Forklift Pinion

Forklift Pinion - The king pin, normally made out of metal, is the main axis in the steering mechanism of a vehicle. The original design was really a steel pin wherein the movable steerable wheel was connected to the suspension. Able to freely rotate on a single axis, it restricted the degrees of freedom of motion of the remainder of the front suspension. During the 1950s, when its bearings were substituted by ball joints, more comprehensive suspension designs became available to designers. King pin suspensions are still featured on some heavy trucks because they can lift much heavier weights.

Newer designs no longer limit this particular device to moving like a pin and these days, the term might not be used for a real pin but for the axis in the vicinity of which the steered wheels pivot.

The KPI or otherwise known as kingpin inclination may also be known as the SAI or steering axis inclination. These terms define the kingpin when it is positioned at an angle relative to the true vertical line as looked at from the back or front of the lift truck. This has a vital impact on the steering, making it tend to return to the straight ahead or center position. The centre position is where the wheel is at its highest point relative to the suspended body of the lift truck. The vehicles' weight has the tendency to turn the king pin to this position.

The kingpin inclination also sets the scrub radius of the steered wheel, which is the offset among projected axis of the tire's contact point with the road surface and the steering down through the king pin. If these items coincide, the scrub radius is defined as zero. Even though a zero scrub radius is likely without an inclined king pin, it requires a deeply dished wheel so as to maintain that the king pin is at the centerline of the wheel. It is a lot more sensible to incline the king pin and utilize a less dished wheel. This also supplies the self-centering effect.