

# Z1 FRONTIER / XTERRA REAR LEAF-SPRING SHACKLES INSTALLATION MANUAL



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

## 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 Frontier / Xterra Rear Leaf-Spring Shackles, consult with a Professional Mechanic or contact Z1 Off-Road for more information.

## **PARTS INCLUDED:**

Item	Quantity	Description
1	2	Inner Shackle Bracket
2	2	Outer Shackle Bracket (w/ Z1 Off-Road logo)
3	4	M14 High Strength Nylon Lock Nut
Greaseable Shackles Include:		
4	4	M14 Washer
5	2	Lower Bolt
6	2	Upper Bolt
7	4	Grease Fitting & Dust Cap
Non-Greaseable Shackles Include:		
8	8	M14 Washer
9	2	108mm Stainless Steel Sleeve
10	2	79mm Stainless Steel Sleeve
11	2	M14 X 140mm Bolt
12	2	M14 X 110mm Bolt

## **TOOLS REQUIRED:**

- Hydraulic Jack
- (2) 2-Ton (or greater) Jack Stands
- Ratchet
- Ratchet Extension(s)
- 17mm Socket/Wrench
- 8mm Socket/Wrench
- Torque Wrench
- Grease Gun

## **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.

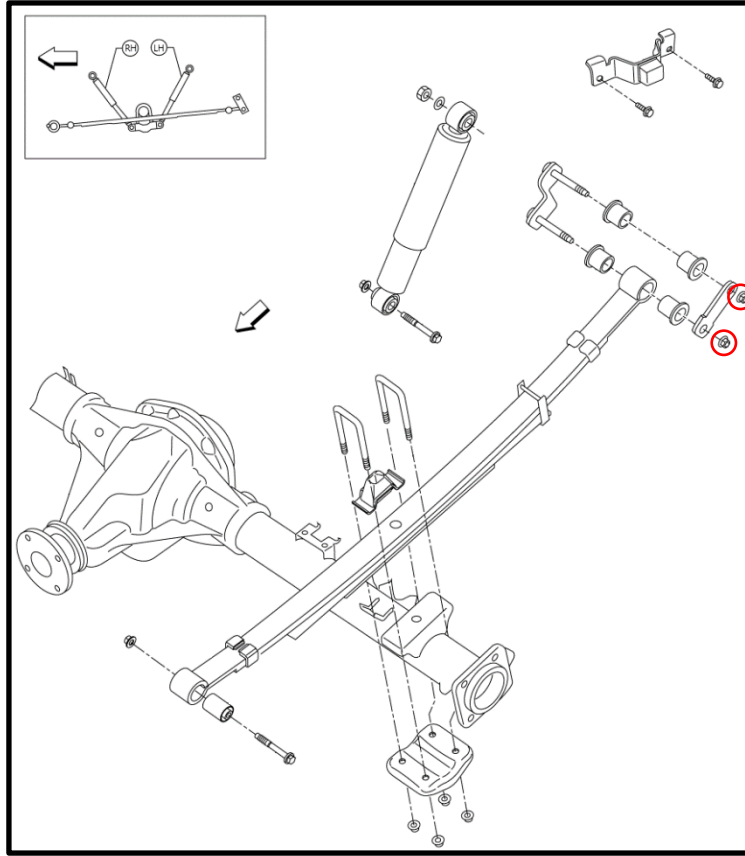
## **BEFORE YOU BEGIN:**

Remove contents from the Z1 Off-Road Frontier / Xterra Rear Leaf-Spring Shackles 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. Locate proper jacking points on vehicle's chassis (refer to vehicle's Owner Manual). Raise and support rear of vehicle using jack & jack stands.
3. With jack stands under the frame, lower the jack at the rear differential to lower the axle until there is no pressure on the leaf springs. Leave the jack under the rear differential.

4. If applicable, refer to the Owner's Manual or Factory Service manual to remove the spare tire.
5. Remove the (2) nuts securing the shackle bolts to leaf spring on each side (circled below)



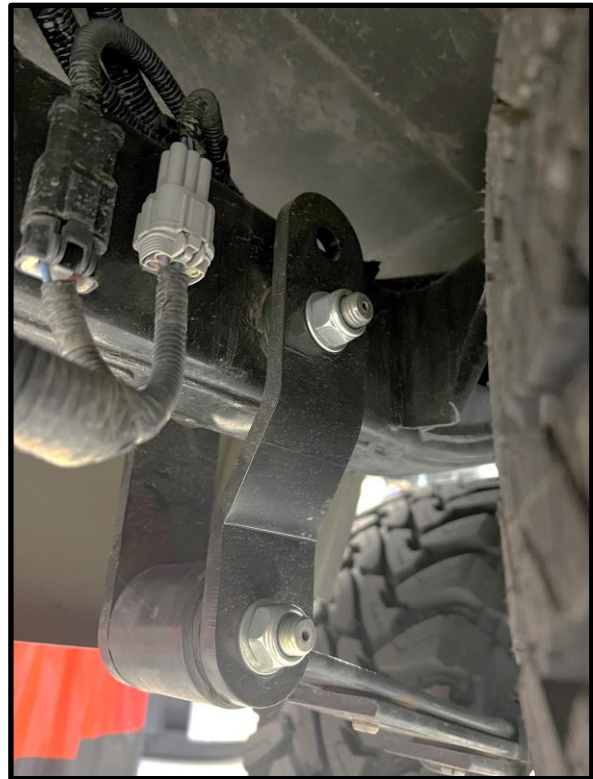
6. Remove the shackle bolts from frame and leaf spring eyes.

Note: If the shackle bolts are hard to remove, it may help to raise or lower the rear differential a tiny amount.

7. Locate the new Z1 Outer Shackle Brackets, all (4) bolts, and (4) grease fittings (if applicable). If you purchased the non-greaseable option, also locate the (4) stainless steel sleeves and (4) M14 washers. For greaseable bolts, install a grease fitting and dust cap onto each bolt.
8. Insert the shorter bolts into the bottom holes of the brackets, below the logo. Insert the longer bolts into either of the top holes. Use the upper hole for the maximum 1.5" rear lift, or the lower hole for ~1" lift. If you're using the non-greaseable bolts, make sure to use a washer under each bolt head and slide the sleeves on at this time.



9. Install the bolts into the leaf spring eye and frame, with the longer bolts going through the frame and shorter bolts through the leaf spring eye.
10. Locate new Z1 Inner Shackle Brackets and all (4) nuts and washers.
11. Attach the inner shackle brackets onto bolts. Secure with (1) washer and (1) nut on each bolt. Leave fasteners hand tight.



12. If removed, reinstall spare tire.
13. Raise the vehicle back up and remove the jack stands. Properly lower vehicle.
14. Tighten nuts on each shackle, torque to 78ft-lbs.
15. If you purchased the greaseable shackles, remove the dust cap over each grease fitting. Using a grease gun, fill the shackle bolts with grease. Replace the dust cap on each fitting.

Note: It will take quite a bit of grease the first time. After the initial fill, check every couple thousand miles or every oil change and add as needed.

16. Inspect vehicle for any loose tools/items.
17. Perform a final test drive of vehicle.

**END**

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