HONDA AIR INTAKE CONTROL SYSTEM

All Models

DESCRIPTION

The air intake control system is a thermostatic air cleaner assembly which maintains a uniform air temperature of air entering the carburetor. This temperature is maintained in a narrow range (approximately 95-100°F/35-38°C), regardless of outside air temperature, to permit finer tuning and balancing of the carburetor. This helps control hydrocarbon (HC) and carbon monoxide (CO) emissions and permits better fuel atomization for more complete combustion.

The air intake control system consists of the air cleaner, an outside air intake hose, a hot air hose, an air control diaphragm, a temperature controlled air bleed valve, an air control valve door, and a combined vacuum check valve and fixed orifice.

OPERATION

The following is a description of the reaction of system components during operation under all engine modes:

Engine Cold (Below 100°F) – Bleed valve is closed as manifold vacuum builds. The air control diaphragm exerts vacuum pressure which pulls up on the valve door. The valve door rises, permitting heated air from around the exhaust manifold to enter the air cleaner (outside, cold air is blocked).

Engine Hot (Above 100°F) – Bleed valve is open and manifold pressure bleeds out. The air control diaphragm no longer has vacuum pressure and the internal spring pushes down on the valve door, The valve door returns to down position, blocking off heated air and permitting outside air to enter air cleaner.

Check Valve – This valve acts to prevent vacuum pressure loss during periods of wide-open throttle.

Fixed Orifice – This unit prevents rapid pressure changes at the diaphragm. It allows smooth operation of the valve door. It also maintains the proper air/fuel ratio.

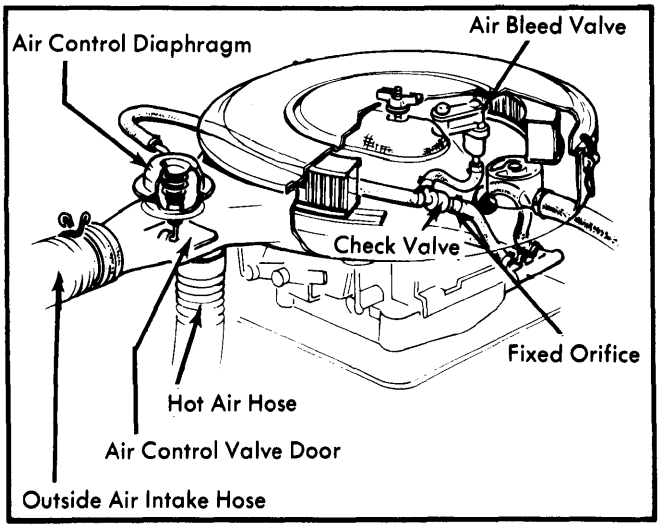

Fig. 1 Cutaway View of Air Intake Control System

TESTING & TROUBLE SHOOTING

COLD ENGINE TESTING

1) Remove air cleaner cover and filter element. With engine cold, crank engine for about 5 seconds.

2) Air control door should rise and remain fully open for at least 3 seconds after cranking.

IMPROPER DOOR ACTION

1) If air door did not respond as indicated above (did not rise or fall), first test the air bleed valve:

2) Disconnect and plug hose leading to air bleed valve, then crank engine for about 5 seconds.

3) Air control valve door should rise and remain up for at least 3 seconds. If it does, replace air bleed valve and repeat test.

4) If door does not rise or remain open, proceed with testing of the air control diaphragm and check valve:

5) Disconnect the vacuum hose from the air control diaphragm. Raise air control valve door manually and, while blocking the inlet pipe, release the valve door.

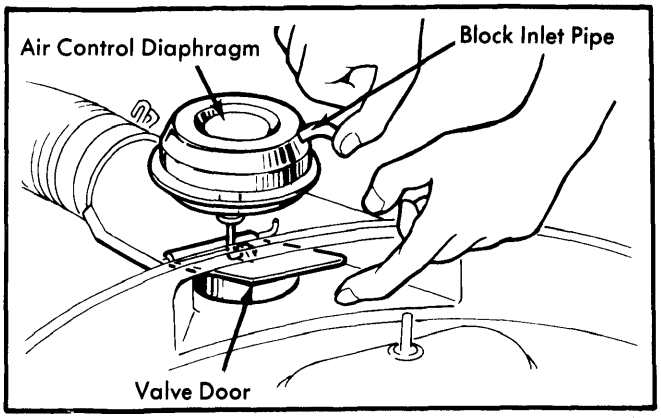

Fig. 2 Testing Air Control Diaphragm and Check Valve

6) If valve door remains up, replace the check valve and repeat the test.

7) If valve door drops to closed position, replace the air control diaphragm and repeat test.

HOT ENGINE TESTING

1) With engine running at normal operating temperature and cooling fan on, remove air cleaner cover and filter and immediately inspect door position.

2) Valve door should have dropped down to fully closed position (hot air intake blocked off).

3) If not, disconnect vacuum hose from air control diaphragm. If door closes, replace air bleed valve and retest. If door does not close, check for binding condition and repair.