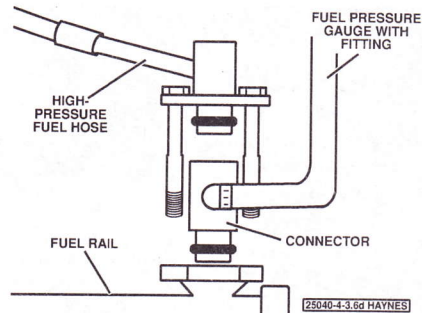


Fuel pump relay harness connector

68766-4-3.01 HAYNES

3.1 Apply battery voltage to the fuel pump relay harness connector terminal No.2



25040-4-3.6d HAYNES

3.4b The fuel pressure gauge and gauge connector mount between the fuel rail and high pressure fuel line - note that the kit also contains extra long bolts to attach the connector to the fuel rail



3.4a This aftermarket fuel pressure testing kit contains all the necessary fittings and adapters, along with the fuel pressure gauge, to test most automotive fuel systems

Exhaust system

The exhaust system consists of the exhaust manifold(s), exhaust pipes, catalytic converter and muffler. For information regarding the removal and refitting of the exhaust manifold(s), refer to Chapters 2A, 2B or 2C. For information regarding exhaust system and catalytic converter servicing, refer to the last Section in this Chapter. For further information regarding the catalytic converter, refer to Chapter 6.

2 Fuel pressure relief procedure (petrol models)

Refer to illustration 2.1

Caution: If the stereo in your vehicle is equipped with an anti-theft system, make sure you have the correct activation code before disconnecting the battery.

- 1 Disconnect the fuel pump relay from the relay box in the engine compartment (see illustration).
- 2 Start the engine, let it run until it stalls and turn off the ignition switch.
- 3 Detach the cable from the negative terminal of the battery and re-connect it after repairs are complete.

3 Fuel pump/fuel pressure (petrol models) - check

Warning: Petrol is extremely flammable, so take extra precautions when you work on any part of the fuel system. Don't smoke or

allow open flames or bare light bulbs near the work area, and don't work in a garage where a gas-type appliance (such as a water heater or clothes drier) is present. If you spill any fuel on your skin, rinse it off immediately with soap and water. When you perform any kind of work on the fuel system, wear safety glasses and have a Class B type fire extinguisher on hand. **Caution:** If the stereo in your vehicle is equipped with an anti-theft system, make sure you have the correct activation code before disconnecting the battery.

Fuel pump check

Refer to illustration 3.1

- 1 Turn the ignition switch to Off, open the fuel tank filler cap, and remove the relay cover and relay from the engine compartment (see illustration 2.1). Apply battery voltage directly to the number two terminal of the fuel pump relay harness side connector (see illustration) and listen for the whirring sound of the electric pump through the filler port. Now squeeze the fuel high-pressure hose - you should be able to feel pressure in the hose. If you cannot hear whirring, the fuel pump or its circuit is defective. If you can hear whirring, but pressure does not develop in the fuel high-pressure hose, the fuel pump is defective.

Fuel pressure check

Refer to illustrations 3.4a, 3.4b, 3.12 and 3.13

- 2 Relieve the system fuel pressure (see Section 2), detach the cable from the negative battery terminal and reconnect the electrical connector for the fuel pump.
- 3 Disconnect the fuel high-pressure hose at the delivery pipe (see illustration 10.5b).

Cover the connection with shop rags to absorb any fuel that leaks out.

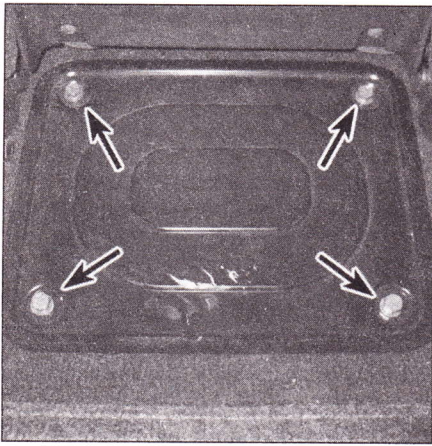
- 4 Attach your fuel pressure gauge (it must have a range through 350 kPa) to the high pressure hose using a suitable adapter (see illustrations).
- 5 Attach the gauge with adapter to the fuel delivery pipe.
- 6 Reconnect the battery terminal.
- 7 Apply battery voltage to the fuel pump relay harness connector (see illustration 3.1) and activate the fuel pump. Make sure there's no fuel leaking from the pressure gauge/adapter setup.
- 8 Start the engine and run it at curb idle speed, measure the fuel pressure with the vacuum hose connected to the pressure regulator and compare your reading to the pressure listed in this Chapter's Specifications.
- 9 Detach the vacuum hose from the pressure regulator, plug the hose, measure the fuel pressure again and compare this reading to the pressure listed in this Chapter's Specifications.
- 10 Race the engine two or three times in quick succession, then recheck the fuel pressure to verify it doesn't fall when the engine runs at idle.
- 11 Gently squeeze the fuel return hose with your fingers while repeatedly racing the engine to verify fuel pressure in the return hose. If the volume of fuel flow is insufficient, there won't be any fuel pressure in the return hose.
- 12 If the results of your readings aren't within the specified values, use the accompanying table (see illustration) to determine the probable cause and make the necessary repairs.

Symptom	Probable cause	Remedy
Fuel pressure is too low	Clogged fuel strainer	Remove and clean or replace fuel strainer
	Faulty pressure regulator	Replace fuel pressure regulator
	Faulty fuel pump	Replace fuel pump
Fuel pressure is too high	Faulty pressure regulator	Replace fuel pressure regulator
	Clogged fuel return hose	Clean or replace fuel hose or pipe
Fuel pressure does not vary with engine speed	Leaking pressure regulator vacuum hose	Replace vacuum hose
	Faulty pressure regulator	Replace fuel pressure regulator

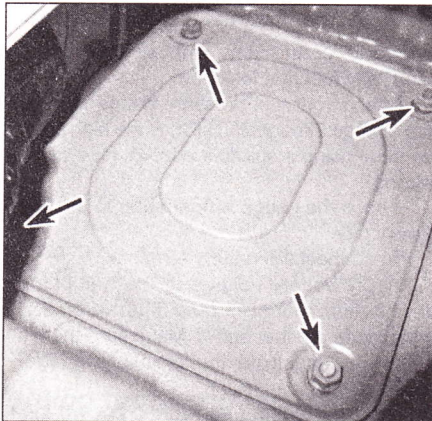
3.12 Fuel pressure troubleshooting table for fuel-injected engines

Symptom	Probable cause	Remedy
Fuel pressure drops slowly after engine is stopped	Leaking fuel injectors	Replace fuel injectors
	Faulty pressure regulator	Replace fuel pressure regulator
	Faulty fuel pump	Replace fuel pump
Fuel pressure drops sharply after engine is stopped	Faulty pressure regulator	Replace fuel pressure regulator
	Faulty fuel pump	Replace fuel pump

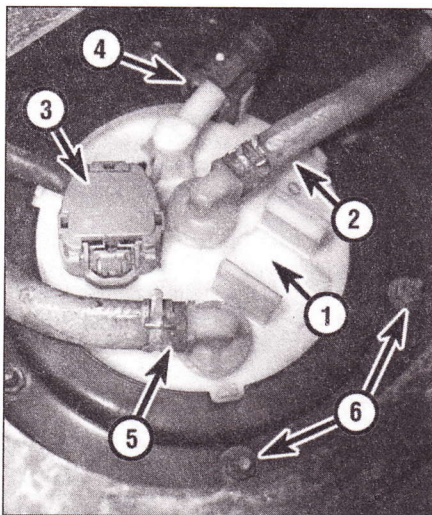
3.13 Fuel pressure drop troubleshooting table for fuel-injected engines



4.2 Remove the floor cover mounting bolts (arrows) and remove the cover

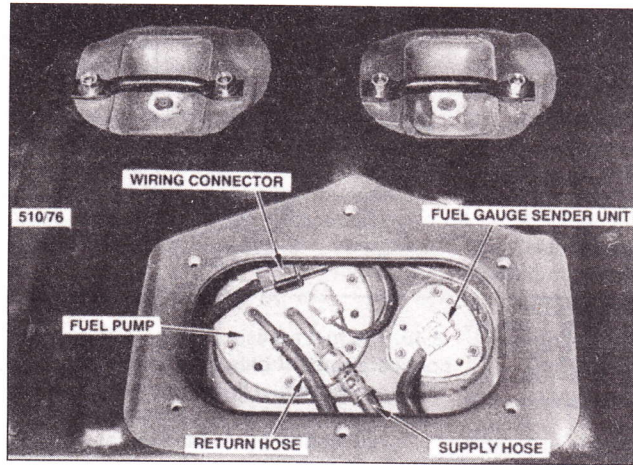


4.3 Remove the access cover mounting bolts (arrows) and remove the cover



4.4b Typical 2001 and later fuel pump module assembly

- 1 Fuel pump module assembly
- 2 Fuel tank return hose
- 3 Harness connector
- 4 High pressure fuel hose
- 5 Fuel tank suction hose
- 6 Mounting bolts



4.4a Typical 2000 and earlier fuel pump and fuel gauge sender details

13 Stop the engine and verify that the reading on the fuel pressure gauge doesn't drop. If it does drop, note the rate of drop and use the accompanying table (see illustration) to determine the cause and make the necessary repairs.

14 Relieve the system fuel pressure (see Section 2).

15 Cover the fuel high-pressure hose connection with a shop towel to absorb leaking fuel, disconnect the fuel high-pressure hose, remove the fuel gauge/adaptor assembly, fit a new O-ring in the groove in the end of the high-pressure hose fitting and reconnect the hose. Tighten the attaching screws for the fuel high-pressure hose fitting to the torque listed in this Chapter's Specifications.

16 Apply battery voltage to the fuel pump relay harness connector, operate the pump and check the fuel high-pressure hose for leaks.

4 Fuel pump (petrol engines) - removal and refitting

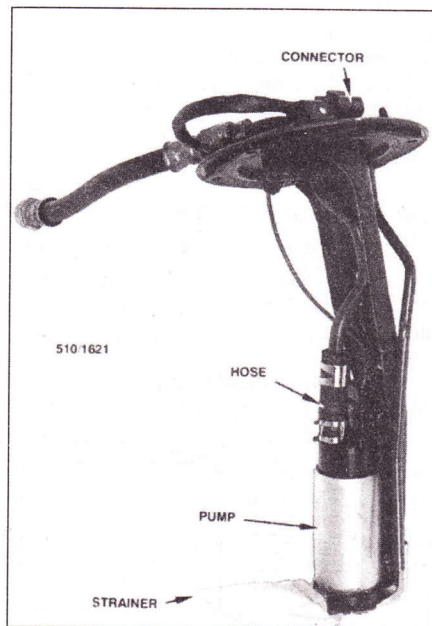
Refer to illustrations 4.2, 4.3, 4.4a, 4.4b, 4.6a, 4.6b and 4.7

Warning: Petrol is extremely flammable, so take extra precautions when you work on any part of the fuel system. Don't smoke or allow open flames or bare light bulbs near the work area, and don't work in a garage where a gas-type appliance (such as a water heater or clothes dryer) is present. If you spill any fuel on your skin, rinse it off immediately with soap and water. When you perform any kind of work on the fuel system, wear safety glasses and have a Class B type fire extinguisher on hand.

1 On 2000 and earlier models access to the pump is from the luggage compartment. On 2001 and later models, fold the rear seats forward using the lever on the side of the seats.

2 On 2001 and later models, remove the floor cover mounting bolts and remove the cover (see illustration).

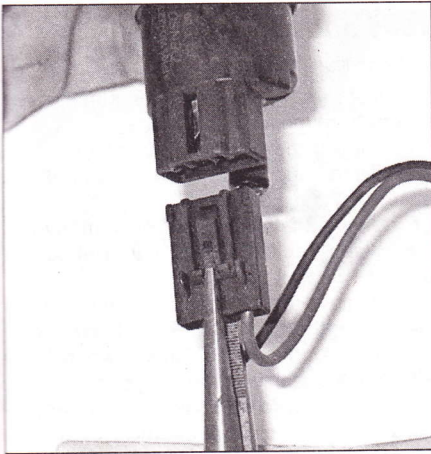
3 Remove the access cover mounting bolts and remove the cover (see illustration).



4.6a Typical 2000 and earlier fuel pump assembly details



4.6b Detach the inlet strainer from the fuel pump



4.7 Unplug the electrical connector from the fuel pump

4 Disconnect the harness connector, high-pressure fuel line, and fuel tanks hoses (see illustrations).

5 Remove the six mounting nuts and remove the fuel pump assembly from the vehicle.

6 Remove the fuel pump bracket and remove the cushion and inlet strainer (see illustrations).

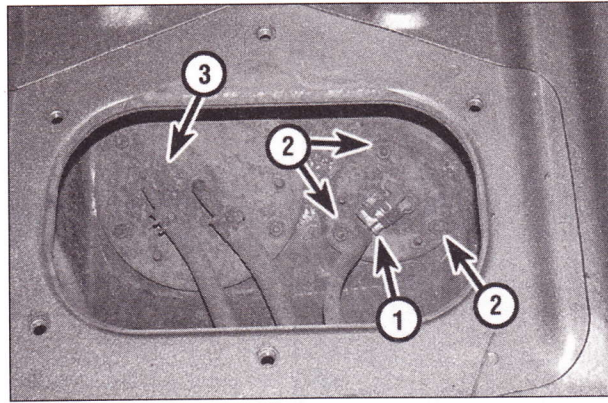
7 Disconnect the electrical connector from the pump (see illustration) and separate the pump from the grommet.

8 Refitting is the reverse of removal. Be sure the gasket between the fuel pump assembly and the fuel tank is in good shape. If not, renew it.

5 Fuel gauge sender unit (all models) - removal and refitting

Refer to illustration 5.3

Warning: Fuel is flammable, so take extra precautions when you work on any part of



5.3 Typical fuel gauge sender unit details - early diesel model shown

- 1 Gauge sender electrical connector
- 2 Mounting nuts
- 3 Fuel delivery pipes

the fuel system. Don't smoke or allow open flames or bare light bulbs near the work area. Don't work in a garage where a gas appliance such as a water heater or a clothes dryer is present. Since diesel fuel is carcinogenic, wear latex gloves when there is a possibility of being exposed to fuel. If you spill fuel on your skin, rinse it immediately with soap and water. Mop up any spills immediately and do not store fuel-soaked rags where they could ignite. When you perform any work on the fuel system, wear safety glasses and keep a Class B type fire extinguisher on hand.

1 On 2000 and earlier models, remove the rear floor access cover bolts and remove the cover.

2 On 2001 and later models, slide the front seat back (or remove it) and remove the access cover bolts and cover.

3 Disconnect the harness connector and remove the sender unit mounting nuts (see illustration) and remove the sender from the vehicle. **Note:** It is not necessary to remove the fuel pump (petrol models) or fuel pipes (diesel models) to remove the gauge sender unit.

4 Refitting is the reverse of removal. Be sure the gasket between the fuel pump assembly and the fuel tank is in good shape. If not, renew it.

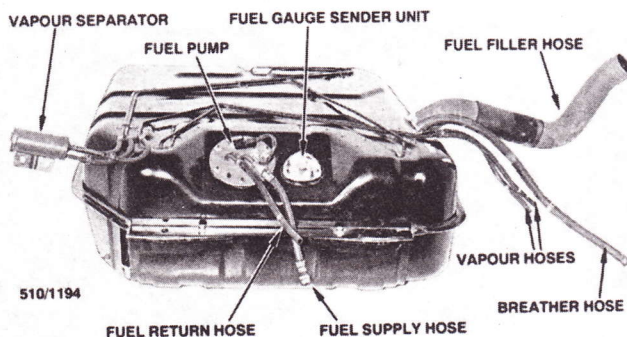
6 Fuel tank (all models) - removal and refitting

Warning: Fuel is flammable, so take extra precautions when you work on any part of the fuel system. Don't smoke or allow open flames or bare light bulbs near the work area. Don't work in a garage where a gas appliance such as a water heater or a clothes dryer is present. Since diesel fuel is carcinogenic, wear latex gloves when there is a possibility of being exposed to fuel. If you spill fuel on your skin, rinse it immediately with soap and water. Mop up any spills immediately and do not store fuel-soaked rags where they could ignite. When you perform any work on the fuel system, wear safety glasses and keep a Class B type fire extinguisher on hand.

1 Before doing any work around the fuel tank, make sure that the ignition switch is off and remove the key from the ignition lock. Block the front wheels to keep the vehicle from rolling, then raise the rear of the vehicle and set it on jack stands.

2 Remove the tank filler cap so any pressure in the tank can escape.

3 Position a suitable container (large enough to hold the fuel that it is in the tank) under the tank. Remove the drain plug and allow the fuel to drain into the container. Be very careful when working around petrol; it is highly explosive. After the fuel has drained completely, refit the drain plug.



6.7 Typical early model petrol fuel tank details

2000 and earlier models

Refer to illustrations 6.7 and 6.8

4 Loosen the hose clamps on the main, return and vapour fuel hoses, then pull the hoses off the tank.

5 Unplug the electrical wires from the fuel pump (see Section 4) and fuel level sender unit (see Section 5).

6 Remove the filler neck mud shield from the inside of the left rear wheel well. It is held in place with three bolts.

7 Loosen the hose clamps on the filler connecting hose (large) and the breather hose (small) where they attach to the tank (see illustration). Pull the hoses off the tank. (Be careful not to damage them in the process).