

REHABILITATION OF A MOVABLE BALAST CONTAINER OF A COAL EXTRACTION MACHINE M4A

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ABSTRACT: The machine is out of order, and the current physical state is characterized by the existence of significant degradation of the structure which in time may affect the functionality as well as the safety of the personnel working on this machine.

The rehabilitation to which the machine will be subjected, by carrying out the intervention works, will lead to the functionality in its normal operating parameters of both the structural and the functional part.

KEY WORDS: machine, coal, rehabilitation, interventions, container, ballast;

1. Introduction. The description of the investment

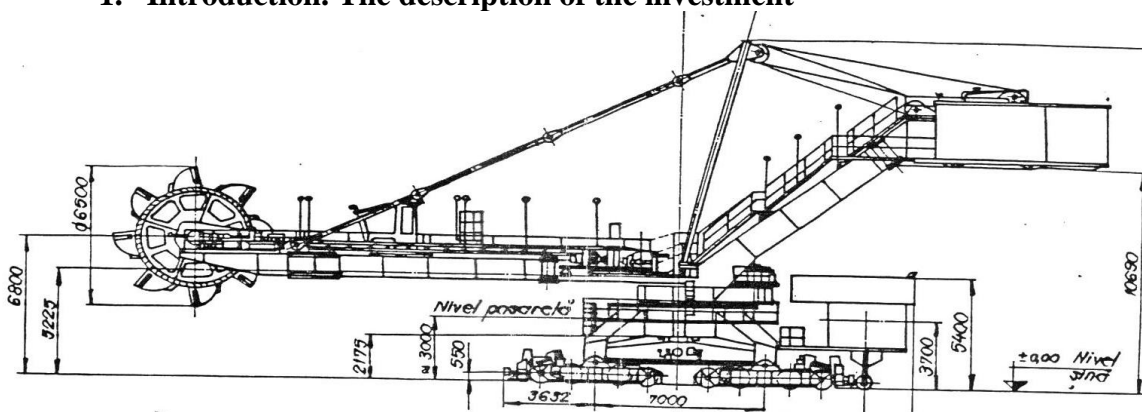


Fig.1 Coal extraction machine

The current situation of the investment project

The M4A Coal extraction machine has the normal functionality expectancy expired since 1998.

a) Technical data of the Machine

Type: Coal extraction machine 2846 -79

Manufacturer: UM Timisoara

Year of manufacture: 1982

b) **Functional description of the machine**

The M4A Coal extraction machine from the warehouse serves the solid fuel

depot for the Rovinari thermal power station.

From a constructive point of view, the coal extraction machine represents a metallic structure of the beam type with the lattices moving on a CF-type track.

The working component of the machine, the wheel with cups, is located at the end of the lifting arm. The lifting arm can perform a rotation movement in front of the tread axis as well as a lifting-lowering movement.

The coal excavated (removed) from the warehouse with the wheel with cups is

deposited, via the conveyor, on the ground stationary conveyor.

The power supply is made by cables that, when the machine makes a translate movement, it winds on the electric power supply cable reel. The M4A Coal extraction machine, initially with an arm of 31.5 m

(now 30.7) and an average hourly capacity of 1200 t / h (initially designed 1300 t / h), was manufactured in 1980-1981 by UM Timisoara, for Anina thermal power station and relocated to Rovinari thermal power station.

a) a) Constructive description of the coal extraction machine

Tab.1

General characteristics of the excavated and loaded material	
Material taken from the warehouse stack	lignite lumps
Guaranteed average transport capacity	1 200 t ₀ /h
Specific weight of lignite	0,85 -0,9 t ₀ / m ³
Lignite granulation	250 -400 mm
Depth of takeover below the line of sight of the rail	0,5 m
Operating temperature	-20 ÷ + 40 °C
Maximum wind speed in operation	20 m /sec.

Tab.2

The characteristics of the translation mechanism		
Track gauge	7 000 mm ±4mm	
Number of support wheels; from which	16	
- Number of motor wheels	6	
Wheel diameter - for rail fungus	800 mm	
Type of rail running CF 49 (on longrines)	SR ISO 2953	
Translational speed	18 m / min.	
The power of electric motors	6 buc x 7,5 kW = 45kW	
Speed of electric motors	750 rot./ min.	
The gear ratio of the reducers	i = 46,07	
Total transmission ratio	i _r = 99,51	
Diameter of the coupling with brake lining	250 mm	
Brake	Momentul de franare	6 pieces. x 11=66 kgfm
	The type of electro-hydraulic lift	REH 32/50 C
	Active lifter duration	100 %
Locking clip	Number of clamps	4
	Type of shareholder	manually
	Force developed by a clamp on the rail	4 t ₀

Tab.3

The technical-functional characteristics of the mechanism of the cup wheel	
Wheel diameter	6,5 m
Number of cups	8
Cup capacity	550 l
Number of spills / minute	50
Power of electric motor	110 kW
Electric motor speed	1 500 rot./ min.
Transmission gear ratio	i=230
Transmission torque of the hydraulic coupling	122 kgfm

THE MOBILE BALAST CONTAINER (LEST)

The metallic part of the container (box) has the role of providing with the ballast which is necessary to actuate the limiter restraint of the arm of the wheel casing accidentally. Rotating the wheel on the coal stack can be done for various

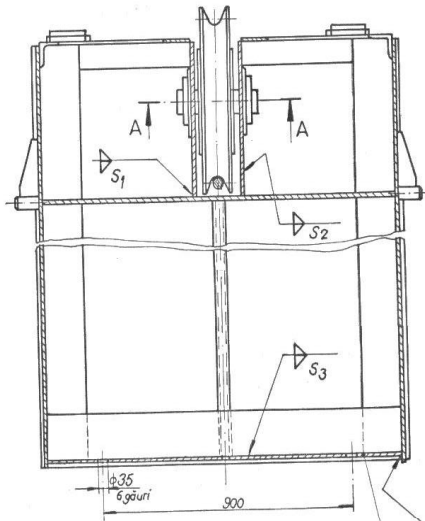


Fig.2 The mobile balast container sketch ballast box

The existing water drainage holes on the lower side will be enlarged and water removal pipes will be attached without the possibility of leaking on the lower plate and at the same time they will be used as working supports. The upper platform side will provide a ladder and a work platform to help guide the box. On each side of the four corners of the container in which the movable ballast box is drawn and placed on the outside to provide visible guide supports with an

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reasons or due to operating mistakes. Its location in housing from the upper platform, for the lifting mechanism of the lintel, has been chosen so that its descent can be easily made (both lowering and lifting) on its guides.

(see the sketch and photograph -the bottom of the box)



Fig.3 Photograph with area and mobile

obvious role to help the correct movement of the box.

Partial conclusions on this subassembly;

- 1) The proposed modifications will be presented with the documentation that will be elaborated if they continue with the steps for the rehabilitation of the machine by repairing it.
- 2) The whole part of the return cable roller will be treated as a mechanism.

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