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# Low fuel pressure in a Galaxy

A 2007 Galaxy TDi was having intermittent starting problems, accompanied by a warning light on the dash. The Galaxy was recovered to a garage during a recent no-start episode, but the fault could just as easily have caused a hard starting condition. TEXA's Dave Gordon recounts the puzzling information collected on his way to solving this problem.

**I**t all began when a 2007 Ford Galaxy TDi would not start and was recovered to a garage. The Galaxy had been experiencing intermittent problems not starting, and a fault light was showing on the dash. The warning light indicated a fault in fuel delivery to the engine. After a quick visual inspection under the bonnet, a TEXA Axone 4 Mini, and Navigator Nano, were used to scan the whole vehicle for errors.

After removing all of the error codes in the TGS3 function, an attempt was made to start the car. It started this time, but immediately logged a pre-pump low fuel pressure fault, indicating a failed pre-pump. The live parameters were checked, and the Actual Fuel Pressure was marginally below the stated Desired Fuel Pressure, by around 1.5 Bar.

The fuel tank was removed to inspect and test the pre-pump. Out came the tank and out came the fuel sender unit. The real problems started when the sender unit was removed from the tank, and it was discovered that there wasn't a pre-pump in the tank at all. According to Ford and Autodata, this Galaxy should have a pre-pump, if the chassis and engine code were to be believed. This information was obviously not true, and a faulty pre-pump was not the cause of the fault.

Back to the drawing board and starting with a clean slate. The fuel tank and lines were refitted, and the car was scanned and the live data was checked again. The same error code came back, and the fuel pressure was still the same 1.5 Bar too low.

When you get to a point like this while diagnosing a problem, it is always a good idea to understand what it is that you have measured and know, and what are all of the possible causes. Sometimes this means checking a variation of what

you've already tested to either confirm or refute an assumption as to the actual problem you are dealing with. Often, a quick check will send you into a new direction that you might not have considered with the information from your initial assessment. This is the kind of thinking and



**A pin-hole leak on a fuel line was sucking air into the line, but wasn't leaking diesel yet**

diagnostics that will lead you to fixing any problem in an efficient and thorough manner.

With that idea in mind, the pressure prior to the filter was measured and it was also the same 1.5 Bar too low. What was looking like a partially plugged fuel filter was now looking like another problem entirely. Additionally, an interesting thing was seen in the fuel as it was flowing to the filter - there were small air bubbles in the diesel. The bubbles provided an invaluable clue that clearly showed that the problem was not only located between the fuel tank and the fuel filter, but that it was probably caused by air entering into the fuel supply. As you will remember, air is compressible while diesel, and petrol, is virtually incompressible. The air bubbles in the fuel were compressing, robbing the fuel of some of its pressure. Now all that was needed was to find the source of the air entering into the fuel supply.

The next step was to create a temporary test fuel system from the fuel

tank to the filter. The temporary fuel system consisted of a pipe connected to the inlet of the fuel filter, with its other end in a fuel can. Having eliminated all the Galaxy's pipework, non-return valve, and the tank itself, the fault was cured. All that was needed then was to inspect all of the by-passed fuel system to find the real fault.

All of the covers on the fuel lines were removed, and the non-return valve was located. There weren't any fuel leaks to be seen, but a small pin-hole was found on the fuel feed line near the tank. While the pin-hole wasn't leaking any fuel (yet) it was allowing small amounts of air to be sucked into the line along with the diesel from the tank, like a straw sucking up air. If the pin-hole had grown larger, it would have started to leak fuel and would have been more noticeable.

A new pipe was fitted, and all of the fault codes and low fuel pressure readings were no longer present. A successful repair of an odd failure.

