

**A Basic Study of Aerodynamic Noise Reduction Method of a Pantograph Head
using Plasma Actuators**

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Reduction of aerodynamic noise emitted from a pantograph head is a very important subject for the speed-up of Shinkansen trains for the purpose of the environmental preservation. In this study, control of flow around the pantograph head using plasma actuators is studied. The results of the wind tunnel tests show that the plasma actuator can prevent the flow separation from the pantograph head surface and weaken the Karman vortices. In addition, CFD results suggest that the plasma actuator can reduce aerodynamic noise emitted from the pantograph head.