Aerodynamic Noise Reduction of Pantograph by Applying Smooth Profile Pantograph Head and Improving Pantograph Head Support

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Reduction of aerodynamic noise emitted from a pantograph is an important subject for reducing environmental impact and improving speed of high-speed trains. The previous study has proposed several aerodynamic noise reduction methods: smoothing pantograph head cross section, shifting pantograph head position, and applying porous material. This study for practical application of these aerodynamic noise reduction methods is carried out to develop an improved pantograph head and its support. On the basis of a wind tunnel test result, it is clarified that a pantograph using these aerodynamic noise reduction methods can reduce aerodynamic noise by 2.7dB compared with the currently used pantograph.