1999 Dodge or Ram Truck RAM 2500 Truck 4WD L6-5.9L DSL Turbo VIN 6
Vehicle > Powertrain Management > Fuel Delivery and Air Induction > Fuel Boost Pump / Fuel Transfer Pump > Testing and Inspection > Component Tests and General Diagnostics

FUEL TRANSFER PUMP PRESSURE TEST

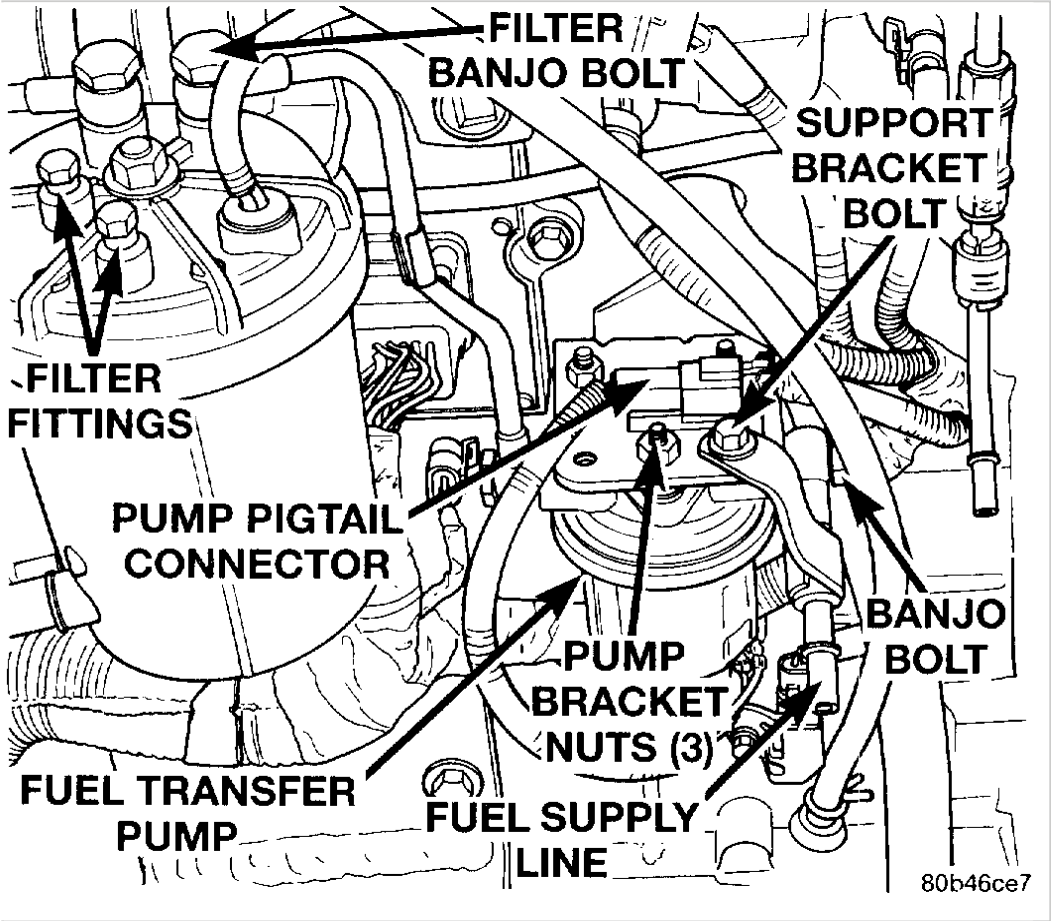
ALLDATA EDITORS NOTE

"When troubleshooting a 1998.5 - 2004 Ram Diesel equipped with a retrofit Electric In-Tank Fuel Transfer Pump, transfer pump flow, NOT PRESSURE, is the indicator of a good or bad transfer pump. All aftermarket devices used to identify low fuel pressure are incompatible with the retrofit Electric In-Tank Transfer Pump and should be disregarded. For testing information and specifications for the retrofit Electric In-Tank Fuel Transfer Pump, refer to 2005 Ram Diesel information in the ALLDATA system".

The following tests will include: pressures tests of fuel transfer pump (engine running and engine cranking), a pressure drop test of fuel filter, a test for supply side restrictions, and a test for air in fuel supply side.

Refer to Fuel Transfer Pump Description/Operation for an operational description of transfer pump.

Fuel Transfer Pump Location



The fuel transfer (lift) pump is located on left side of engine and above starter motor.

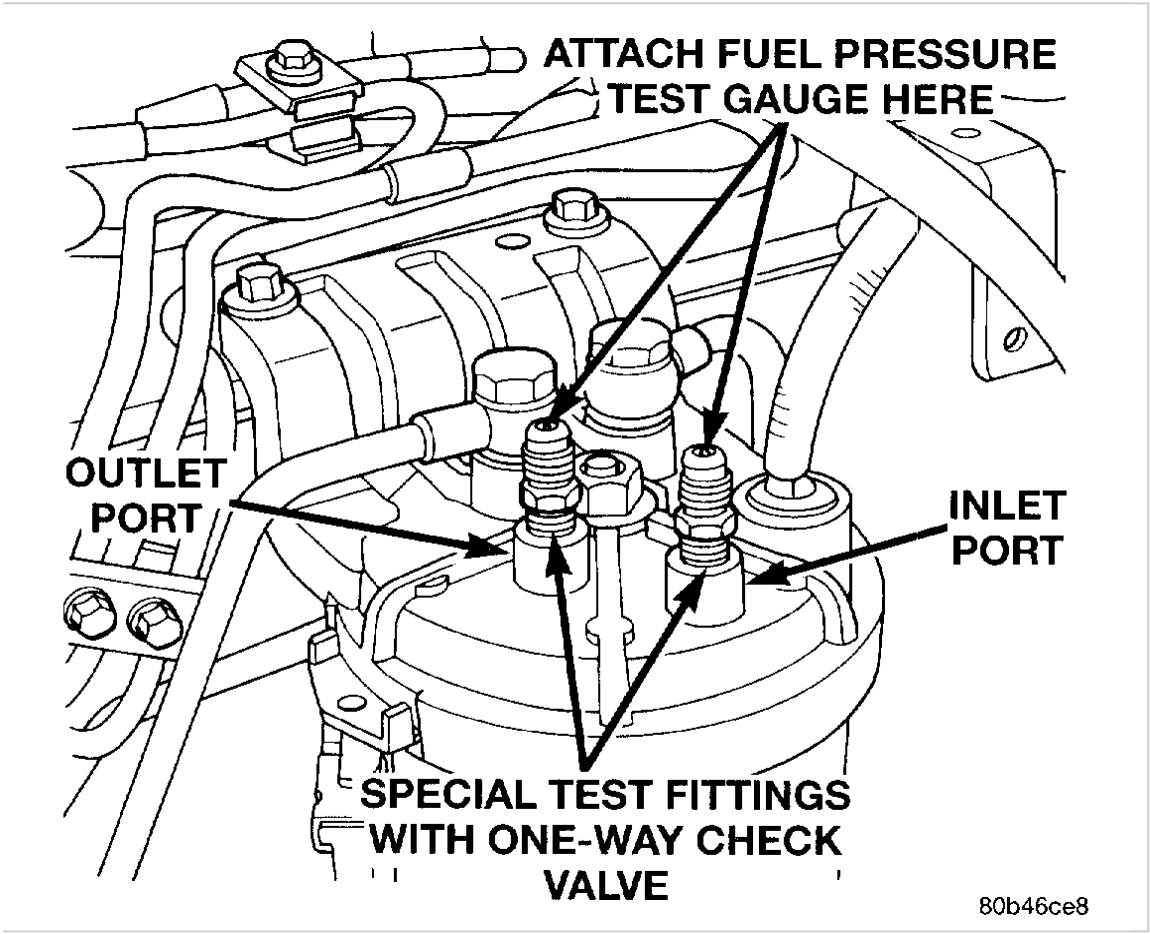
An improperly operating fuel transfer pump, a plugged or dirty fuel filter, or a defective overflow valve can cause low engine power, excessive white smoke and/or hard engine starting.

Before performing following tests, inspect fuel sup- ply and return lines for restrictions, kinks or Teaks.

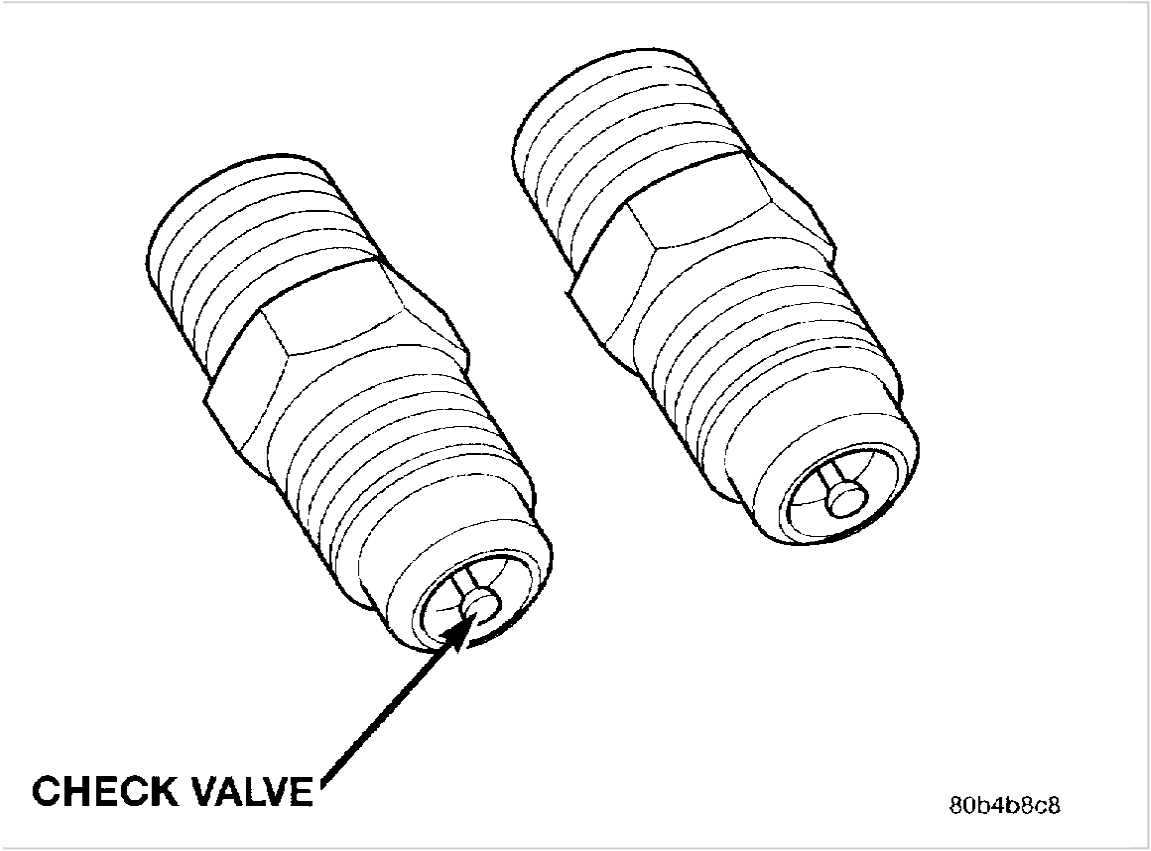
Fuel leaking from pump casing indicates a leaking pump which must be replaced.

Pressure Test: Because the transfer pump is operating at two different pressure cycles (engine running and engine cranking), two different pressure tests will be performed.

Fuel Pressure Test Port Fitting Location



Fuel Pressure Test Port Fittings



1. Remove 2 existing filter fittings (plugs) at top of fuel filter housing (clean area around fittings before fitting removal). In place of 2 fittings (plugs), install 2 special fittings. These special fittings are equipped with a spring-loaded shutoff valve (one-way check valve) and are commercially available from a Tube Fitting Supplier. Use Parker Access Valve, Male Connector part number AVU1-2 or equivalent.
2. Install Special Fuel Pressure Test Gauge 6828 (or equivalent) to special fitting at INLET PORT.
3. To prevent engine from starting, remove fuel system relay (fuel injection pump relay). Relay is located in Power Distribution Center (PDC). Refer to label under PDC cover for relay location.
4. Using key, crank engine over while observing gauge. Pressure should be **5-7 psi**.
5. Re-install fuel system relay to PDC.
6. Start engine and record fuel pressure. Pressure should be a minimum of **69 kPa (10 psi)** at idle speed.
7. Because fuel pump relay was removed, a Diagnostic Trouble Code (DTC) may have been set. After testing, use DRB scan tool to remove DTC.

Pressure Drop Test:

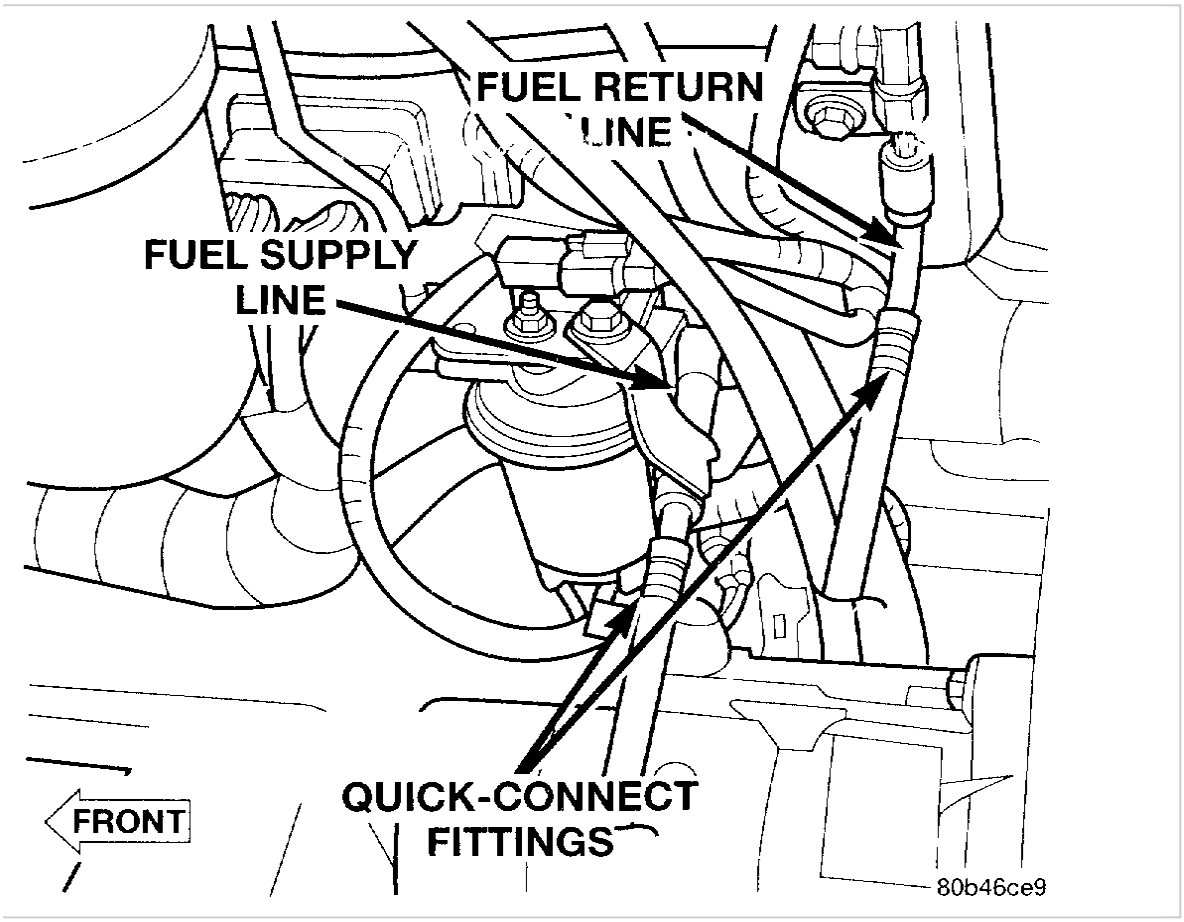
8. Shut engine off and remove test gauge from INLET PORT. Re-attach 6828 test gauge to OUTLET PORT. Start engine and record fuel pressure. Pressure should not be more than **34 kPa (5 psi)** lower than INLET PORT pressure test. If so, replace fuel filter.

Fuel Supply Restriction Test:

Due to very small vacuum specifications, the DRB scan tool along with the Periphal Expansion Port (PEP) Module and **0-15 psi** transducer must be used.

9. Verify transfer pump pressure is OK before performing restriction test.

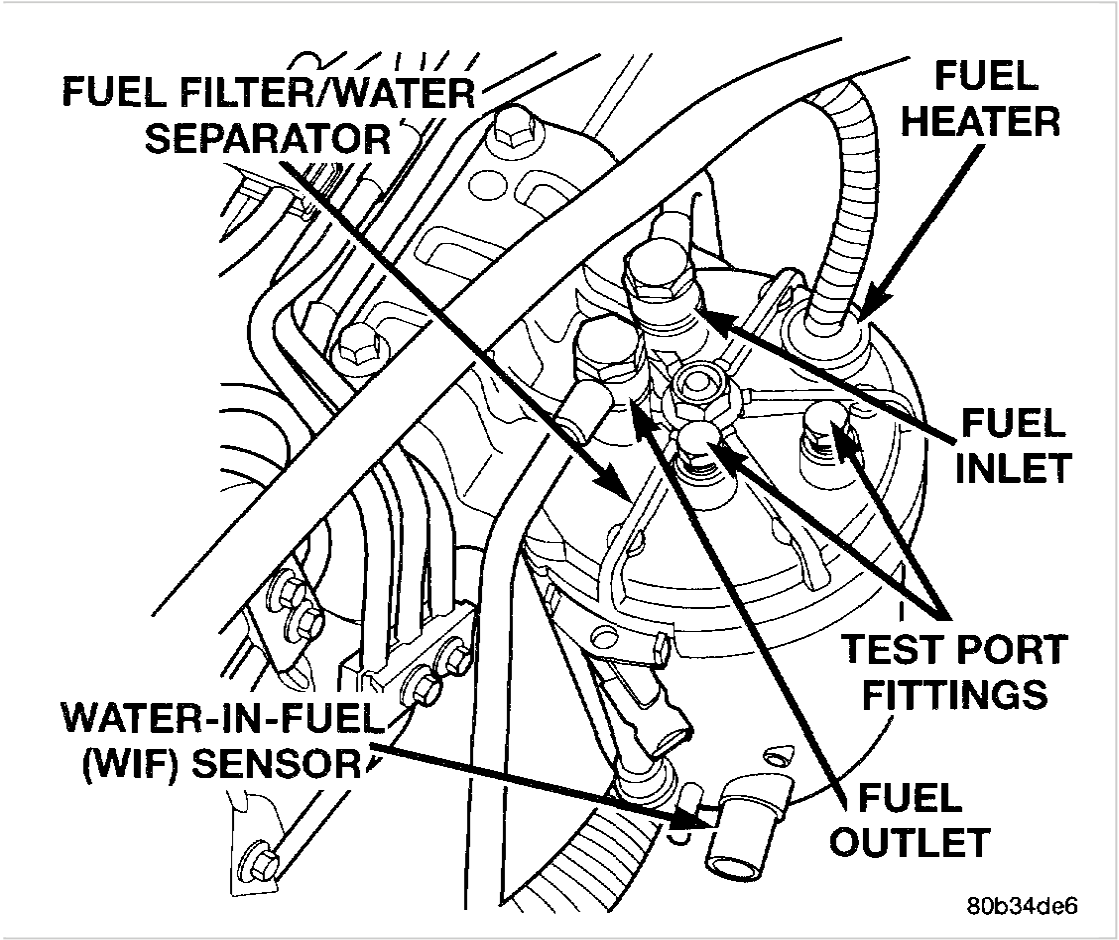
Fuel Return And Supply Line Quick-Connect Locations



10. Locate and disconnect fuel supply line quick- connect fitting at left-rear of engine. After disconnecting line, plastic clip will remain attached to metal fuel line at engine. Carefully remove clip from metal line. Snap same clip into fuel supply hose.
11. Install Special Rubber Adapter Hose Tool 6631 **(3/8")** into ends of disconnected fuel supply line.
12. Install transducer from PEP module to brass "T" fitting on tool 6631.
13. Hook up DRB scan tool to transducer.
14. Start engine and record vacuum reading with engine speed at high-idle (high-idle means engine speed is at 100 percent throttle and no load). The fuel restriction test MUST be done with engine speed at high-idle.
15. If vacuum reading is less than **6 in/Hg. (0-152 mm Hg.)**, test is OK. If vacuum reading is higher than **6 in/Hg. (152 mm Hg.)**, restriction exists in fuel supply line or in fuel tank module. Check fuel supply line for damage, dents or kinking. If OK, remove module and check module and lines for blockage. Also check fuel pump inlet filter at bottom of module for obstructions.

Testing For Air Leaks in Fuel Supply Side:
16. A **3-foot** section of **1/4"** I.D. clear tubing and a **1/8"** NPT fitting are required for this test.

Test Port At Fuel Inlet



17. Two test port fittings (plugs) are located at top of fuel filter housing. Remove fitting at fuel inlet side of housing (towards rear of filter housing). Clean area around fitting before removal. In place of test port fitting (plug), install a **1/8"** NPT fitting having a **1/4"** O.D. nipple.
18. Attach and clamp clear hose to fitting nipple.
19. Place other end of hose into a clear container.
20. The fuel transfer pump can be put into a **25 second** run mode if key is turned to crank position and released back to run position without starting engine.
21. Allow air to purge from empty hose before examining for air bubbles. Air bubbles should not be present.
22. If bubbles are present, check for leaks in supply line to fuel tank.
23. If supply line is not leaking, remove fuel tank module and remove filter at bottom of module (filter snaps to module). Check for leaks between supply nipple at top of module, and filter opening at bottom of module. Replace module if necessary.