

Yamaha YXZ1000 +4.5" Long Travel Front Control Arm Kit

INSTALL INSTRUCTIONS:

Yamaha YXZ1000 +4.5" Long Travel Front Control Arm Kit
SKU: 365-90078

PARTS LIST FOR SKU: 365-90078

QTY	PART #	DESCRIPTION
1	8446	Front Driver Upper Arm
1	8447	Front Passenger Upper Arm
1	8611	Front Driver Lower Arm
1	8612	Front Passenger Lower Arm
2	UNI-BALL-WSSX12T-F1	Uni Ball
2	HARDWARE-IRR-1.3/8"	Internal Retaining Ring
1	HP9134	Cushion Clamp Hardware Pack
1	HP9173	Pivot Bushing Kit
1	HP9174	FCA Hardware
1	365-90077	Front Shock Tower Assembly
1	365-90107	Front Brake-line Kit

PARTS LIST FOR SKU: 365-90077

QTY	PART #	DESCRIPTION
1	5973	Shock Tower Front Top Saddle
1	5974	Shock Tower Back Top Saddle
1	5975	Shock Tower Bottom Saddle
1	8464	Shock Tower
1	HP9172	Shock Tower Hardware

PARTS LIST FOR SKU: HP9134

QTY	PART #	DESCRIPTION
4	HARDWARE-0708753	Wire/Tube P Clamp
4	HARDWARE-10-32X5/8-SHCS	Head Cap Screw
4	HARDWARE-10-32-LOCKNUT	Lock Nut
8	HARDWARE-10-32-SS-FW	Flat 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.

Modification of vehicle suspension can interfere with ride-height sensors, active suspension, lane departure features, semi-autonomous, and autonomous driving features. It is the responsibility of the mechanic to determine feature compatibility prior to installation. Recalibration of sensors may be required in the event of any modification.

PARTS LIST FOR SKU: HP9173

QTY	PART #	DESCRIPTION
16	5910	Pivot Bushing
8	5034	Crush Sleeve

Part list continued on next page.

**PARTS LIST FOR SKU: HP9174**

QTY	PART #	DESCRIPTION
2	6972	Uni Ball Pin
2	5395	Uni-Ball With 3/8" Hole
2	6955	Castle Nut
2	HARDWARE-M14X1.5-LOCKNUT	Lock Nut
2	HARDWARE-M14-F/W	Steel Washer
4	HARDWARE-COTTERPIN-1	Cotter Pin

PARTS LIST FOR SKU: HP9172

QTY	PART #	DESCRIPTION
2	HARDWARE-M10X1.5X90-SHCS	Hexagon Socket Head Cap Screw
2	HARDWARE-93312	3/8-16X2.25 Head Cap Screw
2	HARDWARE-93310	3/8-16X1.75 Head Cap Screw
4	HARDWARE-40167	Lock Nut
4	HARDWARE-33082	Flat Washer
2	HARDWARE-M10X1.5X65-FB	Flange Bolt
2	5972	Shock Tower Spacer
2	6034	Tower Front Spacer
2	6035	Tower Rear Spacer

INTRODUCTION

Thank You for purchasing the Cognito Long Travel Front Control Arm Kit. The Cognito Long Travel Front Control Arm Kit with the Cognito Shock Tower is the perfect starting point for a serious long travel suspension setup.

This kit includes the base components needed to turn an average YXZ1000 into a seriously off-road capable machine. These parts have been brutally tested for thousands of desert race miles to ensure long-term durability and performance. Suspension travel is increased to 19 Inch while increasing ground clearance at full bump. In stock form, the YXZ1000 has zero ground clearance at full bump, making the chassis prone to contacting the ground when the suspension is fully compressed.

The OEM Yamaha 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, broken shock tower, and broken ball joints or ball joints pulling thru the arm. The Cognito control arm kit uses larger bushings, spherical bearings (uni-balls), and a hardened stainless steel spindle pin rather than the stock ball joint in the upper control arm. The construction is of stronger material, slightly thicker, and a stronger design to handle abuse. Cognito's kit widens the front end by 4.5" per side and includes a shock tower assembly for optimum shock travel, strength, and ground clearance. This instruction set is for the Yamaha YXZ1000 front control arm and shock tower with a stock front sway bar installation.

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

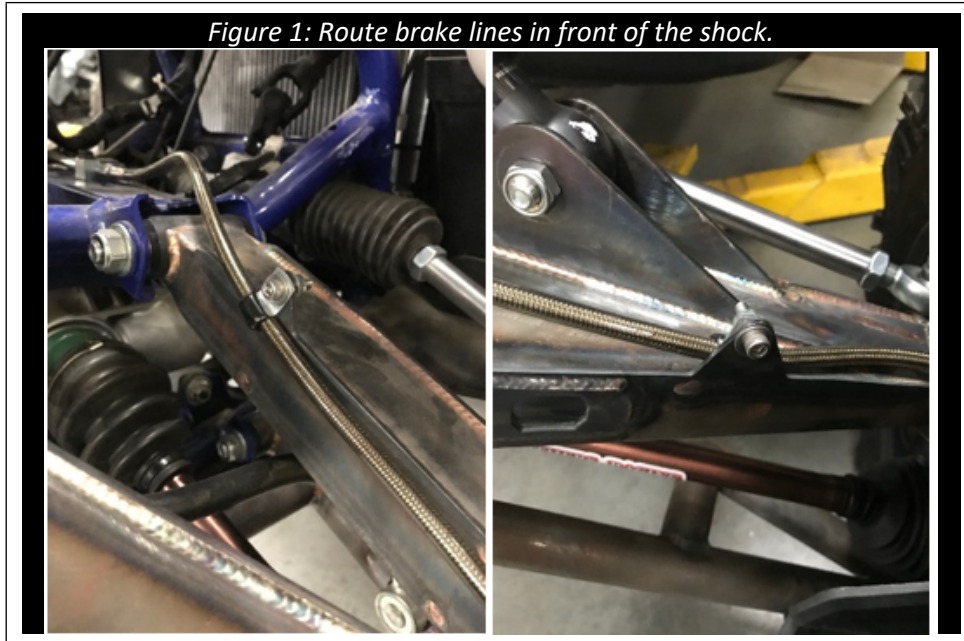
- Installation requires a qualified mechanic.
- Follow the OE specifications when replacing or re-installing OE fasteners, retainers, and hardware specified in the OEM manual.
- Always wear safety glasses when using power tools.
- When a lift is required to perform the installation of these products and always ensure the vehicle is properly supported before attempting installation or serious injury may occur.
- Maximum wheel back spacing is **5.5"**.
- The shock tower requires modification of the front hood panel.
- Ensure the brake lines are routed so it does not rub on the wheel during suspension cycle.
- Requires longer axles (+4.5") – contact Cognito for information.
- It is required to bleed the air out of the brake lines after installation.



INSTALLATION

1. Raise the front of the YXZ up by the frame so that the suspension droops out and tires are off the ground. Remove front wheels. Remove the front hood covering the OEM shock tower.
2. Unbolt the sway bar end links from the lower arms.
3. Unbolt the brake caliper from the spindle, the axle nut from the spindle, and the control arms from the spindle. Then remove the spindle and let the lower arm, caliper, and axle hang.
4. Unbolt the lower arm from the car and remove. Unbolt the shock from the upper arm, and the upper arm from the car and remove. Remove the two front skid plate bolts.
5. The OEM shocks will be reused but will be relocated with the Cognito shock tower. Remove the front shocks from the YXZ.
6. Locate the Cognito lower control arms. Do not use any grease in this step as the Delrin bushing is supposed to stay fixed with the arm. Press a Delrin bushing into each end, of each frame pivot tube. Each lower arm gets 4 Delrin bushings.
7. Now lubricate the inside of the bushings with grease, and then use the supplied Cognito steel crush sleeves and push them into the greased holes of the bushings in the Cognito lower control arms.
8. Mount the lower control arms in place with the factory pivot bolts. The sway bar bracket should be on the back top side of the arm. See the parts list above and the part # stamped on each arm to determine proper placement. Torque the pivot bolts to **40 ft.lbs.**
9. Using stock hardware, remove the axle boot guards from the OEM arms and fasten to the Cognito lower control arms.
10. Locate the Cognito upper control arms. They may already have the spherical bearing and retaining clip installed, please verify at this time. Do not use any grease in this step as the Delrin bushings is supposed to stay fixed with the arm. Press a Delrin bushing into each end of the pivot tubes. Each upper arm gets 4 Delrin bushings.
11. Now lubricate the inside of the Delrin bushings with grease, and then use the supplied Cognito steel crush sleeves and push them into the greased holes of the bushings in the Cognito upper control arms.
12. Mount the upper 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.lbs.**
13. Locate the included spindle studs, spherical washers, lock washers, and **12 point** bolts. They may be pre-installed from the factory, if so then torque the 12 point bolt to **30 ft.lbs** at this time. Otherwise install the studs in the spherical bearings of the arms now, the upper arms have the stud pointing down. 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.lbs.** Use a drop of red threadlocker on the threads at the end of the bolt (farthest from the bolt head) to ensure the threadlocker covers the threads which engage with the spindle pin. Do this on both upper arms.
14. With the axle in place (longer ones needed.) Install the control arms to the spindles just like stock, torque spindle studs with supplied locknuts to **40 ft.lbs.** The ball joint for the lower arm reuses the OEM ball joint and is pressed into the spindle already. Reuse OEM castle nut for the lower ball joint and torque to **22 ft.lbs.** Insert a cotter pin into stock lower ball joint stud to lock castle nut. Mount the caliper to the spindle and torque to **40 ft.lbs.** Tighten axle nut to **268 ft.lbs.**

15. Remove the factory brake lines at the T-block on the frame and install new brake lines, mount the new T-block. Route the brake lines and use the cushion clamp kit provided to fasten the brake lines to the upper arms as shown in **Figure 1**.



16. To help with the brake lines clearing the wheel, fasten the fitting to the caliper and rotate it close to the bleeder valve but giving enough room around the bleeder valve to get a box end wrench around it for the bleeding process. See **Figure 2**.
17. Bolt the two front skid plate bolts back on.



18. Remove the two front covers. One covers the ECM and the other has fins.
19. Place the shock tower over the stock shock tower. See **Figure 3**.

Figure 3: Cognito shock tower over OEM Tower.



20. Put the M10 socket head cap screws into the front saddle and through the OEM shock mounting holes placing the spacer between the OEM mounts. See **Figure 4**.

Figure 4: M10 bolts through front saddle, spacers, and through the other side.



21. Place the back saddle on the back so the screws go through. Put on a washer and the OEM M10 nut. DO NOT TIGHTEN YET. See **Figure 5**.



22. Grab the bottom saddle block and place between the two frame tubes with the “F” facing forward. See **Figure 6**.



23. Using Loc-Tite, thread by hand the **3/8"** socket head cap screws up into the front, through the supplied spacers, and rear shock tower bridges. The two longer bolts and spacers go into the front bridge and two shorter bolts and spacers into the rear bridge. Snug these bolts down but do not tighten at this point. See **Figure 7**.



24. Bolt the shocks in place to the outer holes on the shock tower with remaining supplied M10 hardware, tighten to **40 ft.lbs.**
25. Tighten the M10 bolts from Step 20 to **40 ft.lbs.**
26. Tighten the 4 bolts from Step 22 through the saddle evenly and torque to **18 ft.lbs.** See Figure 8 for completed assembly.



27. Install the hood that covers the ECM.
28. Trim the top half of the front cover that has fins as shown in **Figure 9**. This needs to be trimmed to clear the shock tower. After trimming, install the finned portion on the vehicle with OEM hardware.

Figure 9: Finned hood before and after trimming



29. Using the stock hardware, bolt the sway bar end link to the Cognito lower control arms, tighten to **40 ft.lbs.**
30. Install wheels, make sure everything is tightened appropriately, cycle the steering and suspension to be sure there are no clearance issues with the brake lines rubbing on the tire or wheel. Adjust the shock preload to desired ride height, see the shock setup below for recommended ride heights and settings.
31. At proper ride height, check front wheel toe measurement. Jounce on the suspension and then make sure the steering wheel is straight. Adjust the tie rods to obtain a proper toe of **0"-1/8"** toe in.
32. Bleed the brake system before driving.

Shock Set-up on vehicle:

Cognito designs a shock tuning package, you can purchase and have a shock technician install, or you can also request a reference # from Cognito to send your shocks in for tuning at an additional labor charge. A tuning kit is need to make the shocks perform properly now that the motion ratio has changed due to the modifications to the width and travel of the car.

Front

- Ride height in front is measured from the ground up to the flat gusset under the rear pivot of the lower control arm, with no one in the car. Roll the car forward and backward a few times to make sure it is settled out before measuring. Ride height is changed with the preload setting, the preload is adjusted via the preload adjusting ring at the top of the spring. It may have either a pinch bolt keeping it in place or a jam nut ring just above it. Be sure the crossover rings are up above the spring divider before measuring and adjusting ride height.
 - With Cognito Long Travel suspension,
 - if 2 people will occupy, this height should be **1/2** of the measured diameter of the tire plus **1.5"**
For example, tire measures **28.5"**, so for 2 occupant ride height will be **15.3/4"**
 - if 1 person will occupy, this height should be **1/2** of the measured diameter of the tire plus **1"**
For example, tire measures **28.5"**, so for 1 occupant ride height will be **15.1/4"**

- Crossover ring setting for the front shocks is determined by the gap in between the spring divider and the crossover ring. This distance should be **3/4"** for the front shocks while at the ride height set above. This is a good starting point, and this can be fine-tuned for several different scenarios or types of riding or racing.
- Setting the toe adjustment will be done at the ride heights described above. The toe will be set outward slightly to accommodate for the change in ride height once the occupants are in the vehicle.
 - if 2 people will occupy, the toe should be set at **1/4"** toe out.
 - if 1 person will occupy, the toe should be set at **1/8"** toe out.
- Setting the adjusters, we like to start by back these out to full open on both knobs on the DSC and also the rebound screw. From there take both DSC adjusters in 2 full turns which is in center of the adjustment. Turn the rebound screw in 13 clicks which is centered. This is a good place to start and fine tuning can be done from there.

Rear

- Ride height is measured from the ground up to the flat surface at the very rear of the chassis, with no one in the car. Roll the car forward and backward a few times to make sure it is settled out before measuring. Ride height is changed with the preload setting, the preload is adjusted via the preload adjusting ring at the top of the spring. It may have either a pinch bolt keeping it in place or a jam nut ring just above it. Be sure the crossover rings are up above the spring divider before measuring and adjusting ride height.
 - With Cognito Long Travel suspension,
 - if 2 people will occupy, this height should be **1/2** of the measured diameter of the tire plus **1.5"**
For example, tire measures **28.5"**, so for 2 occupant ride height will be **15.3/4"**
 - if 1 person will occupy, this height should be **1/2** of the measured diameter of the tire plus **1"**
For example, tire measures **28.5"**, so for 1 occupant ride height will be **15.1/4"**
- Crossover ring setting for the rear shocks is determined by the gap in between the spring divider and the crossover ring. This distance should be **2"** for the rear shocks while at the ride height set above. This is a good starting point, and this can be fine-tuned for several different scenarios or types of riding or racing.
- Setting the adjusters, we like to start by back these out to full open on both knobs on the DSC and also the rebound screw. From there take both DSC adjusters in 2 full turns which is in center of the adjustment. Turn the rebound screw in 13 clicks which is centered. This is a good place to start and fine tuning can be done from there.



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.