

SECTION 10-01 Fuel Tank, Filter and Electric Fuel Pump

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VEHICLE APPLICATION

Capri.

DESCRIPTION

WARNING: DO NOT SMOKE, CARRY LIGHTED TOBACCO OR AN OPEN FLAME OF ANY TYPE WHEN WORKING ON OR NEAR ANY FUEL RELATED COMPONENT. HIGHLY FLAMMABLE MIXTURES ARE ALWAYS PRESENT AND MAY BE IGNITED, RESULTING IN POSSIBLE PERSONAL INJURY.

WARNING: FUEL SPRAY WHEN REMOVING THE CAP MAY CAUSE INJURY. REMOVE CAP SLOWLY.

The fuel tank is mounted under the rear of the vehicle. It contains supply and return lines, a fuel pump and fuel gauge sending unit.

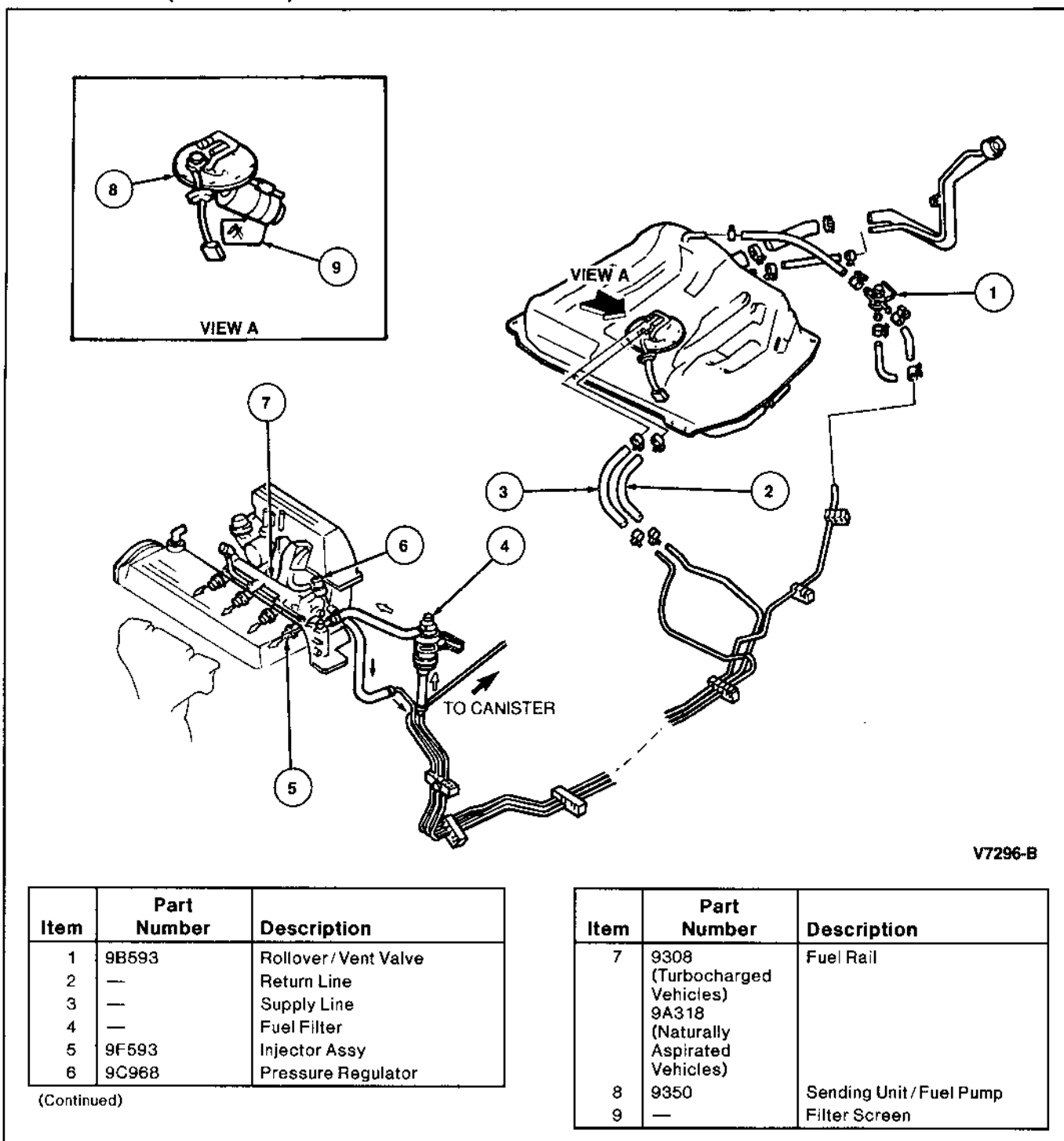
Fuel is drawn from the tank by a fuel tank mounted electric fuel pump and delivered under pressure through the fuel supply line and fuel filter to the fuel rail and on to the fuel injectors.

Excess fuel is returned to the fuel tank through the return line. A vapor line is routed from the fuel tank to the vapor canister. Refer to Section 03-13. All lines run parallel to each other underneath the vehicle on the left side.

Fuel pressure is controlled by a pressure regulator mounted at the return side of the fuel rail.

The fuel system is protected by two fuel filters. A replaceable cartridge is located in the engine compartment in-line between the fuel tank and the inlet side of the fuel rail. A serviceable filter screen is located inside the fuel tank at the inlet of the fuel pump.

DESCRIPTION (Continued)

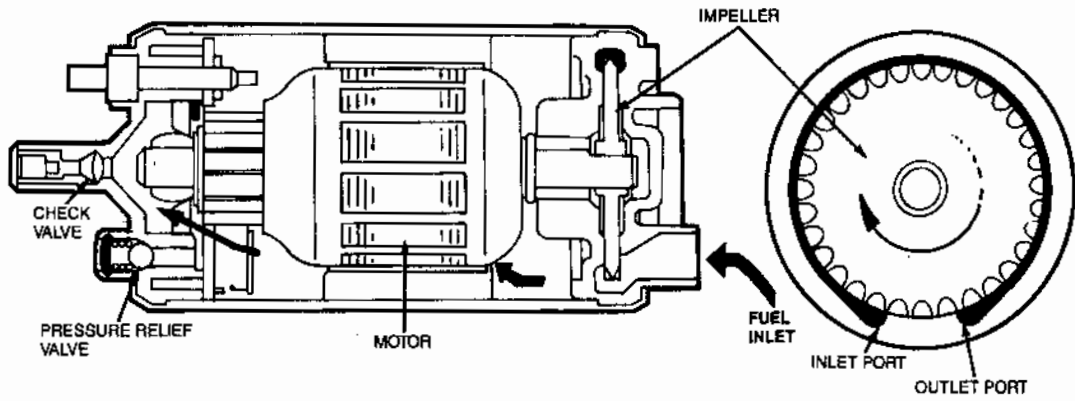
**Fuel Pump**

All vehicles with electronic fuel injection are equipped with an electric fuel pump. The fuel pump system consists of an electric fuel pump, a pressure regulator, a fuel pump relay, fuel pump switch and a fuel pump shut-off switch (inertia switch).

The fuel pump is mounted on the fuel sending unit assembly inside the fuel tank. The pump assembly includes a check valve located at the fuel pump outlet. The function of this valve is to maintain pressure in the system after the ignition is turned to the OFF position. The pressure retention helps prevent hot starting problems. A pressure relief valve is provided to regulate the maximum fuel pump outlet pressure.

DESCRIPTION (Continued)

The fuel pump is protected at its inlet by a filter screen. This screen filters dirt and contaminants which could plug or damage the internal pump components.



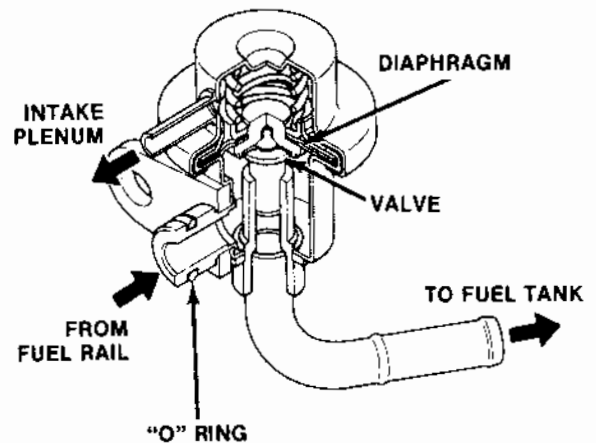
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Pressure Regulator

The pressure regulator is mounted to the return line end of the fuel rail. It is controlled by manifold vacuum and will always maintain fuel pressure between 240-279 kPa (34.8-40.5 psi) above intake manifold pressure. When intake manifold vacuum is low (fuel demand high) spring pressure inside the regulator causes the valve to partially close which will increase fuel pressure in the fuel rail. When intake manifold vacuum is high (fuel demand low) vacuum acting on the diaphragm compresses the spring, opening the valve further. Return fuel flow increases resulting in lower fuel pressure in the fuel rail.

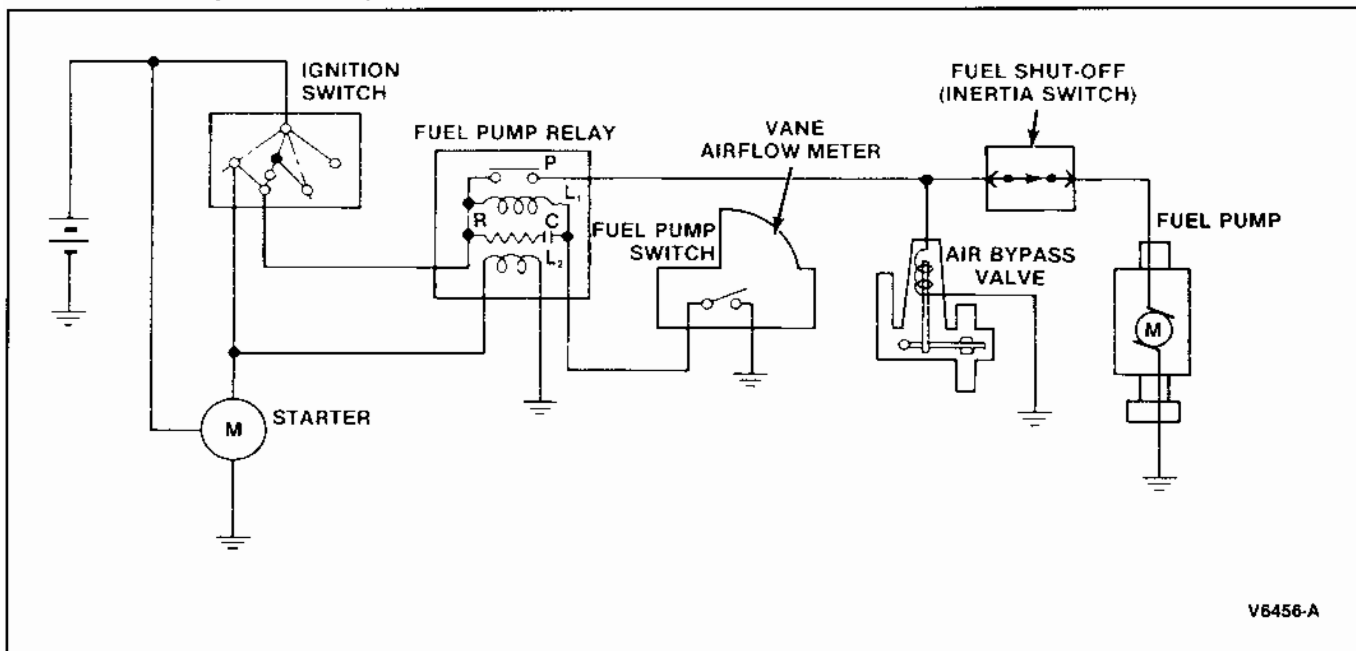
NOTE: Pressure in the fuel lines increases as engine vacuum drops.

A pressure regulator control valve (PRCV) is used to aid in hot starting. During hot starting, the PRCV cuts off manifold vacuum to the fuel pressure regulator. This permits an increase in fuel pressure resulting in more fuel for starting. After the engine is started, vacuum is returned to the pressure regulator and fuel pressure is lowered to regular operating pressure.



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DESCRIPTION (Continued)

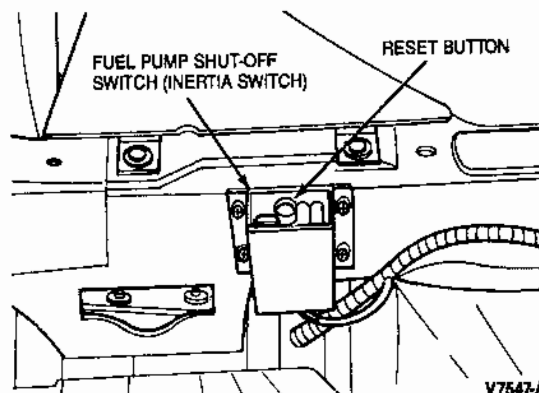
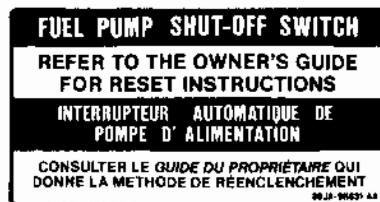


Control Circuit

The fuel pump switch and fuel pump relay work together to control fuel pump operation. The fuel pump switch is located inside the vane airflow meter and is not serviceable. The fuel pump relay is mounted under the center of the instrument panel between the panel and the floor. The fuel pump only operates when the engine is cranking or running. It does not operate when the engine is not running, even with the ignition switch turned to the ON position. When cranking, power from the ignition switch causes the fuel pump relay to close the feed circuit to the fuel pump. The fuel pump switch will also close the fuel pump relay whenever airflow is detected by the vane airflow meter.

A resistor and a capacitor are built into the fuel pump relay in addition to the coils. These permit discharge current to flow through the coil in the event that the fuel pump switch is momentarily opened due to the sudden loss of airflow during rapid deceleration. This will provide uninterrupted fuel pump operation.

A fuel pump shut-off switch (inertia switch) is connected in series with the fuel pump switch circuit and will stop fuel pump operation in the event of a major collision or vehicle rollover. The switch is mounted to the LH side of the spare tire well. The reset button must be pushed to reset the switch once it has been triggered.



DIAGNOSIS AND TESTING

For diagnosis and testing procedures, refer to Section 9B: Fuel Delivery / Turbo Charger Systems, in the Powertrain Control / Emissions Diagnosis Manual¹.

¹ Can be purchased as a separate item.

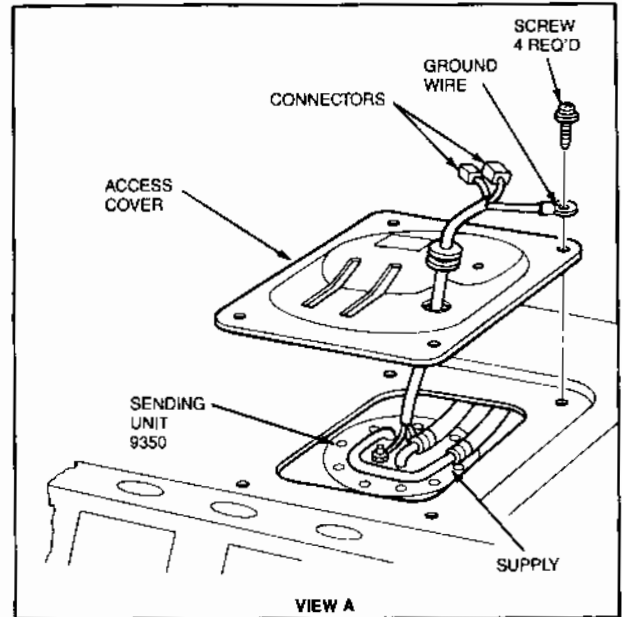
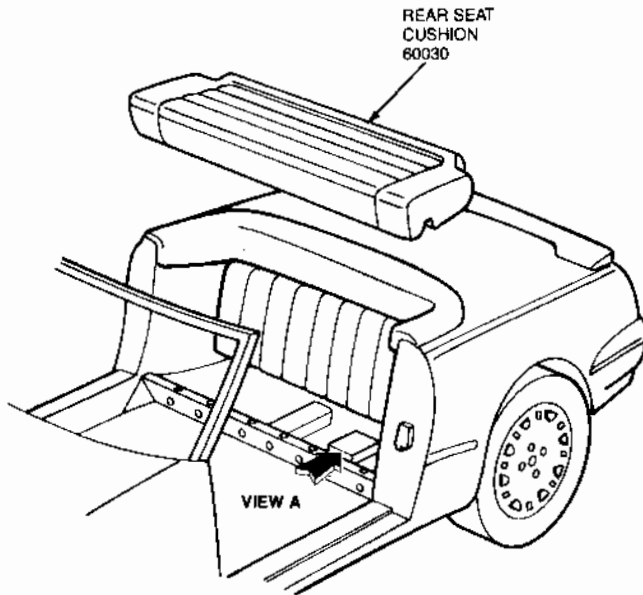
REMOVAL AND INSTALLATION

Fuel System Pressure Relief

Removal and Installation

NOTE: Fuel pressure must be relieved prior to servicing any fuel system component.

1. Remove the back seat cushion. Refer to Section 01-10.
2. Disconnect the fuel pump connector.
3. Run engine until it stalls. The fuel pressure is now relieved.



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Fuel Filler Door

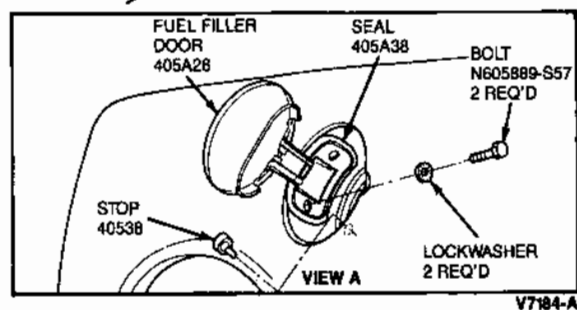
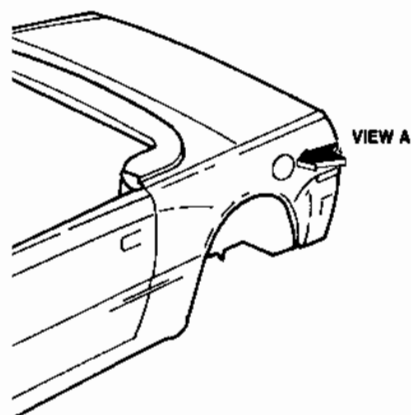
Removal and Installation

1. Remove two bolts, lockwashers and fuel filler door.

2. Remove seal.
3. Remove stop if required.

REMOVAL AND INSTALLATION (Continued)

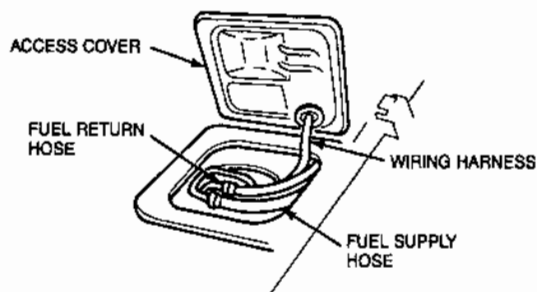
4. To install, reverse Removal procedure.



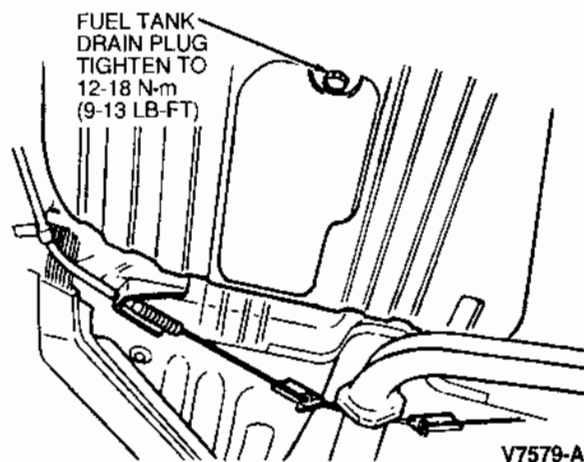
Fuel Tank

Removal and Installation

1. Relieve fuel pressure as outlined.
2. Disconnect negative battery cable.
3. Remove rear seat cushion. Refer to Section 01-10.
4. Disconnect fuel pump connectors.
5. Remove four screws, ground wires and fuel pump access cover. Pull fuel pump wiring harness through access cover.
6. Loosen and pull back hose clamps. Remove and plug supply and return hoses.

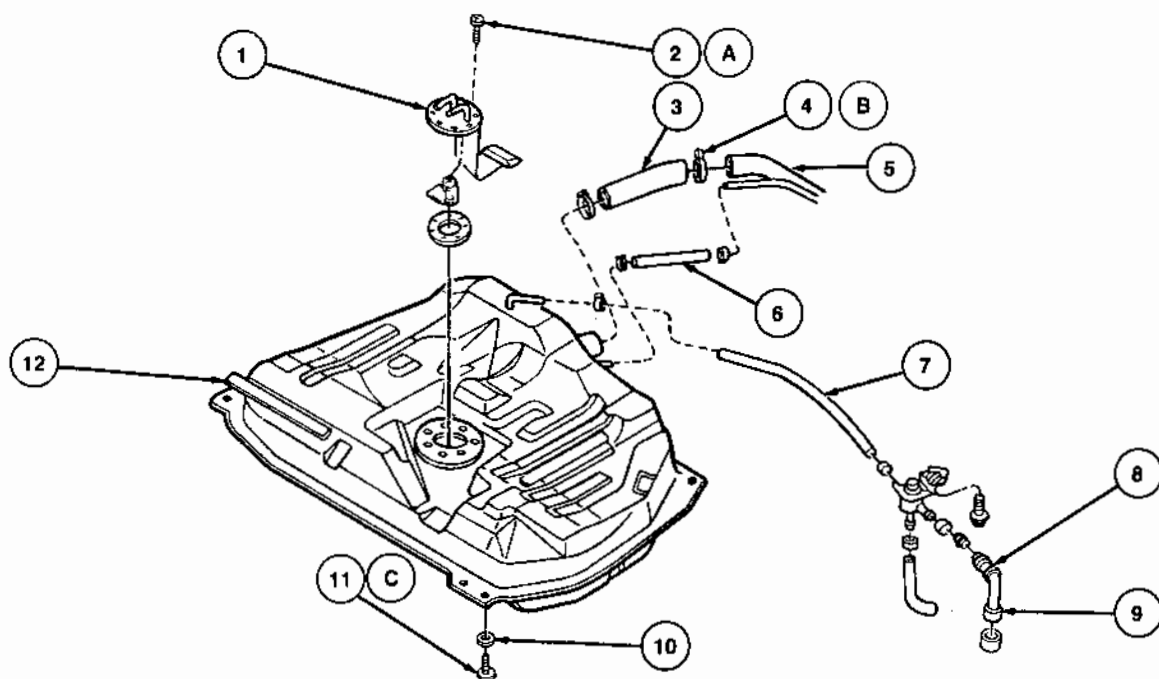


7. Raise the vehicle and support with safety stands. Refer to Section 00-02.
8. Remove the fuel tank drain plug and carefully drain remaining fuel into an approved safety container.



9. Remove two hose clamps and hoses at filler neck as outlined.
 10. Support fuel tank and remove four retaining bolts.
 11. Lower fuel tank enough to gain access to vapor line.
 12. Remove clamp and vapor line. Remove fuel tank.
 13. Remove fuel sending unit and fuel pump if required as outlined.
 14. To install, reverse Removal procedure.
- NOTE: Use new clamps on all hoses.

REMOVAL AND INSTALLATION (Continued)



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Item	Part Number	Description
1	9350	Sending Unit/Fuel Pump
2A	9983-30408	Screw
3	90C17	Filler Neck Hose
4B	—	Clamp
5	9034	Filler Neck
6	9324	Filler Neck Hose
7	—	Vapor Line
8	—	Two-Way Valve

(Continued)

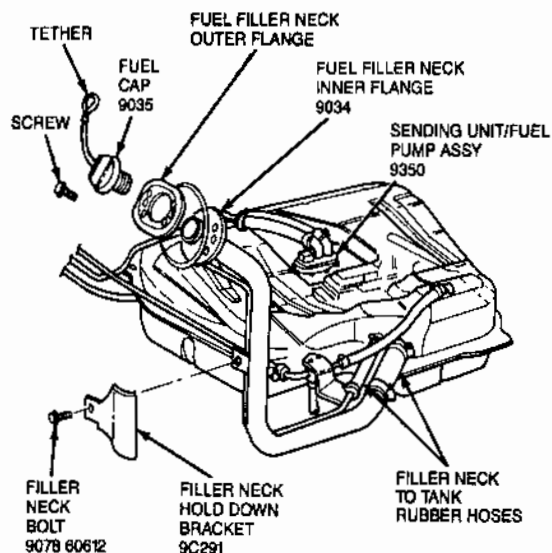
Item	Part Number	Description
9	—	Restrictor
10	9956-41000	Washer
11C	9181	Bolt
12	9002	Fuel Tank
A		Tighten to 0.6-1.0 N-m (5.3-8.8 Lb-in)
B		Tighten to 2.7-3.0 N-m (23.8-26.5 Lb-in)
C		Tighten to 16-23 N-m (12-16 Lb-Ft)

Fuel Filler Neck**Removal and Installation**

1. Remove filler cap, tether, and two filler neck retaining screws inside filler door.
2. Raise the vehicle and support it with safety stands. Refer to Section 00-02.
3. Remove the fuel tank drain plug and carefully drain remaining fuel into an approved safety container.
4. Remove two hose clamps and hoses at filler neck as outlined.
5. Remove retaining screw from inside wheel well. Remove fuel filler neck, gaskets and bracket.

REMOVAL AND INSTALLATION (Continued)

6. To install, reverse Removal procedure.



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Fuel Filler Hose Clamp

Removal

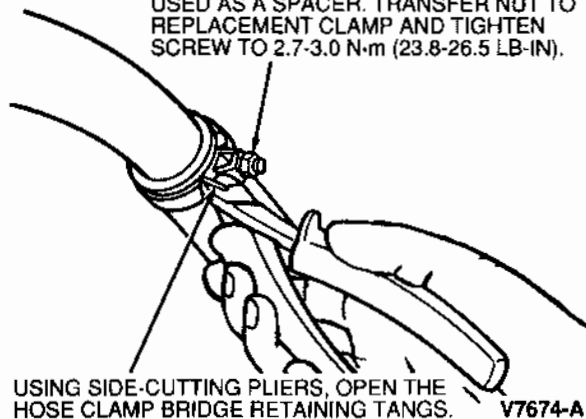
CAUTION: Removal of hose clamps must be done carefully to avoid damage to the fuel tank filler pipe and fuel tank weld joint.

NOTE: The fuel filler pipe retaining hardware must be removed allowing sufficient fuel filler pipe movement to enable the filler neck hose clamp to be replaced.

NOTE: Replacement of the fuel tank and hose clamp requires removal of the fuel tank as outlined.

- Using a pair of side-cutting pliers, open hose clamp bridge retaining tangs.

REMOVED CLAMP MAY HAVE A 6mm NUT USED AS A SPACER. TRANSFER NUT TO REPLACEMENT CLAMP AND TIGHTEN SCREW TO 2.7-3.0 N·m (23.8-26.5 LB-IN).



USING SIDE-CUTTING PLIERS, OPEN THE HOSE CLAMP BRIDGE RETAINING TANGS.

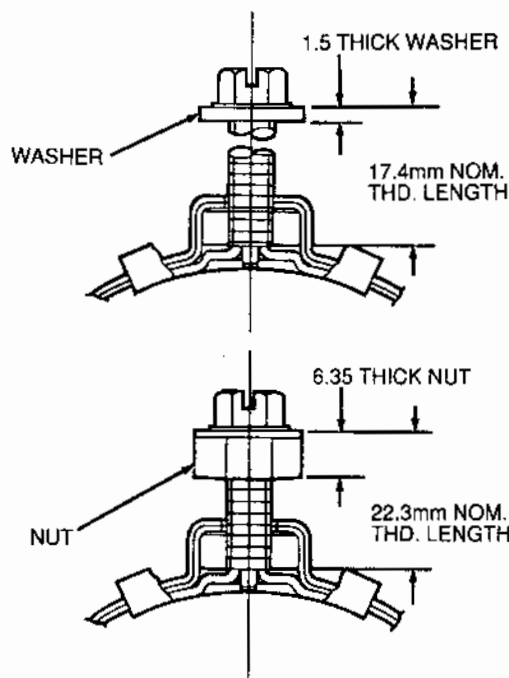
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- Loosen hose clamp tension screw.

- Carefully relieve hose clamp tension and remove hose clamp from fuel filler hose.

Installation

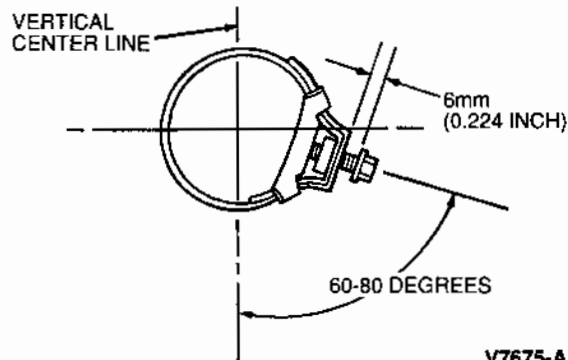
NOTE: If the removed hose clamp has a 6mm (0.224 inch) nut between the clamp bridge and the screw head as a spacer, transfer nut to replacement clamp screw. If a replacement clamp has no nut or washer, set up clamp spacer as follows.



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- Position hose clamps square to hose / pipe surface and at positions shown.
- Tighten hose clamp screw until gap between upper surface of clamp bridge and underside of screw head is 6.0mm (0.224 inch) tighten screw to 2.7-3.0 N·m (23.8-26.5 lb-in).

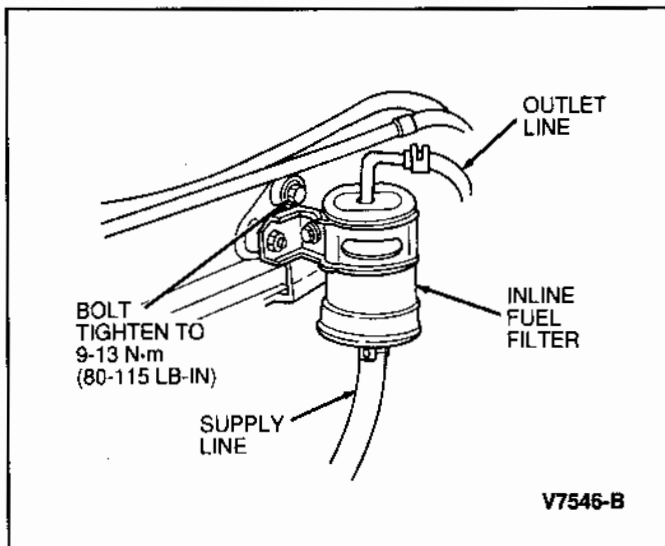
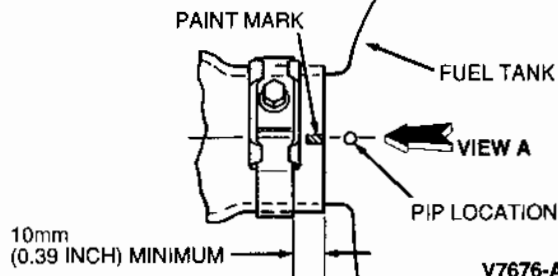
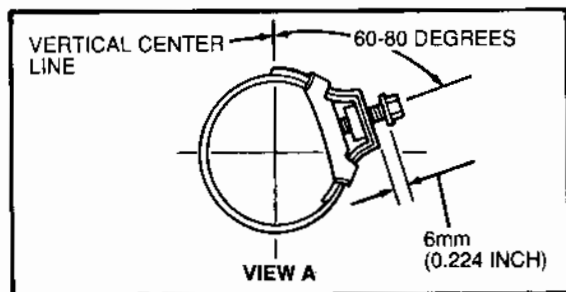
Filler Neck Hose Clamp



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REMOVAL AND INSTALLATION (Continued)

Fuel Tank Hose Clamp



In-Tank Filter

Removal and Installation

1. Relieve fuel system pressure as outlined.
2. Remove rear seat cushion. Refer to Section 01-10.
3. Remove the fuel tank sending unit / pump as outlined.
4. Remove fuel filter from fuel pump assembly.
5. To install, reverse Removal procedure.

In-Line Filter

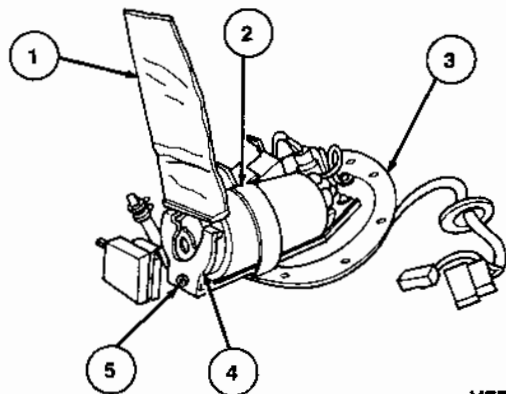
Removal and Installation

1. Relieve fuel system pressure as outlined.
2. Remove clamp and supply line from bottom of filter. Plug supply line.
3. Remove clamp and outlet line from top of filter. Remove fuel filter from bracket.
4. To install, reverse Removal procedure.

Fuel Pump

Removal and Installation

1. Relieve the fuel pressure as follows:
 - a. Remove rear seat cushion. Refer to Section 01-10.
 - b. Run engine while disconnecting fuel pump electrical connector.
 - c. Allow engine to stall. Fuel pressure is now relieved.
2. Remove fuel tank sending unit as outlined.
3. Remove two fuel pump wires from sending unit.
4. Remove retaining clamp screw and remove clamp.
5. Remove rubber retaining band.
6. Remove fuel pump from sending unit.
7. To install, reverse Removal procedure.
8. Tighten fuel tank sending unit retaining screws to 1.0-1.6 N·m (8.8-14 lb-in).



REMOVAL AND INSTALLATION (Continued)

Item	Part Number	Description
1	—	Fuel Tank Filter
2	—	Rubber Retaining Band
3	9350	Fuel Sending Unit Assy
4	—	Retaining Clamp
5	—	Retaining Clamp Screw

Pressure Regulator**Removal and Installation**

- Relieve the fuel pressure as follows:
 - Remove rear seat cushion. Refer to Section 01-10.
 - Run engine while disconnecting fuel pump electrical connector.
 - Allow engine to stall. Fuel pressure is now relieved.
- Disconnect vacuum hose from pressure regulator.
- Disconnect the fuel return hose.
- Remove the retaining bolts and remove the pressure regulator.
- Remove the O-ring from the pressure regulator.
- To install, reverse Removal procedure.

Fuel Pump Relay**Removal and Installation**

- Disconnect negative battery cable.
- Pull back on the front edges of the center carpet panel, disengaging the push pin retainers.
- Remove the retaining screw and carpet panel.
- Disconnect relay connector.
- Remove relay connector.
- To install, reverse Removal procedure.

SPECIFICATIONS**TORQUE SPECIFICATIONS**

Description	N-m	Lb-In
Hose Clamps	2.7-3.0	23.8-26.5
Sending Unit / Fuel Pump Screws	1.0-1.6	8.8-14
Fuel Tank Retaining Bolts	16-23	12-16 (Lb-Ft)
Fuel Tank Drain Plug	12-18	9-13 (Lb-Ft)
Fuel Filter Retaining Bolt	9-13	80-115