

MaK M 32 Turbocharger REParts Lip Seal Upgrade

Genuine MaK Parts



MaK



Your benefits

- Lower Operating Cost (TCO)
- Peace of Mind for the Operator
- Availability of exchange units
- Quality and Reliability

Introduction

The M 32 turbocharger lip seal is specially designed with materials chosen to minimize wear to the running surfaces of the shaft, and has proven to have a long and reliable lifetime between major overhauls.

While operating at part load, engine performance is not affected, but the lower operating speed of the turbocharger does not produce sufficient sealing air to the shaft seal and as a result lubricating oil may leak past the piston ring into the area behind the turbine wheel.

Therefore, a contact type seal, or lip seal can be introduced which is designed to overcome low load operating conditions. Compared to a piston ring seal, this solution ensures an effective sealing during continuous slow steaming.



Frequently Asked Questions

▶ **What is the lifetime of the new seals?**

The lip seal is part of a standard MaK overhaul kit for 15 000 hours maintenance and is replaced at each service interval as part of the scheduled engine maintenance.

▶ **Can the “converted” turbocharger be overhauled by owners?**

Yes, once installed, this lip seal is standard Caterpillar supply for Turbochargers on M 32 engines and can be overhauled by any MaK authorized representative.

▶ **At what operating load is this considered by MaK to be advantageous?**

Engines which are continuously running below 65 % load, slow steaming or on standby with high idling time will benefit from a lip seal conversion.



Operational risk

Any oil leakage can rapidly lead to a significant accumulation of hard deposits between the bearing housing and the rear of the turbine.



Upgrade Solution

The upgrade of the turbocharger includes the turbine bearing housing and rotor shaft which both require replacement in a suitable exchange cartridge.

► **Is there any benefit if the engine is normally operated at high loads?**

As a contact type seal, the sealing function is improved over a piston ring type at all engine load ranges although it may not be as significant above 85 % load, it is still a suitable long term solution.

► **How does the lip seal for MaK M 32 turbochargers differentiate itself from its main competitors?**

The recently introduced turbocharger lip seal is less susceptible to fluctuations in crankcase pressure and:

- Improves cleanliness of the engine with less fouling.
- Reduces lubricating oil losses or carry over.
- Minimizes occasional smoke due to oil leakage at low load.

► **So what are the long term benefits for an operator if the engine runs under slow steaming conditions?**

The turbocharger fitted with a lip seal is less likely to allow passage of lubricating oil along the shaft as the load reduces and the turbine rotates or the sealing area expands or contracts.

“No one else has the ability, availability or protection of the OEM in the aftermarket.” *

* MaK customer



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