Assessment of Lateral Resistance Force of Ballasted Track during Earthquakes

Takahisa NAKAMURA Yoshitsugu MOMOYA
Yoshihiko YABUNAKA Kiyonori NOMURA

The authors performed shaking table tests using full-scale models to evaluate the lateral resistance force of the ballasted track during earthquakes. As a test conditions, the lateral force to induce track buckling was given to a sleeper using a special spring which could maintain a constant tension in the sleeper's longitudinal direction. We also evaluated the effect of the number of sleepers. The results of the shaking table test clarified that the lateral resistance force of the ballasted track decreased during an earthquake regardless of the number of sleepers and the sleeper's lateral displacement increased significantly even by lateral force smaller than the lateral resistance force of the ballasted track after shaking. The sleeper's lateral displacement increased during an earthquake more in cases where the number of sleepers is three than in cases where the number of sleepers is one.