DTC Troubleshooting (cont'd)

DTC P1457: EVAP Control System Leakage (EVAP Canister System)

NOTICE

The fuel system is designed to allow specified maximum vacuum and pressure conditions. Do not deviate from the vacuum and pressure tests as indicated in these procedures. Excessive pressure/vacuum would damage the EVAP components or cause eventual fuel tank system failure.

Special Tools Required

Vacuum pump/gauge, 0 - 30 in.Hg A973X-041-XXXXX

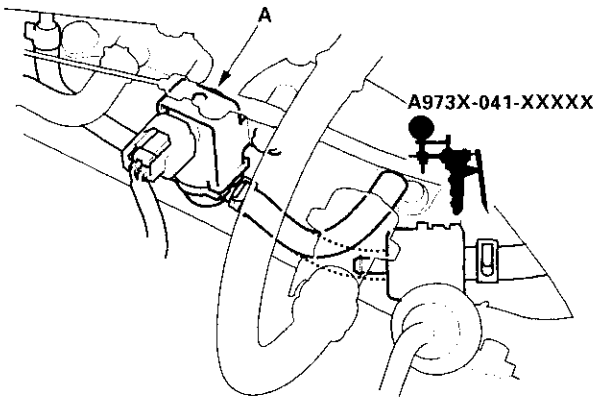
This is a two-trip code; Once cleared, it cannot be reproduced in one trip. Also certain specific driving and ambient conditions must occur before the ECM/PCM will complete the system checks. Additional test drives may still not meet the specific conditions needed to reproduce the code.

Follow these troubleshooting procedures carefully to ensure the integrity of the system and to comfirm the cause of the problem or code.

NOTE: Fresh fuel has a higher volatility that will create greater pressure/vacuum. The optimum condition for testing is fresh fuel, and there must be less than a full tank of fuel. If possible, to assist in leak detection, add one gallon of fresh fuel to the tank (as long as it will not fill the tank), just before starting these procedures.

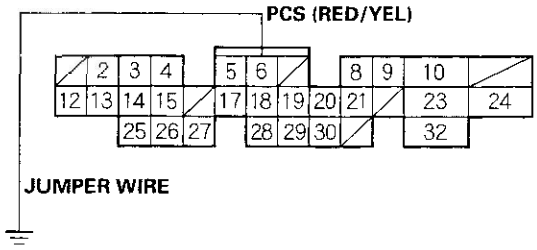
EVAP Canister Purge Valve Test

1. Disconnect the vacuum hose from the EVAP canister purge valve (A), and connect the vacuum pump to the hose.



2. Turn the EVAP canister purge valve on with the Honda PGM Tester, then connect ECM/PCM connector terminal A6 to body ground with a jumper wire.

ECM/PCM CONNECTOR A (32P)



Wire side of female terminals

3. Turn the ignition switch ON (II).

4. Apply vacuum to the hose.

   Does the valve hold vacuum?

   YES – Go to step 5.

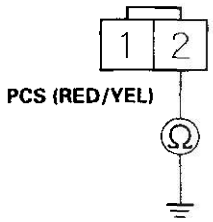
   NO – The EVAP canister purge valve is OK. Go to step 10.

5. Turn the ignition switch OFF.

6. Disconnect the EVAP canister purge valve 2P connector.

7. Check for continuity between EVAP canister purge valve 2P connector terminal No. 2 and body ground.

EVAP CANISTER PURGE VALVE 2P CONNECTOR



Wire side of female terminals

Is there continuity?

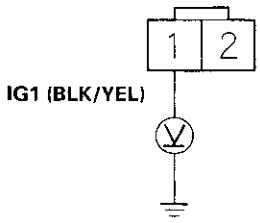
YES – Go to step 8.

NO – Repair open in the wire between the EVAP canister purge valve and ECM/PCM (A6). ■

8. Turn the ignition switch ON (II).

9. Measure voltage between EVAP canister purge valve 2P connector terminal No. 1 and body ground.

EVAP CANISTER PURGE VALVE 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES – Replace the EVAP canister purge valve. ■

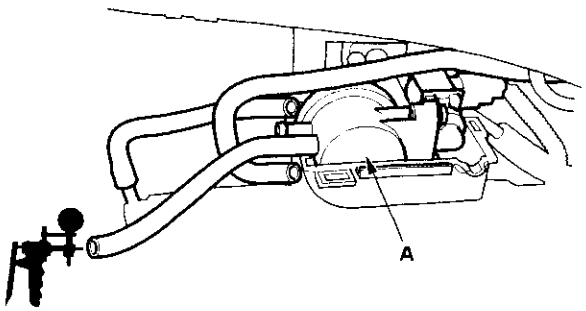
NO – Repair open in the wire between the EVAP canister purge valve and No. 6 ECU (ECM/PCM) CRUISE CONTROL (15A) fuse. ■

(cont'd)

DTC Troubleshooting (cont'd)

EVAP Bypass Solenoid Valve Test

10. Disconnect the vacuum hose from the EVAP two-way valve (A), and connect a vacuum pump to the hose.



A973X-041-XXXXX

11. Turn the ignition switch ON (II).
12. Apply vacuum to the hose.

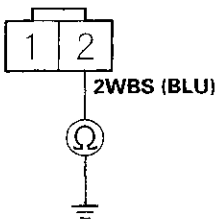
    Does the valve hold vacuum?

    YES – The EVAP bypass solenoid valve/EVAP two-way valve is OK. Go to step 18.

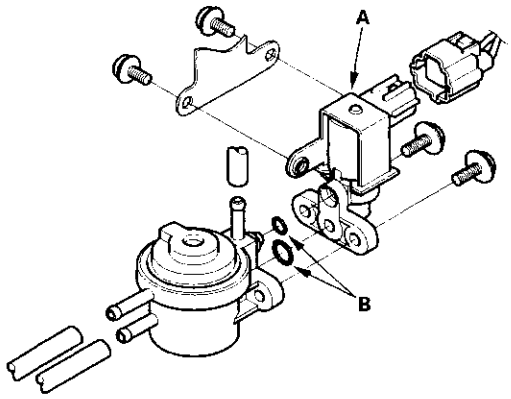
    NO – Go to step 13.

13. Turn the ignition switch OFF.
14. Disconnect the EVAP bypass solenoid valve 2P connector.
15. Check for continuity between EVAP bypass solenoid valve 2P connector terminal No. 2 and body ground.

EVAP BYPASS SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals



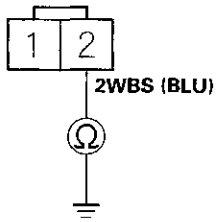
Is there continuity?

YES – Go to step 16.

NO – Replace the EVAP bypass solenoid valve (A) and O-rings (B). ■

16. Disconnect ECM/PCM connector A (32P).
17. Check for continuity between EVAP bypass solenoid valve 2P connector terminal No. 2 and body ground.

EVAP BYPASS SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals

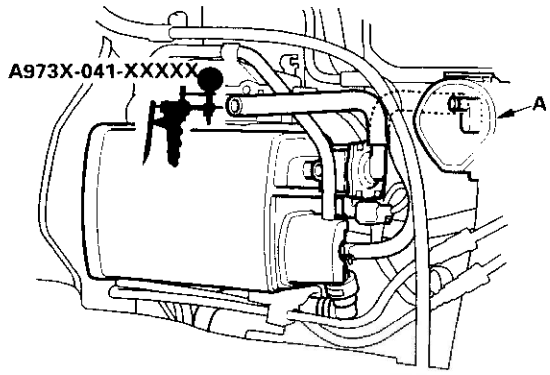
Is there continuity?

YES – Repair short in the wire between the EVAP bypass solenoid valve and ECM/PCM (A3). ■

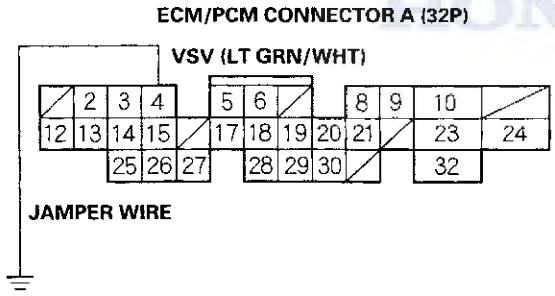
NO – Substitute a known-good ECM/PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original ECM/PCM. ■

EVAP Canister Vent Shut Valve Test

18. Disconnect the vacuum hose from the EVAP canister filter (A), and connect a vacuum pump to the hose.



19. With the Honda PGM Tester in the EVAP test mode, turn on the bypass solenoid, or connect ECM/PCM connector terminal A4 to body ground with a jumper wire.



Wire side of female terminals

20. Turn the ignition switch ON (II)

21. Apply vacuum to the hose.

Does the valve hold vacuum?

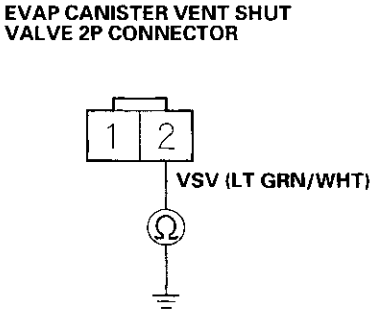
YES -- The EVAP canister vent shut valve is OK. Go to step 27.

NO -- Go to step 22.

22. Turn the ignition switch OFF.

23. Disconnect the EVAP canister vent shut valve 2P connector.

24. Check for continuity between EVAP canister vent shut valve 2P connector terminal No. 2 and body ground.



Wire side of female terminals

Is there continuity?

YES -- Go to step 25.

NO -- Repair open in the wire between the EVAP canister vent shut valve and ECM/PCM (A4). ■

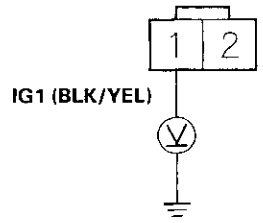
(cont'd)

DTC Troubleshooting (cont'd)

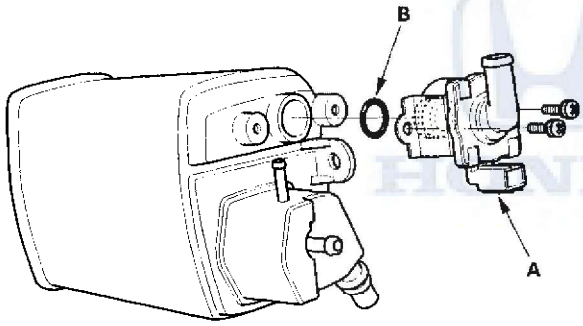
25. Turn the ignition switch ON (II).

26. Measure voltage between EVAP canister vent shut valve 2P connector terminal No. 1 and body ground.

EVAP CANISTER VENT SHUT VALVE 2P CONNECTOR



Wire side of female terminals



Is there battery voltage?

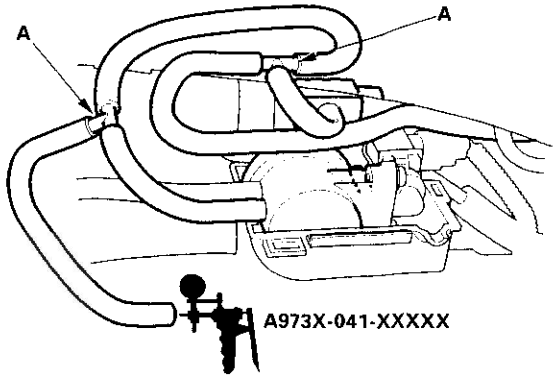
YES – Replace the EVAP canister vent shut valve (A) and O-ring (B).■

NO – Repair open in the wire between the EVAP canister vent shut valve and No. 6 ECU (ECM/PCM) CRUISE CONTROL (15A) fuse.■

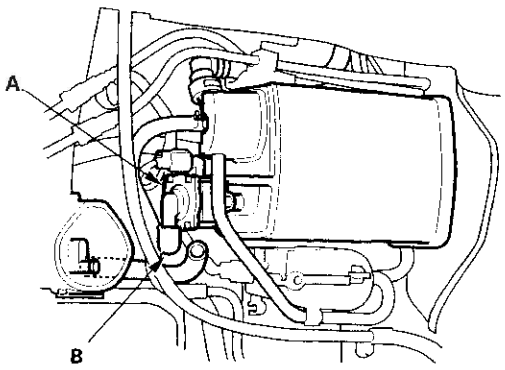
Canister System Leak Test

27. Turn the ignition switch OFF.

28. Connect two three-way tee fittings (A) into the hose from the EVAP canister to the EVAP two-way valve. Connect the FTP sensor to one of the tee fittings and the vacuum pump to the other.

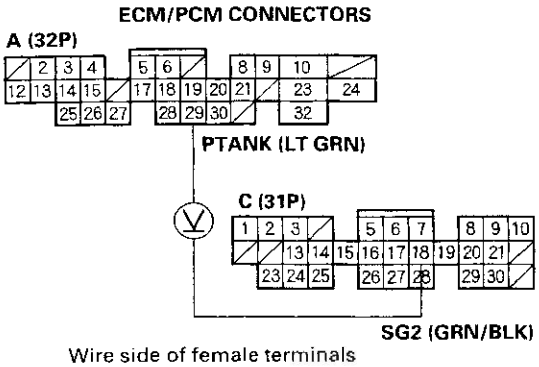


29. Remove the vent hose from the EVAP canister vent shut valve (A) and plug the port (B) to seal the fresh air vent for the EVAP canister.



30. Turn the ignition switch ON (II).

31. While monitoring the Fuel Tank Pressure sensor voltage with the Honda PGM Tester, or measuring voltage between ECM/PCM connector terminals A 29 and C18, slowly pump the vacuum pump.



Wire side of female terminals

32. Continue to pump until the voltage drops to about 1.5 V. Make sure your vacuum pump has no leak.

33. Monitor the voltage for 20 seconds.

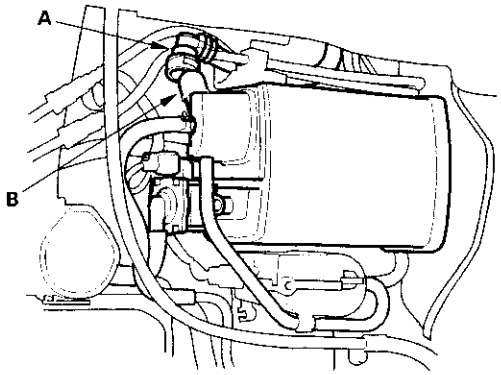
Does the voltage drop to about 1.5 V and hold for at least 20 seconds?

YES – Inspect the EVAP canister vent shut valve line and connections. ■

NO – Go to step 34.

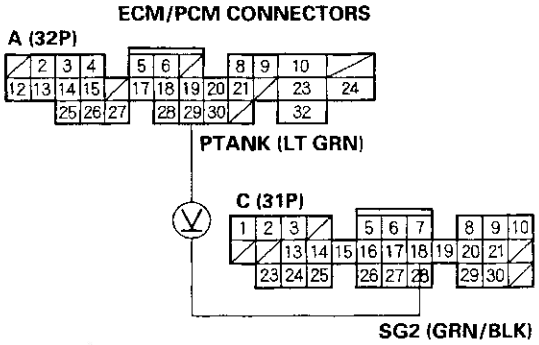
34. Turn the ignition switch OFF.

35. Disconnect the quick-connect fitting (A) from the EVAP canister, and cap the canister port (B).



36. Turn the ignition switch ON (II).

37. While monitoring FTP sensor voltage with the Honda PGM Tester, or measuring voltage between ECM/PCM connector terminals A29 and C18, slowly pump the vacuum pump.



Wire side of female terminals

38. Continue to pump vacuum until the voltage drops to about 1.5 V.

39. Check the voltage for 20 seconds.

Does the voltage drop to about 1.5 V and hold for least 20 seconds?

YES – Inspect the fuel tank vapor line and connections for vacuum leaks. ■

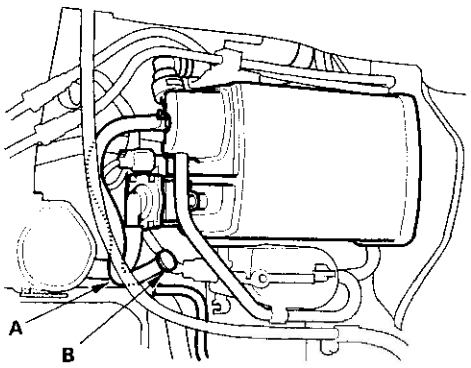
NO – Go to step 40.

(cont'd)

DTC Troubleshooting (cont'd)

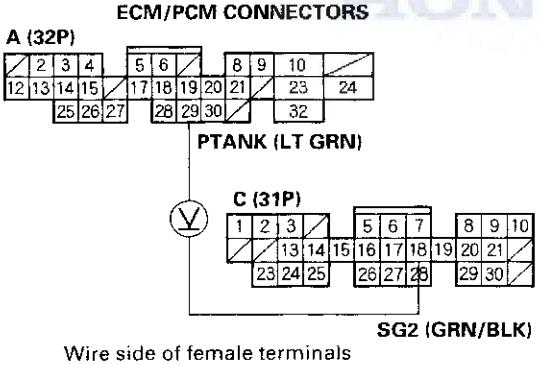
40. Turn the ignition switch OFF.

41. Disconnect the purge line hose (A) from the canister at the metal line and cap the canister port (B).



42. Turn the ignition switch ON (II).

43. While monitoring FTP sensor voltage with the Honda PGM Tester, or measuring voltage between ECM/PCM connector terminals A29 and C18, slowly pump the vacuum pump.



Wire side of female terminals

44. Continue to pump until the voltage drops to about 1.5 V. Make sure the engine coolant temperature is still above 95°F (35°C) and your vacuum pump has no leak.

45. Monitor the voltage for 20 seconds.

Does the voltage drop to about 1.5 V and hold for at least 20 seconds?

YES - Inspect the EVAP canister purge valve line and connections for vacuum leaks. If they are OK, do the EVAP two-way valve test, and fuel tank vapor control valve test (see page 11-160).■

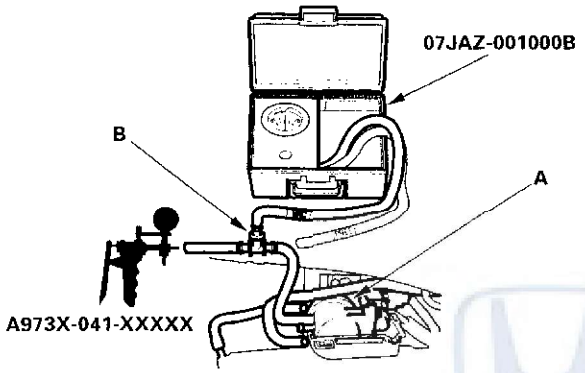
NO - Replace the EVAP canister.■

EVAP Two Way Valve Test

Special Tools Required
- Vacuum pump/gauge, 0 – 30 in.Hg A973X-041-XXXXX
- Vacuum/pressure gauge, 0 – 4 in.Hg 07JAZ-001000B

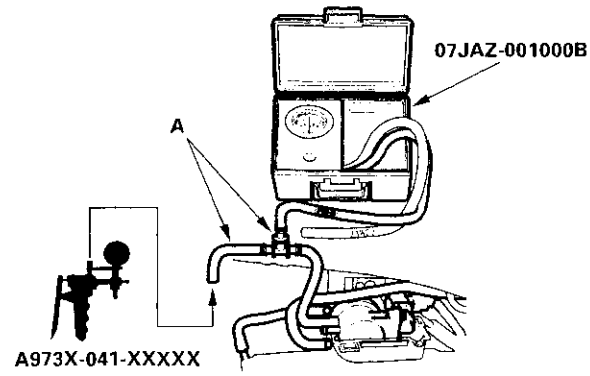
1. Remove the fuel fill cap.

2. Disconnect the vapor line from the EVAP two-way valve (A), and connect the line to a T-fitting (B) from the vacuum gauge and the vacuum pump as shown.



3. Apply vacuum slowly and continuously while watching the gauge. The vacuum should stabilize momentarily at 0.8 - 2.1 kPa (6 - 16 mmHg, 0.2 - 0.6 in.Hg). If the vacuum stabilizes (valve opens) below 0.8 kPa (6 mmHg, 0.2 in.Hg) or above 2.1 kPa (16 mmHg, 0.6 in.Hg), install a new valve and retest.

4. Move the vacuum pump hose from the vacuum fitting to the pressure fitting, and move the vacuum gauge hose from the vacuum side to the pressure side (A) as shown.



5. Slowly pressurize the vapor line while watching the gauge. The pressure should stabilize momentarily above 1.0 kPa (8 mmHg, 0.3 in.Hg).

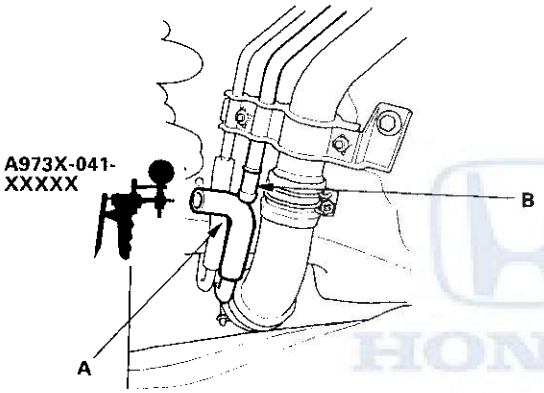
   - If the pressure momentarily stabilizes (valve opens) above 1.0 kPa (8 mmHg, 0.3in.Hg), the valve is OK.
   - If the pressure stabilizes below 1.0 kPa (8 mmHg, 0.3 in.Hg), install a new valve and retest.

Fuel Tank Vapor Control Valve Test

Special Tools Required
Vacuum pump/gauge, 0 – 30 in.Hg A973X-041-XXXXX

Float Test

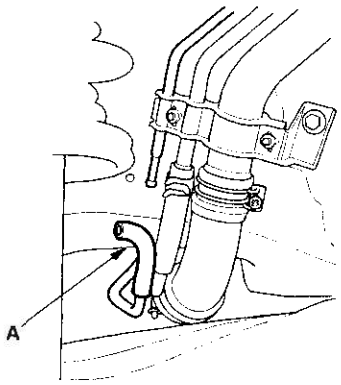
1. Make sure the fuel tank is less than half full.
2. Remove the fuel fill cap to relieve the fuel tank pressure, then reinstall the cap.
3. Remove the left rear inner fender. Disconnect the fuel tank vapor recirculation tube (A), and connect a vacuum pump to the vapor recirculation tube.



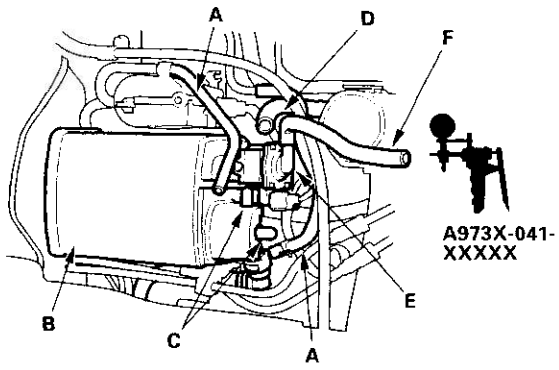
4. Plug the line (B).
5. Apply vacuum to the fuel tank vapor recirculation tube (A).
   - If the vacuum holds, replace the fuel tank vapor control valve (see page 11-162).
   - If the vacuum does not hold, the float is OK. Go to step 1 of the valve test.

Valve Test

1. Make sure the fuel tank is less than half full.
2. Remove the fuel fill cap.
3. Remove the left rear inner fender. Disconnect the fuel tank vapor signal tube (A).

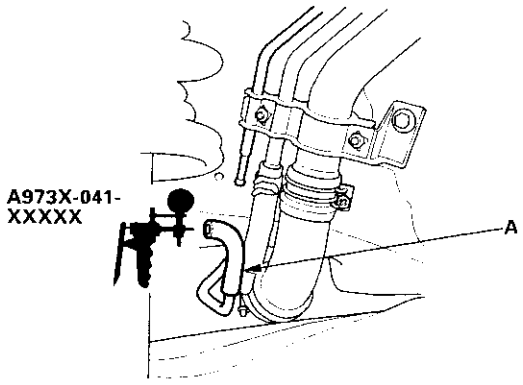


4. Disconnect the vacuum hose (A) from the EVAP canister (B), and then plug the ports with plugs (C).



5. Disconnect the vacuum hose (D) from the EVAP canister vent shut valve (E), and connect a hose (F) and a vacuum pump to the EVAP canister vent shut valve.
6. Pump the vacuum pump 80 times.
   - If the vacuum holds, go to step 7.
   - If the vacuum does not hold, go to step 10.

7. Connect a second vacuum pump to the fuel tank vapor signal tube (A).



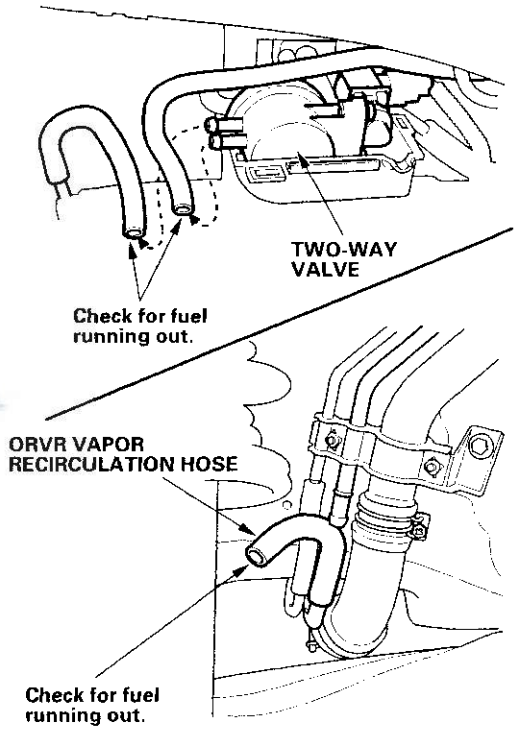
8. Apply vacuum to the fuel tank vapor signal tube, then check the vacuum on the pump in step 6.

   - If the vacuum holds, replace the fuel tank vapor control valve (see page 11-162).
   - If the vacuum is released, the EVAP canister vent shut valve is OK. Go to step 10.

9. Fill the fuel tank with fuel, then check for fuel in the two way valve and fuel tank vapor recirculation hose (B).

   NOTE: At either location, tiny droplets of fuel are normal.

   - If fuel runs out of the hoses at either location, replace the fuel tank vapor control valve.
   - If fuel does not run out of the hoses at either location, the fuel tank vapor control system is normal.

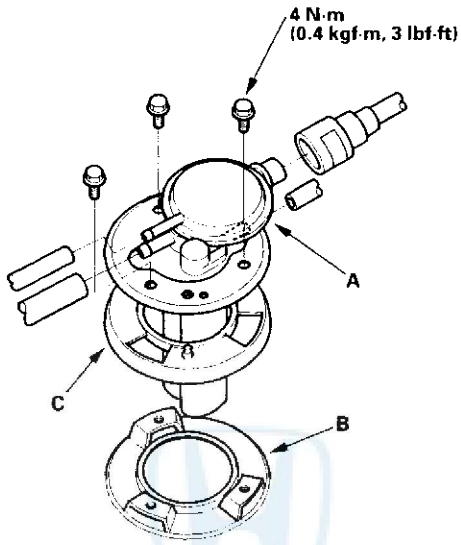


10. Disconnect the fuel tank vapor hose quick disconnect from the EVAP canister, then plug the port on the canister. Reapply vacuum (80 pumps).

    - If the vacuum holds, replace the fuel tank vapor vent shut valve (see page 11-162).
    - If the vacuum does not hold,inspect the EVAP canister vent shut valve O-ring. If the O-ring is OK, replace the EVAP canister and repeat step 4.

Fuel Tank Vapor Control Valve Replacement

1. Remove the fuel tank (see page 11-125).
2. Remove the fuel tank vapor control valve (A) from the fuel tank (B).



3. Replace the base gasket (C).
4. Install the fuel tank vapor control valve (A).
5. Install the fuel tank (see page 11-125).