AMERICAN MOTORS FUEL VAPOR CONTROL SYSTEM

DESCRIPTION & OPERATION

The Fuel Vapor Control system prevents raw fuel vapors from escaping into the atmosphere. Fuel vapors from the fuel tank and carburetor bowl are collected in a charcoal filled canister and are metered into the intake manifold for combustion. The system incorporates the following:

Fuel Tank Filler Cap – Filler cap incorporates a 2-way relief valve which is normally closed to atmosphere. Relief valve is calibrated to open only when a pressure of more than .8 psi or vacuum of more than .1 in. Hg occurs. When pressure or vacuum is relieved, valve returns to normally closed condition.

NOTE – *It is normal to occasionally encounter an air pressure release when removing the filler cap.*

Charcoal Canister – The charcoal canister is filled with granules of activated charcoal. Vapors entering the canister are adsorbed onto the surface of the granules.

All models use canisters with a staged dual purge feature. Two inlets are provided, one for tank vapor and one for carburetor fuel bowl vapor. The outlet is connected to intake manifold vacuum. The fourth nipple is connected to carburetor spark port.

When engine is running, manifold vacuum draws fresh air through inlet filter in canister and purges stored vapors. When ported vacuum increases (increased throttle opening), secondary purge circuit is opened, and canister is purged at a much greater rate. A replaceable air filter is installed in bottom of canister.

Rollover Check Valve – Rollover check valve prevents fuel flow from tank through vent line in the event of vehicle rollover. The check valve consists of a plunger and stainless steel ball. When inverted, ball presses plunger against seat. Properly functioning valve will sustain 3 psi of air pressure on inlet side when inverted.

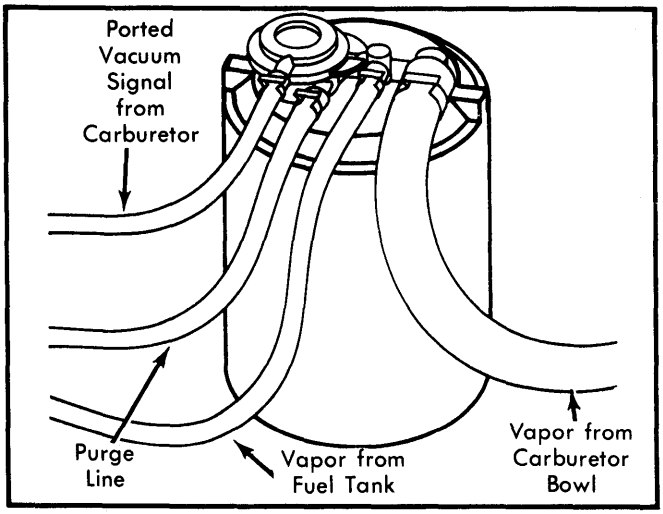

Fig. 1 View of Charcoal Canister and Hoses

Carburetor External Bowl Vent – The carburetor external bowl vent provides an outlet for fuel vapors when engine is not running. If vent were not provided, raw fuel vapors would enter the atmosphere. Some vapors would also enter the intake manifold, making hot restarts difficult.

When the engine is running, the fuel bowl must be vented to the inside of the air cleaner for proper fuel flow. This is accomplished by automatically closing the bowl vent with manifold vacuum.

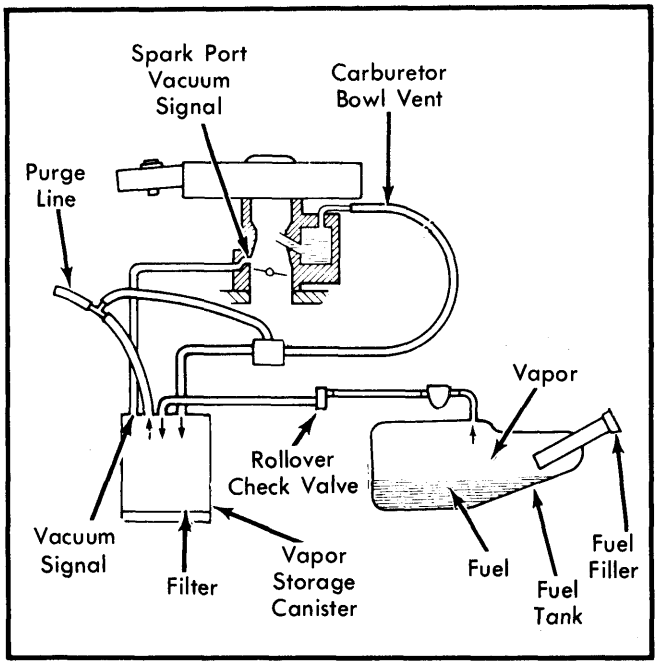

Fig. 2 View of Typical Fuel Vapor Control System

Fuel Return System – All AMC vehicles with 6-cylinder engines use a fuel return system. This system reduces the possibility of high temperature fuel vapor problems. System consists of a line connecting extra nipple on fuel filter to extra nipple on fuel tank sending unit. During normal operation, a small amount of fuel is returned to fuel tank. When underhood temperatures are high, vaporized fuel is returned to tank and does not pass through carburetor. Check valve prevents fuel from feeding back through fuel return line.

MAINTENANCE

Fuel Vapor Control System – Inspect check valve, hoses, connections and canister every 30,000 miles (replace as necessary). Replace fuel filter every 12,000 miles if necessary, and canister filter every 30,000 miles.