Issue no. 04/2016: Leaky oil filters: oil pressure regulating valve clogged

In vehicles with spin-on (OC) oil filters, leakage from the filter or oil loss from the filter's screw-on flange may occur due to a clogged control valve in the oil pump. This is visually confirmed when the seal has become dislodged or the filter housing has expanded, or even burst in some cases.

This can typically be attributed to deposits and carbonised residue in the engine oil that are swept through the oil pump, where they cause sporadic clogging of the control valve (see Figures 1 and 2).

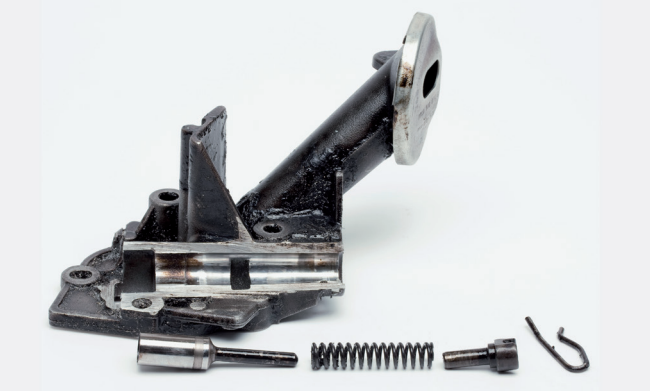

Figure 1: Opened oil pump with integrated regulating valve

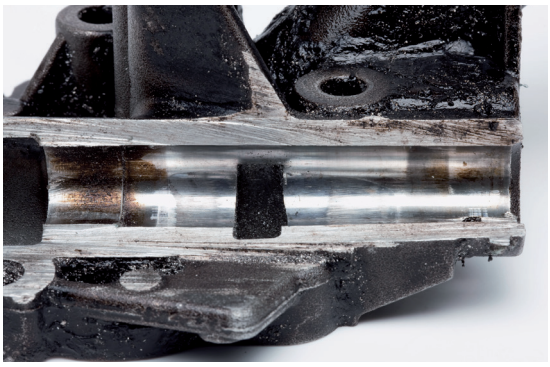

Figure 2: Close-up view of the clogged control valve with clear seizing marks

Since the oil pressure is no longer adequately regulated or may even cease to be regulated altogether, extreme pressure peaks of over 30 bar may occur as a result. The oil filter is unable to compensate for this tremendous rise in pressure and deforms (see Figure 3).

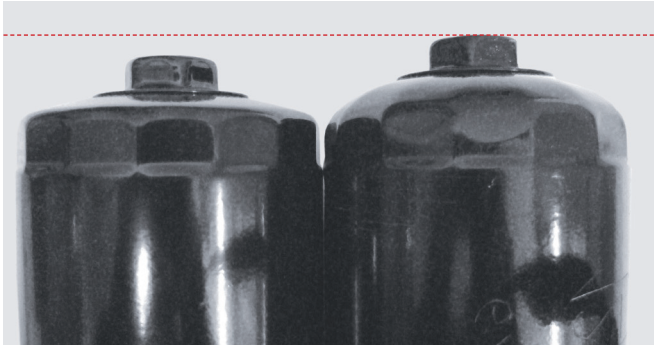

Figure 3: Oil filters, side-by-side comparison—left: normal, right: deformed

The seal may also become dislodged or the end cap may bulge significantly, giving rise to insufficient contact pressure between the seal and the filter. As a result, oil is lost directly from the screw-on flange or the filter bursts—in which case the entire end cap detaches from the housing (see Figure 4).

IMPORTANT! In the damage scenario described above, it is not enough to replace the filter. Make absolutely certain that you inspect and flush the entire oil circuit to remove all deposits. You may also need to replace the oil pump (with integrated regulating valve).

Figure 4: Burst oil filter