

INTAKE MANIFOLD CLEANING 101

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[Edited by GeWilli](#)

[Snowball's Original page with zoomed images](#)

This cleaning procedure was written up while working on my 1999 Jetta TDI MK IV.

Examine your engine, look at these photos and study the locations of the components you may need to move during this maintenance task. Read completely through this guide at least once prior to starting so you are not surprised, or left with questions in the middle of the job!

Start the day by gathering the tools and supplies you will need. Once you start pulling off parts is not the time to learn that you need to make a store run! Get setup in a comfy area. I'd recommend good lighting, and if you are outside consider parking in the shade. Organize everything you need so you can reach it when you need it.

If you have a torque wrench and the manual I advise you to torque all bolts as specified. If you do not have such tools then make note as you remove each bolt. Get a feel for how tight they are. Most of the parts you are working on in this project are made of aluminum and will strip out if you over torque them. Leaving them below specified torque could cause the bolts to loosen, and parts to leak.

Snowball "This is not the format I intended, but I'm an HTML retard"

GeWilli " well I am one two but I could figure it out ;)"



Begin by removing the Upper engine cover.

Note the location of the items listed:

- . Fresh air intake from your air filter
- B. CCV unit
- C. EGR valve
- D. Anti shudder valve
- E. Air supply from intercooler
- F. Intake manifold



Disconnect the hose leading from the CCV to the fresh air intake. There is a small lip that seals it so pull hard.



Remove the 2 metal clamps that hold the rubber hose from the Intercooler pipe to the EGR. Do not get excited and start scraping at crud out of the EGR at this time. If you loosen the crud now it may easily fall down the intake manifold and into a cylinder.



Pull the rubber hose off the inlet to the turbocharger. (Sorry I forgot to take a picture of this)

Remove two #5 cap screws that attach the thing (I don't have my manual yet, and am unsure of this units function) shown in the photo from the intake manifold.

Pull the vacuum line off of the EGR (mine had a small metal clip that became badly damaged. I do believe the hose will stay put without this clip)



Remove two #6 cap screws from the exhaust supply line leading from the exhaust cooler to the EGR. Don't lose the thin metal gasket.



Remove 3 #5 cap screws that hold the EGR to the intake manifold. The bolt in the 7 o'clock position is in a tight location due to a # 6 cap screw holding the exhaust line from the last step to the EGR itself. I was able to remove this bolt with a #6 ball end Allen wrench. Again, do not get excited and start scraping crud out of the intake manifold.



Remove two #6 cap screws that attach the exhaust supply line to the exhaust cooler [G]. Again do not loose the gasket.

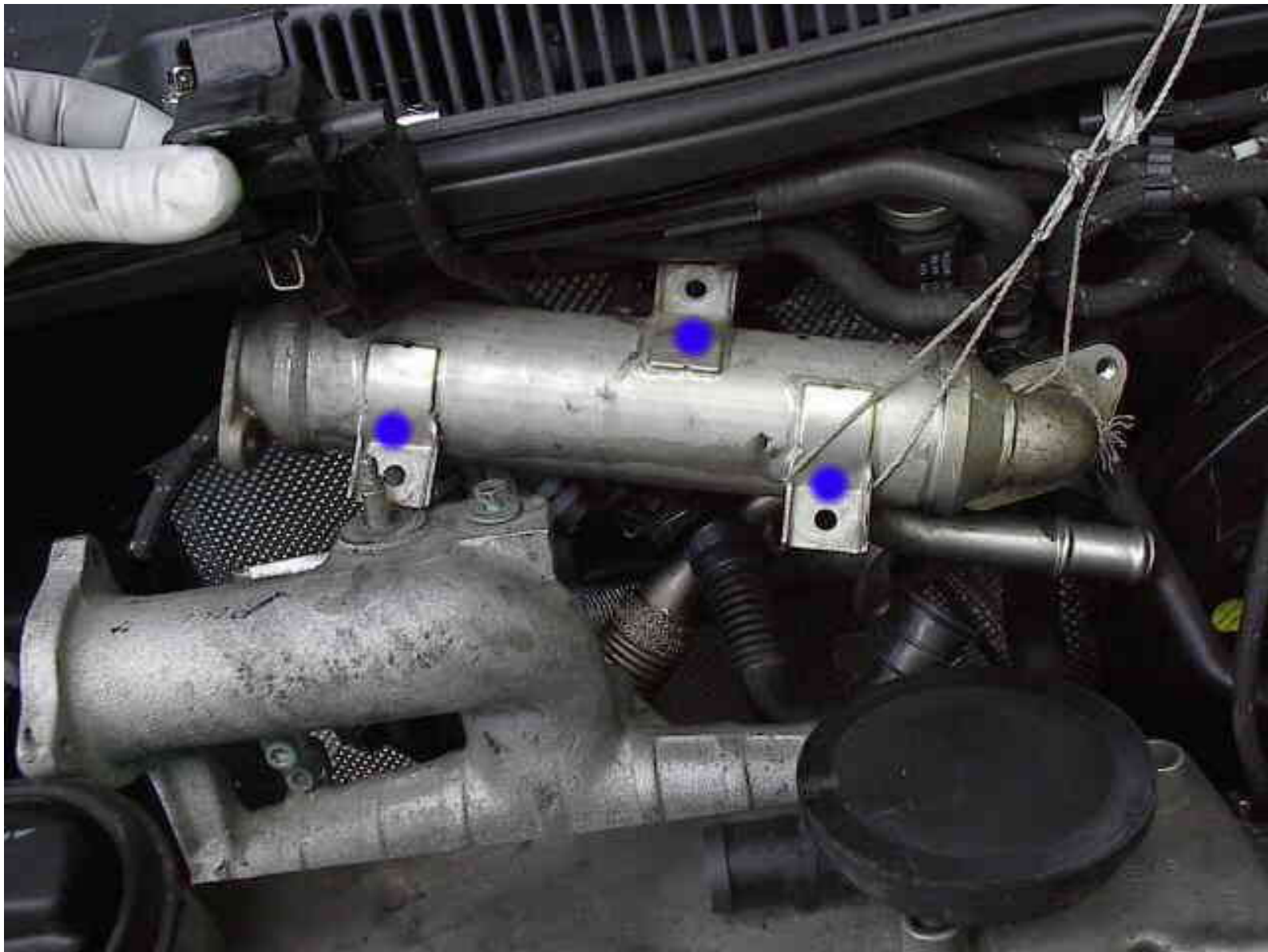
Also disconnect the coolant hose [H]. Either clamp or raise this hose above the radiator level to prevent draining of radiator fluid.



Clamp the lower coolant line going to the exhaust cooler. Now remove the smaller coolant hose attached to the top of the cooler.



Remove three #10 hex bolts that hold the exhaust cooler to the intake manifold. Tie the exhaust cooler so it is up and out of your way.



Remove six #6 cap screws that hold the intake manifold to the engine block. The 2nd bolt in from the left hit a heat shield on its way out. You may have to bend the heat shield a small amount by bashing it (GENTLY!) with a hammer and long tool such as a screwdriver or punch. Do not loose the gasket as you pull the intake manifold out.





This is the intake manifold. Make note of where the six bolts are, as you will not be able to see them as you remove or replace them. I do not have my manual yet, but I would recommend the following pattern to tighten these bolts when reinstalling 531246. (That pattern may change as soon as I get my manual)



The gunk I cleaned out of my EGR valve and intake manifold.



To clean out this gunk I scraped out as much as I could with hand tools, and a foot long piece of stiff wire. Once the big stuff was gone I used brake cleaner to help loosen the rest. The gunk came out easily as it was rather moist (think of the stuff in a day old coffee filter). If yours is very thick, or hard you may need to soak it overnight, or as some have suggested bring it to a glass bead machine.

The following are pictures of all the tools I used in this project just in case you are not familiar with them all.



1. Water and towel-less hand cleaner (Use often, no need to put dirty finger prints everywhere).
2. Magnetic parts bowl to hold the parts you remove
3. Hammer to bash (GENTLY) heat shields with (a mechanics best friend)
4. Prying tool (didn't actually use this)
5. Long regular head screwdriver to be used with the hammer
6. Smaller and well (ab)used regular head screwdriver to use for scraping gunk with.
7. Screwdriver with changeable heads
8. Notepad and pen (so I could write this article)
9. Flashlight
10. Small adjustable wrench
11. #10 open/box wrench
12. #6 open/box wrench
13. Small hook type tool to scrape gunk with
14. Magnetic socket inserts (these can really help you prevent loosing bolts under the car)

15. Magnet on a wand (a mechanics 2nd best friend)
16. Inspection mirror (to find those pesky bolt holes behind the engine)
17. Allen wrench set (metric) with the ball ends
18. Allen wrench set (metric) on a 3/8 socket base
19. #10 hex socket
20. Water pump pliers (used these on some hose clamps)
21. Hose pinching pliers
22. Pliers (again for hose clamps)
23. 1/4 and 3/8 drive mini ratchet things
24. 1/4 and 3/8 drive socket extensions long and short
25. 1/4 and 3/8 drive universal joints
26. 1/4 and 3/8 ratchet wrenches
27. 3/8 stubby/flex handle ratchet wrench (this WILL fit those tight places. Highly recommended!)

Your tools will vary, and I'll leave it to you to decide what of the above tools you'd like to have on hand during this job.

The job was not too bad. I'd rate it a 5 for difficulty (on a scale of 10). The biggest problem I'd expect someone to run into is applying proper torque to the fasteners. The job is not much fun though (took about 4 hours), and you will be spending a lot of time leaning over the car trying to reach the rear of the engine. I'd be happy to help anyone in my area (Middleton Massachusetts) but you will do the wrenching while I "supervise" J