
Improving of construction cabs truck at the designing stage to satisfy passive safety requirements at frontal impact

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The purpose of this article is to describe the essence of the developed technique is perfect — existence of the design truck cabs when hitting the front. Grounded principles of compiling finite-element models of different levels of difficulty as the actual cabin and a full finite element model cab (cab model, mannequin with a seat belt, seat and steering column). Calculations are performed using software packages (ANSYS, LS-DYNA) different booths to the input parameters, verification has been made to meet the requirements of Regulation number 29, the definition and analysis of the movement of the pendulum, the absorbed energy and accelerations of the center of mass of the head dummy. On the basis of the proposed methodology developed recommendations for improving the design of the vehicle's interior KamAZ to improve the parameters of passive safety (the introduction of local patches, purposeful change of the thickness of main parts cab, the introduction of the amplifier, the introduction of aluminum foam «Hydro foam-filled 1050 H14 AL» inside the spar), and a comparative assessment of the behavior of structural elements of the original and the proposed version of the cab.

Keywords: *passive safety, cabin truck, simplified model, structural improvements, crashworthiness, crash, impact loads, plastic deformation, finite element method, LS-DYNA.*

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