

## **ROLE OF TRANSPORT factor in vehicle maintenance in agriculture**

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*The analysis of measures to reduce transport costs for vehicle maintenance in agriculture and improving the relevant principles of cooperative forms of vehicle maintenance.*

***Car, maintenance, repairs, nekompleksnyy garage, transportation costs, rozviznyy route.***

**Problem.** We know that as a result synehetychnoho effect the form of maintenance (MOT) cars cooperative enterprises is a form of participation of regional or inter-service stations Car (STOA). Increased centralization of operations and repair of rolling agricultural sector allows, on the one hand, reduce the total cost of material and technical basis for the maintenance of rolling stock was, wage costs, spare parts, materials, energy and other resources, to reduce the negative impact maintenance processes on the environment, increase the rate of technical readiness of vehicles through more quality performance of repair and service work for STOA. On the other hand, excessive centralization leads to a significant increase in traffic of vehicles and their components for STOA and specialized repair company. Transportation costs are bilshe30% of total expenditure on the car. Currently, one of the main factors limiting the effectiveness of cooperative forms of vehicle maintenance in agriculture, transport is a factor that is significant transport costs associated with the movement of vehicles on farms and STOA back for maintenance. We call such moving car technology. According to the definition VI Kotelyantsya transport factor - a summary measure, which reflects not only the different means of transport and volume of cargo, the availability of roads and other transport infrastructure, but also, very importantly, the transport factor affects the placement

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and, very importantly, the transport factor affects the location of production, its specialization and size. From the transport factor depends not only rational form of vehicle maintenance in agriculture, but the mechanisms of its implementation.

Due to the constant increase in the cost of fuel and lubricants steady trend of rising costs of these technological transportation.

Under the recommended radii centralize the cost of fuel it takes to transport vehicles to Stoa, not only can significantly exceed the effect of centralization, and the cost and maintenance of a certain type.

So important is the problem of finding ways to improve the co-operative form that would allow significantly reduce the cost of technological transportation vehicles.

**Analysis of recent research.**How to optimize maintenance of machinery in agriculture are devoted prof. Ludchenka OA, prof. Moon M. Sci. Naumenko AA, prof. Sidashenka AI and other scientists. However, they considered methods of organization, in which the company centralized service delivered by the machine as a whole, rather than some of the elements. Nature and impact of transport on the cost factor of production in agriculture Ukraine first considered in prof. Kotelyantsya VI

**Research results** of the global energy crisis in 70 years of the last century, when the price of a liter of gasoline in the USSR on average 0,11-0,14 dollar for STOA Agricultural machinery recommended to perform-1, TO-2 and the bulk of the current car repairs During the energy crisis, when the cost of gasoline has increased, it was recommended to decentralize-1 simple operations and maintenance vehicles, which constitute 80% of all applications for rolling stock maintenance. The above analysis suggests that the implementation of cooperative forms of maintenance of rolling stock APC is a derivative of the transport factor. Now the cost of a liter of gasoline than a dollar, which significantly increases the role of the transport factor in the car. You can define the following ways to cut costs on transportation technology associated with the delivery of rolling stock on the Stoa.

- 1.Increase the value of vehicles operating time between failures due to a renovation of rolling stock and improve the quality of performance of repair and service work.

- 2.The combination of technological Haulage car at Stoa of Haulage for cargo (laden) in the district center, which is usually located Stoa.

- 3.Work at STOA during-2 related ongoing repairs with replacement units and units that do not residual life.

- 4.The increase in total current repairs performed at Stoa, the share of past labor to create exchange fund units and units (AV) for fleet households served that the transition to aggregate-vuzloay maintenance method.

In this economy takes SCHTO, SO-1 and rolling stock assembly and dismantling, lubricating and adjusting if necessary work associated with the replacement AB. A STOA-2 carries cars, creating AB exchange fund and deliver them to the farm. Analyze given way.

The first way requires substantial investments in renovation of rolling stock. Given that about 80% of cars in agriculture worn, the process of renovation fleet AIC can be quite lengthy. With the current level of wear rolling stock required minimum rate of renewal shall be 20% per year. Make it at present farms financially able.

The second is more than 90% of the works and repair of rolling stock running in garages farms with outdated equipment in the absence of modern diagnostics and skilled performers. Therefore, you should not expect an increase and a gradual decrease in operating time between failures cars.

The second way has some potential due to the presence of stable freight traffic between farms and towns. On farms in the district center carrying crop production and livestock, and from the district center - industrial products, fuel, construction materials, fertilizers, etc. However, the organization related to the Stoa races associated with a number of objective difficulties of technical and organizational problems. When you achieve the best possible value ratio related races technological transportation costs can be reduced by only 5.12%. This path can be regarded as a subsidiary.

The third way can lead to losses related to the insufficient use of the residual life of AB vehicles.

The fourth way can be considered one of the most promising ways of increasing the efficiency of cooperative service vehicles AIC. To do this, farms created and provided by means of appropriate exchange fund Stoa AB. Shipping remfodu for STOA and refurbished modular units in the economy made the station. As a result, you can significantly reduce the transportation costs of the so-called technological movement of rolling stock.

Reduce transport costs and losses from idle cars under repair is achieved by the fact that the STOA to perform routine repairs not delivered the car in general, and its teams units that need restoration. When used for transporting data precast units of vehicles carrying small transport costs are reduced by an order; the station in the economy can simultaneously carry not one but several components and assemblies. Reducing losses from rolling stock being repaired due to a significant reduction in downtime of vehicles in queue while waiting for repairs at the Stoa and time on the last transport to the station. Reduce transportation costs can use rozvizno-assembly route.

Nowadays Principles of car repairs ahrehatno-nodal method developed primarily for large A T P , that perform their own entire volume of repair and service work.

Note that fleets farms are characterized by a small number of cars (10-30 units) located in nekompleksnyh garages. Therefore, they can not be applied organizational principles aggregate-node method of repair, major characteristic of ATP. It is advisable to apply techniques based on the optimal distribution of the scope of work and responsibilities between the repair and the serving base farms and STOA district.

In establishing the types of repairs, it is appropriate to perform Stoa, as optimality criterion should be used at least annual unit purchase cost of repair and maintenance of equipment and technology in the economy and the Stoa.

Specific annual cost of acquisition and maintenance of process equipment repair and characterize their share to the one-and-repair her team unit vehicle.

These unit costs for fleet Fhi agricultural enterprise and STOA -Fsi determined in accordance with the formulas:

$$\Phi_{ci} = \frac{a \cdot U_0 + 3_e}{N_{ci}} \text{ (руб./ремонт)}, \quad (1)$$

$$\Phi_{ci} = \frac{a \cdot U_0 + 3_e}{N_{ci}} \text{ (руб./ремонт)}, \quad (2)$$

where  $a$  - depreciation for renovation and refurbishment of equipment;

$T_{so}$  - The carrying cost of the equipment, rub .;

$N_{hi}$  and  $N_{si}$  - Annual repairs and th team alone performed under the farm and STOA

$N_{hi} < N_{si}$

$Z_e$  - The amount of current annual cost to operate the equipment that do not depend on the degree of loading, USD ..

It costs the state inspection instruments, calibration, seasonal maintenance, and so on.

The difference between the specific costs of maintenance and repair of equipment in th team units in the economy and the Stoa amounts to annual losses of stumps low loading equipment on the farm.

$$Stumps = F_{hi} - F_{si}, \text{ (USD)} \quad (3)$$

Given the formulas (1) and (2) we get:

$$\Pi_{hi} = (a \cdot U_0 + 3_e) \frac{1-\alpha}{N_{ci}} (зруб) \quad (4)$$

$$\alpha = \frac{N_{si}}{N_{ci}}, \quad (5)$$

where

The second multiplier in parentheses right side of equation (4) describes the level of underemployment repair and manufacturing equipment on the farm.

In determining the feasibility of centralizing certain repairs to existing Stoa captured specifications for motor vehicles, quality repairs and downtime reduction factor car in for STOA.

In the case of centralized repair relatively inexpensive modular units such as generator, starter clutch and others, in order to reduce downtime Car recommended in each sector to create the necessary supply of these modular units and related costs to consider it. In other cases, you should take into account losses from idle cars associated with

the delivery of replacement fund for technical exchange office Stoa and repaired components and assemblies with STOA in farming.

In view of the above analysis of the economic feasibility of centralized perform certain repairs can be set to STOA by comparing losses from insufficient load-repair process equipment used in the performance of maintenance *and* ies team units in the economy, with the cost of shipping replacement stock and refurbished AB and maintenance costs of the exchange fund.

The value of the unit cost of shipping and th team on STOA unit defined by the formula:

$$3_{mp.i} = \frac{2R C_n}{n} (z_{ph}), \quad (6)$$

where  $R$  - Distance from the farm to the STOA km (radius centralization repair);

$C_n$  - The cost per km car carrying maintenance fund and refurbished units (nodes), rub .;

$n$  - The average number of modular units carrying while on the vehicle.

It follows from (6) we see that the radius of centralization repair work will be enhanced mainly by increasing the cost of repair and manufacturing equipment, power Stoa number of units and repair fund transported simultaneously. Radius centralization will decrease with increasing the value of one vehicle kilometers carrying maintenance fund and refurbished prefabricated units.

Consider how it will affect the distribution volume of repair work between management and STOA time between failures host vehicle and such factors as concomitant replacement Stoa while on a planned-2 units and units that are the results of diagnosis have resource close to the limit.

When the quality of maintenance on STOA (coefficient  $k$ ) and operating time between failures of modular units of the car, ie decrease in the flow parameter bounce  $w$ , radius centralized repair work will increase.

Go to the aggregate-node method car repairs associated with the need to make some changes in the project organization and management of technical service road transport APC. The essence of these changes is as follows.

In the administrative area (region) farms and STOA a system of cooperative vehicle maintenance. In this system on a contractual basis are nekompleksni garage farms and STOA district-repair process agribusiness. The purpose of this system is to supply high (set) coefficient of technical readiness of vehicles served with minimal cost money and material resources.

The system is based on cooperation with STOA garages farms with optimal distribution between work and functions. Organizational and technical management operation of the system it is advisable to put Stoa.

In this system, garage farms perform replacement of modular units repaired at Stoa or based on new exchange fund units and units. The decision to replace the unit or the unit is taken as a fact of failure or the results of diagnosis performed at Stoa.

Nekompleksni garages must have parking lots maintenance vehicles, equipped with movable floor lift, lifting other means, a mechanized tool for the effective implementation of assembly and disassembly work when replacing AV equipment for lubricating work, and so on.

STOA provides timely provision of garages farms exchange fund units and units by repair on its own or in specialized repair shops.

For this station provide technical exchange, dispatching service, delivery service repaired AB in the economy, and repair fund - the Stoa, expand repair station modular units of rolling stock.

We have developed a draft of transport repair fund and AB repaired at STOA central fleet in Ukraine NUBiP multicenter maintenance of road transport fleets NUBiP production units located in the Kiev region.

### **Conclusions**

This paper summarizes the theory and experiment-tested and reviewing of solving scientific problems of optimizing economic feasibility of centralization in Ukraine AIC Stoa certain types of repair works cars.

1. In spite of increasing transport costs for maintenance of cooperative road transport AIC promising implementation of aggregate-node method of permanent repair of rolling stock farms involving STOA district. This makes it possible to significantly reduce the transportation costs of the car and eliminate them just waiting for repairs at Stoa.

2. To implement the aggregate-node method nekompleksnii garage farms must be equipped with parking spaces for performing assembly and disassembly work with modern equipment and have the exchange fund. In STOA necessary to organize technical exchange, dispatching service and service delivery of repaired components and assemblies in the farms, to expand the repair station components and assemblies.

3. Established that AB advisable to carry rozvizno collective-route. Replacement pendulum-route rozvizno collective allows almost halve robih vehicle for a series of transportation AB.

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*Obosnovano Using aggregate-nodes method of repair of automobile transport selskohozyaystvennykh enterprises and Basic Principles of organization kooperativnoy forms tehnycheskoho Maintenance of cars on the basis of known method.*

***Transport rubbed, kooperativnoe Tehnicheskoe Maintenance, repair works tsentralyzatsyy radius, ostatochnyy resource.***

*Usage of agrarian-central method of repair of motor transport of agricultural enterprises is proved, the technique of definition of radius of centralization of auto repair work and main principles of the organization of the co-operative form of maintenance service of cars on the basis of the given method is developed.*

***Car, safety of traffic, tire wear, fatigue, aging, residual life.***

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**NEED Existence conditions SLABONELINIYNOYI  
Boundary problem with impulsive  
(Critical case)**

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