Honda Accord/Prelude 1984-1995

In-Tank Fuel Pumps

TEST

1. Turn the ignition OFF.

2. On the Accord, remove the screws securing the underdash fuse box to its mount. Remove the fuel cut-off relay from the back of the fuse block and turn the block so you can see the relay mount. Use a jumper wire to connect the two left-most terminals of the relay mount (terminal 1 to terminal 2).

3. On Preludes, remove the dashboard under cover; remove the fuel cut-off relay from the fuse block. Use a jumper wire to connect the top 2 terminals (terminals 1 and 2) of the relay mount.

4. Disconnect the fuel line at the fuel filter in the engine compartment. Connect a pressure gauge to the fuel line.

5. Turn the ignition key ON until pressure on the gauge stabilizes, then turn the key OFF.

6. Pressure should be between 2.6-3.3 psi (18-22.7 kPa). If the pressure shown is below minimum, the pump must be replaced. If pressure is at least minimum, continue with the test.

7. Remove the pressure gauge from the fuel line; hold the line in a quart container. Have an assistant turn the ignition switch ON for 60 seconds, then shut it OFF.

8. Fuel flow in 60 seconds must be at least 25.7 oz. (760 cc).

9. If fuel pump volume is below specification, the pump must be replaced.

10. Remove the jumper wire at the fuse block. Reinstall the fuel cut-off relay. Reinstall the fuse block on its mount.

Carbureted Fuel System

GENERAL INFORMATION

On these vehicles, the engine management system is considered part of the emission control system. The major components include the carburetor(s), feedback control system, the air injection system, a throttle control system and the EGR system. The system consists of sensors and switches that feed information to the Electronic Control Unit (ECU), which will then operate several solenoid valves to maintain the ideal air/fuel ratio under all conditions.

As useful as the tests found in this section are, the first step in repair or service to engine management systems is still to gain as much information as possible about the problem; when and under what conditions it occurs. At highway speed? At idle only? Only under heavy load or hard acceleration? Wet weather? Defining the problem will eliminate many systems from consideration and possibly point to the affected system. Before diving into an extended electrical diagnosis, take the time to review the basics. Check every vacuum line for cracks or leaks. Check every electrical connector for corrosion or loose pins. Quite often, simply unplugging and reconnecting a connector will break up corrosion on the pins and restore the circuit. Watch out for poor grounds, particularly if the car has experienced major bodywork.

COMPONENT TESTING

Air Injection System

The purpose of this system is to supply oxygen to the exhaust stream at a point in the exhaust manifold that is hot enough to burn off some of the hydrocarbon emissions. The main component is an air suction valve. The valve is spring loaded to stay closed, with engine vacuum supplied to a diaphragm that reduces the spring pressure and allows the reeds to open. The ECU regulates the engine vacuum to the diaphragm by operating a solenoid valve.

1. With the engine at normal operating temperature and at idle, remove the air cleaner and listen for a bubbling sound at the air suction port. There should be no sound at idle, meaning the air suction valve is closed.
2. If the noise is heard at the air suction port, disconnect the vacuum hose at the air suction valve and connect a vacuum gauge to the hose. There should be no vacuum. If there is vacuum and the noise stops, the problem is in the control system. If there is no vacuum and the bubbling sound is still there, the air suction valve is defective and must be replaced.
3. To test the valve, draw a vacuum at the air suction valve diaphragm and listen for a bubbling sound at the air suction port. If no sound is heard, the air suction valve or diaphragm is faulty.

Throttle Control System

See Figure 1

The purpose of this system is to help prevent an overly rich air/fuel mixture when the throttle closes at high rpm, such as during shifting or deceleration. At idle, high manifold vacuum is applied to the throttle controller to keep the throttle open to the idle position. When the throttle is opened for increased power, the manifold vacuum decreases and the stored vacuum in the throttle controller leaks away through the check valve. When the throttle pedal is released, the increased manifold vacuum causes the throttle controller to slowly close the throttle to the idle position.

1. With the engine at operating temperature and at idle, disconnect the vacuum hose to the throttle controller. The idle rpm should increase to 2200 rpm on manual transaxles or

1900 rpm with automatic transaxles (in Neutral). If the speed is incorrect, adjust it by bending the tab.
2. If the rpm did not change, check the vacuum at the hose. If there is vacuum, the throttle controller is faulty. If there is no vacuum, there is a vacuum leak or a misrouted hose.

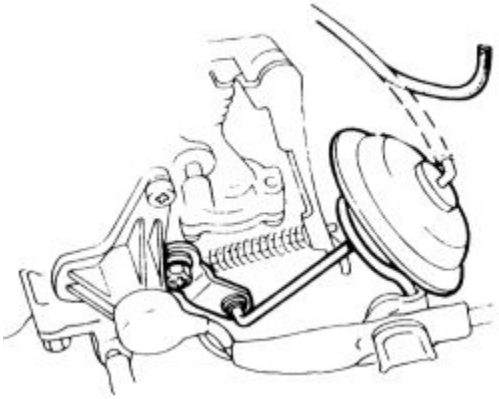

Fig. 1: With the hose disconnected from the throttle controller, the idle speed should change

Idle Boost Control

See Figure 2

When the air conditioner is turned on, the solenoid valve is activated to allow manifold vacuum into the idle boost throttle controller. This device pulls the throttle open only enough to maintain the specified idle speed, not increase it. The throttle opening can be adjusted with a screw on top of the unit.

1. With the engine at normal operating temperature and all accessories off, make sure idle speed is 800 rpm on manual transaxle models or 750 rpm with on automatics. If it is incorrect, do not adjust idle speed yet.
2. Remove the vacuum hose from the top of the idle boost controller and attach a vacuum gauge. There should be no vacuum. Turn the air conditioner on; there should be vacuum. When the hose is reconnected to the boost controller, idle speed should return to specification.
3. If there is vacuum to the boost controller when the air conditioner is off, unplug the connector to the idle boost solenoid valve on the firewall. If the vacuum is still there, the solenoid valve is faulty.
4. If there is no vacuum with the air conditioner on, check for 12 volts at the solenoid valve connector. If there is voltage, the solenoid valve is faulty. If there is no voltage at the red wire, look for 12 volts at ECU terminal A 8 with the air conditioner on. If the voltage is there, the wiring is faulty. If there is no voltage and the air conditioner works, the ECU is faulty.
5. If the idle boost controller functions, but needs adjustment, run the engine at idle and disconnect the vacuum hose from the solenoid valve. Attach a hand vacuum pump to the boost controller.

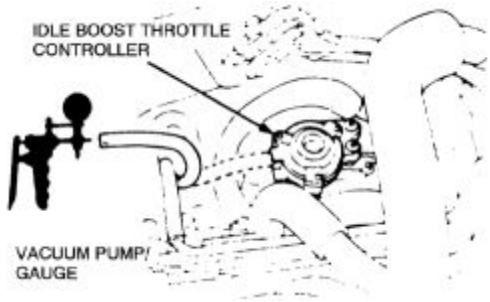

Fig. 2: The idle boost controller can be tested using a hand vacuum pump

6. Draw a vacuum on the controller. The idle should rise to about 1200 rpm. Remove the cap from the adjusting screw on top of the controller and turn the adjuster as necessary.

Air Leak Solenoid Valve

See Figure 3

During normal operation, a small amount of air is leaked into the primary jets of the carburetors to control the mixture and promote fuel atomization. When starting or under full power, the air leak solenoid valve is closed to provide a slightly richer air/fuel mixture. On Preludes, the valve is mounted inside the air cleaner between the carburetors. The ECU looks at ignition, transmission/clutch, and vacuum switch positions, vehicle speed, coolant/intake air temperatures and the MAP sensor when making the decision to operate this valve.

1. Remove the air cleaner and connect a hand vacuum pump to the valve. With the engine cold and at idle, pull a vacuum; it should hold at about 4 in. Hg (102 mm Hg) of vacuum. If it does, allow the engine to warm up to normal operating temperature.

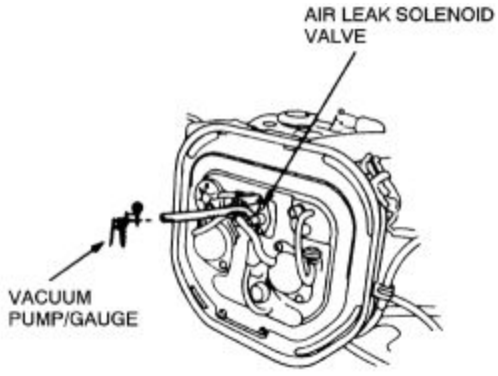

Fig. 3: Testing the air leak solenoid-Prelude shown

2. At normal operating temperature and the inlet air temperature at least 158°F or 70°C (when measured at the TA sensor in the intake manifold), the valve should not hold vacuum. If it does hold vacuum and there is no voltage to the solenoid at the green wire, the solenoid or air bleed valve inside the solenoid is faulty.
3. If there is voltage to the solenoid at idle, the ECU is faulty.

Primary Slow Mixture Cut-Off Solenoid Valve

See Figure 4

There is one of these valves in each carburetor, used to cut-off the fuel flow in the idle circuit. They are energized when the ignition is *ON*, and de-energized during deceleration or when the ignition is *OFF*.

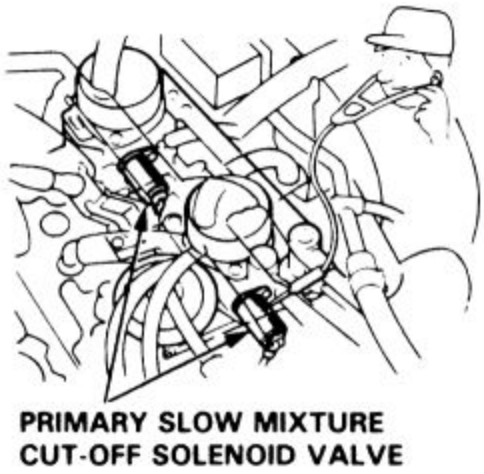

Fig. 4: The solenoid valves may be checked by listening to them

1. Turn the ignition *ON* and unplug the black/yellow wire at each valve one at a time. By making and breaking the connection, it should be possible to hear the valve click. If either valve sticks open, the engine will probably run-on after the ignition is turned *OFF*.

Vacuum Piston Control System

See Figure 5

The variable venturi size is achieved by moving a piston up and down inside the venturi. The piston is manifold vacuum actuated. A storage chamber ensures that vacuum is still available at wide open throttle. Since manifold vacuum is used to operate the piston, venturi size is proportional for all throttle openings. A solenoid valve operated by the ECU is used to shut off the vacuum and let the pistons fall during deceleration.

1. Disconnect the vacuum hose from the top of the carburetor, connect a hand vacuum pump to the piston and draw a vacuum. It should leak down slowly as the piston falls.
2. Start the engine. With the engine idling at normal operating temperature, the piston should not hold vacuum. There is an internal passage from the top of the piston to the intake manifold which pulls the vacuum off faster when the engine is running.

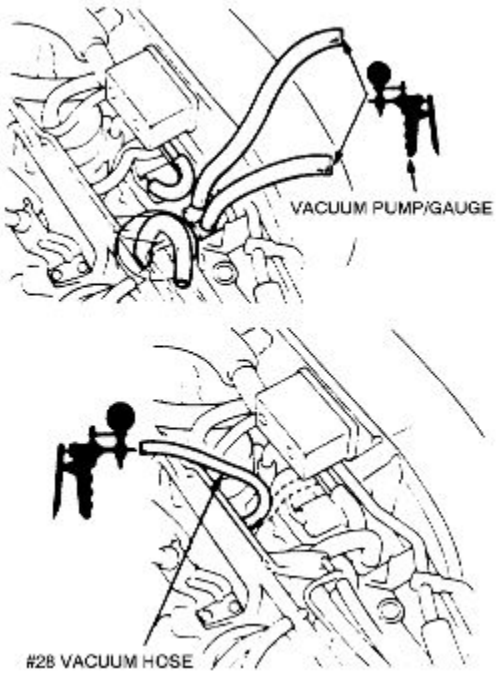

Fig. 5: Testing the vacuum piston control system

3. Disconnect hose No. 28 (refer to the vacuum diagrams in this section) from the air cleaner to the piston control solenoid valve and connect a vacuum gauge. At idle there should be vacuum. Run the engine at about 3000 rpm and allow the throttle to snap closed. The vacuum should drop almost completely for a moment. The solenoid valve is operated by the ECU during deceleration through the yellow (positive) wire and the black (negative) wire.

Power Valve

At the bottom of the carburetor is a valve which opens to allow more fuel into the main jet passage. The valve is vacuum actuated by a 2-way solenoid valve, energized by the ECU during hard acceleration.

1. Start the engine and warm it to normal operating temperature. Disconnect vacuum hose No. 14 (refer to the vacuum diagrams in this section) from the pipe assembly and connect a vacuum gauge. There should be vacuum, indicating the 2-way valve is activated and preventing vacuum from reaching the power valve.
2. If there is no vacuum, check for a vacuum leak. Make sure the solenoid valve is receiving 12 volts between the green/yellow wire and the black wire when the engine is at idle.
3. If no voltage is reaching the solenoid valve, check the green/yellow wire that comes from the ECU. If there is no short or open circuit, the ECU is not receiving the proper sensor inputs or the ECU is faulty.

Automatic Choke

The choke is vacuum actuated by the choke opener and is dependent on coolant temperature. A thermowax valve controls coolant flow through the carburetor heating passages. As the coolant

heats up, flow to the carburetor heat passages is decreased and vacuum to the choke opener becomes available. The choke opener is a pull-off diaphragm connected to the choke linkage. Failure of this system can cause hard cold start conditions.

1. With the engine cold, disconnect the vacuum hose from the choke opener and connect a hand vacuum pump with a gauge. Disable the ignition system so the engine will not start and turn the ignition switch to *START*. There should be no vacuum, indicating the solenoid valve is activated.
2. Disconnect the hose from the manifold and draw a vacuum on the opener through the hose. It should stabilize at about 4-8 in. Hg (102-203 mm Hg) of vacuum and the opener should pull the linkage.