

MAINTAINING THE RELIABILITY AND PROPER PERFORMANCE OF MACHINES WHEN USING THEM

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Abstract. *This article talks about the correct use of machines used in agriculture, their technical safety. Practical examples are given about the work to be carried out for the regular and uninterrupted operation of machines. What to do for long-term and good performance is covered. In addition, the reasons for the violation are listed, together with the methods of elimination.*

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The machines used in the agro-industrial complex will have the reliability determined by tests on the parameters of uninterrupted operation, long-term endurance, repairability and maintainability. As the volume of work performed on the machine increases, the level of accuracy of the machine (levels of integrity, durability, repairability and maintainability) decreases. The machine's uptime (the work it does before repair) and, consequently, the amount of useful work the machine does (the total work it does before it breaks down) also depend on the rate of decline in reliability. The rate of decline in machine reliability should ideally be very low, and the amount of work to be performed before repair should be the largest, so that the utilization rate of the machine is close to the same during the service life. The working conditions of tractors have a great influence on their reliability and can frustrate all the achievements and aspirations of designers and technologists in the direction of increasing accuracy. When using machines, the main measures aimed at maintaining their reliability are as follows:

1 Maintenance of new and repaired machines on farms is the main reason for the long-term operation of machines. Machines are trained for 50-60 hours by gradually increasing the load and speed.

2 Machine maintenance is divided into shift, periodic and seasonal maintenance.

The main signs that indicate that the service is properly organized are the following:

- a) taking into account the amount of work performed depending on fuel consumption;
- b) establishment of certain places (stationary points) where technical service is provided;
- d) periodic inspection and technical diagnosis of machines;
- e) ensuring the official working order of machines;
- f) compliance with storage rules;
- g) exact implementation of recommendations regarding the use of fuels and oils;
- h) clean storage and pouring of fuel and oil in a gypsum container.

The quality of the work in the technical maintenance of machines depends on the exact implementation of the rules for the use of machines, the qualifications of service personnel and the conditions of service (the presence of covered areas protected from precipitation or closed buildings, a set of necessary tools and equipment). Machine operating conditions are of great importance in making full use of the precision provided by designers and technologists. Therefore,

using machines and strictly following all the rules for their use will ensure that the machines will work without damage for a long time. These rules are as follows: Organization of technical service and creation of the necessary ground for its conduct is the main condition that ensures the working ability of machines.

The technical service system for agricultural machinery includes:

- a) maintenance every shift (day);
- b) scheduled, periodic (periodic) maintenance;
- d) seasonal maintenance;
- e) Pre-storage maintenance.

1. Machines can be used efficiently if maintenance work is carried out at stationary points with the help of a master adjuster and extensive use of washing, lubrication, adjustment, repair and defect detection equipment. If there is no space for technical maintenance in farms, crane production enterprises accept machines for complex technical maintenance.

2. Technical diagnosis of machines and aggregates. These works are part of the general system of technical maintenance of machines and are carried out 1 or 2 times a year by representatives of the departments of the Ministry of Water and Agriculture of Uzbekistan.

3. The official working order of the machines is provided. If the machines are not overloaded, if they are used at the specified speed depending on the task, the service life of the link before repair will increase. Use the car without overheating: start with the engine.

4. Compliance with the factory's recommendations for the storage of fuels and oils, keeping them clean, making compounds, crankcases, and boxes dust-free will ensure long-term operation of machines without damage. New and refurbished cars should be tested in normal household conditions. Refrigeration does not last more than 60 hours. During training, the load given to the machines is gradually increased starting from 20% of the nominal power consumption. When the machine is properly sharpened, its main friction parts are adjusted to each other, as a result, their wear decreases and the efficiency of the machine increases. When the rules of technical service are followed correctly, the rate of wear of machine parts mainly depends on the force and heat applied to it, as well as the conditions of use. The tractor driver must correctly set up the machine-tractor unit, taking into account its working conditions (large and small unevenness of the cultivated area, relative resistance of the soil, etc.), should be fully loaded and run. The wear of machine parts is affected not only by the amount of load and heating temperature, but also by uneven distribution of this load, changes in temperature and speed regimes. Uneven distribution of load, temperature and speed is caused by the change of soil resistance, the placement of root crops in the soil at different depths along the row, uneven delivery of the processed product to the machine (for example, cotton or grain ears to the combine drum). In such conditions, it is possible to achieve smooth operation of the machine by improving the agrotechnics of crop cultivation, improving the soil structure, and choosing the correct speed and loading order of the machine.

It is also important to correctly choose the procedure for starting and using machines in winter. For example, if the engine is started without preheating the water and oil when the ambient temperature is below 5-10°C, details and parts will be excessively eaten. The service life of machines and their parts during repair, between repairs and before the expiration of the service life is not the same. Therefore, in order to increase the efficiency of the use of machines, it is necessary to carry out high-quality seasonal technical service. In the process of seasonal maintenance, the technical condition of parts and assemblies (engine, gearbox, etc.) in the car is determined without

disassembling them, how long they can work, the limit state and the time of repair are determined. Both objective and subjective factors seriously affect the accuracy of agricultural machines during operation. Road construction is taking this into account the following main directions for improving the system of using machines can be defined:

- 1) training of service personnel (driving mechanics, tractor drivers, repairmen and others);
- 2) strictly follow the recommendations in the manuals for the use of the machine;
- 3) ensuring the official working conditions of the machine;
- 4) compliance with the rules of transportation and storage of cars;
- 5) correct determination of the order and time of maintenance;
- 6) improvement of organization of maintenance and repair of machines;
- 7) performance of technical defect detection works;
- 8) to improve the system of collecting, working and researching information on the reliability of machines, developing recommendations for improving the accuracy of machines and their parts.

The quality of preparing the machine for work, its technical condition, as well as the quality of repair and maintenance of road vehicles largely depends on the skills of the employees. Because a qualified specialist makes fewer mistakes when adjusting and lubricating machines, does not spend excessive effort, and quickly finds and eliminates defects that occur during the operation of the machine. The system of technical maintenance and scheduled maintenance includes activities aimed at maintaining the working capacity of machines during operation. Choosing the optimal time for technical service and repair, accurately justifying the volume of work performed at the TCK, as well as continuous supply of spare parts and materials to the enterprises that use the machines will significantly increase the uninterrupted operation and long-term durability of the machines.

Conclusion

Good organization of the use of machines involves determining the technical condition and reliability of machines in advance. If preventive measures aimed at restoring the initial properties of the machines are carried out on time, the reliability of the machines will increase significantly. At the factory, each machine is supplied with a manual containing the main recommendations for the use of the machine. These recommendations are based on careful research. Failure to comply with them when using the machine can lead to a significant decrease in the machine's long-term durability and undamaged performance, and sometimes to accidents.

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