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Coding Information

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Title: MaxxForce DT, 9 & 10 electric fuel pump step-based diagnostics

Applies To: EPA 2010 and later MaxxForce DT, 9 & 10

Step-based diagnostics for electric fuel pump: [>>here<<](#)

Tools needed for electric fuel pump step-based diagnostics:

- ServiceMaxx or Pocketmaxx
- Multimeter / DVOM
- ZTSE6023 fuel pump break-out tee
- 3 test leads with male banana ends (part of ZTSE4435c)
- Battery charger or 12 volt auto/truck battery (charger must not be a smart-charger)
- 15 amp circuit breaker

SYSTEM DESCRIPTION & SUPPLEMENTAL INFORMATION

-EPA 2010 and later DT, 9 & 10 engines use a fuel module that incorporates many features, including an electric fuel pump, fuel heater and fuel strainer.

-The fuel strainer can be seen when the pump is removed from the filter module. The strainer should be cleaned at the filter replacement interval (30K miles / 43K Km / or 12 months). The strainer P/N is 1899335C91 (see images below)

-Low fuel pressure and Hard Start or No Start conditions can be caused by non-genuine / non OEM fuel filters. See differences in the fuel filter seals [here](#) and fuel filter recall G-Letter [here](#).

-Calibration updates have been made due to low fuel pressure DTC's 94-1, 94-17 being set erroneously. Do not perform diagnostics for these faults unless there is a starting or performance complaints.

-Update the engine calibration (see calibration scorecard)

-If the vehicle has this code(s) and has a performance complaint then update the engine calibration AND follow step-based diagnostics (at the beginning of this article)

-Some low fuel pressure complaints are caused by a worn fuel pressure regulator valve & spring. Kit 1893801C94 is available to remedy this.

-Low fuel pressure complaints can be caused by the wrong O-ring being installed on the fuel pump



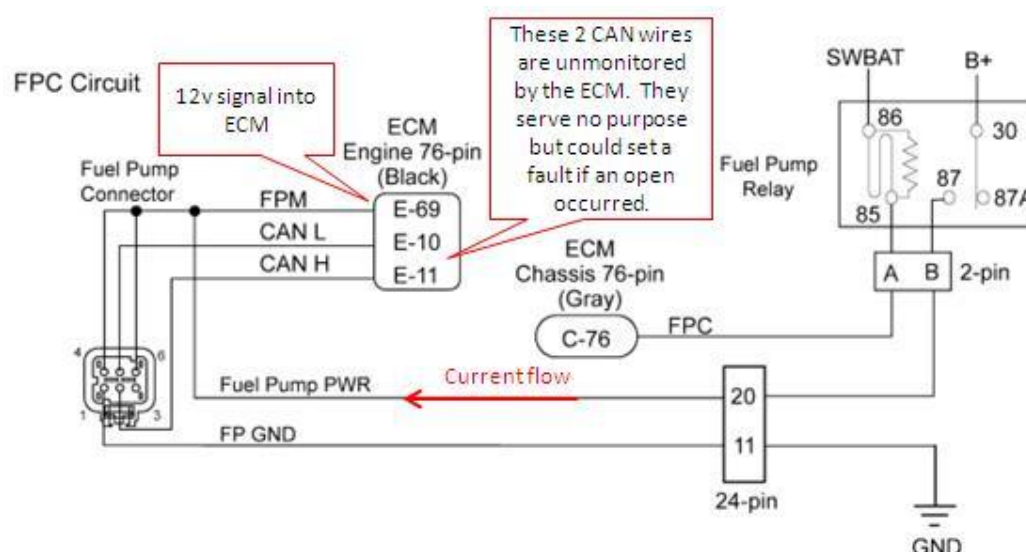
-Fuel pressures above 60 psi will not cause low power or performance complaints on this engine

-Fuel inlet restriction should not exceed 8.14" Hg. / -4 psi. High inlet restriction can cause the pump to draw too much current and shut off or behave erratically (this could be caused by an intermittent fuel restriction in the fuel tank or anywhere in the line). Use ZTSE6009 adapter to attach a vacuum gauge to the fuel inlet.

ELECTRIC FUEL PUMP OVERVIEW

At key ON, the ECM closes the fuel pump relay (provides ground via pin C-76) and battery voltage is supplied to the pump. The pump will run for ten seconds (time varies with coolant temperature) and then shuts off. During the run time if the ECM does not detect crankshaft rotation it switches the fuel pump relay off. **The key must be OFF for at least 10 seconds and then cycled ON before the ECM will restart the fuel pump.**

The ECM receives a 12 volt signal on pin E-69 that informs it that power is being provided to the fuel pump.



DIAGNOSTIC TIPS:

The pump has internal overload protection that turns the pump off under overload (high current draw situations). High current draw can be caused by high inlet restriction or restriction in return line to tank. When current limiting protection is triggered, the pump will cycle on and off causing the system pressure to fluctuate until the overload condition is resolved. The pump may eventually turn itself off. This situation can occur without a fault code being set. **When the ignition key is cycled OFF for 10+ seconds and ON the pump will restart.**

EPA 2010 (ESN 3300000 to 3499999) and HD-OBD 2013 (ESN 3500000 and up) use different fuel pressure sensors. **If the 2010 sensor is installed in the HD-OBD engine Service Maxx will read 135 PSI KOEO.**

EPA 2010 (ESN 3300000 to 3499999) and HD-OBD 2013 (ESN 3500000 and up) use different fuel pressure sensors. **If the HD-OBD sensor is installed in the 2010 engine fuel pressure will read 50-55 PSI at idle.**

EPA 2007 (ESN 3000000 to 3299999) and EPA 2010 (ESN 3300000 and up) use different fuel pressure regulators. **They cannot be interchanged.**

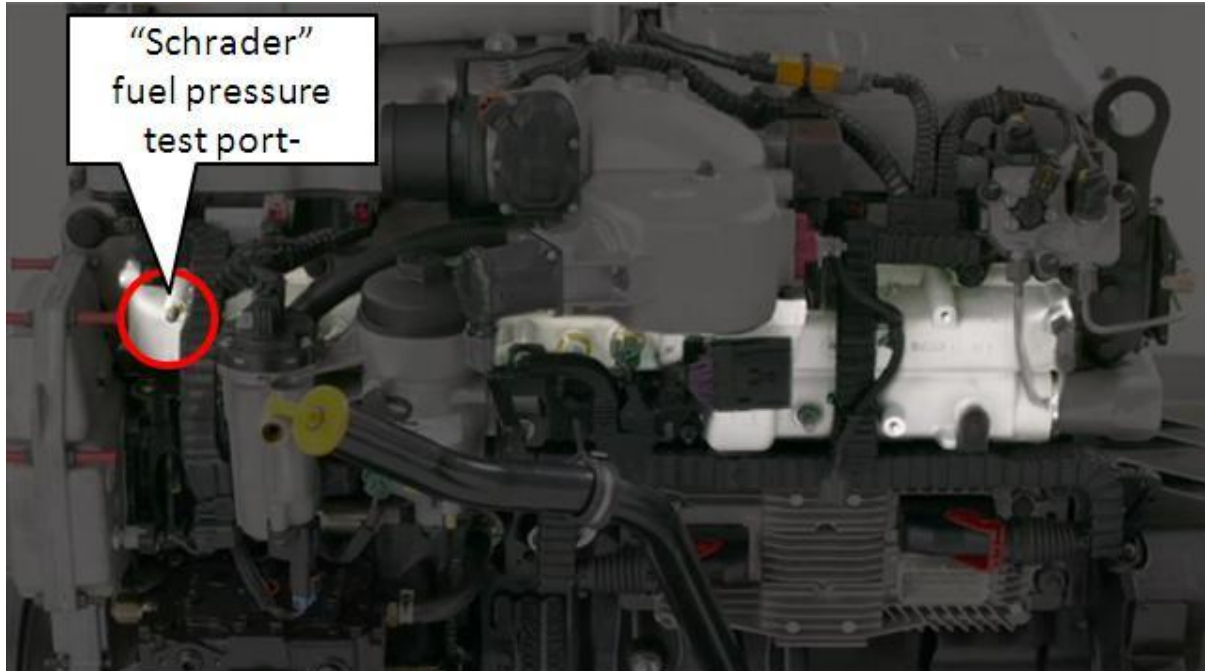
EPA 2007 (ESN 3000000 to 3299999) use fuel pressure regulator P/N1886152C91.

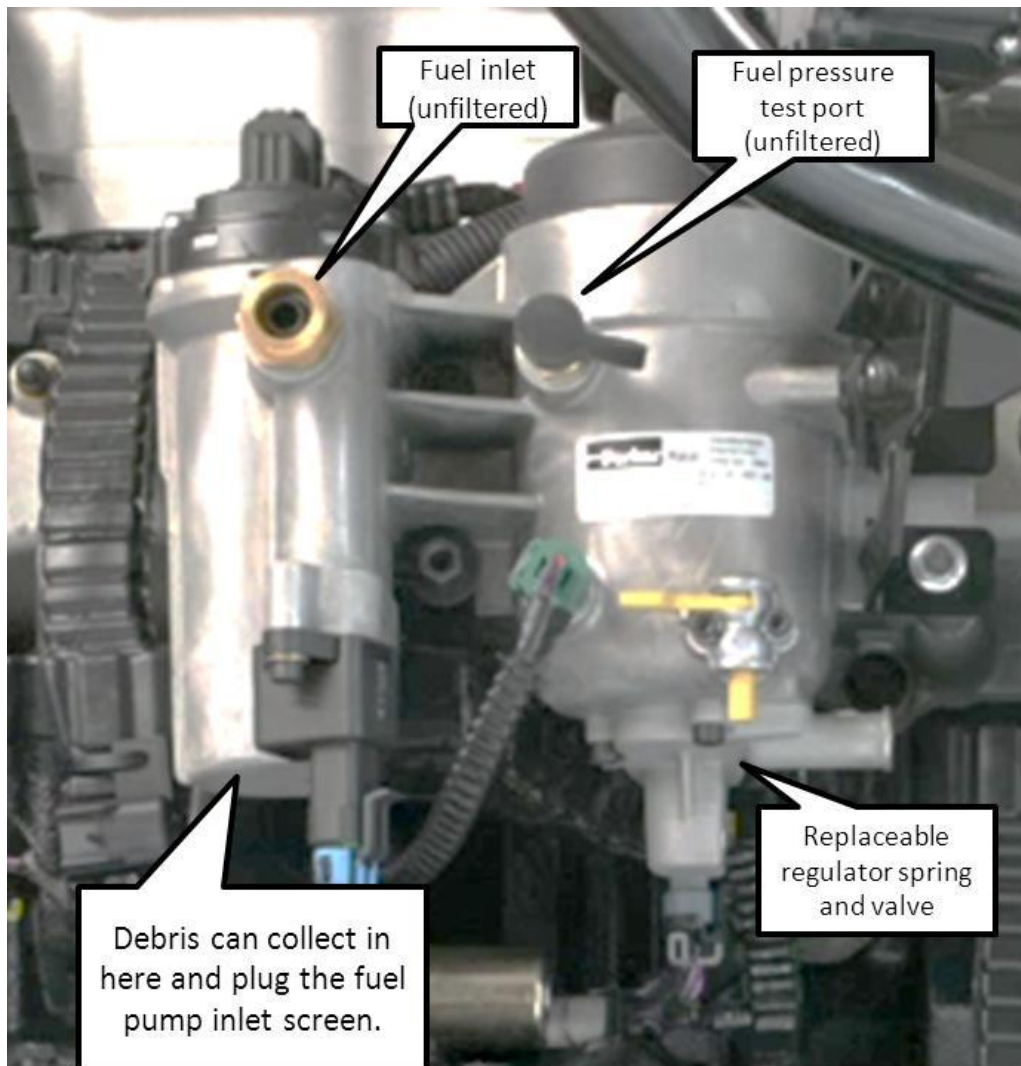
EPA 2010 (ESN 3300000 to 3499999) and HD-OBD 2013 (ESN 3500000 and up) use fuel pressure regulator P/N1893801C92.



There are two fuel pressure test ports on the engine. The first port is a Compuchek and is located on the front of the filter module (unfiltered fuel pressure) The second port is a Schrader™ valve located on the front of the intake

manifold (filtered fuel pressure). The Schrader port can also be used to bleed air out of the system. Note- Double check any below spec. pressure reading from this port as a poor connection can cause a low pressure reading (but fuel rail pressure could be ok). Use ZTSE4681 and adapter ZTSE4657.









These vehicles need the strainers replaced

SRT for electric fuel pump step-based diagnostics:

-KL12-2048T .7 hours (includes all steps of step-based diagnostic and pump replacement) - most models

- I12-2048T 1.6 hours (RE bus)

Warranty code for electric fuel pump:

-12000 / 791 Engine Mechanical or Electric Fuel Lift Pump / T- Inoperative

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