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**V. F. USHKALOV, T. F. MOKRII, I. YU. MALYSHEVA, N. V. BEZRUKAVYI**

# IMPROVEMENT OF THE RUNNING GEAR OF A PROSPECTIVE FREIGHT CAR

*Institute of Technical Mechanics*
*of the National Academy of Sciences of Ukraine and the State Space Agency of Ukraine*
*15 Leshko-Popel St., Dnipro 49005, Ukraine; e-mail: Mokrii.T.F@nas.gov.ua*

This work is concerned with the resolution of the problem of Ukrainian freight car fleet upgrading with the aim to improve car ride quality, extend running gear service life, and increase train operation safety.

The aim of this work is to develop recommendations on improvement of the running gear of prospective freight cars to increase their speed and ride quality and reduce wheel wear. Use is made of mathematical simulation, numerical integration, oscillation theory, and statistical dynamics methods.

The paper presents the results of investigations into the efficiency of introduction of new elements into the design of 18-7020 trucks, such as cross links between the side frames, a resilient adapter in the journal box assembly, and the ITM-73-02 wheel profile developed at the Institute of Technical Mechanics. Their effect on car vibration and car–rail interaction is studied for a freight car moving at different speeds in tangent and curved track sections. Parameter values for the additional links are recommended.

It is concluded that the proposed redesign makes it possible to develop prospective trucks for new generation cars with improved ride quality and low wheel wear.

***Keywords:*** *running gear of a prospective freight car, ride quality, wheel and rail wear, recommendations on truck improvement*

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