SECTION 7

Evaporative Emission Systems

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Evaporative Emission Systems

DESCRIPTION

Typical Air Cleaner Purge Evaporative Emission System

Fuel Tank Venting

Fuel vapors trapped in the sealed fuel tank are vented through the orificed vapor valve assembly in the top of the tank. The vapors leave the valve assembly through a single vapor line and continue to the carbon canister (located in the engine compartment or along the frame rail), for storage, until they are purged to the engine for burning.

Carburetor Venting

If the engine is equipped with a carburetor, the vapors from the fuel bowl are vented to the carbon canister by a second tube to the carbon canister.

NOTE: To ensure efficient flow of vapors, the line from the carburetor bowl should have a continuous downhill slope to the canister.

Canister Purging

Purging the carbon canister removes the fuel vapor stored in the carbon canister. With an air cleaner purge system, vapors flow from the carbon canister to the air cleaner and into the engine.

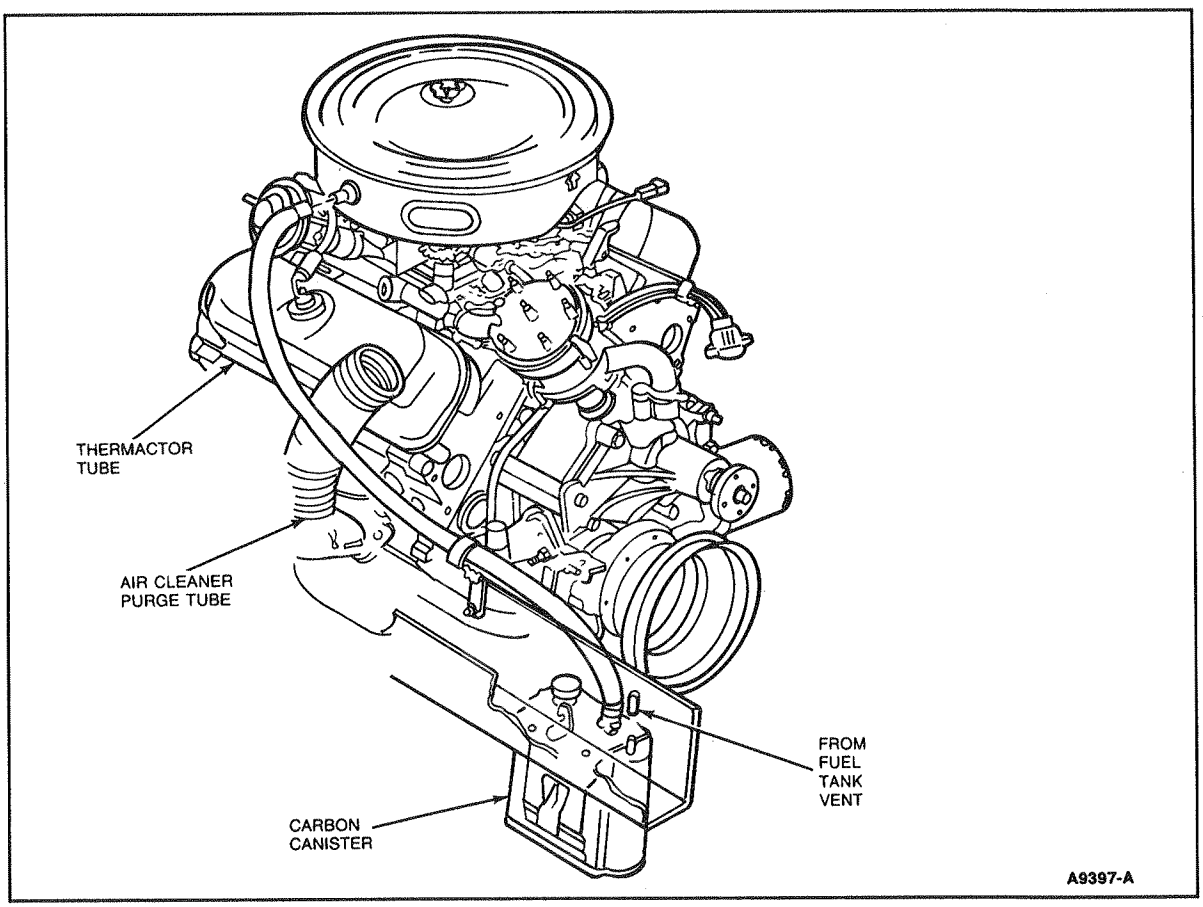

Figure 1 Typical Air Cleaner Purge Evaporative Emission System

Evaporative Emission Systems

Typical Carbureted Engine Purge System

Fuel Tank Venting

Fuel vapors trapped in the sealed fuel tank are vented through the orificed vapor valve assembly in the top of the tank. The vapors leave the valve assembly through a single vapor line and continue to the carbon canister (located in the engine compartment or along the frame rail), for storage, until they are purged to the engine for burning.

Carburetor Venting

Carburetor vapors from the fuel bowl are vented to the carbon canister. The flow is controlled by a fuel bowl solenoid vent, thermal vent valve, or vacuum thermal bowl vent valve located in the carburetor bowl vent line.

NOTE: To ensure efficient flow of vapors, the line from the carburetor bowl should have a continuous downhill slope to the canister.

Canister Purging

Purging the carbon canister removes the fuel vapor stored in the carbon canister. The flow of vapors from the canister to the engine is controlled by a purge solenoid or a vacuum controlled purge valve. Purging occurs when the engine is at operating temperature and off idle.

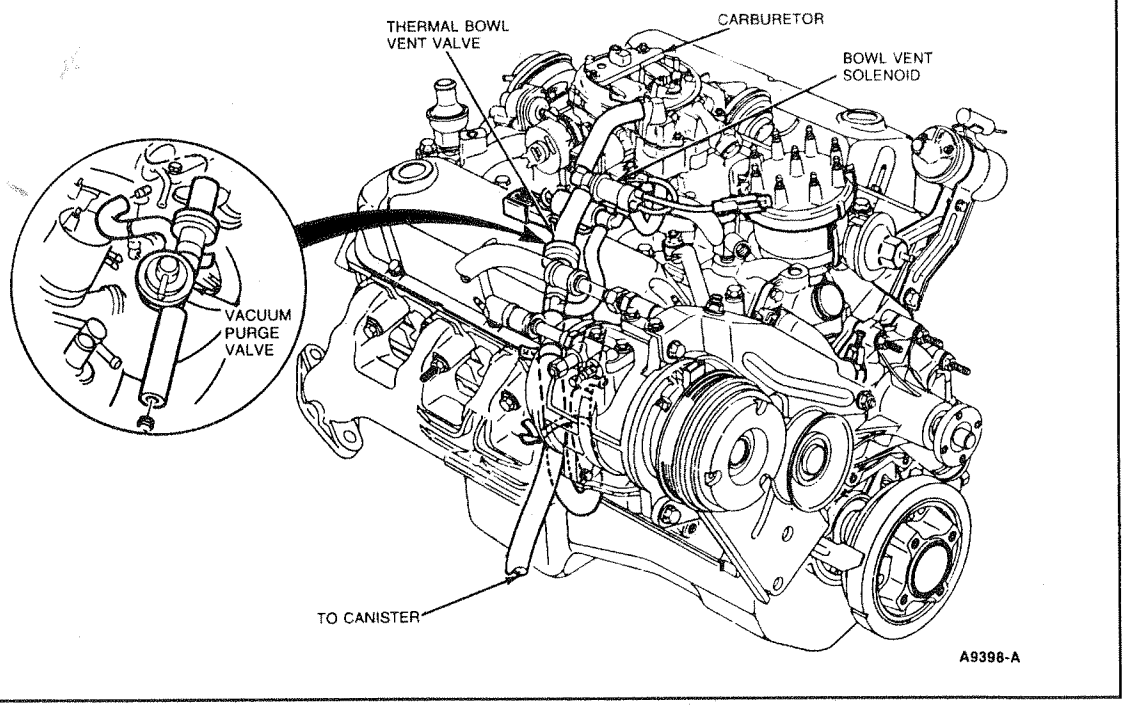

Figure 2 Typical Purge Evaporative Emission for Carbureted Engines

Evaporative Emission Systems

Typical EEC-IV Purge System (CFI and EFI)

Fuel Tank Venting

Fuel vapors trapped in the sealed fuel tank are vented through the orificed vapor valve assembly in the top of the tank. The vapors leave the valve assembly through a single vapor line and continue to the carbon canister (located in the engine compartment or along the frame rail), for storage, until they are purged to the engine for burning.

Canister Purging

Purging the carbon canister removes the fuel vapor stored in the carbon canister. With an EEC controlled purge system, the flow of vapors from the canister to the engine is controlled by a purge solenoid or vacuum controlled purge valve. Purging occurs when the engine is at operating temperature and off idle.

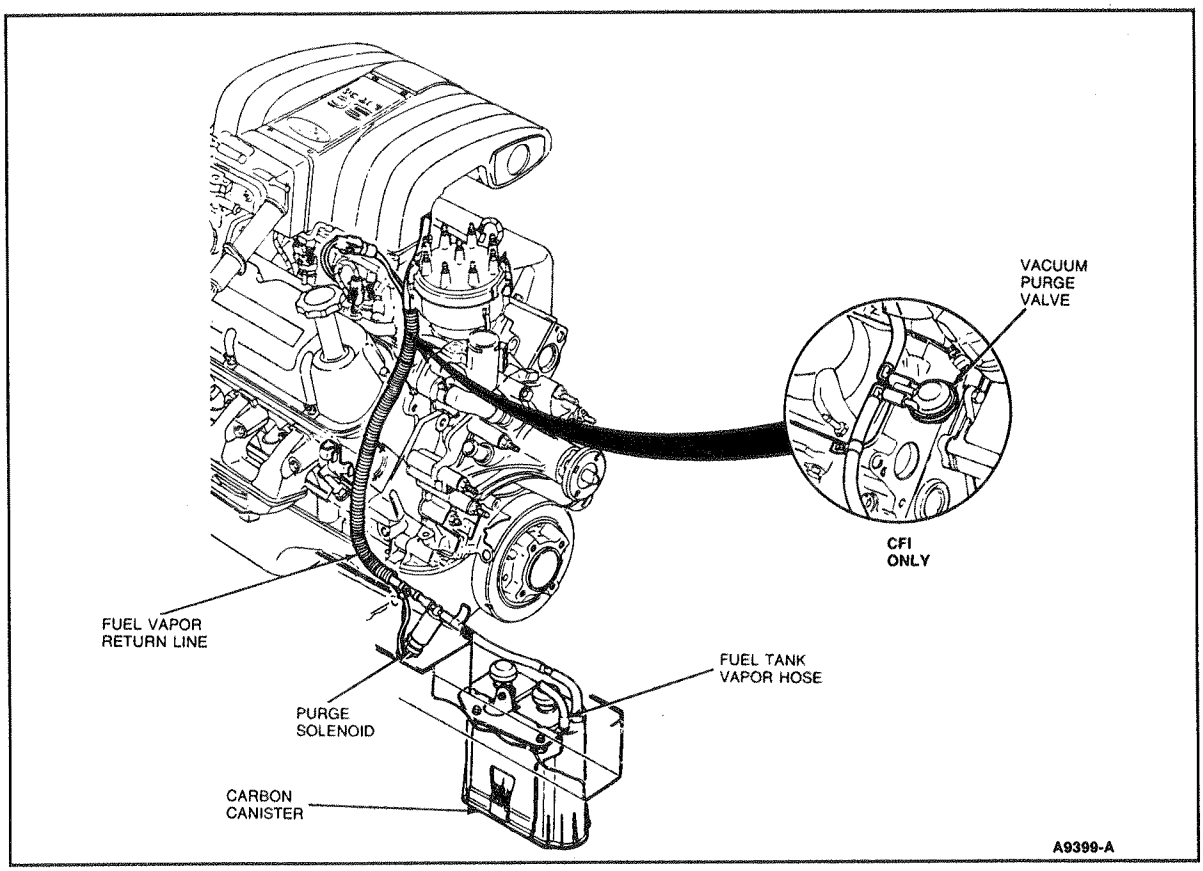

Figure 3 Typical EEC-IV Purge Evaporative Emission System — CFI and EFI

Evaporative Emission Systems

Typical Purge Port System

Fuel Tank Venting

Fuel vapors trapped in the sealed fuel tank are vented through the orificed vapor valve assembly in the top of the tank. The vapors leave the valve assembly through a single vapor line and continue to the carbon canister (located in the engine compartment or along the frame rail), for storage, until they are purged to the engine for burning.

Carburetor Venting

If the engine is equipped with a carburetor, the vapors from the fuel bowl are vented to the carbon canister. The flow is controlled by a fuel bowl solenoid vent valve, thermal vent valve, or vacuum thermal bowl vent valve located in the carburetor bowl vent line.

NOTE: To ensure efficient flow of vapors, the line from the carburetor bowl should have a continuous downhill slope to the canister.

Canister Purging

Purging the carbon canister removes the fuel vapors stored in the carbon canister. With a purge port system, the vapors flow from the carbon canister to the carburetor or throttle body.

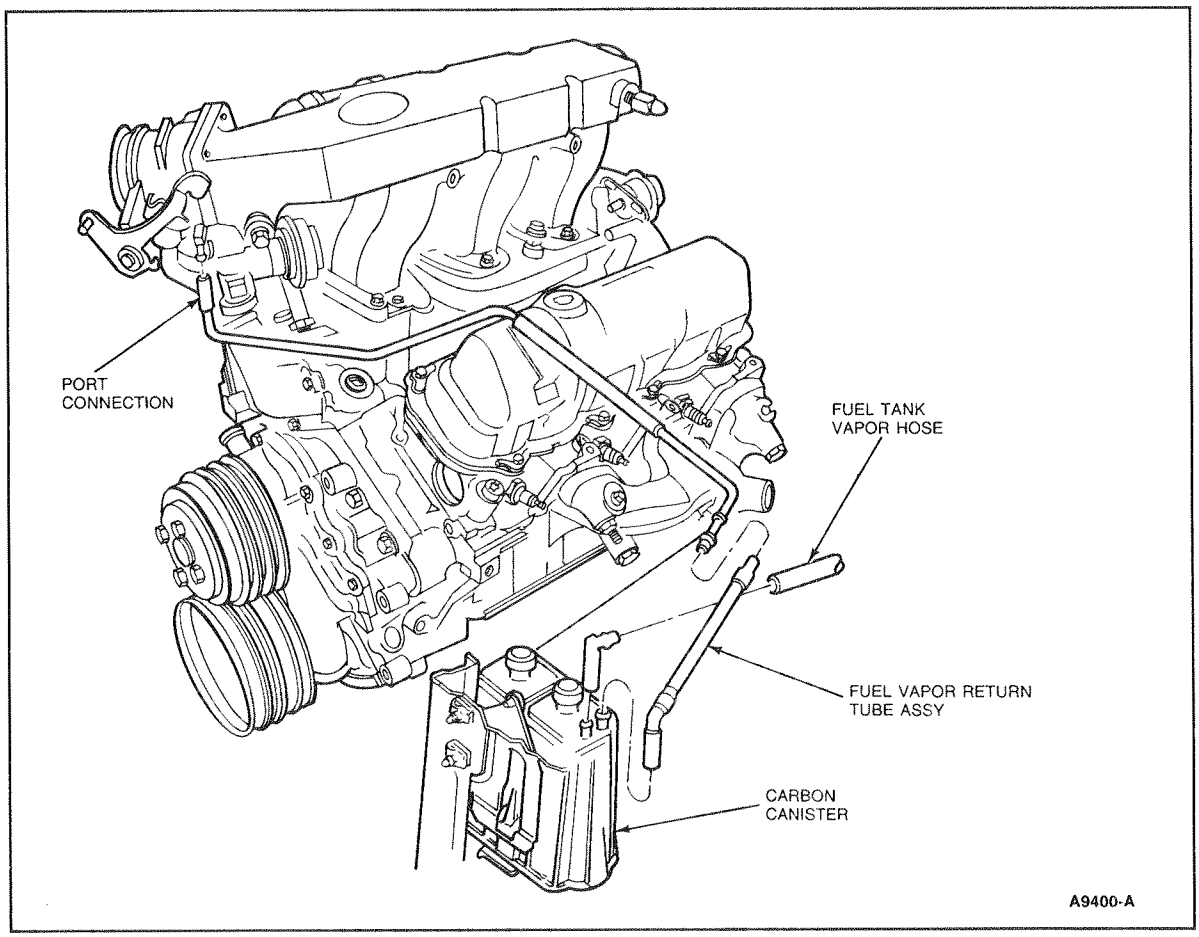

Figure 4 Typical Ported Purge Evaporative Emission System

Evaporative Emission Systems

DIAGNOSIS

CONDITION	POSSIBLE CAUSE	ACTION
• Crank Normally But Slow to Start	• Thermostatic Bowl Vent Valve or Carburetor Fuel Bowl Thermal Vent Valve Malfunction.	• Perform Diagnosis. Refer to Section 3.
• Rough Idle	• Thermostatic or Vacuum Bowl Vent Valve Open or Leaking.	• Perform Diagnosis. Refer to Section 3.
	• Canister Purge Regulator Valve Open.	• Perform Diagnosis. Refer to Section 3.
	• Carburetor Fuel Bowl Solenoid Vent Valve Open.	• Perform Diagnosis. Refer to Section 3.
	• Canister Purge Valve Open or Leaking.	• Perform Diagnosis. Refer to Section 3.
• Surge at Steady Speed	• Liquid Fuel in Carbon Canister.	• Replace carbon canister. Check fuel tank vent system and carburetor for malfunction.
• Gas Smell	• Thermostatic Bowl Vent Valve or Carburetor Fuel Bowl Thermal Vent Valve Malfunction.	• Perform Diagnosis. Refer to Section 3.
	• Blockage of Carburetor Bowl Vent Line.	• Check Line for blockage and route with downhill stop to canister.
	• Canister Purge Regulator Valve or Canister Purge Valve Malfunction.	• Perform Diagnosis. Refer to Section 3.
	• Carburetor Fuel Bowl Solenoid Vent Valve Malfunction.	• Perform Diagnosis. Refer to Section 3.
	• Liquid Fuel in Carbon Canister.	• Replace Canister. Check fuel tank vent system and carburetor for malfunction.
	• Fuel Tank Vent System Blocked.	• Check fuel tank vent system.
	• Hole or Cut in Carburetor Bowl Vent Line or Fuel Tank Vent Line.	• Visually inspect and replace damaged line.