



**Internal damage to a DPF will trigger errors and may prevent proper operation**

A recent call to the Autobiz Helpline, was concerning an issue with a Citroen Dispatch with a 1.6 HDi BHX engine. The fault reported was P2002 (Diesel Particulate Filter Efficiency Below Threshold).

The serial data was checked first, and a differential pressure across the DPF, while the engine was idling, of only 1mb was shown. Knowing this was too low, we knew the fault code was correct, but we needed to test the differential pressure sensor was accurately reporting the pressure.

## Minimum pressure is needed across a DPF

A Mityvac pump was connected to the upstream pipe of the sensor, and the data checked to see if this was accurate. It was correct, so we needed to prove the actual pressure on the filter, to do this we applied a manometer to the upstream pressure pipe and ran the engine at idle

This proved the pressure to be only 1 mb, far too low for the Engine Control Module (ECM) to monitor. This differential pressure is used by the control module to manage the DPF. Normal differential DPF pressure at engine idle on a clean DPF would be in the range of 6-10 mb. A pressure below 6mb will cause the control module to report an issue.

The ECM uses the pressure reading to calculate the soot content within the particle filter, and uses this data to decide when a filter regeneration is required. During regeneration, the control module will use various strategies to increase the internal temperature to 580 ° C, or higher, to burn off the soot content. On a normally healthy engine, driven correctly, this would occur around every 400km. But without accurate pressure measurements, this process will not be successful.

As the vehicle's mileage rises, the filter will fill with ash, a by-product of the regeneration process.

Ash can only be removed by specialist filter cleaning. Higher ash content will increase the frequency of the regeneration events, monitored by the rise in differential pressure. These data parameters for carbon and ash, can be displayed as a percentage by a scan tool.

You should note that the Diesel Particulate Filter is a serviceable item, with a defined lifespan. This life span can be shorter if the engine conditions are not perfect. Driving style can also affect the life of the filter.

So, if the pressure is too low, this can be a result of internal damage, and in some cases, the internal components of the filter have been removed or radically altered, to avoid the expensive cost of replacement.

**Technical**  **Helpline**

Call now to join **01-905-9500**