COGNITO

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INSTALL INSTRUCTIONS:

Cognito 2" Economy Leveling Lift Kit for 2019-2020 GMC Sierra 1500 (excludes AT4 Model), Chevrolet Silverado 1500 (Excludes Trail Boss Model), 2WD/4WD Trucks
SKU: 110-90795

PARTS LIST FOR SKU: 110-90795

QTY.	PART #	DESCRIPTION
2	90763	STRUT SPACER .75INCH 2T 2019 GMC 1500
2	6489	0.5 INCH PRELOAD SPACER 2019 GMC 1500
1	HP9270	STRUT SPACER HARDWARE PACK
2	BLOCK-S1	GM 1999-2011 6-Lug And 2001-2010 8-Lug 1" Tall Steel Flat Block Black
4	UB-.625X2.6X10.5	U-Bolt With Hardware 5/8" X 10.5" 4 Needed Per Set

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.

REQUIREMENTS

- Installation requires a qualified mechanic.
- Read instructions carefully and study the pictures before attempting installation.
- Check the parts and hardware packages against the parts list to assure that your kit is complete.
- **This kit is not for the AT4 and Trail Boss models.**

TECHNICAL INFORMATION

- Cutting and sanding the studs on the factory struts is required.
- A strut compressor is required.
- Depending on your wheel and tire combination, trimming of inner fender and valance will be required.

INSTALLATION

1. Start by racking the vehicle and hoisting it off the ground so that the front wheels are off the ground and the suspension is at full droop. If no hoist is available then jack the front of the truck off the ground and support properly with jack stands. NEVER WORK ON AN UNSUPORTED VEHICLE.

2. Mark the lower control arm eccentric washers with a number and F or B for front/back, for example left side front bolt, mark the front eccentric washer with 1F and mark the rear eccentric washer with 1R. Left side rear bolt mark eccentric washers 2F and 2R, and so on. Leave the plastic inserts in the eccentric washers, the goal is to get the items back where they came from which will keep the front-end alignment close. Remove the lower control arm bolts using a 27mm wrench (see figure 1). Set each bolt and nut pair off to the side and keep track of where they came off.

Figure 1: Remove Lower Control Arm Bolts

3. Note that at this time the upper control arm should be resting on the service perch and the lower strut screws are holding the lower control arm in place. Remove the lower strut screws to free the lower control arm using a 15mm socket (see figure 2).
4. Pull the lower control arm out from the frame mounts and remove the cross brace using a 21mm wrench (see figure 3). This will free up much needed room while removing and installing the strut. Next remove the upper strut nuts. There are 3 of them and they require an 18 mm wrench. The plastic wire chase on the passenger side can be pushed upward enough to get the front 2 off easily (see figure 4). The 3rd in the back is somewhat difficult to remove from the wheel well but can be removed from the engine bay if necessary.

Figure 3: Remove Lower Strut Screws

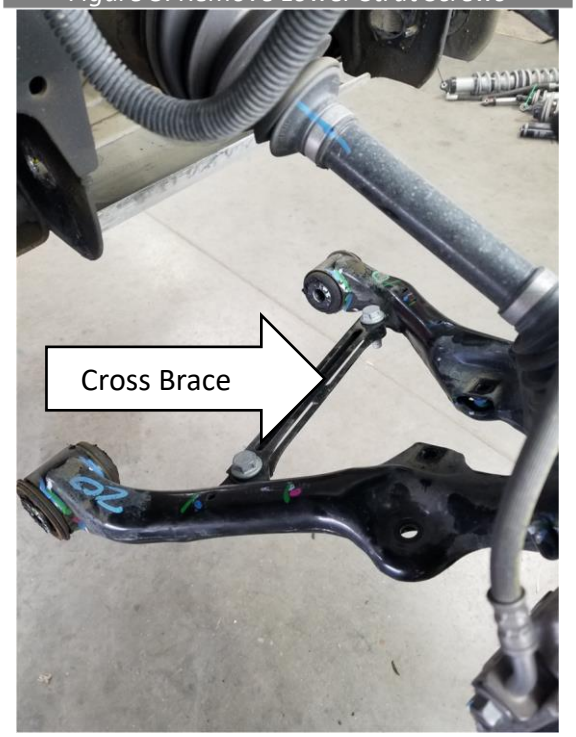
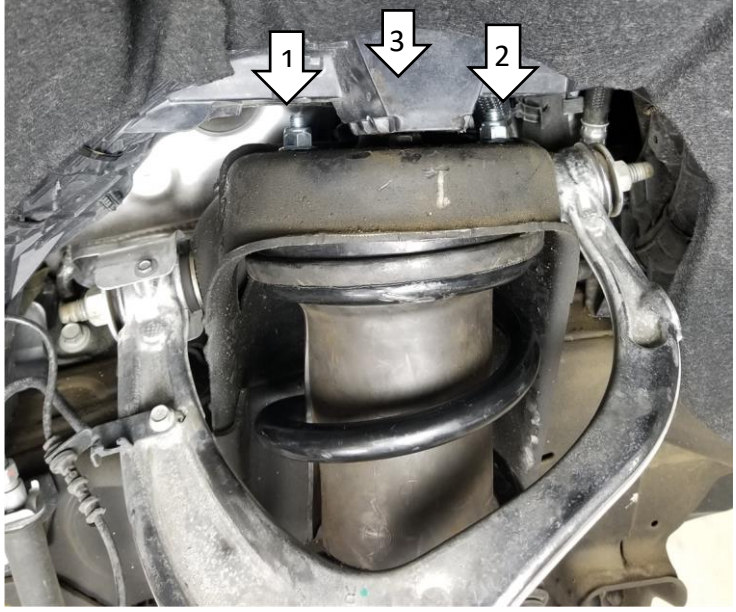
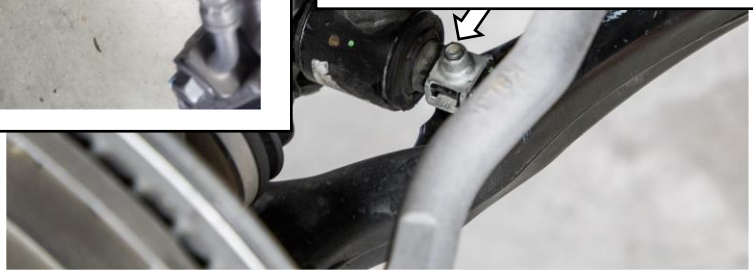


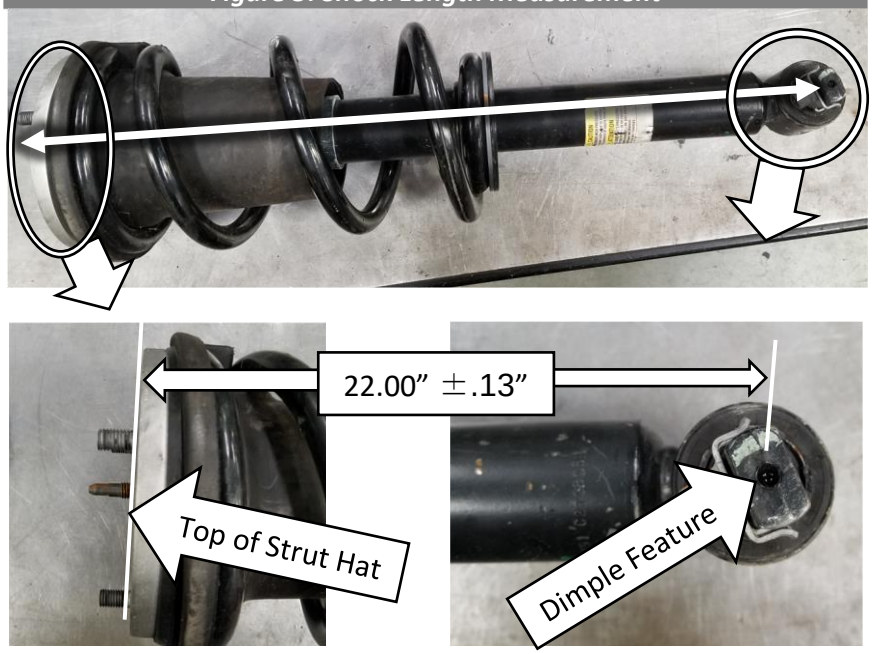
Figure 4: Remove Upper Strut Bolts





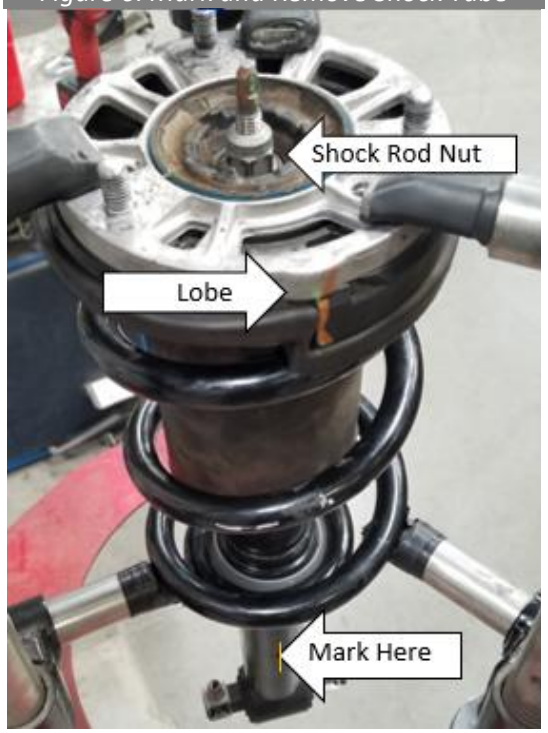
5. Using a shock or shock spacers that are too long will cause the upper ball joint to bind and break. Therefore, the OEM shock (or correct length shock) must be used along with this leveling kit, if using the stock upper control arm. **The included preload ring must only be used over the stock shock tube and not on aftermarket shocks** Measure from the top surface of the strut hat to the "dimple" feature on the lower pivot axis bar pin (see figure 5). This measurement should be 22.00" plus or minus 1/8". If anything is used longer than the guidelines specified, warranty will be void and you could damage your OEM upper arms and ball joints and more, which could cause an accident and even death.

Figure 5: Shock Length Measurement



6. Place the strut in a spring compressor, locate the lobe feature on the strut hat, and mark the shock tube directly below the lobe as shown in figure 6 for alignment purposes. Add some pressure to the strut assembly and remove the center nut using an 18mm socket and impact gun. Note that leaving some tension from the spring on the hat

Figure 6: Mark and Remove Shock Tube

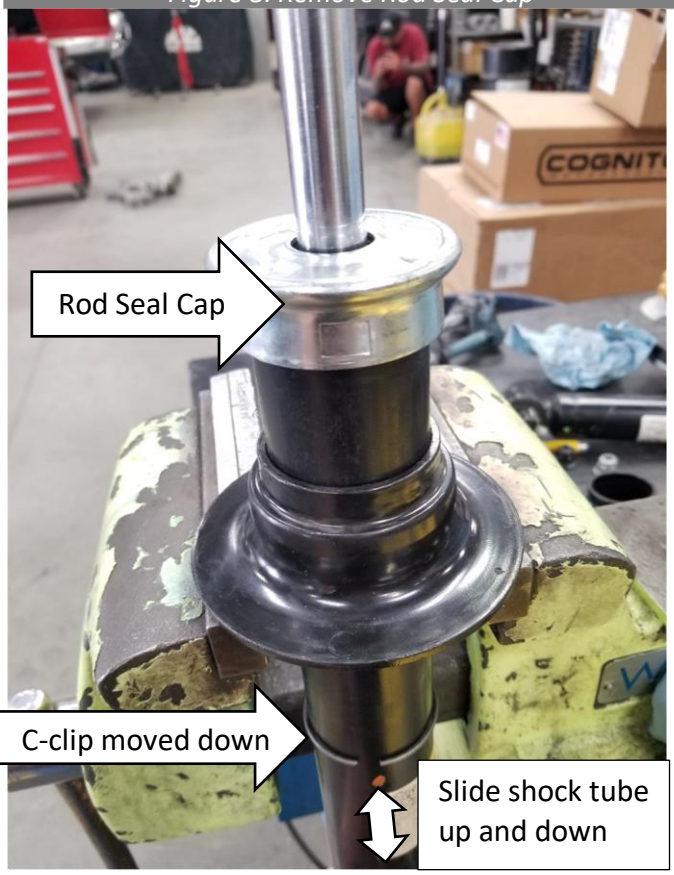


will help prevent the piston rod from spinning while using the impact. The nut can also be removed by using an 18mm and 6mm wrench in combination to prevent the piston rod from turning.

7. Remove the foam bump stop cushion and nylon cover for the spring seat shown in figure 7, setting them aside until reassembly. Remove the rod seal cap by placing the shock in a bench vice with the jaws open enough for the spring seat to rest on, this will let the shock tube move down relative to the spring seat to expose the C-clip. Slip the C-clip ring down from its groove on the shock tube. You can now grab the lower part of the shock tube, like a slide hammer slide it up, and pull it down swiftly until the rod seal cap impacts the spring seat (see figure 8). Repeat until the cap is free.

Figure 7 : Shock Assembly

Figure 8: Remove Rod Seal Cap

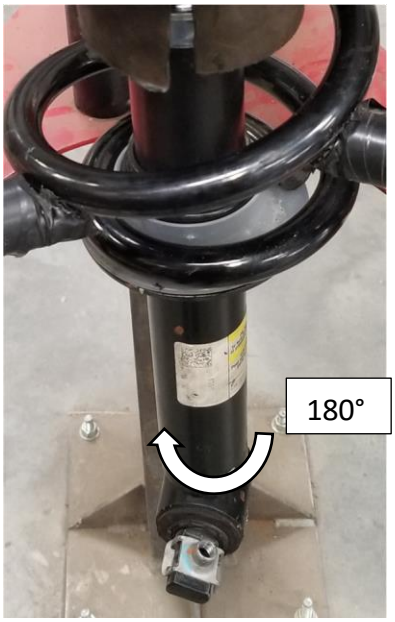


8. Remove rod seal cap and spring seat, slide the C-clip back into its groove making sure it is fully seated, and slide the Cognito preload ring over the C-clip as shown in figure 9. The ring may be installed in any orientation. Reinstall the spring seat and tap the cap back on using a hammer. Reinstall the nylon spring seat ring and foam bump stop cushion as they came off.

Figure 9: Install Cognito Preload Ring

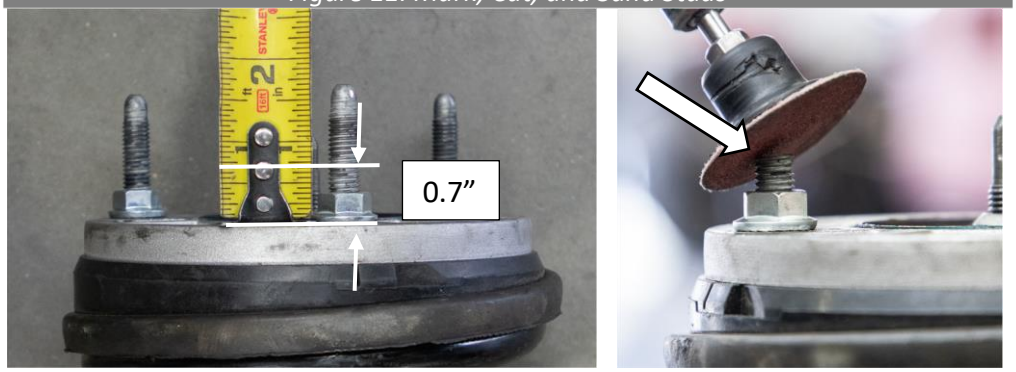
9. When reinstalling the shock to the spring and strut hat, make sure the alignment mark made on the shock tube from step 6 is rotated 180° from its original position. The mark should now be opposite to the lobe feature (see figure 10). Reinstall the sock rod nut in the reverse of its removal.

Figure 10: Rotate Shock Tube



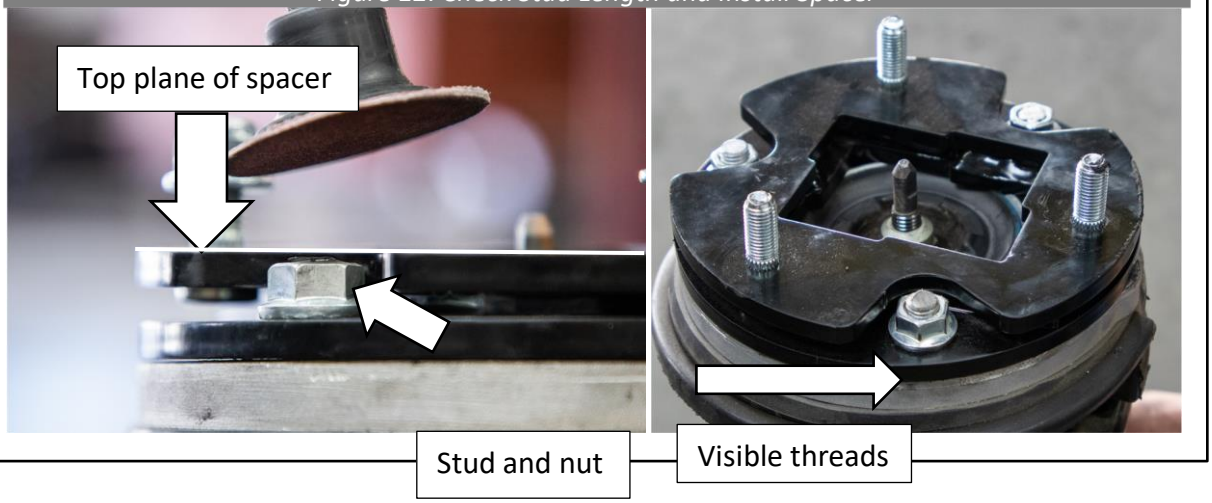
10. Install the supplied m10x1.5 lock nuts all the way down the studs but do not tighten. Mark each stud .7-.75 inches from the top of the strut hat. Cut the studs off on this mark, if they are left a little long to make sure you don't cut them too short, you can touch up the length with the sanding disk in the next step, just at least get the bulk of the excess stud cut off now. You can use a sanding wheel to add a small chamfer and remove burrs from the cut area as shown in figure 11. Now the nuts can be removed.

Figure 11: Mark, Cut, and Sand Studs



11. Check the stud length by sliding the spacer on and using a straight edge, confirm that the stud does not protrude from the top plane of the spacer (see figure 12). If any do, they must be sended down until they are flush or below the top of spacer plane, but long enough to engage the nut. Install the provided m10x1.5 locking flange nuts and torque to 40 ft-lb. There should be visible thread(s) showing past the nut.

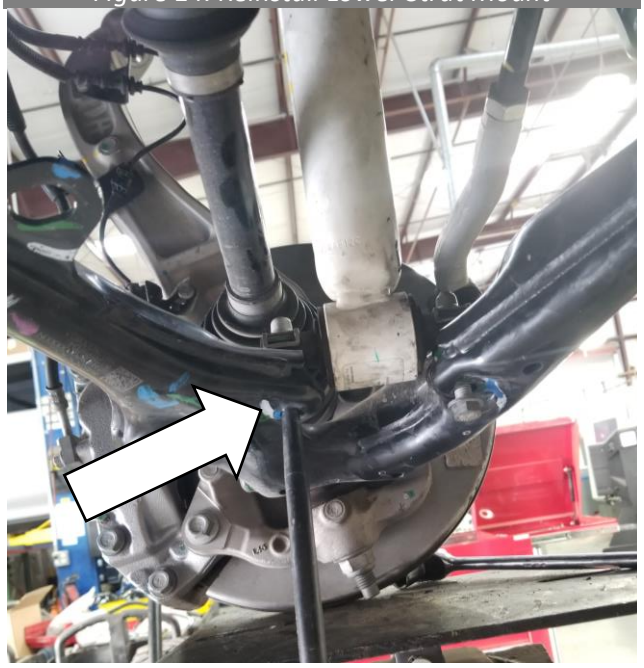
Figure 12: Check Stud Length and Install Spacer



12. Install the strut assembly back on the truck using the three m10X1.25 nylon lock nuts provided and torque them to 45 ft-lb (see figure 13). Reinstall the lower control arm bolts in the same orientation they were removed. Since you kept track of where the eccentric washers came from plus you left the plastic inserts in them, you can fasten the lower arms back in the same spot they were before being removed, torque lower arm bolts to 225 ft-lb. This should be ok to drive to the alignment shop. Reinstall the lower control arm cross brace removed in step 4. Use a pin to help line up the lower strut screws as seen in figure 14 and torque them to 40 ft-lb. You will notice that it may be necessary to push on or gently pry the strut in order to get it to fit in its original mounting location, but this is of no concern. The Cognito spacers have the necessary taper built in so the shock is straight at the ride height position.

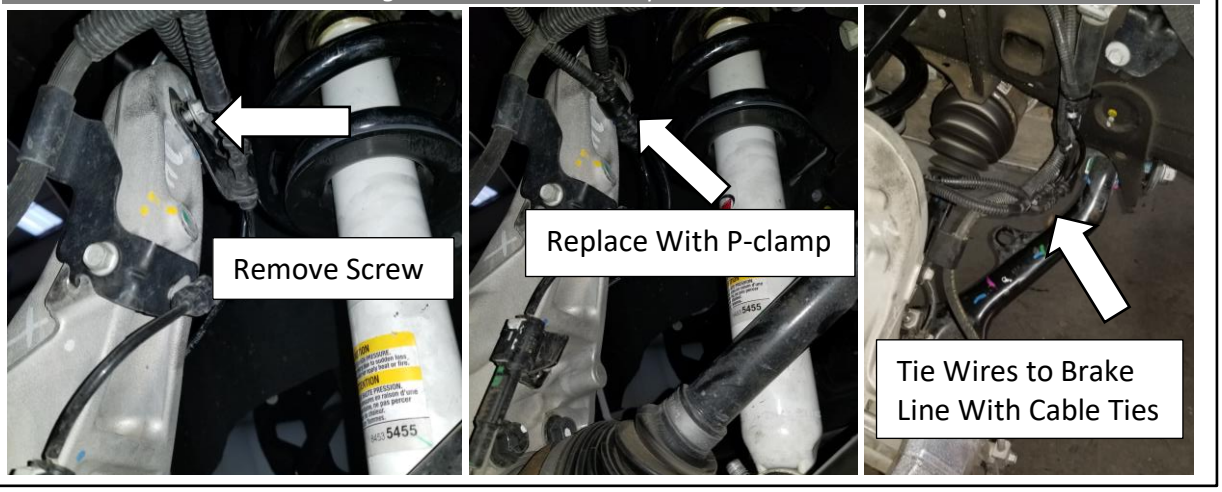
Figure 13: Install Strut With Spacer

Figure 14: Reinstall Lower Strut Mount



13. With the extra droop length you now have with this kit, a cable retaining bracket will contact the shock on the drivers side while steering the vehicle under normal operating conditions. Therefor, it is necessary to replace the wheel speed and brake pad wear sensor wire bracket on the driver's side with a provided P-clamp. Remove the 10mm screw from the back side of the spindle. Use the same mounting position and screw to mount the P-clamp. Use the provided wire ties to neatly retain the wires to the brake line (see figure 15).

Figure 15: Install P-clamp and Cable Ties



14. Lift the rear of the vehicle and remove both rear wheels. With the frame and rear end supported, remove the U-bolt nuts from one side of the vehicle. Discard the OEM U-bolts and nuts (see figure 16).

Figure 16: Remove OEM U-bolts and Nuts

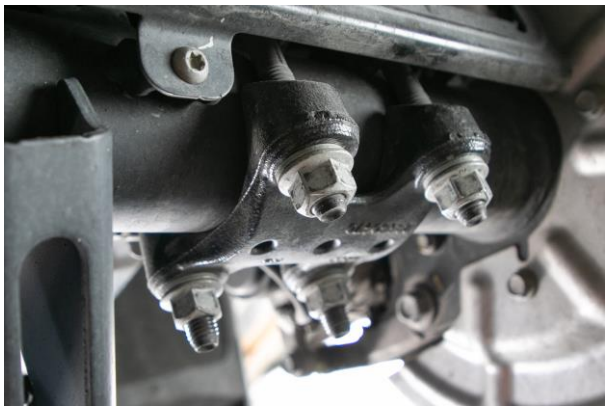
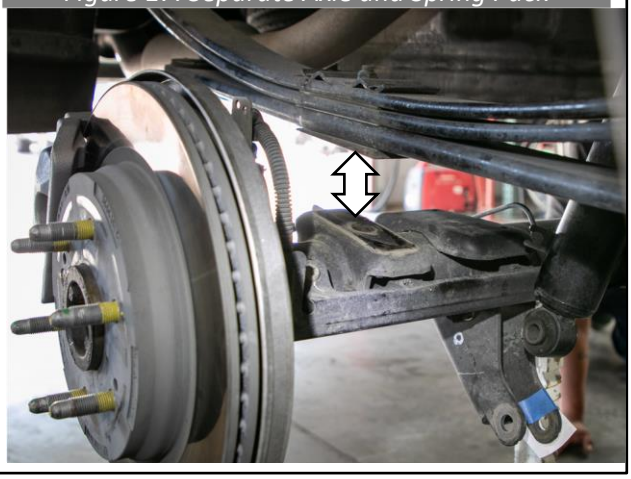


Figure 17: Separate Axle and Spring Pack

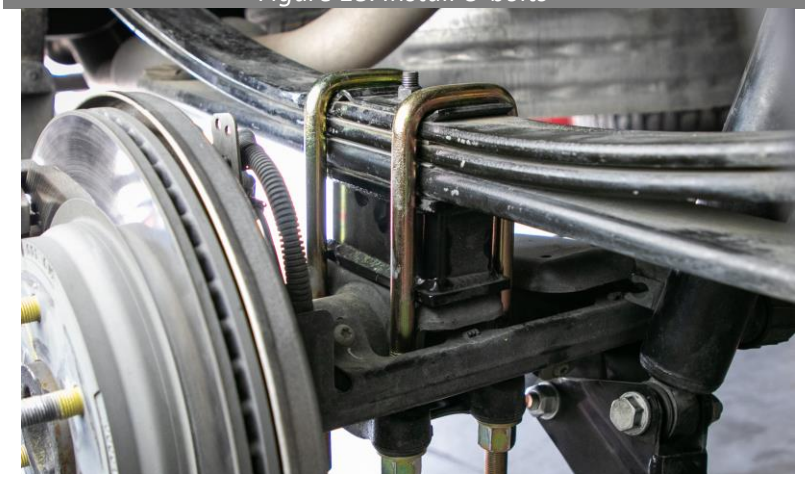


15. Separate the rear axle from the spring pack so that the block can be installed between them. An easy way to do this is to leave the frame supported and lower the jack that is under the axle until there is enough space to insert the block (see figure 17).

16. Install the block. The centering pin on the block should fit snugly into the hole on the spring perch which is welded to the rear axle housing. Be sure that the pin is not too long and touching the axle housing tube. Trim the length of the pin if needed.

17. The centering pin on the leaf pack should fit snugly into the hole in the top of the block. Use the provided extended length U-bolts and re-assemble the U-bolt system with the U-bolt plate on top of the spring pack, and the U-bolt nut plate under the rear axle just as they were before disassembly (see figure 18). Apply anti-seize to the threads of the U-bolts before installing the nuts.

Figure 18: Install U-bolts



18. Repeat steps 14 through 17 for opposite side of vehicle.

19. Torque all the U-bolt nuts to 100ft-lb. Be sure to tighten the nuts evenly on all the U-bolts, so that the amount of thread protruding from each nut is close to the same.

20. Re-install the rear wheels

21. Adjust the headlights per owner's manual, we find that 2.5 turns is pretty good.

22. If any parts other than OEM or what is included in this kit **110-90795** are used, the max ride height needs to be checked (reference figure 19 and Table 1). Lift the truck so that the front wheels are off the ground ensuring the suspension is at full droop. Put a piece of masking tape at the top of the wheel well directly above the center line of the wheel. Take a measurement from the taped mark to the top of tire and record it as (A) in table 1. Subtract 3 inches from A and record this number as (B). Set the truck back on the ground, drive it backward 15-20 feet, then forward to the starting point so the suspension settles out. Record this measurement from the same point on the tape to the top of tire again and record it as (C).

Figure 19: Checking Ride Height

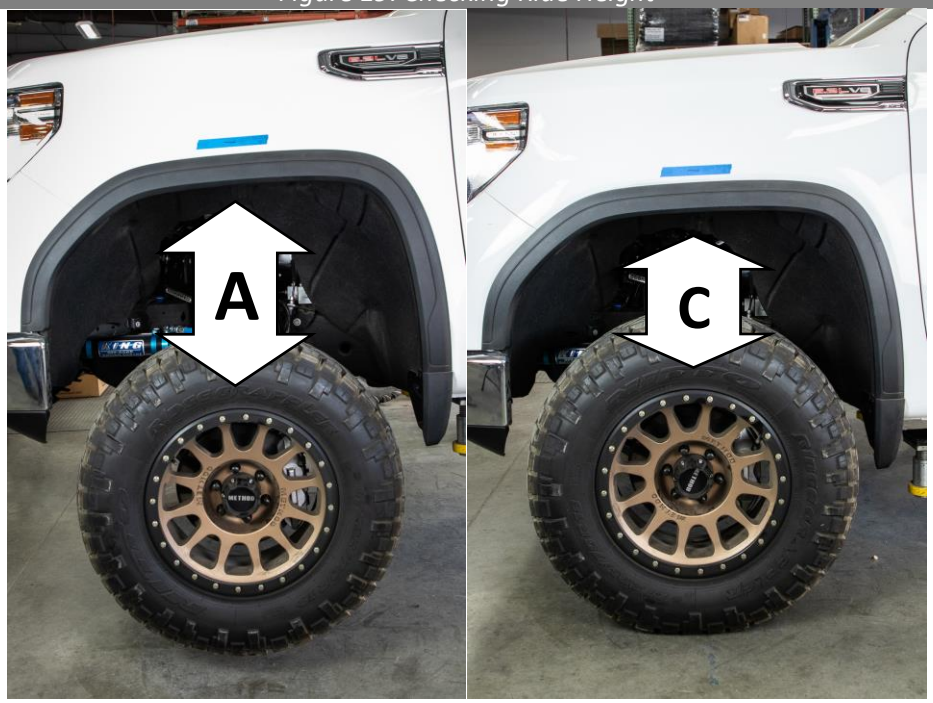


Table 1

Full Droop	**A**	
Max Ride Height	**B** = A - 3	
Current Ride Height	**C**	

If (C) is larger than (B), the ride height is too tall. This can be caused by shocks that are too long, too tall of a shock spacer, stacked shock spacers, spring preload devices, or any combination of the above.

23. **Have the vehicle's front end professionally aligned using these <u>front end alignment guidelines:</u>**

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 wheelbase will also affect cross caster needed.

Generally, crew cab short and long bed trucks like .8 degrees of cross caster. For example, the driver side would have 2° while the passenger side would have 2.8° of 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. Camber should always be from -.1° to +.1° and toe should always be .125" to .250" toe in for best tire ware.

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.