



# CHEVOLUTION



## Installing A Rear Coil-Over Kit

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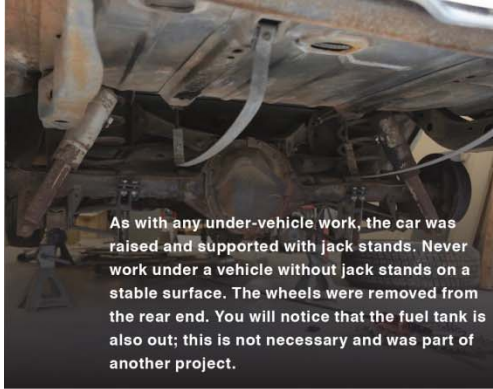
**T**here is nothing quite like an A-body. The 68-72 Chevelle is considered by most to be the quintessential muscle car, and for good reason. Not only do these cars look amazing, they have the performance to back it up. Unlike most cars of the era, the A-body utilized a 4-link coil-sprung suspension that provided a smooth ride with excellent geometry, so the cars hooked off the line and could handle the corners without getting too loose. Over the years, however, the bushings and springs take a beating, leading to sloppy rear handling. Another drawback of the design is the open-channel trailing arm stampings that can flex when you put significant torque through the driveline.

Being ubiquitous, the A-body enjoys a plentiful aftermarket where you can find just about any performance upgrade for the venerable chassis of the GM A-body. We recently upgraded a 69 Chevelle with a 5.3 LS engine and Muncie M21 swap, and because the car has not been road-ready for 20 years, it was time for an upgrade on the rear suspension as well. We opted for the G-Bar coil-over system for Chris Alston's Chassisworks to give the Chevelle the performance edge it needs on the street and track. Unlike drag-race suspension systems, the G-Bar kit is designed to maximize the Chevelle's handling in the corners as well as make it a dead hooker straight off the line using square tubing for the lower trailing arms and tubular uppers with adjustable heim joints at the ends. Instead of the large soft coil springs, the system uses coil-over shocks,

featuring the race-proven double-adjustable Vari-shocks. Coil overs not only give you tuning control, but also ride-height adjustability, so you can dial in the stance of your ride and tune for track conditions.

There are some options in the G-Bar system, the biggest of which is the choice of polyurethane bushings or pivot bearings. Polyurethane bushings offer a more compliant ride than bearings without the concern for wear, as poly bushings will last roughly forever. The benefit of the pivot bearings is that there is no deflection in the suspension, meaning you can corner as hard as you want, and the rear end will remain centered in the chassis like it is supposed to—no side to side flex at all. This comes at a cost of ride (you feel everything on the road) and wear (bearings eventually wear out). One of the biggest benefits for bearings is that you can run larger tires without worrying about scrubbing the sidewalls on the inner wheel wells in the corners. Which one you need depends on how you plan on using the car. We opted for the bushings, as the Chevelle is mainly a street car with the occasional autocross event.

The installation process is pretty simple; there were a couple of minor issues with our swap, however. The first one came when we were installing the tubular adjustable struts that connect the upper trailing arm mount to the lower frame rail. The factory piece is a flat stamped steel arm that provides a little bit of reinforcement for the upper mounting point. Due to some of the small differences between year, make, and model of GM A-body



As with any under-vehicle work, the car was raised and supported with jack stands. Never work under a vehicle without jack stands on a stable surface. The wheels were removed from the rear end. You will notice that the fuel tank is also out; this is not necessary and was part of another project.



With the weight of the Chevelle off the suspension, the upper control arms were unbolted from the housing.



The lower trailing arms were also unbolted, along with the shocks.



The upper shock mounts are next to the coil springs, you need a socket on the nut and a wrench on the bolt at the top. Be sure to use lots of lubricant on these old crusty fasteners.

cars, the floor pan sometimes gets in the way of the larger tubular strut rods. 1970-up models have more clearance between the floor and the frame, even if your body bushings are well worn; there is plenty of room for the new struts. 1968-69 cars, however, tend to sit lower on the chassis, reducing the clearance by nearly 2 inches. In order to use the tubular strut rods, we had to clearance the floor with a hammer. You will never see the evidence, as the area is covered by the seat and there is ample clearance on the top side. The stock struts will work with the G-Bar system, but a few hits with a hammer allow you to use the better versions.

The other issue is the rear sway bar. The G-Bar kit came with a very large G-Street 1" sway bar, which is more than adequate to control the roll and sway of a 3800-pound muscle car. The issue is that it is very stiff, and in order for it to do its job, the fitment is tight. Unlike the Chassisworks G-Link sway bar that uses bearings and clamps the rear end housing, the G-Street bar fits between the lower control arms and bolts directly to them. This means you have to compress the

ends to get them in place. In order to make this happen, you have to bolt one side up and then use a jack to force the sway bar up and between the trailing arms. Even being careful, you could chip the powder coat on the lower arms. This is one of those "cross your fingers and hope" moments, and we ended up chipping the coating on our control arms. Unfortunately, there just isn't any other way to do it. A little gray touch-up paint fixed the chips, no big deal.

The end results were pretty astounding. Where the Chevelle was loose in the back end before and easily lost traction when powering around corners, now the car is planted firmly, which lets the tires do the work, and puts the power to the ground. In a straight line launch, the rear suspension gives just enough for good weight transfer and the Chevelle takes off like a rocket. Whereas a full-throttle launch used to set the tires ablaze in a brilliant but ET-killing smoke show. Cruising is comfortable yet firm with the double-adjustable shocks tuned for street driving. The Chassisworks G-Bar rear suspension worked wonders for this 45-year old muscle car.



Once the shocks were unbolted, the coil springs could be removed. They are usually not fastened, pressure holds them in place.



You may need to use a hammer to knock out the bolts.



With the rear housing out of the way, the upper control arms were removed from the chassis.



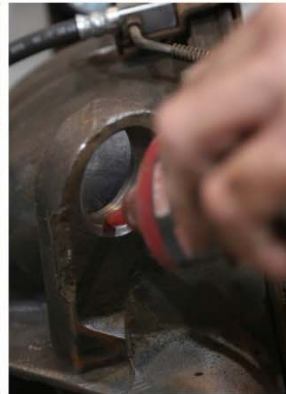
This is the factory support strut. It was made with stamped steel, and has more flex than it should. Remove these as well if you have the adjustable struts in your kit.



The rear end is now ready for prep. The housing is not too bad as is, but some elbow grease and a power washer go a long way toward making the housing look nice again.



Once clean, we started the installation process. First, the old rubber bushings were driven out with an impact hammer.



Each ring was prepped with some red threadlocker. This helps set the bearing sleeve in place.



The kit comes with these billet bearing sleeves, they get driven into the upper mounts.



The bearing itself drops into the sleeve and is retained with these spiral clips.



Next, the outer spacers are slid into the bearing. These are retained by the upper control arm.



On the lower mount, the stock shock stud can be a pain to remove. Lube and vice grips will help you get it done. Unthread the stud from the stock bracket.



The new shock mounting plate gets bolted to the existing plate. To do this, the lower bolt (shock stud hole) is used and then a level placed on the mount to adjust the plate. Clamp the plate in place.



The upper outside hole is drilled with a 1/2" drill bit, then the corresponding bolt is installed, and the upper inner bolt location is drilled with a 5/16" bit and secured with the new bolt.



These bolts are all torqued to 25 ft. lbs.



The gusset bracket locates the stock lower trailing arm mounting point to the lower shock bracket. This adds rigidity to the system. The bolts are temporarily installed, because the lower trailing arm shares the same fastener.



With the housing now back under the car, the lower shock mount position is set. The measurement should place the shock as close to 13.5" from the upper shock mount.



We assembled the upper control arms using anti-seize on the threads (do this to all adjustable components).



Using a C-clamp, the bushings were installed and pressed into place.



To get the upper length starting point, we used bolts to bolt the new upper to the original. This gets you at the factory length, you can adjust from here to set your pinion angle.



The bushings were prepped with some silicon grease. Note that these bushings are greaseable. Polyurethane bushings tend to squeak, so having the ability to lube them is a nice.



The adjustable strut rods were assembled with anti-seize and set to the stock length.



On the 69, we had to clearance the floor in order to install the strut rods. 1970 and later cars usually have adequate clearance.



The frame mount for the strut rod is easy to get to.



The upper is not so simple. We had to use a magnet to get the nut started. Be patient, it will take some time to get it done.



We also installed the upper control arms. All the bolts were loose, they didn't get torqued until the install was finished and the weight of the car was on the suspension.



The housing was then bolted to the new lower trailing arms using the supplied washers.



Up top, the articulating bearing makes for a much smoother ride, this allows for better travel and limits side to side deflection.



The sway bar is a bit of a pain as well, the two front mounts were installed with bolts, and then we had to use a jack to push the bar into place.



You will notice that the powder coating did get chipped a little during the process. It will be touched up with gray paint.



We coated the threads on the shocks with anti-seize. This keeps the ring collars from galling up on the aluminum shock body. Leave it off and you may very well ruin the shock.



The springs for our car were quite stiff, so much so we had to use a press to get the upper spring keeper in place.



The assembled shock was left with the ring collars at the bottom of the threads. This will be adjusted on the car.



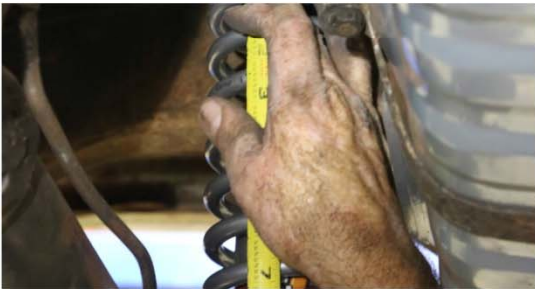
The upper shock mount requires drilling specific holes on specific year model vehicles. The mounts bolt in place with a couple of bolts and then the others are drilled accordingly.



Each shock was bolted onto the lower mount, the bolts just snugged up.

## Sources

Chris Alston's Chassisworks, Inc.  
 8661 Younger Creek Drive  
 Sacramento, CA 95828  
 (916) 388-0288  
[www.CAChassisworks.com](http://www.CAChassisworks.com)  
 Red Dirt Rodz  
 4518 Braxton Ln  
 Stillwater, OK 74074  
 405-880-5343  
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To get the ride height adjusted, the collars were threaded up to where we liked the look and then each side was measured and adjusted accordingly. You can measure your stock ride height and then adjust the system to match, but we were lowering the car's ride height.



At this point, the install is done and all that is left is putting the weight on the suspension and torquing all the fasteners to spec. The shocks we used are double adjustable, we suggest starting with each setting in the middle of the range and then trial and error adjustments from there to get the ride just how you want it.