

**Estimation Method of Contact Wire Strain based on
Contact Force between Pantograph and Catenary**

Mitsuo ABOSHI Shunichi KUSUMI Takuya KURAOKA

The contact wire strain is one of the most important indices to evaluate the safety of current collection system in high-speed operations. The authors proposed a new method estimating the contact wire strain based on the measured contact force between pantograph and contact wire, and carried out a running test to verify the utility of the method at current-collection testing equipment. It has been confirmative that the estimated contact wire strain by the method is more accurate than the value derived by the conventional method, and consequent errors are less than approximately 15% in dynamic simulation results of catenary-pantograph system. As the result of running test, the estimated strain was almost consistent with the measured one. It is highly likely to contribute to advance the diagnosis techniques of overhead equipment.