AEV High Steer Kit

2018+ JL Wrangler (Rubicon)

&

2020+ JT Gladiator (Rubicon, Mojave, & Sport Max Tow)

INSTALLATIONGUIDE

NEW PRODUCT

Please visit www.aev-conversions.com to view the most current installation guide for this product.

This is a new product and we want to make sure that you receive the latest and most accurate information based on customer feedback, product revisions, and/or model year updates. We value customer feedback, so we encourage you to contact our Technical Support department if you have any suggestions on how to make the installation of this product easier or if you have any questions regarding the installation of this product. AEV's Technical Support can be reached by email at tech@aev-conversions.com or by giving us a call at (248)-926-0256.

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Last Updated: 06/03/25

PLEASE READ BEFORE YOU START

To guarantee quality installation, we recommend reading these instructions thoroughly before beginning any work. These instructions assume a certain amount of mechanical ability and are not written nor intended for someone not familiar with auto repair.

INCLUDED PARTS	QTY
AEV High Steer Knuckles	1
AEV Tie Rod	1
AEV Drag Link	1
Track Bar Relocation Bracketry	1
AEV Steering Stabilizer Clamp	1
Hardware Pack	1

REQUIRED TOOLS
Metric Allen Wrench Set
Torque Wrench
Center Punch
Sledgehammer
Blue and Red Threadlocker
Metric Sockets and Wrenches
Common Hand Tools
Drill and Drill Bits

NOTE: During removal of stock factory components, please keep the hardware and bracketry that is removed organized as most of this will be used for reinstallation in later steps.

I. Installation

1. Jack your vehicle up and place jack stands under the frame behind the lower control arm frame brackets. Remove the front wheels from the vehicle.

2. Remove steering stabilizer

   A. Use an 18mm wrench or socket to remove the mounting bolt and nut that attaches the stock steering stabilizer shock on the passenger side of the tie rod (Fig. 1).

Figure 1

   B. Then, using an 18mm wrench or socket, remove the bolt on the opposite end of the steering stabilizer shock where it connects to the axle housing bracket (Fig. 2). Remove the steering stabilizer shock and set aside.

Figure 2

   C. Remove the three M8 bolts securing the factory steering stabilizer shock axle bracket to the axle housing using a 13mm socket (Fig. 3). Remove the bracket from the axle and set the bolts aside for later use.

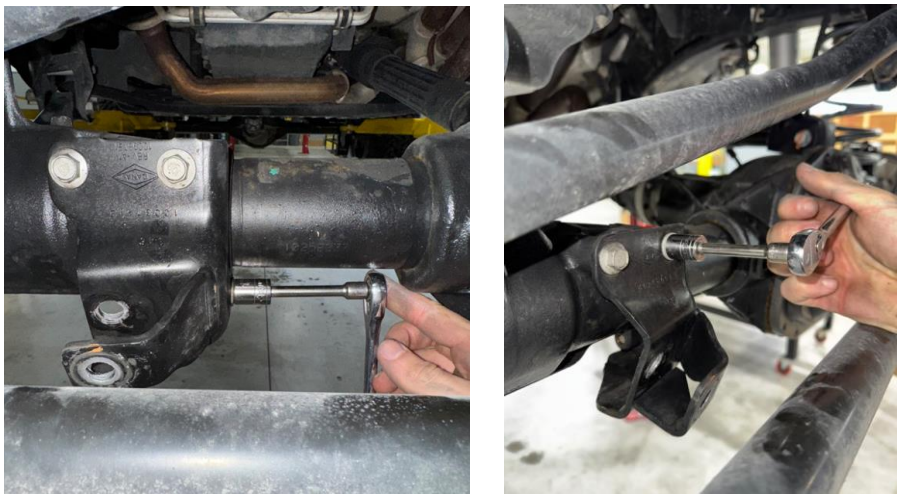

Figure 3

3. Factory Tie Rod Removal

   A. On both ends of the factory tie rod, loosen the nuts, but do not remove completely (Fig. 4).

      i If the nut begins to spin with the tie rod stud, hold the top of the stud with a 10mm socket/wrench and continue loosening the nut with a wrench.

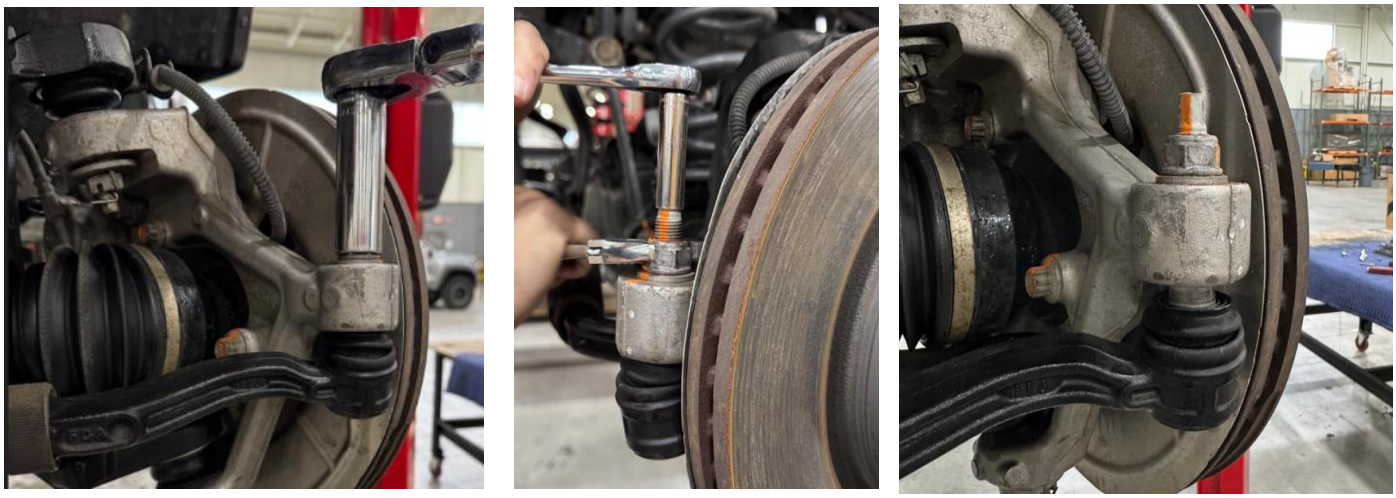

Figure 4

B. Once both nuts on the tie rod ends are loose, hit the face of the steering knuckle with a sledgehammer to break the tie rod loose from the knuckle (Fig. 5). The nuts left on the end of the tie rod bolts will prevent the tie rod from falling.

Figure 5

C. Remove nuts and proceed to remove tie rod from vehicle.

4. Starting on the Left Hand (Driver's) side of the vehicle, using a 10mm wrench, remove the bolt that secures the brake hose retaining bracket to the back of the coil spring bucket, and detach the bracket from the coil spring bucket. Pull the bracket free from the coil bucket to give the brake hose some slack (Fig. 6).

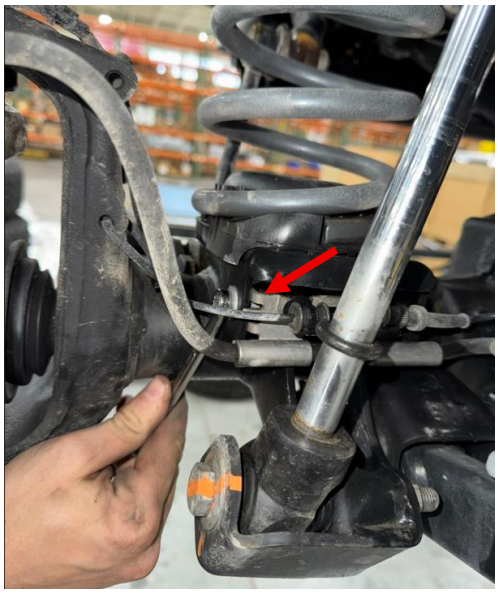

Figure 6

5. Locate the wheel speed sensor wire, going up the back of the inner C-knuckle, find the plastic clips and rubber barrels that secure it to the wire bail on the back on the knuckle. Disengage all wire clips and rubber barrels so that the wire is loose (Fig. 7).

Figure 7

6. Left Hand (Driver's Side) Steering Knuckle Removal

   A. Loosen the two brake caliper bolts starting with the bottom bolt and then moving to the top bolt. Once loosened, remove the two bolts and take the caliper off the rotor (Fig. 8). Secure the caliper and brake hose up and out of the way.

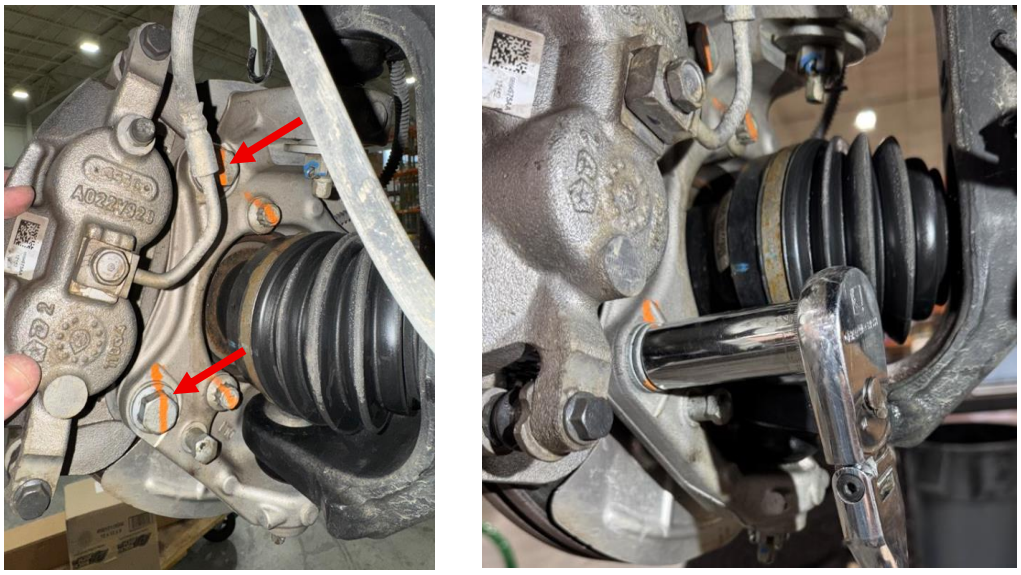

Figure 8

B. Remove the T-30 Torx bolt attaching the rotor to the unit bearing and set aside (Fig. 9). Remove the rotor and set it aside.

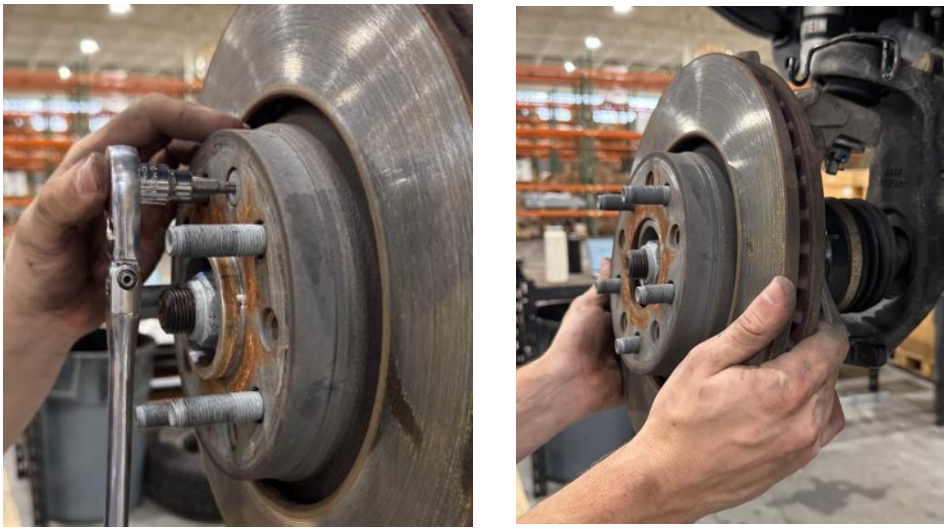

Figure 9

C. Remove the three dust shield bolts using a 10mm socket (Fig. 10). Remove the dust shield and set aside.

Figure 10

D. Locate the wheel speed sensor screw and carefully remove with an Allen Wrench and pull the sensor straight out of the unit bearing (Fig. 11). Place the sensor in a secure location until re-installation.

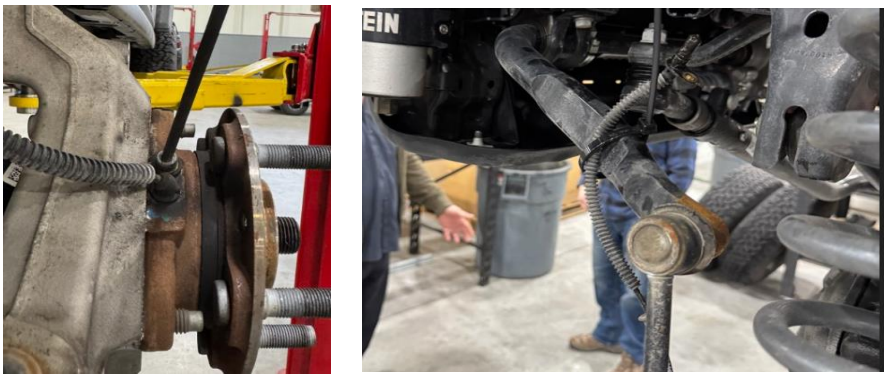

Figure 11

E. Locate the three 12-point bolts that retain the unit bearing to the knuckle and remove with a 13mm, 12-point socket (Fig. 12).

Figure 12

F. Remove the CV Axle and unit bearing from the front differential by pulling it straight out of the axle housing (Fig. 13).

Figure 13

G. Remove the cotter pins on the stock knuckle's ball joints (Fig. 14). Loosen the ball joint castle nuts and unscrew them to the end of the bolt, do not remove these completely.

Figure 14

H. Hit the knuckles with a sledgehammer on the outer surface of the ball joint to break the tapers loose (Fig. 15). The loosened nuts will prevent the knuckle from falling. Once loose, remove the nuts and factory knuckle and set aside.

Figure 15

7. AEV High Steer Knuckle Installation (Driver's Side)

A. On the stock knuckle you just removed, remove the tapered ball joint camber sleeve from the top of the factory knuckle. Install this ball joint sleeve you just removed from the stock knuckle into the driver's side AEV High Steer Knuckle up through the top ball joint mounting hole (Fig. 16).

Figure 16

B. Take the AEV High Steer Knuckle and install this back onto the ball joints of the vehicle. Install this in the same way that the stock knuckle was removed. Ensure the camber sleeve stays in place and goes into the upper ball joint taper properly (Fig. 17).

Figure 17

C. Take the castle nuts you previously removed and reinstall these to secure the upper and lower ball joints. Torque the lower ball joint nut to 22 ft-lbs. (initial), then torque the upper ball joint nut to 55 ft-lbs., and finish by torquing the lower ball joint nut to 48 ft-lbs. (final). Once both the ball joint nuts are fully torqued, reinstall the cotter pins.

D. Reinstall the CV axle shaft after castle nuts are torqued to specification. The axle shaft will slide back into the axle housing once the internal spines are aligned. The shaft can be rotated slightly while pushing it into the axle to do this.

Figure 18

E. Take the three 12-point unit bearing bolts that were removed previously and reinstall these to secure the unit bearing to the AEV knuckle (Fig. 19). Apply blue threadlocker to the three bolts before installation. Torque to 75 ft-lbs.

Figure 19

F. Reinstall the wheel speed sensor and tighten the allen screw to secure it in place (Fig. 20).

Figure 20

G. Using the three dust shield bolts previously removed, reinstall the dust shield (Fig. 21). Torque to 8 ft-lbs.

Figure 21

H. Reinstall the rotor and secure it in place with the original Torx bolt removed previously (Fig. 22). Torque to 15 ft-lbs.

Figure 22

I. Take the brake caliper that was moved out of the way and place it back onto the rotor. Secure with the two factory bolts that were previously removed, apply red threadlocker when installing these bolts (Fig. 23). Torque to 148 ft-lbs.

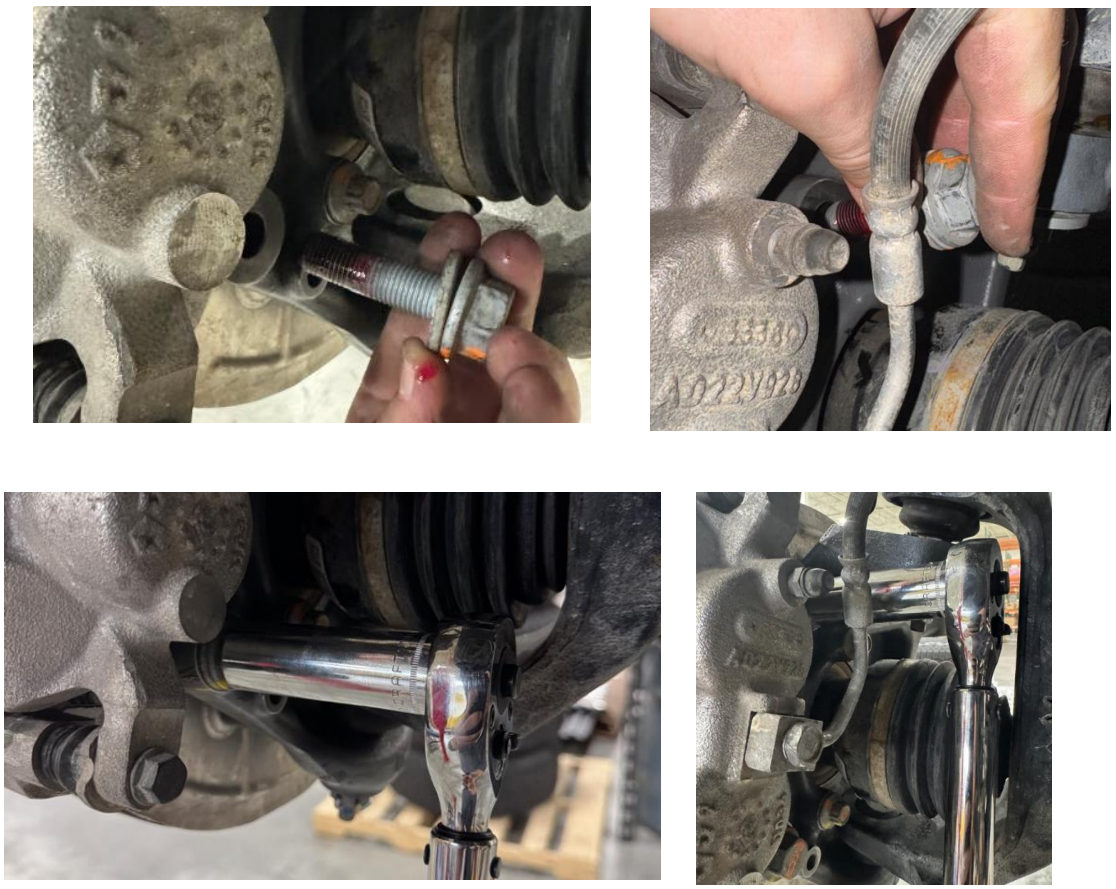

Figure 23

8. Take the brake hose bracket previously removed and reattach this to the back of the coil spring bucket using the original bolt (Fig. 24)

Figure 24

9. Reroute the wheel speed sensor wire to its original location and secure it in place with the wire clips. Once the clips are in place, slide the rubber barrels back into their grooves (Fig. 25).

Figure 25

10. Once the wheel speed sensor wire is back in place, move to the passenger side of the vehicle.

11. Locate the end of the factory drag link that attaches to the passenger side factory steering knuckle. Loosen the nut that secures the drag link to the knuckle, but do not remove completely (Fig. 26).

Figure 26

12. At the opposite end of the drag link that attaches to the pitman arm, loosen the nut with a 21mm wrench (or ratchet wrench) but do not remove entirely. With a sledgehammer, hit the end of the Pitman arm to break the drag link free (Fig. 27). Do this on the knuckle end of the drag link as well. Once free from the tapers, remove the nuts and drag link from the vehicle. **NOTE:** A pickle fork tool may be helpful in separating the ball joint from the pitman arm.

Figure 27

13. Once the drag link is removed, proceed removing the stock knuckle and installing the AEV High Steer Knuckle as detailed in the previous section. Follow the same steps for the passenger side as you did for the driver's side of the vehicle.

14. **Once the passenger side AEV High Steer Knuckle has been installed and torqued to spec, proceed to step 15.**

15. Steering Stop Installation

    A. Using the stock factory knuckles that were removed from the vehicle, measure the steering stop bolts from the face of the knuckle to the top of the bolt. Using this measurement, locate the new adjustable steering stop bolts included in the AEV kit and set the distance from the bottom of the jam nut to the top of the bolt to this measured distance. Measure both driver and passenger side separate, transferring the corresponding measurements on each side for the new steering stops (Fig. 28).

Figure 28

B. Once the steering stop jam nut distances are set, install the new steering stops in the rearward threaded holes of the AEV High Steer Knuckles using 6mm Allen Wrench (Fig. 29). When the bolt is threaded into the knuckle and reaches the jam nut, take a 17mm wrench and tighten the jam nut to the knuckle.

Figure 29

16. Next, remove the front track bar axle bolt and lift the track bar end from the bracket (Fig. 30).

Figure 30

A. Tie the track bar up to the coil spring so that it is out of the way.

17. On the passenger side of the vehicle, locate and remove the bolt that holds the sway bar end-link to the track bar bracket on the axle housing and set aside for later use (Fig 31).

Figure 31

18. Begin to install the smaller front relocation plate into the factory track bar axle bracket. The large hole in the bottom of the front relocation plate will align with the previous track bar through hole. The single hole on the bent arm portion of the bracket should align to the sway bar link hole (Fig. 32).

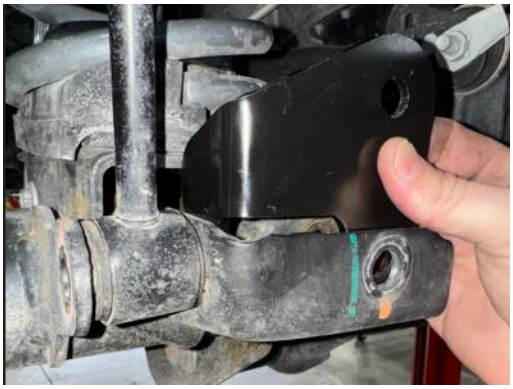

Figure 32

A. Ensure the sway bar end link is seated between the axle brackets and reusing the bolt and flag nut previously removed from this location, reinstall the sway bar end link (Fig. 33). Do not torque this bolt down completely yet.

Figure 33

19. Next, the new rearward track bar relocation bracket needs to be installed. The larger end of the bracket with the weld nut will sit flush with the factory front track bar axle bracket (Fig. 34). The weld nut should sit behind the axle mounted bracket and be in line with the lower track bar mounting hole. The slimmer end will align with the existing holes on the inboard axle steering damper mounting bracket.

Figure 34

A. On the inboard end of the new track bar relocation bracket, loosely reinstall the two factory bolts that were previously removed from the stock steering stabilizer axle mounting bracket (Fig. 35).

Figure 35

20. Align and loosely secure the track bar end to the uppermost hole of the new relocation bracket with the M14x1.5 bolt and flag nut that was previously removed from the original track bar mounting location (Fig. 36).

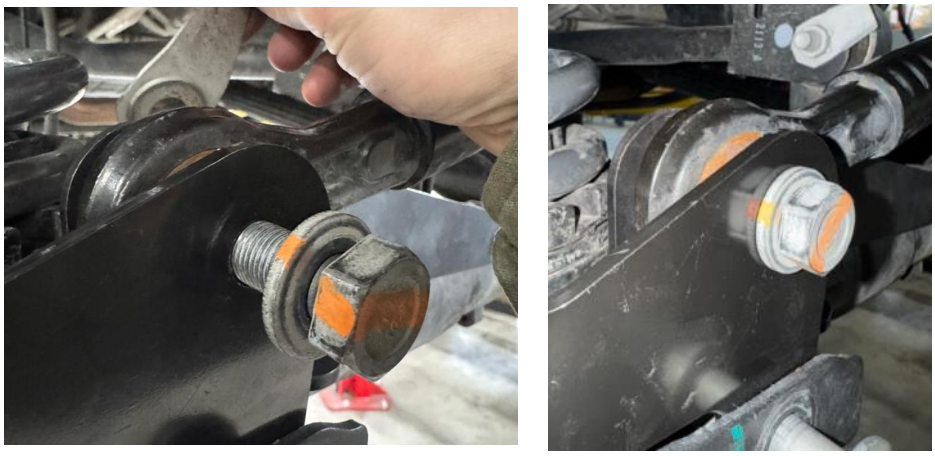

Figure 36

21. Next, use the plastic drill template provided in the kit to locate the drilling location for the new steering stabilizer mounting point. Insert the template into the oval hole in the bottom of the factory track bar axle bracket as shown (Fig. 37).

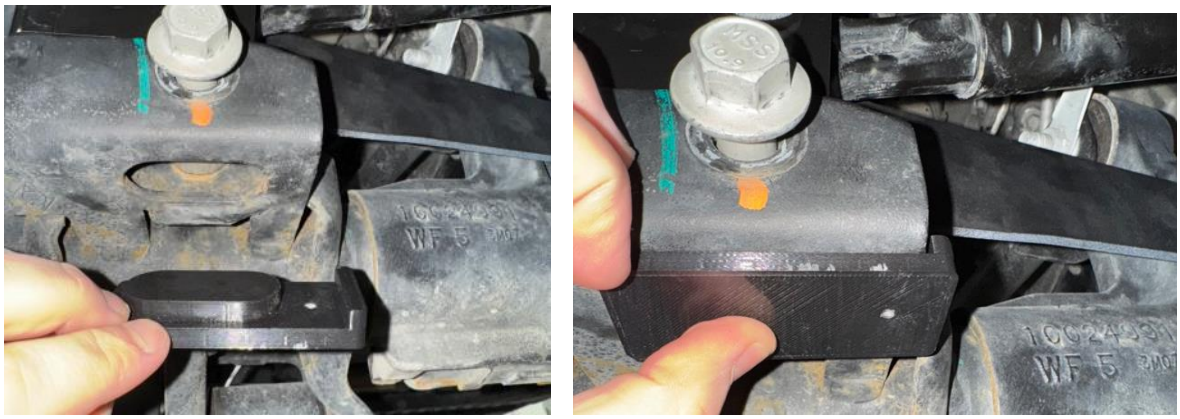

Figure 37

22. Once the template is in place, use a center punch to mark the drilling location in the small hole offset from the slot.

    A. Remove and discard the drill template after the drill location is marked.

B. Drill a pilot hole in the marked location (Fig. 38).

Figure 38

C. Then, drill out the hole using a ½" drill bit (Fig. 39). Deburr and treat with rust preventive.

Figure 39

D. Place the provided axle housing reinforcement bracket into position, aligning the bracket to the hole that you just drilled and the existing stock track bar mounting hole (Fig. 40).

Figure 40

E. Locate the zinc coated steel spacer included in the kit. Install the spacer in the old location of the track bar end where the stock track bar used to mount to on the axle bracket. This spacer will fill the gap between the new bracket and existing track bar axle bracket where the track bar used to mount through (Fig. 41).

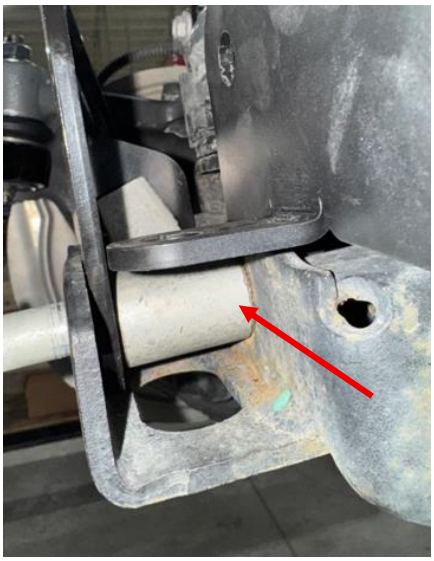

Figure 41

F. Secure the axle housing reinforcement bracket and spacer using the provided M14-2.0 x 80mm bolt in the AEV Kit. This bolt will be secured to the weld nut on the new rearward track bar relocation bracket that was installed prior. (Fig. 42). Torque to 125 ft-lbs.

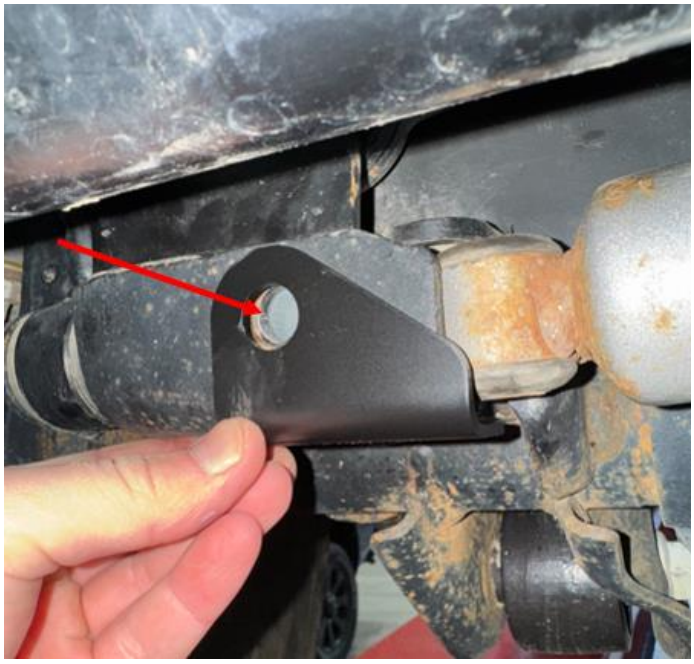

Figure 42

23. Installing the new AEV Drag Link

A. Before installing, set the new AEV drag link length to the measurements below. This will need to be adjusted during alignment after the high steer kit is installed, but these measurements will be close to what the final drag link length will be. Adjust the length to 40.75” from Zerk fitting to Zerk fitting on each end of the drag link (Fig. 43).

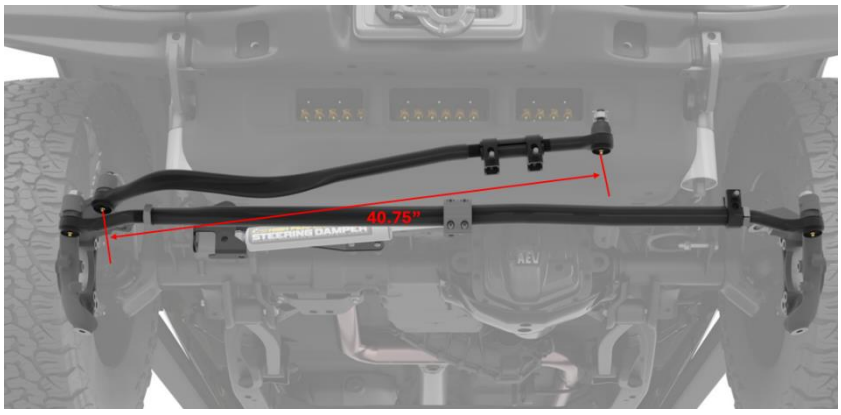

Figure 43

B. Insert the upper AEV drag link end (the drag link end closest to the adjuster sleeve) into the pitman arm (Fig. 44). Secure with the provided nut and loosely tighten.

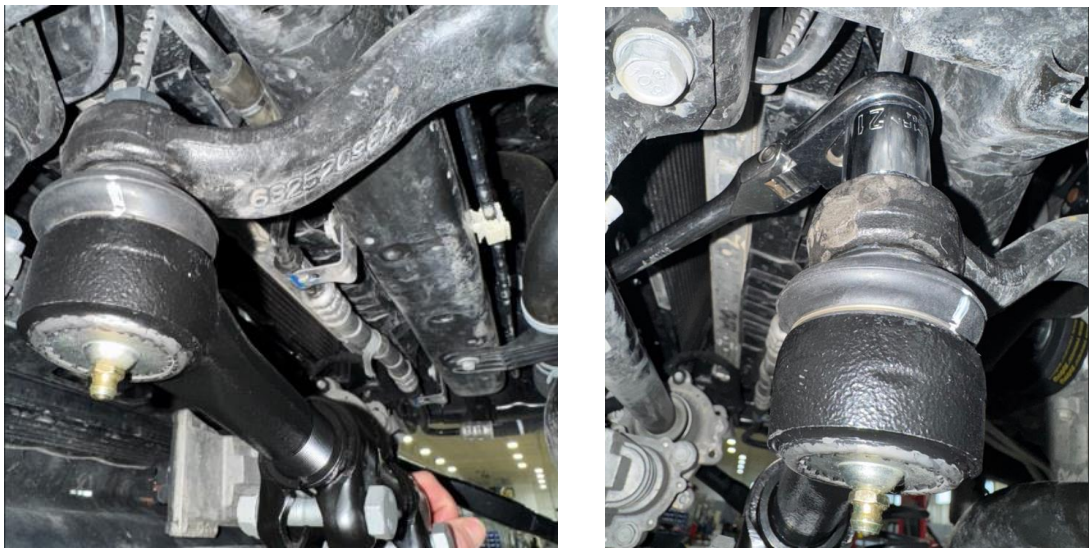

Figure 44

C. Insert the opposite end of the drag link into the uppermost knuckle arm on the new AEV passenger side knuckle (Fig. 45). Secure with provided nut and loosely tighten.

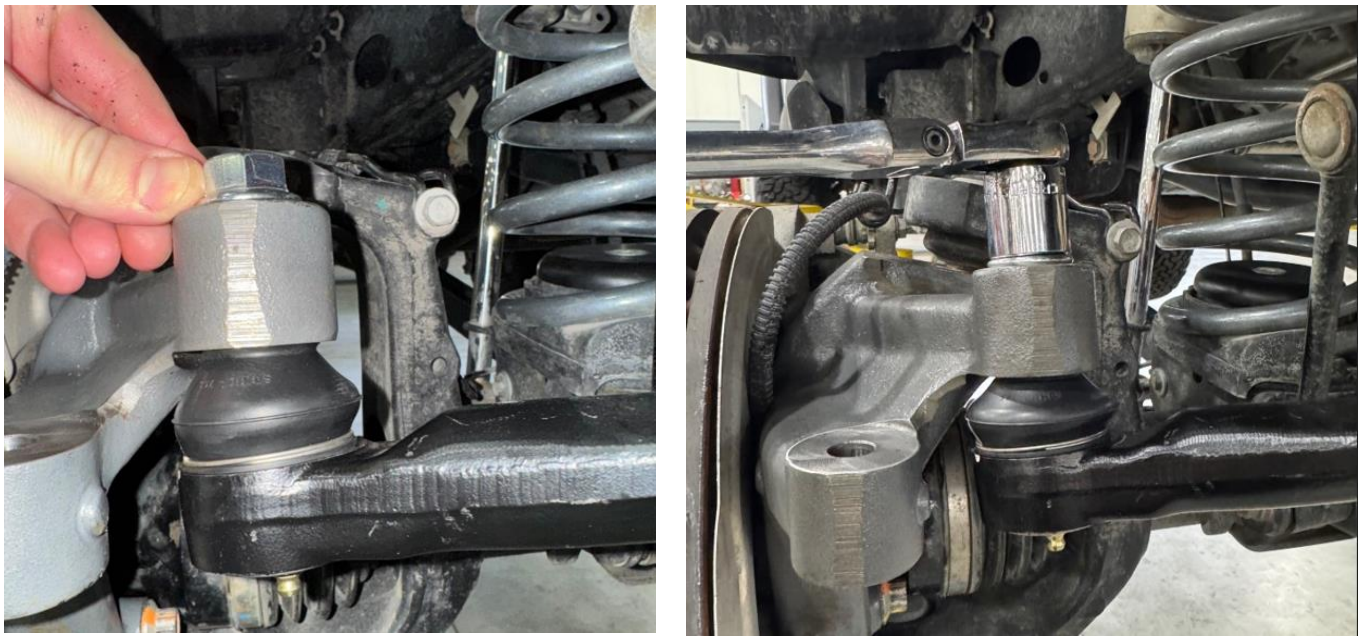

Figure 45

D. Torque the nut at the pitman arm end of the drag link end to 40 ft-lbs. and torque the nut at the knuckle end to 50 ft-lbs.

E. Install the new cotter pins supplied to both the lower and upper drag link ends

24. Installing the new AEV Tie Rod

A. Before installing the AEV Tie Rod, set the new Tie Rod length to the measurements below. This will need to be adjusted during alignment after the high steer kit is installed, but these measurements will be close to what the final Tie Rod length will be. The measurements below are calling out the exposed thread length for each section of the Tie Rod (Fig. 46).

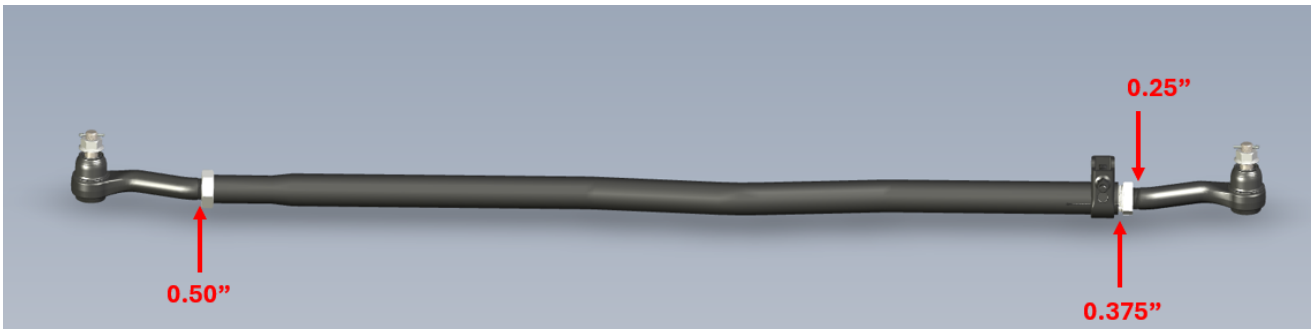

Figure 46

B. Once the Tie Rod length is set, insert the Tie Rod ends up through the bottom of the new high steer knuckle lower arms (Fig. 47). The Tie Rod end that is closest to the adjuster sleeve should be installed on the Driver’s side of the vehicle.

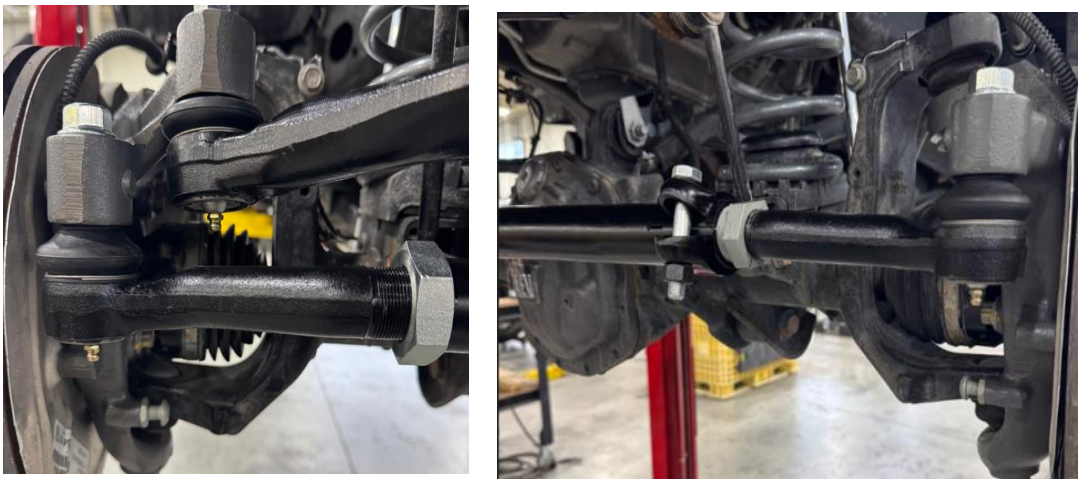

Figure 47

C. Secure the Tie Rod to the knuckles using the provided nuts and torque each to 50 ft-lbs.

D. Install the provided cotter pins on each nut (Fig. 48).

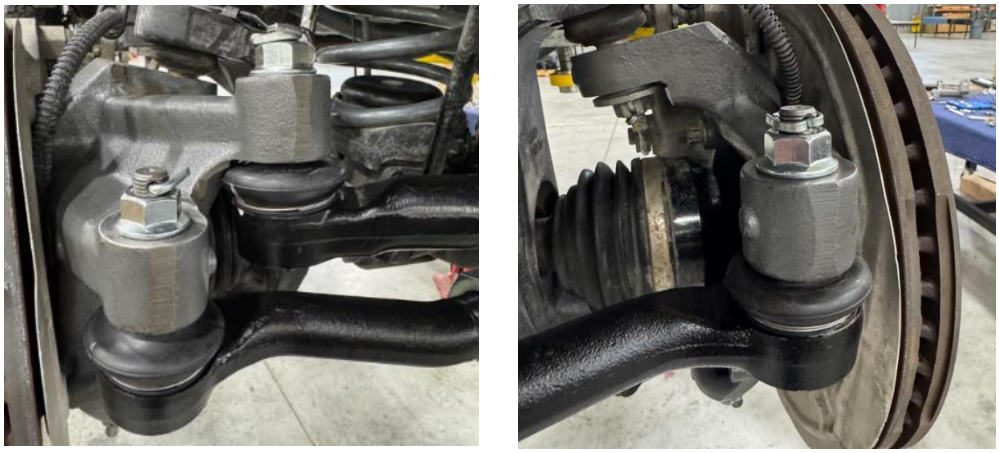

Figure 48

25. Install the steering stabilizer clamp onto the tie rod tube.

A. Take the two machined AEV steering stabilizer clamp ends and place them around the tie rod tube near the front diff cover. The welded tabs on the clamp should be pointed towards the rear of the vehicle. The welded tabs should also be orientated so that the tabs are closer to the passenger side of the vehicle, away from the diff cover.

B. Secure the clamp with four M8 x 25mm socket-head bolts provided in the kit. Add blue threadlocker to the M8 bolts prior to installation. See diagram below, the clamp should be about 25.25” from the outside edge of the passenger side tie rod jam nut to the near edge of the clamp if using the AEV Steering Damper (PN NJL10100AA). This is a rough estimate of where the clamp needs to be positioned for the AEV damper, once installation is complete, ensure that you have equal damper travel at full lock left and right steering. Depending on the steering stabilizer damper being used, the position of the clamp may change (Fig. 49).

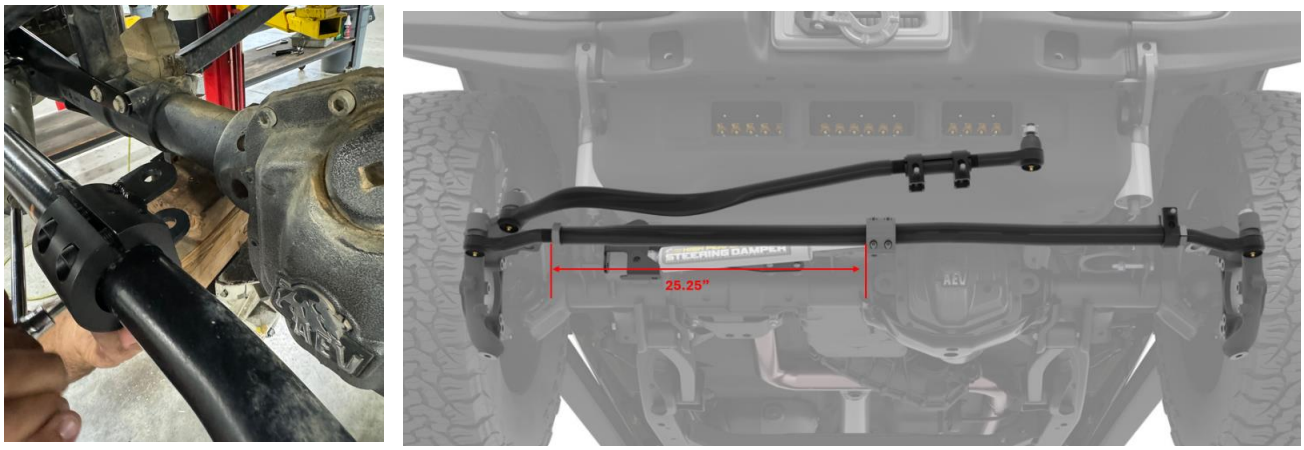

Figure 49

26. Next, install the steering stabilizer damper using the new mounting locations. Locate the hole that was drilled previously using the plastic drill template in the axle housing and install the body end of the stabilizer damper using the M12-1.75 x 70mm Hex Flange Bolt and M12-1.75 Hex Flange Nut provided in the kit (Fig. 50). Torque to 69 ft-lbs.

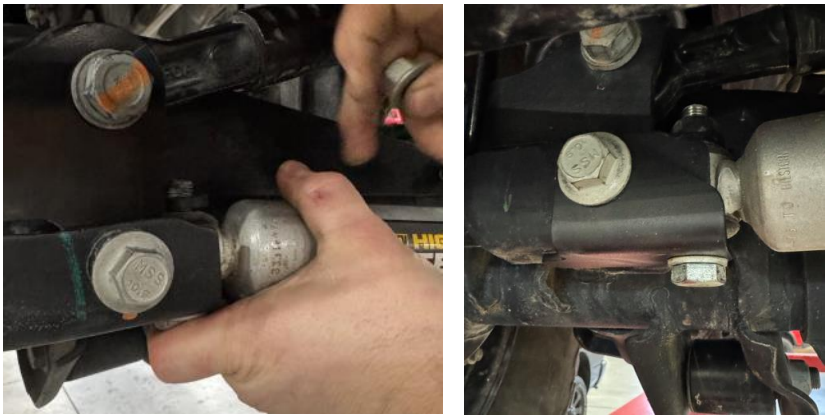

Figure 50

27. Install the rod end of the steering damper to the clamp that was previously installed on the tie rod. The damper bushing will sit between the two welded tabs on the AEV clamp. Secure using the provided M12-1.75 x 60mm Hex Flange Bolt and Hex Flange Nut (Fig. 51). Torque to 69 ft-lbs. Once each end of the steering damper is torqued to spec, ensure the clamp is in the correct position on the tie rod and torque the M8 bolts to 16 ft-lbs.

Figure 51

28. This high steer kit requires a minimum bumpstop extension from stock (Gas = 2.2in, Diesel = 1in, 392 = 0.2in). Our kit includes two ½" front bump stop spacers for customers who have the AEV 2.5" DualSport suspension kit on their Gas 3.6L JL/JT; this extra bump stop is required for this engine variant. Install this on the axle spring pad with the M10 flat head bolt and nut provided (Fig. 52).

Figure 52

29. Once the damper is installed, you can finish torquing the track bar relocation bracketry to specifications shown below (Fig. 53):

    (1) 125 ft-lbs.
    (2) 89 ft-lbs.
    (3) 55 ft-lbs.

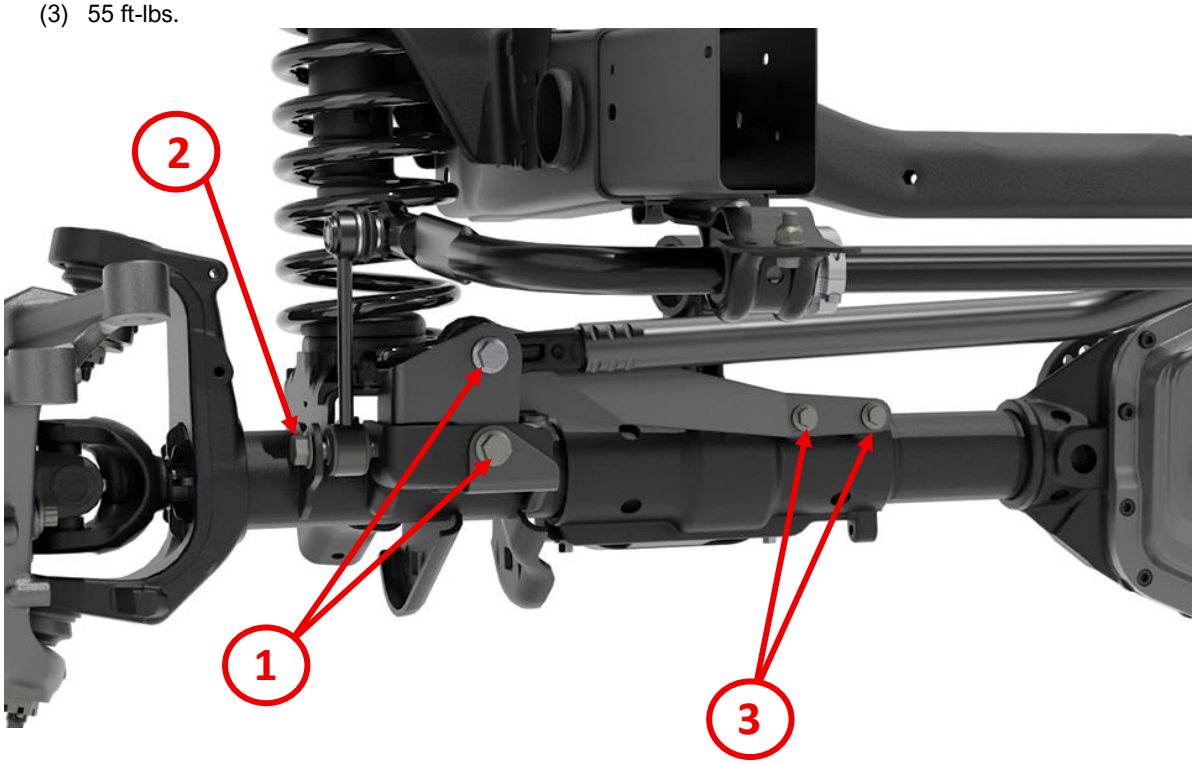

Figure 53

30. Confirm that every bolt and nut is torqued to spec. After confirming everything is secure, reinstall your wheels to the manufacturer's torque specs and take your vehicle directly to an alignment shop to have the alignment checked.
31. After alignment, re-check your steering stops on the AEV knuckles and make adjustments as needed. Included in the kit are optional steering stops for the forward threaded hole of the AEV High Steer Knuckle. These can be installed in a similar manner to the rearward stops, but to find the distance, turn the knuckles in each direction until the rear steering stop bolt makes contact and the knuckle is stopped. Install the front steering stop and adjust it to the distance where the top of the Allen bolt contacts the inner C-knuckle. Tighten the jam nut once distance is set.
32. **After alignment is done, the installation is complete.**