

# *Duntov Motor Company*

## 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 20 years. I have used this method for years, and it will put your car on the money.

All you need to align the rear end of your 63-82 Corvette is an hour or so, a short level, a pair of 2' by 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. Your car's favorite ride height is where the half shafts are horizontal. In this position, the U-joints don't have to work much at all, but that may be too low for you. Adjust the ride height to **your** favorite position by tightening or loosening the spring bolts.

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' 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 above the bulge in the tire at the floor.

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  $\frac{1}{4}$  to  $\frac{1}{2}$  degree negative camber, meaning we want the top of the tire to be tilted in just barely, like 1/8 to 3/16 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.

When you are all finished, if you are into self-abuse, you can drive the car around the block and measure the toe again. It will go much faster this time. Remember we need to have the toe-in right, but we must also have the tracking equal left and right.

**Best regards,  
Alan**

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