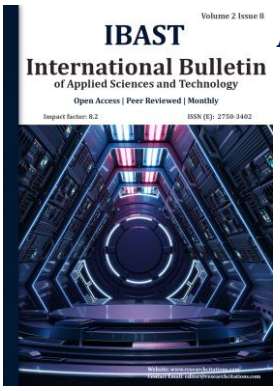

ANALYSIS OF METHODS OF RESTORATION OF WORN PARTS OF MACHINES

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It is known that in the early years of the independence of our Republic, in order to get out of the crisis in the national economy, high-performance and expensive foreign equipment was purchased, and the production of various machines and mechanisms was launched in our Republic. Based on the system developed and implemented by our government, these techniques have been effectively used. To date, their service life has exceeded 20 years, and they are beginning to show physical and mental wear and tear. As a result, they started to fail due to various malfunctions.

In addition, the spare parts supply system for the existing machinery is also broken, and the spare parts brought in for their repair are of low quality and very expensive. This is because the quality and reliability of agricultural and land reclamation techniques is still low compared to other sectors. That is, details that do not differ sharply from each other work in different conditions that differ sharply from each other and their service life is different.

In industrial production, measures such as chemical and thermal treatment are taken in order to improve the precision of details with few resources. But they are not enough to fully solve the problem.

Therefore, the consumption of spare parts and other materials increases during the use of equipment. The main reserve for reducing the consumption of spare parts is to identify fast-wearing parts in the machine during the production of new parts and to increase their resistance to corrosion, and to bring their resource to the total resource of the machine by restoring worn parts.

When making new details, the cost of the detail may increase by 50% due to the additional labor and material consumption to obtain their resource. But such additional costs are covered many times over by the reduction of operating costs during the period of use of the machine. For example, 10 to 50 hectares of land is considered sufficient for plowing, depending on the composition of the material of the ploughshares and the level of thermal processing. However, the resource of the "Limken" plow is 250 hectares, as the plow material and the method of heat treatment are significantly different from traditional plows. For information, plows plow an average of 500 hectares of land in a year.

Metal and polymer-based composite materials, which are considered promising today, occupy a special place in increasing the efficiency of the use of machines and the resource of their parts. In particular, the introduction of metal-ceramic and mineral-ceramic solid alloy composite materials into the field of metal cutting led to a sharp increase in productivity and quality. In particular, polymer materials and composite materials based on them are rapidly entering all sectors of the national economy.

Today, various new modern methods and materials are used in the preparation of fast-wearing parts of cars, as well as in the restoration of worn-out parts. As a result, the corrosion resistance of new and restored parts is achieved, and as a result, the resource of parts and aggregates and the machine as a whole is increased.

During the past quarter of a century, as a result of the sharp development of the industry of Uzbekistan based on the world's advanced technologies, materials science, mechanical engineering, automobile engineering, agricultural engineering.

In addition to the above, a comprehensive analysis of the structure and properties of the material covered with a layer of a certain thickness on the working surface and the properties of the details will help to apply combined grinding in practice. In this case, the surface layer of the detail provides its indicators such as high corrosion resistance and heat resistance, while the dimensionally refined base metal, which is the basis of the detail, provides indicators such as strength and deformation resistance. In this case, all major dislocation mechanisms are effectively used to control the formation of a fine-grained structure. For example, to create a surface layer with special properties, the exchange of the crystal lattice, the formation of a dispersed phase, structural defects such as additions and increasing dislocation density are used. The composite materials obtained in this way meet operational requirements for their harmonic indicators such as reliability, long-term operation, strength, corrosion resistance.

As for the process of using machines, the quality of their maintenance and repair It is represented by reliability and inter-repair resource. Among these indicators, the inter-repair resource of machines occupies a special place.

In this case, the resource of the details and compounds that make up it should not be less than 80 percent of its resource. The composite materials obtained in this way meet operational requirements for their harmonic indicators such as reliability, long-term operation, strength, corrosion resistance.

Today, various new modern methods and materials are used to restore worn parts of cars. As a result, the corrosion resistance of the restored details is higher than the corrosion resistance of the new detail.

It should be noted here that it would be wrong from an economic point of view to replace or restore only the faulty part when restoring the working capacity of the machines. This can be justified by the following:

In the studies of Professor A. Irgashev, by increasing the hardness of the material of gear wheels from 3000 to 5500 MPa, it was found that their resistance to corrosion increases up to 4.5 times.

In the researches of K.K. Nuriev, it was found that the resource of the ploughshare covered by welding powdery material on the working surface increases by 2.5-4.6 times.

I. Ye. Ulman's textbook, it is shown that the resource of the part restored by the chrome plating method increases by 1.5...1.8 times, and by 1.2...1.5 times when covering powdery materials by contact welding.

Another literature reports that the corrosion resistance of piston rings increases by 1.5...2 times with chrome plating.

In addition, by coating with contact welding 1.5...2.5 times with Sormayt material, 2 times with PGXN80SR2 material, 2.5...5 times with KBX material, and when covering by gluing

hard alloy to steel tape, the service life of the detail is 8...20 times, and the relative corrosion resistance of the detail increased by 2.7...4.2 times during plasma welding.

In the same way, well-known scientists such as A.V. Polyachenko, P.N. Lvov, I. Ye. Ulman, etc., aimed to create methods that increase their resource by using powdery solid alloys in the restoration of eaten parts.

But one indicator, which is the main factor in increasing the resource of details using the methods presented above, is being overlooked. This indicator is to ensure that the resource of the restored parts is increased by many times, equal to two or more inter-repair resources of the car due to the increase in resistance to corrosion.

D.N. Garkunov, a well-known Russian scientist on tribotechnics, was the first to put forward the following idea: "It should be noted that the average service life of the various parts that make up the same machine is a multiple of the service life of the machine between maintenance and repair. should be." However, there are no theoretical and practical guidelines on how to implement it.

This situation can be explained as follows. Using modern methods and materials, the corrosion resistance of restored parts can be more than 1.0 compared to new ones. If properties other than corrosion resistance of the part do not cause its service life to end, then the corrosion resistance of the part represents its resource. In this case, which occurs in most parts, the resource of the part can be expressed by resistance to corrosion.

In the published literature, results of scientific research, articles, as mentioned above, the resource of corrosion resistance or detail is 4.5 times, 1.2...1.7 times, 1.5...2 times, 2.5...5 times, 8...20 you can find information about the increase. But they do not provide information about how many maintenance intervals these parts have been used on the car. At the same time, there is no information about how many inter-repair resources these restored parts will last in the car with their combination, with 1.7 or 2 or 2.5 times corrosion resistance, or whether they will not studied.

This creates a problem in evaluating the effectiveness of these methods. That is, due to the fact that their resource is not evaluated from the point of view of multiplying the resource of the machine between repairs, no matter how modern methods and materials are used in it, they are thrown out as ineffective as the previous ones. As a result, the attention to the system of machine repair and recovery of worn parts, recognizing them as highly effective, is decreasing.

Therefore, one of the urgent problems is to create a technology that ensures that the resource of fast-wearing parts increases to the level of the total resource of the machine and to justify the materials used in them.

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