

Service Information No. 07 / 04

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Ring groove wear and piston burn-off

M43

Due to the good experience gained with our other engine types in the field an expected service life of 30,000 operating hours for the period up to the first overhaul was specified at the time of the M43 market launch. In the past, however, on M43 engines with longer operating time increased ring groove wear was noticed, especially in the first ring groove, which due to the existing wear limit did not permit to leave the piston crown in the engine. An evaluation of the inspection reports showed that not all of the engines in the field are affected by this phenomenon. On some engines the actual wear was within the normal expected range.

Calculations, trials on a test engine in Kiel, cross comparisons with other engine types and finally the experience gained on the basis of the cylinder units checked so far have allowed us to increase the wear limit of the first ring groove without affecting the operational safety of the engine. The new wear limit is now **10.80 mm**, measured on the outside of the ring groove.

In order to provide a reference to the operator when carrying out the 15,000 hours piston inspection it has been determined that a value of **10.50 mm** must then not be exceeded for further operation.

Furthermore, isolated instances of piston burn-off have been identified in the area of transition between the combustion bowl and the outer edge of the piston. This is permissible for further use provided it remains within certain limits. When carrying out the routine piston check after 15,000 hrs. a burn-off value of **3 mm** must not be exceeded, otherwise the piston is to be replaced. When a piston burn-off value of **6 mm** is exceeded, a piston crown always has to be replaced.

In order to be able to assess the condition of the engine, we recommend a check of all pistons after 15,000 operating hours.

The reasons for this action are:

- ❑ Most of the time only individual cylinder units of **one** engine are affected, i.e. the condition of one inspected piston does not permit any definite conclusions regarding the condition of the other pistons of that engine.
- ❑ A comparison of **different** engines among each other shows that ring groove wear and piston burn-off cannot be attributed to certain cylinder units. For this reason a check of only certain cylinder units cannot be recommended.

We are continuing our efforts to provide an increased piston crown service life.

If, due to ring groove wear, a piston crown should have to be exchanged prematurely, the price for replacement piston crowns will naturally be calculated on a pro-rata basis.

Due to the manifold operational causes of piston burn-off a decision regarding commercial settlement will be taken on a case-by-case basis.