

1980 Exhaust Emission Systems

GENERAL MOTORS PULSE AIR INJECTION REACTOR

DESCRIPTION

The Pulse Air (PAIR) Injection system is a non-pump type air injection system which uses engine exhaust pulses to draw fresh air into the exhaust system. This helps to further oxidize HC and CO emissions. System consists of a grouping of check valves in a Pulse Air valve assembly (2 used on V6 and V8 applications) and related tubing.

The Pulse Air system is used on Chevrolet Chevette, 151" 4 cylinder engines (except Calif.), and on some V6 and V8 engines.

OPERATION

Each one of the check valves in the pulse air valve is connected to an exhaust port. The firing of the engine creates a pulsating flow of exhaust gases. When positive exhaust pressure is felt, the check valve will be forced closed and no exhaust gas will flow past the valve into the fresh air supply line. With negative exhaust pressure (vacuum), the check valve will open and fresh air will be drawn and mixed with exhaust gases. During high engine RPM, the check valve will remain closed (such as under heavy acceleration).

TESTING

FUNCTIONAL TEST

- 1) Connect hand vacuum pump to Pulse Air valve as follows:
 - On 4 cylinder engines, detach hose from fitting on valve and attach vacuum pump directly to fitting with hose or stopper-and-hose combination.

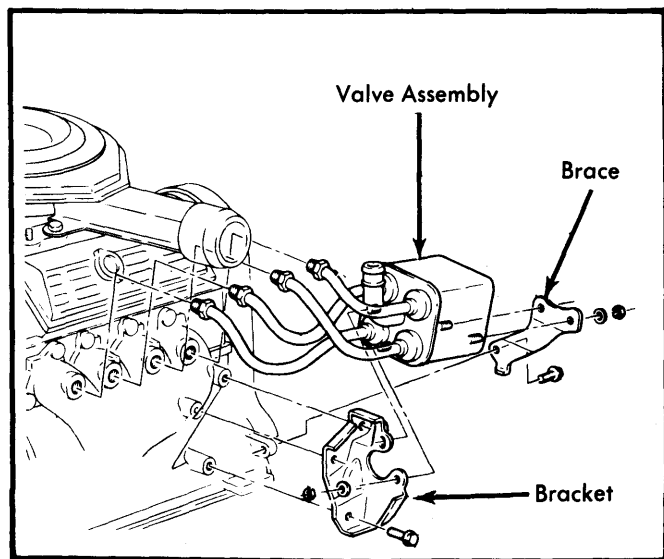


Fig. 1 Pulse Air Valve Mounting Location Shown (Chevette Illustrated; Others Similar)

- On V6 and V8 engines, front and rear Pulse Air valves must be tested separately. Disconnect hose from front valve, and if equipped, disconnect Pulse Air solenoid from valve. Connect pump to front or rear valve fitting with hose or stopper-and-hose combination.

- 2) Apply more than 15 in. Hg. Note the time required for vacuum level to drop from 15 in. Hg to 5 in. Hg. If less than 2 seconds, replace valve as it is not holding vacuum properly.

TROUBLE SHOOTING

FAILURE DIAGNOSIS

Short Hissing Noise – May indicate a defective pulse air valve or improper torque at manifold. Inspect pulse air valve.

Surge or Poor Performance – May be caused by failure of one or more check valves. Exhaust gas will enter carburetor through air cleaner and cause poor driveability.

Excessive Heat; Paint Burned Off of Valve – Exhaust gas passing through pulse air valve, sending heat to valve body. Rubber hose will also be damaged. A short hissing noise may also be noticed. Check air valve.

Poor Driveability – Rubber hose deteriorated. Hose particles entering carburetor causing poor driveability. Clean carburetor. Replace air valve.

NOTE – For diagrams of vehicles using PAIR system, see General Motors Vacuum Diagrams in this section.

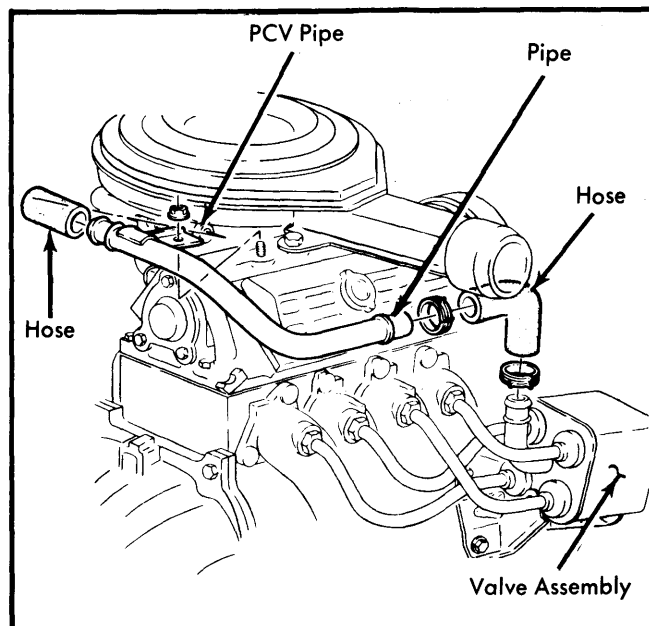


Fig. 2 Showing Typical Installation of PAIR Valve Pipe and Hose (Chevette Shown; Others Similar)