Cognito 1" & .5” Front Shock Extender Kit for 2011-2019 GM 2500HD/3500HD 2WD/4WD Trucks

INSTALL INSTRUCTIONS:

Cognito 1" & .5” Front Shock Extender Kit for 2011-2019 GM 2500HD/3500HD 2WD/4WD Trucks
SKU: 110-90258 & 110-90259

PARTS LIST FOR SKU: 110-90258

QUANTITY	PART #	DESCRIPTION
2	1581	1/2" Shock Extender Bracket
4	HARDWARE-15211	1/2”-13 X 2" Grade 8 Yellow Zinc Hex Head Cap Screw
8	HARDWARE-33086	1/2” SAE Zinc Flat Washer
4	HARDWARE-37268	1/2”-13 Grade C Zinc Top Lock Nut

PARTS LIST FOR SKU: 110-90259

QUANTITY	PART #	DESCRIPTION
4	1581	1/2" Shock Extender Bracket
4	HARDWARE-15213	1/2”-13 X 2-1/2" Grade 8 Yellow Zinc Hex Head Cap Screw
8	HARDWARE-33086	1/2” SAE Zinc Flat Washer
4	HARDWARE-37268	1/2”-13 Grade C Zinc Top Lock Nut

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.

INTRODUCTION

These kits will add 1/2" or 1” Inch to the length of the front shocks for leveling applications where Cognito upper control arms and OE shocks are used. This extender kit is used to take advantage of the increased droop travel that Cognito upper control arms provide. Mounting hardware is included.

REQUIREMENTS

- Some applications require the use of 2 spacers sandwiched together, please follow instructions carefully to ensure the proper setup for your vehicle.
- 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. Remove the front tires and set them as side.
   - ***NEVER WORK ON AN UNSUPPORTED VEHICLE.***

2. First determine the setup that the truck will get. There are 3 leveling kit combinations so gather that info then refer to the appropriate section here for the combination.
   - **NOTE:**
     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 SAY CAN CAUSE DAMAGE TO THE VEHICLE THAT CAN RESULT IN COMPONENT FAILURE AND A CRASH.

Combination 1: Cognito specific aftermarket front shocks and OEM upper control arm, **DO NOT** install a spacer.

1.1. The Cognito shocks are longer than factory, so do not use a spacer with this combination.

1.2. Install the Cognito shocks in place of factory shocks. Tighten supplied hardware to **50 ft-lbs**.

1.3. 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.

NOTE:
Do not set height more than 2" over factory height with this combination.

1.4. 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 the owner's manual for headlight adjustment screw.

Combination 2: Stock front shocks and Cognito upper control arms, install **110-90259**.

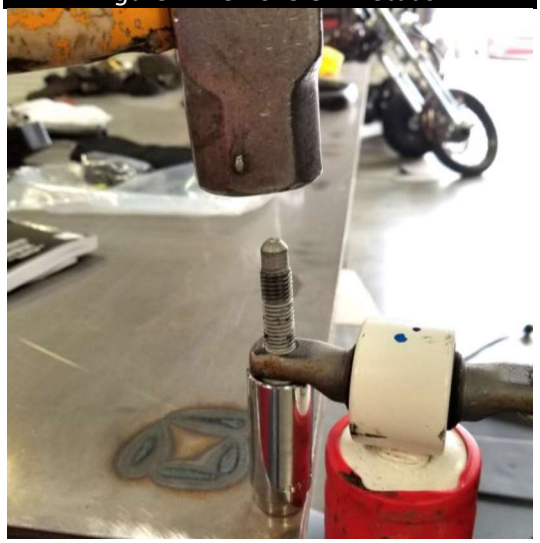
2.1 The Cognito upper control arms provide more down travel than factory, therefore 2 spacers can be used with the OEM shock.

2.2 Refer to the Cognito upper control arm kit for instructions to install the arm kit.

2.3 Open the hood to access to the top shock mount 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.

2.4 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 (Figure 1).

Figure 1: Remove OEM Studs.



2.5 Re-attach the shock to the lower control arm with the factory hardware, torque to **50 ft-lbs**.

2.6 Push the shock body down to compress the shock and then insert **2** of the **1581** 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-lbs**.

Figure 2: Spacer and Hardware Order.



2.7 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.

NOTE:

Do not set height more than 3" over factory height with this combination.

2.8 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 the owner's manual for headlight adjustment screw.

Combination 3: Cognito specific aftermarket front shocks and Cognito upper control arms, install **110-90258**.

3.1. The Cognito shocks are longer than factory, so use only one spacer with this combination.

3.2. Refer to the Cognito upper control arm kit for instructions to install the arm kit.

3.3. Install the Cognito shock with only one spacer sandwiched between it and the frame. Tighten hardware to **50 ft-lbs** of torque.

Figure 3: Spacer and Hardware Order.



3.4. 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.

NOTE:

Do not set height more than 3" over factory height with this combination.

3.5. 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 the owner's manual for headlight adjustment screw

3. While the chassis is lifted up and the suspension is 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 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.

4. Ensure that all bolts are properly torqued. Ensure there are no rubbing or loose cables anywhere after the 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.

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

6. Setting the ride height, Record measurement (A) in chart below with the truck still lifted off the ground. Subtract 3 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 the desired ride height is reached below measurement (B). It is a good idea to record the final ride height after adjustments (C) (Figure 4).

Figure 4: Distance between top of tire and fender lip.



Record Measurement

Full Drop Out (A)	
Subtract 3 inches	**-3 inches**
Max Ride Height (B)	
Finished Ride Height (C)	

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

8. Adjust headlights per owner's manual.

9. 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.