

TURBO FAILURE: OVERSPEEDING

FACT
SHEET

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- **Turbochargers are very reliable: less than 1% of turbos fail due to a manufacturing fault with the turbo itself.**
- **95% of turbo failures are because of problems with oil starvation, oil contamination or foreign object damage.**

BEFORE YOU FIT A NEW TURBO, FIND OUT WHAT CAUSED THE FIRST UNIT TO FAIL OR YOU RISK THE REPLACEMENT FAILING TOO.

Why does overspeeding damage turbos?

Turbochargers can operate at speeds in excess of 6,000 revs per second (360,000 rpm), with exhaust gases around 800°C. Each turbo is designed and manufactured to rotate at the correct speed for its application. Overspeeding is when the turbo rotates at a greater speed than its operational limits.

Overspeeding can push the turbo beyond its safe operating parameters, causing it to fail by damaging the turbine or compressor wheels and bearings. If the turbo continues to overspeed, it can overboost the engine, resulting in serious damage to the internal components and potentially complete engine failure.

What causes overspeeding?

- A restriction in the air intake filter or pipe work, or a split or detached air hose, allowing incorrect amounts of air into the turbo.
- A 'chipped' or 'overfuelled' engine that isn't to standard specification.
- Tampering with the wastegate.
- Worn injectors.
- Loss of signal to the SREA (Simple Rotary Electronic Actuator) for the wastegate or VNT control.
- Fitting the incorrect turbo.

Preventing turbo failure caused by overspeeding

- Check there are no restrictions or leaks in the air intake pipe work.
- Ensure the wastegate or VNT linkage is operating freely.
- Check the electronic sensors and ECU are operating correctly.

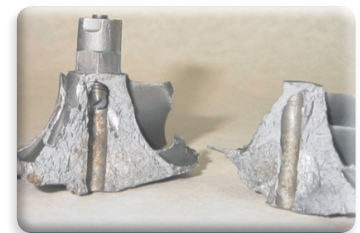
BTN Turbo supplies brand new replacement turbochargers, made by the original manufacturers to the highest quality standards. Though we confidently guarantee them, our standard warranty does not cover turbocharger failure caused by overspeeding.

This is one of a series of Turbo Failure Fact Sheets from BTN Turbo.

Safeguard your reputation and your business – make sure you read them all.

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Compressor destroyed by overspeeding



Orange Peel effect on backface



Turbine blade fracture



The Turbocharger People