HDS.

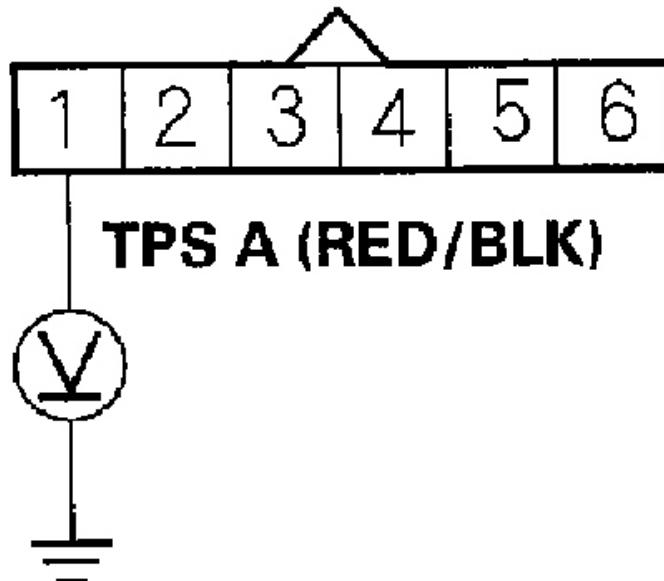
Is there about 4.8 V or higher?

YES - Go to step 5.

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

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

THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

G01822196

Fig. 7: Measuring Voltage Between Throttle Body 6P Connector Terminal No. 1 And Body Ground

Is there about 5 V?

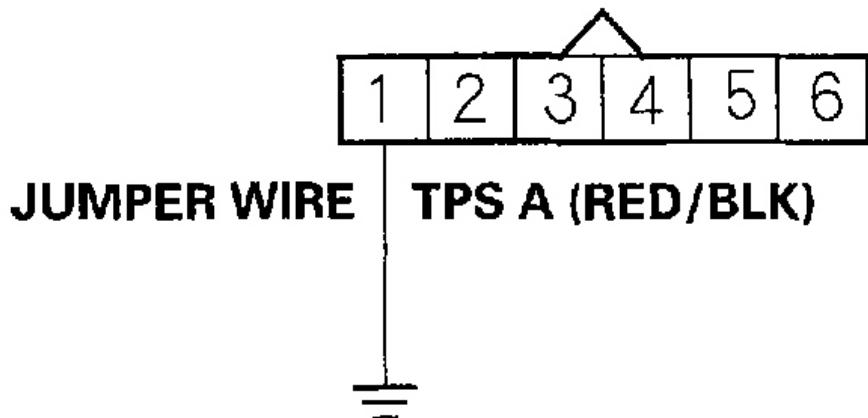
YES - Go to step 16 .

NO - Go to step 6.

6. Turn the ignition switch OFF.
7. Disconnect the throttle actuator control module 16P connector.
8. Disconnect the throttle body 6P connector.

9. Connect throttle body 6P connector terminal No. 1 to body ground with a jumper wire.

THROTTLE BODY 6P CONNECTOR



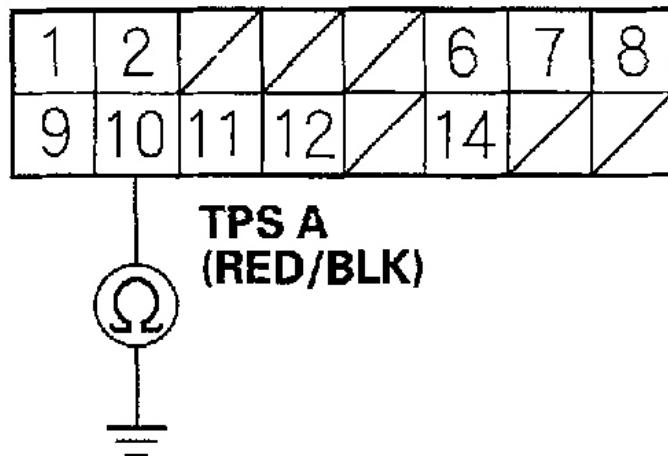
Wire side of female terminals

G01822197

Fig. 8: Connecting Throttle Body 6P Connector Terminal No. 1 To Body Ground With A Jumper Wire

10. Check for continuity between throttle actuator control module 16P connector terminal No. 10 and body ground.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Wire side of female terminals

G01822198

Fig. 9: Checking For Continuity Between Throttle Actuator Control Module 16P Connector Terminal No. 10 And Body Ground

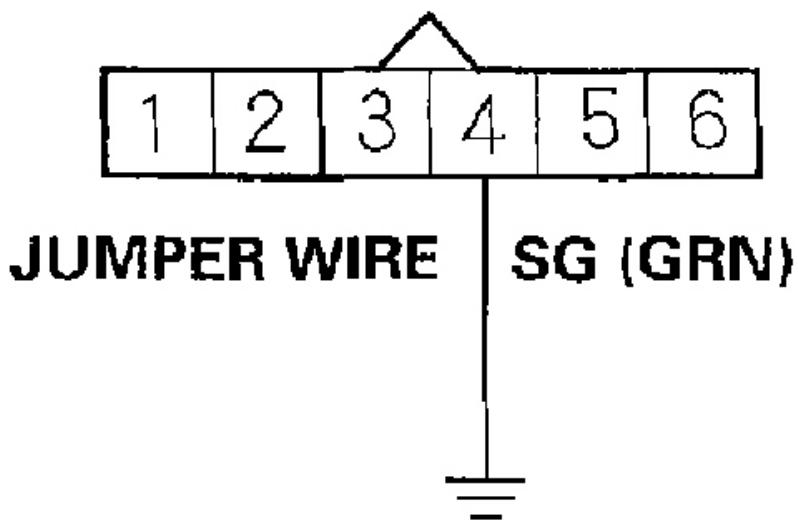
Is there continuity?

YES - Substitute a known-good throttle actuator control module (see **THROTTLE ACTUATOR CONTROL MODULE REPLACEMENT**), then go to step 18 and recheck. If DTC P0123 is not indicated, replace the original throttle actuator control module, then go to step 18. If DTC P0123 is indicated, go to step 16.

NO - Repair open in the wire between the throttle body and the throttle actuator control module (TPS A line), then go to step 18.

11. Turn the ignition switch OFF.
12. Disconnect the throttle body 6P connector.
13. Disconnect the throttle actuator control module 16P connector.
14. Connect throttle body 6P connector terminal No. 4 to body ground with a jumper wire.

THROTTLE BODY 6P CONNECTOR



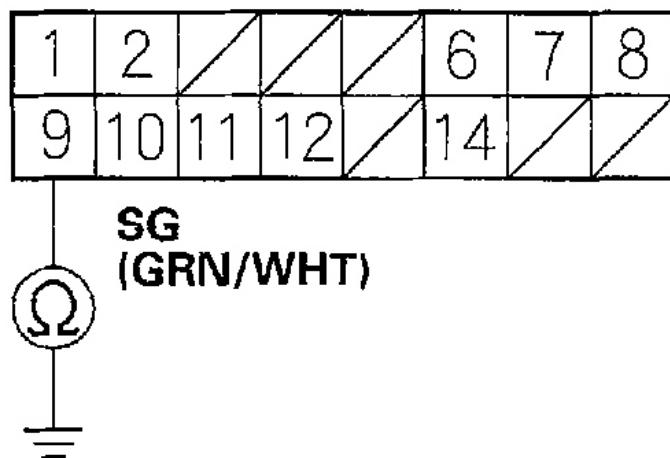
Wire side of female terminals

G01822199

Fig. 10: Connecting Throttle Body 6P Connector Terminal No. 4 To Body Ground With A Jumper Wire

15. Check for continuity between throttle actuator control module 16P connector terminal No. 9 and body ground.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Wire side of female terminals

G01822200

Fig. 11: Checking For Continuity Between Throttle Actuator Control Module 16P Connector Terminal No. 9 And Body Ground

Is there continuity?

YES - Substitute a known-good throttle actuator control module (see **THROTTLE ACTUATOR CONTROL MODULE REPLACEMENT**), then go to step 18 and recheck. If DTC P0123 is not indicated, replace the original throttle actuator control module, then go to step 18. If DTC P0123 is indicated, go to step 16.

NO - Repair open in the wire between the throttle body and the throttle actuator control module (SG line), then go to step 18.

16. Turn the ignition switch OFF.
17. Replace the throttle body (see **THROTTLE BODY REMOVAL/INSTALLATION**).
18. Turn the ignition switch ON (II).
19. Reset the ECM/PCM with the HDS.
20. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**).
21. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Are any Temporary DTCs or DTCs indicated?

YES - If DTC P0123 is indicated, check for poor connections or loose terminals at the throttle body and the throttle actuator control module, then go to step 1. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC troubleshooting.

NO - Troubleshooting is complete.

DTC P0222: TP SENSOR B CIRCUIT LOW VOLTAGE

1. Turn the ignition switch ON (II).
2. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Are DTC P0122 and P0222 indicated at the same time?

YES - Check for poor connections or loose terminals at the throttle body, the throttle actuator control module, and at the ECM/PCM, then go to step 17. If the connections are OK, go to step 9.

NO - Go to step 3.

3. Clear the DTC with the HDS.
4. Check TP SENSOR-B in the DATA LIST with the HDS.

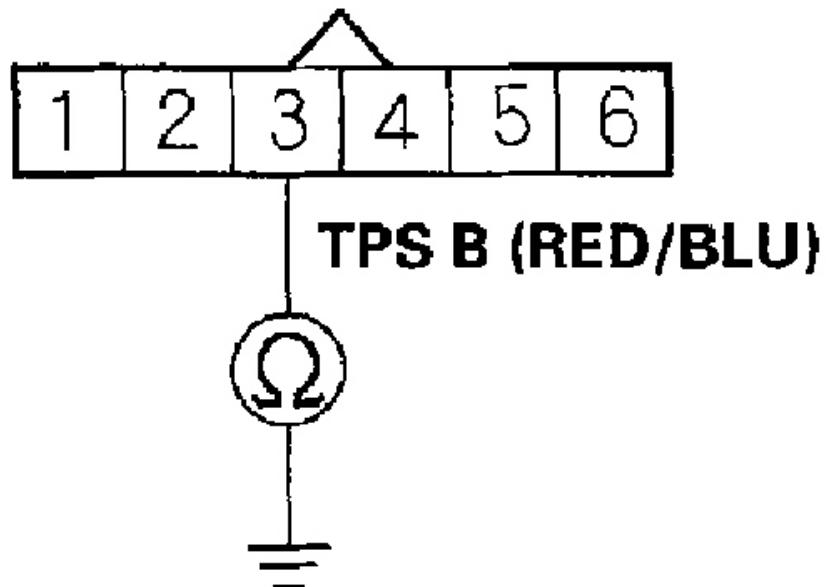
Is there about 0.3 V or less when the throttle is fully opened?

YES - Got to step 5.

NO - Intermittent failure, 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 OFF.
6. Disconnect the throttle body 6P connector.
7. Disconnect the throttle actuator control module 16P connector.
8. Check for continuity between throttle body 6P connector terminal No. 3 and body ground.

THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

G01822201

Fig. 12: Checking For Continuity Between Throttle Body 6P Connector Terminal No. 3 And Body Ground

Is there continuity?

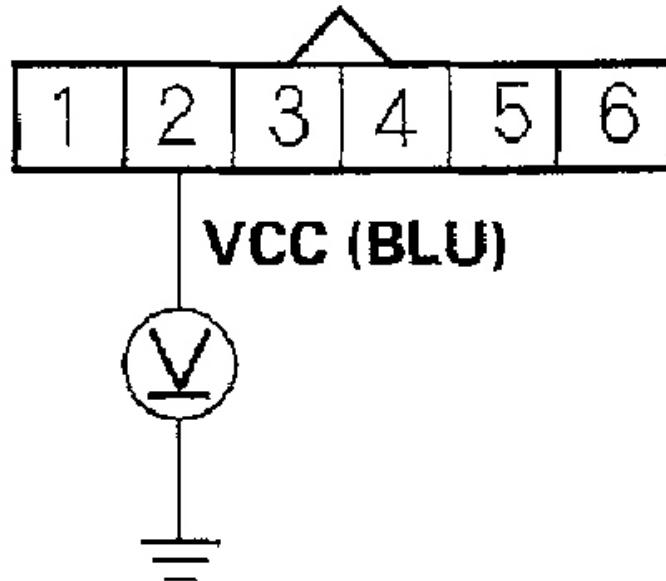
YES - Repair short in the wire between the throttle body and the throttle actuator control module (TPS B line), then go to step 17.

NO - Substitute a known-good throttle actuator control module (see **THROTTLE ACTUATOR CONTROL MODULE REPLACEMENT**), then go to step 17 and recheck. If DTC P0222 is not indicated, replace the original throttle actuator control module, then go to step 17. If DTC P0222 is

indicated, go to step 15.

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

THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

G01822202

Fig. 13: Measuring Voltage Between Throttle Body 6P Connector Terminal No. 2 And Body Ground

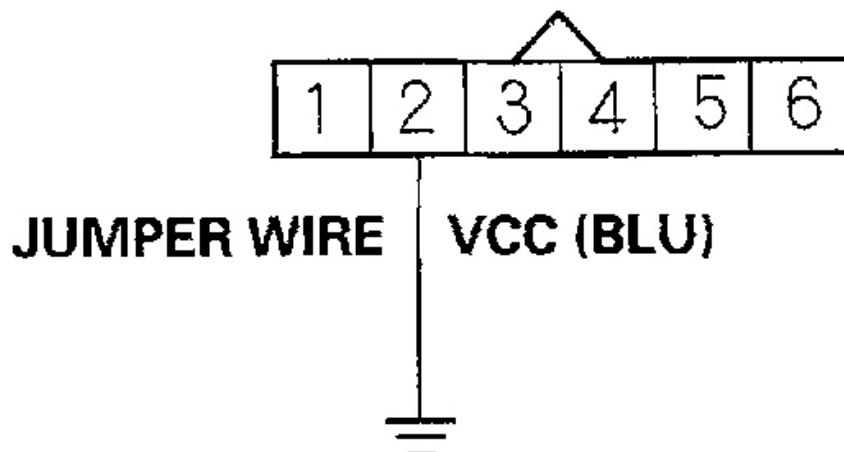
Is there about 5 V?

YES - Go to step 15.

NO - Go to step 10.

10. Turn the ignition switch OFF.
11. Disconnect the throttle actuator control module 16P connector.
12. Disconnect the throttle body 6P connector.
13. Connect throttle body 6P connector terminal No. 2 to body ground with a jumper wire.

THROTTLE BODY 6P CONNECTOR



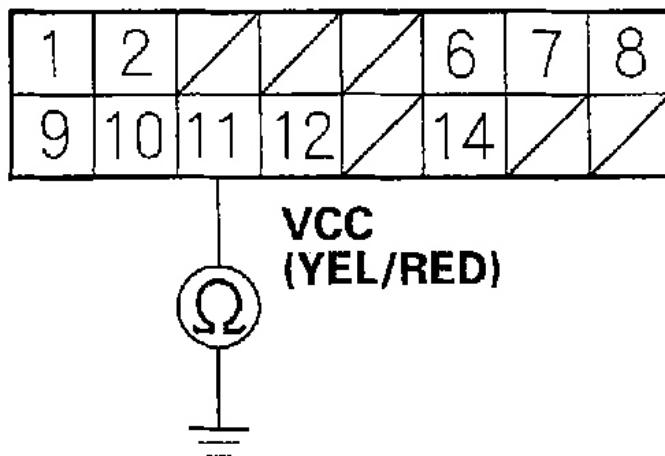
Wire side of female terminals

G01822203

Fig. 14: Connecting Throttle Body 6P Connector Terminal No. 2 To Body Ground With A Jumper Wire

14. Check for continuity between throttle actuator control module 16P connector terminal No. 11 and body ground.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Wire side of female terminals

G01822204

Fig. 15: Checking For Continuity Between Throttle Actuator Control Module 16P Connector Terminal No. 11 And Body Ground

Is there continuity?

YES - Substitute a known-good throttle actuator control module (see **THROTTLE ACTUATOR CONTROL MODULE REPLACEMENT**), then go to step 17 and recheck. If DTC P0222 is not indicated, replace the original throttle actuator control module, then go to step 17. If DTC P0222 is indicated, go to step 15.

NO - Repair open in the wire between the throttle body and the throttle actuator control module (VCC line), then go to step 17.

15. Turn the ignition switch OFF.
16. Replace the throttle body (see **THROTTLE BODY REMOVAL/INSTALLATION**).
17. Turn the ignition switch ON (II).
18. Reset the ECM/PCM with the HDS.
19. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**).
20. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Are any Temporary DTCs or DTCs indicated?

YES - If DTC P0222 is indicated, check for poor connections or loose terminals at the throttle body and the throttle actuator control module, then go to step 1 . If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC troubleshooting.

NO - Troubleshooting is complete.

DTC P0223: TP SENSOR B CIRCUIT HIGH VOLTAGE

1. Turn the ignition switch ON (II).
2. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Are DTC P0123 and P0223 indicated at the same time?

YES - Go to step 11.

NO - Go to step 3.

3. Clear the DTC with the HDS.
4. Check TP SENSOR-B in the DATA LIST with the HDS.

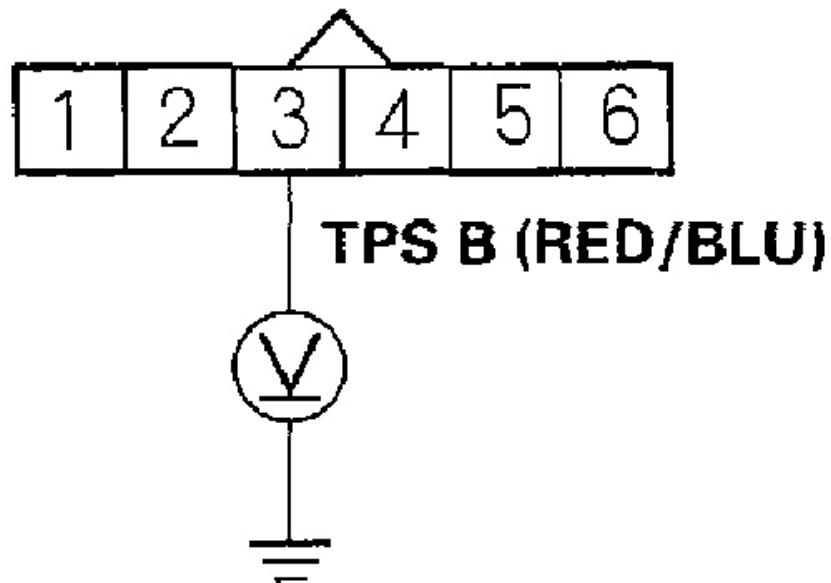
Is there about 4.8 V or higher?

YES - Go to step 5.

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

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

THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

G01822205

Fig. 16: Measuring Voltage Between Throttle Body 6P Connector Terminal No. 3 And Body Ground

Is there about 5 V ?

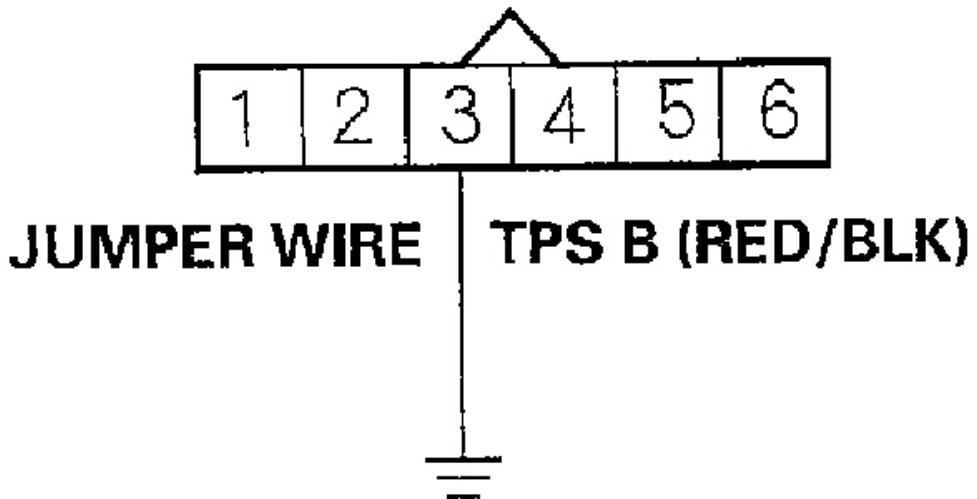
YES - Go to step 16.

NO - Go to step 6.

6. Turn the ignition switch OFF.
7. Disconnect the throttle actuator control module 16P connector.

8. Disconnect the throttle body 6P connector.
9. Connect throttle body 6P connector terminal No. 3 to body ground with a jumper wire.

THROTTLE BODY 6P CONNECTOR



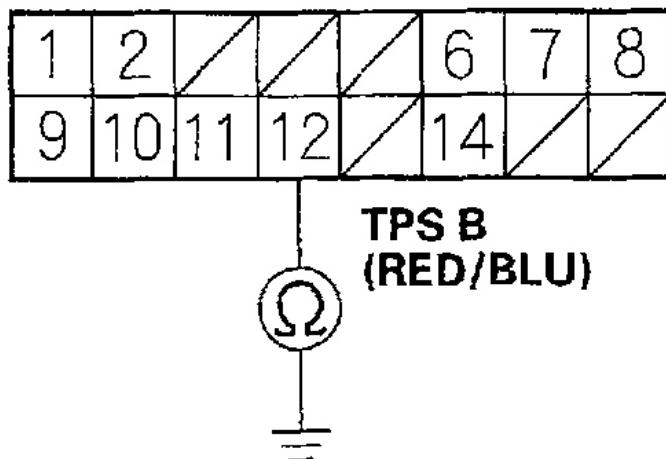
Wire side of female terminals

G01822206

Fig. 17: Connecting Throttle Body 6P Connector Terminal No. 3 To Body Ground With A Jumper Wire

10. Check for continuity between throttle actuator control module 16P connector terminal No. 12 and body ground.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Wire side of female terminals

G01822207

Fig. 18: Checking For Continuity Between Throttle Actuator Control Module 16P Connector Terminal No. 12 And Body Ground

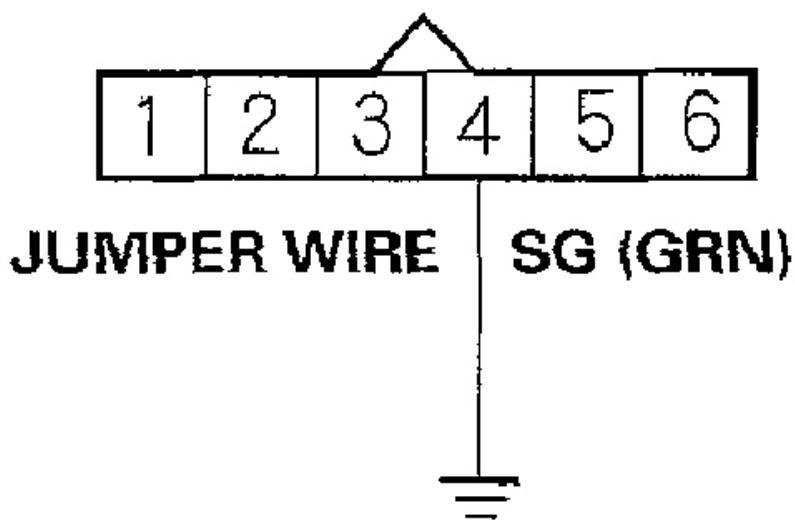
Is there continuity?

YES - Substitute a known-good throttle actuator control module (see **THROTTLE ACTUATOR CONTROL MODULE REPLACEMENT**), then go to step 18 and recheck. If DTC P0223 is not indicated, replace the original throttle actuator control module, then go to step 18. If DTC P0223 is indicated, go to step 16.

NO - Repair open in the wire between the throttle body and the throttle actuator control module (TPS B line), then go to step 18.

11. Turn the ignition switch OFF.
12. Disconnect the throttle body 6P connector.
13. Disconnect the throttle actuator control module 16P connector.
14. Connect throttle body 6P connector terminal No. 4 to body ground with a jumper wire.

THROTTLE BODY 6P CONNECTOR



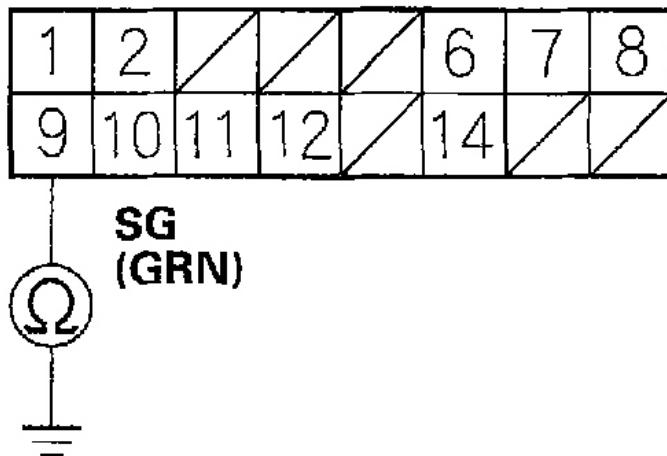
Wire side of female terminals

G01822208

Fig. 19: Connecting Throttle Body 6P Connector Terminal No. 4 To Body Ground With A Jumper Wire

15. Check for continuity between throttle actuator control module 16P connector terminal No. 9 and body ground.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Wire side of female terminals

G01822209

Fig. 20: Checking For Continuity Between Throttle Actuator Control Module 16P Connector Terminal No. 9 And Body Ground

Is there continuity?

YES - Substitute a known-good throttle actuator control module (see **THROTTLE ACTUATOR CONTROL MODULE REPLACEMENT**), then go to step 18 and recheck. If DTC P0223 is not indicated, replace the original throttle actuator control module, then go to step 18. If DTC P0223 is indicated, go to step 16.

NO - Repair open in the wire between the throttle body and the throttle actuator control module (SG line), then go to step 18.

16. Turn the ignition switch OFF.
17. Replace the throttle body (see **THROTTLE BODY REMOVAL/INSTALLATION**).
18. Turn the ignition switch ON (II).
19. Reset the ECM/PCM with the HDS.
20. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**).
21. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Are any Temporary DTCs or DTCs indicated?

YES - If DTC P0223 is indicated, check for poor connections or loose terminals at the throttle body and the throttle actuator control module, then go to step 1. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC troubleshooting.

NO - Troubleshooting is complete.

DTC P2135: TP SENSOR A/B VOLTAGE INCORRECT CORRELATION

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Do the ETCS TEST in the INSPECTION MENU with the HDS.
4. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Is DTC P2135 indicated?

YES - Go to step 5.

NO - Intermittent failure, 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 OFF.
6. Disconnect the intake air duct from the throttle body.
7. Turn the ignition switch ON (II).
8. Clear the DTC with the HDS.
9. Visually check the throttle valve operation.

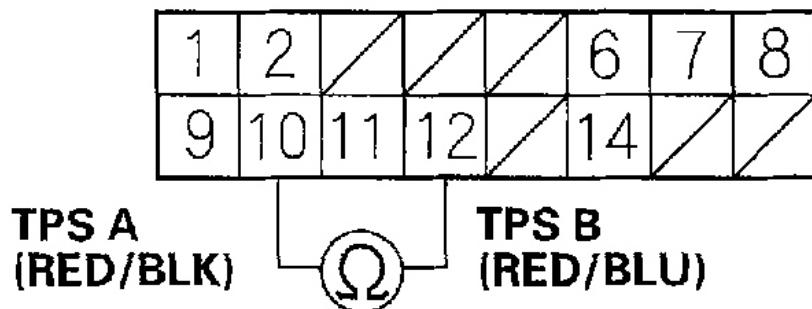
Does the valve move to the fully closed position temporarily?

YES - Go to step 14.

NO - Go to step 10.

10. Turn the ignition switch OFF.
11. Disconnect the throttle actuator control module 16P connector.
12. Check for continuity between throttle actuator control module 16P connector terminals No. 10 and No. 12.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Wire side of female terminals

G01822210

Fig. 21: Checking For Continuity Between Throttle Actuator Control Module 16P Connector Terminals No. 10 And No. 12

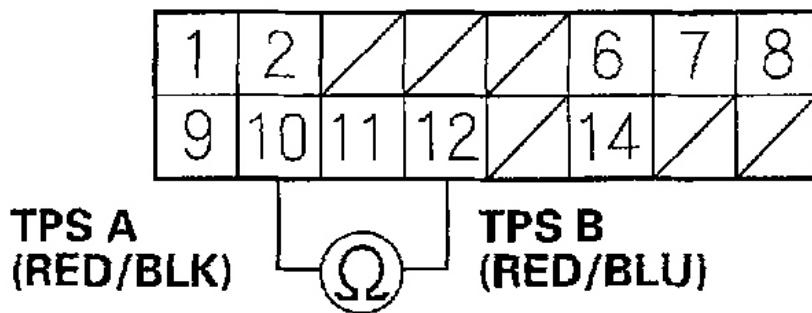
Is there continuity?

YES - Go to step 12.

NO - Substitute a known-good throttle actuator control module (see **THROTTLE ACTUATOR CONTROL MODULE REPLACEMENT**), then go to step 16 and recheck. If DTC P2135 is not indicated, replace the original throttle actuator control module (see **THROTTLE ACTUATOR CONTROL MODULE REPLACEMENT**), then go to step 16.

13. Disconnect the throttle body 6P connector.
14. Check for continuity between throttle actuator control module 16P connector terminals No. 10 and No. 12.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Wire side of female terminals

G01822211

Fig. 22: Checking For Continuity Between Throttle Actuator Control Module 16P Connector Terminals No. 10 And No. 12

Is there continuity?

YES - Repair short in the wire between the TPSA line and the TPSB line, then go to step 16.

NO - Go to step 14.

15. Turn the ignition switch OFF.
16. Replace the throttle body (see **THROTTLE BODY REMOVAL/INSTALLATION**).
17. Turn the ignition switch ON (II).
18. Reset the ECM/PCM with the HDS.
19. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**).
20. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Are any Temporary DTCs or DTCs indicated?

YES - If DTC P2135 is indicated, check for poor connections or loose terminals at the throttle body and

the throttle actuator control module, then go to step 1. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC troubleshooting.

NO - Troubleshooting is complete.

DTC P2122: APP SENSOR A CIRCUIT LOW VOLTAGE

1. Turn the ignition switch ON (II).
2. Check APP SENSOR-A in the DATA LIST with the HDS.

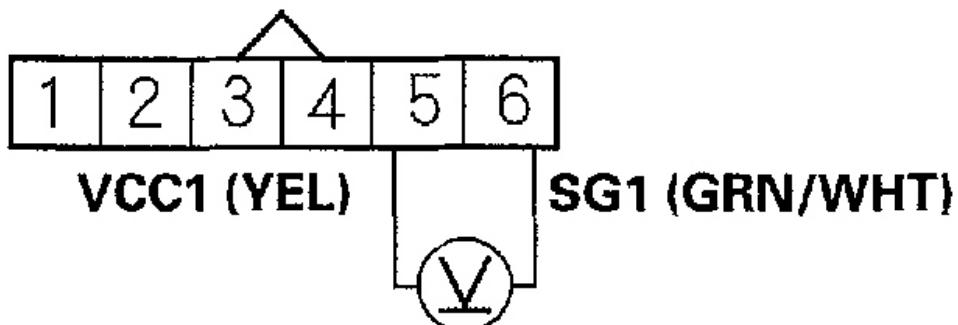
Is there about 0.1 V, or less with the accelerator pedal fully pressed?

YES - Go to step 3.

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

3. Turn the ignition switch OFF.
4. Disconnect the APP sensor 6P connector.
5. Turn the ignition switch ON (II).
6. At the wire harness side, measure voltage between APP sensor 6P connector terminals No. 5 and No. 6.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

G01822212

Fig. 23: Measuring Voltage Between APP Sensor 6P Connector Terminals No. 5 And No. 6

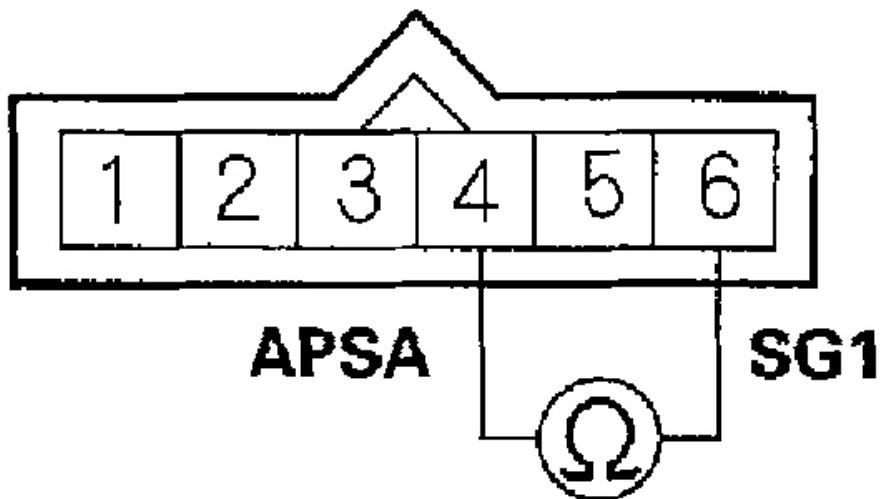
Is there about 5 V ?

YES - Go to step 7.

NO - Go to step 15.

7. Turn the ignition switch OFF.
8. At the sensor side, measure resistance between APP sensor 6P connector terminals No. 4 and No. 6 with the throttle fully closed.

APP SENSOR 6P CONNECTOR



Terminal side of male terminals

G01822213

Fig. 24: Measuring Resistance Between APP Sensor 6P Connector Terminals No. 4 And No. 6

Is there about 0.35-0.45 kohm?

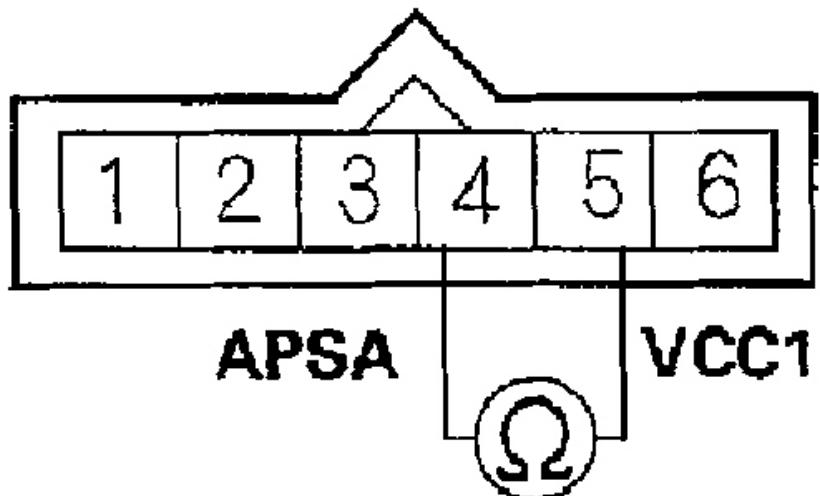
YES - Go to step 9.

NO - Go to step 16.

9. At the sensor side, measure resistance between APP sensor 6P connector terminals No. 4 and No. 5 with

the throttle fully closed.

APP SENSOR 6P CONNECTOR



Terminal side of male terminals

G01822214

Fig. 25: Measuring Resistance Between APP Sensor 6P Connector Terminals No. 4 And No. 5

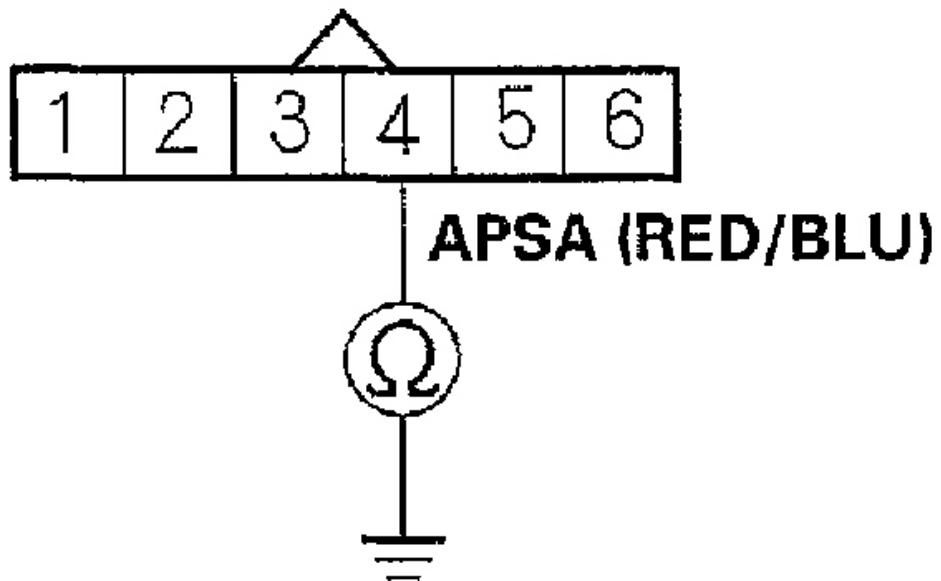
Is there about 2.7-3.3 kohm?

YES - Go to step 10.

NO - Go to step 16.

10. Jump the SCS line with the HDS.
11. Disconnect ECM/PCM connector A (31P).
12. At the wire harness side, check for continuity between APP sensor 6P connector terminal No. 4 and body ground.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

G01822215

Fig. 26: Checking For Continuity Between APP Sensor 6P Connector Terminal No. 4 And Body Ground

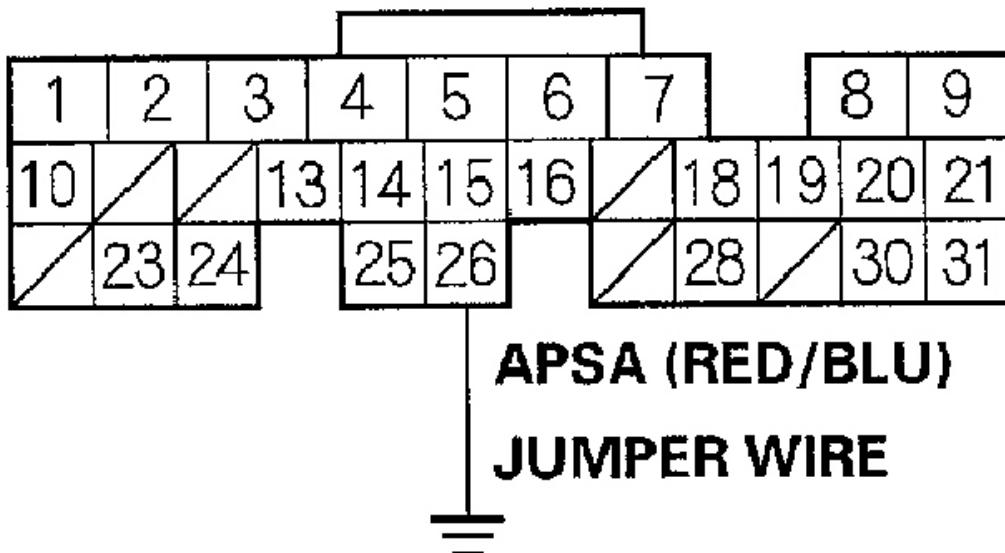
Is there continuity?

YES - Repair short in the wire between APP sensor A and ECM/PCM (A26), then go to step 17.

NO - Go to step 13.

13. Connect ECM/PCM connector terminal A26 to body ground with a jumper wire.

ECM/PCM CONNECTOR A (31P)



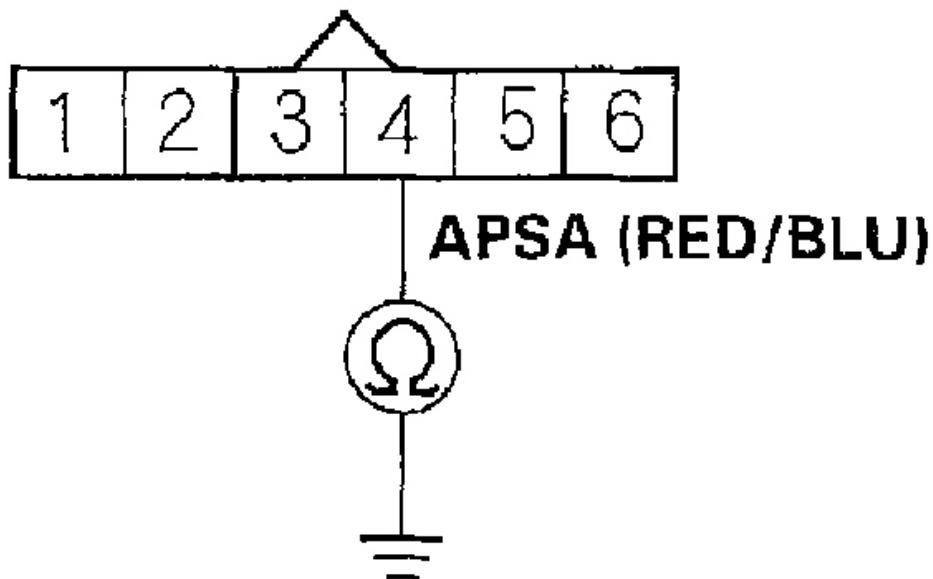
Wire side of female terminals

G01822216

Fig. 27: Connecting ECM/PCM Connector Terminal A26 To Body Ground With A Jumper Wire

14. At the wire harness side, check for continuity between APP sensor 6P connector terminal No. 4 and body ground.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

G01822217

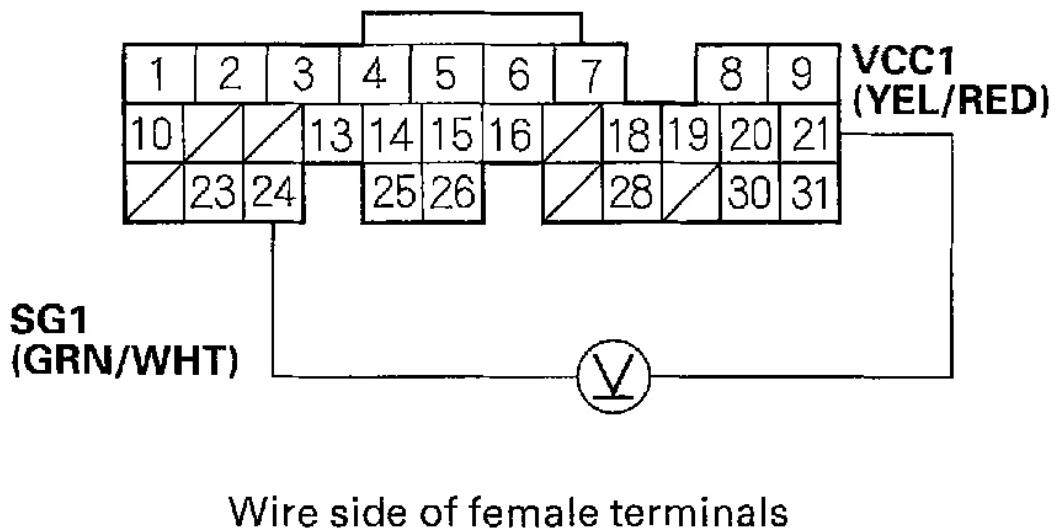
Fig. 28: Checking For Continuity Between APP Sensor 6P Connector Terminal No. 4 And Body Ground

Is there continuity?

YES - Go to step 22.

NO - Repair open in the wire between APP sensor A and the ECM/PCM (A26), then go to step 17.

15. Measure voltage between ECM/PCM connector terminals A21 and A24.

ECM/PCM CONNECTOR A (31P)

Wire side of female terminals

G01822218

Fig. 29: Measuring Voltage Between ECM/PCM Connector Terminals A21 And A24**Is there about 5 V ?**

YES - Repair open in the wire between the ECM/PCM (A21) and APP sensor A, then go to step 17.

NO - Go to step 22.

16. Replace the APP sensor (see **THROTTLE ACTUATOR CONTROL MODULE REPLACEMENT**).
17. Reconnect ECM/PCM connector.
18. Turn the ignition switch ON (II).
19. Reset the ECM/PCM with the HDS.
20. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**).
21. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Are any Temporary DTCs or DTCs indicated?

YES - If DTC P2122 is indicated, check for poor connections or loose terminals at APP sensor A and the ECM/PCM, then go to step 1. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC troubleshooting.

NO - Troubleshooting is complete.

22. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM (see **HOW TO SUBSTITUTE THE ECM/PCM**).
23. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Are any Temporary DTCs or DTCs indicated?

YES - If DTC P2122 is indicated, check for poor connections or loose terminals at APP sensor A and the ECM/PCM, then go to step 1. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC troubleshooting.

NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see **HOW TO REMOVE THE ECM/PCM FOR TESTING**).

DTC P2123: APP SENSOR A (THROTTLE POSITION SENSOR D) CIRCUIT HIGH VOLTAGE

1. Turn the ignition switch ON (II).
2. Check APP SENSOR-A in the DATA LIST with the HDS.

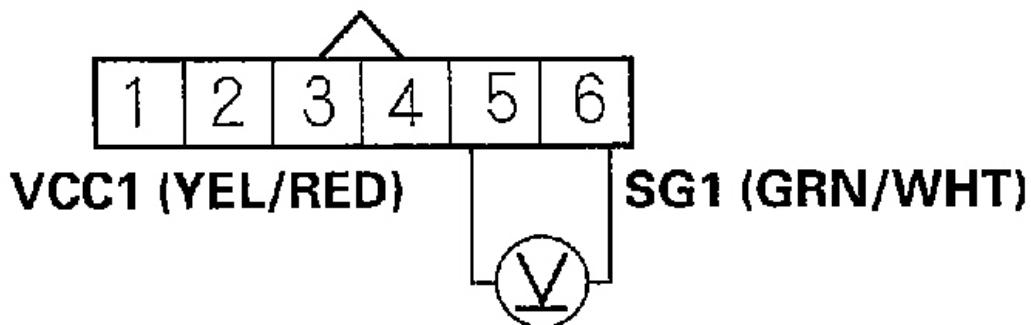
Is there about 4.9 V, or higher?

YES - Go to step 3.

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

3. Turn the ignition switch OFF.
4. Disconnect the APP sensor 6P connector.
5. Turn the ignition switch ON (II).
6. At the wire harness side, measure voltage between APP sensor 6P connector terminals No. 5 and No. 6.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

G01822219

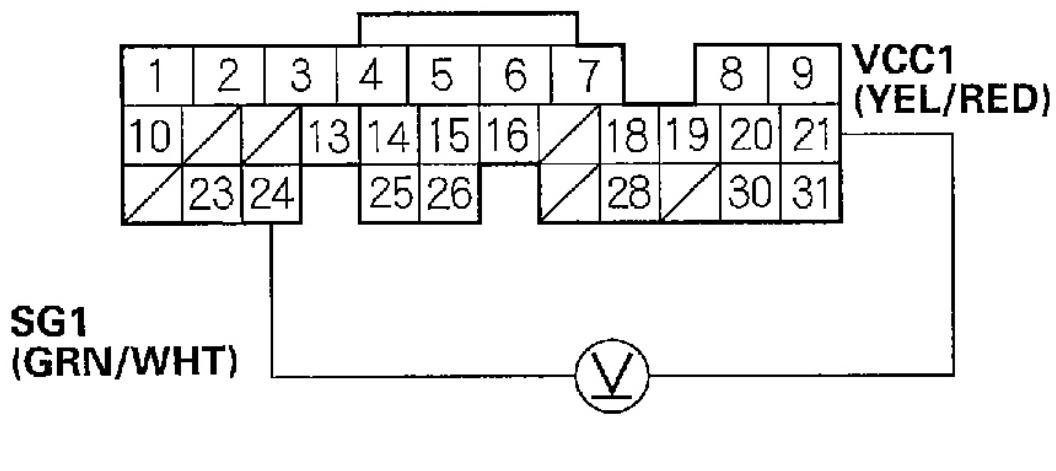
Fig. 30: Measuring Voltage Between APP Sensor 6P Connector Terminals No. 5 And No. 6

Is there about 5 V ?

YES - Go to step 8.

NO - Go to step 7.

7. Measure voltage between ECM/PCM connector terminals A21 and A24.

ECM/PCM CONNECTOR A (31P)

G01822220

Fig. 31: Measuring Voltage Between ECM/PCM Connector Terminals A21 And A24**Is there about 5 V ?****YES** - Repair open in the wire between the ECM/PCM (A24) and APP sensor A, then go to step 10.**NO** - Go to step 14.

8. Turn the ignition switch OFF.
9. Replace the APP sensor (see **THROTTLE ACTUATOR CONTROL MODULE REPLACEMENT**).
10. Turn the ignition switch ON (II).
11. Reset the ECM/PCM with the HDS.
12. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**).
13. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Are any Temporary DTCs or DTCs indicated?

YES - If DTC P2123 is indicated, check for poor connections or loose terminals at APP sensor A and the ECM/PCM, then go to step 1. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC troubleshooting.

NO - Troubleshooting is complete.

14. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM (see [**HOW TO SUBSTITUTE THE ECM/PCM**](#)).
15. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Are any Temporary DTCs or DTCs indicated?

YES - If DTC P2123 is indicated, check for poor connections or loose terminals at APP sensor A and the ECM/PCM, then go to step 1. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC troubleshooting.

NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see [**HOW TO REMOVE THE ECM/PCM FOR TESTING**](#)).

DTC P2127: APP SENSOR B CIRCUIT LOW VOLTAGE

1. Turn the ignition switch ON (II).
2. Check APP SENSOR-B in the DATA LIST with the HDS.

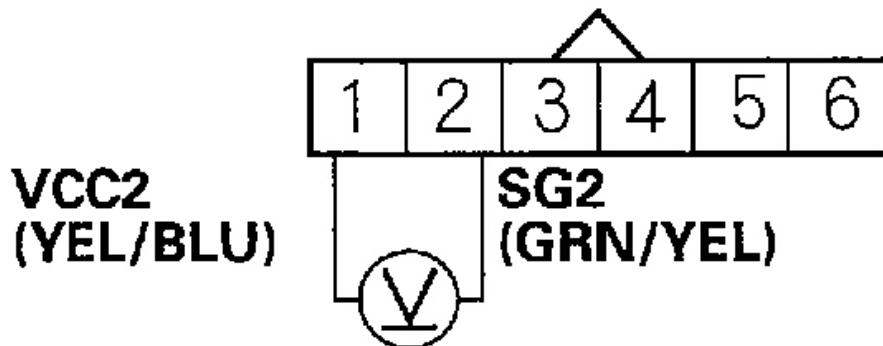
Is there about 0.1 V, or less with the accelerator pedal fully pressed?

YES - Go to step 3.

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

3. Turn the ignition switch OFF.
4. Disconnect the APP sensor 6P connector.
5. Turn the ignition switch ON (II).
6. At the wire harness side, measure voltage between APP sensor 6P connector terminals No. 1 and No. 2.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

G01822221

Fig. 32: Measuring Voltage Between APP Sensor 6P Connector Terminals No. 1 And No. 2

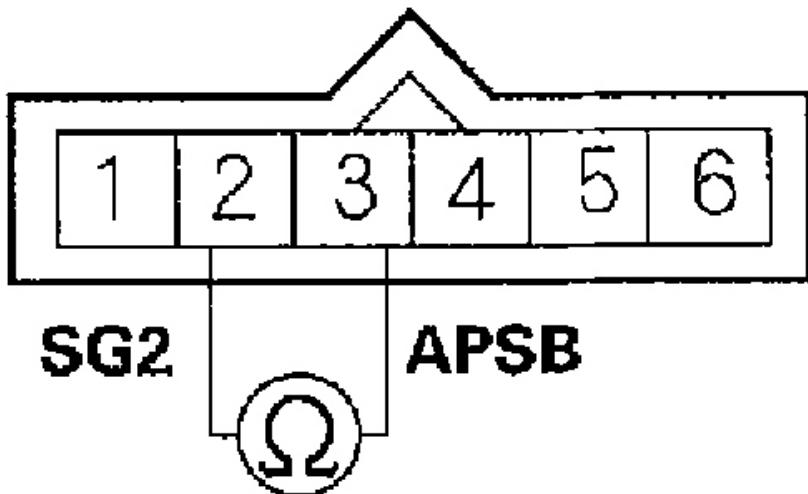
Is there about 5 V ?

YES - Go to step 7.

NO - Go to step 15.

7. Turn the ignition switch OFF.
8. At the sensor side, measure resistance between APP sensor 6P connector terminals No. 2 and No. 3 with the throttle fully closed.

APP SENSOR 6P CONNECTOR



Terminal side of male terminals

G01822222

Fig. 33: Measuring Resistance Between APP Sensor 6P Connector Terminals No. 2 And No. 3

Is there about 0.35-0.45 kohm ?

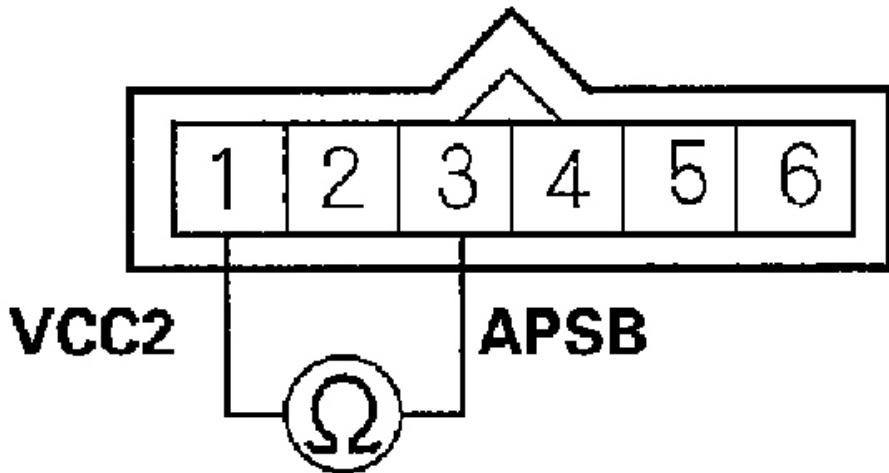
YES - Go to step 9.

NO - Go to step 16.

9. At the sensor side, measure resistance between APP sensor 6P connector terminals No. 1 and No. 3 with

the throttle fully closed.

APP SENSOR 6P CONNECTOR



Terminal side of male terminals

G01822223

Fig. 34: Measuring Resistance Between APP Sensor 6P Connector Terminals No. 1 And No. 3

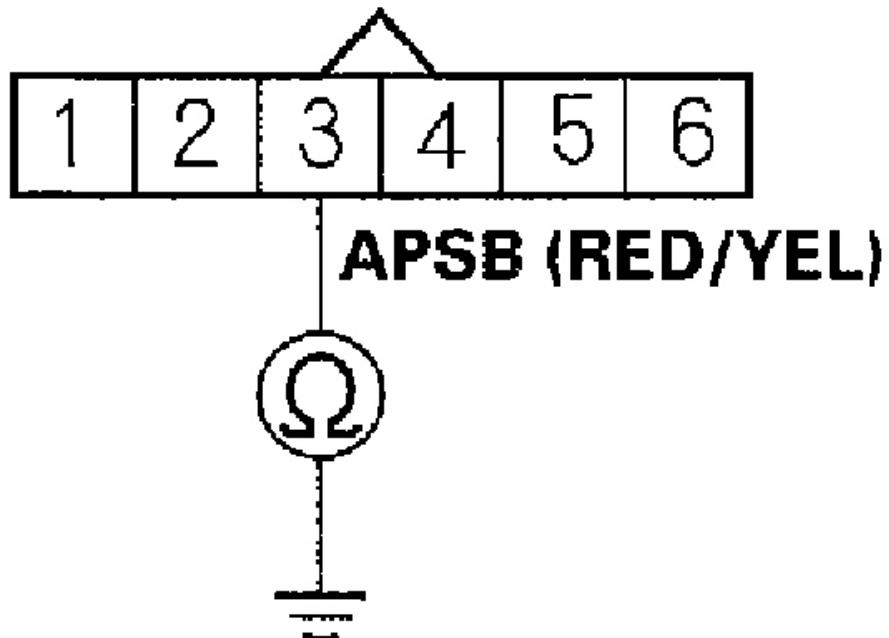
Is there about 2.7-3.3 kohm ?

YES - Go to step 10.

NO - Go to step 16.

10. Jump the SCS line with the HDS.
11. Disconnect ECM/PCM connector A (31P).
12. At the wire harness side, check for continuity between APP sensor 6P connector terminal No. 3 and body ground.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

G01822224

Fig. 35: Checking For Continuity Between APP Sensor 6P Connector Terminal No. 3 And Body Ground

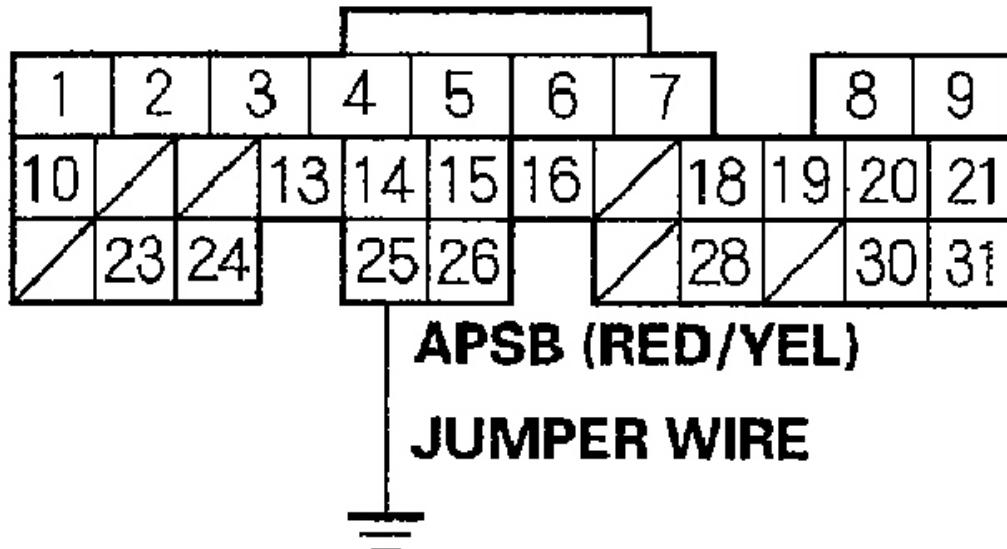
Is there continuity?

YES - Repair short in the wire between APP sensor B and the ECM/PCM (A25), then go to step 17.

NO - Go to step 13.

13. Connect ECM/PCM connector terminal A25 to body ground with a jumper wire.

ECM/PCM CONNECTOR A (31P)



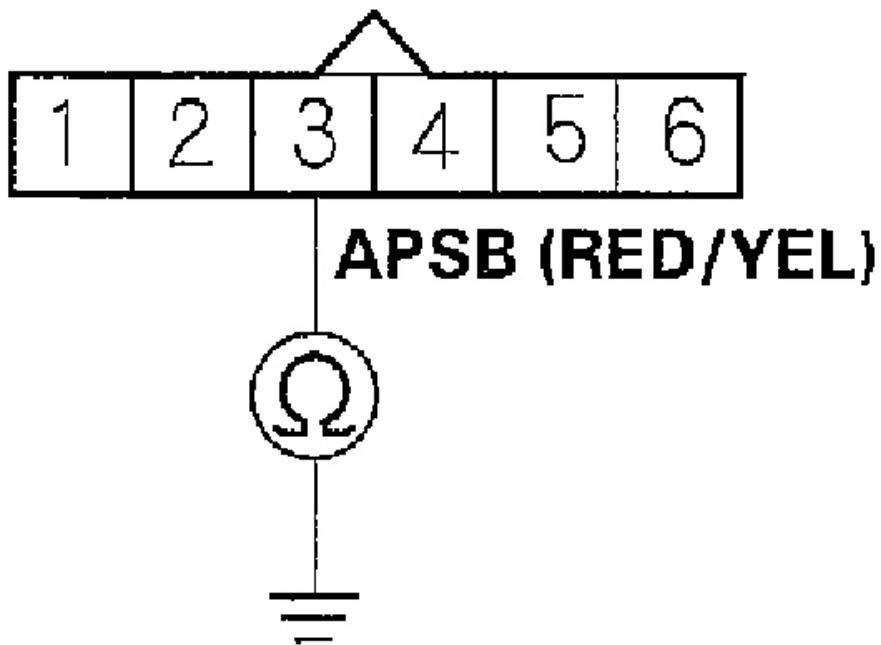
Wire side of female terminals

G01822225

Fig. 36: Connecting ECM/PCM Connector Terminal A25 To Body Ground With A Jumper Wire

14. At the wire harness side, check for continuity between APP sensor 6P connector terminal No. 3 and body ground.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

G01822226

Fig. 37: Checking For Continuity Between APP Sensor 6P Connector Terminal No. 3 And Body Ground

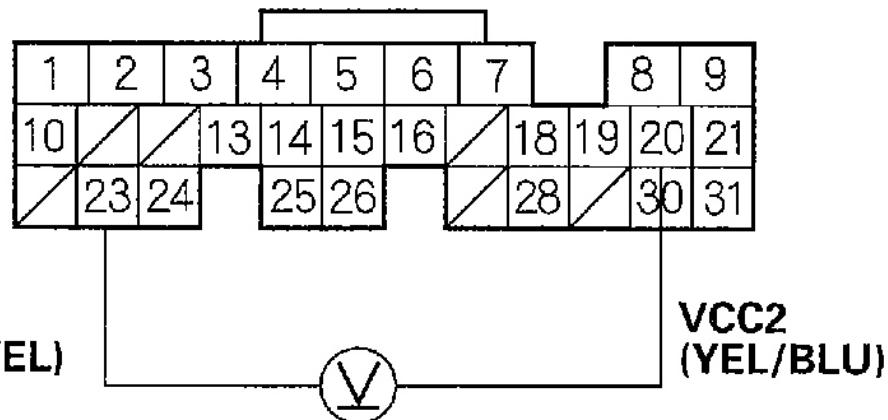
Is there continuity?

YES - Go to step 22.

NO - Repair open in the wire between APP sensor B and ECM/PCM (A25), then go to step 17.

15. Measure voltage between ECM/PCM connector terminals A20 and A23.

ECM/PCM CONNECTOR A (31P)



G01822227

Fig. 38: Measuring Voltage Between ECM/PCM Connector Terminals A20 And A23

Is there about 5 V ?

YES - Repair open in the wire between the ECM/PCM (A20) and APP sensor B, then go to step 17.

NO - Go to step 22.

16. Replace the APP sensor (see **THROTTLE ACTUATOR CONTROL MODULE REPLACEMENT**).
17. If disconnected, reconnect ECM/PCM connector A (31P).
18. Turn the ignition switch ON (II).
19. Reset the ECM/PCM with the HDS.
20. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**).
21. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Are any Temporary DTCs or DTCs indicated?

YES - If DTC P2127 is indicated, check for poor connections or loose terminals at APP sensor B and the

ECM/PCM, then go to step 1. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC troubleshooting.

NO - Troubleshooting is complete.

22. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM (see [**HOW TO SUBSTITUTE THE ECM/PCM**](#)).
23. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Are any Temporary DTCs or DTCs indicated?

YES - If DTC P2127 is indicated, check for poor connections or loose terminals at APP sensor B and the ECM/PCM, then go to step 1. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC troubleshooting.

NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see [**HOW TO REMOVE THE ECM/PCM FOR TESTING**](#)).

DTC P2128: APP SENSOR B (THROTTLE POSITION SENSOR E) CIRCUIT HIGH VOLTAGE

1. Turn the ignition switch ON (II).
2. Check APP SENSOR-B in the DATA LIST with the HDS.

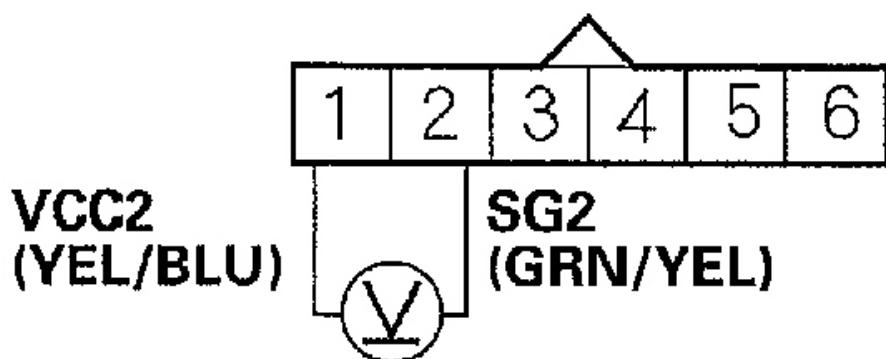
Is there about 4.9 V, or higher?

YES - Go to step 3.

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

3. Turn the ignition switch OFF.
4. Disconnect the APP sensor 6P connector.
5. Turn the ignition switch ON (II).
6. At the wire harness side, measure voltage between APP sensor 6P connector terminals No. 1 and No. 2.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

G01822228

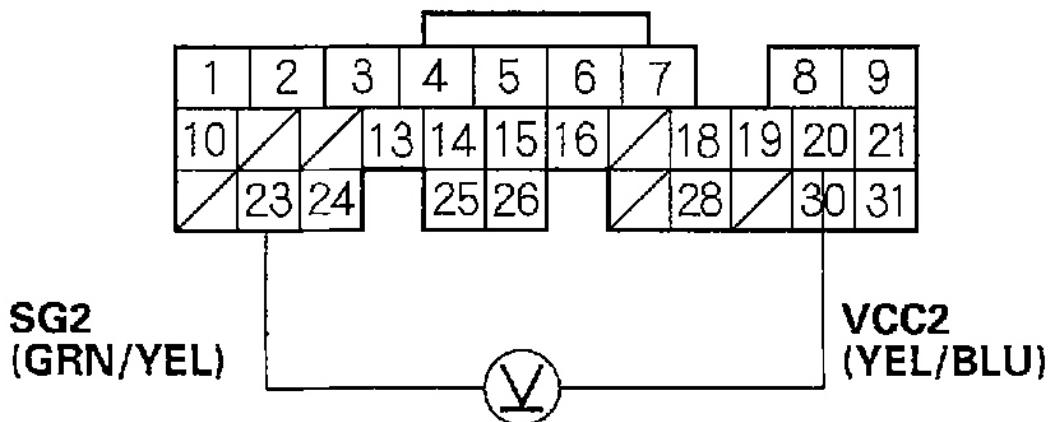
Fig. 39: Measuring Voltage Between APP Sensor 6P Connector Terminals No. 1 And No. 2

Is there about 5 V ?

YES - Go to step 8.

NO - Go to step 7.

7. Measure voltage between ECM/PCM connector terminals A20 and A23.

ECM/PCM CONNECTOR A (31P)

G01822229

Fig. 40: Measuring Voltage Between ECM/PCM Connector Terminals A20 And A23**Is there about 5 V ?**

YES - Repair open in the wire between the ECM/PCM (A23) and APP sensor B, then go to step 10.

NO - Go to step 14.

8. Turn the ignition switch OFF.
9. Replace the APP sensor (see **THROTTLE ACTUATOR CONTROL MODULE REPLACEMENT**).
10. Turn the ignition switch ON (II).
11. Reset the ECM/PCM with the HDS.
12. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**).
13. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Are any Temporary DTCs or DTCs indicated?

YES - If DTC P2128 is indicated, check for poor connections or loose terminals at APP sensor B and the ECM/PCM, then go to step 1. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC troubleshooting.

NO - Troubleshooting is complete.

14. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM (see [**HOW TO SUBSTITUTE THE ECM/PCM**](#)).
15. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Are any Temporary DTCs or DTCs indicated?

YES - If DTC P2128 is indicated, check for poor connections or loose terminals at APP sensor B and the ECM/PCM, then go to step 1. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC troubleshooting.

NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see [**HOW TO REMOVE THE ECM/PCM FOR TESTING**](#)).

DTC P2138: APP SENSOR A/B INCORRECT VOLTAGE CORRELATION

1. Turn the ignition switch ON (II).
2. Clear the DTC with HDS.
3. Press the accelerator pedal to the floor.
4. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Is DTC P2138 indicated?

YES - Go to step 5.

NO - Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at APP sensors and at the ECM/PCM.

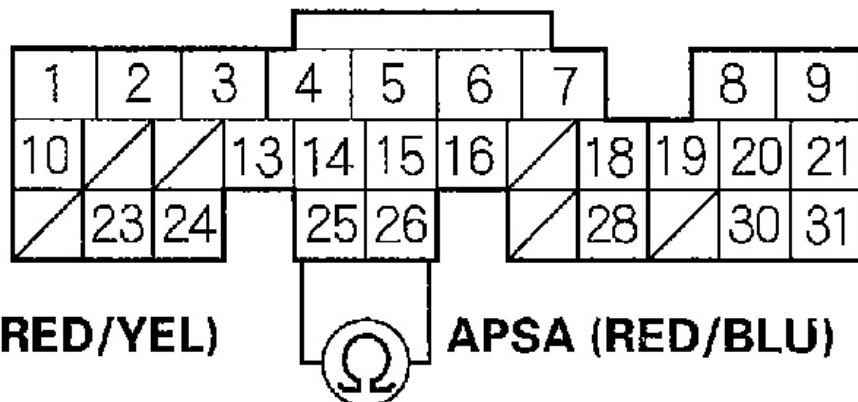
5. Check APP SENSOR-A and APP SENSOR-B in the DATA LIST with the HDS.

Are they the same voltage?

YES - Go to step 6.

NO - Go to step 11.

6. Turn the ignition switch OFF.
7. Jump the SCS line with the HDS.
8. Disconnect the APP sensor 6P connector.
9. Disconnect ECM/PCM connector A (31P).
10. Check for continuity between ECM/PCM connector terminals A25 and A26.

ECM/PCM CONNECTOR A (31P)

Wire side of female terminals

G01822230

Fig. 41: Checking For Continuity Between ECM/PCM Connector Terminals A25 And A26

Is there continuity?

YES - Repair short in the wire between the ECM/PCM terminals (A25, A26), then go to step 13.

NO - Go to step 21.

11. Turn the ignition switch OFF.
12. Replace the APP sensor (see **THROTTLE ACTUATOR CONTROL MODULE REPLACEMENT**).
13. Reconnect ECM/PCM connector A (31P).
14. Turn the ignition switch ON (II).
15. Reset the ECM/PCM with the HDS.
16. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**).
17. Turn the ignition switch OFF.
18. Turn the ignition switch ON.

19. Press the accelerator pedal to the floor.
20. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Are any Temporary DTCs or DTCs indicated?

YES - If DTC P2138 is indicated, check for poor connections or loose terminals at the APP sensor and the ECM/PCM, then go to step 1. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC troubleshooting.

NO - Troubleshooting is complete.

21. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM (see **HOW TO SUBSTITUTE THE ECM/PCM**).
22. Turn the ignition switch OFF.
23. Turn the ignition switch ON.
24. Press the accelerator pedal to the floor.
25. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Are any Temporary DTCs or DTCs indicated?

YES - If DTC P2138 is indicated, check for poor connections or loose terminals at the APP sensor and the ECM/PCM, then go to step 1. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC troubleshooting.

NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see **HOW TO REMOVE THE ECM/PCM FOR TESTING**).

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 ON (II) or while the ignition switch is ON (II). If you do, there will be serious injury to your fingers if the throttle valve was activated.

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on, then let it idle.
4. Turn the ignition switch OFF, and wait 10 seconds.
5. Turn the ignition switch ON (II).
6. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Is DTC P1683 indicated?

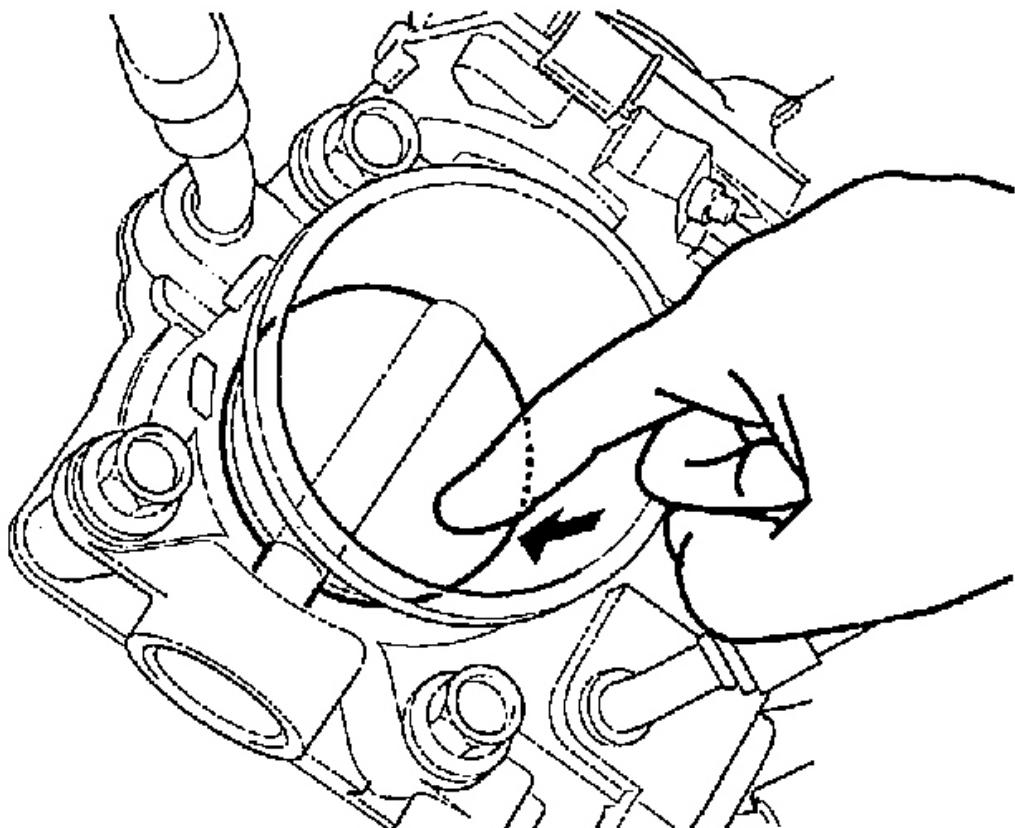
YES - Go to step 7.

NO - Intermittent failure, 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 OFF.
8. Disconnect the intake air duct from the throttle body.
9. Push the throttle valve closed as shown.

NOTE:

- Do not operate the ignition switch during the check.
- Be careful not to pinch your finger during the check.



G01822231

Fig. 42: Pushing The Throttle Valve Closed

10. Release the throttle valve.

Does the throttle valve return?

YES - Clean the throttle body (see **THROTTLE BODY CLEANING**), then go to step 13.

NO - Go to step 11.

11. Turn the ignition switch OFF.
12. Replace the throttle body (see **THROTTLE BODY REMOVAL/INSTALLATION**).
13. Turn the ignition switch ON (II).
14. Reset the ECM/PCM with the HDS.
15. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**).
16. Turn the ignition switch OFF, and wait 10 seconds.
17. Turn the ignition switch ON (II).
18. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Are any Temporary DTCs or DTCs indicated?

YES - If DTC P1683 is indicated, check for poor connections or loose terminals at the throttle body and the throttle actuator control module, then go to step 1. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC troubleshooting.

NO - Troubleshooting is complete.

DTC P1684: THROTTLE VALVE RETURN SPRING PERFORMANCE PROBLEM

CAUTION: Do not insert your fingers into installed throttle body when you turn the ignition switch ON (II) or while the ignition switch is ON (II). Otherwise, you will have serious injury to your fingers if the throttle valve was activated.

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm with no load (in Park or neutral) until the radiator fan comes on, then let it idle.
4. Turn the ignition switch OFF, and wait 10 seconds.
5. Turn the ignition switch ON (II).
6. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Is DTC P1684 indicated?

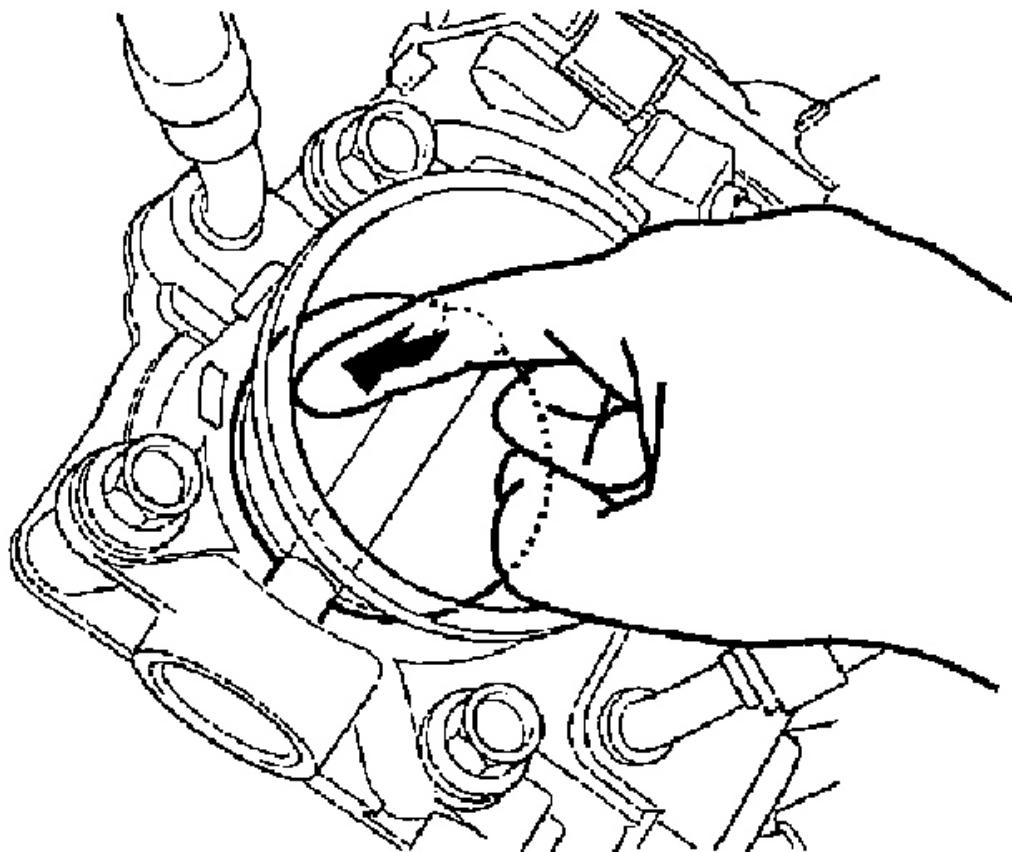
YES - Go to step 7.

NO - Intermittent failure, 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 OFF.
8. Disconnect the intake air duct from the throttle body.
9. Push the throttle valve open as shown.

NOTE:

- **Do not operate the ignition switch during the check.**
- **Be careful not to pinch your finger during the check.**



G01822232

Fig. 43: Pushing The Throttle Valve Open

10. Release the throttle valve.

Does the throttle valve return?

YES - Clean the throttle body (see **THROTTLE BODY CLEANING**), then go to step 13.

NO - Go to step 11.

11. Turn the ignition switch OFF.
12. Replace the throttle body (see **THROTTLE BODY REMOVAL/INSTALLATION**).
13. Turn the ignition switch ON (II).
14. Reset the ECM/PCM with the HDS.
15. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**).
16. Turn the ignition switch OFF, and wait 10 seconds.
17. Turn the ignition switch ON (II).
18. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Are any Temporary DTCs or DTCs indicated?

YES - If DTC P1684 is indicated, check for poor connections or loose terminals at the throttle body and the throttle actuator control module, then go to step 1. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC troubleshooting.

NO - Troubleshooting is complete.

DTC P2101: THROTTLE ACTUATOR SYSTEM MALFUNCTION

1. Record the following freeze data.
 - Engine speed
 - Vehicle speed
 - Accelerator position
2. Clear the DTC with the HDS.
3. Do the ETCS TEST in the INSPECTION MENU with the HDS.
4. Check for Temporary DTCs or DTCs in the DTCs MENU 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 the recorded freeze data.
6. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Is DTC P2101 indicated?

YES - Go to step 7.

NO - Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the throttle body and at the throttle actuator control module, then clean the throttle body (see **THROTTLE BODY CLEANING**).

7. Turn the ignition switch OFF.
8. Disconnect the intake air duct from the throttle body.
9. Turn the ignition switch 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.

NOTE: **Be careful not to pinch your finger during the check.**

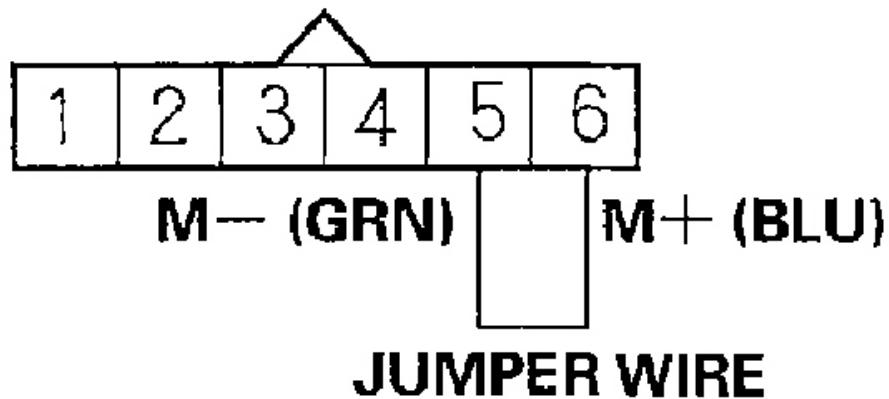
Does the throttle valve operate smoothly?

YES - Clean the throttle body (see **THROTTLE BODY CLEANING**), then go to step 20 and recheck. If DTC P2101 is indicated, go to step 18.

NO - Go to step 13.

13. Turn the ignition switch OFF.
14. Disconnect the throttle body 6P connector.
15. Disconnect the throttle actuator control module 16P connector.
16. Connect throttle body 6P connector terminals No. 5 and No. 6 with a jumper wire.

THROTTLE BODY 6P CONNECTOR



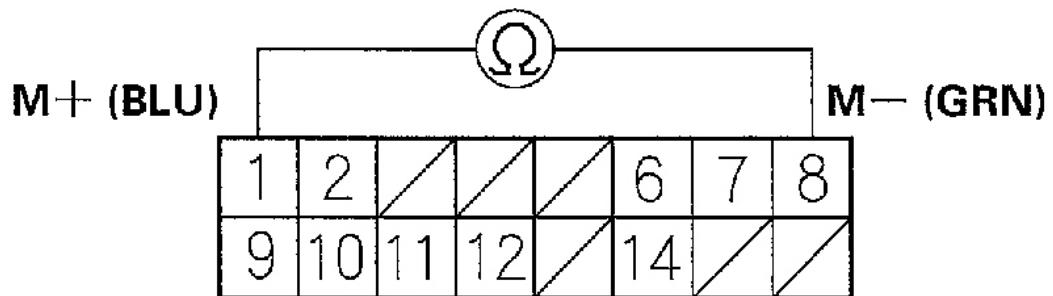
Wire side of female terminals

G01822233

Fig. 44: Connecting Throttle Body 6P Connector Terminals No. 5 And No. 6 With A Jumper Wire

17. Check for continuity between throttle actuator control module 16P connector terminals No. 1 and No. 8.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Wire side of female terminals

G01822234

Fig. 45: Checking For Continuity Between Throttle Actuator Control Module 16P Connector Terminals No. 1 And No. 8

Is there continuity?

YES - Substitute a known-good throttle actuator control module (see **THROTTLE ACTUATOR CONTROL MODULE REPLACEMENT**), then go to step 20 and recheck. If DTC P2101 is not indicated, replace the original throttle actuator control module (see **THROTTLE ACTUATOR CONTROL MODULE REPLACEMENT**), then go to step 20. If DTC P2101 is indicated, go to step 18.

NO - Repair open in the wires between the throttle body and the throttle actuator control module (motor drive lines), then go to step 20.

18. Turn the ignition switch OFF.
19. Replace the throttle body (see **THROTTLE BODY REMOVAL/INSTALLATION**).
20. Turn the ignition switch ON (II).
21. Reset the ECM/PCM with the HDS.
22. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**).
23. Test-drive the vehicle for several minutes in the range of the recorded freeze data.

24. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Are any Temporary DTCs or DTCs indicated?

YES - If DTC P2101 is indicated, check for poor connections or loose terminals at the throttle body and the throttle actuator control module, then clean the throttle body (see **THROTTLE BODY CLEANING**), and go to step 1. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC troubleshooting.

NO - Troubleshooting is complete.

DTC P2108: THROTTLE ACTUATOR CONTROL MODULE PROBLEM

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF.
4. Turn the ignition switch ON (II).
5. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Is DTC P2108 indicated ?

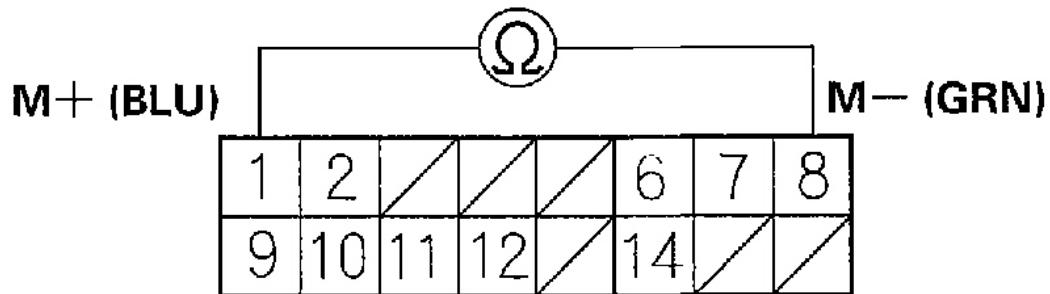
YES - Substitute a known-good throttle actuator control module (see **THROTTLE ACTUATOR CONTROL MODULE REPLACEMENT**), and recheck. If DTC P2108 is not indicated, replace the original throttle actuator control module (see **THROTTLE ACTUATOR CONTROL MODULE REPLACEMENT**).

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

DTC P2118: THROTTLE ACTUATOR CURRENT RANGE/PERFORMANCE PROBLEM

1. Disconnect the throttle actuator control module 16P connector.
2. Measure resistance between throttle actuator control module 16P connector terminals No. 1 and No. 8.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Wire side of female terminals

G01822235

Fig. 46: Measuring Resistance Between Throttle Actuator Control Module 16P Connector Terminals No. 1 And No. 8

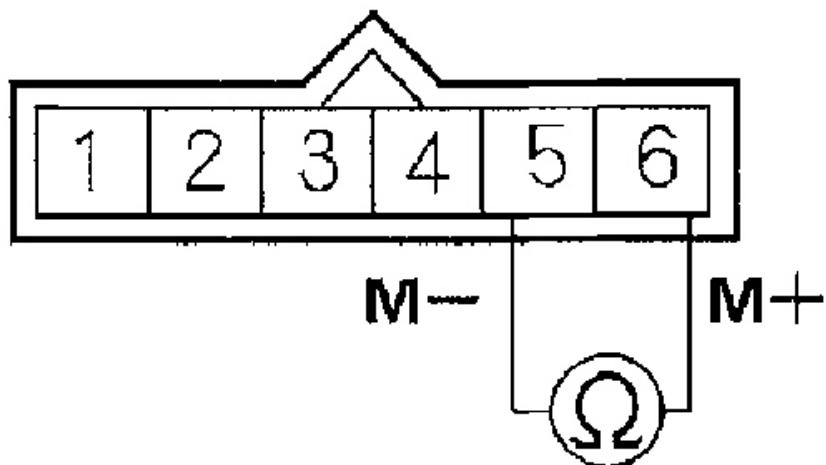
Is there about 1.0 ohm or less?

YES - Go to step 3.

NO - Substitute a know-good throttle actuator control module (see **THROTTLE ACTUATOR CONTROL MODULE REPLACEMENT**), then go to step 7 and recheck. If DTC P2118 is not indicated, replace the original throttle actuator control module (see **THROTTLE ACTUATOR CONTROL MODULE REPLACEMENT**), then go to step 7.

3. Disconnect the throttle body 6P connector.
4. At the throttle body side, measure 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

G01822236

Fig. 47: Measuring Resistance Between Throttle Body 6P Connector Terminals No. 5 And No. 6

Is there about 1.0 ohm or less?

YES - Go to step 5.

NO - Repair short in the wires between the throttle body and throttle actuator control module (motor drive lines), then go to step 6.

5. Replace the throttle body (see **THROTTLE BODY REMOVAL/INSTALLATION**)
6. Reconnect the throttle body 6P connector.

7. Reconnect the throttle actuator control module 16P connector.
8. Turn the ignition switch ON (II).
9. Reset the ECM/PCM with the HDS.
10. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**).
11. Turn the ignition switch OFF.
12. Turn the ignition switch ON (II).
13. Slowly press the accelerator pedal to the floor.
14. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Are any Temporary DTCs or DTCs indicated?

YES - If DTC P2118 is indicated, check for poor connections or loose terminals at the throttle body and the throttle actuator control module, then go to step 1. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC troubleshooting.

NO - Troubleshooting is complete.

DTC P2176: THROTTLE ACTUATOR CONTROL SYSTEM IDLE POSITION NOT LEARNED

NOTE: **If DTC P2135 is stored at the same time as DTC P2176, troubleshoot DTC P2135 first, then recheck for DTC P2176.**

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF.
4. Turn the ignition switch ON (II), and wait 10 seconds.
5. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Is DTC P2176 indicated?

YES - Go to step 6.

NO - Intermittent failure, 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 **THROTTLE BODY CLEANING**).

6. Turn the ignition switch OFF.
7. Disconnect the intake air duct from the throttle body.
8. Turn the ignition switch ON (II).
9. Clear the DTC with the HDS.
10. Do the ETCS TEST in the INSPECTION MENU with the HDS.
11. Visually check the throttle valve operations.

NOTE: Be careful not to pinch your finger. Keep hands away from the throttle valve.

Does the throttle valve move to its fully closed position?

YES - Go to step 12.

NO - Go to step 13.

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

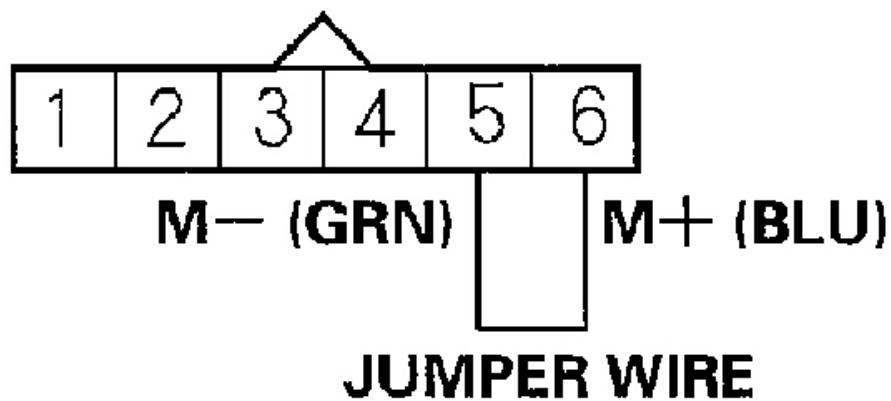
Is there sludge or carbon on the throttle valve?

YES - Clean the throttle body (see **THROTTLE BODY CLEANING**), then go to step 21 and recheck.

NO - Go to step 19.

13. Turn the ignition switch OFF.
14. Disconnect the throttle body 6P connector.
15. Disconnect the throttle actuator control module 16P connector.
16. Connect throttle body 6P connector terminals No. 5 and No. 6 with a jumper wire.

THROTTLE BODY 6P CONNECTOR



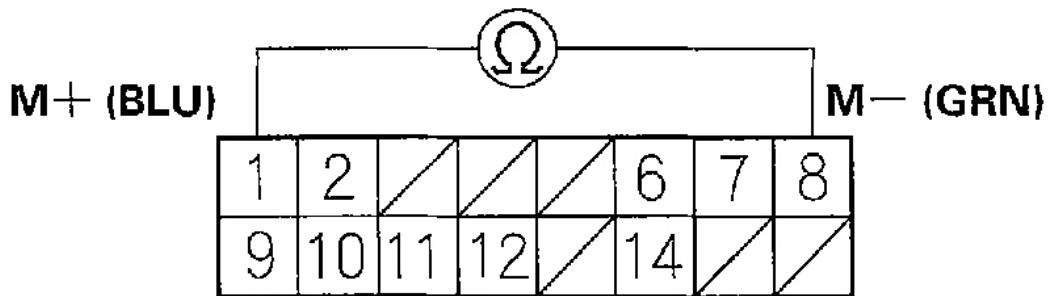
Wire side of female terminals

G01822237

Fig. 48: Connecting Throttle Body 6P Connector Terminals No. 5 And No. 6 With A Jumper Wire

17. Check for continuity between throttle actuator control module 16P connector terminals No. 1 and No. 8.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Wire side of female terminals

G01822238

Fig. 49: Checking For Continuity Between Throttle Actuator Control Module 16P Connector Terminals No. 1 And No. 8

Is there continuity?

YES - Substitute a known-good throttle actuator control module (see **THROTTLE ACTUATOR CONTROL MODULE REPLACEMENT**), then go to step 20 and recheck. If DTC P2176 is not indicated, replace the original throttle actuator control module (see **THROTTLE ACTUATOR CONTROL MODULE REPLACEMENT**), then go to step 20.

NO - Repair open in the wires between the throttle body and the throttle actuator control module (motor drive lines), then go to step 20.

18. Turn the ignition switch OFF.
19. Replace the throttle body (see **THROTTLE BODY REMOVAL/INSTALLATION**).
20. Turn the ignition switch ON (II).
21. Reset the ECM/PCM with the HDS.
22. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**).
23. Turn the ignition switch OFF.
24. Turn the ignition switch ON (II), and wait 10 seconds.

25. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Are any Temporary DTCs or DTCs indicated?

YES - If DTC P2176 is indicated, check for poor connections or loose terminals at the throttle body and the throttle actuator control module, then clean the throttle body (see **THROTTLE BODY CLEANING**), and go to step 1. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC troubleshooting.

NO - Troubleshooting is complete.

DTC P2552: THROTTLE ACTUATOR CONTROL MODULE RELAY MALFUNCTION

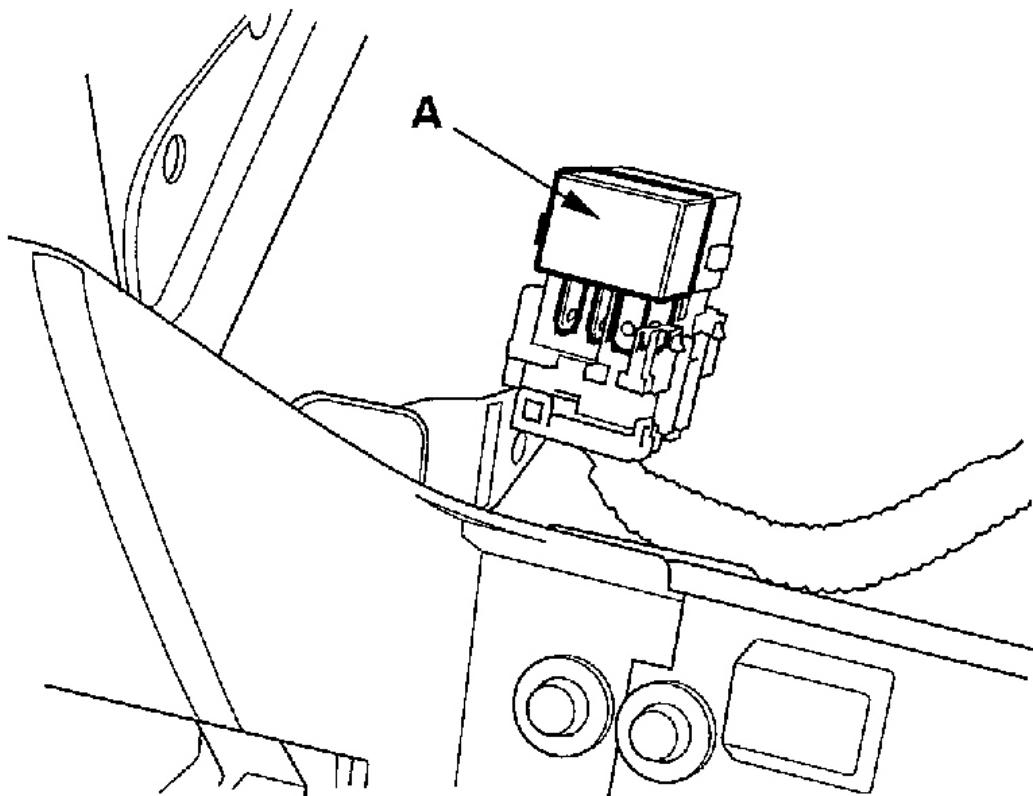
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Do the ETCS TEST in the INSPECTION MENU with the HDS.

Is the RELAY Circuit OK?

YES - Intermittent failure, 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 at the ECM/PCM.

NO - Go to step 4.

4. Turn the ignition switch OFF.
5. Jump the SCS line with the HDS.
6. Remove the throttle actuator control module relay (A).

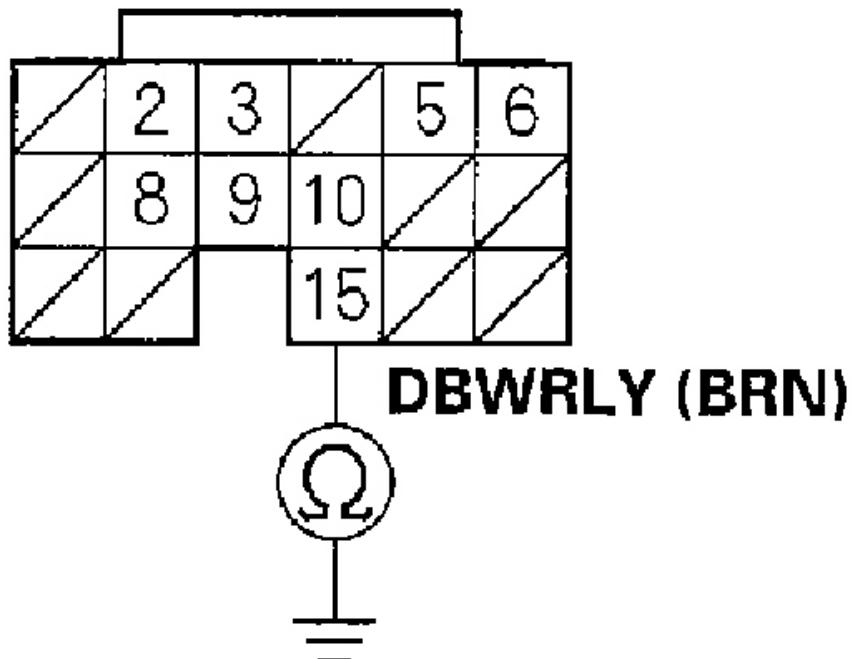


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Fig. 50: Removing The Throttle Actuator Control Module Relay

7. Disconnect ECM/PCM connector D (17P).
8. Check for continuity between ECM/PCM connector terminal D15 and body ground.

ECM/PCM CONNECTOR D (17P)



Wire side of female terminals

G01822240

Fig. 51: Checking For Continuity Between ECM/PCM Connector Terminal D15 And Body Ground

Is there continuity?

YES - Repair short in the wire between the throttle actuator control module relay and ECM/PCM (D15), then go to step 10.

NO - Go to step 9.

9. Test the throttle actuator control module relay (see RELAYS).

Is the relay OK?

YES - Go to step 17.

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

10. Reconnect ECM/PCM connector D (17P).
11. Turn the ignition switch ON (II).
12. Reset the ECM/PCM with the HDS.
13. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**).
14. Turn the ignition switch OFF.
15. Turn the ignition switch ON (II), and wait 10 seconds.
16. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Are any Temporary DTCs or DTCs indicated?

YES - If DTC P2552 is indicated, check for poor connections or loose terminals at the throttle actuator control module relay, the throttle actuator control module, and the ECM/PCM, then go to step 1. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC troubleshooting.

NO - Troubleshooting is complete.

17. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM (see **HOW TO SUBSTITUTE THE ECM/PCM**).
18. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Are any Temporary DTCs or DTCs indicated?

YES - If DTC P2552 is indicated, check for poor connections or loose terminals at the throttle actuator control module relay, the throttle actuator control module, and the ECM/PCM, then go to step 1. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC troubleshooting.

NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see **HOW TO REMOVE THE ECM/PCM FOR TESTING**).

DTC U0107: LOST COMMUNICATION WITH THROTTLE ACTUATOR CONTROL MODULE

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Is DTC U0107 indicated?

YES - Check for poor connections or loose terminals at the throttle body, the throttle actuator control, module and the ECM/PCM, then go to step 50 . If the connections are OK, go to step 6.

NO - Go to step 4.

4. Start the engine.
5. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Is DTC U0107 indicated?

YES - Go to step 46 .

NO - Intermittent failure, 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 ECM/PCM.

6. Clear the DTC with the HDS.
7. Turn the ignition switch OFF.
8. Disconnect the intake air duct from the throttle body.
9. Press the accelerator pedal to the floor.
10. Turn the ignition switch ON (II).
11. Check the throttle valve operation.

Does it open after the throttle valve closes?

YES - Go to step 12.

NO - Go to step 13.

12. Check the throttle valve again.

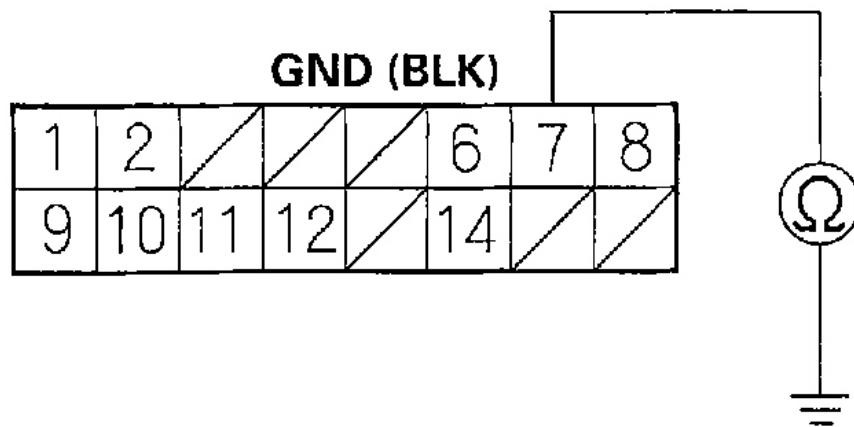
Does the throttle valve open fully?

YES - Go to step 40 .

NO - Go to step 34 .

13. Turn the ignition switch OFF.
14. Disconnect the throttle actuator control module 16P connector.
15. Check for continuity between throttle actuator control module 16P connector terminal No. 7 and body ground.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Wire side of female terminals

G01822241

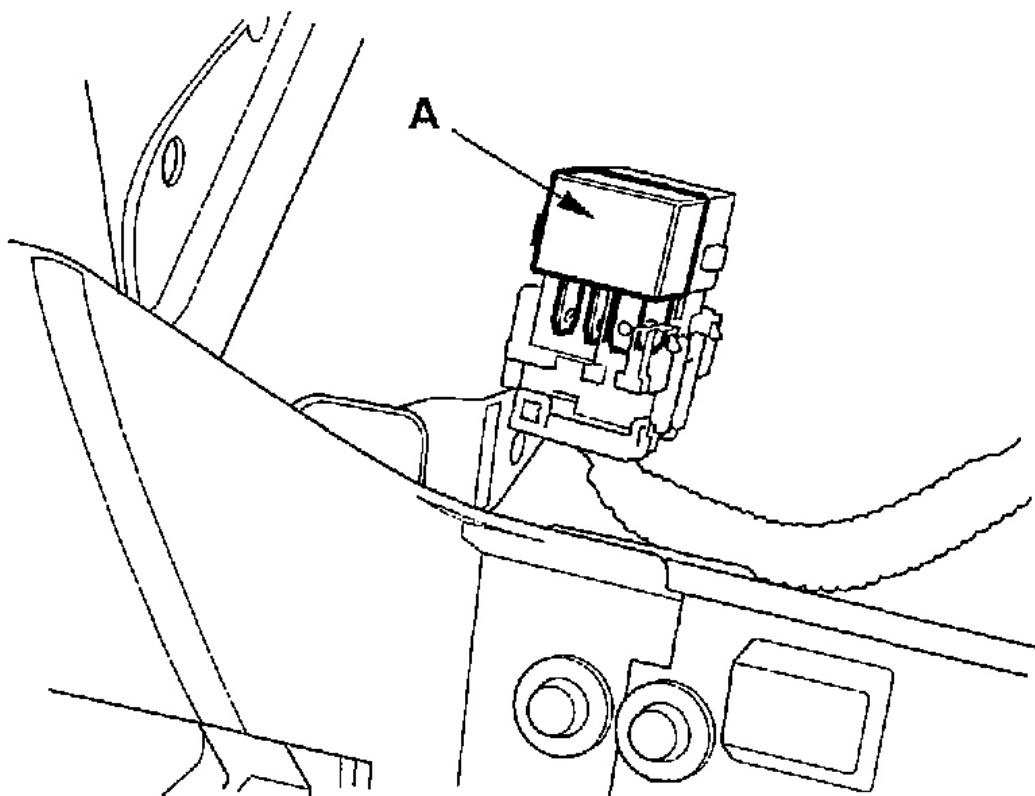
Fig. 52: Checking For Continuity Between Throttle Actuator Control Module 16P Connector Terminal No. 7 And Body Ground

Is there continuity?

YES - Go to step 16.

NO - Repair open in the wire between the throttle body, the throttle actuator control module, and G101, then go to step 50 .

16. Remove the throttle actuator control module relay (A).

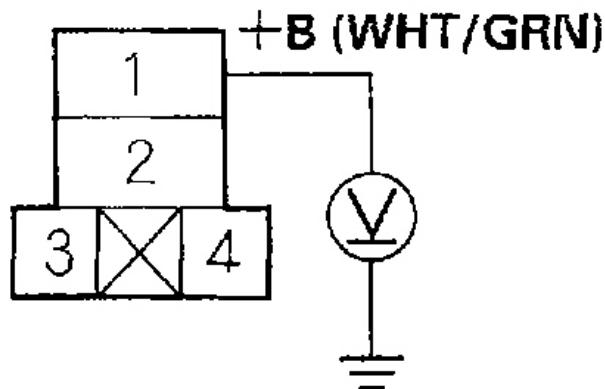


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Fig. 53: Removing The Throttle Actuator Control Module Relay

17. Measure voltage between throttle actuator control module relay terminal No. 2 and body ground.

THROTTLE ACTUATOR CONTROL RELAY 4P CONNECTOR



Wire side of female terminals

G01822243

Fig. 54: Measuring Voltage Between Throttle Actuator Control Module Relay Terminal No. 2 And Body Ground

Is there battery voltage?

YES - Go to step 19.

NO - Go to step 18.

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

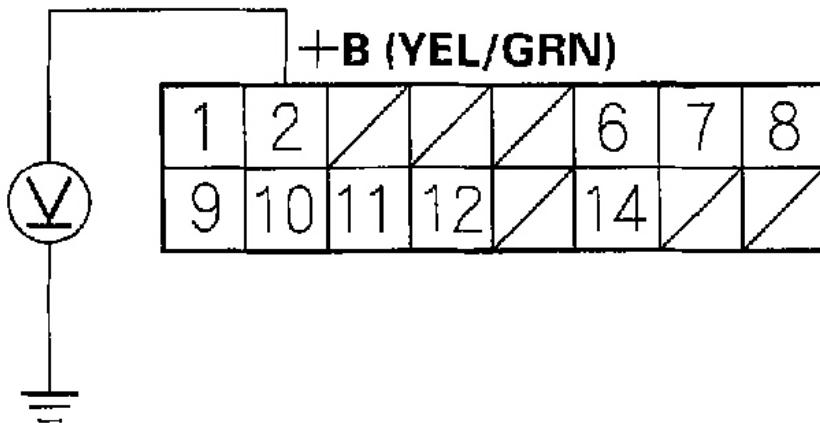
Is the fuse OK?

YES - Repair open in the wire between the throttle actuator control module relay (+ B line) and the No. 1 THROTTLE ACTUATOR CONTROL (15A) fuse, then go to step 50 .

NO - Repair short in the wire between the throttle actuator control module relay (+ B line) and the No. 1 THROTTLE ACTUATOR CONTROL (15A) fuse, then go to step 50 .

19. Install the throttle actuator control module relay.
20. Measure voltage between throttle actuator control module 16P connector terminal No. 2 and body ground.
21. Turn the ignition switch ON (II).

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Wire side of female terminals

G01822244

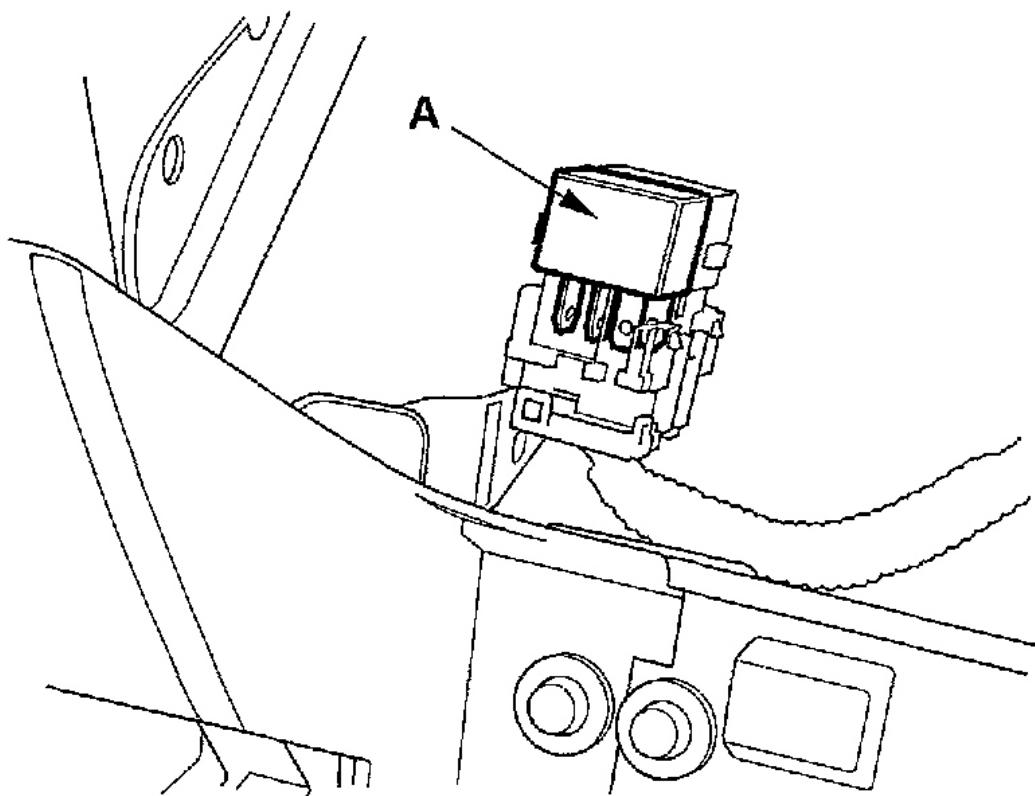
Fig. 55: Measuring Voltage Between Throttle Actuator Control Module 16P Connector Terminal No. 2 And Body Ground

Is there battery voltage for about 2 seconds?

YES - Substitute a known-good throttle actuator control module (see **THROTTLE ACTUATOR CONTROL MODULE REPLACEMENT**), then go to step 50 . and recheck. If DTC U0107 is not indicated, replace the original throttle actuator control module (see **THROTTLE ACTUATOR CONTROL MODULE REPLACEMENT**), then go to step 50 .

NO - Go to step 22.

22. Turn the ignition switch OFF.
23. Remove the throttle actuator control module relay (A).



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Fig. 56: Removing The Throttle Actuator Control Module Relay

24. Check the throttle actuator control module relay (see [RELAYS](#)).

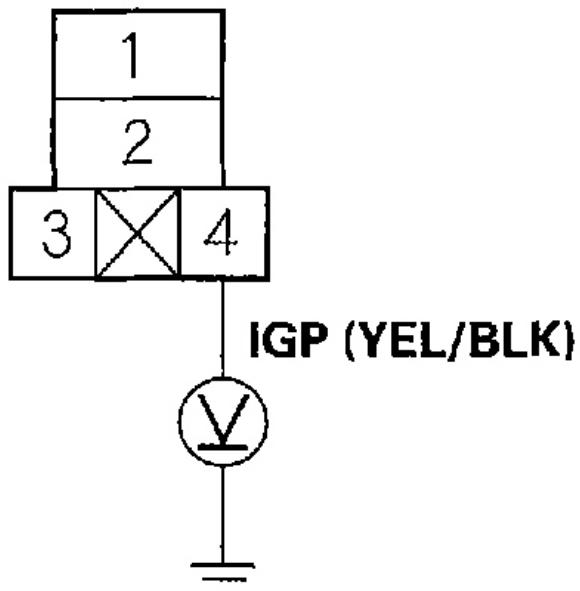
Is the throttle actuator control module relay OK?

YES - Go to step 25.

NO - Replace the throttle actuator control module relay, then go to step 50 .

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

THROTTLE ACTUATOR CONTROL RELAY 4P CONNECTOR



Wire side of female terminals

G01822246

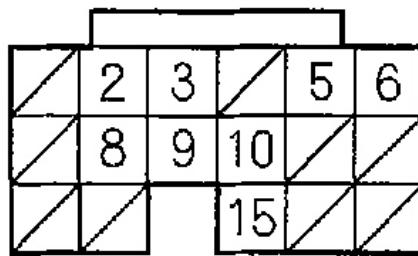
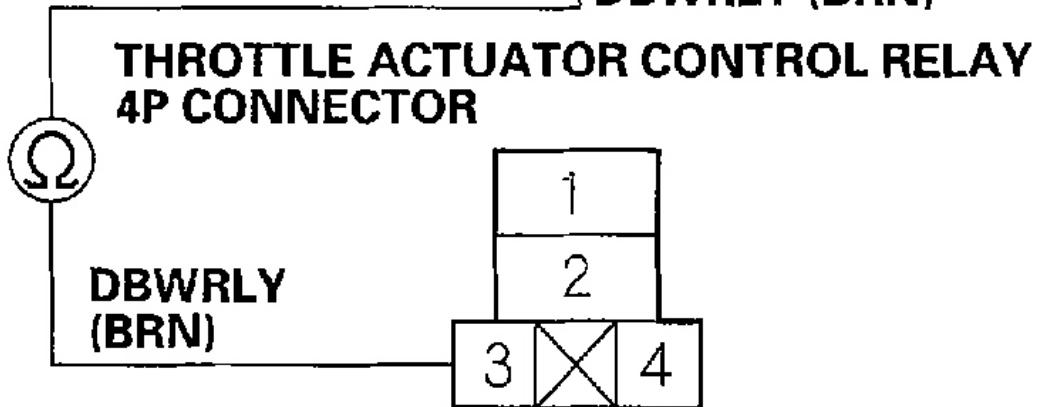
Fig. 57: Measuring Voltage Between Throttle Actuator Control Module Relay Terminal No. 4 And Body Ground

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 50 .

27. Turn the ignition switch OFF.
28. Jump the SCS line with the HDS.
29. Disconnect ECM/PCM connector D (17P).
30. Check for continuity between ECM/PCM connector terminal D15 and throttle actuator control module relay terminal No. 3.

ECM/PCM CONNECTOR D (17P)**DBWRLY (BRN)**

Wire side of female terminals

G01822247

Fig. 58: Checking For Continuity Between ECM/PCM Connector Terminal D15 And Throttle Actuator Control Module Relay Terminal No. 3

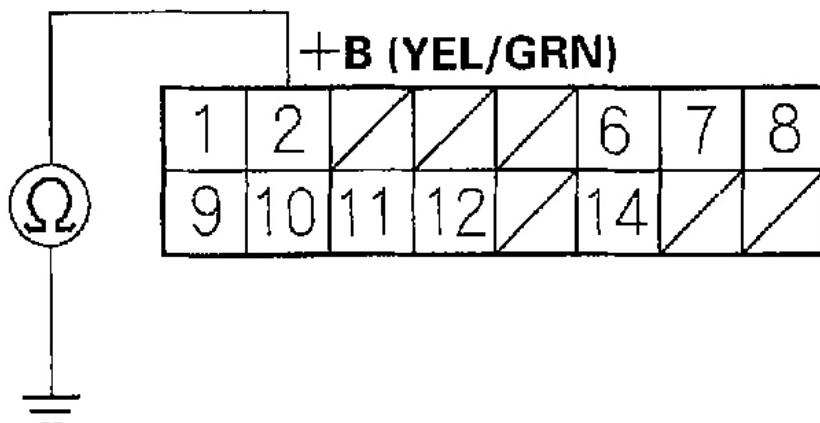
Is there continuity?

YES - Go to step 31.

NO - Repair open in the wire between the ECM/PCM (D15) and the throttle actuator control module relay, then go to step 50 .

31. Check for continuity between throttle actuator control module 16P connector terminal No. 2 and body ground.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Wire side of female terminals

G01822248

Fig. 59: Checking For Continuity Between Throttle Actuator Control Module 16P Connector Terminal No. 2 And Body Ground

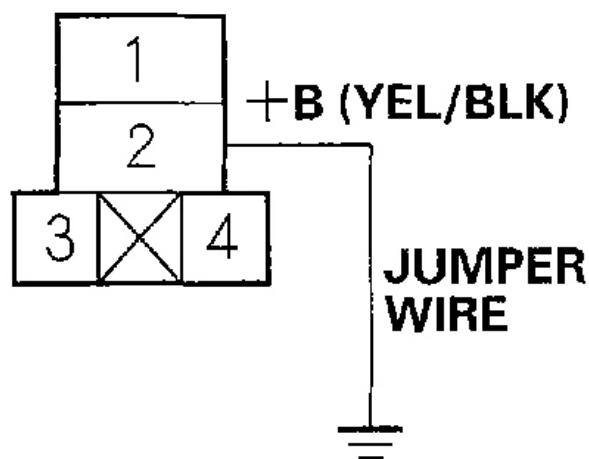
Is there continuity?

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 50.

NO - Go to step 32.

32. Connect throttle actuator control module relay terminal No. 2 to body ground with a jumper wire.

THROTTLE ACTUATOR CONTROL RELAY 4P CONNECTOR



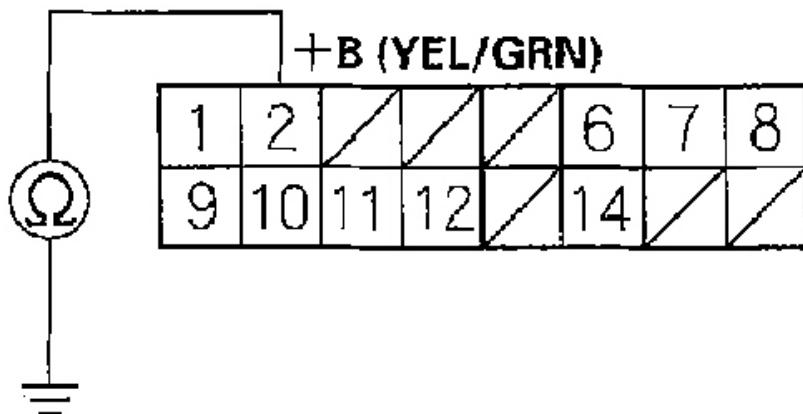
Wire side of female terminals

G01822249

Fig. 60: Connecting Throttle Actuator Control Module Relay Terminal No. 2 To Body Ground With A Jumper Wire

33. Check for continuity between throttle actuator control module 16P connector terminal No. 2 and body ground.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Wire side of female terminals

G01822250

Fig. 61: Checking For Continuity Between Throttle Actuator Control Module 16P Connector Terminal No. 2 And Body Ground

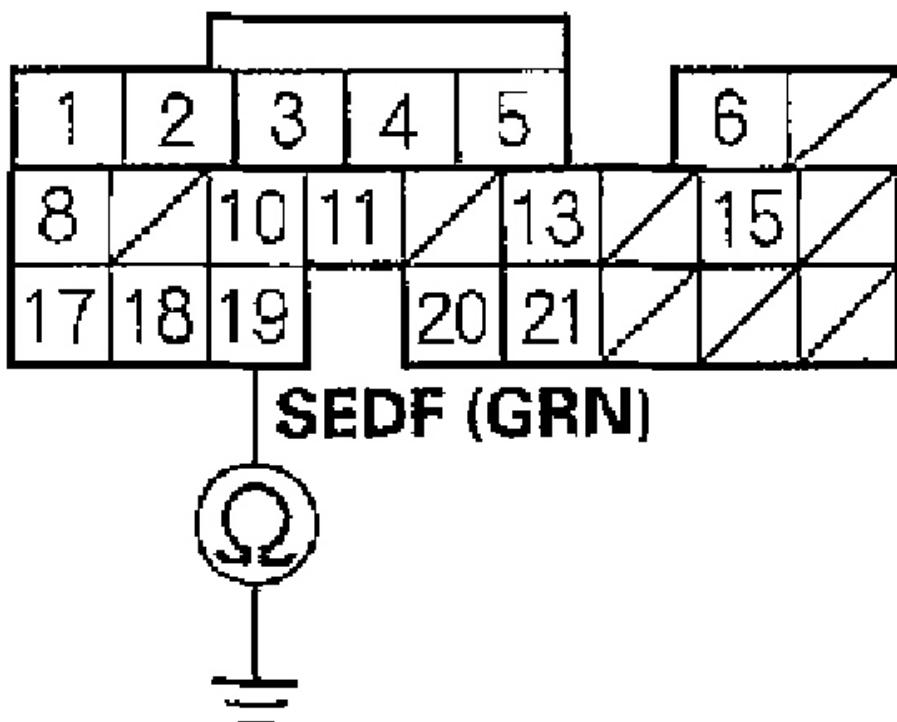
Is there continuity?

YES - Go to step 56.

NO - Repair open in the wire between the throttle actuator control module and the throttle actuator control module relay (+ B line), then go to step 50 .

34. Turn the ignition switch OFF.
35. Jump the SCS line with the HDS.
36. Disconnect the throttle actuator control module 16P connector.
37. Disconnect ECM/PCM connector B (24P).
38. Check for continuity between ECM/PCM connector terminal B19 and body ground.

ECM/PCM CONNECTOR B (24P)



Wire side of female terminals

G01822251

Fig. 62: Checking For Continuity Between ECM/PCM Connector Terminal B19 And Body Ground

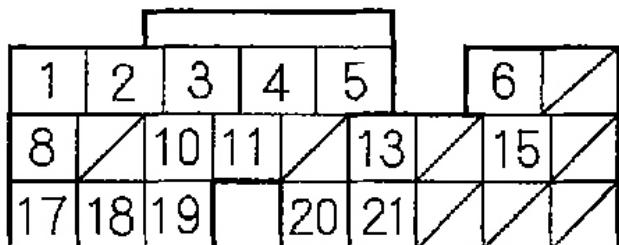
Is there continuity?

YES - Repair short in the wire between the ECM/PCM (B19) and the throttle actuator control module, then go to step 50 .

NO - Go to step 39.

39. Check for continuity between ECM/PCM connector terminal B19 and throttle actuator control module 16P connector terminals No. 6.

ECM/PCM CONNECTOR B (24P)



SEFD (GRN)



THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR

SEFD (GRN)



Wire side of female terminals

G01822252

Fig. 63: Checking For Continuity Between ECM/PCM Connector Terminal B19 And Throttle Actuator Control Module 16P Connector Terminals No. 6

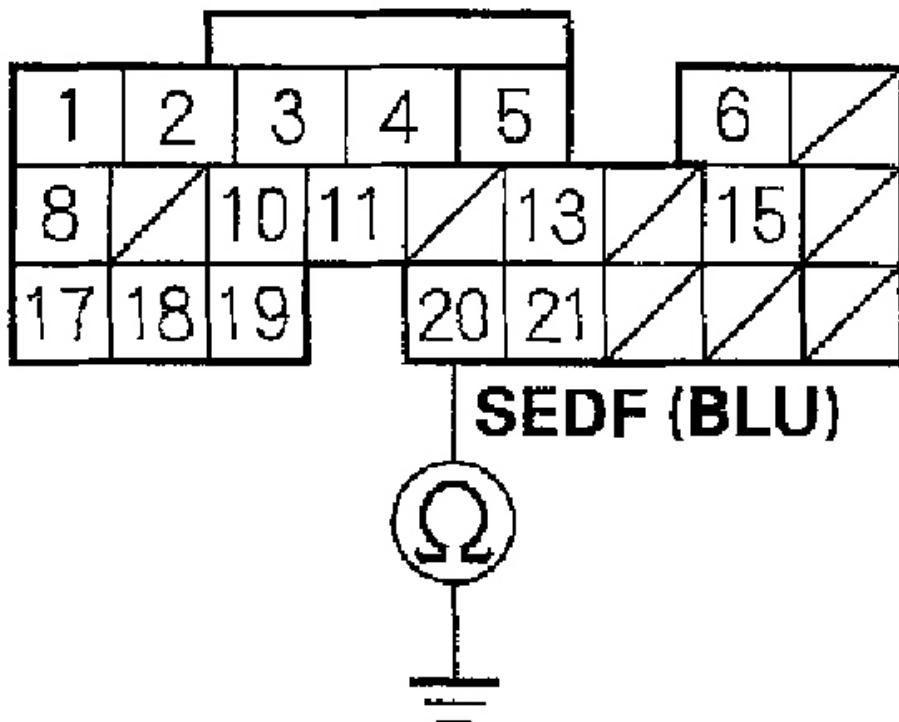
Is there continuity?

YES - Substitute known-good throttle actuator control module (see **THROTTLE ACTUATOR CONTROL MODULE REPLACEMENT**), then go to step 50 and recheck. If DTC U0107 is not indicated, replace the original throttle actuator control module (see **THROTTLE ACTUATOR CONTROL MODULE REPLACEMENT**), then go to step 50 . If DTC U0107 is indicated, go to step 56.

NO - Repair open in the wire between the ECM/PCM (B19) and the throttle actuator control module, then go to step 50 .

40. Turn the ignition switch OFF.
41. Jump the SCS line with the HDS.
42. Disconnect the throttle actuator control module 16P connector.
43. Disconnect ECM/PCM connector B (24P).
44. Check for continuity between ECM/PCM connector terminal B20 and body ground.

ECM/PCM CONNECTOR B (24P)



Wire side of female terminals

G01822253

Fig. 64: Checking For Continuity Between ECM/PCM Connector Terminal B20 And Body Ground

Is there continuity?

YES - Repair short in the wire between the ECM/PCM (B20) and the throttle actuator control module, then go to step 50.

NO - Go to step 45.

45. Check for continuity between ECM/PCM connector terminal B20 and throttle actuator control module 16P connector terminal No. 14.

ECM/PCM CONNECTOR B (24P)

1	2	3	4	5	6	
8		10	11		13	15
17	18	19		20	21	

SEDF (BLU)

 **THROTTLE ACTUATOR CONTROL MODULE
16P CONNECTOR**

1	2				6	7	8
9	10	11	12		14		

SEDF (BLU)

Wire side of female terminals

G01822254

Fig. 65: Checking For Continuity Between ECM/PCM Connector Terminal B20 And Throttle Actuator Control Module 16P Connector Terminal No. 14

Is there continuity?

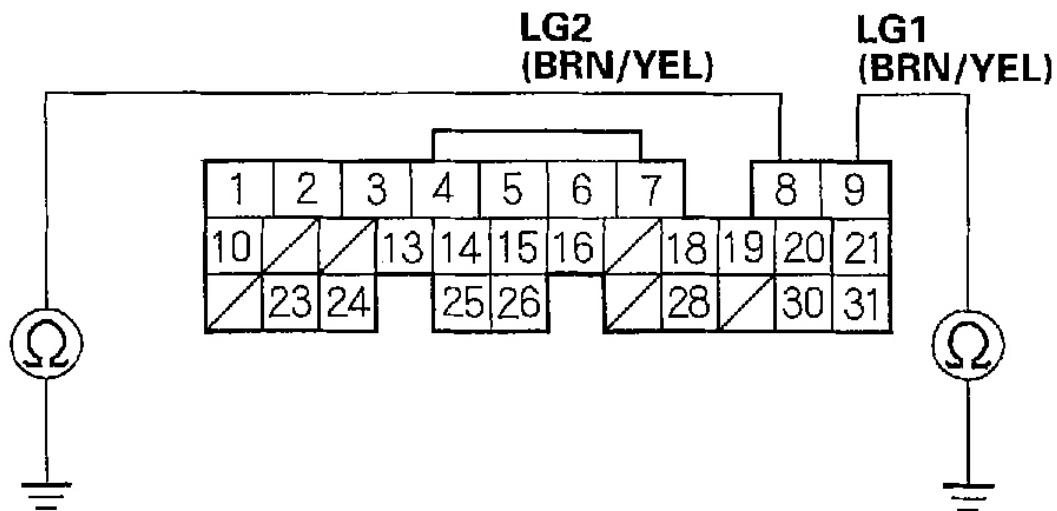
YES - Substitute known-good throttle actuator control module (see **THROTTLE ACTUATOR CONTROL MODULE REPLACEMENT**), then go to step 50 and recheck. If DTC U0107 is not

indicated, replace the original throttle actuator control module (see **THROTTLE ACTUATOR CONTROL MODULE REPLACEMENT**), then go to step 50. If DTC U0107 is indicated, go to step 56.

NO - Repair open in the wire between the ECM/PCM (B20) and the throttle actuator control module, then go to step 50.

46. Turn the ignition switch OFF.
47. Jump the SCS line with the HDS.
48. Disconnect ECM/PCM connector A (31P).
49. Check for continuity between body ground and ECM/PCM connector terminals A8 and A9 individually.

ECM/PCM CONNECTOR A (31P)



G01822255

Fig. 66: Checking For Continuity Between Body Ground And ECM/PCM Connector Terminals A8 And A9

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 ECM/PCM, then go to step 1.

NO - Repair open in the wire between the ECM/PCM (A8, A9) and G101, then go to step 50.

50. Turn the ignition switch OFF.
51. Reconnect all connectors.
52. Turn the ignition switch ON (II).
53. Reset the ECM/PCM with the HDS.
54. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**).
55. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Are any Temporary DTCs or DTCs indicated?

YES - If DTC U0107 is indicated, check for poor connections or loose terminals at the throttle body, the throttle actuator control module, relay, the throttle actuator control module, and the ECM/PCM, then go to step 1. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC troubleshooting.

NO - Troubleshooting is complete.

56. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM (see **HOW TO SUBSTITUTE THE ECM/PCM**).
57. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

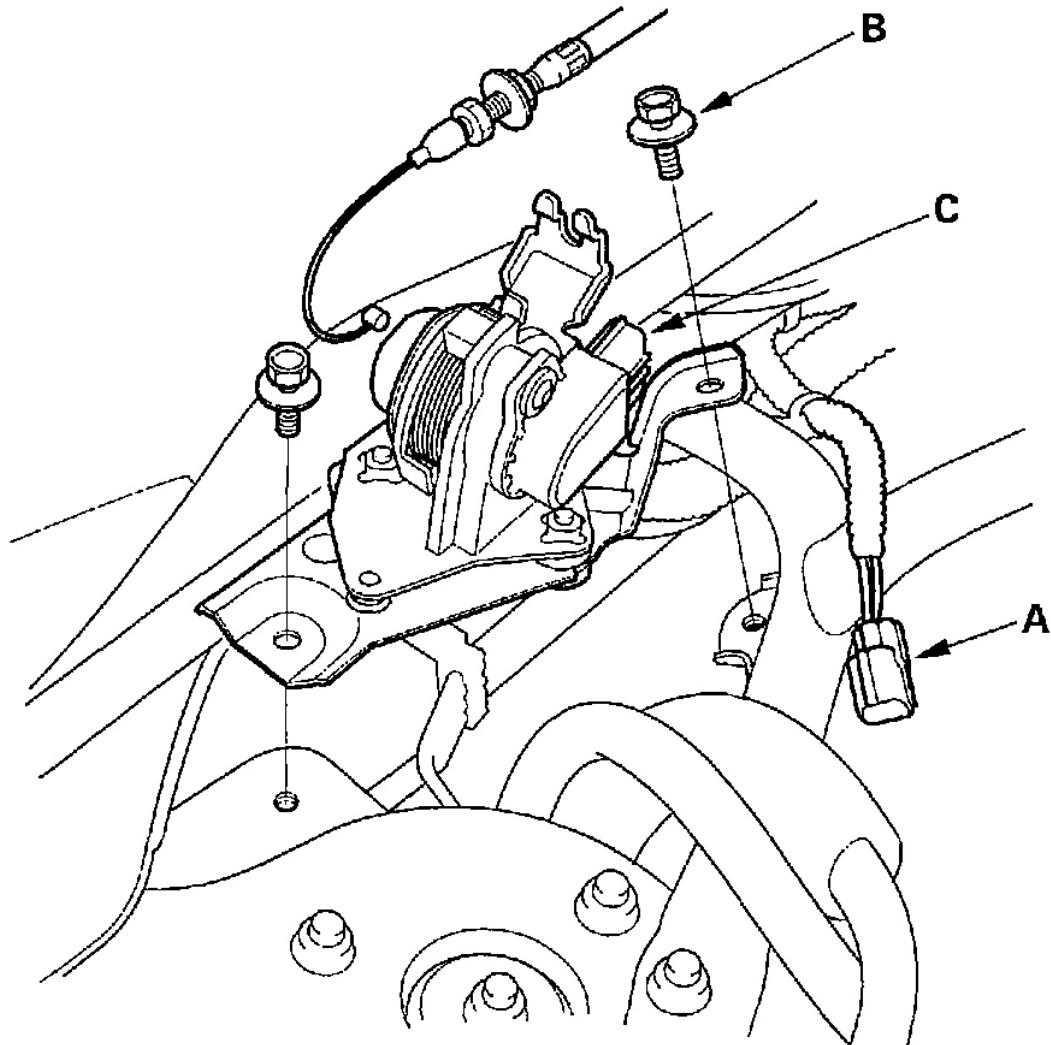
Are any Temporary DTCs or DTCs indicated?

YES - If DTC U0107 is indicated, check for poor connections or loose terminals at the throttle body, the throttle actuator control module, relay, the throttle actuator control module, and the ECM/PCM, then go to step 1. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC troubleshooting.

NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see **HOW TO REMOVE THE ECM/PCM FOR TESTING**).

APP SENSOR REPLACEMENT

1. Remove the throttle cable (see **THROTTLE CABLE REMOVAL/INSTALLATION**).
2. Disconnect the accelerator pedal position (APP) sensor 6P connector (A).



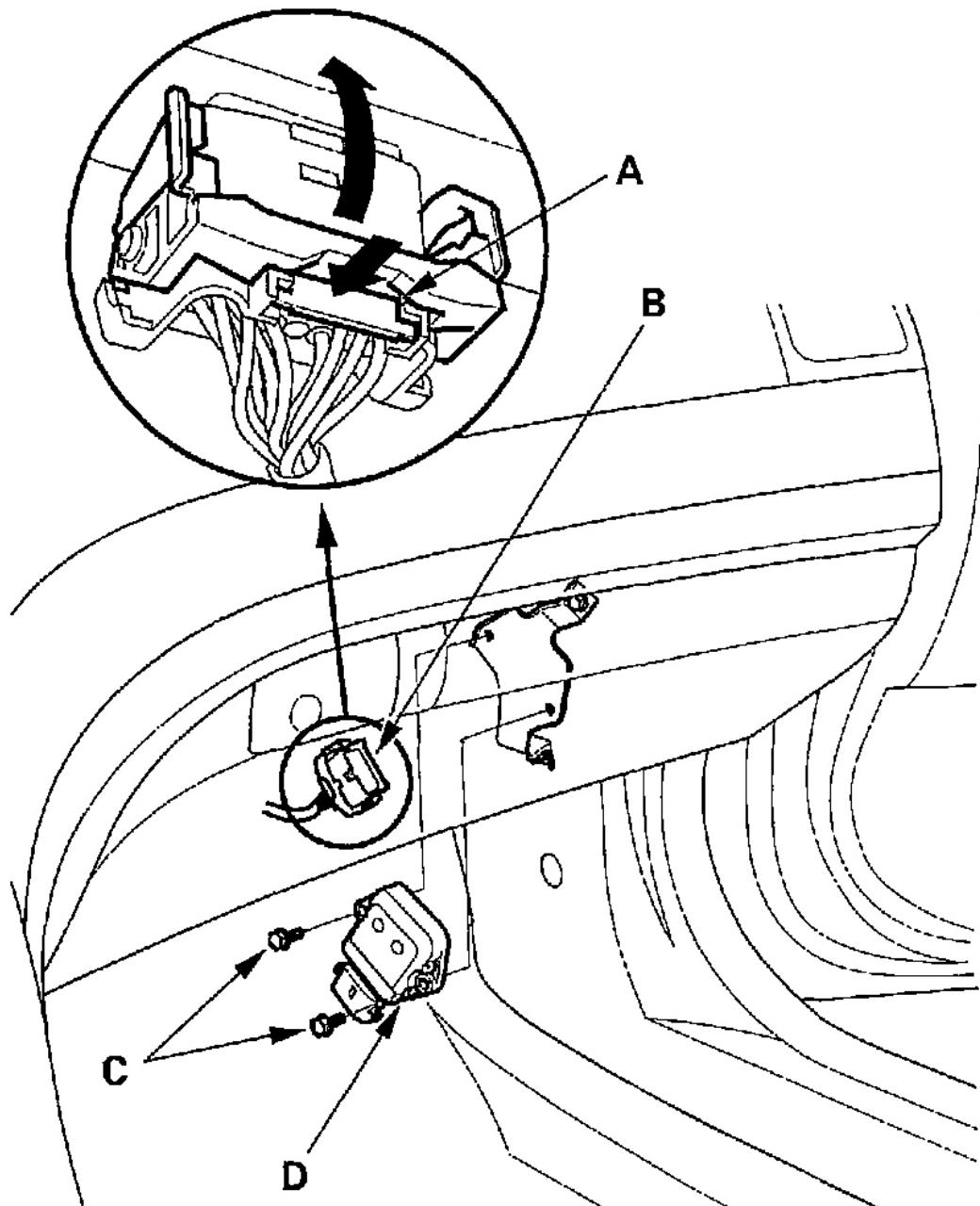
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Fig. 67: Removing APP Sensor

3. Remove the bolts (B), and the APP sensor (C).
4. Install the sensor in the reverse order of removal.

THROTTLE ACTUATOR CONTROL MODULE REPLACEMENT

1. Remove the right kick panel (see **TRIM REMOVAL/INSTALLATION - DOOR AREA**).
2. Push the tab (A) and disconnect the throttle actuator control module 16P connector (B).



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Fig. 68: Removing Throttle Actuator Control Module

3. Remove the bolts (C), and the throttle actuator control module (D).
4. Install the control module in the reverse order of removal.