

OPTIMAL STRATEGY FOR PREVENTIVE MAINTENANCE OF THE MOTOR VEHICLES CLUTCH

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ABSTRACT

This work presents a possibility to find the optimum solution in the maintenance of the motor vehicles clutch when the criteria functions are maximum availability and minimum maintenance costs. These two criteria lead to several solutions of the clutch assembly maintenance; therefore, it was necessary to apply the multi-criteria optimisation.

Results of voluminous investigations of the motor vehicles clutch reliability parameters, which were obtained by monitoring the behaviour of the analysed motor vehicle in the real exploitation conditions, from the aspect of failure occurrence of its clutch, and with application of the corresponding scientific knowledge from the area of probability, mathematical statistics, systems theory and reliability theory, have served as a basis for finding the optimum periodicity of the clutch maintenance, taking into account the criteria of maximum availability and minimum costs of its maintenance.

Since the optimum periodicities of conducting the clutch preventive maintenance, determined by criteria of maximum availability and minimum maintenance costs differ from each other, it was necessary to apply one of the multicriteria analysis methods.

The presented methodology of the multicriteria decision-making can be applied for obtaining the reliable value of optimum periodicity of conducting the preventive maintenance procedures also of other parts of the analysed technical system.

Keywords: motor vehicle, maintenance, optimisation, reliability, availability, costs.

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