Undulating Wear of Rigid Conductor Lines and Its Restraint Methods

Mitsuo ABOSHI Tatsuya KOYAMA Takamasa HAYASAKA Itaru MATSUMURA

Rigid conductor lines are used in many subways, because there happen few accidents and the space required for installation is small. However, when an undulating wear occurs on sliding surface, arcs due to contact loss cause extreme wear of contact lines and contact strips of pantographs. In order to investigate the mechanism of the generation of undulating wear of rigid conductor lines, we carried out precise measurements of the sliding surface unevenness, exciting tests of pantographs, theoretical analyses with dynamic model and questionnaire survey to domestic railway companies. This paper describes the mechanism of the formation of the undulating wear in relation with the mechanical impedance of pantograph, and proposes restraint methods for undulating wear, such as installation of a side-winded contact wire, grinding of the sliding surface and pantograph design based on restraint guidelines.