



TRUE INDEPENDENCE

INSTALLING A FREE-FLOWING INDEPENDENT REAR SUSPENSION IN A C4

■ BY ANDY BOGUS



I KNOW PEOPLE THINK THAT LIVING IN SOUTHERN CALIFORNIA IS A DREAM COME TRUE. SURE, IT'S GREAT, BUT IF THERE IS A PROBLEM, IT IS THE ROADS. TRAFFIC JAMS NOTWITHSTANDING, THE BIGGER PROBLEM IS THE ROAD SURFACE ITSELF. BUMPY JUST DOESN'T DEFINE HOW BAD THEY CAN BE AT TIMES. THE TOWN I LIVE IN HAS THE UNCANNY ABILITY TO PATCH A ROAD AND MAKE IT WORSE THAN IT WAS BEFORE! THE NUMBER ONE PROBLEM WITH BUMPS IS THAT THE TIRE LOSES CONTACT WITH THE ROAD. WHEN THAT HAPPENS, REALLY BAD THINGS CAN OCCUR ... LIKE WRECKS.

Then there is racing. The C4 rear suspension has lovely cast-aluminum arms but lacks adjustability. They come from the factory with rubber bushings which wear out after a while.

And in the case of my 1992 LT1/MN6 coupe, they died a long time ago. When rubber bushings go bad, they shrink, get hard and generally don't work well anymore. The rear

suspension starts to clunk and doesn't stay where it is supposed to. In addition, the rubber bushings increase spring rate in a rather unpredictable manner. As I removed them,



1 The complete kit consists of four pairs of aluminum arms with spherical bearings and Omega clamps attached. Each pair has a unique length relative to its location. All the spacers except for the ones on the toe rod kit are offset in short, different thicknesses. The offsets give the flexibility when installing the trailing arms around a set of coilover shocks. The offsets must be the same – i.e., both thick spacers are on the inside, then both thin spacers are on the outside. The camber rod offset is designed to minimize the amount of static angle in the arm, so test fitment is required.

2 It is necessary to treat the threads of the spherical bearings with anti-seize. This will make alignment easier over time. Loosen the Omega clamps (if needed) and unscrew the bearing until it is almost out, then dab a small amount of anti-seize on the threads. Now screw them back in. Remember, one end is reverse threaded, so alignment can be performed.

3 There is no reason to raise the front; raising the rear is sufficient. Always use quality jackstands on a safe, solid and stable surface. Remove the spare tire

and carrier (if so equipped), because it blocks access to the toe rod mount to the batwing. Remove the tire first, as you normally would by lowering it with the large 19mm lowering bolt. This bolt is the same size as the lug nuts. Next, using a 13mm socket, remove the four bolts (two per bracket) that hold the carrier to the car. The bolts do not allow easy oiling access, so break them free and spray them down with penetrating oil before removal if they seem frozen. Believe it or not, the exhaust does not need to be removed, nor do the wheel bearings.

I noticed how tight they fit in their associated brackets; the amount of effort required to disassemble them was more than I expected.

Many enthusiasts install a set of polyurethane bushings. There are some binding issues in the rear suspension, so adding unforgiving poly bushings can only make matters worse. According to Tom Urban with Banski Motorsports, the problem with polyurethane is the lack of off-axis movement. The problem is that the hard poly bushings cause the rear arms to be overly tight and pull the alignment into unpredictable places. In short, the lack of deflection hampers the suspension's ability to move freely.

Enter the Banski Motorsports C4 Rear Suspension Upgrade. The set consist of three different kits: The Toe Rod Kit, The Camber Rod Kit and The Trailing Arm Kit. Banski recommends getting all three kits, but if budget requires it, they are

available individually.

The Banski arms use threaded spherical bearings with aluminum rods to replace the stock cast-aluminum arms. This gives incredible adjustability for all aspects of the rear suspension. The other upside is compliance – significantly improving the ride. The spherical bearings allow for very free up-and-down movement, but no lateral movement and no binding. This means a more consistent contact patch and a suspension that can work as designed, which equals better and more predictable handling.

One other issue ... the camber arm. This is the lower suspension arm that goes laterally from the bottom of the differential housing to the bottom of the rear suspension upright. This arm is subject to bad things from ignorant tow truck operators. Once this is bent, it can't be straightened and leads to strange handling traits, not to mention maintenance-related

issues. Luckily, the camber arms on my car were not bent. I have worked on C4s with bent camber arms, and they are annoying at best. This would be a good time to paint the tow hooks a nice bright color.

Follow along as we install the Banski kit on my 172,000-mile 1992 Corvette. I did this install on the left side using air tools and on the right side with hand tools. To be honest, the air tools only helped with removal, but didn't significantly speed up the project. Expect eight hours for this installation. This is an easy solo job, but with any projects, it would be nice to have a tool helper or someone to work the floor jack when tensioning the rear spring. Please read these directions carefully and thoroughly before starting the project. Familiarity will help with the installation. I will be curious how long it will take me to do this kit in my wife's 1987 coupe now that I have done it once.



THE BOTTOM LINE: Impressive. That was the first word that came to mind. It still needed an alignment (all four wheels, to be honest, are pointing in different directions), but the ride quality is seriously better. The inherent jitter in the rear end is all but gone – I suspect coilover shocks would be the final fix.

I had local legend Johnson Alignment of Torrance, California, do the alignment. The alignment is what would be described as aggressive street, just marginally more aggressive than OEM. The end result? It tracks straight and true, and the cornering is so much more precise. There is a distinct sensation that the front and back ends actually are communicating. Now ... all I need is to have Banski Motorsports come up with a front end kit! I will say, though, with the lack of lateral deflection, there is some minor tramlining you don't get with the factory system. It is minor and well worth the price for all the positives it does.

I then had my day of reckoning with the old 110 Freeway. It wasn't 4:00 a.m. this time, but the traffic was light. The precision of the suspension is noteworthy. There is no more of that "let's wait a second for the rear to take a bite." Transient response was instantaneous. Mind you, this was done near the speed limit like the other runs. However, the feel and control made me feel I could do this run at twice the legal limit without a problem. Alas, the CHP would have an issue and doing stuff like that on a public road is not only illegal, it's stupid.

4 This is very important! Always be careful when working with springs. The floor jack holds the spring in tension while removing the 21mm bolt. It is best to catch one of the teeth on the jack pad on the metal plate on the bottom of the spring. You don't want to damage the fiberglass spring as it may cause a fracture at the worst possible time. Inspect the bolts for wear. If you need to get new bolts, get the correct type. Some aftermarket bolts do not have collar pin holes, but the nuts have nylon inserts. Whatever option you choose, do not drill a hole for the collar pin; it will weaken the bolt and ultimately cause it to break.

5 There is no reason to disconnect the caliper; it simply needs to swing out of the way so you can reach the upper trailing link bolt. I held the caliper out of the way with a bungee cord.

6 Starting with the trailing arms at the chassis bracket, remove the bolts. Please note that there are holes in the chassis behind the nuts. You will have to work VERY CAREFULLY to remove the bolts if you don't want to lose the nuts inside these holes. You will need an 18mm wrench to hold the nut and a 19mm socket for the bolt.

7 These are 24mm (both nut and bolt) and are exceptionally tight. Put a wrench on the back and wedge it against the driveshaft. This is where the breaker bar comes into play. You will need a standard depth socket and a universal; the flange for the brake caliper gets in the way of an extension.



8 Using the breaker bar and the 24mm socket with backing wrench, remove the camber arm bolt at the bottom of the upright. It will take a pry bar to free the arm from the upright. The rubber bushings are really tight in the slot. Over time and perhaps previous maintenance, the lugs that hold the rod compress together. Test this first by trying to fit the new arm into the gap with both of its spacers in place.

9 Remove the camber arm's inner bolt. The nut is towards the front of the car, and the bolt is captive, so a backing wrench isn't needed. This is a 19mm nut. Once the nut is

off, tap the bolt out with a hammer. The cam might rub the exhaust, but there is more than enough wiggle room to get past it.

10 Now it's time to match up the length of all the rods. The trick is to compare them physically. It's rather difficult to measure, so use the old arm to match up to the new arm. Twist them out until the unbolted end lines up with the hole on the old arm. Match all arms to the original part in this manner. The camber arm will be a bit off regardless, because it will be difficult to account for the camber adjustment built into the inner camber bolts.



11 Installing the trailing arms gets tricky, because the chassis has these really well-placed holes that eat nuts. The way I solved this was to use some tape to hold the nut in place during the initial threading. Without the tape, the nut would fall through the wrench and could fall into the aforementioned hole in the chassis. At which point, it's a trip to the hardware store.

12 Installation is easy – just bolt up! The camber rod will require some massaging to fit, because the inside bracket is slotted for OEM adjustments; however, the Barski kit uses two plates to affix the bolt in place. After all the rods are in, it's time to torque down the bolts. You don't want to torque too soon, because it will make the upright a little difficult to move around and line up. The torque specs are 90 lbs-ft for the camber arms (inside and outside) and the hub end of the trailing arms. The bracket (car) end of the trailing arms is 60 lbs-ft.



13 The OEM toe rod assembly is held in place in the middle by a bracket bolted to the rear differential housing. Feed the rods above the exhaust and bolt up the center bracket to the differential housing; torque to 50-60 lbs-ft. Do this in reverse, and the arms won't get past the exhaust. Besides, the exhaust will help hold up the arms.

14 Install the toe rod adaptors to the rear uprights and torque the bottom bolt to 50-60 lbs-ft. Attach the rods to

the adaptors and torque to 30-40 lbs-ft. Finally, torque the inside bolts to 50-60 lbs-ft. Reinstall the spare tire carrier (if so desired), the brakes and the wheels. Then lower the car, remove from the jackstands and take it for a test drive! You will have to get an alignment. No matter how hard you try, there is no way to make sure the camber is right. Remember, the camber adjustment is on the car with the OEM components and on the rods in the new system. ■



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