Installation Guide – Cupped Outer Tie Rods – 94-04 Ford Mustang

Detroit Drifting Company LLC – PN DDC-SN95-OTR4C - Rev1 Nov 2023

Thank you for your purchase! We hope you enjoy our cupped outer tie rods!

Please read and understand these instructions in their entirety BEFORE performing installation. Professional installation is required!

1. Safely lift and support vehicle.
2. Remove the old outer tie rod from the steering knuckle (aka spindle) and the inner tie rod. Leave the old jam nut on the inner tie rod. Ensure the knuckle hole is clean. Use a wire brush or other suitable tool to remove debris or corrosion from the hole.
3. Install the tapered adapter stud into the bottom of the knuckle hole. Hold the taper stud by the hex feature and secure the top nut. Torque to 40 ft-lbs.
4. Loosely install the cupped outer tie rod onto the inner tie rod. Slide the ½" tall, tapered spacer onto the adapter stud. Position the larger end of the spacer against the bottom face of the knuckle, ensuring it sits flat. Determine bump steer correction spacing and install additional spacer stack on the adapter stud. **See Note at the end of this document for setup guide.
5. Pivot the tie rod assembly about the inner joint and slide it over the stud. The knuckle assembly may need to be turned a little to get the rod end positioned onto the adapter stud.

   The relieved portion of the outer tie rod body should be positioned towards the vehicle's rear so that when the leading wheel is at steering lock, the tie rod body will have more clearance around the ball joint.

6. Install the lower securing nut onto the adapter stud – hold the hex feature and torque the securing nut to 55 ft-lbs.
7. Repeat for both sides of the vehicle, then perform a wheel alignment. We recommend applying paint mark lines to all hardware after the final torque to monitor for loosening/movement.

   ***When tightening the inner tie rod jam nut against the cupped tie rod body, hold the cupped outer tie rod body with a crescent/adjustable wrench or another suitable tool. Do not jam the rod end by fully articulating it and using this to prevent the cupped outer tie rod body from rotating. This may cause damage.

   ***It is normal for the outer rod end to break in after a few months of use. "Broken in" may present itself as a minor click between the ball and outer housing. This is normal, and does not affect the performance of the unit.

   ***Ensure proper thread engagement of the inner tie rod into the cupped outer tie rod body. 20mm or more of thread engagement per side is required. If thread engagement is inadequate or uneven, centering of the steering rack in its travel should fix the issue.

Parts List:

X2 Tapered Adapter Stud
X2 Cupped outer tie rod body – with modified rod end.
X2 Bump Steer shim stack assortment
X2 1/2-20 SAE Grade 8 Nylock Nut
X2 5/8-18 SAE Grade 8 Nylock Nut

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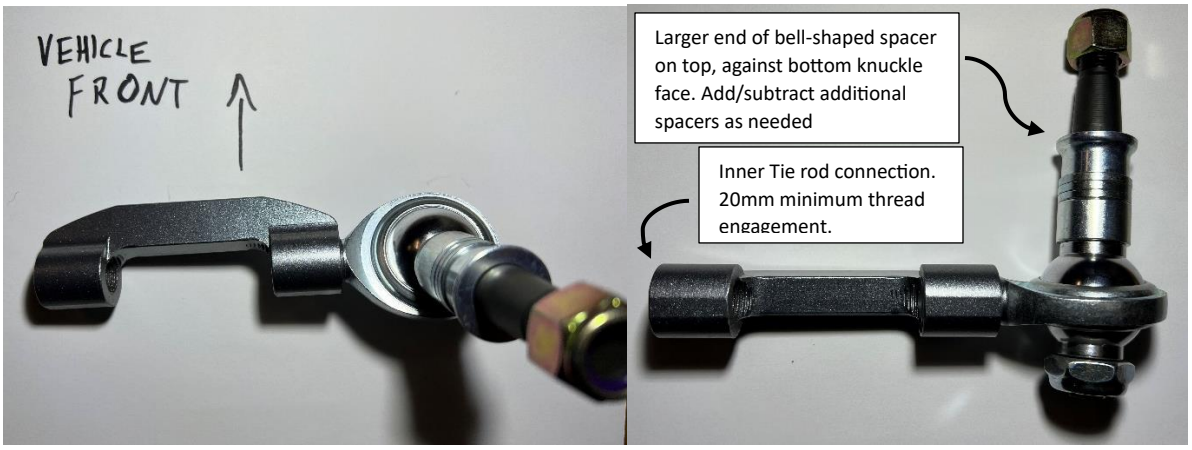

Bump Steer Spacer Setup:

----- What is Bump Steer? -----

Bump Steer is a change in toe angle caused by the suspension moving up and down, and occurs under conditions such as braking dive, body roll, or hitting a bump in the road. Bump steer is generally undesirable since the vehicle suspension geometry is inadvertently and effectively steering the wheels in either direction instead of the driver. The amount of toe change during suspension movement correlates to the difference in arc length between the lower balljoint and tie rod assembly.

----- How to fix bump steer -----

One method to mitigate Bump steer is by moving the steering rack up or down in its mounts. In cases where this is not possible, bump steer correcting outer tie rods are used. In some cases, not all bump steer can be corrected for, but it can be significantly improved.

A basic method for determining how much bump steer correction is required can be simply determined by sighting the vehicle's suspension from the front with the vehicle at ride height. The idea is to match the angle of an imaginary line created by the lower control arm inner mount point through the outer balljoint pivot point, with a similar imaginary line drawn between the inner and outer tie rod pivot points. By matching the angles of these imaginary lines, your bump steer should be into the ballpark of being correct.

To more accurately and correctly set bump steer, a specialty bump steer gauge should be used. Often times, race shops that provide alignment services will have the means to properly measure and adjust bump steer.

Warranty/Disclaimer: