Stability Research of the Main-Line Locomotive Movement

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Abstract
To ensure an increase in the design speed with simultaneous improvement of the traction, braking and dynamic qualities of the rolling stock, to increase the level of traffic safety and reduce accident rates the main-line locomotive was considered.

A complex of theoretical research of free oscillations, factoring in viscous friction and forced oscillations, was carried out. When considering forced oscillations, the irregularity of a railway track in the vertical direction, due to the rail joints, was taken into account. Graphs of changes in the vertical movements of a body and a bogie were obtained both analytically and using a software package.

The results of theoretical research correlate with the experimental data, which allows at the first stages of designing the new rolling stock units (according to the authors) to significantly reduce the cost for field tests.

KEY WORDS: locomotive, theoretical research, vehicle mechanics, software complex

References

