

Brake system:

Working Principle:

Brake works on the principle of friction. When a moving element is brought into contact with a stationary element, the motion of the moving element is affected. This is due to frictional force which acts in opposite direction of the motion and converts kinetic energy into heat energy.

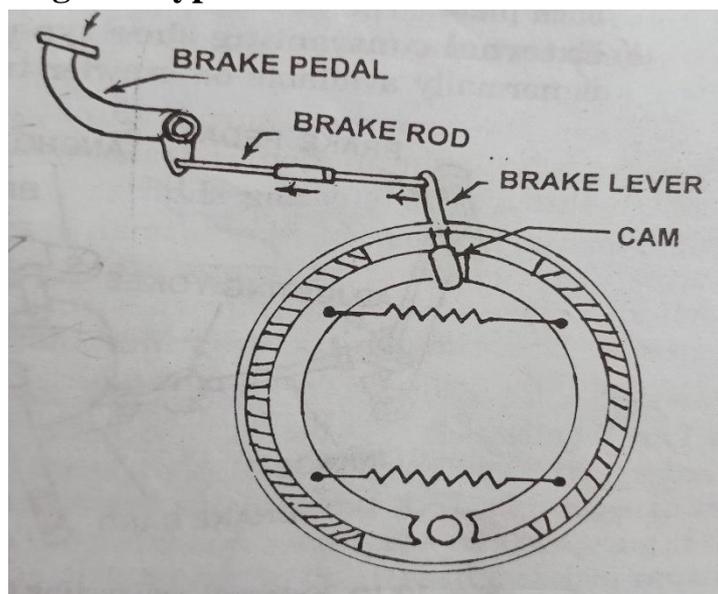
Classification of brake:

Brakes can be classified as:

1. Mechanical brake
 - i. Internal expanding shoe type
 - ii. External contracting shoe type
 - iii. Disc type
2. Hydraulic brake

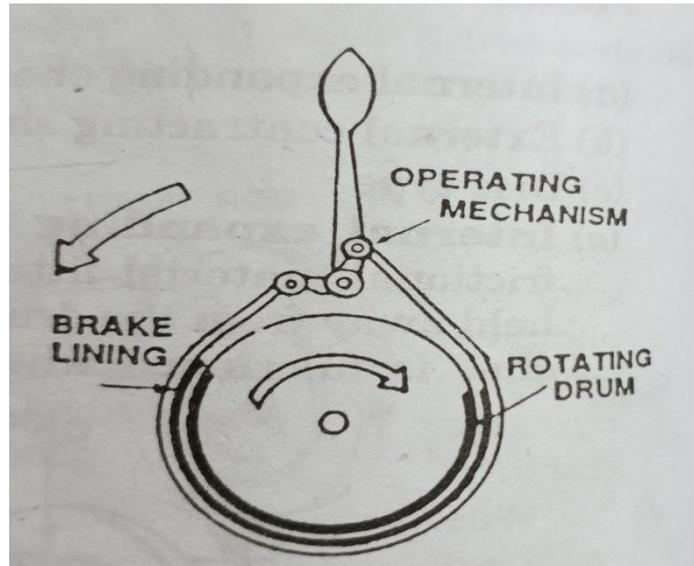
Mechanical brakes:

Internal expanding shoe type:



Two brake shoe made of frictional material fitted on the inside of the brake drum are held away from the drum by means of springs. One end of each shoe is fulcrum whereas the other end is free to move by the action of a cam which in turn applied force on the shoes. The movement of the cam is caused by the brake pedal through the linkage. The drum is mounted on the rear axle whereas the shoe assembly is stationary and mounted on the back plate.

External contracting shoe type:

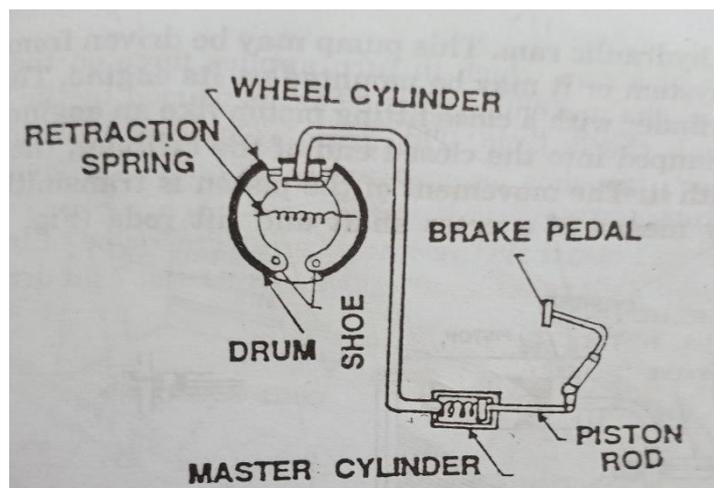


This type of brake system is normally available on crawler tractors. The drum mounted on the drive axle is directly surrounded by the pedal is depressed, the band tightens the drum.

Disc brake:

Two actuating discs have holes drilled in each disc in which steel balls are placed. When the brake pedal is depressed, the links help to move the two discs in opposite directions. This brings the steel balls to shallow part of the holes drilled in the disc. As a result, the two discs are expanded and braking discs are presses in between the discs and the stationary housing. The braking discs are directly mounted on the differential shaft which ultimately transfer the travelling effect to the differential shaft.

Hydraulic brake:



Hydraulic brake system is based on the principle of Pascal's law. The brake fluid which is usually a mixture of glycerine and alcohol is filled in the master cylinder. When the pedal is depressed, the piston of the master cylinder is forced into the cylinder and the entire system turns to a pressure system. Immediately,

the piston of the wheel cylinder slides outward which moves the brake shoe to stop the rotating drum. When the pedal is released, the return spring of the master cylinder moves the piston back to its original position, causing a sudden pressure drop in the line. The retracting springs of the brake shoe bring them back to their original position. Thus the piston of the wheel cylinder returns back.