BACK HOE LOADER

NEED FOR BACK HOE LOADER

Normally the front end loader is used for grabbing the loosen materials from the ground and transmit that loosen material to the required destination with the help of a front bucket. But the front end loader has no potential to dig a hole or to demolish a particular object. So, for performing this kind of works the Back Hoe Loader is used.

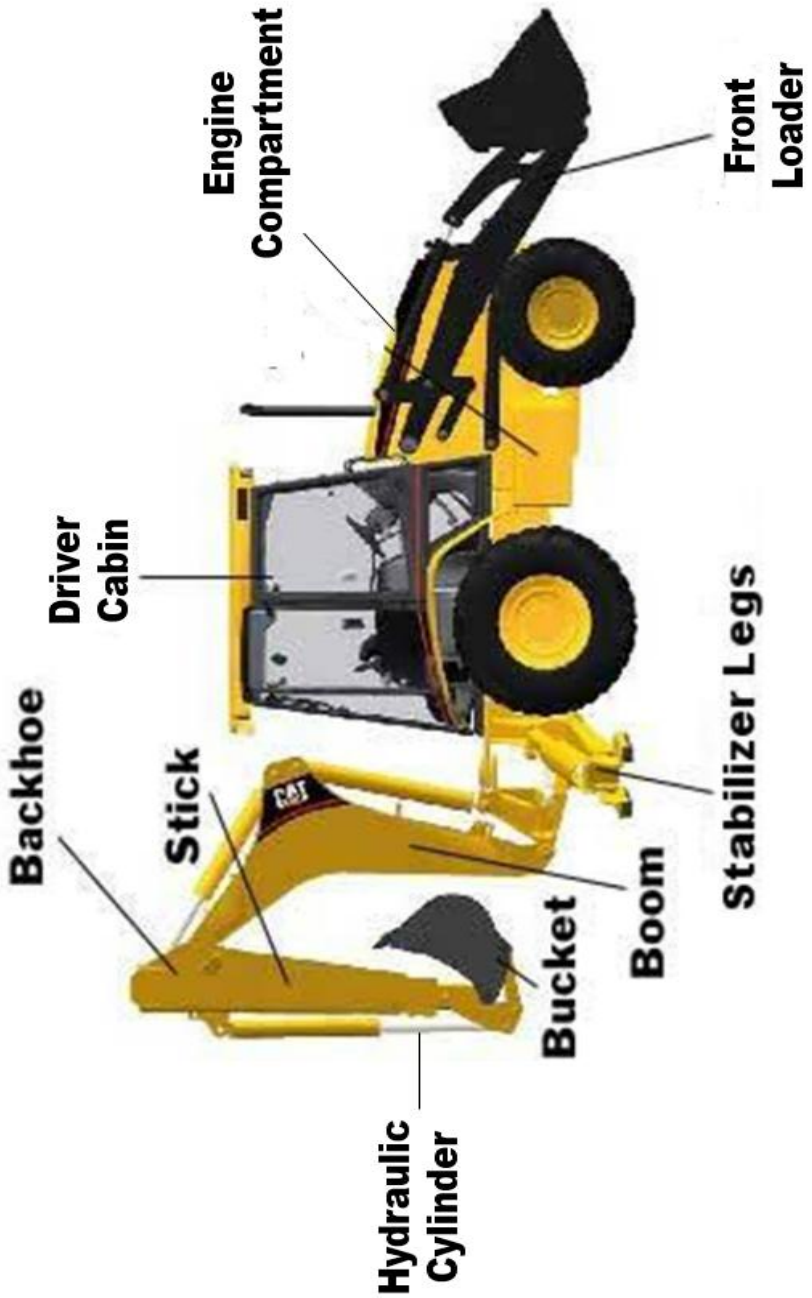
BACK HOE LOADER

A backhoe loader, also called a loader backhoe, digger in layman's terms, or colloquially shortened to backhoe within the industry, is a heavy equipment vehicle that consists of a tractor like unit fitted with a loader-style shovel/bucket on the front and a backhoe on the back. Due to its (relatively) small size and versatility, backhoe loaders are very common in urban engineering and small construction projects in developing countries.

MAIN COMPONENTS

- Engine and Transmission unit
- Hydraulic pump
- Main control valve
- Hydraulic cylinder
- Front Loader
- Back Hoe Arrangement (Boom, Stick, Bucket)
- Wheel or track
- Driver cabin
- Stabilizer Leg
- Hydraulic Steering (Orbitrol Steering system)
- Hydraulic braking System

BACK HOE LOADER



CONSTRUCTION DETAILS

The major components included in a Back hoe loader are the engine (diesel in almost all cases), the hydraulic components (such as pumps, motors and valves) and the transmission components (gearbox, axles, wheels/tracks, pumps, motors, etc.). The engine runs both the hydraulics and the transmission, and these in turn move the front attachment and the back attachment.

The engine power as mentioned above is utilised for the two purposes. The first purpose is for moving the vehicle by transferring the power from the engine to the wheels or tracks through the transmission unit. The second purpose is to use the engine power for moving the piston rod in the hydraulic cylinder for operating the back bucket and the front wide bucket by transferring the power from engine to the part of the loader (Bucket, Boom) that needed to be moved. The second purpose is done successfully by the use of hydraulic arrangement. The hydraulic arrangement comprises of Hydraulic pump, Hydraulic cylinder, Fluid reservoir and Control valve. The Hydraulic cylinders are attached to the respective components that needed to be moved for performing a specific task like moving of boom, stick and bucket etc.

The hydraulic pump is connected to the engine through a chain or belt drive. The power from engine is first transmitted to the Hydraulic pump. With the help of the engine power, the hydraulic pump pressurize the Hydraulic fluid and then pressurised fluid is sent to the respective hydraulic cylinders through the tubes for performing the specified task. The hydraulic system is operated by means of the control valves operated by the levers provided in the driver cabin. The driver cabin is provided with the FOPS (Falling Object Protection Structure) for providing the safety for the driver while operating the vehicle.

The Steering system used in the back hoe loaders is the Orbitrol steering system, which moves the front wheel tyres according to the direction given by the driver through the steering wheel. In case of tracks are used instead of tyres, then the steering system will be different. The two levers were used to give direction for the vehicle. The braking system is operated by means of hydraulic system.

The main difference between the front end loader and back hoe loader is the addition of the back hoe arrangement in the rear side of the vehicle.

BACK HOE LOADER

APPLICATION

- Digging holes
- Uproot a tree
- Carrying loads
- Demolitions
- Used in Mining areas
- Levelling the ground surface.
- Transporting the loosen materials to the dump truck

MANUFACTURING COMPANIES

- Volvo
- Caterpillar
- Mahindra
- JCB
- Komatsu