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ENSURING THE RELIABILITY OF TECHNICAL DIAGNOSTICS OF VEHICLES DURING MAINTENANCE AND REPAIR

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Currently, as a result of total motorization of the population, car service enterprises are on the way to a qualitative change in their work. The increase in the purchasing power of the country's population, the development of a car loan system and the intensification of competition between domestic car manufacturers and foreign companies, while maintaining the tendency to equalize prices for foreign cars and Russian cars, has led to a significant increase in the country's fleet and significant changes in its age and brand structure.

As of November 2018, according to AUTO-Consulting, Ukraine's motorization is much lower than the European one. On average in the country in November 2018 accounted for 228 cars per 1000 inhabitants. By region, this figure is very different. Leaders by indicator - Kyiv city and Kyiv region (343 and 255 cars per 1000 inhabitants respectively), in third place Zaporizhzhia region with index 246 cars, in fourth place with 227 cars per 1,000 inhabitants Volyn region, in fifth place - Kirovograd the region, on the sixth Rivne, on the seventh Dnipropetrovsk, on the eighth Odessa and on the ninth place Kharkiv region. In Dnipropetrovsk region there are 203 cars per 1000 inhabitants. In almost all other western regions (Chernivtsi, Transcarpathian, Lviv, Ternopil and Ivano-Frankivsk), the number of cars per 1,000 inhabitants does not reach the national average. The only exception is the Rivne region with a figure of 204 cars. The rest of Ukraine's regions are beyond the average Ukrainian level of motorization. Speaking of outsiders, the smallest number of cars per 1,000 inhabitants in Ukraine is in Chernihiv and Lviv regions, respectively - 131 and 103 cars per 1000 inhabitants, which is almost three times less than in Kiev [1].

The growth of the country's car fleet requires a corresponding development of the production and technical base for car maintenance and repair [2]. Recently, less and less car owners are servicing cars on their own, most prefer to trust the services of car service enterprises. At the same time, increased requirements are maintained for the technical condition of vehicles, compliance with safety requirements [3], as one of the elements of road safety. In this regard, the agenda of the scientific community is to study the trends in the work of car service enterprises with the development of promising areas for further development. The purpose of this study is to identify promising areas for the development of automobile maintenance and repair technologies. At the same time, two tasks stand out - the improvement and development of traditional technologies, as well as the search for other innovative solutions.

Based on the analysis of the above auto repair technologies, there are three possible ways to develop car service enterprises - expansion, reconstruction and construction of new buildings and branches. Modern the specifics of car service development requires designers to solve direct and inverse problems in the technological design of car service enterprises.

Direct task, when based on the analysis of applied technologies, units and the enterprise itself are being designed. The inverse problem is more complex - proceeding from the existing premises, select technologies and choose the specialization of a car service enterprise.

When organizing repair and maintenance work, a manager's office is needed that has modern computer equipment and software to demonstrate to the client the expected appearance of the car and its characteristics after the conversion work has been completed. Also in a separate room it is necessary to place an intermediate pantry for storing the dismantled parts of the car during the work on its conversion. It also temporarily stores serviceable components, assemblies and parts accepted from the client by offset.

Based on the research, the following main areas of work to improve the system of car maintenance and repair can be distinguished. First of all, the need to improve traditional technologies is noted: maintenance, repair of the power unit and chassis, tire repair, body repair and painting, repair of electrical systems, restoration of parts. Innovative technologies should be highlighted separately: repair of electronic systems, diagnostics of components and assemblies, service of hybrid cars, 3-D printing of unique parts. In the development of service stations, one of the most promising types of technical impact is car tuning, aimed at improving its consumer properties. It is necessary to take into account the division of car service enterprises into two groups: dealer and independent, features of calculations are given when designing new enterprises. When analyzing car repair technologies, three areas of development of car service enterprises can be noted - expansion, reconstruction and construction of new branches. For the development of car service, it is necessary to develop methods for calculating them, taking into account the solution of the direct and inverse problems in the technological design of car service enterprises.

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