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FEATURES case details VIDNOVLENNYAYIH AND WORK

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In the article the results of research case details the loss of efficiency and reasonable Mode is correct defects and damage in these parts by applying electrocontact welding pads on raw glue with developing recommendations for their resource recovery technologies.

Block crankcase, cylinder head, mode, surfacing, technical condition, recovery resource.

Problem. Modern agricultural production is almost impossible to imagine without the application as the fields and farms highly efficient agricultural machinery, implements and tools. The problem of durability necessary technology in agriculture is always relevant in this case play a significant role basic details.

Analysis of recent research. Most basic parts have considerable variation in thickness - from 8 to 22 mm [1-4]. Materials for their manufacture are cast iron: MF-15; MF-18; MF-21; ET-24 medium and high quality in the manufacture of parts with complex designs. The main source of internal stresses plunger brake thermal shrinkage is cooling down at different speeds elements details. The nature and magnitude of this inhibition is caused by the fact that at a temperature of 600-650 ° C iron passes from a plastic to elastic state [2]. At high temperature thick of complex configuration details usually compressed plastic and thin - stretched. Another characteristic feature of cast iron case details are warping under loads that have a different character, magnitude and direction of action. The combination of internal pressure from the effects of stress and residual stress leads to the formation of the stress state in the case details, accompanied by violation of the integrity of the material and cracks [2, 3]. To avoid deformation, warping, walls, and as a result, the occurrence of cracks in them,

conduct artificial and natural aging - relaxation of internal stresses which significantly znizhuye level of residual stresses. Internal stresses basic parts that have been in operation, have a much lower due to the passage in which natural processes of their release.

By design features include the basic parts of their massiveness, complexity configuration of the walls, the presence of abrupt changes in wall thickness, pryvalochnyh surfaces accurately coordinated holes, oil

channels and threaded holes. The appearance of cracks in them leads to a change in geometric dimensions violation alignment between holes and surface damage pryvalkovyh planes. Note that 8-10% [1, 3, 4]. vybrakovuyutsya these parts as a result of the presence of defects given above.

The purpose of research. Investigation of basic parts case and justify their performance recovery technology with the definition of process parameters when selling to repair agricultural enterprises of Ukraine.

Results. Analysis of literature [2, 4], as well as direct observation of the maintenance fund, revealed that the most common defects basic parts are cracks and wear landing surfaces for bearings. According to the results of research conducted in the HOSNYTY, 15-22% buildings gearboxes tractor T 150 K and 8.11% of the working distributing boxes are cracked and respectively: 10-16% and 9-14% worn to the maximum amount seating surfaces [3, 5]. 12-20% of engine blocks ZIL-130 and GAZ-53 coming in the repair of cracks in the walls of the cooling jacket. In cases change gear boxes repetition cracks respectively are: 15-22%. The emergence of these defects associated with the cumulative effect of residual internal stresses and external cyclic loads. The formation of cracks caused by the cumulative effect on the remaining parts of internal pressure and cyclic fatigue external loads. This is due to the peculiarities of the physical and mechanical properties of the material from which they manufacture, design most parts magnitude and direction of internal and external loads.

A significant amount of work to be done to restore the iron case details from cracks requires constant improvement of ways to eliminate this type of defects and materials for their implementation. Developed about 30 different ways to correct defects iron case details. Practical experience has shown that only a small number of them can be effectively applied. A variety of ways to eliminate cracks developed indicating the difficulty of obtaining high-quality recovery caused by bad zvaryuvannistyu iron as material design complex case details, its massiveness and a number of other factors. When choosing a method taking into account the need to eliminate cracks formation rivnomitsnoho base metal parts connection, the possibility of machining, getting solid and uniform in structure of the weld metal and adaptability and economic feasibility of implementation. In modern terms most widely found ways to eliminate cracks using welding. The implementation of these processes is a complex and time-consuming, requiring highly skilled artists.

Processes based on the use of welding conventionally divided into three groups: hot, cold and napivharyache. Hot welding cast iron parts while eliminating the cracks are not widely used in repair shops

agriculture Ukraine because of the complexity of operations and arduous performers (details heating to a temperature of 650 - 700 ° C). For the same reasons, and was used napivharyache welding, although temperatures and heating parts reduced to 350 - 450 ° C.

Arc welding without heat (cold method) copper-iron, copper-nickel and iron-nickel electrodes (OZCH-2, 3-OZCH, MNCH-2-CBS 4 CBS-3A, OZNZH-1) provides a sufficient quality of the weld connection. Welding current in this case is 150-180 A voltage - 14-18 in diameter electrode - half the wall thickness of parts.

Widespread use has become cold welding wires and overlaying Self Punch and Punch-11-12 semi-automatic welding wire MYZHKT-5-1-02-02, implementation of combined methods, especially glue factory, statement inserts, treatment and rozkatuvannya zhortnyh rings etc. .

Past studies of comparative characteristics [3, 4] allowed to argue that the use Metallpolimers and combined technologies based on this give the most effective results with minimal cost of labor and materials. The most promising, in our opinion, is the use of glue factory method of rehabilitation case details.

Cracks in body parts find ways of nondestructive testing (one of the most promising is the use holohrafuvannya) or with a magnifying glass 8-10 fold increase. Define the boundaries and cracks at its ends boring 2.5-3.0 mm diameter holes to prevent its further spread. The entire length of the crack along an edge off angle of 60-70º to a depth of 1,0-3,0 mm. Surface details with crack smooth metallic shine in such a way that tipped surface crack perekyvala 40-50 mm on either side of its axis. Degreasing prepared surface using a tampon soaked in solvent (acetone). Then the surface degreased and dried again.

Detail set so it set so that the crack was in a horizontal position and trowel applied glue composition based on, for example, epoxy resin, the surface details of a crack across the width of the prepared area. To strengthen the glue coating on the layer additionally install the metal pad, made on a path of crack steel (steel 20) with thickness 1.0-1.5 mm. Lining or cover plate should crack on both sides of 40-50 mm and 10-15 mm from the ends of the defect.

Glue coating thickness should be no more than 0.2-0.4 mm and evenly cover the surface details of the crack. Cover plates welded to the specific details, rivnostoyachymy apart welding points, which are formed electric-welding method using tongs. Welding is carried out using the following mode options: welding current - 10,5-11,0 kA; efforts pinning electrodes - 2,3-2,8 kN; a weld pulse - 0,25-0,30 s; while pressing the electrodes 0,70-0,76 s; current annealing - 8.5 ... 9.0 kA; vidpalyuyuchoho time pulse - 0,45-0,48 p. Joint strength at break is 176-184 MPa strength under cyclic load - 79-80 MPa, corresponding to the

strength characteristics of the base metal parts iron MF-18 (body gear tractor T-150K with a crack length of 87 mm and a deviation from the scope axis 12 mm found in the side wall). The structural elements of the connection are: diameter electrodes - 56 mm; step between welding points - 25-30 mm;

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Application electrocontact welding replacements using mechanical means can increase productivity by 2.5 times, as heating the workpiece surface allows to reduce time spent parts to repair 3 times and avoid the use of bulky high cost of heating equipment. Electric welding points standing alone improves the quality of recovery by reducing the external influence on the strength characteristics vidnovlyuyemyh equipment (drilling and threading).

Conclusion. Thus, the implementation of such methods can increase the quality of recovery, increase productivity, reduce production cycle by using standardized equipment and create conditions for mechanization and environmental cleanliness of the process and avoid the use of complex and high cost of equipment and equipment and allows to reduce costs repair materials by 40% and labor costs by 20-30%.

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In Article pryvedenы Results of the study details the loss korpusnыmy rabotosposobnoho STATUS, rationale parameters and regimes Elimination of defects in povrezhdenyy эtyh razrabatыvanyya details and recommendations about A resource recovery technologies.

Block Carter, head tsylyndrov mode, naplavlenye, Tehnicheskoe STATUS, Restoration, resource.

In paper results over of conducted researches of loss of capacity cabinet-type details are brought and the parameters of modes of removal of defects and damages are reasonable in details by application of

electro-pin welding on of protective straps on raw glue with development of recommendations in relation to technology of proceeding in resource.

Block-crankcase, head of cylinders, mode, electro-pin welding, technical state, renewal, resource.

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Results of experimental studies AUTONOMOUS electromechanical KOMPLEKSUIZ offset asynchronous generator

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Presented and analyzed experimental results of independent electrical complex consisting compensated asynchronous generator - induction motor of comparable power.

Electric Heater complex compensated asynchronous generator oscillogram.

Problem. The development of farms causes increased demand for autonomous power supply modes are characterized rizkozminnym load and require the use of specialized equipment. This is especially true when an independent source of supply should be straight start asynchronous motors of comparable power.

Analysis of recent research. Traditional election inflated self-contained power supply sources, ensuring the successful launch of induction motors, will inevitably lead to an increase in overall dimensions, excess capital costs and operating costs [1, 2].

One of the research directions to solve this problem is to use internal capacitive reactive power compensation of induction machines [3].

The purpose of research is the analysis of experimental studies of autonomous electromechanical complex, which consists of

compensated asynchronous induction motor and generator power comparable conducted to study the qualitative picture of the physical processes in action compensated asynchronous generator obtaining actual quantitative indicators on a real physical model, verify previously obtained results of numerical experiments and confirm the benefits of added asynchronous generator of basic analog.

Results. In the offline as complex electromechanical drive motor used DC motor with separate excitation type P41 with the possibility of a