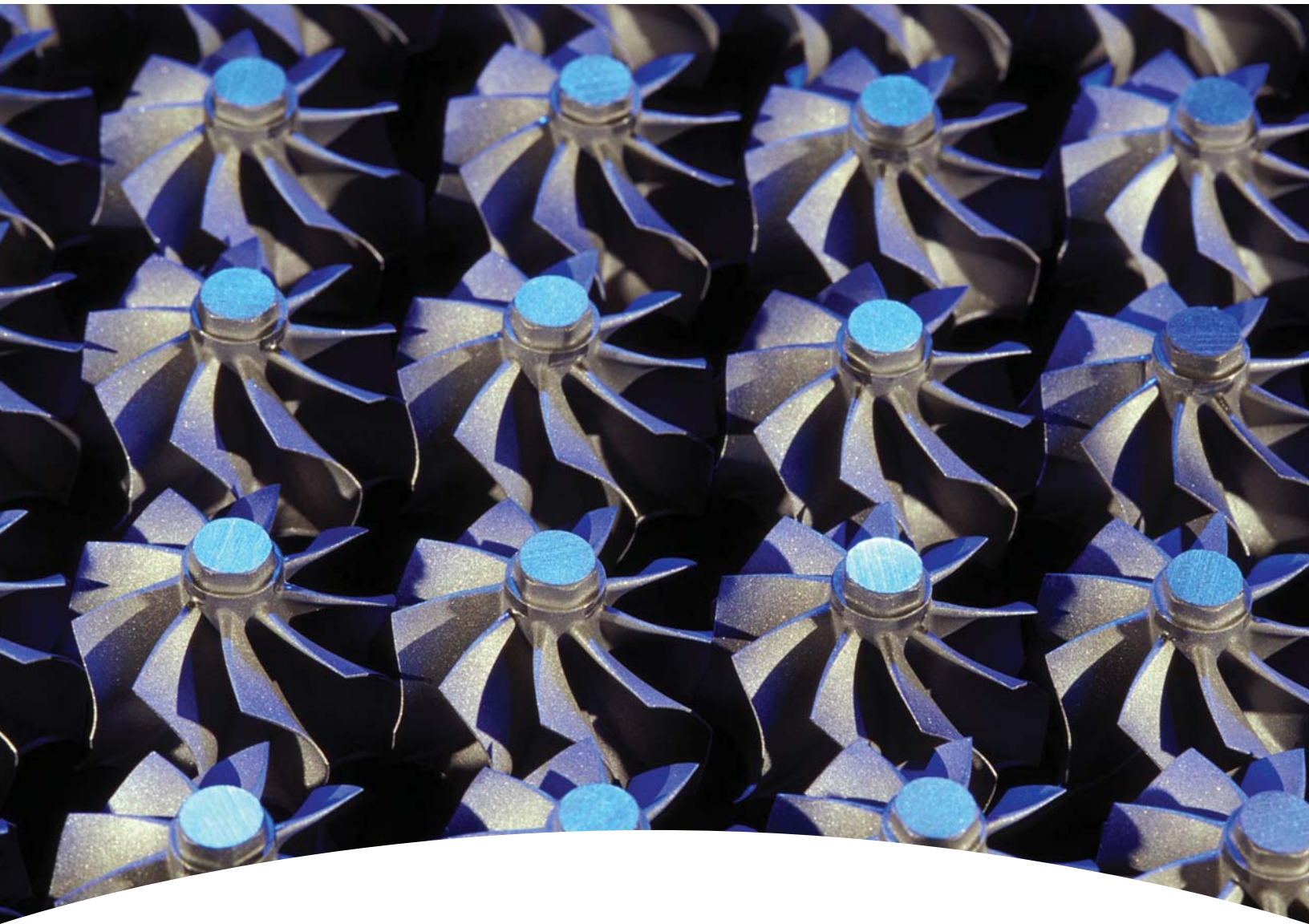


Troubleshooting Garrett® Turbochargers



Providing Answers

Possible problem with your turbo?
Find the symptom and determine
probable causes with the Garrett®
Turbochargers Troubleshooting
Guide.

Garrett®
by Honeywell

Nearly all turbocharger-related problems are the result of a handful of causes. Knowing how to recognize the symptoms of these issues early and link them with causes will help you save (down) time and money.

The chart below outlines the probable causes and noticeable conditions of the most common turbocharger maladies as well as what you can do to solve them.

By using this chart, most turbocharger problems can be easily identified and rectified. However, if a problem falls outside of your comfort level of service, contact a Garrett® Performance Distributor or a Garrett® Master Distributor for assistance.



Turbocharger Troubleshooting

Possible Cause	Symptoms										Solutions	
	Engine Lacks Power	Black Smoke	Excessive Oil Consumption	Blue Smoke	Excessive Oil - Compressor End	Noise	Drag or Bind in Rotating Assembly	Excessive Oil - Turbine End	Damaged Rotating Assembly	Damaged Compressor Wheel		Damaged Turbine Wheel
Dirty air cleaner element												Clean or replaced filter element
Plugged crankcase breathers												Clear obstruction per manufacturer's manual
Air cleaner element missing, leaking or loose connections to turbo												Replace, repair or reconnect air cleaner element per manufacturer's manual
Collapsed or restricted air pipe before turbocharger												Inspect pipe for damage or obstructions, replace or repair
Restricted or damaged cross-over pipe - turbo to inlet manifold												Inspect pipe for damage or obstructions, replace or repair
Foreign object between cleaner and turbocharger												Inspect air intake piping, remove foreign object
Foreign object in exhaust system (from engine, check engine)												Inspect exhaust piping ONLY when engine is NOT running and cold, remove foreign object
Turbocharger flanges, clamp or bolts loose												Inspect all connecting hardware for damage, ensure tight fits per installation instructions
Inlet manifold cracked, gaskets loose or missing, connections loose												Remove and inspect inlet manifold for damage to castings and gaskets, replace if needed
Exhaust manifold cracked, burned, gasket loose, blown or missing												Remove exhaust manifold ONLY when engine is cold and NOT running and inspect for damage to castings and gaskets, replace if needed
Restricted exhaust system												Inspect exhaust system ONLY when engine is cold, NOT running, remove obstruction
Oil lag at start-up												Inspect lubrication system lines, filters, and oil for obstruction, remove obstruction
Insufficient lubrication												Inspect lubrication system lines, filters, and oil for obstruction, remove obstruction
Lubricating oil contaminated with dirt or other material												Replace all filters and lubricating oil with new per manufacturer's manual
Improper lubricating oil type used												Replace lubricating oil with correct grade
Restricted oil feed line												Remove and inspect oil line, remove obstruction
Restricted oil drain line												Remove and inspect oil line, remove obstruction
Turbine housing damaged or restricted												Remove turbine housing, inspect for cracks or wear, replace if needed
Turbocharger seal leakage												Inspect for proper oil feed / drain line installation. Contact a Garrett® Performance Distributor or a Garrett® Master Distributor for a rebuild
Worn journal bearing												Contact a Garrett® Performance Distributor or Garrett® Master Distributor
Excessive dirt build-up behind turbine wheel												Inspect air cleaner element and intake piping for damage or leaks, replace if needed. Clean compressor wheel and housing
Excessive carbon build-up on compressor housing												Inspect crankcase ventilation system
Too fast acceleration at initial start												Decrease acceleration at initial start
Too little warm-up time												Extend warm-up period
Fuel pump malfunction												Refer to engine manufacturers manual and replace if needed
Worn or damaged injectors												Inspect injectors for damage and replace if needed
Valve timing												Refer to engine manufacturers manual and adjust as needed
Burned valves												Refer to engine manufacturers manual and replace if needed
Worn piston rings												Refer to engine manufacturers manual and replace if needed
Burned pistons												Refer to engine manufacturers manual and replace if needed
Leaking oil feed line												Remove and inspect oil line, remove obstruction
Excessive engine pre-oil												Refer to engine manufacturers manual and adjust as needed
Excessive engine idle												Refer to engine manufacturers manual and adjust as needed
Coked or sludged center housing												Contact a Garrett® Performance Distributor or Garrett® Master Distributor
Oil pump malfunction												Refer to engine manufacturers manual and replace if needed
Oil filter plugged												Refer to engine manufacturers manual and replace if needed
Oil bath air cleaner: air inlet screen restricted / dirty air cleaner												Replace air inlet screen
Oil bath air cleaner: oil pull-over / oil viscosity too low or high												Replace lubricating oil with correct grade
Boost control malfunction: wastegate												Inspect for damage, leaks or obstructions; replace or repair if needed
Boost control malfunction: VNT												Contact a Garrett® Performance Distributor or a Garrett® Master distributor
Boost control malfunction: engine management system												Refer to manufacturers manual and adjust as needed