Cognito Motorsports, Inc. 7”-9” Front Lift System for 2001-10 GM IFS 2 and 4WD 8 Lug

Requirements

- Maximum wheel backspacing is 5”
- Do not use a tire that is more than 4 1/2” wider than the rim width on a 4 1/2” or more backspaced wheel.
- Set at 7 to 8”, suggested tire size is 35” tall and up to 13.5” wide on an 8 to 10” wide rim with 4.5 to 5.0” back spacing. Set at 9”, **ONLY ON 2500HD AND 3500** maximum tire size is 37” tall and up to 13.5” wide on an 8.5 to 10” wide rim with 4.5 to 5” back spacing. Call Cognito Motorsports with wheel and tire suggestions if necessary. Trimming of inner fender well and bottom rear of steel fender may be required.
- Follow alignment specs at the end of this instruction set.

Introduction

- Installation requires a qualified mechanic.
- 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 is flammable. Be careful of all fuel lines, fuel tanks, brake lines, and electrical harnesses.
- When tightening bolts, refer to foot-pound readings listed on the Torque Specification Chart at the end of the instructions if not otherwise specified
- Front-end alignment will be necessary after completion.
- Exhaust modification may be necessary.
- Drive line(s) modification may be necessary.

Parts List

- 8070 Front Crossmember
- 8071 Rear Crossmember
- 8003 Driver-side Crossmember Spreader Tube
- 8004 Passenger-side Crossmember Spreader Tube
- 8073 Driver side spindle
- 8074 Passenger side spindle
- (2) 8053 Compression Strut Tube
- 8056 Compression strut crossmember
- (2) 8076 Torsion Bar Bracket
- 8072 Passenger-side Differential Mount (needed on 4WD only)
- (2) 5410 Front axle spacer (needed on 4WD only)
- PISK2008, 8-lug Pitman and Idler Arm Support Kit (optional)
- SBELKHD-1007 sway bar end link kit
- Hardware Package #9032
- Hardware Package #9034 (needed on 4WD only)
- Hardware Package #9038 (needed on 4WD only)
- Hardware Package #9049

Front End Disassembly

1) **Always work on a properly supported vehicle.** With the vehicle on a car hoist, lift the vehicle off of the ground and remove the front wheels.

2) Remove torsion bar adjusting screw, Figure 1. Using a torsion bar loading tool, load torsion bar, Figure 2. Remove adjuster nut, Figure 3. Remove tool.

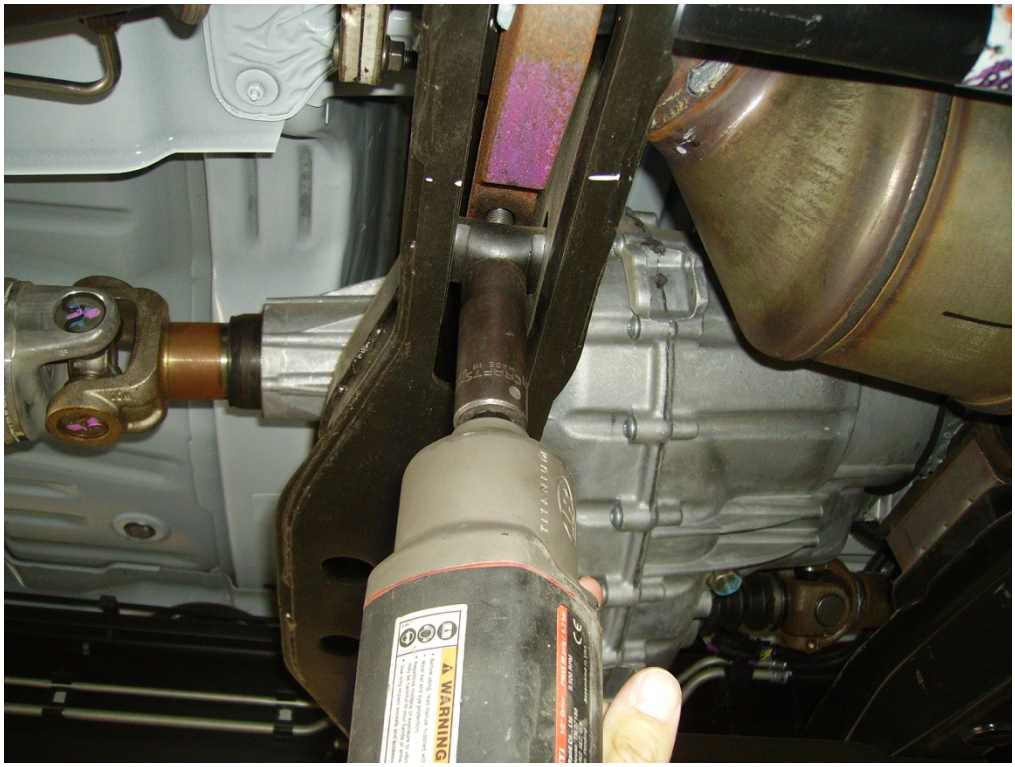

Figure 1: remove torsion bar adjusting bolt

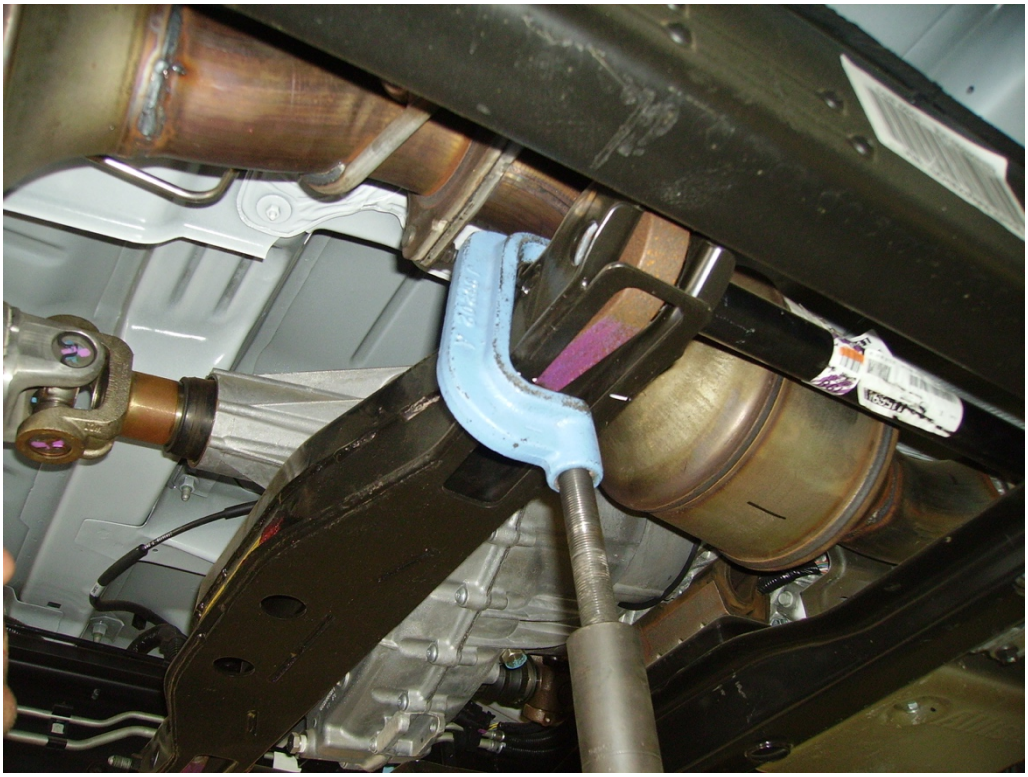

Figure 2: load torsion bar to remove adjuster nut

Figure 3: adjuster nut removed

3) Slide torsion bar forward into lower control arm. If bar seems lodged, use a punch and hammer to loosen through the hole in the back of the crossmember. This will allow the torsion bar adjuster keyway to fall out. Repeat this to the other side.

4) Remove torsion bar crossmember by removing the bolt from each side of the crossmember, Figure 4, retain for future use. With the crossmember out of the vehicle, the torsion bars can be removed from the lower control arms. Be sure not to mix up the torsion bars from front to back or left to right, they must go back into the vehicle the way they came out.

Figure 4: Remove factory torsion bar crossmember

5) Remove the upper and lower shock fasteners, and discard shocks. Retain the hardware for possible future use depending on the shock setup you have chosen. Front shock upper fastener is difficult to get to, but bending the plastic inner fender well around will get it done. The other option is to remove the inner fender well, and replace later, but this will take more time than muscling the inner fender, Figure 5.

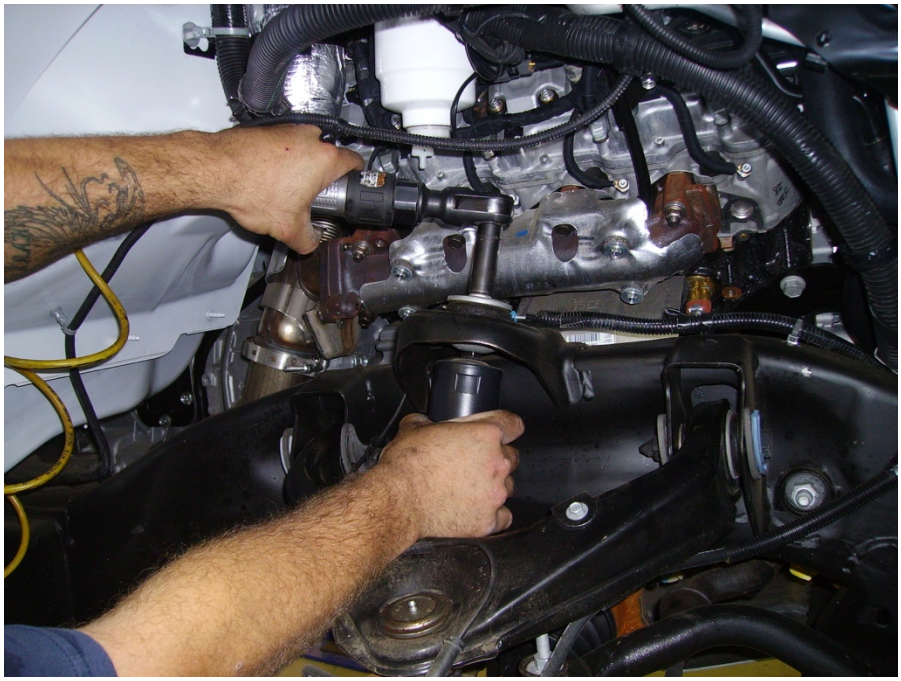

Figure 5: remove shocks, front upper shown here.

6) Extended brake lines are not needed; the rubber brake line can be pulled through the steel bracket for better fitment. If you are retaining the factory brake lines, skip now to the next step. You can purchase extended brake lines if desired. 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 of 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. 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.

7) Unbolt the brake line bracket from the top of the spindle, and the bracket from the upper control arm. Remove the brake calipers by removing the 2 bolts fastening the caliper to the spindle; it is easiest to hang the caliper from the front bumper bracket with a bungee cord or something of the like. Now remove the clips from the wheel studs and discard, and then remove the brake rotors. At this time, remove the clips from ALL 4 corners of the vehicle, as aftermarket wheels will not fit with these clips in place, see Figure 6.

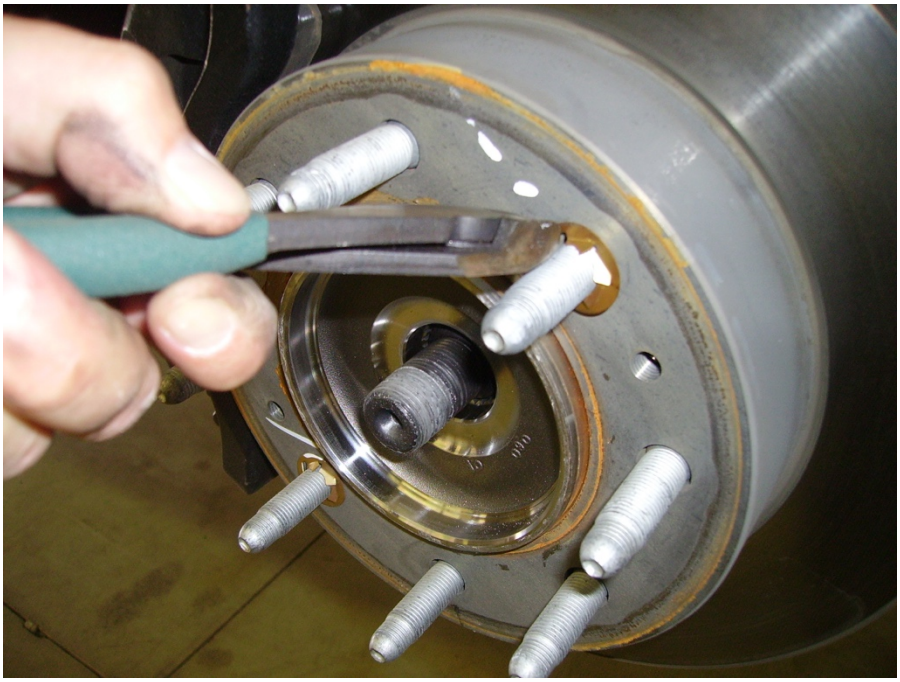

Figure 6: Remove clips from all 4 corners of vehicle. MUST DO for aftermarket wheels.

8) Remove the tie rod end nuts on the spindle. Using a pickle fork, or hammer, dislodge tie rod from spindle. Pull down on the tie rod and hit the spindle casting with a hammer to dislodge the taper seat as shown in Figure 7.

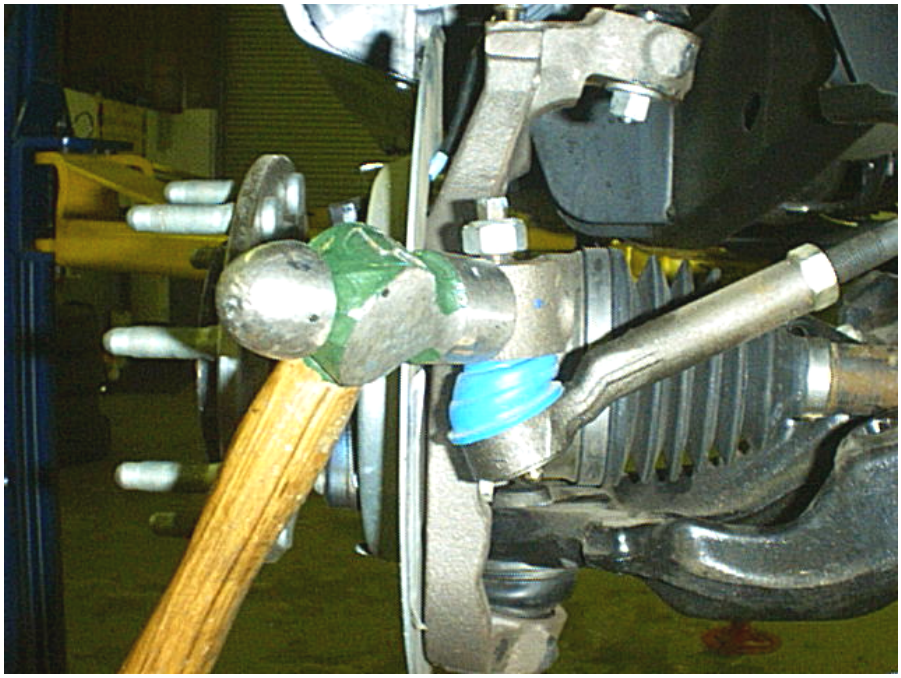

Figure 7. Remove tie rods from spindles.

9) Skip this step for 2WD vehicle. On 4WD models, unbolt the CV axle from the differential. To do this, remove the six bolts holding it in on the differential end. Use a thin chisel to

pry the axle stud cover cap from the spindle hub, and then remove the large nut on the spindle end of the axle with a 36mm socket. Axle may now be removed from the vehicle. Repeat this step on the other side. See figure 8.

Figure 8: Remove CV axles on 4wd vehicles

10) Remove both anti-sway bar links, which connect the sway bar to the lower control arms.

11) Your vehicle is equipped with an ABS brake system. Unplug the wire sensor from the wire harness terminal located near the top shock mount. Remove the clamp from the frame also, since the sensor wire will have to be re routed after installing the suspension lift system.

12) Detach the lower control arms from the spindles. Do this by loosening the nut on the lower control arm ball joint, but leave a few threads engaged. Loosen the 2 large bolts holding the lower control arm to the frame. With the control arm and spindle assembly hanging, hit the spindle with a large hammer on the boss that surrounds the lower ball joint stud. This will dislodge the taper seat and free the lower control arm from the spindle, see Figure 9. Remove the lower control arms from the vehicle.

Figure 9: removing lower control arm.

13) Next loosen the upper ball joint nut, but leave engaged by a few threads. With the spindle assembly hanging from the upper control arm, hit the spindle with a large hammer on the boss that surrounds the upper ball joint stud. This will dislodge the taper seat and free the upper control arm from the spindle. Remove the spindle assembly from the vehicle and set aside.

14) 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.

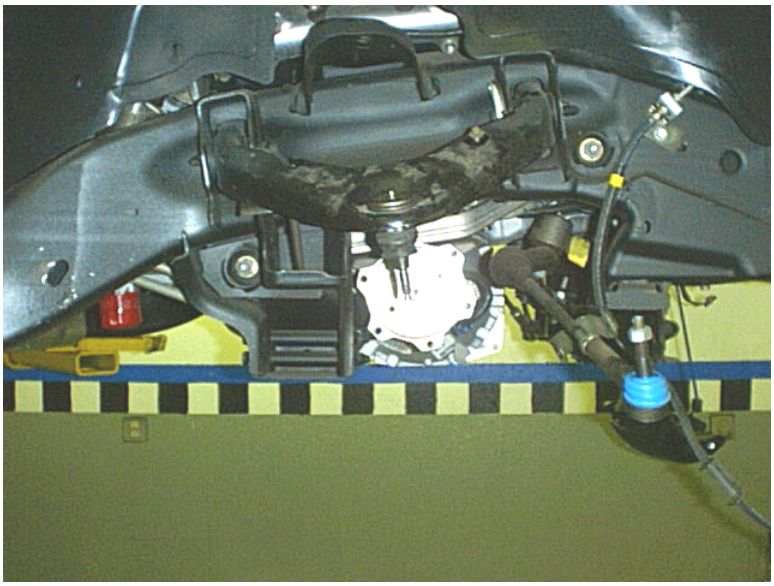

Figure 10. Lower control arms, CV axles, brake calipers, and spindle assemblies removed.

15) Remove front differential skid plate and discard, if so equipped. Also remove the black plastic air dam from underneath the radiator; this may be re-installed later if desired with some modification.

16) On 4WD models, unplug the differential's electronic coupler(s) and breather hose. Unbolt the front drive shaft from the differential yolk.

17) Remove the lower driver side bolt holding the differential to the back of the rear driver side lower control arm frame pocket as shown in Figure 11.

18) Support the bottom of the front differential with a transmission jack to prepare to cut the frame to clear the differential housing after it is dropped down. It is best to use a bracket on a transmission jack that will bolt to the front differential as shown in Figure 12.

19) Now using a reciprocating saw, cut the back of the driver side lower control arm rear frame pocket off as shown in Figure 13. This allows room for the differential to drop down without hitting the frame.

20) After cutting the back of the pocket off, now remove the 2 long bolts holding the passenger side of the factory crossmember to the frame, and remove the factory crossmember from the vehicle as shown in Figures 14 and 15. You should retain this crossmember and removed frame section for later replacement if you should decide to return the vehicle to stock.

21) On 4 WD models, loosen, but do not remove the upper driver side differential bolt. Loosen, but do not remove the two nuts from the studs on the passenger differential mount. Once these fasteners are loose and the differential is supported, remove the fasteners and lower down the differential safely, this is a very heavy item.

22) Unbolt the transfer case skid plate and discard, if so equipped.

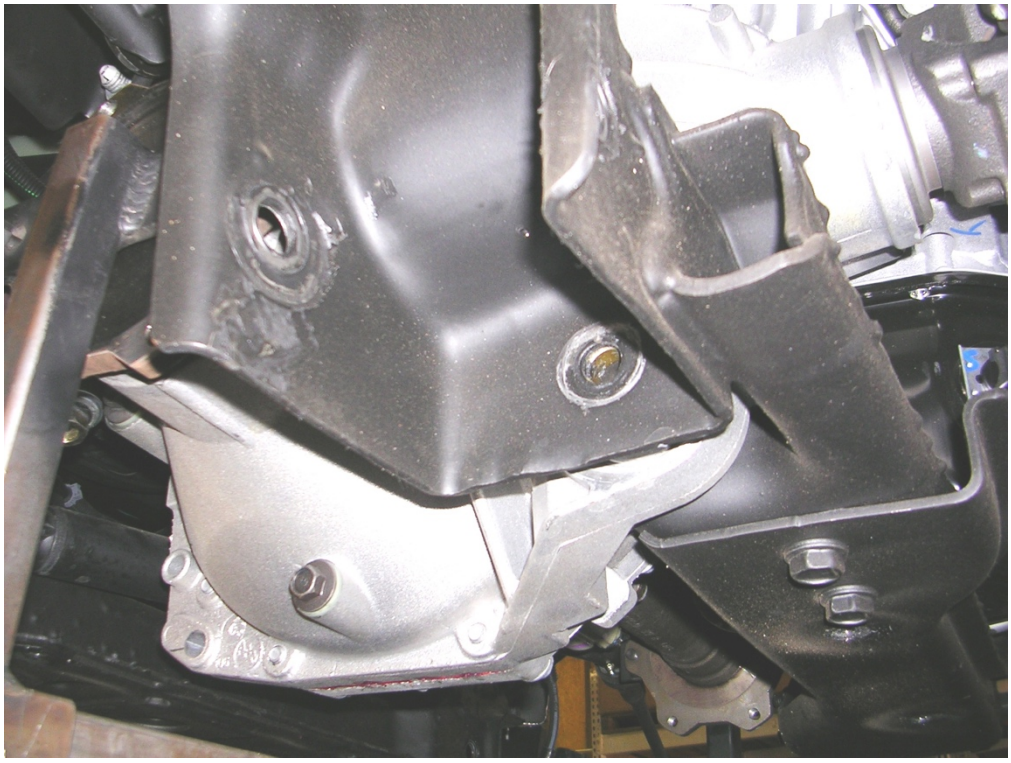

Figure 11: Lower bolt removed from front differential prior to making frame cut.

Figure 12: Supporting the front differential before cutting the frame.

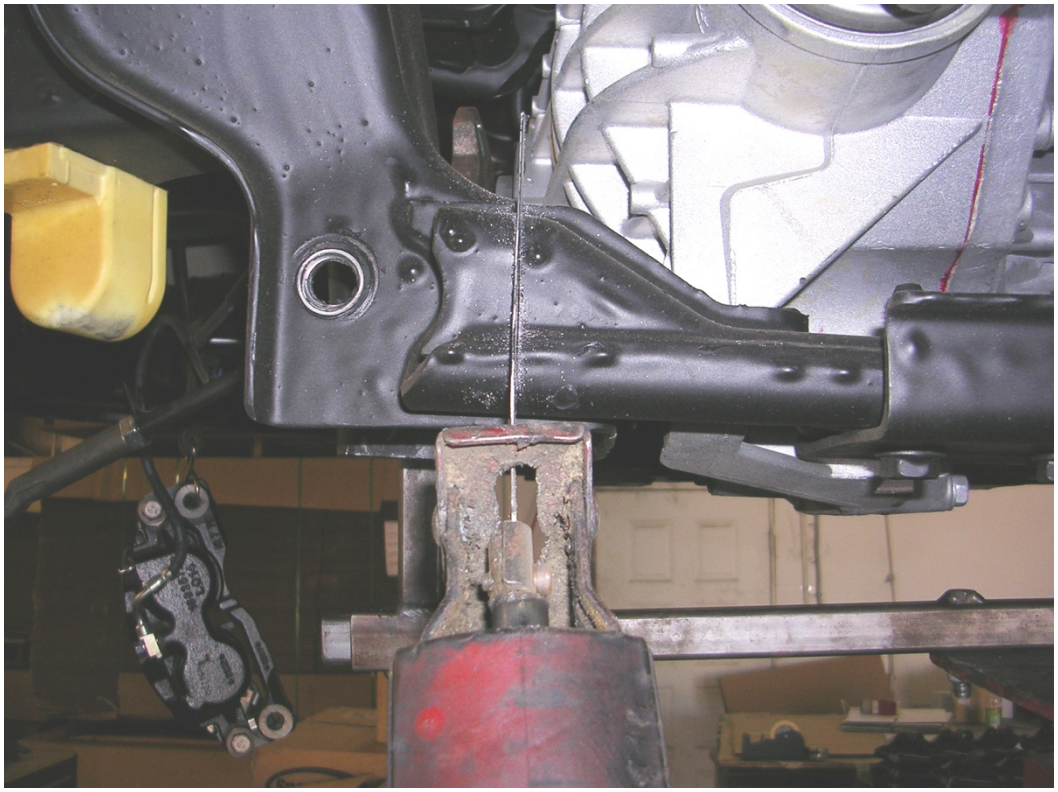

Figure 13: Cutting the frame pocket.

Figure 14: Factory crossmember and frame section removed.

Figure 15: Factory crossmember and frame section removed.

Lift Kit Installation and Front End Re-assembly

23) 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.

24) If included, install the Cognito Motorsports Pitman and Idler arm support kit at this time. The PISK has separate instructions for installation.

25) For 2wd vehicle or 4wd kits without a PISK, skip this step. For 4wd vehicle, the top of the driver side upper differential mount may need about ¼" trimmed off of the top of it to clear the Pitman arm support shoulder nut. It is easiest to do this while the differential is free from the vehicle but can be done with a die grinder later with more difficulty. See figure 16.

26) Bolt 8071 Cognito rear crossmember into the rear lower control arm pockets using stock, rear lower control arm bolts, see Figure 17. Unbolt the factory lower control arm bump stops from the frame and remount to the Cognito Rear crossmember.

Figure 16: clearance for shoulder nut on pitman arm bracket.

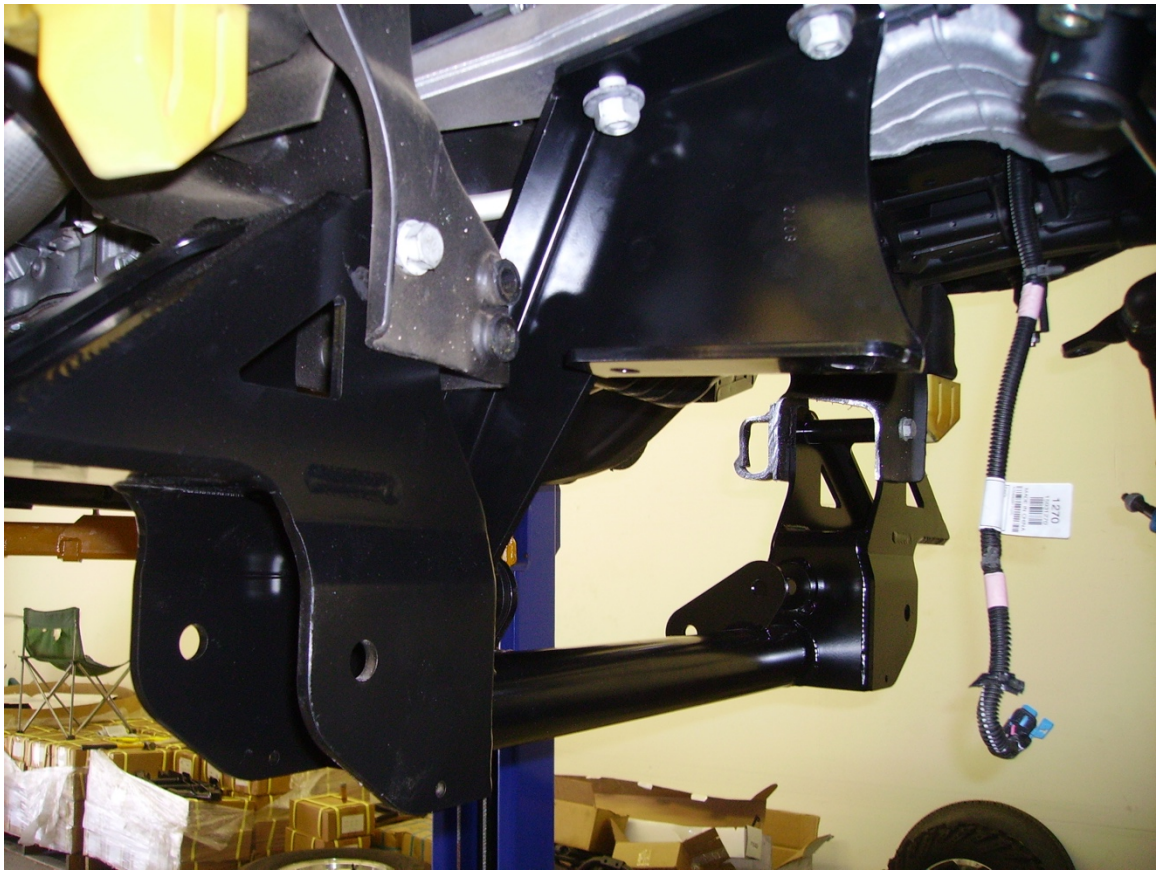

Figure 17: 8071 rear xmbr in place. 8072 diff mount in place for 4WD vehicles.

27) On 4WD models, insert the polyurethane bushings and crush sleeve into the 8072 Cognito passenger differential drop from hardware package #9034. Using the factory nuts and washers, bolt the Cognito passenger differential mount to the factory differential mount. Use a 9/16" x 4 ½" bolt, 2 flat-washers, and a lock nut to fasten the lower end of the Cognito differential mount to the pocket on the Cognito rear crossmember. See Figure 17.

28) On 4WD models, use hardware from package #9034 and bolt the lower mounting ear of the differential driver side to the Cognito rear crossmember with a 9/16" x 4 ½" bolt, 2 flat washers, and lock nut. Mount the passenger side of the differential to the Cognito differential mount with the 9/16" x 1 ¾" bolts, washers, and lock nuts, see Figure 18.

29) From hardware package #9049, insert the two ½" plate bolts inside the frame hole just above the front lower control arm pocket and through the holes in the frame. These should line up with the two mounting holes on the 8070 Cognito front crossmember. Using the factory hardware from the front of the lower control arms, bolt the Cognito front crossmember to the frame. Be sure that the plate bolts fall through the holes on the Cognito front crossmember. See Figure 19.

30) On 4WD models, use a 9/16" x 4 ½" bolt, 2 flat washers, and lock nut to fasten the top differential-mounting ear to the pocket on the 8070 Cognito front crossmember. See Figure 19.

Figure 18: Differential mounted to 8071 and 8072.

Figure 19: Front xmbr and top mount on differential.

31) Attach the appropriate lower control arms to the lower pockets of the Cognito front and rear crossmembers with the 5/8" hardware from package #9049, which also fastens the Cognito sub-frame connector tubes into place in-between the lower control arm mounting points. Insert the front bolt in from the front of the 8070 crossmember. Insert the rear bolt in from the rear of the 8071 crossmember. Don't push the bolts all the way through yet, leave room to insert the sub frame connectors in the next step.

32) Use the ¼" hardware from package #9049 and mount the 8003 driver and 8004 passenger side Cognito sub-frame connector tubes appropriately, in between the lower pockets of the Cognito front and rear crossmembers. Then push the 5/8" bolts from the previous step, all the way through the crossmembers to attach washers and nuts. The ¼" bolts are merely to hold the rotational position of the sub-frame connector.

33) If your kit included the Cognito upper control arms, mount the ball joints on the top of the ball joint plate of the control arm if setting the kit at 7". Mount the ball joints on the bottom of the ball joint plate of the control arm when setting at 9". Refer to the Cognito Motorsports Upper Control Arm instruction sheet to finish installing them.

34) Disassemble the bearing hub assembly and brake rotor shield from each of the factory spindles. Also remove the o-ring from the bore of the spindle, careful not to damage it. Clean the mating surfaces of the bearing hub and brake rotor shield thoroughly and transfer all of these parts to the appropriate Cognito spindle making sure that the bore and o-ring

groove of the Cognito spindles is clean and free from debris. Torque the bearing hubs to the spindles according to factory specifications at this time, about 90 ft/lbs. See Figure 20.

35) Be sure there is no dirt or powder coat or anything in the 3 tapered holes on each spindle. If there is, clean it or scrape it out now. Now hang the spindle assemblies on the appropriate sides of the vehicle from the ball joint of the upper control arm. Then attach the lower control arm ball joint to the Cognito spindle. Tighten all ball joints to the Cognito spindles, 100 ft/lbs for the lower, and very tight with a boxed end wrench on the upper approx. 60 ft/lb. See Figure 21.

36) All hardware installed up to this point may now be tightened. Use the torque specification chart at the end of this instruction set for hardware supplied by Cognito Motorsports. Refer to factory specifications when tightening factory hardware.

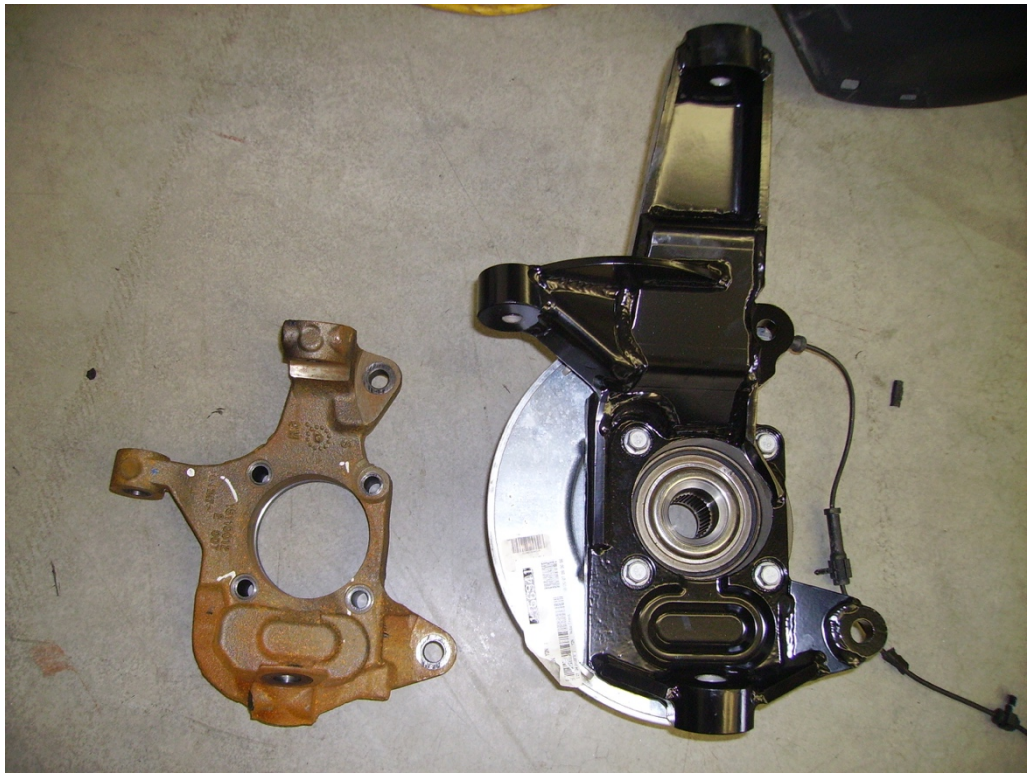

Figure 20: spindle assembly, passenger side

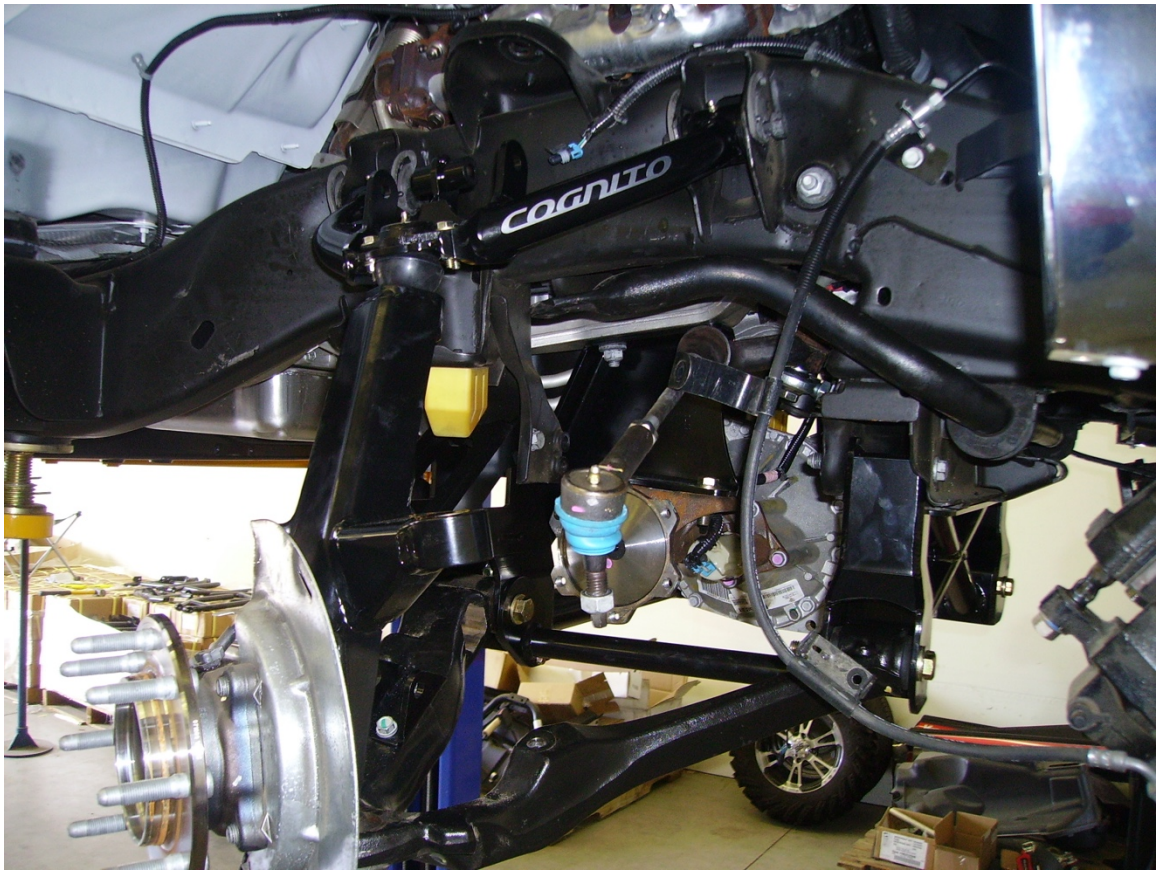

Figure 21: Passenger spindle attached to upper and lower control arms.

37) On 4WD models, install the stud/spindle end of the front drive axles into the Cognito spindles and fasten with factory hardware. First making sure all mating surfaces are clean, mount the differential end of the drive axles to the differential with the 5410 spacers in between via hardware from package #9038 using a drop of thread locker on the first threads of each bolt. Fasten all hardware mentioned in this step, axle nut to 120 ft/lbs. and flange bolts to 40 ft/lbs.

38) Install the brake rotors and calipers on to the appropriate side Cognito spindle. Install Cognito brake line kit if purchased with suspension kit, tightening fittings to factory specifications.

39) Install the SBELKHD-1007 sway bar end link kit now per the instructions included in that kit..

40) If you purchased the Cognito tie rod upgrade kit, follow those directions in this step, otherwise reattach the factory tie rod end to the Cognito spindles. Tighten all fasteners at this time.

41) Be sure the brake lines and ABS sensor wires are routed and restrained as to avoid any rubbing and binding.

42) From hardware package #9032, press the wide polyurethane bushings and sleeves into the ends of the Cognito compression strut tubes. Attach one end of the tubes to the Cognito rear crossmember with the 1/2" x 4 ½" bolts, washers and lock nuts. Run these bolts from the inside of the truck toward the outside. See Figure 22

Figure 22: Attach 8033 compression strut tubes to 8071 crossmember

Figure 23: attach 8056 crossmember to 8053 compression strut tubes.

43) Attach the Cognito compression strut crossmember to the other end of the Cognito compression strut tubes with like hardware. Swing the Cognito compression strut crossmember up to the bottom of the frame rails and clamp to the frame. Make sure the crossmember is centered in the frame rails side to side, and drill four ½" holes using the compression strut crossmember mounting plates as a drill template. See Figure 23

44) Press the narrow polyurethane bushings and sleeves into the 8076 Cognito torsion bar Brackets. Unclamp the Cognito Compression Strut cross member from the frame and drop it down slightly to Mount the Cognito Torsion Bar Brackets in place against the bottom of the frame rail, and then the Compression strut bracket against the Torsion bar bracket. Mount them to the frame with the ½" x 1 ½" bolts, washers, and nuts provided in Hardware Package 9032 and tighten the hardware at this time. See Figure 24.

Figure 24: mounting the 8076 torsion bar brackets

45) Insert the factory torsion bar crossmember on to the Cognito torsion bar drops with the factory hardware. Tighten at this time. On 8-lug suburban, avalanche, 1500HD, and 2500 models, the factory torsion bar crossmember may need to be notched to fit in the Cognito torsion bar drops. Tighten at this time.

46) Insert the torsion bars into the lower control arms (be sure that you put them in the same way you took them out). Now place the torsion bar adjusters inside the torsion bar crossmember and slide the torsion bars into the crossmember and into the adjusters. Load

the torsion bars and replace the adjuster nut. Unload bars and insert the adjuster screw into the nut and adjust to factory specifications.

47) If you are using single front shocks, install them into the factory location. Use factory hardware when necessary.

48) At this point, inspect all hardware to ensure everything is torqued to factory specifications and to the torque specification chart at the end of this instruction set.

49) On 4WD models, reconnect front drive shaft. If the exhaust crossover is in the way of the drive shaft, the exhaust will have to be rerouted either over or under the drive shaft. Some models may require front drive-line modification or replacement. Consult Cognito Motorsports about drive-line requirements. If you plan to drive faster than 20 MPH in 4WD, you MUST use the CV front driveshaft offered by Cognito Motorsports. Otherwise the stock front driveline will vibrate and damage the front differential and transfer case.

50) The pinion angle on the front differential is increased therefore ½ 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.

51) Install front wheels according to factory specifications. Please note the wheel requirement stated at the beginning of this instruction set.

52) If you purchased new spring packs, replace the factory spring packs and use factory hardware and torque to factory specifications. The large bushing end of the spring goes toward the front of the vehicle. A shim is recommended to reposition the differential pinion angle for driveline alignment. If the pinion is tilted, you must add 1 extra quart of gear oil to properly oil the pinion bearings. Use appropriate length u-bolts and torque them to 100 ft-lbs if they are 5/8”. Then install rear wheels and shocks.

53) Adjust the torsion bars so that the front ride height is appropriate, and so that the truck is even left to right side. Do not over crank the torsion bars to try and gain too much height. Always lift the front of the truck so the wheels droop down before turning the torsion adjuster bolt tighter. Then drive the truck briefly to settle the height before measuring.

54) Have headlights readjusted to proper settings.

55) 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 in order 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 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	70Ft.-Lbs
9/16" Bolts	95Ft.-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 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.