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The dissertation concerns the study and analysis of vibrations occurring in wheeled special vehicles which serve to carry military equipment in the Polish Armed Forces on a daily basis. These vehicles are faced with the task of ensuring the most comfortable transport of military crew inside the vehicle on a variety of road surfaces during potential warfare.

The first part of the work contains a review of scientific literature concerning the effects of vibration including those occurring in special vehicles. A review has been made of the methods of vibration measurement and impact assessment for both conventional vehicles and those designed for special applications.

The second part of the work presents the implementation of a research program, including the study of three variants of wheeled special vehicles, moving on different types of road surfaces, with measurements of vibration accelerations at the driver's and commander's positions, and taking into account different travel speeds on a given test section. For the purposes of the study, a virtual human model was designed in a specialized multi-object simulation software (MSC ADAMS), with the aim to account for the various biomechanical features of a soldier-operator. The model was then used to conduct a comparative analysis of the results obtained from the simulation and the results from the actual research experiment. The author has proposed new criteria for evaluating the impact of vibration exposure on vehicle crews travelling inside vehicles used in the Polish Armed Forces.

The work ends with conclusions and predicted directions of further research, which could become the focus in the next stage of scientific development.

The results of the study have confirmed the correctness of the thesis which assumed the possibility of developing a method that would enable prediction of the impact of vibrations as well as qualitative and quantitative evaluation of the level of vibration exposure of operators and crews in wheeled special vehicles operated in off-road conditions.