TYPES AND FIELD OF APPLICATION OF BACKHOE LOADERS

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Annotation: *Backhoe loaders are perhaps the most striking combined machines. They took place as an independent type of earth-moving and communal equipment. Like any other class of technology, they have common features, regardless of the manufacturer.*

The main elements of this earth-moving equipment are the working bodies: a loading bucket in front (a bulldozer bucket with a jaw grip is more often used); rear backhoe boom and base machine.

Key words: *machinery, Excavator, Lifting machines*

All models, with rare exceptions, have a four-cylinder diesel engine with an average power of 60 to 110 hp. The power unit can be turbocharged, electric or mechanical fuel injection.

This technique is produced mainly in wheeled versions. If we consider a full-fledged backhoe loader, and not attachments to an agricultural tractor, several chassis options have been developed for them:

• conventional with rear wheel drive and steerable front wheels of smaller diameter;

• Chassis with equal-sized wheels and, as a rule, all-wheel drive;

• machine with articulated frame.

The first two options are the most common. Manufacturers of backhoe loaders emphasize the versatility of their machines in every possible way. Given the possible cramped working conditions, various types of soil coatings, the equipment has three steering options:

1. Normal, with steerable front wheels.

2. Full-turn, when the front wheels turn in one direction, and the rear wheels in the other, following the same track as the front ones (track to track) and thereby reducing the turning radius.

3. Crab move, when the front and rear wheels turn in one direction and the car moves sideways.

It must be said that the wheeled chassis, although not a mounted implement, provides another and very important function - mobility. Wheeled vehicles are more mobile than tracked ones. Although in some conditions, more passable tracked vehicles are chosen as the base for the backhoe loader.

The main advantages of the backhoe loader: maneuverability and versatility. That is why they are widely used in public utilities and construction. Compact and maneuverable - used in small areas, in public utilities. More powerful - in the construction industry and the agricultural sector. Crawler backhoe loaders are used in wetlands and forestry.

The standard attachments of backhoe loaders allow them to be used as wheeled excavators, front loaders and bulldozers. Digging trenches when laying pipelines, excavating soil in construction and agriculture, landscaping, loading and unloading, cleaning the area from debris - this is only a small part of the machine's capabilities.

The variety of tasks has led to the development of interchangeable attachments. Widely used:

1. Hydraulic hammer. Used to destroy walls and pavement.

2. Forks folding. Are established directly on a ladle and are intended for loading unloading of a pallet.

3. Leveling bucket. For landscaping, roadside planning, snow removal.

4. Brushes. Cleaning of streets and highways.

5. Vibrating plate. Designed for compaction of various soils, asphalt pavement.

6. Drill. Well drilling, incl. for the installation of supporting pillars and piles.

The list of equipment can be continued, even buckets are offered several options - depending on the purpose of using the equipment. In public utilities, loaders with brush equipment have taken root. To speed up work with interchangeable equipment, a special device has been developed for quick replacement of the working body without leaving the cab.

The popularity and demand for backhoe loaders in the market contributes to the emergence of a wide selection of models, brands and configurations. Manufacturing plants use original design solutions, offer various layouts and attachments, so that the choice of machines for specific purposes.

The leader in the number of sold backhoe loaders in the world is the English company JCB. Common to its models is a gear and reverse switch, which allows you to quickly change the speed and direction of movement without stopping the machine, including under load. The most popular are the 3CX and 4CX models.

JCB equipment is equipped with a DieselMax diesel engine. The EcoLoad system, working in tandem with the power unit, allows you to provide high torque at low revs. Panoramic glazing in the cab of JCB backhoe loaders provides excellent visibility for the driver. One-piece rear window eliminates blind spots and allows the operator to control the digging process.

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