DETERMINATION OF FUEL TRACTOR UNITS IN FIELD TRIALS

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Economic efficiency of operation tractor unit (AIT) is determined by fuel consumption per unit of work performed. Therefore, experimental research, production and comparative tests determine the fuel consumption AIT is one of the main problems. In today's market there are many different systems of measurement of fuel, most of them - is the instantaneous fuel consumption are based on flow-rotary sensors DFM or bulky fuel tank sensors based on capacitive type sensor DUT-E AF. In addition to high prices, the main drawback of fuel flow sensor based DFM is a high demand for clean fuels, as this type of sensor is moving rotor part that wears out, and therefore requires periodic sensor calibration. It should be noted that the existence of vibrations flow of fuel in the fuel system of a diesel engine, due to the presence of hangers screw action also reduces the flow of flow measurement accuracy. The disadvantage of capacitive sensors is their specificity of which is not small enough to determine fuel consumption for a short time also should wash dependence of the properties of these fuels. Particularly acute issue is determining fuel consumption when running on biodiesel MTA, because this fuel has a number of significant differences in the physical and chemical properties.

Today marked the shortcomings of rotational flow Fuel VZO-4 related to the feature of its installation in the engine fuel system according to factory instructions. Dismantling return valve heads and fuel pump throttling plug latter leads to increased fuel consumption engine, according conducted experimental studies from 3.72 to 6.96%. Note that such a connection is characteristic not only for VZO-4, but also for other flow flowing fuel on the basis of one sensor and due consideration of their inability to reverse fuel. It was also established that the accuracy of measurement of fuel consumption, factors influencing the location of flow relative to the horizon, its variations,

both in vertical and in horizontal planes, the stability of the supply voltage. The stability of these factors is quite difficult to follow in terms of performance AIT field work. Also noted that the accuracy of measuring fuel consumption affect the physical properties of the fuel. This is especially true for mixed fuels. Dry bulk fuels in different concentrations have different thermal conductivity, density and viscosity, which affects the sensitivity and accuracy of measurement instruments.

The purpose of research - to develop fuel flow scheme and its inclusion in the diesel engine fuel system, which would allow with sufficient accuracy to fix fuel regardless of its properties.

Results. According to GOST 24057-88 fuel consumption can be determined using flow fuel by topping up the fuel meter and using other methods that provide a given deviation measured in accordance with GOST 24055-88. Given the shortcomings of existing higher fuel measurement systems, we designed a la carte flowmeter that operates on the principle of residual fuel draining and developed a scheme of its inclusion in the fuel system of the engine. Portion of fuel flow to the fuel system connects mobile power means using Three-way valves. Due to the parallel connection of volumetric flow fuel flow and fuel return from the high pressure fuel pump, achieved the opportunity to supply instantaneous switching the engine on regular fuel supply system on the batch of fuel flow. When conducting research work on the MTA different types of fuel and their mixtures offered retrofitted native fuel system additional fuel tank connected in parallel to the main tank. This technical solution allows to quickly implement change in the type of fuel during testing. Sequential switching main and auxiliary fuel tanks to exclude the operation of pumping fuel system when changing the type of fuel, the significantly reduces the time spent on the implementation of experimental studies.

Before carrying out measurement of flow of fuel filled with a fixed volume fuel. When approaching the MTA to selected areas of experimental

measurements tractor driver switches the fuel supply to the engine system with fuel flow, and after the passage of experimental plots tractor again switches the engine power to the main tank.

Remains merge with fuel flow and fuel are measured by means of an appropriate standard dimensional accuracy, the difference between the initial and final figures availability of fuel corresponding to fuel consumption given the passage of experimental plots. This flow can be applied as during the timing of the AIT and the study of MTA on certain short honah that allows you to study the influence of parameters trailers machines and operating modes AIT with minimal cost and in terms of a small area of the field for which Agrotechnological options environment can be considered the same.

The proposed Fuel la carte was used during experimental research operational parameters of the MTA to change the traction resistance of the implement when using biodiesel and its blends with diesel fuel. As a result of experimental studies dependence of fuel consumption on traction resistance changes towed vehicles and biodiesel content in the fuel mix:

During experimental studies flaws in the batch flow is detected, giving rise to further implement the inclusion of the flow of fuel in the fuel system by applying electrovalve.

Conclusions

The design flow proportioning of fuel and location of its inclusion in the diesel engine fuel system allows you to measure the flow of motor fuels with sufficient accuracy for modern power systems of automotive engines.