DTC Troubleshooting (cont'd)

DTC P0406: EGR Valve Position Sensor Circuit High Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

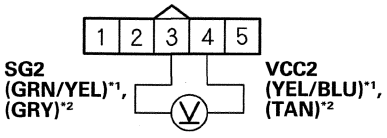
1. Turn the ignition switch to ON (II).
2. Check the EGR VLS in the DATA LIST with the HDS.

   Is 4.88 V or more indicated?

   YES–Go to step 3.

   NO–Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the EGR valve and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the EGR valve 5P connector.
5. Turn the ignition switch to ON (II).
6. Measure the voltage between EGR valve 5P connector terminals No. 3 and No. 4.

EGR VALVE 5P CONNECTOR



Wire side of female terminals

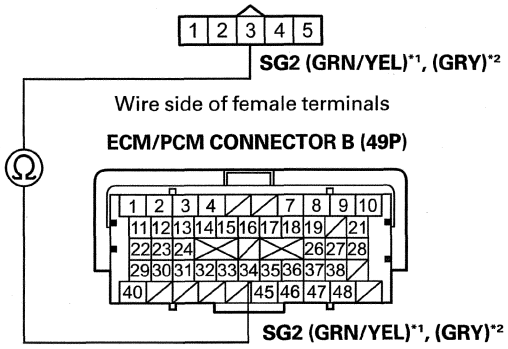
Is there about 5 V?

YES–Go to step 11.

NO–Go to step 7.

7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector B (49P).
10. Check for continuity between ECM/PCM connector terminal B34 and EGR valve 5P connector terminal No. 3.

EGR VALVE 5P CONNECTOR



Terminal side of female terminals

Is there continuity?

YES–Go to step 18.

NO–Repair an open in the wire between the ECM/PCM (B34) and the EGR valve, then go to step 13.

11. Turn the ignition switch to LOCK (0).
12. Replace the EGR valve (see page 11-327).
13. Reconnect all connectors.
14. Turn the ignition switch to ON (II).
15. Reset the ECM/PCM with the HDS.
16. Do the ECM/PCM idle learn procedure (see page 11-268).
17. Check for Pending or Confirmed DTCs with the HDS.

    Is DTC P0406 indicated?

    YES–Check for poor connections or loose terminals at the EGR valve and the ECM/PCM, then go to step 1.

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

18. Reconnect all connectors.
19. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
20. Check for Pending or Confirmed DTCs with the HDS.

    Is DTC P0406 indicated?

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

    NO–If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC P2413: EGR System Malfunction

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
4. Do the EGR 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 EGR valve and the ECM/PCM.■

   NO–Go to step 5.
5. Turn the ignition switch to LOCK (0).
6. Turn the ignition switch to ON (II).
7. Check the EGR VLS in the DATA LIST with the HDS.

   Is about 0 V indicated?

   YES–Go to step 8.

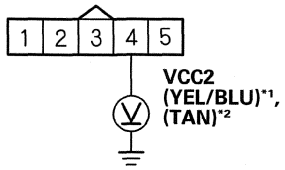
   NO–Go to step 21.
8. Turn the ignition switch to LOCK (0).
9. Disconnect the EGR valve 5P connector.
10. Turn the ignition switch to ON (II).

(cont'd)

DTC Troubleshooting (cont'd)

11. Measure the voltage between EGR valve 5P connector terminal No. 4 and body ground.

EGR VALVE 5P CONNECTOR



Wire side of female terminals

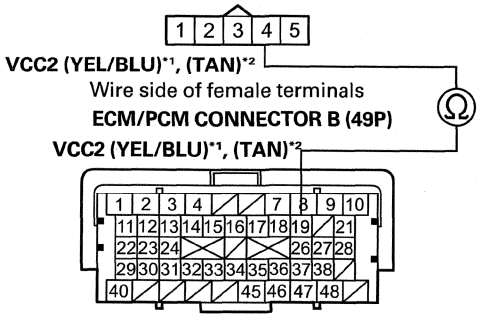
Is there about 5 V?

YES–Go to step 16.

NO–Go to step 12.

12. Turn the ignition switch to LOCK (0).
13. Jump the SCS line with the HDS.
14. Disconnect ECM/PCM connector B (49P).
15. Check for continuity between ECM/PCM connector terminal B19 and EGR valve 5P connector terminal No. 4.

EGR VALVE 5P CONNECTOR



Terminal side of female terminals

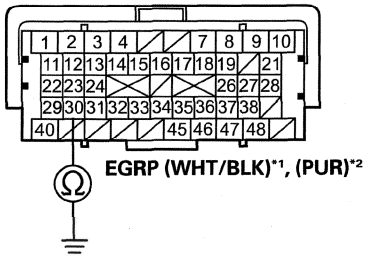
Is there continuity?

YES–Go to step 52.

NO–Repair an open in the wire between the ECM/PCM (B19) and the EGR valve, then go to step 44.

16. Turn the ignition switch to LOCK (0).
17. Jump the SCS line with the HDS.
18. Disconnect ECM/PCM connector B (49P).
19. Check for continuity between ECM/PCM connector terminal B30 and body ground.

ECM/PCM CONNECTOR B (49P)



Terminal side of female terminals

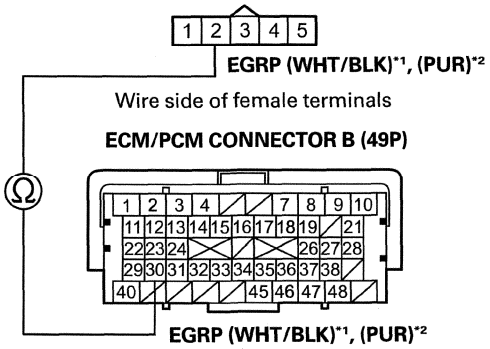
Is there continuity?

YES–Repair a short in the wire between the ECM/PCM (B30) and the EGR valve, then go to step 44.

NO–Go to step 20.

20. Check for continuity between ECM/PCM connector terminal B30 and EGR valve 5P connector terminal No. 2.

EGR VALVE 5P CONNECTOR



Terminal side of female terminals

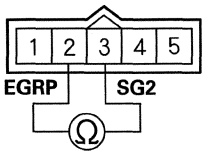
Is there continuity?

YES–Go to step 23.

NO–Repair an open in the wire between the ECM/PCM (B30) and the EGR valve, then go to step 44.

21. If not already done, turn the ignition switch to LOCK (0).
22. If not already done, disconnect the EGR valve 5P connector.
23. At the EGR valve side, measure the resistance between EGR valve 5P connector terminals No. 2 and No. 3.

EGR VALVE 5P CONNECTOR



Terminal side of male terminals

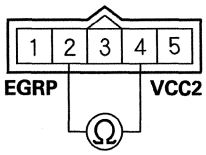
Is there 100 kΩ or more?

YES–Go to step 43.

NO–Go to step 24.

24. At the EGR valve side, measure the resistance between EGR valve 5P connector terminals No. 2 and No. 4.

EGR VALVE 5P CONNECTOR



Terminal side of male terminals

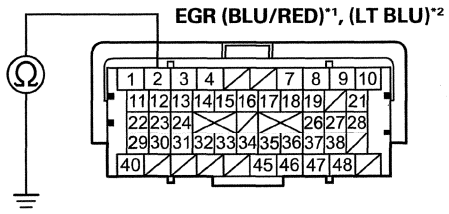
Is there 100 kΩ or more?

YES–Go to step 43.

NO–Go to step 27.

25. If not already done, jump the SCS line with the HDS.
26. If not already done, disconnect ECM/PCM connector B (49P).
27. Check for continuity between ECM/PCM connector terminal B2 and body ground.

ECM/PCM CONNECTOR B (49P)



Terminal side of female terminals

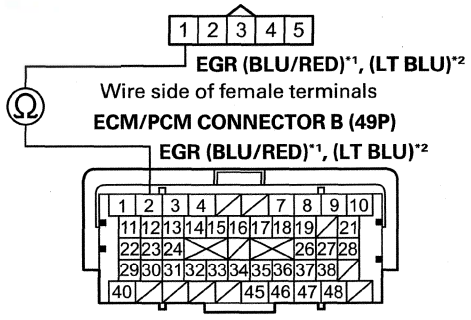
Is there continuity?

YES–Repair a short in the wire between the ECM/PCM (B2) and the EGR valve, then go to step 44.

NO–Go to step 28.

28. Check for continuity between ECM/PCM connector terminal B2 and EGR valve 5P connector terminal No. 1.

EGR VALVE 5P CONNECTOR



Terminal side of female terminals

Is there continuity?

YES–Go to step 29.

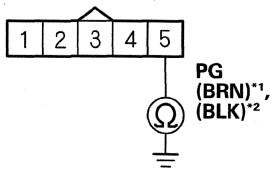
NO–Repair an open in the wire between the ECM/PCM (B2) and the EGR valve, then go to step 44.

(cont'd)

DTC Troubleshooting (cont'd)

29. Check for continuity between EGR valve 5P connector terminal No. 5 and body ground.

EGR VALVE 5P CONNECTOR



Wire side of female terminals

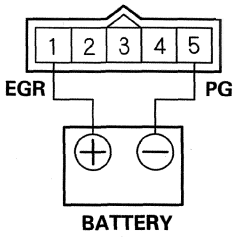
Is there continuity?

YES–Go to step 30.

NO–Repair an open in the wire between the EGR valve and G101, then go to step 44.

30. Reconnect ECM/PCM connector B (49P).
31. At the EGR valve side, connect the battery positive terminal to EGR valve 5P connector terminal No. 1 with a jumper wire.

EGR VALVE 5P CONNECTOR



Terminal side of male terminals

32. Start the engine, and let it idle. Then connect the battery negative terminal to EGR valve 5P connector terminal No. 5 with a jumper wire.

Does the engine stall?

YES–Go to step 50.

NO–Go to step 33.

33. Turn the ignition switch to LOCK (0).
34. Remove the EGR valve (see page 11-327).
35. Clean the intake manifold EGR port (see page 11-327) and the EGR pipe with throttle plate cleaner (see page 11-328). Also, clean the passage inside the EGR valve with throttle plate cleaner.
36. Install the EGR valve (see page 11-327).
37. Reconnect all connectors.
38. Turn the ignition switch to ON (II).
39. Reset the ECM/PCM with the HDS.
40. Do the ECM/PCM idle learn procedure (see page 11-268).
41. Do the EGR TEST in the INSPECTION MENU with the HDS.

Is the result OK?

YES–Go to step 49.

NO–Go to step 42.

42. Turn the ignition switch to LOCK (0).
43. Replace the EGR valve (see page 11-327).
44. Reconnect all connectors.
45. Turn the ignition switch to ON (II).
46. Reset the ECM/PCM with the HDS.
47. Do the ECM/PCM idle learn procedure (see page 11-268).
48. Do the EGR TEST in the INSPECTION MENU with the HDS.
49. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2413 indicated?

YES–Check for poor connections or loose terminals at the EGR valve and the ECM/PCM, then go to step 1.

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

50. Turn the ignition switch to LOCK (0).
51. Reconnect all connectors.
52. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
53. Do the EGR TEST in the INSPECTION MENU with the HDS.
54. Check for Pending or Confirmed DTCs with the HDS.

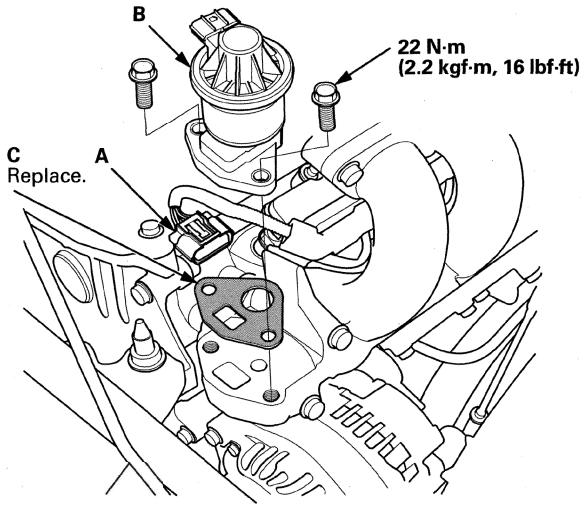
    Is DTC P2413 indicated?

    YES–Check for poor connections or loose terminals at the EGR valve and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 53. 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 page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting.■

EGR Valve Replacement

1. Disconnect the EGR valve connector (A).



2. Remove the EGR valve (B).
3. Install the parts in the reverse order of removal with a new gasket (C).