SI-170713
Service-Information Turbocharger

Overheating on rotor shaft bearing due to increased exhaust back pressure and oil coking on compressor wheel

Please note:
Turbochargers on these vehicles are often damaged due to increased exhaust back pressure. However, they often do not show the typical increased axial bearing clearance.

Reasons for increased exhaust back pressure:
The hot exhaust gases which are entering into the bearing housings cause oil coking on the axial bearing. The wear which occurs on the radial bearing at the turbine side forces the wheels to brush against their respective housings. The wear signs of wear often show later at the axial bearing. Very conspicuous is the coking on the wings of the compressor wheel, which in this case is not caused by oil contamination from the crankcase ventilation. Due to the jam of exhaust gases and the therefor increased temperature of the components a significant coking is to be recognized on the wings of the compressor wheel.

Exhaust back pressure:
The turbocharger's permitted max value of exhaust gas back pressure is 300mbar. The OBD system often shows misleading values due to clogged test lines coming from the DPF which also renders the functionally of the differential pressure sensor useless. A DPF in operation will need regeneration times in increasingly shorter intervals. Unnoticed exhaust gas back pressures of 700 to 900mbar will occur during these regeneration phases.

Crankcase ventilation – exchange the filter with every second oil change:
The filter which is installed in the crankcase ventilation will eventually clog and block. Consequential damages will be oil loss on the turbine side into the VNT unit with coking, ingress of oil into the intercooler and shifting of oil from the valve cap ventilation into the intake section. The max value of 5mbar inside the crankcase may not be exceeded.

Use of our Diagnostic Tool MESS01
With this easy to use gauge you can easily and quickly check the exhaust back pressure of the exhaust system as well as the crankcase pressure of the engine. Both are absolutely necessary for the turbocharger to operate correctly.

Wear and oil coking on radial bearing | Wear and oil coking on rotorshaft | Wear and oil coking on axial bearing | Oil coking on compressor wheel

Vehicle Manufacturer: BMW
Vehicle: X3 (E83) 2.0 d, 520 d (E60, E61)
Engine code: M47 D20 (204D4), 150 bis 163 PS

Validity: This service information is valid for renewing the turbocharger with
BTS reference: T914665 **BTS-Service-Set-ref:** T981045
OE-no.: 7794020, 7794021, 7794022, 11657794020, 11657794021, 11657794022, 11652287495
Manufacturer part no.: 762965-50xxS, 762965-90xxS

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