

Three examples of this rake angle are shown. The first illustration represents a fairly typical stock steering head situation while the second represents a more radical design usually found on the more extreme chopper frames. The third represents a raked triple tree as seen in the Trike application.

Offsetting and inclining the steering head behind the front wheel forces the bike to track along in a relatively straight line even if you're just pushing it along manually. Without this rake the front wheel would just want to spin in circles when you weren't under power.

Almost all stock motor driven cycles have a steering stem rake angle of somewhere between twenty-four and thirty-five degrees measured relative to an imaginary line perfectly perpendicular to the ground.

As a general rule of thumb the less rake angle favors low speed maneuvering and the greater angles favor high speed cruising at the expenses of losing low speed handling agility but be warned that this statement is very general in nature since there are other factors that effect handling such as the location of the bikes center of gravity, the bikes weight, travel speed, tire size, pavement composition, spring rates, fork length and even the type of forks to run.

The term 'trail' is used to describe another variable that greatly affects the handling characteristics of our motorcycles and in fact proper trail is far more important than rake in determining how well any given frame and fork geometry combination handles on the road.

Trail is expressed as the distance measured horizontally along the ground level between a point that lies directly beneath the wheels axle and an imaginary line extended through, and at the same angle as the steering stem as shown in the hypothetical geometry.

Most authorities agree that the ideal situation is to keep trail somewhere between 2.0 to 4.5-inches regardless of the rake angle but in my opinion this generalization is far to broad and this dimensional range should be treated only as a starting point to be used in the development of your front end geometry.

When a bike is running fairly large neck rakes and mounting telescopic forks it is extremely difficult to keep trail measurements within reason. 'Raked triple trees' move the axle of the front wheel forward thereby reducing trail while leaving the neck angle untouched. These trees are typically available with 3, 5 and 7 degrees of rake and are intended to be used exclusively on modified frames that have neck rake angles in the range of 37 degrees and greater.

