



Installation Manual
2016 - 2017 Nissan Titan XD
4" Suspension System W/upper control arms
Part # 54050 & 54051

SS01102017

Part # 54050 & 54051
2016 - 2017 Nissan Titan XD
4" Suspension System W/upper control arms.

| Part # | Description | Qty. |
|---------------|--------------------------------------|-------------|
| 54050-01 | driver side upper control arm | 1 |
| 54050-02 | passenger side upper control arm | 1 |
| 54050-03 | strut pre-load spacer | 2 |
| 54050-04 | driver side rear sway bar bracket | 1 |
| 54050-05 | passenger side rear sway bar bracket | 1 |
| 54050-06 | front sway bar drop bracket | 2 |
| 54050-07 | rear emergency brake cable bracket | 1 |
| 54060-03 | strut upper spacer | 2 |
| 5u-2510s | rear U-bolt | 4 |
| 916NW | u-bolt hardware bag | 1 |
| 54060-05 | rear block | 2 |
| *52050-01 | rear shock relocation bracket | 2 |
| *54050NB | hardware bag | 1 |
| *54050NB1 | hardware bag | 1 |
| **54051NB | hardware bag | 1 |
| **54051NB1 | hardware bag | 1 |
| 54050INST | Instruction manual | 1 |

* - only included in the 54050 kit

** - only included in the 54051 kit

Congratulations on your selection to purchase a Tuff Country EZ-Ride Suspension System. We at Tuff Country EZ-Ride Suspension are proud to offer a high quality product at the industries most competitive pricing. Thank you for your confidence in us and our product.

If you desire to return your vehicle to stock, it is the customers responsibility to save all stock hardware and components.

The Tuff Country EZ-Ride Suspension product safety label that is included in your kit box must be installed inside the cab in plain view of all occupants.

Special note: BEFORE installation begins, it is the customers/installers responsibility to make sure that all parts are on hand. If any parts are missing, please feel free to call one of our customer service representatives @ (801) 280-2777.

Important customer information:

Tuff Country EZ-Ride Suspension highly recommends that a qualified or a certified mechanic performs this

installation.

It is the responsibility of the customer/installer to wear safety glasses at all times when performing this installation.

It is the customers/installers responsibility to read and understand all steps before installation begins. If you have any questions or concerns, please contact our technical department @ (801) 280-2777. Also, the OEM manual should be used as a reference guide.

This vehicles reaction and handling characteristics may differ from standard cars and/or trucks. Modifications to improve and/or enhance off road performance may raise the intended center of gravity. Extreme caution must be utilized when encountering driving conditions which may cause vehicle imbalance or loss of control. DRIVE SAFELY! Avoid abrupt maneuvers: such as sudden sharp turns which could cause a roll over, resulting in serious injury or death.

It is the customers responsibility to make sure that a re-torque is performed on all hardware associated with this suspension system after the first 100 miles of installation. It is also the customers responsibility to do a complete re-torque after every 3000 miles or after every off road use.

After the original installation, Tuff Country EZ-Ride Suspension also recommends having the alignment checked every 6 months to ensure proper tracking, proper wear on tires and front end components. Tuff Country EZ-Ride Suspension takes no responsibility for abuse, improper installation or improper suspension maintenance. Usually OE alignment specs are ideal but on these particular kits we like to see the Castor a little bit lower than specs. It will help with tire wear and drivability.

Limited lifetime warranty

Notice to all Tuff Country EZ-Ride Suspension customers: It is your responsibility to keep your original sales receipt! If failure should occur on any Tuff Country EZ-Ride Suspension component, your original sales receipt must accompany the warranted unit to receive warranty. Warranty will be void if the customer can not provide the original sales receipt. Do not install a body lift in conjunction with a suspension

system. If a body lift is used in conjunction with any Tuff Country EZ-Ride Suspension product, your Tuff Country EZ-Ride Suspension WARRANTY WILL BE VOID. Tuff Country Inc. ("Tuff Country") suspension products are warranted to be free from defects in material and workmanship for life if purchased, installed and maintained on a non-commercial vehicle; otherwise, for a period of twelve (12) months, from the date of purchase and installation on a commercial vehicle, or twelve thousand (12,000) miles (which ever occurs first). Tuff Country does not warrant or make any representations concerning Tuff Country Products when not installed and used strictly in accordance with the manufacturer's instructions for such installation and operation and accordance with good installation and maintenance practices of the automotive industry. This warranty does not apply to the cosmetic finish of Tuff Country products nor to Tuff Country products which have been altered, improperly installed, maintained, used or repaired, or damaged by accident, negligence, misuse or racing. ("Racing is used in its broadest sense, and, for example, without regards to formalities in relation to prizes, competition, etc.) This warranty is void if the product is removed from the original vehicle and re-installed on that or any other vehicle. This warranty is exclusive and is in lieu of any implied warranty of merchantability, fitness for a particular purpose or other warranty of quality, whether express or implied, except the warranty of title. All implied warranties are limited to the duration of this warranty. The remedies set forth in this warranty are exclusive. This warranty excludes all labor charges or other incidental or consequential damages. Any part or product returned for warranty claim must be returned through the dealer of the distributor from whom it was purchased. Tuff Country reserves the right to examine all parts returned to it for warranty claim to determine whether or not any such part has failed because of defect in material or workmanship. The obligation of Tuff Country under this warranty shall be limited to repairing, replacing or crediting, at its option, any part or product found to be so defective. Regardless of whether any part is repaired, replaced or credited under this warranty, shipping and/or transportation charges on the return of such product must be prepaid by the customer under this warranty. Important information that needs to be read before installation begins:

This Suspension kit comes with (1) installation manual and some post installation procedure literature and it is the installers responsibility to make sure that the customer receives the post installation procedure literature. If a customer would like a copy of the installation manual, please have them visit our website at www.tuffcountry.com. Have them go to the customer care section to download these instructions. If you have any questions, please feel free to call us at (801) 280-2777.

Part # 54050 includes rear shock extension brackets to allow the use of the OE shocks. If you wish to pur-

chase new rear shocks, you must order them roughly 2" longer than the OE shocks.

Before installation begins, Tuff Country EZ-Ride Suspension highly recommends that the installer performs a test drive on the vehicle. During the test drive, check to see if there are any uncommon sounds or vibrations. If uncommon sounds or vibrations occur on the test drive, uncommon sounds or vibrations will be enhanced once the suspension system has been installed. Tuff Country EZ-Ride Suspension highly recommends notifying the customer prior to installation to inform the customer of these issues if they exist.

Tuff Country recommends using loctite on all new and stock hardware associated with the installation of this suspension system.

Tuff Country EZ-Ride Suspension recommends a wall mounted strut compressor be used when performing the steps that talk about installing the pre-load spacer into the strut. If you do not have a wall mounted strut compressor, please have these steps performed by a qualified shop and technician.

Due to the different variation of the stock strut spring rate, height after installation of the spacer may vary. Any questions please feel free to contact Tuff Country or your local Tuff Country dealer.

Tuff Country recommends a 33" sized tire once part # 54050/54051 has been installed. 35" tires can be used with major trimming and fender modification. If larger than a 35" tire is installed on your vehicle in conjunction with part # 54050/54051, Tuff Country assumes no liability and the warranty will be VOID. Due to different types of tread patterns, some aggressive tires in this size recommendation may require slight trimming of inner fender plastic. Our tire and wheel fitments are only a guideline. Different production times or tolerances will vary and this size should only be used as a starting point. Each vehicle is different and will need to be treated as such.

Recommended tools selection:

- Torque wrench
- Standard socket set
- Standard wrench set
- Metric socket set
- Metric wrench set
- Tape measure
- Hydraulic floor jacks
- Wall mounted strut compressor

Before installation begins, measure from the center of the wheel hub, to the bottom of the fender well, and record measurements below.

Pre-installation measurements:

Driver side front: _____

Passenger side front: _____

Driver side rear: _____

Passenger side rear: _____

At the end of the installation take the same measurements and compare to the pre-installation measurements.

Post-installation measurements:

Driver side front: _____

Passenger side front: _____

Driver side rear: _____

Passenger side rear: _____

Front end installation:

1. To begin installation, block the rear tires of the vehicle so that the vehicle is stable and can't roll backwards. Safely lift the front of the vehicle and support the vehicle with a pair of jack stands. Place a jack stand on both the driver and the passenger side. Next, remove the front wheels and tires from both sides, and support the lower control arm with a hydraulic jack.

2. Remove the front skid plate and save for re-installation.

3. Remove the swaybar from its frame mounting locations and let the sway bar rotate down and carefully hang out of the way.



Hardware bag 54050NB includes:

| Description | Quantity |
|-------------------------------------|----------|
| M1260B1.25 12mm x 60mm bolt | 4 |
| M12LWA 12mm lock washer | 4 |
| M12WA 12mm flat washer | 4 |
| 9165B 9/16" x 5" bolt | 2 |
| 916UN 9/16" uni torque nut | 4 |
| 9163B 9/16" x 3" bolt | 2 |
| 12WA 1/2" flat washer | 8 |
| 12112CB 1/2" x 1 1/2" carriage bolt | 2 |
| 12UN 1/2 uni torque nut | 2 |
| 5161B 5/16" x 1" bolt | 2 |
| 516UN 5/16" uni torque nut | 2 |
| 14WA 1/4" flat washer | 4 |
| 38NLN 3/8" nylock nut | 6 |
| 516WA 5/16" flat washer | 6 |
| 716WA 7/16" flat washer | 2 |

Hardware bag 54050NB1 includes:

| Description | Quantity |
|----------------------------------------------|----------|
| TC-002 poly bushing | 8 |
| S10246 9/16" uni ball mis-alignment sleeve | 2 |
| S10245 tapered uni ball mis-alignment sleeve | 2 |
| S10310 .780" X .635" X 2.130" sleeve | 4 |
| S10074 .6875" X .558" X 1.500" sleeve | 2 |
| SERT06 90 degree grease fitting | 4 |

Hardware bag 54051NB includes:

| Description | Quantity |
|-----------------------------|----------|
| M1260B1.25 12mm x 60mm bolt | 4 |
| M12LWA 12mm lock washer | 4 |
| M12WA 12mm flat washer | 4 |
| 9165B 9/16" x 5" bolt | 2 |
| 916UN 9/16" uni torque nut | 4 |
| 5161B 5/16" x 1" bolt | 2 |
| 516UN 5/16" uni torque nut | 2 |
| 14WA 1/4" flat washer | 4 |
| 38NLN 3/8" nylock nut | 6 |
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| SERT06 90 degree grease fitting | 4 |

Please follow instructions carefully:

4. Working on the driver side upper ball joint, remove the cotter pin and nut, using a hammer, carefully strike the steering knuckle to separate the upper ball joint from the steering knuckle. **Take special care not to damage the rubber boot on the ball joint.**



5. Remove the cotter pin and nut from the outer tie rod end and save.

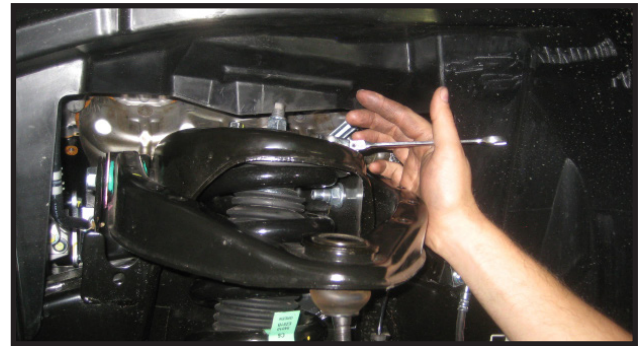


6. Using the same method as the upper ball joint, separate the outer tierod end from the steering knuckle. **Take special care to not damage the rubber boot.**



7. Remove the (3) nuts on the upper strut mount and save

them.



8. Remove the the lower strut mounting bolt and the hardware. Save hardware for re-installation. **Once this bolt is removed, take extra care to not let the suspension drop so far that it binds up the axle and pulls hard on the brake lines.**



9. Remove the strut assembly from the vehicle and place on work bench.



10. Remove the upper control arm from the vehicle and save the OE hardware.

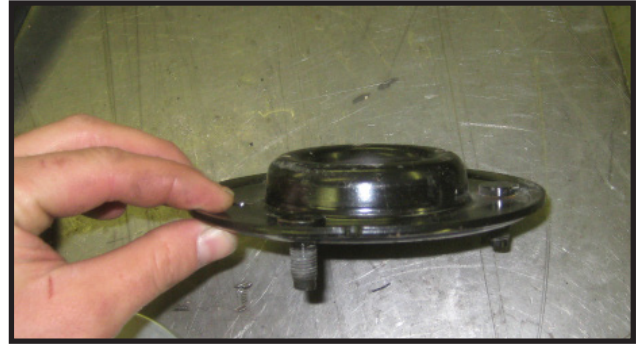


Repeat steps 4 - 10 on the passenger side of the vehicle. Carefully perform the next few steps using a wall mounted strut compressor. If you do not have this tool, please take the struts and new spacers to a qualified shop and have a qualified technician perform the spacer installation.

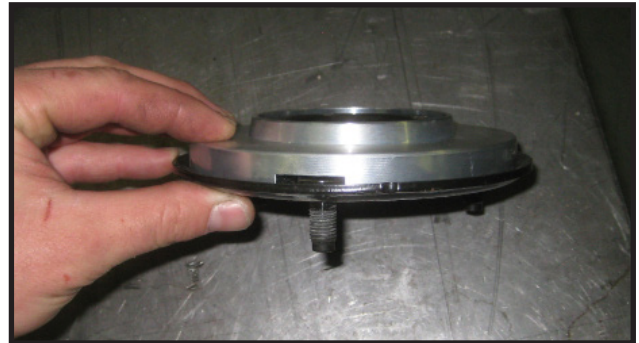
11. Place the strut into the strut compressing tool and make sure to make reference marks so that the strut can be put back together in the same orientation. Remove the upper shock nut and hardware. Save the hardware.



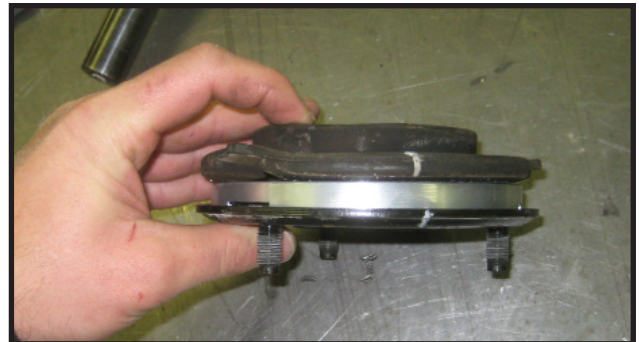
12. Release the pressure of the strut and remove the upper bearing plate and rubber isolator ring



13. Locate the new strut pre-load spacers part # 54050-03 and install onto the bearing plate making sure the head of the studs fit into the recessed holes on the pre-load spacer.



14. Re-install the rubber isolator over the new pre-load spacer, making sure your reference marks line up to each other.



15. Place the bearing plate with the newly installed pre-load spacer back on to the strut and carefully compress it all back together making sure to line up all of your reference marks. Reinstall the shock nut and hardware.

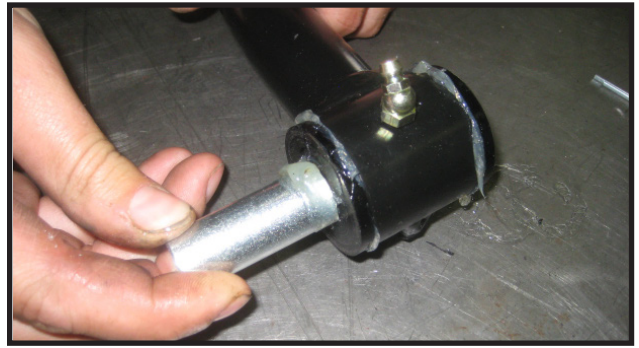




16. Locate the new upper strut spacers, part # 54060-03. Also locate the OE upper strut nuts that were removed in step #7. Install the new upper spacer over the top of the strut bearing plate and secure using the OE nuts. **Perform steps 11 - 16 on both struts and set the struts aside for later install.**



17. Locate the new upper control arms, part #'s 54050-01 and 54050-02. Also locate (8) TC-002 poly bushings, (4) S10310 sleeves, and (4) SERT06 grease fittings from hardware bag 54050NB1/54051NB1. Install 2 bushings and 1 sleeve into each eyelet of the control arms, and then carefully install each grease fitting into the threaded holds of the eyelets. **Do not over tighten grease fittings, they are soft brass and can easily be stripped. You can pre-grease the bushings before installing them into the arms, or wait until its assembled and fill them with a grease gun using the fittings.**



18. Install the new upper control arms back into the vehicle (54050-01 on driver side and 54050-02 on passenger side) with the grease fittings facing up and outwards, using the OE bolts and hardware. Torque to 130 ft lbs. **If you have not already greased the bushings, do so at this time using a grease gun.**



19. Working on the driver side, locate (3) 3/8" nylock nuts and (3) 5/16" flat washers from hardware bag 54050NB/54051NB. Install the strut back into the vehicle and use new 3/8" nuts and 5/16" flat washers at the top, **leave loose for now to help strut move freely. Repeat on the passenger side.**



20. Re-install the OE lower strut hardware to the lower control arm and torque to 120 ft lbs.



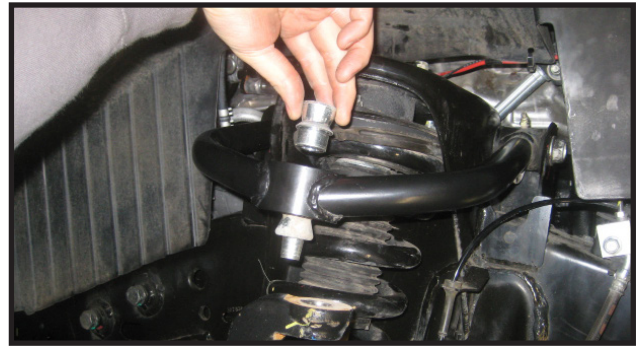
21. Move back to the (3) 3/8" upper nuts and torque to 32 ft lbs



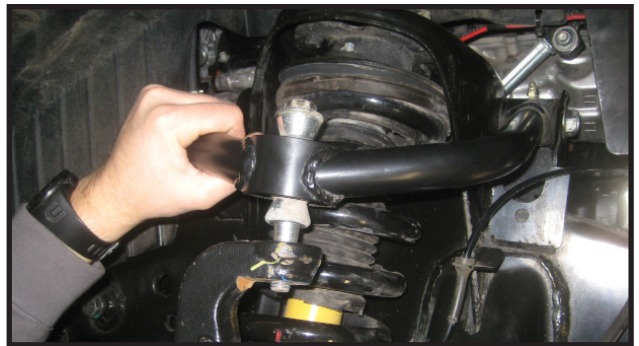
22. Locate (1) S10246, (1) S10245, from hardware bag 54050NB1/54051NB1. Also Locate (1) 9165B, (4) 12WA, and (2) 916UN from hardware bag 54050NB/54051NB. Insert the S10245 tapered uni ball mis-alignment sleeve into the bottom of the uni ball bearing, making sure the tapered end is towards the steering knuckle.



23. Install the S10246 sleeve into the top of the uni ball bearing.



24. Carefully lower the control arm down so that the tapered end of the S10245 sleeve can enter the tapered hole of the steering knuckle. Install the 9165B with a 12WA down from the top and all the way through the uni ball and steering knuckle.



25. Install the other 12WA flat washer and the 916UN uni ball torque nut and torque to 95 ft lbs. Repeat steps 22 - 25 on the passenger side.



26. Re-attach the tierod ends to the steering knuckles using the OE nuts and cotter pins. Torque to 115 ft lbs.



27. Locate the (2) new front sway bar drop brackets part # 54050-06. Also locate (4) M1260B1.25 bolts, (4) M12WA flat washers, and (4) M12LWA lock washers from hardware bag 54050NB/54051NB. Swing the front sway bar back up to the bottom of the frame and reinstall using the 54050-06 brackets and 12mm hardware to space it from the frame. Torque the new 12 mm bolts to 55 ft lbs. **Special note: the sway bar drop bracket on the passenger side may contact the OE steering stabilizer bracket, if this is the case you will need to trim the steering stabilizer bracket slightly to gain the needed clearance.**



28. Reinstall the front skidplate using the OE hardware. Install tires and wheels and carefully lower the vehicle back down on the ground.

Front end Installation Complete!

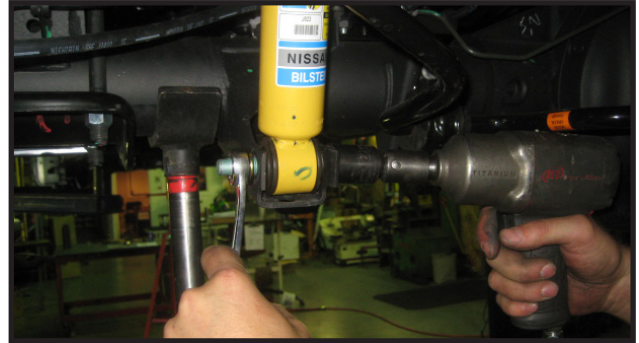
Rear end Installation:

29. To begin installation, carefully block the front tires and wheels so that the vehicle can not roll forward. Safely lift the rear of the vehicle and support the vehicle with a pair of jack stands. Place a jack stand on both the driver and the

passenger side. Next, remove the rear wheels and tires from both sides.

30. Place a hydraulic floor jack under the driver and passenger side of the rear axle.

31. Remove the lower shock bolts and save. **If you are replacing the shocks, remove the upper bolts at this time and discard the shocks.**



32. Remove the Emergency brake cable brackets from their mounting location on the crossmember between the fuel tank and exhaust pipe. Save the OE hardware



33. Working on the driver side, remove the sway bar endlink from its frame mounted bracket and save the hardware. Repeat on the passenger side.

34. On both sides of the vehicle, remove the OE swaybar frame bracket completely and save the hardware.

35. Working on the passenger side, Loosen, but do not remove the U-bolt hardware.

36. Working on the driver side, remove the OE u-bolts and hardware, then lower the rear axle away from the leaf spring enough to install new block. **Take special care to not over extend any brakelines or ABS sensor wires while performing this step.**



37. Locate the new rear block part # 54060-05 and install it on the rear spring perch. **SPECIAL NOTE: the lift block has a taper and needs to be installed so the thicker side is towards the rear of the vehicle.**



38. Locate and install the new rear u-bolts with the new nuts and washers. Leave loose at this time and move to passenger side and install new blocks and u-bolts. Once bolt sides have been installed, move back to both side's u-bolts and torque to 110 ft lbs.

39. Locate the new driver side sway bar bracket part #54050-04 and install it in to the OE location on the frame using the OE bolts. Then reinstall the swaybar endlink to the new bracket.



40. Locate the passenger side sway bar bracket part #54050-05 and install using the OE hardware and then reinstall sway bar endlink.

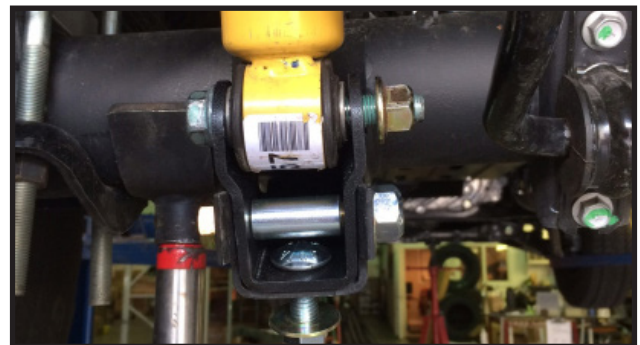
41. Locate the new emergency brake cable bracket part #54050-07. Also locate (2) 5161B bolts, (4) 14WA washers, and (2) 516UN unitorque nuts from hardware bag 54050NB/54051NB.

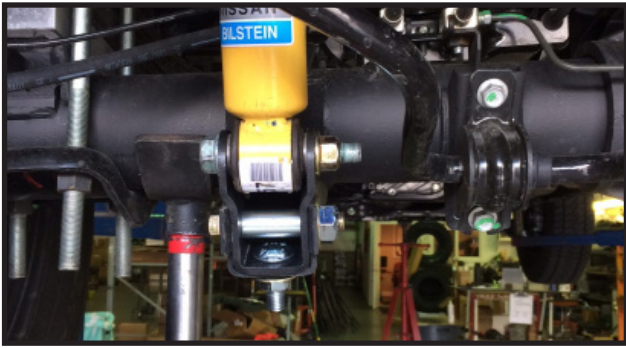
42. Install the new bracket in the OE location using the OE hardware and then attach the emergency brake cables to the new bracket using the new 5/16" hardware.



If you are installing new shocks, at this time install the new shocks. If you are installing kit #54050 w/rear shock brackets, please see below steps.

43. Locate the (2) new rear shock extension brackets part # 52050-01. Locate (2) 9163B bolts, (4) 12WA washers, (2) 916UN unitorque nuts, (2) 12112CB carriage bolts, (2) 716WA washers and (2) 12UN uni torque nuts from hardware bag 54050NB. Locate (2) S10074 sleeves from hardware bag 54050NB1. Install the new brackets into the OE lower shock brackets. Use the OE bolt and nut to attach the shock to the new bracket, and the new 9/16" bolts, crush sleeve, and hardware to install the bracket to the OE location. **Special note: the OE shock brackets have a couple small dimples in them that can obstruct installing the new extension bracket, if this is the case you can knock off the dimples with a chisel.**





44. Install the tires and wheels and carefully lower the vehicle back down to the ground.

Congratulations, Installation is complete! check and double check that all steps have been properly performed.

Special note: After the completion of the installation, Tuff Country EZ-Ride Suspension recommends taking the vehicle to an alignment shop and having a proper front end alignment and zero point calibration performed

Tuff Country EZ-Ride Suspension recommends that a complete re-torque is done on all bolts associated with this suspension system. It is the customers responsibility to make sure that a re-torque is performed on all hardware associated with this suspension system after the first 100 miles of installation. It is also the customers responsibility to do a complete re-torque after every 3000 miles or after every off road use. Neglect of following these steps could cause brackets to come loose and cause serious damage to the suspension system and to the vehicle.

If you have any questions or concerns, please feel free to contact Tuff Country or your local Tuff Country dealer.

CV Axle boot clamp Mod.

Perform the following steps on both sides of the vehicle.

1. Working on the INNER CV axle boot where it is secured to the axle shaft, make a mark on the axle shaft where the boot ends



2. Measure over 3/4" and make a second mark on the axle shaft.



3. Now carefully remove the OE boot clamp and discard the clamp. Take special care to not puncture or rip the CV boot.

4. Locate the new CV boot clamp, slide the boot over to the second mark you made on the axle shaft and secure it using the new clamp.

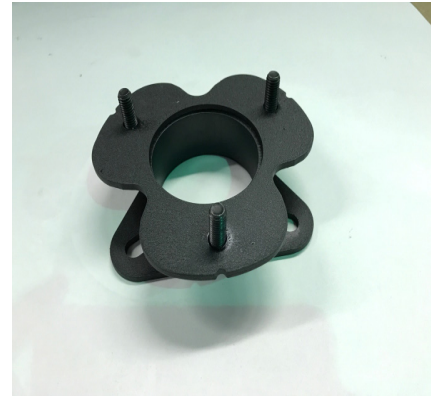




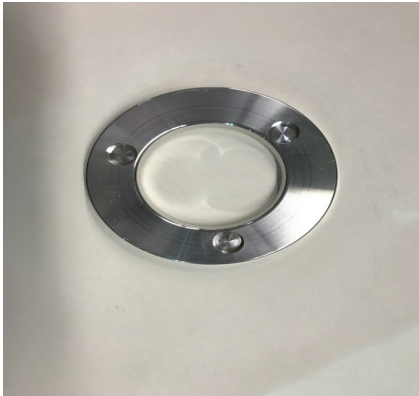
Part # 54050-01
Driver side upper control arm



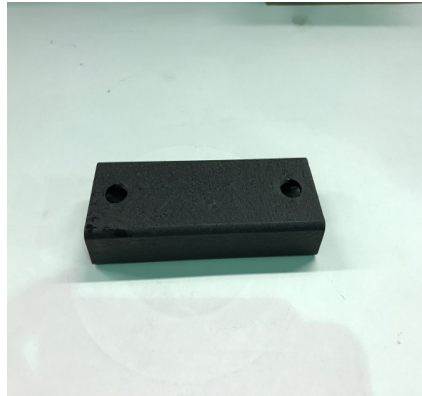
Part # 54050-02
Passenger side upper control arm



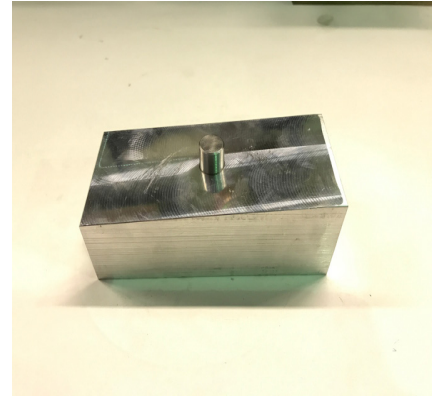
Part # 54060-03
Upper Strut Spacer



Part # 54050-03
Strut pre-load spacer



Part # 54050-06
Front sway bar drop bracket



Part # 54060-05
Rear lift block



Part # 54050-04
Driver side rear sway bar bracket



Part # 54050-05
Passenger side rear sway bar bracket



Part # 54050-07
Rear emergency brake cable bracket