Characteristics of Secondary Suspension of Vehicle under Large Displacement Condition

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Investigations for railway safety against seismic motion can be carried out using a numerical simulation and an experiment on a vibration table. There is some possibility that the characteristics of springs and dampers of a railway vehicle under large vibration condition are different from those under normal operating condition. Therefore, we have investigated the characteristics of the secondary suspension in the large vibration condition using the developed secondary suspension testing device. In addition, we proposed a new simulation model for the lateral force of the secondary suspension, which is easily adaptable to a model for vehicle dynamics simulation under an earthquake. The proposal model changes the numerical result of running safety limit from a conventional model at approximately 7%.