

F4 SUSPENSION

The Noble F4 suspension system is a “Single Pivot 4-bar ”. Before we explain the specifics regarding the Noble 4-bar it is important to understand what components make up a 4-bar linkage. A 4-bar linkage is a mechanism of 4 bars connected by 4 pivot points.

- Bar#1, the fixed link. (2 fixed pivots)
- Bar#2, the driver. (1 fixed pivot, 1 floating pivot)
- Bar#3, the follower. (1 fixed pivot, 1 floating pivot)
- Bar#4, is the coupler. (2 floating pivots)

The Noble F4 pivot points are laid out in such a way that the axle path of the rear wheel is defined by the fixed pivot above the bottom bracket, making this a “Single Pivot 4-bar”. The seat stay on the Noble 4-bar has 2 floating pivots and therefore, an “instantaneous center of rotation”. This is more commonly know as the “Instant Center”

The Instant Center can be found by extending the center-lines of the swing arm and the linkage until you find the point where they intersect. The location of this instant center and more importantly its path is critical to the suspension performance. The instant center path allows us to control the leverage ratio curve and therefore the wheel rate. Wheel Rate is the effective spring rate measured at the wheel and is defined by the leverage ratio curve and the spring curve of the suspension shock. One of the advantages of a 4-bar linkage is that you have great control over the wheel rate. Working closely with Fox during the development of the frame we have optimized the wheel rate in such a way that it is linear to slightly progressive. This results in good small bump compliance, more perceived travel and good bottom out protection. As a bicycle manufacturer you want to make sure you get the wheel rate right, since this is the parameter that defines what the suspension will feel like when riding.

