

Z1 OFF-ROAD FRONT UPPER CONTROL ARMS INSTALLATION MANUAL



This Installation Manual is intended for the following models:	
2005-2015	Nissan Xterra
2005-2012	Nissan Pathfinder
2005+	Nissan Frontier
2004-2024	Nissan Titan (non-XD)
2004+	Nissan Armada
2004-2015	Infiniti QX56/QX80

PROLOGUE:

Study these instructions completely before proceeding to assembly. The installer must have a thorough knowledge of automotive systems operation. If unfamiliar with any of the concepts outlined in this instruction, we recommend the installation be completed by a qualified professional.

WARNING!

Extreme caution should be taken when performing maintenance or performance upgrades to your vehicle. Please observe and abide by any Warning or Caution labels placed on the various components and tools used when servicing your vehicle. If you have any questions regarding installation or the various components included with the Z1 Off-Road Front Upper Control Arms, consult with a Professional Mechanic, or contact Z1 Off-Road for more information.

PARTS INCLUDED:

Item	Quantity	Description
1	1	Driver Side FUCA
2	1	Passenger Side FUCA

TOOLS REQUIRED:

- Hydraulic Jack
- (2) 2-Ton (or greater) Jack Stands
- Ratchet w/ Extension(s)
- Assorted Metric Sockets (up to 21mm)
- Assorted Metric Wrenches (up to 28mm)
- Crescent Wrench
- Torque Wrench
- 5mm Allen/Hex Key
- Ball-Joint Separator Tool or Hammer
- Bungee Cord or Strong Zip Tie
- Grease Gun
- Anti-Seize

SAFETY REQUIREMENTS:

- Always wear safety glasses and any necessary protective garments. If using any fluids, chemicals, or solvents, a respirator is recommended.
- Always use properly rated jack stands when working under your vehicle.
- Always keep limbs and parts away from moving drivetrain parts.
- Always turn the ignition to the OFF position and disconnect the **NEGATIVE** battery terminal.
- Only operate drivetrain in safe space and well-ventilated areas.

BEFORE YOU BEGIN:

Remove contents from the Z1 Off-Road Front Upper Control Arms and verify that ALL necessary hardware/parts are present.

The pictures in this installation manual are of a Nissan Frontier and Nissan Xterra. The process for installing the Z1 Off-Road Front Upper Control Arms on a Nissan Titan is almost identical and will follow this same procedure, except where noted in the instructions below.

PROCEDURE:

1. Place the transmission in Park position (or in Reverse gear if equipped with a manual transmission). Apply the parking brake.
2. Loosen lug nuts on front wheels.
3. Locate proper jacking points on vehicle's chassis (refer to vehicle's Owner Manual). Raise and support vehicle using jack and jack stands.
4. Remove front lug nuts and wheels.
5. If present, remove the Front Fender Liners for better access to the Front Upper Control Arms. The Fender Liners make it more difficult to properly tighten the Jam Nuts on the Control Arms.
6. **Frontier/Xterra Owners:** On the driver's side of the vehicle, loosen the nut on the Steering Shaft and reposition the shaft out of the way, circled below in *Figure 1*.

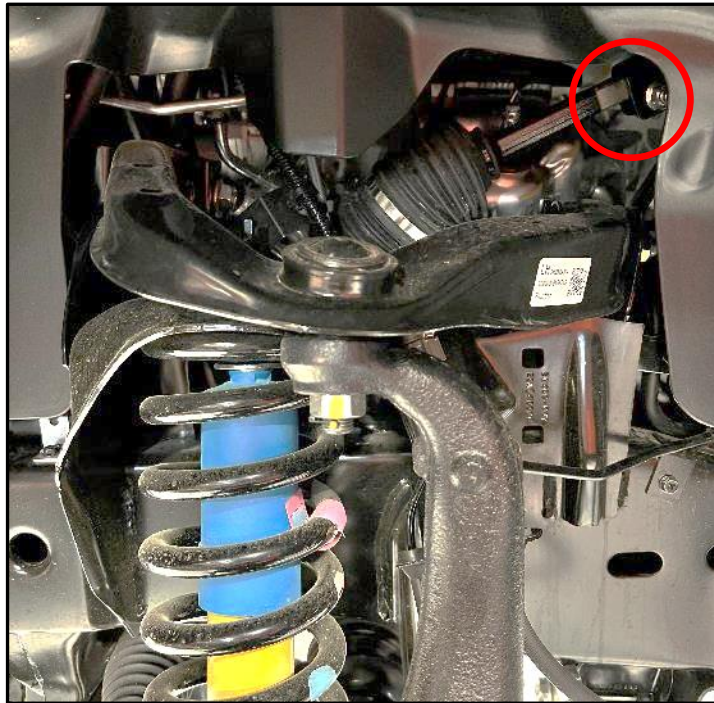


Figure 1

NOTE: This shaft will prevent the bolt on the OEM Upper Control Arm from being removed if not repositioned. Depending on your mileage and how loose the Steering Shaft is, you may need to completely remove the nut and bolt. Secure the Steering Wheel to prevent spinning or damage to the Clock Spring. It is recommended to mark the orientation and position of the Steering Shaft with a paint pen.

7. Remove the cotter pin on the Upper Ball Joint nut. Then remove the nut, circled below, *Figure 2*.

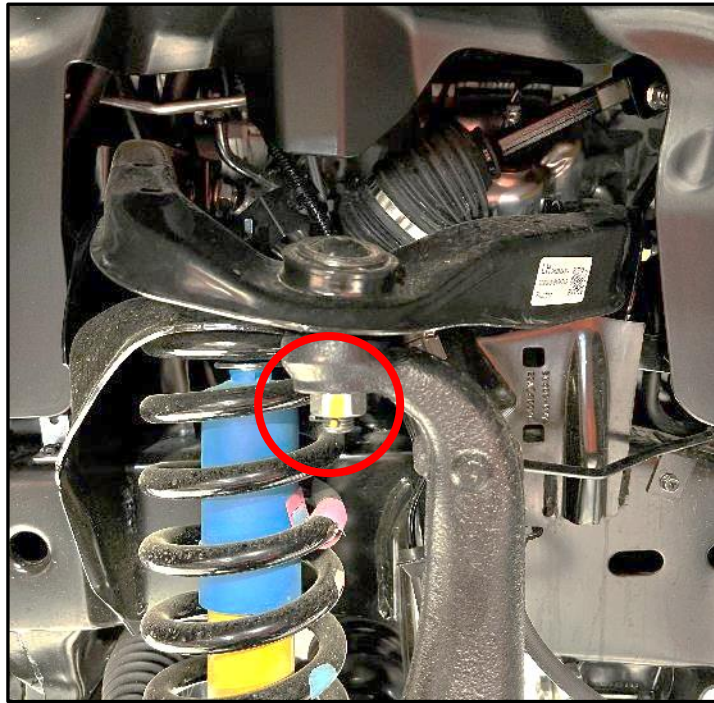


Figure 2

8. Use a bungee cord or strong zip tie to hold the Knuckle/upright to prevent it from stretching the Brake Line or Wheel Speed Sensor.
9. Using a ball joint separator tool (or hammer), separate the Ball Joint and Upper Control Arm from the Steering Knuckle/upright.
10. Remove the OEM Front Upper Control Arm's (2) two mounting nuts and (2) two bolts, shown below in *Figure 3*.

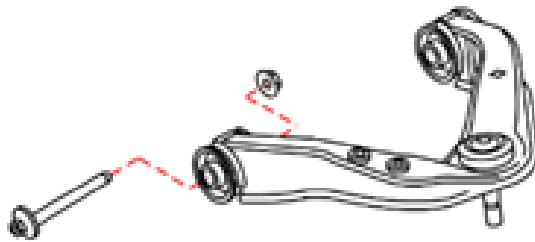


Figure 3

11. Remove the OEM Front Upper Control Arm.
12. Repeat *Steps 6-10* on opposite side of vehicle.
13. Locate Z1 Off-Road Assembled Fronter Upper Control Arms. The part number is engraved on the back with “-DR” or “-PS” at the end, indicating Driver Side(-DR) or Passenger Side (-PS) .

14. Remove the Cotter Pin and Castle Nut, then remove the plastic boot cover (shown below). This cover is only meant to protect the boot while in shipment, the Control Arm will not install if this plastic cover is not removed. *Figure 4.*

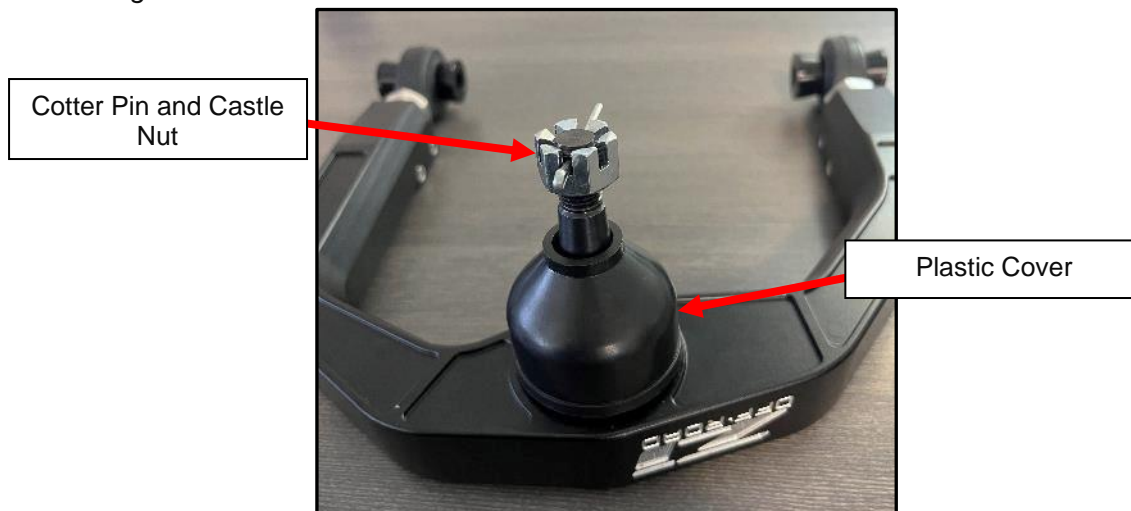


Figure 4

15. Locate (2) two Threaded Heim Joint Ends. Apply Anti-Seize to the threaded of the Ends. Thread the Heim Joint Ends fully into the arm's Double Adjuster.

NOTE: Anti Seize is applied to prevent long term Corrosion which can make the Arms difficult to adjust in the future.

16. Position the Z1 Control Arms next to OEM Control Arms.

17. Using a 12mm socket and extensions, turn the Double Adjuster within the arm until the Z1 Control Arm is the same length from the Ball Joint to the Heim Joint as the OEM Arm. Make sure the Heim Joint is parallel to the ground, as shown in the picture below. *Figure 5.*

NOTE: If the Adjuster is difficult to turn, you may need to loosen the (2) two Hex Socket Bolts on the inside of the arm.



Figure 5

18. The maximum safe extension of the Adjuster and Heim Joint is 20mm of exposed thread on the Adjuster and 15mm of exposed thread on the Heim Joint End. *Figure 6.*

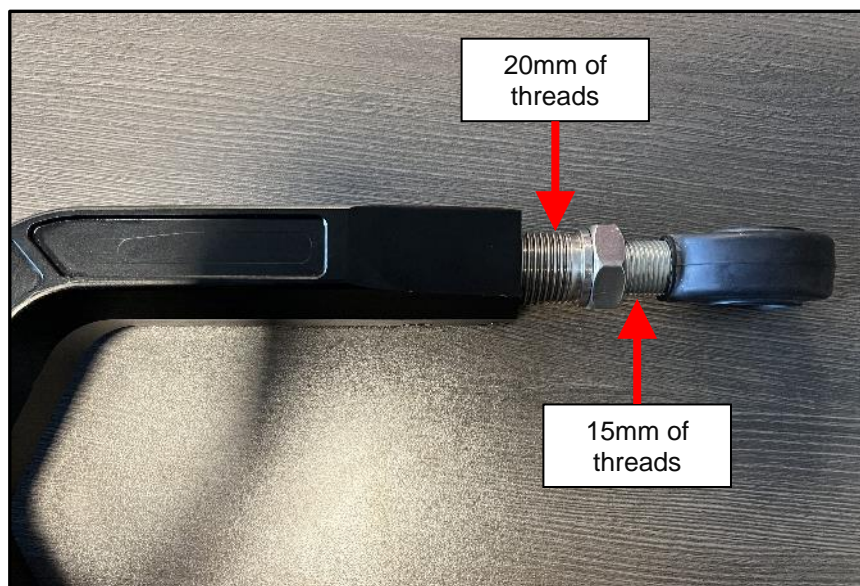


Figure 6

19. Once the Z1 Control Arms are adjusted to the same length as the OEM Control Arms, tighten the (2) two hex socket bolts, switching back and forth until both bolts are torqued to **10 ft-lbs.** It is recommended to add Loctite to these bolts. Then, tighten the Jam Nuts on the Heim Joints against the Double Adjusters with an adjustable wrench or 28mm.

20. Remove the (3) three M3 Button Head Screws on the Ball-Joint Dust Cover. Using red axle grease or equivalent, add grease into the grease fitting on the ball joint. We added between 5-8 pumps on each side until we noticed some grease come out of the boot or the boot start to swell up. Depending on what pump you are using it may require more or less pumps. **DO NOT** overfill the boot to the point that it tears. *Figure 7.*

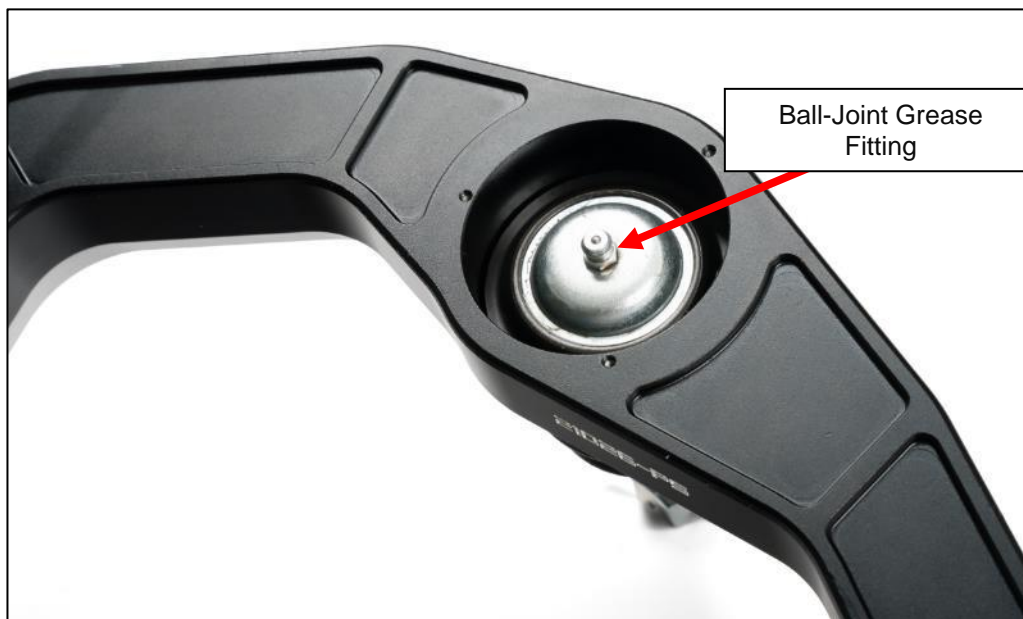


Figure 7

21. Reinstall the Ball Joint Dust Cover and the (3) three M3 Button Head Screws.
22. Starting on either side of the vehicle, position the Arm onto the vehicle with a Conical Spacer on each side of each Heim Joint. *Figure 8.*

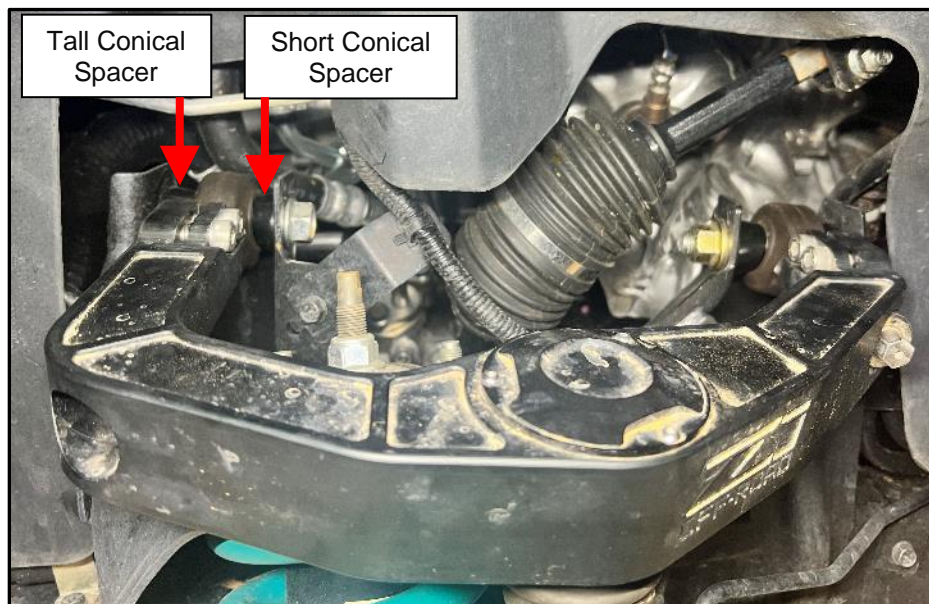


Figure 8

NOTE: There are (2) two different sized Conical Spacers that can be positioned in (2) two configurations depending on your choosing. If you want maximum clearance (between the arm and strut mount/spring bucket) position the Short Conical Spacer towards the front (opposite of *Figure 8*). If you want increased caster angle, position the taller of the (2) two Conical Spacers towards the front of the vehicle (as shown above). If you choose the increased caster angle with the large spacer in front, you may experience contact between the arm and strut mount/spring bucket at full droop. This will vary depending on suspension modifications.

23. Reinstall the mounting bolts and nuts that were removed in *Step 10* onto the Z1 Control Arms. Torque nuts to **98 ft-lbs** for **Frontier** and **Xterra**. Torque nuts to **136 ft-lbs** for **Titan**.

Frontier and Xterra Owners: Install the right side bolt on the driver's side from the right, opposite of how it was removed. This will allow you to remove the bolt in the future without repositioning the steering rack.

24. Position Z1 Control Arm's Ball-Joint onto the vehicles Knuckle/upright and secure with the supplied Castle Nut and cotter pin. Torque nut to **58 ft-lbs**.
25. **Frontier / Xterra Owners:** On the driver's side of the vehicle, position the Steering Shaft back in place and tighten the OEM nut and bolt to **12 ft-lbs**.
26. Reinstall front wheels and lug nuts.
27. Properly lower vehicle onto the ground.
28. Torque lug nuts to **98 ft-lbs**.
29. Perform an alignment. By setting the Z1 Control Arms the same length as the OEM Control Arms in *Step 17*, your alignment should be close enough to what it was previously to drive to the alignment shop.
30. The maximum safe extension of the Adjuster and Heim Joint is 20mm of exposed threads on the Adjuster and 15mm of exposed thread on the Heim Joint End. *Figure 9*.

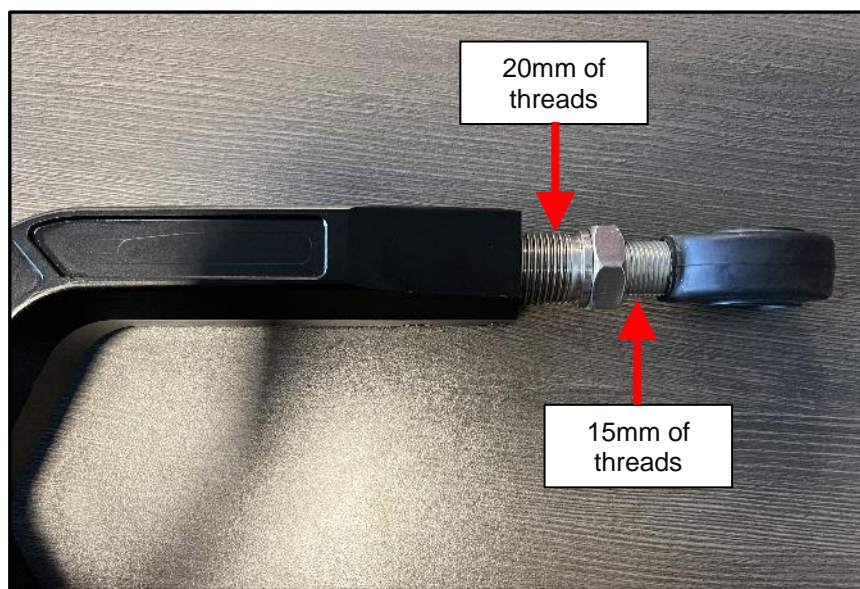


Figure 9

31. Once the Z1 Control Arms are adjusted to desired alignment, tighten the (2) two hex socket bolts, switching back and forth until both bolts are torqued to **10 ft-lbs**. Then, tighten the Jam Nuts on the Heim Joints against the Double Adjusters with an adjustable wrench or 28mm. Failure to tighten the Jam Nuts will result in the arms loosening and the alignment changing. *Figure 10.*

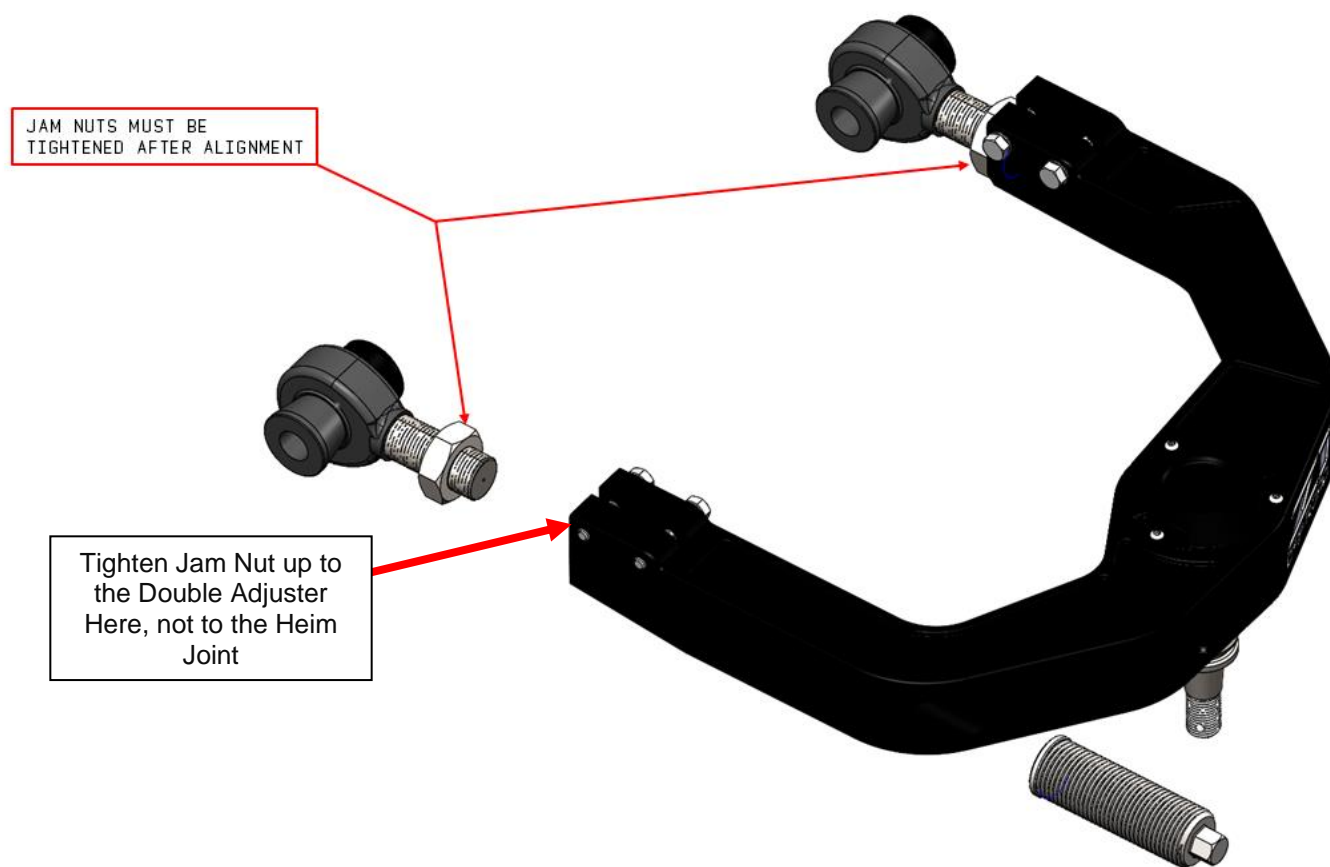


Figure 10

END

Additional Technical Support:
Contact Z1 Off-Road at info@z1offroad.com
Or call 678-839-8019 between 9am and 6pm ET