

APPLICATION OF FUZZY LOGIC BY MOTOR VEHICLE MAINTENANCE

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Abstract: Nowadays there is a tendency towards combined application of existing strategies of maintenance. The reason is placed in variety of maintained vehicles. Second reason is existence of flaws of current strategy for maintenance.

By application of knowledge based system, or so-called soft computing, we come to efficient methods used for treatment of problems while maintenance of technical systems, from the aspect of imprecision. One of such systems is fuzzy logic. Fuzzy logic is rarely used individually. Mostly its application is combined with neuro computing, genetic computing and expanding the possibility of expert systems.

Application of fuzzy logic enabled many improvements, in large number of fields of human performance. Great possibilities of its application should be used in the systems of technical system maintenance.

Geometric model of management of process of preventive maintenance by fuzzy logic, which essence is showed in this work, should enable: defining of parameters in uncertainty of work of technical system; defining influence of specific parameters on the process of preventive maintenance of technical system; defining most influential parameter and order of activities that should be done, as defining moment to start preventive maintenance. Procedure of forming geometric model should be defined by maintenance manager, who is in authority of decision making about preventive maintenance of technical system.

Application of fuzzy logic during maintenance of technical system is justifiable by the fact that the model of maintenance is complex, esp. if it is taken into account that description of maintenance problem includes work and breakdown condition and also mid condition. By its application, we are closer to the goal of acquiring maximum readiness, effectiveness and minimal costs.

Key words: *vehicles, maintenance and fuzzy logic*

1. INTRODUCTION

In order to achieve maximum effectiveness of usage of motor vehicles, in future more attention will be given to their maintenance, both through improvement of maintenance system and increased engagement of those who participate in its development, production and exploitation.

Without integral logistic support, esp. information systems for management of maintenance, we cannot speak about possibility to apply modern strategy for vehicle maintenance.

Two types of preventive maintenance are mostly used. First is preventive maintenance based on reliability information (on empirically defined distribution of possibility of work time until breakdown). By application of this type of preventive maintenance, maintenance procedure is planned in order to provide required level of reliability, most often by preventive replacements after a definite work periodicity. Other type of preventive maintenance is based on connection of information about reliability and information acquired in view of constant and systematic follow-up of vehicle (follow-up of selected parameters and indicators that with enough security show its condition).

Strategy of total productive maintenance is based on statement that only by maintenance it is not possible to maintain projected level of reliability during exploitation, but it is necessary to have active participation of users and everyone who is in relation to the maintained vehicle.

