

# INSTALLATION INSTRUCTIONS



## Trail-Safe™ Nissan Patrol Y61 Knuckle Ball Wiper Seal Kit

**TGI-312032 (1997-2013 Nissan Patrol GR)**

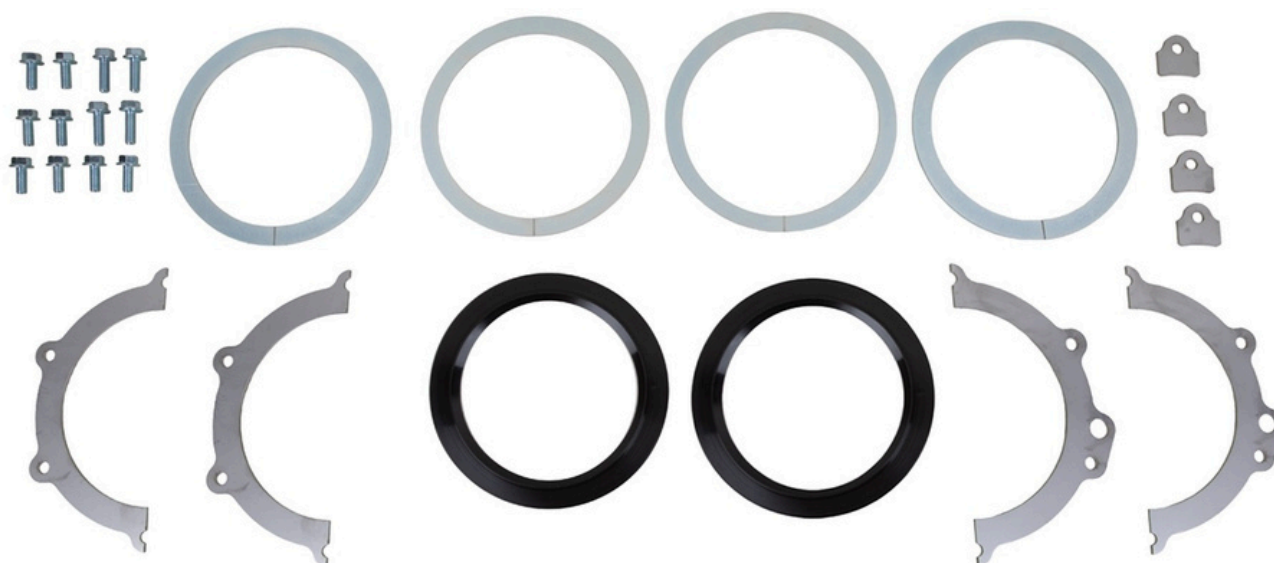
**(1997-2013 Nissan Patrol GU)**

**(1997-2013 Nissan Patrol Y61)**

**(1997-2004 Nissan Safari)**

**(1997-2013 Nissan Patrol Super Safari)**

### Kit Contents:



**TGI-312032**

## Recommended Tools:

- Ratchet & Socket Set
- Torque Wrench
- Snap Ring Pliers
- Nissan Special Service Tool #KV40105400 (Wheel Bearing Lock Nut Wrench, For Newer Style Spindle Nut)
- Tie Rod Removal Tool
- Floor Jack
- Jack Stand
- Flat Head Screwdriver
- Knuckle Pull Scale, TG P/N 170004-KIT (For Bearing Preload)
- Wheel Bearing Grease

## Caution

1. Read all instructions completely and carefully before you begin. If anything is not clear, please call our tech support line at 1.877.4X4.TOYS, 559.252.4950, or tech@trail-gear.com before proceeding.
2. Check to make sure the kit is complete and that no parts are missing (refer to the Kit Contents Section on the first page of these instructions). If anything is missing, please contact Trail-Gear at 1.877.4X4.TOYS, 559.252.4950, or sales@trail-gear.com.
3. Park vehicle on a clean, dry, flat, level surface and block the tires so the vehicle cannot roll in either direction.
4. This kit is for off-road use only. It is recommended that the installation steps below be performed by a competent mechanic. Buyers and users of this product hereby expressly assume all risks associated with the installation and use of this kit.
5. This installation is typical for most Nissan Patrol Y60 vehicles. Some years or models may vary. If necessary, refer to the proper Factory Service Manual for the year and model of your Nissan Patrol Y60.

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	<b>CAUTION</b> Flying Object Hazard. Fluid Splash Hazard. Wear safety glasses at all times when working on vehicle.		<b>NOTICE</b> Read instructions completely before installing this product. Refer back to the instructions frequently during installation.
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## Installation Instructions:

### STEP 1:

Loosen the lug nuts securing the wheel to the axle. Raise the front end with a floor jack and place a jack stand under the frame. Remove the lug nuts and remove the wheel from the axle. Following the procedure outlined in the Nissan Patrol Y61 Factory Service Manual, disassemble the steering knuckle down to the knuckle ball. Save all components for reinstallation except for the stock wiper seal, stock steel wiper seal retaining rings, and the stock retaining ring bolts. Note the location of the steering stop bolt, and save the steering stop bolt for reinstallation.

### STEP 2:

Clean and degrease the outer surface of the knuckle ball.



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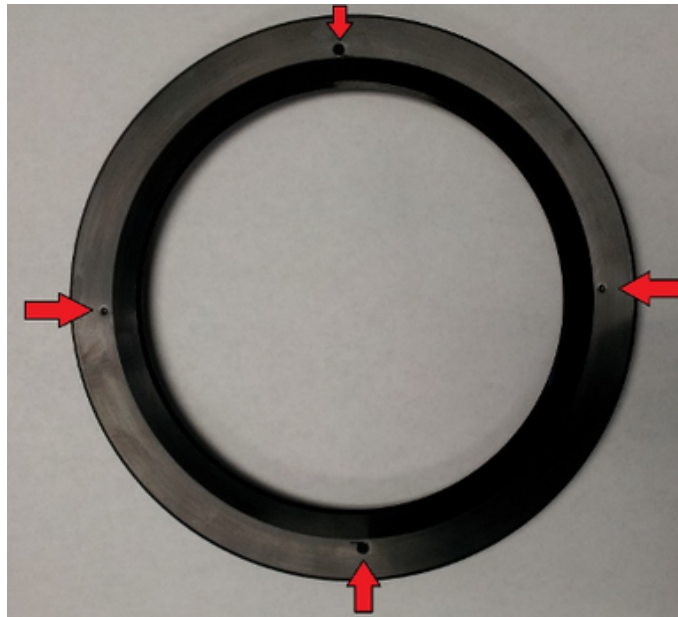
## STEP 3:

Apply wheel bearing grease to the seal lip.



## STEP 4:

The side of the seal with the (4) ejector-pin marks faces the differential when installed.





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## STEP 5:

Fold the seal under itself as shown.



## STEP 6:

Place the folded portion of the seal over the bottom lip of the knuckle ball as shown. Remember, the side with the (4) ejector-pin marks will be facing towards the differential when installed.



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## STEP 7:

Pull the seal up towards the top of the knuckle ball as shown. Work the seal up towards the top of the knuckle ball equally with both hands until the seal is tight.



## STEP 8:

Using a small screwdriver or pry tool, place the tool between the seal and the top of the knuckle ball. Gently pry the seal onto the knuckle ball. Use care not to damage the seal or the outer surface of the knuckle ball with the pry tool.



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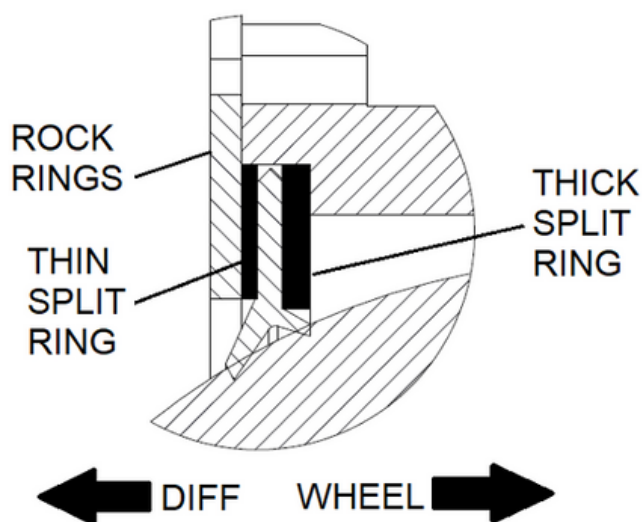
## STEP 9:

Smooth the seal out, making sure that there are no kinks or dents in the seal.



## STEP 10:

Install the split metal backing rings over the knuckle ball. There should be a split ring in front of and behind the seal. The ring marked “Inboard” (thinner ring) must be placed on the differential side of the wiper seal. The ring marked “Outboard” (thicker ring) must be placed on the wheel side of the wiper seal.





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## STEP 11:

Following the procedure outlined in the Nissan Patrol Y61 Factory Service Manual, reinstall the steering knuckle onto the knuckle ball.



## STEP 12:

Install the one-piece split metal backing ring into the counterbore on the back of the knuckle.





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## STEP 13:

Install the seal over the one-piece split metal backing ring, trapping the split metal backing ring in between the knuckle and the seal.



## STEP 14:

Place the other one-piece split metal backing ring on top of the seal.



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## STEP 15:

Install the Rock Rings over the Trail Safe™ Wiper Seal using the retainer plates and M8 bolts provided in the kit. The longer bolts are used on the retainer plates. Reinstall the stock steering stop bolt in the same location on the knuckle.



## STEP 16:

Following the procedure outlined in the Nissan Patrol Y61 Factory Service Manual, reassemble all components back onto the axle. Reinstall the wheel and lug nuts. Torque the lug nuts to the torque specified in the Nissan Patrol Y61 Owner's Manual.

## STEP 17:

Repeat Steps 1-16 for the other side of the vehicle.

## STEP 18:

Take the vehicle for a short test drive. After the test drive, check the torque on all hardware and tighten as necessary.