



Heavy Duty Adjustable Tie Bar Set

Part Number: WPT9003X
Description: Heavy Duty Adjustable Tie Bar Set
Applications: Mini

Fitting Instructions:

These tie rods have been designed to improve car stability during cornering & braking and to allow for easy adjustment of the front castor angle which aids steering geometry. They are manufactured from larger diameter, high grade materials for increased durability and resistance to bending and are suitable for standard or modified.

The standard castor angle should be 3° ($\pm 0.5^{\circ}$). As the car is raised or lower this angle will change, and also when used with adjustable or negative camber bottom arms, which will likely increase castor. The adjustable tie rods allow the castor angle on both sides of the car to be set accurately and evenly. This is important, especially for cars with a limited slip differential and those with larger wheel/tyre combinations such as 13", as it increases stability in a straight line and cornering grip. It also helps to minimise the amount of wandering/weaving on bad road surfaces that often occurs with 13" wheels. The greater the castor, the more "self centering" action will be when accelerating.

Adjustment is attained by screwing the tie rod into or out of the block that bolts to the bottom arm and this can be done without removing the tie rod from the car.

The first step is to slacken the 11/16.nut on the front end of the tie bar, after which you can then undo the lock nut that tightens against the adjuster block. This allows the tie rod to be turned with a spanner on the cut outs provided halfway along the shaft to screw in or out of the block as required to adjust. To increase the castor, shorten the rod by screwing it into the block. To decrease the castor, lengthen the rod by screwing it out of the block.

The standard length, measured from the locating washer to the nearest edge of the bolt hole in the adjuster block, is 14 5/16". One complete rotation of the rod will alter the length by 1/16" (equates to little over 0.5°). The shorter the tie rod is made, the less amount of adjustment is achieved. It is not recommended to use more than $5\ 1/2^{\circ}$ of castor, while less than 2° will greatly reduce the steering self centering action, affecting the cars straight line stability and handling. Please bear in mind that altering the castor will also affect the camber. Increasing castor reduces camber, and vice versa.

NOTE: ALWAYS begin with the tie rod set at the standard length, as starting with the rod at a longer setting can cause a deceptive phenomena known as the "tea trolley" effect, where the bottom ball joint is behind the top one on a side evaluation.

IMPORTANT NOTE: We recommended fitting with our Superpro bush kit (31G1155SPK) which includes 4 polyurethane bushes and can be used on both sides of the subframe bracket. Just note to take care when fitting not to over tighten.

If using the stiff/hard type rubber bushes, it is recommended to use the hard rubber bush (31G1155H or 31G1155VH) on the outside only and use a soft rubber bush (31G1155) on the inside. This prevents the tie rod from shearing off through stress which can occur from over tightening.



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