Install Sheet 8159

INGENUITY • QUALITY • PERFORMANCE

SKU: 110-P0928

START HERE

Cognito 3-Inch Performance Leveling Kit with Fox 2.0” performance series mono tube shocks for 2011-2019 GM 2500/3500 2WD/4WD Truck

INSTALL SUMMARY SHEET:

Cognito 3-Inch Performance Leveling Kit with Fox 2.0” performance series mono tube shocks for 2011-2019 GM 2500/3500 2WD/4WD Truck
SKU: 110-P0928

PARTS LIST FOR SKU: 110-P0928

QTY.	PART #	DESCRIPTION
1	110-90270	2011-2019 GM 8-Lug Torsion Bar Keys
1	110-91071	2011-2019 GM 8-Lug Press In Ball Joint SM Series Upper Control Arm Kit
2	210-90212	Fox Performance Series Rear 2.0" Mono Tube Shock
2	210-90774	Fox Performance Series Front 2.0" Mono Tube Shock

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 3-Inch Performance Leveling Kit. This kit is designed to level your vehicle and provide added droop travel. This kit also includes Fox Performance Series Mono Tube Shocks for all 4 corners ensuring improved ride quality and satisfaction. Designed and made in the USA.

TECHNICAL INFORMATION

- Torsion bar loading tool is required for this instillation.
- Cutting of the OEM frame and suspension components is required.
- Trimming of front bumper trim may be necessary based off tire size.
- Front-end alignment will be required after completion.
- Only the shocks supplied in this kit can be used with this lift package.
- This lift kit may only be installed on a truck that has not already been lifted or leveled. You cannot stack leveling kits or shock spacers.
- Proper vehicle lifting equipment is required. Always make sure the vehicle is properly supported and **never work under an unsupported vehicle.**
- Check the parts and hardware packages against the parts list in each instruction set to assure that your kit is complete.
- Be sure to read though all install instructs include with this kit prior to attempting instillation and heed all warnings, failure to comply with all warnings and requirements can lead to an accident and serious injury.

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 preparatory work 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 INDIVDUAL INSTALLATION INSTRUCTION SHEETS INCLUDED WITH THIS KIT BEFORE BEGINNING.

INSTALLATION

1. Begin by locating the 2 instruction sheets **7037 and 7385** included with this kit. You will need **all** of them to do this install. If instructions are missing or damaged, contact Cognito Motorsports for where to find replacements.

2. Start with instruction set **7037** and work through until both torsion bars are unloaded.

3. Use instruction set **7385**. Start at the beginning and follow through until the OEM upper control arms have been removed and the service perch has been cut off, **stop** there.

4. Support the lower control arm with a jack or jack stand as the front shock is all that remains holding the lower control arm in place.

5. Remove the OEM shock and set aside, save the lower shock mount hardware for reuse later in the install.

6. Locate **210-90774**, follow the supplied Fox instructions for installation of the front shocks.
   - **NOTE:**
     Never remove the front shocks while the torsion bars are loaded!

7. Repeat the steps above for the opposite side of the vehicle.

8. Refer back to instruction set **7385** and start where you left off (the service perch should be cut off). Work through until **both** Cognito upper control arms are fully installed but **stop** there.

9. Reference instruction set **7037** and install the new Cognito keys. Work through **7037** until completion and the ride height is properly set but reference instructions **7385** for the alignment guidelines.

10. Locate **210-90212**, follow the supplied Fox instructions for installation of the rear shocks.

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

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.

Cognito Torsion Bar Adjuster Key Kit for 8 or 6 Lug 2WD/4WD Trucks/SUVs

INSTALL INSTRUCTIONS:

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

PARTS LIST FOR SKU: 110-90268

QUANTITY	PART #	DESCRIPTION
2	TORSION-KEY-6	1999 6-Lug Torsion Bar Adjuster Key

PARTS LIST FOR SKU: 110-90269

QUANTITY	PART #	DESCRIPTION
2	TORSION-KEY-8	2001 8-Lug Torsion Bar Adjuster Key

PARTS LIST FOR SKU: 110-90270

QUANTITY	PART #	DESCRIPTION
2	TORSION-KEYWAY-2011	2011 8-Lug Torsion Bar Adjuster Key

PARTS LIST FOR SKU: 110-90771

QUANTITY	PART #	DESCRIPTION
2	TORSION-KEYWAY-2020	2020 8-Lug Torsion Bar Adjuster Key

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

Cognito Torsion Bar Keys levels the front with the rear of the truck. Their forged construction makes them practically indestructible and they bolt in for easy installation. Torsion bar keys are used to set the ride height of the front of the truck and are commonly used in leveling kits, and it is important to set the height appropriately as to leave ample suspension droop travel to maintain a good ride quality. There are several different torsion bar spring rates that GM made and put in their trucks, the rate depending on the model and features of the truck. Some trucks that have a higher spring rate may not need aftermarket torsion bar adjuster keys to obtain the maximum recommended ride height. This kit is only to be used in leveling kit applications as well as lifted applications when the higher setting of that particular lift kit range is desired

REQUIREMENTS

- Torsion bar loading tool is required for this instillation.
- 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.

TECH NOTES

- Read instructions carefully and study the pictures (if included) before attempting installation.
- If this product was purchased as part of a kit each kit, and options to kits, are packaged separately. Therefore installation procedures are covered in separate instructions. Familiarize yourself with each specific set of instructions before beginning.
- Check the parts and hardware packages against the parts list to assure that your kit is complete before starting.

INSTALLATION

1. Rack the vehicle and lift it off the ground, or if no hoist is available then jack front of truck off the ground and support properly with jack stands.
   - ***NEVER WORK ON AN UNSUPPORTED VEHICLE.***

2. Remove the torsion bar adjuster screw (Figure 1).

3. Using a torsion bar loading tool, load torsion bar (Figure 2) and remove adjuster nut (Figure 3), then unload torsion bar and remove tool. Do this on both sides of the vehicle
   - **NOTE:**
     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.

Figure 1: Torsion Bar Adjuster Screw.

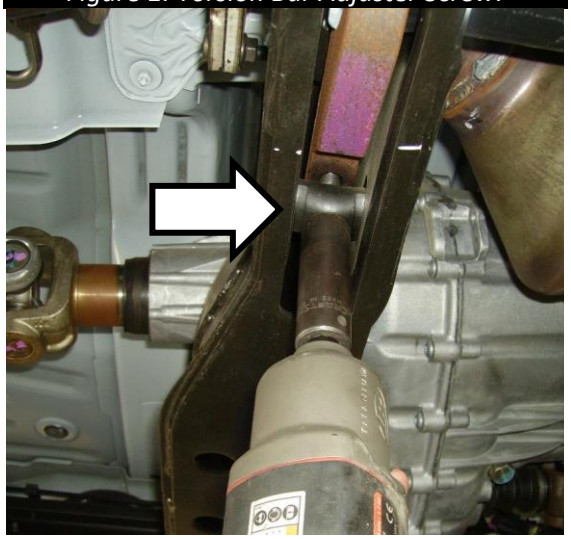


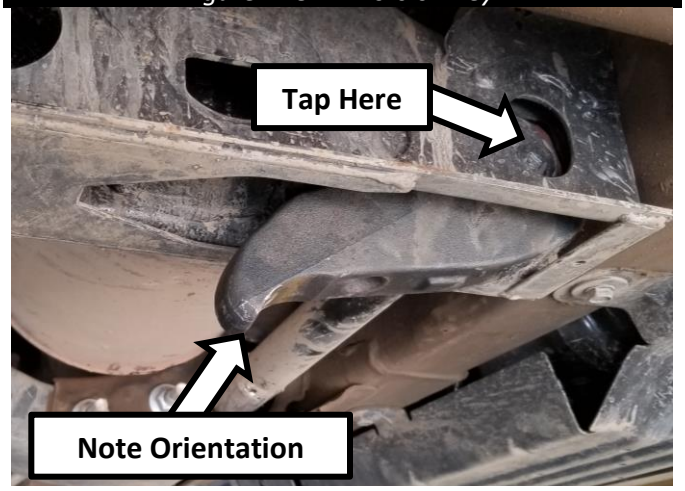
Figure 2: Load Torsion Bar Using Tool.

Figure 3: Remove Adjuster Nut.

4. Start replacing the torsion keys by first noting the orientation of the OEM key.

5. Slide the torsion bar forward into the lower control arm. If it seems lodged, use a hammer through the hole in the back of the torsion bar crossmember to knock it loose. This will allow the old key to be removed (Figure 4).

Figure 4: OEM Torsion Key.



6. Reinstall the new adjuster key in roughly the same orientation that the OEM one was removed in (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

Figure 5: Cognito Torsion Key.

7. Use the torsion bar loading tool to load the new key. Now install the adjuster nut and adjuster screw then remove the loading tool. This is the reverse order of unloading the key (Figures 1, 2, and 3).

- **NOTE:**
  Shocks must be installed and all supports under the lower control arms must be removed before the torsion bars can be loaded.

8. Tighten the adjuster bolt while the truck is still **off** the ground.

- **NOTE:**
  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*** strip the threads.

9. Before lowering the vehicle, measure from the top of the wheel well directly above the center line of the wheel to the top of the tire (Figure 6). Record this measurement as (A) in Table 1 for both the driver and passenger side. These should be within 1/4" of one another.

- **NOTE:**
  It can be helpful to place a piece of painter's tape at the top of the wheel well directly above the centerline of the wheel and measure from there.

10. Subtract 3 inches from A and record this number as (B) for both the driver and passenger side.

11. Set the truck on the ground and drive forward and backward a few times to settle the suspension. Measure again from the top of the tire to the top of the wheel well as in the step above and record this measurement as (C) in Table 1 for both the driver and passenger side.

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

  Failure to use compatible shocks or limit straps to limit the vehicles front suspension may cause over-extension, as a result can cause damage to ball joints, uni-balls, tie rods, and/or CV axles, along with other related safety issues.
  Warranty on Cognito products will be void if the vehicles front suspension is not properly limited to the above max ride height calculation.

Suspension Travel	Record	Measurement (Inches)	
		Driver	Passenger
Full Droop	**A**		
Max Ride Height	**B** = A – 3 in		
Ride Height	**C**		

Table 1. Suspension Travel Measurements

Figure 6: Measuring and Setting Ride Height

12. The difference between (A) & (C) should be 3” minimum for proper amount of droop travel to provide good ride quality and longevity of suspension components.

- **NOTE:**
  On the ground, back out the adjuster bolt to lower the vehicle to the desired ride height and to level the vehicle side to side. Repeat the steps above until the proper ride height is reached on both sides of vehicle.
  If the ride height is too low and there is more than 3” of droop travel measurement, then if desired the truck can be lifted back up by the frame to turn in the torsion bar adjuster bolts to preload the torsion bars more raising the ride height, then repeat steps above.

13. Do not set the ride height too high for the given application, adverse effects will occur.

14. Check wheel and tire clearance through the steering cycle. Make adjustments as needed.

15. Adjust headlights per owner's manual.

16. **Have the vehicle professionally aligned**.

- **NOTE:**
  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° to +.1° and toe should always be .125" to .250" toe in for best tire wear.

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.

Cognito SM Series Ball Joint Upper Control Arm Kit for 11-19 GM 2500HD/3500HD 2WD/4WD Trucks

INSTALL INSTRUCTIONS:

Cognito SM Series Ball Joint Upper Control Arm Kit for 11-19 GM 2500HD/3500HD 2WD/4WD Trucks
SKU: 110-91071

PARTS LIST FOR SKU: 110-91071

QUANTITY	PART #	DESCRIPTION
1	**80010**	Ball Joint Upper Control Arm Assembly, Driver
1	**80011**	Ball Joint Upper Control Arm Assembly, Passenger

PARTS LIST FOR SKU: 80010

QUANTITY	PART #	DESCRIPTION
1	8778	2011-2019 GM 8-Lug Upper Control Arm, Driver
1	6446	1.25in Uniball Cap
2	6879	Pivot Bushing Assembly
1	90788	Press-In Ball Joint (M14 Thread)
1	HARDWARE-SPIROLOX-2.375	2.375” Spirolox Internal Retaining Ring

PARTS LIST FOR SKU: 80011

QUANTITY	PART #	DESCRIPTION
1	8779	2011-2019 GM 8-Lug Upper Control Arm, Passenger
1	6446	1.25in Uniball Cap
2	6879	Pivot Bushing Assembly
1	90788	Press-In Ball Joint (M14 Thread)
1	HARDWARE-SPIROLOX-2.375	2.375” Spirolox Internal Retaining Ring

WARNING

The upper control arm is not designed to be the droop limiter, ball joint failure will occur if the upper arm is used as the droop limiter. A shock or limit strap is required to be the limiter. It is required that the proper length shock from Cognito or a limit strap kit from Cognito be installed to prevent failure which could cause an accident and serious injury. If you have questions, please contact the Cognito Sales Team to have you questions or concerns addressed.

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

The Cognito Ball Joint SM Series Upper Control Arm Kit is a direct replacement for the factory upper control arms (UCAs). The Cognito UCA kit will add performance due to a modified ball joint angle that extends travel limitations of the ball joint in leveled or lifted applications. The allowable droop travel is also improved with the design of these arms. Designed and made in the USA.

REQUIREMENTS

- **The upper control arm is not designed to be the droop limiter, ball joint failure will occur if the upper arm is used as the droop limiter. A shock or limit strap is required to be the limiter. It is required that the proper length shock from Cognito or a limit strap kit from Cognito be installed to prevent failure which could cause an accident and serious injury.**
- Proper shocks and shock lengths must be used or damage to the control arms, ball joints, and vehicle will occur.
- Trimming of inner fender well and bottom rear of steel fender may be required.
- 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.

TECH NOTES

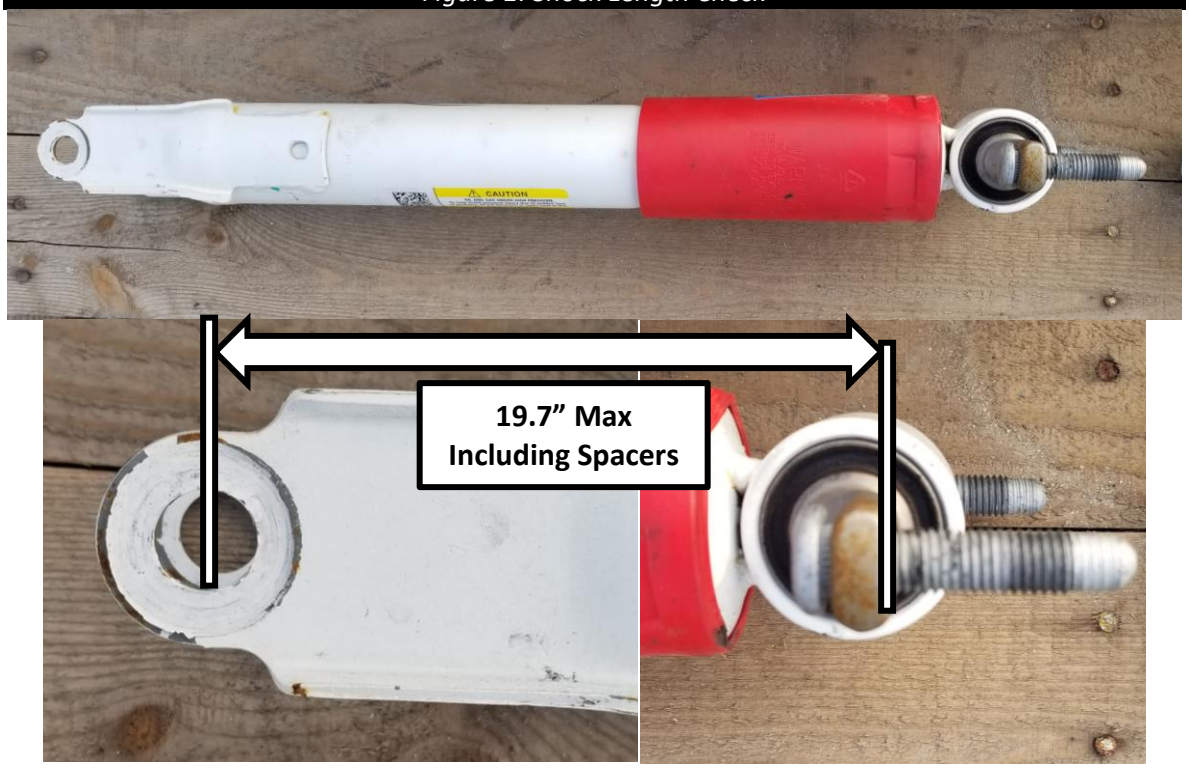
- Read instructions carefully and study the pictures before attempting installation.
- If this product was purchased as part of a bundle/package. Familiarize yourself with each set of instructions included with the bundle/package before beginning.
- Check the parts and hardware packages against the parts list to assure that your kit is complete before starting.
- If the arm is equipped with grease fittings, service should be performed every 3,000 – 5,000 miles.

INSTALLATION

1. Rack the vehicle and lift it off the ground, or if no hoist is available then jack the front of truck off the ground and support properly with jack stands. Remove the front tires and set them as side.
    - ***NEVER WORK ON AN UNSUPPORTED VEHICLE.***

2. **It is critical that the correct length shock is used**, using a shock that is too long will cause the upper ball joint to bind and break. **For this kit, when used in a stock-height or leveling application, the maximum shock length that can be used is 19.7" from the center of the lower eyelet to the mounting face at the top of the strut hat. Any spacers added to the shock must be included in this measurement** (see figure 1). If this UCA 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 more. Do not remove or unbolt the shock while the torsion bars are loaded.

Figure 1: Shock Length Check



3. Support the lower control arms with a floor jack or stand prior to removing the upper control arms (UCAs).
   - **NOTE:**
     These vehicles are equipped with torsion bar springs that will require the jack to remain in place until the upper control arm is reinstalled.
     Failure to support the lower control arm prior to removing the UCAs can result in rapid unloading of the torsion springs causing the lower control arm and spindle to forcibly snap downwards, possibly damaging components or causing bodily harm to the user.
     If unable to support the lower control arms for this install, then the torsion bars must be unloaded to safely perform this install. Reference a repair manual for how to properly unload and load the torsion bars for the specific vehicle being worked on.

4. Remove the factory upper control arms. Loosen the ball joint nut of the upper control arm enough until the nut can be spun by hand, but do not remove totally. Use a pickle fork to separate the ball joint from the spindle or tap on the side of the spindle next to the ball joint stud. When the tapered seat of the ball joint breaks loose remove the ball joint nut, and separate the factory upper control arm from the spindle.

Figure 2: UCA and Spindle Disassembly

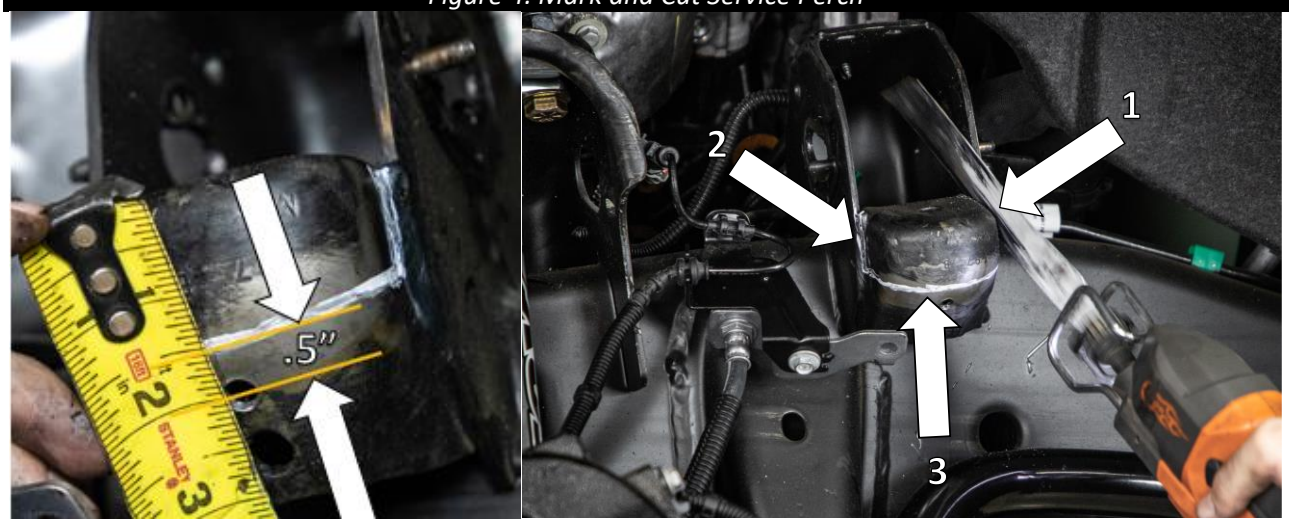
5. Remove the factory bolts and eccentric washers that connect the control arm to the frame and retain them for future use. Place them aside and note the order in which the components were removed, that way they may be re-installed in the same manner they came off.

6. 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 screw for the brake line bracket attached to the service perch.

Figure 3: Remove Brake Line Bracket

7. Mark the service perch in the 3 locations shown in Figure 4 with the lower horizontal line 1/2 inch above the brake line bracket mounting hole. Tie up any hoses and wires so they are clear of the cutting area and cut the service perch along the marked lines.
   - **NOTE:**
     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.
     Exposed raw metal should be coated or painted to prevent corrosion.

Figure 4: Mark and Cut Service Perch

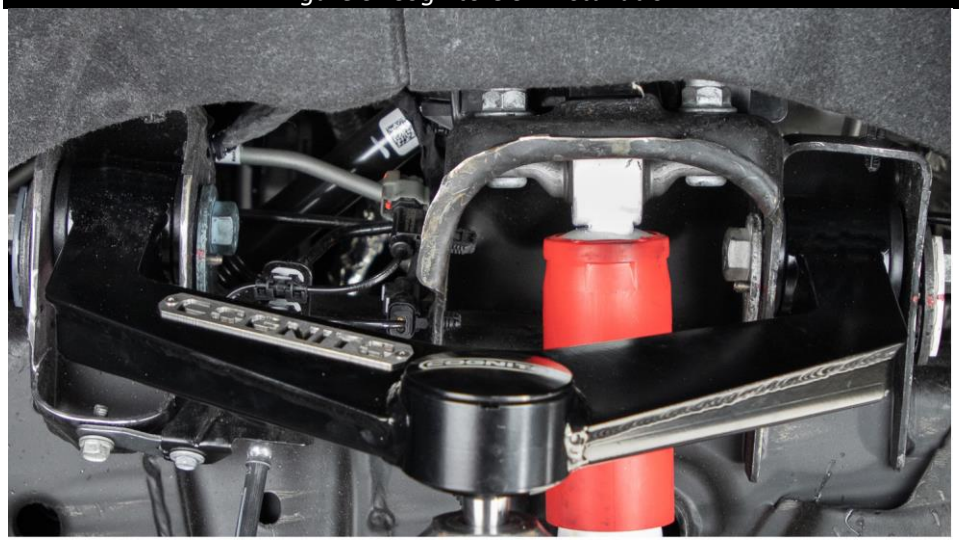


8. Reinstall the removed brake line bracket to the service perch, Torque the bolt to **22 ft-lbs.**

9. Locate **80010,** mount the Cognito UCA to the frame using the factory bolts, nuts, and eccentric washers as previously removed. Torque the hardware to **90 ft-lbs**.

- **NOTE:**
  The control arms are not identical and are stamped with identifying numbers. **8778** is the driver side, and **8779** is the passenger side UCA. The Cognito logo will be closest to the front of the vehicle when properly mounted.
  Ensure that the cam bolts are in the middle of the adjustment swing. It is not recommended to drive long-term on this alignment, Professional front-end alignment is required once the installation is completed.

Figure 5: Cognito UCA Installation



10. Mount the ball joint to the spindle with supplied hardware. Use the flat washers supplied if the castle nut needs to be spaced down for the cotter pin to engage with its castellations, then torque the nut to **90 ft-lbs**. Install cotter pin and bend to lock into place.

- If the castellations in the castle nut and the hole in the ball joint pin do not align once torqued to 90 Ft.-lbs continue tightening the nut until the two are aligned and the cotter pin can be installed. ***NEVER LOOSEN THE NUT TO GET THE CORRECT ALIGNMENT!***

11. Repeat the steps above with **80011** to install the remaining UCA onto the opposite side of the vehicle.

12. Ensure that all bolts are properly torqued. Ensure there are no rubbing or loose cables anywhere after the Cognito UCA installation. Use cable ties to restrain any cables from interfering with any other parts. Check that all lines are free of stress or interference while the vehicle is in full droop, full bump, and throughout the complete steering cycle.

13. Install front wheels and tires and torque lug nuts to factory manufacturer's specifications.

14. Before lowering the vehicle, measure from the top of the wheel well directly above the center line of the wheel to the top of the tire, (Figure 6). Record this measurement as (A) in Table 1. Subtract 3 inches from A and record this number.

- **NOTE:**
  It can be helpful to place a piece of painter's tape at the top of the wheel well directly above the centerline of the wheel and measure from there.

15. Set the truck on the ground and drive forward and backward a few times to settle the suspension. Measure again from the top of the tire to the top of the wheel well as in the step above and record this measurement as (C) in Table 1.

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

  Failure to use compatible shocks to limit the vehicles front suspension may cause over-extension, which as a result can cause damage to ball joints, uni-balls, tie rods, and/or CV axles, along with other related safety issues.
  Warranty on Cognito products will be void if the vehicles front suspension is not properly limited to the above max ride height calculation.

Suspension Travel	Record	Measurement (Inches)
Full Droop	**A**	
Max Ride Height	**B** = A – 3 in	
Ride Height	**C**	

Table 1. Suspension Travel Measurements

Figure 6: Measuring and Setting Ride Height

16. Check wheel and tire clearance one last time through the steering cycle. Make adjustments as needed.

17. Adjust headlights per owner's manual.

18. **Have the vehicle professionally aligned.**

- **NOTE:**
  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° to +.1° and toe should always be .125" to .250" toe in for best tire wear.

This completes the installation steps, enjoy your new Cognito SM Series Ball Joint Upper Control Arm Kit!

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.