



## STUDY OF THE OPERATION OF THE CAR MAN TGS 33.360, TGS 33.400 (6X4) UNDER HOT CLIMATE URBAN CONDITIONS OF THE REPUBLIC OF UZBEKISTAN

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### Abstract

*The development and effective functioning of the road complex of the Republic of Uzbekistan is possible only with a balanced state of road transport and road infrastructure, the interaction of these components is determined by the operational properties of road transport and the performance of the environment and roads.*

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The development and effective functioning of the road complex of the Republic of Uzbekistan is possible only with a balanced state of road transport and road infrastructure. The interaction of these components of a single economic system is determined by the operational properties of road transport and the transport and operational performance of roads.

However, at present, these issues, unfortunately, have not been studied in full and not deep enough. General issues of the operation of automotive equipment in special conditions were studied, for example, in [2, 3], however, these works are mostly theoretical in nature, and they do not contain practical recommendations on the use of specific types of automotive equipment in certain operating conditions. The analysis of the available works on this subject [1,2] allows us to single out from the total set of operational properties a number of the most important parameters that are closely related to the accelerated failure of vehicle components and assemblies in special conditions of their operation.

A common feature of the works reflecting the normalization of operational properties is that the indicators of the operational properties of vehicles presented in them are formed only taking into account the "opinions of specialists", based on previous experience and there is no link to the actual indicators of the operational

properties of trucks in urban conditions of the hot climate of the Republic of Uzbekistan, in particular the metropolis of the city of Tashkent.

Therefore, the operational properties of a truck can be divided into two groups. The properties of the first group are associated with the layout characteristics of the car and the features of its use during operation, and the properties of the second group ensure the mobility of the car [1]. The main purpose of this study is to study the movement of a truck in rectilinear and curvilinear motion, on paved roads in the urban hot climate of the city of Tashkent.

Analyzing literary sources [1,2,3], these works did not consider the issue of the impact of elevated temperatures on the interaction of an elastic wheel with a solid support surface, therefore, we will consider the interaction of an elastic wheel of a MAN (6x4) truck with a solid support surface in urban hot climates when driving along the streets of the city of Tashkent.

So, if in a car with one driving axle the question of the magnitude and direction of the forces acting on the wheels of the driving and driven axles in certain external conditions is solved unambiguously, then the effect of lateral forces, the magnitude and direction of the forces, the interaction of the elastic wheel with the solid supporting surface of the car (6x4), depend on the ratio of a number of design and operational factors.

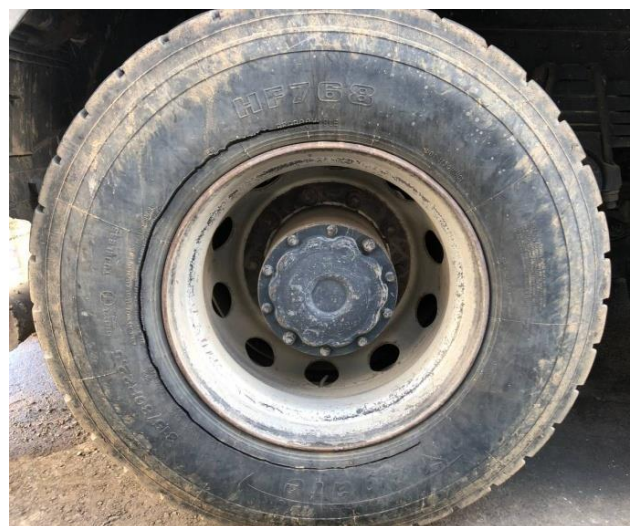
It is known that a change in environmental temperature conditions affects the operation of the engine, transmission, tires and their interaction with the supporting surface, which leads to a change in operational properties and increased fuel consumption by a truck.

All this as a whole indicates the importance and necessity of taking into account the influence of elevated temperatures of asphalt concrete pavement on the performance properties of a truck in order to ensure their greatest adaptability to specific operating conditions [4].

Let us analyze the operational properties of a truck associated with its movement and the process of interaction of an elastic wheel with a solid asphalt concrete surface, with their meters and indicators, the influence of design and operational factors on operational properties.

At the same time, we pay considerable attention to traction and speed properties, on which the performance of the vehicle and fuel efficiency depend, which has a significant impact on the cost of transportation.

The conducted studies of the operational properties of trucks MAN, KAMAZ, revealed that, given the road and transport conditions and elevated temperatures during operation in the urban conditions of Tashkent, the indicators of the operational properties of trucks do not fully describe the effect of elevated asphalt temperature on the parameters of traction and speed properties in particularly on tire performance and fuel economy. In Fig.1, there are photographs of the failure of tires of various brands of a truck MAN TGS 33.360, MAN TGS 33.400, wheel arrangement (6x4).







a



б

**Figure 1. Rear and front tires MAN TGS 33.360, MAN TGS 33.400**

Analyzing the presented photographs in Fig. 5, failure of tires of various brands of a truck MAN TGS 33.360, MAN TGS 33.400, wheel arrangement (6x4), we can say that tires of various brands installed on the rear (a) and front wheels (b) have the same type of damage and do not fail using your resource. Therefore, the performance tests of the truck tire MAN TGS 33.360, MAN TGS 33.400 are relevant and require further research [5].

The influence of road conditions and elevated operating temperatures in urban hot climates on the performance of trucks is expressed in an increase in the cost of engine power to overcome additional rolling resistance, a decrease in the speed and productivity of transport, an increase in fuel consumption and the cost of transporting goods.

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