IJDPP

International Journal of Development and Public Policy

| e-ISSN: 2792-3991 | www.openaccessjournals.eu | Volume: 2 Issue: 4

Operating Features Affecting Vehicle Tire Resources

Holdarov Fidokor Erkin ugli

Teacher of the department of Car training of Academy of Ministry of Internal Affairs of Republic of Uzbekistan

ABSRACT

The article considers the factors affecting the service life of tires of vehicles operating in the country, identifies the factors influencing the weather and road conditions for tire wear in severe road conditions.

Keywords: extreme exploitation, heavy loading, intensive loading, causes of damage, quarry cars.

One of the main tasks of the development of road transport is to increase the efficiency of this transport work. At the same time, the main focus is on the study of the resources of automotive parts, in this regard, the research work on the tires of motor vehicles, designed for heavy road conditions, adapted to extreme operating conditions is of great importance.

It should also be noted that the failure of the tire is not only due to the wear of the tread. A distinctive feature of the tire use process is that it can be operated in a variety of emergency roads and climatic conditions.

Even when great attention is paid to the rules of operation, injuries (defects) that occur under certain road conditions for random reasons can hinder the subsequent operation of the tire, for example (puncture, cut, etc.).

The specific natural-climatic and road conditions of the special vehicles operating in the conditions of JSC "Jarqorgonneft" have a negative impact on the reliability of vehicles, its aggregate mechanisms, especially pneumatic tires.

Intensive wear of tires occurs when heavy loads, vibrations of running aggregates and driving on unpaved roads.

The analysis of the operation of tires in the conditions of JSC "Jarqorgonneft" shows that the actual distance traveled by the tires was lower than the norms approved by the leading document UZRH 52.006: 2009 "Standards for the operation of tires."

At present, the standards GOST 26585-2003 and GOST 8430-2003, developed by interstate cooperation, are in force in the country. These standards provide guidelines for quarry vehicles with large and very large pneumatic tires, as well as guaranteed ride standards for construction, road construction, lifting, and ore truck tires. The current walkway standards for some tires are not listed in the regulatory documents listed above. This requires additional scientific research.

Operational features - a group of features that indicate the suitability of the type of transport as a specialized vehicle (above-ground wheels, without rails) for use in a given environment [1].

The performance characteristics of vehicles can be divided into the following groups: traction-speed and braking characteristics, fuel economy, maneuverability, stability, maneuverability, smoothness and traction [1].

Here we consider one of the most important operational features - maneuverability. This feature is especially important for road trains operating in complex road conditions.

In the works of Ya.Kh. Zakin [2] the problems of turning of cars and road trains are considered. Developed methods for evaluating and calculating maneuverability features, and created auxiliary tables and graphs for common curvilinear movements.

The maneuverability of a car and a road train can be thought of as a set of features that allow it to move freely in a curved forward motion on a base surface with limited dimensions and shapes [2]. This is a complex operational feature that includes other simpler features (manageability, flexibility, fit) [1].

Controllability is a set of properties that define the kinematic and force response to control effects.

The degree of rotation is a property of maintaining a given direction of motion without turning under the influence of lateral forces [1].

In another study [2], the torsional and compressive properties were evaluated:

torsion is the ability of a moving vehicle to rotate along trajectories as small as possible when the turning area on the base surface is small.

The smaller the boundary radius of the turn, i.e. the larger the boundary turning angle of the steered wheels, the better the turning. The better the curvature of the car and road trains in the above parameters, the better the maneuverability. Controllability is a key feature because, without it, there is no turning point;

Flexibility is a property that ensures that the dimensional motion of the moving vehicle in the curvilinear motion conforms to the external constraints on the base surface. Therefore, in assessing the capacity of a car and a road train, the interaction between the moving vehicle and the design factors of the external environment is taken into account. Thus, flexibility is a broader feature than vehicle flexibility, because flexibility is an element that does not take into account the factors that limit the flexibility of the vehicle.

In addition to the "external" capacity described above, there is also the "internal" capacity. It means that the trains of the road train fit into the track of the track (in a curved motion) [2].

Thus, maneuverability underlies the vehicle's maneuverability. If a car or a steering wheel loses control due to a faulty steering, there will be no turning, no twisting and no maneuvering [1,2].

A universal parameter called "shunting factor" is used to assess the maneuverability of the car.

The maneuvering factor of a car or road train is inversely proportional to the relative value of the width of the approximate (aproximated) part of their curvilinear motion, ie the width of the approximate dimension (in motion) corresponding to the transverse dimension V0 of the moving vehicle. (for road train - taken relative to the overall width of the longest joint):

, (1)

V0 is the overall width of the rolling stock;

Vg is the approximate overall lane width in motion [2].

Determining the maneuverability of the MAN TGS 26,400 road train

When the road train was moving on different slopes of the road, the conditions of shattering were determined depending on the coefficients of adhesion of the tires to the road.

The "traction" of the road train at turns was determined by the calculation-graph method. The maneuverability factor on a mountain road with a turning radius R = 10m was determined.

ISSN 2792-3991 (online), Published under Volume: 2 Issue: 4 in April -2022

IJDPP
International Journal of
Development and Public Policy
| e-ISSN: 2792-3991 | www.openaccessjournals.eu | Volume: 2 Issue: 4

Drawing a dimensional motion in the movement of a road train

(Fig. 1), it is possible to form a curve describing the maneuverability or capacity of the road train (Fig. 2). This line divides the graphic surface into two parts: the surface above the curve indicates that the surface fits into the right-angled crossing of the road train (for example, the narrowest part of the road), and the lower surface - does not fit.

Maneuverable factor of MANTGS 26,400 truck train:

$$M = \frac{B_0}{B_\Gamma} = \frac{2{,}49}{7{,}1} = 0{,}35$$

where, V0 is the overall width of the road joint along the large joint, m; Vg is the width of the right-angled crossing where the moving part of the road train can fit perfectly, m.

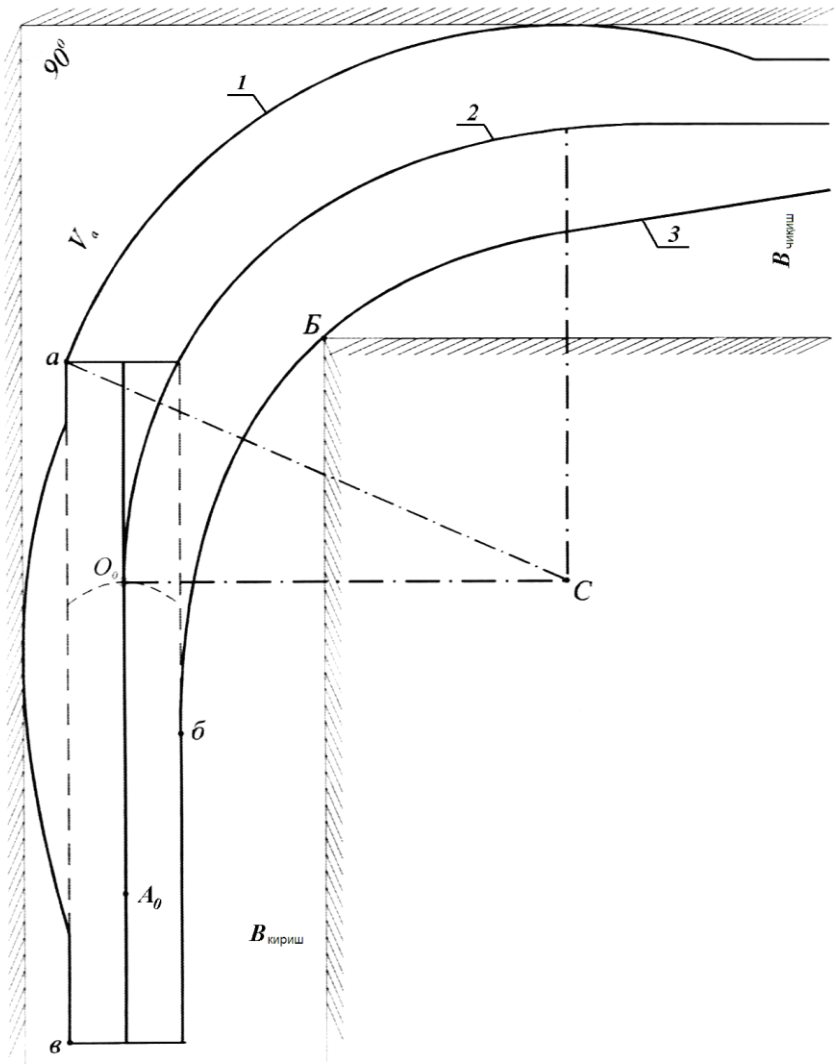

Figure 1. Overall part of the Mingashma road train movement:

1 outer dimension line; 2 main trajectory; 3 inner dimension line

ISSN 2792-3991 (online), Published under Volume: 2 Issue: 4 in April -2022

IJDPP
International Journal of
Development and Public Policy
| e-ISSN: 2792-3991 | www.openaccessjournals.eu | Volume: 2 Issue: 4

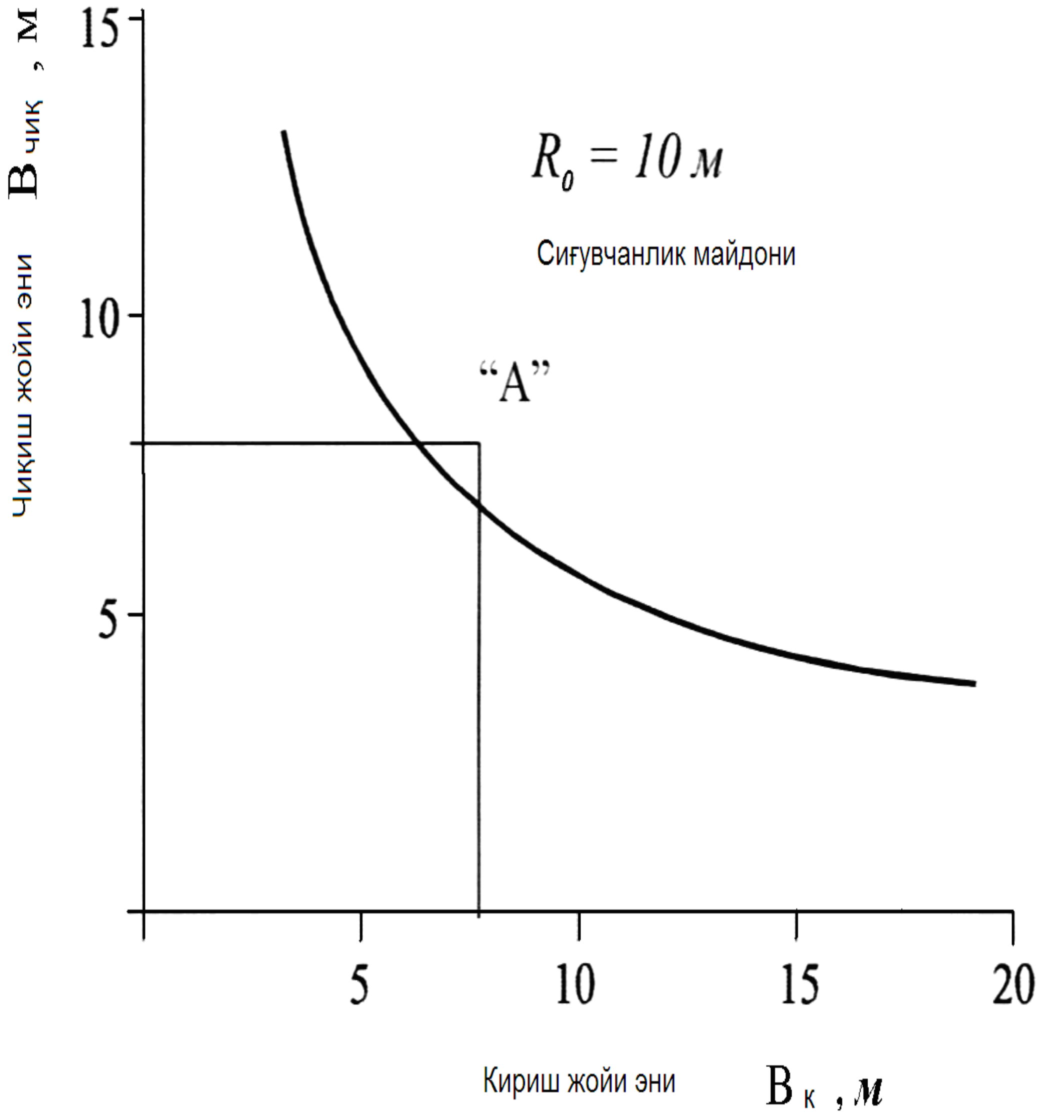

Figure 2. Maneuver description

Thus, the calculation results showed that the maneuverability value of the MAN TGS 26,400-axle truck was 0.35.

An analysis of the roads in which road trains operate shows that some roads have sections that exceed the "Traction" limit (Figure 3). This, in turn, leads to intensive wear on the tires due to slip (zanos) as a result of centrifugal force at turns. At turns on such road sections, torn pieces of the tread can be seen (Figure 4).

ISSN 2792-3991 (online), Published under Volume: 2 Issue: 4 in April -2022

Figure 3 Road conditions at Jarqorgonneft JSC beyond the boundaries

Figure 4 Samples from torn parts of the tread at turns

REFERENCES:

1. Litvinov A.S. Theory of operational properties: Uchebnik dlya VUZov po spetsialnosti «Avtomobili i avtomobilnoe khozyaystvo». - M., Mashinostroenie, 1989- 240s.
2. Zakin Ya.X. Maneuverability of the car and the train. - M .: Transport, 1986. - 136 p.

ISSN 2792-3991 (online), Published under Volume: 2 Issue: 4 in April -2022