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Fuel Injection Electric Fuel Pump Diagnostic Guide

Use these Diagnostic Charts to quickly and accurately determine the exact cause of electric fuel system malfunction. The fuel pump is only one of many possible factors that must be evaluated before the proper repairs can be performed.

CHART 1

Is there gas in the tank? (Add 2 gallons)

- Vehicle runs
  - ✓ Vehicle was out of gas pump is good
- Vehicle does not run
  - Energize pump circuit and listen for fuel pump*
    - Can hear pump → Go to CHART 2
    - Can't hear pump → Go to CHART 3

*Some vehicles have a pigtail coming out of the wiring harness which can be connected to the positive battery terminal to energize the pump. If not, the fuel pump relay can be removed and a jumper wire can be installed across the switched side of the relay circuit.

CHART 2

Install fuel pressure gauge & energize fuel pump circuit*

- Fuel pressure is ***below*** vehicle fuel system specifications
  - Check fuel filter Replace if necessary
  - Fuel pressure is ***below*** vehicle fuel system specifications
    - GO to CHART 3
- Fuel pressure is ***above*** vehicle fuel system specifications
  - GO to CHART 4
- Fuel pressure is ***within*** vehicle fuel system specifications
  - Return fuel system — See Figure 1A
    - Pinch off return fuel hose
      - Fuel pressure remains ***within*** vehicle fuel system specifications → GO to CHART 3
      - Fuel pressure is ***above*** vehicle fuel system specifications → ✓ Pump is good
  - Returnless fuel system — See Figure 1B

*Make sure the pressure gauge you use is rated for the specified fuel system pressure of the vehicle. Most vehicles willl have a Schrader valve on the fuel rail to hook a pressure gauge to. If it does not, refer to Figure 1A & 1B for correct gauge location.

Figure 1A

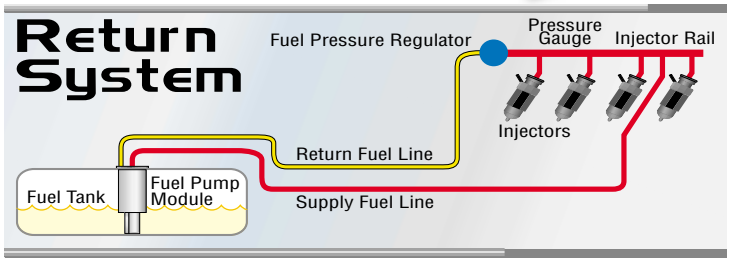
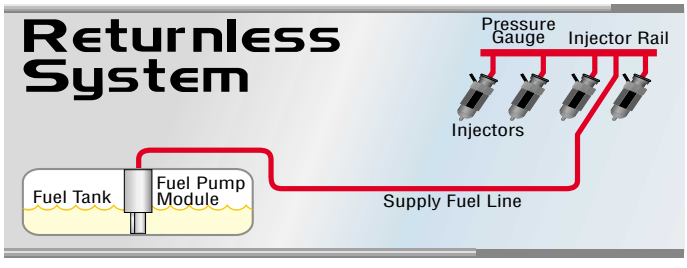


Figure 1B



Caution: Gasoline is involved and vapors will settle in low areas, so work in a well ventilated space away from sparks or open flame such as a pilot light. Have a class B fire extinguisher close by. To eliminate the chance of fire or personal injury, the fuel system pressure must be relieved before servicing any fuel system component. Refer to the manufacturer's service manual for specific steps.

CHART 3

Perform voltage drop test*

- Voltage drop exceeds 1.5 volts
  - Repair faulty connection and repeat voltage drop test
- Voltage drop less than 1.5 volts
  - Remove fuel pump from vehicle and carefully inspect all connections that could not be reached during voltage drop test.**
    - Bad connection
      - Repair bad connection and re-install pump
      - Go to CHART 2
    - No bad connections
      - Replace fuel pump

*While performing the voltage drop test it is critical that the pump is still wired into the circuit. Failure to do this will make this test invalid. It is important to perform the voltage drop test on both the positive and negative sides of the circuit. Test points should be chosen to cover as much of the circuit as is possible to reach. (See Figure 2)

**Inspect for melted insulation on wiring close to connectors. Check for melted plastic or black soot where positive and negative terminals enter the connector. This evidence indicates a bad connector. Check for loose connections where positive or negative wires attach to pump hanger bracket assembly.

Figure 2 Voltage Drop Test

- The sum of the voltage drops of positive and negative side of the circuit should not exceed 1.5 volts.
- If it does. Check voltage drops across each connector, relay, fuse, ground, and across the wiring for bad connection.
- Pump must be wired into circuit and energized during this test.

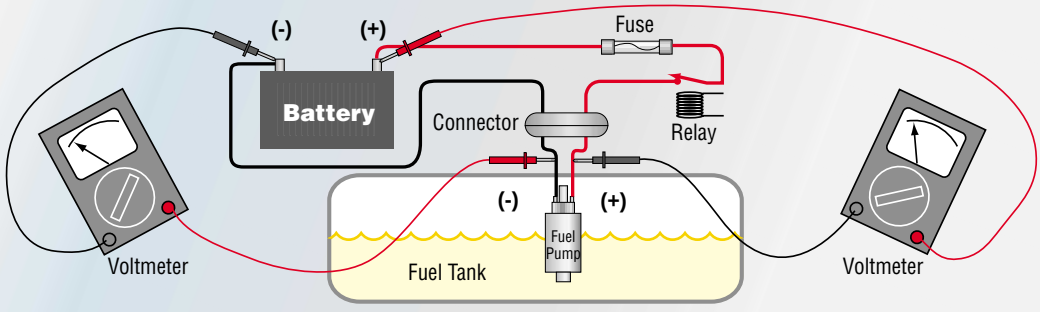


CHART 4

Type of fuel system (See Figure 1A & 1B)

- Returnless
  - Replace fuel pump or assembly
- Return
  - Ford truck/van using P74107or P74108 pump
    - Remove return fuel hose and insert into container. Then energize pump.
      - Fuel pressure still *exceeds* vehicle fuel system specifications
        - Replace fuel pressure regulator
      - Fuel pressure *within* vehicle fuel system specifications
        - Replace fuel pump or assembly
  - All other return applications
    - Replace defective fuel pressure regulator or repair restrictions in return line

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