

- **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.**

### How do ingested objects damage turbos?

Turbochargers can spin at over 6,000 revs per second (360,000 rpm) and endure temperatures of 950°C. In these conditions, even the smallest object ingested or sucked into the turbo can damage or destroy the compressor and turbine, leading to low pressure or total failure.

Compressor damage is caused by objects being sucked into the air intake. Turbine damage is usually caused by engine components, such as injector tips or valve train parts.

#### What are the causes of impact damage?

- Items sucked into the air intake because of a damaged, poor quality or missing air filter.
- Damaged hoses allowing small particles to enter the intake.
- Gasket material entering the intake.
- Nuts, bolts, washers, rags or other items left in the intake pipe during servicing.
- Broken engine components, e.g. injector tips, valves or fragments of damaged piston.
- Fragments from a previous turbocharger failure.

#### Preventing turbo failure caused by impact damage

- Ensure all air hoses are in good condition, intact and free from blockages or loose items.
- Always use new gaskets to create perfect seals and avoid gasket breakup.
- Always fit the correct new air filter.
- Check there are no turbo or engine fragments in the system from the previous failure, before fitting the replacement.

**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 impact damage.**

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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Any object sucked into the compressor will damage it



Even small items can completely destroy the blades



Damaged blades mean the turbo won't provide boost



**The Turbocharger People**