

# 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



## TROUBLESHOOTING

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