1982 Fuel Evaporation Systems

HONDA

Accord, Civic, Prelude

DESCRIPTION

System prevents gasoline vapors from escaping into atmosphere from fuel tank and carburetor. System consists of pressure/vacuum relief fuel filler cap, liquid/vapor separator, 2-way valve, charcoal canister, air vent cut-off diaphragm, power valve control solenoid, and purge control diaphragm valve. Hoses connect valves, canister and fuel tank.

OPERATION

When gasoline and vapor in fuel tank expand, they force open the 2-way valve. Liquid fuel is separated and returned to tank, while vapors pass to canister and are adsorbed by charcoal filter. Excess air is vented to atmosphere.

When engine is started, primary main fuel cut-off solenoid valve opens, allowing manifold vacuum to purge control valve and vacuum holding solenoid valve. Vacuum is sent to air vent cut-off diaphragm so it will open and vent float bowls. When engine is warm, thermovalve opens and operates purge control diaphragm valve; vacuum flows to canister purge diaphragm and air is drawn through to purge canister. *See Fig. 1.*

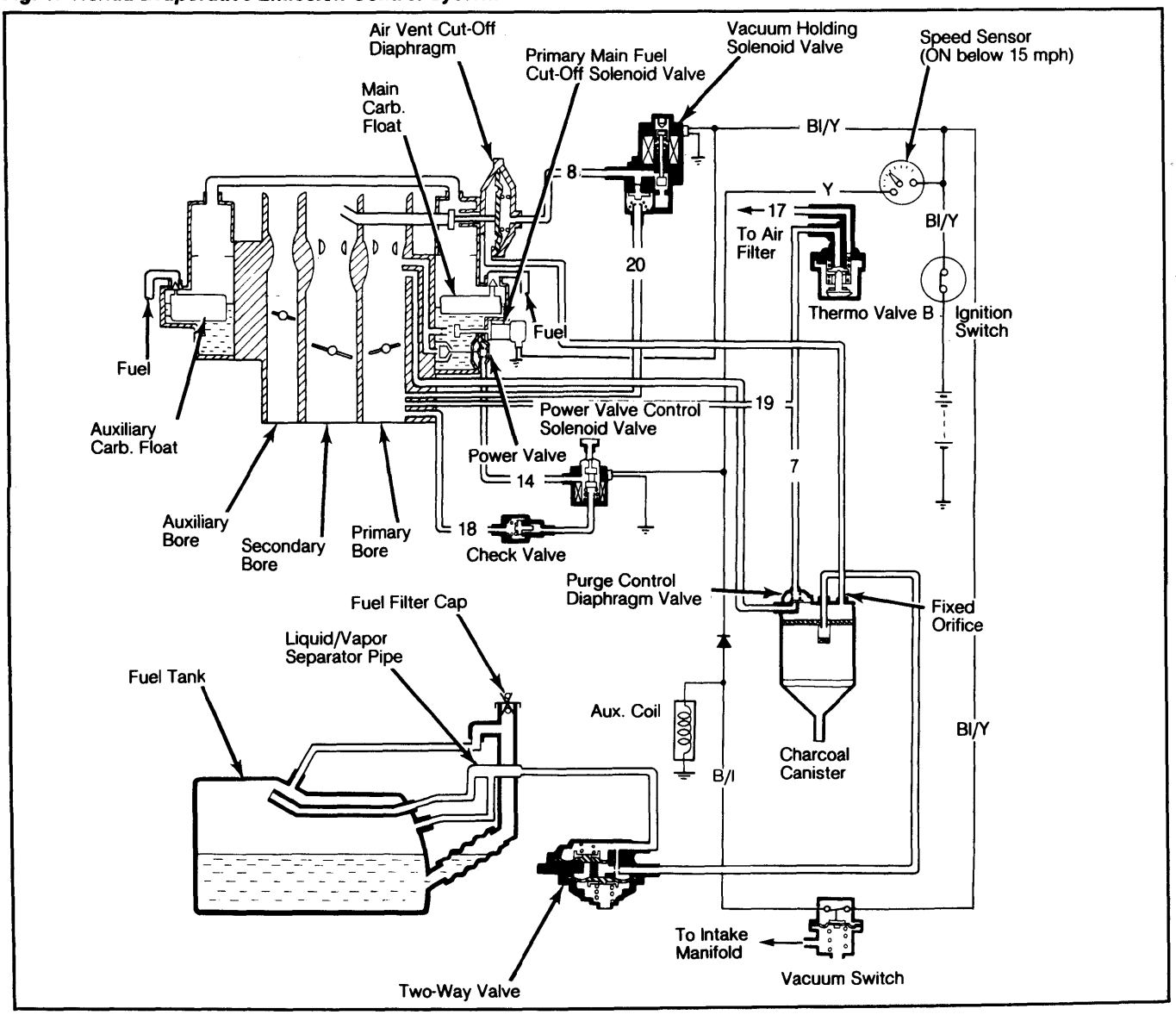
TESTING

THERMOVALVE & PURGE CONTROL DIAPHRAGM VALVE

1) With engine cold, disconnect upper hose at purge control diaphragm valve and connect vacuum gauge to hose. Start engine and run at idle speed. Check that there is no vacuum.

2) If there is vacuum, check thermovalve B. Drain coolant until level is below distributor holder.

Fig. 1: Honda Evaporative Emission Control System



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HONDA (Cont.)

Remove distributor holder from cylinder head, then remove thermovalve.

3) Attach hand vacuum pump to thermovalve. Suspend thermovalve in cold water with thermometer. Draw a vacuum on valve, then heat water slowly making note of temperature.

4) Thermovalve B should open (not hold vacuum) below 97°-111°F (36°-44°C) and close (hold vacuum) above 115°-129°F (46°-54°C). If it does not, replace valve.

5) If there was no vacuum, warm engine to normal operating temperature. Check that there is vacuum at idle speed. If not, check thermovalve B by pinching off hose to the air filter.

6) If vacuum is now present, replace thermovalve B. If not, check hoses 7 & 19 for leaks or blockage. *See Fig. 1.* Disconnect vacuum gauge and reconnect hose.

CHARCOAL CANISTER

1) Connect tachometer and warm engine to normal operating temperature. Remove fuel filler cap. Remove canister purge air hose from frame near canister and connect vacuum gauge. Run engine at 3500 RPM.

2) Vacuum should appear on gauge within 1 minute. If not, disconnect vacuum gauge and reinstall fuel filler cap. Check charcoal canister for damage or defects. If defective, replace canister.

3) If canister is okay, stop engine and disconnect PCV hose from canister. Connect vacuum pump to canister purge fitting and draw vacuum. Vacuum should remain steady. If vacuum drops, replace canister and retest.

4) If vacuum remains steady, reconnect PCV hose to canister and start engine. Purge side vacuum should drop to zero. If not, replace canister and retest.

TWO-WAY VALVE

1) Remove gas cap and disconnect fuel vapor hose from liquid/vapor separator. Attach vacuum pump with gauge reading from 0-4 in. (0-100 mm) Hg. Slowly draw vacuum while observing gauge.

2) Vacuum should stabilize at .2-.6 in. (5-15 mm) Hg as 2-way valve opens. Reverse pump and gauge connections and slowly pressurize vapor hose. Pressure should momentarily stabilize at 1.0-2.2 in. (25-55 mm) Hg on Accord and Prelude models or 1.4-2.8 in. (35-70 mm) Hg on Civic models. If not, check hose connections or replace valve.

POWER VALVE CONTROL SOLENOID & CHECK VALVES

1) Remove hose from power valve (on carburetor). Connect vacuum pump to hose and draw vacuum with ignition key "OFF". Vacuum should remain steady. If not, replace check valve.

2) Turn ignition to "On". Vacuum should drop. If vacuum remains steady, remove check valve and connect vacuum pump to hose and draw vacuum. Vacuum should remain steady, If not, replace power valve solenoid.

3) Connect vacuum gauge to hose from power valve. Start engine and run at idle. Vacuum should be present. When engine is warm, vacuum will drop.

AIR VENT CUT-OFF DIAPHRAGM

1) Disconnect hose at air vent cut-off diaphragm (on carburetor) and connect a vacuum pump to hose. Turn ignition "ON" and draw a vacuum. Vacuum should hold steady.

2) If no vacuum, check for leaks in hose connections. If okay, check for voltage at vacuum holding solenoid valve. If voltage is present, replace vacuum holding solenoid valve and retest.

3) Start engine and run at idle. Vacuum should be present. If not, check for blockage in hose. If no blockage, replace vacuum holding solenoid valve and retest.

4) Turn ignition "OFF". Vacuum should drop to zero. Disconnect vacuum pump from vacuum holding valve hose and connect to air vent cut-off diaphragm. Draw a vacuum. Vacuum should remain steady. If vacuum decreases, replace diaphragm and retest. Remove vacuum pump and replace hose.

MAINTENANCE

Inspect system, hoses, and connections and test all components at 60,000 miles or every 5 years.