

Turbocharger Failure Diagnosis

Loss of power, excess smoke, high fuel consumption, overheating, high exhaust temperatures and oil leakages from the turbocharger are all symptoms that could indicate turbocharger malfunction. However, these faults are often wrongly attributed to the turbocharger because defects in other components can produce the same symptoms. The turbocharger performance can only be impaired by mechanical damage or blockage caused by dirt.

This checklist provides a comprehensive list of the most common symptoms related to turbocharger failure. BEFORE replacing a turbocharger, verify the problem by consulting the chart below. If after taking the appropriate action, problems still persist, please contact your nearest authorised Holset distributor for advice.

Dirty air cleaner
Clean or replace element according to manufacturer's recommendations

Restricted compressor intake duct
Remove restriction or replace damaged parts as required

Restricted air duct from compressor to intake manifold
Replace seals, gaskets or tighten fasteners as required

Restricted intake manifold
Refer to engine manufacturer's manual and remove restriction

Air leak in feed from air cleaner to compressor
Replace seals, gaskets or tighten fasteners as required

Air leak in feed from compressor to intake manifold
Replace seals, gaskets or tighten fasteners as required

Air leak between intake manifold and engine
Refer to engine manufacturer's manual and replace gaskets or tighten fasteners as required

Foreign object in exhaust manifold (from engine)
Refer to engine manufacturer's manual and remove obstruction

Restricted exhaust system
Remove restriction or replace damaged parts as required

Exhaust manifold cracked, gaskets blown or missing
Refer to engine manufacturer's manual and replace gaskets or damaged parts as required

Gas leak at turbine inlet/exhaust manifold joint
Replace gasket or tighten fasteners as required

Gas leak in ducting after turbine outlet
Refer to engine manufacturer's manual and repair leak

Restricted turbocharger oil drain line
Remove restriction or replace damaged parts as required

Restricted engine crankcase breather
Refer to engine manufacturer's manual, clear restriction

Turbocharger bearing housing sludged or coked
Change engine oil and oil filter, overhaul or replace turbocharger as required

Fuel injection pump or fuel injectors incorrectly set
Refer to engine manufacturer's manual and replace or adjust faulty components as required

Engine valve timing incorrect
Refer to engine manufacturer's manual for correct settings and adjust as required

Worn engine piston rings or liners
Refer to engine manufacturer's manual and repair as required

Burnt valves and/or pistons
Refer to engine manufacturer's manual and repair as required

Excessive dirt build-up on impeller and/or diffuser vanes
Clean in accordance with the appropriate Holset repair manual

Turbocharger damaged
Find and correct cause of failure, repair or replace turbocharger as necessary

Failed diaphragm
Replace using correct Actuator Service Kit

Sized valve
Free valve/replace complete turbine housing sub-assembly

Leaking hose
Replace hose and clips

Wastegate mechanism set incorrectly
Contact nearest Holset distributor for correct setting details

	Engine Running Hot	Poor Transient Response	Smoke	Engine Lacks Power	Black Exhaust Smoke	Blue Exhaust Smoke	High Oil Consumption	Turbocharger Noisy	Cyclic Sound from the Turbocharger	Oil Leak from Compressor Seal	Oil Leak from Turbine Seal
Dirty air cleaner Clean or replace element according to manufacturer's recommendations	●	●	●	●	●	●	●			●	
Restricted compressor intake duct Remove restriction or replace damaged parts as required	●	●	●		●	●	●	●	●	●	
Restricted air duct from compressor to intake manifold Replace seals, gaskets or tighten fasteners as required	●	●		●	●			●			
Restricted intake manifold Refer to engine manufacturer's manual and remove restriction	●	●		●	●			●			
Air leak in feed from air cleaner to compressor Replace seals, gaskets or tighten fasteners as required								●			
Air leak in feed from compressor to intake manifold Replace seals, gaskets or tighten fasteners as required	●	●	●	●	●	●	●	●			
Air leak between intake manifold and engine Refer to engine manufacturer's manual and replace gaskets or tighten fasteners as required	●		●	●	●	●	●	●			
Foreign object in exhaust manifold (from engine) Refer to engine manufacturer's manual and remove obstruction				●	●	●	●	●		●	
Restricted exhaust system Remove restriction or replace damaged parts as required	●			●	●					●	
Exhaust manifold cracked, gaskets blown or missing Refer to engine manufacturer's manual and replace gaskets or damaged parts as required		●	●	●	●			●			
Gas leak at turbine inlet/exhaust manifold joint Replace gasket or tighten fasteners as required		●	●	●	●			●			
Gas leak in ducting after turbine outlet Refer to engine manufacturer's manual and repair leak		●						●			
Restricted turbocharger oil drain line Remove restriction or replace damaged parts as required						●	●			●	●
Restricted engine crankcase breather Refer to engine manufacturer's manual, clear restriction						●	●			●	●
Turbocharger bearing housing sludged or coked Change engine oil and oil filter, overhaul or replace turbocharger as required						●	●			●	●
Fuel injection pump or fuel injectors incorrectly set Refer to engine manufacturer's manual and replace or adjust faulty components as required		●	●	●	●						
Engine valve timing incorrect Refer to engine manufacturer's manual for correct settings and adjust as required				●	●						
Worn engine piston rings or liners Refer to engine manufacturer's manual and repair as required				●	●	●	●			●	●
Burnt valves and/or pistons Refer to engine manufacturer's manual and repair as required				●	●	●	●			●	●
Excessive dirt build-up on impeller and/or diffuser vanes Clean in accordance with the appropriate Holset repair manual				●	●	●	●	●	●	●	●
Turbocharger damaged Find and correct cause of failure, repair or replace turbocharger as necessary				●	●	●	●	●		●	●
Failed diaphragm Replace using correct Actuator Service Kit	●							●			
Sized valve Free valve/replace complete turbine housing sub-assembly	●	●									
Leaking hose Replace hose and clips	●							●			
Wastegate mechanism set incorrectly Contact nearest Holset distributor for correct setting details	●	●	●	●				●			