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Using standards in planning and organizing maintenance and repair

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Abstract: In this article, measures to further improve the existing transport service organization system in our Republic, complex motor transport enterprises that include technical service and repair of cars, storage, fuel-lubrication and provision of spare parts. activities such as the plan of increasing the number of vehicles, the implementation of technological equipment, reconstruction and improvement of existing motor transport enterprises based on the requirements of the times were analyzed.

Key words: Increasing the efficiency of technical service in auto transport enterprise

The standards specific to the maintenance and repair system are necessary to solve the following TOC issues.

Calculation of the work program of TS and CM (daily, monthly, yearly, etc.).

The production program means the number and volume of work of TS (TS, TS-1, TS-2, MX), CM and PR shown to cars and aggregates, and they are calculated for the year, month, shift. The production program can be determined by the entire motor transport enterprise or group of cars (types, types), as well as by region and workshops.

The scope of the program includes the periodicity and volume of work, the resource of cars and aggregates before perfect repair, the norms of maintenance and maintenance of the car. The norms are adjusted taking into account the operating conditions.

TS-1 (L1), TS-2 (L2), the number of MK and TS displayed during the cycle for one car after determining the standard values of resources until the car is written off in the cycle until perfect repair (Lts) is determined by the following formulas:

$$N_{ЦМТ} = \frac{L_Ц}{L}; \quad (1)$$

$$N_{Ц2} = \frac{L_Ц}{l_2} - N_{ЦМТ}; \quad (2)$$

$$N_{Ц1} = \frac{L_Ц}{l_1} - N_{Ц2} - N_{ЦМТ}; \quad (3)$$

After that, the number of TS and PR displayed for one car during the year is calculated according to the following formula.

$$N_{й} = N_{ц} \cdot \eta_{й}; \quad (4)$$

where, - the coefficient of transition from the road covered in the cycle to the average annual covered road.

Then, the number of TS and PR is calculated for the whole park.

In determining the annual mileage, data on the employment rate, the technical readiness ratio, and the average daily mileage are used. (See Chapter 9):

$$L_{й} = 365\alpha_{и} \cdot l_{йк}; \quad (5)$$

The annual program by type of impact for the fleet is determined by multiplying the annual program of one vehicle $N_{й}$ by the number of vehicles in the fleet inventory of this type

$$N_{й}^{\Sigma} = A_{и} \cdot N_{Ий}; \quad (6)$$

It is determined according to the program represented by the volume of work t^{Σ} :

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• The corrected one-time volume of work of the types of TS is multiplied by the annual program of effects $t_{TXK}(t_{KXK}, t_1, t_2)$:

- $t_{TXK}^{\Sigma} = N^{\Sigma}_{\text{й}} \cdot t_{TXK}$ (7)

• The corrected norm of the comparative work volume for CM is multiplied by t_{CM} by the annual road of the car fleet:

$$t_{ЖТ}^{\Sigma} = \frac{A_u \cdot L_{\text{й}} \cdot t_{ЖТ}}{1000} \quad (8)$$

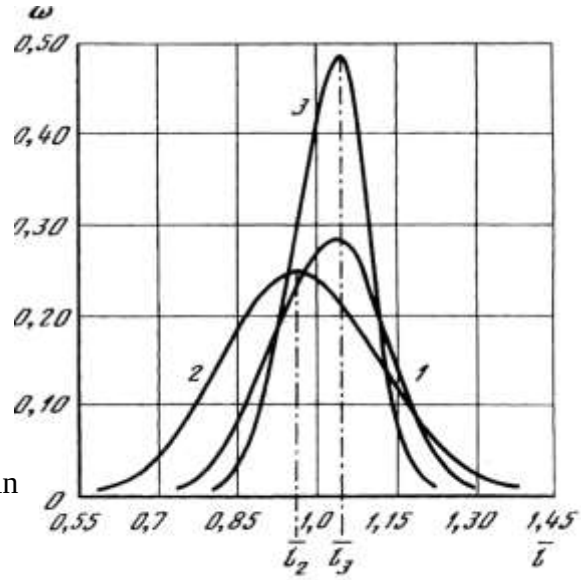
• by type of work t_i^{Σ} for maintenance and repair, by shops, production regions - annual volume of maintenance and repair work by type of work t_j^{Σ} or shop, workshop (washing, control, adjustment, separation (work, welding, etc.) is multiplied by the coefficient $k_{цj}$ of specific gravity:

$$t_i^{\Sigma} = t^{\Sigma} \cdot k_{ui}, \quad (9)$$

on sex and workshops

$$t_j^{\Sigma} = t^{\Sigma} \cdot k_{цj}, \quad (10)$$

k_{ui} and $k_{цj}$ values are given in normative-technological documents, in the Regulations on TCK and T, in technological design norms of motor transport enterprises.



Pic. 1 Distribution of current periodicity in calendar planning

Planning to put the car into service.

When planning according to the calendar, the periodicity of the TS is divided by the average daily distance $l_{\text{йК}}$ traveled, and the next TS transfer to the car is the calendar day:

$$Д_{TXK}^{K} = \frac{l_{mxk}}{l_{\text{йк}} + 1} = n_k + 1 \quad (11)$$

In the route planning, the current daily routes are collected from the time of the previous TS. When the summary of $l_{\text{ЙК}}$ approaches the periodicity of TS ($l_K \to l_{TXK}$), a decision is made about a specific day to put the car into service.

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The calendar method is used when a simple car works in a sufficiently stable mode on the road. However, when the uneven use of the vehicle is large (variation) or in unplanned random stops with a loss of working time between the TS (so-called all-day stops), the standard periodicity of the TS leads to a large deviation from the actual one.

The coefficient of variation of the 1.2-day path v_k = 0.30, 3-0.15; 1, 3- all-day standing is considered, 2- all-day standing is not taken into account.

Another method ("on the way"), especially in an automated system of control, when using computer equipment, allows to ensure the correct periodicity of the TS and quickly correct the loading of the TS region.

3. Determining the demand for labor force and distributing it according to the work program and the volume of work by shops, workshops, posts

Knowing the volume of work allows you to determine the technologically necessary R_t of workers and the number of R_{sh} in the staff. The number of technologically necessary workers is determined according to the annual volume of work in the TS or PR (t_j^{Σ}) region and the standardized working time fund *F* of a worker of a given profession:

$$P_{ЖТ} = \frac{t_j^{\Sigma}}{Ф}; \qquad (12)$$

The staff number of workers is determined by the staff coefficient ($\eta_{ш}$), which takes into account absence from work due to vacation, illness and other reasons.

$$P_{Ш} = \frac{P_T}{\eta_{Ш}}; \qquad (13)$$

4. Determining the number of posts, the area of production workshops

Universal positions (number of jobs) P_u to perform TS and PR are determined according to the annual volume of work performed in this position (workshop) and the annual working time fund of the position (workshop) - F_n.

$$П_y = \frac{t_j^{\Sigma} \cdot \varphi}{Ф_n \cdot P_n} = \frac{t_j^{\Sigma} \cdot \varphi}{Д_{ик} \cdot T_a \cdot c \cdot P_n \cdot \eta_n}; \qquad (14)$$

here, D_{ick} is the number of working days of the post in a year; T_a – number of exchanges; R_n is the number of employees at the post; φ *- the coefficient that takes into account the uneven arrival of the car* $\varphi = 1 \div 1.4$ *;* η_n *- coefficient of use of working time at the post, which describes the organization of work and the level of technology* $\eta_n = 0.85 \div 0.95$.

The area of the TS and PR region is determined by the number of posts, the density coefficient of the installation of the equipment that takes into account the transition intervals, and the area occupied by the serviced vehicle.

Full implementation of the recommended actions is evaluated by:

- Existence (or absence) of relevant actions mentioned in PR;
- Conducting direct test control (observations, test inspection) over the actual execution of actions recommended in the TS;
- Change in vehicle performance level

Obtaining a certificate granting the right to carry out maintenance and repairs is carried out on the basis of documents available for maintenance and repairs.

We will draw some conclusions from the study of information on the maintenance and repair system for cars. Regardless of the form of ownership, motor vehicle owners and PRS specialists need to know that the continuous performance of the vehicle, road and environmental safety, and economical use can be ensured if the scheduled warning TS is carried out in a timely manner.

The company's recommendations for maintenance and repair are based on the principle of preventive maintenance. The structure of TS is equivalent to a two-three-stage system or a so-called one-to-

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one service system, but the list of operations according to the duration of operation is variable, and it has an invariable core for all stages (up to 60% of the volume).

As a practical science, one of the main tasks of the technical operation of cars is to restore and develop a reliable mechanism of control and adjustment of the working capacity of the growing car fleet, and this is a clearly expressed and implemented principle and a flexible objective of the planning-warning system. was based on

Basically, the State technical inspection conducted once a year helps to ensure the technical condition of the fleet and certain vehicles, environmental and road safety, but it cannot replace the scheduled warning system of the maintenance and repair, its quality implementation is a very important issue and is the main duty of motor vehicle owners.

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