

10. CYLINDER LINERS

10.0 Torn flange at cylinder liner

Sample fault image

In the case of the cylinder liner, the complete liner flange is torn off, picture 1. The tear in the liner flange starts at the bottom of the lower edge of the liner flange and runs at an angle of about 30° transversely upwards.

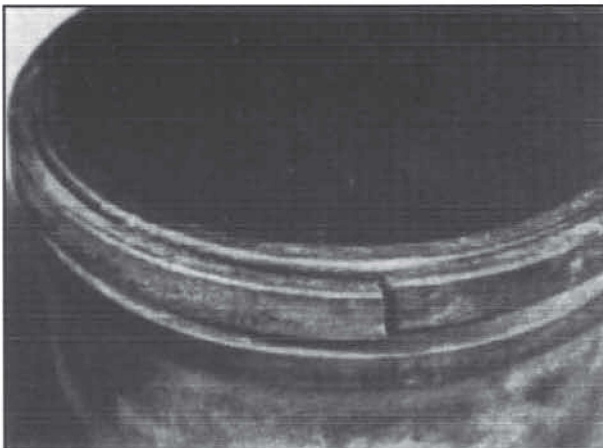
Fault assessment

The bending moments resulting from faulty assembly are responsible for this failure. In most cases, the cylinder liner flange is already compressed when the cylinder head is tightened. In order to avoid such defects during assembly, the following considerations must be taken into account:

- a) The transition of the flange face to the diameter of the flange seat shall be provided with an edge chamfer of 0,5 - 1,0 mm x 45° to prevent the hollow neck of the flange from seating when tightening the cylinder head.
- b) If the fit of the insert flange is wrong, then it must be turned over. This additional work is best carried out on a stationary drill or with a Mira, because only then is it possible to guarantee parallelism to the surface of the housing and thus also to stand the flange mounting surface vertically to the guide of the inserts.

Possible causes

1. No prescribed seals were used (cheap, copied gaskets are partially thinner or wrinkle more strongly).
2. The tightening torques and rotation angles prescribed by the engine manufacturer were not observed.
3. The storage of the liners in the engine block has not been carefully cleaned.
4. The alignment of the inserts was not tested for angularity and flatness.
5. The intersection of the flange face to the diameter of the fit to be soldered must be provided with a 0.5 - 1.0 millimetre x 45° phase to prevent seating.



Picture 1