TECHNOLOGY FOUNDATION OF RESTORATION AND STRENGTHENING ELECTRICAL CONTACTS VEHICLES BY PROGRA SPRAYING

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Today actual problem is the development of technology renewal and strengthening of the contact details of electrical apparatus.

The methods used previously to restore and strengthen the contact devices, developing technology coating does not take into account the characteristics of the formation and structure of plasma coatings.

The purpose of research - the study of technology renewal and strengthening of the contact details of electrical equipment, which is the most environmentally efficient.

Materials and methods research. Power switching devices is an important means of electrification and automation of production processes in agriculture, especially livestock. Disclaimer electrical equipment in electrical livestock leads to large losses of production, reducing its quality, so the results can be compared to the refusal of the energy loss of the object. Thus, technological malfunction of dairy farms leads to a decrease in milk production by 40%, and the incidence of cattle increases to 78%, which further reduces the productivity of animals is 12%.

Reliability of electrical switching devices - one of the complex and multifaceted technical problems, which is explained by such objective reasons:

- A sharp increase in the complexity and versatility of modern technological systems;

- Extreme conditions in which operating electrical switching devices (high speed, great acceleration, high temperature, vibration, the presence of reactive reagents in the air, etc.);

- Increase accountability functions performed by the machine, high value technical and economic failure.

The statistical material that contains several research organizations and institutions, indicates that agriculture each year goes down 20-25% electric, and more than 80% of their failures explained by imperfect technical solutions and algorithms for operation of switching and protective devices to the specifics of agricultural production. This is confirmed by the annual yield down to 17% of electromagnetic starters and 15% of circuit breakers, and service life of switching devices operated in electrical livestock averages 0.5-3.0 years, well below their technical resource in this failure rate of 2-2.5 times higher than similar devices in the industry.

Electrical contacts devices made from materials based on silver, whose value is 45-60% of the unit as a whole. Improving the reliability of electrical devices in agriculture is closely associated with the creation and implementation of new contact materials that can provide given the reliability of contact details, reducing material costs for production and operation of relays, saving precious metals.

In Ukraine, where money is not extracted and a sharp rise in the price of precious metals, there is an urgent need for replacement sriblovmistkyh silver and contact details on the new contacts that are made with less scarce and more technical contact materials.

Results. To restore the contact details of electrical devices use different methods, but they all boil down to the deposition of the working surface [5].

Today there are many different types of plants intended for spraying. With the changing nature and increasing scale of production increased capacity and size of vehicles spraying, increasing their production processes and improved mechanization deposition.

By type of heat source used to spray material distribution, existing construction vehicles can mainly be divided into two types: electric and hazovohnyani. In hazovohnyanyh device uses heat that is released by burning a mixture of fuel gas - oxygen. Electric - based on the use of heat arc.

Thermal spraying makes it possible to apply a coating of any desired thickness: 0,01-5 mm.

The process of deposition under normal conditions and modes is carried out by heating to a temperature less than 100 ° C, which eliminates the possibility of a dangerous temperature influence on base metal kontaktotrymachiv that occurs during welding.

The most used method hazovohnyanoho deposition. It is used for deposition and subsequent melting coatings samoflyusuyuchyh alloys based on nickel and cobalt, and spraying ceramic and other refractory materials. One of the special types hazovohnyanoho deposition is sputtering, which uses the energy of detonation mixture of acetylene and oxygen. This type of coating allows to deposit coatings of materials with very high melting point.

From the very first electric types sputtering method was adopted electric plating. At the beginning of this method when used elektrometalizatsiyi arc, which burns in alternating current, which is not allowed to get a steady process of spraying wire. Now elektrometalizatsiynyh apparatus for creating an arc using DC that provides better stability.

In recent years, have been developed and applied in industry began plasma spray and installation of high-frequency induction deposition that, compared to existing methods have a wide technological opportunities spraying coatings and parts from virtually any - of the material.

When spraying hazovohnyanomu heat source is a flame that is formed by burning a mixture of oxygen - fuel gas. Spraying, depending on the spray material can be of three types: wire, rod and powder. In addition, the method belongs hazovohnyanoho detonation spraying, based on the use of energy detonation mixture of oxygen - fuel gas.

Coating gas-plasma sputtering - a method of improving the reliability and service life of parts and electrical contacts and most simple, cost-appropriate recovery process developed and sizes of worn surfaces, including work surfaces Electrical contacts switching devices.

Gas-plasma coating is sharovanyy material that consists of highly deformed particles zakrystalizuvalysya high speed. It is characterized by high strength and

electrical resistance. For its application is not used is quite difficult to use and expensive equipment.

Conclusions

Gas-plasma spraying can receive coverage from various types of contact materials, characterized by high strength and electrical resistance. Development and introduction of gas-plasma deposition process to restore contact nodes is promising character and is able to present the performance of devices that do not yield a new unit with corresponding figures of primary production.