

Z1 OFFROAD HEIM OUTER TIE RODS INSTALLATION MANUAL



This Installation Manual is intended for the following models:	
2022+	Nissan Frontier (D41)
2005-2021	Nissan Frontier (D40)
2005-2015	Nissan Xterra (N50)
2005-2012	Nissan Pathfinder (R51)

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 Heim Outer Tie Rods, consult with a Professional Mechanic, or contact Z1 Off-Road for more information.

PARTS INCLUDED:

Item	Quantity	Description
1	2	Tie Rod Body
2	2	Heim Joint
3	2	Inner Jam Sleeve
4	2	Conical Hardware Set
5	2	$\frac{3}{4}$ " Jam Nut
6	2	Heim Joint Boot

TOOLS REQUIRED:

- Hydraulic Jack
- (2) 2-Ton (or greater) Jack Stands
- Ratchet
- Ratchet Extension(s)
- Assorted Metric Sockets
- Assorted Metric Wrenches
- Torque Wrench
- Hammer

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 Heim Outer Tie Rods and verify that ALL necessary hardware is present.

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. Raise and support the vehicle with a jack and jack stands.
4. Remove the Lug nuts and front wheels from the vehicle.
5. Measure and record the distance from the centerline of the Tie Rod End to the end of the threads on the Tie Rod. This will allow you to get a close alignment measurement upon installation of the Z1 Outer Heims.
Figure 1.

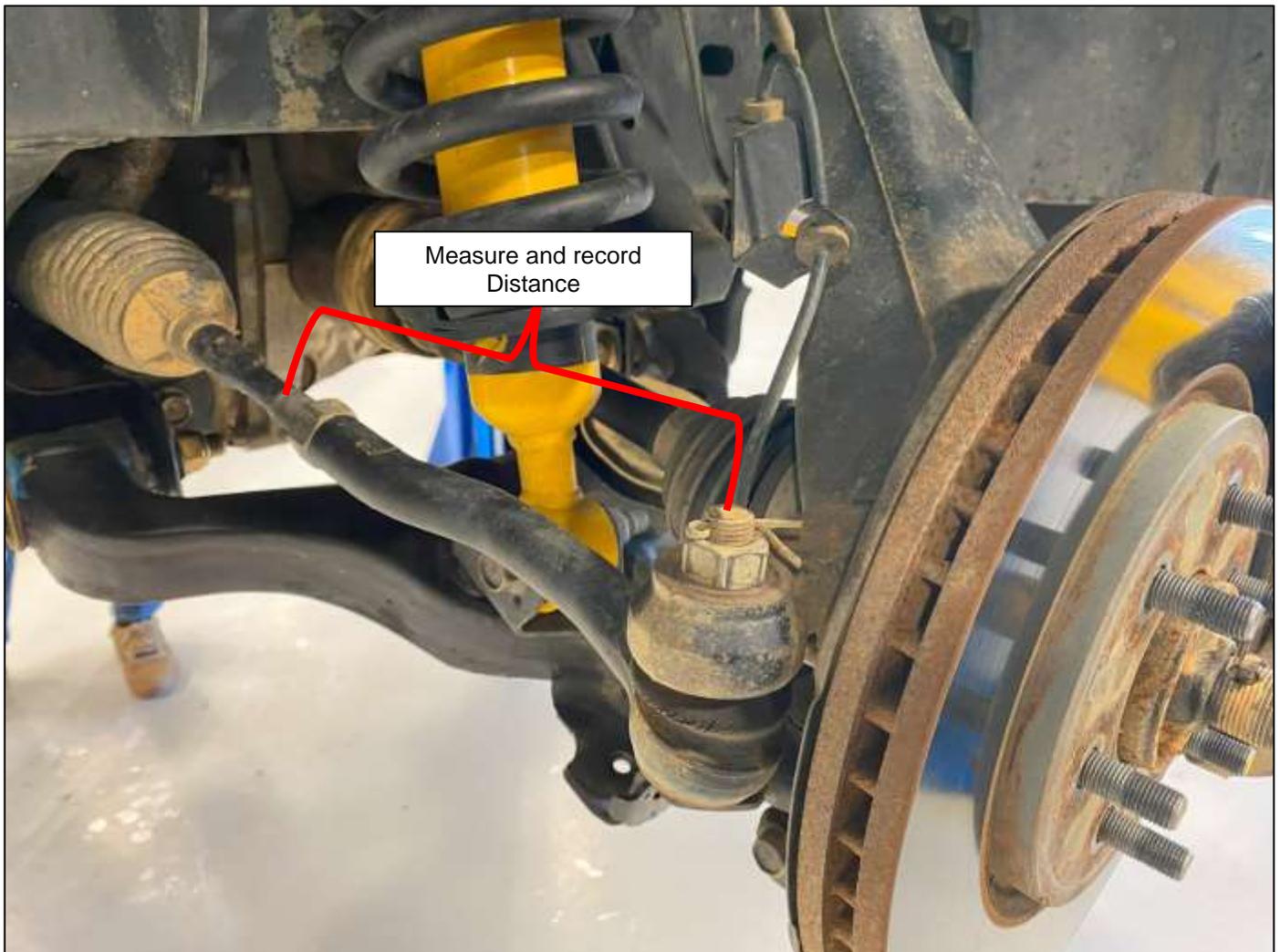


Figure 1

6. Starting on either side of the vehicle, remove the Cotter Pin from the threaded end of the Outer Tie Rod. *Figure 2.*



Figure 2

7. Loosen the Jam Nut that secures the Outer Tie Rod. *Figure 3.*



Figure 3

8. Loosen the nut securing the Outer Tie Rod to the spindle. *Figure 4.*



Figure 4

9. Smack the threads with a hammer to pop the Outer Tie Rod Loose or use a Ball Joint Removal Tool to press the Tie Rod out. *Figure 5.*



Figure 5

10. Unscrew and remove the OE Outer Tie Rod. This is a good time to check for any inner Tie Rod Issues. If they are seized or have a lot of play, they should be replaced before proceeding.
11. Locate the new Outer Heim Joint and the Heim Joint Boot. Slide the Boot over the Heim Joint as shown below. Silicone Lubricant can help the Boot be installed easier. *Figure 6.*



Figure 6

12. Locate (1) one of each spacer from the Conical Hardware Kit for the Heim Joint. Place the tapered edge of each Spacer within the Boot installed in *Step 9* and seat them in the center of the Heim Joint. *Figure 7.*



Figure 7

13. Thread (1) one of the included Bolts through the smaller Spacer and into the taller Spacer. *Figure 8.*



Figure 8

14. Thread (1) one Tapered Jam Nut onto the threads of the Steering Rack, with the Tapered Edge facing inboard. *Figure 9.*



Figure 9

15. Thread the Outer Heim Assembly onto the threads of the Steering Rack. Using the measurement taken in Step 5, set the length from the end of the Tie Rod to the end of the Threads. *Figure 10.*



Figure 10

16. Place the Outer Heim Assembly into the Spindle, and secure with (1) one supplied Tapered Nut. Torque to **37 ft-lbs**. *Figure 11*.

NOTE: When tightening the Tapered Nut, you **MUST** use a wrench on the bolt head under the spindle. If the bolt is allowed to spin it can cause a gap and noise.



Figure 11

17. Adjust the Tie Rod as necessary and tighten the Tapered Jam Nut against the Outer Heim to lock it in place. Adjust the Heim Joint End and tighten the Jam Nut against the Outer Tie Rod End. When doing an alignment, adjustment should be made where the Outer Tie Rod meets the Inner Tie Rod, the Heim Joint should not be adjusted.

NOTE: The Heim Joint can have a **MAXIMUM** of 12mm of exposed threads once tightened. Too many exposed threads can lead to Tie Rod failure. *Figure 12*.

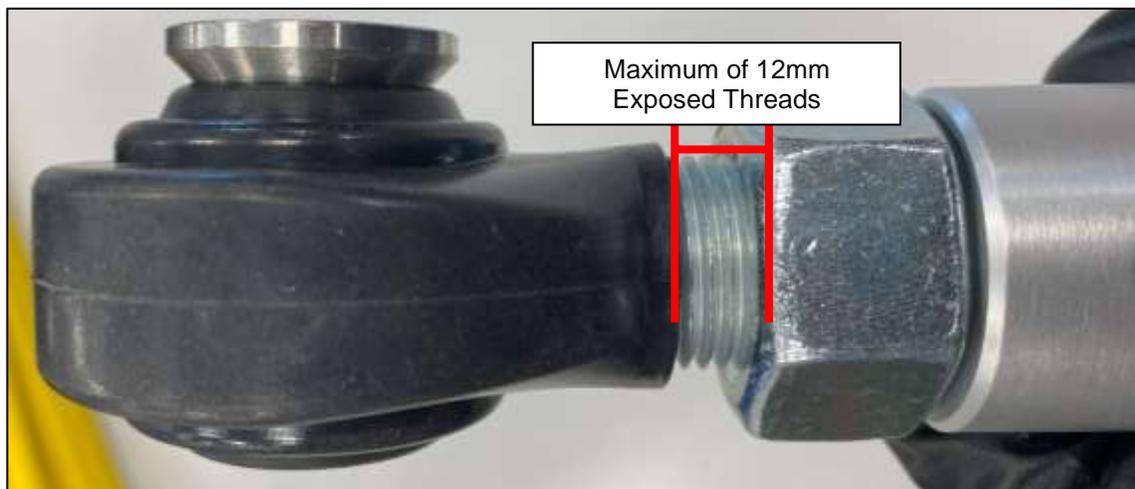


Figure 12

18. Repeat *Steps 6-17* on the other side of the vehicle.
19. Reinstall Front Wheels and Lug Nuts.
20. Have your vehicle professionally aligned.

END

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