

REHABILITATION OF HELICAL ASSEMBLY (WHEEL BRACKET CUP HOLDER)

COAL EXTRACTION MACHINE M4A Part I

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ABSTRACT: In this paper we present the technical state in which is found the helical assembly of a coal suction machine, following the technical expertise. The rehabilitation to which the helical assembly will be subjected will be done through the execution of the intervention works that will restore to the normal operating parameters of both the structural part and the functional part. The paper presents: the modalities of verification of the mechanism as well as the proposed technical solutions for the repair of the assembly.

KEY WORDS: machine, coal, rehabilitation, interventions, assembly, helical

1.INTRODUCTION

The helical assembly (wheel bracket cup holder) composed of part I which is attached to the rotating platform (fig. no. 1), which is assembled with section II through IP (IR) screws, eclise presented (in fig. no. 2) and the wheel support console (fig. .3a and 3b).The presentation of the 3 sub-assemblies is imposed by their functional role as well as by the

unitary mode as they are placed on the machine. The verifications and the controls carried out during the expertization by the specialists were materialized in measurements that are explained and whose purpose is presented in partial conclusions to this subassembly and in the final conclusions of the whole machine.

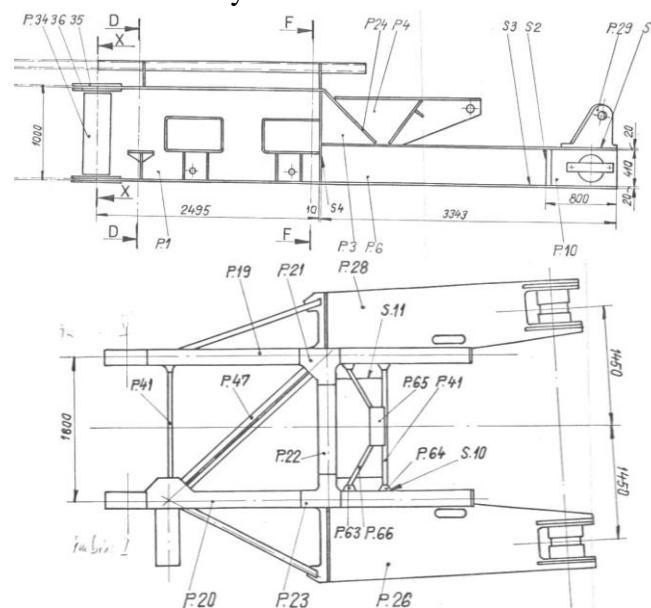


Fig.1 Rotating platform

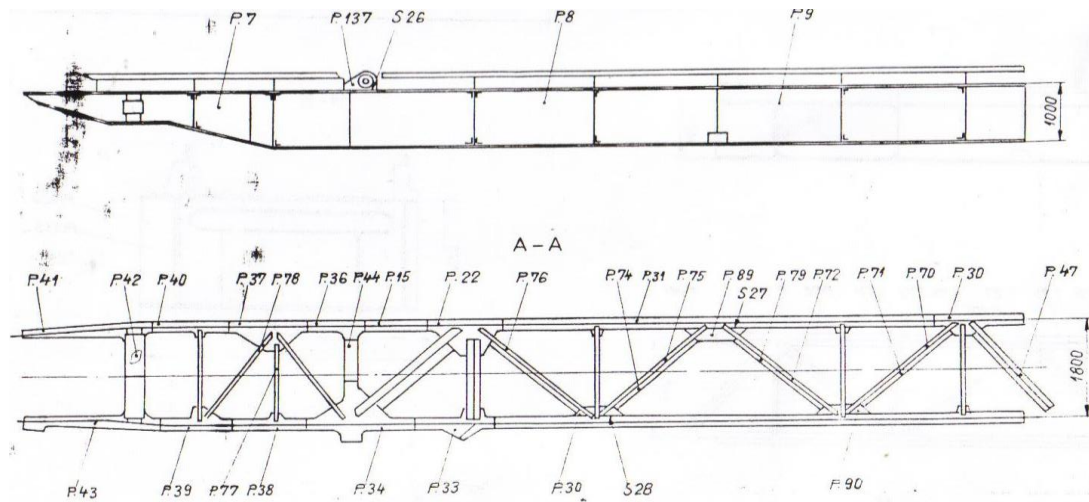


Fig.2 Section II

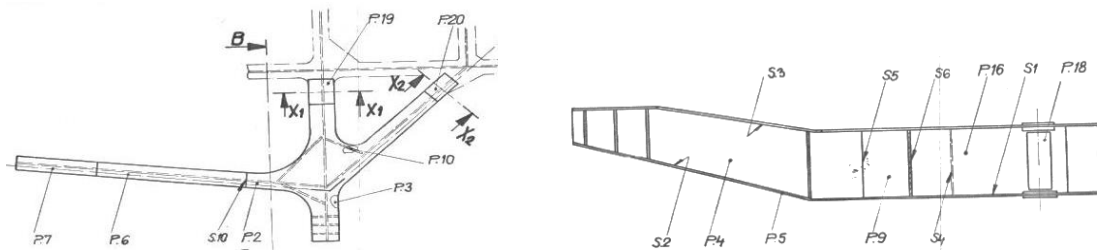


Fig. nr.3 of the Mechanical wheel support Fig.a nr.3b Side view of the support

2. THE EXPERTISE

The expertise and controls were aimed at the entire metal construction, the joints between these sub-assemblies with pre-tensioned IP (IR) screws and the welds end to end on the soles of the "I" shaped construction, joints of the "eclisa - solpa - eclisa" type on the soles and on the middle of these joints. For butt welds in the most requested fields of longitudinal beams, hardness tests were performed in: Basic Material 1 (MB1) - Thermal Influenced Area from MB1 (ZIT 1) - Additive Material (MA) - Influenced Area Thermal from MB2 (ZIT 2) - Basic Material 2 (MB2), the controls were

carried out in the areas painted in golden yellow, which will be presented together with the related graphs.

These tests will be processed with statistical methods and elimination of the results coming out of the scattering, as the measurement errors cause. The same welds were controlled with penetrating liquids (LP) and ultrasound (US) areas being painted green.

On sketch no. 2 Section II the checks and measurements were performed at the welds between the positions; P30-P31, P22-15, P P36-P37, P33-P34 on both main beams accessible as control position (SSM dpdv).



Fig.4 P33-P34 welded joints

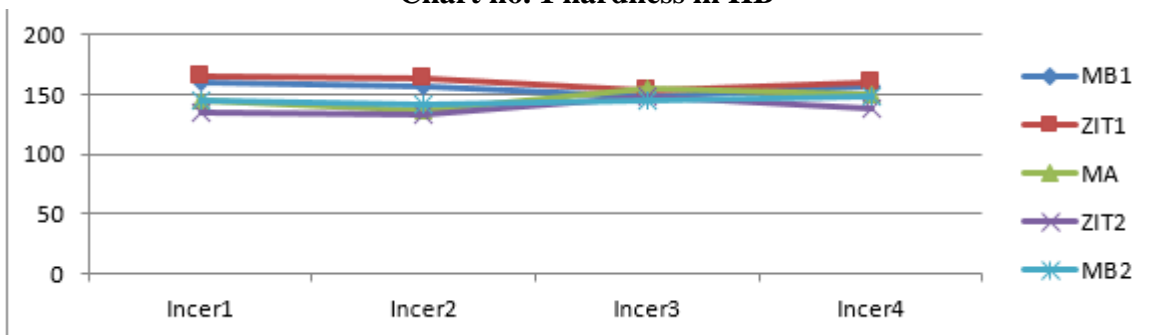
The hardness test between P33 - P34 on the side with the main rod (upper right), during the test and at the end.

The results are presented in table no. 1 and chart no.1.

Table no. 1 Measured hardness

Head weld between P33 and P34 upper right leg. Hardness [HB]		MB1	ZIT 1	MA	ZIT 2	MB 2
1	1	160	165	145	135	145
2	2	156	163	137	133	142
3	3	149	154	155	148	145
4	4	156	160	150	138	149

Chart no. 1 hardness in HB



Hardness test between P22 - P15 on the side with the main rod (upper right), during the test and at the end.

The results are presented in table no.2 and chart no.2.

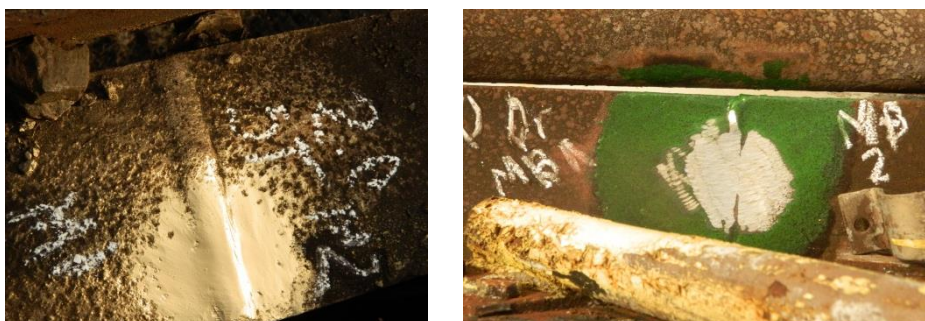
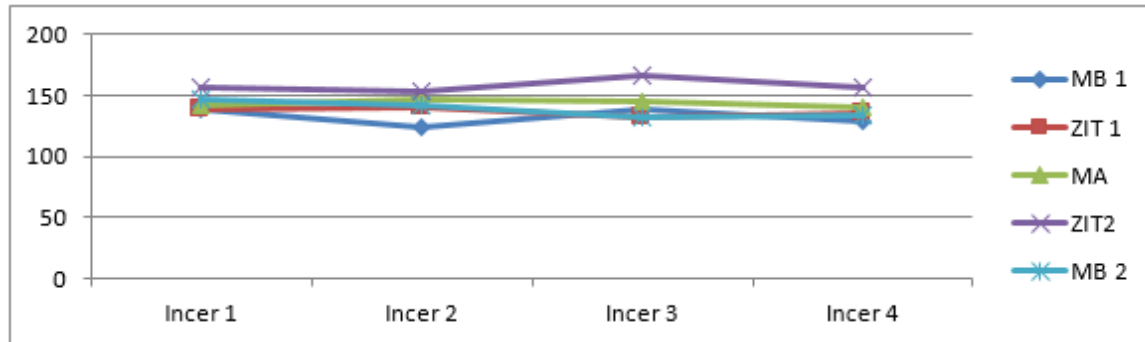


Fig.5 P22-P15 welded joints

Table 2 Measured hardnesses

Sudura Cap la cap		MB1	ZIT 1	MA	ZIT 2	MB 2
intre P22 si P15 grina dreapta palpa superioara. Duritati [HB]	1	144	158	120	133	133
	2	150	142	125	124	132
	3	161	147	156	116	128
	4	144	152	143	119	121

Chart no.2 of hardness in HB



3. CONCLUSIONS

The hardnesses for the welded joint P33-P34 type end-to-end are the normal ones, with a correctly executed weld having as basic materials those inscribed in the basic documentation. The control with Lp and Us did not show defects that did not respect the quality class. P22-P15 welded

joint hardening types are the normal ones, with a properly executed weld. The control with Lp and Us did not show defects that did not respect the quality class.

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