



INSTALL INSTRUCTIONS:

Cognito 1" & .5" Front Shock Extender Kit for 2011-2019 GM 2500HD/3500HD 2WD/4WD trucks SKU: 110-90258 (Old SKU: SEK-2011-8-1) & 110-90259 (Old SKU: SEK-2011-8-2)

**PARTS LIST FOR SKU: 110-90258
(Old SKU: SEK-2011-8-1)**

| QUANTITY | PART # | DESCRIPTION |
|----------|---------|------------------------|
| 2 | 1581 | Shock Extender Bracket |
| 4 | H-15211 | ½"x2" hex bolt |

**PARTS LIST FOR SKU: 110-90259
(Old SKU: SEK-2011-8-2)**

| QUANTITY | PART # | DESCRIPTION |
|----------|--------|------------------------|
| 4 | 1581 | Shock Extender Bracket |
| 4 | - | ½"x2 ½" hex bolt |
| 4 | - | ½" lock nut |
| 8 | - | ½" flat washer |

SKU: 110-90258



SKU: 110-90259



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

- Some applications require the use of 2 spacers sandwiched together, please follow instructions carefully to ensure the proper setup for your vehicle.

REQUIREMENTS

- Installation requires a qualified mechanic.
- Read instructions carefully and study the pictures before attempting installation.
- Check the parts and any hardware packages against the parts list to assure that your kit is complete.
- If this kit is being installed on a lifted vehicle with a Cognito suspension lift package, refer to the instructions for that lift package to install this extender kit. If installing this kit on any other lift system, Cognito is not responsible for improper setup or adverse effects.
- A minimum amount of droop travel is required for proper ride quality and component life.

INSTALLATION

First determine the setup that the truck will get. There are 4 leveling kit combinations so gather that info then refer to the appropriate section here for the combination. If this kit is being installed on a lifted vehicle with a Cognito Motorsports suspension lift system, refer to the instructions for that lift system to install this extender kit. If installing this kit on any other lift system, Cognito is not responsible for improper setup or adverse effects. IF THE COMBINATION IS EVER CHANGED YOU MUST REFER TO THIS INSTRUCTION SET TO DETERMINE THE NEW COMBINATION AND FOLLOW THOSE INSTRUCTIONS. FAILURE TO DO SO CAN CAUSE DAMAGE TO THE VEHICLE THAT CAN RESULT IN COMPONENT FAILURE AND A CRASH.

Combination 1: Stock front shocks and stock upper control arm, install 110-90258

- 1.1. open the hood since access to the top shock mount is easier from the engine compartment. remove the 2 nuts from the top mount of each factory shock.
- 1.2. push the shock body down to compress the shock and then insert one of the 1579 spacers over the studs. repeat for other shock.
- 1.3. reinsert the studs thru the holes in the frame and re-fasten the nuts to 40 ft/lbs. repeat for other shock.
- 1.4. this combination will allow cranking stock torsion keys or using aftermarket torsion keys to gain an additional 2" maximum of height safely from FACTORY height. Do not set height more than 2" over factory height with this combination.
- 1.5. raising the height of the truck affects the alignment, so a front end alignment is required. Also the headlights need to be adjusted, refer to your owner's manual for headlight adjustment screw, normally the screw needs to be turned 2 revolutions to lower the headlight for every 1" the front is raised without raising the rear.

Combination 2: Cognito specific front shocks by Bilstein or Fox and stock upper control arm, DO NOT install a spacer

- 2.1 the Cognito shocks are longer than factory, so do not use a spacer with this combination.
- 2.2 this combination will allow cranking stock torsion keys or using aftermarket torsion keys to gain an additional 2" maximum of height safely from FACTORY height. Do not set height more than 2" over factory height with this combination.
- 2.3 raising the height of the truck affects the alignment, so a front end alignment is required. Also the headlights need to be adjusted, refer to your owner's manual for headlight adjustment screw, normally the screw needs to be turned 2 revolutions to lower the headlight for every 1" the front is raised without raising the rear.

Combination 3: Stock front shocks and Cognito upper control arms, install 110-90259

- 3.1. the Cognito upper control arms provide more down travel than factory, therefore 2 spacers can be used with the FACTORY SHOCK.
 - 3.2. refer to the Cognito upper control arm kit for instructions to install the arm kit.
 - 3.3. open the hood since access to the top shock mount is easier from the engine compartment. remove the 2 nuts from the top mount of each factory shock. remove the nut and bolt holding the bottom shock mount to the lower control arm.
 - 3.4. remove the shocks from the truck, the studs in the upper bar pin need to be removed since they are too short. use a deep socket to cup the flat end of the stud, then use a hammer to tap the stud out of the bar pin.
 - 3.5. re-attach the shock to the lower control arm with the factory hardware, torque to 50 ft/lbs.
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- 3.6. push the shock body down to compress the shock and then insert 2 of the 1579 spacers over the bar pin. guide the shock up into the top mounting pocket on the frame. use the repeat for other shock. use the 1/2" hardware provided to bolt the top shock mount together with the spacers sandwiched between the bar pin and the frame. Tighten to 50 ft/lb.
- 3.7. this combination will allow cranking stock torsion keys or using aftermarket torsion keys to gain an additional 3" maximum of height safely from FACTORY height. Do not set height more than 3" over factory height with this combination.
- 3.8. raising the height of the truck affects the alignment, so a front end alignment is required. Also the headlights need to be adjusted, refer to your owner's manual for headlight adjustment screw, normally the screw needs to be turned 2 revolutions to lower the headlight for every 1" the front is raised without raising the rear.

Combination 4: Cognito specific front shocks by Bilstein or Fox and Cognito upper control arms, install 110-90258

- 4.1. the Cognito shocks are longer than factory, so use only one spacer with this combination.
- 4.2. refer to the Cognito upper control arm kit for instructions to install the arm kit.
- 4.3. install the Cognito shock with only one spacer sandwiched between it and the frame. tighten hardware to 50 ft/lbs of torque.
- 4.4. this combination will allow cranking stock torsion keys or using aftermarket torsion keys to gain an additional 3" maximum of height safely from FACTORY height. Do not set height more than 3" over factory height with this combination.
- 4.5. raising the height of the truck affects the alignment, so a front end alignment is required. Also the headlights need to be adjusted, refer to your owner's manual for headlight adjustment screw, normally the screw needs to be turned 2 revolutions to lower the headlight for every 1" the front is raised without raising the rear.

Completion:

1. 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 4.
2. While the chassis is lifted up and the tires are drooped out, check that the control arm clears the service perch which is under the front pivot of each upper arm. This perch is not a droop stop, it is a service perch and on some vehicles, they will contact the arm and will need to simply be cut off to avoid damaging the upper control arm. This instance is not common, the droop travel is needed to help provide a quality comfortable ride.

Figure 4: 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) | |

3. Have the vehicle's front end professionally aligned to the vehicle, or lift kit (if it is lifted) manufacturer specification.



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 UNSUPPORTED 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 bottom of the ball joint pocket 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



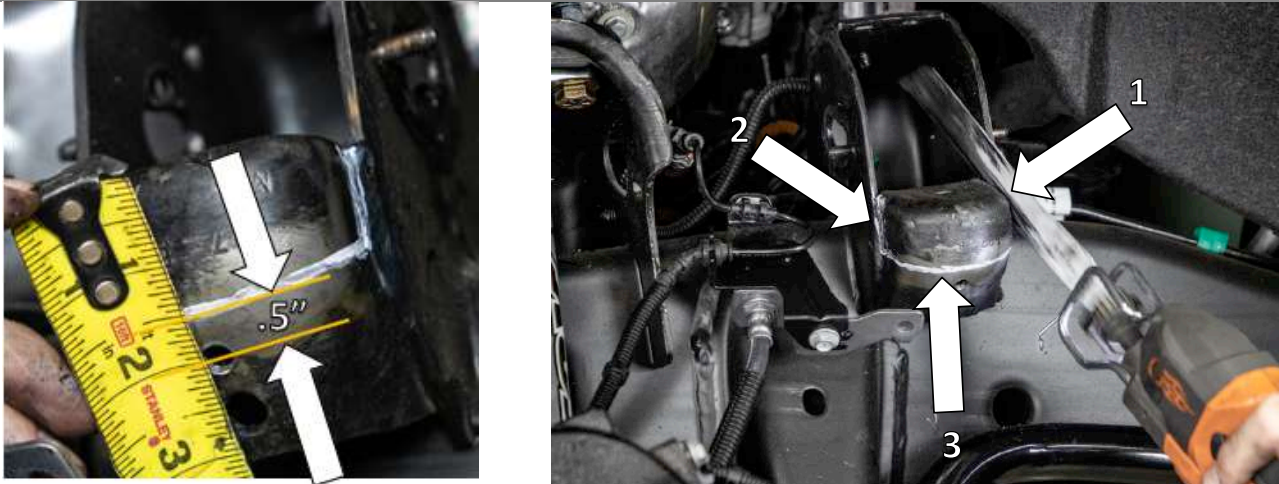
5. The upper control arm is not designed to be the droop travel limiter due to wear and tear of the upper ball joint. Therefore, the correct length shock must be used, the shock is the droop limiter and shocks designated by Cognito must be used. If this control arm kit is being used with any other parts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