

Driven by performance

THE MAHLE TURBO-CHECK

Before installation

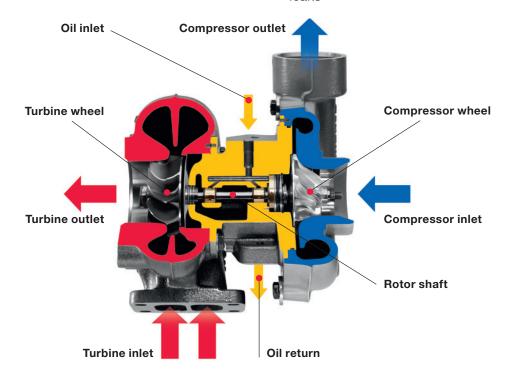
- Reason for the failure of the old turbocharger (possibly fault on or around engine) diagnosed and remedied
- ✓ Turbocharger model number compared with the engine specifications and the turbocharger manufacturer's model number
- Functional capability of the engine ventilation ensured
- Oil supply ensured, oil return from the turbocharger to the crankcase is clear
- Intake, charge air and exhaust area:
 - Functional capability checked
 - Any contamination by foreign bodies or fluids remedied
 - Absolute cleanliness of and no damage to the air lines connected to the turbocharger ensured
- In the case of liquidcooled turbochargers: Ventilation and supply with coolant ensured
- Checked whether adjustment of the housing position is necessary
- Tightening torque as specifed by the engine and vehicle manufacturer maintained
- Ensured that flanges and threads are free of damage and wear
- Only brand new and exact fitting sealing elements used
- Engine oil and oil filter change carried out as specified by the engine and vehicle manufacturer

During installation

- Before securing the oil supply line: Turbocharger filled with new engine oil through the oil inlet hole, while slightly turning the rotor manually
- Boost pressure changed if necessary
- Attention paid to correct handling

After installation

- Idle for approx. 120 seconds after engine start
- During idling: All connections (air, exhaust, water and oil) checked for firm seating, tightness and free of leaks, gastightness checked with soapy water if necessary
- When oil pressure has built up: operate engine at various speeds and under load
- After 20 operating hours or 1,000 km: all relevant connections checked again for firm seating, tightness and free of leaks



Important note for the car repair shop: The turbocharger may only be installed by skilled personnel. Incorrect installation, use and operation of the turbocharger or modifications to it can cause damage to the turbocharger and the engine. The manufacturer's specifications as well as the installation and start-up instructions must be followed. No liability for material defects shall be accepted if a turbocharger is installed that does not comply with the engine specifications or if the installation and fitting instructions are not followed. Visible faults must be reported immediately.





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DIAGNOSIS MATRIX									
This matrix enables you to quickly localise the root causes of damage to or malfunction of a turbocharger.	eel defective	ure too low				σ			
Important: Do not disassemble the old turbocharger until the root cause for the damage or malfunction is eliminated. This is the only way to ensure the long-lasting and flawless operation of the new charger.	Air compressor/turbine wheel defective	Lack of power/boost pressure too low	3oost pressure too high	Black smoke	Blue smoke	Turbocharger makes noises	High oil consumption	Oil leak on compressor	Oil leak on turbine
Air-filter system soiled				•	•		•	•	
Intake/pressure line deformed or leaky									
Exhaust-gas system has excessively high flow resistance/leaks in the turbine					•				
Oil supply and drain lines blocked and/or deformed									
Crankcase breather blocked and/or deformed									
Charger housing of turbocharger coked or silted up					•				
Fuel delivery system/fuel injection system defective or incorrectly adjusted									
Valve guide, piston rings, engine, or cylinder liners worn/increased blow-by									
Compressor or charge-air cooler soiled				•	•	•	•	-	
Wastegate/valve fails to close		•		•					
Wastegate/valve fails to open			•						
Control line to regulating flap/valve defective		•	•						
Piston ring seal defective					•		•	•	•
Turbocharger bearing damage	•	•		•	•	•	•	•	•
Foreign body damage to compressor and turbine	•	•		•			•		
Exhaust gas leak between turbine outlet and exhaust pipe							•		
Engine air plenum chamber cracked, missing/loose seal		•		•			•		
Turbine housing/flap damaged	•	•		•		•			
Lack of oil supply to turbocharger	•	•		•		•			

