Ключові слова: система подачі палива, ультразвуковий витратомір, SolidWorks Flow Simulation.

Abstract

This master's dissertation consists of 86 pages, 26 figures, 22 tables and 22 sources according to the list of references.

The main technical characteristics of the tractor Joon Deere 8430 are considered in the dissertation. The fuel supply system was analyzed and the cost calculation was done. The scheme of fuel consumption control is proposed. It is proposed to determine the cost by determining the difference between the volume of feed and the volume of fuel return. This scheme is optimal and does not require additional interference with the fuel system. Since the diameter of the fuel supply pipe is only 10 mm, the design of the flow meter was proposed. It is monoblock, that is, piezoelectric converters are mounted in a pipe stationary.

The simulation of the flow of fuel in the proposed design of the flowmeter in the SolidWorks Flow Simulation software environment is carried out. During the study, the design was modified and improved. As a result, we have achieved that the linear dependence of the change in speed and the change of phase difference is maintained.

The equation for measuring fuel consumption is also derived, and the main factors influencing the accuracy of the measurement are determined. The marketing analysis of the stratum-project was conducted to determine its market introduction and possible directions of implementation of this implementation.

The aim of the work is to study the feasibility of implementing the proposed design of an ultrasonic fuel flow meter.

The object of the study is the process of distributing ultrasonic signals in the fuel flow meter.

The subject of the study is the study of methods for increasing the accuracy of measuring the flow of liquid.

Key words: fuel supply system, ultrasonic flow meter, SolidWorks Flow Simulation.