

ASPECTS ABOUT TECHNICAL EXPERTISE OF THE WHEEL PROTECTOR DEVICE AND PICK-UP BUNKER OF THE COAL EXTRACTION MACHINE

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Abstract: *This paper presents the technical state of the wheel protector and the pick-up bunker of the machine who was removed from the coal extraction machine after the technical expertise. The rehabilitation to which the wheel protector and the pick-up bunker will be subjected we will be done by performing the intervention works that will restore both the structural part and the functional part in the normal operating parameters. In the paper are presented the defects found at the wheel protector and pickup bunker as well as proposed solutions for their repair.*

Keywords: equipment, coal, modernization, interventions.

1. TECHNICAL INSPECTION OF SPECIALITY

The specialized technical inspection seeks to determine the possibilities for continued operation of the machine in full safety conditions beyond normal service life. From the operational safety point of view, the technical state of the metal construction is decisive, therefore the main objective remains its assessment, but in order to evaluate the rehabilitation costs and to provide the beneficiary with all necessary data to decide on the suitability of maintaining the machine, also includes the presentation of the technical state of the resistance construction (metallic construction) and of the mechanisms related to the machine.

The technical expertise consisted of the following and was extended in the technical expertise with recommendations and redesign of some subassemblies:

Expert on the overall technical condition of the coal-mining machine in terms of load capacity, durability, stability and operational safety

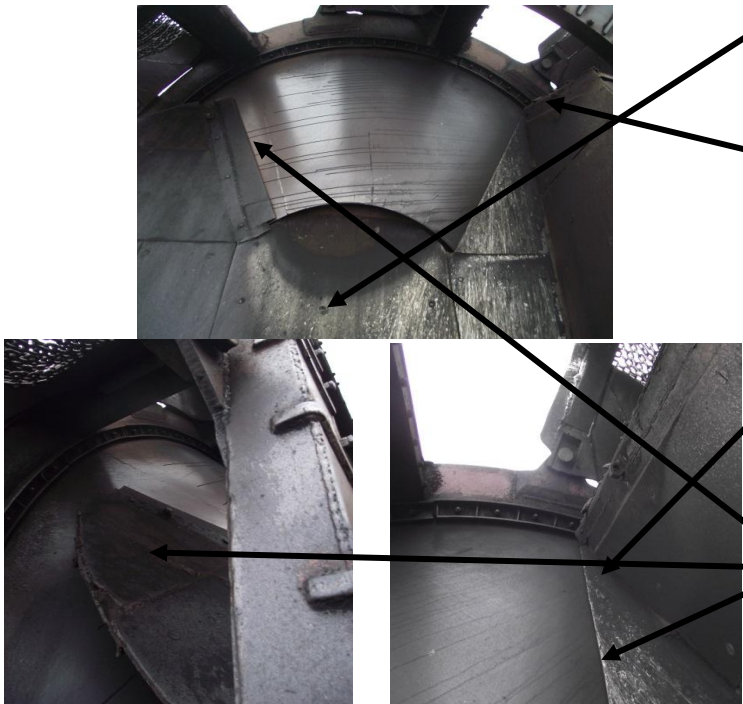
- detailed visual inspection of the metal construction
- Visual inspection of the machine with the machine at rest
- verified assembling of knots with high-strength screws by the screw vibration method.
- Checking penetrative fluid weldings
- US verification of welds from metal resistance construction

2. INTRODUCTION NOTIONS REGARDING OF THE BALANCING ARM

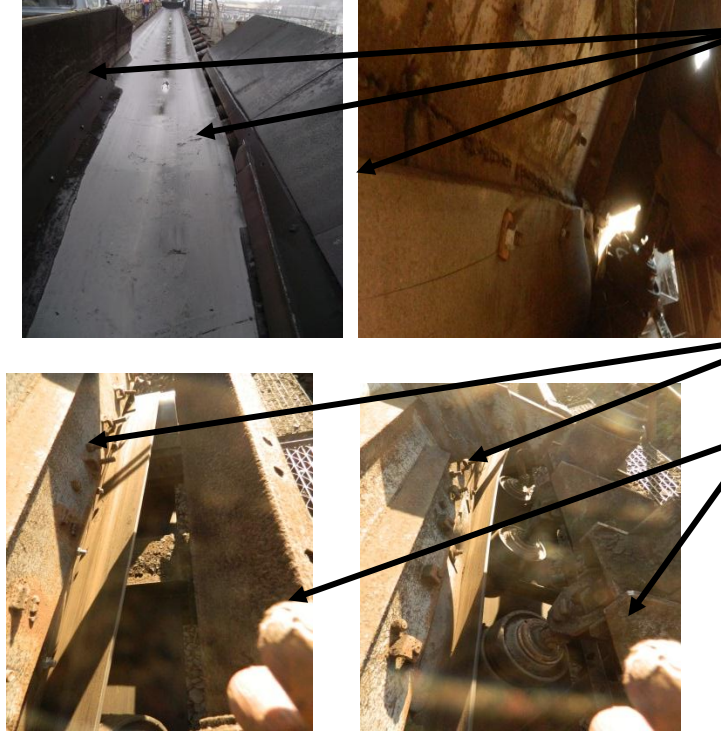
There are subassemblies to be treated concurrently, since they are mounted in a larger assembly with the same functional function of directing the excavated material (lignite) and brought by the cups to the upper part of the wheel, in the immediate vicinity of wheel loaders.

The part of the guard wheel of the wheel that partially enters the wheel cone has the role of taking up the coils without giving it the chance to slip only in the direction of the conveyor.

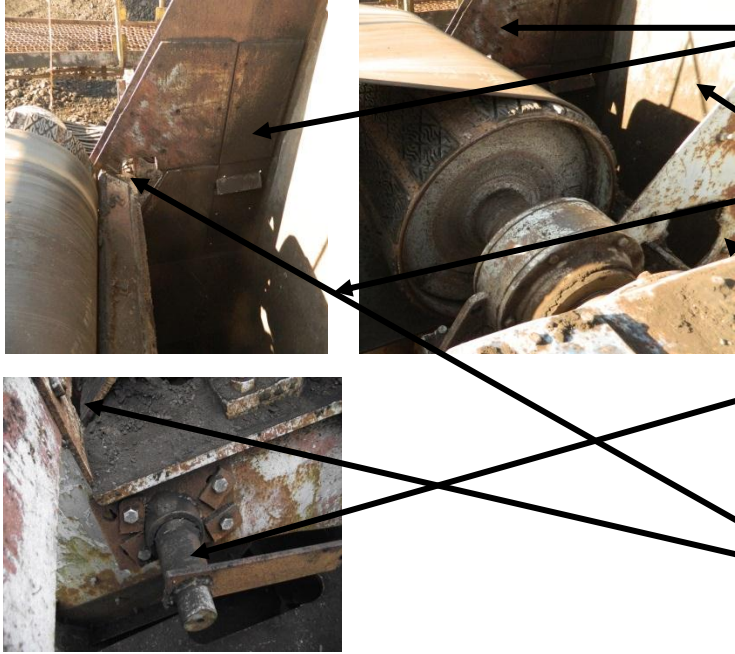
3. PROPOSAL AND FIXES OF THE WHEEL PROTECTOR DEVICE

Pictures with deffects –	Observations, Proposals and fixes
	<p>The rotor device is the plane on which the coal is circulated when it is discharged from the cup and the stator of the wheel flows to the belt conveyor that will lead it to the upper primary funnel (it will be treated in the following pages).</p> <p>The front part (the stator) allows to bring the coal and keep it in the cup until it is discharged onto the wheel guard and guided to the conveyor.</p> <p>The back of the wheel will be cleared of what remains on the wheel cone in the spill from the cups that bring the coal into the storage stack by rotating the wheel.</p>

4. PROPOSAL AND FIXES OF THE PICK-UP BUNKER

Pictures with deffects – Observations at pick-up bunker	Proposal, remediations and comments
	<p>The bunker of the conveyor that takes over the coal after being brought by the wheel cups and guided in the direction of the main rail has numerous degradations on both the left and the right walls, which will have to be repaired.</p> <p>The current improvised repairs are not able to ensure the correct functioning of the transporter in the future at the maximum capacity of the coal.</p> <p>The structure that holds the rollers that support the conveyor belt has numerous impediments like the metal structure that will need to be repaired.</p>

5. UPPER FUNNEL OF DISCHARGE (RENDER)

Pictures with deffects – Observations	Proposal and remediations
	<p>The sidewalls have wear plates that are not damage which requires replacement. The front wall needs new wear plates, old ones are no longer and / or have advanced wear.</p> <p>The cutouts for the scraper mount are made unprofessional as execution but also as mounting on the funnel and on the arm.</p> <p>Place the scraper to remove the strap by placing the tape drum.</p>

The upper spill bulkhead on the conveyor, to the conveyor underneath the car that transports it to crush and further into the bunkers that feed the boilers of the thermoelectric plant, has the role of directing the coal in the desired direction. It is located at the end of the conveyor belt in the immediate vicinity of the drive drum trapped on the rotating platform.

The wiper-scraping, carpet cleaning wiper, removing the particles that adhere to the rubber carpet, is attached to the side walls of the carpet during transport from the wheel to the drive drum.

6. CONCLUSION

- 1) Correct positioning of the longitudinal walls of the pick-up bunker and complete with belt protection skirts.
- 2) Designing, executing and mounting the deflector at the return drum from the extreme end of elinde.
- 3) Repairs in the area of the delivery bunker are necessary for a sealing of the rotating area, especially the place where the bearing is located.

7. REFERENCES

1. Cîrîlnă Liviu Marius, Stăncioiu A., Rădulescu C - Aspects regarding expertise of the orizontalization device of command cabine of the coal mining machine - Confereng 2018, Analele Universitatii „Constantin Brancusi,, din Targu-Jiu, Nr.1/2018, pg.111-114, ISSN 1842 – 4856 - http://www.utgjiu.ro/rev_ing/pdf/2018-2/18_LMC~1.pdf

2. Cîrîlnă Liviu Marius, Rădulescu C., Stăncioiu - Aspects regarding expertise the mechanism of riding of elinde from the coal extraction machine A- Confereng 2018, Analele

Universitatii „Constantin Brancusi,, din Targu-Jiu, Nr.1/2018, pg.115-118, ISSN 1842 – 4856
- http://www.utgjiu.ro/rev_ing/pdf/2018-2/19_LMC~1.pdf

3. Rădulescu C., Cîrîfnă L.M., Stăncioiu – Aspects regarding the expertise of lifting-descent mechanism platform of a coal extraction machine – Part I - Confereng 2018, Analele Universitatii „Constantin Brancusi,, din Targu-Jiu, Nr.1/2018, pg.149-152, ISSN 1842 – 4856
- http://www.utgjiu.ro/rev_ing/pdf/2018-2/26_CRA~1.pdf

4. Rădulescu C., Cîrîfnă L.M., Stăncioiu – Aspects regarding the expertise of lifting-descent mechanism platform of a coal extraction machine – Part II - Confereng 2018, Analele Universitatii „Constantin Brancusi,, din Targu-Jiu, Nr.1/2018, pg.153-156, ISSN 1842 – 4856
- http://www.utgjiu.ro/rev_ing/pdf/2018-2/27_CRA~1.pdf

5. Stăncioiu A., Cîrîfnă L.M., Rădulescu C. ASPECTS RELATING TO EXPERTISE OF THE MAST COAL MINING MACHINES – THE FIRST PART -- Confereng 2018, Analele Universitatii „Constantin Brancusi,, din Targu-Jiu, Nr.1/2018, pg.167-170, ISSN 1842 – 4856 - http://www.utgjiu.ro/rev_ing/pdf/2018-2/30_AST~1.pdf

6. Stăncioiu A., Cîrîfnă L.M., Rădulescu C. ASPECTS RELATING TO EXPERTISE OF THE MAST COAL MINING MACHINES – THE FIRST PART -- Confereng 2018, Analele Universitatii „Constantin Brancusi,, din Targu-Jiu, Nr.1/2018, pg.171-174, ISSN 1842 – 4856 - http://www.utgjiu.ro/rev_ing/pdf/2018-2/30_AST~1.pdf

7. Stăncioiu,A., Nioata A., Rehabilitation of M4A coal extraction machine - Analele Universităţii „Constantin Brâncuşi,, Tg-Jiu, pg.56-59, Nr.3, nov. 2017, Editura Academica Brancusi, ISSN1842-4856.

8. Kuzneţov, V. S., Ponomarev, V. A. – Universalnovo-sbornie prisposoblenia. Moskva, Maşino-stroenie, 1984.

9. Lange, K., – Lehrbuch der Umformtechnik. Berlin, Springer-Verlag, 1985.

10. Stăncioiu,A., Şonţea, S., -Studies/investigations cocerning the durability of the nitrided cutting tools within the tehnological process of the punching/stamping, 02-04 september 2002, Vrnjacka Banja, Yugoslavia.

11. Stăncioiu,A., Şonţea, S.,- Studies/investigations concerning wearing effect of the tools on the forces within the punching/stamping process , 02-04 september 2002, Vrnjacka Banja, Yugoslavia.

12. Cîrîfnă, L.M., Militaru, C., Rădulescu, C. - Study of compensation errors due totemperatures, as elements that are component of the chains of dimensions formed at assembly, 7th Youth Symposium on Experimental Solid Mechanics, Wojcieszycze, Poland 14-17mai, 2008.