

Service Information

Caterpillar Motoren GmbH & Co. KG product support information for medium-speed engines

Engine platform: all
Engine section: Liner

Engine type: all
Validity: until further notice

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Information for all recipients of Service Information

Action: for your information



Liner honing

NOT FOR PUBLIC RELEASE

The final surface finish of the cylinder liners of all engines manufactured by Caterpillar Motoren is achieved by honing. The requirements on the liner surfaces and, in the following, the technology to achieve the desired honing structure have been refined significantly in several steps over the past few decades. All liners installed in MaK / CM engines of the models currently in production (M20-M46 DF) receive a "plateau-honing" which can only be achieved reliably with very few honing machines.

Once the honing is done, the results of a modern honing process can be checked only with rather complex measurement equipment and respective experience and know-how, not available in many engine workshops. A roughness measurement of the surface, as it could be done on the liners of legacy engines, does not give sufficient information about the honed surface of a current cylinder liner. As the multitude of influencing process parameters will hardly allow a stable, reproduceable process in a service workshop, it will also not be sufficient to only check samples of honed liners with the complex measurement equipment mentioned above.

Honing of liners is often requested as part of a standard overhaul after longer operating hours (30/60 Th) even though, based on our experience, the vast majority of liners does not necessarily exhibit wear or damages to the surface at these occasions that would require honing from a technical perspective. However, as the results produced by honing a liner can vary greatly, the condition of the liner surface often does not improve by applying an undefined honing on top of the existing honing structure. Wrong honing can have a number of negative effects on engine operation such as increased lube oil consumption, increased wear of liners and piston rings, increased wear on piston ring grooves, lacquering of liners, etc. The desired cleaning effect of the honing can, in most cases, be achieved with methods that do not affect the properties of the original honing structure, by thorough manual cleaning with a mild acid for example.

We therefore, do not recommend honing of liners as a standard procedure in our maintenance manual and discourage customers and our authorized service workshops from honing cylinder liners of current model engines produced by Caterpillar Motoren. Should a liner exhibit wear or damages that require an overhaul, we offer certified REParts™ cylinder liners. These are liners that are overhauled and re-honed to the original specification by the original liner manufacturer and can be ordered through authorized MaK/CM service providers.



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