

Cognito Camber Adjustable OE Replacement Front Lower Control Arms For 18-21 Polaris RZR RS1

INSTALL INSTRUCTIONS:

Cognito Camber Adjustable OE Replacement Front Lower Control Arms For 18-21 Polaris RZR RS1
 SKU: 360-90470

PARTS LIST FOR SKU: 360-90470

QTY	PART #	DESCRIPTION
1	80030	Driver Lower Arm
1	80031	Passenger Lower Arm
2	91128	UTV Adjustable Rod-End Kit

PARTS LIST FOR SKU: 91128

QTY	PART #	DESCRIPTION
1	6297	Uni Ball
1	91127	Spindle Pin Assembled Uniball Pin Kit
1	HARDWARE-10743-03367	Internal Retaining Ring
1	HARDWARE-0161380	Finish Flange Screw 1/2-20 X1-1/4"
1	HARDWARE-33626	1/2" L/W Z
2	SHIM-1.5X1.0X.025	Shim, 1.5 X 1.0 X .025
2	SHIM-1.5X1X.012	Shim, 1.5 X 1.0 X .012

PARTS LIST FOR SKU: 91127

QTY	PART #	DESCRIPTION
1	UNI-BALL-WSSX14T-F1	Uni Ball
1	6299	Spindle Pin
1	6300	Spherical Washer
1	HARDWARE-0161339	Flange Screw 3/8-24 X 3/4
1	HARDWARE-33622	3/8 Lock Washer


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

- 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.
- Always wear safety glasses when using power tools.
- The OEM Polaris control arms are lightweight and will suffice for light to moderate operating use. Under aggressive use and racing, there are a few areas that become problematic such as bushings getting loose, upper arms bending, and broken ball joints or ball joints pulling thru the arm. The Cognito control arm kit uses larger bushings, spherical bearings (uni-balls) and hardened stainless steel spindle pins rather than the stock ball joint. The construction is of stronger material, slightly thicker, and a stronger design to handle abuse.
- The spindle needs a modification in order to provide clearance for a heavy-duty control arm with uni-balls like the Cognito control arms. The instructions will take you through this modification as well as installation. We will modify the upper and lower end of the spindle in case you are also going to install the Cognito upper control arm kit at some time.
- This lower control arm kit has an adjustable camber feature. The RS1 notoriously has mismatched camber on the front end left vs right side. This lower arm kit will allow camber shimming to match camber setting from side to side.

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 the vehicle up by the frame so that the suspension droops out and tires are off the ground. Remove front wheels.
2. If you have already installed the Cognito upper arm kit, you should have already modified your spindles to clear the uni-ball end of the new control arms. If you have not, those instructions for modifying the spindles are listed here in these sub steps of step 2. You may skip step 2 and Figures 1-4 completely if the mod has already been done.
 - a. Unbolt the brake caliper from the spindle, the axle nut from the spindle, and the upper and lower control arms from the spindle. Then remove the spindle and let the lower arm, caliper, and axle hang.
 - b. The spindle needs a modification in order to provide clearance for a heavy-duty control arm with uni-balls like the Cognito control arms. Stock spindles have a little extra meat that needs to be removed. This trimming has no effect on structural integrity, this is an outside corner that has nothing to do with the strength of the spindle. See **Figure 1** which shows a stock spindle and notes on the corners that will be trimmed. Then see **Figure 2** shown with the pinch bolt in place. Note the extra meat that will need to be sanded off.
 - c. Use an air sander and remove the corner material as shown in **Figure 3**, take it down to where the edge of the flange bolt and nut would be.
 - d. **Figure 4** shows what the finished edge should look like with the flange bolt there.

Figure 1: The 2 Corners Noted Need to be Trimmed, See Next Figures



Figure 2: More Detail Shown of the Area That Needs to be Removed, Which Must be Done in Both Locations Shown in Figure 1.



Figure 4: Sanding the Corners Off.



Figure 3: Spindle After Grinding.



3. Pick a side to start on. Unbolt the lower arm from the car and remove. Locate the Cognito lower control arms and the rod end assemblies. The rod end assemblies should already have the spherical bearing and retaining clip installed, please verify at this time. Verify the retaining clip is set all the way in the retaining clip groove.
4. Do not use any grease in this step as the bushing are supposed to stay fixed with the arm. Press a poly/plastic bushing into each end of the long (rear) frame pivot tube. Press a poly/plastic bushing into each end of the short (front) frame pivot tube.
5. Now lubricate the inside of the bushings with grease, filling the cavity in between the bushings and the grease flutes on the inside diameter of the bushings. Now push the appropriate crush sleeves into the greased holes of the bushings.
6. Mount the Cognito lower control arms in place with the factory pivot bolts, See the parts list above and the part # stamped on each arm to determine proper placement. Torque the pivot bolts to **40 ft-lb**.
7. Bolt the uni-ball rod end assembly to the control arm with the included $\frac{1}{2}$ " **12-point** bolt with a lock washer, and no camber shims, tighten to **80 ft.lbs**. You will notice the rod end will only go into the control arm one way which is designated by the pin and slot. This is there simply to keep the rod end aligned for assembly, once the bolt is tight there is no load on the pin. After we check ride height, we will check camber and shim as needed. The **RS1** is notorious for having the camber off from the Polaris factory from side to side, which is why we designed an adjustable camber lower control arm with fine adjustment as a threaded rod end has too course of adjustment.

8. Repeat the process for the opposite side.
9. Locate the included spindle studs, spherical washers, lock washers, and **12-point** bolts. Install the studs in the spherical bearings of the arms now, the lower arms have the stud pointing up. Fasten the stud to the spherical bearings with a stainless spherical washer, then a lock washer, then the **12-point** bolt and torque to **35 ft-lb**. Use a drop of red thread locker on the threads at the end of the bolt (farthest from the bolt head) to ensure the thread locker covers the threads which engage with the spindle pin.
10. With the axle in place, install the control arms to the spindles just like stock, torque pinch bolts to **40 ft-lb**. Then mount the caliper to the spindle and torque to **40 ft-lb**. Tighten axle nut and install cotter pin. Polaris service manual calls for **180 ft-lbs** on the axle nut.
11. Install wheels, make sure everything is tightened appropriately, cycle the steering at ride height and full droop to be sure there are no issues with brake lines.
12. Set ride height, with no passengers and stock height (**29"**) tires, it should be **13"**. Measure from the ground to the frame gusset underneath the lower control arm rear frame pivot. For larger diameter tires, ride height goes up by the radius change. Must roll the car forward and backward to get it to settle before measuring. This is a stock setting, if you are groomed track racing and setting ride height low, set at your discretion.
13. Now that the ride height is set, it is time to look at the camber. Start with the left side, get the left front tire heading straight, then look at camber, then get the right front tire heading straight and look at its camber. Whichever side has the most negative camber will be the side that needs no shims. If the other side of the car is leaned over less or has a positive camber, you can remove the bolt holding the lower rod end in place and install a shim then fasten back together. **1** thin shim is about **.15**degrees, **1** thick shim is about **.35** degrees. Stack the shims as needed to refine your camber setting.
14. At proper ride height, check front wheel toe measurement, should be **1/8"** toe out, when occupants get in and car settles down the toe will end up about **1/8"** in.



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 warranted 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.