

## **Problems and Solutions of Vehicle Technical Condition Management**

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**Abstract:** The management of vehicle technical conditions is a critical aspect of modern transportation systems, impacting safety, efficiency, and environmental sustainability. This article explores the prevalent issues in vehicle technical condition management, including wear and tear, regulatory compliance, and the integration of advanced diagnostic technologies. It also discusses potential solutions, such as predictive maintenance, the use of telematics, and the implementation of stricter regulatory frameworks. By addressing these challenges, the article aims to provide a comprehensive overview of how effective management practices can enhance vehicle performance, reduce operational costs, and ensure regulatory compliance.

**Keywords:** Vehicle Technical Condition, Predictive Maintenance, Telematics, Regulatory Compliance, Diagnostic Technologies, Vehicle Performance, Operational Costs, Safety, Environmental Sustainability.

Production, operation and servicing of cars, car engines, spare parts for cars, various equipment and other tools began to take shape after Uzbekistan gained independence. Until the 1990s, there was no automobile industry in the republic. Several car repair plants in Uzbekistan (Tashkent car repair plant was launched in 1939), "Uzavtotexkhizmat" and "OzavtoVAZkhizmat" manufacturing associations providing service to passenger cars have been providing technical service to the cars of enterprises, organizations and residents. Establishing the automobile industry on the basis of existing and newly built factories in the field of automobile industry, production of cars and trucks, buses, trolleybuses and spare parts for them, establishing a service service, meeting the needs of the national economy of the republic for automobile transport equipment, making the automobile industry competitive in the world with its products. tasks of entering the market are being solved. Currently, the Republic is implementing a program for the development and modernization of the engineering-communication and road transport infrastructure. and it is envisaged to ensure its integration into international transport communications on a large scale, taking into account the requirements of future export to world markets.

In order to solve the above-mentioned tasks, our country needs skilled engineers and technicians to maintain the vehicles and agricultural machinery in technical condition. Higher education institutions that prepare specialists in this direction are conducting consistent scientific and creative activities in this regard.

The solution to the issue of developing a unified technical policy for the "transport and agriculture" sectors of our republic, creating new equipment and technologies is the most

pressing issue for the future of our republic in the current market economy. As a result of modern requirements and technical progress, the equipment is improving, but at the same time it is becoming more complicated, therefore, a powerful base of service (technical) service and repair is necessary for the effective use of the equipment. The complex of various activities for high-quality service (maintenance) and repair in the field of technical operation and servicing of cars requires a lot of training of qualified personnel, engineers and mechanics.

After gaining independence in 1991, in order to have its own car factory and cars, it signed a contract with the South Korean company "DEU" and "UzDEUavto" car, which is intended for the production of middle-class NEXIA, small-class TICO and DAMAS cars in the city of Asaka. factory, UZOTAYOL subseries buses (M.23, M.24, M.29, M.50) and specialized trucks (35.9, 65.9) from the Uzbek-Turkey joint venture "Samkochavto" plant in Samarkand , 85.12 and heads) began to build factories for the production of small buses and factories for the production of other types of cars and their aggregates.

JSC "UzDEU Avto Ko" is the first car manufacturing company in Central Asia. The security of the enterprise meets the requirements of high international standards. JSC "UzDEUAvto Ko" was founded in March 1993. The founders of JSC are DAEWOO Corporation from Korea, and Uzavtosanoat JSC from Uzbekistan. The plant is equipped with modern equipment, the total capacity is designed to produce 200,000 cars per year (Mid-class NEXIA cars - 100,000 units, TICO cars - 50,000 units, DAMAS cars - 50,000 units).

In practice, all workers and employees of the plant, i.e. 3750 people, have been trained in Korea. Construction and assembly of the enterprise began in April 1994 and ended in December 1995, and the first car (DAMAS) was produced on March 25, 1996. The official opening of the plant took place on July 19, 1996.

On the 10th anniversary of the independence of the Republic of Uzbekistan, from September 1, 2002, a new type of MATIZ cars began to be produced.

In order to meet the requirements of our economy, the import and use of special vehicles from abroad has been widely introduced, including heavy-duty (75-200 t) Caterpillar 754, Euklid 200 vehicles in the metallurgical industry, industrial and heavy-duty (8-39 t) "DEU" cars in construction, medium- and large-capacity Mercedes-Benz O-405 and DEU VS-106 buses in urban transport, "DEU" specialized in utility management cars, "Dogan", "Audi", "Toyota", "Ford" and other light cars for passenger transportation and personal transport are among them.

With the increase in the share of cars produced in the Republic of Uzbekistan and imported from abroad, the training of specialists working in this field has become the most important issue.

Technical operation of vehicles is one of the main systems of road transport and occupies one of the leading positions in the transport system of the Republic. Operational reliability of the vehicle, reduction of costs of maintenance and repairs, reduction of downtime, efficient transportation and reduction of transportation costs, environmental protection, maintenance of the moving part are the main tasks.

To solve these problems, it is necessary to study the laws of changes in the technical condition of the car and its aggregates under the influence of various factors. This allows you to study the laws, develop and apply methods of keeping the car in a technically ready state. These methods are based on mathematical statistics, probability theory, reliability theory, diagnostics and other disciplines.

In solving the problem of managing the technical condition of cars, providing them with scheduled warning and firm service of TXK and JT takes a key place. Apart from that, the development of technological processes of automotive engineering and manufacturing, modern equipment of workstations, organization of production on a scientific basis, and application of mechanization and automation make it possible to solve the above problem. Scientific substantiation of material technical support and standardization allows to standardize and

economize the consumption of transportation, distribution, operational materials, spare parts, aggregates, and maintain the vehicle fleet at low costs.

Storage of cars after work, effective use of storage methods and equipment, and organization of storage allow to increase its maintainability and prepare it for work on time.

The technical condition of the vehicle's aggregates and mechanisms means its reliability, fuel economy, speed and safety of movement.

As a result of the long operation of cars, their quantitative indicators decrease and change their properties, as well as the technical condition of the car deteriorates, which causes a partial or complete loss of reliability of the car.

The state of reliability of the vehicle is understood as its operational indicators that allow it to perform the task assigned to it within a certain period of time.

In order for the technical condition and reliability of the car to be at the required level, it is necessary to know the reasons for its changes and eliminate them in time.

The main methods of eliminating and preventing vehicle malfunctions are timely maintenance (MT) and current maintenance (MT).

MOT and MOT works for cars are carried out at motor transport enterprises (ATK) and technical service stations (TSKS).

Another of the main tasks of the technical operation of cars is the development of the design of the production technical base, that is, the organization of the necessary ATK, garages and TXKS to maintain the cars in technical readiness.

Carrying out maintenance and repair work on cars is not only the main goal of ATK and TXKS workers, but it is also a factor that provides for the reduction of the funds spent on activities to increase the reliability of cars and the cost of transportation.

There are 3 sources of environmental damage in a car: exhaust gases, crankcase gases, and harmful substances produced as a result of fuel combustion. It is necessary to carry out practical and scientific research work on the reduction of environmentally harmful products in all motor transport enterprises.

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