METHOD OF ASSESSMENT OF LEVEL OF QUALIFICATION OF REPAIR WORKERS OF AUTOMOBILE SERVICE ENTERPRISE

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Mетод оценки уровня квалификации ремонтных работников подприемства автомобильного обслуживания

Анотация | Abstract:
Ensuring the working condition of repair farms of the automobile industry and car service parks, Provision of quality personnel for maintenance and repair, computerization of management processes, Regulation and diagnostics of the technical condition of the organization, tightening of road and environmental safety requirements, which entails transformation of technological processes of parts maintenance and repair, Nodal joints and assemblies, increased productivity of repair workers, as well as technical equipment of production.

Ключевые слова | Keywords:
design, regulations, complex, maintenance, repair, replacement, parts, assembly unit, methods, inspection, planning, breakage, plan, precautionary, system, coverings, plasticity, coloring, liquid, equipment, tools, devices, cooling, epoxy, synthetics, glue, rubber, glass, mirror, capital, tests, actions, dismantling, assembly.

Предметная область | Subject Area:
Механические и технологические процессы в ремонтной практике, концепция оценки качества работников, возникновение и развитие тематики оценки, определение критериев оценки, разработка метода оценки, применение метода оценки в реальных условиях, исследование метода оценки, использование метода оценки в практической деятельности, оценка результатов применения метода оценки, влияние метода оценки на динамику развития ремонтной практики.

Предметная область | Subject Area:
Mechanical and technological processes in repair practice, concept of quality workers, emergence and development of the topic of evaluation, definition of evaluation criteria, development of the method of evaluation, application of the method of evaluation in real conditions, investigation of the method of evaluation, use of the method of evaluation in practical activity, evaluation of the results of application of the method of evaluation, influence of the method of evaluation on the dynamics of the development of repair practice.

Проблемная область | Problem Area:
The need to ensure the operable condition of the fleet of used cars, constant complication and improvement of the car design, automation of processes of control and diagnosis of technical condition, tightening of road and environmental safety requirements entails transformation of technological processes of maintenance and repair (Hereinafter maintenance and R) in the direction of increasing the volume and changing the structure and sequence of works, increasing the requirements to the quality of works performed and increasing the productivity of repair workers, as well as the technical equipment of companies.

Changes in maintenance and R processes, in turn, require the development of new and adjustments to existing management methods, as well as the evaluation of the effectiveness of the decisions taken.

Анализ исследований и публикаций | Analysis of Research and Publications:
The industry needs approximately 1,000 new workers and workers each year, and this raises a number of challenges related to the quality management of the vehicle maintenance and repair work performed, one of which is the training of repair workers. The solution of the task has a significant impact on the productivity of repair workers. This task is relevant not only within the framework of automobile service enterprises, but also for the entire industry of Uzbekistan as a whole.

Цель статьи | Purpose of the Article:
This study hypothesizes that the time of “control/diagnosis/dismantle and assemble/automation/take/put instrument” is a criterion of the time of performance of maintenance and P operation of cars and on this basis, qualification of repair workers. The received information on qualification of repair workers in the future will allow to rank personnel according to qualification characteristic on the one hand and the list of works performed by complexity on the other hand. This approach makes it possible to adjust the system of distribution of labor.
intensity of maintenance and R works of cars.[3]

**MAIN MATERIAL.**

This raises a number of challenges:

1. Determine the impact of the qualification of repair workers on the quality and speed of maintenance and R works of cars at automobile service enterprises.
2. Scientifically justify the structuring of the maintenance and R process of cars using automation, diagnostics, use of the latest devices, accessories and tools on the basis of the qualification feature of repair workers.
3. To develop a methodology for classification of maintenance and R works of vehicles by complexity on the basis of qualification of repair workers on its basis to develop a methodology for distribution of labor intensity of maintenance and R works for automobile service enterprises.
4. Check adequacy and applicability of the regularity of change of training speed of repair workers from the time of their operation with the tool.[4]

On consideration are taken out:

1. Improved structuring of the maintenance and P process along the "organize/take/put tool" transition points, which enables to determine the time loss within each operation and allows to control the time of the maintenance and P process of automobiles.
2. Proposed procedure for classification of maintenance and R works of motor vehicles by complexity based on established qualification of repair workers, which allows to obtain data for correction of system of distribution of labor intensity of maintenance and R works of motor vehicles between repair workers.
3. The developed approach to the identification of the level and prospects of advanced training of repair workers, which allows to rank the latter by the speed of training and the level of initial qualification.
4. Proposed management process, allowing to predict possible options of change of qualification composition of repair workers.

In order to achieve this goal, it is necessary to modernize production, introduce new technologies, and upgrade the skills and education of employees.[5]

The definition of performance indicators for motor vehicles is also more relevant for the maintenance and P system, whose subsystem is personnel (Fig. 1). These indicators form a goal tree - a system of factors (system tree) that contribute to the achievement of the goals. Eventually, a system tree was developed that describes possible ways to improve the technical operation of automobiles. Personnel qualification is a significant factor in the System Tree.

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![Fig. 1. Personnel subsystem in the vehicle maintenance and R system](image)

In breath, it can be concluded that the improvement of the methods of assessment of the qualifications of repair workers and the forecast of its improvement will allow to further adjust the system of distribution of labour intensity of maintenance and repair of cars between repair workers. This, in turn, will make a significant contribution to increasing the productivity of repair workers and the efficiency of the technological processes of maintenance and R cars as a whole, which will have a positive economic effect.[6]

The efficiency of the car service enterprise is largely determined by the organization of work with personnel. It includes training, selection and placement of personnel, improvement of their skills, organization and equipping of workplaces, selection of the most rational methods and methods of carrying out works on maintenance and repair of cars for each employee, provision of conditions that meet the requirements of industrial ethics, sanitation, labor safety and safety at each workplace.

Models that assess the impact of a number of factors on the duration of repair operations generally take into account the skills of the personnel. Studies have shown that while the content of labour functions of workers is dominated by mental elements, the performance of these functions is ensured by their general education and special training (Table 1). If, in the content of the functions of workers, a large share belongs to the physical elements, the skills of the worker play a primary role in the performance of such functions.
Table 1

| Factor                                      | Productivity gains re-
|                                           | Small workers,% |
| Technological base                        | 24-26 |
| Organization of vehicle maintenance and maintenance | 21-25 |
| Supply and Reservation System             | 5-7   |
| Rolling stock operating conditions        | 20-25 |
| Total                                      | 70-83 |

According to available data, in the United States, the 40% average increase in national income over the past 30 years is due to the development of education and skills, and in Belgium it is 20%.

According to research conducted in the US electronics industry, attracting highly skilled workers instead of low-skilled workers increases productivity by 3-3.5 times.

The scientific and technical revolution, according to most authors, complicates the design of cars (Fig - 2) and process equipment and increases requirements for repair workers.[6]

Thus, by summarizing the analysis conducted on the impact of staff qualifications on productivity, it should be noted that staff qualifications are an important factor in increasing their productivity; The impact of qualifications on productivity depends on the nature of the work performed; Improvement of skills of repair workers positively affects other indicators of technical service of the automobile service enterprise (use of equipment, reduction of car downtime while waiting for maintenance); Skills development has a positive social impact; Requirements to qualification of repair workers are increased.[7]

![Fig 2. Trends in the complexity of car design](image)

![Fig 3. Methods of labour process rationalization](image)

Material interest of employees - depends on turnover of repair workers and is 30-35%, which is more than the average level for road enterprises.

One solution to this problem is to apply technical rationing as a tool to obtain time distribution within a single maintenance and P operation.

Methods of labour process rationalization (Fig - 3) - the determining feature for the classification of rationing methods is the degree of validity of the working time standards. According to this characteristic, two methods of labour rationalization are distinguished: analytical and experimental-statistical.[7]

**CONCLUSION AND SUGGESTIONS.**

At the same time as the creation of "automatic/manual" variants of systems, the program support of their automated variants is created. Based on the performed analysis of the personnel impact on the effectiveness of maintenance and P and factors that allow to increase labor productivity, the following
conclusions can be drawn:

1) There is a growing complexity of maintenance and R car operations, which is due to the transformation of cars from mechanical to fur throne system.

2) Requirements for repair workers, “organoleptic” which cannot be provided by the existing training system and assessment of their qualifications, are increased.

3) The methodology needs that allow to formulate and justify a new system of organization of training and retraining of repair workers.

The objectives of the study in this work can be formulated as follows:

1. Determine the impact of the qualification of repair workers on the quality and speed of maintenance and R works of cars at automobile service enterprises.

2. THAT is scientific to prove structuration of technological process and P cars with use of the device/tool on the basis of qualification sign of repairmen.

3. To develop a methodology for classification of maintenance and R works of vehicles by complexity on the basis of qualification of repair workers, on its basis to develop a methodology for distribution of labor intensity of maintenance and R works for automobile service enterprises.

4. Check adequacy and applicability of regularity of change of training speed of repair workers from time of their operation with instrument and tool.

References:


