Cognito Heavy Duty Long Travel Tie Rod Kit For 17-21 Polaris RZR XP Turbo

INSTALL INSTRUCTIONS:

Cognito Heavy Duty Long Travel Tie Rod Kit For 17-21 Polaris RZR XP Turbo
SKU: 360-90116

PARTS LIST FOR SKU: 360-90116

QTY	PART #	DESCRIPTION
2	8375	Tie Rod Tube
2	RODEND-JMX10T	Jmx10T With F-1 Fit
2	RODEND-RSML8T	Rod End F1 Fit
2	JAM-NUT-SJNL10	Jam Nut 5/8" Left Hand
2	HARDWARE-36264	Jam Nut 5/8" Right Hand
2	HP9222	SPINDLE PIN KIT
2	HP9234	CLEVIS KIT

PARTS LIST FOR SKU: HP9222

QTY	PART #	DESCRIPTION
1	5701	Tie Rod Stud
1	5702	Spherical Washer
1	HARDWARE-0161339	Flange Screw
1	HARDWARE-33622	3/8 Lock Washer
1	HARDWARE-1/2-20-FN	Nylon Insert Flange Nut

PARTS LIST FOR SKU: HP9234

QTY	PART #	DESCRIPTION
1	6050	Steering Rack M16 mounting hole
1	6430	Socket Head Cap
1	HARDWARE-SHOULDERBOLT-1	Alloy Steel Shoulder Screw
2	HARDWARE-1/2-THICKWASHER	Thick Washer Black
1	HARDWARE-3/8-16-FN	Nylon Insert Flange Nut
1	THREADLOCK-10743-03270	Thread Locker

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 Heavy Duty Long Travel Tie Rod Kit is designed to be used in conjunction with the Cognito Long Travel Kit or Cognito Long Travel Front Control Arms.
This kit has been engineered to withstand the abuse of racing and hard recreational use.

There are 2 options to consider when you are going to install the inner boot.

Option 1 Is intended for the competitive racer. It will provide quick and easy access to the inner tie rod; it is for a user who will be removing/installing/tinkering with the tie rods frequently. This option will require you cut the tie rod boot as shown in figure #3.

Option 2 Is intended for the recreational user that does not need frequent access to the inner tie rod end because it will show you how to install the tie rod boot leaving it looking like the stock tie rod. This will protect the tie rod end from dirt/mud/rocks/etc. but it will be slightly more difficult to remove/install/tinker with.

TECH NOTES

- Read instructions carefully and study the pictures (if included) before attempting installation.
- If this product was purchased as part of a bundle/package. Familiarize yourself with each set of instructions included with the bundle/package before beginning.
- Check the parts and hardware packages against the parts list to assure that your kit is complete before starting.

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

INSTALLATION

1. Raise the front of your RZR up and support by the frame so that the suspension droops out and tires are off the ground by at least an inch. Remove front tires.
2. Remove the outer tie rod from the spindle by loosening the nut holding the outer tie rod to the spindle. Don't remove the nut, just loosen it by a couple threads then use a hammer to tap on the nut upward to knock the tapered stud of the outer tie rod loose from the tapered hole of the spindle. Then remove the tie rod from the spindle.
3. Remove the inner tie rod dust boot by cutting the zip tie holding the dust boot to the steering box, and by prying off the outer dust boot clip using a flat head screwdriver. Pull the dust boot back and using a pipe wrench, unscrew the tie rod from the steering box as seen in **figure 1**. Once the inner tie rod is free from the steering rack bar, there is a plastic spacer on both sides of the steering rack bar, they need to stay there.

Figure 1: pull dust boot back, remove inner tie rod from rack bar.

4. Clean the internal threads with contact cleaner to remove any grease to prepare the threads for Loctite. Also clean the supplied M16-1.5x25mm long socket head cap screw threads with the cleaner. Add a drop of the provided thread locker to the allen head bolt threads, insert the bolt into the Cognito clevis and screw the Cognito inner tie rod clevis into the steering box. Clocking is very important, **Figure 2** shows the clocking, the bolt holes will need to be in line with the upper control arm bolts. So, the driver side clevis, if you put a bolt through the holes then the bolt would be pointing at 4 o-clock and 10 o-clock. The passenger side the bolt would be pointing at **2** o-clock and **8** o-clock. Tighten using a crescent wrench and **14mm** allen as seen in **figure 2**, torque would be **90 ft.lbs**.

5. **(If using option 1 please proceed with this step.) (If using option 2 instructions please skip to step A on page #7.)** Using a razor, cut off the small end of the inner tie rod dust boot at the first raised edge. As seen in **figure 3**. Slide dust boot over the tie rod clevis and steering box. Use zip ties to secure the dust boot to the steering box groove in the clevis, and the other end to the steering box just like stock was.

Figure 2: installing clevis to the steering rack bar

Figure 3: trim the small end off the dust boots, so it can be attached to the clevis groove

6. Thread the appropriate jam nuts all the way onto the appropriate rod ends, then thread the rod ends all the way into the adjuster tubes. Remember one end is right hand thread and the other is left hand thread.

7. Bolt the rod end that has the ½" hole to the clevis with a spacer on both sides of the rod end, using the shoulder bolts and flange nuts included. Tighten hardware using a **¼**" allen wrench and **9/16** wrench, to **30 ft.lbs**. see **figure 4.**
8. Before installing the outer tie rod into the spindle you must drill out the spindle tie rod hole using a **1/2**" drill bit as seen in **figure 5.** It will only cut a small amount of the small end of the tapered hole, this is because we upsize the nut from **12mm to ½".** Get some help if needed, as you need to make sure the hole is drilled out straight with the original hole. You don't want it wallowed out or crooked. Remove any burrs.
9. Now bolt the included tapered stud to the spindle using the included ½" flange nut with some anti seize lubricant on the threads, and torque to **60 ft.lbs**.

Figure 4: inner rod end attached to clevis, and dust boot tied to clevis groove

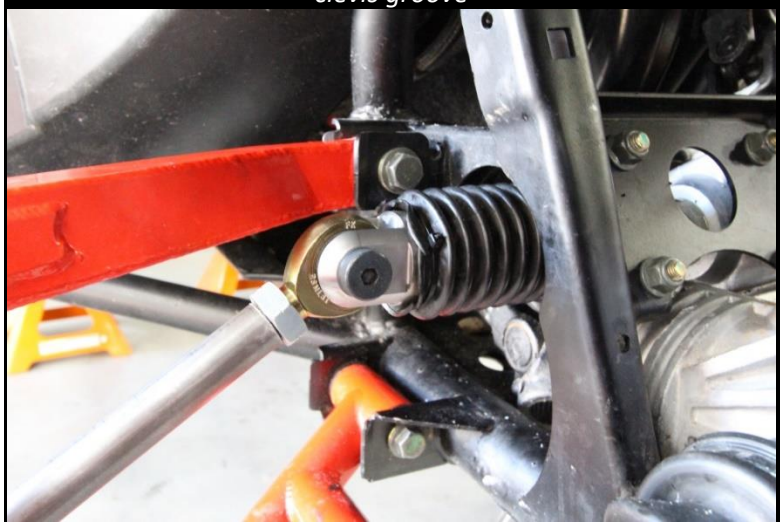
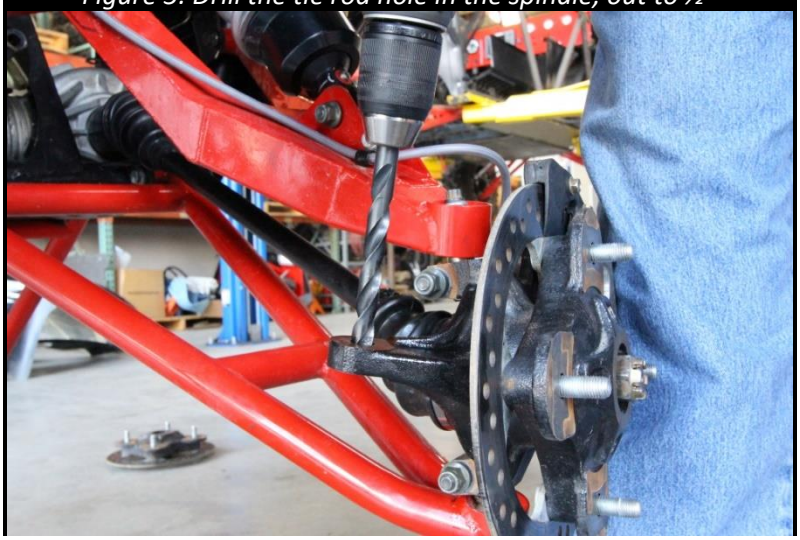
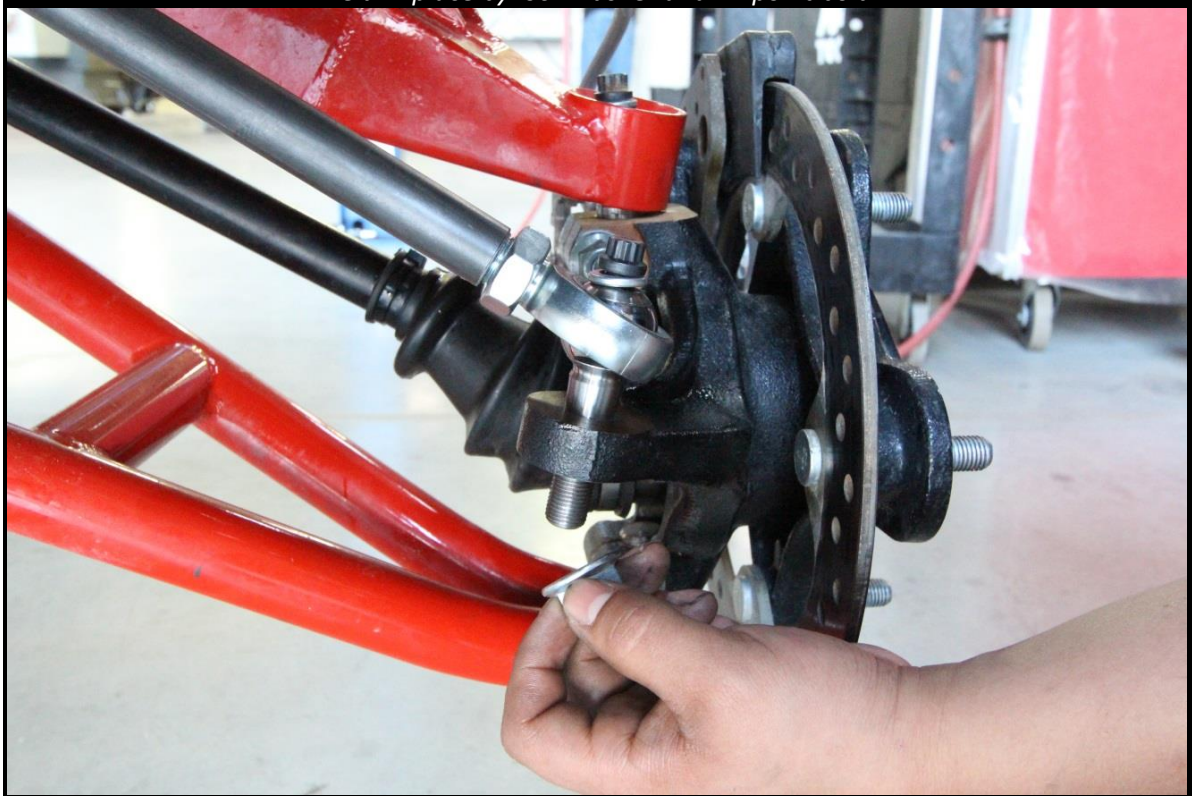


Figure 5: Drill the tie rod hole in the spindle, out to ½"



10. The outer rod end can now be installed onto the stud, and it gets fastened with a spherical washer, then lock washer, then the **12 point** flange bolt with anti-seize lubricant on the threads. Tighten the **12-point** bolt to **35 ft.lbs**. Use a drop of red thread locker on the threads at the end of the bolt (farthest from the bolt head) tc ensure the thread locker covers the threads which engage with the spindle pin. See **Figure 6**

Figure 6: Shows the stud in the spindle, rod end on the stud, then spherical washer on the rod end held in place by lock washer and 12 point bolt



11. Now you can turn the adjuster tube and the tie rod length will change. Once the toe is set, then tighten the jam nuts against the adjuster tube to lock it in place, make sure the inner and outer rod ends are clocked appropriately for articulation, this takes a little patience since while tightening the jam nuts, the rod ends want to turn, just get a small crescent wrench to hold the rod end while tightening the jam nut but also need to keep the adjuster tube from turning while tightening the jam nut. Get some help if needed. This is important so that there is no binding.
12. Toe adjusting should be done at proper ride height, and setting is **0-1/8”** toe in.

Inner Tie Rod Boot Option 2 Installation *Instructions*

Installation Steps

A. Now that that the stock tie rod has been removed, grab the Cognito tie rod and remove the tie rod end that is circled in red in figure **#1A**. Once the rod end is removed apply lubricant like **WD-40** on Cognito Adjuster Tube and slide dust boot on as shown in **figures #2B and #3C**.

Figure 1A: Remove this tie rod end and install dust boot from here

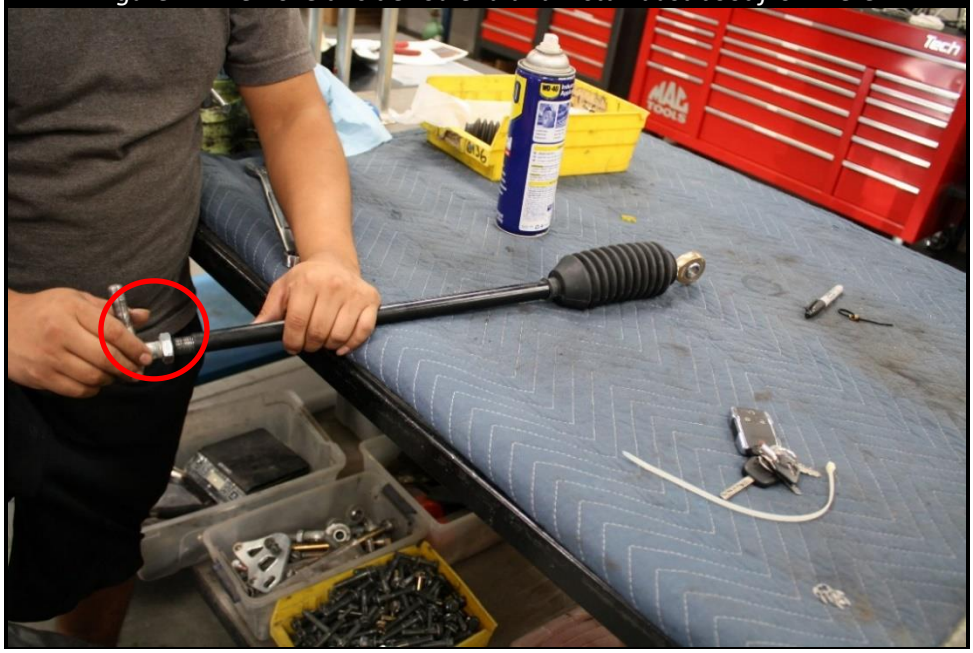
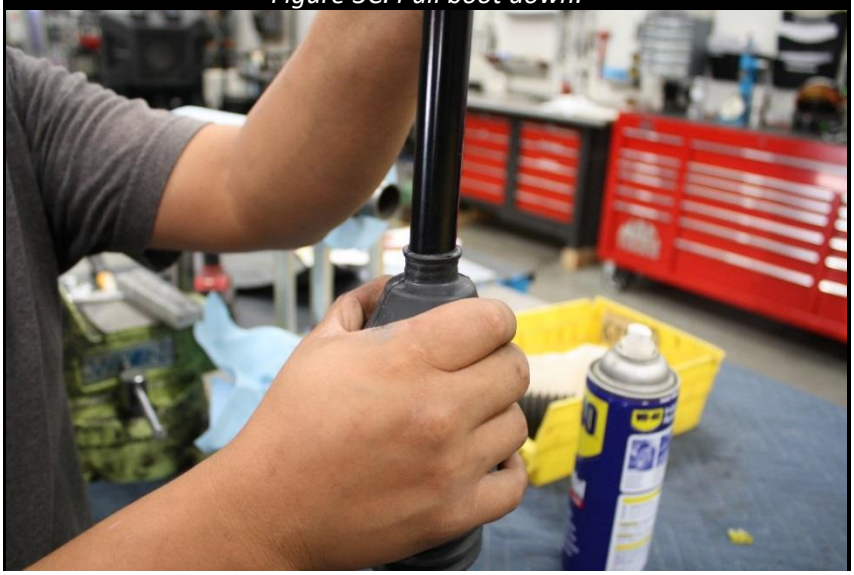


Figure 2B: Install Boot

Figure 3C: Pull boot down.



B. Now that the dust boot is on, it should look like how it did when you first removed it. Please continue to step **#6** on page **#4**.

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.