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INSTALL INSTRUCTIONS:
Cognito Ball Joint SM Series Upper Control Arm Kit for 2011-2019 GM 2500HD/3500HD 2WD/4WD trucks
SKU: 110-90298 (Old SKU: UCAK100051)

PARTS LIST FOR SKU: 110-90298 (UCAK100051)

QUANTITY	PART #	DESCRIPTION
1	8337	2011 GM 8-Lug Driver UCA
1	8338	2011 GM 8-Lug Passenger UCA
2	110-90754	Alloy Series HD Ball Joint (6292)
1	HP9114	Hardware Pack For Ball Joint
2	2100	Badge logo, pre-installed
4	rivet	Stainless rivet, pre-installed

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

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

REQUIREMENTS

- Always wear safety glasses when using power tools. Some cutting is required.
- If using this control arm kit as/with a leveling kit, rim width should be kept at 9" or less with 5"-5.75" backspacing. Tire width should be kept at 11.5" or less, and diameter kept to 33" or less, to avoid rubbing while turning. With wider 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. Dually's may need a spacer in between the rear tires.
- A minimum amount of droop travel is required for proper ride quality and component life.

INSTALLATION

1. Rack the vehicle and hoist it off the ground, or if no hoist is available then jack front of truck off of ground and support properly with jack stands. NEVER WORK ON AN UNSUPORTED VEHICLE. Remove the factory upper control arms by supporting the lower control arms with a floor jack or some kind of stand used in a safe fashion. 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, and 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, you may then remove the ball joint nut, and separate the factory upper control arms from the spindles. See figure 1.

2. Remove the factory bolts and eccentric washers that connect the control arm to the frame, but retain them for future use. Place them aside in order so they can be re-installed in the same place they came off. The plastic inserts will need to be removed and discarded from the eccentric washers.

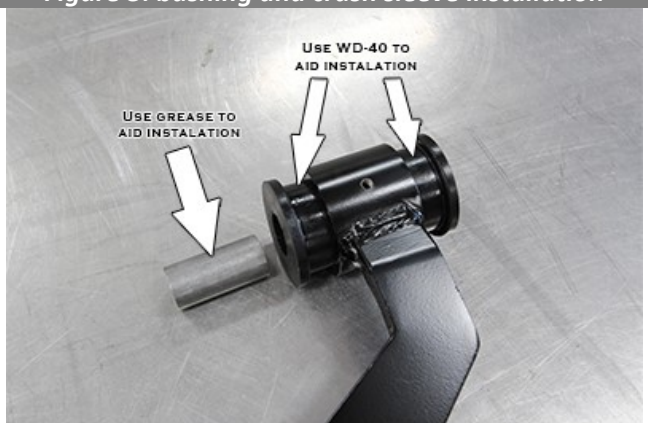
Figure 1: breaking ball joint loose from spindle

3. Mount the supplied ball joints with the 5/16” bolts, flat washers, and locknuts provided in Hardware Package 9114 to the <u>bottom of the ball joint pocket</u> of the Cognito upper control arms as shown in Figure 2. Use anti-seize lubricant on the threads. Tighten all hardware in this step to 22 ft/lbs. of torque. See figure 2.

Figure 2: ball joint installation

4. From the hardware package, insert the polyurethane bushings, crush sleeves, and grease fittings into the ends of the Upper control arms. Use WD-40 to aid installation of bushings and use grease to aid installation of sleeves. Push the bushings into the arms first, then the sleeve through the bushings. Do not over tighten the grease fitting, tighten until it is snug. See figure 3.

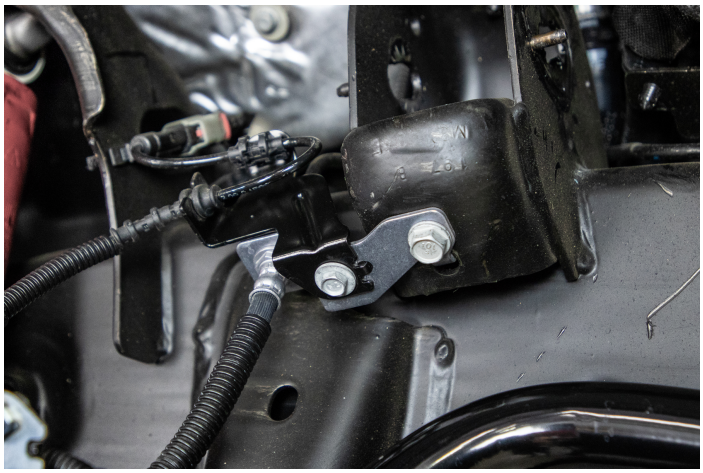
Figure 3: bushing and crush sleeve installation



5. The upper control arm is not designed to be the droop travel limiter due to wear and tear of the upper ball joint. Therefore, the correct length shock must be used, the shock is the droop limiter and shocks designated by Cognito must be used. If this control arm kit is being 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.

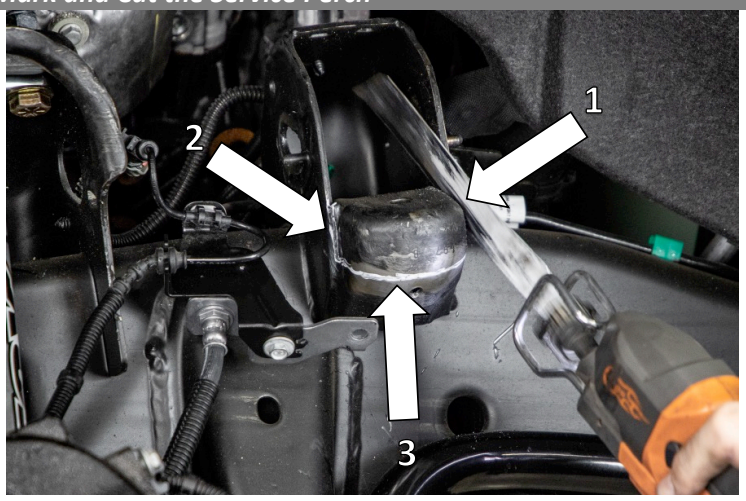
6. Due to the added droop travel when using the Cognito upper control arms, the service perch under the upper control arm which is welded to the frame, must be partially cut off. Start by removing the 13mm screw for the brake line bracket attached to the service perch (see figure 4).

Figure 4: Remove Brake Line Bracket



7. Mark the service perch in the 3 locations shown in figure 5 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.

Figure 5: Mark and Cut the Service Perch



8. THE CONTROL ARMS ARE NOT THE SAME, be sure to mount 8337 to the driver side, and 8338 on the passenger side. The ball joint is moved toward the rear of the truck from center of the arm. Mount the Cognito upper control arms to the frame with the factory nuts, bolts, and eccentric washers as previously removed. Set the bolts in the middle of the adjustment swing to be close enough to drive to an alignment shop. Torque alignment nuts to 90 ft/lbs.

9. 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 no more than 50 ft/lbs. of torque, making sure the cotter pin hole will line up with the castle nut notch. You may have to chase the small end of the tapered hole in the spindle with a 9/16” drill bit because the factory ball joint is a metric thread and the aftermarket ball joint is a standard thread that is slightly larger. Insert the cotter pin and bend ends around the nut to secure.

10. **Grease the ball joint 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.**

11. Setting the ride height, Record measurement (A) in chart below. Subtract 2 inches from (A) to determine maximum ride height (B). This will insure the proper amount of available down travel. **NOTE:** Maximum ride height is not required if you reach desired ride height below measurement (B). It is a good idea to record your final ride height after adjustments (C). See Figure 5.

Figure 5: Distance between top of tire and fender lip.

Record Measurement

Full Drop Out (A)	
Subtract 2 inches	**-2 inches**
Max Ride Height (B)	
Finished Ride Height (C)	

12. Adjust headlights per owner's manual.

13. Have the vehicle's front end professionally aligned using these front end alignment guidelines:

Some Cognito upper control arms have added caster built into them to increase drivability performance, therefore it's important to be sure the correct control arm is installed on the correct side of the vehicle. It's also important to make your alignment shop aware that if caster is high, that is the intention by design.

Cross caster is important in making your vehicle track straight down the road. Most roads have crown to them, high in the middle for water runoff. This crown will make your vehicle want to pull to the right. Vehicles with stock tires on them have a narrow contact patch on the ground and are not as affected as a vehicle having larger wider tires. With larger wider tires it's important to have cross caster proper in order for the vehicle to track straight on these roads. Trucks with dual rear wheels have more tire on the ground and require more cross caster. The length of the wheelbase will also affect cross caster needed.

Generally, crew cab short and long bed trucks like .8 degrees of cross caster. Dual rear wheel trucks like .9-1.0 degrees of cross caster. Your area might have roads that are crowned more or less than average therefore these numbers may need to change and your alignment shop should understand this. If your alignment tech is stating they can't align the truck, that typically means they can't get the alignment to OEM spec, and that's fine because your vehicle is no longer OEM. A good tech will understand this and the numbers and let caster run slightly out of OEM spec (Caster should always be above 2 degrees positive) while maintaining cross caster needed for the vehicle and roads so you enjoy your vehicle with aftermarket Cognito parts and your driving experience.

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.