



Series number 23220/23230

## Camber Caster Sleeves

**Q1: How do I get the sleeve to stay in position when I tighten the ball joint castle nut?**

**A1:** It might help to install the sleeve then use the old sleeve along with a hammer to drive the sleeve into the axle. Make sure the all of the components are dry, do not lube the sleeve or axle. This will normally keep the inner sleeve from turning when the nut is tightened.

**Q2: Why are there different charts for the same bushing number?**

**A2:** On specific models the same sleeve will give more or less camber and caster correction depending on how far apart the ball joints are. On many two-wheel drive models the ball joints are closer together so the amount of change will be more. Transversely a lot of four-wheel drives have a greater distance between the ball joints and will give less change. The same issues apply to the fixed change sleeves.

**Q3: The puller tool will not pull out the stock sleeve. What is the best way to remove the existing sleeve?**

**A3:** Although there are pullers available for truck sleeves, they are only good up to a point. The weak spot is the amount of lip on the existing sleeve. The sleeve can be rusted in so tight that the tool will tear off the sleeve flange. One of the best and most used tools for removing truck sleeves is a good air chisel with an angled chisel bit. The hammering action helps break loose the taper lock between the sleeve and the ball joint. Be careful not to damage the threads on the ball joint stud. If the sleeve will still not come out it may be necessary to break the taper on both the upper and lower ball joint and let the knuckle drop down a little. This will remove the tension on the sleeve and the sleeve will come out easily.

**Q4: I have installed a truck sleeve and now I am experiencing binding. The Box says  $\pm 2^\circ$  what is causing the problem?**

**A4:** SPC offers up to a  $2.00^\circ$  sleeve offset, however depending on which component of the axle is no longer in factory specification and what alignment change you are trying to achieve, you may not be able to utilize all of that change. This is particularly true for adding negative camber. Because negative camber change pushes the axle shaft and U-Joint farther into the axle, the amount of change possible before binding or bottoming of the axle shaft against the differential depends on what component of the axle has bent. When installing offset truck sleeves, careful inspection is required to check for and correct any contact or binding of the rotating components.



**Q5: Which truck sleeve should I use for my 2005+ Ford F-450 4x4?**

**A5:** Ford produced two variations of the F-450. The first was a medium-duty Class-4 cab-chassis similar to the F-550, the second was light-duty Class 3 conventional pickup version similar to the F-250 & F-350.

Cab-chassis trucks utilize a Dana Super60 front axle distinguished by a 10-bolt wheel lug nut pattern and require a 23230-series truck sleeve.

Pickup versions utilize a Dana 60 front axle distinguished by an 8-bolt wheel lug nut pattern and require a 23220 series truck sleeve.

*NOTE: It may be possible that certain pickup version F-450s were built with an upgraded tow package and may require a 23230-series truck sleeve. Counting lug nuts is the easiest way to determine which front axle you have.*

**Q6: The truck sleeve I am installing does not fully seat down on the axle surface. What should I do?**

**A6:** Truck sleeves work by slightly spreading and wedging themselves between the ball joint tapered shaft and the hole in the axle housing as the ball joint nut is tightened. On most axles there is a flange or a tab that indexes the orientation of the sleeve. The sleeve does not need to be seated completely against the axle surface to work properly; the flat of the octagon just needs to be slightly below the shoulder on the axle to keep the sleeve from rotating if it were ever to come loose. After proper torqueing of the ball joint nut the cotter pin should fit properly. To prevent binding in the ball joints do not over-torque the ball joint nut.

