



# **CAYENNE / TOUAREG 3" AIR SUSPENSION**

## **LIFT INSTALL GUIDE**

Install the larger 1" thick spacers between the chassis and subframe at all 8 points on front and rear subframe using supplied longer bolts.

### **TIPS DURING INSTALLATION**

- Removing outer axle nut helps relieve tension on axle when removing struts. If you pull down too far you could pop the inner joint out.
- Loosen the subframe bolts in front (4 bolts) as far down as possible to allow the subframe to rest.

Doing this will allow to take tension off the axle and make removal and installation of the axle easier.

- We are not responsible for improper installation of this lift kit. Please have a professional install this kit. Email us if you have any questions or concerns.

Info@[eurowise.com](mailto:eurowise.com)

- Wiper Arm Puller
- 12mm Triple Square Socket for the Torque Strut:
- Selection of Torx bits for small fasteners on fender liner and engine splash cover.
- Big and small pry bars
- 10mm, 13mm, 16mm (or 5/8") wrenches and socket for various bolts plus socket extensions.
- A paint pen or sharpie, preferably in a color other than black.
- You may also need a small stool or step ladder to reach over the fender and into the cowl area when the car is lifted.



Instructions are used on other parts of the suspension so you may see some overlap in instructions with other items that can be installed at the same time.

Pull into your workspace and, if you have air suspension, put the Cayenne in Normal height mode and lock the suspension by holding the height lever up for 10 seconds until you get the “Suspension Off” notice on the dash

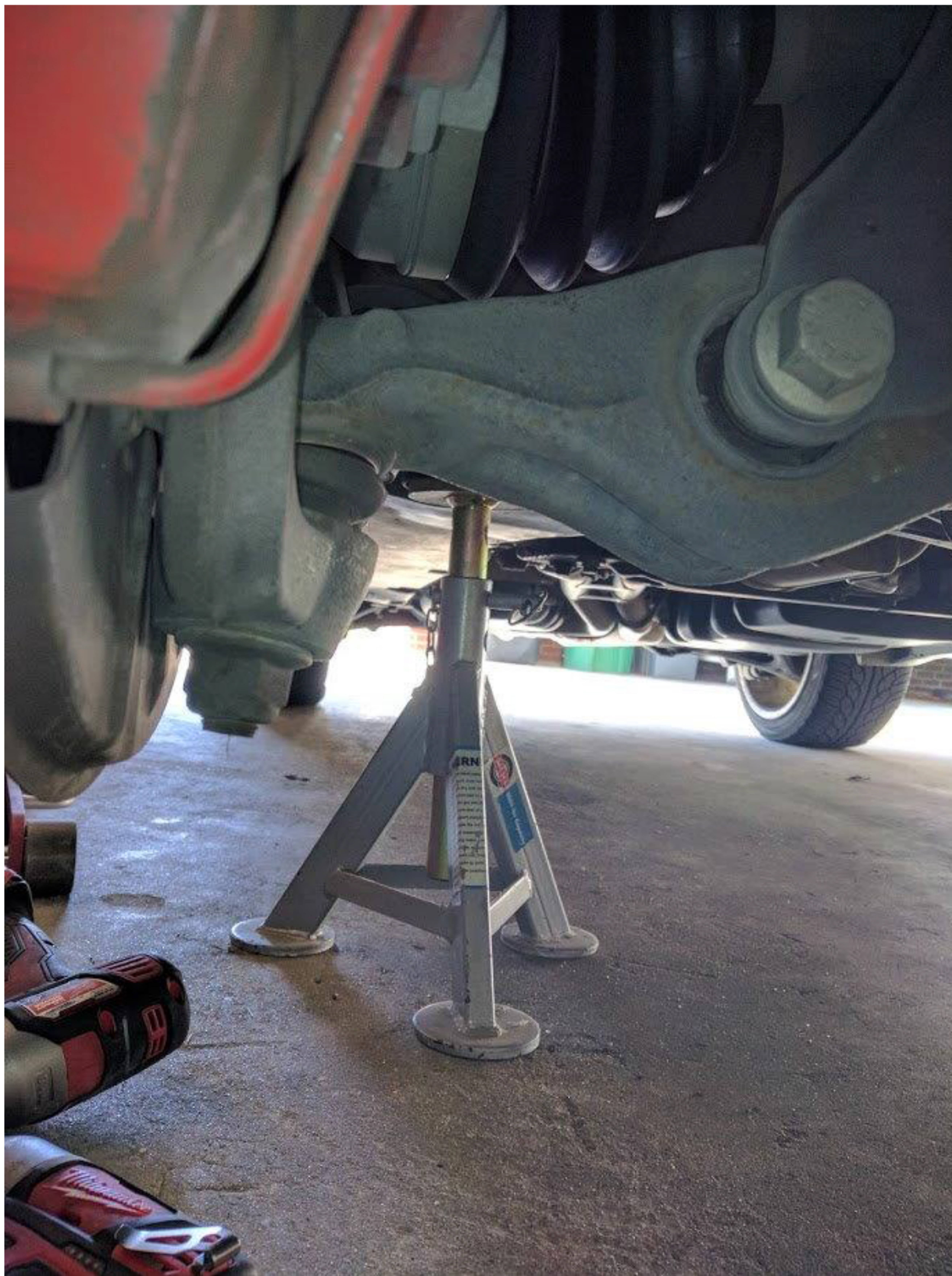
If you are replacing the upper control arms, now (before you jack up the car) is a good time to remove the windshield wipers and cowl using the instructions found here: <https://bit.ly/2N0pPOp>. If you’re only doing the lower control arms, you can skip this step.

“Crack” the lug bolts on the front wheels, but do not remove yet.

If you have a lift, use it with pride. Otherwise, you need to jack up the front of the car and put it on jack stands at the lifting points behind the front wheels. Note that I jacked each side from the respective subframe under the engine so that the jack would not interfere with the stand placement. Make sure the car is supported equally on both sides and that it’s stable.

Once the car is safely supported on jack stands, finish removing the front wheels.

Here’s a shot from the front showing the car resting safely on a heavy-duty jack stands at the lifting points behind the front wheels. The other side looks the same – both wheels are off, and the car is equally supported, stable and ready for work.





7) Now is a great time to mark the position of the eccentric bolts/washers that secure the lower control arms to the subframe (Bolts "F" in the pictures below) – there are 2 eccentric bolts heads and 2 eccentric washers on each lower control arm. There may already be indexing marks that work, but if not, use a sharpie or paint pen to index the washer to the surrounding subframe bracket. You will want to be able to adjust these parts back to their original position when reassembling so that your alignment won't be terribly off post-repair.

8) Now is also a great time to spray some rust penetrant on all the ball joints nuts and on all the nuts and bolts that go through the lower control arm.

9) While the rust penetrant is doing its magic, go back up top and remove the plastic beauty covers surrounding the perimeter of the engine by turning the ¼ turn plastic fasteners and removing the rubber hood gasket that surrounds the engine bay.

10) Ok, back under the fender – it's time to "crack the nuts." We need to make sure the suspension bolts are going to budge before going any further. Otherwise, you potentially risk getting stuck without the right tool. Loosen (but do not remove yet) the following:

A. Little, upper control arm to steering knuckle ball joint (18mm)

B. Sway bar to sway bar link bolt (the one on the bottom) (18mm x 2)

C. Sway bar link to air strut bolt (18mm x 2)

D. Strut to lower control arm bolt/nut (18mm x 2) – NOTE: Be sure to loosen the nut side, not the bolt head side.

E. Big, lower control arm to steering knuckle ball joint (21mm)

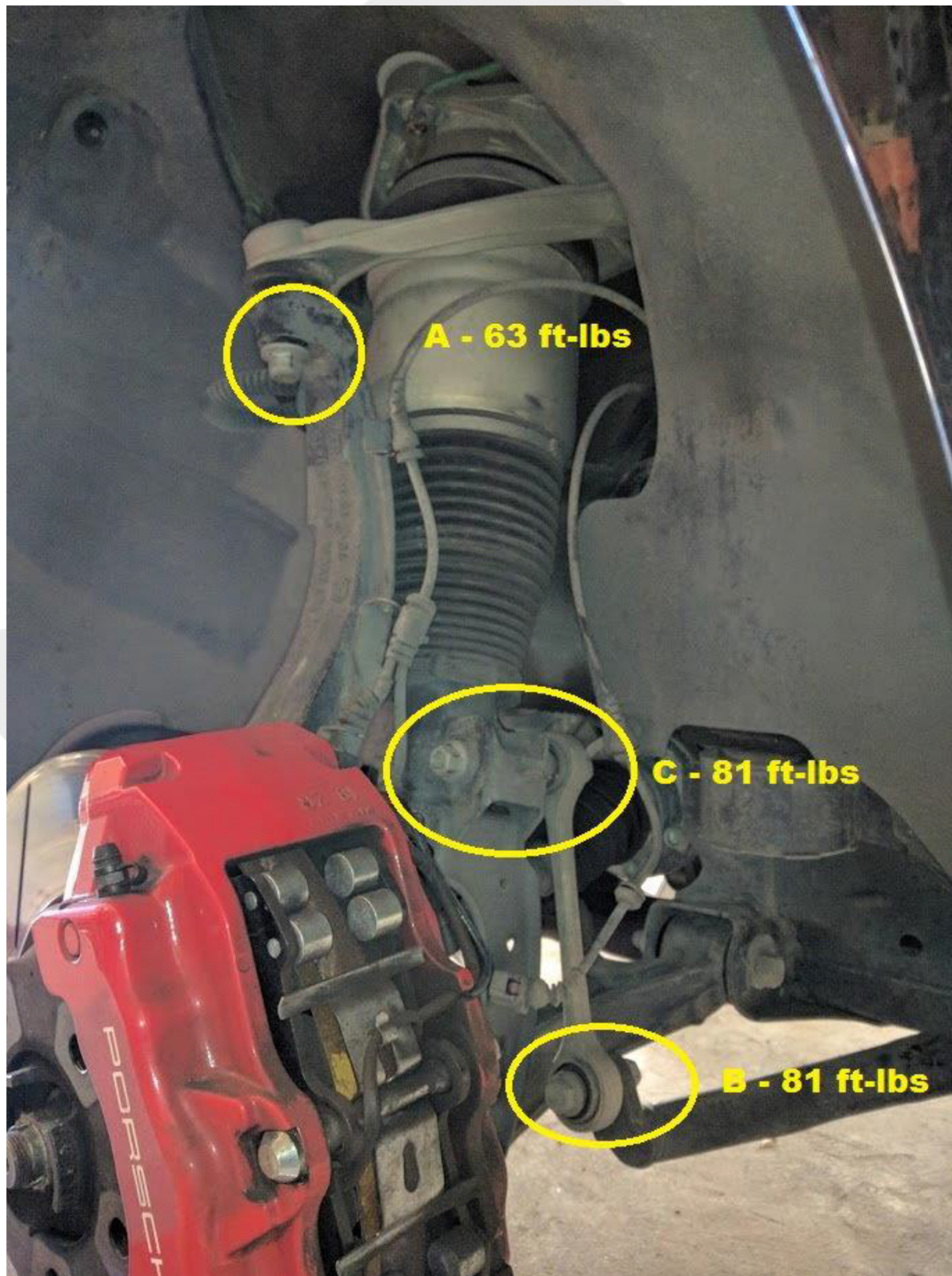
F. Both lower control arm to subframe bolts (21mm x 2) – NOTE: There are two eccentric bolts per lower arm and they are really tight. Use a long, quality box end wrench and LOOSEN ON THE NUT SIDE ONLY. If you try to loosen from the bolt head side you will damage the bolt or the eccentric washer.

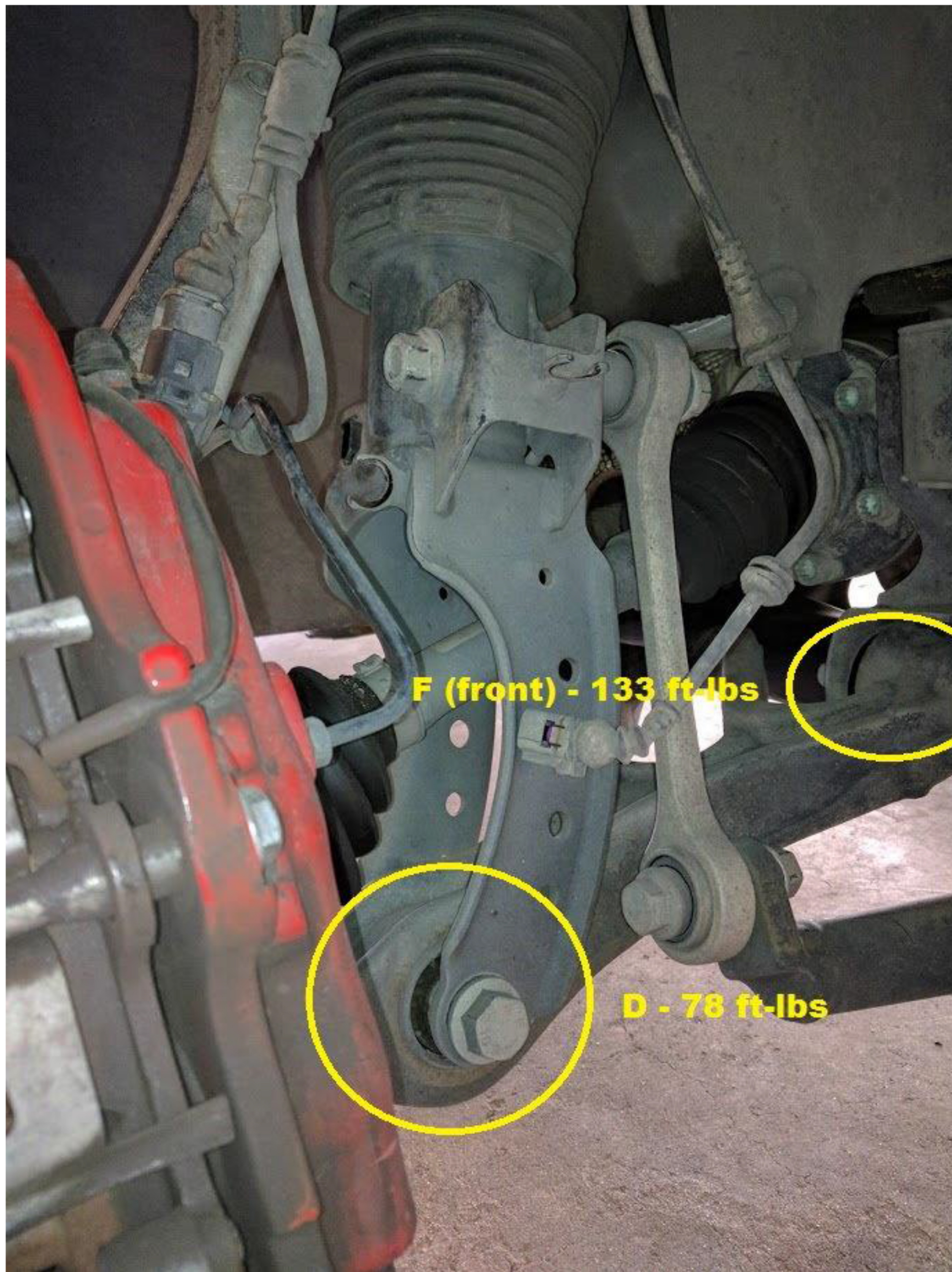
G. Tie rod to steering knuckle ball joint (21mm) – this is not absolutely required, but I found it useful as detaching the tie rod allows you to move/position the steering knuckle



NOTE: Bolts/steps A - D above are required for removal of the upper control arm and/or strut; Bolts/steps D - G are required for the lower control arm replacement.

Here are a couple pictures of the nuts and their locations using the lettering scheme above.









## UPPER CONTROL ARM REMOVAL/REPLACEMENT

This section assumes you've already got the car prepped per the "SETUP/PREPARATION" section above.

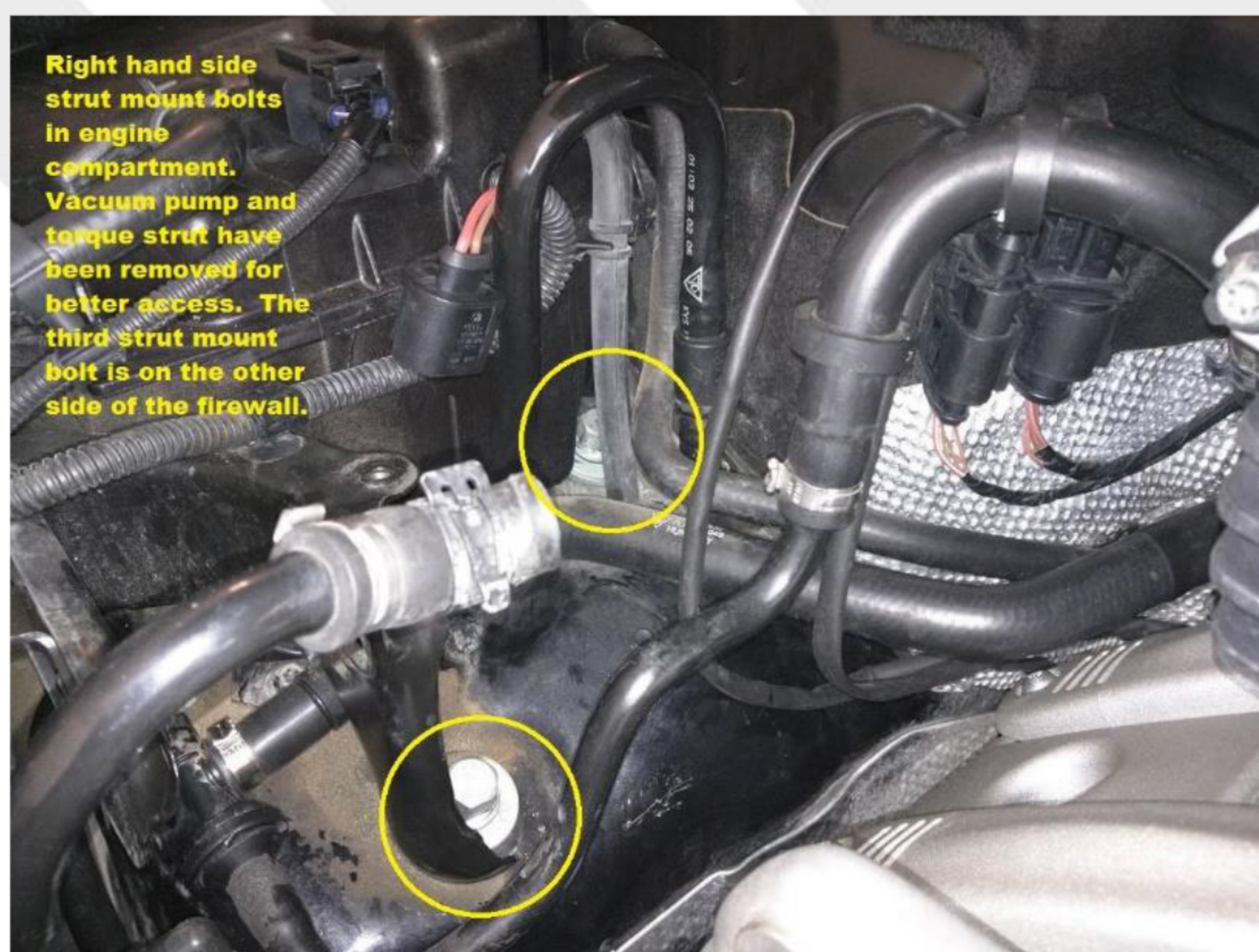
11) Starting from the top of the car, if not done already as per Step 3 in the prior section, remove the wipers and cowl

12) Optional, but recommended: If you are replacing the engine torque strut and/or the brake vacuum hose, now is a good time to remove the vacuum pump and torque strut as removing both will improve access

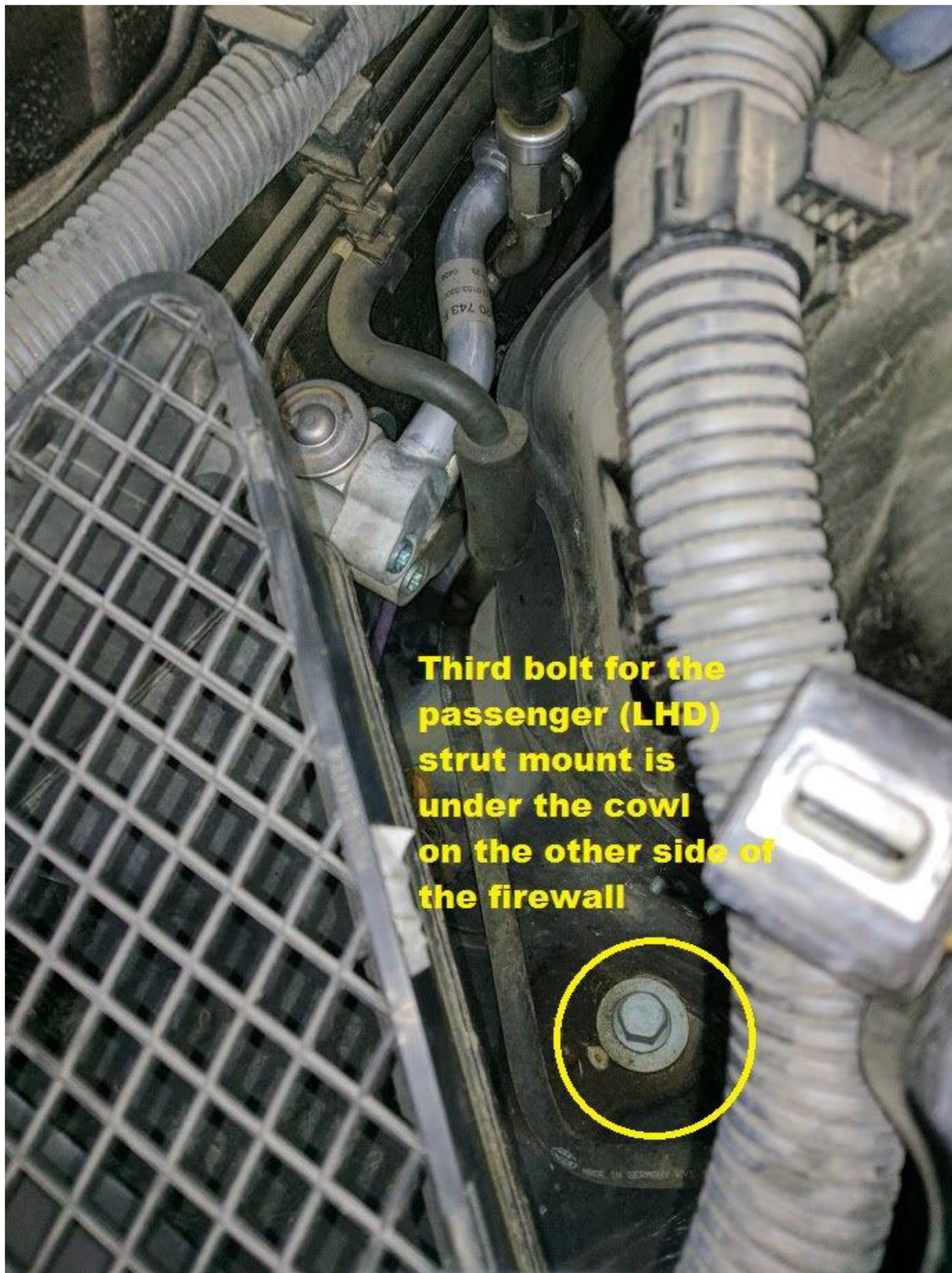
i. Vacuum pump: Undo the power connector and clamp/rubber connection from the pump. Remove two 10mm bolts and lift out the pump. That will give you more access for the torque strut and for the strut mount bolts

ii. Torque strut: Remove the engine torque strut using a 12mm triple square socket and a (15/16/17mm?) socket on the engine mount. The fender side bolt can be accessed with a socket wrench.

Here's a picture of the passenger (RHD) side area around the vacuum pump/torque arm (both removed) showing 2 of the 3 bolts that hold the air strut mount. The second picture shows the location of the third bolt on the other side of the fire wall under the cowl that was previously removed.







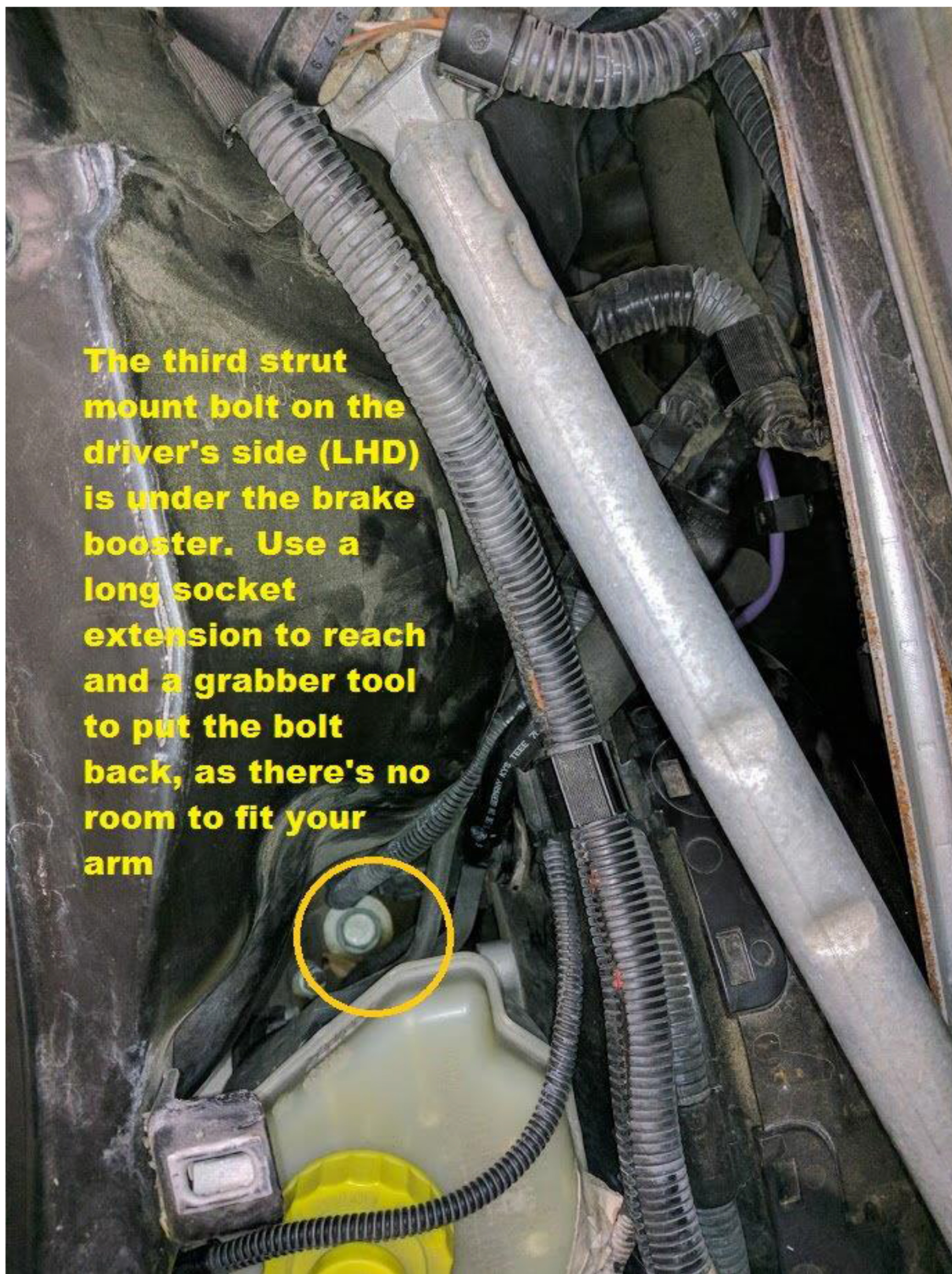
**Third bolt for the  
passenger (LHD)  
strut mount is  
under the cowl  
on the other side of  
the firewall**



13) Using a 16mm or 5/8" socket on a long extension, remove two of the three bolts that hold the air strut mount. They shouldn't be terribly tight. I recommend removing the two bolts closest to the firewall (one on either side) – the remaining bolt (closest to the front of the car) is pretty obvious and easy to get a wrench/finger on.

The driver's side (LHD) looks like this:





**The third strut mount bolt on the driver's side (LHD) is under the brake booster. Use a long socket extension to reach and a grabber tool to put the bolt back, as there's no room to fit your arm**



14) Back under the fender, use a 10mm wrench to loosen the smaller air line fitting at the top of the air strut. You should hear air escaping – you don't need to undo it all the way yet. Let it bleed pressure.

15) Unplug the ride height sensor electrical connector.





17) Undo the wires that run down the steering knuckle by wiggling their rubber grommets out of the corresponding brackets. Also unplug the connector into the lower part of the air strut. You're trying to free up slack so the steering knuckle can fall forward when you undo the top ball joint, as well as free the strut for removal.

18) Finish undoing bolt B (the sway bar to sway bar link) from step 10 above. You can leave bolt C (sway bar link to air strut) attached at this time as the sway bar link comes out with air strut when it's time. Note that you may need to use a prybar or jack under the lower control arm to take pressure off this joint to get the bolts out of their holes. You're dealing with a big spring – use caution as there could be stored force in the swaybar – watch your fingers!

19) It's time to separate the upper ball joint. Undo the upper ball joint nut (A above), but leave the nut on the very end of the threads of the bolt. Now use your ball joint separator of choice on this joint. You may need to gently hammer the separator onto the joint if it's tight and the boot is in the way – you want the separator bolt to be perfectly in line with the bolt on the ball joint. Tighten the bolt on the ball joint separator and get ready for the bang. I tightened my separator a good bit (probably 40- 50 ft pounds) and then proceeded to hit the cast steering knuckle gently with a ball peen hammer. Give it some more turns and some more hits with a hammer and eventually, it will pop loose.

20) Once the ball joint is free in step 19, you can finish removing the nut from the joint and gently let the steering knuckle (and attached hub/rotor/brake assembly) fall to the outside of the car. Make sure no wires or lines get pulled or pinched.

21) Finish removing the airline to the top of the air strut.

22) At this point, your air strut should only be connected at the top by one bolt in the engine bay, and by the bolt through the lower control arm at the bottom. Remove the nut on the lower bolt, but leave the bolt running partly through the strut/lower control arm to keep the strut supported while you remove the last of the upper mount bolts in the engine bay – the top of the air strut may drop a bit, but shouldn't fall out. Back under the car, with the last upper mount bolt removed, I was able to remove the final strut to control arm bolt and let the air strut rest on the half-shaft axle below.



23) With the steering knuckle out of the way, remove the air strut top-first, by pulling the top toward you and then lifting the strut out of the wheel well. Be careful not to snag any wires or lines.

24) With the air strut out of the car, you can remove the upper strut mount from the air strut by slowly loosening the 4 bolts on the top of the mount. NOTE: There could still be residual air pressure in your air spring – use caution. I undid each bolt by only 1/8" first in order to release the air pressure in a controlled manner. Once you've confirmed there's not more air leaking out, finish removing the four bolts.













Install front strut extensions as seen below:





Front struts are installed this way on the front on the lower strut arms. You must loosen the control arms and use a pry bar to get the bolt in. A second person is useful to help.

Do not install the bolts from the outside in. Make sure you insert the bolt from the inside of the strut body facing outwards. Failure to do so will result in contact with the axle shaft.

**NOTE:** We recommend to always drive on and Offroad in "automode". Driving on "Offroad" mode can cause long-term damage to the axle joints due to the extreme angles in "OFFROAD" setting. Contact us for our subframe drop kit to correct axle geometry to utilize "OFFROAD" mode reliably.





Install included washer on the front strut extension brackets on the inside and outside. This will take up the space between the strut and the control arm.



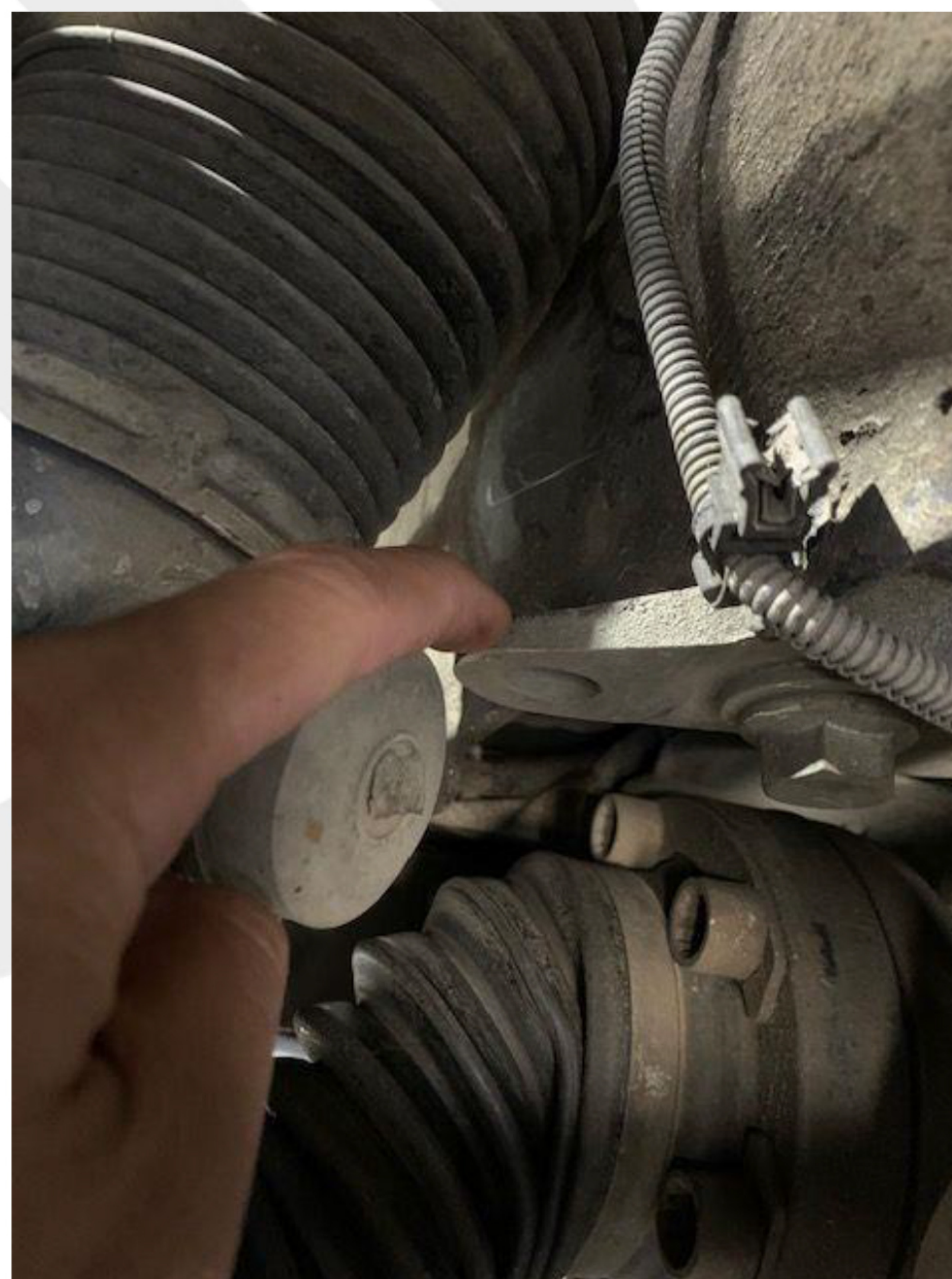
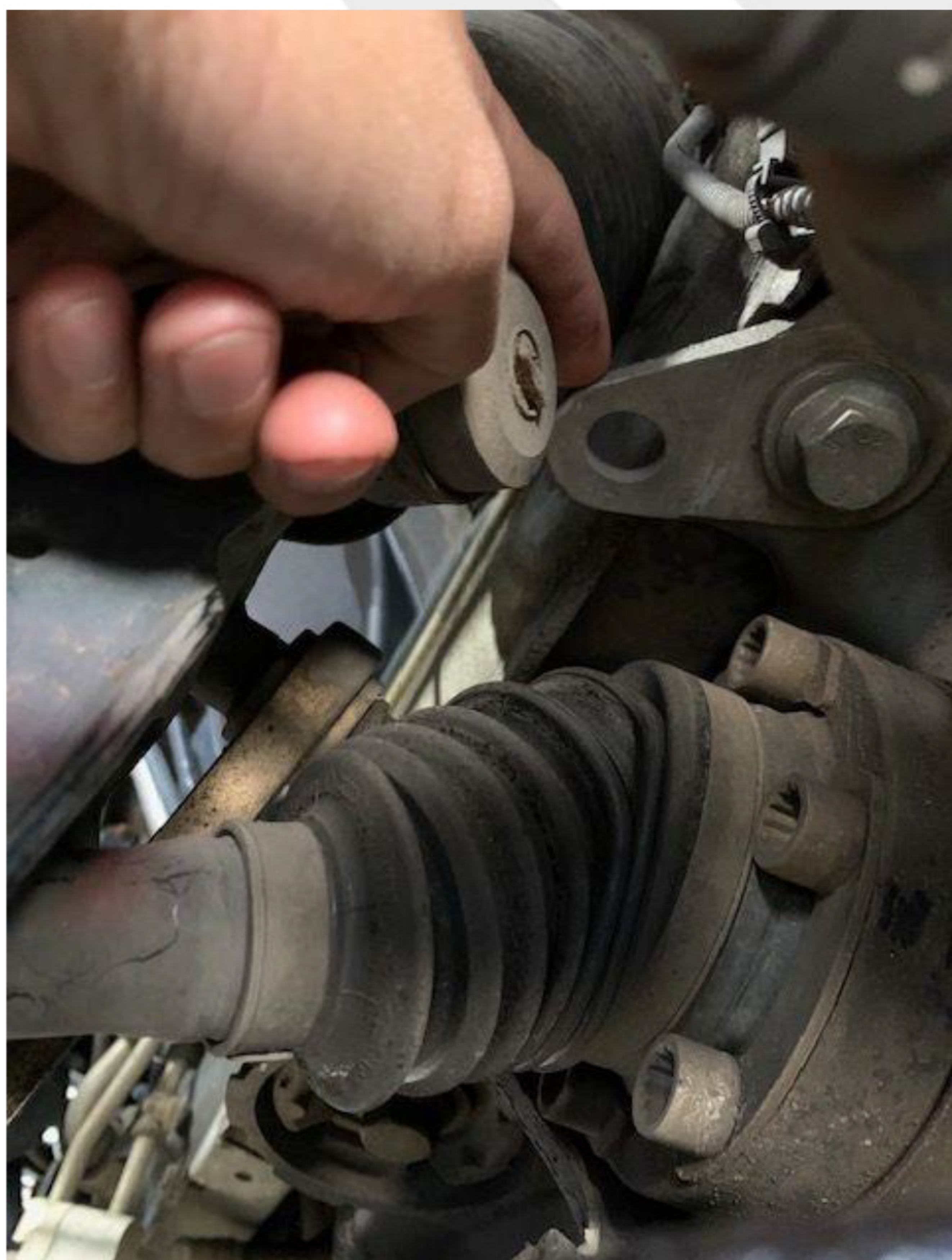
Once everything is installed this is how it will look.

This is the lower strut looking at it from the back of the car. The bolts can be installed either way on the backside only.

This is the lower strut looking at it from the front of the car back. The bolts can ONLY be installed from the inside of the strut pointing out.



On the subframe there are two aluminum tabs that will contact the lower air strut magnetic sensor. These tabs need to be broken or cut off. They are aluminum so a saw will cut thru them easily. Or you can use a cut off wheel and cut the surface and then use a hammer to knock it off the rest of the way.





On the rear the spacers are installed between the upper strut mount cradle. The cradle holds both rear Air struts. There're 4 bolts holding the assembly in place. You drop the cradle and install the spacers and install between and install the new longer bolts provided.

Disconnect brake line here:





Wedging a wood block between the cross over brace will help leverage the bracket down to install the 2" thick spacer.







Using a pry bar and an extra set of hands will help guide the spacer in.



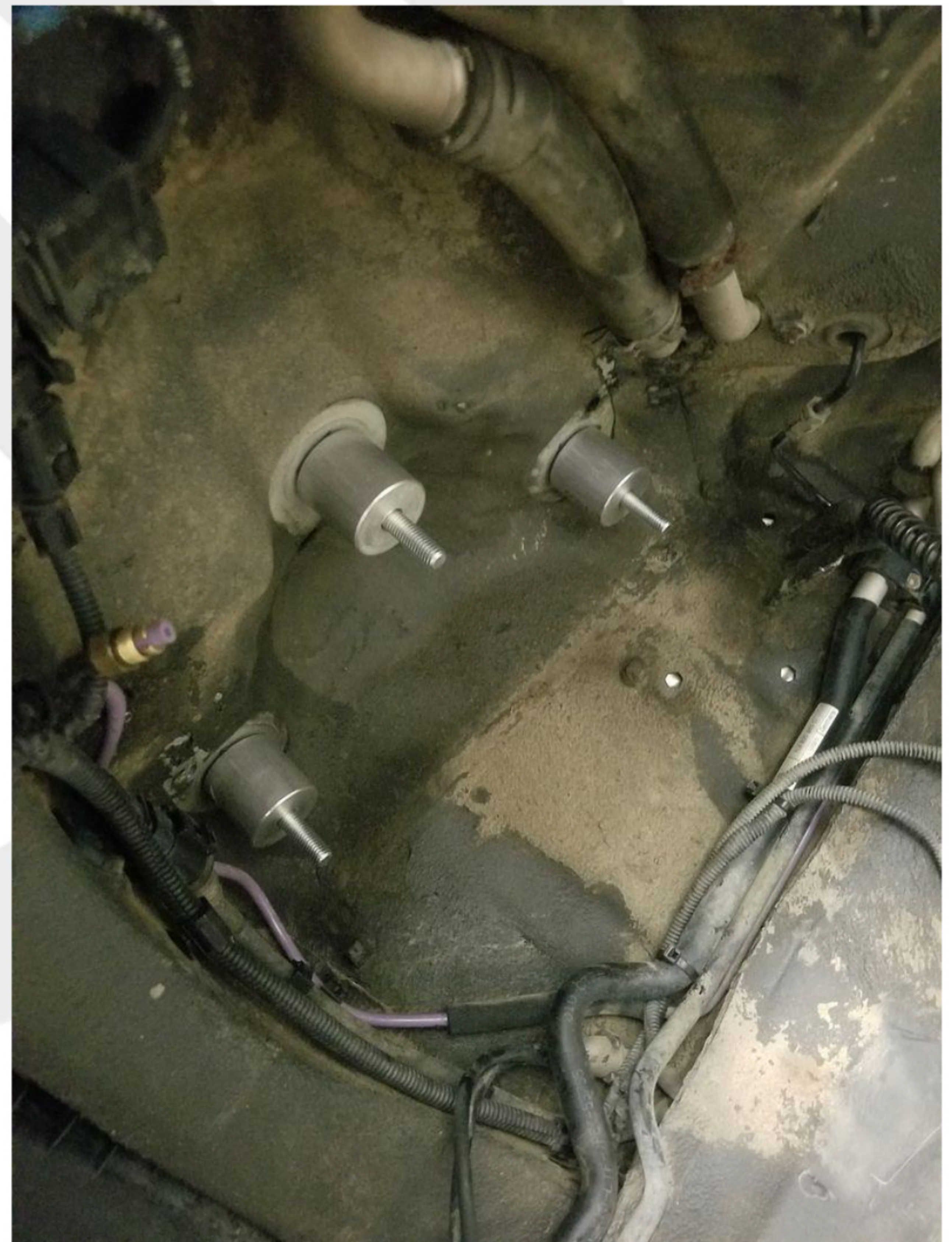
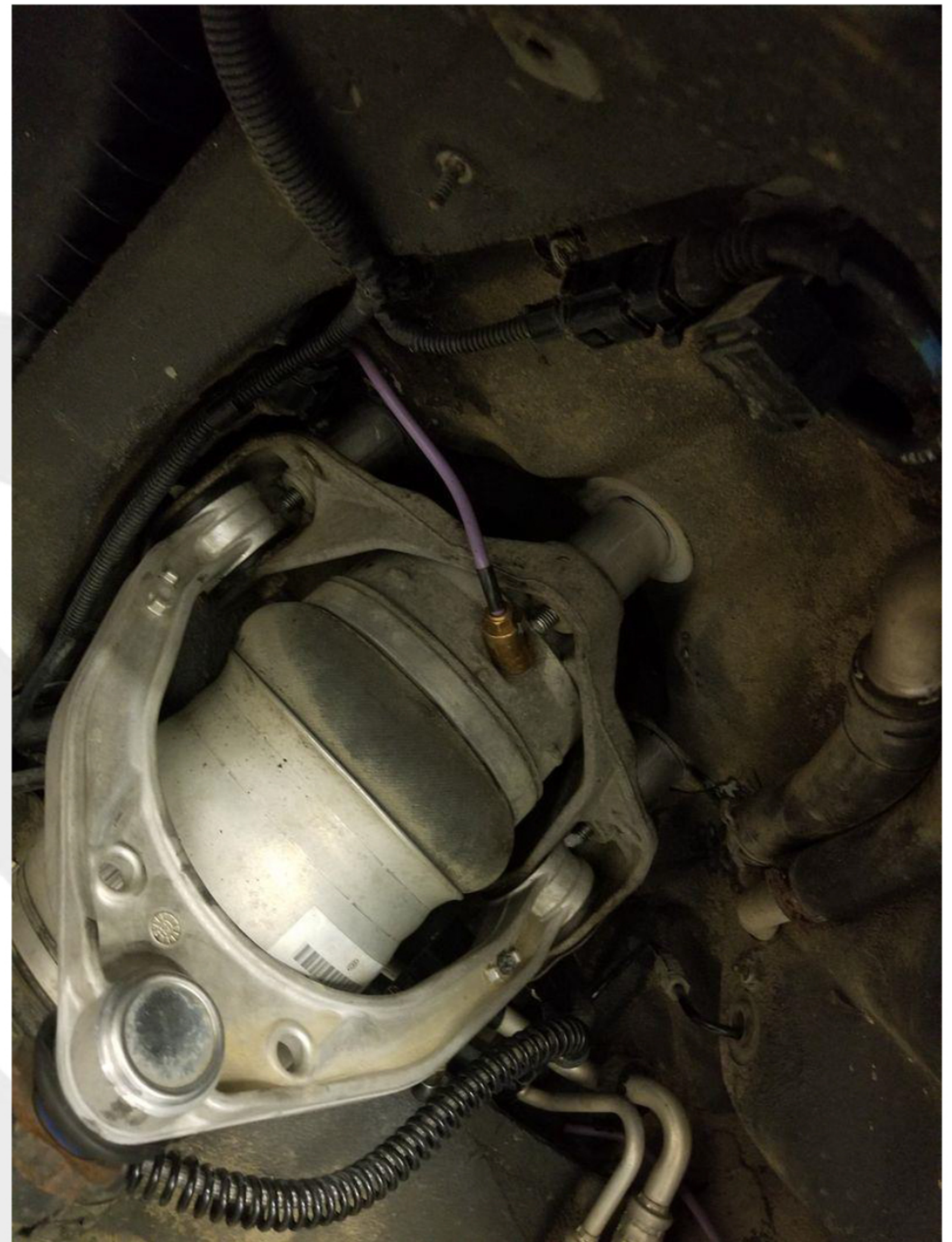




Lastly on the front the 6 spacers will be installed on the top of the upper strut mounts.

These can be preinstalled with the strut removed and you can use a rubber o-ring or similar to hold them in place or you can install them one by one with the strut in place. Whichever method works easier for you, longer bolts are included in the kit for these 6 spacers as well.



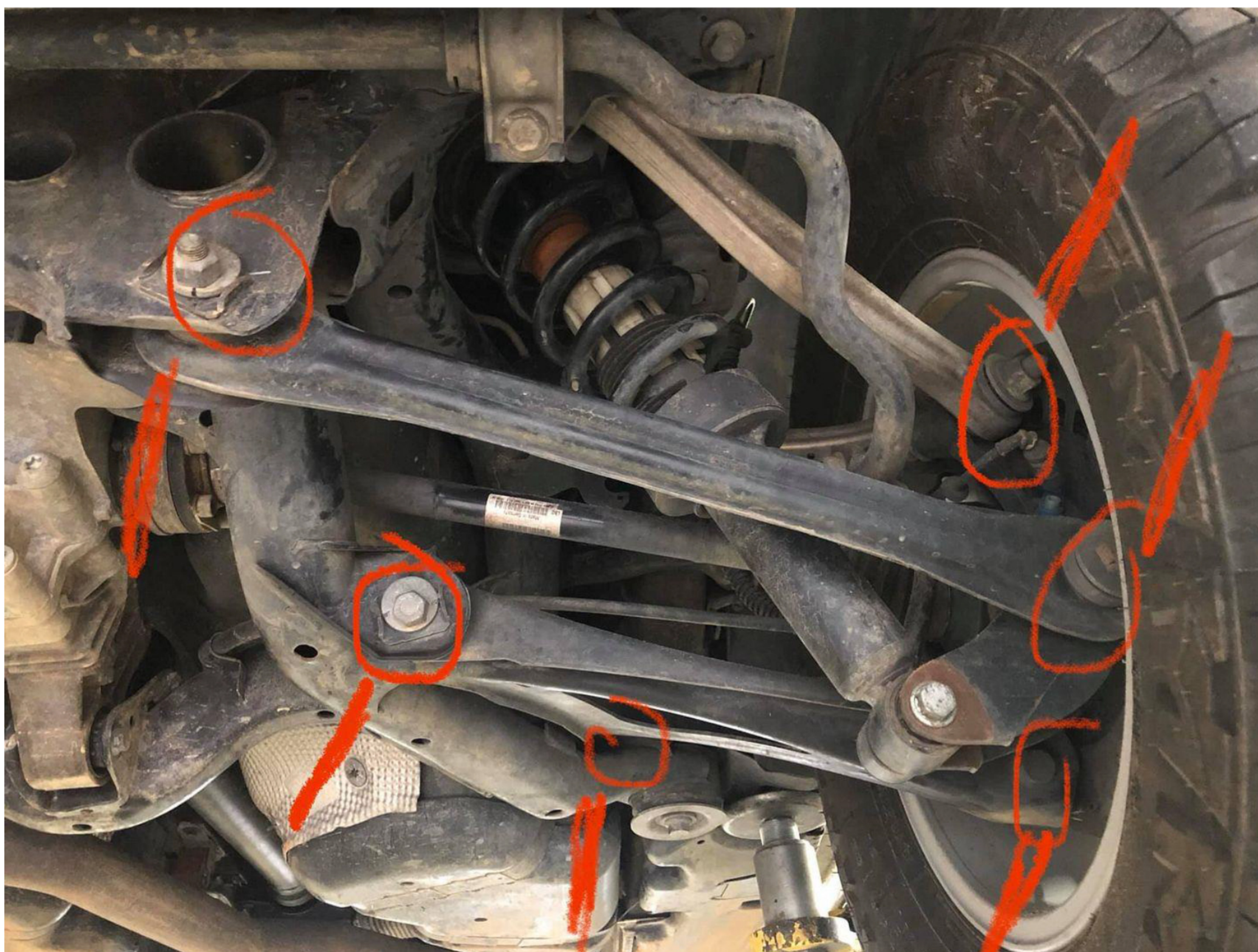




## IMPORTANT NOTES

One thing a lot of people miss when raising their rig are suspension pivots. So often they leave the suspension bound up because they are not understanding the range of movement in the bushings. I've seen several posts recently for example with the new Forge lift kit where people can't get the rear struts back in. You need to loosen every pivot BEFORE you reinstall. I leave these pivots loose, reinstall the strut w spacer, set the car back on the ground then tighten them before lifting the truck again to properly torque them. By doing this the bushing will move closer to the middle of its range of movement and not bind.







Air suspensions with this sensor seen on the front struts need to be modified and reattached in the same position as seen in photos below. Not all air suspension models will have this sensor.





## **TROUBLE SHOOTING**

1. Noise in rear end of vehicle. (Knocking, clunking over bumps)

In some cases when the shock mounts are very worn and loose it can cause the upper shock mount on the airbags to contact the subframe after lowering for the lift kit. You can inspect this area below for contact points. To resolve you can drop the airbag and shave some of the upper mount to clear the subframe.







You can see below the place of contact after time.



2. Height is not level front to rear.

You can dial in the height higher and lower to desired height by lengthening or shortening the level sensor links.

LENGTHEN = Lowers vehicle

SHORTEN = raises vehicle



Rear:

- Crossmember Bolts
  - M12 x 1.5 x 80
  - 90 NM + 90°
- Lower Control Arm/ Subframe
  - M14 x 1.5
  - Front- 150 NM + 90°
  - Rear- 180 NM
- Tie Rod/ Subframe
  - M14 x 1.5
  - 180 NM
- Tie Rod/ Spindle
  - M16 x 1.5
  - 150 NM + 90°
- Upper Arm/ Front Subframe
  - M12 x 1.5
  - Front- 90 NM + 90°
  - Rear- 90 NM + 90°
- Upper Arm/ Spindle
  - Front- M14 x 1.5
  - 150 NM + 90°
  - Rear- M16 x 1.5
  - 150 NM + 90°



Front:

- Lower Control Arm/ Subframe
  - M14 x 1.5
  - 180 NM
- Air Strut/ Lower Control Arm
  - M14 x 1.5 x 102
  - 150 NM + 90°
- Upper Control Arm/ Mount
  - M10
  - 50 NM + 90°
- Upper Control Arm Ball Joint
  - M12 x 1.5
  - 95 NM
- Strut Top Hat/ Body
  - ?
  - 50 NM + 90°
- Lower Ball Joint
  - M14 x 1.5
  - 105 NM
- Tie Rod End
  - M14 x 1.5
  - 90 NM

***IF YOU HAVE ANY QUESTIONS, COMMENTS, OR CONCERNS RELATED TO YOUR PRODUCT  
PLEASE CONTACT US!***