

### **Effects of Rotational Conditions on Performance of Pinion Bearings of Gear Unit**

Ken TAKAHASHI    Daisuke SUZUKI    Yoshiaki OKAMURA    Takafumi NAGATOMO

Tapered roller bearings, which are mainly used in gear units for electric railcars, are lubricated by gear oil splashed by rotation of the gear. In order to prevent seizure of the bearings and to ensure the reliability of the gear units, it is required to appropriately adjust the bearing clearance. The bearing clearance sometimes changes from its initial value during the travel of the cars due to an atmospheric temperature and its initial value when assembling the gear unit. Hence, the change of the bearing clearance affects the performance of bearings. To investigate effect of the bearing rotation conditions on the characteristics of the gear units, we conducted bench rotation tests under various bearing clearances and atmospheric temperature. As a result, it is found that the bearing clearance decreases immediately after the rotation starts. The smaller the initial bearing clearance is and the lower the atmospheric temperature is, the more remarkable this tendency becomes.