

# TurboDriven New Service Consciousness

**BorgWarner Turbo Systems is committed to being a service leader and partner of choice in the genuine parts business.**

These days, even innovative, reliable products need to be backed by fast, allround service. To provide this service, we deploy interactive communication solutions and a modern logistics concept that minimizes response and delivery times. This way our genuine parts and remanufactured turbochargers, which have proven themselves in practice millions of times over, can be at your fingertips within 24 hours, anywhere in the world. Backed by a dense global network of over 400 service centers from which excellently trained and equipped dealers provide competent aftermarket support.

Check the Internet for more about forward-looking products and services from BorgWarner Turbo Systems – at [aftermarket.borgwarner.com](http://aftermarket.borgwarner.com)

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## The Diagnostic Matrix



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# The Diagnostic Matrix

## Troubleshooting Made Easy

We have developed the **BorgWarner Turbo Systems Diagnostic Matrix** to get your vehicle running again quickly after a breakdown.

It tells you the possible causes when your engine shows failure symptoms. Often a defective turbocharger is the consequence of some other primary engine defect which cannot be cured just by replacing the turbocharger.

However, with the diagnostic matrix you can determine the true nature and extent of the trouble without any problems. Then we can repair your vehicle more quickly and at less expense – so an engine failure won't cost you any more time or money than necessary.

Possible causes	Type of failure								
	Compressor/turbine wheel defective	Insufficient power/boost pressure too low	Boost pressure too high	Black smoke	Blue smoke	Turbocharger generates acoustic noise	High oil consumption	Oil leakage at compressor	Oil leakage at turbine
Dirty air filter system	●		●	●		●	●		
Suction and pressure line distorted or leaking	●		●		●				
Excessive flow resistance in exhaust system/leakage upstream of turbine	●		●	●	●	●	●		
Oil feed and drain lines clogged, leaking or distorted				●		●	●	●	
Crankcase ventilation clogged and distorted				●		●	●	●	
Coke and sludge in turbocharger center housing				●		●	●	●	
Fuel system/injection feed system defective or incorrectly adjusted	●	●	●						
Valve guide, piston rings, engine or cylinder liners worn/increased blow by	●		●	●		●	●	●	
Dirty compressor or charge air cooler	●		●	●	●	●	●		
Boost pressure control swing valve/poppet valve does not close	●		●						
Boost pressure control swing valve/poppet valve does not open		●							
Pipe assy. to swing valve/poppet valve defective	●	●							
Piston ring sealing defective				●		●	●	●	
Turbocharger bearing damage	●	●	●	●	●	●	●	●	●
Foreign body damage on compressor or turbine	●	●	●		●				
Exhaust gas leakage between turbine outlet and exhaust pipe					●				
Engine air collector cracked/missing or loose gaskets		●	●		●				
Turbine housing/flap damaged	●	●	●		●				
Insufficient oil supply of turbocharger	●	●	●		●				