

Numerical Analysis of Wheel/Rail Contact Characteristics Based on Actual Wheel Profiles

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In the study presented in this paper, calculation of the contact patch between a measured wheel tread profile and a designed rail shape was carried out strictly by using a general software program called TED/CPA in order to investigate a contact characteristics between them. Then a calculation method of a creep coefficient was proposed with focus on a contact patch under the multi-point contact condition, and we applied this proposed method to the contact condition between the measured wheel tread profile of commercial vehicle and the designed rail shape. As a result, it has been shown that the contact patch has the shape composed of many contact areas due to unevenness of wheel tread, and the estimated creep coefficient may be smaller than the Kalker's theoretical value.