

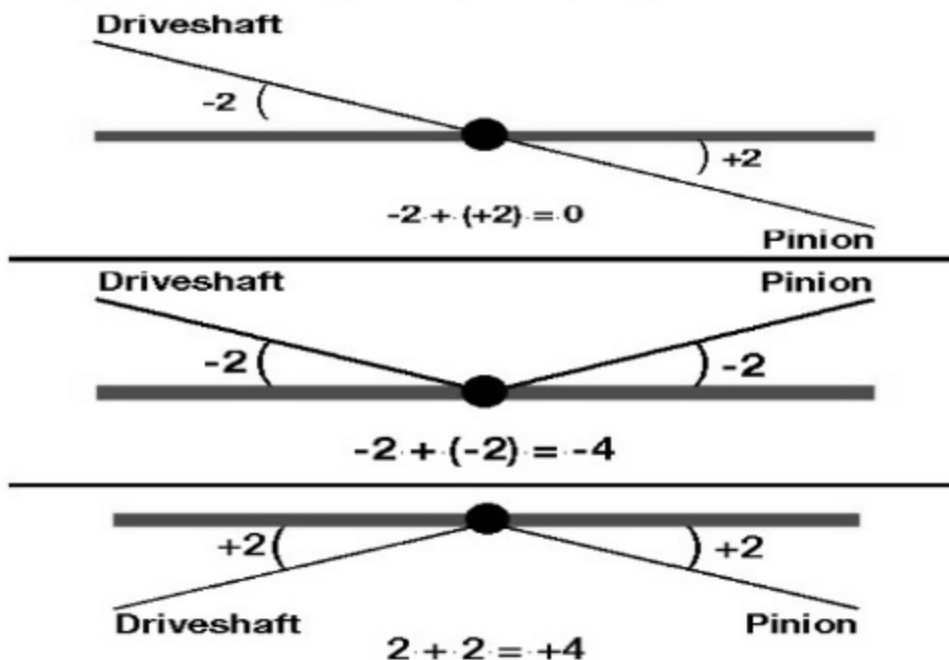
Pinion angle

For daily driving and road racing many people recommend a 0 degree pinion angle for our cars and -2 to -4 for drag racing. Others say that you should keep it at one angle all the time and not change it. You can adjust it and test your own preferences and set and change as often as you like to suit your needs/preferences. When you do set your pinion angle you may notice some vibration under load if you set your angle in the negative. This will not cause any problems you are just feeling the vibration because the angle is no longer optimum for daily driving.

The reason you set your pinion angle is to compensate for the movement of the differentials pinion of the car under load. The goal is to create a straight line from the back of the crankshaft through the transmission, driveshaft, and the pinion of the differential while the car is under load. A negative pinion angle is commonly set due to the tendency of the pinion of the differential to raise while under load we set a negative angle for that pinion to sit at rest so when the car does come underload it is hopefully at our goal of a straight line.

One way to measure pinion angle is using the front angle of the drive shaft in relation to the rear angle of the drive shaft which is the method i will be showing you. Simply put pinion angle refers to the angle of the differential's pinion in relation to the driveshaft. Well lets get down to business. Imagine a line drawn through the intersection of the driveshaft and the pinion at the U-joint (represented by the red line in the diagram below). Driveshaft and pinion angles are measured relative to this centerline

To obtain your pinion angle measurement you will measure the angles from the centerline and the driveshaft angle and your pinion angle. These numbers can be positive or negative so make sure you make good note of that when you are measuring it. Once you have these, add the driveshaft angle to the pinion angle together determine the final result.



The driveshaft angle is negative if it slopes downward to the intersection and positive if it slopes upward.

The pinion angle is positive if it slopes upward and negative if it slopes downward.

Notice in the diagram below how the angles between the transmission output shaft and driveshaft, and between the driveshaft and the pinion will be equal and opposite. This will denote a 0 degree pinion angle. This is the setting that will match the first example above.



The final value can be changed using the adjuster nut an ajustable torque arm on the 4 link suspension. Just measure, adjust and remeasure until you get the pinion angle that you are tryin to get and you are done.

It is extremely crucial that the pinion angle be calculated with the suspension under full load, meaning; make sure that there are ramps under the front wheels, and jack stands under the differential and also level the car, othrewise the true pinion angle will be way off.