



ENGINE, ENGINE MOUNTING AND EQUIPMENT

Turbo

Renault Trucks offer

The role of the turbocharger is to increase the pressure of the intake gases, allowing improved filling of the cylinders. Like the injection and the pistons, it is part of a complex system and is designed to achieve the best possible combustion, guaranteeing maximum mobility, optimized fuel consumption, and reduced emissions.

A Renault Trucks Genuine turbocharger is the only part that allows this to be done because it is developed for your specific vehicle. For example, the profile of the turbine, the parameters of the engine ECU and the materials used are specific to your engine and maximize its efficiency.

The use of a non-genuine turbo could cause power issues and lags during acceleration, it would decrease performance with the altitude, increase consumption (beyond 1%) and a warning on the dashboard that you are no longer compliant with the legal emission standards (leading to vehicle down time).

In conclusion, it could cost you more by not choosing a Renault Trucks Genuine turbo.

⚠️ RISKS OF INSTALLING AN ADAPTABLE PART ⚠️

Using a lower quality turbocharger can seriously harm an operator's truck performance, by increasing fuel consumption and failing to meet emission standards. Turbo failures cause indirect damage to other engine components: valves, pistons and engine aftertreatment system components, particularly catalytic converter and NOx sensors. This results in unplanned downtime and very high repair costs.

FEATURES	BENEFITS
Correct tolerances on the bearing system, both on radial and axial planes.	Minimizing wear and tear of the bearings, which can generate unbalance and vibrations in the turbo.
Correct geometry and profile of turbine/ compressor blades.	Combined with controlled balancing of components, they contribute to good rotor dynamics.
Correct tolerances between turbine/ compressor blades and housing.	Optimal efficiency and lowest possible fuel consumption.
Well-designed lubrication system.	Delivers the amount of oil necessary for correct lubrication and cooling of the bearing housing.
Correct rotor dynamics.	Ensures long service life of the turbocharger and engine.

Key arguments

Maximum performance

- An optimised design for each of our vehicle ranges
- Maximum mobility from sea level to the highest altitudes
- Optimized consumption (an unsuitable turbo will generate a fuel consumption increase of more than 1%)
- An ECU with a software and dataset specific to the original turbo

This component operates in an extremely aggressive environment, within the limits of existing materials, lubricants and manufacturing processes. It is verified and validated by numerous calculations and test sessions defined by Renault Trucks engineering teams: isolated tests on the turbo, tests on the complete engine, as well as vehicle tests all over the world, lasting thousands of hours. Production is constantly monitored to guarantee the best reliability and durability, so that your truck can continue its missions.

Our Reman range also maintains the same focus on quality, systematically replacing sensitive and wear parts with original parts that comply with the latest drawings and specifications, and using the correct assembly process to maintain original performance. In line with Renault Trucks standards, we do not accept turbocharger repairs.

A reduction in gas emissions

- A Renault Trucks design to meet the most severe polluting emissions standards
- The reference of the original turbo or its Reman equivalent noted in the vehicle homologation file
- No compromise in the protection of the environment.

The Renault Trucks turbo is designed to offer minimum fuel consumption, combined with optimum mobility and to guarantee minimum exhaust emissions. Indeed, the turbo reference is included in the approval file for Euro 6 trucks. As legislation becomes ever more stringent, turbo design is essential for maximum air quantity, reduced soot and lower emissions.

This sometimes involves technical evolutions, such as the gradual introduction of variable geometry turbochargers.

A turbo from another manufacturer with different characteristics will result in the truck's non-compliance with emissions legislation.

Recognised reliability despite an extreme environment

- The materials chosen guarantee the best lifespan, and our manufacturing processes the finest dimensional tolerances
- A lubricant chosen to maximize durability (observing the oil change interval is key in the life of a turbo)
- A design validated by numerous calculations and testing on test benches and complete vehicles
- A well-known component ... but in constant technical evolution (fixed or variable geometry, optimized

materials)

A range of products adapted to your needs

- New parts identical to those fitted in our production plants
- A Reman range with a systematic change of critical parts and strict controls
- Repair kits to make your life easier

Customer benefits

Mobility

- Your truck can perform its operation in all possible conditions, from sea level to the highest altitudes

To carry out their operations, our transport partners need to be able to rely on a transport solution that is constantly reliable and performant over time. Any unplanned scenario takes time and can disrupt the logistics flow. They also need a vehicle with minimal emissions and impact to the environment whilst delivering to the heart of city centers (urban areas).

You can count on your Renault Trucks Genuine turbocharger: it has been optimized for each vehicle model to have the best combination of performance, fuel consumption and emissions. A non-genuine turbo could cause your engine to malfunction.

Serenity

- A design ensuring reliability
- A truck that respects the environment
- A network of highly trained professionals working on our vehicle parts
- All the original parts necessary to protect your turbo and maximize its lifespan (air/oil cooler, oil, fuel and air filters)
- A 2-year parts warranty, labor, breakdown and towing*

**depending on local conditions*

Today's engine environment is extremely constrained, and sensitive parts sit near the turbocharger, which can reach several hundred degrees. Our technicians are highly trained to ensure precise fitting, securing the correct spacing between parts, guaranteeing their lifespan. The parts are fitted with seals equipped with poka yoke and the material is resistant to the extreme temperatures recorded during validation tests carried out before leaving the vehicle. Our experts will also check the parts essential to the performance and the life of your turbo (air cooler, air filters and the quality of the engine oil).

Savings

- Your truck on the road
- Optimized fuel consumption
- Maximum service life due to appropriate maintenance
- Avoid damage to other parts which can be caused by your broken turbo (for example, catalyst or complete engine to be changed - up to 10 times the price of your turbo)

The lifespan of your turbo is dependent on the usage of your vehicle and by the maintenance you perform. To maximize lifespan, service your vehicle at an authorized Renault Trucks dealer, who are highly trained to detect issues due to more demanding operations and will advise accordingly.

Preventive maintenance of the turbo

- Turbo life is highly dependent on vehicle usage and quality of maintenance,
- There is no preliminary warning sign that a turbo will break down,
- The repair costs involved by a broken turbo are 10 to 20 times higher than a preventive change,
- For all these reasons, it's better to change your turbo preventively.

Unfortunately, there aren't any reliable warning signs to detect the end of a turbo's life. It is as difficult to predict as its harsh working conditions are... One thing is certain, the additional generated repair costs will far exceed the cost of only the part itself:

- A breakage of the wheel will cause immediate irreparable damage. Before stopping, the airflow will have swept debris into the turbo cooler and into the cylinders.

- A lack of lubrication (bearings damaged by a lubricant that is too fluid or charred) will lead to an oil leak spilling into your catalyst.

In any of these scenarios, you will be required to tow your vehicle and replace these components. An additional cost ranging from € 8,000 to > € 20,000. You will avoid this cost if you change your turbo before it breaks. The Renault Trucks network of highly trained experts will provide you with the best support and recommend a change at the right time.

- Long-haul - distribution: between 400,000 and 600,000 km
- Construction site - distribution - BOM (> 50km/h): between 6,000 and 8,000 hours

Tips for a maximum lifespan

- Use Renault Trucks oil filters and Renault Trucks oil
- Respect oil change intervals
- Use Renault Trucks air filters
- Wait 60 seconds at idle before switching off the ignition
- **Use Renault Trucks oil filters and oils and strictly observe oil change intervals. Polluted oil or oil that has lost its viscosity can quickly destroy your turbo's bearings.**

Turbo failure: ~€2000

Oil leak and catalyst contamination: >€8000

Oil leakage, runaway and engine destruction: >€20,000

- **Use Renault trucks air filters**

Accelerated wear or breakage of turbo wheels

Increased fuel consumption

Damage to engine pistons and liners: variable but significant costs

Engine destruction: >€20,000

- **Wait 60 seconds at idle before switching off the ignition**

When the ignition is switched off, your turbo's lubrication also stops.

Gradual reduction in turbo life until failure: ~€2,000

Oil leakage, runaway and engine destruction: >€20,000

Oil leak and catalyst contamination: >8000€.
