

**Development of Displacement-Dependent Rubber Bush for Yaw Damper  
to Prevent Carbody Vertical Vibration**

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This paper presents a displacement-dependent rubber bush for yaw damper to prevent carbody vertical vibration of railway vehicles induced by rotation of wheelset(s) with small mass imbalance. To examine the running stability and the vibration isolation performance of railway vehicle equipped with the devised rubber bushes, excitation tests using a full-scale test vehicle were carried out at the Railway Technical Research Institute's rolling stock testing plant. Then a series of running tests were conducted on a commercial track using an express type vehicle. As a result, bending vibration of the carbody induced by the rotation of the wheelset has been drastically reduced and the ride comfort has improved by use of the displacement-dependent rubber bushes.