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Title: **A method of detecting discomfort in the operation of adaptive devices by drivers with disabilities.**

Pages	143
Drawings	40
Tabels	27
Bibliographic items	89
Additives	0
Attachments	0

Keywords disabled driver, discomfort, instrumentation, ergonomics, adapted vehicle.

The dissertation concerns the research on the symptoms of discomfort using the proprietary method of detecting discomfort when using adaptive devices by drivers with disabilities. The dissertation presents a new method of quantifying the phenomenon of discomfort. Original measures of discomfort are presented. A method of testing adaptive devices for drivers with disabilities has been developed.

The work contains eleven chapters. The first chapter describes the basic concepts. The genesis of the topic is presented, including the repeal of legal regulations related to the mobility of disabled people and their use of motor vehicles. A range of problems related to existing adaptive devices in cars was defined. The author recognized the differences in ergonomic properties of these devices as the main problem.

The second chapter contains a literature review. In the summary of the literature analysis, the author pointed out the problem of the lack of research methods and legal regulations regarding cars adapted to the needs of drivers with disabilities.

The third chapter presents an overview of the construction of adaptive devices for drivers with disabilities.

The fourth chapter contains the aim and theses of the thesis. The aim of the work is to develop a method of quantifying the phenomenon of discomfort in drivers with disabilities while using adaptive devices while using a vehicle. The thesis of the work was the assumption that it is possible to quantify the symptoms of discomfort related to the operation of adaptive devices by drivers with disabilities.

The fifth chapter presents the object and methodology of experimental research. The symptoms of discomfort were taken into account during the tests. Measurements of the intensity of discomfort were also developed, which allowed to determine the scale of the phenomenon.

Chapter six describes the tests in road conditions, including the conditions and methodology of measurements as well as the course of the tests. The method of maintaining the repeatability of test conditions, both road and weather, was presented. The test route included driving in urban and extra-urban conditions and parking manoeuvres.

Chapter seven describes the research on the manoeuvring square. The method used provides for the use of the same measures of discomfort and its symptoms, but thanks to the intensification of driver's movements during parking manoeuvres, it allows for a fourfold reduction in test duration.

Chapter eight presents the results of the research and the characteristics of the symptoms of discomfort in the conditions of city traffic and in the conditions of the manoeuvring square. The results are presented in the form of charts and tables. A total of 45 tests were carried out. During the research, 125 phenomena of discomfort reported by drivers were registered.

The ninth chapter presents the discussion of the test results in terms of the evaluation of the tested devices. The graphs show the number of discomfort phenomena for each device.

The tenth chapter contains an assessment of the original research method and a comparison of the proposed measures of discomfort. The assessment of the correctness of the developed test method consisted in comparing the results using various measures of discomfort and using two methods (in road conditions and on a manoeuvring yard). The results obtained with the use of the two discussed methods were compatible - tests in road conditions and tests on the manoeuvring square. On this basis, it was concluded that there is a basis for a positive assessment of the proposed methods of measuring the phenomenon of discomfort.

Chapter 11 summarizes the results of the work. It has been shown that the most useful measures of discomfort in practice are: the sum of the intensity of discomfort, the time of the discomfort.

A test method on a manoeuvring yard was recommended for the practical testing of adaptive devices in a car in terms of discomfort of drivers with motor disabilities. Innovative elements of the work were used, which are the development of new measures of discomfort and methods of testing the phenomenon of discomfort in real driving conditions.

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