

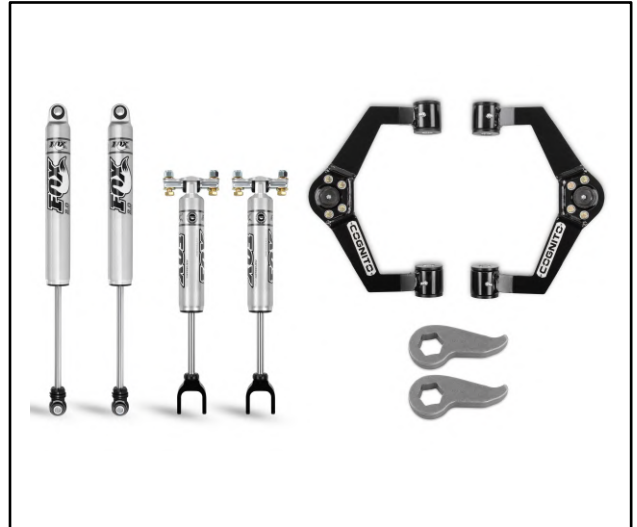
START HERE

Install Sheet #8150 | Cognito 3" Performance Leveling Kit with Fox PS 2.0 IFP for 2020 GM 2500HD/3500HD 2WD/4WD Trucks | SKU: 110-P0779



INSTALL SUMMARY SHEET:

Cognito 3" Performance Leveling Kit with Fox PS 2.0 IFP for 2020 GM 2500HD/3500HD 2WD/4WD trucks
SKU: 110-P0779



PARTS LIST FOR SKU: 110-P0779

QTY.	PART #	DESCRIPTION
1	110-90761	Ball Joint SM Series Upper Control Arm Kit
1	110-90771	Torsion Bar Keys
2	210-90774	Fox 2.0 (PSMT) Single Front Shock (Performance Series Mono Tube)
2	210-90212	Fox 2.0 (PSMT) Single Rear Shock (Performance Series Mono Tube)

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.

INTRODUCTION

Thank you for purchasing the Cognito Performance Leveling Kit with Fox PS 2.0 IFP Shocks. This kit is designed to level your vehicle and provide added droop travel with the Cognito Ball Joint SM Series Upper Control Arm Kit. This kit also includes Fox Performance Series Shocks for all 4 corners ensuring improved ride quality and satisfaction.

TECHNICAL INFORMATION

- Always wear safety glasses when using power tools. Some cutting is required.
- This leveling kit may only be installed on a truck that has not already been leveled. You cannot stack leveling kits or shock spacers.
- Only the shocks supplied in this kit can be used with this leveling package.
- **This INSTALL SUMMARY SHEET will guide the installer through the proper order of steps to install the individual components that comprise this package leveling kit, by referring to the specific Instruction Packets provided with each Cognito component.**
- This kit requires advanced mechanical procedures that should only be performed by a qualified mechanic.
- Read each set of instructions carefully and study the pictures before attempting installation.
- Check the parts and hardware packages against the parts list in each instruction set to assure that your kit is complete.
- Cutting of the service perch under the front upper arm frame pivot is required.
- Unloading the torsion bars is required.

This Kit Install Summary will guide you through the **necessary order of steps** to install each of the individual components that comprise this kit in the required sequence to safely complete full and proper installation.

The proper installation of this combination of products is dictated by the necessary sequence in which each component must be installed to avoid access, interference or clearance issues that will result in unnecessary disassembly and reassembly and potential safety hazards.

This document will guide you through the sequence of operations, which includes work to prepare for the installation and the prescribed order for installing components – by referring you to the individual instructions packaged with each Cognito component for detail on how each kit component is properly installed.

YOU MUST FOLLOW THESE STEPS IN SEQUENTIAL ORDER FOR PROPER INSTALLATION OF THIS KIT.

REVIEW TECHNICAL NOTES AND REQUIREMENTS OF THE INDIVIDUAL INSTALLATION INSTRUCTION SHEETS INCLUDED WITH THIS KIT BEFORE BEGINNING.

INSTALLATION

1. Begin by locating the 2 instruction sheets **7221** and **7037** included with this kit. You will need them both to do this install. If instructions are missing or damaged, contact Cognito Motorsports for where to find replacements.
2. Start by properly lifting and supporting the rear of the vehicle by the frame so that the wheels are off the ground and the suspension is at the full droop position. **Never work under an unsupported vehicle.**
3. Next support the rear axle and remove the OEM shocks using a 21mm wrench or socket but retain the factory hardware.
4. Now locate the provided Fox 2.0 rear shocks **210-90212** and install them using the factory hardware and torque spec (85 ft-lb). It is easiest to install the upper mount first and pull the shock together slightly compressing it until the lower mount can be installed.
5. Begin working in the front of the vehicle with instruction set **7037**. Start at the beginning and work through the steps until both torsion keys are unloaded and the adjuster screw nuts are removed.
6. Now reference instruction set **7221**. Start with the removal of the OEM upper control arms and work through until the Cognito upper control arms are fully assembled and the service perch has been cut off but stop before installing the new arms.
7. Use a jack or jack stand to support the lower control arm and remove the OEM shock using a 21mm wrench or socket. Do this on both sides of the vehicle and save the lower shock mounting hardware
8. Locate the provided front Fox Shocks **210-90774** and start by installing the lower shock mount using the OEM hardware. If there is a ¼" shock spacer included with the Fox shock, use it along with the provided ½" hardware to install the upper shock mounts. If no spacer is included, install the upper shock mounts using only the ½" hardware. Torque the ½" hardware to 50ft-lb using a ¾" socket and the lower shock mounts to the factory specification (89 ft-lb). Stacking or adding spacers that are not permitted will cause damage to the vehicle.

9. Pick up where you left off from instruction set 7221 and continue until both Cognito upper control arms are fully installed and greased but stop there.

10. Refer to instruction set 7037 where you left off and work through to the end setting the ride height but use 7221 for alignment guidelines.

This completes the installation steps, enjoy your new Cognito 3" Performance Leveling Kit!





INSTALL INSTRUCTIONS:

Cognito Ball Joint SM Series Upper Control Arm Kit for 2020 GM 2500HD/3500HD 2WD/4WD Trucks
SKU: 110-90761



PARTS LIST FOR SKU: 110-90761

QUANTITY	PART #	DESCRIPTION
1	8674	2020 GM 8-Lug Passenger UCA
1	8675	2020 GM 8-Lug Driver UCA
2	110-90754	Upper Ball Joint for Cognito Upper Control Arms
1	HP9114	Hardware Pack For Ball Joint

PARTS LIST FOR SKU: HP9114

QUANTITY	PART #	DESCRIPTION
1	HP9114-1	Ball Joint Hardware Kit
4	5490	Crush Sleeve 1" X .180" X 2.54"
8	POLY-BUSHING-2862.01	Black Polyurethane Spring Bushing

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: 110-90754

QUANTITY	PART #	DESCRIPTION
1	BALL JOINT	BALL JOINT ASSEMBLY
1	HARDWARE-CASTLENUT-M14-1.5	M14-1.5 Castle Nut 15Mm Tall
1	HARDWARE-COTTERPIN-1	Cotter Pin For Ball Joints
1	HARDWARE-58790	Grease Fitting 1/4-28 Self Tapping Z

PARTS LIST FOR SKU: HP9114 -1

QUANTITY	PART #	DESCRIPTION
16	HARDWARE-33080	33080 5/16 Sae F/W
8	HARDWARE-37262	37262 5/16-18 Top Lock Nut
4	HARDWARE-33088	33088 9/16 Sae F/W
4	HARDWARE-GREASE-ZERK-45-1	1/4-28 45Deg Angle Zerk Grease Fitting
8	HARDWARE-15057	15057 5/16"-18 X 1-1/4" Hex Cap Screw

REQUIREMENTS

- Always wear safety glasses when using power tools. Some cutting is required.
- With taller than stock wheels and tires, trimming will still be required to the back bottom of the fender well area and the plastic valance under the front bumper.
- A minimum amount of droop travel is required for proper ride quality and component life.
- Only ball joints provided in this kit or approved by Cognito can be used with these arms.
- Proper shocks and shock lengths must be used, or damage to control arms, ball joints, and vehicle will occur.
- Maximum tire size 35x12.5 on minimum 9" wide wheel with a maximum backspacing of 5.75".
- Larger tires on stock wheels may not clear the control arms properly.

TECH NOTES

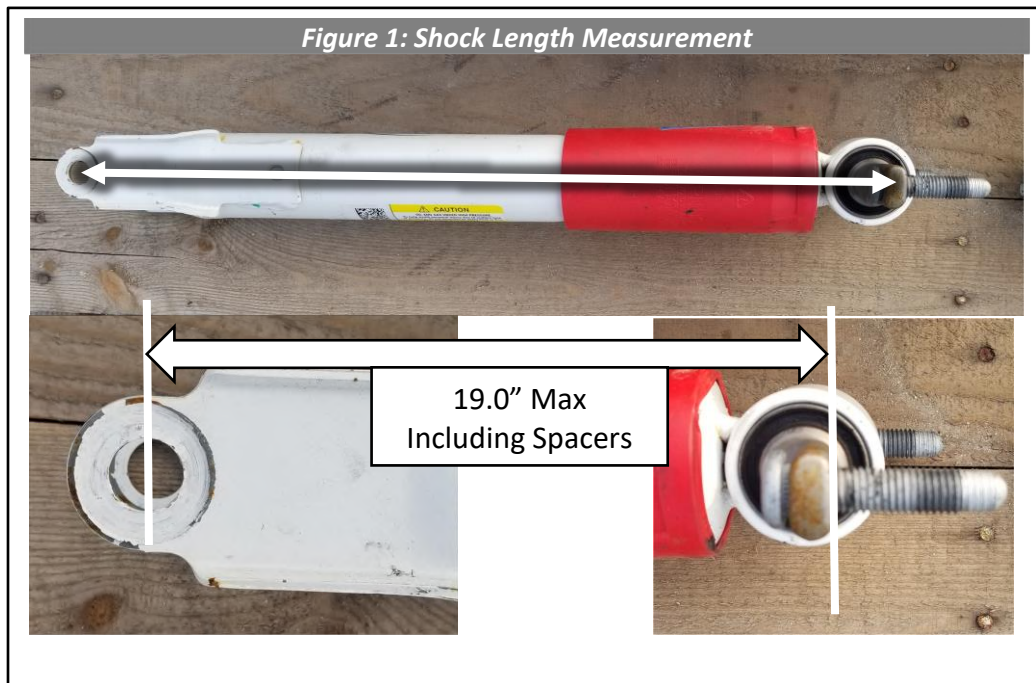
- Installation requires a qualified mechanic.
- Read instructions carefully and study the pictures before attempting installation.
- Check the parts and hardware packages against the parts list to assure that your kit is complete.
- Cutting of the service perch under the front upper arm frame pivot is required.

TOOLS YOU WILL NEED

- Measuring tape
- Jack and stands or vehicle lift
- Hammer
- 18mm socket or wrench
- 22mm socket or wrench
- 10mm socket or wrench
- 13mm socket or wrench
- 24mm socket and wrench
- 1/2" socket and wrench
- Torque wrench ft-lb
- Grease gun
- Reciprocating saw/angle grinder

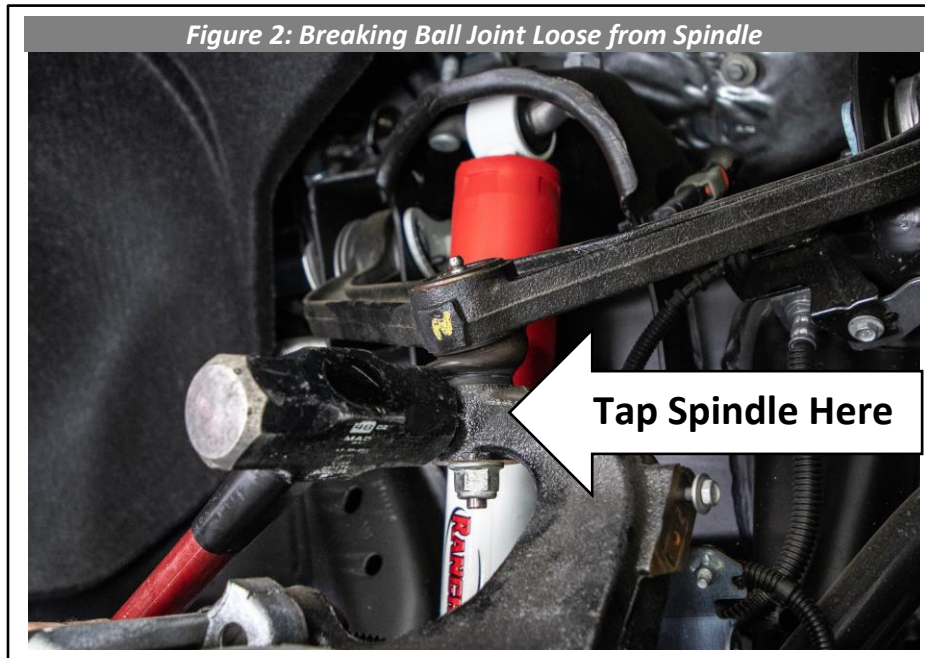
INSTALLATION

1. Rack the vehicle and hoist it off the ground by the frame so that the front suspension is at the full droop position. If no hoist is available, then jack the front of the truck off the ground and support the frame properly with jack stands. NEVER WORK ON AN UNSUPPORTED VEHICLE.
2. Check the shock length. Using a shock that is too long will cause the upper ball joint to bind and break. Therefore, the correct length shock must be used. For this kit, the maximum shock length that can be used is 19.0" from the center of the lower eyelet to the mounting face at the top of the shock as shown in figure 1 below. If any shock spacers are used with this UCA kit, they must be added to the measurement from figure 1 and that number must be under 19.0". If this control arm kit is used with any other parts then specified, warranty will be void on this arm kit, and damage may occur to arms, ball joints, tie rods, cv axles and possibly death. This measurement may be taken while the shock is installed on the vehicle and it is lifted by the frame with the wheels off the ground at the full droop position. Do not remove or unbolt the shock while the torsion bars are loaded.



3. Remove the factory upper control arms. With an 18mm socket, loosen the ball joint nut of the upper control arm enough until you can spin the nut with your fingers, but do not remove totally. While prying the control arm away from the spindle, hit the side of the spindle with a hammer to dislodge the taper seat. When the tapered seat of the ball joint breaks loose, you may then remove the ball joint nut, and separate the factory upper control arms from the spindles. See figure 2.

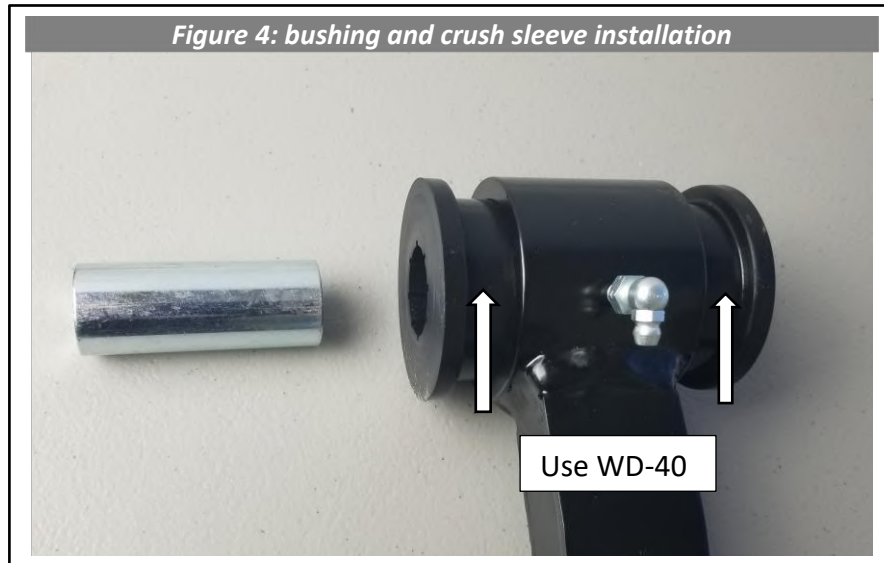
4. Remove the factory bolts and eccentric washers that connect the control arm to the frame with a 24mm wrench, but retain them for future use. Place them aside in order so they can be re-installed in the same place they came off. If still equipped, leave the OEM plastic alignment inserts in the eccentric washers to aide in camber and caster alignment.



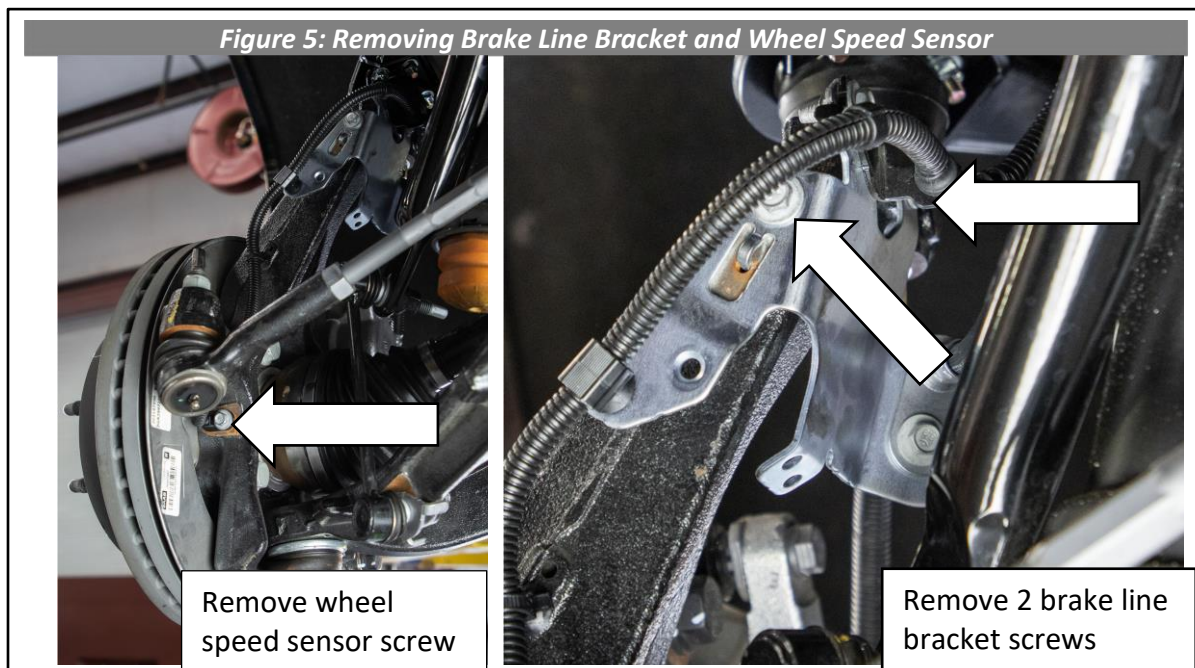
5. Mount the supplied ball joints with the 5/16" bolts, flat washers, and locknuts provided in Hardware Package 9114-1 to the bottom of the ball joint pocket of the Cognito upper control arms as shown in Figure 3. Use anti-seize lubricant on the threads. Tighten all hardware in this step to 22 ft/lbs of torque.



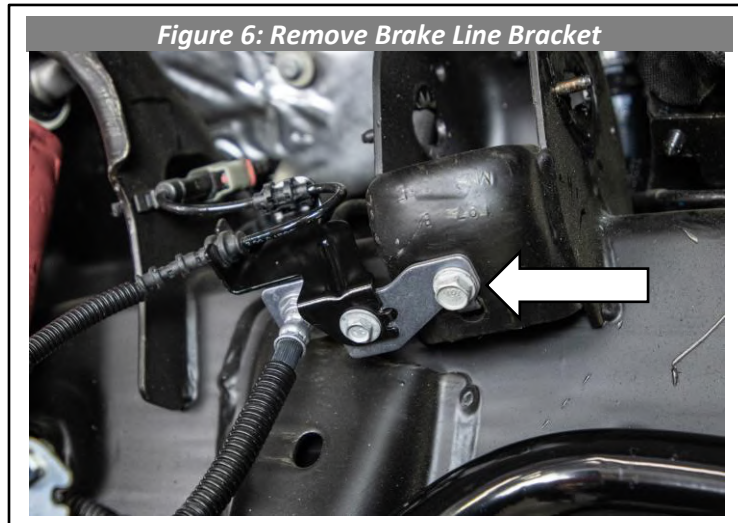
- From the hardware package, insert the polyurethane bushings, crush sleeves, and grease fittings into the ends of the upper control arms. If needed, use WD-40 to aid installation of bushings into the UCA pivot tubes, do not use grease. Do not over tighten the grease fittings, tighten until they are snug and pointing outward toward the tire (See figure 4).



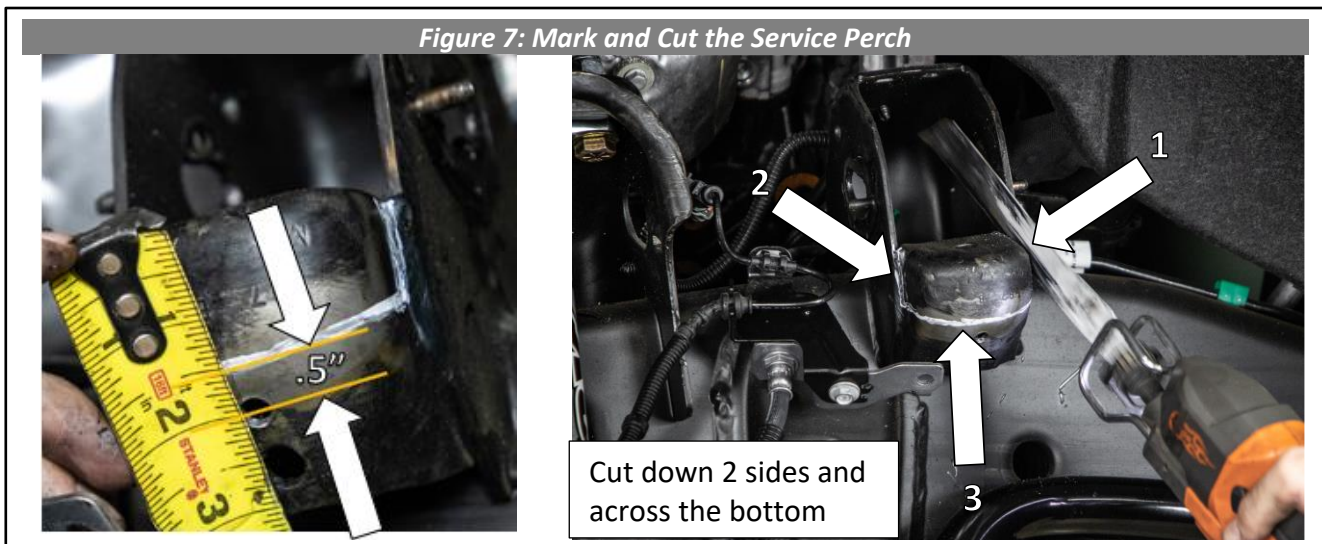
- Remove the wheel speed sensor and brake line bracket that are attached to the spindle (see figure 5). There are 3 screws that require a 10mm wrench. This will give space for cutting the service perch.



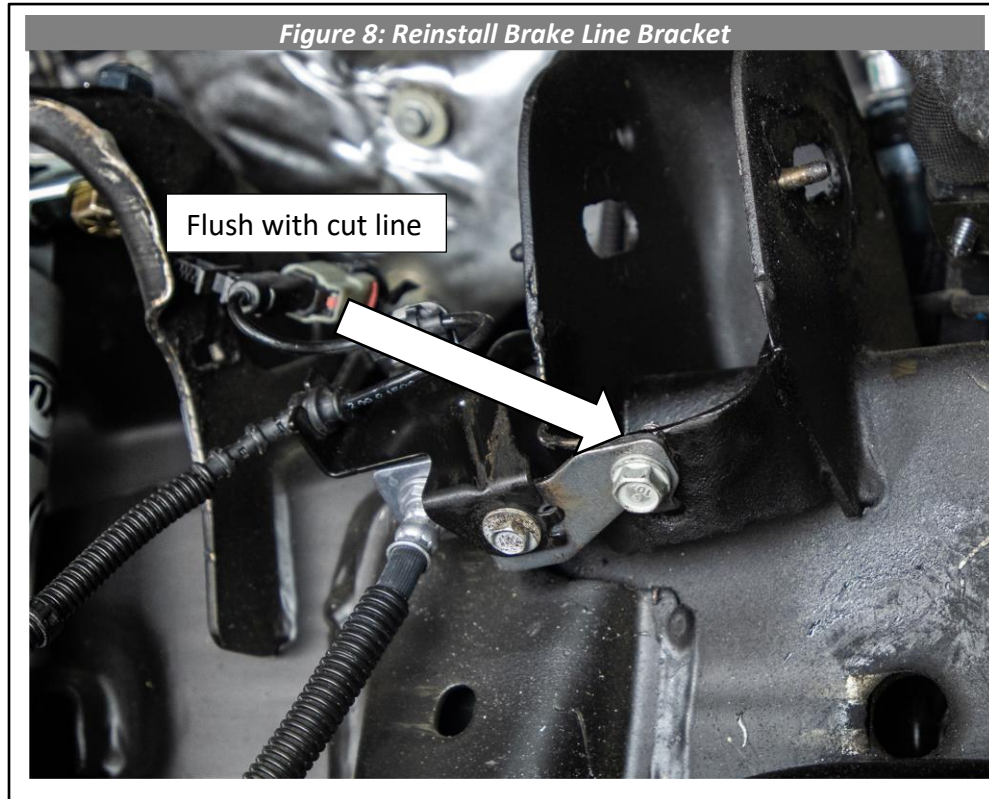
8. Due to the added droop travel when using the Cognito upper control arms, the service perch under the upper control arm which is welded to the frame, must be partially cut off. Start by removing the 13mm screw for the brake line bracket attached to the service perch (see figure 6).



Mark the service perch in the 3 locations shown in figure 7 with the lower horizontal line 1/2 inch above the brake line bracket mounting hole. Tie the lines and wires up so they are clear of the cutting area. Take great care to keep the lines and wires safe during the cut and make sure to shield them from sparks if any kind of grinder is used. Wear safety glasses.



9. It is recommended that the cut areas be smoothed to get rid of any sharp edges and spray painted to prevent corrosion. Reinstall the brake line bracket in its original position. The top of the bracket should be just about flush with the bottom cut line (see figure 8). Reinstall the wheel speed sensor and brake line bracket removed in step 7.



10. THE CONTROL ARMS ARE NOT THE SAME, the ball joint is moved toward the rear of the truck be sure to mount 8675 to the driver side, and 8674 on the passenger side (the Cognito logo will be closest to the front of the vehicle, and the part numbers are stamped into the bottom of the arm above the ball joint). Mount the Cognito upper control arms to the frame with the factory nuts, bolts, and eccentric washers previously removed. Set the bolts in the middle of the adjustment swing, or in the OEM plastic inserts. This will be close enough to drive to an alignment shop. Torque alignment nuts to 90 ft/lbs.
11. Mount the ball joint to the spindle with supplied hardware. Use the 9/16" flat washers supplied if the castle nut needs to be spaced in order for the cotter pin to engage, and tighten to 75 ft/lbs of torque, making sure the cotter pin hole will line up with the castle nut notch. Insert the cotter pin and bend ends around the nut to secure.
12. Grease the ball joint with an extreme pressure grease until the dust boot starts to swell. Also, grease the upper control arm pivot bushings. If you do not grease these items, premature wear will result! We highly recommend greasing the ball joints and pivot bushings every 3-5K miles to keep them working well. Failure to grease these items will void warranty.

13. Setting ride height and checking for proper shock/spacer lengths (reference figure 9 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 painter’s 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 and roll a minimum of 20 feet in any direction and then back 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).

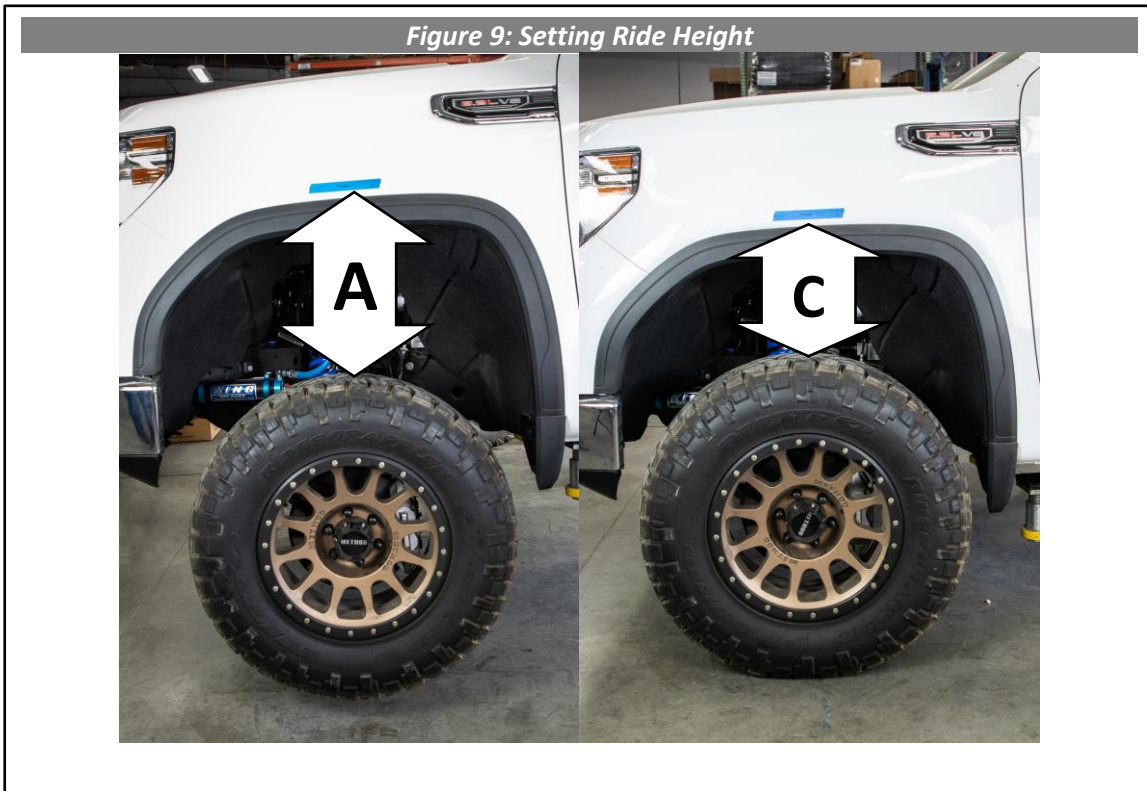


Table 1

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, torsion keys cranked too far, or any combination of the above. If the ride height is too tall, refer to step 2 and make sure the correct shock length is being used. If adjustments to the torsion keys need to be made, make sure not to tighten them while the vehicle is on the ground.

14. Adjust headlights per owner’s manual.

15. 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 higher than normal for OEM, 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. 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. 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. Camber should always be from -1.1° to $+1.1^{\circ}$ and toe should always be .125" to .250" toe in for best tire wear.





INSTALL INSTRUCTIONS:

Cognito Torsion Bar Adjuster
Key Kit for 8 or 6 Lug
2WD/4WD Trucks/SUVs
SKUs: 110-90268, 110-90269,
110-90270 and 110-90771



PARTS LIST FOR TORSION BAR ADJUSTER KEY KITS

QUANTITY	PART #	DESCRIPTION
2	TORSION-KEYWAY	GM 8-Lug or 6-Lug Torsion Keyway

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.

TECH NOTES

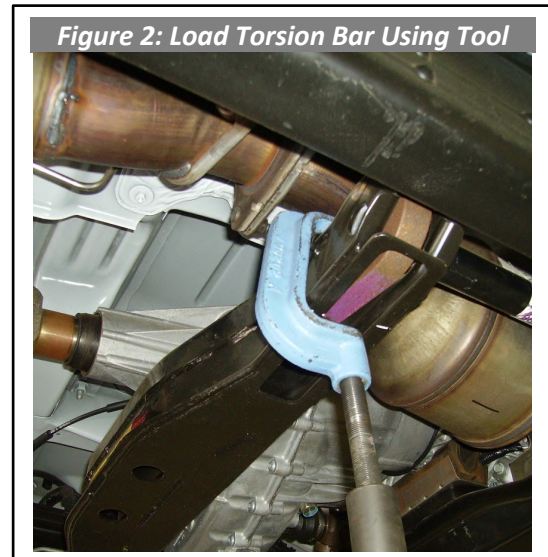
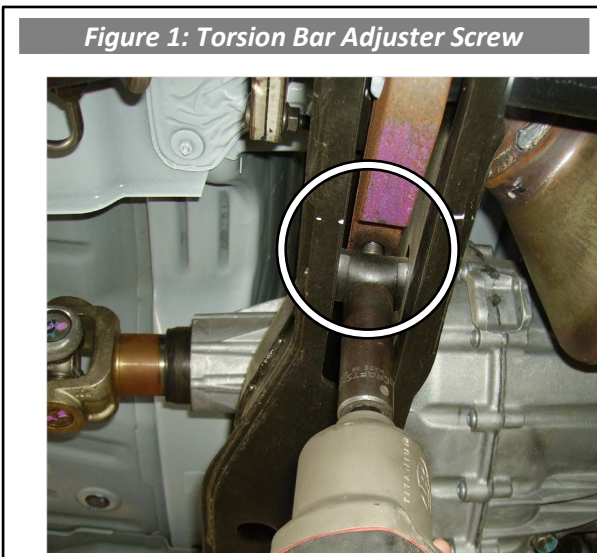
- Torsion bar loading tool is needed

REQUIREMENTS

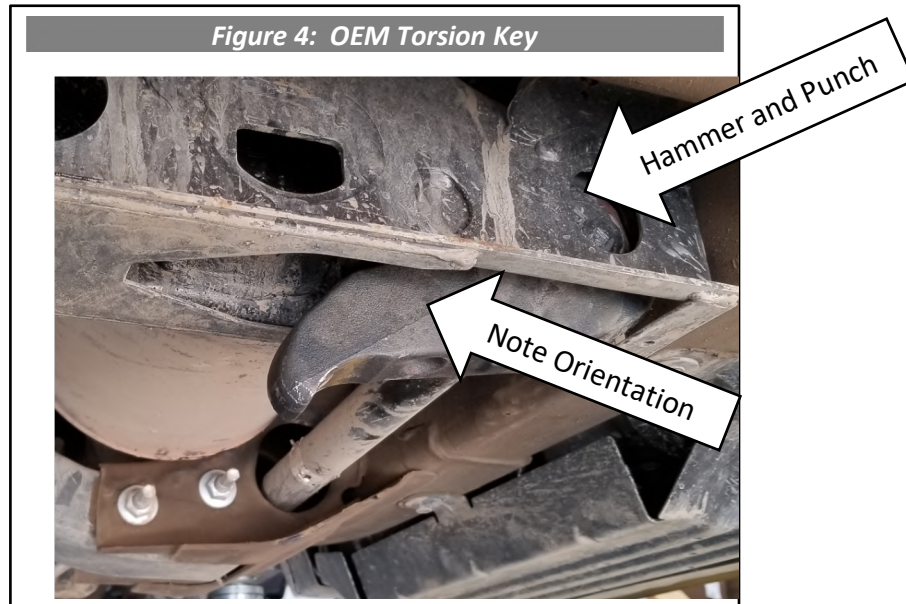
- Installation requires a qualified mechanic.
- Read instructions carefully and study the pictures (if included) before attempting installation.
- Secure and properly support vehicle prior to beginning installation.
- Always wear safety glasses when using power tools.

Install Sheet #7037 | Cognito Torsion Bar Adjuster Key Kit for 8 or 6 Lug 2WD/4WD Trucks/SUVs
SKUs: 110-90268, 110-90269, 110-90270 and 110-90771

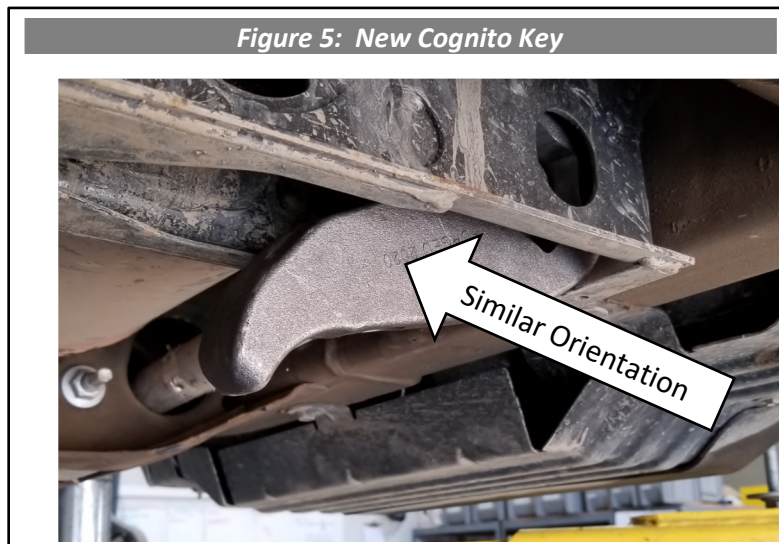
1. Rack the vehicle and hoist it off the ground lifting by the frame so that the front wheels are in the full droop position. If no hoist is available, then jack the front of the truck off the ground and support the frame properly with jack stands. NEVER WORK ON AN UNSUPPORTED VEHICLE.
2. Remove the torsion bar adjuster screw (See Figure 1).
3. Using a torsion bar loading tool, load torsion bar (See Figure 2) and remove adjuster nut (See Figure 3), then unload torsion bar and remove tool. Do this on both sides of the vehicle.
4. Suspension torsion bars hold a lot of energy and both sides of the front suspension are connected through the sway bar. If one torsion bar is loaded, it will affect both sides of the suspension. Unloading them both first is safe practice if other components effected in the front suspension are being worked on or replaced at this time.



5. Start replacing the torsion keys by first noting the orientation of the OEM key. Next slide the torsion bar forward into the lower control arm. If bar seems lodged, use a punch and hammer to loosen through the hole in the back of the torsion bar crossmember. This will allow the old key to be removed (See Figure 4).



6. Reinstall the new adjuster key in roughly the same orientation the OEM one was removed (See Figure 5). The Cognito key's hex shaped hole is clocked differently from the OEM key so it will not be in the exact same position, but it will be similar.



7. Shocks must be fully installed and all supports under the lower control arms must be removed before the torsion bars can be loaded.

8. Use the torsion bar loading tool to load the new key. Now you may install the adjuster nut and adjuster screw then remove the loading tool. This is the reverse order of unloading the key in step 2-3 (See Figures 1, 2, and 3 for reference).
9. Tighten the adjuster bolt while the truck is still off the ground.
10. Do not tighten the adjuster bolt to raise the height of the vehicle while the vehicle is on the ground and the front suspension is holding its own weight. This will cause the adjuster bolt excess stress and will most likely strip the threads.
11. Before setting the truck back on the ground, while the tires are still at full droop, measure from top of tire to fender well and write the measurement here: Droop Measurement; Left side_____, Right side_____. These should be within 1/4" of one another just FYI.
12. Set the vehicle on the ground and drive the vehicle backward at least 10 feet, and then forward at least 10 feet to allow the suspension to settle into place at ride height. Measure from top of tire to fender well and write the measurement here: Ride Height Measurement; Left side_____, Right side_____. Subtract the measurement from step 11, and write them here: Droop Travel Measurement; Left side_____, Right side_____.
13. The difference should be 3" minimum for proper amount of droop travel to provide good ride quality and longevity of suspension components. On the ground, you may back out the adjuster bolt to lower the vehicle to the desired ride height and to level the vehicle side to side. If you do, repeat step 12 until you reach proper ride height on both sides of vehicle. If the ride height is too low and you have more than 3" of Droop Travel Measurement, then you may lift the truck back up by the frame and turn in the torsion bar adjuster bolts to preload the torsion bars more, then repeat steps above.
14. Do not set the ride height too high for the given application, adverse effects will occur.
15. Set alignment to factory settings and adjust headlight (2-3 turns is about what will be needed).