

JEEP THERMOSTATIC AIR CLEANER

All Models

DESCRIPTION

All Jeep vehicles use a system for pre-heating the air entering the carburetor. This system is part of the air cleaner and maintains air temperature at a point where the carburetor can be calibrated at a leaner setting to reduce hydrocarbon emissions and improve engine performance during warm-up.

Jeep systems are vacuum operated and consist of a heat shroud on the exhaust manifold, a hot air duct, a thermal sensor switch, a vacuum motor, an air valve assembly and a reverse delay valve.

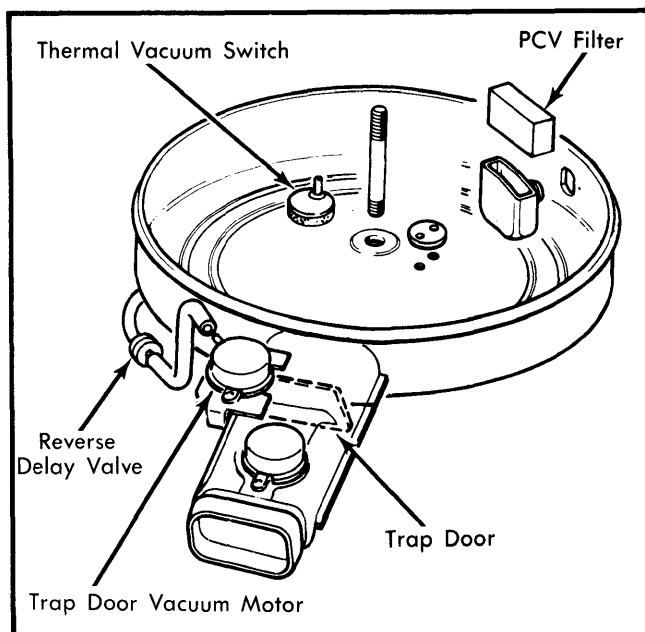


Fig. 1 Jeep Thermostatic Air Cleaner Assembly

OPERATION

During engine warm-up, the temperature sensor switch applies vacuum to the vacuum motor. The air diverter valve is held in the ON position. Exhaust manifold heated air flows to the air cleaner. As the temperature of incoming air increases to 90°F, the temperature sensor opens the vacuum line to the atmosphere allowing spring pressure to push the valve to the OFF position. Air now flows from the outside, through the air cleaner duct to the carburetor.

AIR CLEANER TRAP DOOR

On California vehicles, a spring-loaded trap door is built-in to the air cleaner to close the air cleaner when the engine is shut-off. The door is vacuum operated.

REVERSE DELAY VALVE

A reverse delay valve is installed in the vacuum line in some vehicles to prevent the trap door from closing during low engine vacuum periods. The valve provides about 9 seconds delay before allowing the trap door to close completely.

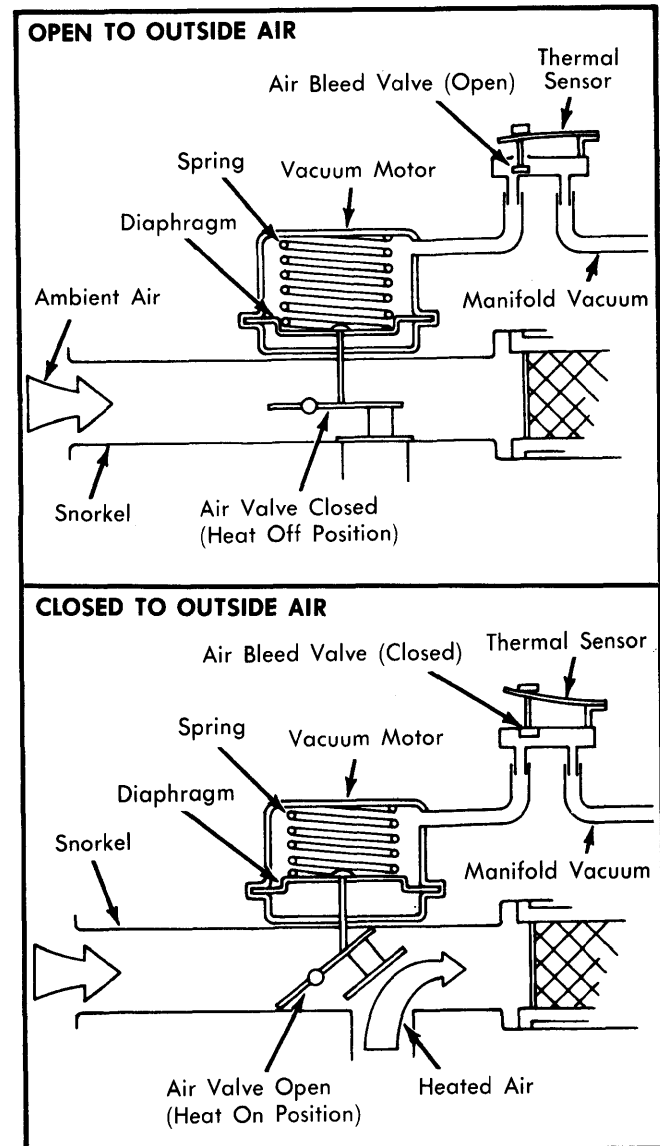


Fig. 2 Cross Section of Jeep Thermostatic Air Cleaner Assembly

TESTING

VACUUM MOTOR & TEMPERATURE SENSOR

- 1) Remove air cleaner assembly from vehicle and allow to cool to room temperature. Sight through air cleaner duct and observe position of air diverter valve. It should be fully open to outside air.
- 2) Reinstall assembly on carburetor and connect hot air duct and manifold vacuum hose. Start engine and observe position of air diverter valve. It should be fully closed to outside air.
- 3) Move throttle lever rapidly to $\frac{1}{2}$ to $\frac{3}{4}$ opening and release. Air diverter valve should open and then close again. Allow engine to warm to operating temperature and observe position of air diverter valve. It should be fully open to outside air.

JEEP THERMOSTATIC AIR CLEANER (Cont.)

4) If valve does not move to fully close off outside air at 83°F or less with vacuum applied, check for binding of the duct, vacuum leaks in hose connections or disconnected vacuum motor. If valve mechanism operates freely and no vacuum leaks are detected, connect a hose from intake manifold vacuum source directly to vacuum motor.

5) If diverter valve now moves to close off outside air, replace thermal sensor switch. If valve still does not move to close off outside air, replace air cleaner assembly and vacuum motor assembly.

TRAP DOOR

1) With engine off, remove air cleaner and check position of trap door. It should be closed.

2) Remove vacuum hose from intake manifold vacuum source and apply an external vacuum source of approximately 2-4 in. Hg. Trap door should open.

3) If door does not open, apply vacuum directly to vacuum motor. If door does not open, check for binding and adjust as necessary. If door swings freely, replace vacuum motor.

4) If door opens during step 3), check vacuum hose for blockage, cracks or leaks. Correct as necessary and retest as specified in step 2).

5) If hoses are not defective, remove reverse delay valve, join vacuum hose and retest from step 2). If door opens, replace reverse delay valve.

REVERSE DELAY VALVE

Remove vacuum hose from red end of valve and apply an external vacuum source of approximately 2-4 in. Hg. With clock, or watch in view, measure time required for vacuum to be eliminated through valve. If time is less than 4.5 seconds, or more than 13.2 seconds, replace reverse delay valve.