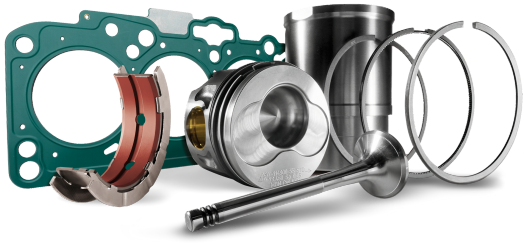
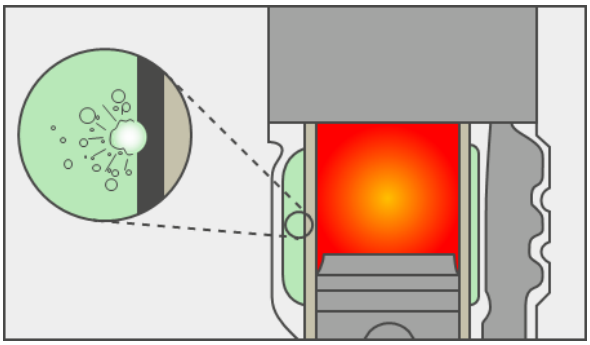


SERVICE ENGINEERING BULLETIN

SB2116.1

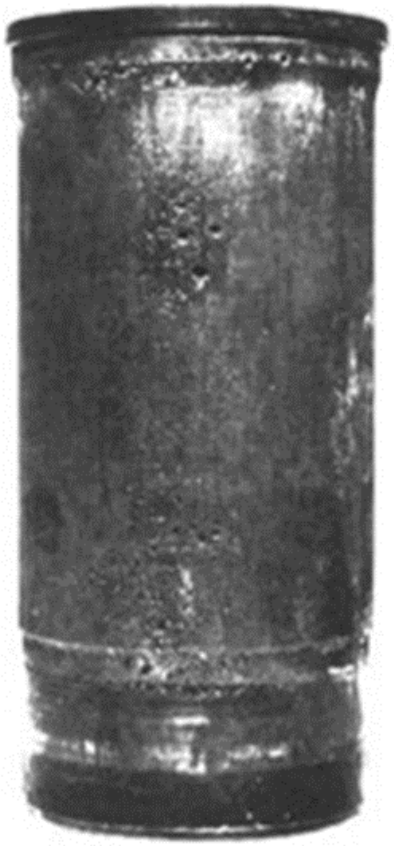
Cavitation Erosion of Wet Cylinder Liners

Pitting on the exterior of wet cylinder liners in diesel engines is normally a result of cavitation erosion.



High frequency vibrations during the combustion process causes very low pressure vapour bubbles to form in the coolant on the outside of the cylinder liner. As the vapour bubbles collapse or implode under continued vibration, pitting and erosion of the cylinder wall occurs.

Over time, repeated pitting in the same area can break through the liner wall. Coolant can then leak into the cylinder, contaminate the oil and can ultimately lead to complete engine failure.



The size, shape, distribution and rate of erosion of the pitted areas may vary between engines or even between cylinders within the same engine. The affected areas tend to be vertical bands in line with the thrust face of the piston and/or the area immediately above the liner sealing rings.

Cavitation resistant materials are now in use. Or it is possible to apply coatings can that prevent cavitation erosion. The best way to try and reduce or prevent cavitation erosion on liners which have no special material or coating is to:

- Strictly adhere to engine manufacturer's recommendations on coolant, coolant filter and SCA (Supplemental Coolant Additive) replacement.
- Ensure cylinder liner-to-block clearances are within specification - Incorrectly fitted liners can be a serious contributor to cavitation erosion.
- Ensure engine speed governing is operating correctly