



Service Information No. 13/08

Date: September 18th , 2008

Fuel Injector Opening Pressure on MaK Engines

M20, M25, M32, M43

Occasionally, we are informed that the opening pressure of the nozzle when measured with the manual pressure tester after a few hours of operation is lower than the figure indicated on the acceptance test record.

A drop in pressure is caused by wear and settling of the needle seat in every fuel injection system and cannot be avoided. The pressure drops in the same way on all cylinders!

The occurrence of wear varies depending on the circumstances and the design of the nozzle seat. It is influenced or triggered by various factors such as the opening pressure selected, needle lift, nozzle spring force etc. Accelerated wear in most cases is caused by bad fuel quality and fuel contamination (remaining water and hard particles after separation). For this reason the MaK heavy fuel operating instructions must be strictly observed. Bad fuel treatment will reduce the lifetime of the nozzle to a minimum!

It should be kept in mind that if there are no error messages relating to the engine exhaust temperature or insufficient output the injector should be left in the cylinder head as long as possible (expected lifetime see operating manual)

Nozzles with a measured opening pressure below the min. opening pressure should be replaced. In this case the wear rate is so high that it cannot be compensated anymore by readjusting the opening pressure. This would result in increased wear rates of all combustion chamber components!

Repeated adjustment of the opening pressure, as practiced by many engine operators, also will inevitably lead to a crack of the nozzle spring through dynamic overloading of the spring.

The min. opening pressures for MaK engines are as follows:

M 20: Basic setting	500 bar,	min. opening pressure	330 bar
M 20: Basic setting	350 bar,	min. opening pressure	230 bar
M 25: Basic setting	450 bar,	min. opening pressure	390 bar
M 32: Basic setting	450 bar,	min. opening pressure	380 bar
M 43: Basic setting	570 bar,	min. opening pressure	400 bar
M 43: Basic setting	450 bar,	min. opening pressure	280 bar