

Troubleshooting Garrett Turbochargers



Providing Answers

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

Garrett
ADVANCING MOTION

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POSSIBLE CAUSES	SYMPTOMS	Engine lacks power	Black smoke	Excessive oil consumption	Blue smoke	Noise	Excessive oil - compressor end	Excessive oil - turbine end	Drag or bind in rotating assembly	Excessive rotating assembly play	Damaged compressor wheel	Damaged turbine wheel	SOLUTION
		Probable cause	Not a probable cause	Probable cause	Not a probable cause	Probable cause	Not a probable cause	Probable cause	Not a probable cause	Probable cause	Not a probable cause	Probable cause	
Dirty air cleaner element		Probable cause	Probable cause		Probable cause	Probable cause	Probable cause						Clean or replace filter element
Plugged crankcase breathers				Probable cause			Probable cause	Probable cause					Clear obstruction per manufacturer's manual
Air cleaner element missing, leaking, or loose connections to turbo						Probable cause			Probable cause		Probable cause		Replace, repair or reconnect air cleaner element per manufacturer's manual
Collapsed or restricted air pipe before turbocharger		Probable cause	Probable cause		Probable cause	Probable cause	Probable cause						Inspect pipe for damaged or obstruction, replace or repair
Restricted or damaged crossover pipe - turbo to inlet manifold		Probable cause	Probable cause			Probable cause	Probable cause						Inspect pipe for damaged or obstruction, replace or repair
Foreign object between cleaner and turbocharger		Probable cause	Probable cause			Probable cause	Probable cause		Probable cause	Probable cause	Probable cause	Probable cause	Inspect air intake piping, remove foreign object
Foreign object in exhaust system (check engine)		Probable cause	Probable cause			Probable cause		Probable cause	Probable cause	Probable cause	Probable cause	Probable cause	Inspect exhaust piping only when engine is not running and cold, remove foreign object
Turbocharger flanges, clamp or bolts loose		Probable cause	Probable cause	Probable cause	Probable cause	Probable cause	Probable cause	Probable cause	Probable cause	Probable cause	Probable cause	Probable cause	Inspect all connecting hardware for damage, ensure tight fits per installation instructions
Inlet manifold cracked, gaskets, loose or missing, connections loose		Probable cause	Probable cause		Probable cause	Probable cause	Probable cause						Remove and inspect inlet manifold for damage to castings and gaskets, replace if needed
Exhaust manifold cracked, burned, gasket loose, blown or missing		Probable cause	Probable cause			Probable cause							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						Probable cause							Inspect exhaust system only when engine is cold, not running, remove obstruction
Oil lag at start-up									Probable cause	Probable cause			Inspect lubrication system lines, filters and oil for obstruction, remove obstruction
Insufficient lubrication									Probable cause	Probable cause			Inspect lubrication system lines, filters and oil for obstruction, remove obstruction
Lubricating oil contaminated with dirt or other material									Probable cause	Probable cause			Replace all filters and lubricating oil with new per manufacturer's manual
Improper lubricating oil type used									Probable cause	Probable cause			Replace lubricating oil with correct grade
Restricted oil feed line							Probable cause	Probable cause	Probable cause	Probable cause			Remove and inspect oil line, remove obstruction
Restricted oil drain line				Probable cause				Probable cause					Remove and inspect oil line, remove obstruction
Turbine housing damaged Or restricted		Probable cause	Probable cause			Probable cause						Probable cause	Remove turbine housing, inspect for cracks or wear, replace if needed
Turbocharger seal leakage				Probable cause	Probable cause		Probable cause	Probable cause					Inspect for proper oil feed / drain line installation. Contact Garrett distributor for rebuild
Worn journal bearings		Probable cause	Probable cause	Probable cause		Probable cause	Probable cause	Probable cause	Probable cause	Probable cause	Probable cause	Probable cause	Contact a Garrett performance distributor or Garrett master distributor
Excessive dirt build-up behind turbine wheel		Probable cause	Probable cause		Probable cause	Probable cause	Probable cause		Probable cause		Probable cause	Probable cause	Inspect air cleaner element and intake piping for damage or leaks, replace if needed. Clean compressor wheel and housing
Excessive carbon build-up behind compressor housing		Probable cause	Probable cause		Probable cause	Probable cause		Probable cause	Probable cause			Probable cause	Inspect crankcase ventilation
Too fast acceleration at initial start										Probable cause	Probable cause		Decrease acceleration at initial start
Too little warm-up time										Probable cause	Probable cause		Extend warm-up period
Fuel pump malfunction		Probable cause	Probable cause										Refer to engine manufacturer's manual and replace if needed
Worn or damaged injectors		Probable cause	Probable cause										Inspect injectors for damage and replace if needed
Valve timing		Probable cause	Probable cause										Refer to engine manufacturer's manual and replace if needed
Burned valves		Probable cause	Probable cause										Refer to engine manufacturer's manual and replace if needed
Worn piston rings		Probable cause	Probable cause										Refer to engine manufacturer's manual and replace if needed
Burned pistons									Probable cause	Probable cause			Refer to engine manufacturer's manual and replace if needed
Leaking oil feed line					Probable cause			Probable cause					Remove and inspect oil line, remove obstruction
Excessive engine pre-oil				Probable cause	Probable cause		Probable cause	Probable cause					Refer to engine manufacturer's manual and replace if needed
Excessive engine idle				Probable cause	Probable cause			Probable cause	Probable cause			Probable cause	Refer to engine manufacturer's manual and replace if needed
Coked or sludged center housing										Probable cause			Contact a Garrett performance distributor or Garrett master distributor
Oil pump malfunction				Probable cause	Probable cause		Probable cause	Probable cause	Probable cause	Probable cause	Probable cause	Probable cause	Refer to engine manufacturer's manual and replace if needed
Oil filter plugged		Probable cause	Probable cause	Probable cause	Probable cause	Probable cause							Refer to engine manufacturer's manual and replace if needed
Oil bath cleaner: air inlet screen restricted / dirty air cleaner		Probable cause	Probable cause	Probable cause	Probable cause	Probable cause							Replace air inlet screen
Oil bath air cleaner: oil pull-over / oil viscosity too low or high		Probable cause	Probable cause	Probable cause	Probable cause	Probable cause							Replace lubricating oil with correct grade
Boost control malfunction: wastegate		Probable cause	Probable cause	Probable cause	Probable cause	Probable cause	Probable cause	Probable cause		Probable cause	Probable cause	Probable cause	Inspect for damage, leaks or obstructions; replace or repair if needed
Boost control malfunction: vnt		Probable cause	Probable cause	Probable cause	Probable cause	Probable cause	Probable cause	Probable cause		Probable cause	Probable cause	Probable cause	Contact a Garrett performance distributor or Garrett master distributor
Boost control malfunction: engine management system		Probable cause	Probable cause	Probable cause	Probable cause	Probable cause	Probable cause	Probable cause		Probable cause	Probable cause	Probable cause	Refer to manufacturer's manual and adjust as needed

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 downtime and money. The chart above outlines the probable causes and noticeable conditions of the most common turbocharger maladies as well as what you can do to solve them. If a problem falls outside of your mechanical comfort level, contact a Performance Distributor or a Master Distributor for assistance. www.TurboByGarrett.com/TurboByGarrett/Distributor