

1974-79 EXHAUST EMISSION SYSTEMS

Subaru Fuel Evaporation

3-405

All Models

DESCRIPTION

The fuel evaporation system prevents fuel vapors in gas tank from being discharged into the atmosphere. The system includes a sealed fuel tank, two vapor separators (if equipped), a purge check valve, a two-way valve (if equipped), an overflow limiter, a charcoal canister, and two orifices installed in the fuel vapor line to prevent fuel spillage in the event of a vehicle rollover.

OPERATION

When engine is stopped, accumulated fuel vapors flow into charcoal canister through evaporation hose. When engine is idling, high manifold vacuum closes purge valve, trapping vapors in canister. As engine speed increases, carburetor vacuum overcomes manifold vacuum to open purge valve, allowing vapors to enter intake manifold.

The two-way valve (located in evaporation hose) controls the flow of fuel vapor from fuel tank to charcoal canister and the flow of fresh air into tank. The check valve (located between canister and intake manifold) closes when engine is stopped to prevent vapors from entering intake manifold and accumulating there.

TESTING

SYSTEM TEST

- 1) Drain gasoline from fuel tank and place fuel cap tightly on filler neck. Disconnect hose from canister and fuel delivery hose from pipe under the vehicle.
- 2) Connect a water column manometer that measures more than 15.8 in. water to hose. See Fig. 1.
- 3) Apply compressed air into canister side of evaporation hose until manometer indicates 14.2 in. water. Air pressure MUST NOT exceed 2.13 psi (.5 kg/cm²) during this test.
- 4) System is functioning correctly if it takes 5 minutes or longer for water in column to drop 1.97 in. water.

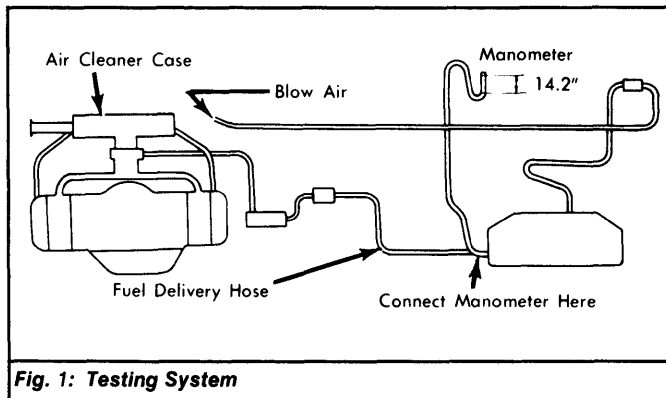


Fig. 1: Testing System

TWO-WAY VALVE

Apply air pressure to fuel tank connection of valve. Valve should open at .59-1.37 in. Hg. Apply air pressure to canister side of valve and check that valve opens at .30-.32 in. water. If valve does not function as described, it should be replaced.

CHECK VALVE

Connect a "T" fitting and a manometer to canister side of valve. Remove hose from intake manifold side. Blow air through valve in direction of arrow mark on valve. Valve should start to open at .2-.6 in. water. If valve does not pass this test, replace it.

OVERFLOW LIMITER

Apply .59 in. Hg to fuel tank connection of limiter. Limiter should open at this pressure. Next, apply .24 in. Hg pressure to air cleaner connection, valve should now open. If valve does not function as described, it should be replaced.

MAINTENANCE

Check for fuel leaks and proper functioning of the system every 12 months or 12,500 miles. If clogged hoses are found, clean with solvent and blow dry with compressed air. Replace any damaged or worn hoses. Replace the evaporation tube to air cleaner every 24 months or 25,000 miles.

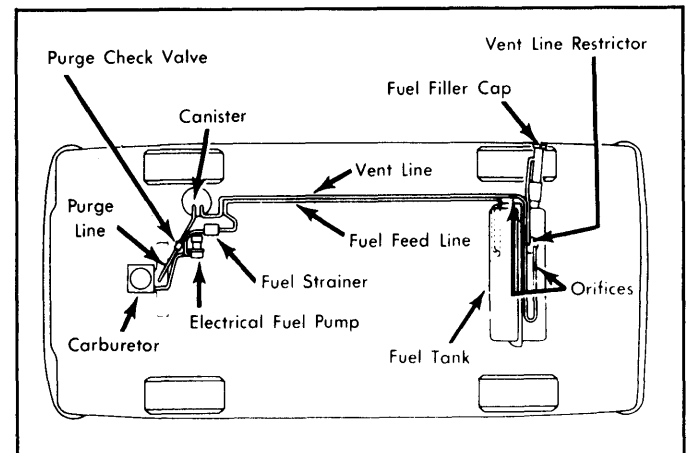


Fig. 2: Fuel Evaporation System (Sedans, Coupes & Hardtops)

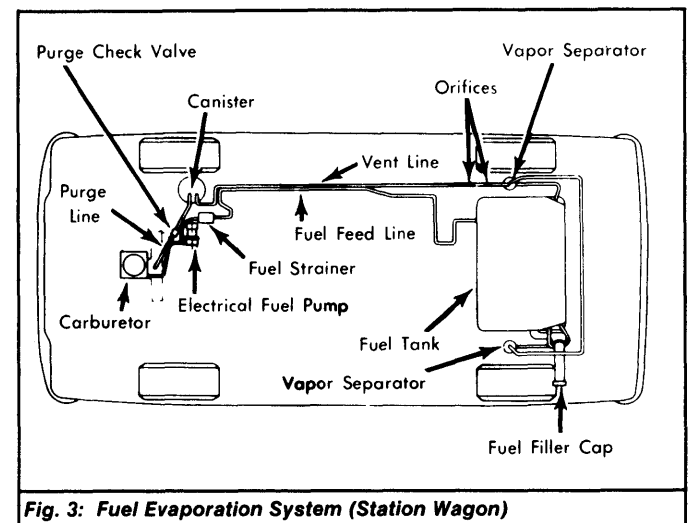


Fig. 3: Fuel Evaporation System (Station Wagon)

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Subaru Fuel Evaporation (Cont.)

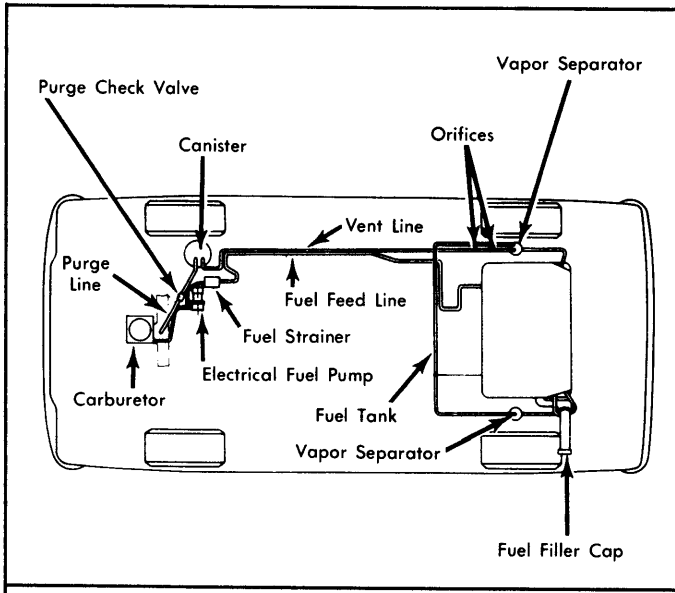


Fig. 4: Fuel Evaporation System (4WD Models)

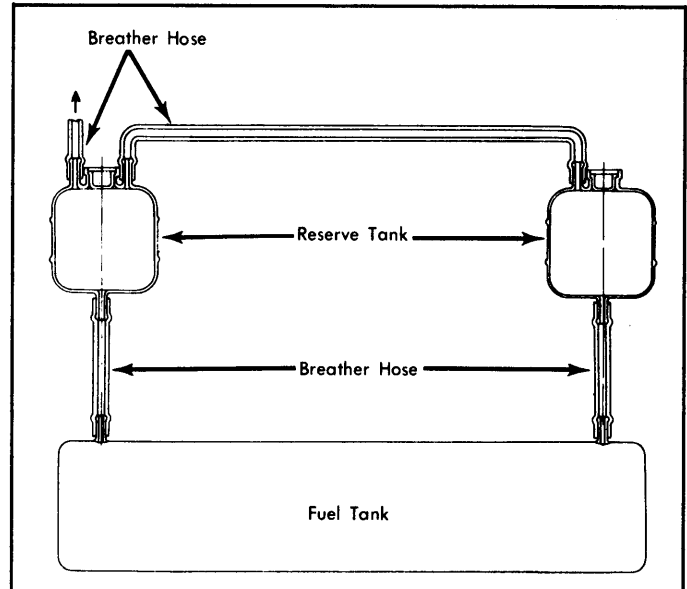


Fig. 5: Vapor Separator System (Station Wagon & 4WD Models)