Evaporative Emission Controls [With CATA Ex. KQ]

Troubleshooting Flowchart

Inspection of Evaporative Emission Controls

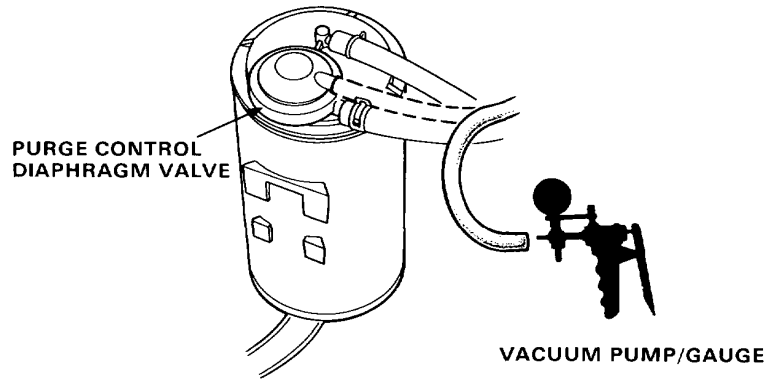
Disconnect #7 hose from the purge control diaphragm valve (on the charcoal canister) and connect a vacuum gauge to the hose.

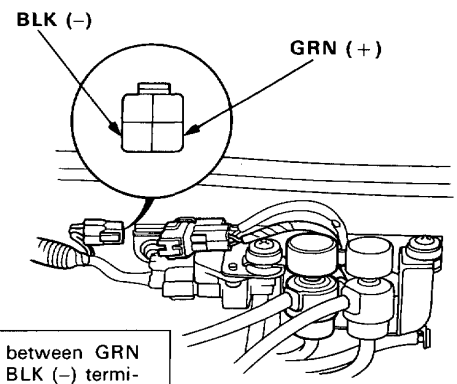
Start the engine and allow to idle.
NOTE: Engine coolant temperature must be below 57 °C (135 °F).

Is there vacuum ?

YES → Disconnect the 4P connector.

NO





Measure voltage between GRN (+) terminal and BLK (–) terminal.

Is there battery voltage ?

YES → **Replace purge cut-off solenoid valve.**

NO

Measure voltage between GRN (+) terminal and body ground.

(To page 6-93)

(To page 6-93)

(From page 6-92)

Warm up the engine to normal operating temperature (cooling fan comes on).

Check for vacuum at #7 hose 5 seconds after starting the engine.

(From page 6-92)

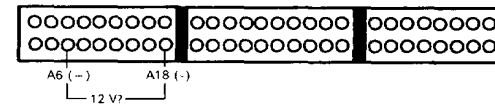
Is there battery voltage ?

YES → **Repair open in BLK wire between the 4P connector and G201.**

NO

Turn the ignition switch OFF.

Connect the PGM-FI test harness between the ECU and connector (page 6-19).



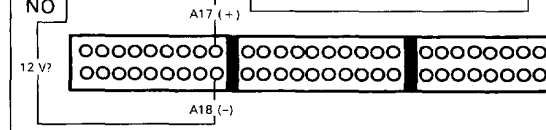
Turn the ignition switch ON.

Measure voltage between A6 (+) terminal and A18 (–) terminal.

Is there battery voltage?

YES → **Repair open in GRN wire between ECU (A6) and the 4P connector.**

NO



Measure voltage between A17 (+) terminal and A18 (–) terminal.

Is there battery voltage ?

NO → Inspect No. 14 fuse.

YES

Is No. 14 fuse OK ?

NO → **Replace fuse.**

YES

Repair open in BLK/YEL wire between ECU (A17) and No. 14 fuse.

Substitute a known-good ECU and recheck. If prescribed voltage is now available, replace the original ECU.

(To page 6-94)

(cont'd)

Evaporative Emission Controls [With CATA Ex. KQ]

Trobleshooting Flowchart (cont'd)

(From page 6-93)

Is there vacuum ?

NO → Disconnect the 4P connector.

YES

Is there vacuum ? → YES → **Repair purge cut-off solenoid valve.**

NO

Turn the ignition switch OFF.

Disconnect "A" connector from ECU.

Check for continuity to ground on GRN wire.

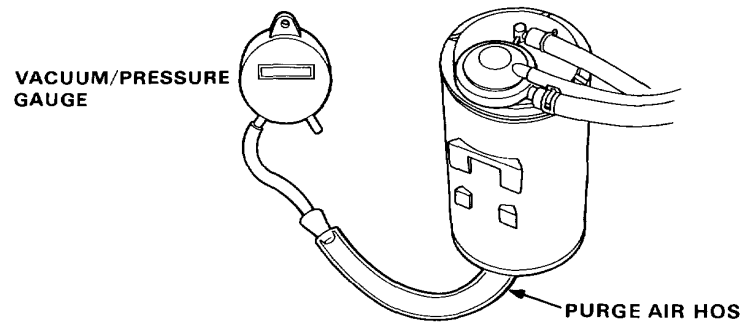
Is there continuity to ground ? → YES → **Repair short to ground in BLU wire between ECU (A6) and the 2P connector.**

NO

Substitute a known good ECU and recheck. If symptom goes away, replace the original ECU.

Connect a vacuum gauge to canister purge air hose.

Start the engine and rise speed to 3,500 min^{-1} (rpm).



(To page 6-95)

(From page 6-94)

Does vacuum appear on gauge within 1 minute ?

NO → Check the charcoal canister for signs of damage or defects.

YES

Evaporative emission controls are OK.

Is the canister OK ?

NO → **Replace the canister.**

YES

Disconnect #7 hose from the purge control diaphragm valve.

Connect a vacuum pump to the canister "purge" fitting and apply vacuum.

Does it hold vacuum ?

NO → ***Replace the canister.***

YES

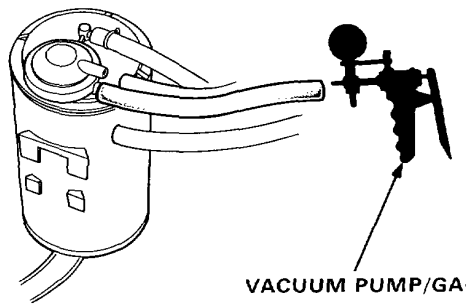
Reconnect #7 hose.

Does "purge" side vacuum drop to zero ?

NO → **Replace the canister.**

YES

See two-way valve test (page 6-100).



VACUUM PUMP/GAUGE

Evaporative Emission Control [KQ]

Troubleshooting Flowchart

Inspection of Evaporative Emission Controls

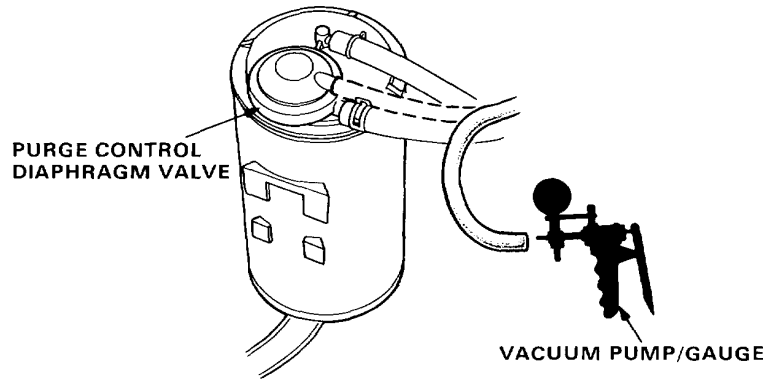
Disconnect #7 hose from the purge control diaphragm valve (on the charcoal canister) and connect a vacuum gauge to the hose.

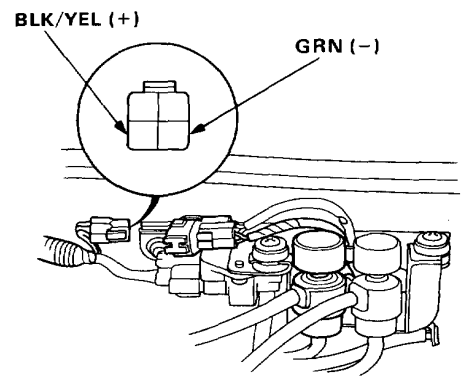
Start the engine and allow to idle. NOTE: Engine coolant temperature must be below 80°C (176°F).

Is there vacuum ?

YES → Disconnect the 2P connector.

NO





Measure voltage between BLK/YEL (+) terminal and GRN (−) terminal.

Is there battery voltage ?

YES → **Replace purge cut-off solenoid valve.**

NO

Measure voltage between BLK/YEL (+) terminal and body ground.

(To page 6-97)

(To page 6-97)

(From page 6-96)

Warm up the engine to normal operating temperature (cooling fan comes on).

Check for vacuum at #7 hose 5 seconds after starting the engine.

Is there vacuum?

NO

YES

Reconnect the hose.

Remove fuel filler cap.

(To page 11-98)

(From page 6-96)

Is there battery voltage?

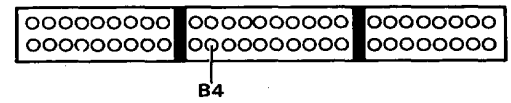
NO

Repair open in BLK/YEL wire between No. 14 fuse and the 4P connector.

YES

Turn the ignition switch OFF.

Connect the PGM-FI test harness between the ECU and connector (page 6-19).



Check for continuity of GRN wire between ECU (B4) and the 4P connector.

Does continuity exist?

NO

Repair open in GRN wire between ECU (B4) and the 4P connector.

YES

Substitute a known-good ECU and recheck. If symptom goes away, replace the original ECU.

Disconnect the 4P connector.

Is there vacuum?

YES

Replace purge cut-off solenoid valve.

NO

Turn the ignition switch OFF.

Disconnect "B" connector from ECU.

Check for continuity to ground on GRN wire.

(To page 11-98)

(cont'd)

Evaporative Emission Controls [KQ]

Troubleshooting Flowchart (cont'd)

(From page 6-97)

Connect a vacuum gauge to canister purge air hose.

Start the engine and raise speed to 3,500 min^{-1} (rpm).

Does vacuum appear on gauge within 1 minute ?

NO → Check the charcoal canister for signs of damage or defects.

YES

Evaporative emission controls are OK.

Is the canister OK ?

NO → **Replace the canister.**

YES

Disconnect #7 hose from the purge control diaphragm valve.

Connect a vacuum pump to the canister "purge" fitting and apply vacuum.

Does it hold vacuum ?

NO → **Replace the canister.**

YES

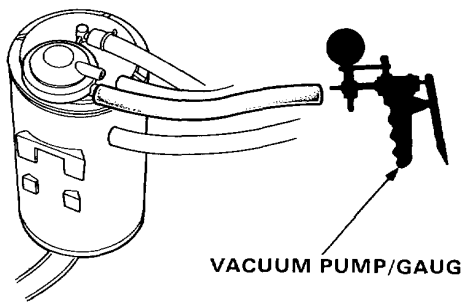
Reconnect #7 hose.

Does "purge" side vacuum drop to zero ?

NO → **Replace the canister.**

YES

See two-way valve test (page 6-100).



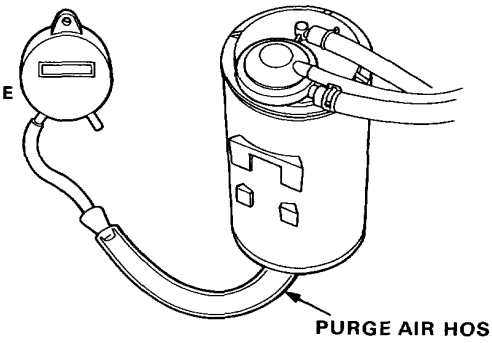
(From page 6-97)

Is there continuity to ground ?

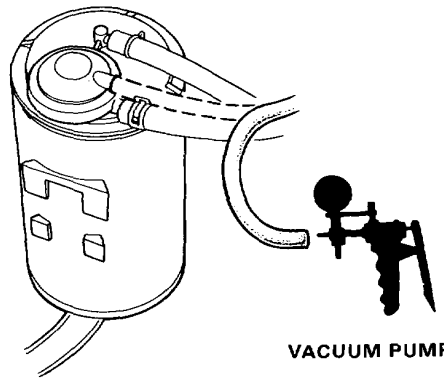
YES → **Repair short to ground in BLU wire between ECU (B4) and the connector.**

NO

Substitute a known good ECU and recheck. If symptom goes away, replace the original ECU.



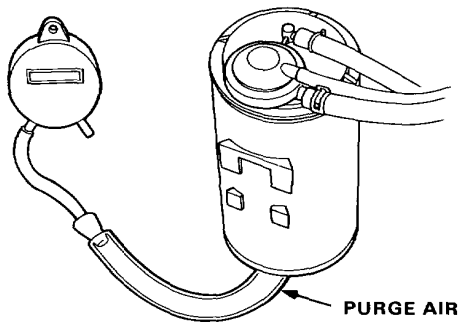
1. Remove the fuel filler cap.
2. Start the engine and allow to idle.
3. Disconnect #7 hose at the purge control diaphragm valve (on the charcoal canister) and connect a vacuum gauge to the hose.



VACUUM PUMP/GAUGE

- If there is no vacuum, check #7 hose for blockage, cracks or disconnected hose, as well as vacuum port for blockage.

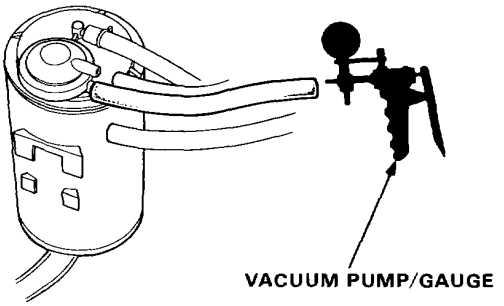
4. Disconnect the vacuum gauge and reconnect the hose.
5. Connect a vacuum gauge to canister purge air hose.



PURGE AIR HOSE

6. Raise engine speed to 3,500 min^{-1} (rpm).
   Vacuum should appear on gauge within 1 minute.
   - If vacuum appears on gauge in 1 minute, remove gauge, test is complete.
   - If no vacuum, disconnect vacuum gauge and reinstall fuel filler cap.
7. Remove charcoal canister and check for signs of damage or defects.
   - If defective, replace canister.
8. Stop engine. Disconnect upper vacuum hose from canister "PCV" fitting.
   Connect a vacuum pump to canister "purge" fitting as shown, and apply vacuum.

   Vacuum should remain steady.



VACUUM PUMP/GAUGE

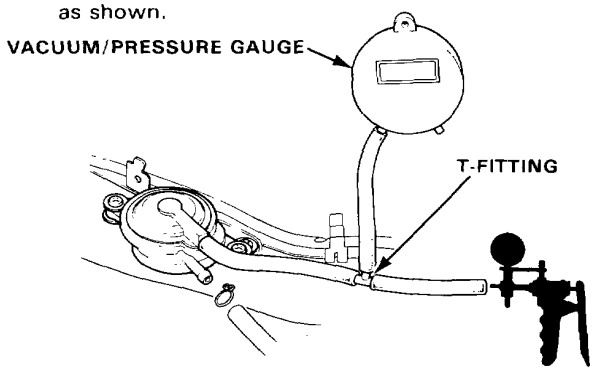
   - If vacuum drops, replace canister and retest.
9. Restart engine. Reconnect hose to canister "PCV" fitting.

   "PURGE" side vacuum should drop to zero.
   - If "PURGE" side vacuum does not drop to zero, replace the canister and retest.

Evaporative Emission Controls

Two-Way Valve Test [With CATA and KY]

1. Remove the fuel filler cap.
2. Remove vapor line from the fuel tank and connect to T-fitting from vacuum gauge and vacuum pump as shown.

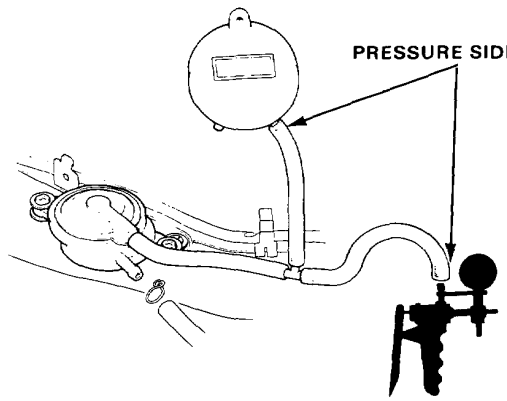


3. Slowly apply vacuum while watching the gauge.

   Vacuum should stabilize momentarily at 5 to 15 mmHg (0.2 to 0.6 in. Hg).

   - If vacuum stabilizes (valve opens) below 5 mmHg (0.2 in. Hg) or above 15 mmHg (0.6 in. Hg), install new valve and retest.

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



5. Slowly pressurize the vapor line while watching the gauge.

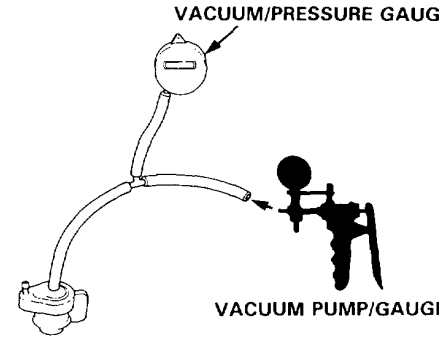
   Pressure should stabilize at 10 to 35 mmHg (0.4 to 1.4 in. Hg).

   - If pressure momentarily stabilizes (valve opens) at 10 to 35 mmHg (0.4 to 1.4 in. Hg), the valve is OK.
   - If pressure stabilizes below 10 mmHg (0.4 in. Hg) or above 35 mmHg (1.4 in. Hg), install a new valve and retest.

Two-Way Valve [Without CATA Ex. KY]

Test

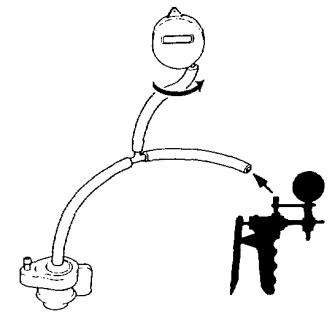
1. Remove the fuel filler cap.
2. Remove the vapor line from the canister or frame, and connect to a T-fitting from the vacuum gauge and the vacuum pump as shown.



3. Slowly draw a vacuum while watching the gauge. Vacuum should stabilize at 15 to 30 mmHg (0.6 to 1.2 in. Hg).

   - If vacuum stabilizes momentarily (Two-way Valve opens) between 15 and 30 mmHg (0.6 and 1.2 in. Hg), go on Step 4.
   - If vacuum stabilizes (valve opens) below 15 mmHg or above 30 mmHg (1.2 in.Hg), install new valve and retest.

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



5. Slowly pressurize the vapor line while watching the gauge.
   Pressure should stabilize at 10 to 25 mmHg (0.4 to 1.0 in.Hg).

   - If pressure momentarily stabilizes (Valve opens) at 10 to 25 mmHg (0.4 to 1.0 in.Hg), the valve is OK.
   - If pressure stabilizes below 10 mmHg (0.4 in.Hg) or above 25 mmHg (1.0 in. Hg), *install* a new valve and re-test.