



DUMPERS



NEED FOR DUMPERS

The loosen earth materials like sand are normally carried out from one place to another by means of man power. For every purpose, it is not possible to use the man power for carrying and discharging the earth materials (sand). Since it is a time consuming process and requires more man power. For overcoming this problem, the dumper is used for carrying the loosen materials from one place to another. The use of dumper requires only one operator and also it reduces the time taken for completing the work.

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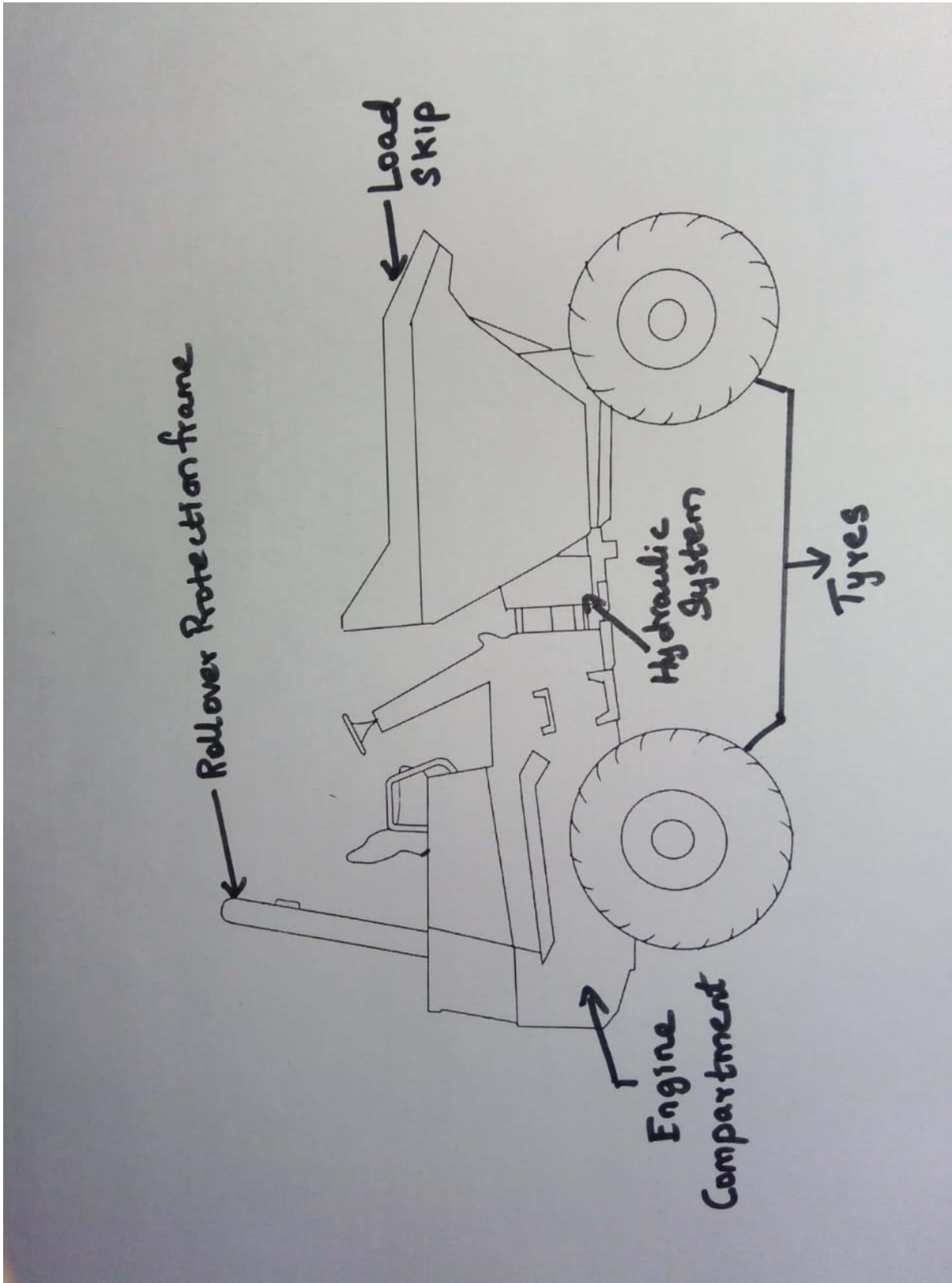
A dumper is a vehicle designed for carrying bulk material, often on building sites. Dumpers are distinguished from dump trucks by configuration: a dumper is usually an open 4-wheeled vehicle with the load skip in front of the driver, while a dump truck has its cab in front of the load. The skip can tip to dump the load; this is where the name "dumper" comes from. They are normally diesel powered. A towing eye is fitted for secondary use as a site tractor. Dumpers with rubber tracks are used in special circumstances and provide a more even distribution of weight compared to tires. Continuous tracks allow the operator to carry heavier payload on slick, snowy, or muddy surfaces, and are popular in some countries.

MAIN COMPONENTS

- Engine and Transmission unit
- Hydraulic pump
- Main control valve
- Hydraulic cylinder
- Front Bucket or skip load
- Wheel or track
- Driver cabin
- Hydraulic Steering (Orbitrol Steering system)
- Pneumatic braking System
- Roll over protection frame (ROPS)



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CONSTRUCTION DETAILS

The dumper comprises of an engine at the rear side of the dumper behind the driver seat. The engine power 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 front skip load by transferring the power from engine to the hydraulic cylinder which is attached to the skip load. 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 is attached underneath the skip load for moving it to drop the carried loosen material and also to bring the skip load back to its original position.

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 cylinder 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 Falling Object Protection Structure (FOPS) and Roll over protection frame (ROPS) for providing the safety for the driver while operating the vehicle.

The Steering system used in the dumpers 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, 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

APPLICATION

- Used in Building construction areas to pick up the load from one place to the desired destination
- Used in Mining areas
- Used in Road construction works

MANUFACTURING COMPANIES

- Bob Cat
- JCB
- Komatsu