

TURBO FAILURE: OIL LEAKS

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 oil leakage damage turbos?

Turbochargers can spin at over 240,000 rpm and endure temperatures of 950°C. The turbo relies on the thin film of oil that lubricates the bearings on the turbine shaft. This oil is kept in place by seals for the turbine and compressor ends of the bearing housing.

These seals are unlike conventional oil seals, and similar to piston rings. They need positive air pressure inside the compressor and turbine to keep oil lubricating the bearings and prevent it seeping into the end housings. A restriction on the inlet side will create a vacuum that will pull oil past the seals at the compressor end housing. If the engine idles for long periods, the turbo will rotate at very low speed with correspondingly low air pressure. The resulting vacuum will cause oil to seep into the turbine housing. Either situation results in insufficient oil for the turbine bearings.

What causes oil leaks at the compressor end?

- Blocked or restricted air intake filter.
- Blocked or restricted air intake pipe or hose.
- Air leaks on intake hoses or at the intercooler.

What causes oil leaks at the turbine end?

- Leaks in the exhaust system.
- Leaks in the EGR system.

What causes oil leaks at both the compressor and turbine end?

- Any restriction in the oil drain pipe from the turbo to the engine.
- Restriction in the engine breather.
- Physical damage to the turbo's rotating parts, and excessive bearing clearance.
- Repeated hot engine shutdowns leading to carbon deposits (coke) in the centre housing.
- Incorrect turbo fitted.

Preventing turbo failure caused by oil starvation

- Ensure there are no blockages or restrictions in the air and oil systems.
- Ensure there are no leaks in the exhaust system.

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 oil leaks.

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.



Compressor end oil leakage due to low air pressure



Turbine end oil leakage due to restriction in oil drain



Compressor end oil leakage



The Turbocharger People