Technical Messenger

Workshop Information

MAHLE

Driven by performance

Issue no. 7/2016: Foreign object damage in the turbocharger

If a new turbocharger exhibits poor performance immediately following a repair, this may be connected with foreign object damage in the compressor caused by previous damage.

In the event of failure due to insufficient lubrication, the compressor nut may become loose (see Fig. 1) as a result of seizing of the radial bearing and immediate deceleration of the shaft. In some cases, the nut is flung into the air filter housing, where it remains and—in the worst-case scenario—is not discovered during the repair (see Fig. 2).

Figure 1

Figure 2

When the vehicle is running, the loose nut then ends up in the intake section of the new turbocharger, where it destroys the sensitive aluminium impeller (see Fig. 3). As a result, the new turbocharger can no longer compress the intake air, and the vehicle suffers a loss of performance.

Figure 3

Foreign object damage is the most common reason for repeat repairs, as chips and fragments end up in the charge air line and are not carefully removed.

IMPORTANT! It is crucial that the loose impeller nut be found and removed. The entire intake section should be examined closely and the air filter element must always be replaced! It is also imperative that the complete charge air line be thoroughly cleaned and the intercooler replaced!