

Spohn Performance, Inc.

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GMSUV-607 - Adjustable Rear Upper Control Arms – Poly/Del-Sphere Pivot Joint Combination 2000-2020 GM SUV

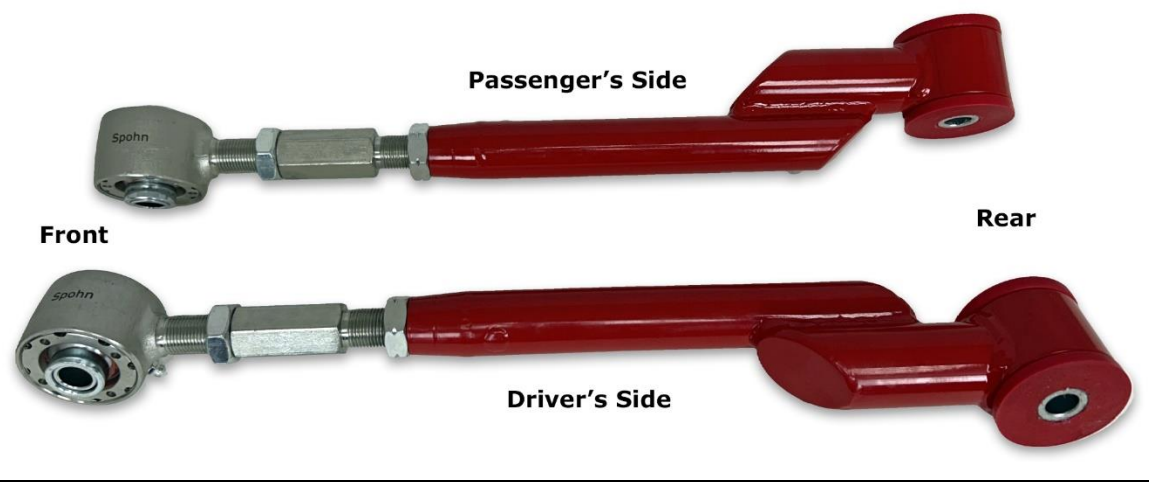
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INSTRUCTIONS

1. Lift the rear of the truck and support with jack stands by the frame rails. DO NOT SUPPORT BY REAR END! Place a jack under the rear axle housing to support it, but do not lift.
2. Remove the bolts and nuts on both ends of the factory rear upper control arm and remove it (the axle may shift slightly rearward so remove and replace one UCA at a time).
3. Install the Spohn control arm with the polyurethane bushed end in the rear axle housing mount and the Del-Sphere pivot joint in the front frame mount using the jack to help position the rear axle housing properly. Use the supplied spacers on either side of the Del-Sphere pivot joint's ball. Make the bolts hand tight only at this time. See **Image 1** below for proper orientation.
4. Safely lower the vehicle to the ground and then tighten all bolts to 75 ft./lbs.
5. One end of the adjuster is left hand threaded and the other end is right hand threaded. To adjust the length of your control arm loosen both adjuster jam nuts and put a wrench on the adjuster hex and turn it clockwise or counter-clockwise to lengthen or shorten the control arm. Once set, tighten both adjuster jam nuts. **Note:** UCAs are shipped jig set at factory length.
6. Jam nuts are known to work loose over time. To prevent this we recommend that after you have the UCAs set to your desired length you apply some REMOVABLE strength (blue) Loctite to the adjuster threads and then tighten up the jam nuts on each end of the adjuster.
7. The polyurethane bushings come pre-lubed. DO NOT use petroleum based grease on your poly bushings! Poly bushings must be lubricated with synthetic silicone-based waterproof grease. These are the manufacturer's recommendations to prevent premature bushing wear, and will keep things "squeak-free". You can order this grease from Spohn Performance using our Part #902. Do not over grease the bushings! You only need a couple pumps of grease. Over greasing will cause the bushings to balloon from the hydraulic pressure inside of the sleeve and they will fail.

Image 1



Setting Pinion Angle

There are two angles to deal with:

- 1) Driveshaft angle
- 2) Pinion angle

You subtract pinion angle from driveshaft angle to get TRUE pinion angle

Here's how you do it:

First, had you measured your stock drive shaft angle and pinion angle before you removed your stock torque arm, you would have calculated a 0 deg. TRUE pinion angle. This is how all cars come from the factory.

Using an angle finder place it on the underside of the driveshaft and record the angle indicated.

Next, place the angle finder under the pinion yoke and record the angle indicated.

Record both angles from the driver's side of the car. On the driveshaft anything to the left of 0 is positive, on the rear end anything to the right of 0 is negative.

Subtract the pinion angle from the driveshaft angle. The result is "TRUE Pinion Angle".

In order to apply preload you need negative TRUE pinion angle. Adjust the upper control arms so that the front of the pinion goes down; continue to check each angle until the pinion angle is more degrees down than the driveshaft angle.

We recommend -1 degrees on a mildly modified daily driven car. For high horsepower applications we have gotten the best results with -2 to -3 degrees. There is no reason to run more negative than that, it will actually hurt your performance because it will induce driveline bind.

You don't want to drive around with your suspension preloaded all the time, it's a lot of unnecessary binding on the u-joints and suspension. It should only be used when racing.

Here's a tip. When adjusting for your TRUE pinion angle, count the number of flats (or the 1/6 of a turn) as you turn the adjuster, to know how many it takes to adjust 1 degree of negative TRUE pinion angle and in what direction (clockwise, or counter-clockwise). Once you know that, then adjusting the arms at the track or before a race will take almost no time, and no angle finder will be needed.

You will quickly learn that it does not take many turns to adjust the angle by several degrees, so go slowly and check your angles often.

Del-Sphere Pivot Joint Instructions & Notes

The Del-Sphere pivot joints are slightly greased for assembly purposes. The bushings inside of the del-sphere pivot joints are made of Delrin, which is self-lubricating. We do not recommend greasing the pivot joint any further than as it is supplied as further grease will only attract and retain dirt and grit. The pivot joints are equipped with grease fittings simply because we know certain customers would want/request them no matter what we say. You'll also note we have a second tapped grease fitting hole with a threaded plug installed so you can change the position of the grease fitting on the pivot end for better access if need be depending on your mounting set-up on the vehicle.

Our Del-Sphere pivot joints are 100% rebuildable. We doubt you will ever need to rebuild them, but they certainly can be. The delrin bushings should last the life of your vehicle. What you may find is after you have a lot of miles on the pivot joints the tolerances may slightly open. It is for this reason that we made the pivot joints adjustable. By tightening the threaded end retainer you can take up any slack and make the joint as tight as it was when new, it's that simple. This also allows you to vary the torque load applied to the pivot ball. If you want a very low friction joint you can loosen the threaded end retainer, etc. When making adjustments to the threaded end retainer you will need to loosen the set screw with an allen wrench. When making your adjustment align one of the threaded retainer end's slots with the set screw and re-tighten the set screw, this locks the threaded end retainer's position in to place and keeps it locked to your setting. Use our Part# **DS34-W** adjusting tool for easy adjustments.

What is a Del-Sphere pivot joint? Think of the Del-Sphere pivot joint as a Delrin bushed spherical rod end. Designed and manufactured exclusively by Spohn Performance, we have taken street suspension performance to the next level. Our Del-Sphere pivot joint features a one piece forged and heat treated chrome moly housing, a heat treated and chrome plated chrome moly spherical ball, Delrin bushing races, heat treated retainer washer and snap ring, heat treated and chrome plated chrome moly threaded adjuster ring, an external grease fitting and a beautiful silver zinc plated housing finish. The delrin bushing races absorb shock and road noise so you get the quiet and smooth ride of a bushing as well as **28 degrees of rotation!**

What is Delrin, and why did you choose to use it? Delrin is an acetal homopolymer made by DuPont. It is characterized as having an excellent combination of physical properties that make it suitable for numerous applications. With extremely low moisture absorption and a low coefficient of friction (self-lubricating), Delrin is uniquely tailored for wear applications in high humidity or moisture environments. Delrin will maintain constant physical properties under high moisture conditions and out-perform nylon or polyurethane under these conditions. Delrin has a 10,000 psi tensile strength and a 120 Rockwell Hardness rating making it ideal for our Del-Sphere pivot joint application.

Replacement Parts:

Part #	Description
DS34RH	Del-Sphere Assembly - 3/4"-16 RH x 3/4" Bore
DS34LH	Del-Sphere Assembly - 3/4"-16 LH x 3/4" Bore
DS34-Wash	Del-Sphere End Washer
DS34-W	Del-Sphere Adjustment Tool
DS34-TE	Del-Sphere Threaded Adjuster End
DS34-SR	Del-Sphere Snap Ring
DS34-Bush	Del-Sphere Delrin Bushing (2 per assembly)
DS34-Ball	Del-Sphere Spherical Ball