



**Installation Manual  
4" Suspension System  
2010 — 2017 Toyota 4Runner with  
Upper Control arms  
Part # 54916**  
SS01172017

Part # 54916  
2010 - 2017 Toyota 4Runner  
4" suspension system with upper control arms

<i>Part #</i>	<i>Description</i>	<i>Qty.</i>
52907-02	Strut pre-load spacer	2
54910-01	Strut spacer	1
53905-01	Driver side upper control arm	1
53905-02	Passenger side upper control arm	1
54916-01	Rear shock extension bracket	2
54916NB	Hardware bag	1
54916NB1	Hardware bag	1
T25R-CL16	Rear coil spring	2
54916INST	Instruction manual	1

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.

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.

For a list of parts, please refer to the back of the installation manual for photos of parts that are included in this suspension system.

Make sure to use thread locker or loctite on all new and stock hardware associated with the installation of this suspension system.

After the completion of the installation a front end alignment and zero point calibration is required.

**Important customer information:**

Tuff Country EZ-Ride Suspension highly recommends that a qualified or a certified technician 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. 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.

### 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:

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"x12.50" tire package once part # 54916 has been installed. If larger than a 33"x12.50" tire is installed on your vehicle in conjunction with part # 54916; 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.

Part # 54916 includes rear shock extension brackets to allow the use of the OE shocks. If you wish to purchase new rear shocks, you must order them roughly 2" longer than the OE shocks. If your vehicle is equipped with XREAS (X-Relative Absorber System), pay special attention to the disconnection procedure in this manual.

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.

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. Have them go to the customer care section to download these instructions.

Tuff Country EZ-Ride Suspension recommends a wall mounted strut compressor be used when performing the steps that talk about installing the strut spacer into the strut. If you do not have a wall mounted strut compressor, please have these steps performed by your local Toyota Dealership

Hardware bag 54916NB includes:

Description	Quantity
121B 1/2" x 1" bolt	2
126B 1/2" x 6" bolt	2
12UN 1/2" unitorque nut	4
14UN 1/4" unitorque nut	2
14WA 1/4" flat washer	2
716WA 7/16" flat washer	6
M8501.25B 8mm x 50mm 1.25 bolt	2
M8WA 8mm flat washer	2

Hardware bag 54916NB1 includes:

Description	Quantity
BU3000 strut plate studs/nuts	1
S10105 1.00" x .325" x 1.30" sleeve	2
S10140 9/16" fender washer	4
S10247 Diff drop sleeves (1.750" x .510" x 1.260")	2
S10113 1/2" oversized washer	2
S10248 .750" x .563" x 2.280" sleeve	4
SERT06 90* screw in grease fitting	4
TC-002 Poly bushing	8

Recommended tools selection:

Wall mounted strut compressor

Torque wrench

Standard socket set

Standard wrench set

Metric socket set

Metric wrench set

Tape measure

Hydraulic floor jacks

Please follow instructions carefully:

Before installation begins, measure from the center of the 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 frame with a pair of jack stands. Place a jack stand on both the driver and passenger side. Next, remove the wheels and tires from both sides.

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

3. Working on the driver side, remove the sway bar end link from the knuckle. Save the hardware for later re-installation. Repeat procedure on the passenger side. **Special note: If the vehicle you are working on is equipped with KDSS (Kinetic Dynamic Suspension System) You will use a different procedure for the sway bar. Please refer to the end of this instruction manual for this process.**



4. Working on the driver side, remove the cotter pin from the upper ball joint, save the cotter pin for later re-installation. Loosen but do not remove the castle nut that secures the knuckle to the upper control arm. Carefully break the taper in the upper control arm and the knuckle. Once the taper has been broke, remove the castle nut and set aside for later re-installation. Repeat procedure on the passenger side.







If your vehicle is equipped with X-REAS (X-Relative Absorber System), at this time, disconnect the hydraulic line just rear of the shocks on the frame. Be sure you remove the disconnect point and not the banjo bolt. you may see a few drops of fluid and that is normal.



5. Working on the driver side, place a reference mark on the driver side strut. This is done so that this strut will be put back into the driver side of the vehicle. Working on the driver side, remove the (3) upper nuts that connect the strut into the strut mount. The nuts may be discarded. Repeat procedure on the passenger side.



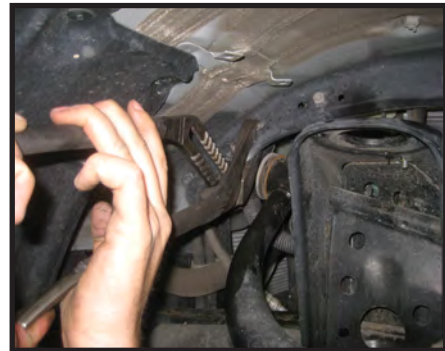
6. Working on the driver side, remove the lower bolt that connects the strut to the lower mounting location and save the hardware for later re-installation. **Special note: During removal of the bolt, take special care to not damage the CV axle boot. Also, make a mental note on which way the bolt is removed, it needs to be re-installed the same way that it was removed.** Remove the strut assembly from the vehicle and set aside for further instructions. Repeat procedure on the passenger side.

7. Working on the driver side, Remove plastic clips holding rubber spray gaurds to the inner fender. Only remove enough to get to the upper control arm bolt. Repeat on

Passenger side.



8. Remove the upper control arm nut and bolt so that the control arm can be removed completely. **Special Note: On some vehicle models, the pinch weld of the fender can interfere with removing the bolt, if this is the case, you must bend the pinch weld to gain clearance.** Repeat on passenger side.



9. Remove the upper control arms from the vehicle.



10. Locate the new upper control arms. Locate (8) TC-002 poly bushings and (4) S10248 sleeves from hardware bag 54916NB1. Install the new bushings and sleeves into the new upper control arms. **Special note: Make sure to use a fair amount of lithium or moly base grease before installing the new bushings and sleeves into the control arms. This will increase the life of the bushing as well as help prevent squeaking.**



11. Locate the new grease fittings from hardware bag 54916NB1. Install the fittings into the new upper control arms. **Special note: Make sure not to over tighten and also make sure that the fitting is facing towards the outside of the vehicle. This will make for easier access when using a grease gun.**



12. Locate (4) 9/16" x 2" fender washers out of hardware bag 54916NB1. Working on the driver side, install the new upper control arm into the OE pocket using the OE hardware along with the new fender washers. **Torque bolts to 95 ftlbs. Special note: The fender washers will be installed on the inside of the arm as it attaches to both the front and rear mounts. Do not tighten at this point. Repeat procedure on the passenger side. If your control arms are the ball joint style, the arms will not have gussets on the eyelets, and the grease fittings will be upwards.**



**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 your local Toyota Dealership**

13. Place the driver side strut into a wall mounted strut compressor. Scribe a line on the top plate, rubber isolator, and the top of the coil spring. Also, scribe a line on the bottom of the coil and the bottom coil seat. **Special Note: if these steps are not performed properly, reinstalling the strut back into the vehicle will be difficult.**





14. Carefully compress the strut until the upper top plate can be removed. Remove the nut and hardware and save for re-assembly.

15. Remove upper top plate and remove rubber isolator, save for re-assembly.

16. Locate (3) 10mm x 2 1/4" strut stud bolts from hardware bag BU30000. Working on the top plate that was removed from the strut, knock out the 3 OE studs and discard. Now carefully install the new 10mm strut studs.



17. Locate (1) new upper strut spacer, the newly modified top plate, the rubber isolator, the OE strut and hardware. Place the strut spacer onto the strut plate making sure that the cut outs in the spacer fit over the head of the studs, then install the rubber isolator onto the new upper spacer. Place assembled top plate onto the coil spring and carefully compress back together and re-attach OE Nut and hardware. **Torque to 65 ft lbs. Also, make sure that the lines that were scribed on the top plate, rubber isolator, coil spring, and the bottom coil seat are all lined back up together.**



18. Locate (1) new strut pre-load spacer and (3) 10mm nylon lock nuts from hardware bag BU30000. Working on the driver side, install new pre-load spacer on top of upper strut plate, it will go over the 3 new studs. Now install entire strut assembly back into the vehicle OE location and secure using new 10mm nylon lock nuts. **Torque to 36 ft lbs. Special note: It makes things a bit easier to cut off the excess threads on the studs.**





19. Locate the lower strut bolt and hardware. Secure the Strut assembly into the lower control arm mount. **Torque to 75 ft lbs. Special note: when installing the lower bolt, make sure it is installed the same direction that it was removed. Such as the head of the bolt will be towards the rear of the vehicle.**

20. Repeat steps 13-19 on the passenger side.

21. Working on the driver side, re-attach the new upper control arm to the steering knuckle using the new castle nut and cotter pin. torque to 90 ft lbs. Repeat procedure on passenger side.



22. Locate (1) 1/4" unitorque nut, and (1) 1/4" USS flat washer from hardware bag 54916NB. Working on the driver side, Secure the ABS brake line bracket to the new upper control

arm. Repeat procedure on passenger side.



23. Locate Sway bar hardware, re-attach sway bar endlink to the steering knuckle and torque to **65 ft lbs.** Repeat on passenger side.

24. Locate the front differential mounting points, carefully remove the (2) OE bolts that connect the front differential brackets to the front crossmember, save the oversized washer and discard the bolt and nut.

25. Locate (2) new S10247 Diff drop sleeves from hardware bag 54916NB1, and (2) 1/2" x 6" bolts, (4) 716WA (2) 1/2" unitorque nuts from hardware bag 54916NB. Also locate the OE oversize washers removed earlier, Install the front differential drop spacers between the OE brackets and front crossmember. Secure using new 1/2" x 6" bolts and 1/2" nuts. Torque to **80 ft lbs.**



26. Locate (2) S10105 sleeves from hardware bag 54916NB1, and (2) 8mm x 50mm bolts, and (2) 8mm flat washers from hardware bag 54916NB. Also locate the skid plate and OE skid plate hardware, Re-install the skid plate using original hardware in the front and new bolts and spacer sleeves in the rear. Torque 8mm bolts to **12 ft lbs.**

**At this time reconnect the X-REAS hydraulic lines**

**If your vehicle is equipped with KDSS, refer to instructions at the end of this manual to re-install swaybar.**





27. Re-install the tires and wheels and torque the lug nuts to the proper torque specifications.

## Front Installation complete!

### Rear end installation:

28. To begin installation, block the front tires of the vehicle so that the vehicle is stable and cannot roll. Safely lift the rear of the vehicle and support the frame with jack stands. Make sure the parking brake is NOT set, then remove the tires and wheels.

**If your vehicle is equipped with X-REAS (X-Relative Absorber System), remove the upper shock mount nut. Do not remove the shock from the vehicle or disconnect the X-REAS line. Use a tie wire or something similar to secure the shock so it is not pulling on the X-REAS line. If your vehicle is not equipped with this system, skip this step and move on to step 29.**

29. Working on the driver side, remove the shock from its upper mount. Repeat on passenger side. **New longer shocks are NOT required with part number 54916 installed on your vehicle, but if you choose to replace your shocks with new ones, we recommend a shock that is roughly 2 inches longer than the OE shock.**

30. Remove the bolt holding the rear track bar to its upper mount on the passenger side.

31. Remove the emergency brake cable bracket from the lower control arm to gain slack.

32. Working on the passenger side KDSS sway bar endlink, un-bolt the endlink .



33. Lower the rear axle down enough to remove the rear coil springs. Save the rubber bumpstop/spring isolator on the top of the coils.

34. Locate the new rear coil springs and install the OE rubber bumpstop/spring isolator on the tops of them.

35. Install new coil springs making sure that the end of the coil spring sits properly in the lower perch mount.



36. Carefully raise the rear axle up enough that you can re-attach the passenger side KDSS sway bar endlink.

37. Locate the new rear shock extension brackets, also locate (2) 121B, (2) 716WA, and (2) 12UN from hardware bag 54916NB, and (2) S10113 oversized washers from hardware bag 54916NB1. Install the new brackets onto the top of the rear shocks using the OE shock hardware. Then install the top of the shock with the new extension bracket into the vehicle and attach using the new hardware.



38. Re-attach the emergency brake cable bracket to the lower control arm using the OE hardware.

39. Re-install the tires and wheels and torque the lug nuts to the proper torque specifications. Carefully remove the vehicle from any jack stands.

## Installation Complete!

**Check and double check to make sure that all steps were performed properly. After the completion of this install, Tuff Country Recommends taking the vehicle in for a complete front end alignment.**

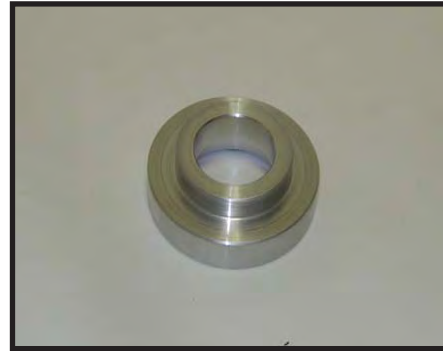
**Tuff Country EZ-Ride Suspension recommends that a complete re-torque is done on all bolts associated with this suspension system. It is the customers responsibility to make sure that a re-torque is performed on all hardware associated with the system after the first 100**



miles of installation. It is also the Customers responsibility to do a complete re-torque after every 3,000 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.



**52907-02 / Qty. 2**  
**Strut Pre-load spacer**



**54910-01 / Qty. 2**  
**Upper Strut Spacer**



**53905-01 / Qty. 1**  
**Driver side upper control arm**



**53905-02/ Qty. 1**  
**Passenger side upper control arm**



**54916-01 / Qty. 2**  
**Rear shock extension bracket**

# KDSS (Kinetic Dynamic Suspension System) Instructions

1. locate the passenger side KDSS bracket (the bracket that is bolted to the LCA) and remove the two bolts; next, remove the two bolts from the driver side KDSS bracket (also bolted to the LCA). **Note: Its best to perform these steps fairly quickly because the KDSS sway bar has some tension on it and will want to push against the bracket while you are removing the bolts.**

2. After the bolts are out, you will see that the KDSS piston slowly extends downwards and eventually stops, put the brackets and bolts aside for later install. Make sure not to mix the brackets up as there is a driver and passenger side.

**At this time, move back to step #4 of the install manual and continue the install.**

## Re-installation of the front KDSS sway bar

3. Place a jack under the KDSS piston on the driver side and carefully raise it up until the sway bar can be attached to the lower control arm.



4. Re-install the bushing and bracket to the lower control arm. **Note: there are slots in the brackets that are designed to use as a leverage point to help pry the bracket into position.**



5. Repeat procedure on the passenger side and with the vehicle weight on the ground, torque the 4 bracket bolts to 55 ft lbs.