



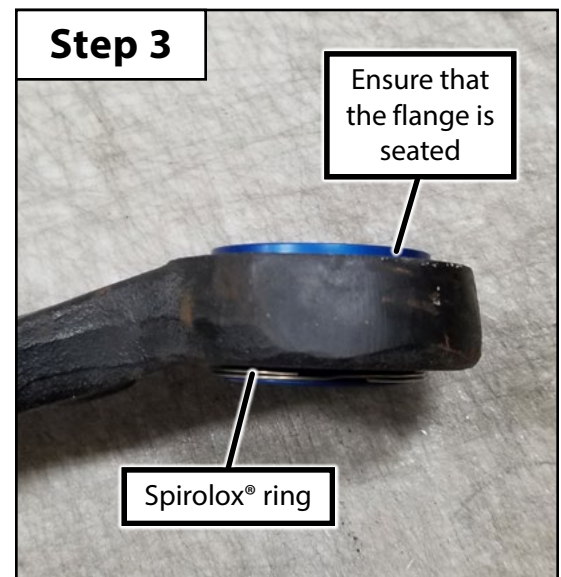
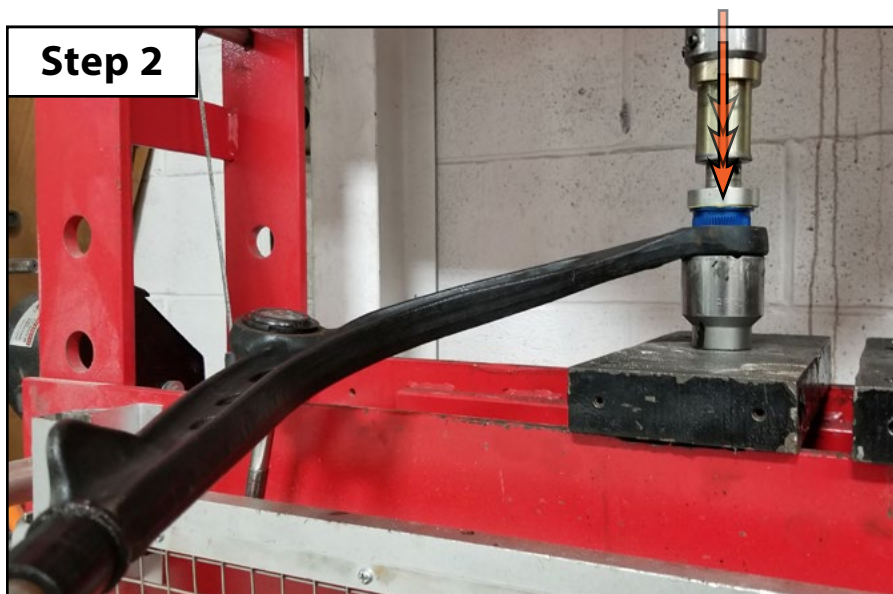
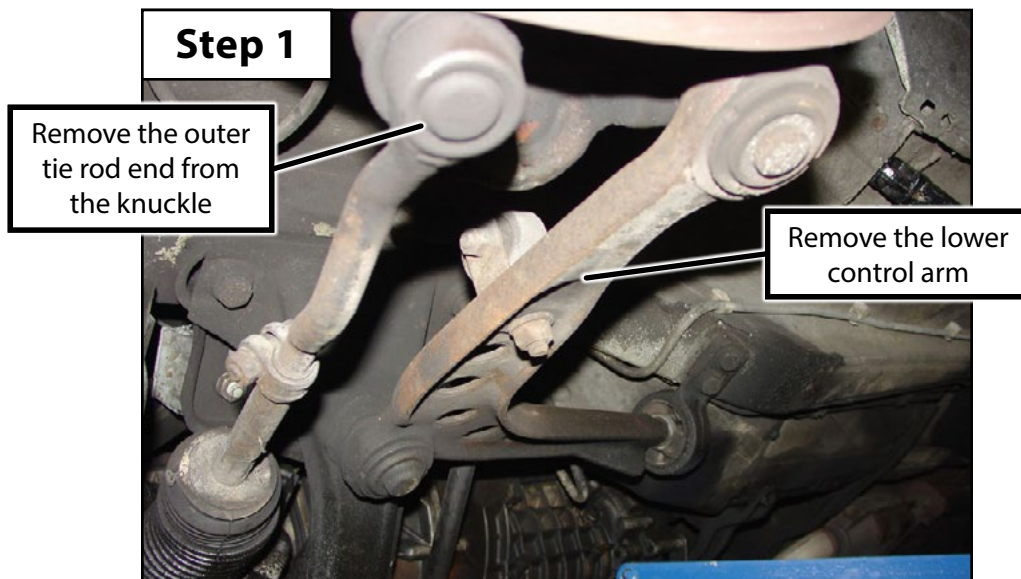
(Page 6)



Proper service and repair procedures are vital to the safe, reliable operation of all motor vehicles as well as the personal safety of those performing the repairs. Standard safety procedures and precautions (including use of safety goggles and proper tools and equipment) should be followed at all times to eliminate the possibility of personal injury or improper service which could damage the vehicle or compromise its safety.

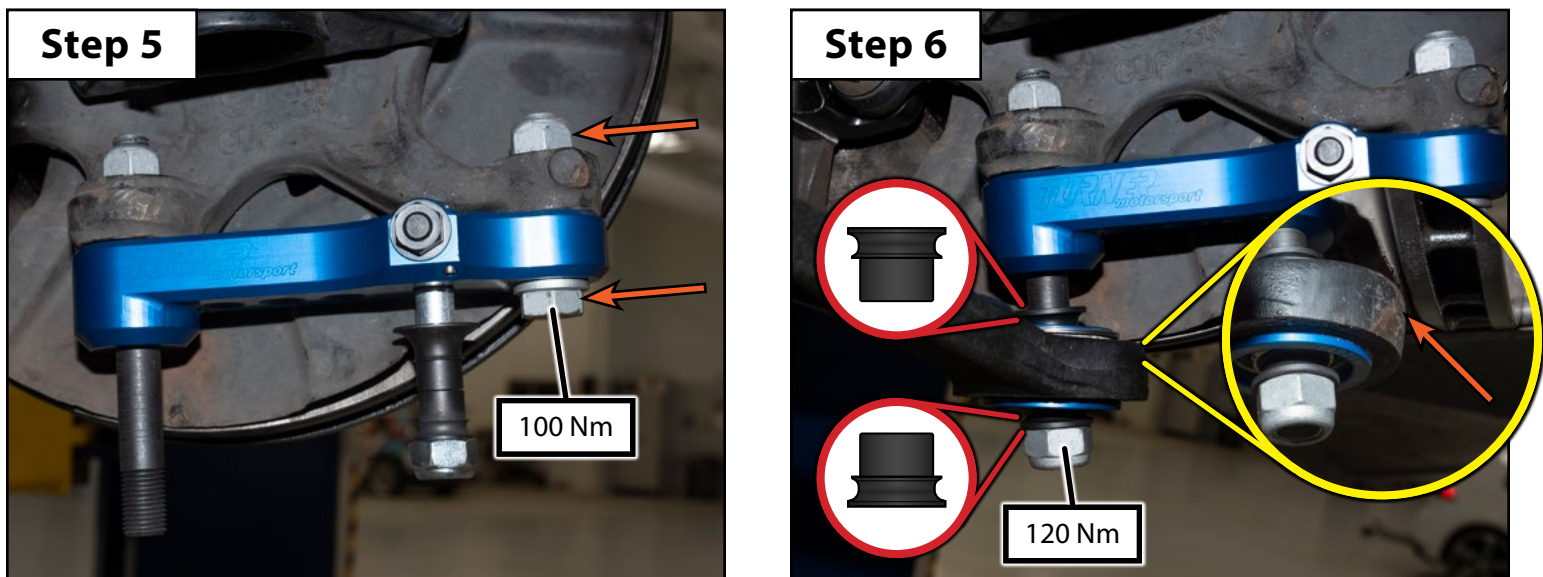
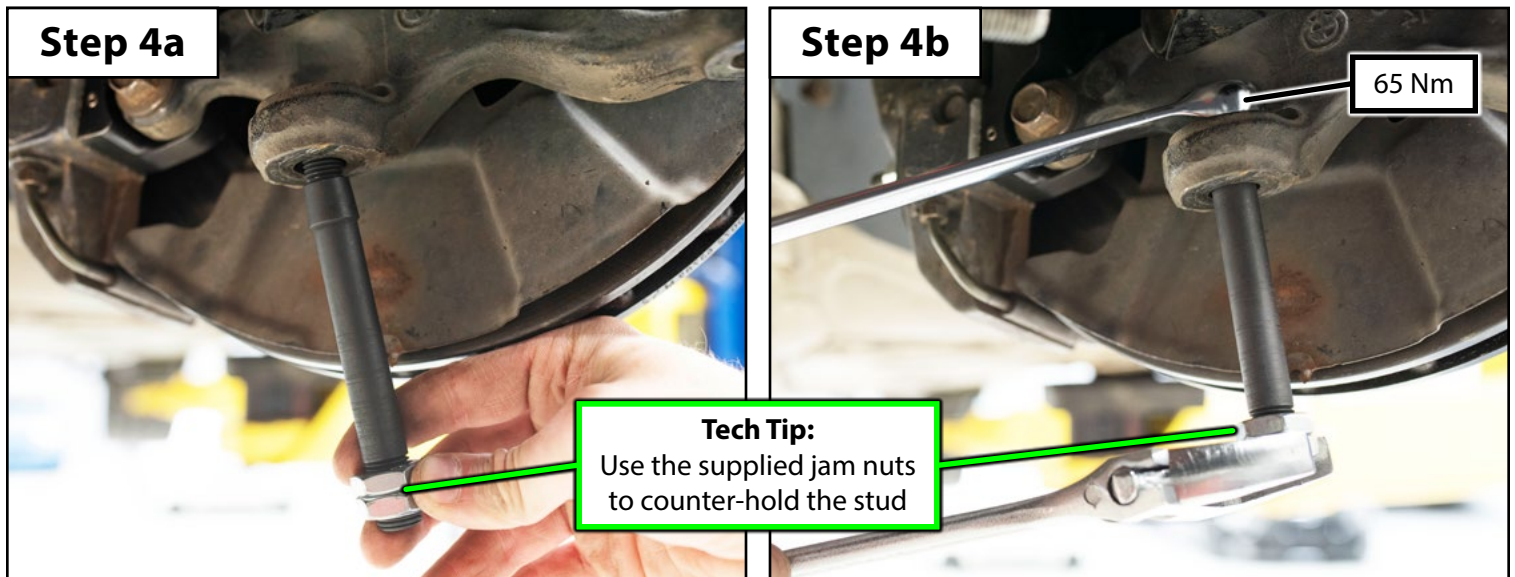
## Section 1: Roll Center Correction Kit Installation

- Step 1**
- Safely lift and support the vehicle.
  - Remove the front wheels.
  - Remove the lower control arm.
  - Remove the outer tie rod end from the knuckle.
- Step 2**
- Press the outer ball joint out of the lower control arm.
  - Press the new ball joint adapter into the control arm slowly and carefully, ensuring that it remains square to the arm and presses in straight the entire way during installation.
    - Be sure to press the adapter into the control arm in the same direction as the stock ball joint.
    - **STOP IMMEDIATELY** once any part of the adapter flange bottoms out against the arm. Continuing to press on the adapter after it is seated may cause irreparable damage to the internals.
- Step 3**
- Install the Spirolox® lock ring into the groove in the ball joint adapter.
    - The Spirolox® lock ring is not the primary retention feature keeping the adapter in place, it is added here for extra security and thus does not need to be bottomed out against the control arm.
    - The adapter housing is a tight tolerance part which should not move in the control arm once pressed into place.



## Section 1: Roll Center Correction Kit Installation

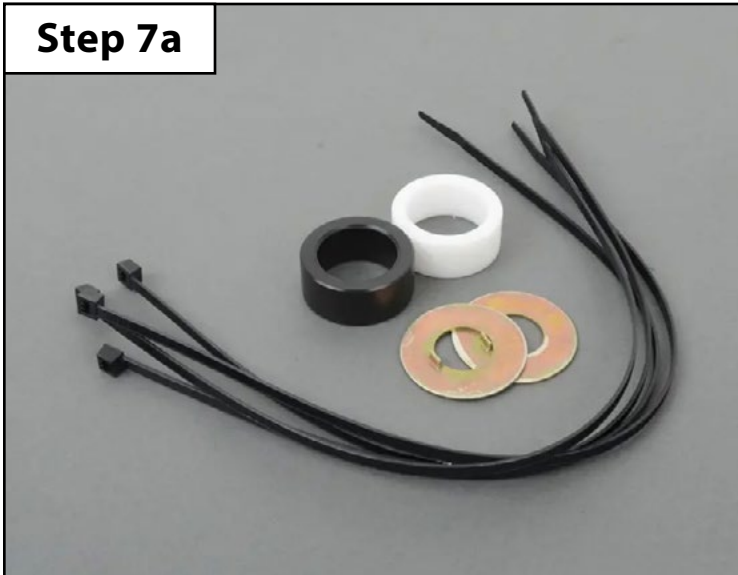
- Step 4**
- Install the supplied tapered stud into the knuckle from below (**Step 4a photo**).
  - Counter-hold the stud from below while you torque the M12 lock nut up top to 65 Nm (**Step 4b photo**).
    - The M14 jam nuts which are supplied in the kit work very well here. Remove the jam nuts once the lock nut has been tightened, they will need to be installed onto the inner tie rod ends later on.
- Step 5**
- Install the plate onto the knuckle using the supplied M12 bolt and lock nut (**Step 5 photo**).
    - You may find a number of 1mm thick spacer shims pre-installed onto this bolt. Remove these shims and set them aside for now, they are used to adjust for bump-steer.
  - Tighten the bolt to 100 Nm.
- Step 6**
- Install the lower control arm into place, then slide the two supplied spacers into the ball joint adapter and slide it onto the stud (**Step 6 photo**).
    - Due to manufacturing differences, you may find that your lower control arm will not clear the brake rotor dust shield. If this happens to you, we would suggest using a grinder to clearance the end of the control arm, then apply a coat of paint to protect it from corrosion (arrow in the **Step 6 inset photo**).
  - Tighten the lower ball joint nut to 120 Nm.



## Section 1: Roll Center Correction Kit Installation

- Step 7**
- For Race Kits only:
  - Install the steering rack stop kit.
    - Reference the instructions on [T#304084](#) for this procedure (**Step 7a photo**).
    - Once complete you should have the inner tie rod boots secured with the supplied zip ties, and the new jam nuts should be threaded on (**Step 7b photo**).
- Step 8**
- Install the rubber boots onto the new rod ends.
    - Start by sliding the threaded end through one of the side holes in the boot (**Step 8a photo**).
    - Pull the threaded end out through the bottom hole in the boot (**Step 8b photo**). Spray a little bit of silicone spray in the side hole of the boot to make this part easier.
    - Line up the side holes in the boot with the joint (**Step 8c photo**).

**Step 7a**



**Step 7b**



**Step 8a**



**Step 8b**

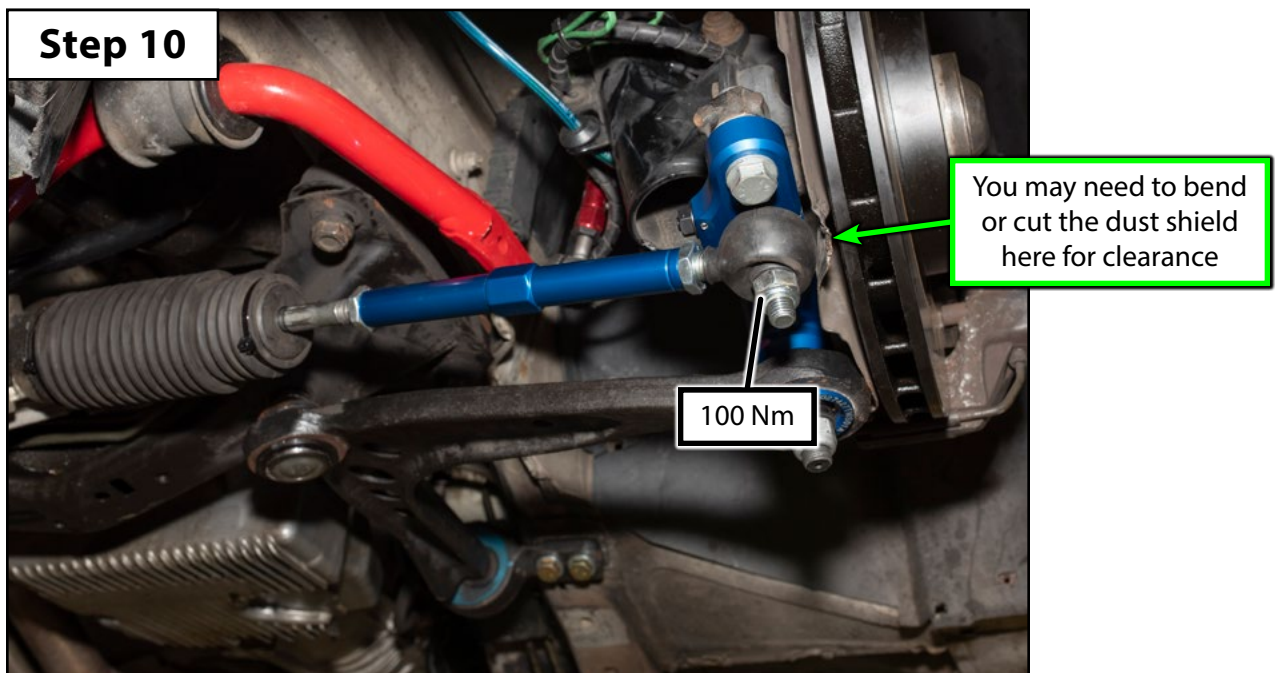
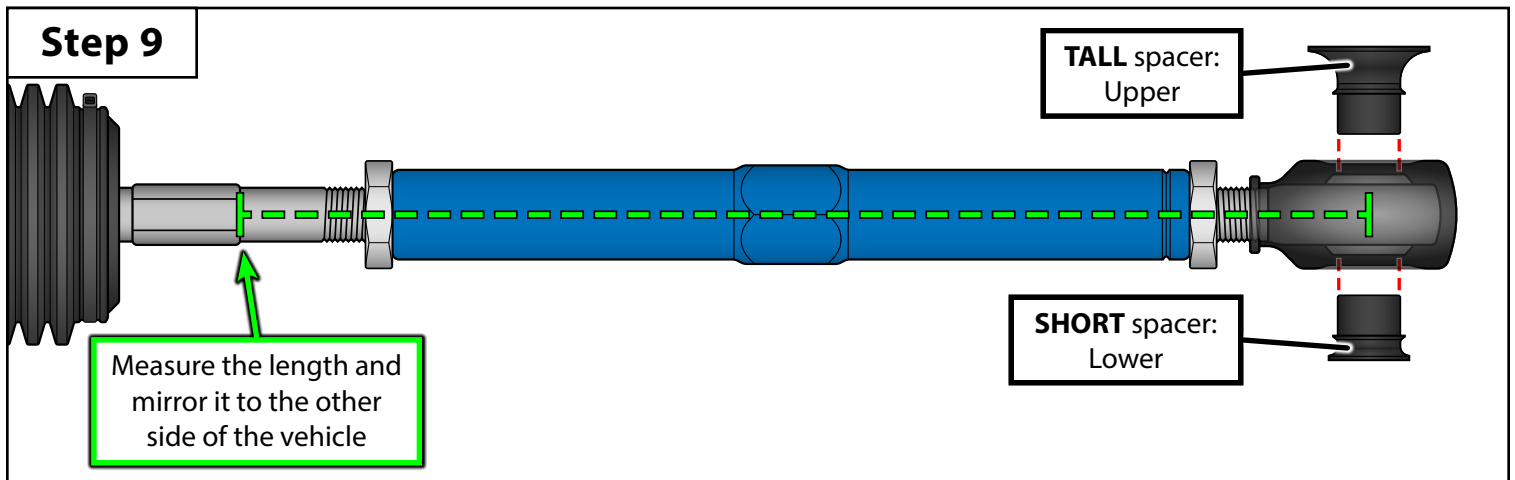


**Step 8c**



## Section 1: Roll Center Correction Kit Installation

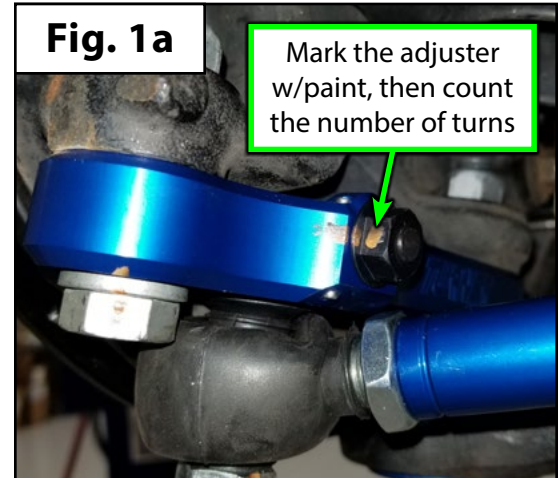
- Step 9**
- Install the new threaded adapter, outer tie rod, jam nuts and spacers onto the inner tie rod end (**Step 9 photo**).
  - Measure the length of the entire tie rod assembly so you can mirror that length to the other side.
- Step 10**
- Connect the outer tie rod to the plate on the knuckle.
  - Install the supplied lock nut onto the rod end bolt and torque it to 100 Nm (**Step 10 photo**).
  - Please proceed to Section 2 for adjustment guidelines.
  - Reinstall the wheels and torque them to specification.
  - Perform a 4-wheel alignment (**after reading through Section 2**).



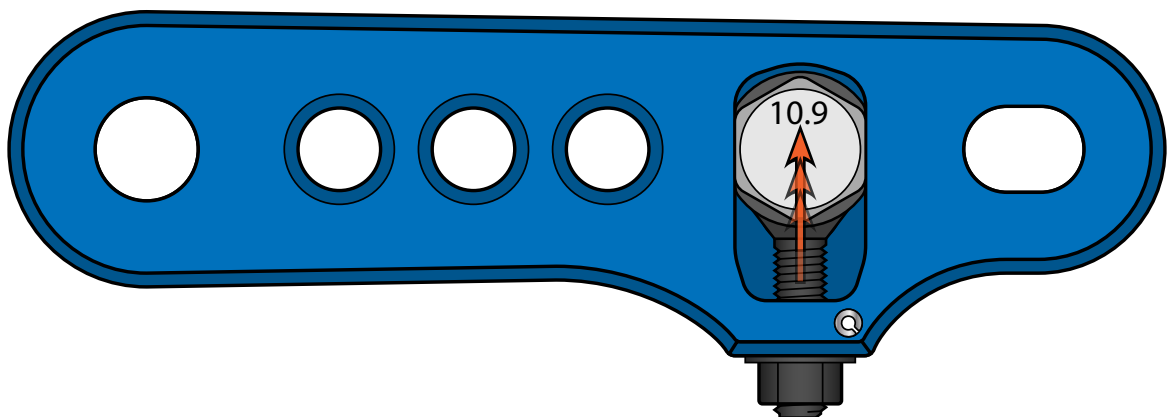
## Section 2: Adjustment Guidelines

### Ackerman Adjustment

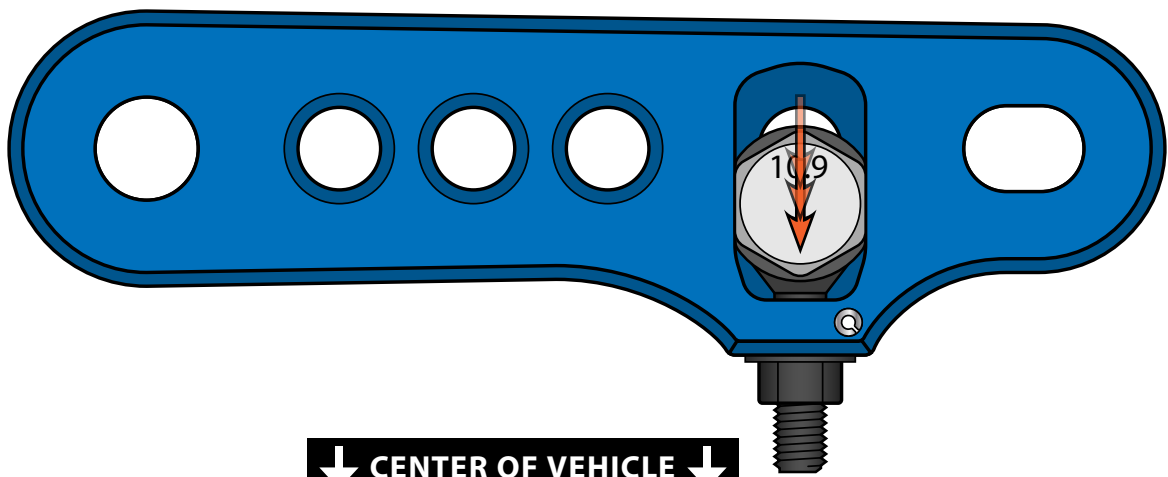
- [Ackerman](#) geometry is used to prevent tire slip while going around a corner by causing the inside tire to follow a tighter radius than the outside tire. Ackerman adjustment is a popular mod in the drifting community. Adjusting Ackerman can allow for more steering angle, as well as more stability during a drift because the tires are staying more parallel.
- You **MUST** loosen the outer tie rod nut **BEFORE** adjusting Ackerman so you don't shear off the adjuster, but you don't want to loosen it too much or the adjuster may pivot inside the plate. Backing the tie rod nut one full turn should be adequate.
- The adjuster is retained inside each plate, turning this adjuster will move the outer tie rod bolt inward or outward (**Fig. 1b & Fig. 1c**).
- When making adjustments we suggest setting the adjuster to the stock setting, then mark the adjuster with a paint marker and count the number of rotations. This way you can mirror the adjustment to the other side of the vehicle (**Fig. 1a**).
- **Fig. 1b** shows the adjuster at the stock position. This setting would feel similar to when the vehicle was stock.
- **Fig. 1c** shows the adjuster at the maximum setting. This setting could be useful for more extreme driving such as drifting.
- Ackerman **MUST** be set before setting front toe.
- Be mindful of your wheel and tire clearance when adjusting Ackerman.



**Fig. 1b**



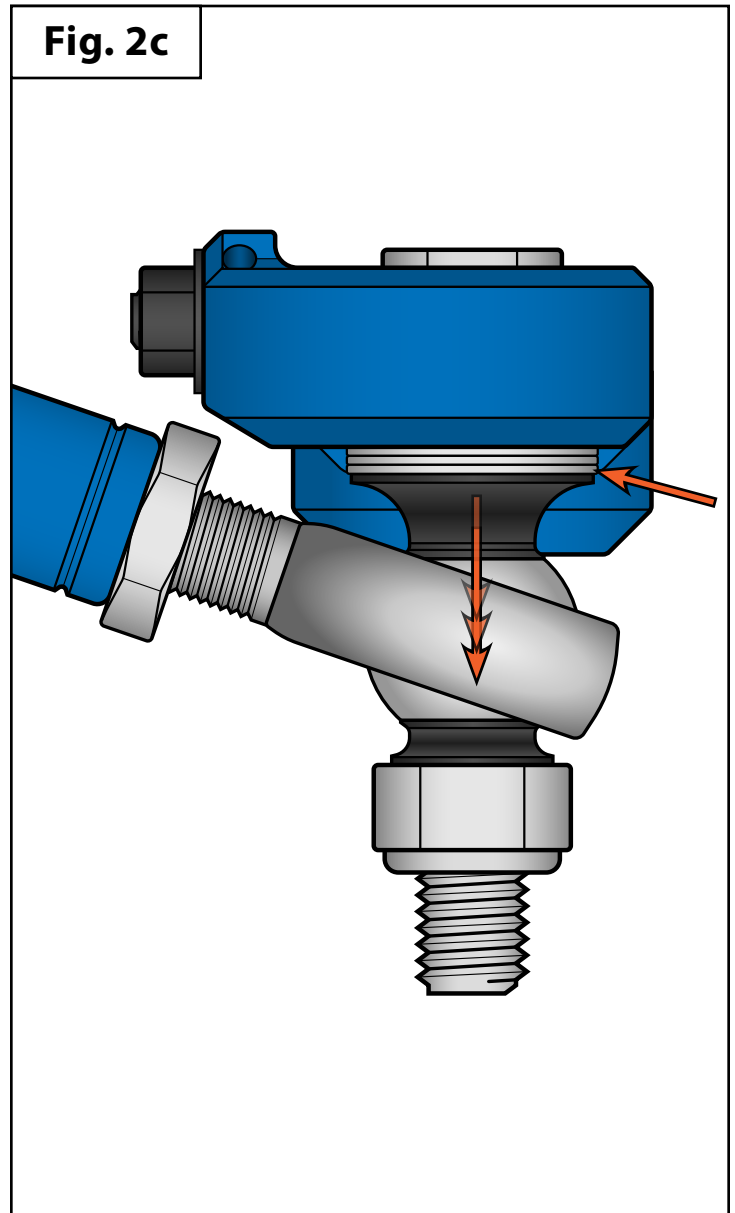
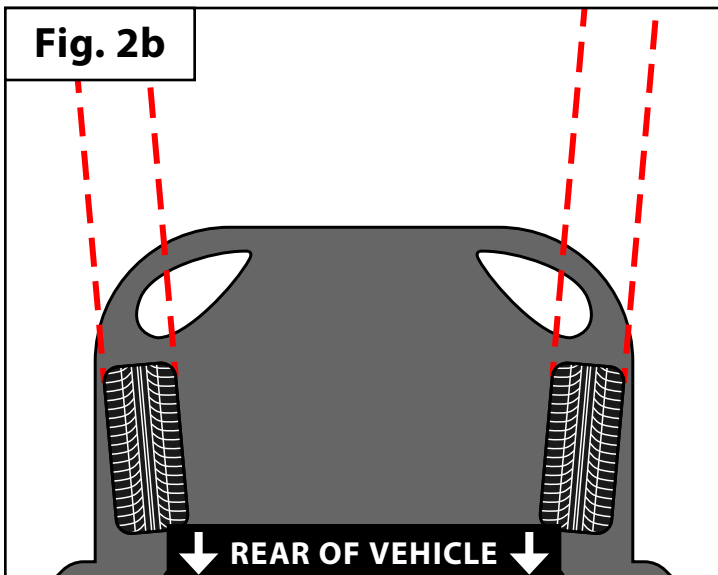
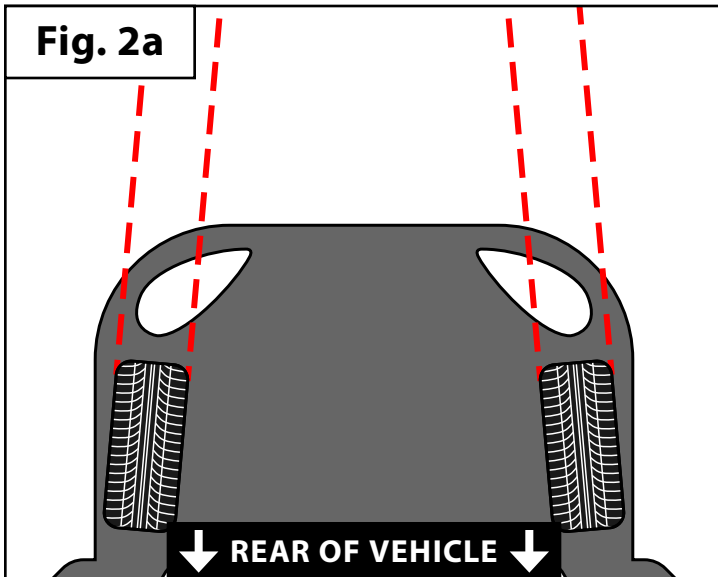
**Fig. 1c**



## Section 2: Adjustment Guidelines

### Bump Steer Adjustment

- [Bump steer](#) is defined as the tendency of the wheel to steer itself as the suspension travels up and down.
- Changes in caster may increase the amount of bump steer.
- Depending on your suspension geometry, you may experience bump toe-in (**Fig. 2a**), or bump toe-out (**Fig. 2b**).
- Bump steer can be adjusted with the 1mm shims which are included with the kit.
- These shims are installed between the plate and the upper tie rod spacer. They alter the angle at which the tie rod connects to the knuckle.
- If with zero spacers you find that you have bump toe-in, add spacers one at a time to get closer to zero bump toe-in.
- This adjustment **MUST** be made after the initial alignment has been performed.
- Be mindful of your wheel and tire clearance when adjusting for bump steer.



## Section 2: Adjustment Guidelines

### Plate-To-Tie Rod Contact

- Depending on your suspension geometry, you may find that the outer tie rod, or the jam nut may make contact with the plate on the knuckle when the suspension is at full droop (**Fig. 3a**).
- If you find this on your vehicle, simply thread the jam nuts and the turn buckle inward to gain the clearance you need (**Fig. 3b**). It is critical to ensure that you still have proper thread engagement inside the turnbuckle.
- Alternatively, you could also add clearance while shimming for bump steer as outlined on the previous page.

