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INSTALL INSTRUCTIONS:

Cognito Tubular Series LDG
Traction Bar Kit for 2020 GM
2500HD/3500HD 2WD/4WD
Trucks
SKU: 110-90902

PARTS LIST FOR SKU: 110-90902

QTY.	PART #	DESCRIPTION
4	8460	Traction Bar Shackle
1	8719	FRAME MOUNT TB DRIVER 0-3 INCH 2020 GM 8-LUG
1	8720	FRAME MOUNT TB PASSENGER 0-3 INCH 2020 GM 8-LUG
2	8721	LEAF SPRING AXLE BRACKET TB 2020 GM 8-LUG
2	8581	GM 41" TUBULAR TRACTION BAR
1	70135	Misc. Parts Box



WARNING

Please read this entire instruction sheet before beginning installation. Proper installation of these components requires a qualified mechanic. Always wear safety glasses when using power tools, and take appropriate precautions when working under a vehicle. If these instructions are not properly followed you may jeopardize your, and your passenger's safety, and severe frame, suspension or tire damage may also result from improper installation.

Parts Preinstalled on 8581

QTY.	PART #	DESCRIPTION
2	6208	Giro Bushing
2	6227	1-1/4-12 UNF Forged Rod End
2	6229	Traction Bar Adjuster Nut
4	HARDWARE-93307	Socket Head Cap Screw 3/8-16 UNC x 1.25 Long
4	HARDWARE-3/8-LW-SHCS	3/8" Steel Split Lock Washer

70135 – Misc. Parts Box

QTY.	PART #	DESCRIPTION
1	8724	Nut Plate Driver
1	8725	Nut Plate Passenger
1	HP9205	Traction Bar Kit Hardware
1	HP9214	Traction Bar Bushing Kit

PARTS LIST FOR SKU: HP9214

QTY.	PART #	DESCRIPTION
4	5036	.75 x 1.035 x .50 Crush Sleeve
2	5045	1.00 x .219 x 3.27 Crush Sleeve
8	6715	Modified Black Poly Bushing
4	POLY-BUSHING-2509.1	Black Polyurethane Spring Bushing

PARTS LIST FOR SKU: HP9205

QTY.	PART #	DESCRIPTION
4	HARDWARE-15207	15207 HCS 1/2-13X1.25 YZ 8
2	HARDWARE-15269	15269 9/16-12X4 YZ8 HCS
2	HARDWARE-15273	15273 9/16-12X5" YZ8 HCS
12	HARDWARE-33086	33086 1/2 Sae F/W Z
8	HARDWARE-33088	33088 9/16 Sae F/W Z
2	HARDWARE-37264	37264 3/8-16 Lock Nut Gr C
4	HARDWARE-37268	37268 1/2-13 Lock Nut Gr C
4	HARDWARE-37270	37270 9/16-12 Lock Nut Gr C
2	HARDWARE-93305	93307 Shcs 3/8-16X1.00" Z
2	POLY-BUMPSTOP-6079G	6079G Black Polyurethane Bump Stop
4	HARDWARE-15212	15212 HCS 1/2-13X2.25 YZ 8
4	HARDWARE-33626	33626 1/2" L/W Z
2	HARDWARE-33082	33082 3/8 Sae F/W Z

INTRODUCTION

Traditionally traction bars have a fixed length and fixed front pivot point. The nature of a leaf spring is to bend to do its job of carrying vertical load. When the spring is bending, the distance between the fixed front pivot bolt of the spring and the axle housing changes through the suspension cycle because the leaf spring is bending to do its job. A fixed length traction bar coupled with a leaf spring that is changing length causes binding as the axle travels in the suspension cycle. The Cognito Limited Dynamic Geometry traction bar kit allows the length of the traction bar and shackle assembly to vary with the leaf spring through the suspension cycle under normal operating conditions, without binding via the use of the shackle. The length of the traction bar assembly at its longest position, which is when the shackle is lined up with the traction bar, is used to control axle wrap and wheel hop that can happen when high torque loads are applied by heavy acceleration and/or heavy weight loads.

TECH NOTES

- It is necessary to raise the vehicle to perform installation of these products. A hoist or installation bay is recommended. Always ensure the truck is properly supported before attempting installation as serious injury could occur.
- This application is for stock and lifted applications up to 3 inches in the rear.
- Torque bolts to the torque specification chart at the end of these instructions.
- Due to variations between stock and lifted vehicles, U-bolts are not included with this kit. This kit requires 1/2" additional U-bolt length for the axle bracket. Contact Cognito if your application requires longer U-

REQUIREMENTS

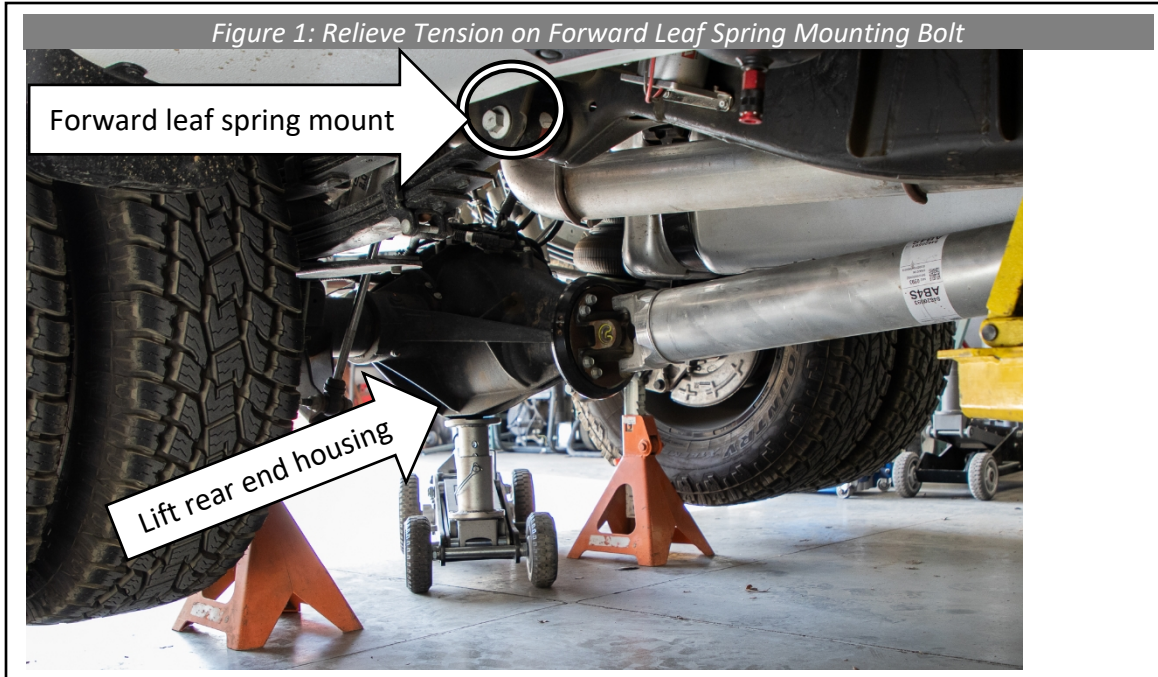
- Installation requires a qualified mechanic.
- Read instructions carefully and study the pictures before attempting installation.
- Check the parts and any hardware packages against the parts list to assure that your kit is complete.

TOOLS NEEDED

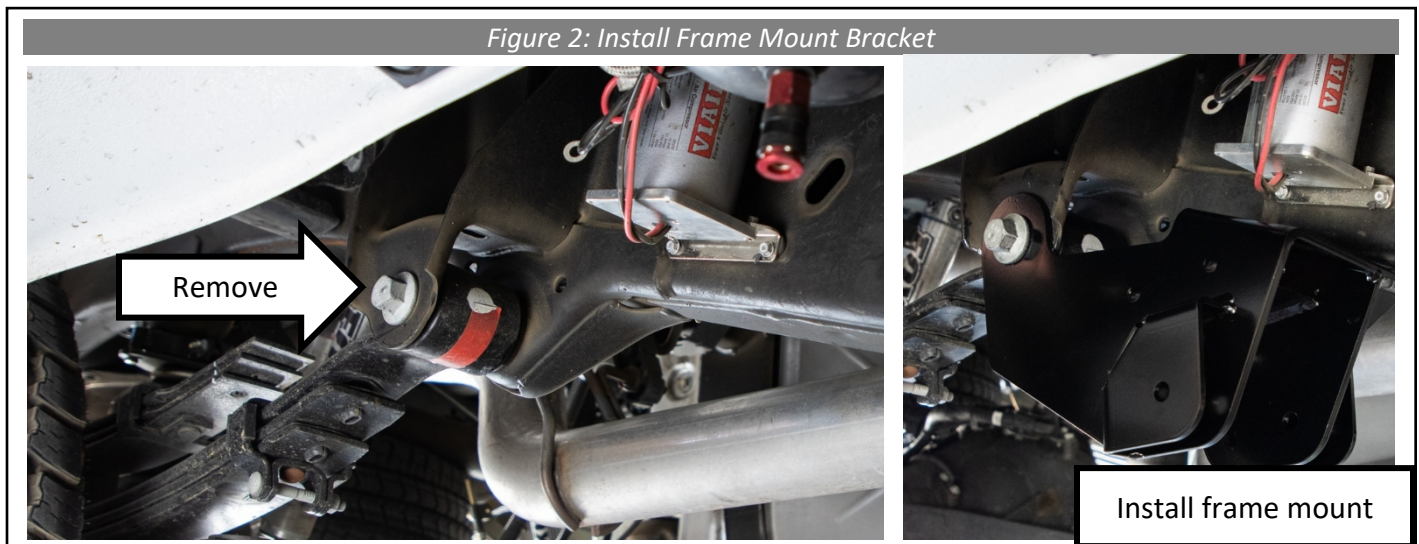
- 24mm socket or wrench
- 27mm socket
- 8mm Allen wrench
- 7/8" socket or wrench
- 13/16" socket or wrench
- 3/4" socket or wrench
- 9/16 wrench
- 1/2" centering transfer punch
- Drill
- 1/2" drill bit
- Hammer
- Floor jack
- Jack stands
- Grease

INSTALLATION

1. **NEVER WORK ON AN UNSUPPORTED VEHICLE.** Raise the vehicle and properly support the frame so that the rear wheels are off the ground. Use a jack to lift the rear end housing so the leaf spring is free of tension. Be careful not to lift the vehicle off the frame supports while doing this. You should only have to lift the rear axle a few inches to relieve tension on the forward leaf spring mounting bolt (See Figure 1).

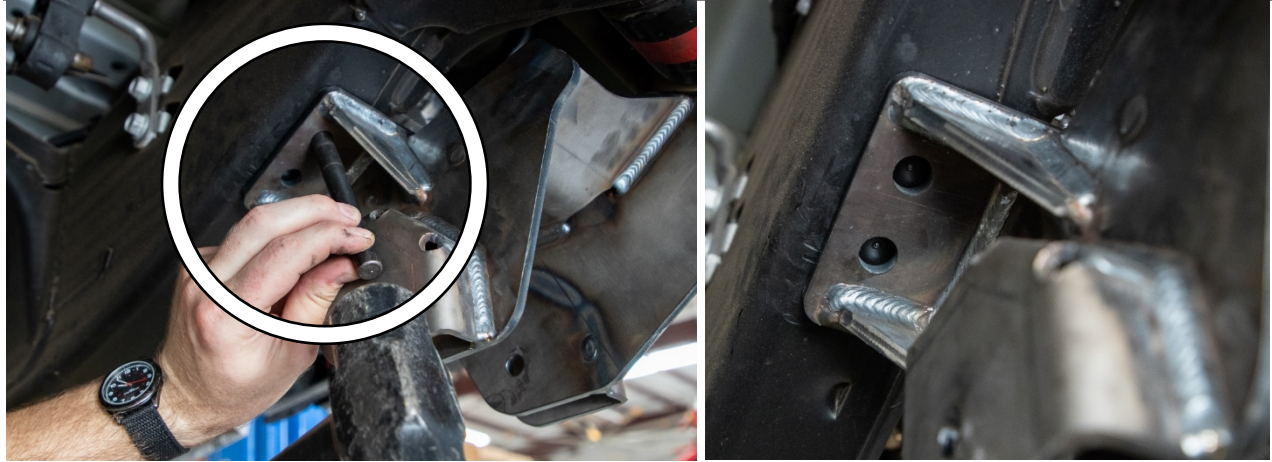


2. Remove the front leaf spring bolt on one side of the vehicle and align the appropriate side Cognito Frame Mount Bracket to be located on the outside of the OEM leaf spring mount (See Figure 2). **8719** is the driver side and **8720** is the passenger side. Part numbers are stamped on each part. Reinstall the leaf spring bolt to snug, but do not tighten yet.



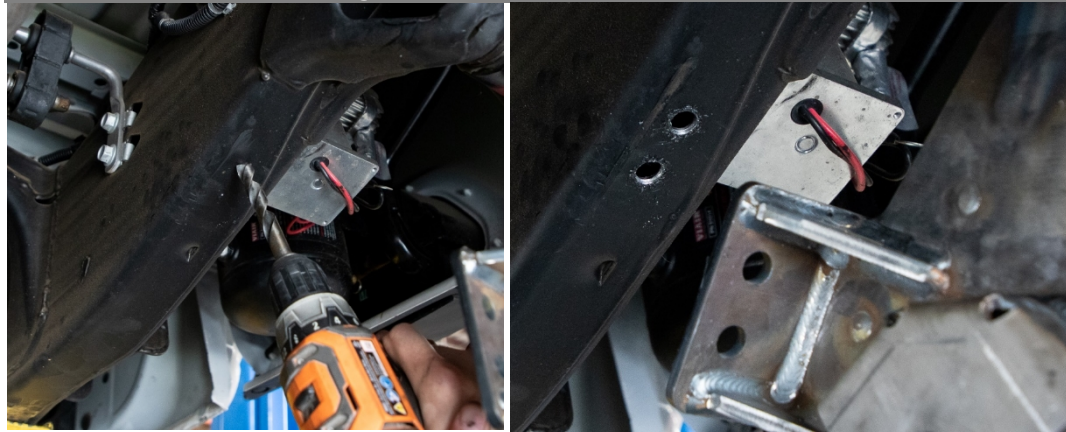
3. Make sure the frame mount bracket is rotated forward until the front mounting pad sits against the frame rail. Hold the mount in this position and tighten the leaf spring bolt past snug so that the mount will not move and the 2 1/2" holes are centered on the truck frame rail. Now mark the location of the front mounting holes using a center transfer punch (Figure 3).

Figure 3: Mark Frame Mount Bracket Holes

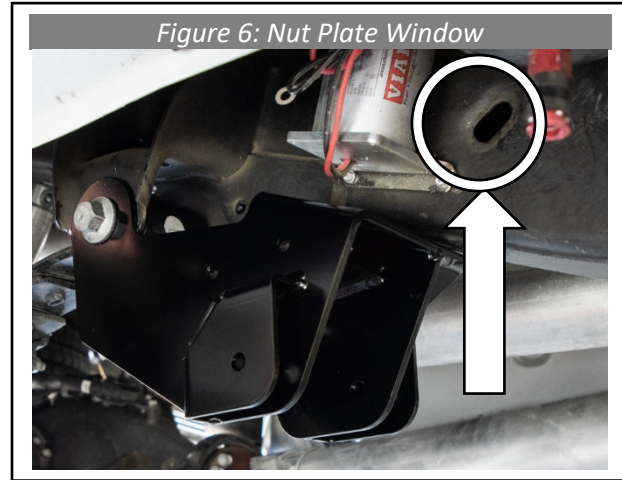
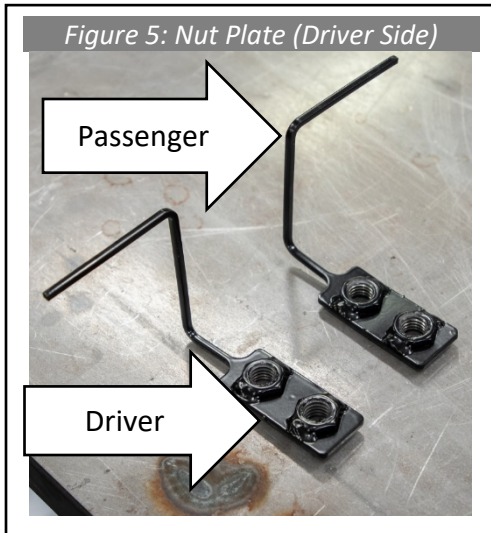


4. Now loosen the leaf spring mounting bolt and swing the frame mount bracket out of the way to expose both marked hole locations. Using a 1/2" drill bit, drill through the bottom side of frame rail at both marked hole locations (Figure 4).

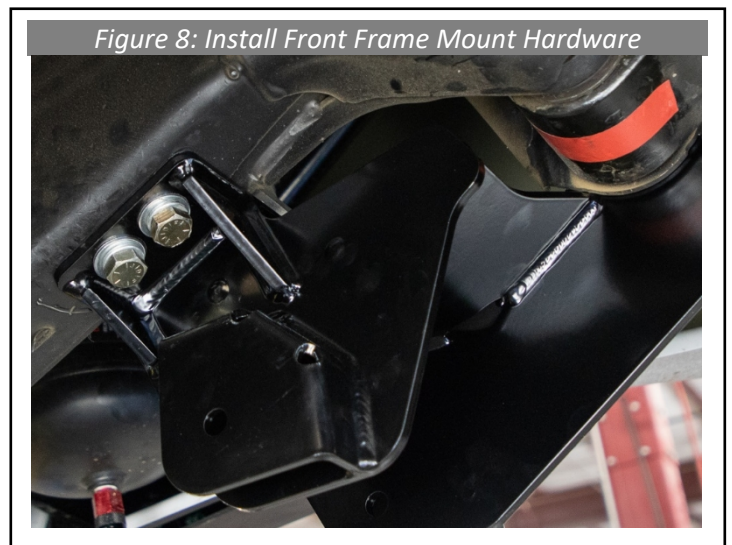
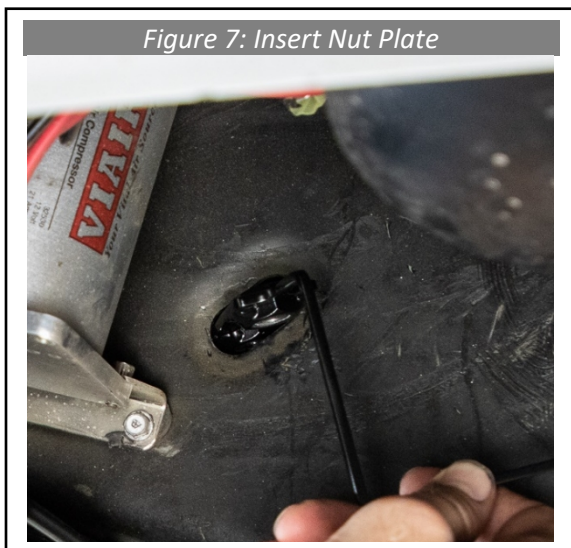
Figure 4: Drill Frame Mount Holes



5. Locate the appropriate side Cognito nut plate **8724** (driver) and **8725** (passenger) shown in figure 5 and the window above the front frame mount in figure 6.

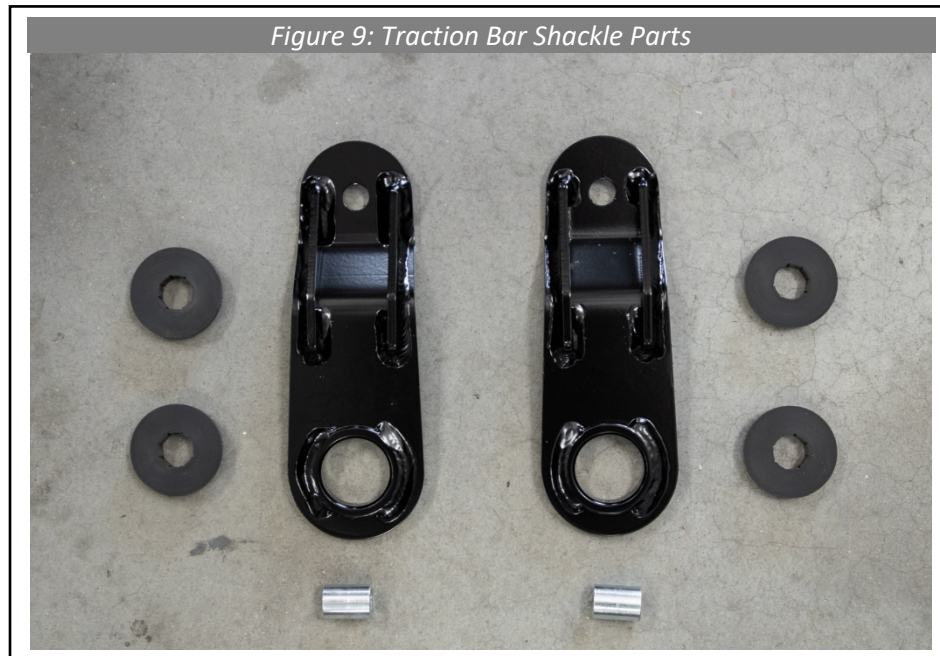


6. Insert the nut plate through the window in the frame rail (Figure 7). Rotate and orientate the nut plate so that the nuts are aligned with the 1/2" through holes completed in step 4. Use the items listed below located in **HP9205**. Install with the 1/2" lock washer between the bolt head and 1/2" flat washer (Figure 8). Tighten both 1/2-13 UNC bolts and leaf spring pivot bolt to 90 ft. /lb. using a 3/4" wrench or socket.
- (2) - Cap Screw 1/2-13 UNC x 1.25 Long
 - (2) - 1/2" Lock Washer
 - (2) - 1/2" SAE Flat Washer



7. Locate the following parts (See Figure 9):

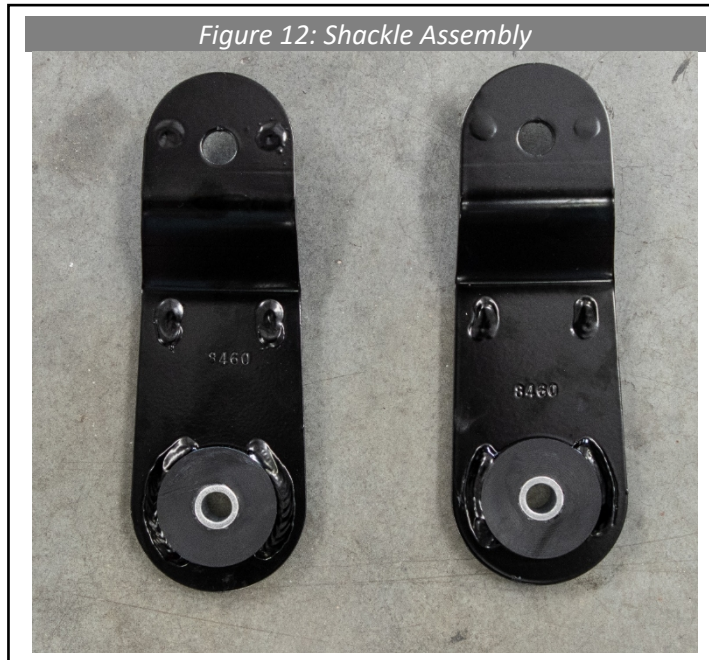
- (2) - Traction Bar Shackle (Part # **8460**)
- (4) - Traction Bar Shackle Bushing (Part # **2581.01-MOD**) provided in **HP214**
- (2) – Traction Bar Shackle Crush Sleeve (Part # **5036**) provided in **HP214**



8. Install (2) shackle bushings per shackle from each side (Figure 10). A light lubricant, WD-40, may be used to install but do not grease the outside of the bushing. Once the bushings are installed in shackles, then grease the inside bore of each bushing (Figure 11).



9. Install the crush sleeve by using a press or rubber mallet. Once installed, the crush sleeve should be flush with the bushing faces on both sides of the shackle (Figure 12).



10. Install the assembled shackle by inserting the shackle bushings into the frame bracket pivot pocket (Figure 13). Using the hardware listed below located in **HP9205**, assemble the shackles to the frame bracket (Figure 14), but do not tighten bolts at this time. Use a $\frac{3}{4}$ " wrench and socket.

- (2) - Cap Screw 1/2-13 UNC x 2.25 Long
- (4) - 1/2" SAE Flat Washer
- (2) - 1/2-13 UNC Lock Nut
- (2) - 6" Traction Bar Shackle (Assembled)



11. Using the hardware located in **HP9205** listed below, mount the bump-stop to the bottom of the frame mount bracket (Figure 15). Do not over-tighten the bump-stop, only tighten the nut until the bump-stop is firmly held in place using an 8mm Allen and a 9/16 wrench (Figure 16).

- (1) - Black Polyurethane Bump-Stop (Part #6079G)
- (1) - Socket Head Cap Screw 3/8-16 UNC X 1.00 Long
- (1) - SAE 3/8" Flat Washer
- (1) - 3/8-16 UNC Lock Nut

Figure 15: Bump-stop Mounting Hole

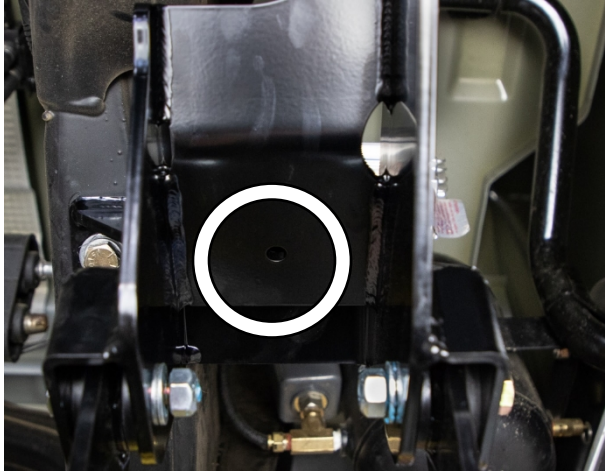
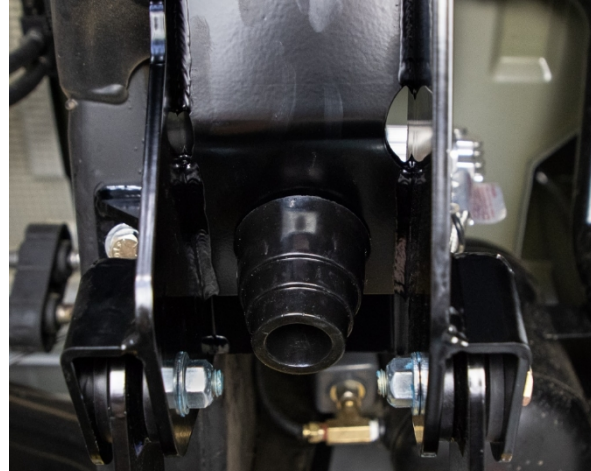


Figure 16: Bump-stop Mounted

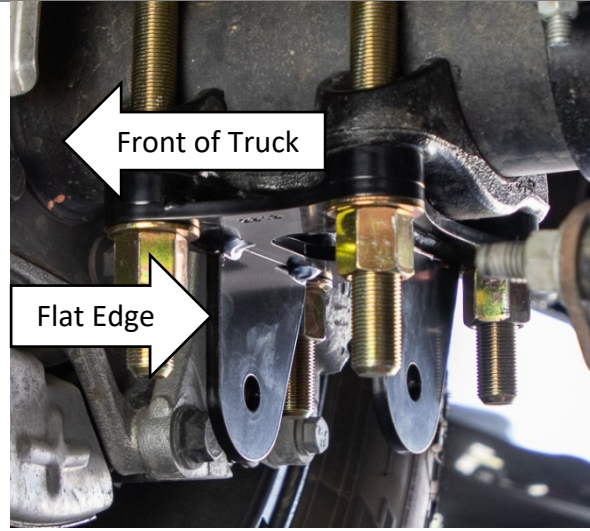


For this step, the vehicle will need to be lowered down to the ground. Once the vehicle is on the ground at normal operating position, remove the U-bolt nuts from one side of the vehicle using a 27mm socket (Figure 17). Install the Cognito Leaf Spring Axle Bracket **8721** by sliding over the U-Bolts with traction bar mounting eyelets offset toward the front of the vehicle. The flat edge of the axle bracket should be facing the **front** of the truck (See Figure 18). Install the U-bolt nuts with a little bit of anti-seize and tighten to 170 ft. /lb. **Note:** Due to variations between stock and lifted vehicles, U-bolts are not included with this kit. This kit requires 1/2" additional U-bolt length for the axle bracket. Contact Cognito if your application requires longer U-bolts.

Figure 17: Remove U-Bolt Nuts



Figure 18: Install Axle Mount Bracket



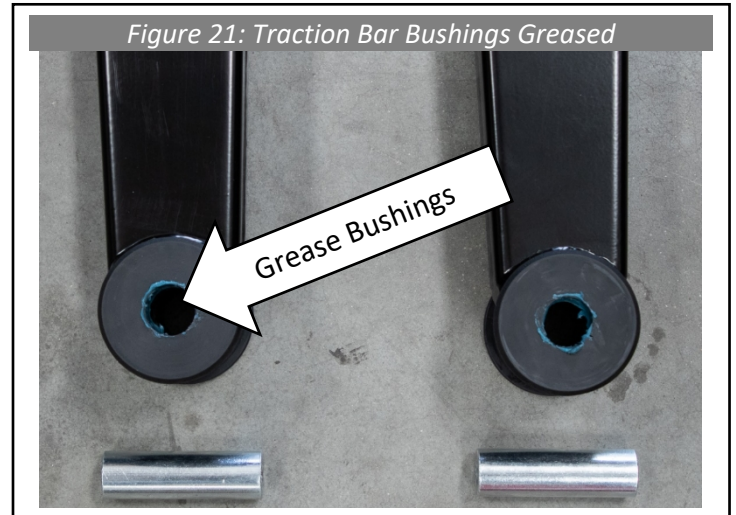
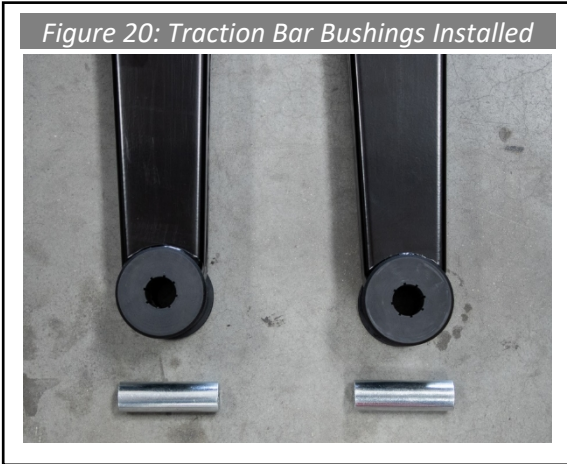
12. Locate the following parts (Figure 19).

- (2) - 41" Tubular traction bar (Part # **8581**)
- (4) - Traction bar poly bushing (Part # **2509.1**) provided in **HP9214**
- (2) - Traction bar crush sleeve (Part # **5045**) provided in **HP9214**

Figure 19: Traction Bar Bushing Parts



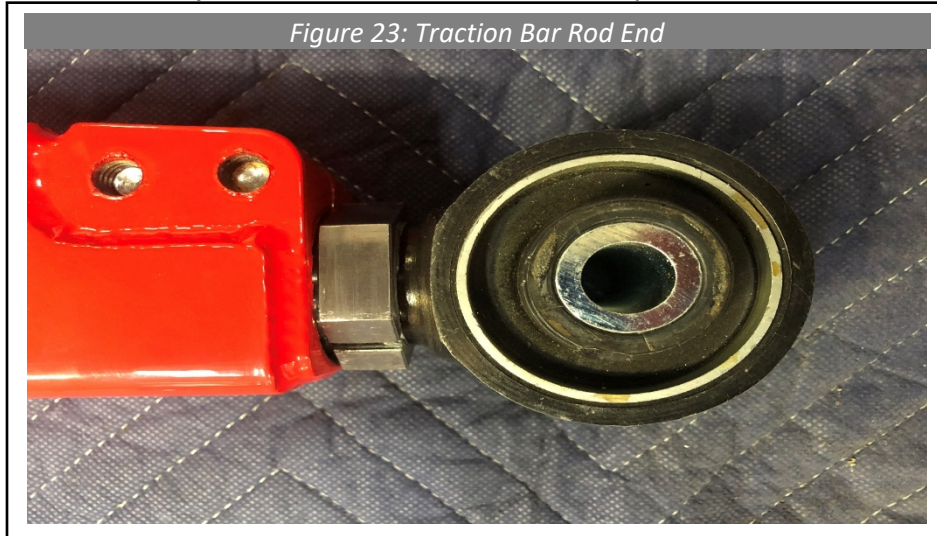
13. Install (2) traction bar bushings per traction bar from each side (Figure 20). A light lubricant, WD-40, may be used to install but do not grease the outside of the bushing. Once bushings are installed in traction bars, grease the inside bore of each bushing (Figure 21).



14. Install the traction bar crush sleeve by using a press or rubber mallet. Once installed, the crush sleeve should be flush with the bushing faces on both sides of the traction bar (Figure 22).



15. Make sure that the rod end and adjuster sleeve are threaded all the way into the traction bar tube (Figure 23).



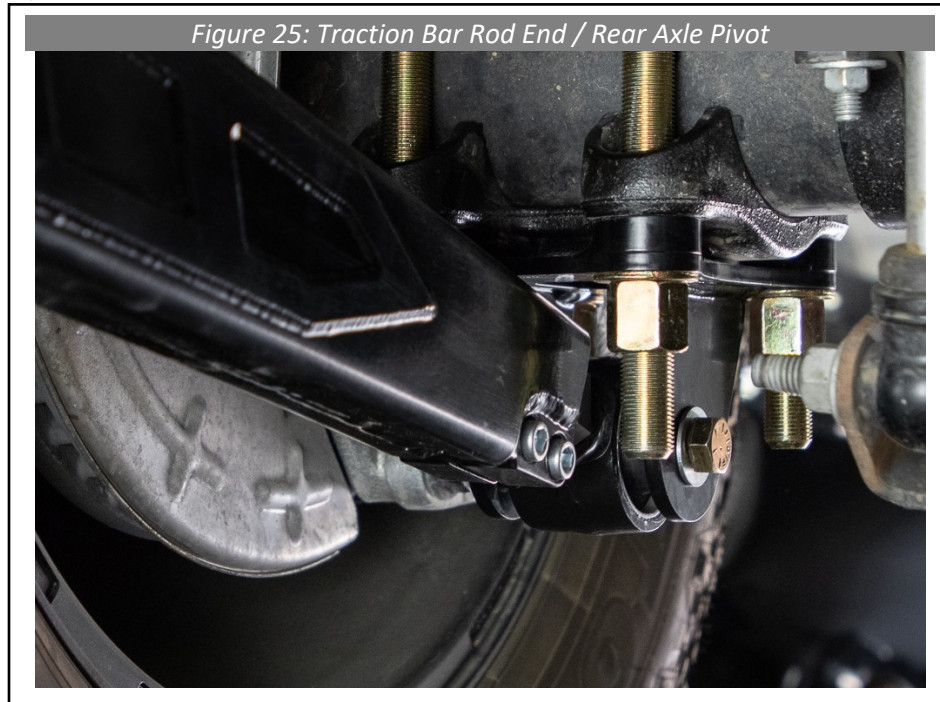
16. Insert the traction bar end with bushings between the driver side shackles and install using the hardware listed below found in **HP9205** (Figure 24). Now tighten the shackle pivot bolts in the frame mount bracket assembly using a 3/4" wrench and socket and traction bar pivot bolt using a 7/8" and 13/16" wrench to 120 ft. /lbs.

- (1) - Cap Screw 9/16-12 UNC x 5.00 Long
- (2) – 9/16" SAE Flat Washer
- (2) – 9/16-12 UNC Lock Nut



17. Insert the traction bar rod end between the eyelets on the rear axle mount. Notice that the tubular traction bar has a flat section about 6" from the forward end. Make sure the flat section (bump stop pad) is on top. Turning the adjuster sleeve only, lengthen the traction bar tube until the rod end lines up with holes in the traction bar mounting eyelets. Install using the hardware listed below found in **HP9205** and tighten to 120 ft. /lb. using a 7/8" and 13/16" wrench (See Figure 25).

- (1) - Cap Screw 9/16-12 UNC x 4.00 Long
- (2) – 9/16" SAE Flat Washer
- (2) – 9/16-12 UNC Lock Nut



18. Once the traction bars have been installed, ensure that all hardware has been tightened to the specified torque specifications. Allow the vehicle to rest at ride height. Adjust the length of the traction bar by turning the adjustment sleeve. (Figure26). Lengthen the bar until the adjuster gets tight or hard to turn freely, which happens when the traction bar is at its maximum length. Then shorten, (turn in opposite direction), by a 1/4 of revolution of the adjuster. With the traction bar length set, tighten the 3/8" socket head cap screws to 40 ft. /lbs. using an 8mm Allen wrench to lock the adjuster in place (Figure 27).

Figure 26: Traction Bar Length Adjustment

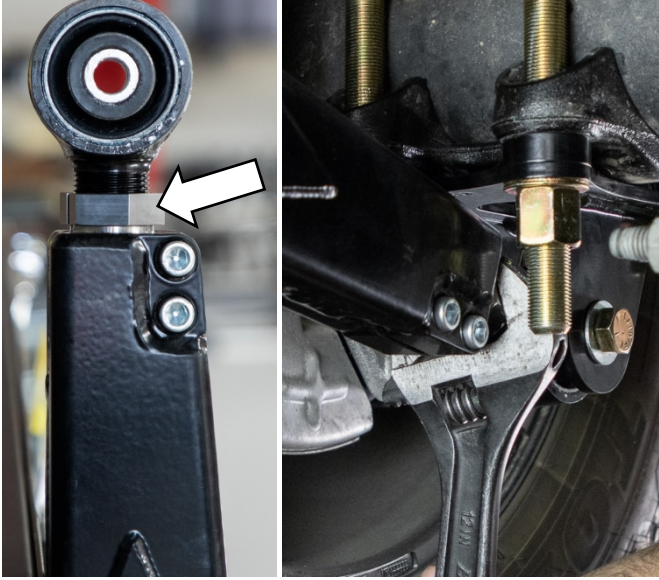
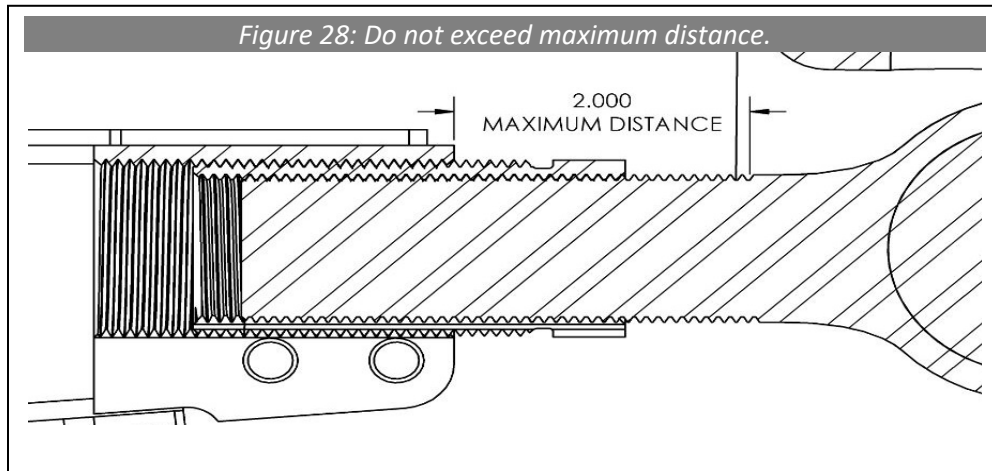


Figure 27: Adjuster Nut Clamp



19. Do not exceed **2"** of thread showing from the face of the traction bar to the start of the threads on the eyelet (See Figure 28).

Figure 28: Do not exceed maximum distance.



20. After completing these steps, the traction bar should form a very small angle with the shackle (See Figure 29)



21. Repeat these steps for the mounting and installation of the opposite side traction bar and mounts.

Torque Specification Chart

Hardware	Torque Spec (ft-lb)
3/8"-16 UNC SHCS	40
1/2-13 UNC	90
9/16-12 UNC	120
3/4" U-Bolt nuts	170

(Do not use Torque spec chart for bump-stop)

WARRANTY / RETURN POLICY / SAFETY

Cognito Limited Lifetime Warranty

Cognito Motorsports, Inc. hereinafter “Cognito,” warrants to the original retail purchaser, that its suspension products are free from workmanship and material defects for as long as the purchaser owns the vehicle on which the product(s) were originally installed. This warranty will be void if any modifications are made to the components, including alterations to the surface finish, i.e.; painting, powder coating, plating, and/or welding, or if they are improperly installed. Cognito truck suspension products are not designed nor intended to be installed on “competition” vehicles used in race applications, stunt or for exhibition purposes that are outside of the intended operating conditions specified by the manufacturer. Racing and competition are defined as any contests between two or more vehicles; or vehicles competing individually on off road circuits in timed events (whether or not such contests are for an award or prize).

This warranty does not include coverage for police, taxi, government or commercial vehicles, and the warranty does not cover Cognito products sold outside of the USA. Cognito’s obligations under this warranty are specified and applied at its sole discretion, and warranty coverage is limited to repair or replacement of the defective product(s). Any and all costs of removal, installation or reinstallation; freight charges, incidental or consequential damages associated with the covered products are expressly excluded from this warranty.

The following items are exempt from Cognito limited warranty coverage: bushings, bump stops, tie-rod ends (Heim joints) and limiting straps. These parts are “consumables” and designed to wear as a normal part of their duty cycle, therefore they are not considered defective when worn. The aforementioned products are warrantied separately against defects in workmanship, for 60 days from the date of purchase. As a condition of warranty validation, respective Cognito suspension components must be installed as a complete system (not combined with non-Cognito hardware or ancillary parts). Any substitutions or omission of required components will void the warranty. Some minor cosmetic wear and imperfections may occur to parts during shipping, which is not covered under this warranty. This limited warranty does not apply to any components that have been subjected to collision damage, negligence, alteration, abuse, or misuse, and coverage does not extend to products manufactured by third-party companies. Cognito reserves the right to supersede, discontinue, or change the design, finish, part number and/or application of its parts when deemed necessary, without notice.

Return Policy

Product returns will not be accepted without prior written approval from an authorized Cognito representative. All products being returned must be shipped via trackable, prepaid freight. Returned products are subject to a 25% percent restocking fee. The eligible return period for products purchased directly from Cognito is 30 days from the verified date when the product(s) were originally received by the purchaser.

Product Safety Advisory

The installation of Cognito steering and suspension components will modify your vehicle’s original factory equipment and geometry, which may cause it to handle differently than a stock (unaltered) vehicle. Installation of these components is not intended to strengthen nor reinforce the vehicle’s frame, nor are they designed to increase rollover protection. It is necessary to periodically inspect all suspension and drive train components for proper attachment, torque specifications, operation, and for any potential unusual wear or damage. Installation of these parts will modify the height of the vehicle and may raise the center of gravity. Modifying vehicle height combined with off road operation may increase your vehicle’s susceptibility to rollover conditions, which may cause serious injury or death. Many states regulate allowable vehicle height modifications, and it is your responsibility to know and comply with the legal requirements specified by the laws where you reside. Modifications to your vehicle’s ride height may also affect the ride quality, driver input response, trackability and handling, and wear to your vehicle’s suspension components and tires.