

TECHNICAL

DIESEL PARTICULATE FILTERS



Differential pressure sensor by Kavlico.

to during the cleaning process of the filter.

DELTA PRESSURE SENSOR

In order to determine the amount of particulates in the filter, the pressure difference over the element is continuously monitored. Engineers calibrate threshold curves of pressure against exhaust

volume to trigger reaction events when the filter reaches pre-determined soot levels.

CALIBRATION

Calibration engineers will normally set the following trigger limits and events for a DPF system:

- DPF almost full: trigger active regeneration when speed and load conditions are favourable;
- DPF full: trigger active regeneration;
- DPF slightly overloaded: trigger active regeneration and light the "drive faster" lamp on instrument panel (OPPOSITE, FAR RIGHT) to encourage driver to drive at a higher speed and load condition.
- DPF blocked: prevent active regeneration due to thermal runaway risk, employ reduced power mode ("limp home") and illuminate engine-malfunction lamp on instrument panel. The owner will need to take his

vehicle to a dealership where a controlled-service regeneration process might be attempted. If it fails, the DPF should be replaced.

DANGERS

Oil dilution: Vehicles without a vapouriser system use the post injection strategy (injecting late during the exhaust stroke). This will result in some of the unburned fuel coming in contact with the cylinder walls during regeneration. A fraction of this fuel will make its way past the piston rings and contaminate the engine oil, leading to shorter service intervals.

Higher fuel consumption: the fitment of a DPF will increase the exhaust back-pressure, which will make the engine less efficient overall. During the regeneration process, some fuel is used to increase the exhaust temperature without contributing to the power output of the engine – essentially "wasting" fuel to heat the DPF.

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