

Lifting a 5th Gen 4Runner w/KDSS

Replacing shocks, springs, struts with [Dobinsons C59-302/GS59-700, C59-325/GS59-701](#)

Replacing upper control arms (UCA) with [SPC adjustable upper control arms](#)

Preparation

Tools

- [Gloves](#)
- [Wheel chocks](#)
- [Work lights](#)
- [1/2" socket driver](#)
- [1/2" socket extensions](#)
- [1/2" breaker bar](#)
- [1/2" torque wrench](#)
- [1/2" sockets \(mm\): 10, 12, 14, 19, 21, 22, 32](#)
- [Ratcheting metric wrench set](#)
- [Pair 6 ton jack stands](#)
- [3 ton hydraulic floor jack](#)
- [Pry bars](#)
- [Punch](#)
- [Heavy hammer](#)
- [Strap wrench](#)
- [Grease gun](#)
- [Anti-seize](#)
- [Loc-Tite \(blue\)](#)
- [Molybdenum grease](#)
- Needle nose pliers

Before Picture



Measurements

On level ground, measure from the center of the hub to the bottom of the fender:

Wheels on the ground:

Left Front: 19.5" Right Front: 19.5"
Left Rear: 21.0" Right Rear: 21.0"
Ground to front skid plate: 8.5"
Rear differential: 9.25" (noted for change due to tires)

Wheels off the ground:

Left Front: 24.0" Right Front: 24.0"
Left Rear: 25.75" Right Rear: 25.75"

Lowered off jacks without driving:

Left Front: 20.5" Right Front: 20.0"
Left Rear: 21.0" Right Rear: 21.175"

Derived max droop:

Front: 4.5"
Rear: 4.75"

Record headlight and foglight alignment. Note truck position on driveway.

Headlight cutoff height on garage door:

Foglight cutoff height on garage door:

Videos

- Evergreen Overland: Pry bar and loosen KDSS brackets: <https://youtu.be/xkY3EWLMUeA>
- Rat107: Pry bar and move A/C line for passenger UCA bolt: <https://youtu.be/p9Mj-LDZkqs>
- IronMan: Open KDSS valves, remove battery for UCA bolt: <https://youtu.be/lcA5z4YPUTk>
- SnailTrail4x4: <https://youtu.be/RKcR30yyepQ>
- Wanderlost Overland: <https://www.youtube.com/watch?v=OICzo82jpCU>
- SPC: <https://youtu.be/8BXhIbK2op0>

Front End

1. Chock front and rear of both rear tires
2. Use a breaker bar to loosen all 21mm lug nuts on the front tires
3. [Lift the front of the vehicle and support it with jack stands](#)



4. Remove the front tires and place under the vehicle

My tires were stuck on pretty good and I was worried how I had to smack them to break them free. This is the first time I have had a car on jackstands and was a little worried about the truck falling off. Once they were removed, it was apparent that the rim and hub were fusing together with rust. I wire brushed the rusted hub and applied anti-seize before reinstalling the tires (no anti-seize on the studs!)



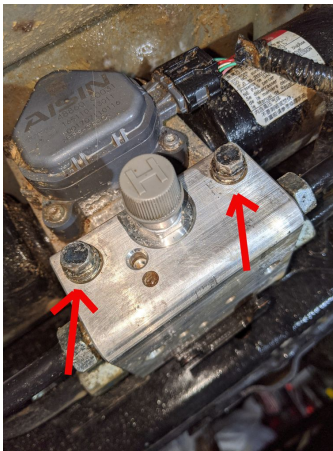
5. Remove the front lower bumper cover (five 10mm bolts + one plastic fastener)



6. Remove the skid plate (four 12mm bolts). Allow to swing on clips and then remove.



7. Remove KDSS skid plate (two 12mm bolts)
8. Back out the two KDSS shutter valve bolts two turns



9. Use floor jack and wood blocks to push up the KDSS piston



Start with the passenger side while the KDSS piston is compressed. Allow the KDSS piston to extend while working on the driver side.

10. Remove 10mm ABS line from UCA and spindle



11. Remove cotter pin from castle nut and back out 19mm castle nut (do not remove).



12. Support spindle with bungee so it doesn't swing or rotate too much. Separate UCA ball joint bolt from spindle by striking the spindle with a hammer. Remove castle nut.

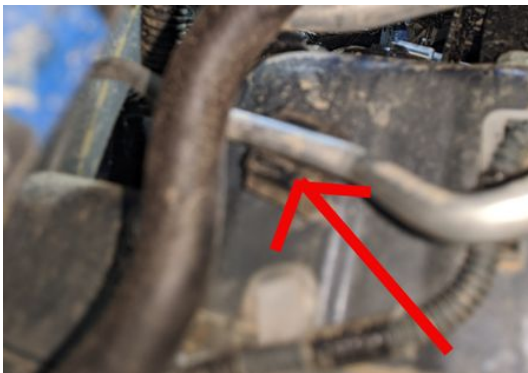


13. Remove upper control arm:

- a. Remove splash guards
- b. Remove 12mm bolt holding brake line bracket on top of frame rail for UCA bolt clearance



- c. Passenger side only: In engine bay, pull a/c line out of rubber clamp to make room for UCA bolt



- d. Remove 19mm UCA bolt and nut
- e. Remove upper control arm

14. Remove three 14mm bolts on top of strut. Leave one on with a few threads showing.

Used interlocking wrench trick as seen [here](#) to gain leverage.

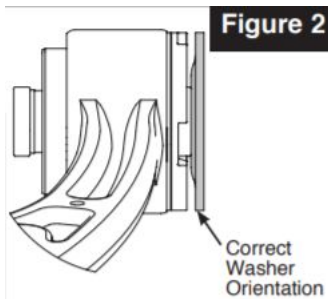


15. Remove 19mm bolt from lower shock mount. Pry shock off stud and remove.
16. Insert new strut and finger tighten one 14mm top nut
17. Insert lower shock 19mm bolt and nut. Apply anti-seize. Do not fully tighten until on the ground.
18. Tighten shock top bolts to 47 ft lbs

I could not fit the torque wrench above the shock mount, so these nuts were not torqued properly. Again used the interlocking wrench trick to gain more leverage (thanks Wanderlost Overland).

19. Replace UCA:

- a. Insert and tighten 19mm UCA bolt to 85 ft lbs. OK to fully tighten on lift. Note washer orientation.



- b. Tighten 22mm UCA ball joint castle nut to 45 lb ft (SPC) (Toyota = 82 ft lbs) and install cotter pin
- c. Tighten 32mm SPC adjustable ball joint top nut to 150 ft lbs
- d. Replace splash guards
- e. Grease UCA (5 - 10 pumps of molybdenum grease)

5-10 pumps didn't seem like enough. I thought grease was supposed to begin escaping? The idea is that new grease replaces old grease, right? So, doesn't the boot need to be full?

20. Reattach 10mm ABS sensor wire to UCA and spindle
21. Reattach skid plate with four 12mm bolts and tighten to 21 ft lbs
22. Reattach the front lower bumper cover with five 10mm bolts
23. Attach tires and hand-tighten all lug nuts
24. **Close 10mm KDSS shutter valves before starting the truck!**
25. Lower car off jacks
26. Tighten 19mm lower shock bolts to 70 ft lb
27. Tighten 21mm lug nuts to 83 ft lbs

Rear End

1. Chock front and rear of both front tires
2. Use a breaker bar to loosen the rear 21mm lug nuts
3. [Lift the rear of the vehicle and support it with jack stands](#)



4. Remove rear tires and place under vehicle
5. Remove brake line mounts (one 12mm bolt) from rear trailing arms



I later discovered while pushing the axle down that the brake lines and possibly the e-locker wire were being stretched too tightly. So, I also removed the 12mm bolts holding the brake line mounts at each end of the flexible tubing.

6. Disconnect the two 19mm KDSS sway bar mounts from the axle

7. Use a strap wrench around the shock body to remove 17mm shock top bolt.



8. Remove 19mm lower shock bolt and pry shock off lower mount using a screwdriver or pry bar

9. Remove stock springs

I used the floor jack to compress the KDSS piston when removing the passenger-side spring, but I'm not sure it was necessary. Instead, use the OEM bottle jack to push the axle down on the working side.

10. Place stock isolator cone on top of replacement spring. On passenger side, [insert 15mm spacer](#).
11. Use the OEM jack to push the axle down to make room for the taller spring.



12. Insert new springs. Ensure proper seat.

I bought these [spring compressors](#), but they were too small for the new Dobinsons springs. The set I bought fit on the OEM springs, but the compressors were not needed.

13. Insert 19mm top shock bolt and tighten some



14. Insert 19mm KDSS sway bar bolts using jack, pry bar, ratchet straps, hammer, etc.. Apply anti-seize. Tighten to 81 ft lbs.
15. Reattach all 12mm brake line mounting bolts
16. Attach tires and hand-tighten all lug nuts
17. **Close 10mm KDSS shutter vales before starting the truck!**
18. Reinstall KDSS skid plate using two 12mm bolts
19. Lower car off jacks
20. Tighten 17mm lower shock bolts to 72 ft lb
21. Tighten 19mm upper shock bolts to 18 ft lb. Bushings should squish.



22. Tighten lug nuts to 83 ft lbs

Post Install

1. Drive on rough roads, check bolt torque and measure lift height
2. [Align headlights and foglights](#)
3. Check if OEM jack can raise car high enough to perform a tire change
4. If Vehicle Stability Control (VSC) is intrusive, perform zero point calibration
5. If truck leans, perform KDSS calibration

Measurements

After test drive:

Left Front: 22.175" Right Front: 22.175"
Left Rear: 24.0" Right Rear: 24.0"
Ground to front skid plate: 10.5"

Lowered off jacks without driving:

Left Front: 23.5" Right Front: 23.5"
Left Rear: 24.5" Right Rear: 24.5"

After settling:

Left Front: 22.0" Right Front: 22.0"
Left Rear: 23.5" Right Rear: 23.5"
Ground to front skid plate: 10.5"

Height gained after settling:

Left Front: 2.5" Right Front: 2.5"
Left Rear: 2.5" Right Rear: 2.5"
Ground to front skid plate: 2.0"

After Picture



Before and After Picture

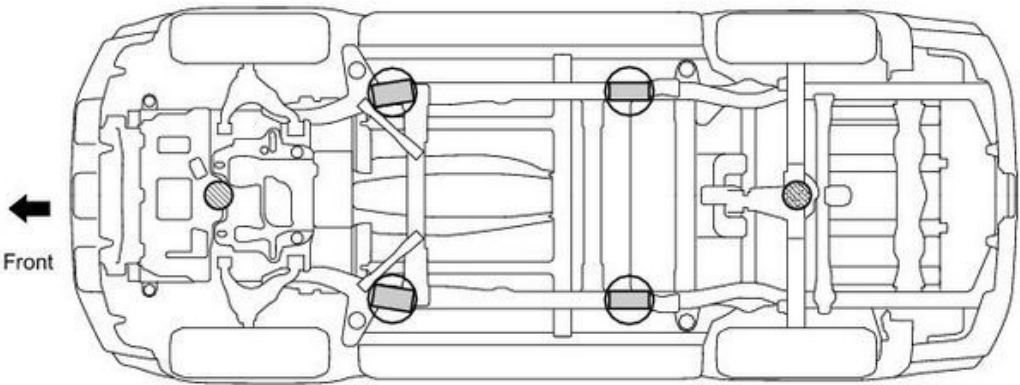


Appendix

How to raise and support the vehicle

On level, engage the parking brake and place wheel chocks in front and behind the rear tires.

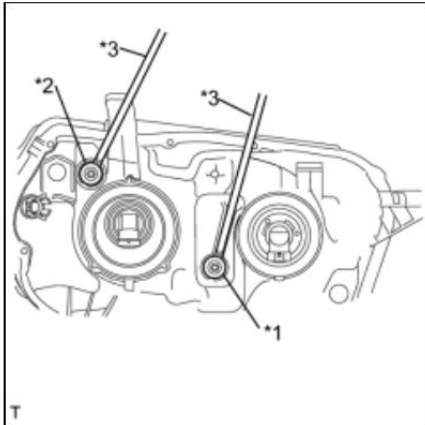
	● JACK POSITION ○ Front: Center of crossmember ○ Rear: Protruding part of rear suspension member	CAUTION: When jacking up the vehicle, make sure the vehicle is not carrying any extra weight.
	● SUPPORT POSITION ○ Swing arm type lift ○ Safety stand	



KDSS Torque Specs

- Front KDSS ends to LCA: 55 ft lbs
- Front KDSS mid bushings: 30 ft lbs
- Rear KDSS ends to axle: 81 ft lbs
- Rear KDSS mid bushings: 33 ft lbs

Align Headlights and Fog Lights



*1	Vertical Aiming
*2	Horizontal Aiming
*3	Screwdriver

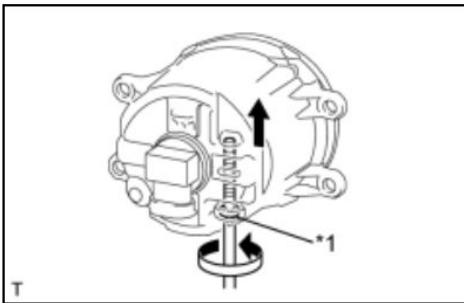
Adjust the aim of each headlight to the specified range by turning each aiming screw with a screwdriver.

NOTICE:

The final turn of the aiming screw should be made in the clockwise direction. If the screw is tightened excessively, loosen it, and then retighten it so that the final turn of the screw is in the clockwise direction.

HINT:

- The low beam and high beam headlight are a unit.



NOTICE:

If the screw is tightened too much, loosen it and then retighten it so that the final turn of the screw is in the clockwise direction.