

# Toyota

## Suspension installation directions

Rev. 1.2

### New suspension Parts:

2. Front Strut HD
2. Rear shocks
2. Med Rear coil spring
- 2 Front coil springs

### Tools needed:

- Metric socket set
- Metric combination wrench set
- Crescent wrench
- \*Commercial strut press
- Blue thread locker
- White Lithium grease
- Floor jack w/ jack stands
- Torque wrench
- Opt. pipe wrench
- Opt. shop vise

### Safety:

Please note that this work should be done by a competent mechanic. If you feel you are not competent to do this work please have a professional mechanic do this installation. Metal-tech Cage, LLC is not responsible for any modifications you make to your vehicle. These instructions are meant to be a guide to assist a competent mechanic.

**#1 Always wear safety glasses**

**#2 Always chalk the opposite end of wheels when working on a car. (ie. Chalk the rear when working on the front, and vice versa.)**

**#3 Always use jack stands!!!! Never work on a vehicle solely suspended by a jack.**

#### **\*Strut Compressors:**

A coil spring compressed has an extremely large amount of energy stored. When disassembling a strut to change the spring it should be handled as if it was explosives. NEVER use clamp on strut spring compressors to install a lift spring. Lift springs FAR exceed the safety margin of these inexpensive clamp on style compressors. Always use a commercial strut press to install these. If you do not have a commercial strut press have a local shop that has one do this for you. This should cost less than \$50,

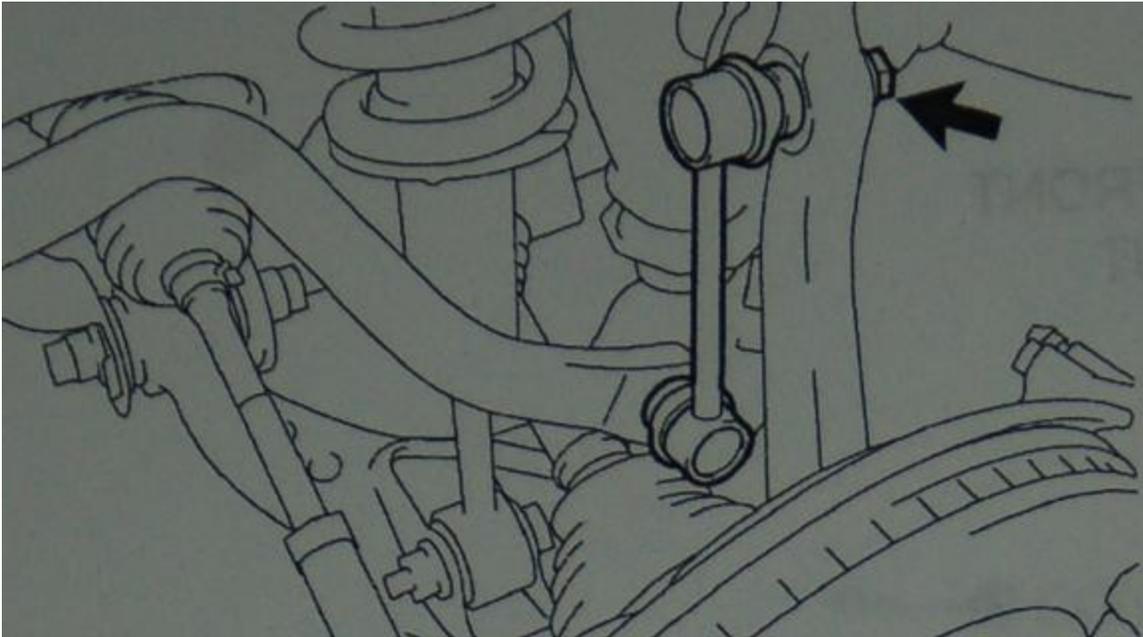
**NOTE: There are a few ways to do this installation; this is just the way we find the most efficient.**

### **Front end:**

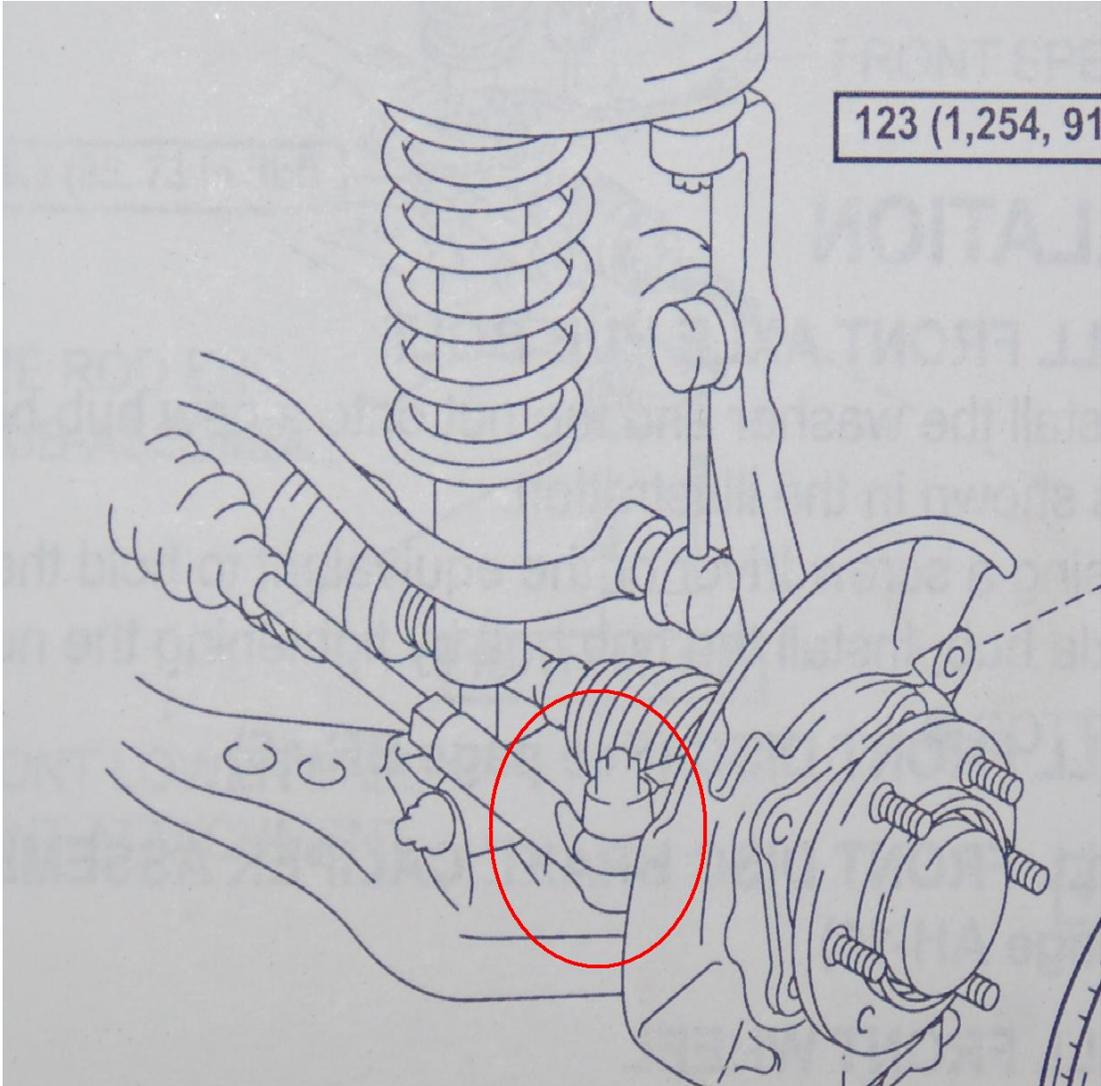
1. Chalk the rear tires and set the e-brake
2. Loosen the front lug nuts but do not remove why the truck is still on the ground.
3. Jack up the front end of the truck and put jack stands under the frame.
4. Remove the two front wheels.

Removing the struts is the same for both sides so this will be generic for both R and L.

5. Remove the single bolt holding the brake line bracket to the steering knuckle assembly.
6. Remove the nut on the stabilizer link. (as shown in drawing)

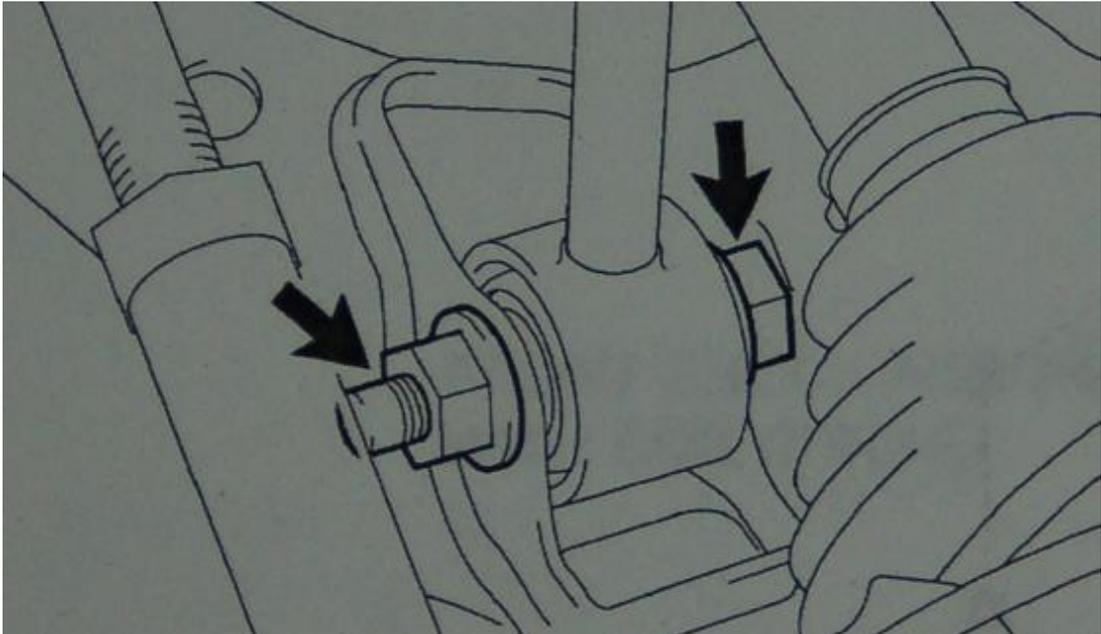


**Optional: (And how we do this ourselves)** To give your self more room to work you can disconnect the tie rod end on the steering linkage, at the knuckle. This will make installation 10x easier as you will have more room to work. The factory service manual does not say to do this but we find it easy to do and make life easier.

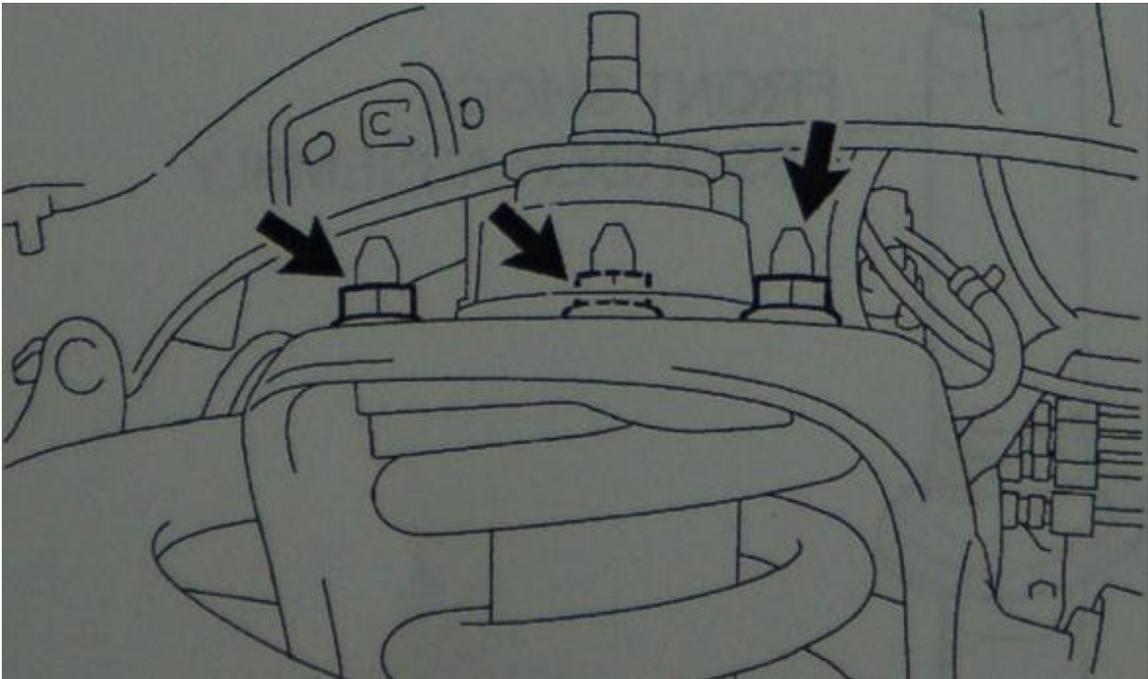


The image above shows where the steering tie rod end on the knuckle is located. To remove this you must use a tie rod puller, DO NOT USE a “pickle fork”. The classic pickle fork used to remove tie rod ends, destroys the boot on the tie rod. This tool is only used when you are replacing the tie rod end, even then it’s a Neanderthal tool. Tie rod end pullers look like a C clamp with special ends. Rent or barrow one from your local automotive store. When you re-install the tie rod end, the torque setting for the nut is 67 foot lbs. And use a new cotter pin for safety.

7. Remove the single lower mounting nut and bolt for the strut (as shown in drawing)



8. Remove the three upper nuts to the strut. (as shown in the drawing)



9. Remove the strut assembly. Ok this is easier said than done, but it will come out. Pull the lower part of the strut out of its mounting on the lower control arm. Work the lower part of the strut to the back part of the arm near the steering link. Its tempting to remove the steering link but it is not necessary. You can thread the strut assembly past the steering link and the lower part of the control arm. Use caution to not damage the rubber boot on the drive shaft. It will come out with some effort.
10. Using a commercial strut press disassemble stock struts and reassemble the New off road struts with the new off road coil springs. As with ANY strut replacement use caution to locate the top mounting plate to match the position as the stock one. If it is not in the same position the top cap bolts will not match up to the bolt holes on the mount in the frame. The strut will need to be disassembled and redone if this is the case. (NOTE: If you DO NOT have a commercial strut press, take the struts to a shop that does.)
11. Install the new strut assembly's. They are not much longer than the stock assemblies so they will reinstall just like the way you got them out the first time. The "threading" trick works real well once you get the top cap clear of the lower arm and the steering linkage.
12. Install upper nuts using blue or "medium" thread locker. **Factory torque for these nuts is 47 foot lbs.**
13. Put a light coating of White Lithium grease on the non threaded part (shank) lower strut mounting bolt. (no squeaks this way)
14. Install lower mounting bolt, use blue or "medium" thread locker on the nut. **Factory torque for this bolt/nut is 100 foot lbs.**

**TIP:** If the strut alignment is slightly off from when it was assembled you can twist the strut a small amount by using a small pipe wrench. Clamp the wrench onto the solid bar just above the bushing eye on the bottom of the strut. DO NOT clamp on the large body of the strut, this will damage the strut. Once clamped on the lower part of the strut you can slightly twist the strut to

15. Install the sway bar link and nut to the steering knuckle. **Factory torque for this nut is 52 foot lbs.**
16. Repeat procedure for the other side.
17. Install both wheels, lower the truck onto the ground.
18. Torque lug nuts **Factory torque settings for lug nuts is 82 foot lbs**

## Rear end:

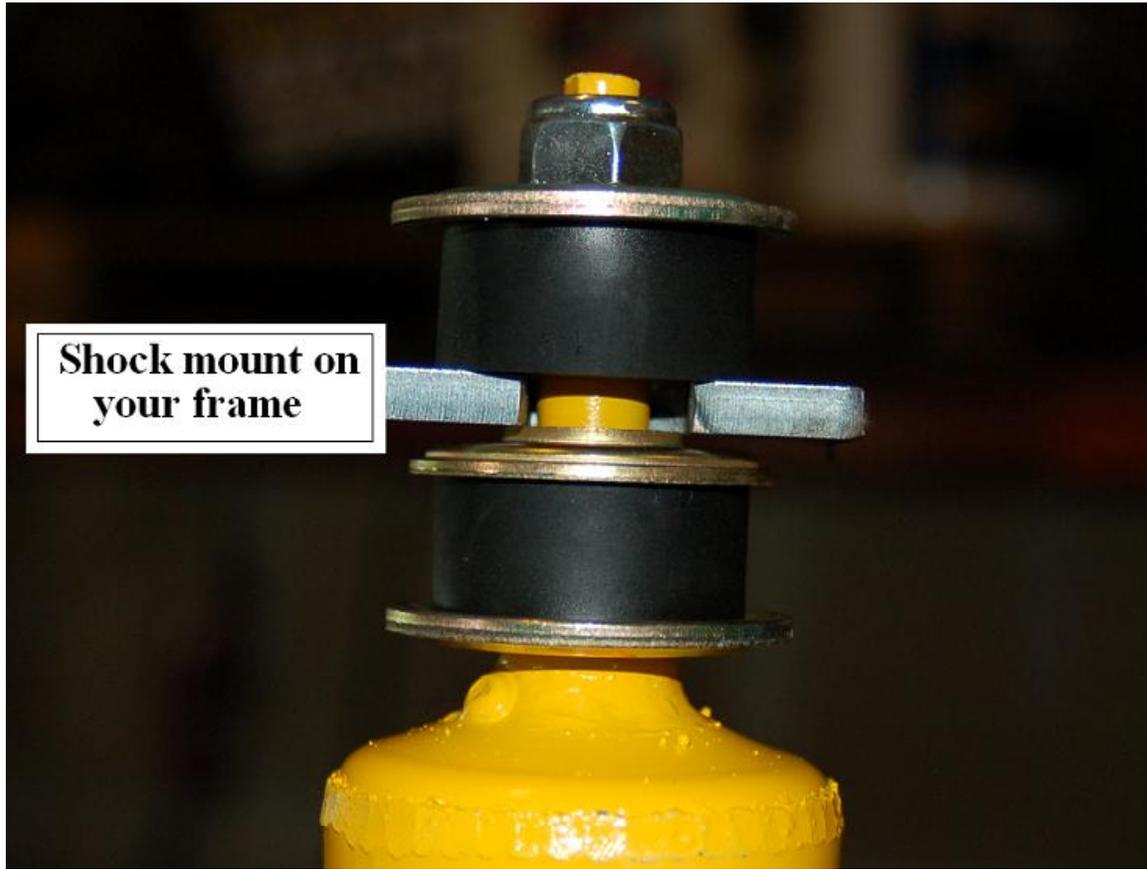
Once you have done the front you are now a pro for doing the rear! For the rear it is easier to just do both sides at the same time.

1. Chalk the front tires
2. Loosen the rear lug nuts but do not remove
3. Jack up the back of the truck and place jack stands firmly under the frame.
4. Remove the rear wheels
5. Remove the single bolt holding the rear brake line mount. (allows more movement of the rear axle as we stuff the springs in)
6. Remove the sway bar link nut to the frame R and L side
7. Remove the top nut on each of the stock rear shocks. (NOTE: the rear axle will drop down a bit once each of the top nuts is removed from the frame. If you have a second floor jack put it under the center section of the rear axle. You do not have to do this, it just helps a bit)

**TIP:** You will find the top of the shock will turn as you try to loosen the top nut to the shock. There is a small flat spot above the threads on the shock for a crescent wrench to hold on to. We find the space between the body and the shock mount too tight to use the two wrenches efficiently. Our solution is to use a pipe wrench on the top part of the shock to keep it from turning. It will scratch the paint but not damage the shock as to top is only a guard protecting the shock shaft. (most likely this shock will be discarded at some point anyway) With the pipe wrench on the shock upper body you can get a combination wrench into the area of the top shock mount.

8. Remove the lower shock bolts
9. Remove the rear shocks
10. Remove the stock springs and upper bushings. The shocks will just pull right out as they are not held in place with any mechanical device.
11. Transfer the upper rubber bushings from the stock springs and install the new rear coil springs. Its easier having a friend push down on the rear axel as you do this.

12. Install the upper bushings and install each of the shocks on the truck. Put a light coating of white lithium grease on the lower mount on the axle. Make sure you put the shock bushing washers in the correct places. (See photo)



13. Install the lower shock bolts using blue or “medium” thread locker. **Lower shock bolts factory torque setting is 72 foot lbs.**

**TIP:** Just like removing the upper nuts, installing them can be a challenge too. Get the nut started then use a combination wrench to hold the nut in place. Grab the upper part of the shock and twist it to thread into the upper nut. You can do this to complete the install of the upper nut. Factory torque settings (18 foot lbs) are hard to apply here since the upper nut is now a nylock style of nut and will self lock in place. Just make sure the nut is fully seated into place on the upper shock pin.

15. Reattach the rear sway bar links to the frame. **Factory torque settings are 11 foot lbs.**
16. Install both wheels; lower the truck onto the ground.
17. Torque lug nuts **Factory torque settings for lug nuts is 82 foot lbs**

**Post install:**

Check all nuts and bolts are tight and reinstalled correctly. Walk around the truck looking for anything that may have been missed. Once the installation has been completed you **MUST** have an alignment done to the front end. Failure to do this is unsafe and will destroy your tires. Once you have about 300-500 miles on the truck after your new lift installation, recheck your nuts to make sure nothing has come loose and re-torque your lug nuts. **Factory torque settings for lug nuts is 82 foot lbs**

**Enjoy you new suspension lift!**