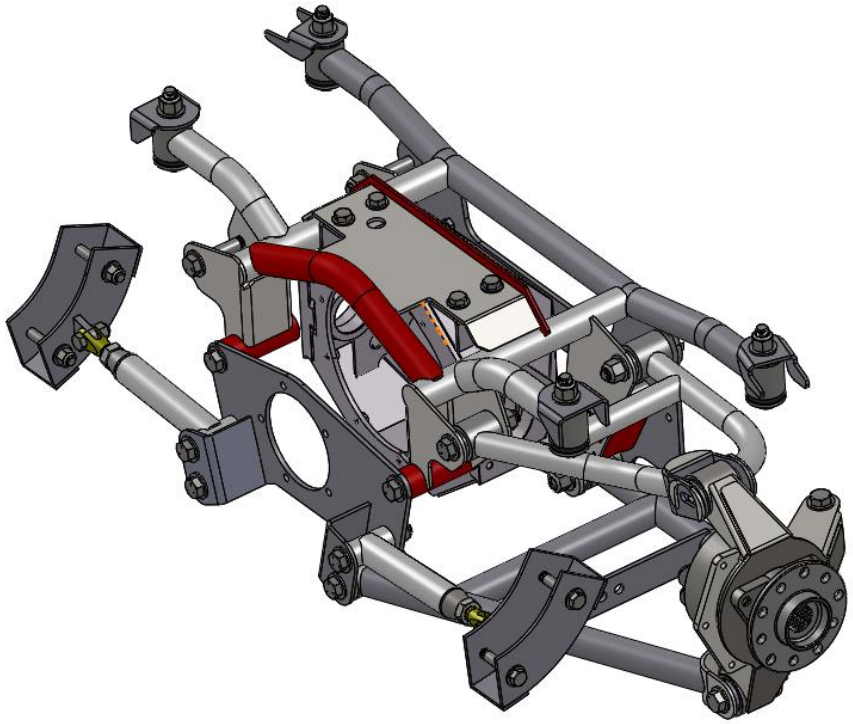
INSTALLATION INSTRUCTIONS

70-81 F-BODY

Independent Rear Suspension



Please read these instructions *completely*
before starting your installation.

Assemble suspension on vehicle before powder-coating to ensure proper fitment, and to make modifications if necessary.

Main Cradle Assembly

5/8”-11 x 4” Hex Bolt	(4)
5/8” Washer, SAE	(4)
5/8”-11 Nylock Nut	(4)
1.38 Inch OD Bushings	(8)
7 Gauge washer	(4)

Front Pinion Support Tube

1/2”-20 x 1-1/2” Hex Bolt	(2)
½”-20 Nylock Nut	(2)
5/8”-11 x 4” Hex Bolt	(2)
5/8”-11 Nylock Nut	(2)
5/8” Washers	(4)

Upper & Lower Control Arm Hardware

5/8”-11 x 4” Hex Bolt	(6)
5/8”-11 x 6” Hex Bolt	(2)
5/8”-11 Nylock Nut	(8)
5/8” Washers	(16)
5/16”-24 x 1” Hex Bolt	(4)
5/16” AN Washers	(4)

Steering Arm Hardware

5/8”-11 x 4” Hex Bolt	(2)
5/8”-11 x 3.25” Hex Bolt	(2)
5/8” Washer	(8)
5/8”x1/2” High Misalignment Rod End Bushings	(8)
5/8”-11 Nylock Nuts	(4)
¾-16 Jam Nut, RH	(2)
¾-16 Jam Nut, LH	(2)
Rod End, ¾” Spherical Bearing ¾-16 RH Thread	(2)
Rod End, ¾” Spherical Bearing ¾-16 LH Thread	(2)

Uprights, Left & Right

½” Cam Bolt Adjuster Assembly	(2)
5/8”-11 x 4” Hex Bolt	(2)
5/8” Washers	(2)
5/8”11 Nylock Nuts	(2)

Hardware Kit (Continued)

Sway Bar, Rear

½”-20 RH Male Rod End W/ Stud	(2)
½”-20 LH Female Rod End W/ Stud	(2)
½” Jam Nut	(2)

½”-20 x 2” Hex Bolt	(2)
½”-20 Nylock Nut	(4)
7/8” Diameter Anti-Roll Bar, Rear	(1)
Sway Bar Bushing Bracket & Bushings, Rear	(2)
3/8”-16 x 1.25” Hex Bolt	(4)
3/8” AN Washer	(8)

Brake Bracket Adapter

3/8”-16 x 1.25” Button Head Bolt	(6)
3/8” AN Washers	(12)
3/8”-16 Nylock Nuts	(6)

C-4 Corvette Brake Option #1:

C-4 Brake Caliper w/ integral parking Brake	(2)
C-4 Brake Caliper Bracket	(2)
Brake Bracket Adapter, C-4 Caliper to Upright	(2)

Wilwood Brake Caliper Option #2:

Wilwood Forged Dynalite Brake Kit	(2)
Brake Bracket Adapter, Single Caliper	(2)

Wilwood Brake Caliper and Mechanical Parking Brake Option #3:

Wilwood Forged Dynalite Brake Kit	(2)
MC4 Mechanical Parking Brake Calipers	(2)
Brake Bracket Adapter, Dual Caliper	(2)

Rotor Options: (2)

C-4 Plain Rotors, Steel
Dimple Drilled & Slotted, Coated, Black
Wilwood, Plain Rotors
Wilwood, Drilled & Slotted Rotors

High HP CV Shafts (2)

CV Shaft Hardware

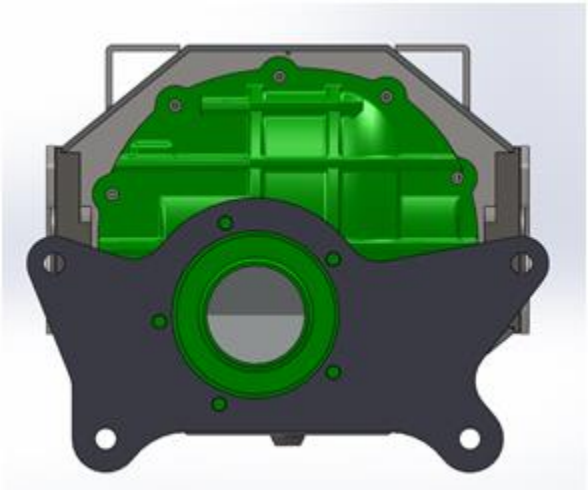
M10X1.5X 80MM Socket Head Cap Screws	(12)
M10 Split Lock Washers	(12)

1) Start by jacking up your car and supporting it on sturdy jack stands. Remove the exhaust, driveshaft, axle and suspension.

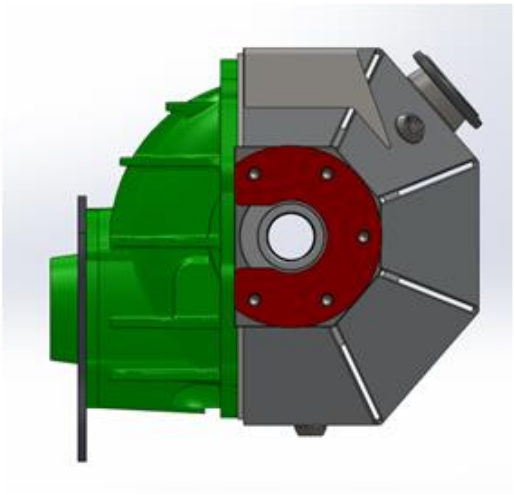
2) Position the left and right saddles onto the rear frame rails. Use the two lower holes in the outside of the frame rails to properly locate the saddles using the 3/8”-16 bolts and washers.

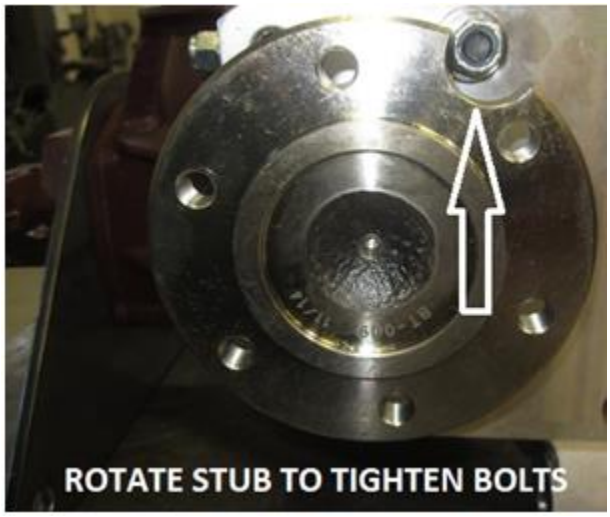
3) At this point the rear end housing can be assembled. Install the stub axle seals into the housing ends, one per side. Insert one seal into each side of the housing ends, with lips of the seal pointing inward, use a mallet to slowly tap the seals in until they bottom out on the shoulder of the bore. A seal installation tool will ensure that the seals are installed square and flush to the housing step. Do not tap on the seal directly, as the mallet could deform the seal, and cause an axle leak

4) Install the 3RD member using the 3/8” x 1-1/4” long threaded bolts and AN washers. Install using the Ford 9” third member gasket and or gasket sealer. **Torque to 40 ft-lbs**. The front pinion plate can be installed after the 3rd member is installed. Uninstall the five front bolts from the pinion retainer cover. Install the pinion mounting plate on the pinion carrier as shown below. Use the 3/8-16 x 1 ¼” bolts and washers that were just removed. Use thread locker on the bolts. **Torque the 3/8 bolts 35-40 ft-lbs**



5) Now install the stub axle into the housing using white grease on the splines for ease of installation. The longer stub axle goes into the passenger side. Slide the stub axle into the housing until the bearing bottoms out in the housing bore, slide the retainer spacer next. Next install the bearing retainer plates using the 3/8”-16 x1” long bolts and washers. The machined sides of the bearing retainer plates face the center housing. **Torque the 3/8” bolts to 40 ft-lbs**.





6) Assemble the bushings and sleeves into the upper cross-member mounts. Bolt the housing to the cradle and install the vent and drain plugs

7) Assemble the upper and lower control arms.

8) Next install the aluminum CV adapter spacer, to the end of the half shafts and use the twelve M10 x 80mm long bolts and split lock washer to fully install the CV joint axles to the axle stubs. Use thread locker on the bolt and **Torque to 51-57 ft-lbs**. The bolts are long enough to run M10 Nord-lock washers, these are not supplied in the kit, but are a good option if you plan on racing or never want to worry about the bolts coming loose.

9) Install the outer bearing hub assemblies using the six M12 x 60mm long bolts and washers. If the hub assembly does not seat flush against upright, carefully open the hole on the upright using a barrel sander. Use thread locker on the M12 x 60mm bolts. **Torque bolts to 65 ft-lbs**

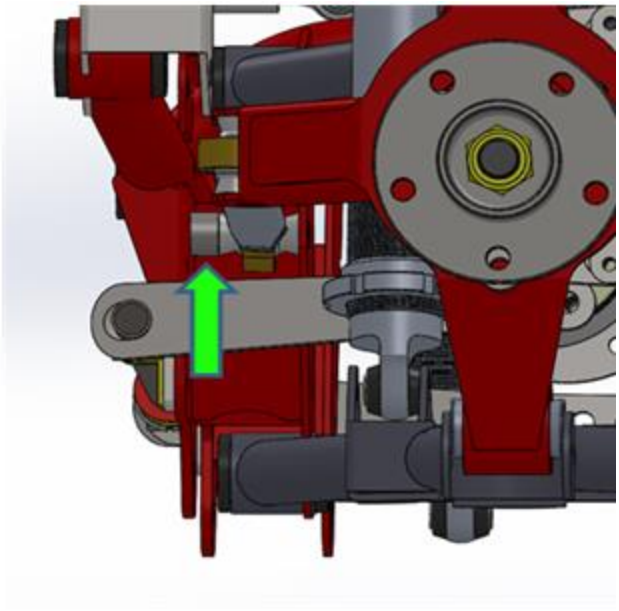
10) Next insert the eight polyurethane bushings in to the left and right uprights. Then insert the four bushing sleeves, use grease to help installation.

11) Apply grease to the splines of the CV joint axles. Install the stub axles into the bearing assemblies until the CV joint axle bottoms out against the hubs. Place the nut back onto the threads and DO NOT tighten. Raise the lower control arm and upright until the CV axle holes align with the holes of the spacer and the stub axles. Use the twelve M10 x 80mm long bolts and split lock washers to fully install the CV joint axle and rear brake rotor to the axle stub. Use thread locker on the M12 bolts. **Torque M12 bolts to 70 ft-lbs**

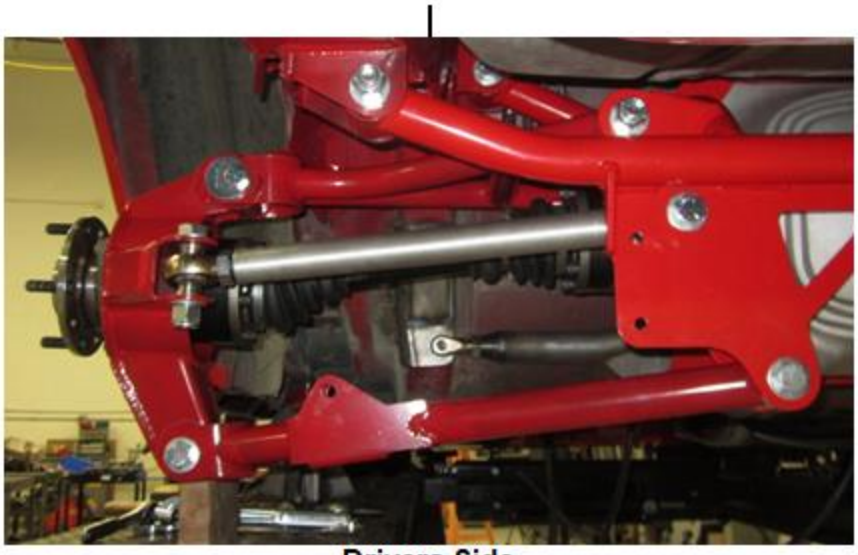
12) Next use the Cam adjuster bolts to attach the upper control arms to the uprights. Make sure the Cam bolt washers fit into the "C" shaped grooves welded on each side of the uprights. At this time you can also tighten the axle nut

13) Then install the steering arms, placing the steel spacer on the rear side, and the two misalignment spacers on each end of the rod ends. Attach the steering arms to the main cradle and the uprights

Drivers Side



Passenger Side



Drivers Side

14) Position the IRS assembly under the vehicle and bolt to the 4 upper mounting brackets.

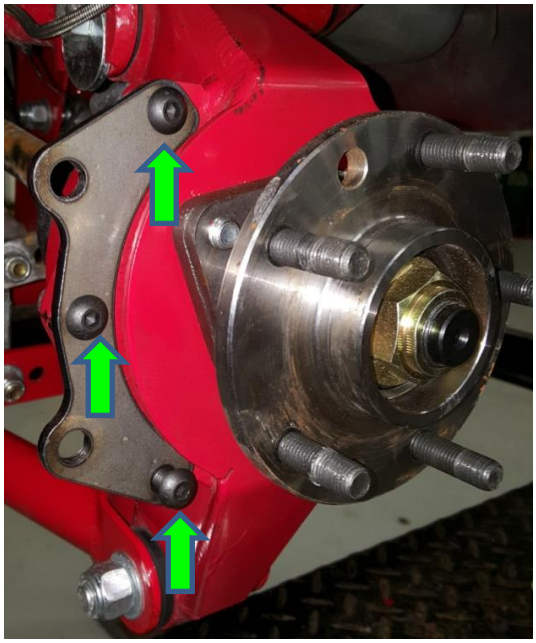
15) Assemble the front pinion support and position them on the frame rail. Drill the mounting holes through the frame rails and bolt together. Install the shocks.

There are three different brake options that are available for the IRS. The first option includes: the C-4 Corvette calipers with integrated parking brake. The second option includes the Wilwood calipers, no parking brake. The third is option is the Wilwood brake calipers with mechanical parking brake caliper. Each option has its own brake caliper mount, make sure your kit has the correct mount.

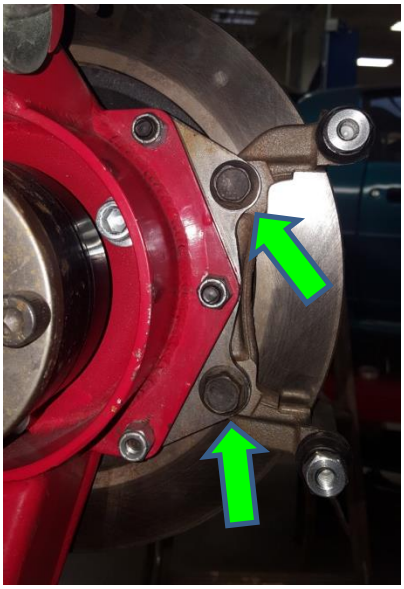
Brake Option 1:

The following are instructions to install the C-4 calipers. Use the six 3/8"-16 x 1.25" button head screws, washers and nylock nuts. Fasten the brake caliper adapter to the

outside side mount located on the front side of the uprights. **Torque the 3/8" bolts to20 ft-lbs, see figure 67.** Next slide the rear rotors on over the wheel studs, then install the C-4 brake caliper brackets. Note the rear rotor are fastened though the clamping force of the lug nuts after you install the rear wheels. Use the four supplied M12x20mm Flange bolts to fasten the C-4 Caliper mount brackets to the adapter. **Torque bolts to 131 ft-lbs see figure 68.**



Brake Caliper Adapter, Fig. 67



C-4 Brake Caliper Mount, Fig. 68

Install the brake pads as shown in **figure 69**, note the pad with the anti-rattle clip goes on the inside of the rotor. Next install the brake caliper, make sure that the two torsional springs on the pads are preloaded evenly against the underside of the brake caliper. Note the torsional springs hold the pads down into the caliper bracket and are necessary so the pads don't get knocked out of place and wear unevenly. Use the two M8x20mm long bolts to attach the brake caliper to the caliper pin sliders. We recommend you use thread locker on these bolts or safety wire the bolts so they don't come loose. **See figure 70**.

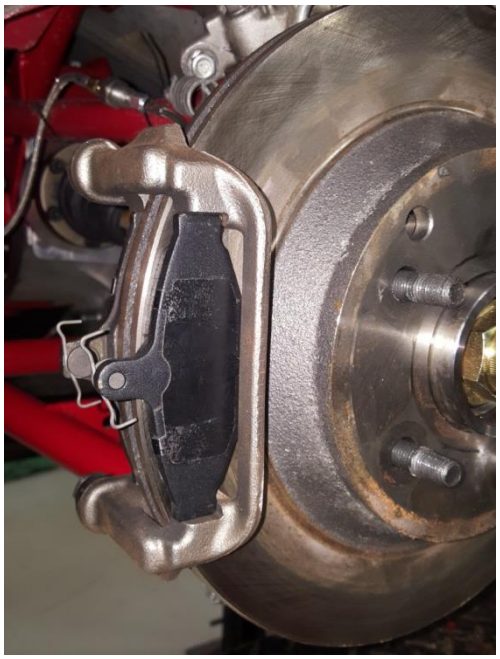


Figure 69

Figure 70

Brake Option 2:

The following instructions are for mounting Wilwood brake calipers. We recommend reading through the instructions that come with the Wilwood brake kit. First use the six supplied 3/8”-16 x 1.25” long button head screws, washers and nylock nuts to mount the caliper adapter to the outside side mount located on the uprights. **Torque these 3/8” bolts to 20 ft-lbs, see figure 67.**

Then slide the rear rotors on over the wheel studs. Next install the brake calipers, use the four 3/8”-24 x 1.25” long hex bolts, .063” thick washers and .032” shim washers to mount the calipers, to the caliper adapter bracket. Use the .032” shim washers to space the caliper it is positioned on center with the brake rotor. Use thread locker on the caliper bolts. Thread the bolts into the caliper brackets. Spread the end of the cotter pin in. **Torque bolts to 20 ft-lbs**. **See Figures 71, 72, 73 and 74**.

Reference the Wilwood instructions for correct caliper spacing diagram and verify the alignment is correct. Note each caliper adapter bracket should have two clinch nuts that are pressed into it. Make sure the clinch nuts are facing away from the center of the car. See the Wilwood instruction diagrams for more details. These instructions can also be found online if they are missing from your kit. Don’t forget to slide in the brake pads and cotter pin and spread the cotter pin ends.

Figure 71

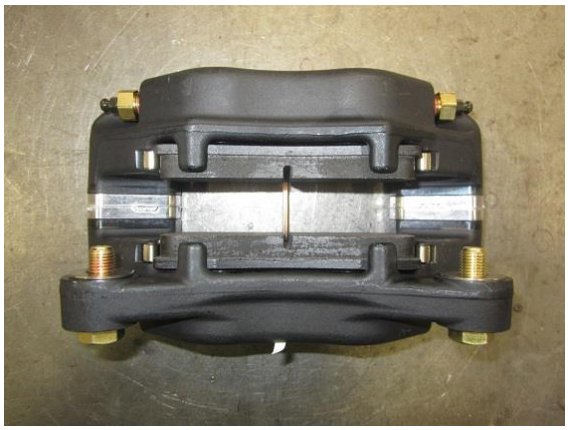


Figure 72

Figure 73

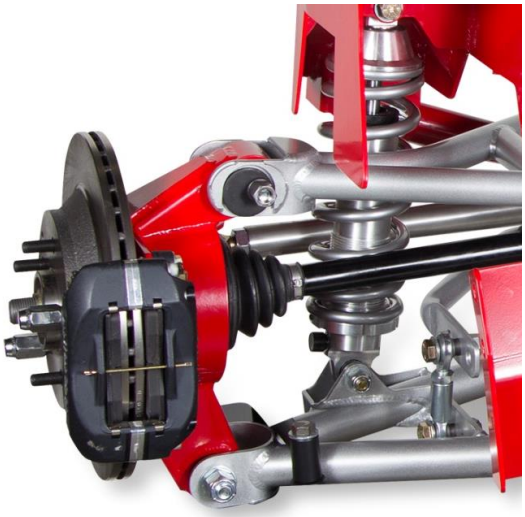


Figure 74

Option 3:

The third option uses both the Wilwood brake caliper and MC4 Mechanical parking brake. Both calipers mount on the same adapter bracket. Follow the instructions listed above in Option 2 for mounting the brake calipers. Then refer to the Wilwood instructions for mounting MC4 parking brake calipers, see **figure 75**, pictures below.

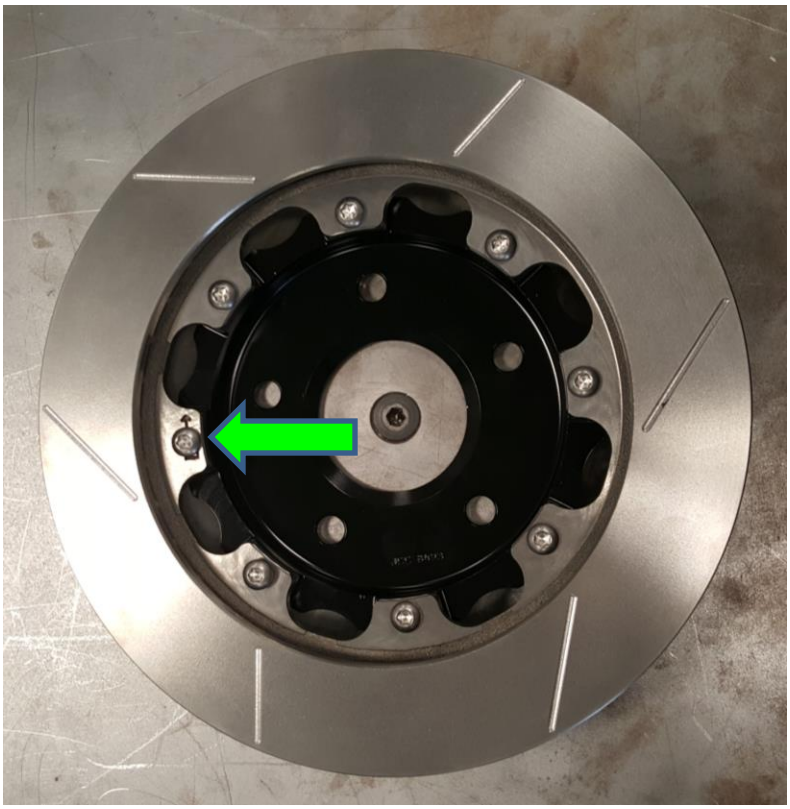
MC4 Mechanical Parking Brake, Figure 75

2nd Brake Rotor Options

If you have the dimple drilled and slotted rotors, pay close attention to the arrow on the rotors. See **figure 76** below. The wide aperture slots on these brakes are designed to draw cool air under the brake pad and rotor interface and help cool the temperature of the brake pad during heavy braking.

Dimple Drilled & Slotted Rotor, Fig. 76

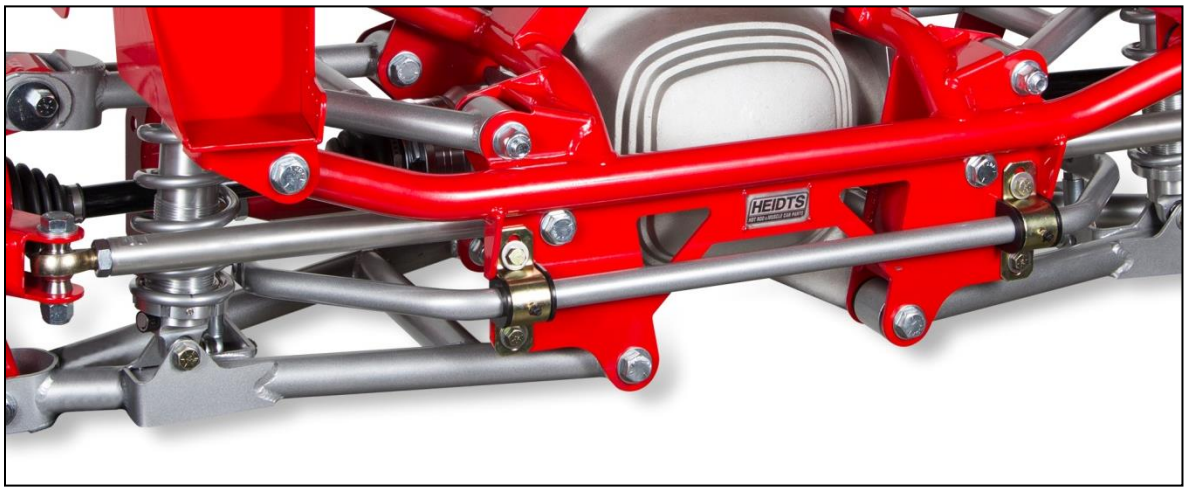
If you have the Spec 37 Rotors look for the small directional arrow located on the inside of the rotor and mount accordingly, **see figure 77.** When attaching the C-4 brake hat to the rotor use removable thread locker on the 5/16-18 button head Torx head screws. Follow the recommended break in procedure provided in Wilwood instructions.



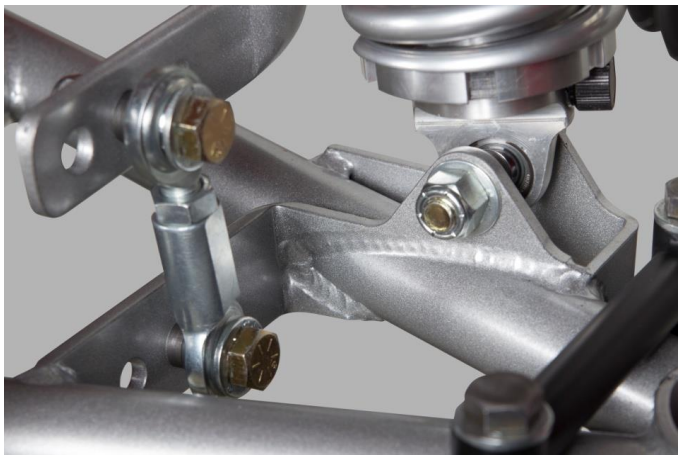
Wilwood GT 36 Curved Vane Spec-37 Rotors, Figure 77

Next you want to route the brake lines, depending on which options you have you will need to bend your stock brake lines and possibly add an extension or T-block. These parts should be available at your local auto parts store. After you have routed your brake lines bleed the brakes with a high quality brake fluid. Verify the brake lines and cables are secured down and away from any heat sources, rub/ wear points or pinch points in the suspension.

Now on to the rear sway bar, mount the sway bar bushing and brackets on the bar. Use the two rectangular sway bar spacers in between the cradle and the sway bar mounts. Use the four 3/8”-16 x 1.25” long hex bolts, 3/8” AN washers and 3/8” Nylock nuts to attach the sway bar mounts to the rear of the main cradle. **Torque the four 3/8” bolts to 20 ft-lbs**, **see figure 79.**



Rear Sway Bar, Figure 79



Sway Bar, Spherical Bearing Rod End links, Figure 80

Assemble the spherical bearing rod end links as shown in **figure 80.** There are three pairs of holes that can be used to change the rear sway bar rate. Move the link toward the front of the car softens the sway bar rate. Moving the rod end rearward stiffens the sway bar rate. Note you can vary the left and right side to get in between rates for a total of six different bar rates, one being the disconnected, i.e. no rate.

Next install the drive shaft. We suggest at this point you snug down any bolts or nuts that may have been left loose in the prior steps.

Finally, you are ready to set the alignment of your vehicle. Be sure to do so with the arms and shocks set at ride height (the lower control arms should be 1 to 2 degree going downhill towards the wheels). You may want to take you car to an alignment shop for an alignment. If you have a digital angle finder and toe plate and want to align it yourself it's pretty easy. Start by loosen the cam bolt adjuster nut located in the top upright adjuster to set camber. The cam bolts are on eccentric cams, so when the bolts

are rotated about the center, the cams will tilt the upright and very your camber. When you achieve your desired camber setting; tighten the cam nut assembly down to lock the setting in place. Just be sure that both sides have equal camber settings, or the car will tend to pull to one side and have uneven tire wear.

To set the vehicle toe, loosen up the jam nut on each side of the steering arm. Turn the steering arm to set the toe to the specification below. Use the machined flats on steering arms to lengthen or shorten the link. When you achieve your desired toe setting, lock both jam nuts down while holding the steering arm across the machined flats.

Here are the recommended alignment specifications:

Alignment Specifications:

Camber: 0° - .5° Negative

Toe: 0 - 1/16 Toe-In

Since you are now to the point where you have a finished, running truck it is time to test drive it. After a few hundred miles, double check the ride height and the alignment. The springs may have settled, which would change the ride height. Re-adjust the ride height before changing the alignment. After this initial setting period, the springs and bushings should have pretty much taken their final set, so you should be on your way to many miles of cruising in style.