

SECTION 8

Evaporative Emission (EVAP) System

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Description and Operation

EVAPORATIVE EMISSION SYSTEM

Engine Application

All Engines

The Evaporative Emission Control (EVAP) System prevents the escape of fuel vapors to the atmosphere under hot soak and engine off conditions by storing vapors in a carbon canister. The fuel vapor is stored in the canister until it is drawn into the intake plenum and burned when the engine is started. The system is controlled by the ECA, which operates the purge solenoid based on input signals from the water thermo sensor, the air flow sensor, and the engine speed sensor (ignition coil).

This system consists of the charcoal canister, solenoid valve, two-way check valve, and control system.

For further information regarding the makeup of the system and its relationship to other systems, refer to the appropriate Schematic diagram, Section 4 of this manual.

Diagnosis and Testing

SYSTEM INSPECTION

1. Visually inspect the components of the Evaporative Emission System. Look for:

ELECTRICAL	MECHANICAL
• Discharged Battery • Malfunctioning ECA • Damaged Air Flow Meter • Inoperative Solenoids (No Clicking Sound)	• Fuel Odor or Leakage • Damaged Vacuum or Fuel Vapor Lines. • Loose or Poor Line Connections • Poor Driveability During Engine Warm-up

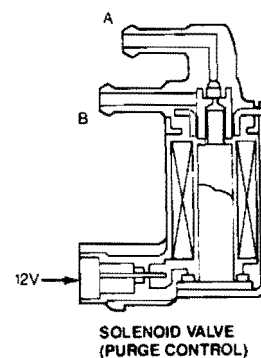
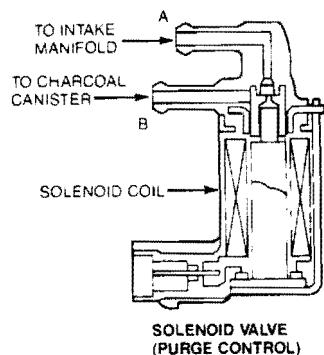
2. Exercise the wiring and connectors for the solenoids, vane air flow meter, and the ECA for looseness, corrosion, damage or other problems. This step should be performed with the engine at operating temperature so that the purge controls may be activated.
3. Check the fuel tank, fuel vapor lines, vacuum lines, and connections for looseness, pinching, leakage, damage or other obvious cause for malfunction.
4. If fuel line, vacuum line, or other orifice blockage is suspected as an obvious cause of an observed malfunction, correct the cause before proceeding to the next step.
5. If all checks are OK, proceed to the Pinpoint Tests.

Diagnosis and Testing

**All
Engines**

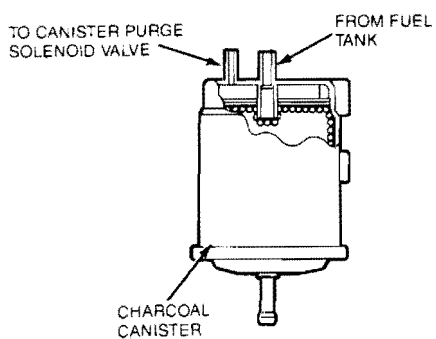
EV

TEST STEP		RESULT	ACTION TO TAKE
EV1	CANISTER PURGE SOLENOID VALVE FUNCTION		
- Disconnect the vacuum hoses (A) and (B) and the electrical connector from the Purge Solenoid Valve. - Attach a clean test hose to Port A of the Purge Solenoid Valve. - Blow air through the solenoid through Port A. Does any air exit Port B of the solenoid?		Yes	REPLACE the Canister Purge Solenoid Valve.
		No	GO to EV2 .



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Diagnosis and Testing	All Engines	EV
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TEST STEP		RESULT	ACTION TO TAKE
EV2	CANISTER PURGE SOLENOID CHECK		
• Test hose still attached to Port A. • Apply 12V to one pin of solenoid and ground other pin. • Blow air through solenoid from Port A. • Does air exit from Port B?		Yes	GO to EV3 .
		No	REPLACE canister purge solenoid.
EV3	CHARCOAL CANISTER CHECK — LIQUID FUEL		
• Bring engine to normal operating temperature. Run engine long enough to purge any fuel from the Charcoal Canister. • Stop the engine and remove the Charcoal Canister. • Inspect the canister for the presence of liquid fuel (odor, excessive weight). • Is the canister free of liquid fuel?		Yes	GO to EV4 .
		No	REPLACE the Charcoal Canister.
EV4	CHARCOAL CANISTER VENT CHECK		
• Charcoal canister still removed from vehicle. • Attach a clean test hose to the bottom of the canister and blow into the air vent at the bottom of the canister. • Does air exit easily from the fuel vapor inlet at the top of the canister?		Yes	GO to EV5 .
		No	REPLACE the charcoal canister.
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Diagnosis and Testing

All Engines

EV

TEST STEP		RESULT	ACTION TO TAKE
EV5	CHARCOAL CANISTER PURGE LINE BLOCKAGE CHECK		
- Remove the purge lines leading from the canister to the purge solenoid and from the purge solenoid to the engine intake. - Blow through each line to check for blockage or restriction. Does air pass easily through the lines?		Yes No	GO to EV6 . REPLACE the line in question.
EV6	TWO-WAY CHECK VALVE INSPECTION		
- Visually inspect the Two-Way Check Valve and its connections for hose pinching, blockage, looseness, or for evidence of other damage or leakage. Are the check valve and its components OK?		Yes No	GO to EV7 . SERVICE components in question.
EV7	TWO-WAY CHECK VALVE FUNCTION CHECK		
- Remove the Two-Way Check Valve. - Blow air from Port A of the check valve to Port B and vice-versa. Does air pass easily in both directions? A14318-A		Yes No	RETURN to Diagnostic Routines, Section 2. REPLACE the Two-Way Check Valve.

Specifications/Special Service Tools

SPECIFICATIONS

DESCRIPTION	SPECIFICATION
Boost Pressure, Maximum	56 kPa (8.1 psi)
Turbo Waste Gate--Air Pressure to Open	56 kPa (8.1 psi)

SPECIAL SERVICE TOOLS

ROTUNDA NUMBER	DESCRIPTION
021-00037	Vacuum Tester
059-00008	Vacuum and Pressure Tester