

Exhaust Emission Systems

JEEP THERMOSTATIC AIR CLEANER

DESCRIPTION

6 Cylinder Engines — System consists of a two-piece heat shroud positioned over the exhaust manifold, a hot air hose and an air duct and valve assembly which is attached to the air cleaner by two cap screws. The air duct and valve assembly incorporates an air valve, a thermostat unit and two springs.

V8 Engines — System consists of a heat shroud which is integral with the right side exhaust manifold, a hot air hose and a special air cleaner assembly equipped with a thermal sensor and a vacuum motor and air valve assembly. The thermal sensor incorporates an air bleed valve which regulates the amount of vacuum applied to vacuum motor, thereby controlling the air valve position to supply either heated air from exhaust manifold or air from engine compartment.

OPERATION

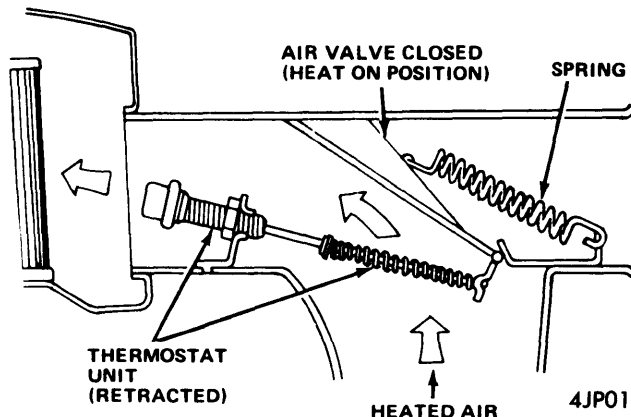
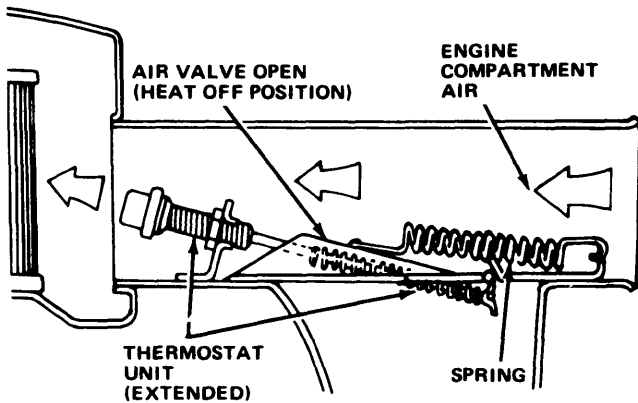
6 Cylinder Engines — The thermostat unit in the air duct is exposed to incoming air. Spring loaded air valve is connected to the thermostat unit through linkage. The air valve spring holds the valve in the closed position (heat on) until the thermostat unit overcomes the spring tension. When air temperature entering the air duct is less than 105°F, the thermostat is in the retracted position and the air valve is held in the closed position (heat on) by the air valve spring, thus shutting off air from engine compartment. Air is then drawn from the shroud at the exhaust manifold. As temperature of air passing thermostat unit rises, thermostat starts to open and

pulls air valve down. This allows cooler air from engine compartment to enter air cleaner. When temperature of air reaches 130°F, the air valve is in the open position (heat off) and only engine compartment air is allowed to enter air cleaner.

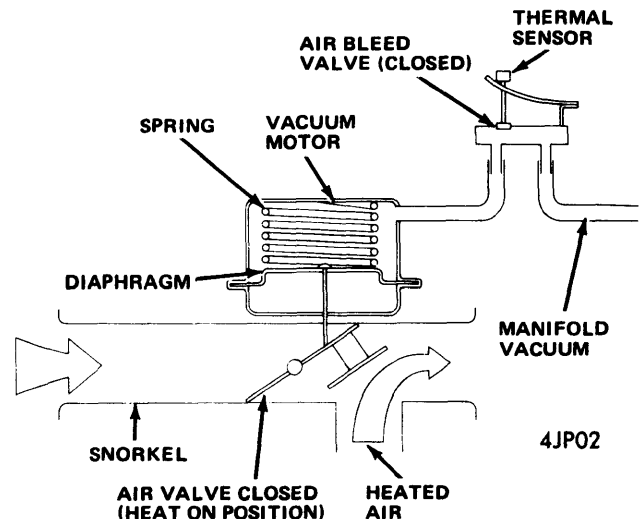
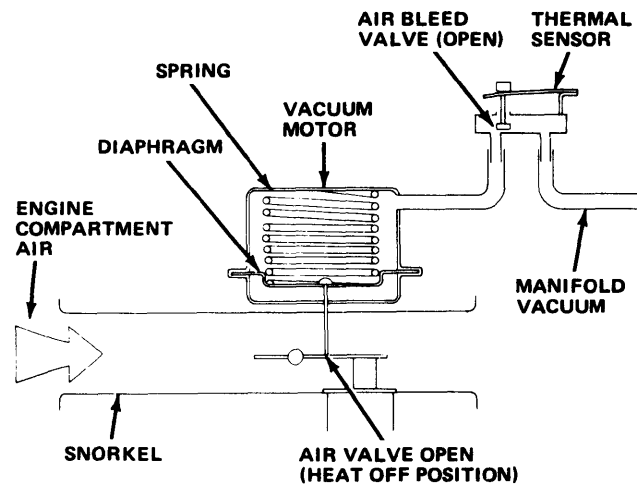
V8 Engines — During warm-up period when underhood air temperatures are low, the air bleed valve is closed and sufficient vacuum is applied to vacuum motor to hold air valve in the closed (heat on) position. As intake air temperature approaches approximately 115°F, the air bleed valve opens to decrease the amount of vacuum applied to the vacuum motor. Diaphragm spring in the vacuum motor then moves the air valve into the open (heat off) position, allowing only underhood air to enter air cleaner. The air valve in the air cleaner snorkel will also open, regardless of air temperature, during heavy acceleration operation to obtain maximum air flow through the air cleaner.

TESTING

6 Cylinder Engines — Remove air duct and valve assembly from air cleaner and place it in a container of cold water making certain the thermostat unit is covered by water. Place a



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6 CYLINDER ENGINES**



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V8 ENGINES**

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thermometer in the water and observe the temperature while heating the water slowly. With water temperature at 105°F or less, the air valve must be in the closed (heat on) position. Heat water until temperature reaches 130°F. Air valve must be in the fully open (heat off) position. If air valve does not open and close at temperatures specified, check valve mechanism for a binding condition or a disconnected or defective spring. If valve mechanism is in satisfactory condition, thermostat unit is defective and the air valve and duct assembly must be replaced.

V8 Engines — Remove air cleaner assembly from engine and allow it to cool for 15 minutes at room temperature. After cooling, look through air cleaner snorkel to observe position of the air valve, it should be fully open to outside air. Reinstall air

cleaner and connect hot air tube and manifold vacuum hose. Start engine and observe position of air valve, it should be fully closed to outside air. Move throttle lever rapidly to approximately $\frac{1}{2}$ to $\frac{3}{4}$ opening and then release it. Air valve should open and then close. Allow engine to warm up to operating temperature and observe position of air valve, it should be fully open to outside air. If air valve does not close at room temperature with vacuum applied, check for mechanical bind in the snorkel, vacuum motor linkage disconnected or vacuum leaks in hoses or connections at vacuum motor, thermal sensor and intake manifold. If air valve mechanism is operating freely and no vacuum leaks are detected, connect a hose from an intake manifold vacuum source directly to the vacuum motor. If the air valve closes, thermal sensor is defective and must be replaced. If air valve does not close, vacuum motor is defective and must be replaced.