

2007 Honda Element EX

2007-2008 ENGINE PERFORMANCE VTEC/VTC - Element

2007-2008 ENGINE PERFORMANCE

VTEC/VTC - Element

COMPONENT LOCATION INDEX

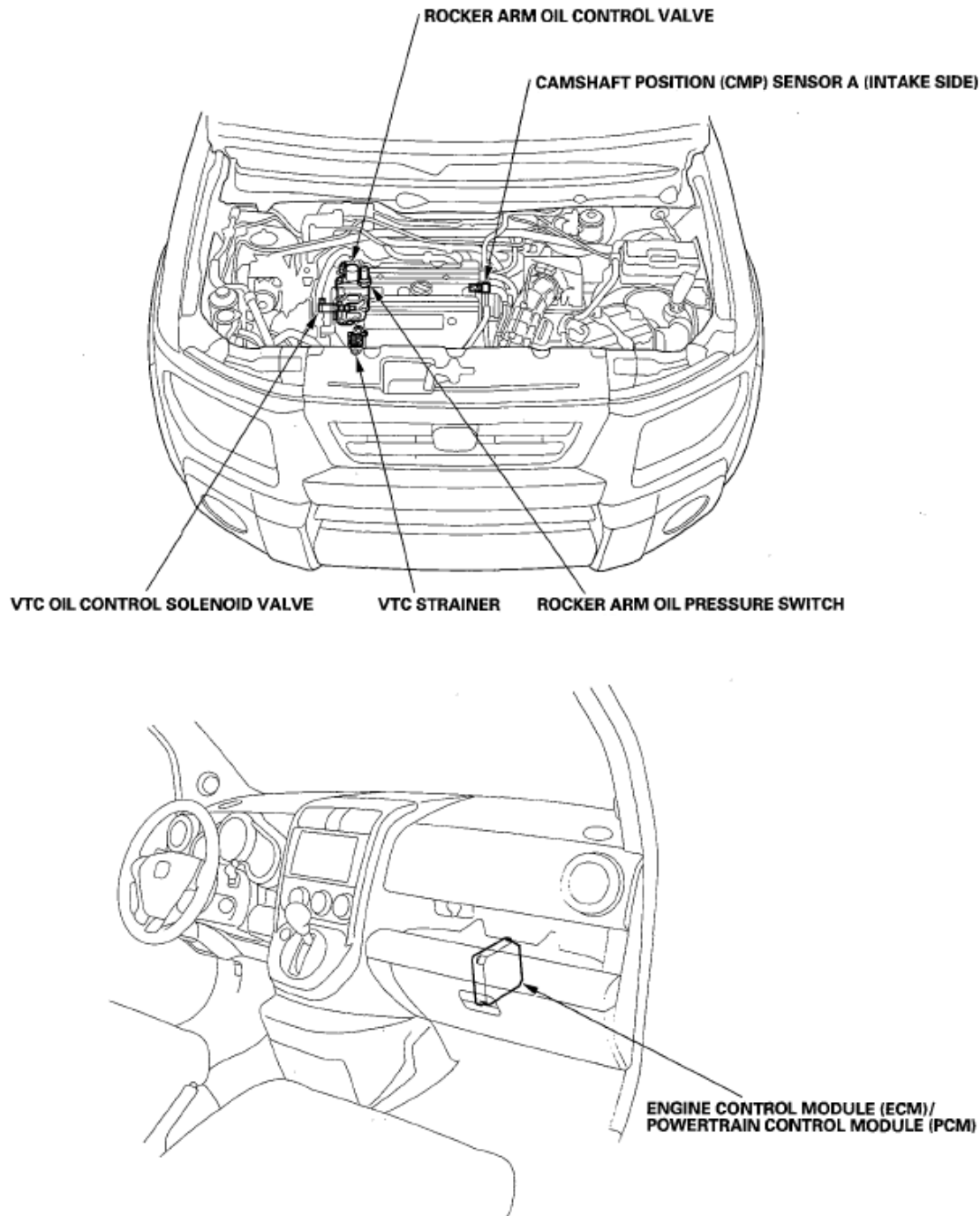


Fig. 1: Identifying VTEC/VTC Component Location

Courtesy of AMERICAN HONDA MOTOR CO., INC.

DTC TROUBLESHOOTING

DTC P0010: VTC OIL CONTROL SOLENOID VALVE MALFUNCTION

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

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.
4. Do the VTC TEST in the INSPECTION MENU with the HDS.
5. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0010 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 VTC oil control solenoid valve and the ECM/PCM.

6. Turn the ignition switch OFF.
7. Disconnect the VTC oil control solenoid valve 2P connector.
8. At the solenoid valve side, measure resistance between VTC oil control solenoid valve 2P connector terminals No. 1 and No. 2.

VTC OIL CONTROL SOLENOID VALVE 2P CONNECTOR



Terminal side of male terminals

Fig. 2: Measuring Resistance Between VTC Oil Control Solenoid Valve 2P Connector Terminals No. 1 And 2

Courtesy of AMERICAN HONDA MOTOR CO., INC.

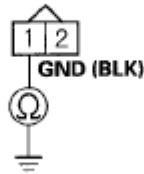
Is there 6.75-8.25 ohms, at room temperature?

YES -Go to step 9.

NO -Go to step 15.

9. Check for continuity between VTC oil control solenoid valve 2P connector terminal No. 1 and body ground.

VTC OIL CONTROL SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals

Fig. 3: Checking Continuity Between VTC Oil Control Solenoid Valve 2P Connector Terminal No. 1 And Body Ground

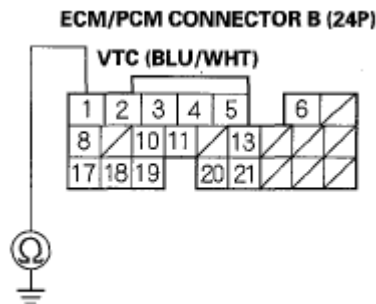
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Is there continuity?

YES -Go to step 10.

NO -Repair open in the wire between the VTC oil control solenoid valve and G101, then go to step 16.

10. Jump the SCS line with the HDS.
11. Disconnect ECM/PCM connector B (24P).
12. Check for continuity between ECM/PCM connector terminal B1 and body ground.



Wire side of female terminals

Fig. 4: Checking Continuity Between ECM/PCM Connector Terminal B1 And Body Ground

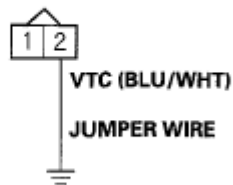
Is there continuity?

YES -Repair short in the wire between the ECM/PCM (B1) and the VTC oil control solenoid valve, then go to step 16.

NO -Go to step 13.

- Connect VTC oil control solenoid valve 2P connector terminal No. 2 to body ground with a jumper wire.

VTC OIL CONTROL SOLENOID VALVE 2P CONNECTOR

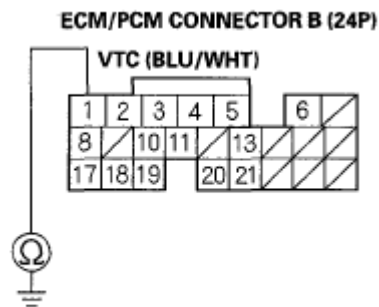


Wire side of female terminals

Fig. 5: Connecting VTC Oil Control Solenoid Valve 2P Connector Terminal No. 2 To Body Ground With Jumper Wire

Courtesy of AMERICAN HONDA MOTOR CO., INC.

- Check for continuity between ECM/PCM connector terminal B1 and body ground.



Wire side of female terminals

Fig. 6: Checking Continuity Between ECM/PCM Connector Terminal B1 And Body Ground

Courtesy of AMERICAN HONDA MOTOR CO., INC.

Is there continuity?

YES -Go to step 23.

NO -Repair open in the wire between the ECM/PCM (B1) and the VTC oil control solenoid valve, then go to step 16.

- Replace the VTC oil control solenoid valve (see **VTC OIL CONTROL SOLENOID VALVE REMOVAL/TEST/INSTALLATION**).
- Reconnect all connectors.

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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. Do the VTC TEST in the INSPECTION MENU with the HDS.
21. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0010 indicated?

YES -Check for poor connections or loose terminals at the VTC oil control solenoid valve and the ECM/PCM, then go to step 1.

NO -Go to step 22.

22. Monitor the OBD STATUS for DTC P0010 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES -Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 21, go to the indicated DTCs troubleshooting.

NO -If the screen indicates FAILED, check for poor connections or loose terminals at the VTC oil control solenoid valve and the ECM/PCM, then go to step 1. If the screen indicates NOT COMPLETED, go to step 20.

23. Reconnect all connectors.
24. Update the ECM/PCM if it does not have the latest software (see **UPDATING THE ECM/PCM**), or substitute a known-good ECM/PCM (see **SUBSTITUTING THE ECM/PCM**).
25. Do the VTC TEST in the INSPECTION MENU with the HDS.
26. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0010 indicated?

YES -Check for poor connections or loose terminals at the VTC oil control solenoid valve and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see **SUBSTITUTING THE ECM/PCM**), then go to step 25. If the ECM/PCM was substituted, go to step 1.

NO -Go to step 27.

27. Monitor the OBD STATUS for DTC P0010 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES -If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see **ECM/PCM REPLACEMENT**). If any other Temporary DTCs or DTCs were indicated in step 26, go to the indicated DTCs troubleshooting.

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NO -If the screen indicates **FAILED**, check for poor connections or loose terminals at the VTC oil control valve and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see **SUBSTITUTING THE ECM/PCM**), then go to step 25. If the ECM/PCM was substituted, go to step 1. If the screen indicates **NOT COMPLETED**, go to step 25.

DTC P0011: VTC SYSTEM MALFUNCTION

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

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Watch the low oil pressure indicator with the engine running.

Is the low oil pressure indicator on?

YES -Check the oil pressure (see **OIL PRESSURE TEST**), make any needed repairs, then go to step 15.

NO -Go to step 5.

5. Do the VTC TEST in the INSPECTION MENU with the HDS.

Is the result OK?

YES -Go to step 6.

NO -Go to step 9.

6. Test-drive at a steady speed between 19-38 mph (30-60 km/h) for 10 minutes.
7. Check the VTC STATUS in the DATA LIST with the HDS.

Does it indicate ON?

YES -Go to step 8.

NO -Go to step 6 and recheck.

8. Monitor the OBD STATUS for DTC P0011 in the DTCs MENU with the HDS.

Does the screen indicate FAILED?

YES -Go to step 9.

NO -If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the VTC oil control solenoid and the ECM/PCM. If the screen indicates NOT COMPLETED; go to step 5 and recheck.

9. Turn the ignition switch OFF.
10. Remove the power steering pump and the auto-tensioner (see **DRIVE BELT AUTO-TENSIONER REPLACEMENT**).
11. Remove the VTC strainer (A), and check it for clogging.

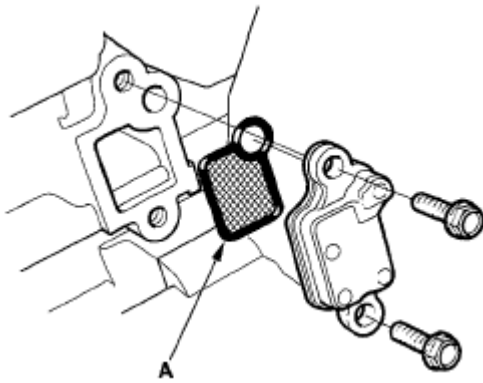


Fig. 7: Identifying VTC Strainer

Courtesy of AMERICAN HONDA MOTOR CO., INC.

Is the strainer OK?

YES -Go to step 12.

NO -Clean the VTC strainer, replace the engine oil filter and the engine oil, then go to step 14.

12. Test the VTC oil control solenoid valve (see **VTC OIL CONTROL SOLENOID VALVE REMOVAL/TEST/INSTALLATION**).

Is the VTC oil control solenoid valve OK?

YES -Go to step 13.

NO -Replace the VTC oil control solenoid valve (see **VTC OIL CONTROL SOLENOID VALVE REMOVAL/TEST/INSTALLATION**), then go to step 14.

13. Inspect the VTC actuator (see **VTC ACTUATOR INSPECTION**).

Is the VTC actuator OK?

YES -Go to step 14.

NO -Replace the VTC actuator (see **VTC ACTUATOR, EXHAUST CAMSHAFT SPROCKET**

REMOVAL AND INSTALLATION), then go to step 14.

14. Turn the ignition switch ON (II).
15. Reset the ECM/PCM with the HDS.
16. Clear the CKP pattern with the HDS.
17. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**).
18. Do the CKP pattern learn procedure (see **CRANK (CKP) PATTERN CLEAR/CRANK (CKP) PATTERN LEARN**).
19. Do the VTC TEST in the INSPECTION MENU with the HDS.
20. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0011 indicated?

YES -Check for poor connections or loose terminals at the VTC oil control solenoid valve and the ECM/PCM, then go to step 1.

NO -Go to step 21.

21. Monitor the OBD STATUS for DTC P0011 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES -Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 20, go to the indicated DTCs troubleshooting.

NO -If the screen indicates FAILED, check for poor connections or loose terminals at the VTC oil control solenoid valve and the ECM/PCM, then go to step 1. If the screen indicates NOT COMPLETED, go to step 19.

DTC P0340: CMP SENSOR A NO SIGNAL

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

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

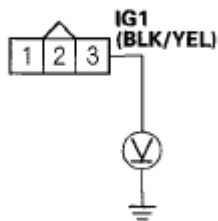
Is DTC P0340 indicated?

YES -Go to step 5.

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

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

CMP SENSOR A 3P CONNECTOR



Wire side of female terminals

Fig. 8: Measuring Voltage Between CMP Sensor A 3P Connector Terminal No. 3 And Body Ground

Courtesy of AMERICAN HONDA MOTOR CO., INC.

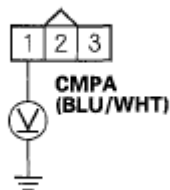
Is there battery voltage?

YES -Go to step 9.

NO -Repair open in the wire between the No. 4 ACG (10 A) fuse in the under-dash fuse/relay box and CMP sensor A, then go to step 18.

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

CMP SENSOR A 3P CONNECTOR



Wire side of female terminals

Fig. 9: Measuring Voltage Between CMP Sensor A 3P Connector Terminal No. 1 And Body Ground

Courtesy of AMERICAN HONDA MOTOR CO., INC.

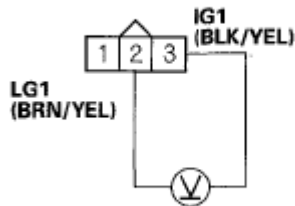
Is there about 5 V?

YES -Go to step 10.

NO -Go to step 11.

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

CMP SENSOR A 3P CONNECTOR



Wire side of female terminals

Fig. 10: Measuring Voltage Between CMP Sensor A 3P Connector Terminals No. 2 And No. 3
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

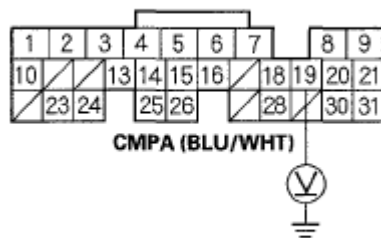
Is there battery voltage?

YES -Go to step 16.

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

11. Measure voltage between ECM/PCM connector terminal A19 and body ground.

ECM/PCM CONNECTOR A (31P)



Wire side of female terminals

Fig. 11: Measuring Voltage Between ECM/PCM Connector Terminal A19 And Body Ground
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

Is there about 5 V?

YES -Repair open in the wire between the ECM/PCM (A19) and CMP sensor A, then go to step 18.

NO -Go to step 12.

12. Turn the ignition switch OFF.
13. Jump the SCS line with the HDS.
14. Disconnect ECM/PCM connector A (31P).
15. Check for continuity between ECM/PCM connector terminal A19 and body ground.

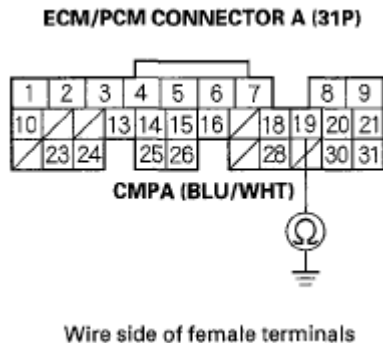


Fig. 12: Checking Continuity Between ECM/PCM Connector Terminal A19 And Body Ground
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Is there continuity?

YES -Repair short in the wire between the ECM/PCM (A19) and CMP sensor A, then go to step 18.

NO -Go to step 24.

16. Turn the ignition switch OFF.
17. Replace CMP sensor A (see **CMP SENSOR A REPLACEMENT**).
18. Reconnect all connectors.
19. Turn the ignition switch ON (II).
20. Reset the ECM/PCM with the HDS.
21. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**).
22. Start the engine.
23. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0340 indicated?

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

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

24. Reconnect all connectors.

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25. Update the ECM/PCM if it does not have the latest software (see **UPDATING THE ECM/PCM**), or substitute a known-good ECM/PCM (see **SUBSTITUTING THE ECM/PCM**).
26. Start the engine, and let it idle.
27. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0340 indicated?

YES -Check for poor connections or loose terminals at CMP sensor A and the ECM/PCM, then go to step 1. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see **SUBSTITUTING THE ECM/PCM**), then go to step 26. If the ECM/PCM was substituted, go to step 1.

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

DTC P0341: CMP SENSOR A AND CKP SENSOR INCORRECT PHASE DETECTED

NOTE:

- **Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see **GENERAL TROUBLESHOOTING INFORMATION**).**
- **If DTC P1009 is stored along with P0341, troubleshoot DTC P1009 first, then recheck for DTC P0341.**

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Test-drive at a steady speed between 19-38 mph (30-60 km/h) for 10 minutes.
4. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0341 indicated?

YES -Go to step 9.

NO -Go to step 5.

5. Do the VTC TEST in the INSPECTION MENU with the HDS.

Is the result OK?

YES -Go to step 6.

NO -Go to step 9.

6. Test-drive at a steady speed between 19-38 mph (30-60 km/h) for 10 minutes.
7. Check the VTC STATUS in the DATA LIST with the HDS.

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Does it indicate ON?

YES -Go to step 8.

NO -Go to step 6 and recheck.

8. Monitor the OBD STATUS for DTC P0341 in the DTCs MENU with the HDS.

Does the screen indicate FAILED?

YES -Go to step 9.

NO -If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the VTC oil control solenoid valve and the ECM/PCM. If the screen indicates NOT COMPLETED, go to step 6 and recheck.

9. Turn the ignition switch OFF.
10. Test the VTC oil control solenoid valve (see VTC OIL CONTROL SOLENOID VALVE REMOVAL/TEST/INSTALLATION).

Is the VTC oil control solenoid valve OK?

YES -Go to step 11.

NO -Replace the VTC oil control solenoid valve (see VTC OIL CONTROL SOLENOID VALVE REMOVAL/TEST/INSTALLATION), then go to step 14.

11. Check the camshaft timing (see step 1 in CAM CHAIN INSTALLATION).

Is the camshaft timing OK?

YES -Go to step 12.

NO -Replace the auto-tensioner (see AUTO-TENSIONER REMOVAL AND INSTALLATION), and reset the camshaft timing (see CAM CHAIN INSTALLATION), then go to step 14.

12. Check the cam chain for damage or looseness (see CAM CHAIN INSPECTION).

Is the cam chain damaged?

YES -Replace the cam chain and auto-tensioner (see CAM CHAIN REMOVAL), then go to step 14.

NO -Go to step 13.

13. Inspect the VTC actuator (see VTC ACTUATOR INSPECTION).

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Is the actuator OK?

YES -Go to step 14.

NO -Replace the VTC actuator (see **VTC ACTUATOR, EXHAUST CAMSHAFT SPROCKET REMOVAL AND INSTALLATION**), then go to step 14.

14. Turn the ignition switch ON (II).
15. Reset the ECM/PCM with the HDS.
16. Clear the CKP pattern with the HDS.
17. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**).
18. Do the CKP pattern learn procedure (see **CRANK (CKP) PATTERN CLEAR/CRANK (CKP) PATTERN LEARN**).
19. Test-drive at a steady speed between 19-38 mph (30-60 km/h) for 10 minutes.
20. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0341 indicated?

YES -Check for poor connections or loose terminals at the VTC oil control solenoid valve and the ECM/PCM, then go to step 1.

NO -Go to step 21.

21. Monitor the OBD STATUS for DTC P0341 in the DTCs MENU with the HDS.

Does the screen Indicate PASSED?

YES -Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 20, go to the indicated DTCs troubleshooting.

NO -If the screen indicates FAILED, check for poor connections or loose terminals at the VTC oil control solenoid valve and the ECM/PCM, then go to step 1. If the screen indicates NOT COMPLETED, go to step 19.

DTC P0344: CMP SENSOR A INTERMITTENT INTERRUPTION

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

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle 10 seconds.
4. Check the CMP A NOISE in the DATA LIST with the HDS.

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Are 0 counts 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
6. Check the CMP NOISE A count in the DATA LIST with the HDS.

Are 0 counts indicated?

YES -Go to step 7.

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

7. Check for poor or loose connections and terminals at these locations:
 - CMP sensor A
 - ECM/PCM
 - Engine ground
 - Body ground

Are the connections and terminals OK?

YES -Go to step 8.

NO -Repair the connectors or terminals, then go to step 11.

8. Check CMP pulse plate A for damage (see **CMP PULSE PLATE A REPLACEMENT**).

Is the pulse plate damaged?

YES -Replace CMP pulse plate A (see **CMP PULSE PLATE A REPLACEMENT**), then go to step 11.

NO -Go to step 9.

9. Turn the ignition switch OFF.
10. Replace CMP sensor A (see **CMP SENSOR A REPLACEMENT**).
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**).

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14. Start the engine, and let it idle 10 seconds.
15. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0344 indicated?

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

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

DTC P1009: VTC ADVANCE MALFUNCTION

NOTE:

- **Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see GENERAL TROUBLESHOOTING INFORMATION).**
- **If DTC P0341 is stored at the same time as DTC P1009, troubleshoot DTC P1009 first, then recheck for DTC P0341.**

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

Is DTC P1009 indicated?

YES -Go to step 5.

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

5. Turn the ignition switch OFF.
6. Remove the power steering pump and auto-tensioner (see DRIVE BELT AUTO-TENSIONER REPLACEMENT).
7. Remove the VTC strainer (A), and check it for clogging.

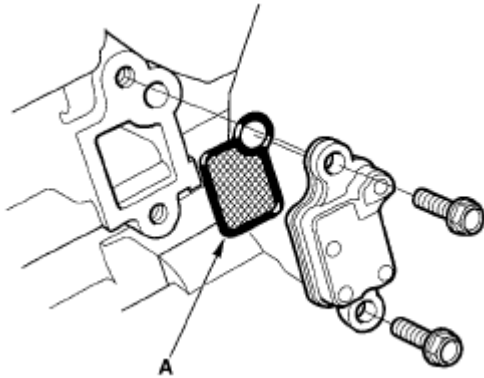


Fig. 13: Identifying VTC Strainer

Courtesy of AMERICAN HONDA MOTOR CO., INC.

Is the strainer OK?

YES -Go to step 8.

NO -Clean the VTC strainer, replace the engine oil filter and the engine oil, then go to step 10.

8. Test the VTC oil control solenoid valve (see **VTC OIL CONTROL SOLENOID VALVE REMOVAL/TEST/INSTALLATION**).

Is the valve OK?

YES -Go to step 9.

NO -Replace the VTC oil control solenoid valve (see **VTC OIL CONTROL SOLENOID VALVE REMOVAL/TEST/INSTALLATION**), then go to step 10.

9. Inspect the VTC actuator (see **VTC ACTUATOR INSPECTION**).

Is the actuator OK?

YES -Check engine oil pressure (see **OIL PRESSURE TEST**), make any needed repairs, then go to step 10.

NO -Replace the VTC actuator (see **VTC ACTUATOR, EXHAUST CAMSHAFT SPROCKET REMOVAL AND INSTALLATION**), then go to step 10.

10. Turn the ignition switch ON (II).
11. Reset the ECM/PCM with the HDS (see **IF THE MIL DID NOT STAY ON**).
12. Clear the CKP pattern with the HDS (see **CRANK (CKP) PATTERN CLEAR/CRANK (CKP) PATTERN LEARN**).
13. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**).

14. Do the CKP pattern learn procedure (see **CRANK (CKP) PATTERN CLEAR/CRANK (CKP) PATTERN LEARN**).
15. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P1009 indicated?

YES -Check the oil passages for the VTC system, then go to step 1.

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

DTC P2646: ROCKER ARM OIL PRESSURE SWITCH CIRCUIT LOW VOLTAGE

Special Tools Required

- Pressure gauge adapter 07NAJ-P07010A
- A/T low pressure gauge w/panel 07406-0070301
- A/T pressure hose 07406-0020201
- A/T pressure hose, 2,210 mm 07MAJ-PY4011A
- A/T pressure adapter 07MAJ-PY40120
- Oil pressure hose 07ZAJ-S5AA200

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

1. Check the engine oil level.

Is the engine oil level OK?

YES -Go to step 2.

NO -Adjust the engine oil to the proper level, then go to step 20.

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

Is the result OK?

YES -Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the rocker arm oil pressure switch, the rocker arm oil control solenoid, and the ECM/PCM.

NO -Go to step 5.

5. Turn the ignition switch OFF.
6. Disconnect the rocker arm oil pressure switch 2P connector.
7. Turn the ignition switch ON (II).
8. Check the VTEC PRES SW in the DATA LIST with the HDS.

Is switch ON indicated?

YES -Go to step 15.

NO -Go to step 9.

9. Turn the ignition switch OFF.
10. Remove the rocker arm oil pressure switch (A) and install the special tools as shown, then attach the rocker arm oil pressure switch on the oil pressure gauge adapter (B).

NOTE: Install the parts in the reverse order of removal with a new O-ring.

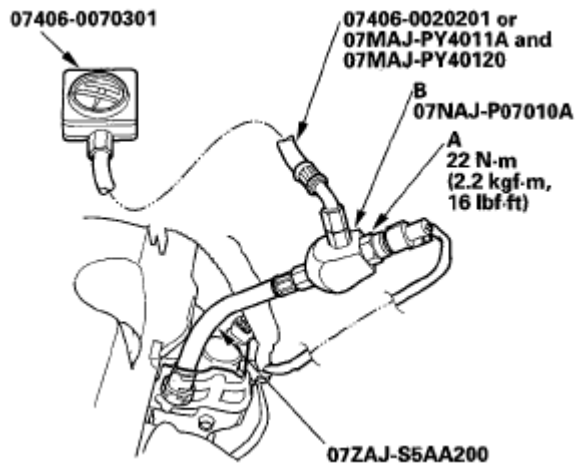


Fig. 14: Identifying Rocker Arm Oil Pressure Switch And Special Tools With Torque Specification
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

11. Start the engine.
12. Do the VTEC TEST in the INSPECTION MENU with the HDS.
13. Check the VTEC oil pressure.

Is the oil pressure increase to at least 392 kPa (56.9 psi, 4.0 kgf/cm²)?

YES -Replace the rocker arm oil pressure switch (see **ROCKER ARM OIL PRESSURE SWITCH REMOVAL/INSTALLATION**), then go to step 19.

NO -Go to step 14.

14. Check the engine oil pressure (see **OIL PRESSURE TEST**).

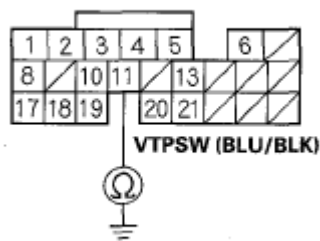
Is the engine oil pressure OK?

YES -Replace the rocker arm oil control solenoid (see **ROCKER ARM OIL CONTROL VALVE REMOVAL/INSTALLATION**), then go to step 19.

NO -Repair the cause of the low oil pressure, then replace the rocker arm oil control solenoid (see **ROCKER ARM OIL CONTROL VALVE REMOVAL/INSTALLATION**), then go to step 19.

15. Turn the ignition switch OFF.
16. Jump the SCS line with the HDS.
17. Disconnect ECM/PCM connector B (24P).
18. Check for continuity between ECM/PCM connector terminal B11 and body ground.

ECM/PCM CONNECTOR B (24P)



Wire side of female terminals

Fig. 15: Checking Continuity Between ECM/PCM Connector Terminal B11 And Body Ground
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

Is there continuity?

YES -Repair short in the wire between the ECM/PCM (B11) and the rocker arm oil pressure switch, then go to step 19.

NO -Go to step 26.

19. Reconnect the rocker arm oil pressure switch 2P connector.
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. Do the VTEC TEST in the INSPECTION MENU with the HDS.
24. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2646 indicated?

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YES -Check for poor connections or loose terminals at the rocker arm oil pressure switch, the rocker arm oil control solenoid, and the ECM/PCM, then go to step 1.

NO -Go to step 25.

25. Monitor the OBD STATUS for DTC P2646 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES -Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 24, go to the indicated DTCs troubleshooting.

NO -If the screen indicates FAILED, check for poor connections or loose terminals at the rocker arm oil pressure switch, the rocker arm oil control solenoid, and the ECM/PCM, then go to step 1. If the screen indicates NOT COMPLETED, go to step 23.

26. Reconnect all connectors.
27. Update the ECM/PCM if it does not have the latest software (see **UPDATING THE ECM/PCM**), or substitute a known-good ECM/PCM (see **SUBSTITUTING THE ECM/PCM**).
28. Do the VTEC TEST in the INSPECTION MENU with the HDS.
29. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2646 indicated?

YES -Check for poor connections or loose terminals at the rocker arm oil pressure switch, the rocker arm oil control solenoid, and the ECM/PCM, then go to step 1. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see **SUBSTITUTING THE ECM/PCM**), then go to step 28. If the ECM/PCM was substituted, go to step 1.

NO -Go to step 30.

30. Monitor the OBD STATUS for DTC P2646 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES -If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see **ECM/PCM REPLACEMENT**). If any other Temporary DTCs or DTCs were indicated in step 29, go to the indicated DTCs troubleshooting.

NO -If the screen indicates FAILED, check for poor connections or loose terminals at the rocker arm oil pressure switch, the rocker arm oil control solenoid, and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see **SUBSTITUTING THE ECM/PCM**), then go to step 28. If the ECM/PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, go to step 28.

DTC P2647: ROCKER ARM OIL PRESSURE SWITCH CIRCUIT HIGH VOLTAGE

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

1. Check the engine oil level.

Is the engine oil level OK?

YES -Go to step 2.

NO -Adjust the engine oil to the proper level, then go to step 14.

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

Is the result OK?

YES -Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the rocker arm oil pressure switch and the ECM/PCM.

NO -Go to step 5.

5. Check the result of step 4.
 - VTEC Switch Failure
 - VTEC Switch Open
 - VTEC Switch SIG Line Open
 - VTEC Switch GND Line Open

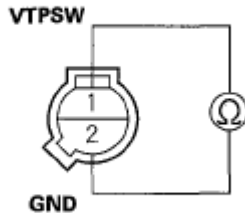
Is the test result any of the above?

YES -Go to step 6.

NO -Check for poor connections or loose terminals at the rocker arm oil pressure switch. If it is OK, replace the rocker arm oil control valve (see **ROCKER ARM OIL CONTROL VALVE REMOVAL/INSTALLATION**), then go to step 14.

6. Turn the ignition switch OFF.
7. Disconnect the rocker arm oil pressure switch 2P connector.
8. At the switch side, check for continuity between rocker arm oil pressure switch 2P connector terminals No. 1 and No. 2.

**ROCKER ARM OIL PRESSURE SWITCH
2P CONNECTOR**



Terminal side of male terminals

Fig. 16: Checking Continuity Between Rocker Arm Oil Pressure Switch 2P Connector Terminals No. 1 And 2

Courtesy of AMERICAN HONDA MOTOR CO., INC.

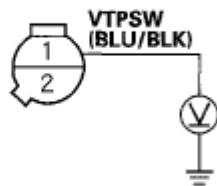
Is there continuity?

YES -Go to step 9.

NO -Replace the rocker arm oil pressure switch (see **ROCKER ARM OIL PRESSURE SWITCH REMOVAL/INSTALLATION**), then go to step 13.

9. Turn the ignition switch ON (II).
10. Measure voltage between rocker arm oil pressure switch 2P connector terminal No. 1 and body ground.

**ROCKER ARM OIL PRESSURE SWITCH
2P CONNECTOR**



Terminal side of female terminals

Fig. 17: Measuring Voltage Between Rocker Arm Oil Pressure Switch 2P Connector Terminal No. 1 And Body Ground

Courtesy of AMERICAN HONDA MOTOR CO., INC.

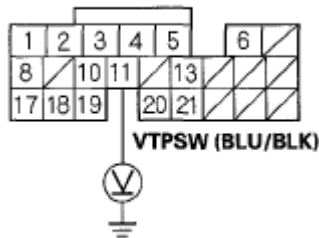
Is there battery voltage?

YES -Repair open in the wire between the rocker arm oil pressure switch and G101, then go to step 13.

NO -Go to step 11.

11. Measure voltage between ECM/PCM connector terminal B11 and body ground.

ECM/PCM CONNECTOR B (24P)



Wire side of female terminals

Fig. 18: Measuring Voltage Between ECM/PCM Connector Terminal B11 And Body Ground
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

Is there battery voltage?

YES -Repair open in the wire between the ECM/PCM (B11) and the rocker arm oil pressure switch, then go to step 12.

NO -Go to step 19.

12. Turn the ignition switch OFF.
13. Reconnect the rocker arm oil pressure switch 2P connector.
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. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2647 indicated?

YES -Check for poor connections or loose terminals at the rocker arm oil pressure switch and the ECM/PCM, then go to step 1.

NO -Go to step 18.

18. Monitor the OBD STATUS for DTC P2647 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES -Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 17, go to the indicated DTCs troubleshooting.

NO -If the screen indicates FAILED, check for poor connections or loose terminals at the rocker arm oil pressure switch and the ECM/PCM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

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19. Turn the ignition switch OFF.
20. Reconnect all connectors.
21. Update the ECM/PCM if it does not have the latest software (see **UPDATING THE ECM/PCM**), or substitute a known-good ECM/PCM (see **SUBSTITUTING THE ECM/PCM**).
22. Start the engine, and let it idle.
23. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2647 indicated?

YES -Check for poor connections or loose terminals at the rocker arm oil pressure switch and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see **SUBSTITUTING THE ECM/PCM**), then go to step 22. If the ECM/PCM was substituted, go to step 1.

NO -Go to step 24.

24. Monitor the OBD STATUS for DTC P2647 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES -If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see **ECM/PCM REPLACEMENT**). If any other Temporary DTCs or DTCs were indicated in step 23, go to the indicated DTCs troubleshooting.

NO -If the screen indicates FAILED, check for poor connections or loose terminals at the rocker arm oil pressure switch and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see **SUBSTITUTING THE ECM/PCM**), then go to step 22. If the ECM/PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

DTC P2648: ROCKER ARM OIL CONTROL SOLENOID CIRCUIT LOW VOLTAGE

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

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

Is the result OK?

YES -Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM.

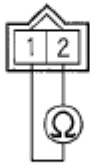
NO -Go to step 4.

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4. Turn the ignition switch OFF.
5. Disconnect the rocker arm oil control solenoid 2P connector.
6. At the solenoid side, measure resistance between rocker arm oil control solenoid 2P connector terminals No. 1 and No. 2.

ROCKER ARM OIL CONTROL SOLENOID 2P CONNECTOR



Terminal side of male terminals

Fig. 19: Measuring Resistance Between Rocker Arm Oil Control Solenoid 2P Connector Terminals No. 1 And 2

Courtesy of AMERICAN HONDA MOTOR CO., INC.

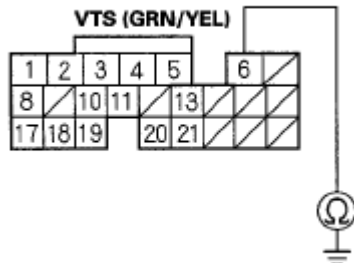
Is there 14-30 ohms, at room temperature?

YES -Go to step 7.

NO -Go to step 10.

7. Jump the SCS line with the HDS.
8. Disconnect ECM/PCM connector B (24P).
9. Check for continuity between ECM/PCM connector terminal B6 and body ground.

ECM/PCM CONNECTOR B (24P)



Wire side of female terminals

Fig. 20: Checking Continuity Between ECM/PCM Connector Terminal B6 And Body Ground

Courtesy of AMERICAN HONDA MOTOR CO., INC.

Is there continuity?

YES -Repair short in the wire between the ECM/PCM (B6) and the rocker arm oil control solenoid, then

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go to step 11.

NO -Go to step 18.

10. Replace the rocker arm oil control valve (see **ROCKER ARM OIL CONTROL VALVE REMOVAL/INSTALLATION**).
11. Reconnect all connectors.
12. Turn the ignition switch ON (II).
13. Reset the ECM/PCM with the HDS.
14. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**).
15. Do the VTEC TEST in the INSPECTION MENU with the HDS.
16. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2648 indicated?

YES -Check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM, then go to step 1.

NO -Go to step 17.

17. Monitor the OBD STATUS for DTC P2648 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES -Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 16, go to the indicated DTCs troubleshooting.

NO -If the screen indicates FAILED, check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM, then go to step 1. If the screen indicates NOT COMPLETED, go to step 15.

18. Reconnect all connectors.
19. Update the ECM/PCM if it does not have the latest software (see **UPDATING THE ECM/PCM**), or substitute a known-good ECM/PCM (see **SUBSTITUTING THE ECM/PCM**).
20. Do the VTEC TEST in the INSPECTION MENU with the HDS.
21. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2648 indicated?

YES -Check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see **SUBSTITUTING THE ECM/PCM**), then go to step 20. If the ECM/PCM was substituted, go to step 1

NO -Go to step 22.

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22. Monitor the OBD STATUS for DTC P2648 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES -If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see **ECM/PCM REPLACEMENT**). If any other Temporary DTCs or DTCs were indicated in step 21, go to the indicated DTCs troubleshooting.

NO -If the screen indicates FAILED, check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see **SUBSTITUTING THE ECM/PCM**), then go to step 20. If the ECM/PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, go to step 20.

DTC P2649: ROCKER ARM OIL CONTROL SOLENOID CIRCUIT HIGH VOLTAGE

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

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.
4. Check for Temporary DTCs or DTCs with the HDS.

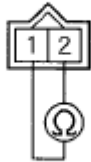
Is DTC P2649 indicated?

YES -Go to step 5.

NO -Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM.

5. Turn the ignition switch OFF.
6. Disconnect the rocker arm oil control solenoid 2P connector.
7. At the solenoid side, measure resistance between rocker arm oil control solenoid 2P connector terminals No. 1 and No. 2.

**ROCKER ARM OIL CONTROL SOLENOID
2P CONNECTOR**



Terminal side of male terminals

Fig. 21: Measuring Resistance Between Rocker Arm Oil Control Solenoid 2P Connector Terminals No. 1 And 2

Courtesy of AMERICAN HONDA MOTOR CO., INC.

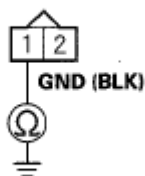
Is there 14-30 ohms, at room temperature?

YES -Go to step 8.

NO -Go to step 13.

8. Check for continuity between rocker arm oil control solenoid 2P connector terminal No. 1 and body ground.

**ROCKER ARM OIL CONTROL SOLENOID
2P CONNECTOR**



Wire side of female terminals

Fig. 22: Checking Continuity Between Rocker Arm Oil Control Solenoid 2P Connector Terminal No. 1 And Body Ground

Courtesy of AMERICAN HONDA MOTOR CO., INC.

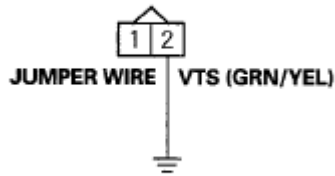
Is there continuity?

YES -Go to step 9.

NO -Repair open in the wire between the rocker arm oil control solenoid and G101, then go to step 14.

9. Jump the SCS line with the HDS.
10. Disconnect ECM/PCM connector B (24P).
11. Connect rocker arm oil control solenoid 2P connector terminal No. 2 to body ground with a jumper wire.

**ROCKER ARM OIL CONTROL SOLENOID
2P CONNECTOR**



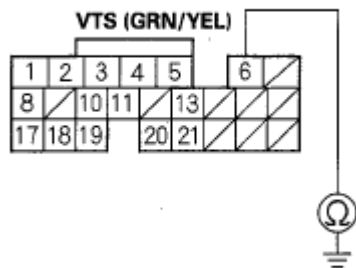
Wire side of female terminals

Fig. 23: Connecting Rocker Arm Oil Control Solenoid 2P Connector Terminal No. 2 To Body Ground With Jumper Wire

Courtesy of AMERICAN HONDA MOTOR CO., INC.

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

ECM/PCM CONNECTOR B (24P)



Wire side of female terminals

Fig. 24: Checking Continuity Between ECM/PCM Connector Terminal B6 And Body Ground
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Is there continuity?

YES -Go to step 20.

NO -Repair open in the wire between the ECM/PCM (B6) and the rocker arm oil control solenoid, then go to step 14.

13. Replace the rocker arm oil control valve (see **ROCKER ARM OIL CONTROL VALVE REMOVAL/INSTALLATION**).
14. Reconnect all connectors.
15. Turn the ignition switch ON (II).
16. Reset the ECM/PCM with the HDS.
17. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**).
18. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2649 indicated?

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YES -Check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM, then go to step 1.

NO -Go to step 19.

19. Monitor the OBD STATUS for DTC P2649 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES -Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 18, go to the indicated DTCs troubleshooting.

NO -Check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

20. Reconnect all connectors.
21. Update the ECM/PCM if it does not have the latest software (see **UPDATING THE ECM/PCM**), or substitute a known-good ECM/PCM (see **SUBSTITUTING THE ECM/PCM**).
22. Start the engine, and let it idle.
23. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2649 indicated?

YES -Check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see **SUBSTITUTING THE ECM/PCM**), then go to step 22. If the ECM/PCM was substituted, go to step 1.

NO -Go to step 24.

24. Monitor the OBD STATUS for DTC P2649 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES -If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see **ECM/PCM REPLACEMENT**). If any other Temporary DTCs or DTCs were indicated in step 23, go to the indicated DTCs troubleshooting.

NO -If the screen indicates FAILED, check for poor connections or loose terminals at the rocker arm oil pressure switch, the rocker arm oil control solenoid, and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see **SUBSTITUTING THE ECM/PCM**), then go to step 22. If the ECM/PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

VTC OIL CONTROL SOLENOID VALVE REMOVAL/TEST/INSTALLATION

1. Disconnect the VTC oil control solenoid valve connector (A).

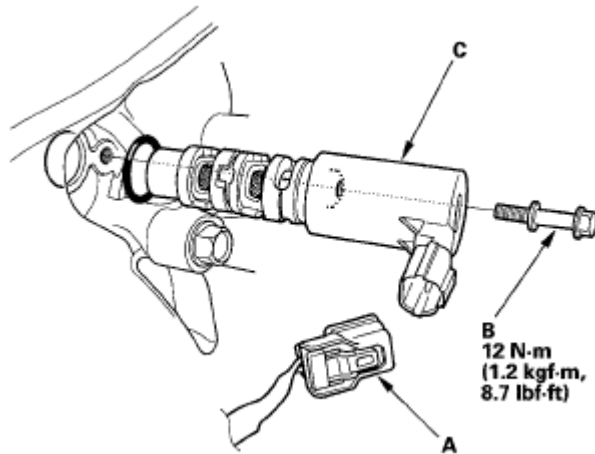


Fig. 25: Identifying VTC Oil Control Solenoid Valve Connector, VTC Oil Control Solenoid Valve And Bolt With Torque Specification
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Remove the bolt (B) and the VTC oil control solenoid valve (C).
3. Check the VTC oil control solenoid valve for sticking or clogging. If the valve is stuck or clogged, replace it, then go to step 7.
4. Check the clearance between the port (advance side) and the valve. Make sure the valve (A) closes fully.

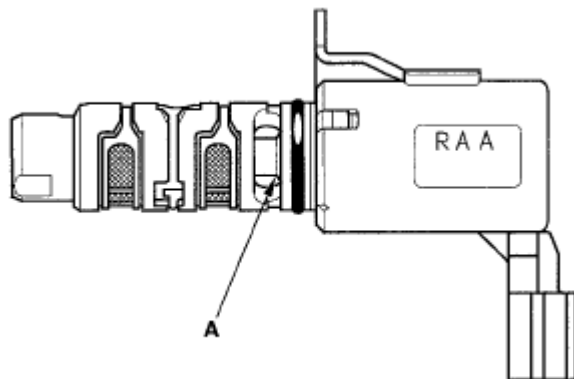


Fig. 26: Identifying Clearance Between Port And Valve
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. Connect the battery positive terminal to VTC oil control solenoid valve 2P connector terminal No. 2.

VTC OIL CONTROL SOLENOID
VALVE 2P CONNECTOR

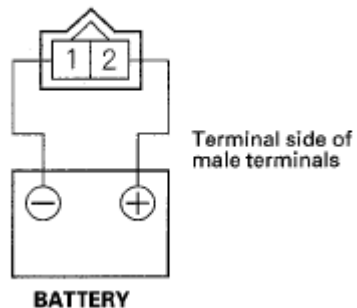


Fig. 27: Connecting Battery Positive Terminal To VTC Oil Control Solenoid Valve 2P Connector Terminal No. 2

Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. Connect the battery negative terminal to VTC oil control solenoid valve 2P connector terminal No. 1. Clearance (A) should be at least 2.3 mm (0.09 in.). If the valve does not open, replace it; then go to step 7.

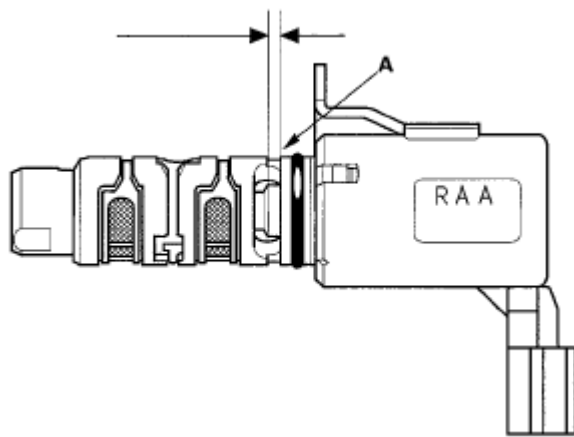


Fig. 28: Identifying Clearance Between Battery Negative Terminal To VTC Oil Control Solenoid Valve 2P Connector Terminal No. 1

Courtesy of AMERICAN HONDA MOTOR CO., INC.

7. Replace the VTC oil control solenoid valve O-ring (A).

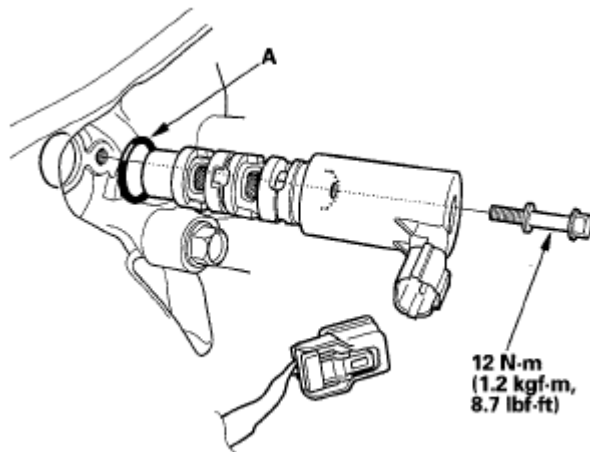


Fig. 29: Identifying VTC Oil Control Solenoid Valve O-Ring With Torque Specification
Courtesy of AMERICAN HONDA MOTOR CO., INC.

8. Coat the new O-ring with engine oil, then install it.
9. Clean and dry the mating surface of the valve.
10. Install the valve.

NOTE: Do not install the valve while wearing cloth fibrous gloves. Be careful not to contaminate the cylinder head opening.

CMP SENSOR A REPLACEMENT

1. Remove the air cleaner (see [AIR CLEANER REMOVAL/INSTALLATION](#)).
2. Disconnect the CMP sensor A connector (A).

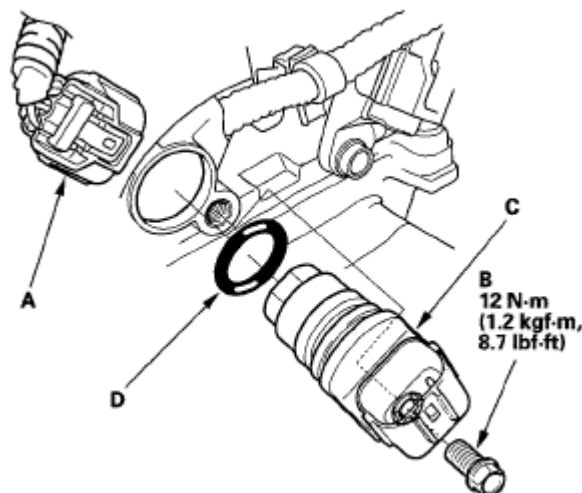


Fig. 30: Identifying CMP Sensor A Connector With Torque Specification
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Remove the bolt (B).
4. Remove CMP sensor A (C).
5. Install the parts in the reverse order of removal with a new O-ring (D).

ROCKER ARM OIL CONTROL VALVE REMOVAL/INSTALLATION

1. Disconnect the rocker arm oil control solenoid 2P connector, the rocker arm oil pressure switch 2P connector, and the bolts (A).

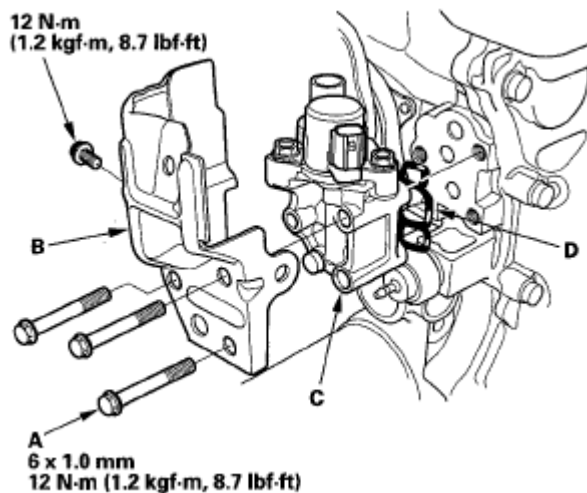


Fig. 31: Identifying Rocker Arm Oil Control Solenoid 2P Connector And Rocker Arm Oil Pressure Switch 2P Connector With Torque Specifications
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Remove the cover (B), and the rocker arm oil control solenoid assembly (C).
3. Install the parts in the reverse order of removal with a new solenoid valve filter (D).

ROCKER ARM OIL PRESSURE SWITCH REMOVAL/INSTALLATION

1. Remove the rocker arm oil control valve (see **ROCKER ARM OIL CONTROL VALVE REMOVAL/INSTALLATION**).
2. Remove the cover (A).

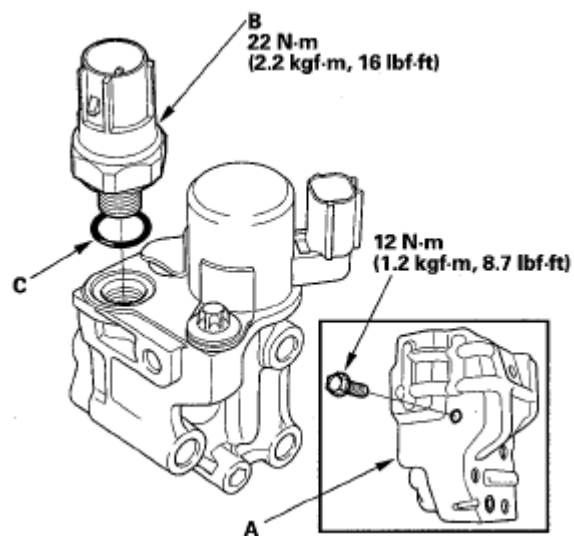


Fig. 32: Identifying Rocker Arm Oil Pressure Switch, O-Ring And Cover With Torque Specifications

Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Remove the rocker arm oil pressure switch (B).
4. Install the parts in the reverse order of removal with a new O-ring (C).