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INCREASING THE EFFICIENCY OF FUNCTIONING OF AGRICULTURAL MACHINERY BY DEVELOPING A DYNAMIC SENSOR

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Current trends in the development of agricultural machinery are aimed at the efficient use of machine-tractor units (AIT) with energy-intensive tractors.

However, the efficient and productive operation of the unit in operating conditions depends on various factors (climatic, structural, operational, etc.), the combination of which has a significant impact on the modes of operation of the tractor, which is part of the AIT. In particular, this negatively affects the implementation of the installed engine power, which is determined by the optimal combination of traction and speed of the unit [1].

An effective way to improve the traction and speed performance of AIT is the optimal control of traction and energy parameters, which must be determined in real time [2].

Therefore, the aim of the work is to develop a sensor of the tractor dynamics to increase the efficiency of the wheeled tractor.

To achieve this goal it is necessary to perform the following tasks:

- perform a review of the systems for determining the dynamics of the tractor;
- to develop a design of the sensor of dynamics of a tractor;
- to conduct experimental research.

A tractor dynamics sensor consisting of a microcontroller, accelerometer and gyroscope has been developed and is designed to determine vibration, actual trajectory, accelerations and angular velocities of mobile machine elements in three planes. Experimental researches of the HTZ-243K.20 tractor in the educational farm of KhNTUSG [3] with the use of the developed dynamics sensor allowed to determine the acceleration and angular velocities of the tractor elements by the developed dynamics sensor.

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