Cognito Ball Joint SM Series Upper Control Arm Kit for 2019-2021 GMC Sierra 1500 and Chevrolet Silverado 1500 2WD/4WD

INSTALL INSTRUCTIONS:

Cognito Ball Joint SM Series Upper Control Arm Kit for 2019-2021 GMC Sierra 1500 and Chevrolet Silverado 1500 2WD/4WD Trucks
SKU: 110-90784

PARTS LIST FOR SKU: 110-90784

QUANTITY	PART #	DESCRIPTION
1	**80004**	Ball Joint Upper Control Arm Assembly, Driver
1	**80005**	Ball Joint Upper Control Arm Assembly, Passenger

PARTS LIST FOR SKU: 80004

QUANTITY	PART #	DESCRIPTION
1	8644	Ball Joint UCA Weldment, Driver
1	6446	UCA Cap
2	6878	Pivot Bushing Assembly
1	199-90732	Press-In Ball Joint

PARTS LIST FOR SKU: 80005

QUANTITY	PART #	DESCRIPTION
1	8645	Ball Joint UCA Weldment, Passenger
1	6446	UCA Cap
2	6878	Pivot Bushing Assembly
1	199-90732	Press-In Ball Joint
1	HARDWARE-M6X1.0X16-BH	M6-1.0 x 16mm Button Head Screw

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

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 to your Chevrolet and GMC truck by adding caster and correcting the ball joint angle for lifted and leveled applications. The allowable droop travel is also improved with the design of these arms. The Cognito UCA kit can be used with a Cognito spindle replacement lift kit. Designed and made in the USA.

TECHHNICAL INFORMATION

- Installation requires a qualified mechanic.
- 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.
- Cutting off the service perch on the frame under the front upper arm pivot is required.
- The stock wheel and tire will rub and are therefore not compatible.

REQUIREMENTS

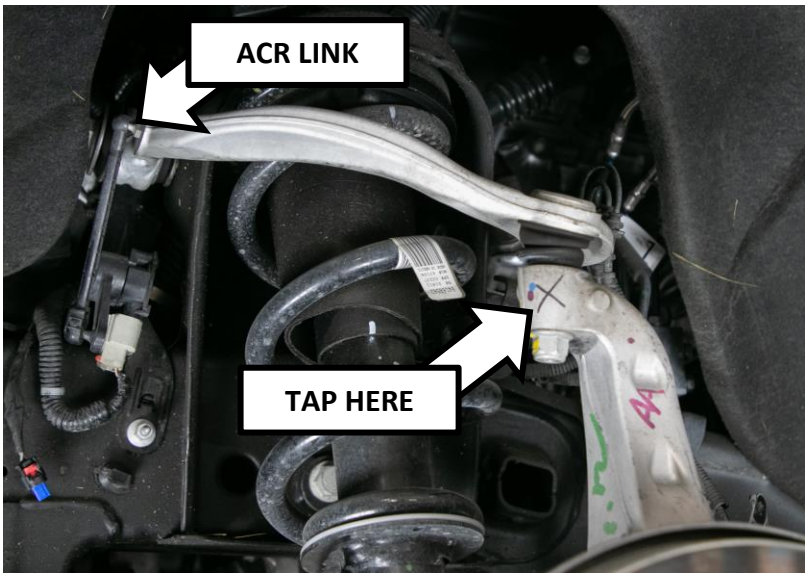
- Read instructions carefully and study the pictures before attempting installation.
- Check the parts and hardware packages against the parts list to assure that your kit is complete.
- Work through these instructions on both sides of vehicle at the same time to completion. The order of the steps is important.
- Shocks or spacers offered by Cognito only are supported for application with this product.

1. If your truck has Adaptive Ride Control (ARC), remove the sensor link with a pair of needle-nosed plyers or similarly shaped tool that can be used to pry against both sides of the ball and socket joint, see Figure 1. Take great care in this step because the link is plastic and more susceptible to damage than steel parts. Let the ARC link hang free and out of the way. Remove the factory ball stud and set it aside for later use.

2. Support the lower control arms with a floor jack or stand prior to removing the upper control arms (UCAs).

3. Loosen the ball joint nut of the upper control arm until you can spin the nut with your fingers, but do not fully remove it. 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 with a hammer, see Figure 1. 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.

Figure 1: UCA and Spindle Disassembly



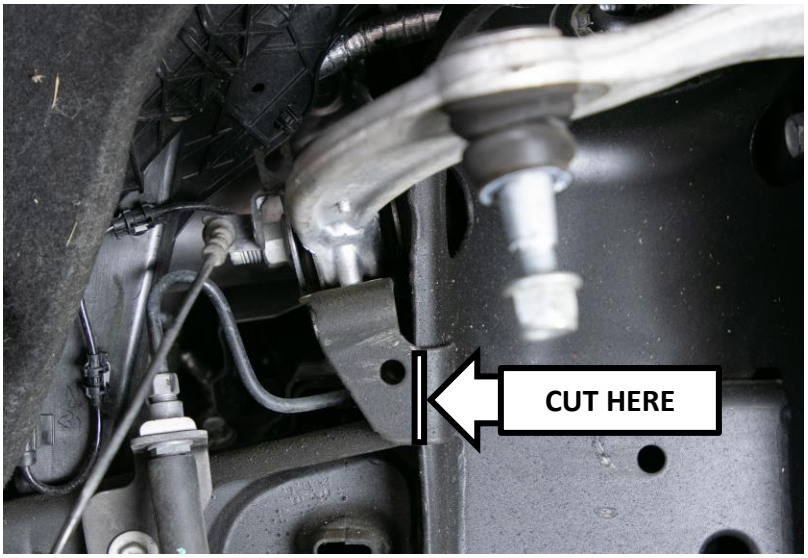
4. Use a 21mm wrench to remove the factory bolts that connect the factory UCA to the frame. Pay attention to the orientation in which they were removed and place the hardware safely aside. These bolts need to be re-installed in the same orientation and location.

5. After removing the UCA, locate a cutting tool (such as a reciprocating saw) and cut both the driver and passenger side service perch located on the rear side of the shock tower. The cut will be parallel to the shock tower, see Figure 2.

Note:
Warranty on Cognito products will be void if damage occurs due to collision with the factory service perch.

Use safety gear (face shield, safety glasses, gloves, etc.) and make sure all brake lines and wires are clear of cutting area. Exposed raw metal should be coated or painted to prevent corrosion.

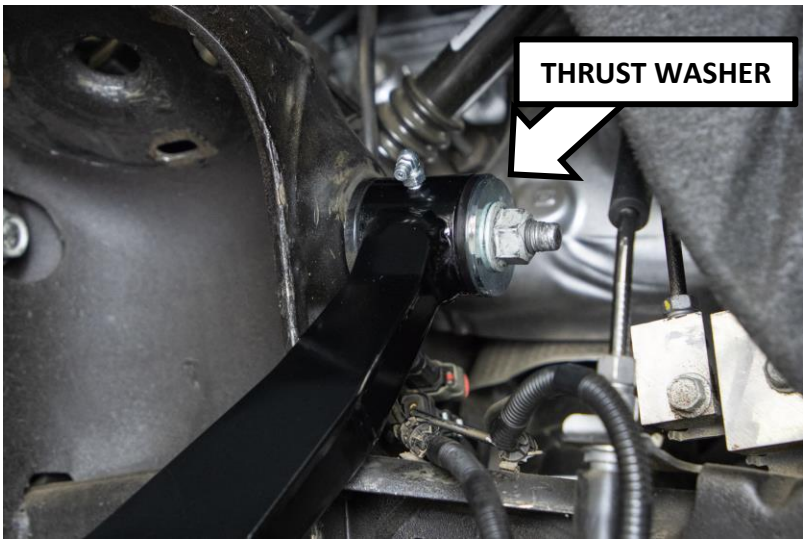
Figure 2: Factory Frame Service Perch Removal



6. Locate the **80004** Cognito Ball Joint Upper Control Arm Driver Side Assembly and mount the Cognito UCA to the frame using the factory bolts and nuts. The thrust washers should be on the exposed side of each bushing, see Figure 3.

Note:
If the vehicle was equipped with adaptive ride control, the M6-1.0 screw found on the side of the Cognito UCA can be removed prior to mounting the arm to the frame.

Figure 3: UCA Thrust Washer Location



7. Place the ball joint pin into the spindle and tighten the M12 washer and castle nut. Torque the castle nut to 65 ft-lbs.

8. Once the castle nut is torqued, insert the cotter pin into the hole located on the pin. Bend the cotter pin around the nut to fully secure the UCA.

9. If the vehicle was equipped with adaptive ride control, re-install the ARC link into the hole located on the side of the Cognito UCA. Torque the ARC link to 7.5 ft-lbs., and then place the plastic tie rod end socket link over the ball stud.

10. Repeat the steps above to install the Cognito UCA onto the opposite side of the vehicle.

11. 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 part. 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.

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

13. 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, see Figure 4. 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.

14. 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 4: Measuring and Setting Ride Height

15. Adjust headlights per owner's manual.

16. Have the vehicle professionally aligned.

Note:
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.