Cognito Ball Joint Upper Control Arm Kit for 2022+ Toyota Tundra

INSTALL INSTRUCTIONS:

Cognito Ball Joint Upper Control Arm Kit for 2022+ Toyota Tundra
SKU: 135-91229

PARTS LIST FOR SKU: 135-91229

QUANTITY	PART #	DESCRIPTION
1	80052	Ball Joint Control Arm Assembly, Driver
1	80053	Ball Joint Control Arm Assembly, Passenger
4	HARDWARE-63124	6” Black Cable Tie

PARTS LIST FOR SKU: 80052

QUANTITY	PART #	DESCRIPTION
1	8822	Control Arm Weldment, Driver
1	91200	Ball Joint
1	6446	Ball Joint Cap
1	HARDWARE-SPIROLOX-2.375	2.375” Spirolox Internal Retaining Ring
2	6879	Maintenance Free Pivot Bushing

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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 Tubular Ball Joint Upper Control Arm Kit is a direct replacement for the factory upper control arms (UCAs). The Cognito UCA will add performance due to a modified ball joint angle that eliminates travel limitations of the ball joint in leveled or lifted applications. These arms feature increased droop travel over stock, greater clearance for aftermarket coilovers, and maintenance-free pivot bushings. Designed and made in the USA.

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.
- Front-end alignment will be required after completion.
- The upper control arm is not designed to be a 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 be installed to prevent failure which could cause an accident and serious injury.

REQUIREMENTS

- 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, always ensure the vehicle is properly supported before attempting installation or serious injury may occur.

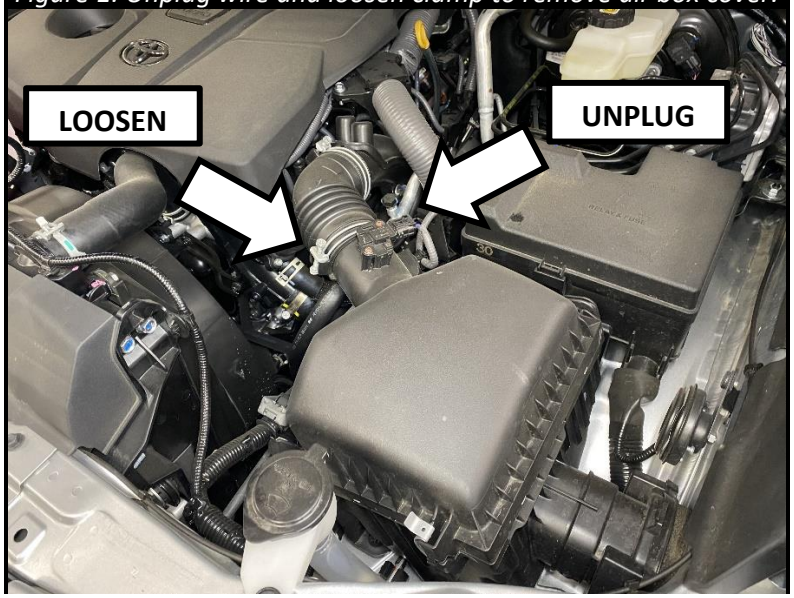
INSTALLATION

1. Disconnect the negative terminal of the battery.

2. Use a 19mm socket to remove the sway bar end links from the lower control arms on both sides of vehicle.

3. Remove the air box cover and intake air filter. Unplug sensor wire and loosen the hose clamp to remove air box cover.

Figure 1: Unplug wire and loosen clamp to remove air box cover.

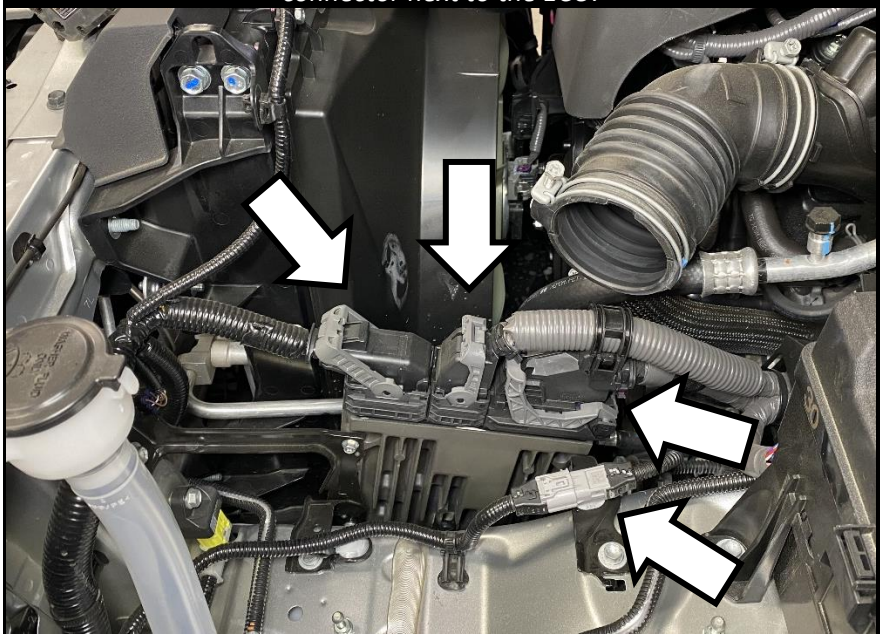


4. Remove the bottom portion of the air box. It is held to the vehicle by rubber grommets that pop out when pulled up.

Figure 2: Pull up to remove lower air box.

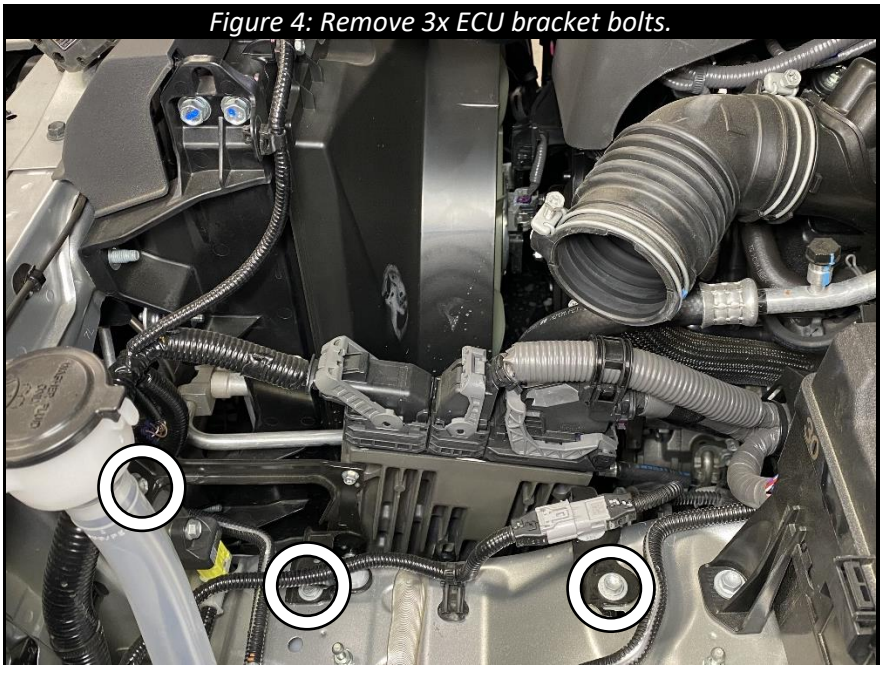
5. Disconnect 3 cables plugged into the ECU and the single cable next to the ECU.

Figure 3: Unplug 3 harness connectors from the ECU. Unplug the small connector next to the ECU.



6. Unclip wire clips from ECU bracket. Use a 10mm socket to remove the 3x ECU supports and remove the ECU from the vehicle.

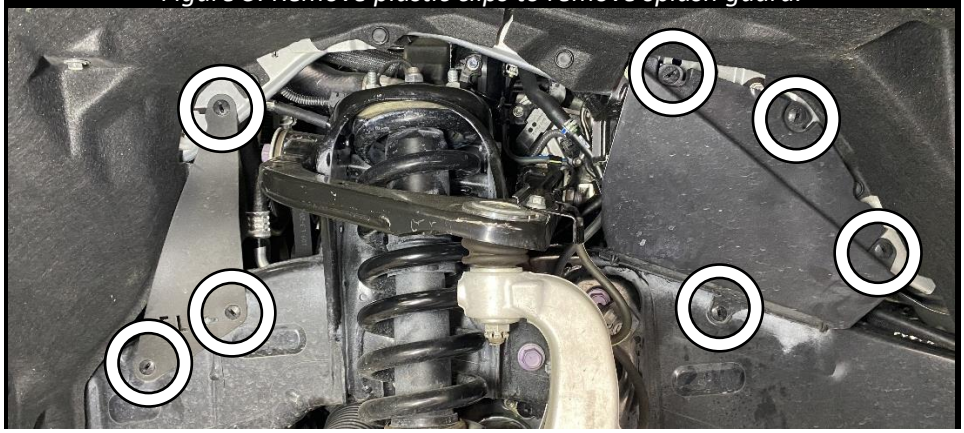
Figure 4: Remove 3x ECU bracket bolts.



7. Lift the vehicle using a suitable hoist and remove front wheels. ***Never work under an unsupported vehicle. Serious injury or death can occur!***

8. Release the plastic clips holding the front and rear splash guards. Remove splash guards.

Figure 5: Remove plastic clips to remove splash guard.



9. Use a 12mm socket to remove the ABS wire and brake line brackets from the upper control arm, frame, and spindle.

Figure 6: Remove ABS bracket from upper control arm.

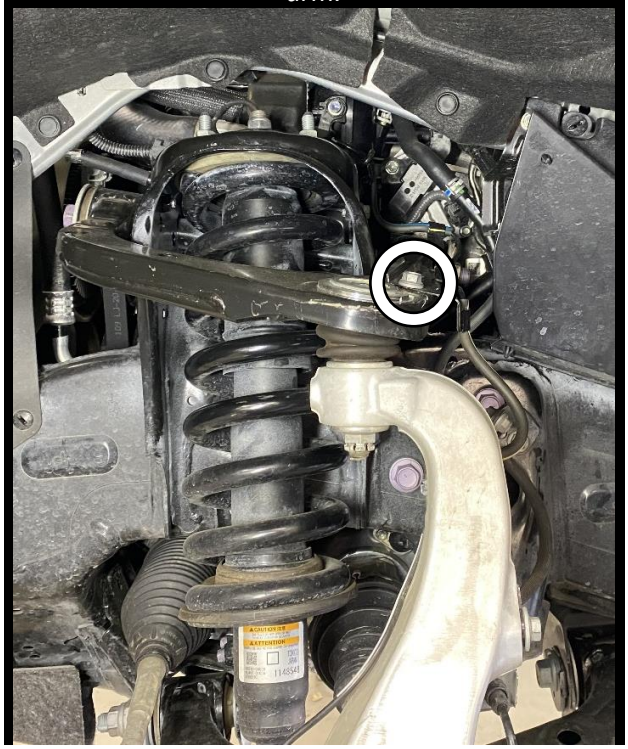
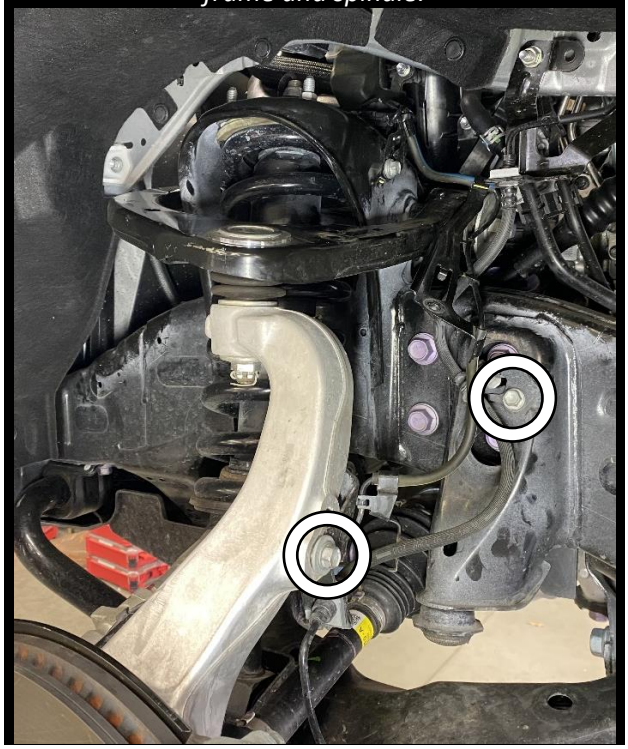


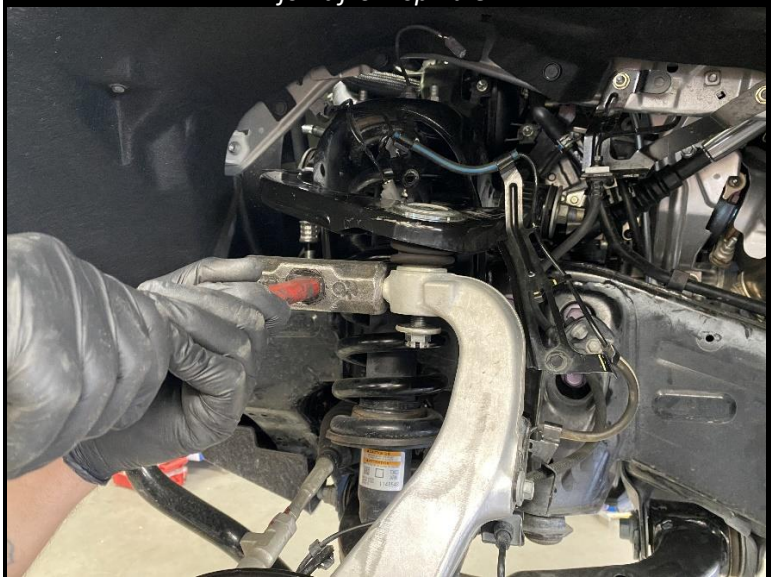
Figure 7: Remove ABS and brake brackets from frame and spindle.



10. Use a strap or jack stand to support steering spindle before removing upper control arm. Failure to support spindle may cause CV axle to fall out of inner CV joint.

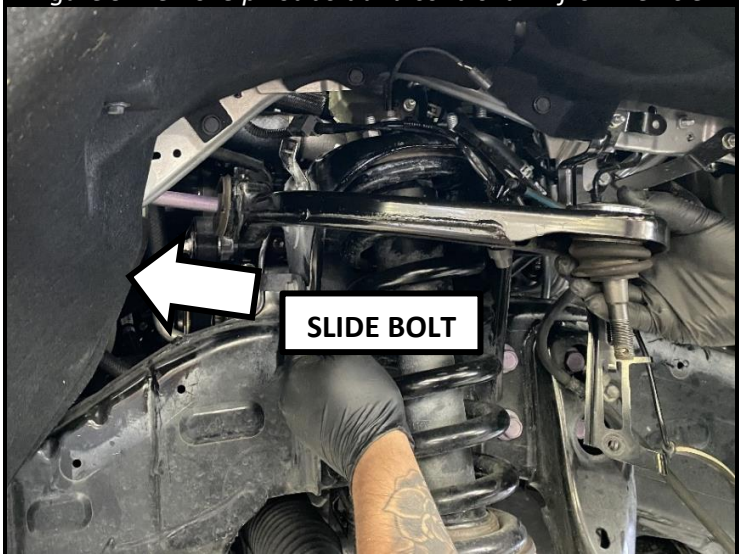
11. Remove the cotter pin from the ball joint stud. Use a 19mm socket to loosen the ball joint nut. Leave the nut partially threaded on the ball joint stud. Use a hammer or ball joint separator to seperate the ball joint stud from the steering spindle.

Figure 8: Use a hammer or ball joint separator to separate ball joint from spindle.



12. Use a 22mm wrench to loosen the upper control arm bolt. Slide the bolt forward and remove the upper control arm from the vehicle.

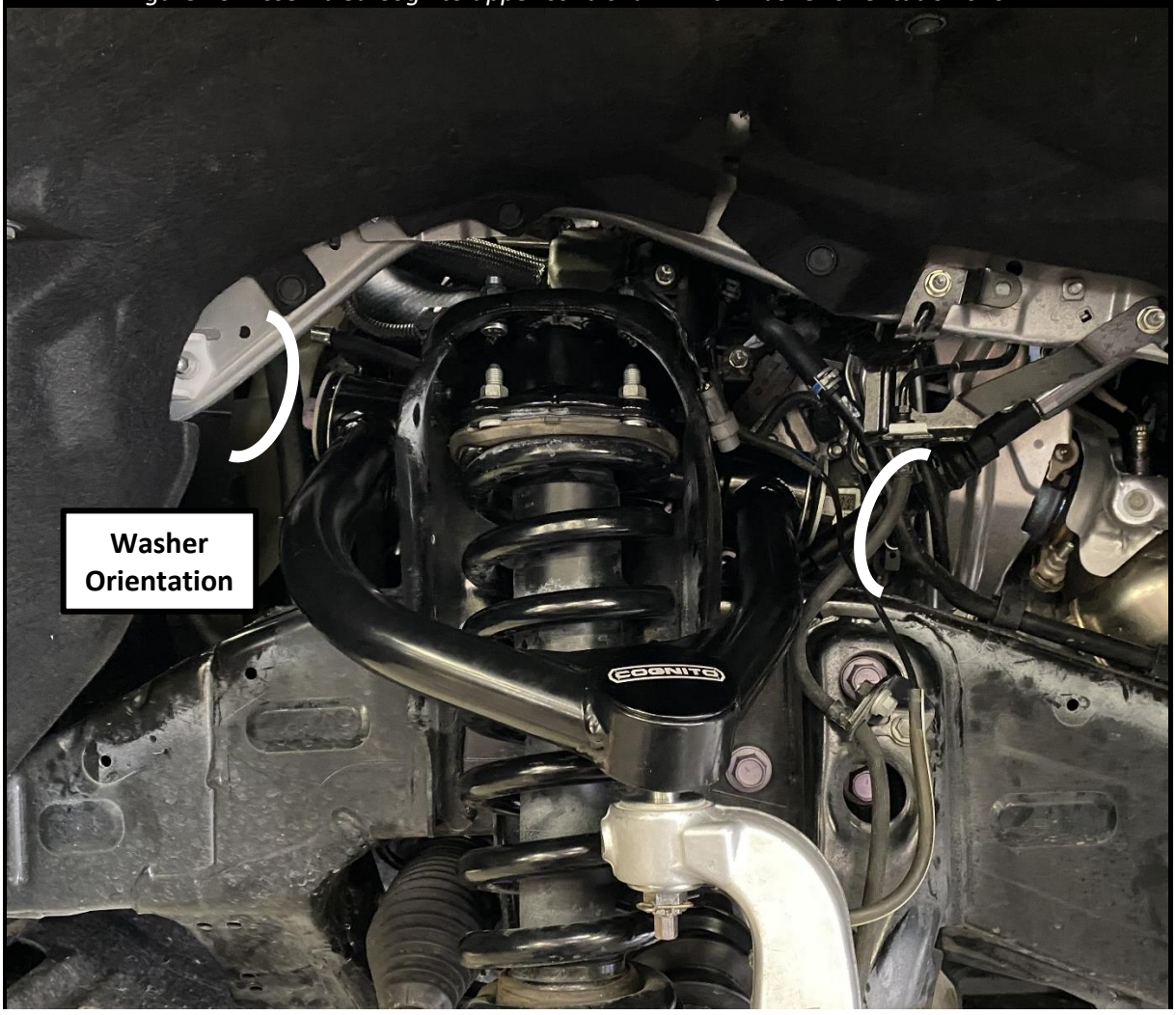
Figure 9: Remove pivot bolt and control arm from vehicle.



13. Re-use the OEM bolt and washers to connect the Cognito control arm to the frame of the vehicle. Slide the bolt from the front of the vehicle to the rear. The convex side of the washers should face towards the shock tower. The concave side of the washers should face away from the shock tower. Tighten snug but do not fully torque the upper control arm pivot bolt at this time. Bolt will be torqued when vehicle is placed on ground.

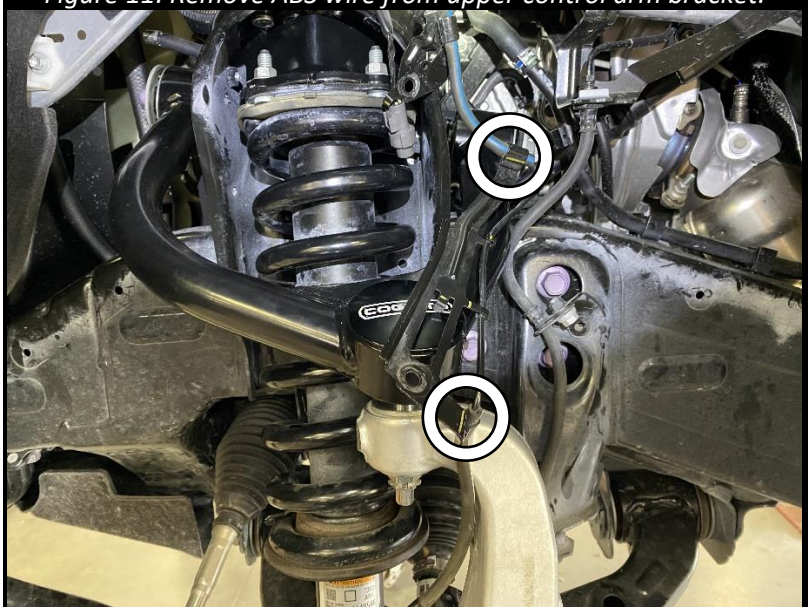
14. Insert the ball joint stud into the steering spindle and fasten with the provided castle nut. Torque to **92 ft-lbs**. A 4mm hex key may be used in the bottom of the ball joint stud to prevent the ball joint stud from rotating. Insert the included cotter pin through the hole in the ball joint stud. If the castellations on the nut do not line up with the hole in the ball joint stud, continue to tighten the nut until they do. ***Never loosen the castle nut to align the cotter pin hole!***

Figure 10: Assembled Cognito upper control arm with washer orientation shown.



15. Use a screwdriver to pry the abs wire out of the control arm bracket.

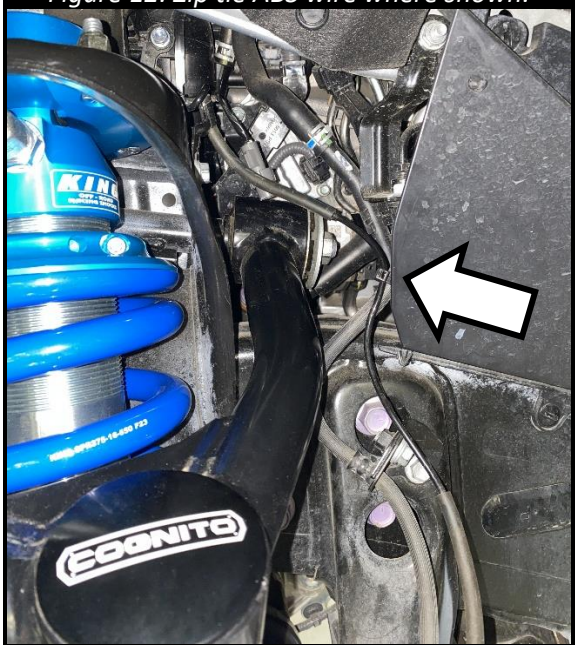
Figure 11: Remove ABS wire from upper control arm bracket.



16. Reattach the brake line bracket to the frame and spindle.

17. Use the included zip-ties to hold the ABS wire away from the control arm. Check to make sure the wire is not taut throughout the range of suspensions and steering travel.

Figure 12: Zip tie ABS wire where shown.



18. Reinstall splash guards using OEM plastic clips.

19. Repeat steps 7 through 18 to install Cognito upper control arm on opposite side of vehicle.

20. After both Cognito upper control arms have been installed, reattach wheels and torque to manufacturer spec.

21. 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 13**). Revord this measurement as (A) in Table 1. Subtract 3 inches from (A) and record this as (B). 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.

22. Place vehicle on ground and torque UCA pivot bolts to **136 ft-lbs**.

23. Reinstall ECU in reverse order of steps 1 through 5.

24. Drive vehicle backwards and forwards multiple time to settle the suspension. Measure again from the top of the tire to the top of the wheel well as in step 20 and record this measurement as (C) in Table 1 on page 10.

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 vehicle's front suspension may cause over-extension, which can result in damage to ball joints, uniballs, tie rods, and/or CV axles, as well as other related safety issues.

Warranty on Cognito products will be void if the vehicle's front suspension is not properly limited to the maximum ride height calculation.

25. Adjust headlights per owner's manual.

26. Have the vehicle professionally aligned. See note on page 10.

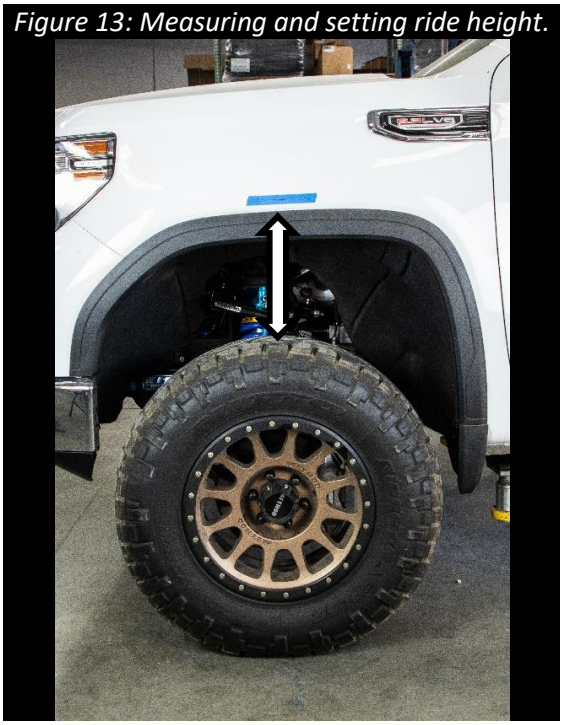
Note: Cross caster is important in making your vehicle track straight down the road. Most roads have crown to them, high in the middle for water runoff. This crown will make your vehicle want to pull to the right. Vehicles with stock tires on them have a narrow contact patch on the ground and are not 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.

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

Table 1: Suspension Travel Measurements

Figure 13: Measuring and setting ride height.



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.

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