Caster is the backward or forward tilt of the kingpin about which the spindle pivot for steering. This tilt or caster angle is measured in degrees by the amount the centerline of the kingpin is tilted from true vertical. A backward tilt at the top little kingpin is called positive caster. A forward tilt is known as negative caster. Because caster is a directional control setting, tilting the kingpin toward a positive caster angle gives the front wheels the tendency to steer straight ahead. To a negative caster setting, the front wheels turn toward the side having the most negative (or most positive) caster angle. Because caster is a directional control setting, the tendency to steer straight ahead or to a straight ahead position after a turn. With a negative caster setting, the steering wheel of the vehicle becomes very touchy and harder to control as speed is increased. The tires have a tendency to pull to one side or the other causing the car to be difficult to control.

Understanding that caster angle influences the directional control of the wheels, you can then see that a different caster angle for each front wheel will create an uneven steering effect. This unequal caster will be noticeable to the driver as the car will want to pull toward the side having the least positive (or most negative) caster angle. A solid type axle will not twist torsionally end to end and therefore can hold the same caster angle on each end, but this is not always the case. If the axle is a custom fabricated tube type the responsibility of the caster being equal belongs to the manufacturer and the accuracy of his axle fixtures. Because in takeoff axle kits will not twist torsionally end to end, the manufacturer can guarantee equal caster angle being set. But the only way to know if the equal setting was accomplished is to have the car set up on an early Ford I-beam axle. The manufacturer was able to end to end torsionally by setting the caster angle being equal. An early Ford I-beam axle can be tested torsionally end to end by putting angle plates on each end and setting the top and lower bars on each side of the car. Auto manufacturers call out different caster specifications depending on the length of the vehicle. As hot rod builders we can only recommend what has proven to work good on the cars we have built and driven. For general, all-purpose type driving we use a setting of 5-degrees positive caster angle on Ford based hot rods.

Complete Chassis Instruction Sheet For Model A Ford

What is Caster?

How to Measure your Toe-in

Toe-in, toe-out is the angle at which the wheel points when viewed from the top. Toe-in is when the wheels point slightly towards each other at the front, toe-out is when they point away from each other at the front. With rear-wheel drive, the leading edges of the tires tend to pull away from each other, so they are set with toe-in to counteract that tendency. In our experience, rear ends with radial tires should be set with 1/8" toe-in. Rear ends with bias-ply tires should be set with 3/16" toe-in. Adjustments can be made by screwing in or out the tie rod ends.

Understanding that toe-in influences backend of the wheels, you can then see that a different toe-in angle for each front wheel will create an uneven steering effect. This unequal toe-in will be noticeable to the driver as the car will want to pull toward the side having the least positive (toe-in) or most negative (toe-out) angle. A solid type axle will not twist torsionally end to end and therefore can hold the same toe-in angle on each end, but this is not always the case. If the axle is a custom fabricated tube type the responsibility of the toe-in angle being equal belongs to the manufacturer and the accuracy of his axle fixtures. Because in takeoff axle kits will not twist torsionally end to end, the manufacturer can guarantee equal toe-in setting on each end. An early Ford I-beam axle can be tested torsionally end to end by setting toe-in on each end and setting the top and lower bars on each side of the car. Auto manufacturers call out different toe-in specifications depending on the length of the vehicle. As hot rod builders we can only recommend what has proven to work good on the cars we have built and driven. For general, all-purpose type driving we use a setting of 0 (Zero) degrees positive toe-in angle on Ford based hot rods.

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