

ASPECTS REGARDING THE TECHNICAL EXPERTISE OF THE ROTATIONAL MECHANISM OF COAL MINING MACHINE - Part II

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Abstract: *In this paper we presents technical conditions for the rotational mechanism of the coal mining machine after we made technical expertise. The rehabilitation at the rotational mechanism will be subjected, it will be done by performing the intervention works who will restore both the structural part and the functional part in the normal operating parameters. The paper presents the defects found in the rotational mechanism as well as the proposed solutions for its repairs.*

Keywords: equipment, coal, modernization, interventions.

1. INTRODUCTION

The rotational, lifter and translation mechanism helps positioning the buckets in various positions on the charging stack by rotating the wheel and loading from the stack, when emptying the conveyor on the eyelet through the inclined plane formed by the wheel protection device [1], [2], [3] and [4].

The rotating mechanism is the mechanism who provides the rotation advance during the excavation from the coal stack and / or the rotation for various other needs of the superstructure.



Fig.1.The Rotational mechanism

The actuating of the rotational mechanism is given by the electric motor through the mechanical coupling with braking drum (washer) to the rotary reducer [5], [6], and [7].

2. REPAIRING METHODS OF THE ROTATIONAL MECHANISM

In order to achieve assembly after repair mechanism is required to comply with certain stages:

Dismantling the rotation crown (rotation with 90^0 around its own axis in trigonometric sense) with boring and screws and mounting the acting group at rotate.

Mounting the rotary drive and the locking sprocket without the final centering of the gear unit with the provisional centering paths. It is also important to note the position of the rotating bearing (outer ring support triangle and the platform, respectively the inner rings) and its removal for repair.

Assembling the bearing at this stage will take into account that the lower ring rotates 90^0 in a trigonometric sense with respect to the disassembled position and the upper 90^0 rings, rotated clockwise so as to achieve a gap of 180^0 . It is also necessary to adjust the gearing with the spinning sprocket and the centering of the drive motor, respectively the brake and the REH.

Repairs to the rotating part require the following parts to be replaced: the rotating bearing, the toothed crown, stairs and walkways tripod, the toothed wheel and the sprocket, the protections device at the rotation platform [10] and [11]. As regards the bearing lubrication system, it must be replaced in its entirety. During the repair period, the following measurements must be made, with sheets of measurements, the gauge games between the shafts and boring: $\Phi 360^{+0.0570}$ and the pinion shaft 45^0 for rotation attack on the lower plate and $\Phi 650$ on the upper plate after disassembly; the bearing bore and $\Phi 2950$ $\Phi 2890$ rates; The actual bearing installation should be made by means of the screws that are placed over it, with screws M33x300.

When removing and installing the locking pinion, take into account the following: before disassembly, check the flank and bottom play of the pinion gear toothed wheel by rolling on a solder bar (SnPb). Here you will check and draw up measurement sheets for: the tooth pitch of the attack sprocket, the dimensions $\Phi 480$ H7 and $\Phi 260$ m₆ when mounting the bearing 22252; the game in the bearing; share $\Phi 640$ g₆ - box in the rotating platform; control of bearing lubrication; bottom play $m24 \times 0.25 = 6 \pm 0.25$ mm; the pinion is positioned in the bore.

When tightening the bolts between the rotating and bearing elements, the following must be observed: tightening order: 1-26-13-39 at 85% of M_{in} ; the half number is halved from 1 to 13; screws 6-19-32-45 to 85% of M_{in} ; continue the half-life between 1 and 6 and resume order, ie 3-28-15-40, and then apply the final tightening in the order of 100% of M_{in} .

Attaching the attack sprocket is done after mounting the rotating control with the bottom play adjustment. Full checks of the gearbox and overload limiter will be performed at the repair company.

Verifications will be performed and sheets of measurements for: spherical bolt coupling (sphere size, spoke bushing size; squeezing diameter in coupling / half-coupling); adjusting the bottom gear to the tooth attachment gear dentitor gear (to be performed in at least 3 set points at 120^0 on the toothed crown of 2-3 teeth and Sn-Pb solder alloy layout in the flank game at the side upper and lower teeth).

Once the adjustment has been completed, the centering hole is thrown and the bottom and flank measurement flaps are recovered, then the centering gauge is welded and the final (final) measuring fixture is restored. After the balancing coal mining machine rebuilds bottom and side games and compares with previous ones.

Regarding the centering of the engine brake (motor-reducer-tachogenerator coupling), measurements will be made for: radial and frontal centering of the brake on the motor-reducer couplings; lateral motor attachment with diverting and pushing path; centering the tachogenerator on the drive motor and checking the motor-tacho-generator couplings. It is

Adjusting the flank and bottom gears to the outer gear (sprocket) will be completed after testing the machine and then finishing the gearbox position (centering) to ensure engagement parallelism.

The overload limitation reducer will be repaired in a specialized factory during the reparation of the machine.

Overload adjustment will be done on the machine after setting and adjusting the torque wrench gears on the engine shaft with lockout and spring tension adjustment from the overload limiter.

Replace the attack pinion with a new one built before starting the repairs.

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