

How a motorcycle steers

The most efficient way to initiate a turn in normal riding is to push the handlebar on the same side that you wish to turn, we refer to this input as positive steering (counter steering).

Many steering problems are caused by gripping handlebars too tightly, adopt a relaxed grip but be prepared to exert positive force if required.

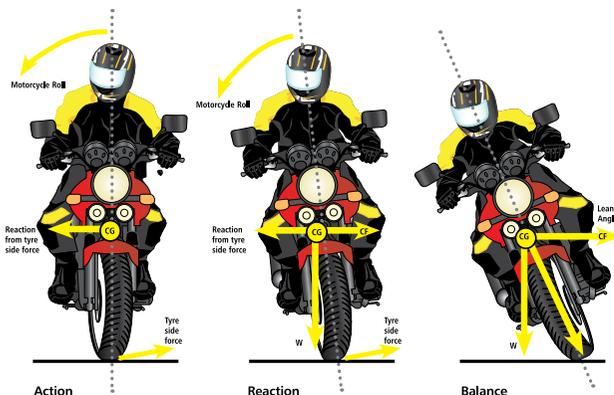
There should be a gentle bend in the elbows and the shoulders should be relaxed to minimise unwanted steering inputs.

The angle between your forearms and the fork legs should be as close to 90 degrees as is reasonable to maximise the efficiency of positive steering inputs. To make a motorcycle turn right the rider needs to push forward on the right handlebar, this will cause the front wheel to turn slightly left as shown in Action below.

The net result of this input will be the machine will begin to lean to the right as shown in **Reaction** below.

When the forces acting on the machine reach an equilibrium the machine will describe a controlled right turn as in **Balance** below.

Positive steering technique applied to a right-hand turn



KEY

CG: Centre of gravity

CF: Centrifugal force

W: Weight

Quiet efficiency – The hallmark of the expert.

Aim to steer in a controlled and progressive way, making smooth changes of direction, rather than jerky turns that unbalance your machine. Accurate and smooth steering requires planning, know when and where you are going to turn. Recognise a smooth and controlled ride is safer more comfortable and ultimately more progressive than an erratic jerky one.

Sudden steering inputs challenge the ability of suspension and tyres to perform efficiently.

For a really smooth ride focus on your steering, apply inputs progressively when initiating the lean.

Practice these inputs in a quiet area and experiment with what happens when you change the degree of input.

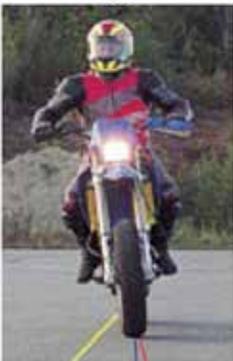
The higher your speed, the stronger the self-stabilising properties of the front end. You may feel the bike is sluggish and harder to turn as your speed increases, to overcome this effect your steering command must be more powerful to make the bike turn when and where you want.

In order to assist with this positive input a complementary pull with the other hand can be used to help initiate the turn.



The physics of a motorcycle turning are explained fully in the full control document which can be accessed on the members section of the IAM website. Your observer has access to this and if you require a detailed explanation they will work through the steering section with you.

1



Countersteering: A gentle push on the right handlebar ...

2



... the bike leans

3



... and steers to the right