Mechanism of the Fretting Wear of Axle Journal Bearings

Yoshiaki OKAMURA Shinya FUKAGAI Daisuke SUZUKI
Ken TAKAHASHI Hiroki UMEHARA Takafumi NAGATOMO

The fretting wear is caused by the very slight relative slip between the contacting surfaces of the inner ring side face and the backing ring of an axle journal bearing in railway applications, but its mechanism is not clear. In this work, it has been found that the fretting wear of the backing ring becomes larger with the proximity to its outside, the contact pressure of the opposite of the load side is larger than that of the load side and the contact pressure becomes larger with the proximity to its outside. Accordingly, the fretting wear area of the backing ring is approximately coincident with the area where the amplitude of the contact pressure is large, and the fretting wear is influenced by the amplitude of the contact pressure.