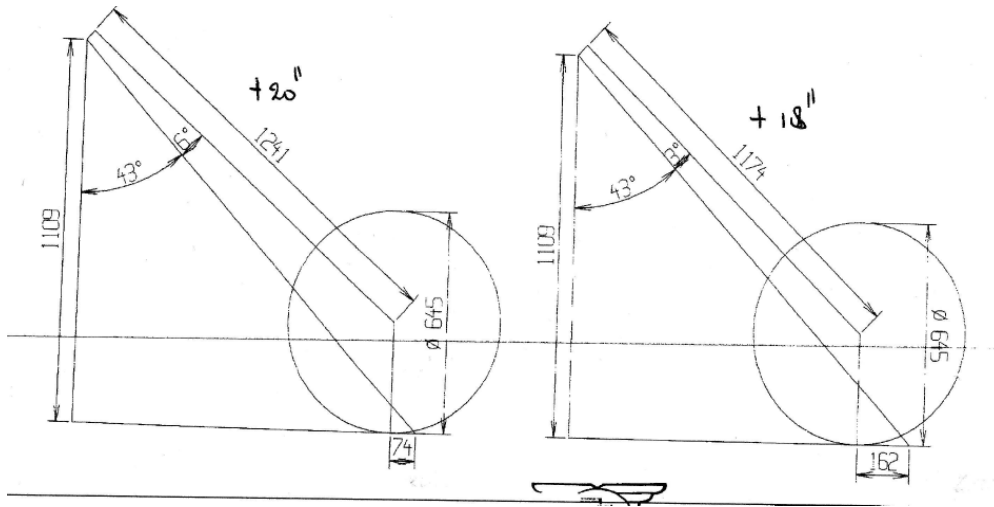


Front End

- Forks. Choosing the style is relatively easy compared to getting the rake, length and trail right. Many custom builders are eager to get started and often buy their forks at the same time as the frame/wheels etc. This can be a mistake and the best time to calculate the fork length is after you have mounted the rear wheel in the swinger/frame when you can measure the neck height and front wheel Dia. and use the methods detailed below to accurately determine the correct length and trail. Correct trail is vital for safe riding and you may have to choose raked triple trees to maintain correct trail. Too little trail is as dangerous to the rider as too much. Optimum trail should be the choice. Also refer to the previous section on frame rake.

Fork length and trail SJP Drawings

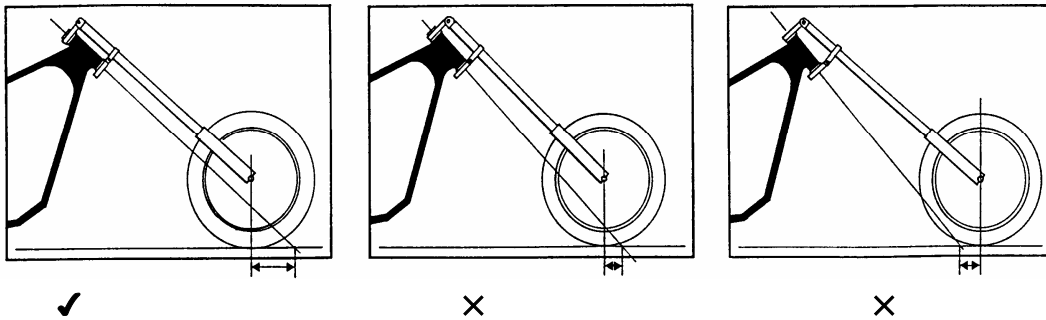


Three pictures of stock bikes from SJP. These show the effects of changing the triple tree rake on how your bike looks. Left picture has stock rake triple trees, middle picture has +3 degrees and picture on right has +6 degrees



- Too Much Trail. Good straight line stability and sluggish cornering capability. Very excessive trail can lead to unsafe cornering
- Too little Trail. Faster and easier cornering but unstable in a straight line. This could be especially dangerous on a bad surface.
- Correct Trail. Gives stability at slow and fast speeds and cornering. This is the one to aim for

Tolle diagram



What is +2in over or +10in over?

There are two ways of measuring fork length

1. From the mid point of the axle to the top edge of the upper triple tree
2. From the mid point of the axle to the bottom edge of the upper triple tree

There could be up to 50mm/2in difference between the systems of measuring. When buying forks you must find out first how they have been measured. It is more correct to use the bottom edge of the upper triple tree as a reference point because it rests on the upper surface of the headstock, which is a reference point for determining the length of forks you need for your bike.

When referring to fork length, you will see terms such as +2in, -4in, +10in, stock length. A stock length fork can be anything between 29 – 34 inches, so be careful when buying your forks not to be confused into buying the wrong length forks. The most accurate way to get your fork length correctly is to

1. After assembling the swingarm onto the frame, Mount the rear wheel/tyre and put a small bike lift under the bottom frame tubes to stop the whole lot falling over.
2. Lower or raise the frame, and using a builder's spirit level, get the bottom frame rails horizontally true.
3. Next, measure the vertical distance from the ground to the centre of the top edge of the headstock.
4. Assuming the frame rake is correct and borrowing your children's protractor, make a scale drawing of your fork geometry. Doing this also has the additional benefit of identifying the trail. If the combination of your chosen frame rake/neck height/tree rake/wheel, tyre size indicates trail which will make your finished bike handle in an unexpected or unsafe way, you can now correct this. Front forks are an expensive item to have to avoid replacing soon after you have finished building.
5. One alternative to making such a scale drawing is to ask us to do this for you; some fork manufacturers such as SJP will do this if you are purchasing forks from them.

Assuming you have done all this, you now have the correct fork length to feed into your bike design and costing. You can also be confident that your bike will be safe, handle in a predictable way, pass any pre-registration tests and if you eventually decide to sell your bike, you can sell it with pride and the confidence that the next owner will be satisfied he is buying a truly great ride.