

RELIABILITY OF MOBILE AGRICULTURAL MACHINERY USE OF BIOLOGICAL FUEL AND LUBRICANTS

V. A. Didur, D. P. Zhuravel

Abstract. *Energy independence of Ukraine is the key condition to further economic and social development of the state.*

Ukraine meets its requirements in oil by 85-90% due to import. But the oil price in the world market is constantly growing. It could not but affected the dramatic increase of the cost of agricultural products especially foods. Therefore, the necessity of searching the ways to replace oil feedstock for the production of fuels and lubricants by renewable raw materials is a strategic objective.

The paper deals with the methodology for the determination of reliability indices for the elements of the functional systems of mobile machines which operate both on mineral (fossil) and organic fuels and oils. The laws of distribution of parametric failures have been determined. The laws have been used for the assessment of the average resorts. The average resorts values for the elements of functional systems were compared. This allowed to identify the parts with the lowest reliability. The reliability indices for the main elements of the systems of mobile machinery have been calculated as well as the reliability of the mobile machines in whole. The research has established when working on the organic fuels and lubricants all the reliability characteristics are lower than when running on the petroleum-based fuels and lubricants. The fact may be explained by the aggressive influence of biofuel methanol and light ends of organic oils on the constructional materials.

Key words: *mobile agricultural machinery, functional systems, biofuels and organic oils, reliability, biodiesel, operating costs, resort*

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