



2.5" DUALSPORT SUSPENSION™ FOR JEEP GLADIATOR





PLEASE READ BEFORE YOU START

To guarantee a 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	REQUIRED TOOLS
Springs	4	Basic Standard and Metric Hand Tools
Shocks	4	Drill Motor
Driveshaft Carrier Bearing Spacer	3	13/32" Drill Bit
Front Sway Bar End Links	2	Jack and Jack Stands
Rear Sway Bar End Links	2	
Front Upper Bumpstop Spacer	2	
Rear Lower Bumpstop Spacer	2	
Rear End Link Relocation Bracket	2	
Front Spring Shim	1	
Rear Track Bar Tower Bracket	1	
Geometry Correction Bracket Kit	1	
Hardware Pack	1	
AEV ProCal SNAP w/Harness	1	
AEV Jack Base	1	

Vehicle Applications: 2020-Current Jeep Gladiator (JT)

Vehicle Assumptions: Stock JT frame and axles with all stock brackets intact Stock Front and Rear Driveshafts

NOTE: Aftermarket units with double-Cardan joints will require a rear axle pinion angle adjustment that is NOT provided in these systems.

NOTE: 32–35 PSI is AEV's recommended tire pressure with our DualSport Suspension™ Systems.

Aftermarket Wheels: These are recommended both for adequate width to mount large tires and decreased backspacing for chassis and steering clearance. AEV wheels are optimized to work with this suspension system for maximum clearance to chassis components and vehicle body/flares.

NOTE: Wheels with extremely negative offset may negatively affect ESP.

Install Time: Approximately 5 hours.



I. REAR SUSPENSION

1. Raise the Jeep, supporting the frame using jack stands or a hoist, so that the rear axle may be lowered enough to remove the springs. Support the axle using a floor jack under the center of the axle.
2. Remove the wheels.
3. Loosen but DO NOT REMOVE all 8 control arm bolts (fig. 1).
4. Loosen but DO NOT REMOVE the Track Bar hardware (fig. 2).

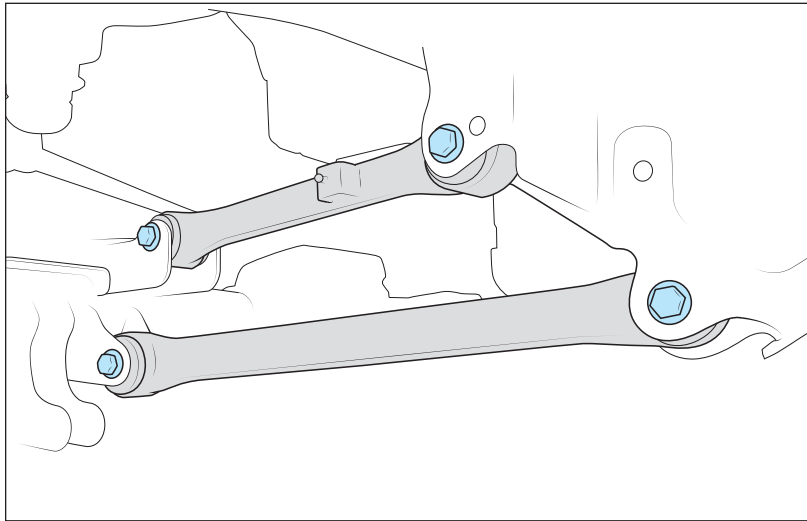


Figure 1: Left side shown.

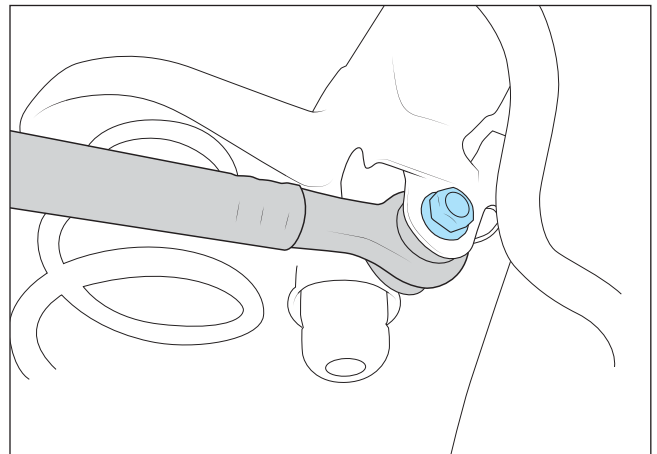
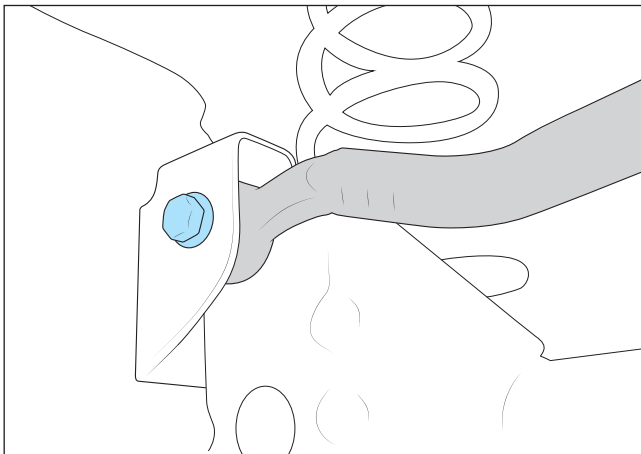


Figure 2: Axle side (left) Frame side (right)



5. Un-clip the parking brake cable from bracket at the axle to allow movement (fig. 3).

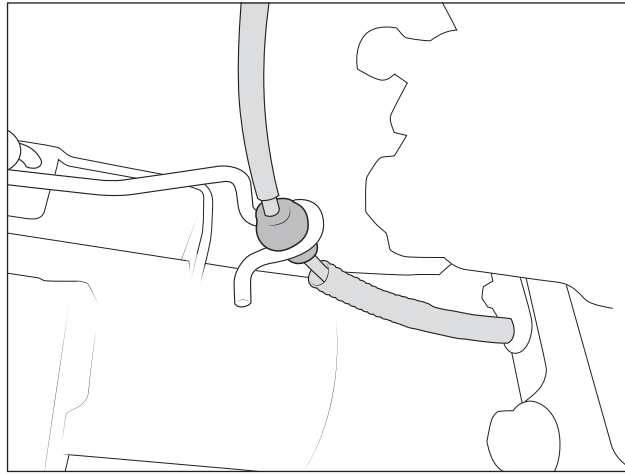


Figure 3

6. Remove the Calipers from the hubs to allow for axle droop.
7. On Rubicon models, remove the rear most retainer holding the locker cable to the frame (fig. 4) to allow for axle droop.

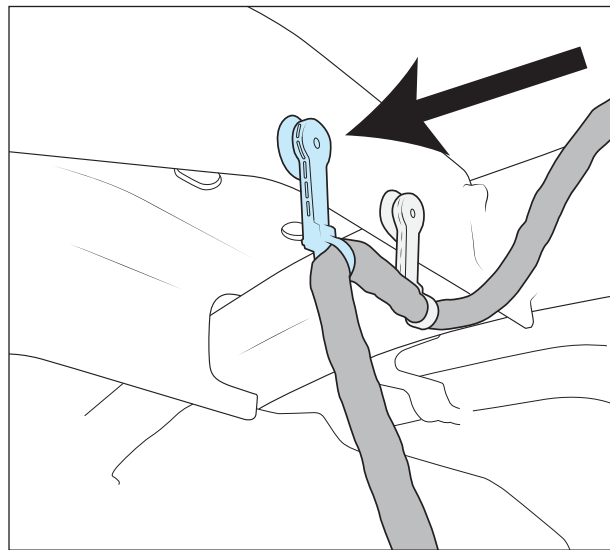


Figure 4



8. Remove the shocks and SAVE HARDWARE (fig. 5).

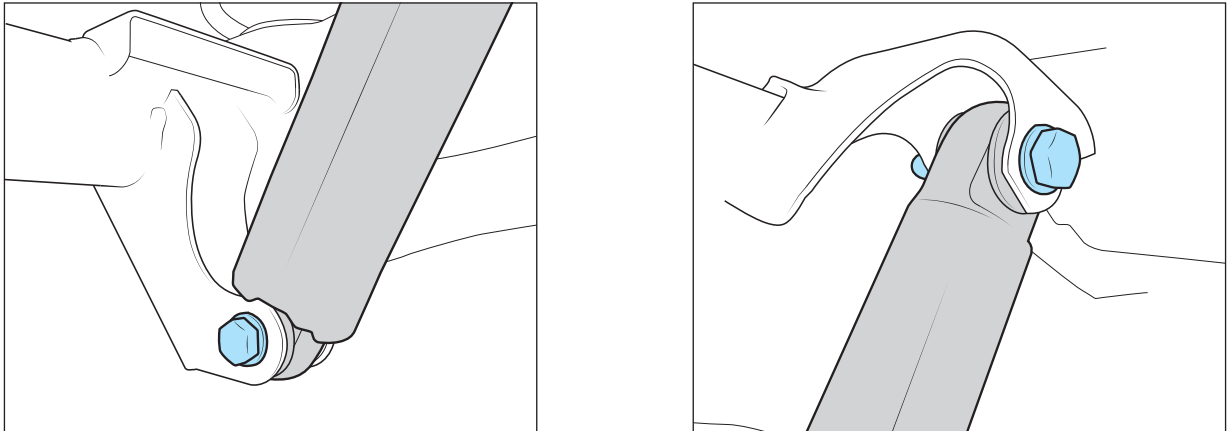


Figure 5

9. Remove sway bar end links and SAVE upper mounting hardware (fig. 6).

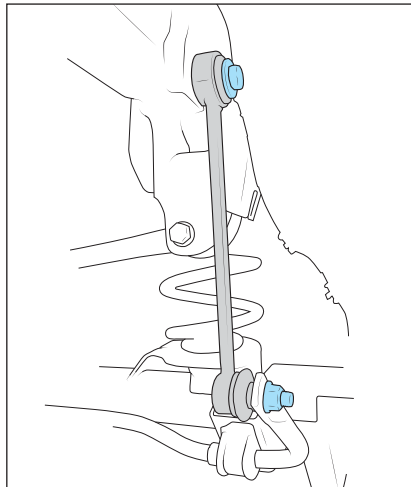


Figure 6

10. Use pry bar to carefully bend passenger rear frame end brake line bracket outward 1/4"–5/16" (fig. 7). This is needed to clear the track bar bracket after relocation bracket is added. Then unbolt brake line brackets from frame on both sides and SAVE HARDWARE.

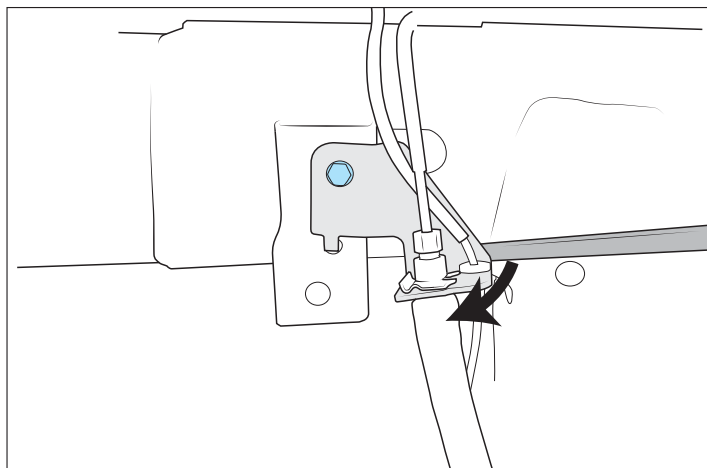


Figure 7



11. Carefully lower the axle until you can remove the springs. Use CAUTION not to overextend the e-brake or other wiring. Remove the factory isolator from the top of each spring.
12. Install the factory spring isolator to the top of the AEV spring (fig. 8). Be sure the spring is properly seated into the notch on the isolator. Lower the axle until the isolator and AEV spring can be installed, again being careful not to stress the brake hose or ABS wiring. Now that they're unbolted from the frame they can be flexed slightly. Be sure the molded post on the isolator goes into the hole in the spring pad at the frame for proper orientation. Raise the axle to keep the spring in place.

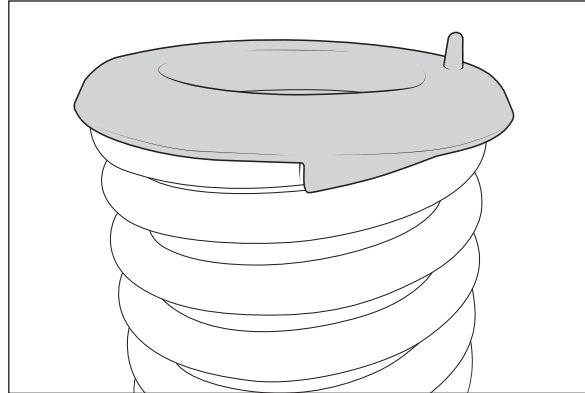


Figure 8

13. Drill the factory holes in the bump stop pads to $13/32$ ". Treat with rust preventative. Install AEV bumpstop spacers on the axle using the supplied M10 flat head, countersunk bolts and flange nuts (fig. 9). Tighten bolts until slight deformation around the holes in the spacer occurs, do not tighten excessively or splitting could occur. NOTE: The longer side of the spacer should be toward the rear of the vehicle

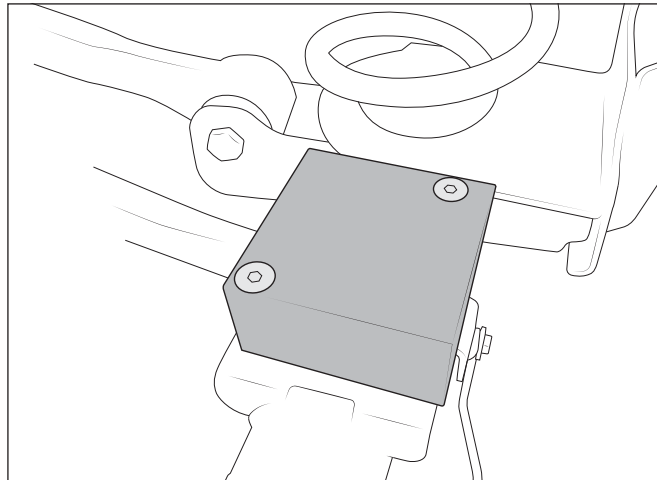


Figure 9



14. Remove axle end track bar bolt and SAVE HARDWARE (fig. 10).

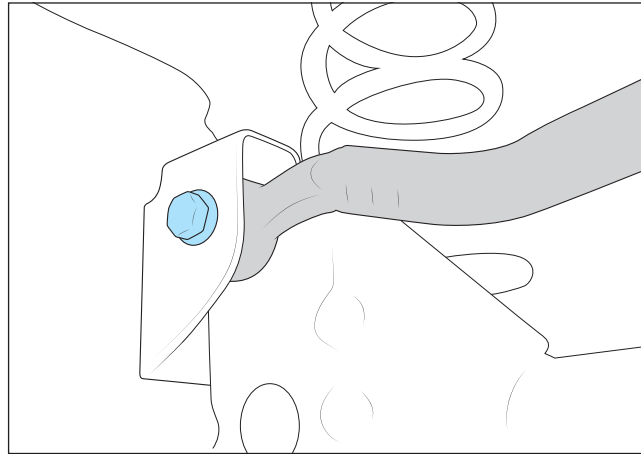


Figure 10

15. Install AEV track bar tower in orientation shown (fig. 11). Use the AEV supplied M14 bolt and crush sleeve in the factory location with factory flag nut. Use the provided U-bolt around axle tube. Once both pieces are started, torque U-bolt nuts to 43 lb-ft. Torque the M14 bolt to 130 lb-ft.

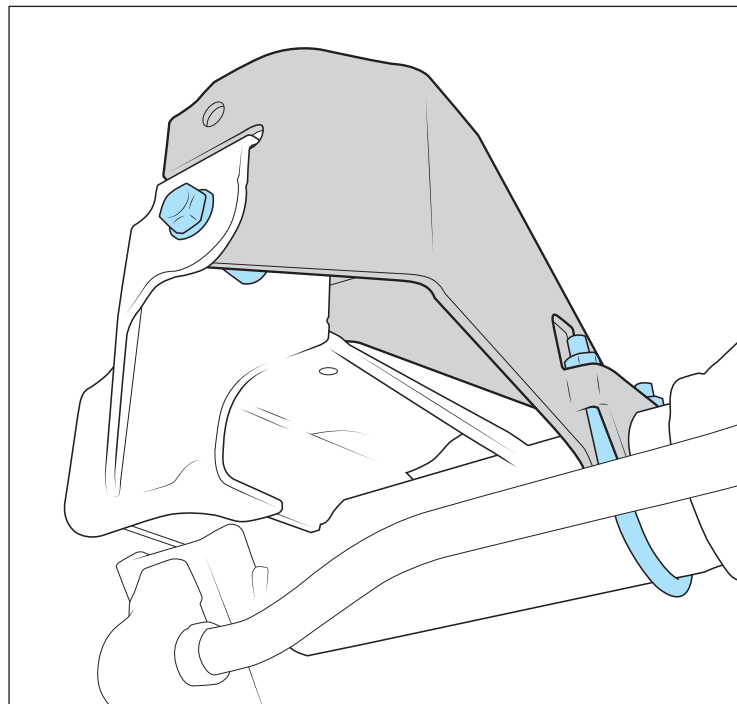


Figure 11



16. Reinstall the track bar at the upper hole in the AEV bracket using the factory bolt and washer with supplied M14 nut. LEAVE LOOSE until vehicle is sitting at ride height (fig. 12.)

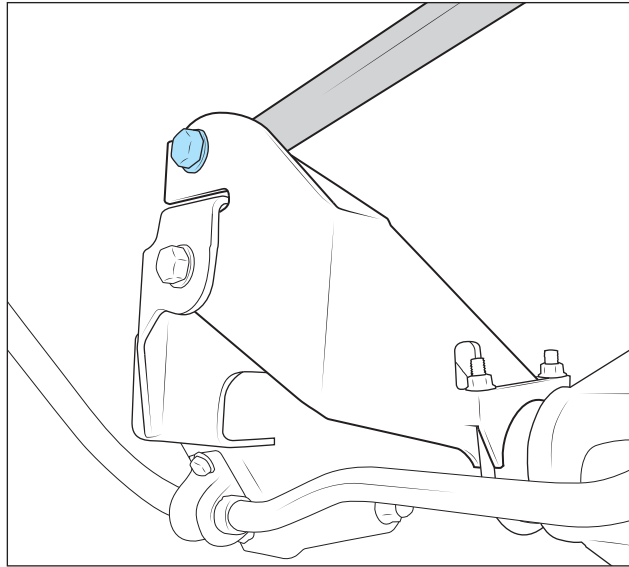


Figure 12

17. Install AEV Rear Shocks (PN:33-312200), body up in the factory locations using the factory hardware (fig. 13). Torque upper hardware to 80 lb-ft and lower to 75 lb-ft. Reinstall parking brake cables and calipers.

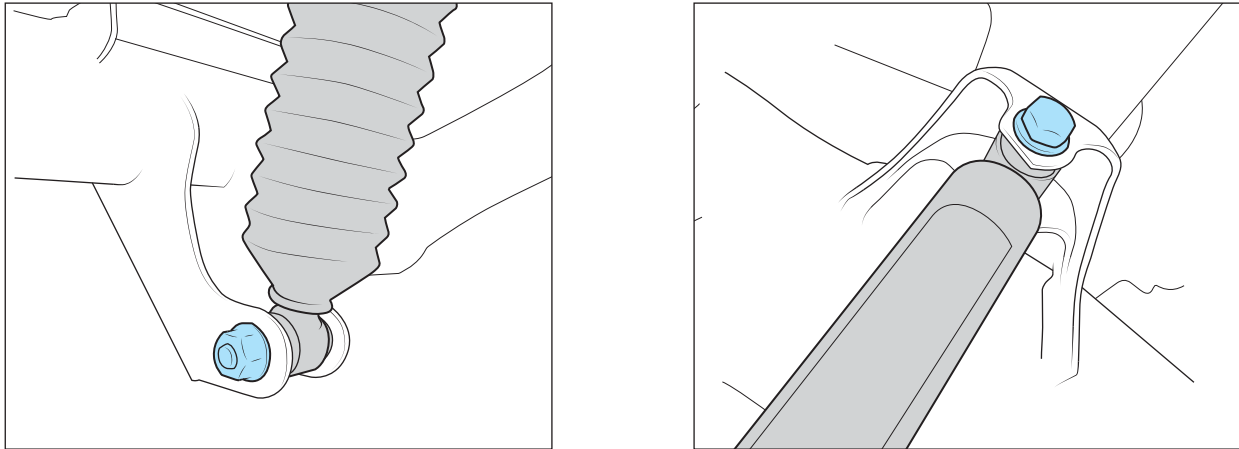


Figure 13



18. Install End links and Brake Lines.

- A. Install end link/brake line brackets on vehicle as shown (fig. 14) using factory brakeline bracket hardware and factory upper end link hardware. Torque M12 end link bolt to 55 lb-ft and M6 bolt to 15 lb-ft.
- B. Install brake line bracket to forward upper set of holes (fig. 14). Alignment tab will go into lower hole and provided M6 bolt will go through both brackets. Nut can be installed to rear of brackets using box end M10 wrench. Torque to 15 lb-ft.
- C. Install AEV end links to lower holes in the brackets using the provided M12 x 60mm flange bolts and nuts (fig. 14). Install lower studs to axle mounts using provided M12 nuts (factory end link nuts are different thread pitch). Torque top endlink bolt to 55 lb-ft and lower nut on stud to 37 lb-ft.

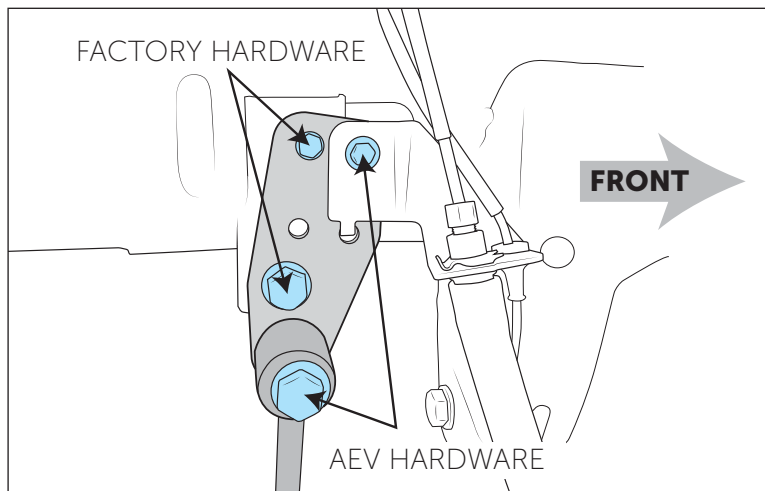


Figure 14

19. Remove driveshaft pillow block from frame. Install three (3) provided spacers with supplied M10 x 50mm bolts. This will help improve driveline angle and prevent vibration. Torque bolts to 50 lb-ft (fig. 15).

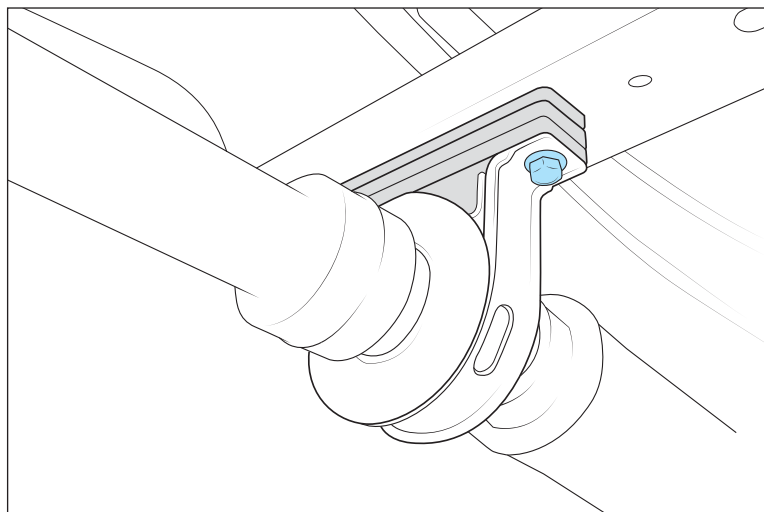


Figure 15



FRONT SUSPENSION

1. Raise Jeep and support the frame using jack stands or a hoist, such that the front axle can be lowered enough to remove the springs. Support the axle by placing the floor jack under the center of the axle. Remove the wheels.
2. Loosen but DO NOT remove all 8 control arm bolts (Fig 15).

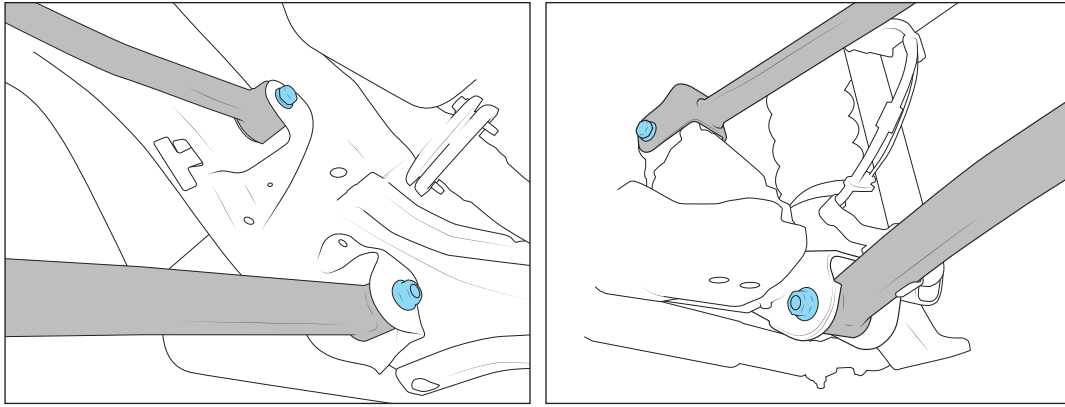


Figure 15: Frame-side (left) Axle-side (right)

3. Loosen but DO NOT remove both track bar bolts (Fig 16).

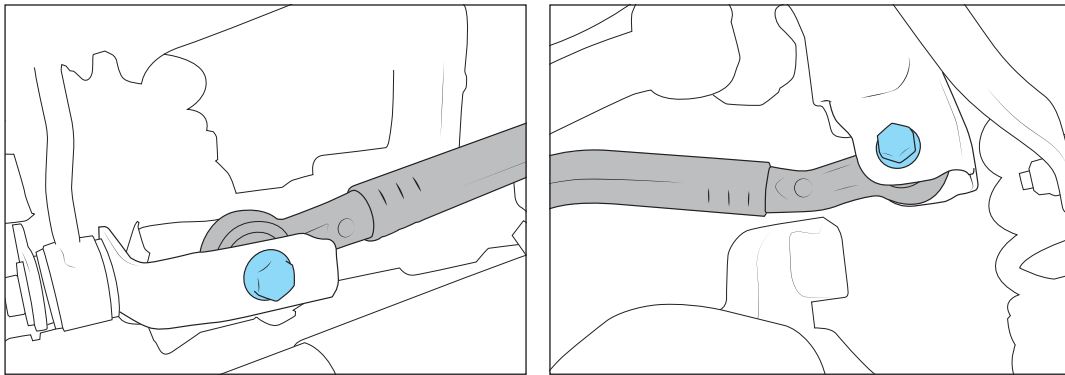


Figure 16: Axle-side (left) Frame-side (right)

4. Disconnect brake line brackets at frame, electrical connector for axle disconnect, and push fastener for axle disconnect to allow extra droop (Fig 17).

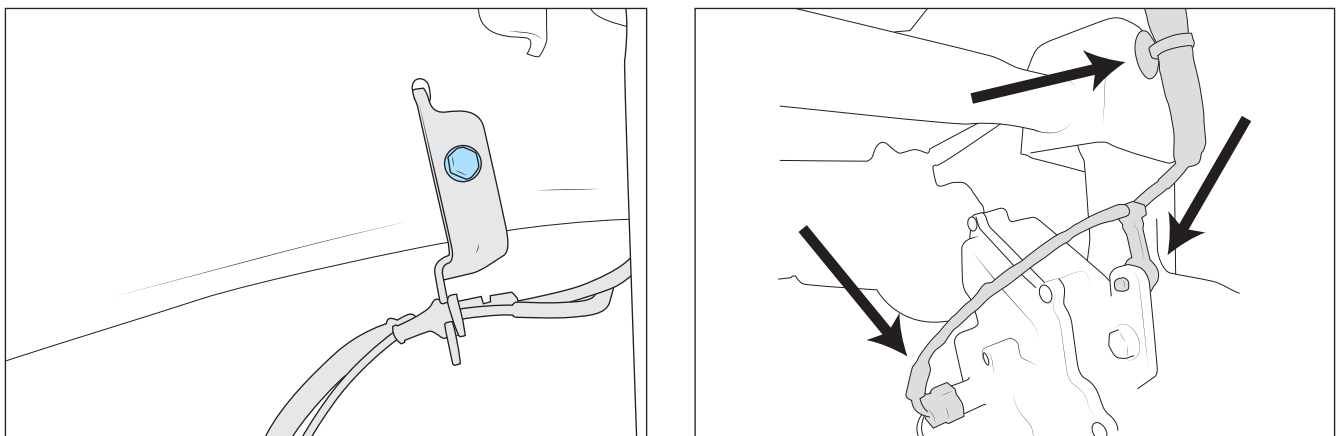


Figure 17: Brake Line Bracket (left) Axle Disconnect (right)



- Remove both sway bar links and hardware, save hardware. Note orientation, new links will be installed in the same way (Fig 18).

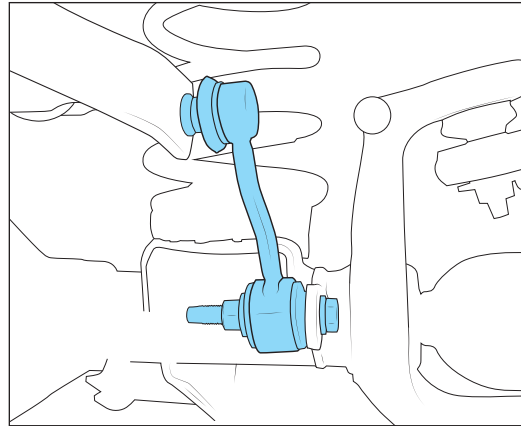


Figure 18

- Remove shocks and save all shock mounting hardware.
- Bend brake line brackets on lower control arms flat/up to allow extra travel relative to frame (Fig 19). On vehicles that will be rock crawling, AEV suggests trimming off the bottom tab of these brackets below the mounting hole to eliminate a snag point.

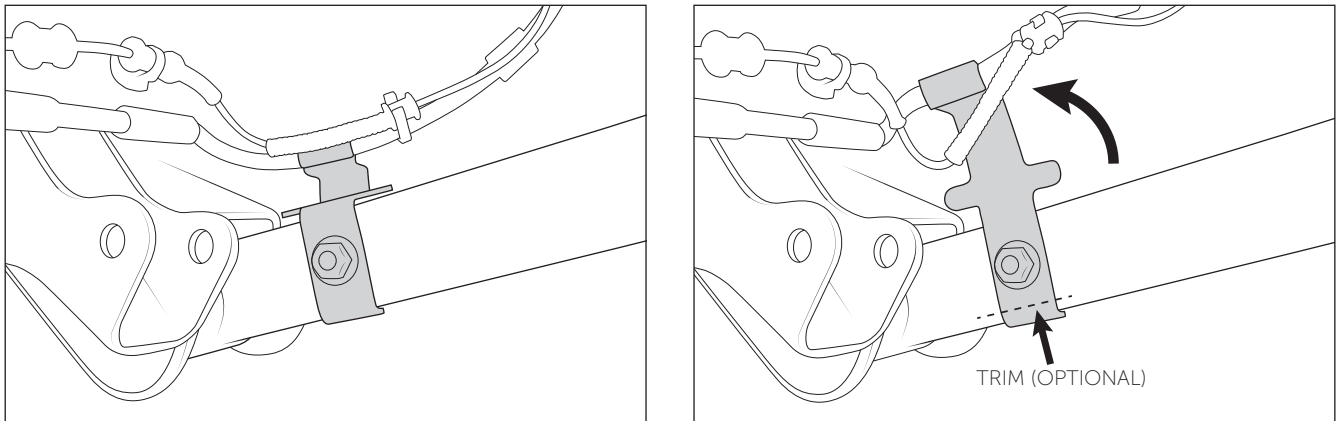


Figure 19: Before (left) After (right)

- Lower axle and remove springs. **DO NOT** remove factory isolator.



9. Install upper bumpstop extensions.

- A. Remove urethane bumpstops from inside spring towers. These simply press into place, so remove them by wiggling them downward and sideways, or carefully prying with large channel locks (Fig 20).
- B. Reinstall urethane bumpstops into new aluminum extensions (Fig 20). Lube them with glass cleaner or detergent to make install easier.

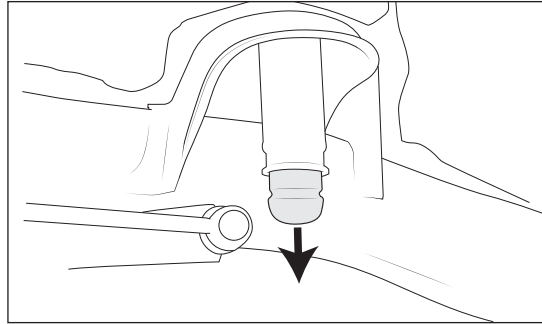


Figure 21

- C. Install extensions into factory bumpstop mounts. Using magnet or socket extension, install M12x25 flange bolt from top of spring tower (Fig 22). Torque bolts to 40 ft-lb

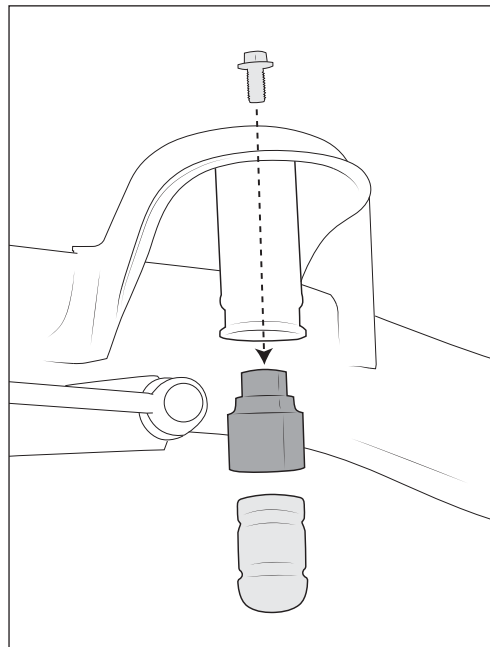


Figure 22



10. Install springs

- A. GAS ONLY (ECO-DIESEL SKIP TO STEP B.) Remove passenger lower spring isolator by carefully prying it upward away from axle. Install front spring shim to bottom of isolator, passing molded stud through hole in shim. Reinstall assembly onto axle spring seat (Fig 23). There is more weight on right side of vehicle than left, so this helps it sit level. Shim sits underneath isolator on axle. NOTE: EcoDiesel does not need the shim due to more equal side-to-side weight balance).

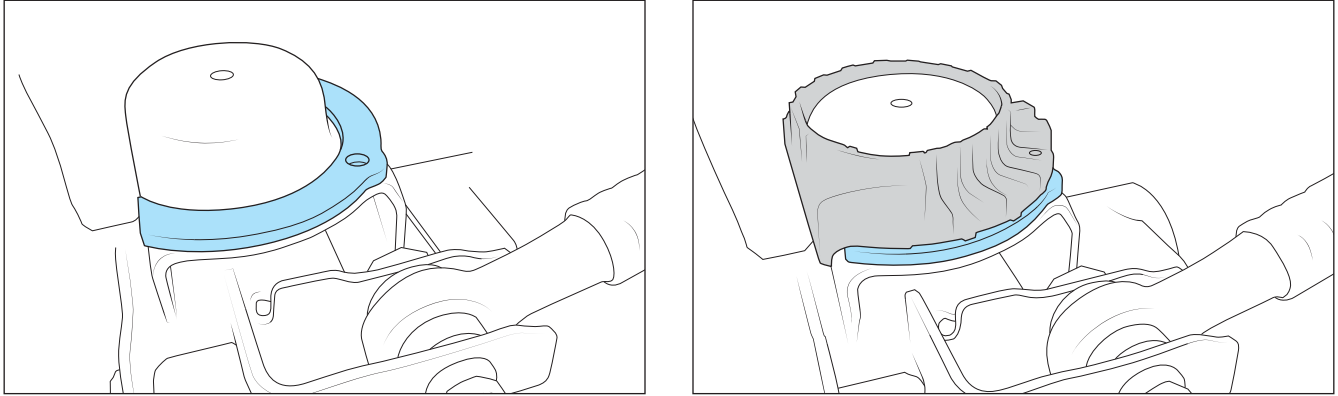


Figure 23

- B. Install Front AEV springs making sure to properly index them on the lower isolators. Be careful the springs don't snag the thin outer lip of the isolators. If the upper isolators fall out during assembly or disassembly, reinstall them by making sure the top locating posts pass through the holes in the spring tower. Raise axle to retain springs in place.
11. Install new front shocks at upper and lower mounts using factory hardware (PN 33-310473). Shock body sits at the top with AEV graphic facing outward from vehicle.
12. Install sway bar end links
- A. For each side attach the upper end stud to the sway bar in the same manner as the original front links had been (nut on frame side of bar). NOTE: The upper stud has a different thread than the rest of the M12 fasteners in the suspension—it is a "standard" pitch versus a "fine pitch." Tighten to 40 lb-ft. (Fig. 24). NOTE: 2024 and newer vehicles come from the factory with M14 upper end link studs. AEV fastener packs include spacers to adapt to this larger hole in the sway bar. Rubicon models with the electronic sway bar disconnect will use the wider spacers, non-Rubicon with the fixed sway bar will use the narrower version. 1 spacer goes on each side of the vehicle, front sway bar only.
- B. The lower ends of the links will attach in the factory location using the original hardware. NOTE: Early models did not include a bolt with integrated washer on the driver side from the factory. If not equipped with the large washer, use AEV provided washer added to the inboard side of driver side link only (Fig 24). Washer is not needed on passenger side because it has brackets on both sides of bushing. Torque to 40 lb-ft.

Figure 24

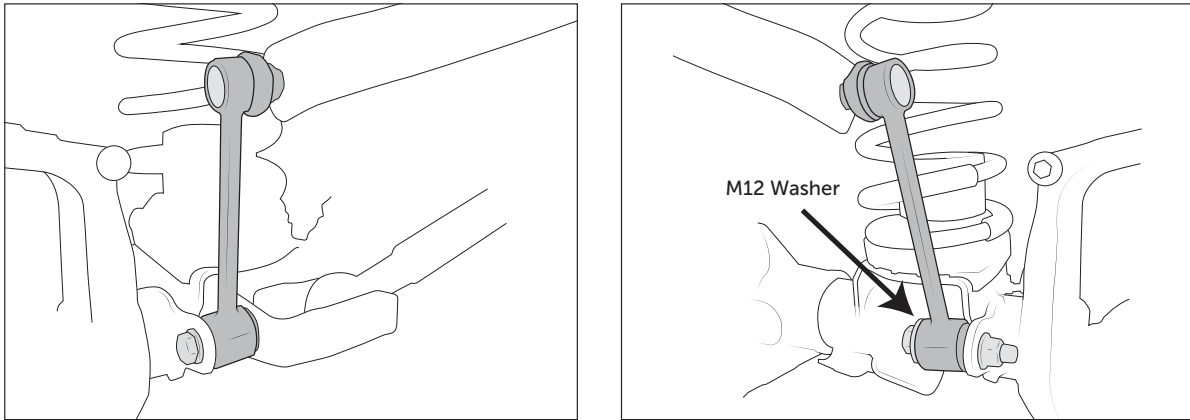


Figure 24

13. Reinstall wheels and tighten lug nuts, working in a “star pattern.”
14. Install Stamped Geometry Correction Brackets (refer to the instructions for this product, PN:AEV30413).
NOTE: If the Jeep has an aftermarket front driveshaft and/or is going to be used for significant rock-crawling, it is recommended to swap the upper control arms side-to-side. They are normally bent down and inboard to clear the frame, but once lowered this bend gets closer to the front axle pinion/yoke on the driver’s side. Swapping is possible once lowered and will improve clearance to the pinion yoke area.
15. You may now tighten all fasteners to factory specifications.* Too tight is NOT just right.

TIP: It is good practice to mark each major bolted suspension connection such as these with a paint pen. Draw a line that runs from bolt head or nut to the adjacent bracket material. This will allow a visual inspection to easily catch bolts that work loose. After approximately 100 miles, you should perform a complete visual inspection and re-torque any suspect bolts as well as your wheel lug nuts.

AEV recommends having a professional alignment done at this point.

AEV recommends the use of the provided ProCal SNAP to calibrate for the new tire size. Please follow the instructions that come with your ProCal SNAP.

AEV recommends 32–35 PSI tire pressure with our Suspension Systems.

*Refer to Appendix for proper torque specs



APPENDIX

JT FACTORY TORQUE SPECIFICATIONS

JOINT	TORQUE (lb-ft)
Front UCA to Axle	80
Front UCA to Frame and AEV Brackets	80
Front LCA to Axle	190
Front LCA to Frame and AEV Brackets	190
Front Brake Hose to LCA	15
Front Track Bar to Axle	110
Front Track Bar to Frame	110
Front Sway Bar Link to Axle	60
Front Sway Bar Link to Sway Bar	60
Front Lower Shock to Axle	75
Front Upper Shock to Frame	80
Rear UCA to Axle	111 plus 90°
Rear UCA to Frame	111 plus 95°
Rear LCA to Axle	111 plus 60°
Rear LCA to Frame	111 plus 65°
Rear Track Bar to Axle and AEV Brackets	90
Rear Track Bar to Frame	90
Rear Sway Bar Link to Axle	55
Rear Sway Bar Link to Sway Bar	37
Rear Lower Shock to Axle	89
Rear Upper Shock to Frame	89