

## C2/C3 COILOVERS - Front



### Tools Needed

- 9/16", 5/8", 11/16" & 3/4" Wrench & Socket
- 3/8" Allen Head Socket/T-handle
- Pry Bar or Long Screwdriver
- Torque Wrench
- Rubber Mallet
- **(oiled)=Anti-seize**



Figure 1

### Parts List

- (2) Upper control arms
  - ball joint is offset towards the firewall
- (2) Lower control arms
  - sway bar tab towards front of car
- (2) 1/2-20x2.5 bolts with reducing washer
- (2) aluminum clamps with 7/16 bolts
- (2) shock assemblies
  - upper clevis pre-installed
- (1) 1.125" Front sway bar
- (2) rod end sway bar endlinks
  - installed on lower control arms
- (2) 1.125" frame mount bushings
- (2) spanner wrenches

Once you have the old arms removed from the car you can start installing the tubular arms on your Corvette.

### Installing Van Steel Tubular Lower A-Arms

First, start with the lower a-arms. The flat part of the shaft goes against the frame. There is a bolt that comes in the lower control arm cross shaft (**Figure 1**). This bolt goes toward the rear of the car. There is a top hat style reducing washer. Remove the bolt and washer from the arm and drop it through the frame bracket. The top hat part of the washer should face down. This washer is designed to reduce the gap of the OE hole to accommodate the 1/2" bolt supplied.

Moving toward the front side of the arm you can install the aluminum cradle bracket that is supplied with the (**Figure 2**) 7/16-20-1.5" Allen head bolts and lock washers. You are to re-use your existing 2 hole plate that came on the car. You will need a 3/8" Allen head socket/wrench/T-handle to tighten these down. (**Figure 3**) Do not torque these yet as you should move to the rear bolt again and torque it 1st. Torque the rear bolt to 60 ft/lbs. (oiled) and the front bolts to 40ft/lbs.



Figure 2



Figure 3



Figure 4



Figure 5

### Installing Upper A-Arms

The ball joint is going to sit further back in the car than the OE upper a-arm. Shown in **Figure 4** is a left front upper. Align the holes in the cross shaft to the alignment studs in the frame. (We recommend using a rubber mallet as these bolts can be tweaked a little bit and you may need to hit a stud forward or backward.) If the studs are out and you are installing new studs, slide the a-arm into position and push the studs through the frame and through the cross shaft by hand until you get to the knurl of the stud. Place the 7/16" flat washers over the stud and thread the alignment nut onto the alignment stud and drive the studs into place so that they are seated. Once the studs are seated, tighten the alignment nuts. For starters, you can use a 1/16" shim on the front stud and a 1/16" + a 1/8" shim on the rear stud. Once you get the car aligned, the alignment shop will correctly place the correct size shims between the frame and the cross shaft. Refer to the Alignment Spec Sheet at the end of the instruction packet.

### Installing Coilover Shocks

On top of the Coilover is a clevis mount. The mount will have 1 flat washers and a flange head pinch nut. Remove the nyloc nut and 1 washer. (**Figure 5**)

There is an o-ring at the top of the bottom of the shock. Move this up to about 1" from the jam nut at the top of the shock. This will be check to ensure the shock is not bottoming out after your first test drive.

Next, slide the shock into place. You may need to grind the threaded section of the bolt that goes through the clevis and/or use a die grinder to put a slot in the frame hole to clear the bolt.

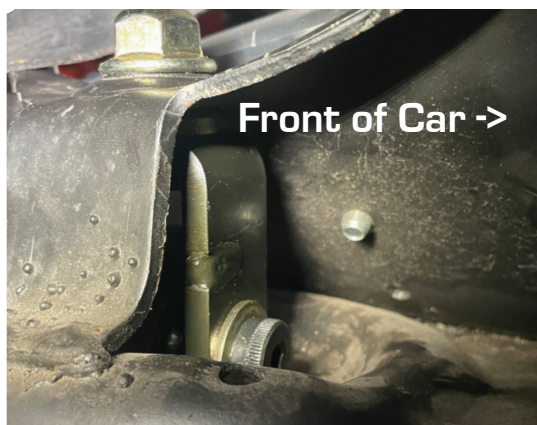


Figure 6



Figure 7

Once the shock is in place and the stud is through the OE shock hole, install the flat washer and nyloc nut that you removed before you started the install and tighten the so the stud engages the nyloc in the nut. Make sure the head of the bolt (Highlighted in yellow on **Figure 6**) is facing the front of the car. You will need a pry bar or screwdriver to hold the upper clevis from rotating as you tighten the nyloc nut (**Figure 7**). Torque to 40 ft/lbs.

On the lower a-arm, remove the 1/2" bolt and nut from the shock mount. Swing the lower a-arm into place so that you can install the lower part of the coilover shock into the lower shock mount of the a-arm. Once you get the shock hole lined up with the bracket for the lower mount, slide the 1/2" bolt through the hole and install the nut. We use a long bolt here because we like to get as much of the shank of the bolt through the shock as possible because it's stronger. Torque to 50 ft/lbs.



Figure 9

### Installing Front Spindle Assembly

Install the lower ball joint on to the bearing assembly spindle and thread the nut on.

Next, place your floor jack under the lower a-arm with a block of wood. (Figure 9) Jack the arm up until you have clearance to insert the upper ball joint into the spindle. Once the stud of the upper ball joint is through the spindle, thread the nut on.

**\*\*\*PLEASE NOTE THE CAR MAY START TO LIFT OFF THE JACK STANDS/LIFT.** If this occurs, you can let the spanners down on the coilover shock with the spanner wrenches supplied to take tension off of the spring.

Once the front assembly is on you can refer to your assembly manual on how to install the rest of the steering parts (i.e., tie rod ends, center link etc).



Figure 9





### Setting Ride Height

Now that your system is installed minus your sway bar end links, you'll need to adjust the springs to set your ride height. The system ships with the springs just hand tightened. This is typically a good starting point for a slightly lowered ride height.

The shock shown to the left is just hand tightened and is our recommended starting point to adjust ride height.

Check your frame to ground, this is typically no lower than 6.5" to 7" to not bottom out your shocks.

**\*\*\* After your test drive, look up into the frame to make sure the o-ring on the shock is not bottomed out on the upper mount jam nut. This will be your indicator of how much shock travel you have to either lower the car more, or if the o-ring is against the jam nut, you'll need to raise the car to not damage the shock.**



Figure 10

### Sway Bar & End Link Orientation

The sway bar attaches just like a factory sway bar. When installing the frame mounts, make sure to use the supplied washers to install between the gold bracket and the frame. This keeps the bushing from being over tightened on the sway bar. For 63-67 Corvettes, you'll need a 3/16" to 1/4" shim **[Figure 10]** to space the bumper brackets down away from the thicker sway bar in this kit.

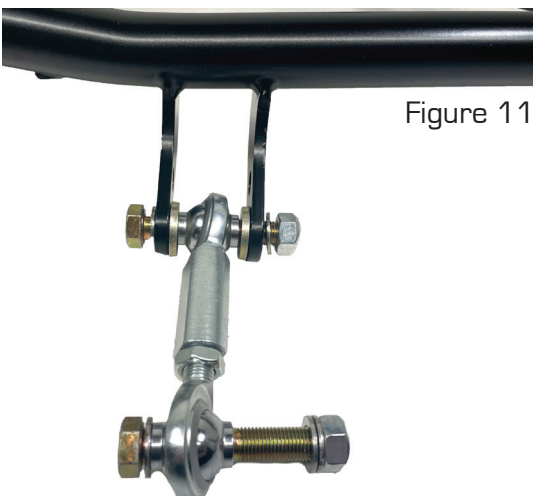


Figure 11

Our 1 1/8" bar uses rod ends for end links. **Figure 11** shows how the end link hardware should be oriented on the lower control arm. Do not install the endlinks until your ride height is set.

To set up the heim end, you must first have the car at ride height (ramps or drive on lift). Next choose your sway bar stiffness (two hole adjustable), the closest to the end of the bar will be the softer of the two settings. You'll want to setup the end link to be as close to perpendicular to the ground as you can. Once both end links are installed, you should be able to rotate the heim with minimal to no binding (by hand or with a wrench). Enjoy the upgraded handling of your Corvette!



# Alignment Specs

## Street Specs

### FRONT

Rake .500" Positive

Toe .063° Total Toe In

Camber 0°

Caster w/VS Tubular Uppers 6-8° Positive

### REAR

Toe .265° Total Toe In

Camber .25° Negative

## Track Specs

### FRONT

Rake .200" Positive

Toe 0 - .132° Total Toe Out

Camber .75 - 2° Negative

Caster w/VS Tubular Uppers 6.3-7.5° Positive

### REAR

Toe .265°-.657° Total Toe In

Camber .5 - 1° Negative

## Advanced Street Specs

### FRONT

Rake .500" Positive

Toe 0° - Total

Camber .25 - .5° Negative

Caster w/VS Tubular Uppers 6-8° Positive

### REAR

Toe .265° Total Toe In

Camber .25-.50° Negative

**All measurements  
based on a stock tire,  
overall height of 27"**

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*All toe amounts are total toe measurements. \*You may experience accelerated tire wear with these alignment settings.*