THE HISTORY OF THE CREATION OF THE BACKHOE LOADER

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Abstract. The idea of creating a fundamentally new type of special equipment belongs to the founder of JCB, D.S. Bamford. The impetus was the excavator he saw in Norway with attachments. He combined the Major Loadall tractor loader manufactured by his company and a light excavator.

The result is the first JCB Mk1 backhoe loader equipped with a loading shovel and earth moving bucket. The new special equipment turned out to be in demand, and a few years later the new Hydra-Digger and JCB 4 models were introduced to the market.

Key words: construction and agricultural machinery, construction, machinery, cargo, excavator

INTRODUCTION

Other manufacturers of construction and agricultural machinery were also actively developing in the field of improving a new type of equipment. In 1957 Case introduced the 320 Series Backhoe Loader.

Later, other leading manufacturers of special equipment mastered the production of these universal machines.

Backhoe loaders were designed with the ability to replace the bucket and loading shovel with other attachments, for example: hydraulic shears and hammers, brush cutters, pit drills, grabs, blades, snow throwers, collector brushes and other equipment.

Due to its versatility, maneuverability and economy, backhoe loaders quickly gained popularity in the earthmoving equipment market, and are widely used in road construction, urban and agricultural, mining, and other fields.

Over 60 years of evolution, backhoe loaders have evolved into versatile, reliable, productive machines. Today they are the most common and widely used type of special equipment.

The development of technology in the first half of the 20th century made it possible to use a hydraulic drive in the control of an excavator bucket. Hydrofication of equipment made it possible to create mounted excavator equipment, which was installed on an agricultural wheeled tractor. The most suitable place for him was in the back of the car.

The driver's seat was made swivel, for the convenience of the operator. However, the weight distribution of the car along the axles has changed, the steering axle has become almost uncontrollable. Therefore, a straight bulldozer blade was hung in front. While working with excavating equipment, he served as a counterweight and outrigger. The car turned out to be relatively inexpensive and mobile.

The improvement of the excavator-bulldozer began immediately after its appearance: the alteration of the tractor, the refinement of attachments. In loading operations, the machine was

much inferior to loaders. Instead of a bulldozer blade, loading equipment began to be hung on parts of JCB machines, but the small swivel wheels of an agricultural tractor with a U-shaped mount could not withstand the loads.

The market niche opened by Joseph Bamford was appreciated by the larger firm Case. She was the first to create a special chassis: a reinforced front axle; a frame designed for loads typical for loaders; modified gear ratios of the transmission, and then the hydromechanical gearbox; spacious cab for reverse control.

Thus, a new type of earth-moving and transport communal machines was born - backhoe loaders. Today they are produced by dozens of foreign companies. JCB remains one of the leaders. Major manufacturers are Case, Caterpillar, Komatsu, Volvo, Terex, LiuGong, XCMG and others.

In Russia, the evolution of the production of such machines repeats what is described above. The only, unfortunately, sad fact remains that the production of full-fledged backhoe loaders is carried out by only a few companies - ElAZ, RM-Terex (at the Tver excavator plant) and KEMZ. And even then, all cars are licensed developments of foreign companies.

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