



Tire Manipulator Terminology

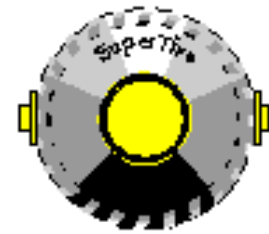
Functions

In addition to simply gripping and lifting tires, Tire Manipulators must be able to "manipulate" them to allow:

- Installing them on rims.
- Turning them over for inspection.
- Standing the tire and rim assembly up for mounting on the wheel hub.
- Accurately moving up/down and side to side to locate the rim over the wheel hub.
- Rotating to line up mounting holes in the rim with studs on the wheel.

These three terms are used to describe the required motions: Body Rotation, Pad Rotation 180 or Pad Rotation 360 and Sideshift.

Body Rotation: - The function that allows a tire and rim assembly to be turned to line up bolt holes and studs. CWS offers 45 degrees of rotation left and right for a total of 90 degrees on this axis. This function is not required where the machine will only be handling stockpiles of tires but it is vitally important if it will be mounting assemblies on loaders and trucks.



**45⁰ Left and 45⁰ Right
Body Rotation**

Pad Rotation 180 Degree: - The function that allows a tire to be turned from laying on the ground to standing or over onto it's other face. This type of drive uses Hydraulic Cylinders and Linkage. This function is required for two reasons:

1. To raise the tire from laying on the ground to standing upright for mounting on the machine.
2. To enable inspection of both tire sidewalls.



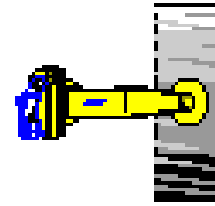
180⁰ Pad Rotation

Cylinder drive is sometimes chosen since it provides positive drive

and locking while being easy to maintain and repair due to the simplicity of hydraulic cylinders.

Pad Rotation 380 Degree: - The function that allows a tire to be turned from laying on the ground to standing or over and over continuously. This type of drive uses Hydraulic Motors and Gear Boxes.

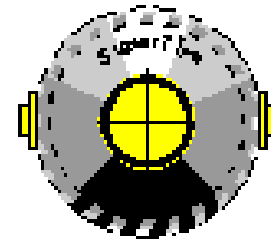
360 degree drive is chosen for it's convenience. Whereas the above 180 drive requires planning to insure the grip pads are in the right position to achieve the required movement of the tire after pickup, the 360 drive can start and end anywhere in it's cycle.



**360⁰ Continuous
Pad Rotation**

Side Shift: - The function that shifts the tire from side to side when lining up the center hole in the rim with the wheel hub.

- This function is offered on all manipulator models but it is suggested that it is not necessary for manipulators mounted on articulated steering Wheel Loaders since on these machines, slight movement of the steering wheel results in side to side motion without moving the machine forward or back.
- For Forklift Truck applications, sideshift is usually built into the Lift Truck Carriage and is highly recommended.



Side Shift