FUEL PUMP - ELECTRIC

1988 Jeep Cherokee

1988 Electric Fuel Pump JEEP

2.5L TBI, 4.0L MPFI

DESCRIPTION & OPERATION

Fuel system on 2.5L TBI models operate under constant fuel pressure of 14.5 psi (1.02 kg/cm²). Fuel pressure regulator is mounted on throttle body assembly. Excess fuel pressure is returned to fuel tank. ECU has no control over fuel pressure relief valve. Fuel pump is immersible type with permanent magnet electric motor.

A frame mounted in-line fuel filter is used. Fuel pump is attached to fuel gauge sending unit in fuel tank. Voltage to operate pump is controlled by Electronic Control Unit (ECU). A ballast resistor is used in the fuel pump control circuit.

Ballast resistor is by-passed during start mode. During running mode, ballast resistor reduces speed of pump by lowering pump voltage. This ensures normal speed in running mode. The 1-ohm ballast resistor is mounted on right side of plenum chamber.

Fuel pump control relay is located on front of right strut tower. Battery voltage is supplied to relay from ignition switch. Relay is energized when ECU provides a circuit to ground.

A multi-cell, roller type pump is used on all 4.0L MPFI models. Pump and fuel filter are located on a plate, forward of rear axle. Fuel pump control relay location for 4.0L models is on right inner front fenderwell. Battery voltage is supplied to relay from ignition switch. Relay is energized when ECU provides a circuit to ground.

Pump contains 2 check valves. One valve relieves internal pump pressure and regulates maximum pump output. Second valve, located near pump outlet, restricts fuel movement in either direction when pump is not in operation. System operates under a constant fuel pressure of 31 psi (2.17 kg/cm²).



Fig. 1: 2.5L Fuel Pump & Fuel Gauge Sending Unit Courtesy of Chrysler Motors.



Fig. 2: 4.0L Fuel Pump, Filter & Accumulator Courtesy of Chrysler Motors

TESTING & DIAGNOSIS

FUEL PUMP PRESSURE TEST

2.5L TBI

1) Adjustment of fuel pressure is required after replacement of pressure regulator. Remove air inlet from throttle body. Connect tachometer to diagnostic connector terminals D1-1 and D1-3. Connect fuel pressure gauge to fuel body pressure test fitting.

NOTE: Some TBI models do not have a pressure test fitting on throttle body. Use Fitting (PN 8983 501 572) for this purpose.

2) Start engine and accelerate to 2000 RPM. Turn adjustment screw to obtain 14.5 psi (1.02 kg/cm²) fuel pressure. Location of adjustment screw is on bottom of regulator. Install lead seal ball to cover regulator adjustment screw after adjusting fuel pressure to specification. Turn ignition off. Disconnect fuel pressure gauge. Install cap on test fitting. Install air inlet.

NOTE: To increase fuel pressure, turn adjustment screw inward. To decrease fuel pressure, turn adjustment screw outward.

4.0L MPFI

1) Remove cap from pressure test port in fuel rail. Connect Fuel Pressure Gauge (J-37730-1) to pressure fitting. Start vehicle. Pressure should be approximately 31 psi (2.7 kg/cm^2) with vacuum hose connected to pressure regulator.

2) Pressure should be 39 psi (2.74 kg/cm²) with vacuum hose removed from regulator. If fuel pressure is not to specifications, check for kinks or restricting bends in fuel supply and return lines. Check fuel pump flow rate. Pump should deliver minimum of 1.06 quarts (one liter) of fuel per minute with fuel return line pinched off.

3) If flow is inadequate, check system for plugged fuel filter or filter sock. Fuel pump flow rate can be checked by connecting a hose to fuel test port on fuel rail and inserting other end in clean container.

4) To operate fuel pump, install a jumper wire into diagnostic connector terminals D1-5 and D1-6. Pinch off fuel return line to ensure that no fuel returns to fuel tank. If fuel pressure is still not to specifications and fuel flow is normal, replace regulator.

REMOVAL & INSTALLATION

FUEL PUMP

Removal (2.5L TBI)

1) Disconnect battery cables. Ensure fuel level is less than 1/2 for this procedure. Remove fuel outlet and return hoses. Remove sending unit wires. Remove sending unit retaining lock ring.

2) Remove sending unit/pump assembly with "O" ring seal. Disconnect fuel hose from fuel pump. Disconnect wires from fuel pump. Remove fuel pump from sending unit.

Installation

Clean seal contact are of fuel tank. Install new "O" ring seal. Install a new filter on end of suction tube. Position sending unit/pump assembly in tank. To complete installation, reverse removal procedure. Start engine and check for leaks.

CAUTION: Fuel leaks can develop from over tightening sending unit/pump during installation.

Removal (4.0L MPFI) Install clamps (MOT. 453.01) on fuel pump inlet and outlet hoses. Disconnect hoses from fuel pump. Disconnect electrical connectors. Remove retaining strap. Remove fuel pump.

Installation To install, reverse removal procedure. Ensure that clamps (MOT. 453.01) have been removed from fuel lines. Start engine and check for leaks.

NOTE: Accumulator is located between fuel pump and fuel filter on 4.0L models.