

Basic Alignment

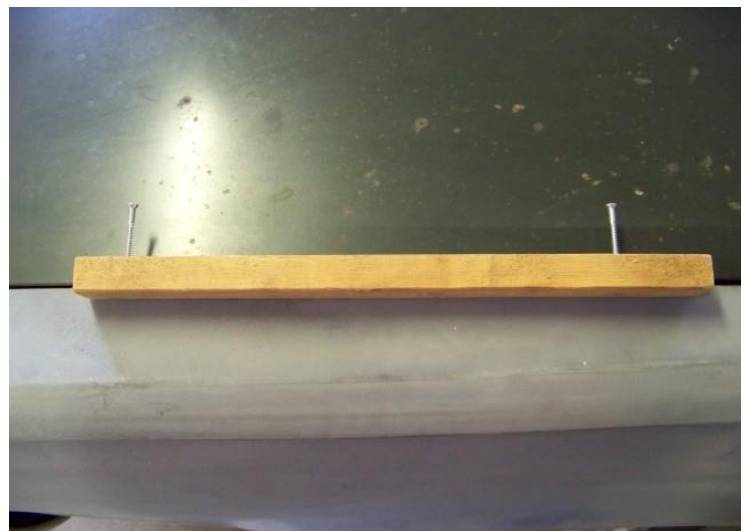


By Roger Kizer

So, the suspension has all new bushings and you just spent the day installing the upper and lower control arms, mounting the spindles, putting in the torsion bars and steering linkage. You're ready to roll right? No, not yet. We all know that having a proper alignment done is necessary for good handling and long tire wear, but you don't need to spend the money on a tow to the alignment shop. With some simple tools we can get the alignment close enough to safely drive our car to the alignment shop.

First, some education. There are three basic alignment angles, Tow, Camber and Caster. Caster is where the wheels are positioned on the car, forward of the axle centerline or back. Caster is not a wear angle and special tools are needed to get it correct so we will let our alignment guy handle that one. Tow is how the wheels are angled in or out and is measured at the front or back of the tire. This is a wear angle and we will address it here. Camber is how the wheels are angled in or out and is measured at the top of the tire. This is also a wear angle and we will address it here also. You need to have the ride height set before you bring it to the alignment shop so set it now. (Yes, read your owners manual). We will need some tools to do our alignment, some you have, some you will have to make. Let's make some tools!

For our Camber tool, we will need piece of wood approx 16 to 17 inches long and two 3 inch wood screws. Depending on your rim size you will put the screws into the wood that distance apart and at the same depth. I set mine to 14 inches apart.



For our Tow tool a long piece of wood trim or two long ones mounted together and one 3 inch wood screw. As you can see from my tool I chose to duct tape the two pieces together.



Insert the wood screw at one end of the board, the depth is not important here. Now the other thing you will need is a carpenter's level and a pencil. Now we are ready.



We set the Camber first. Jack up the car, use jack stands and you can start on either side by loosening the camber/ caster adjusters on the upper control arms. Here is where we will make the adjustments. Hold the newly made Camber tool to your rim along with the level and adjust the camber/ caster bolts until the level is, well, level.



Put the car on the floor and bounce the front end a few times to settle it. Re check the level, if it's off one way or the other, jack the car up and adjust as necessary.

Repeat on the other side when done. Remember, "Close enough" is ok here.



Next is the Tow. The one thing we are not going to worry about is if the steering wheel is straight. The alignment shop will get that right. Hold the Tow tool with the screw up against outside of the front RF tire. (Have someone help hold it on that side if you need to.)



With the pencil held against the outside of LF tire, mark the tool. Mark this line "front" or "f".



Repeat on the rear of the tire and mark again.



If the line for the “front” is closer to the screw than the line for the “back” then you have tow in, if its reversed you have tow out.

You want to have it from 0 to 1 inch tow in for a safe drive to the alignment shop. Jack the car up, use jack stands, loosen up the left and right tie rod adjusters and adjust both equally to move the tires as needed. The steering linkages are behind the wheels so if you lengthen the tie rods you will toe in, if you shorten them you will tow out. Make the needed adjustments, drop the car and measure again.



Once you have these set you can test drive the car to see how it steers. I performed these steps and was able to drive the car around town for a few months before I had the alignment done. I kept the speeds under 40 mph for safety and had no issues other than some minor tire wear.



