



4"/6" Sub-Frame Component Box for 2007-2013 GM 1500 2WD/4WD

INSTALL INSTRUCTIONS:

**4"/6" Sub-Frame Component Box for 2007-2013 GM 1500
2WD/4WD
SKU: 110-70010**

PARTS LIST FOR SKU: 110-70010

QTY	PART #	DESCRIPTION
1	1545	Clip Nut Bar
1	1923	Skid Plate
2	5822	4" 1/2 Ton Sway Bar
2	8241	Spacer Long
1	8378	Front Cross Member
1	8379	Rear Cross Member
1	8390	Sway Bar Bracket Driver
1	8391	Sway Bar Bracket Passenger
1	HP9107	Sway Bar Spacer Hardware Pack
1	HP9151	Hardware For 4" 6 Lug
1	HP9155	Hardware Sway Bar

PARTS LIST FOR SKU: HP9107

QTY	PART #	DESCRIPTION
4	HARDWARE-0153985	Hex Cap Screw
8	HARDWARE-33082	5/8 Flat Washer
4	HARDWARE-M10-L/W	Split Lock Washer
4	HARDWARE-40167	Insert Lock Nut

PARTS LIST FOR SKU: HP9155

QTY	PART #	DESCRIPTION
4	HARDWARE-33090	5/8 Flat Washer
4	HARDWARE-37272	5/8-11 Lock Nut
4	HARDWARE-15214	Head Cap Screw
8	HARDWARE-33086	1/2 Flat Washer
4	HARDWARE-37268	1/2-13 Lock Nut
4	5342	Clevis With 5/8" Thread
4	POLY-HOURLGLASS-2202	Black Bushing
4	5022	Crush Sleeve

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 LIST FOR SKU: HP9151

QTY	PART #	DESCRIPTION
2	HARDWARE-15321	HCS 5/8-11X4.5
2	HARDWARE-15324	HCS 5/8-11X5 1/2"
4	HARDWARE-37272	5/8-11 Lock Nut
8	HARDWARE-33090	5/8 Flat Screw
9	HARDWARE-15107	HCS 3/8"-16 X 1-1/4"
15	HARDWARE-33082	3/8 Flat Washer
6	HARDWARE-37264	3/8-16 Lock Nut
3	HARDWARE-33622	3/8 Lock Washer
3	HARDWARE-CLIP-NUT-3/8-16	Clip-On Nut 3/8"-16

INTRODUCTION

- Prior to installation on used vehicles, carefully inspect the vehicle's steering and driveline systems, paying close attention to the tie rod ends, pitman and idler arms, ball joints, and wheel bearings. Also check steering to frame attaching points for stress cracks. The overall vehicle must be in excellent working condition: repair or replace all worn parts.
- Read instructions carefully and study the pictures (if included) before attempting installation.
- Check the parts and hardware packages against the parts list to assure that your kit is complete.
- Secure and properly rack the vehicle on a hoist prior to beginning installation.
- Always wear safety glasses when using power tools.
- Use extreme caution when cutting is required under the vehicle: the factory undercoating may be flammable. Be careful of all fuel lines, fuel tanks, brake lines, and electrical harnesses.
- When tightening bolts, foot-pound readings are listed on the Torque Specification Chart at the end of the instructions unless otherwise specified.
- Front-end alignment will be necessary after completion.
- Exhaust modification may be necessary.
- Drive line(s) modification may be necessary.

TECH NOTES

- Read instructions carefully and study the pictures (if included) before attempting installation.
- If this product was purchased as part of a bundle/package. Familiarize yourself with each set of instructions included with the bundle/package before beginning.
- Check the parts and hardware packages against the parts list to assure that your kit is complete before starting.

REQUIREMENTS

- Installation requires a qualified mechanic.
- Follow the OE specifications when replacing or re-installing OE fasteners, retainers, and hardware specified in the OEM manual.
- Always wear safety glasses when using power tools.
- When a lift is required to perform the installation of these products and always ensure the vehicle is properly supported before attempting installation or serious injury may occur.
- Maximum wheel backspacing is 4.75"
- Do not use a tire that is more than 4" wider than the rim width on a 4 1/2" or more backspaced wheel.
- Set at 4 to 5", suggested tire size is 33" tall and up to 12.5" wide. Set at 6", suggested tire size is 33" tall and up to 12.5" wide on a 10" wide rim with 4.25 to 4.6" back spacing. Call Cognito Motorsports for wheel and tire suggestions if necessary.
- Follow alignment specs at the end of this instruction set.

INSTALLATION

Front End Disassembly

- 1) **Always work on a properly supported vehicle.** With the vehicle on a car hoist, lift the vehicle off the ground and remove the front wheels.
- 2) Remove the outer tie rod end from the stock spindle by first removing the nut then tapping on the bottom of the tie rod stud, **Figure 1**.

Figure 1: remove outer tie rod end from spindle



- 3) **4WD ONLY!** Skip to Step 4 for 2WD. Remove the tin cap from the spindle to expose the axle nut, remove axle nut with **36mm** socket. Remove **6** bolts holding inner CV axle joint to the differential flange, See **Figure 2**. Turn the spindle (like steering toward the middle of the truck) to expose the back of the spindle, drop the inner end of the CV axle under the differential, and pull the outer end of the CV axle out of the spindle hub bearing and remove axle from vehicle.

Figure 2: unbolt CV axle from differential



- 4) Unbolt the brake line bracket from the top of the spindle. If the stock upper control arms will be replaced and/or brake lines replaced, remove the brake line bracket from the upper control arm now. Remove the brake calipers by removing the **2** bolts fastening the caliper to the spindle; it is easiest to hang the caliper from the frame with a short bungee cord or something of the like. Now remove the Torx bolt (and or) remove clips from the wheel studs, and then remove the brake rotors (clips can be discarded at this time as aftermarket wheel will not fit with clips installed). **See Figure 3.** If installing new brake lines, unbolt the steel clamp from the upper control arm and the other from the top of the spindle. Then remove the front rubber brake line by taking the clip off the top of the line and unscrewing the fitting. Next, unscrew the bolt on the banjo fitting of the caliper and discard the brake line. Repeat on the other side. Later, re-assemble the new lines in the opposite manner, being sure that copper crush washers are used on both sides of the banjo fitting on the caliper. There is a left and right-side brake line on this vehicle, see the banjo fitting orientation to determine the correct side.



- 5) Next, use a box end ratchet wrench to remove the **3** nuts that secure the top of each coil over shock to the frame. Then Remove both anti-sway bar links, which connect the sway bar to the lower control arms. Disconnect the wheel speed sensor from the harness on top of the rear pivot pocket of the upper control arm. Remove the lower shock fasteners and remove the shocks from the vehicle.
- 6) Detach the upper and lower control arms from the spindles. Do this by loosening the nut on the upper and lower control arm ball joints, but leave a few threads engaged. With the control arm and spindle assembly hanging, hit the spindle with a large hammer on the boss that surrounds the ball joint stud until the taper seat breaks loose, see **Figure 4.**
- 7) Hang on to the spindle and remove the ball joint nuts, and remove the spindle assembly from the vehicle. See **Figure 5**

Figure 4: Break loose upper ball joint and lower ball joint.



Figure 5: Shock and spindle removed.

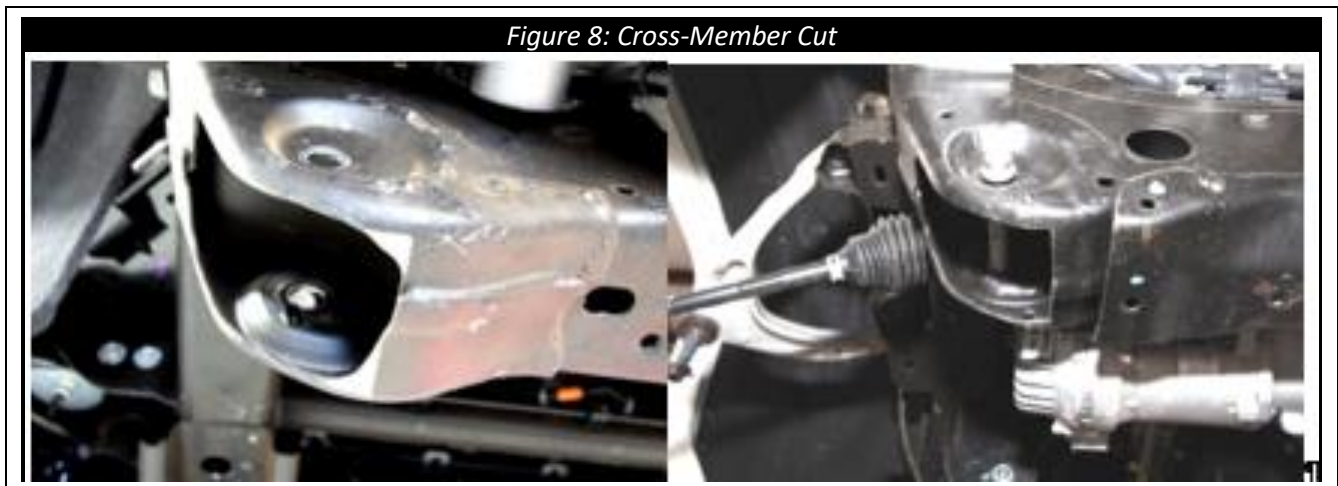


- 8) If you purchased, or your kit includes the Cognito upper control arm kit, remove the factory upper control arms at this time and refer to those instructions for installation a little later. If not, do not remove the factory upper control arms.
- 9) **4WD ONLY!** Skip to **Step 12** for **2WD**. Remove front differential skid plate and discard, if so equipped. Unplug the differential's electronic coupler(s) and breather hose. Unbolt the front drive shaft from the differential yolk.
- 10) **4WD ONLY!** Skip to **Step 12** for **2WD**. Now using a reciprocating saw, cut the back of the driver side lower control arm rear frame pocket off as shown in **Figure 6**. Make the cut **1.5"** back from the center of the hole. This allows room for the differential to drop down without hitting the frame. Now cut the passenger side in the same manner, to make room for the differential mount.

- 11) 4WD ONLY! Skip to Step **12** for **2WD**. After cutting the back of the pockets off, remove the factory crossmember from the vehicle as shown in **Figures 7**. You should retain this crossmember and remove frame section for later replacement if you should decide to return the vehicle to stock. Support the bottom of the front differential with a transmission jack to prepare to unbolt the differential from the truck. It is best to use a bracket on a transmission jack that will bolt to the front differential. It mounts to **2** bolts on the axle flanges of the front differential. With the differential supported, remove the **4** fasteners holding the differential in place, lower down the differential safely as this is a very heavy item.



- 12) Using a reciprocating saw, cut the passenger front cross member frame pocket as shown in **Figure 8** to make room for the new front cross member. Now cut the driver's side in the same manner.

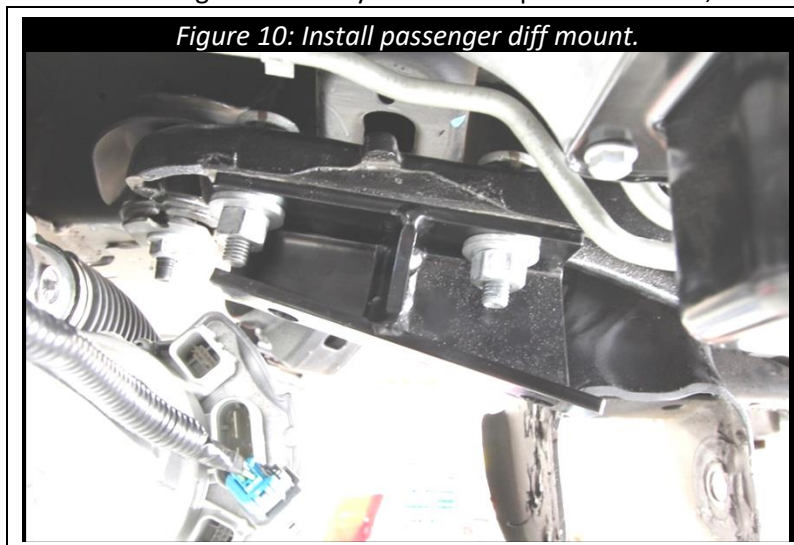


Lift Kit Installation and Front End Re-assembly

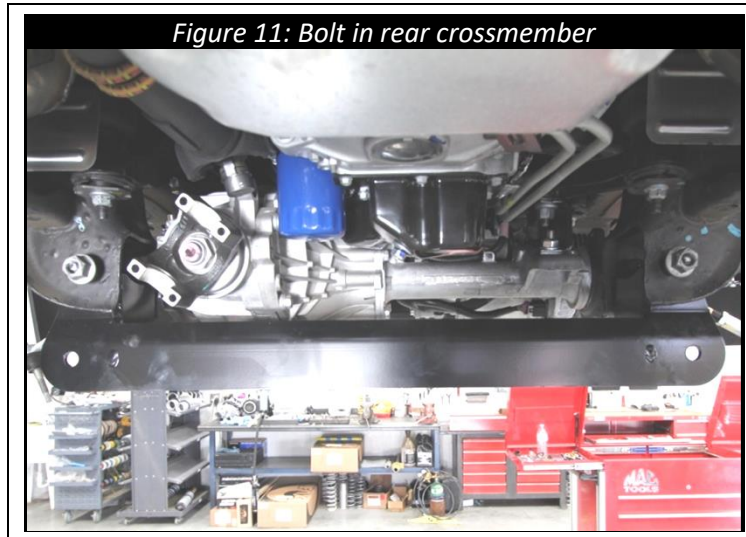
- 13) This step will begin the installation process. **Do not tighten any fasteners until instructed to.** Unless otherwise specified, flat washers will always be used under the heads of bolts and under nuts. Therefore, one bolt with one nut will require **2** flat washers. Future torque may be called out in each step, this means **do not** torque now, but you will be instructed to return and torque at a later step.
- 14) **4WD ONLY!** Skip to **Step 16** for 2WD. As shown in **Figure 9**, bolt the **8388 driver** side differential mount to the factory differential mount using the **2** metric bolts in **HP9153**. Place a lock washer on each bolt followed by a flat washer. Future torque will be **40 ft-lbs**.



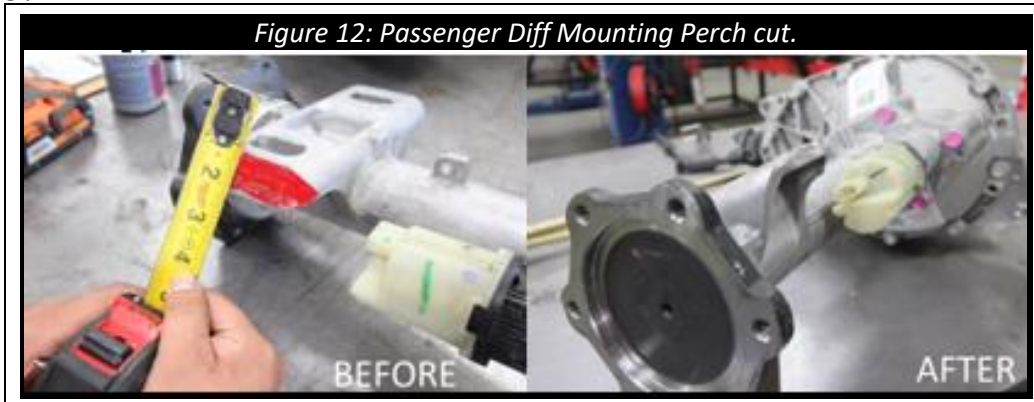
- 15) **4WD ONLY!** Skip to **Step 16** for 2WD. As shown in **Figure 10**, bolt the **8387 passenger** side differential mount to the factory differential mount using the **2** factory nuts with captured washers. Future torque will be **60 ft-lbs**.



- 16) Bolt the rear crossmember into place using the factory 5/8 Hardware. See **Figure 11**. Future torque will be **100 ft-lbs**.



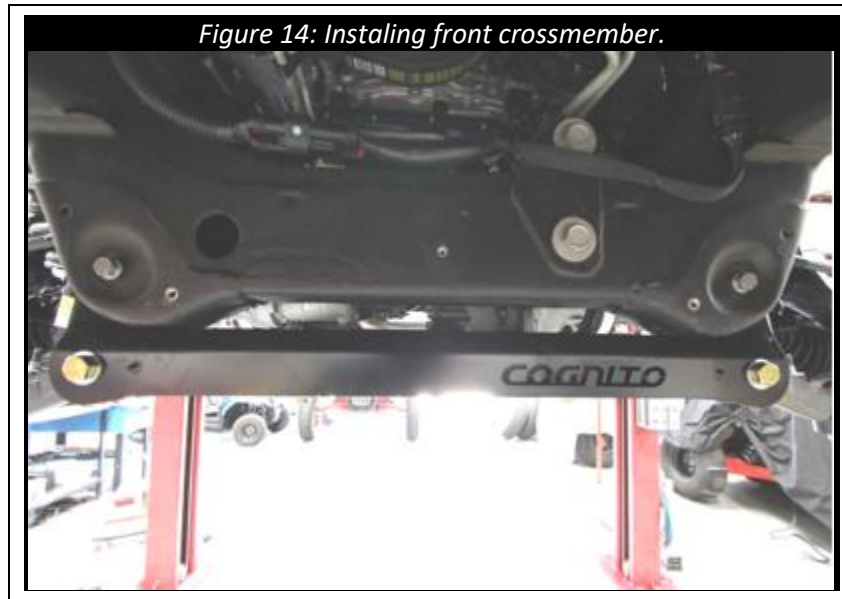
- 17) **4WD ONLY!** Skip to **Step 21** for **2WD**. As shown by the red area in **Figure 12**, cut the passenger side differential mounting perch with a cut off wheel.



- 18) **4WD ONLY!** Skip to **Step 21** for **2WD**. As shown by the black line in **Figure 13**, cut the power steering pump casting to clearance the differential.



- 19) **4WD ONLY!** Skip to **Step 21 for 2WD**. Lift the front differential into place and bolt the passenger side mounting flange of the front differential to the **8387 passenger** differential mount using the **9/16x1.3/4"** bolts, nuts and washers from **HP9153**. Future torque will be **80 ft-lbs**.
- 20) **4WD ONLY!** Skip to **Step 21 for 2WD**. Bolt the driver side mounting flange of the front differential to the **8388** driver differential mount using the **1/2x1.3/4"** bolts, nuts and washers from **HP9153**. Future torque will be **60 ft-lbs**.
- 21) Using the **5/8** factory hardware, and a helper, hold the front crossmember into place as shown in **Figure 14**, and bolt into place securing the front crossmember in the original front lower control arm mounting holes. Future torque will be **100 ft-lbs**.



- 22) Locate the factory lower control arms, and the rest of the hardware in **HP9151**. Insert the proper lower control arm into place in the suspension kit sub frame pockets and hold in place by inserting the **5/8x5"** bolts through the front a-arm pivot from the front side of the vehicle, and then the **5/8x6"** bolts through the rear a-arm pivot from the back side of the vehicle.
- 23) Locate the **1545** Clip Nut Bar. From the front side of the front crossmember, slide the clip nut bar down into the top of the crossmember. Install the **1923** skid plate. Bolt to the clip nut bar inserted in the front crossmember first, then to the bottom of the rear crossmember using the hardware from **HP9151**. See **Figure 15**.

Figure 15: Instal 1923 skid plate.

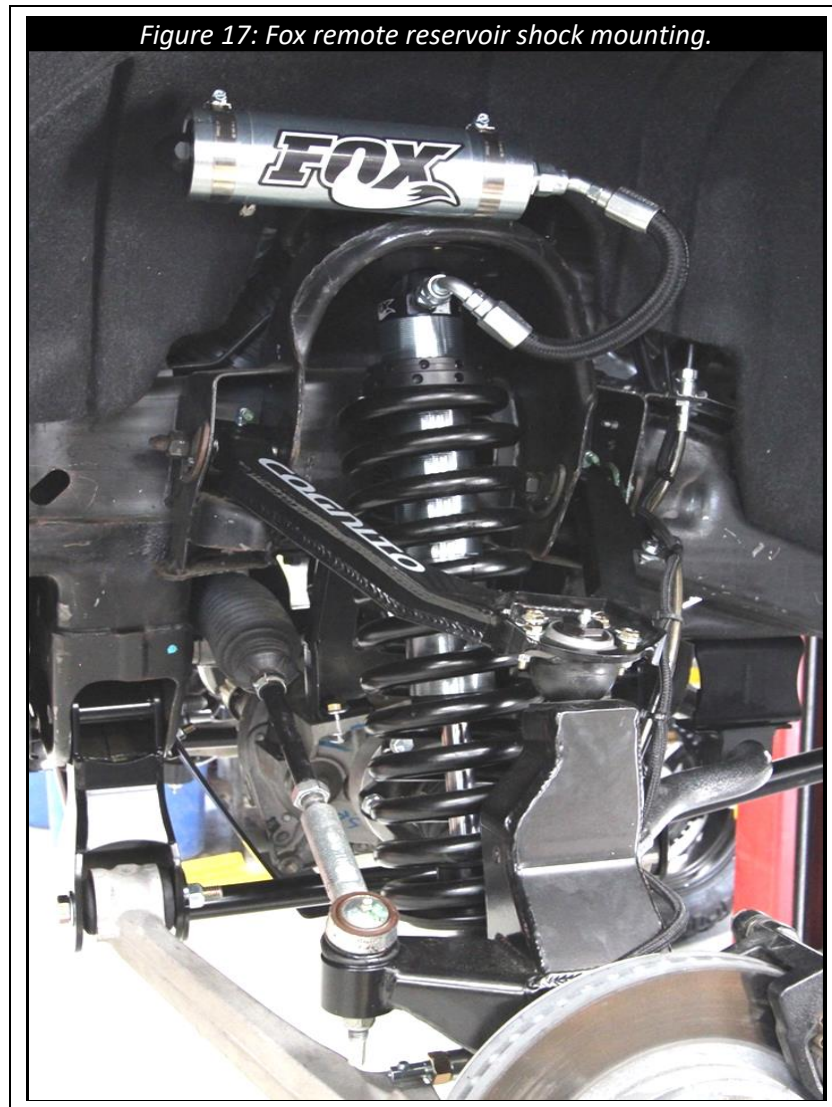


- 24) If your purchase includes the Cognito upper control arm kit, install it per included instructions at this time.
- 25) **If you purchased coilovers instead of strut spacers, skip this step to see shock installation instructions for coilover installation.** If installing **110-70014** Front Strut Spacer Kit, install the spacers onto the strut tops as shown in **Figure 16** below and tighten the six **M10x1.25** flange nuts to **37 Ft.-lbs. (50 Nm)** using a **16mm** socket.

Figure16: Strut spacers installed on struts..



- 26) There may be a left and right-side shock. If the shock has a remote reservoir, the hose will exit the shock and point toward the front of the vehicle. Install the appropriate shock on the appropriate side of the vehicle, along with the appropriate reservoir mount. The reservoir mount goes on top of the frame shock mounting pocket, the included **3/8"** bolts, lock washers, and flat washers secure it and then pass through the frame and thread into the top shock mount. Tighten these bolts to **20 ft-lbs** now. See **Figure 17**.



27) If you are using the factory tie rod assembly, see the supplement installation instructions.

- a. If you are using the factory tie rod assembly, it needs to be shortened **1"**. Remove the outer tie rod end from the adjuster. **Cut 1"** off the end of the outer tie rod, and then re-chamfer the hole to clean up the first thread, See Figure 18.

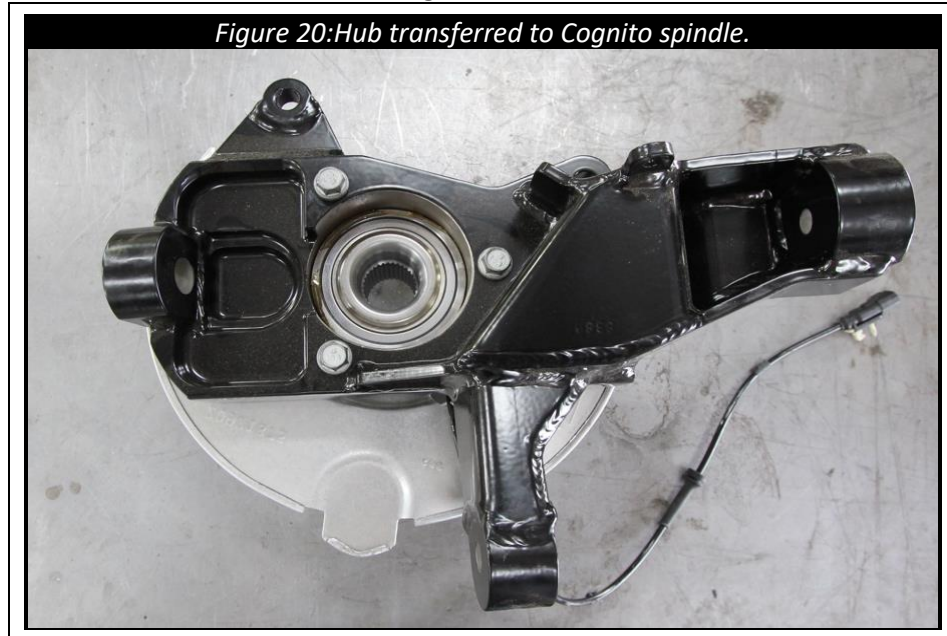


- b. Secure the outer tie rod in a vise grip. Using a **9/16"** drill bit, drill the hole in the outer tie rod **1"** deeper. Then using an **M16-1.50** tap, tap the outer tie rod to extend the threads **1"**, See Figure 19.



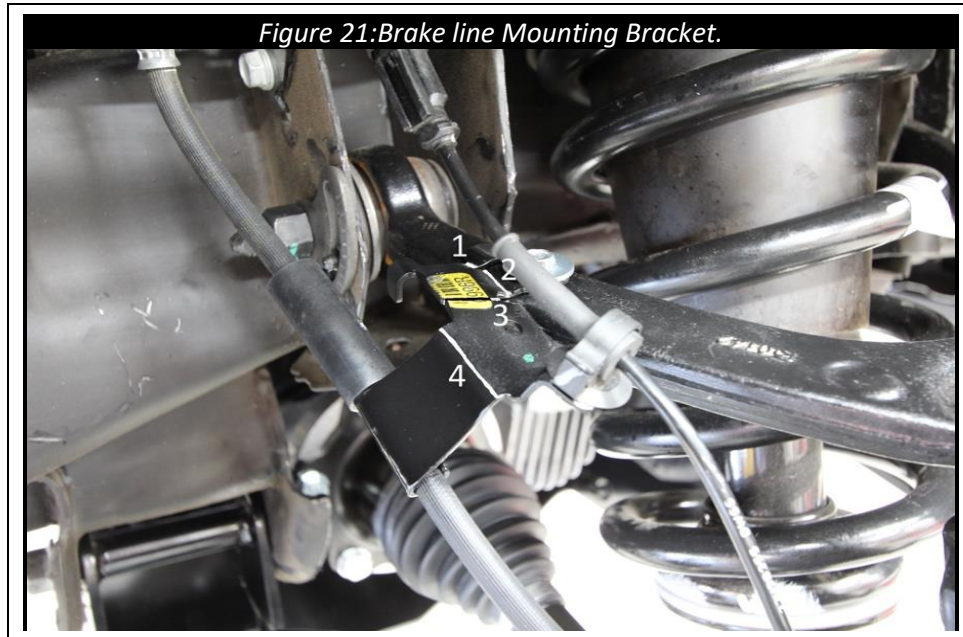
- c. Re-install the outer tie rod end onto the tie rod adjuster **1/4"** from being bottomed out.

- 28) Disassemble the bearing hub assembly and brake rotor shield from each of the factory spindles. Clean the mating surfaces of the bearing hub and brake rotor shield thoroughly and transfer all of these parts to the appropriate Cognito spindle. Apply a small amount of thread locker to the spindle hub bolts before fastening them. Torque the bearing hubs to the spindles to **95 ft-lbs.** at this time. See **Figure 20.**



- 29) Now hang the spindle assemblies on the appropriate sides of the vehicle from the ball joint of the lower control arm. Then attach the upper ball joint to the spindle assembly. Tighten the lower ball joint to **100 ft-lbs**; you may have to hold the stud with an Allen wrench to prevent it from spinning, while turning the nut with a boxed end wrench. Tighten the upper ball joint to **50 ft-lbs** if using the stock upper control arm. If using the Cognito control arm kit, tighten the castle nut to a minimum of **50 ft.lbs** lining up the cotter pin holes and then insert and fasten the cotter pin.
- 30) **4WD ONLY!** Skip to **Step 31** for **2WD**. Turn the spindle (like steering toward the middle of the truck) to expose the back of the spindle, insert the flange end of the CV axle into the hole above and to the front of the differential, then install the stud/spindle end of the front drive axles into the Cognito spindles and fasten with factory hardware to **120 ft-lbs** of torque. Carefully tap the axle stud cover back onto the spindle hub. Mount the differential end of the drive axles to the differential with hardware from package **#9154**, and the Cognito axle spacers in between. Use a small amount of thread locker on the axle bolts and torque to **40 ft-lbs.**
- 31) Install the brake rotors and calipers on to the appropriate side Cognito spindle. Use a small amount of thread locker and torque the caliper bolts to **100 ft-lbs.**

- 32) Reuse the factory brake line mounting bracket. Before securing the bracket to the upper control arm, several bends will need to be made. As shown in **Figure 21**, flatten bends **1 & 2**, bend **3** 20 degrees down, and open bend **4** 15 degrees.

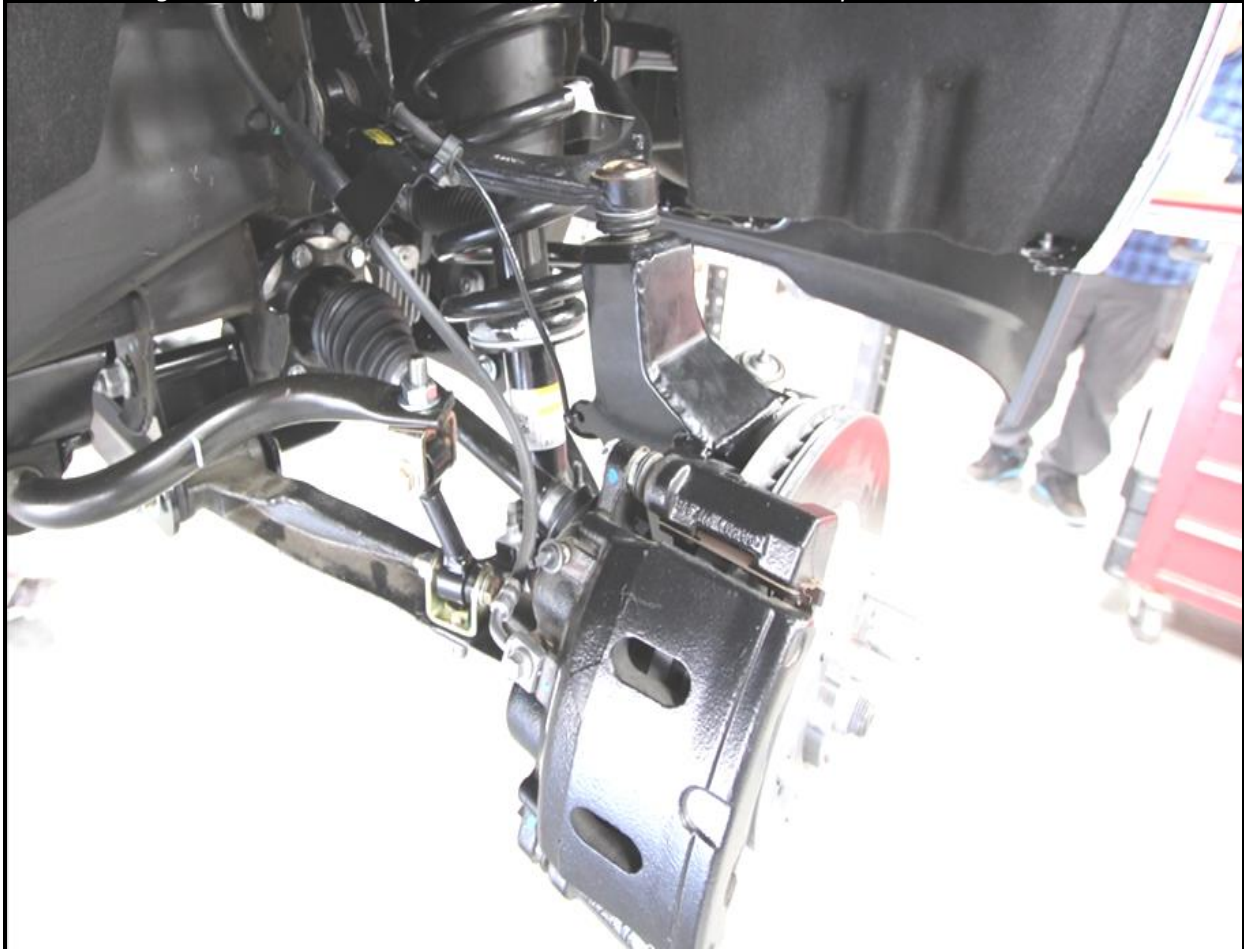


- 33) Install the Sway Bar Spacer Brackets and Factory Sway Bar. The Sway Bar Spacer Brackets are secured to the frame using hardware from **HP9107**. Be sure to include a lock washer when securing the bracket to the truck frame. To install the Factory sway bar, secure the sway bar to the spacer brackets using the factory bolts and the washer and nuts from **HP9107**. See **Figure 22**.



- 34) Install the heavy-duty sway bar end link kit at this time. Use the instructions included in that kit. If your truck came factory with stamped steel control arms, you must install the **8241** spacer underneath the clevis bracket to space it up from the lower a-arm for clearance purposes. See **Figure 23**.

Figure 23: Installation of CV axles, sway bar end links with spacers and brake lines.





- 35) Reattach the factory tie rod end to the Cognito spindles and tighten to **80 ft-lbs** of torque at this time.
- 36) Be sure the brake lines and ABS sensor wires are routed and restrained as to avoid any rubbing and binding.
- 37) **4WD ONLY!** Skip to Step **39** for **2WD**. A front CV driveline is required to prevent vibration at speeds over **20 MPH** in **4WD** and sold separately. Cut loose the clip holding the dust boot onto the factory driveline slip yoke at the transfer case. Replace the factory driveline with a new unit from Cognito Motorsports and use a hose clamp or zip tie to secure the dust boot to the new drive shaft. If you try and retain the factory driveline, damage to the front differential and the transfer case will occur if **4WD** is used. Attach the new driveline yolk to the front differential yolk with the factory clamps and bolts, torque to **30 ft-lbs**.
- 38) **4WD ONLY!** Skip to Step **39** for **2WD**. The pinion angle on the front differential is increased therefore $\frac{1}{2}$ quart of approved gear oil needs to be added to the front differential to ensure the pinion bearings are oiled appropriately. You will not be able to use the oil level bolt on the front differential case because it is no longer at the same angle. The oil will have to be added through the plastic case vent by unscrewing the vent from the case, adding the oil, and then re-installing the vent. If having the front differential serviced ever, the oil level check hole will not be able to be used, be sure the service person knows this.
- 39) For **2014-2018** trucks utilizing the factory front skid plate refer to instruction set **#8113** that's included with part **#110-70060**.
- 40) At this point, inspect all hardware to ensure everything is torqued properly.
- 41) Install front wheels according to factory specifications. Please note the wheel requirement stated at the beginning of this instruction set. Do not re-install the small clips on to the wheel studs; they will interfere with most aftermarket wheels.
- 42) If you purchased new spring packs, replace the factory spring packs and use factory hardware and torque to **100 ft-lbs** for **5/8"** U-bolts or **80 ft-lbs** for the factory **14mm** U-bolts. If the **5/8"** U-bolts don't quite fit through the holes in the bottom U-bolt plate, chase the holes with a **5/8"** drill bit. The large bushing end of the spring goes toward the front of the vehicle. A **2.5 or 4 degree** shim is recommended to reposition the differential pinion angle for driveline alignment and you must add **1** extra quart of gear oil to properly oil the pinion bearings due to the pinion angle change. Then install rear wheels and shocks. Be sure to remove the **2** clips from each rear wheel hub as they will interfere with most aftermarket wheels.
- 43) If you purchased the block and U-bolt kit, refer to the instructions included with them for installation.
- 44) Adjust headlights down to proper settings. On flat ground park squarely **25** feet back from a wall. Turn on the headlights, look at the light shining on the wall, and adjust the headlamp down until the light on the wall is approximately **4** feet from the ground.

45) Have the vehicle's front end professionally aligned using these front end alignment guidelines:

Some Cognito upper control arms have added caster built into them to increase drivability performance, therefore it's important to be sure the correct control arm is installed on the correct side of the vehicle. It's also important to make your alignment shop aware that if caster is high, that is the intention by design.

Cross caster is important in making your vehicle track straight down the road. Most roads have crown to them, high in the middle for water runoff. This crown will make your vehicle want to pull to the right. Vehicles with stock tires on them have a narrow contact patch on the ground and are not as affected as a vehicle having larger wider tires. With larger wider tires it's important to have cross caster proper for the vehicle to track straight on these roads. Trucks with dual rear wheels have more tire on the ground and require more cross caster. The length of the wheelbase will also affect the cross caster needed.

Generally, crew cab short and long bed trucks like .8 degrees of cross caster. Dual rear wheel trucks like .9-1.0 degrees of cross caster. Your area might have roads that are crowned more or less than average therefore these numbers may need to change, and your alignment shop should understand this. If your alignment tech is stating they can't align the truck, that typically means they can't get the alignment to OEM spec, and that's fine because your vehicle is no longer OEM. A good tech will understand this and the numbers and let caster run slightly out of OEM spec (Caster should always be above 2 degrees positive) while maintaining cross caster needed for the vehicle and roads so you enjoy your vehicle with aftermarket Cognito parts and your driving experience.

Torque Specification Chart

1/4" Bolts	11Ft.-Lbs.
5/16" Bolts	13Ft.-Lbs
3/8" Bolts	19Ft.-Lbs
7/16" Bolts	30Ft.-Lbs
1/2" Bolts	60Ft.-Lbs
9/16" Bolts	80Ft.-Lbs
5/8" Bolts	100Ft.-Lbs

Torque all factory bolts to factory torque.



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 warranted 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.