

# TURBO DIAGNOSIS

This matrix helps you identify the causes of turbocharger damage or malfunction.

**Important:** Do not remove the old turbocharger until the causes of the damage or malfunction have been eliminated. Only this will ensure that the new turbocharger works properly in the long term.

Possible cause	Defects								
	Compressor/turbine wheel defective	Lack of power, charge pressure too low	Charging pressure too high	Black smoke	Blue smoke	Turbocharger makes noise	High oil consumption	Oil leakage at compressor	Oil leakage at turbine
Air filter system is dirty		●		●	●		●	●	
Intake/pressure line deformed or leaking		●		●		●			
Exhaust system has too high flow resistance, turbine leakage		●		●	●	●	●	●	
Oil supply and oil drain lines clogged and/or deformed					●		●	●	●
Crankcase ventilation clogged and/or deformed					●		●	●	●
Turbocharger housing coked or silted up					●		●	●	●
Fuel system/injection system defective or incorrectly adjusted		●	●	●					
Valve guide, piston rings, engine or cylinder liners worn/increased blow-by		●		●	●		●	●	●
Contamination of the compressor or intercooler		●		●	●	●	●	●	
Boost pressure control flap/valve does not close		●		●					
Boost pressure control flap/valve does not open			●						
Control line to control damper/valve defective		●	●						
Piston ring seal defective					●		●	●	●
Turbocharger bearing damage	●	●		●	●	●	●	●	●
Foreign body damage in compressor and turbine	●	●		●			●		
Exhaust gas leakage between turbine outlet and exhaust pipe							●		
Engine air manifold cracked, missing/loose seal		●		●			●		
Turbine housing/flap damaged	●	●		●		●			
Insufficient oil supply to the turbocharger	●	●		●		●			