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**Research Article** 

# INCREASING THE CARRYING CAPACITY AND EFFICIENCY OF THE MAN CLA 16 220 4X2 TRUCK

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#### ABSTRACT

In this article, we will talk about increasing the efficiency of the MAN CLA 16 220 4x2 truck by increasing its load capacity, and the additional income and costs involved.

### **K**EYWORDS

Truck, body, load capacity, load, spring, fuel efficiency, pass, wheel disc, useful work coefficient, trunk, spare part, inert gas, fossil resource.

## Introduction

In the 21st century, the number of automobiles around the world is increasing, and due to the burning of petroleum products and inert gases, is causing the depletion of underground mineral resources and the pollution of the atmosphere. This causes the number of victims of various oncological and respiratory tract diseases and traffic accidents to increase day by day [1-4]. This problem has put before the scientists of the whole world the important task of keeping the environment clean, saving underground mineral resources and regulating the movement of vehicles on the roads. As a partial solution to these problems, one of the important examples is to increase the carrying capacity of the MAN CLA 16 220 4x2 truck produced in our country and thereby improve efficiency [5-9].

#### THE MAIN PART

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The carrying capacity of the MAN CLA 16 220 4x2 truck (Fig. 1) is 8 tons according to the technical documentation, and the weight of the truck is 8 tons when it is not loaded, and it is 8 tons in practice. As a result of the movement of lorries in a loaded condition through the "373-Kamchik

road" connecting the city of Tashkent and the Tashkent region with the Fergana valley, the increase in fuel consumption and the premature failure of car spare parts have had a negative impact on the economy of any motor transport enterprise [10-17].



Figure 1. MAN CLA 16 220 4x2 Truck

To solve this problem:

- 1) it is necessary to increase the useful work coefficient of trucks.
- 2) to improve the carrying capacity of the truck.
- 3) the power of the truck's engine should be used efficiently.
- it is necessary to study the movement of 4) the truck on "373-Kamchik Davano".

MAN CLA 16 220 4x2 truck was chosen to solve the above problem. The wheel disc, tire, spring and trunk of the MAN CLA 16 220 4x2 truck moving through "373-Kamchik Davan" were unusable before the deadline. For example, the side walls of the trunk swell and become dangerous, the wheel discs on the rear axle of the car break, the air leaks out before reaching 70,000 km of driving time, and the plates of the axle fixing springs can lead to an accident while driving [1823]. The trunk volume of the truck is 42 m3, 20% of the volume of the trunk is used for the transportation of some goods. 21.4% of the trunk is used for transporting food products (water or drinks). 78.6% of the luggage various compartment, i.e. 33 m3 volume, is used unloaded. We solved this problem as follows:

- The MAN CLA 16 220 4x2 truck was 1) replaced with a 22.5x8 wheel disc with a 22.5x9 semi-trailer wheel disc, and the pin holes were prevented from breaking.
- 2) The installation of 22.5x9 wheel discs increased the distance between the tires, eliminated friction between the cars on bad roads, and extended the life of the cars.
- 3) due to the addition of a spring plate to the spring of the above-mentioned truck, the spring was prevented from becoming unusable, and the load capacity of the

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vehicle was increased from 8 tons to 10 tons.

- 4) MAN CLA 16 220 4x2 truck engine power is equal to R=220 horsepower and can lift 11 tons of cargo if it climbs uphill at speed v=36 km/h on "373-Kamchik Davan". Taking into account the power of the car engine, the carrying capacity of the MAN CLA 16 220 4x2 truck was increased to 10 tons by installing the wheel disks of 2 semi-trailers and adding plates to the spring [24-34].
- In order for the side wall parts of the trunk 5) part of the body to bear additional load, metal pillars were installed on the trunk wall and its strength was increased.

After making the above changes to the MAN CLA 16 220 4x2 truck, the truck was loaded with 10 tons of cargo and sent to the city of Nukus via "373-Kamchik Road" from Uzbekistan [35-44].

The above changes were applied to the MAN CLA 16 220 4x2 truck manufactured in 2015 and purchased in 2016 by the private enterprise "YAIPAN TRANS" with state number 40 591 YVA on May 10, 2016, and up to now 10 tons of cargo has been transported by "373-Kamchik Davan" It is being transported from Fergana Valley to Tashkent, and from Tashkent to Fergana Valley. Fuel consumption increased by 1.1 litres instead of 6 litres per 100 km, saving 4.9 litres. The wheel disc of the car did not fail for 4 years, the tires were replaced after 145 km, and the spring plates did not break.

#### Conclusion

The carrying capacity of MAN CLA 16 220 4x2 model 40 591 YVA of the private enterprise "YAIPAN TRANS" has been increased from 8 tons to 10 tons, and it is moving on the road "373-Kamchik Davani" and transporting goods throughout the Republic of Uzbekistan. If this useful model is applied to MAN CLA 16 220 4x2 trucks at the MAN automobile manufacturing plant in the Samarkand region, the FIK of the car will increase, fuel consumption will decrease, and atmospheric pollution will be prevented. Therefore, we offer to use this useful model at the "MAN" car factory.

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