

**A Method for Detecting Non-metallic Inclusions under the Raceway
of Axle Bearing by Ultrasonic Testing**

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A non-metallic inclusion which exists under the raceway of an axle bearing might lead to the occurrence of a flaking on the raceway by the rolling contact fatigue. Therefore, intended for the non-metallic inclusions existing under the outer ring raceway, a method for detecting them by ultrasonic testing was studied. We attempted two types of techniques: one to use the surface wave, and the other called a precise inspection making use of an immersion testing. It was found out that the inclusions having a diameter larger than approximately $110\text{ }\mu\text{m}$ and located at the position deeper than $250\text{ }\mu\text{m}$ under the raceway could be detected by the immersion ultrasound with a nominal frequency of 25 MHz.