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Conventional Construction Equipments - Dozers
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Department: B.E. Civil Engineering
Subject: Advanced Construction Equipments

Conventional Construction Equipments

Dozers



Dozers – (To push)

- Unit equipped with blade in front to provide tractive power for drawbar work.
- Low centre of gravity machine

Higher C.G – increase in difference between line of force transmission from machine & line of resisting force – reduction in the utility of machine.





Dozers – (Types, Uses, Movements)

- Types – Crawler mounted
Wheel mounted
- Uses – Pushing, Land clearance, ripping,
Towing, Back-filling
- Movements – Tilting, Pitching, Angling

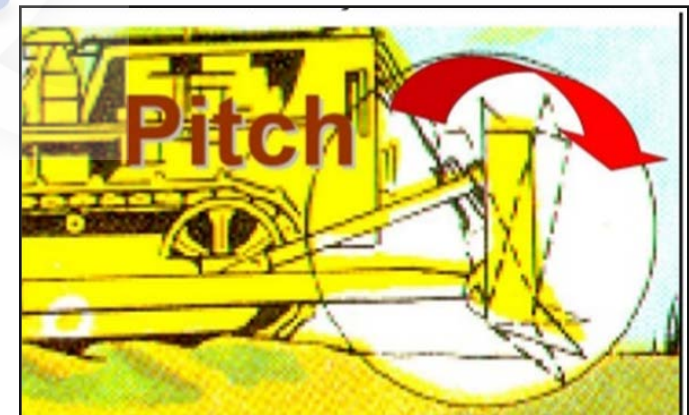
Dozer movements

Tilting

Movement within vertical plane which enables concentration of dozer power on limited portion.

Pitching

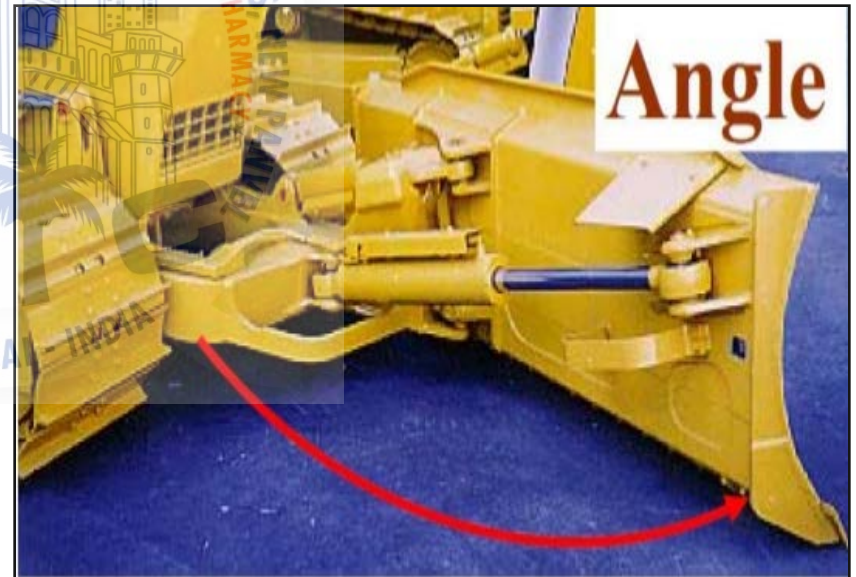
- Pivotal movement about the point of connection between dozer & blade.
- When top of blade is pitched forward, bottom edge moves back thus increasing the angle of cutting edge.
- When top edge pitched backward, decreases penetration & helps dragging of materials



Dozer movements

Angling

- Movement in horizontal Plane.
- Blade is not perpendicular to direction of dozers travel.
- Causes the pushed material to roll off trailing end of blade (Side-casting).



Rippers



- Penetrates the earth – Pulling loosens & splits hard ground, weak rock or old pavements & bases.
- Rippability of rocks is determined by relating it to the speed at which sound waves travel through them.
- Rippability of rocks also depends on the number of shanks used.

Degree of Rippability



Velocity of sound waves (m/s)	Type of rock
< 2150	Rippable
Between 2150 & 3075	Marginal
> 3075	Non-Rippable



Rippability characteristics

- **Igneous Rocks**

Lack stratification & cleavage which make them impossible to rip.

- **Sedimentary Rocks**

Easier to rip due to layered structure

- **Metamorphic Rocks**

Vary in rippability with their degree of lamination or cleavage