Here is a write up of my experience of decarburizing the plugged intake manifolds on my V10 TDI.

Mine weren't plugged too badly, but I've heard of four cylinder manifolds being plugged to the point of about a half inch hole left for airflow.

I don't want this in my car.

The problem occurs when oil vapor from the crankcase mixes with EGR gasses and condensates on the walls of the intake causing a tar like buildup. It will continue until your car stops breathing.

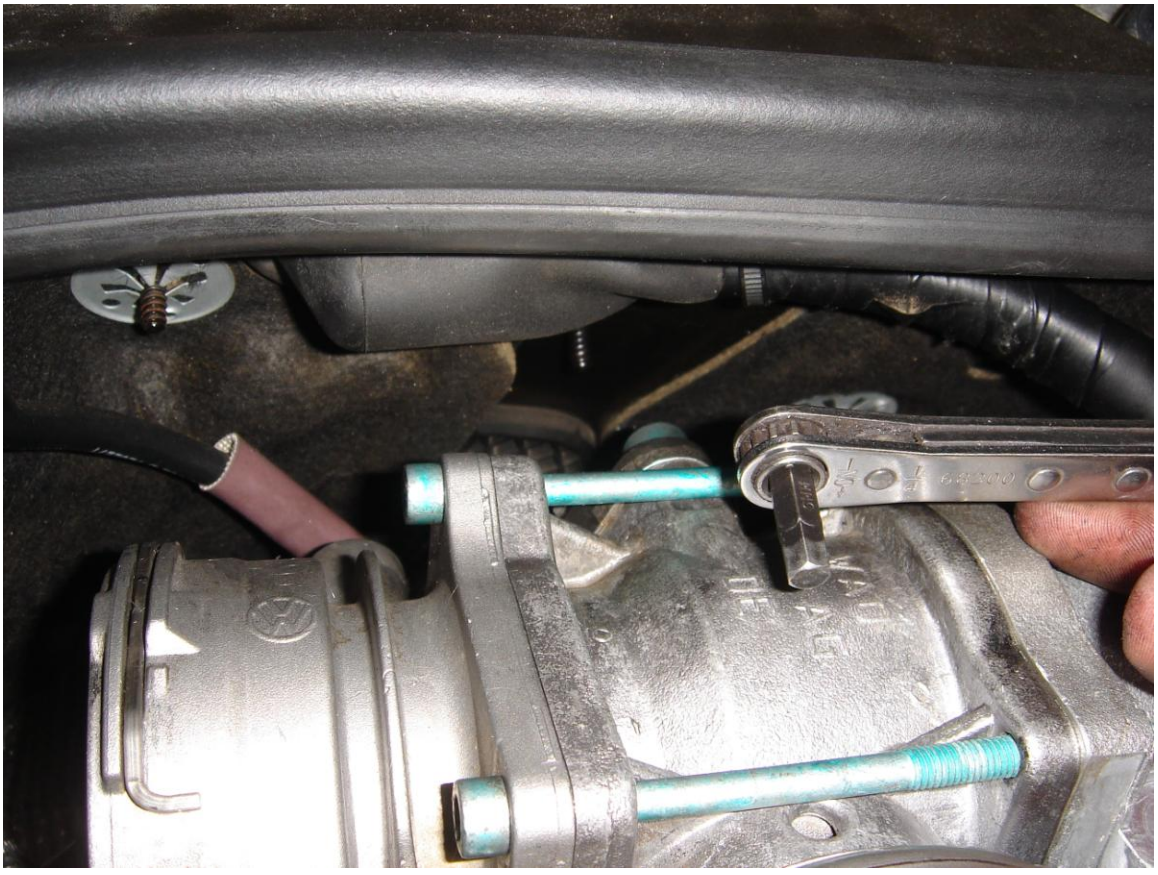
Unless you've turned down your EGRs with VAGcom and re-routed your CCV (CrankCase Ventilation) through a good oil vapor separator, then you have this problem present to some degree.

Your choices are to have the dealer or other shop do it, my dealer in Utah wanted about $800, or do it yourself and save. I chose to do it myself and get to know my Touareg intimately in the process.

At the same time, I changed the fuel filters, oil filter and oil. My total cost for parts was under $200.
Fuel filters - $75
Oil - $80
Manifold Gaskets – $11.50
Oil filter - $10
Plus, I messed up a coolant hose by getting in a hurry… so be patient.

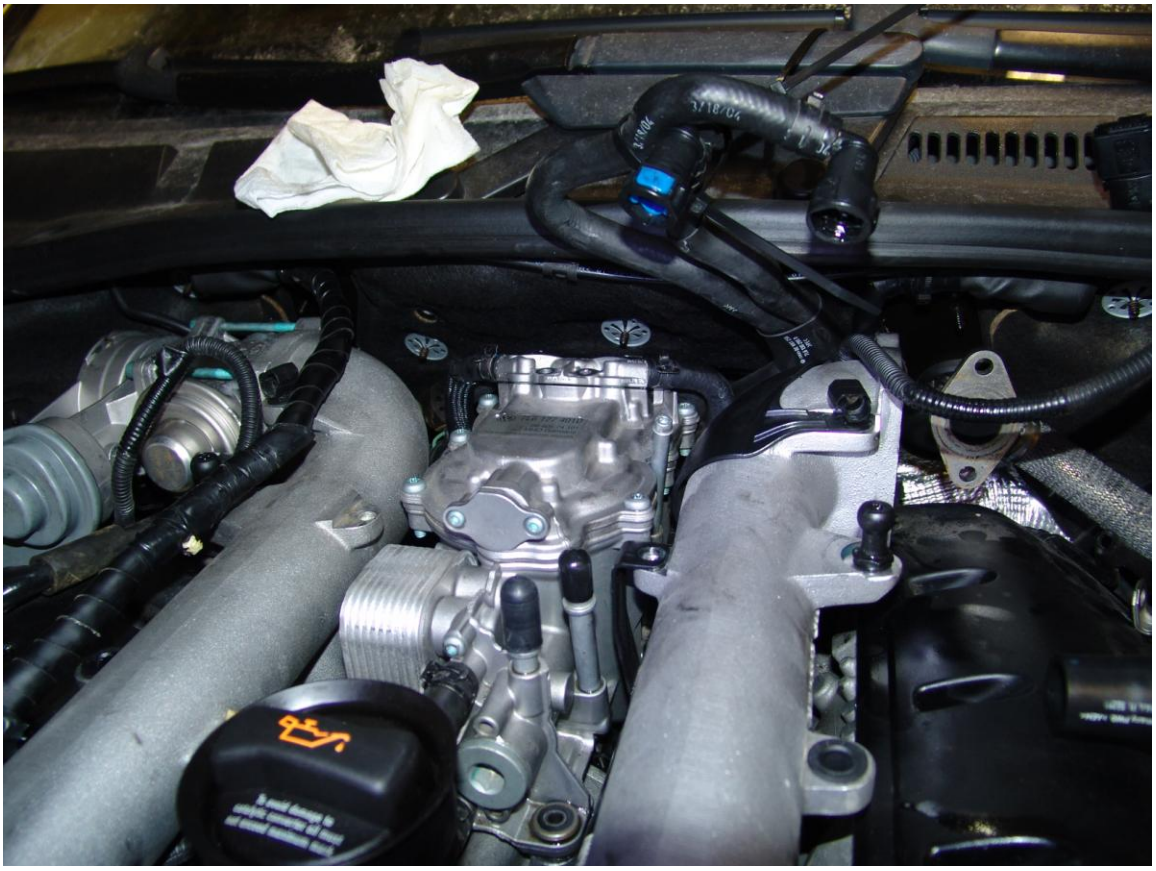
Here are the steps I took, generally speaking, so I might miss a couple trivial things. But I WILL mention the tricks I found.

1. Remove all of the plastic fakey engine looking trim. That thing looks better on my wall than it does blocking my view of a nice V10.
2. Remove the intake hoses by pushing the end of the retaining clip back over the little ramp until it stays put, then just pull.
3. It's tempting to take the EGR valve and Flapper motor off first, but it saves time to just remove the whole assembly as one piece. Disconnect hoses and wires hooked to those devices.
4. Disconnect the EGR pipe in the back. Don't drop the gaskets, I used mine over. TRICK: pull the 6mm hex bit out of your Craftsman 3/8" drive socket and use a ¼" ratchet box wrench to turn it behind there… its tight. Don't drop the bit, you'll invent new cusswords trying to get it with a magnet tool.



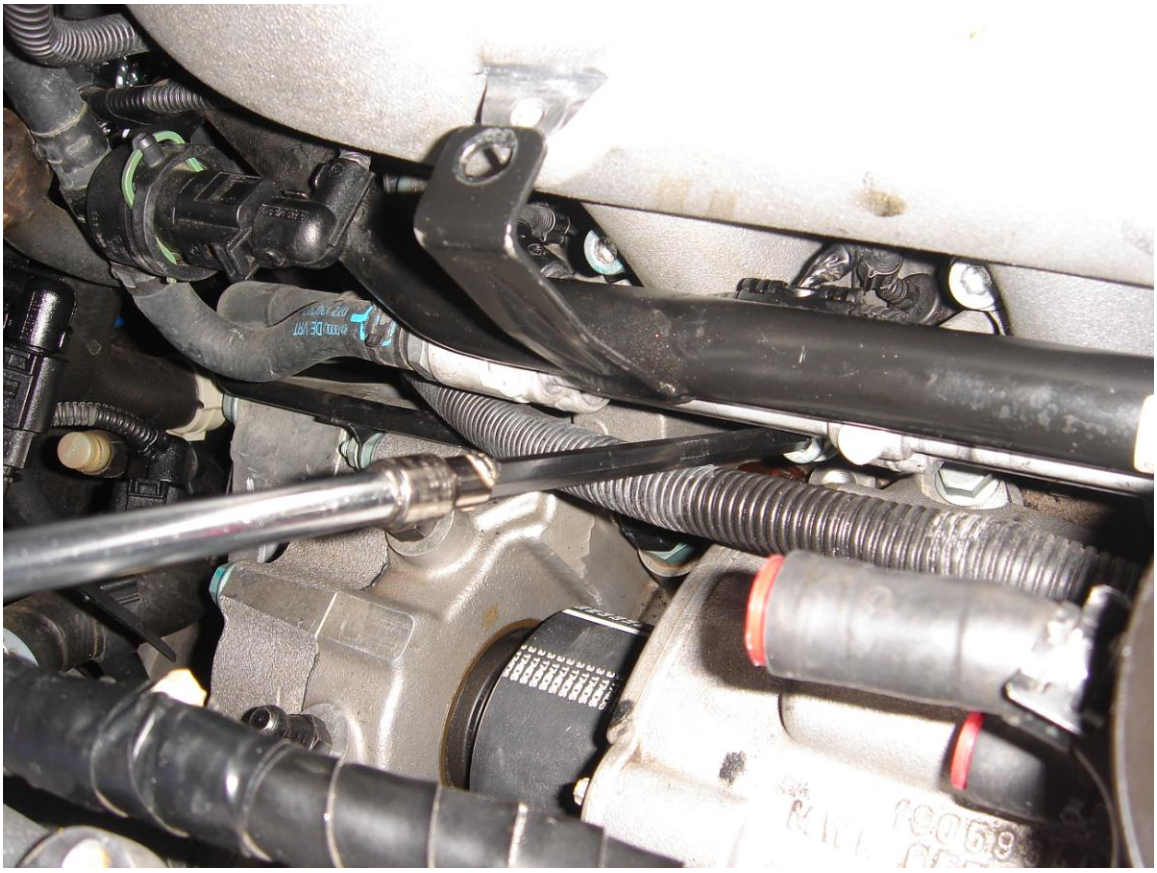
5. Before attacking the manifold bolts, you have to remove the oil filter stand and the fuel filter/heat exchanger assembly.
6. The Oil filter stand is easy to get out, four bolts on the base and one on the side going to the filler neck. Shimmy it around until it clears the fuel manifolds.
7. Suck out the standing oil with a vacuum, clean the lip and COVER that area very well with a piece of cardboard and some tape. I used a piece of black foam, so its tough to see in the pic, but make sure you cant drop anything in there.

8. To remove the fuel filter/heat exchanger, first, loosen the fuel tank cap to relieve any residual pressure in the tank, then unclip the fuel supply and return hoses (have a rag ready) and tywrap them up to the windshield wiper out of the way.



9. Remove the 2 Torx bolts on top of the housing, and do the same with that little hose manifold on top, it needs to be out of the way.
10. Loosen coolant tank cap to relieve any pressure in the cooling system before breaking any hoses loose. With some Channel-locks, squeeze and slide the coolant hose clamps back as far as you can where the small coolant lines enter the fuel heat exchanger, then slide the hoses off and try to plug them right away so you don't lose too much coolant.
11. Once you have everything disconnected from the Filter/heat exchanger, remove the two bolts holding down the front, then just pop the back straight up. It's mounted on ball sockets in the rear. Don't just yank it out there is a connector for the FFS (Flex Fuel Sensor, in our case, used to detect water in the fuel) that needs to be unplugged behind it. Take it out slow, or there will be fuel everywhere.

12. Getting to all the manifold bolts is not bad. TRICK: cut the short end off of your Craftsman 6mm Ball End Allen Wrench and tack weld the wrench inside of a 6mm ¼" drive socket.



New tool, on the end of an extension, ball end inserted in bolt.

13. Break the manifold bolts loose starting from the ends and working towards the middle, use a magnet tool to keep from dropping the bolts. You'll have to do plenty of fidgeting to get them out, be patient.

14. Take the coolant hoses off of the T pipe that goes parallel to the passenger side manifold so you can lift it up, there's a bolt in the back also. TRICK: cut the bracket off the front end of this T pipe, it holds the socket for the glowplug connector and secures the T pipe to the manifold and I swear they engineered it to be in the way of this operation. I draped a towel over the entire engine so I could contain the chips.

Cutting the troublesome bracket off of the T-pipe

15. The driver side manifold comes out easy, the passenger side takes some serious fidgeting…

16. With the manifolds off the vehicle, carefully clean the cylinder head intake port surfaces and cover them with tape. I used a shopvac while cleaning to be sure nothing fell in those. Do this right away.

Tape over the intake ports.

17. With the manifolds off the car, take the EGR valves and Flappers off, be careful of the o-rings, you can use them again. The Stealer wants $36 for those things.

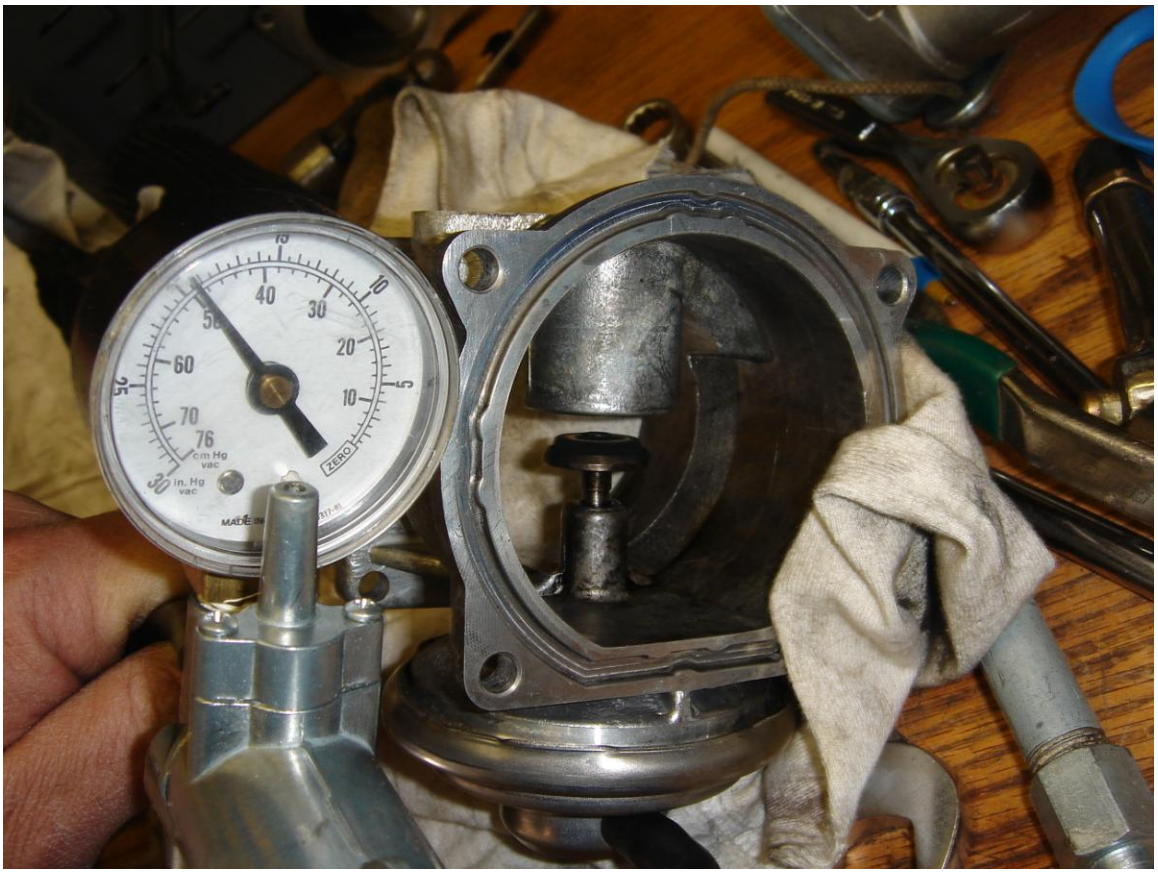
Passenger side manifold.


Here's your engine without the manifolds.

18. Find a machine shop that will clean the manifolds out. If you're brave, you can burn it out like those dudes on YouTube. It's up to you. I bet the manifolds are expensive if you warp or melt them. I took mine to Crankshaft Grinders in Salt Lake City; they have a high pressure, high volume parts washing machine. They charged $40. You can't just hot tank them I found out because the caustic will eat aluminum faster than it eats carbon. Also I chose to clean my EGRs and Flappys myself with Carb Cleaner (mostly Acetone), and a little pan of Acetone with a brush. Try not to get too much acetone in the shaft bushings of the actuators (don't soak them), then use a good spray lube when you're done on the shaft bushings – bearings.

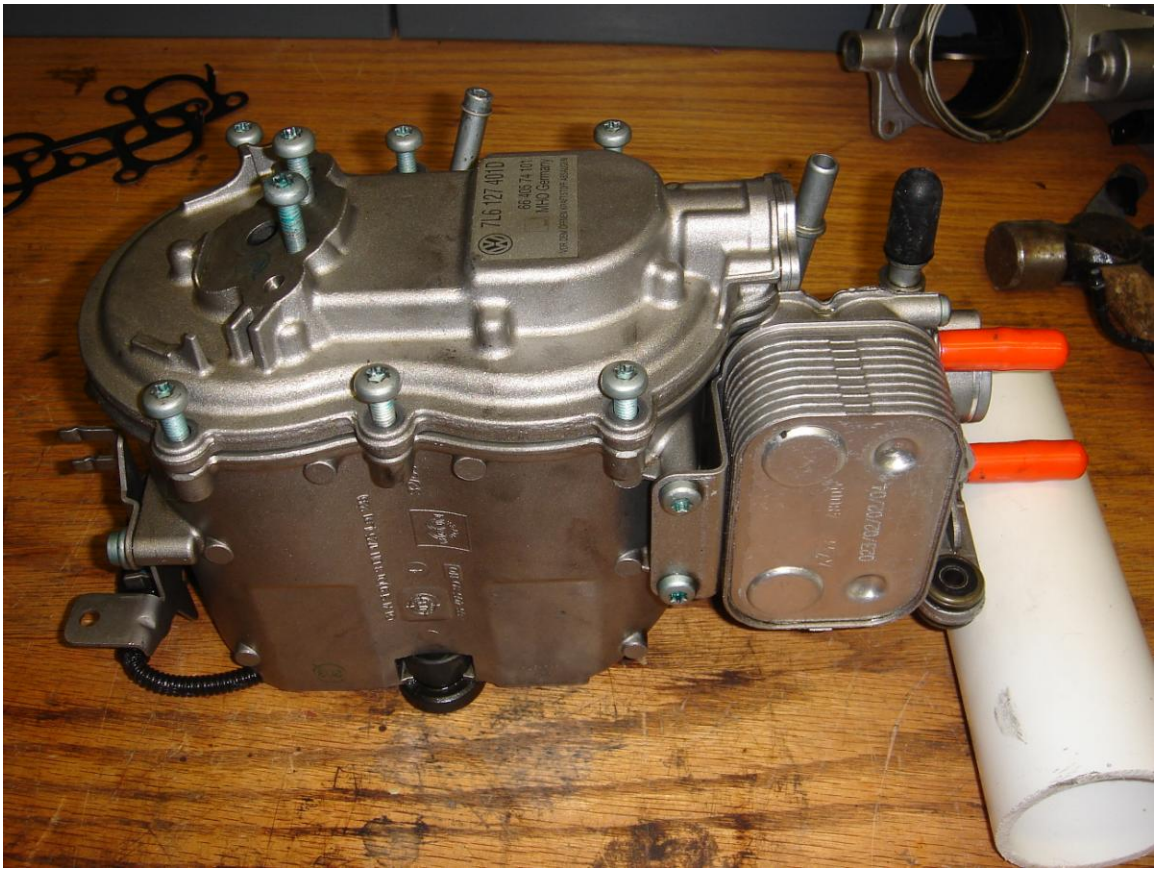
Clean and looking like new

19. I took this opportunity to verify my EGR valves were working. I have a MightyVac tool I used to draw a vacuum on the actuator. It reached full deflection at about 20 inches of Mercury. It may take more of less for yours, plus I live at 8000’ elevation.



20. Now you get to put it all back together. Assembly is opposite of removal and be very careful with the new manifold gaskets. Remember, it is easier to bolt the EGR and Flappys on first.

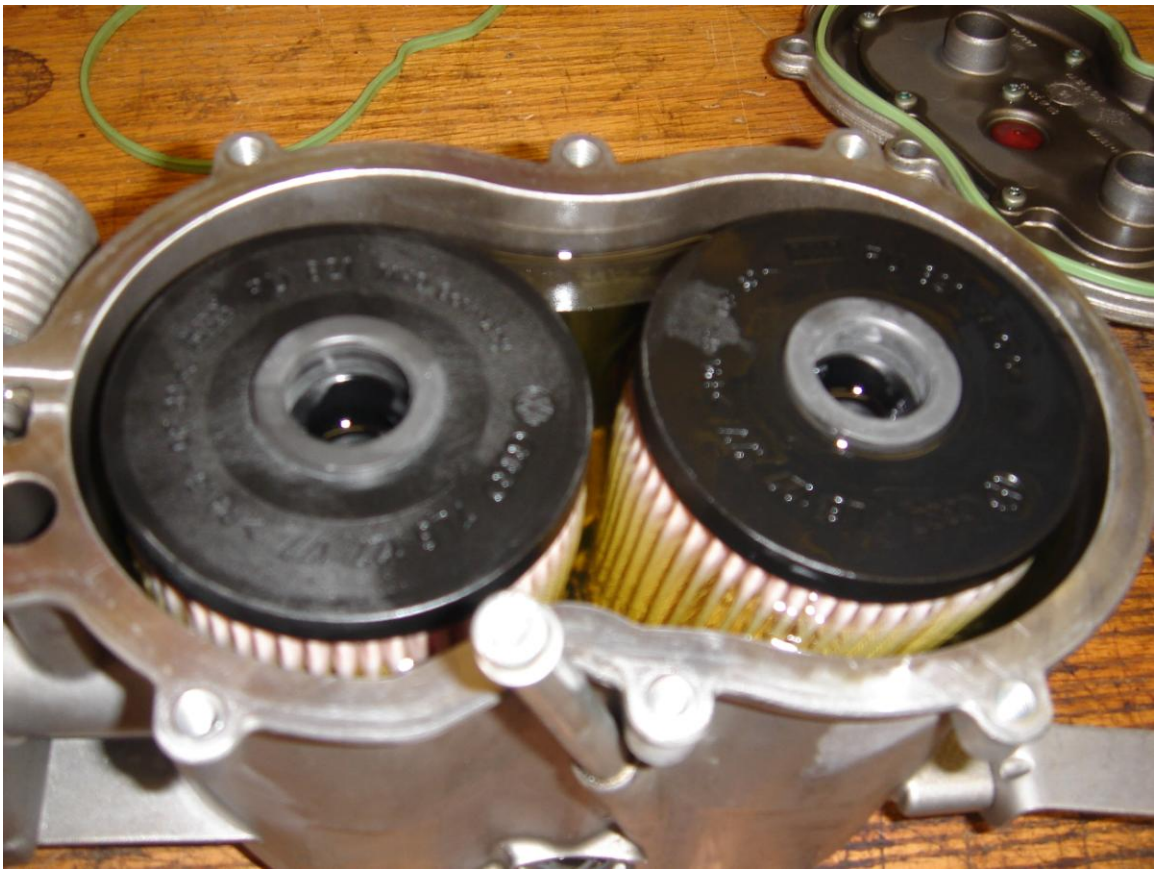
21. This is also where I serviced the fuel filter/H.E. assembly. I emptied it into an oil drain pan before taking it apart and I'm glad I did, cuz it holds over a quart of fuel.



Fuel Filter/heat exchanger out of the car.

22. Take the Torx bolts out around the top of the housing, the old filters are snapped into the bottom of the cavity, just pop them off the little stands in the base. Before installing the new filters, dump a little acetone in there and use an acid brush to swish it around and dislodge the sediment. Hold it upside down over an oil drain pan and with the heat exchanger end up, and spray it clean with Carb Cleaner. Snap in the new filters and fill it with fuel to about a half inch from the top. Put the top back on and tighten the top. Plug the holes so you can tip it when you put it back on the car.

23. This is the gunk your filters keep out of the fuel system.



New filters and filled with fuel, ready to put the top back on.

24. If you choose to install the filter assembly empty, you may have to do the ignition switch shuffle to fill it up before the car will start. This is because the delivery pumps in the tank won't run very long if the controller doesn't detect RPMs. You have to turn the ignition on and off 10 times or so before it gets full enough to keep running. I don't like doing this to any computer. Or you can just go to the start position and the poor car will just keep cranking till it runs or the starter times out. I didn't want to try these methods, so I filled it beforehand.

25. Before starting the car, double check everything you did for loose connections and fasteners.
26. In my opinion, this intake carbon problem should be avoided at any cost. The most important thing is to keep the crankcase oil vapors out of the intake. I think a good breather / oil separator is required. TRICK: if you switch the two CCV valves on top of the engine, it allows for much better access to re-route a hose to a separator. For now, mine are just going to atmosphere below the car. You can see I just plugged the stainless tube going back to the intake. Ill hook them up to a good separator when I find or make one.

P-side CCV valve on the D-side, capped intake tube.

Job done, temporary CCV routing.

27. As far as the EGR goes, I plan to VAG-com mine to less of a duty cycle, but I think there are some benefits to EGR, so without the oil vapor, it shouldn't cause this problem.

I guess I beat this to death, so I hope this write-up saves someone a few hundred dollars and makes their V10 last and run better.