Tech Article: Installing Tubular Lower Control Arms

By Larry Rollow

Recently while doing some work on my ’57 Chevy, I noticed that the front tires were wearing excessively on the inside portion of the tread. I went by Discount Tire (where I purchased them) and asked them what they thought. They said they thought it was an alignment problem, probably camber. He recommended I visit Dallas Frame and Alignment who has a great reputation for this line of work. So I got up early in the morning and went over to see what they could do. After my car was on the rack for a short while the technician came in and asked me to come out to the shop area. There, he showed me that all of the lower control arm bushings were shot. He also said the ball joints were marginal. This came as sort of a shock as I had replaced all the bushings and ball joints when I rebuilt the car some 13,700 miles ago, (the uppers are in good shape).

After getting an estimate for them to do all the work, I took the car home. After thinking it over for a while, I decided to look into replacing the factory lower control arms with aftermarket tubular arms, as I didn’t want to use the factory type bushings again. I logged on the internet and began researching tubular lower control arms. After looking at many, comparing price versus perceived quality, I decided on arms from CPP (Classic

Performance Products). They advertised .120 wall tubing and "non-squeak, patented plastic bushings" as well as new ball joints. They came completely assembled, ready to install. I should note that I had already installed tubular upper control arms when I first built the car. The primary reason for this was to be able to get more caster on the alignment settings. This is a good idea when using one of the after market power steering systems on your Tri-Five. So, I ordered a set of CPP tubular lower control arms

They arrived 5 days after the order was placed, and I began the installation process. While waiting for the new ones to arrive I had removed the old lower control arms. I placed the old and new side by side and immediately noticed that there was no place to mount the rubber bumper, whose purpose is to soften the "bump" when the suspension bottoms out. I was perplexed about this so I got on the phone to CPP to ask about it. The tech guy I talked with said their engineers had decided you didn't need really them and that metal to metal contact was OK. My answer was I don't think so. They also advertise that they will fit "most" sway bars. Well, I can tell you that the Hellwig sway bar I have isn't one of them. I hung up the phone and strongly considered sending them back.

My main problem was that I really didn't have the time to send them back and then get either another brand of tubular arms or obtain the parts necessary to rebuild the factory arms since my wife and I were leaving for the Hot August Nights show in Reno, NV in just over a week and a half. I went in the house and messed around on the computer looking at control arms and called a buddy to commiserate. I decided to keep them and accept the challenge to get them to work properly. I went back to the garage and stared at it and then it hit me. I would just reverse them, i.e., drill a hole in the part of the frame where they contact when the suspension bottoms out. There is about ½ inch of space available to put the nut on the bumper. So that was solved. The next thing was to drill the holes where the links would go for the sway bar. After mounting the control arm without the spring several times, I got the dimension right and drilled the holes. As I was mounting then for the final fit, still without springs, I noticed that there was no steering stop. The steering stop is a piece of metal welded on the lower control arm to allow the steering to go just so far. You can imagine what would happen if the steering went too far, the tires could rub the fenders. And, more importantly, the tie rods could, in the worst case scenario, go over center and cause the car to be uncontrollable. There must be a slight angle between the tie rod and the steering arm when the steering wheel is either turned hard right or left. The steering arm is actually a lever and is bolted to the spindle and turns the wheel as the steering (tie rods and drag link) mechanism moves side to side.

So it was back to the drawing boards once again. I tried to make a stop similar to the factory one, but given the tubular shape of the arms, it just wouldn't work. So I mounted the arm yet again without the spring and stared at it. I decided to see if I could make a stop out of ¼ inch steel about 2 inches by 1 ½ inches and then weld it to the arm to become the stop. This showed some promise, so I turned the steering wheel so that the steering was full left and then looked at the angle made by the steering arm and the tie rod, as well as header clearance. When I felt it was right, I tacked it on with my MIG welder and then took it off to take it to the bench for final welding. This hurt, as the powder coating must be filed or ground off so you get a good weld. When I was happy with the position, I welded it on; making a couple of passes to be sure I got good penetration. Then I did the same thing to the other side. I should note that I also drilled

two ¼ inch holes near the top of each new steering stop so, if it turned out the steering was going too far, I could simply bolt another piece of metal and therefore, reduce the travel of the steering arm. So far it appears that I got it right the first time.

Now they were finally ready to be installed on the car, and one of my friends came over and helped me install them. For those who have never done this job, you must compress the spring to the point where you can reconnect the ball joints to the spindle. A compressed spring has a tremendous amount of energy in it and is not to be trifled with. Think about, if your car weighs 3500 pounds, probably 1900 to 2000 of that is on the front springs, so each spring must hold up about 1000 pounds or so. I have a home made spring compressor that consists of a ½ inch diameter threaded rod connected to an eye bolt on the lower end. This end is fastened to the shock absorber mount in the lower control arm using a shock mount pirated from a dead shock. The upper end goes through the upper shock mount and with a couple of washers and a nut that is tightened, thereby compressing the spring. It is time consuming, but it works.

At last, the new lower control arms were in the car. Now it was time to install the shocks, brakes and sway bar. It was really going along smoothly now. But wait, the shocks won't go through the hole in the lower control arm with the little spring clip nuts they give you to bolt in the shocks. I should note that I have heavy duty shocks on the car and they are a little bigger than standard shock absorbers. The clips could not be moved away from the hole enough for clearance because the spring was there. The factory control arms use nuts that are welded in. If I known this before I could have easily done the same. But I was not about to remove them at this point, so I simply used a nut and washer and that worked OK. It was a little difficult to get them in and tighten them, but I preserved and got it done. I reinstalled the brakes, wheels and was now ready to try the alignment shop again.

I have to give Dallas Frame and Alignment high marks. The technician really took his time and did a very through job. They do not have all the high tech laser type of equipment, but do have very experienced men who know how to use the equipment they have. And I didn't think their prices were out of line especially considering the tech spent nearly 3 ½ hours on my car. The car drives very well, tracks the road straight and handles like it should.

So was it all worth it? Yes and no (mostly yes). I got what I wanted in improved lower control arm bushings, and the car handles great. But it was a lot of work having to re-engineer the product in a few areas. As a general statement, I like CPP products, and the tubular lower controls are very well made. I have their 500 power steering box in my car and I love it. But, one thing I noticed was that they seemed heavier then the factory units. So I weighed them. My feeling was correct, they are several pounds heavier. In an ideal situation, you want to have as little unsprung weight as possible. Unsprung weight is, like the word says, all those parts whose weight is not carried by the springs. However, since we don't usually autocross our cars or participate in other handling type events, it is probably not significant. After it was all done, I did some more research on tubular lower control arms, and there are a few that come with all the things on them that I added; the steering stop and a place for the bumper to mount. They are also nearly twice the price of the CPP arms. So like the man says, it's either time or money!