

# Volkswagen Phaeton 4.2 V8 2004

## Change "Bufkin" pipe.

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The Bufkin pipe is a famous pipe on the VAG engine 4.2 V8 40v.

It is a plastic pipe between the engineblock and the oilfilter housing on the rightside of the engine.

it is a pipe connection for engine coolant to transport coolant from the engine block to the oilcooler.

This pipe is made of plastic and will break or it's rubber O-ring will fail sooner or later.

The pipe will leak when the engine is cooling down. not when running or when totally cold.

The bufkin pipe can be ordered, via the dealership, via Ebay and via Gruvenparts.

The dealership will deliver you the same plastic pipe (not recommended) and James Bufkin(Ebay) will deliver the original improved Bufkin pipe with 4 O-rings instead of 2. Gruvenparts got the same design and material (as far as I know)

you also need:

9 litres of purple coolant G12++

O-ringsset: N90783401

O-ringset: 077121437

Not necessary but could be used:

Oilcooler bolts: 4x N10700001, 1x M90331605

## *Lets start*

Park the car safely with the handbrake on, and enough room to move on the front and rightside of the car.  
(left side is left when sitting in the car)

1. Disconnect the righthand battery (starterbattery), remove the negative - pool of the battery
2. Disconnect the lefthand battery, remove the negative - pool of the battery
3. Lift the car to work underneath
4. Remove both underbelly pans ( reminder do not let the front underbelly pan hang on the front bumper, the bumper will crack under the headlights)
5. Remove the rightfront wheel
6. Remove the inner wheel well
7. Remove the right airbox and pipe, and cover the remaining pipe against dirt.
8. Remove the oilfilter and cover the remaining hole against dirt
9. Drain the coolant, I disconnected the rubber hose that is connected to the steel pipe underneath the radiator on the left side, so I could direct the flowing coolant a bit.
10. Draw a diagram of the ribbed belt and mark the rotate direction on the belt itself
11. Remove the belt by locking the tensioner with a drill bit and remove the belt.
12. Remove the batterycable from the alternator and remove the wiring
13. Disconnect the two coolant pipes at the top of the alternator by removing the bolt and pull them off.
14. Remove the alternator by removing two bolts at the front. Keep in mind the alternator could be stuck and is heavy (4 hands could be needed)
15. Support the engine by lifting on the edge of the oilpan of the transmission (or lift it from above) do not lift the engine already, it is just for support.
16. Remove the black stabilizer bar

17. Remove the nut of the engine mount underneath, do the same on the left side.
18. Pull off both air tubes that lead to the engine mounts to remove the engine support bar later
19. Disconnect the wiring on the left side of the engine support bar.
20. Remove the horn on the right side to get access to the engine support bar bolts
21. Remove the left front wheel and wheel well to get access to the engine support bar bolt
22. Remove the engine support bar.
23. The engine is now only supported by the lift and the transmission.
24. Lift the engine 8 cm till the top of the engine touches the firewall, seen under the hood.
25. Under the hood: remove the heatshield of the engine mount
26. Remove the bolt of the engine mount, when loose enough you can turn the engine mount to unscrew the bolt. This was the most difficult part, I didn't have enough room to undo the bolt. so I created my own tool to undo the bolt. But I think it was better to undo the engine mount support itself first (28) and then with a loose support turn it a bit to create more room.
27. Remove the engine mount
28. Remove the engine mount support by removing two bolts at the bottom and one bolt at the top. Also remove the attached cables. Remove the support block by sliding it down.
29. Remove the 3 nuts from the manifold downpipe where it is connected to the rest of the exhaust, accessible via the back of the engine
30. Remove the 10 nuts and 2 bolts of the exhaust manifold attached to the engine.
31. Remove the manifold by sliding it down towards the back of the car and grab it from underneath the car.
32. Remove the bolt on top of the oil filter housing that secured the two coolant pipes.
33. Remove the front coolant pipe
34. Now you almost got access to the pipe that is blocking one bolt of the oil filter housing.  
One manifold bolt end is blocking the removal of the oil cooler pipe. You need a special tool for this: thread-end removal tool, or place two nuts on it and secure them tight against each other. Then turn the front nut anti-clockwise so it will undo the bolt. Make sure the nuts won't go loose.
35. The thread end is removed now, follow the coolant pipe then you will find a mounting point and undo the bolt. Undo the bolt at the beginning of the pipe and after that you can remove the coolant pipe by lifting it up.
36. Remove the 5 bolts of the oil filter housing, keep in mind the left-bottom one is the smaller one.
37. Remove the Oil filter housing by lifting it a little bit and slide it down, you will notice it is a perfect fit between the still mounted parts.
38. Remove the plastic pipe on the oil filter housing and remove the remaining parts of the pipe out of the engine hole. Clean both holes
39. Remove the 8-shaped O-ring and clean the Oil filter housing with a clean towel.
40. Grease the rubber O-rings with vaseline and stick them to the oil filter housing
41. Clean the engine block contact points
42. Grease the Buick pipe O-rings and mount the Buick pipe in the engine **!!! not in the oil filter housing!!!**  
The idea behind the plastic pipe is that when a mechanic mounts the pipe incorrectly, the pipe will be damaged and not the engine block. That is also why I mounted the aluminium pipe into the engine first with grease. so I won't damage the engine. when mounting the oil filter housing, I can only damage the oil filter housing and that is cheaper and easier to replace.
43. Also replace the O-rings on the other coolant pipes on the same way with cleaning and greasing.
44. Keep the Buick pipe greased and remount the oil filter housing, by sliding it back and gently slide the Buick pipe in the oil filter housing hole, secure the oil filter housing and check if it is mounted correctly. mount the bolts crosswise so the oil filter housing will be mounted parallel to the engine.
45. Re-mount all the other parts in reverse order.
46. After everything is fit again, I did a coolant flush, just as maintenance.

47. Fill the coolant and let the engine run with the heater on max and the coolant tank open.  
Wait till the engine is 90 degrees and keep an eye on the coolant level.
48. Turn off the engine and let it cool down, recheck the coolant level.
49. After a few miles check the coolant again. (when you got heat in the car most of the time there is no air bubble inside the system).

Job done.

I did the removal of the components in about 15 hours, total 20 hours of labour.

I needed a lot of time by finding out the best solutions and the removal of the engine mount and creating special tools. But I think when removing the engine mount support block first, will save you a lot of time.

Mounting of all the parts was done in 5 hours including filling with coolant and let it run. So I think this job can be done in 12 hours with the needed tools and engine support.

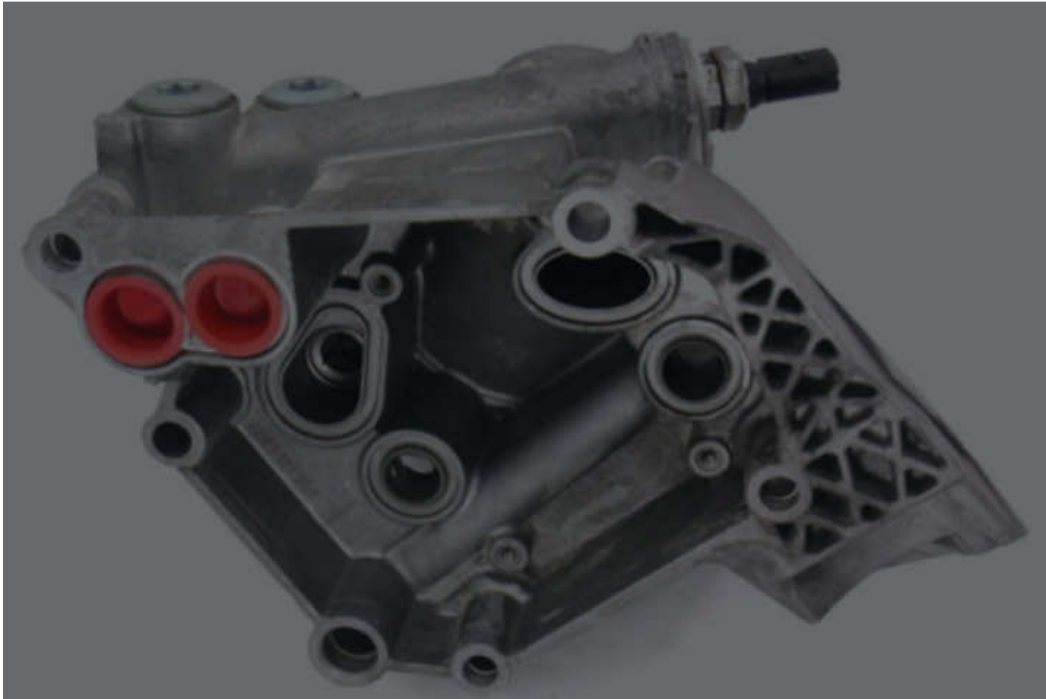
Check the images for referral and check the part for finding the mounting points.

Always lubricate the bolts and nuts with WD40 or penetrating oil before removal, it could save you from breaking a bolt or nut.





Enginemount support





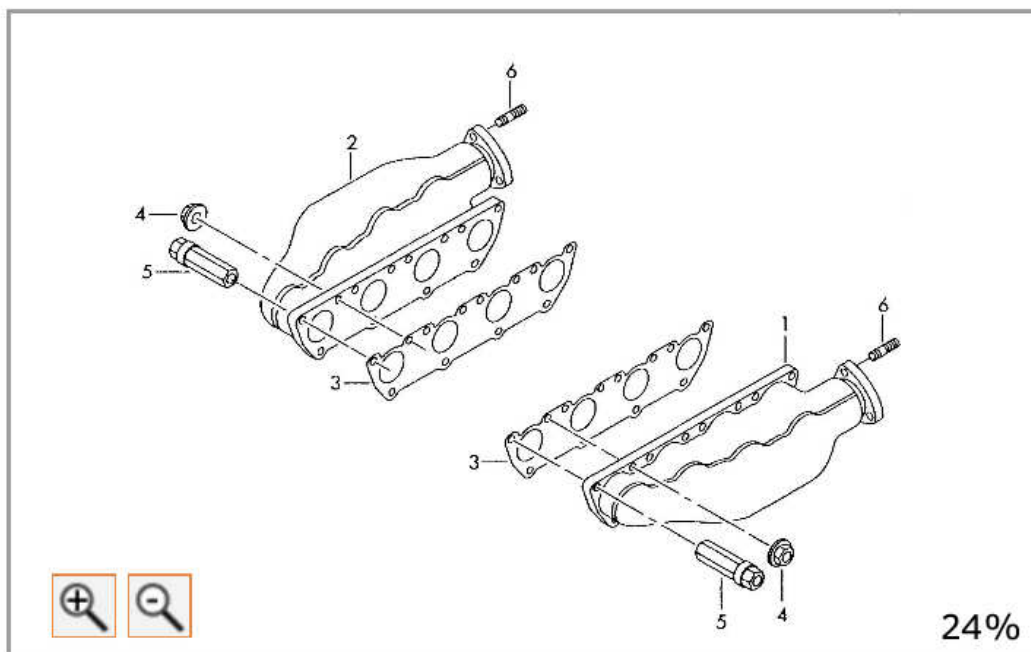
## Exhaust manifold 4.2ltr.

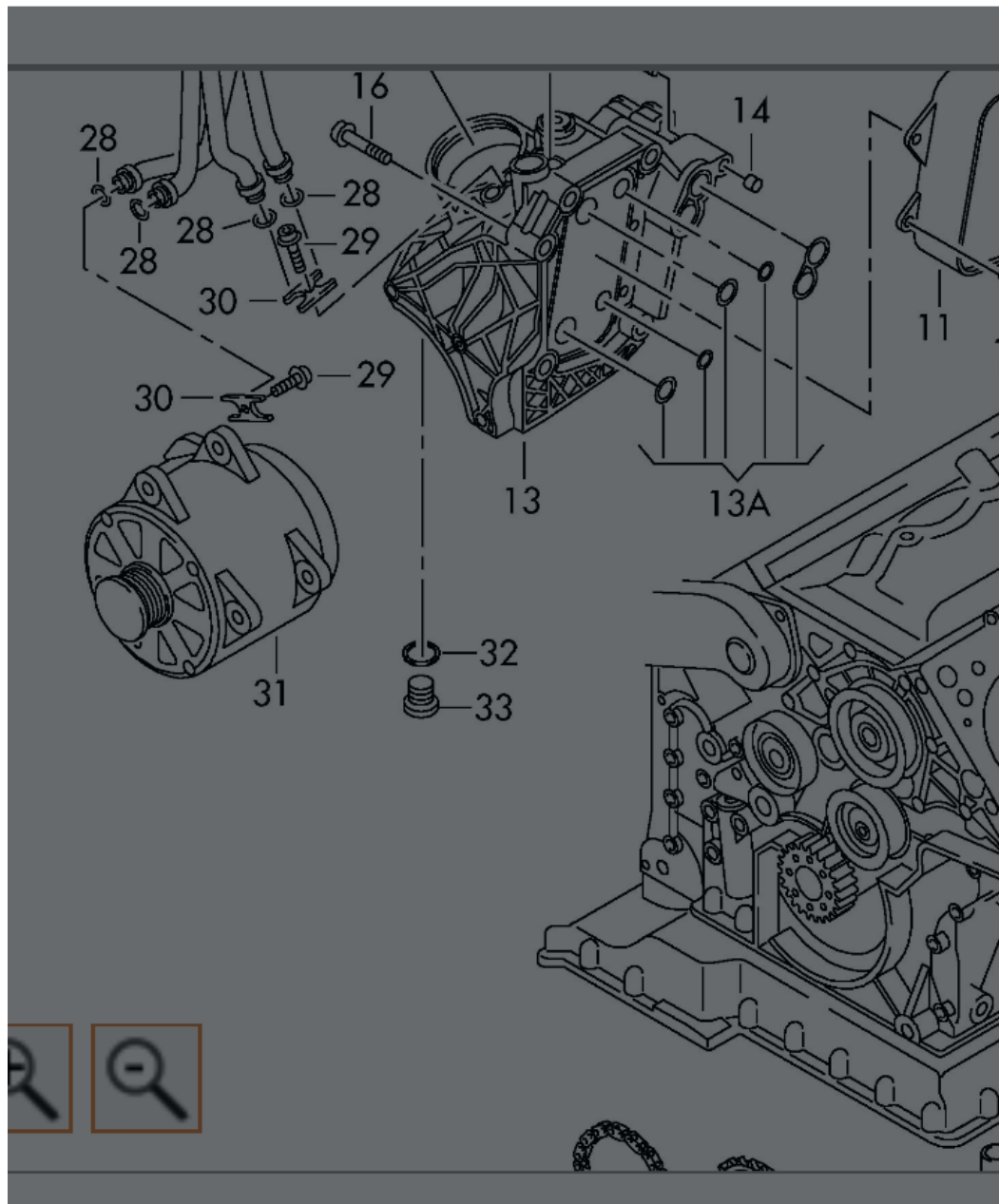
Phaeton (PHAE): BGH,BGJ; 8 cylinder:

Touareg (TOUA): AXQ

Illustration Number(s):25330

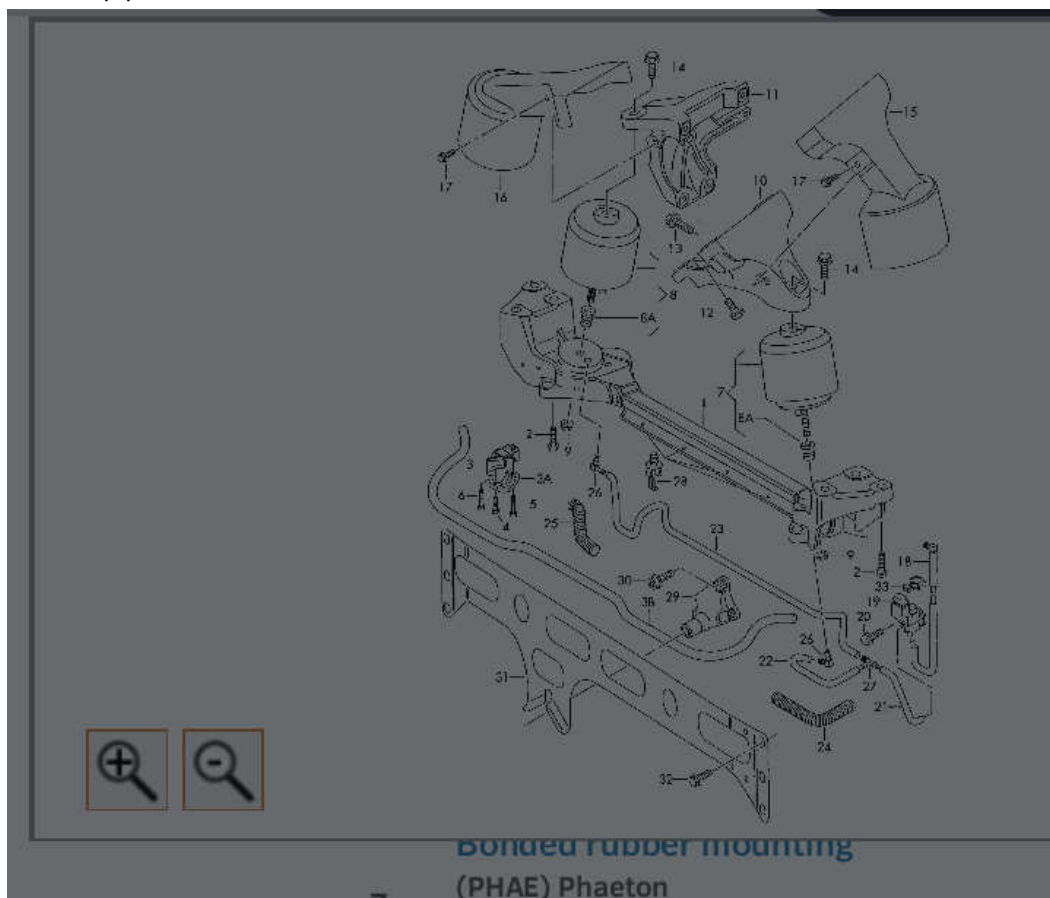
 [Fullsize Image](#)







Coolant pipe attachments

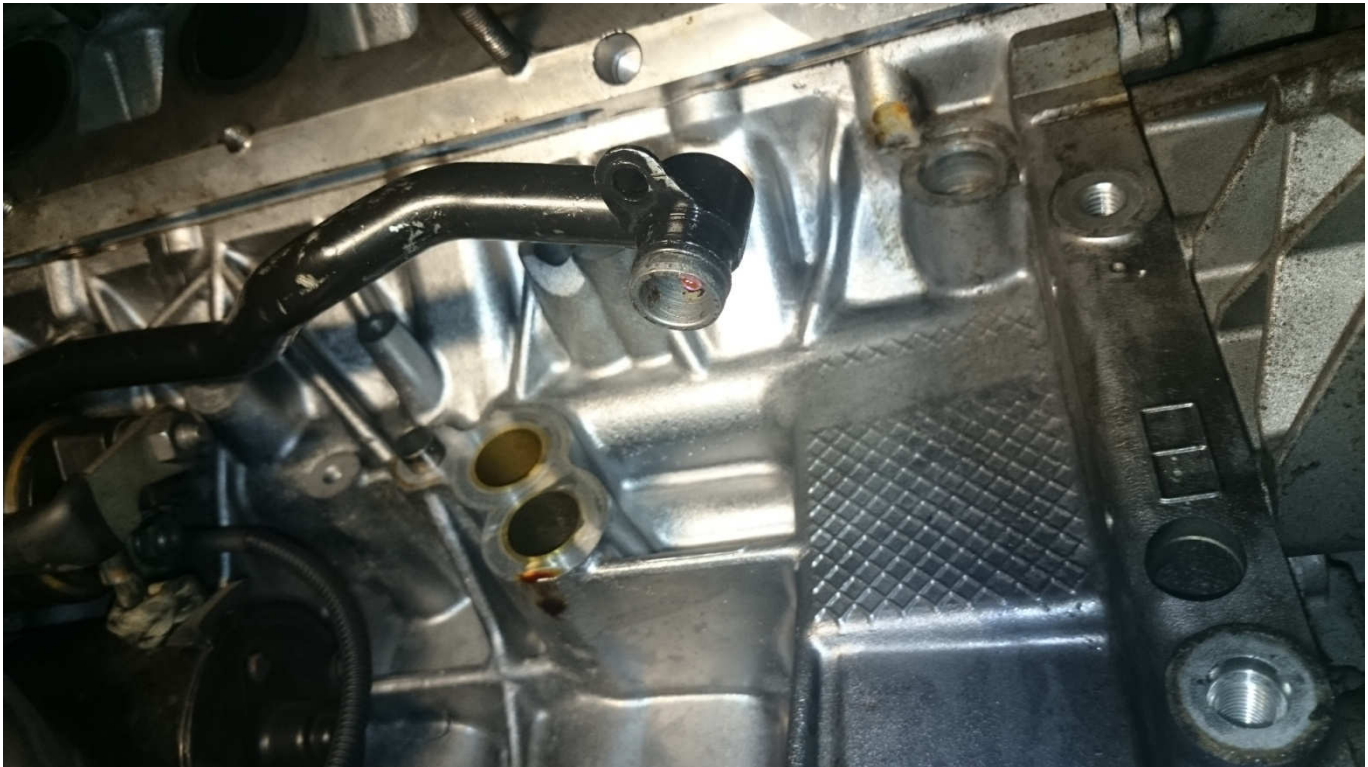


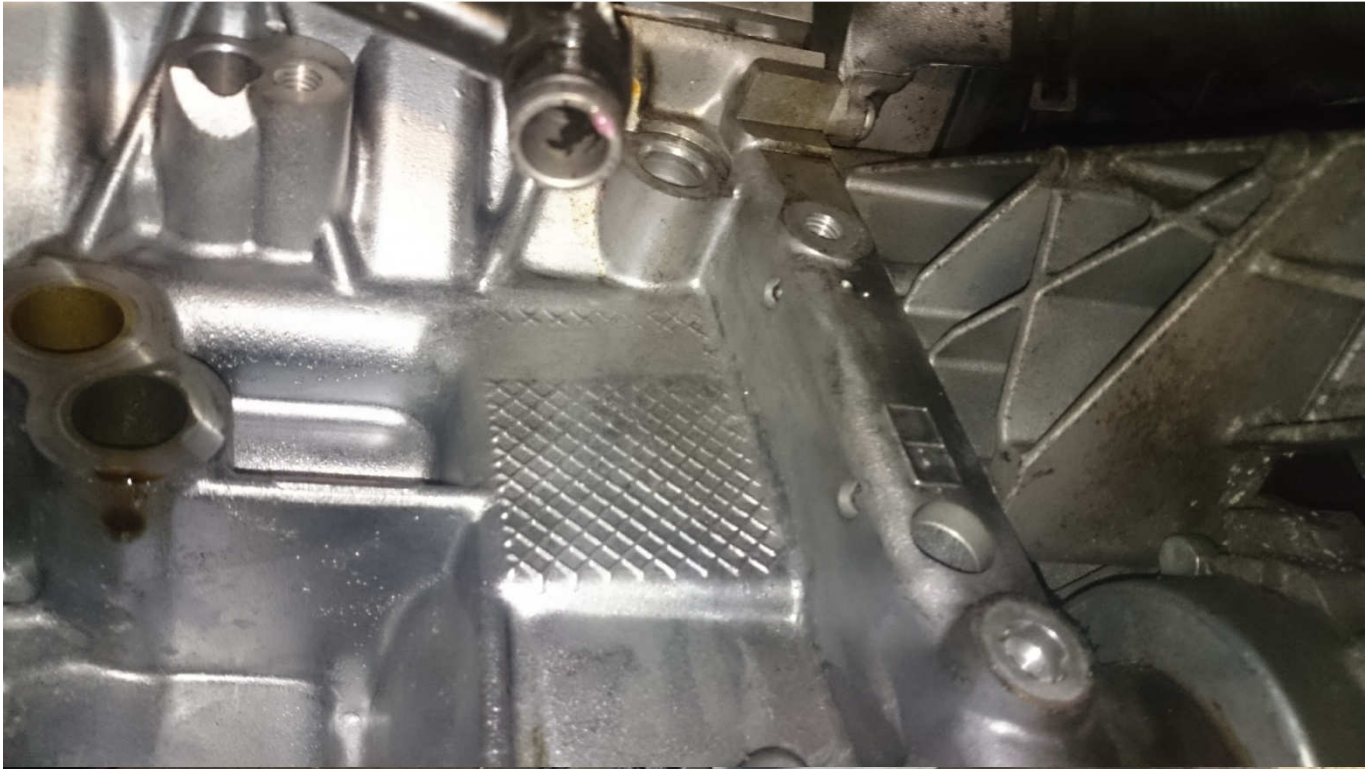
Engine support -> Our engine mount is differently then the one on the image, we got 3 mounting points as you can see in earlier images





Engine block with and without new buftin pipe

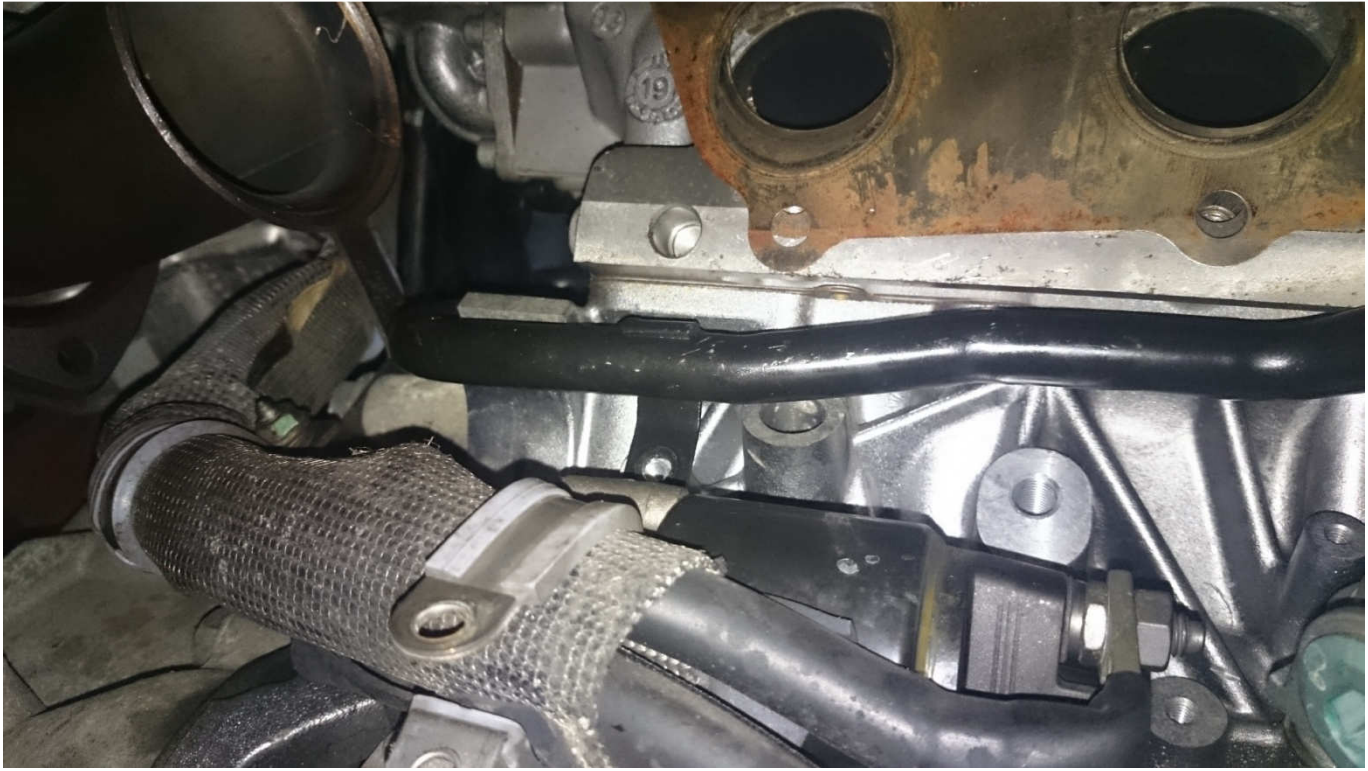




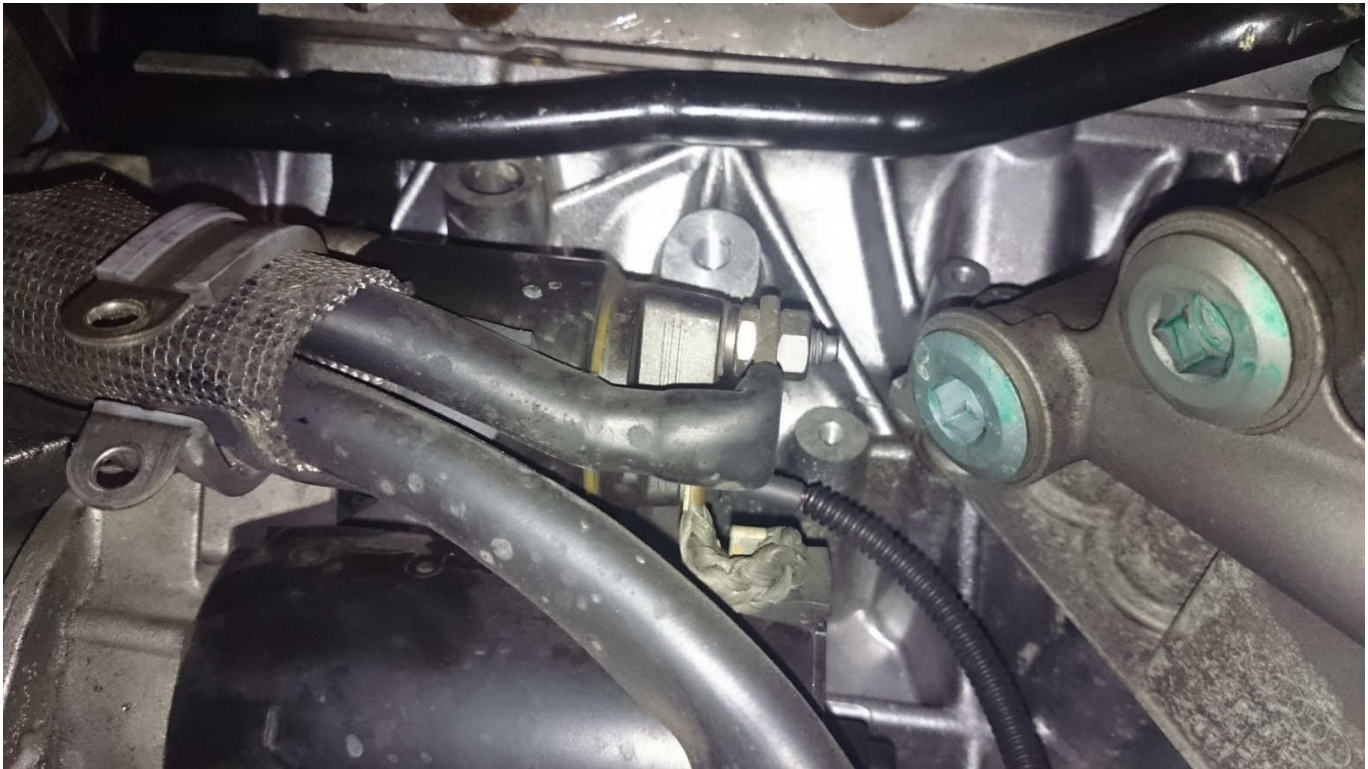
The Oilfilterhousing with the broken pipe attached







Mounting point of the top coolant pipe

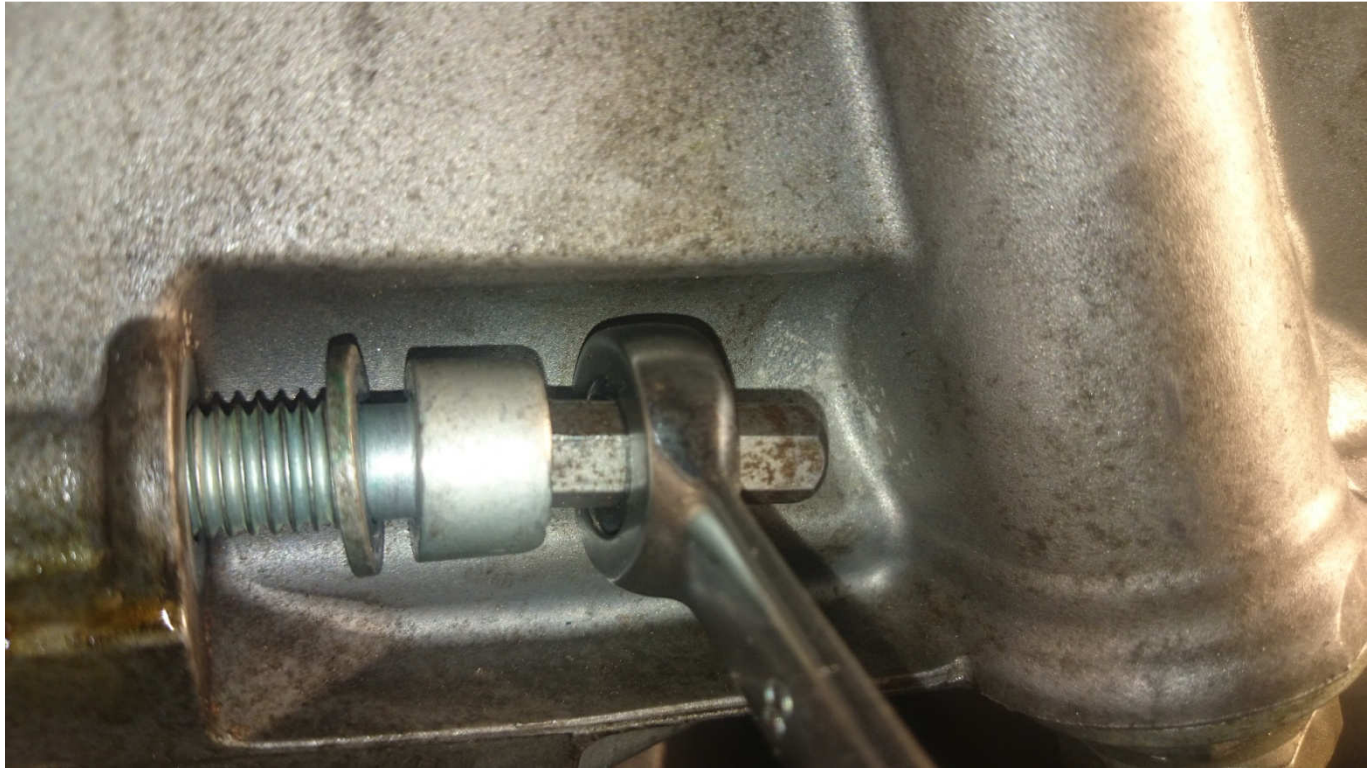






Mounting of the wiring underneath the engine mount support





A way to remove the short bolt of the oilfilterhousing

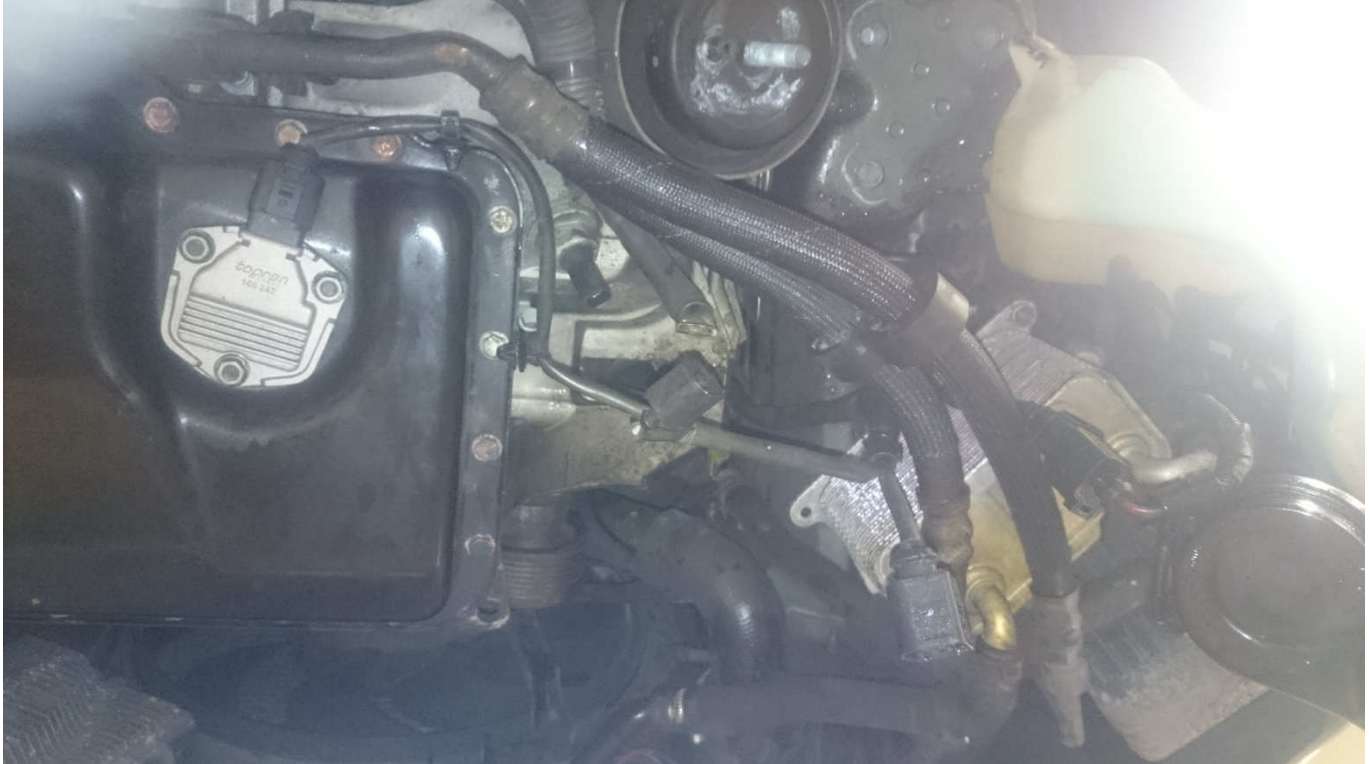


Mounting point of the top coolant pipes on top of the oilfilterhousing





Here you can see the bolt of the manifold blocking the removal of the coolant pipe







Support of the car

Support of the engine and lifting the engine (looking towards the back of the car)





Horn and engine supportbar





Don't forget to undo the wiring and air lines of the engine mounts

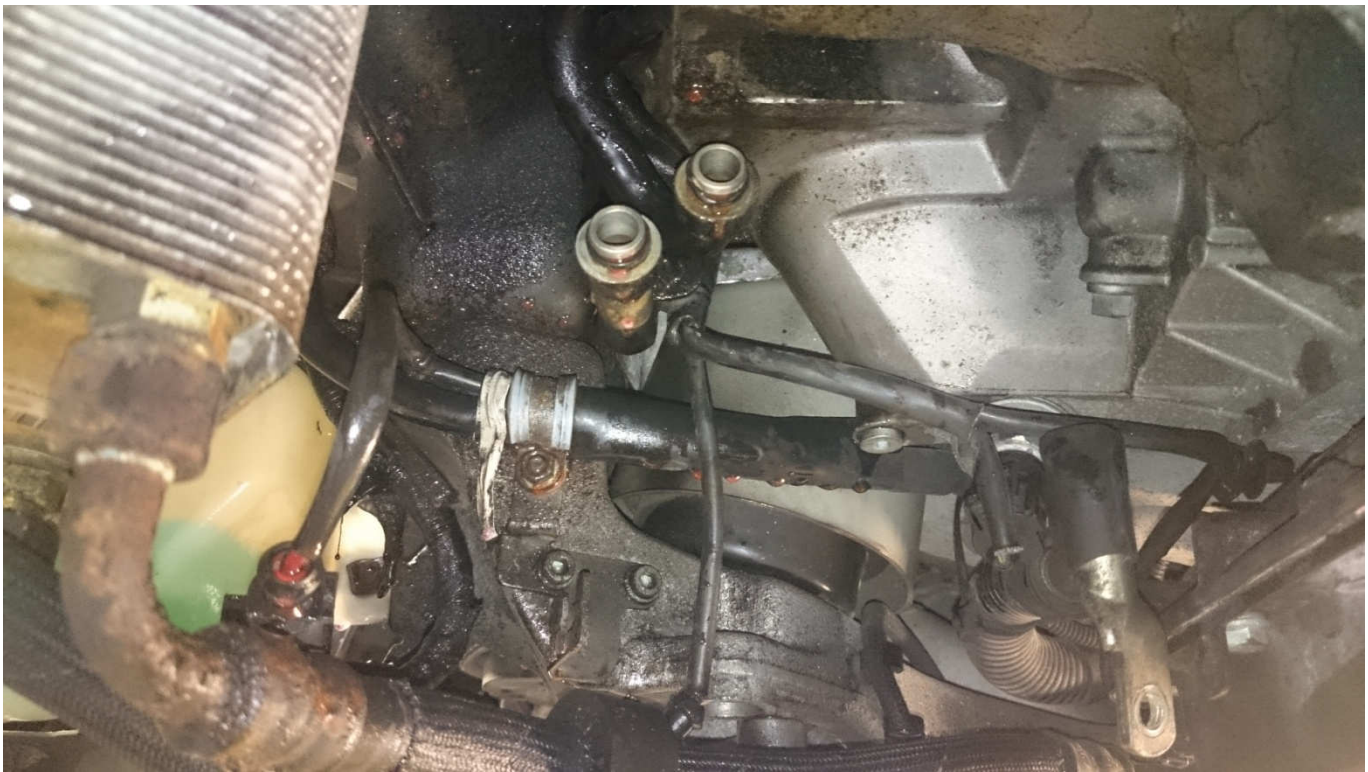
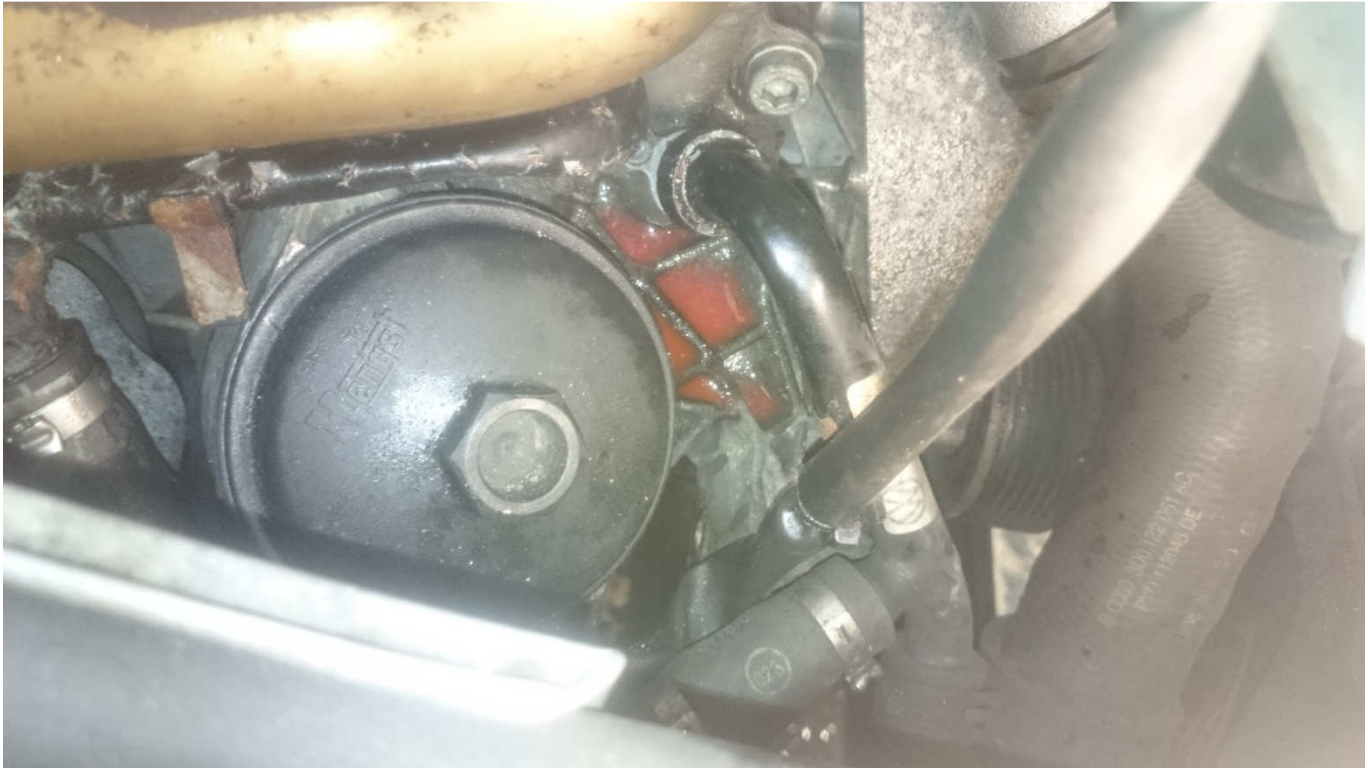


Engine lift (looking towards the front of the car)

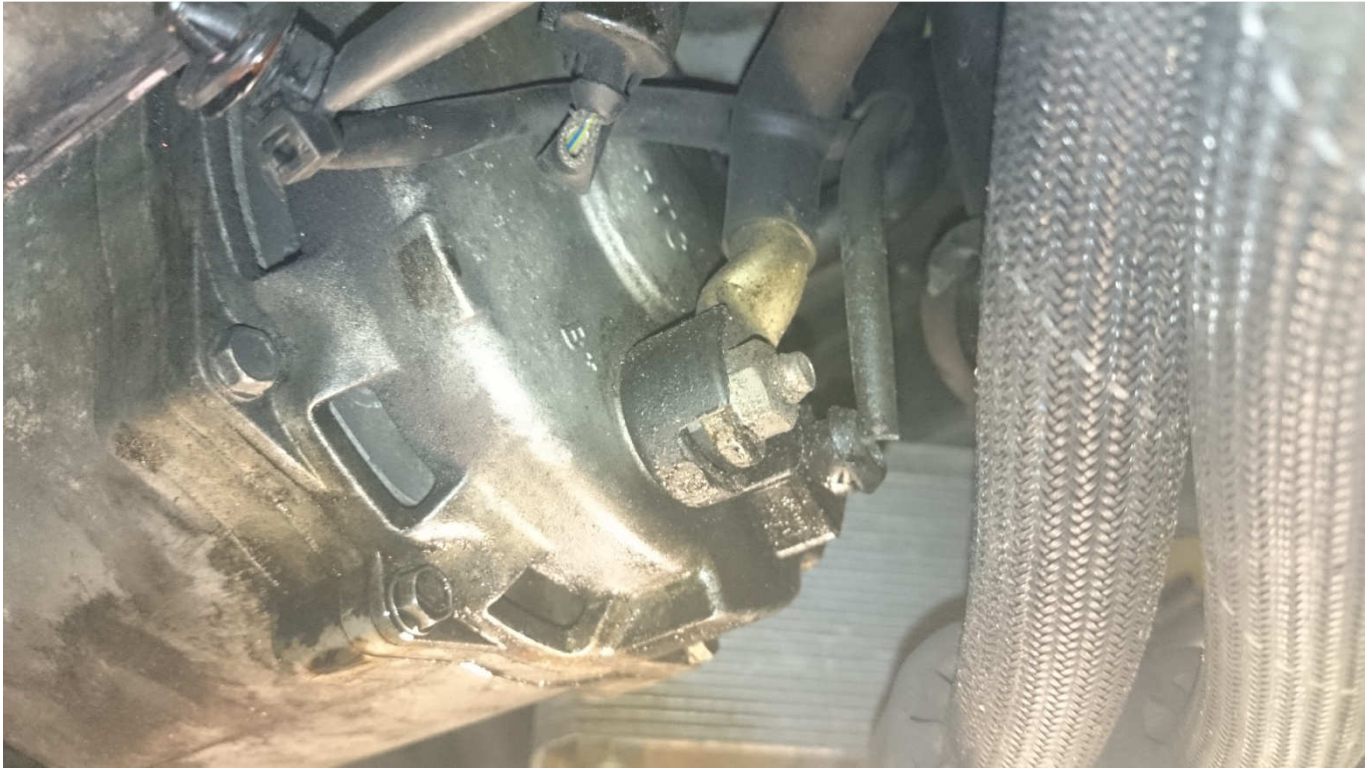


Point to support the engine safely (looking towards the back of the car)





Alternator removed



Alternator wiring