FPT
POWERTRAIN TECHNOLOGIES

TURBOCHARGER

THE RIGHT BOOST TO YOUR PERFORMANCES

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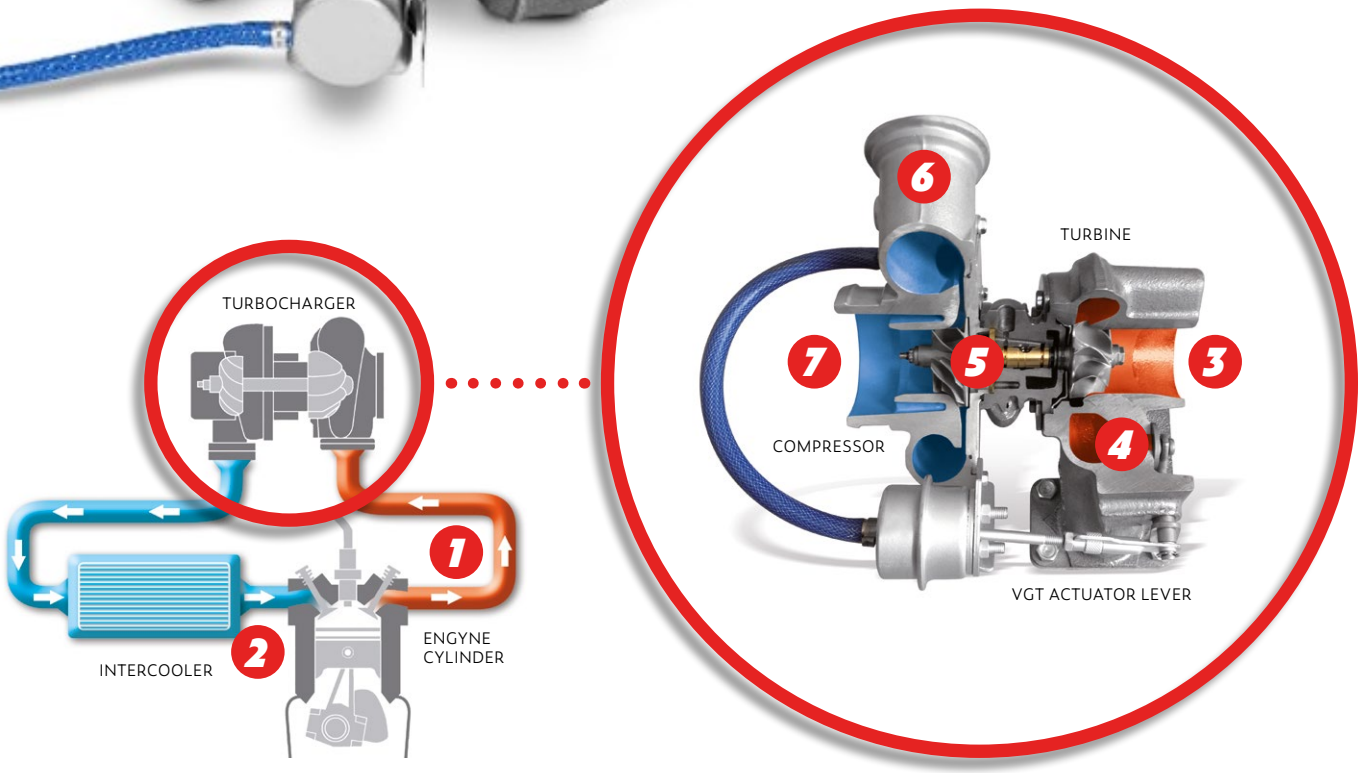
GENUINE PARTS

How a Turbocharger works

By using the energy from the exhaust gas to compress the fresh air for combusting the fuel, the Turbocharger allows to increase the power of an engine.



Compressed air from the turbine

Exhaust gases from the engine

1. Exhaust gas activates the turbine
2. Compressed air increases the level of oxygen and the pressure in the combustion chamber
3. Exhaust gas outlet
4. Exhaust gas turbine
5. Air compressor
6. Compressed air to engine
7. Fresh air inlet

Genuine Turbocharger performance

Genuine FPT Turbocharger is a sophisticated component, it can work up to 360,00 rph and with exhaust gas temperature above 900°C (for FPT Natural Gas engines) and 750°C (for FPT Diesel engines).

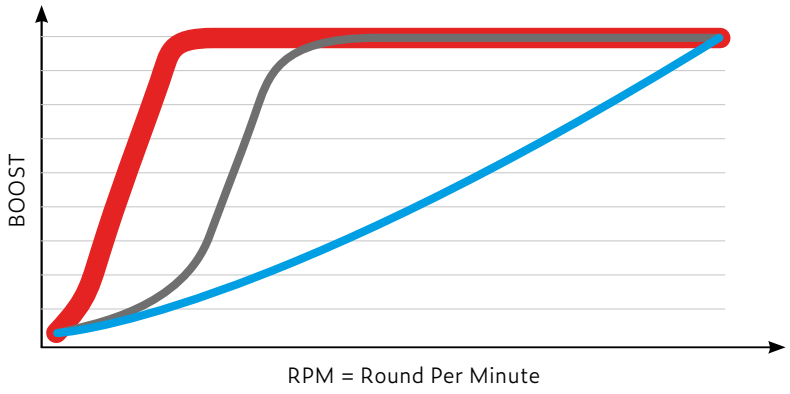
Engine performance directly depends on:
- High quality of turbo response
- Optimal fuel/air mix

Genuine FPT Turbochargers are high technology products, designed, calibrated and tested to meet the criteria of very precise performances requested by FPT engines.

COMPARISON OF DIFFERENT TYPES OF TURBOCHARGERS

EVOLUTION: VARIABLE GEOMETRY TURBOCHARGER.

THE VGT INCREASES ENGINE PERFORMANCE ALSO AT LOW SPEED.



To ensure the optimum performance of your engine, it is important to maintain the original conditions of the Turbocharger system.

Why choose a genuine FPT Turbocharger

As the engine ages the combination of the variable turbine and the associated electronic control, will adjust its characteristic to ensure the original performance and emission levels are maintained over a longer period:

- Improves fuel efficiency by up to 5%
- Improves emissions by assisting exhaust gas recirculation (EGR) process
- Enables to meet CO2 emission targets
- Recovers pumping losses

However, if the Turbocharger system is poorly effective this adjustment cannot take place and fuel consumption will increase.

Genuine FPT Turbochargers are highly reliable and offer optimal performance at any stage of engine life.

Risks not to choose Genuine FPT Turbochargers:

LOW FLOW OF EXHAUST/ LOW PRESSURE WITH CONSEQUENT LOW IN RESPONSE AND POOR OVERALL PERFORMANCE, AS WELL AS HIGH EMISSIONS

CONFLICT WITH ENGINE MANAGEMENT SYSTEMS

FUEL / AIR MIXTURE TOO RICH, EXCESSIVE TEMPERATURES AND DAMAGING TO THE TURBO AND ENGINE

HIGH FLOW OF EXHAUST / LOW PRESSURE, WITH CONSEQUENT OVERSPEED OF THE TURBO LEADING TO A RISK OF EXPLOSION OF THE TURBINE WHEEL AND DAMAGE THE TURBO AND ENGINE

OVERHEATING AND CONSEQUENT DAMAGING OF THE ENGINE

Genuine FPT Turbochargers ensure long life, low fuel consumption, low emissions, best performance which will bring cost savings in long term.

Get the most from your Turbocharger

The Turbocharger is designed to last for the service life of the engine, however monitoring of the whole system is recommended during periodic checks that should be made during every engine service.

Maintenance advices

ADVICE	BENEFIT
ENSURE GOOD CONDITION OF FUEL INJECTION SYSTEM	REDUCE THE RISK OF TURBO DAMAGE FROM HIGH EXHAUST GAS TEMPERATURES CAUSED BY POOR CONDITION OF FUEL INJECTION SYSTEM
REPLACE WITH CORRECT ENGINE OIL AND GENUINE OIL FILTER AT MANUFACTURERS RECOMMENDATION	INCREASE THE LIFE OF THE TURBO BY REDUCING THE RISK OF TOO HIGH TEMPERATURE CAUSED BY A BLOCKAGE IN OIL SUPPLY
CHECK ALL CONNECTING HOSES FOR CONDITION, ENSURING NO SPLITS	ENSURING THE CORRECT AIR COMPRESSION WILL HELP TO MAINTAIN TURBO PERFORMANCE
CHECK ACTUATOR OPERATION AND REPLACE WITH GENUINE PARTS IF NEEDED	ENSURE THE CORRECT FUNCTIONALITY OF WASTEGATE TO AVOID RISK OF OVERSPEED AND TURBO FAILURE
CHECK THE INTERCOOLER AND ALL ASSOCIATED PARTS; AND REPLACE WITH GENUINE PARTS WHEN NECESSARY	AS INTERCOOLERS WORK IN ASSOCIATION WITH TURBOCHARGERS, THIS WILL PREVENT CONSEQUENTIAL OR COMBINATION DAMAGE
REPLACE BLOW-BY FILTER ACCORDING TO MAINTENANCE SCHEDULE	PREVENT ANY OIL CONTAMINATION FROM SUBSTANDARD BLOW-BY FILTER THAT MAY LEAD TO PREMATURE DAMAGE OF THE TURBOCHARGER
REPLACE AIR FILTER WITHIN MAINTENANCE SCHEDULE	HELP THE TURBOCHARGER SYSTEM TO STAY WITHIN THE RECOMMENDED WORKING CONDITIONS AND AVOID RISK OF FOREIGN OBJECT DAMAGE

How to avoid a new failure

Often a defective Turbocharger is the consequence of some other engine defect which cannot be solved just by replacing the Turbocharger.
To avoid a repeat failure, from the new Turbocharger, it is important to find out what damaged your old one.

Most of the problems with Turbocharger systems can be associated to the following causes:

Inadequate lubrication	Oil leak/starvation account for more than 90% of turbo failures!
Oil contamination	Dirty oil leads to score marks on shaft and damages the bearing system
Foreign objects	Foreign bodies may enter through a defective air filter, or split pipe and damage the turbine or compressor wheels
Overspeed and excessive temperature	Maintenance problems, engine malfunction, use of non-genuine components can lead the Turbocharger to work beyond the rotating and temperature parameter it has been designed for

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