We borrow the shield from the oil passenger side one and put it onto the new one we'll put in the passenger side. This is designed to protect it from the headers which are nearby.

Both engine mounts are identical. The ones you take off may not be though, as the passenger side one was more 'smooshed' than the drivers side.

You put the new ones in in the same way as the old ones. They use poke-yoke so it's hard to do it wrong.

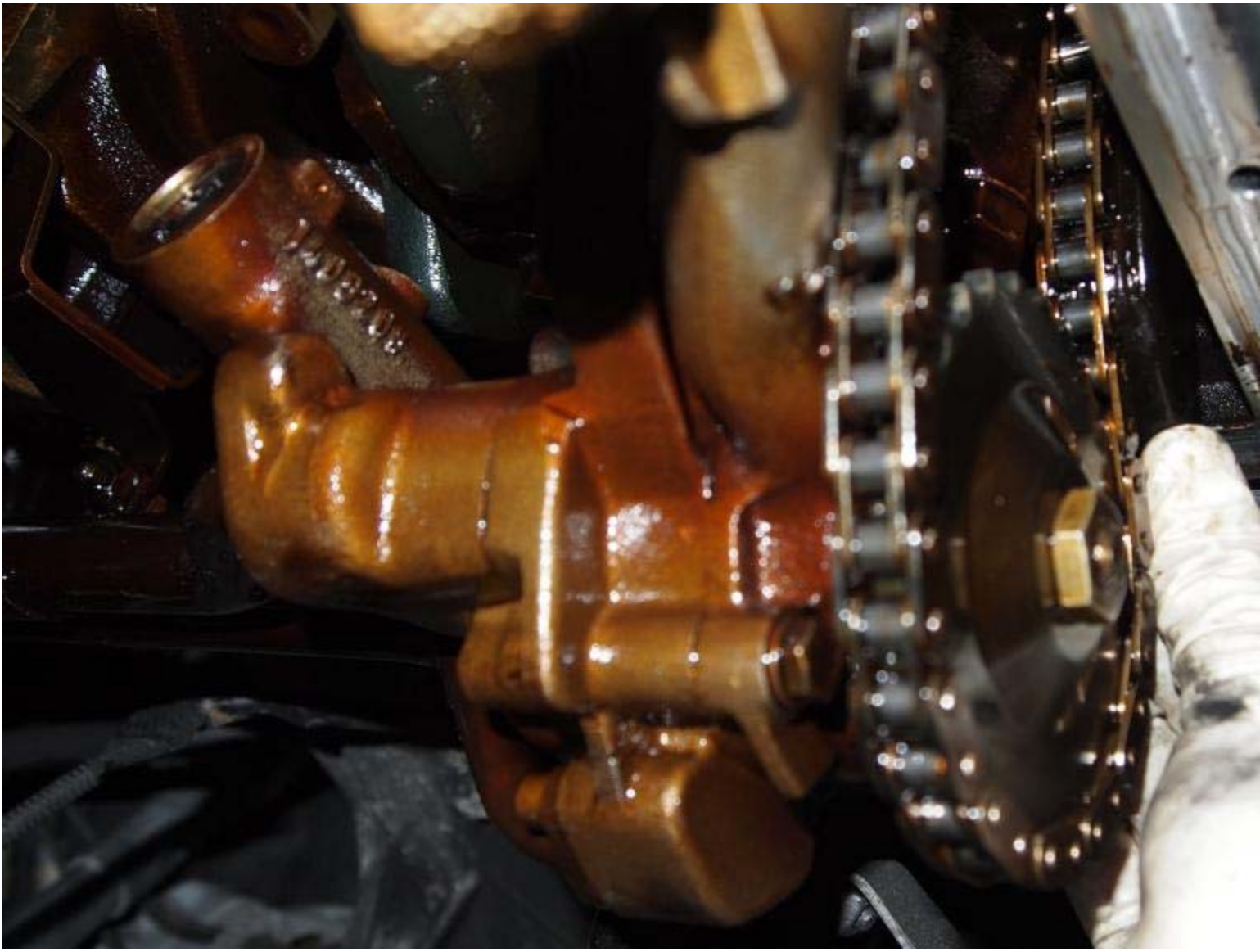
Finally, a sneak preview of what it will look like once you mount it back up:


G & G
K K P
83843
SERIE
INFO 1
E-7381.H

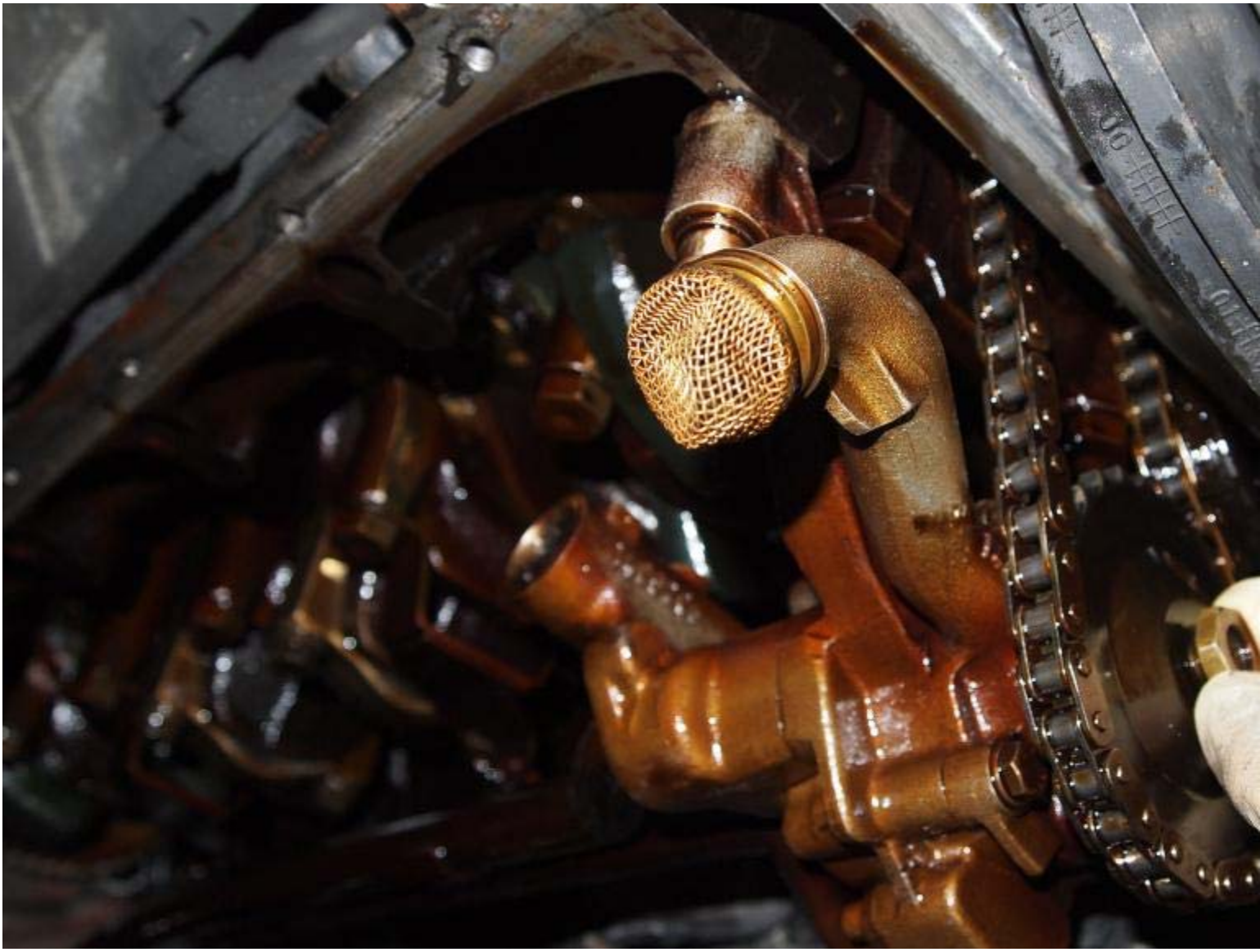
REMOVING OIL PUMP

We want to remove the single nut holding the oil pump sprocket.
It's an M17 socket, **reverse** threaded

So that the stress you put on the chain doesn't break the plastic -yes, plastic- chain tensioner, use a finger to move it out of the way while you remove the nut

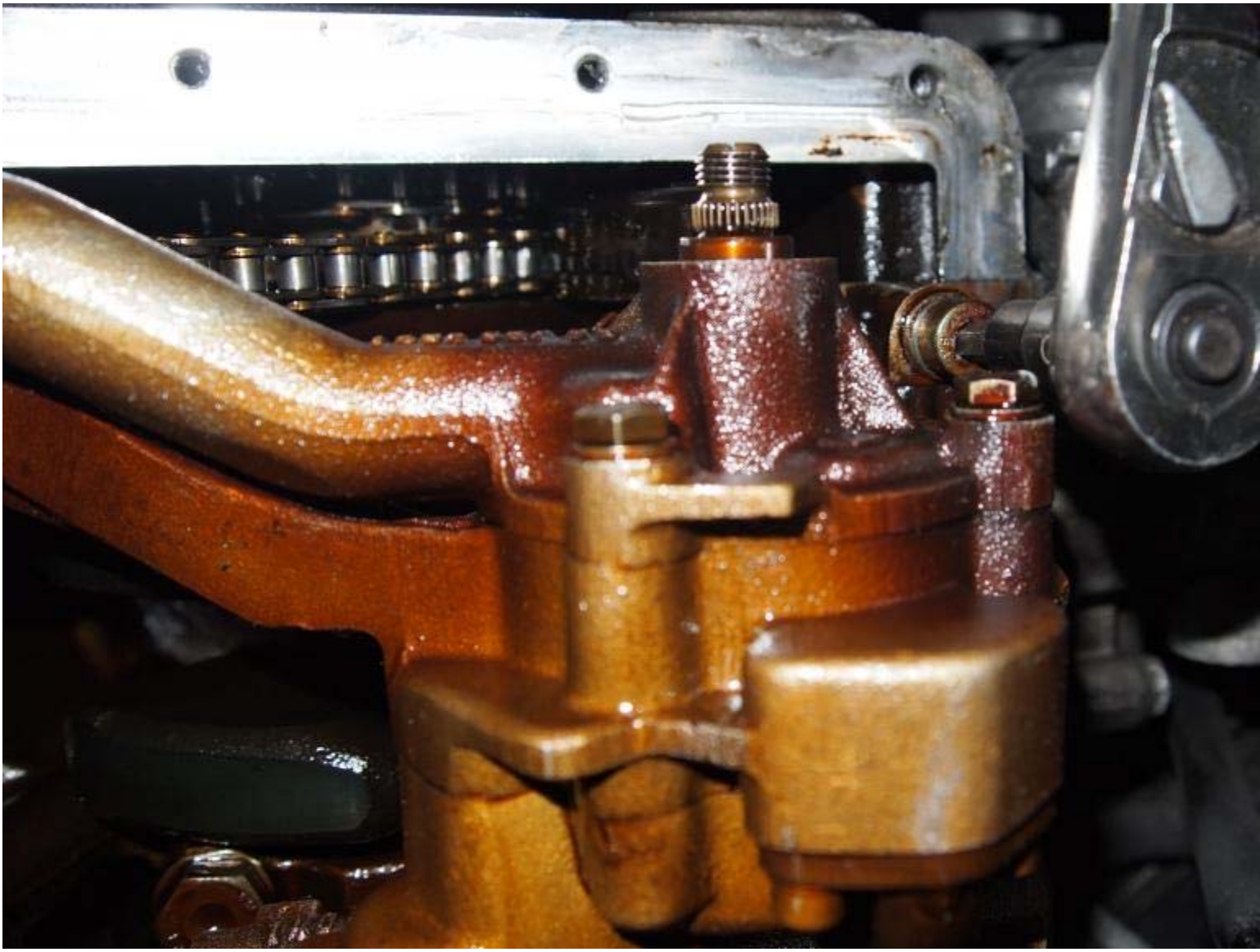


There we go

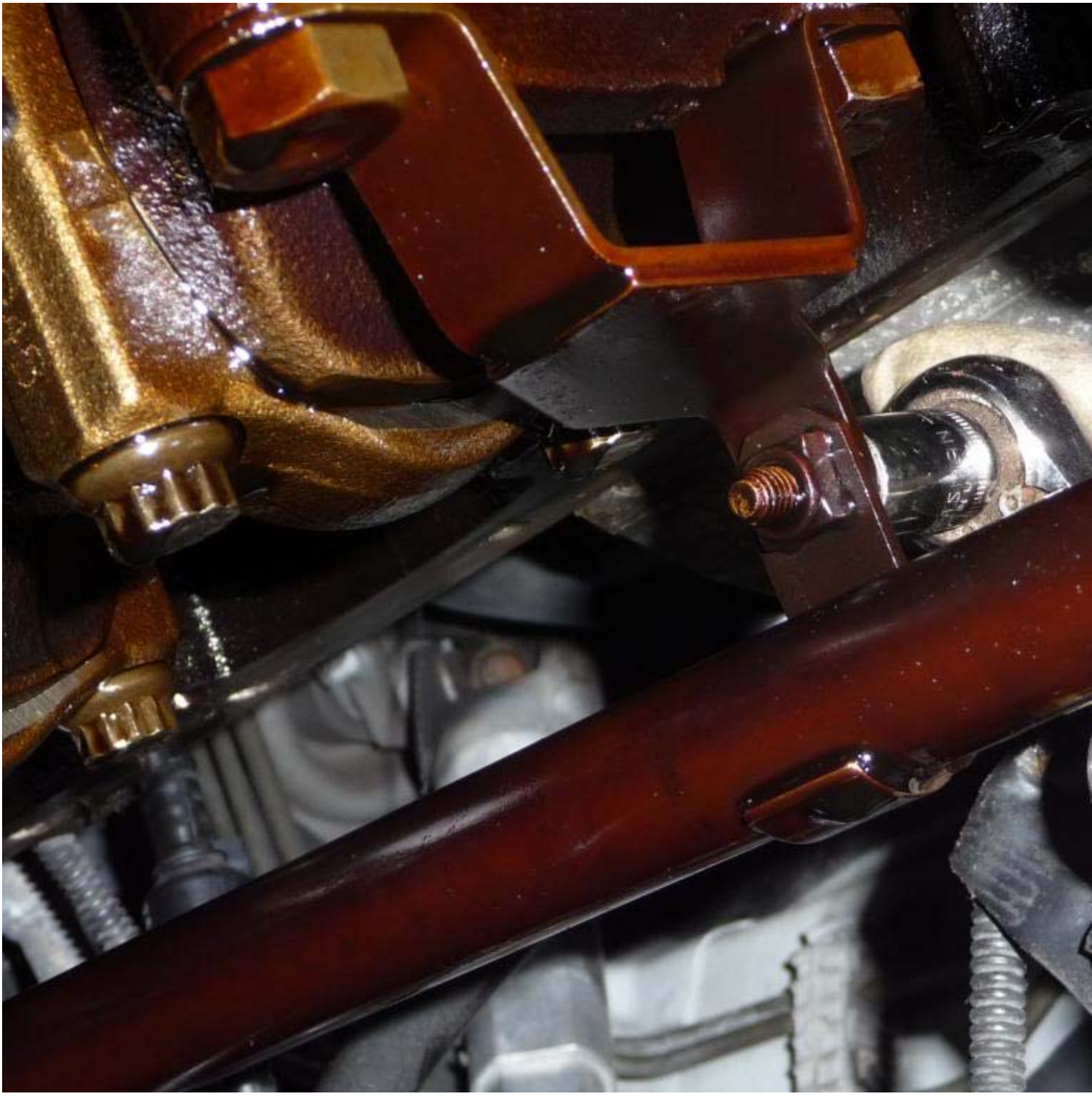


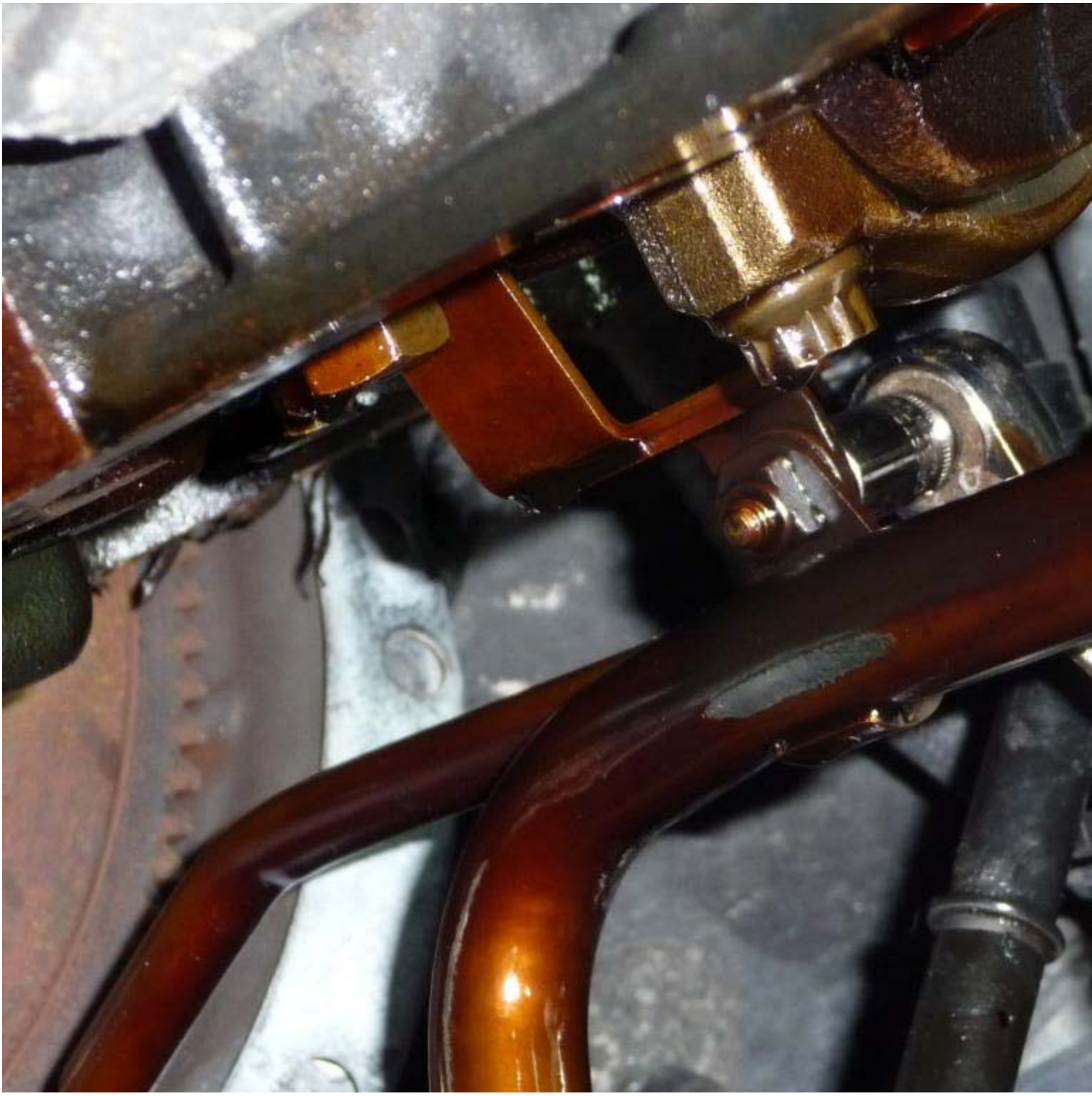
Remove the sprocket

We move on to removing the oil pump body. It's held on by three allen bolts.
My car has had the bearing recall done to it. The morons at the dealership half stripped the heads... so annoying to see
We will not remove the three bolts yet as first we will dismount oil return lines

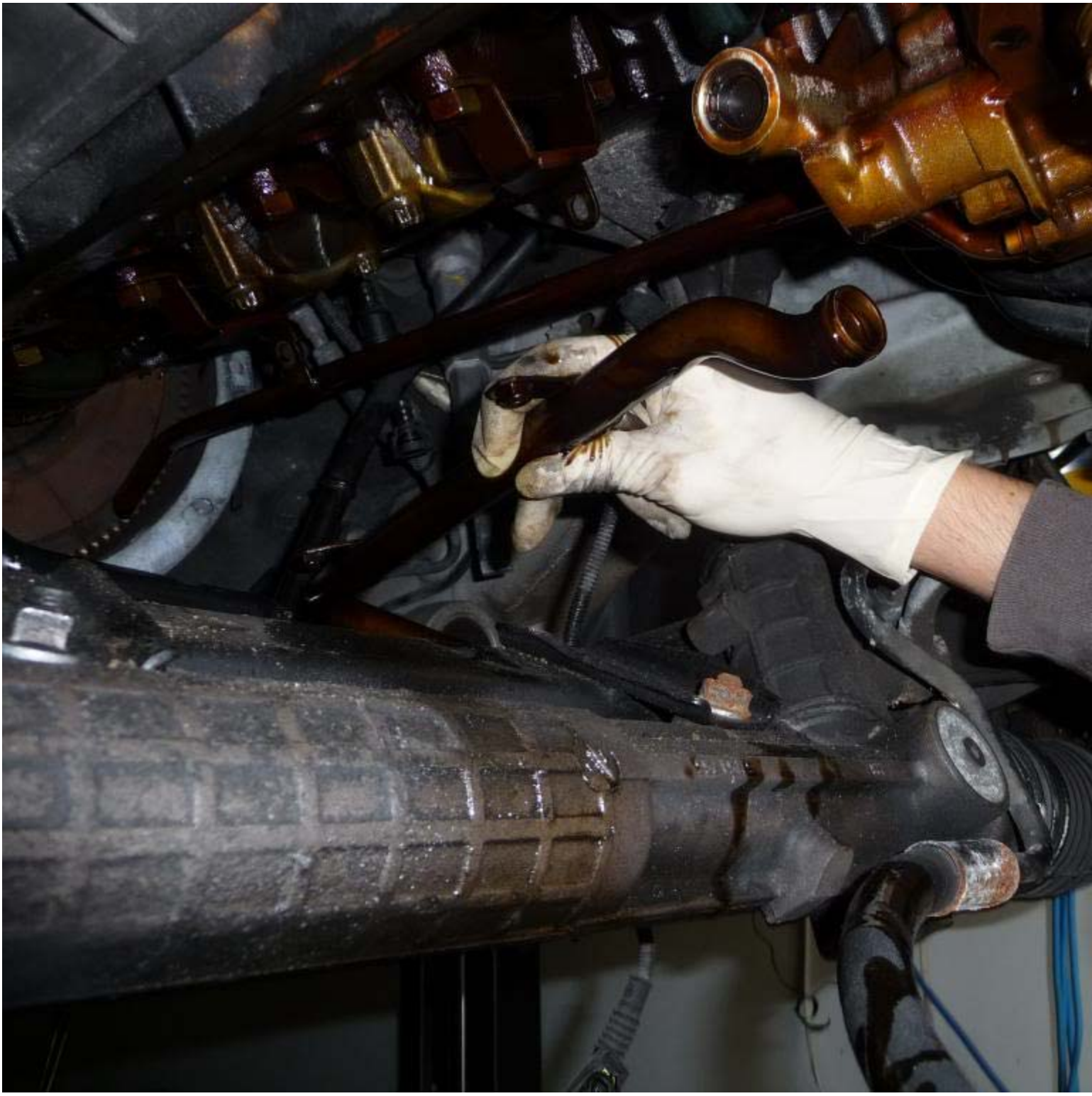


We also need to remove the rest of the bolts holding the oil return and suction lines to the car



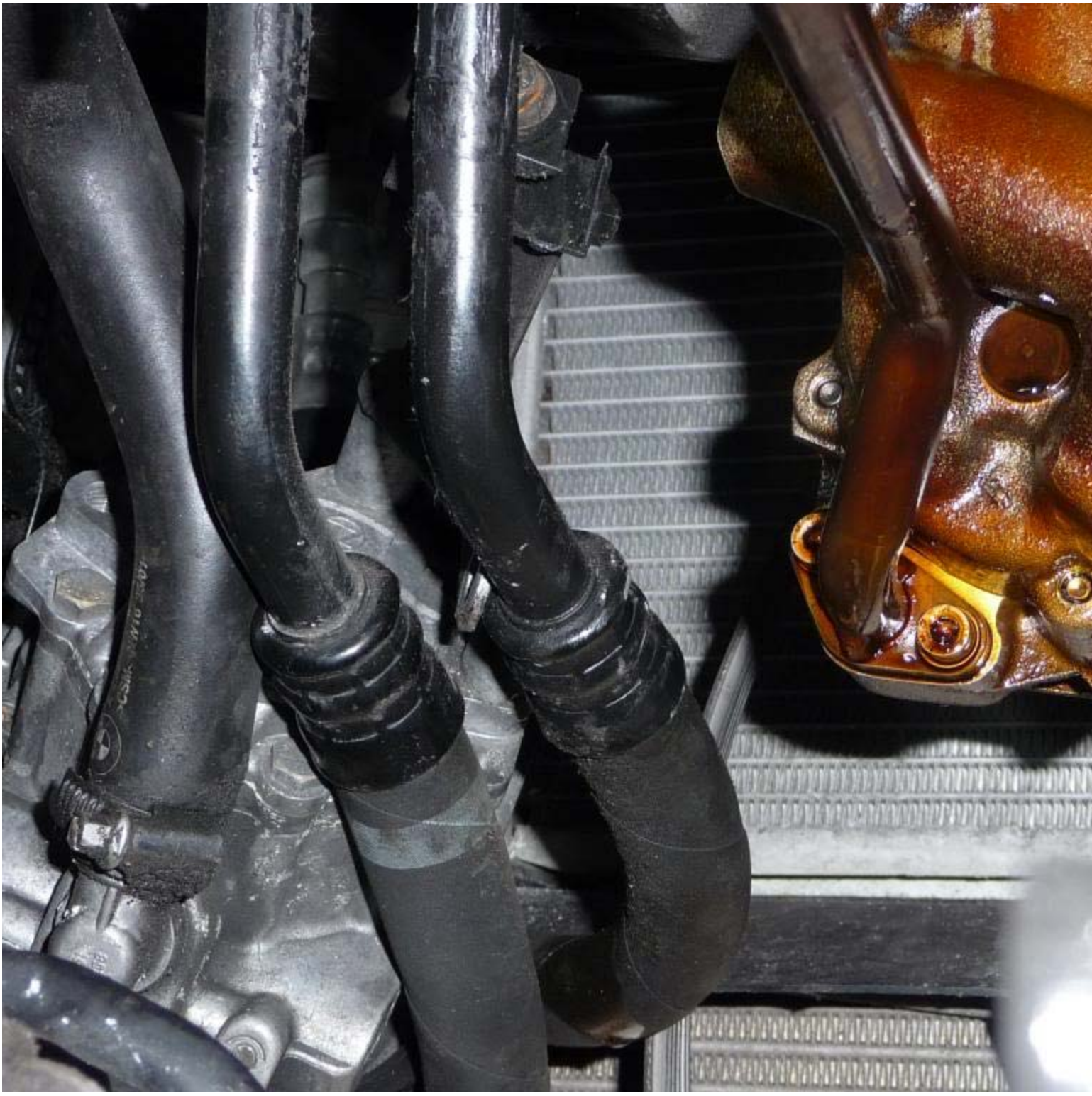


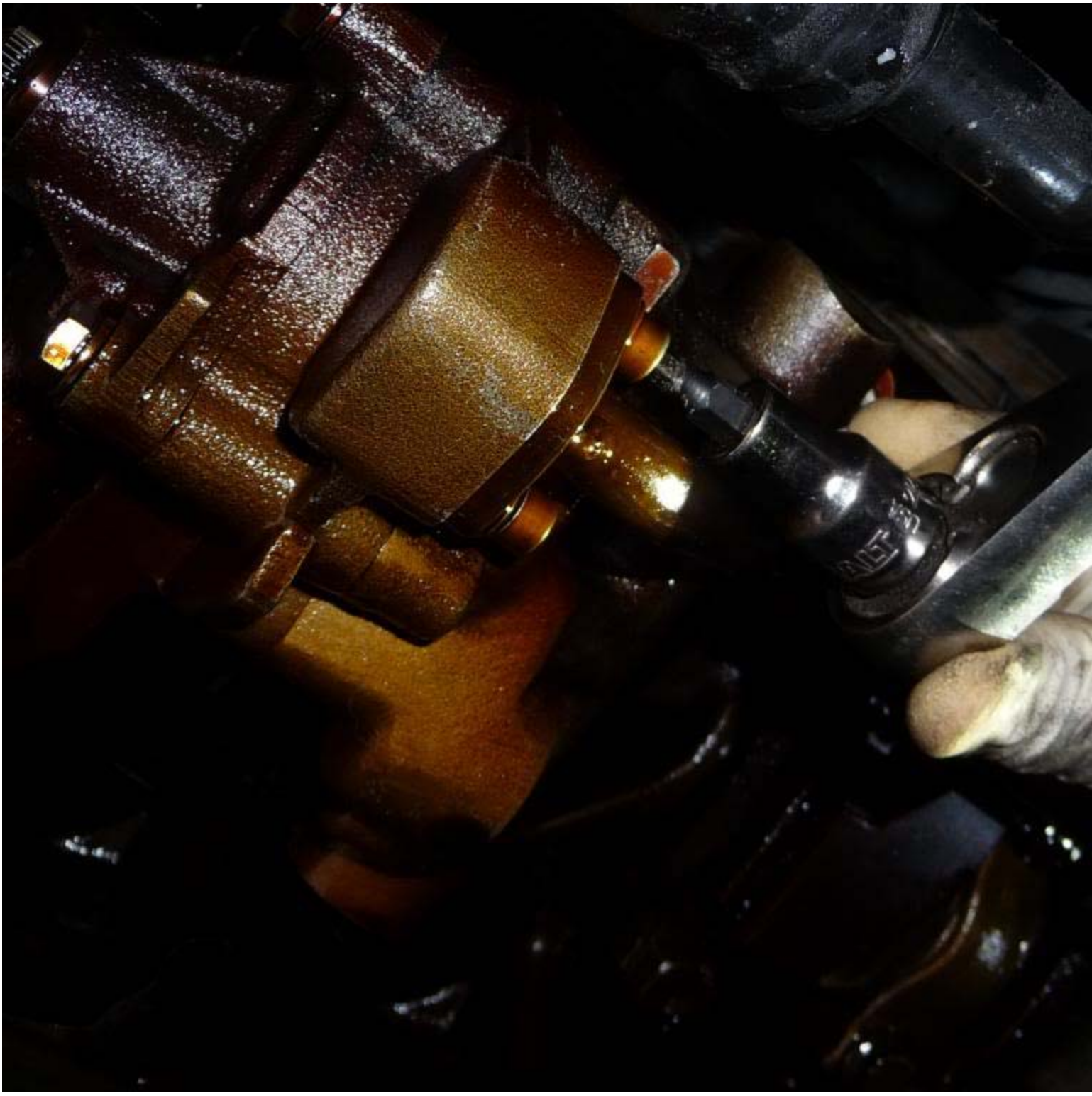
Out! As you can imagine, all of these components will be full of oil - make sure you plan accordingly so you're not surprised with an unpleasant mouthful, or start looking for a bucket once you have oil pouring everywhere!



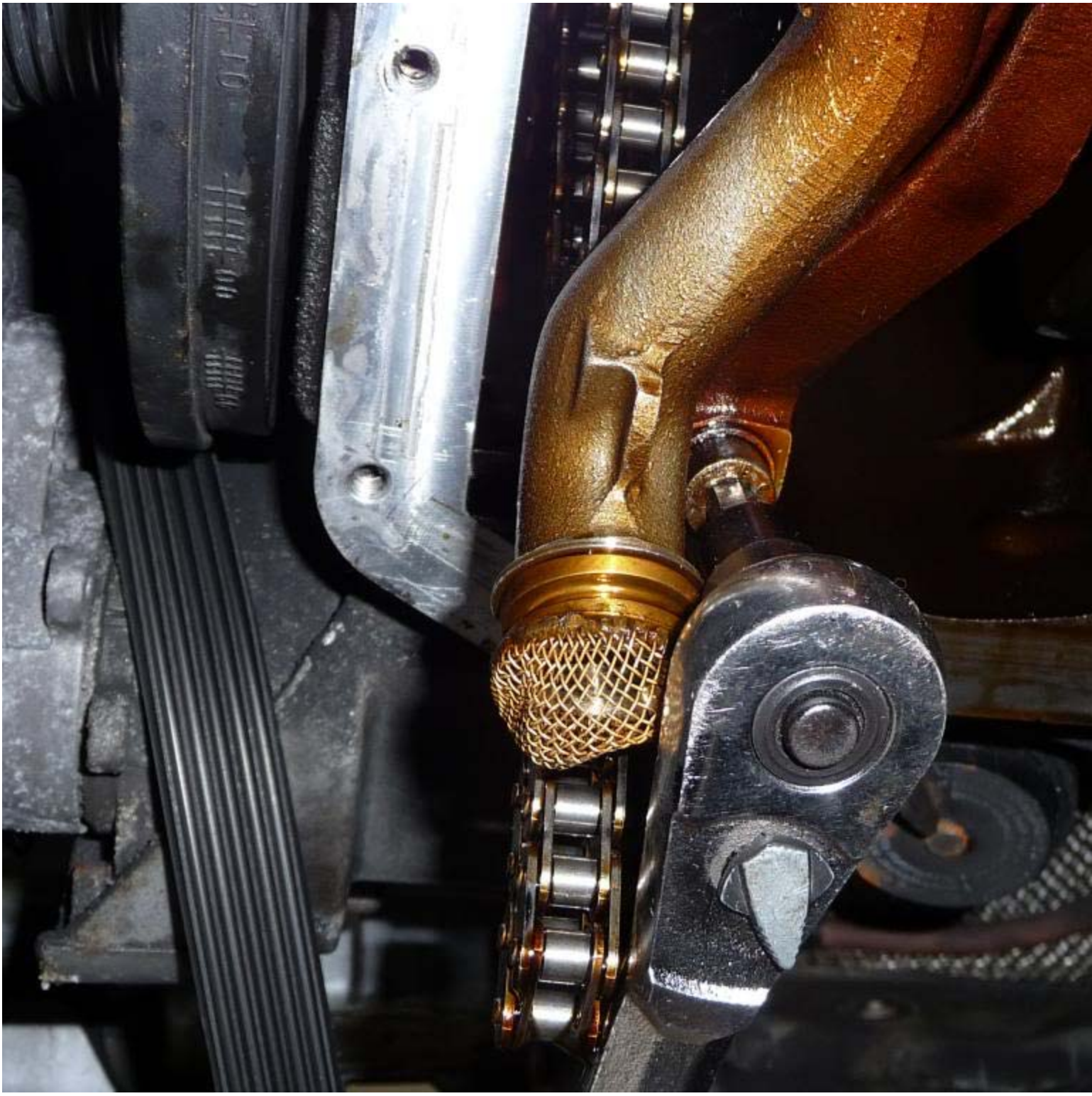
Place it inside the oil pan you've previously removed.

Now the thinner pipe. It's held on by two bolts





Pump removal. Now remove the three bolts that hold the pump onto the car



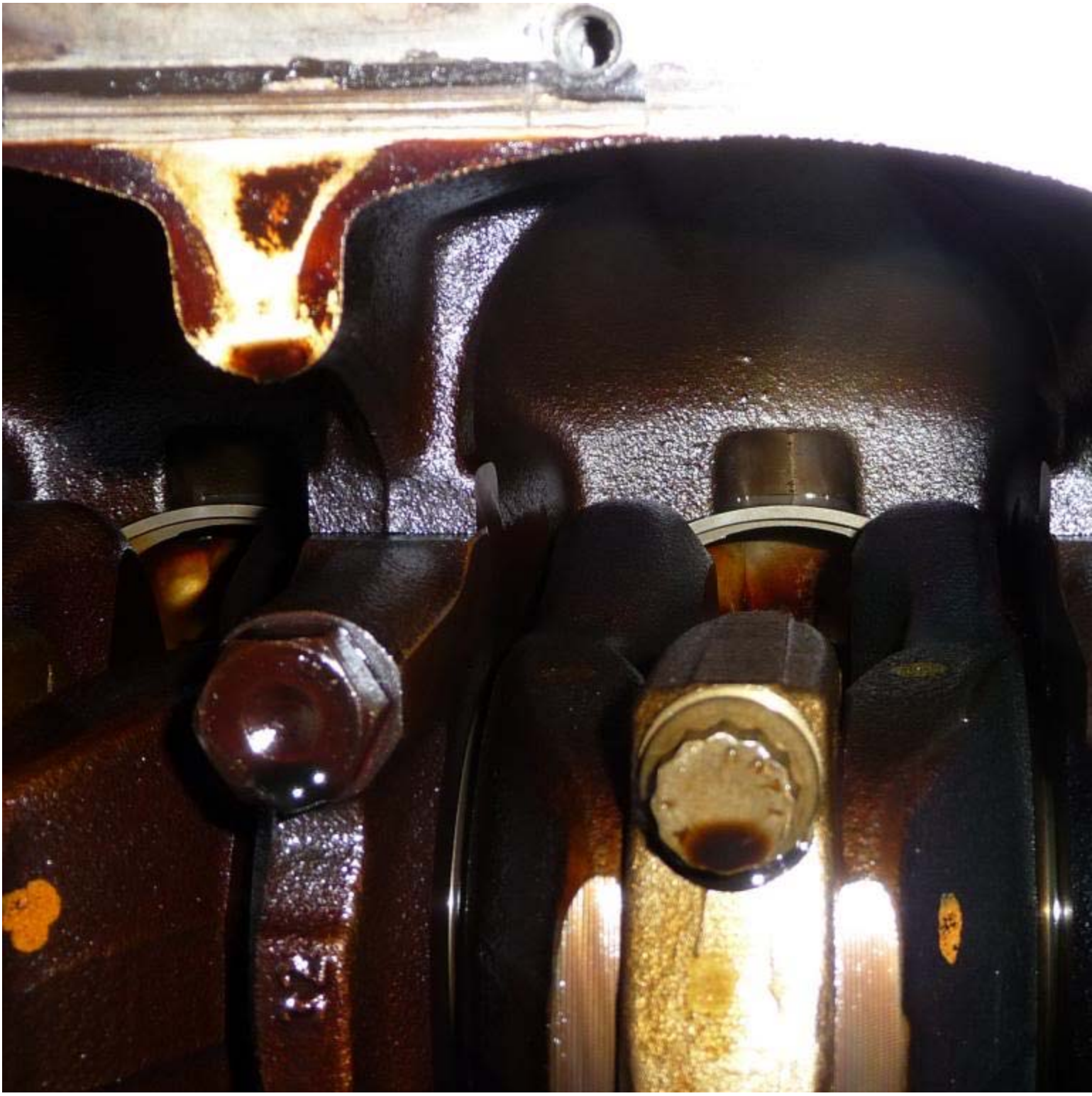
and it's out!

I put this on the oil pan along with the other associated parts

Take a moment to admire the pump. It's impressive.
This could be a good moment to get an upgraded pump... you're already in there, you might as well

Now you see the engine free from anything on the bottom end

You can see the bottom of the pistons, cylinder walls and even the oil squirters if you look hard enough



ROD BEARING REPLACEMENT

First we need a way to rotate the engine.

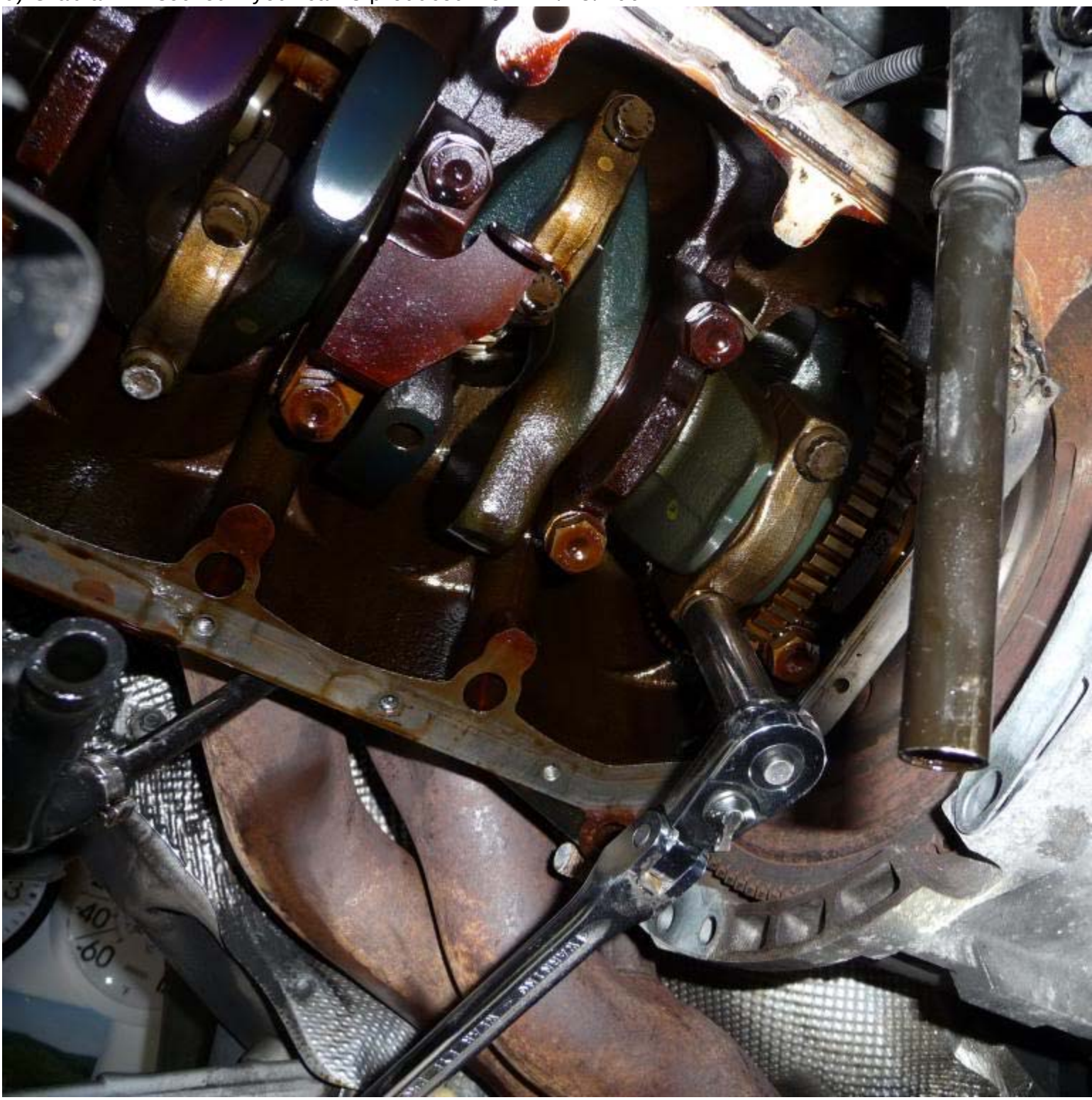
You can use a 32mm socket to rotate it from the front, accessing through the top as the fan is removed

You can reinstall the fan and use a 32mm open wrench to rotate it too. I chose the first method.

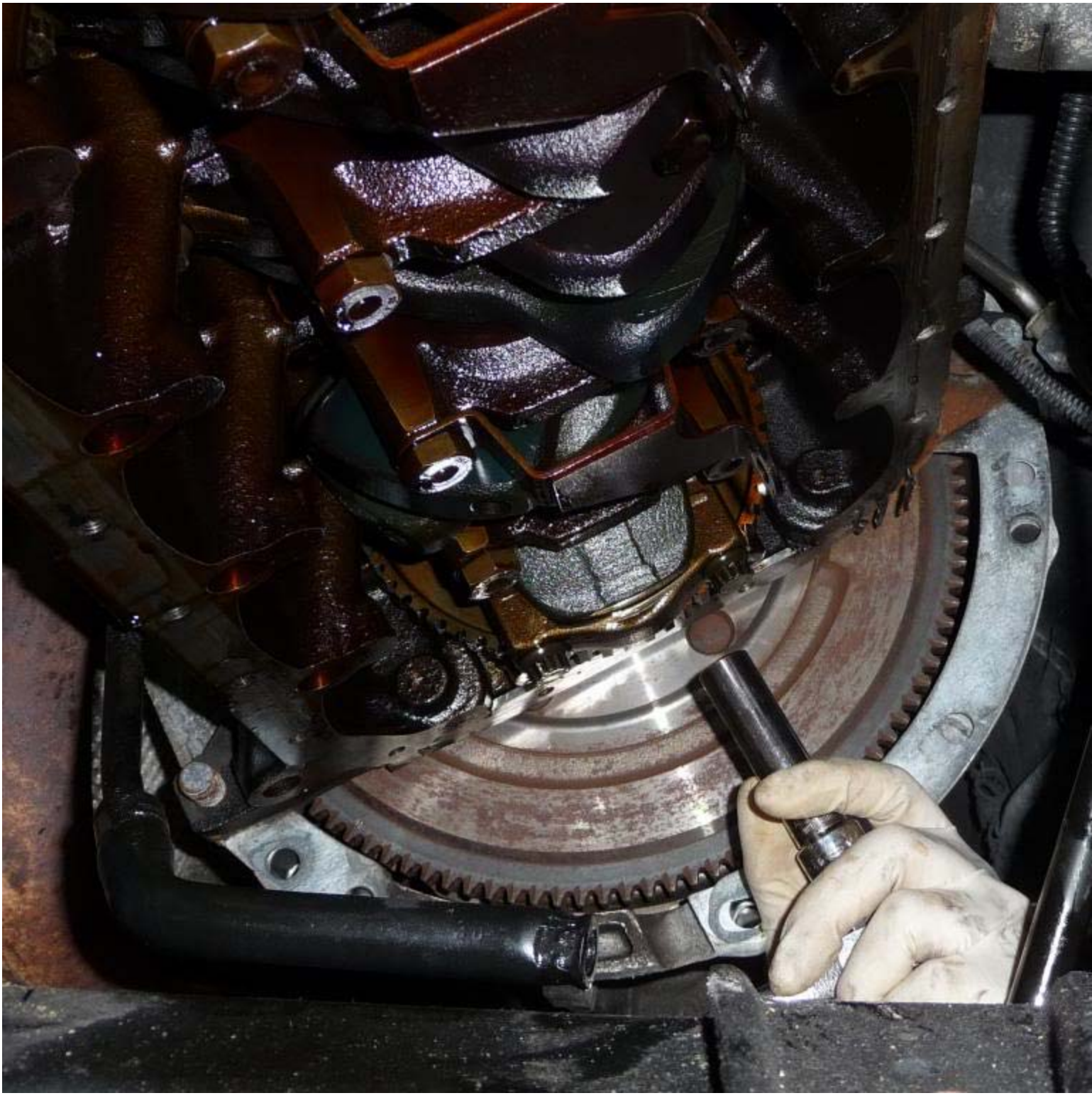
Bearings are accessed in order. First cylinders 1 and 6, then 3 and 4, then 2 and 5. So, we rotate the engine until cylinders 1 and 6 are all the way in the bottom

You know they're in the bottom because they're protruding the most of their entire travel. They want new bearings, that's why.

a) Grab a 12 point M12 socket if your car is produced up to 12/13/2002
b) Grab a E12 socket if your car is produced from 12/13/2002

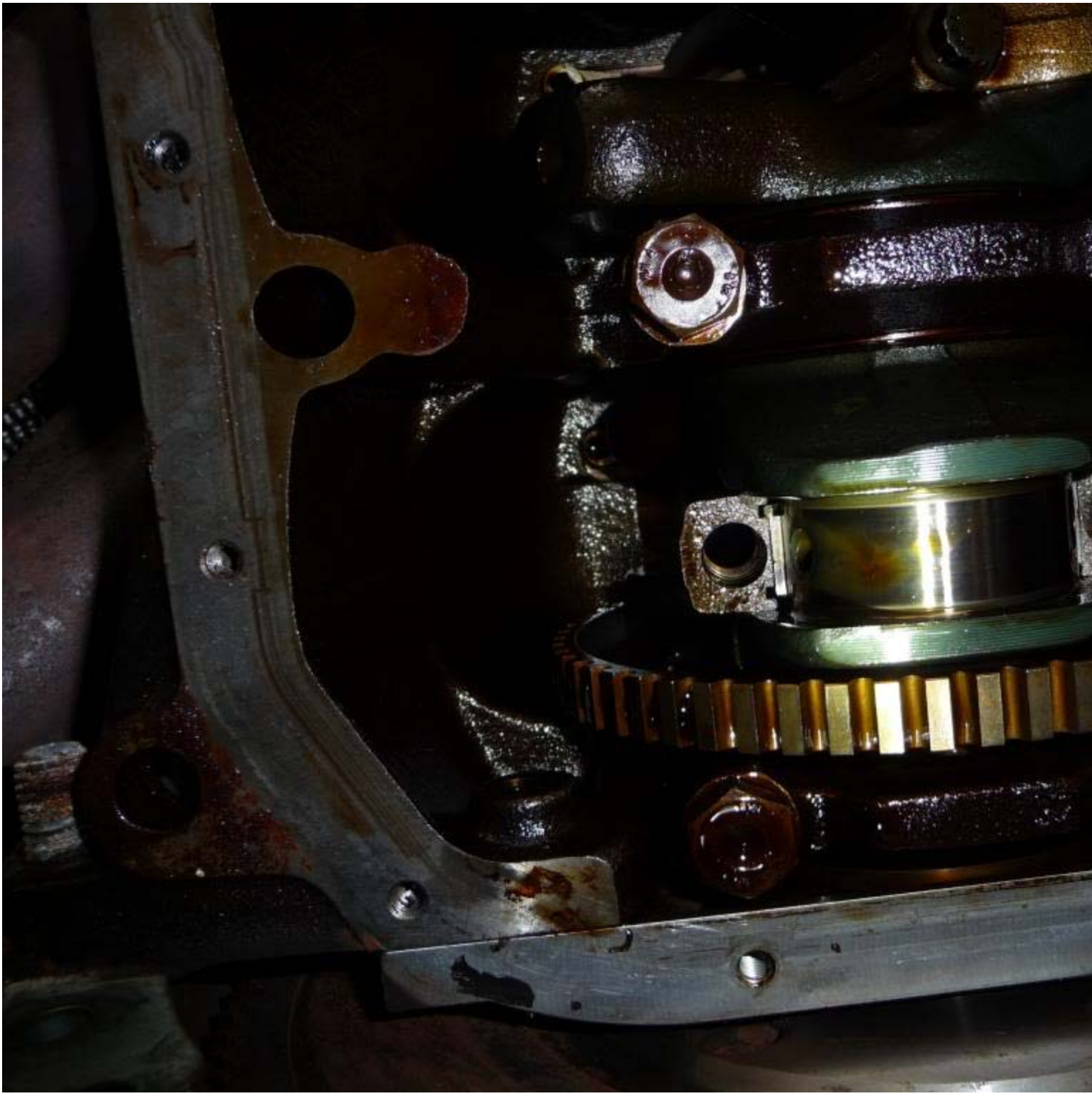


Remove the two bolts



The cap isn't just going to come down. It'll have to be persuaded. **No sharp tools, etc.** I used a dead blow hammer to help it come down, tapping gently on both sides

When it comes down you see this



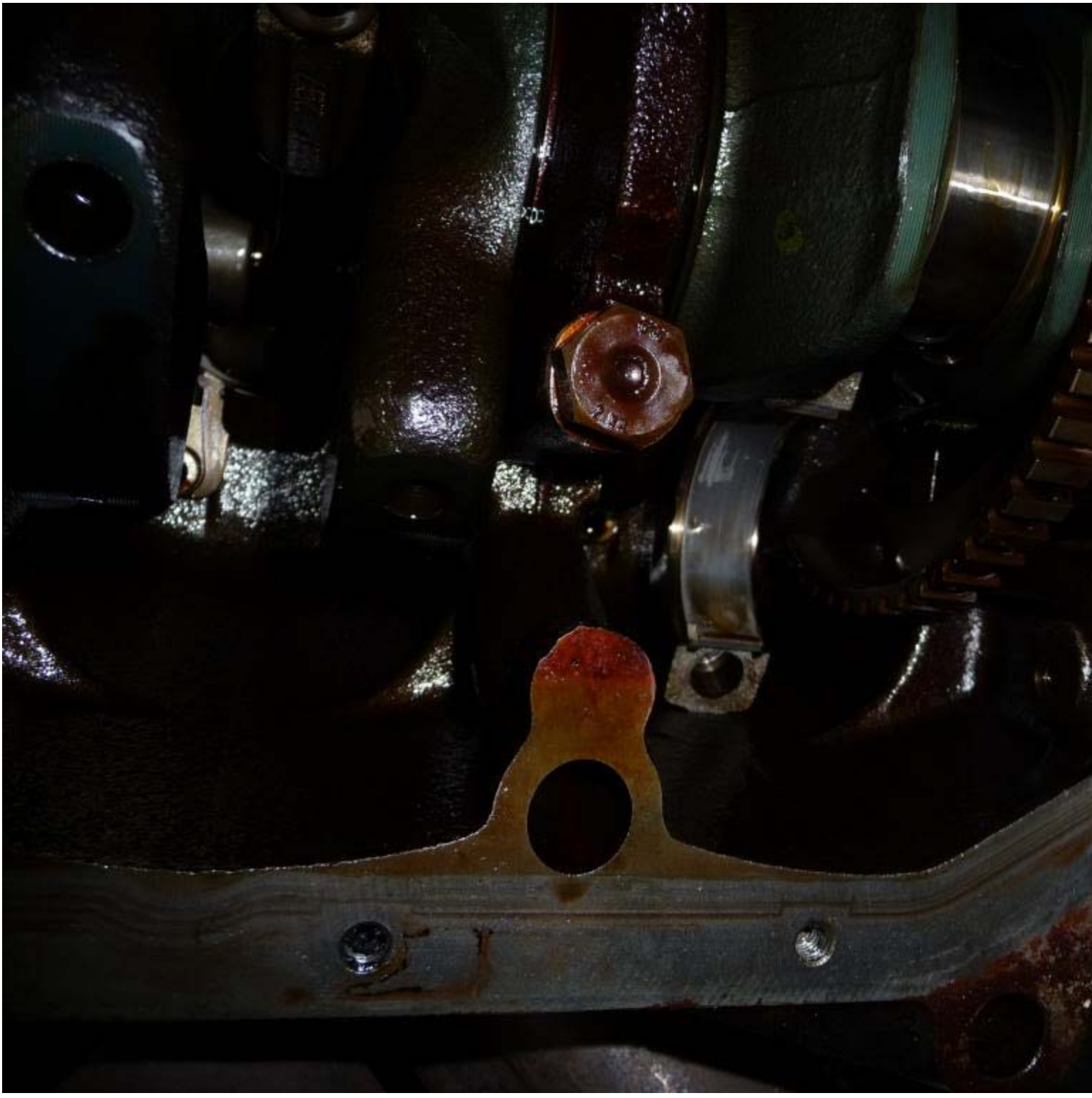
And now you have a cap in your hand

This car has fractured connecting rods. Basically the rod was one forged part, then it was split in two in a single blow.
This means the mating surfaces are rugged and only mate with each other.
This also means you must maintain rod/cap association and also reinstall in the same direction you removed them.
If you forget, just remember the part of the cap with the serial numbers faces the passenger's side

Keep track of what bolt was on which side of the cap.

Now lift the rod. You do this with your fingers, softly.

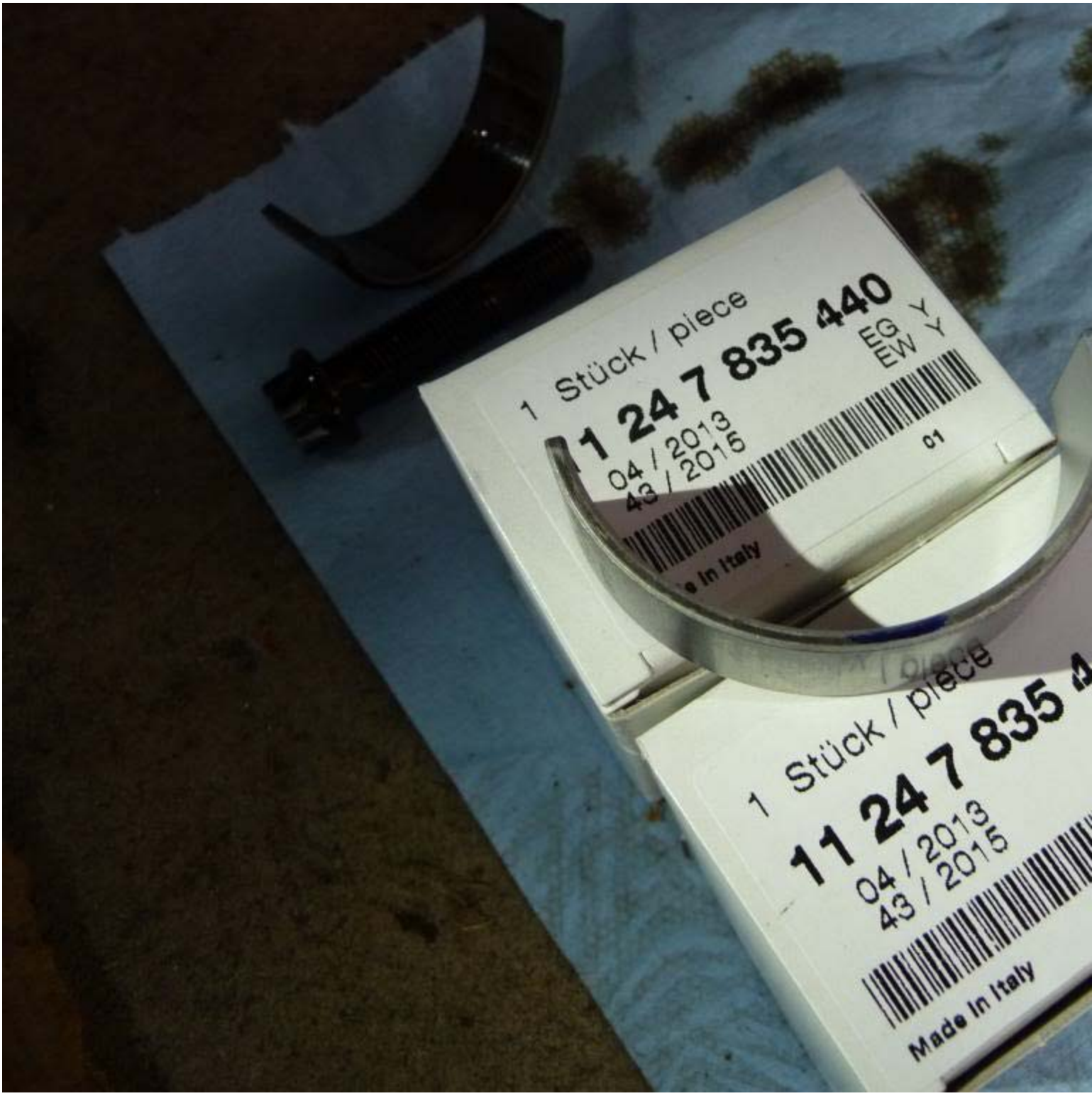
You move the piston up until it clears the crank and can show through one of the sides.
Move it carefully. The surface is extremely hard (especially the edges) and can marr the crank.
So it's better to lift the piston too much than too little, the only problem will be slightly harder access reinstalling the rod bearing.



This is how I maintain association:

It's clear what is the rod side and what is the cap side.
If you forget, each bearing is color coded on its side. Red is for the cap, blue for the rod


1 Stück / piece
11 24 7 835 440
04 / 2013
43 / 2015
Made in Italy
1 Stück / piece
11 24 7 835 439
38/2012
25/2015
Made in Italy



Remove the old bearings by pushing them to the side so they rotate right off their holders

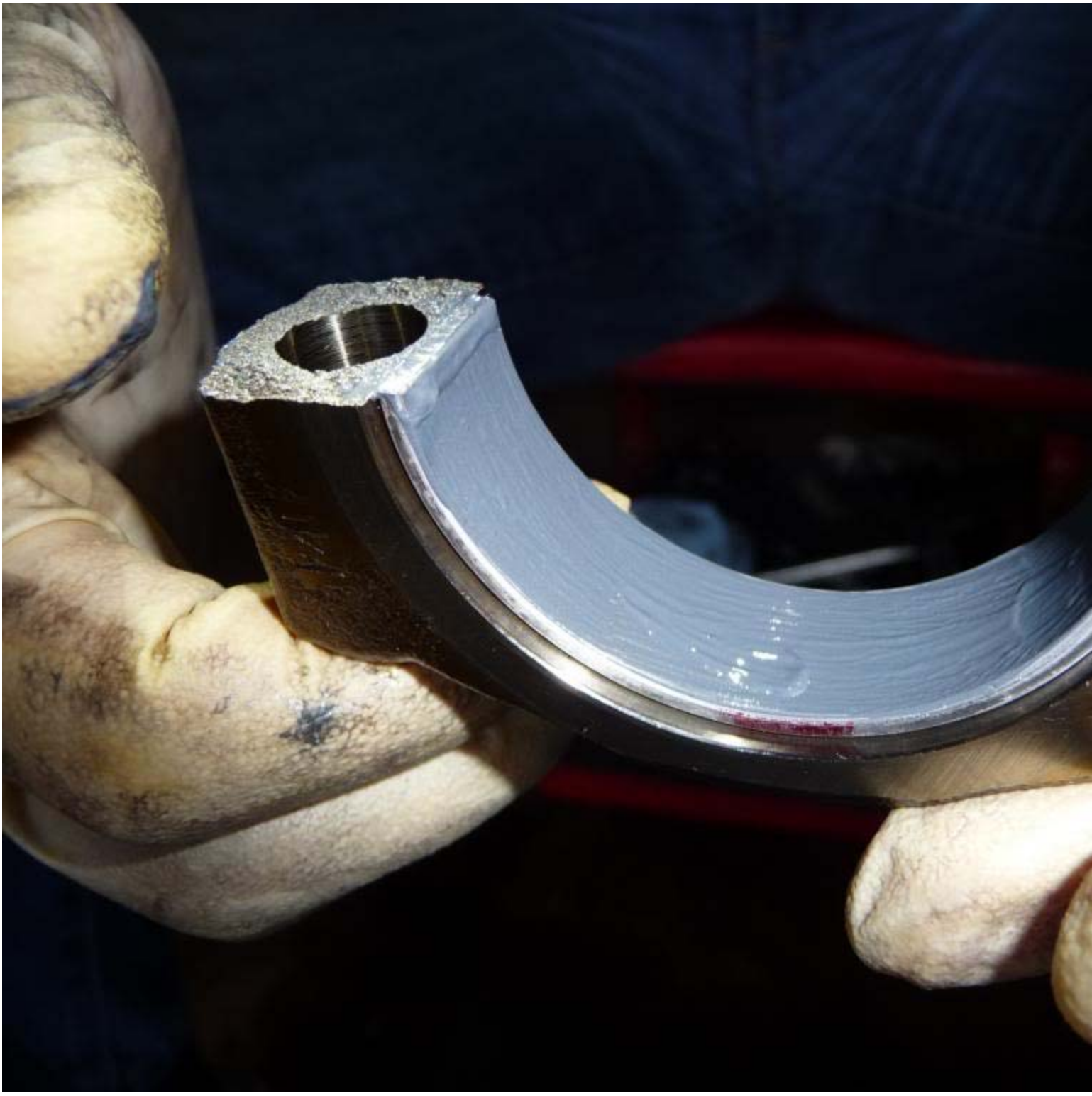
Assembly lube!
You can use 10W60. I preferred proper assembly lube.

Coat the bearing using your finger in a clean glove. You do not want dirt particles anywhere near your crank

Place it into the cap holder. You need to apply some force to get it in.
The way I did it was first put the side with the groove into the slot where it goes, then put a finger to hold it and push down on the other side. It'll be helpful to do the cap side first, as the rod side is a lot more constrained and will take some wiggling around with your index fingers instead of your thumbs...
Thankfully bearings are poke yoke and do not go in the wrong way around. Here's a closeup of the groove side, which is also the first step to put in the bearing

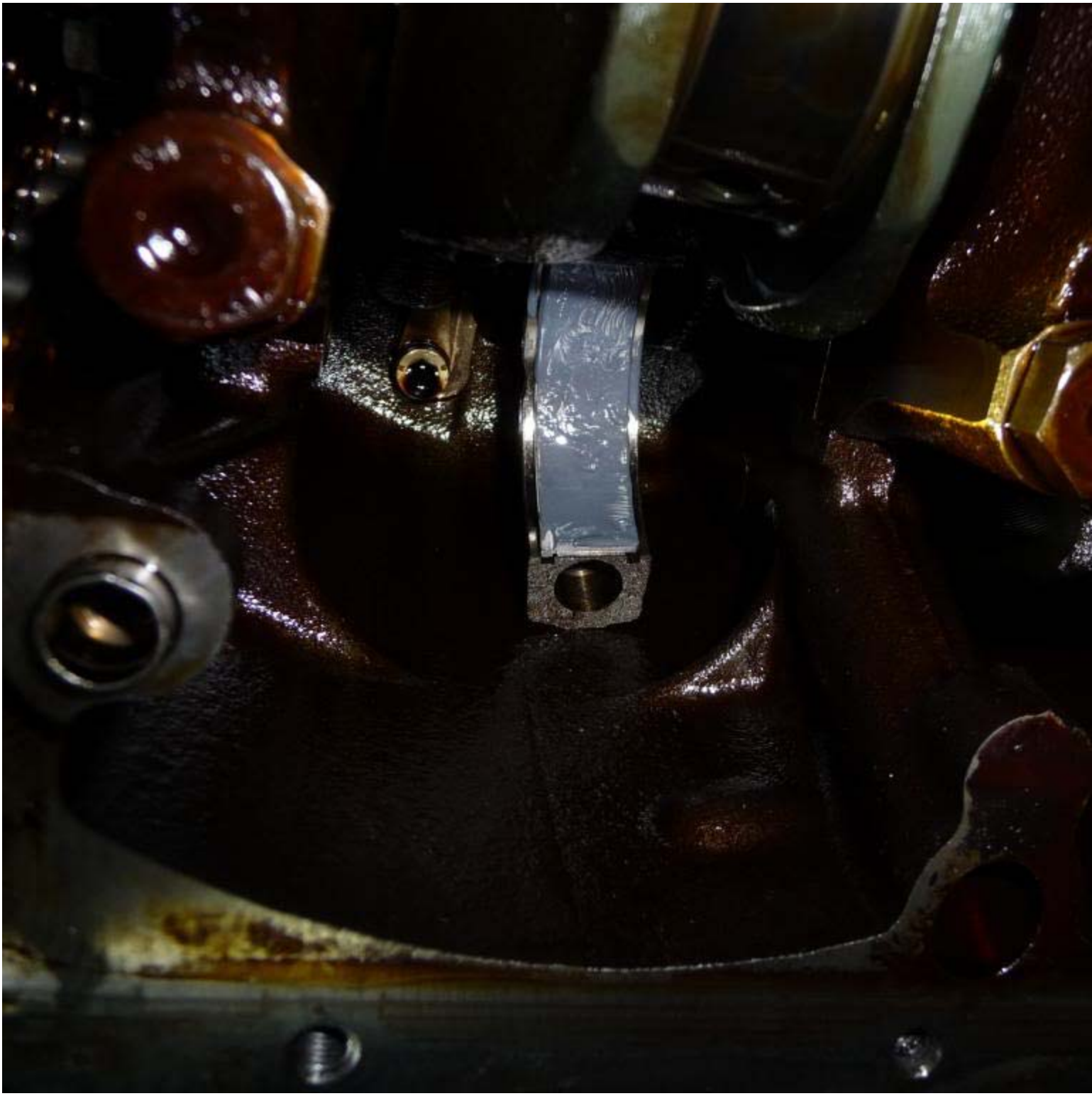
Step 2: hold with one finger (right in pic) and push down with the other finger (left in pic)

And voilà! It's in Notice the rugged surface in this closeup, it's beautiful!



Remember, numbers to the passenger side

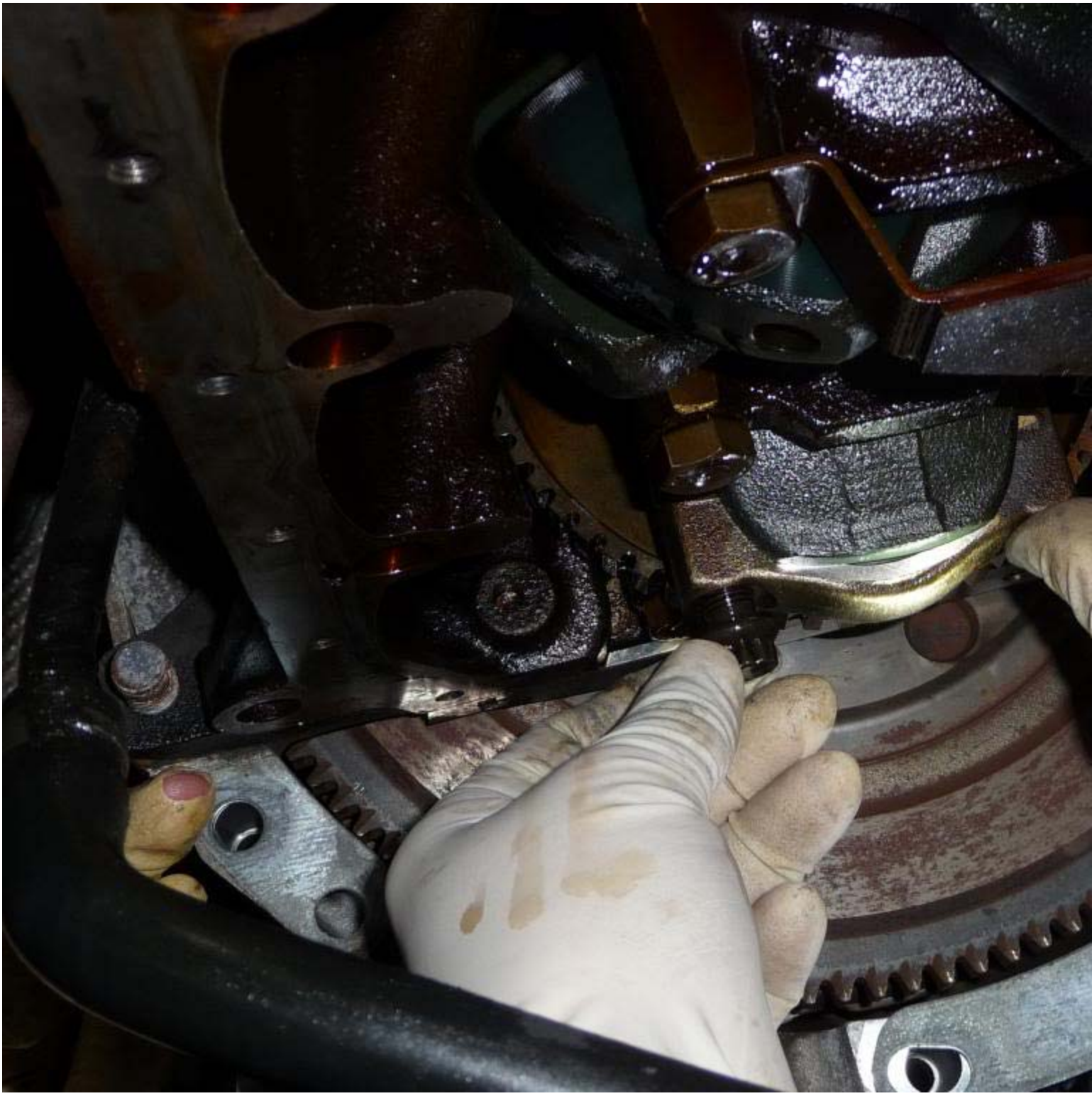
Now do the same to the rod side. Word to the wise: first put the bearing in, then deal with the assembly lube or 10W60.



After this, pull the upper rod back down into its place carefully and gently, the piston's travel back down will be jerky and the last thing you want is to ram the side of the rod into the crank (again, very hard and sharp edges!)

We are ready to reassemble! I also put assembly lube on the surface of the crank

Another delicate part here: similarly to the top, don't rush when placing the bottom half; easy does it and you won't ram into the crank with the sharp, hard edges



TIGHTENING ROD BEARINGS
This part is critical. No screwing around.
The procedure differs **significantly** if you have a pre 12/13/2002 car or post.
In all cases you will need to first use settling torque, which is a low value. It's a bit more than hand tightening, basically with the purpose of mating both surfaces correctly.
Then you will need a initial torque, which is the kind of torque setting we're all used to.
And finally, an angle torque. Angle torques are a certain amount of rotation (as opposed to

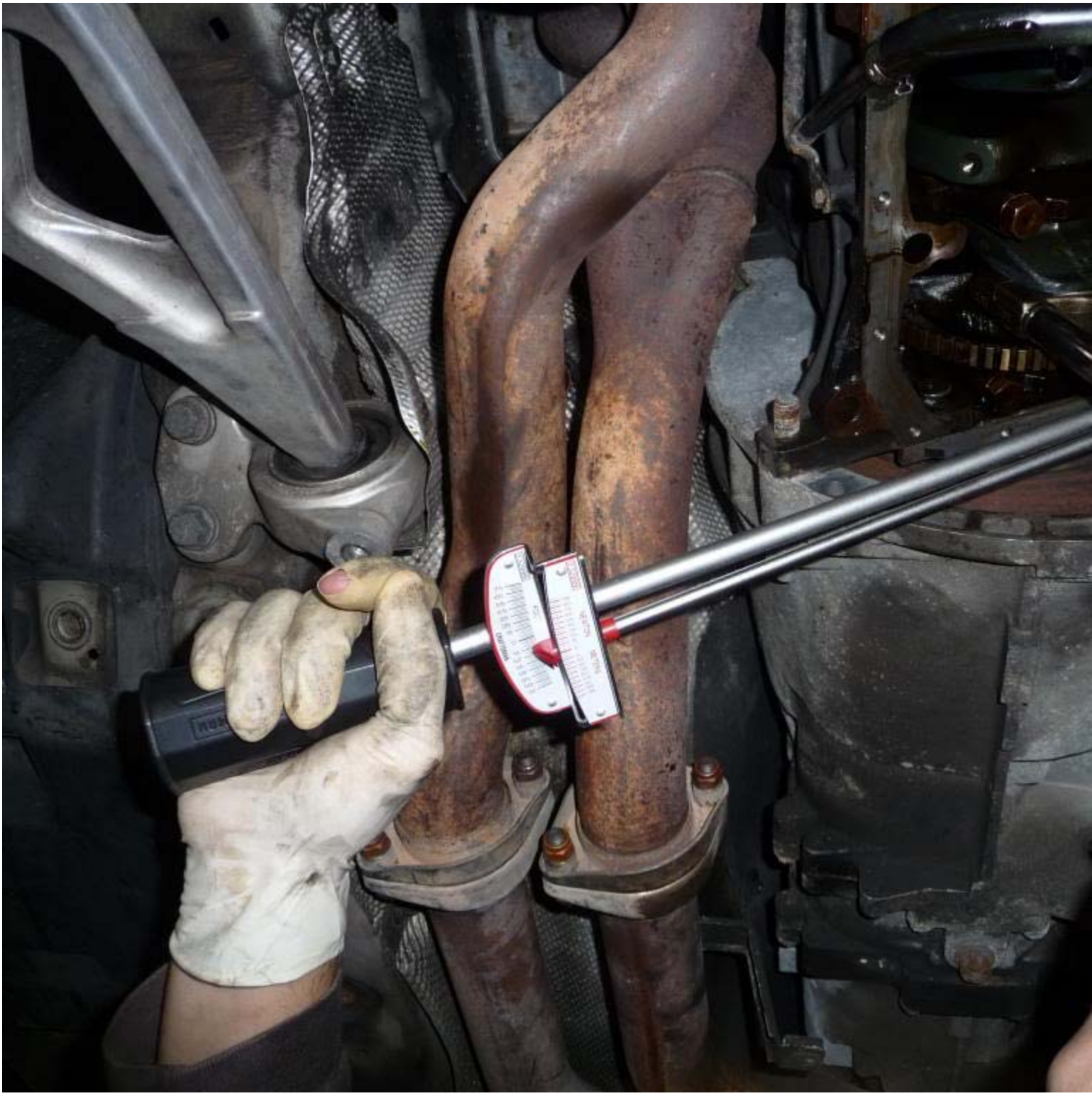
torque) that you need to apply, and is achieved using a tool like the one you can see in the pictures. You do **not** want to use a torque wrench for this part.

a) Pre 12/13/2002. You're lucky. No nightmarish tightening procedure!
You can reuse your bolts.
Settling torque 5NM
Initial torque 30NM
Angle torque to 70 degrees in a **single stroke**

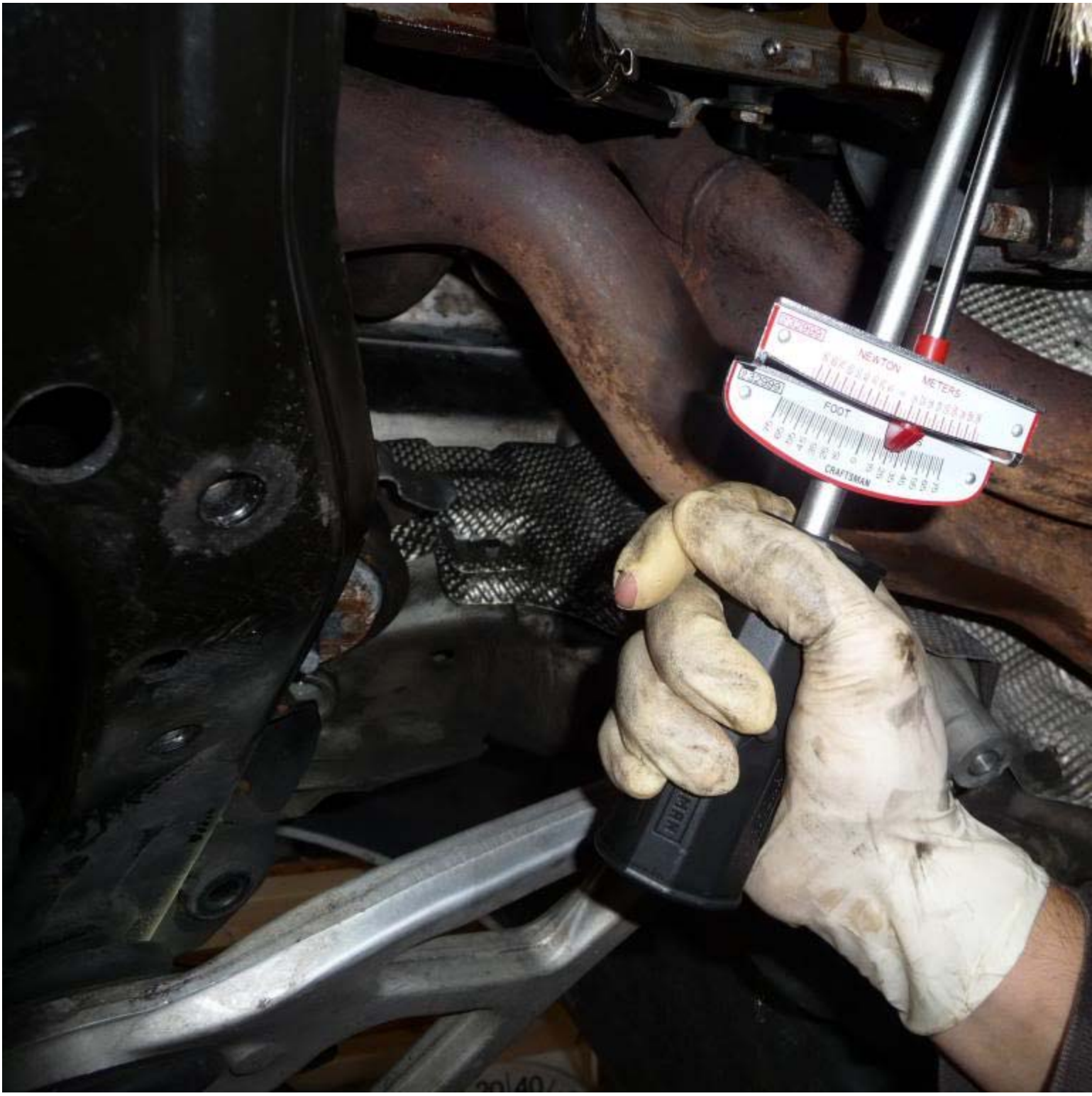
b) Post 12/13/2002. You have to do all of these in a row.
First:
Settling torque 5NM
Initial torque 30NM
Angle torque to 105 degrees in a single stroke
Release bolt one full turn, so aprox. 360 degrees (this will pretty much loosen the bolts so you'll feel like you're starting again)
Second:
Settling torque 5NM
Initial torque 30NM
Angle torque to 105 degrees in a single stroke
Release bolt one full turn
Third:
Settling torque 5NM
Initial torque 30NM
Angle torque to 105 degrees in a single stroke

*__Note__: no more releasing anything this third time around, you're done!

My car is a)
Settling torque - go alternating between tightening one bolt and the other until you get to the 5NM, here's where the surfaces begin to be in contact with each other so there's no rush

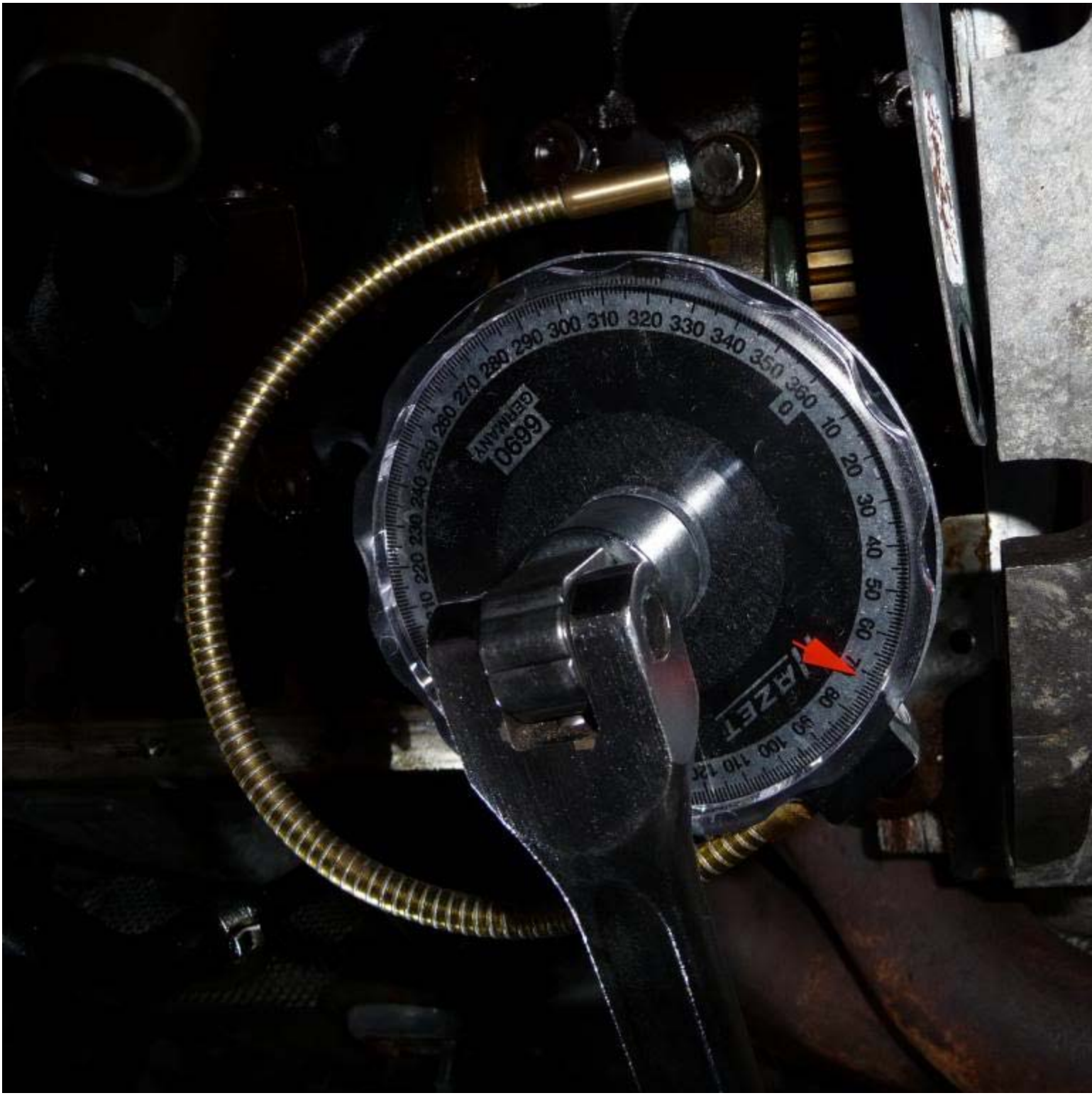


Initial torque



Angle torque: starting position

Ending position. Remember I'm type a), so it might need to read 105 degrees for you at this point!



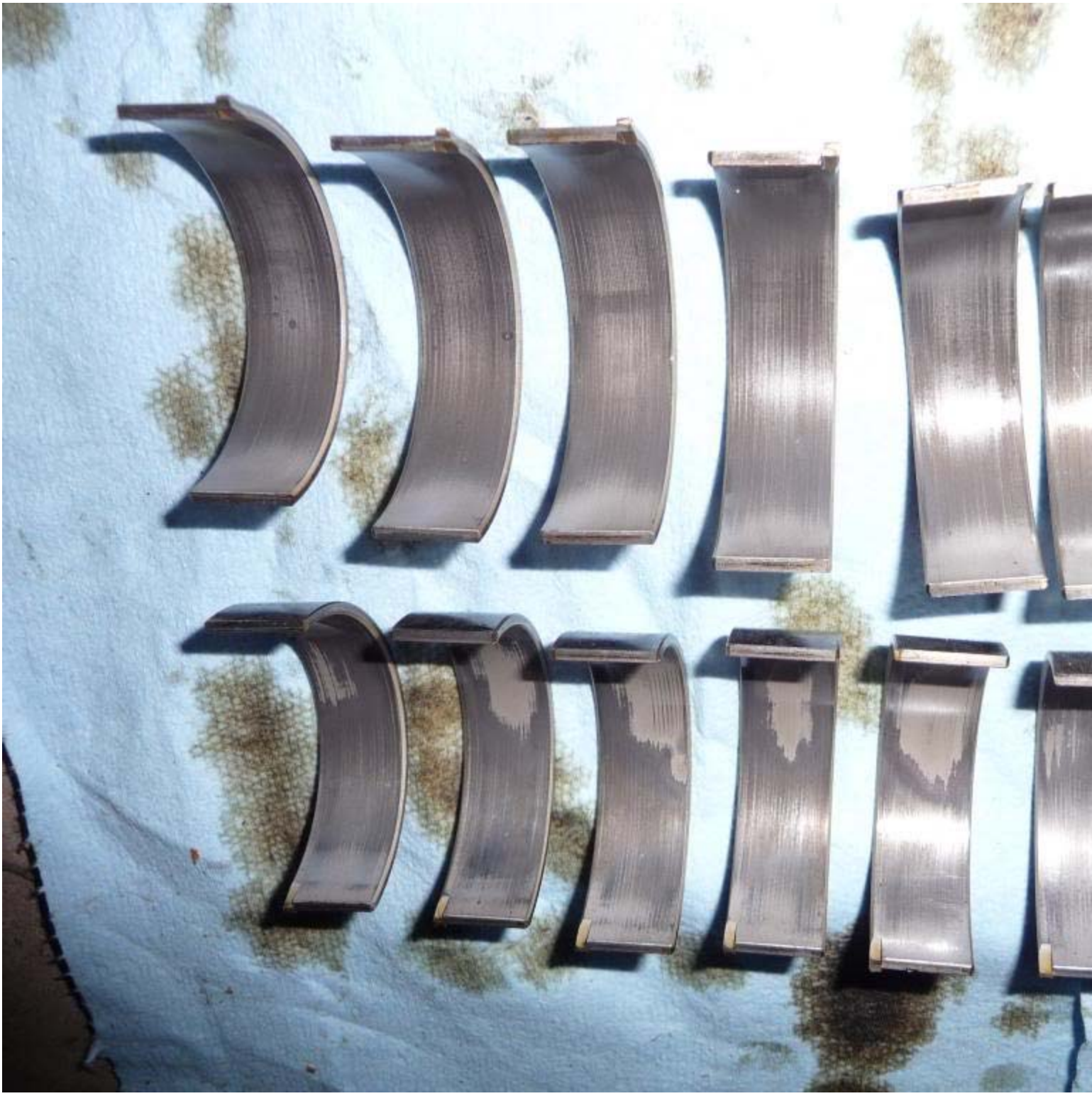
Note the connection from the dial to a metallic part of the car is there to be able to set the dial where you want it, but make sure you have enough travel in your needed rotation. My recommendation is to do a practice run to make sure you're not going to crush your hand against something (and have to keep turning since you can't stop once you're doing the angle torque, it has to be in a single stroke!). Once the path is clear from all obstacles (snake-connector from the angle-torque tool included), you're good to go.

Another note worth mentioning is you may need to dismount the oil radiator to have an

uninterrupted rotation, especially if you're type b) and need the extra clearance. I didn't have to, but just make sure you don't find out you need extra clearance once you're angle torquing.

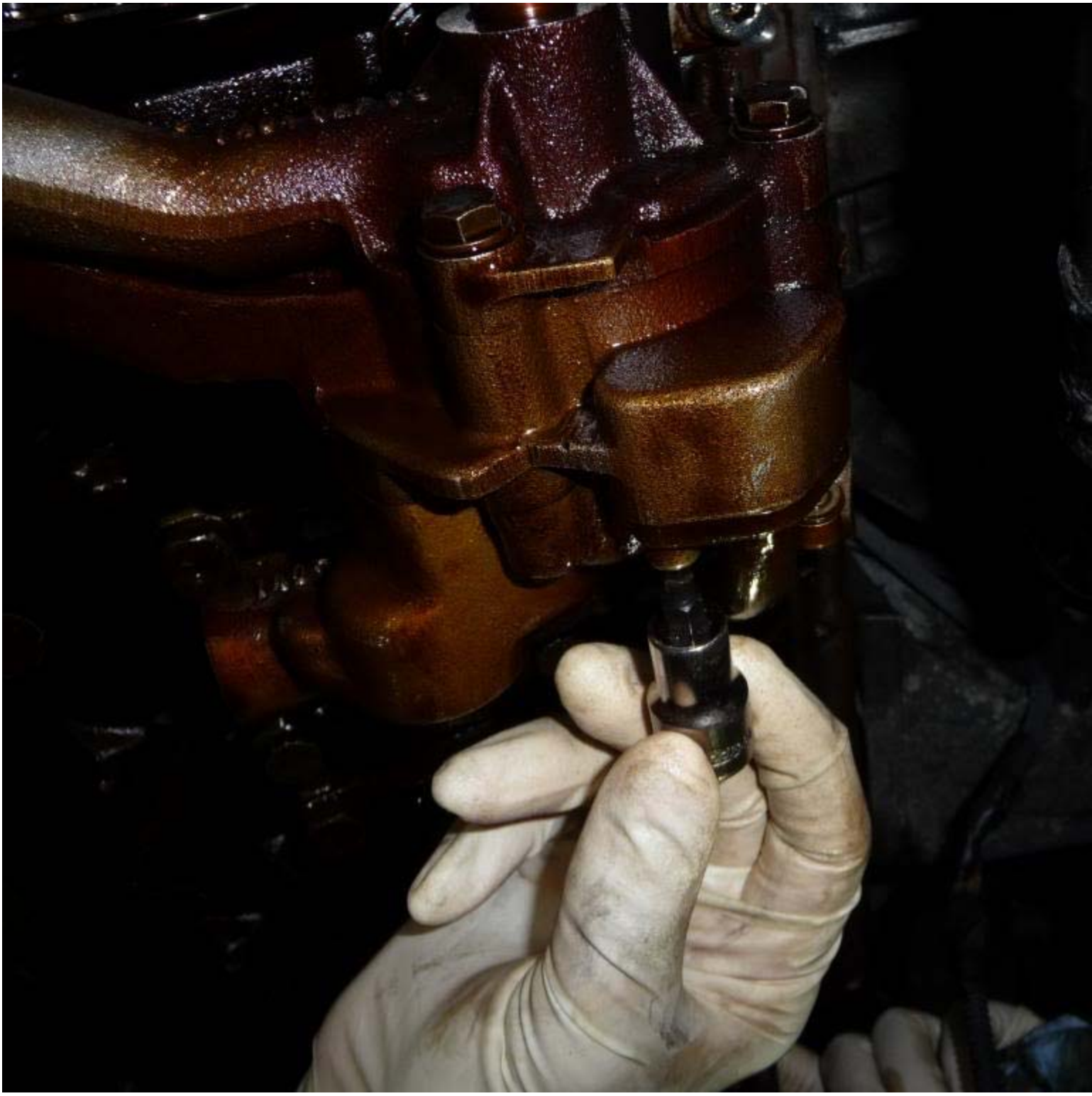
Do the same for Cylinder 1 (I started with 6), then rotate the engine to access 3 and 4, then finally 2 and 5.

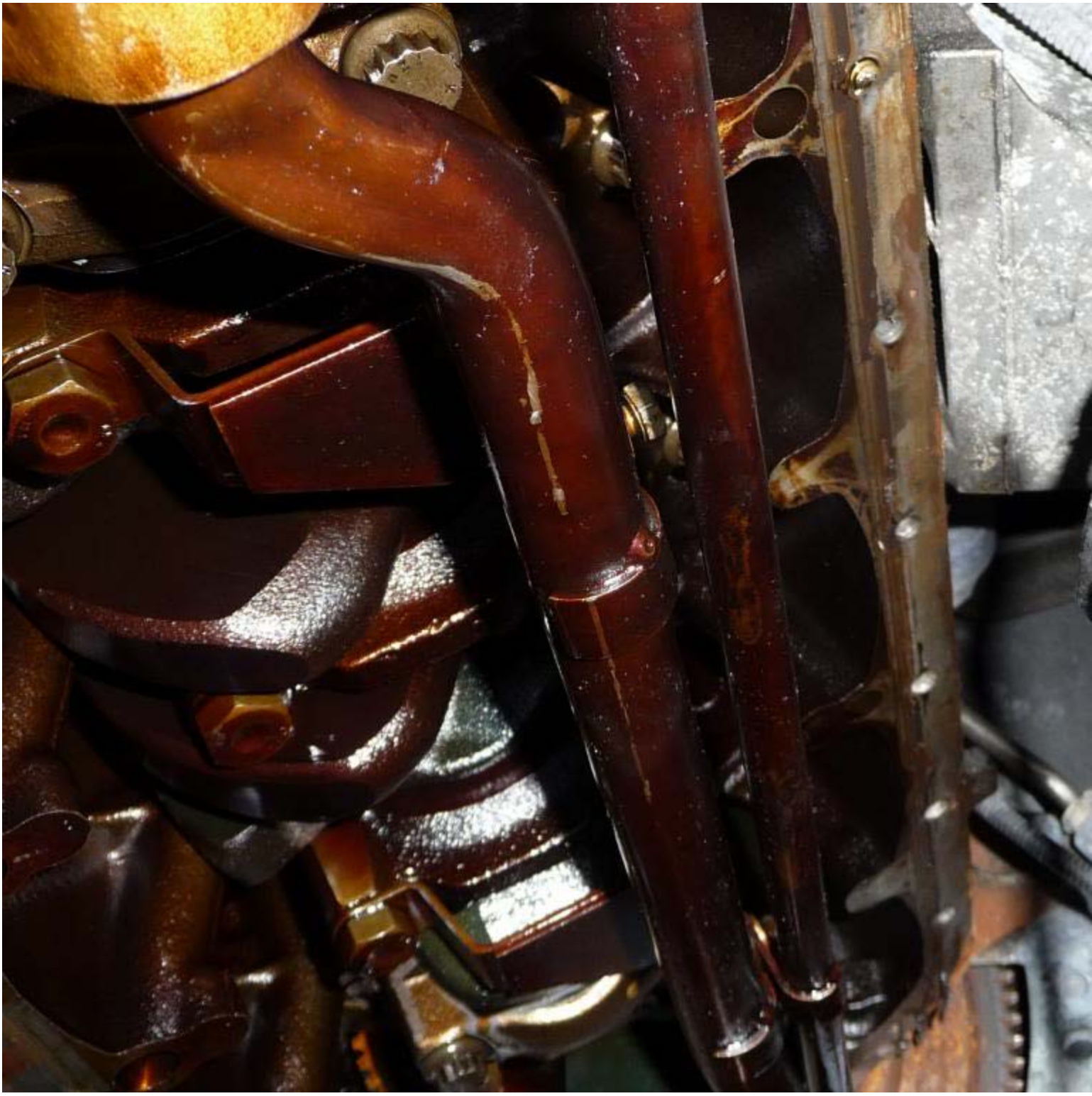
BEARING PICS
This M has 130k on it and around 3000 track miles.
I think the bearings are in decent condition! I put a brand new one alongside the used ones to appreciate the difference



REASSEMBLY INSTRUCTIONS
I'll include some basic reassembly instructions. Mostly pics
Oil pump

Return and send oil lines





Oil pump sprocket reattached. Remember the reverse thread.
I used red Loctite as people are afraid of it coming apart.
Remember to use a finger to get the chain tensioner out of the way while tightening
Torque is 25NM

We got a new dipstick seal as we purchased the connecting rod kit!

Now we add RTV to the oil pan surface

On goes the gasket - make sure it's firmly attached

Now guck up the top side of the gasket

Actually installing the oil pan is always a massive PITA. Little clearance, seemingly endless screws and the thought of RTV drying on you! Horrible.

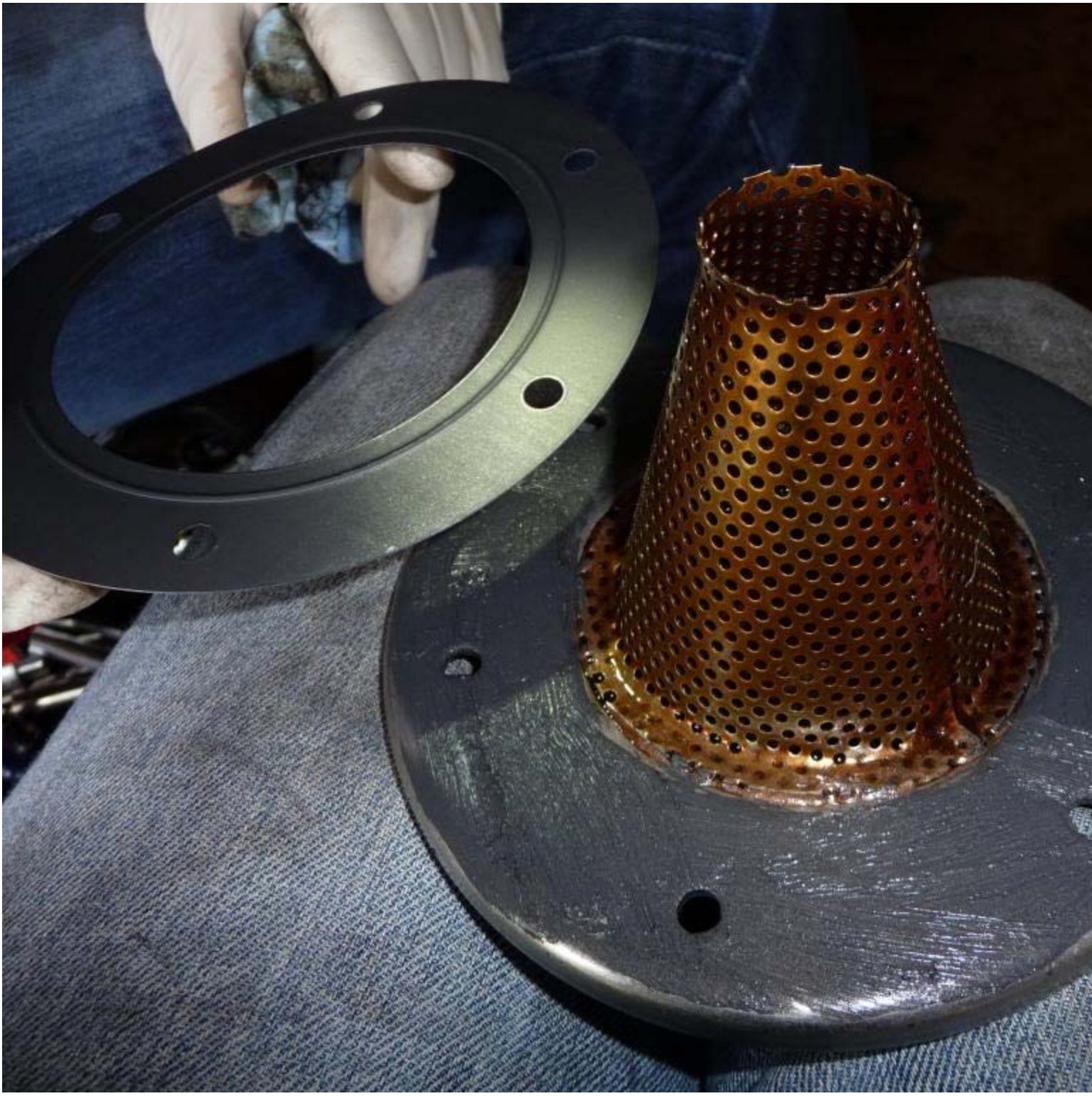
Remember to insert the dipstick tube where it went as you put up the oil pan - I'm unsure if it can be put in later, but definitely not easily - and you really don't want to have to undo ALL this work just to put the dipstick tube in there!

Don't forget the oil return line

I replaced the steering guibo as it's so accessible

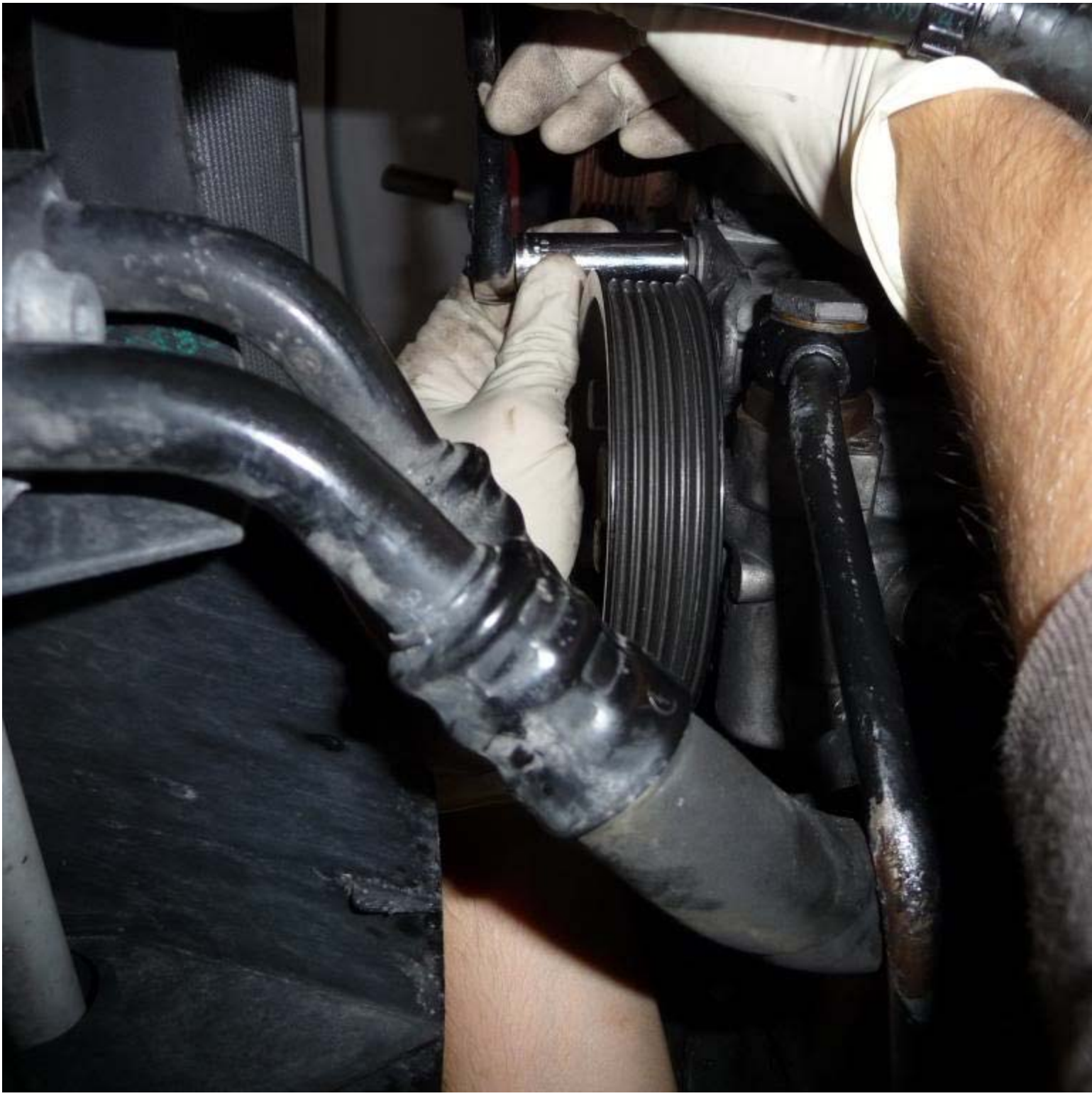
The artichoke. The kit includes this gasket

Some RTV on the bottom



And on the top

Reattach PS pump



Subframe brace

New steering guibo seen.
The rod bearing kit includes the bolt as it's supposed to be a one use item

Now replace the oil filter and add 6.5L of TWS!

You're done!

Remember the engine has to be broken in during the first 1200 miles, so easy on it (revs and throttle). Afterwards change the oil and you're all set