Duntov Classics, LLC

Rear Suspension Alignment School

A lot of us would rather do it ourselves than take our Corvette to an alignment shop that hasn't seen a C2-C3 Corvette in 30 years. I have used this method for years, and it will put your car on the money.

All you will need to align the rear end of your 63-82 Corvette is an hour or so, a short level, a pair of 2-foot 4 x 4 wood blocks, two 3-foot aluminum straight edges, a framing square, some string, a measuring tape and a helper.

Your car needs to be on the garage floor, with all the trailing arm shims removed from the front trailing arm bushings.

First the **ride height** at the rear should be set. Ideally the ride height should be set to be where the half shafts are horizontal under acceleration with you in the car and a full tank of gas. In this condition, the half shaft U-Joints have the least deflection under their highest load. With the car static and unoccupied, adjust the ride height by tightening or loosening the spring bolts until the inner half shaft U-Joints are higher than the outers by about a half inch.

Next is **track**. We have to have the toe-in equal on both sides so the car will track straight down the road. Position the rear wheels as close to straight as possible. This is easy even with weight on the car, as you can use the trailing arm as a big lever to pull or push the front of each wheel in or out.

Make sure the front wheels are straight. Have your helper hold one end of an 8' string on the outside of the left rear tire behind the axle, at the height of the axle. Pull that string taught to the front of the car and move it in until the string just touches the front of the rear tire in the same position as your helper has the other end pinned at the rear. With the taught string in your left hand, use your right hand to measure the distance between the string and the dust cover of the front spindle. If you have rally wheels, measure to the center of the cone.

All we are trying to do is get a relative measurement to which we can compare the other side. Repeat this procedure on the right side, and go back and adjust the tow by hand until both lines of alignment are equal when measured relative to the front axle reference. At this point your Corvette is tracking straight, but we have not yet set the **toe**, we have set the **track**.

To set the **toe**, place the 2-foot 4X4 wood blocks on the floor outside, centered, and up against the rear tires. Place the 3-foot aluminum straight edge on top of one of these blocks, centered on the tire. Have your helper hold the strap tangent to the outside of the tire. In case you are wondering, the purpose of the block is to elevate the aluminum straight edge to a position above the tire bulge.

Now you go to the other side and place your block and aluminum strap in the same relative position and feed the end of your tape measure under the car to your helper on the other side. Measure the distance between the aluminum straight edges in front of the tire and behind the tire, again with both aluminum straight edges sitting on the reference blocks and tangent to the outsides of the tire.

Our target is **1/8 inch total toe**. That means the distance between the front of the tires should be 1/8-inch less than it is at the back of the tires. It won't be. You will have to torque the arms in or out to achieve this number, but the trick is to do it half on one side and half on the other.

When you think you are there, go back and do the string trick again to make sure you are still tracking straight down the road. Adjust accordingly and repeat until it is both tracking straight and the total tow is 1/8-inch.

When you are there, put the spacers in and tighten up the trailing arm bolts. Check it again just to make sure, and then insert the cotter pins in the trailing arm bolts and in the shim packs and you are finished with the toe adjustment.

Last we adjust the **camber**, which is the angle the rear tire sits to the floor. The target is ¼ to ½ a degree negative camber, meaning we want the top of the tire to be tilted in **1/8 to 1/4 inch** from vertical. You adjust that with the strut rod cam bolts that are located under the differential. Loosen, twist, tighten, measure, and repeat as necessary until you get it right. You will have to roll the car between adjustments to allow the tire to move.

None of these numbers are absolute, but they are factory numbers and under normal conditions should result in the best tire wear.

We use a lot more negative camber in racing, and we have run as much as 1-inch rear toe-in. In racing vintage racing, the tires are used up by the number of heat cycles they have been through more than the amount of wear, so on a cold day and you need to put heat in the tires, toe in the rear by an inch and that should do it!

Alan Sevadjian