Cayenne / Touareg Upper control arm installation

Disclaimer: This installation guide is provided for informational purposes only. We are not responsible for any damage or injuries resulting from improper installation or use of this product. It is essential to follow all safety guidelines and maintain safe installation habits. We strongly recommend that you consult with or hire a professional installer to ensure proper installation. Use this guide at your own risk.

- 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.

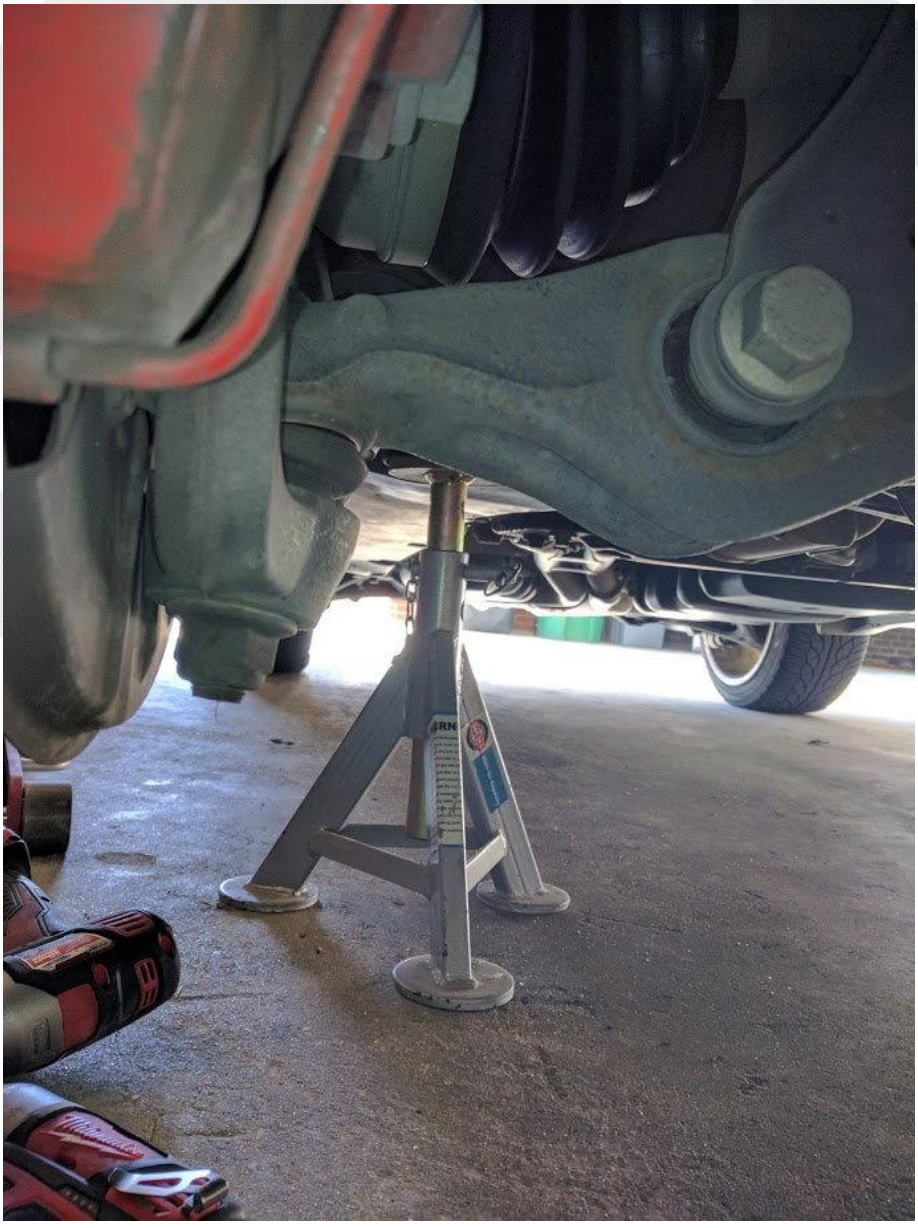
If you are replacing the upper control arms, now (before you jack up the car) is a good time to remove the windshield wipers and cowl using the instructions found here: https://bit.ly/2N0pPOp . If you're only doing the lower control arms, you can skip this step.

"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 its 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.

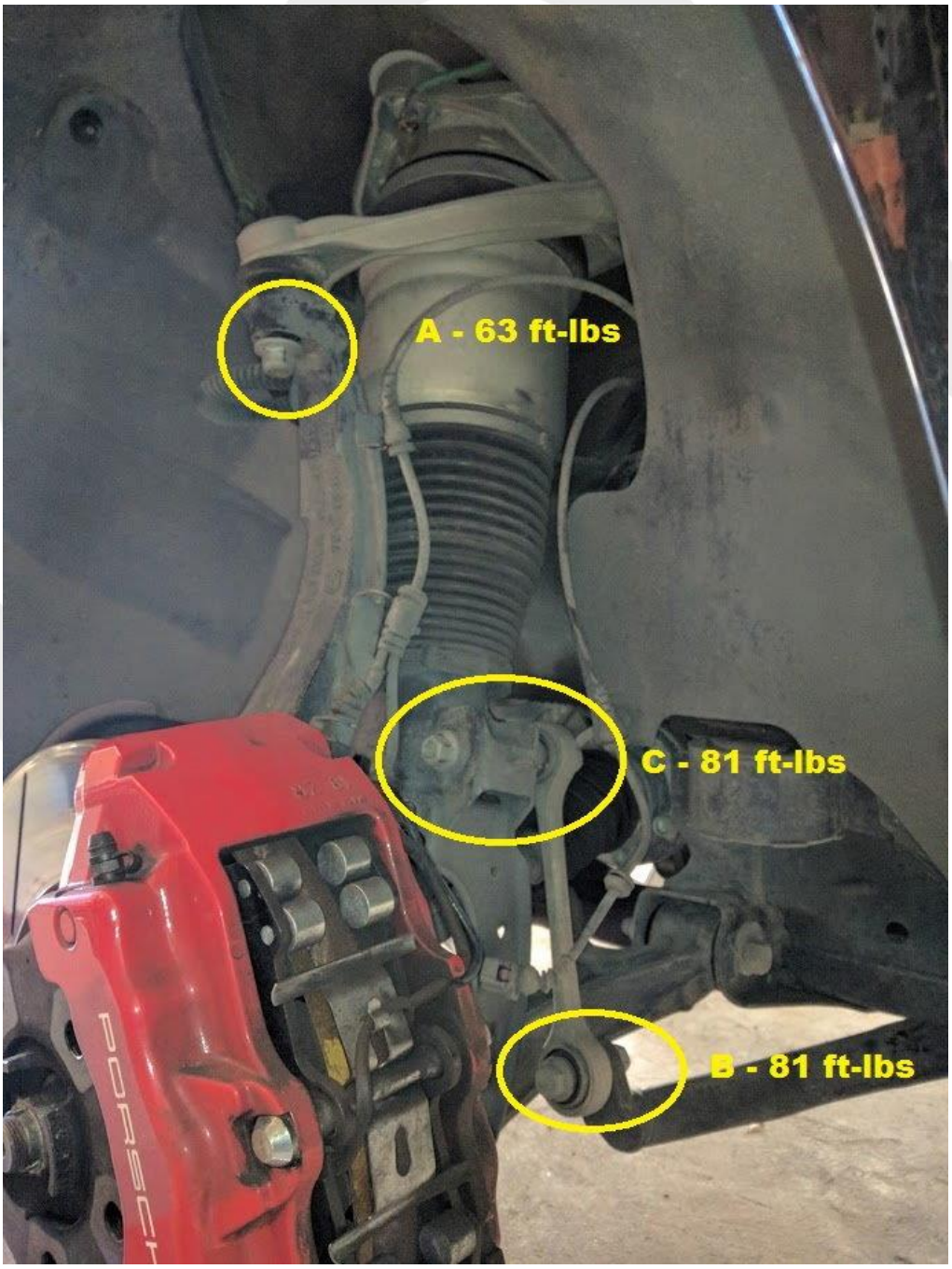
E. Big, lower control arm to steering knuckle ball joint (21mm)

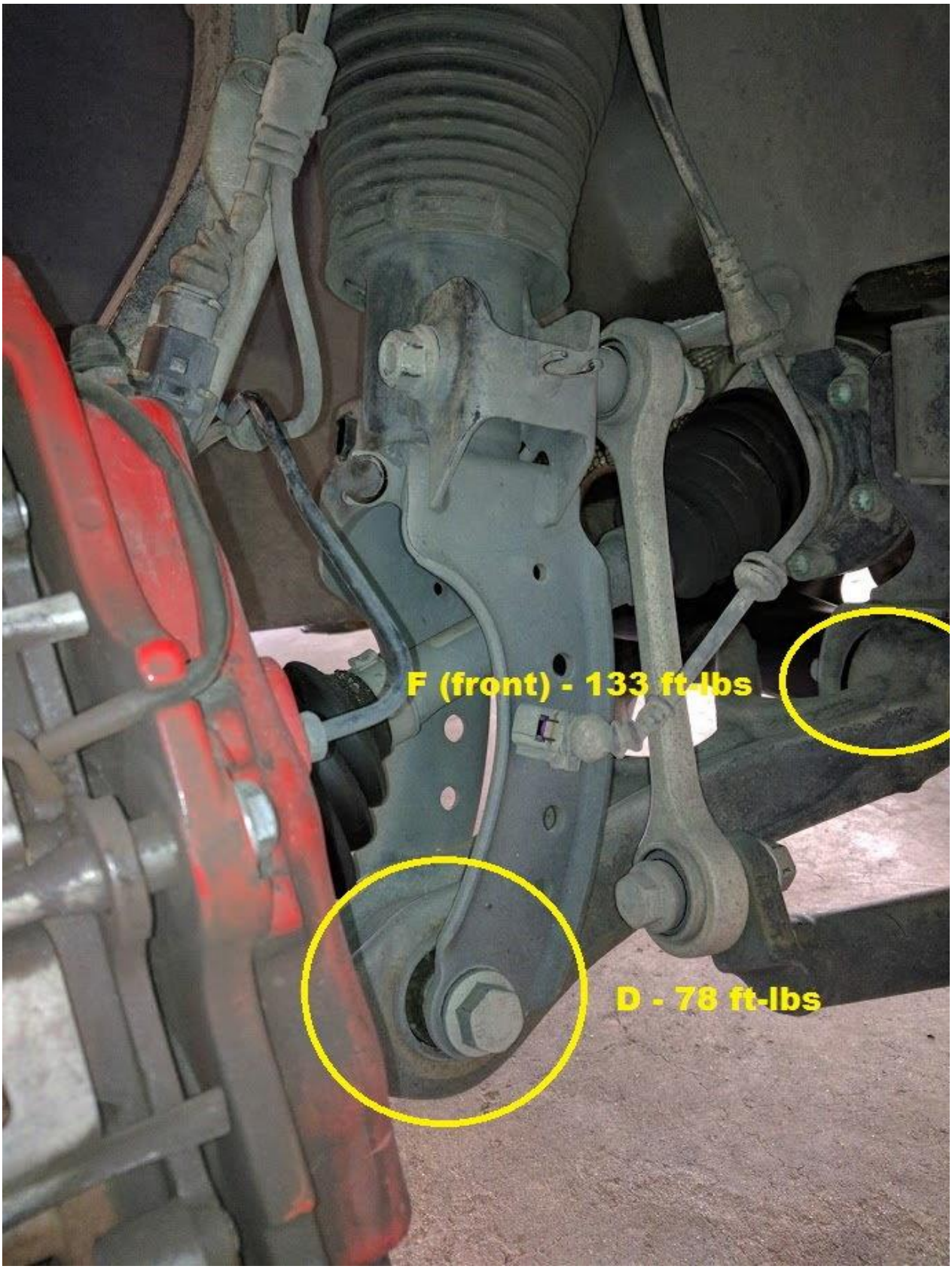
F. Both lower control arm to subframe bolts (21mm x 2) – NOTE: There are two eccentric bolts per lower arm and they are really tight. Use a long, quality box end wrench and LOOSEN ON THE NUT SIDE ONLY. If you try to loosen from the bolt head side you will damage the bolt or the eccentric washer.

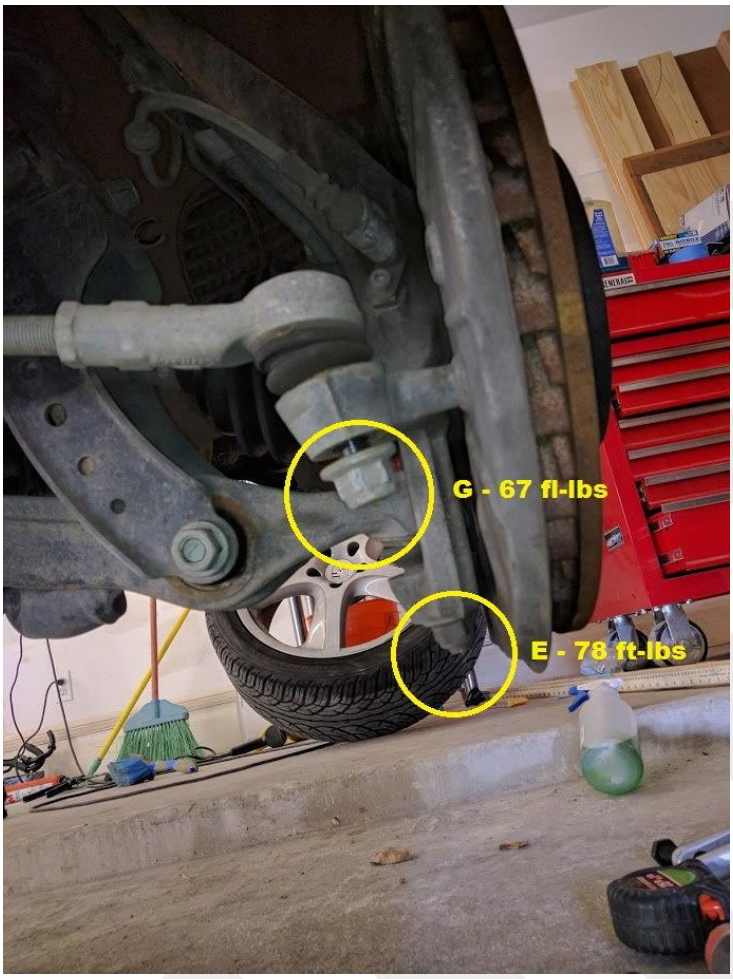
G. Tie rod to steering knuckle ball joint (21mm) – this is not absolutely required, but I found it useful as detaching the tie rod allows you to move/position the steering knuckle

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.




F (front) - 133 ft-lbs
D - 78 ft-lbs



UPPER CONTROL ARM REMOVAL/REPLACEMENT

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

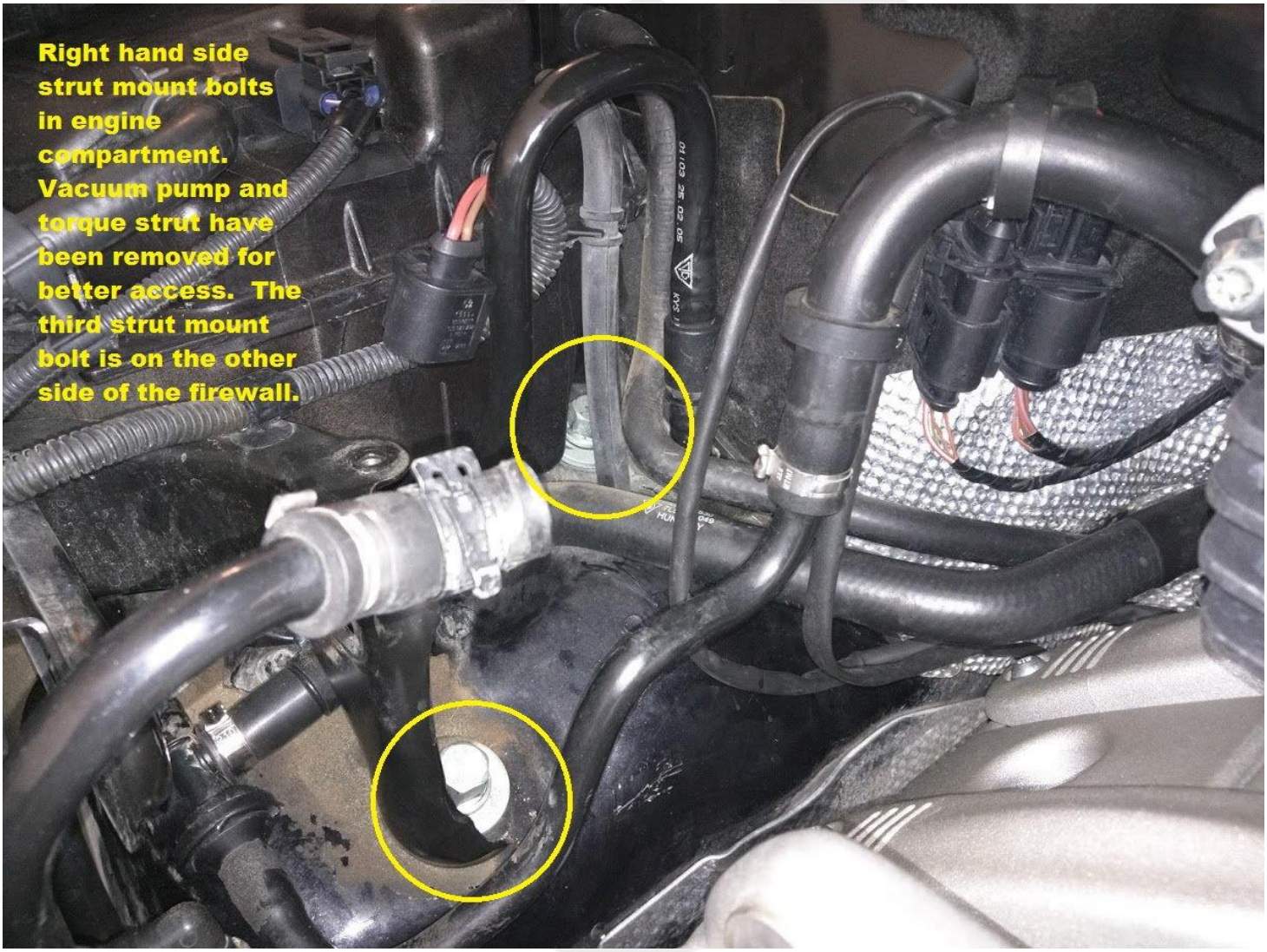
11) Starting from the top of the car, if not done already as per Step 3 in the prior section, remove the wipers and cowl.

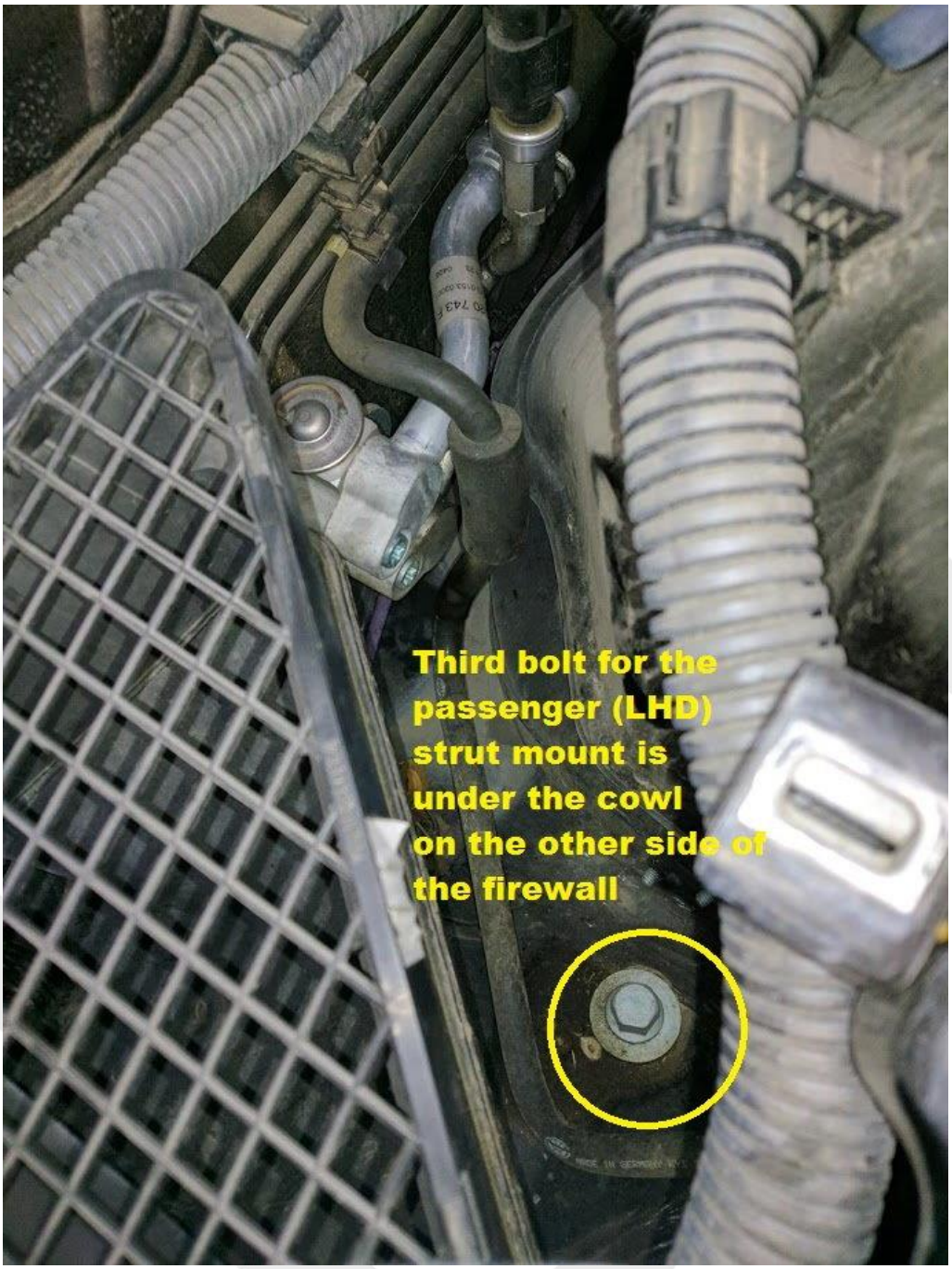
12) Optional, but recommended: If you are replacing the engine torque strut and/or the brake vacuum hose, now is a good time to remove the vacuum pump and torque strut as removing both will improve access.

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.

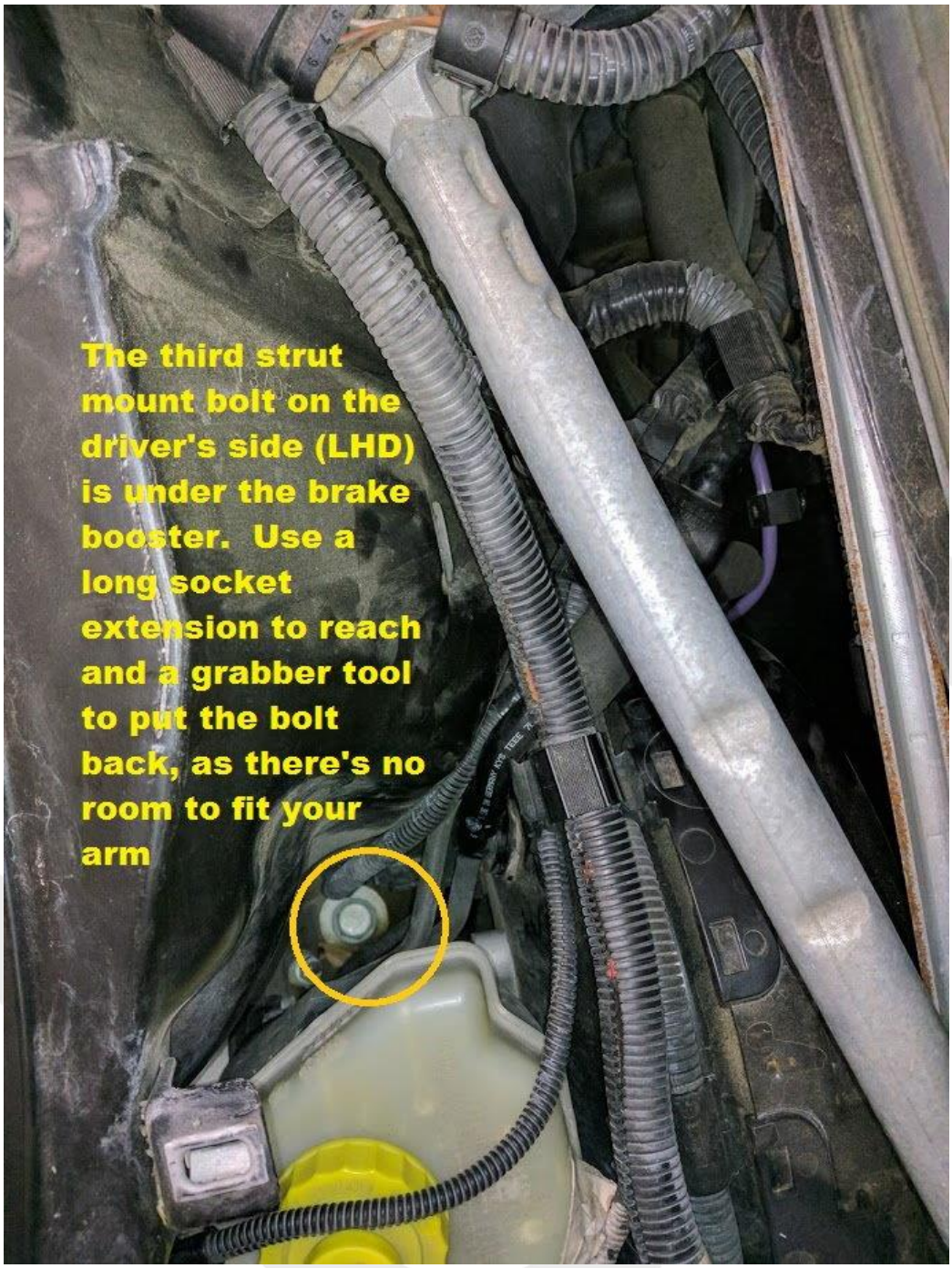
Here's a picture of the passenger (RHD) side area around the vacuum pump/torque arm (both removed) showing 2 of the 3 bolts that hold the air strut mount. The second picture shows the location of the third bolt on the other side of the fire wall under the cowl that was previously removed.





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/fingers on.

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



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 your 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 air line 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.

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