

First an explanation;

The Particulate filter is housed in a canister attached to the back of the cat on the underside of the car about level with the front seats and is designed to capture the diesel soot particles emitted from the engine to the benefit of both the environment and people's health. It is a graphite cylinder with hundreds of tiny closed ended perforations (figure 1), each perforation is closed off at the alternate end to those surrounding it thereby forcing exhaust gasses to seep through the graphite from one perforation to another in order to escape. Obviously these perforations would become blocked with soot in a very small time period and therefore some form of regeneration is required. In order to regenerate the filter the soot particles must be burnt off, this is where the fuel additive fluid comes in, it lowers the burning temperature of the soot to around 450 degrees C. As you drive along the car senses the pressure differential across the filter and therefore establishes weather regeneration is needed, if it is the car injects extra fuel on the exhaust stroke to burn in the exhaust and raise the temperature of the filter to over 450 degrees and hence burn off the soot. So far so good, but there is a problem. The flue additive fluid itself tends to collect in the filter as a white sludge which doesn't burn off completely during re-generation and gradually restricts gas flow, it is at this time when the car flags up the 'clean particulate filter - urgent' message on the dash and the dealer will try to sell you a new filter for a huge sum. The answer is simply to clean the filter yourself; there are three ways i know of that members have used: 1) Burn the filter, 2) put neat fuel additive in the tank, or 3) Wash the filter with a pressure washer. As far as i can see methods 1 and 2 might not remove all of the additive, just the soot, i might be wrong but i believe method 3 is the way to go. I Cleaned mine about 20k miles ago using the pressure washer method and have not had the un-block message once since.



Figure 1

Tools Required:

- 1) A socket set
- 2) Spanners
- 3) A long breaker bar / ratchet / torque wrench
- 4) Pressure washer
- 5) Exhaust Putty

Here follows my step by step guide to removing and cleaning the filter using a pressure washer, it's actually very simple but can be made tricky by access, rusted nuts and awkward location, but should still be manageable in a few hours.

had made more effort as working with the underside of the car 10cm from your face is hard. A pit would be ideal.

2, Unscrew the small pipe (figure 2), that runs from a point towards the back of the particulate filter forward towards the engine. This pipe is there to sense the pressure change accross the filter and activates the un-block warning on the dash. I found this pipe impossible to free from the filter so i released it at its forward end above the front anti-roll bar (sorry no pic) and un-screwed it from the support bracket on the side of the cat (figure 3).

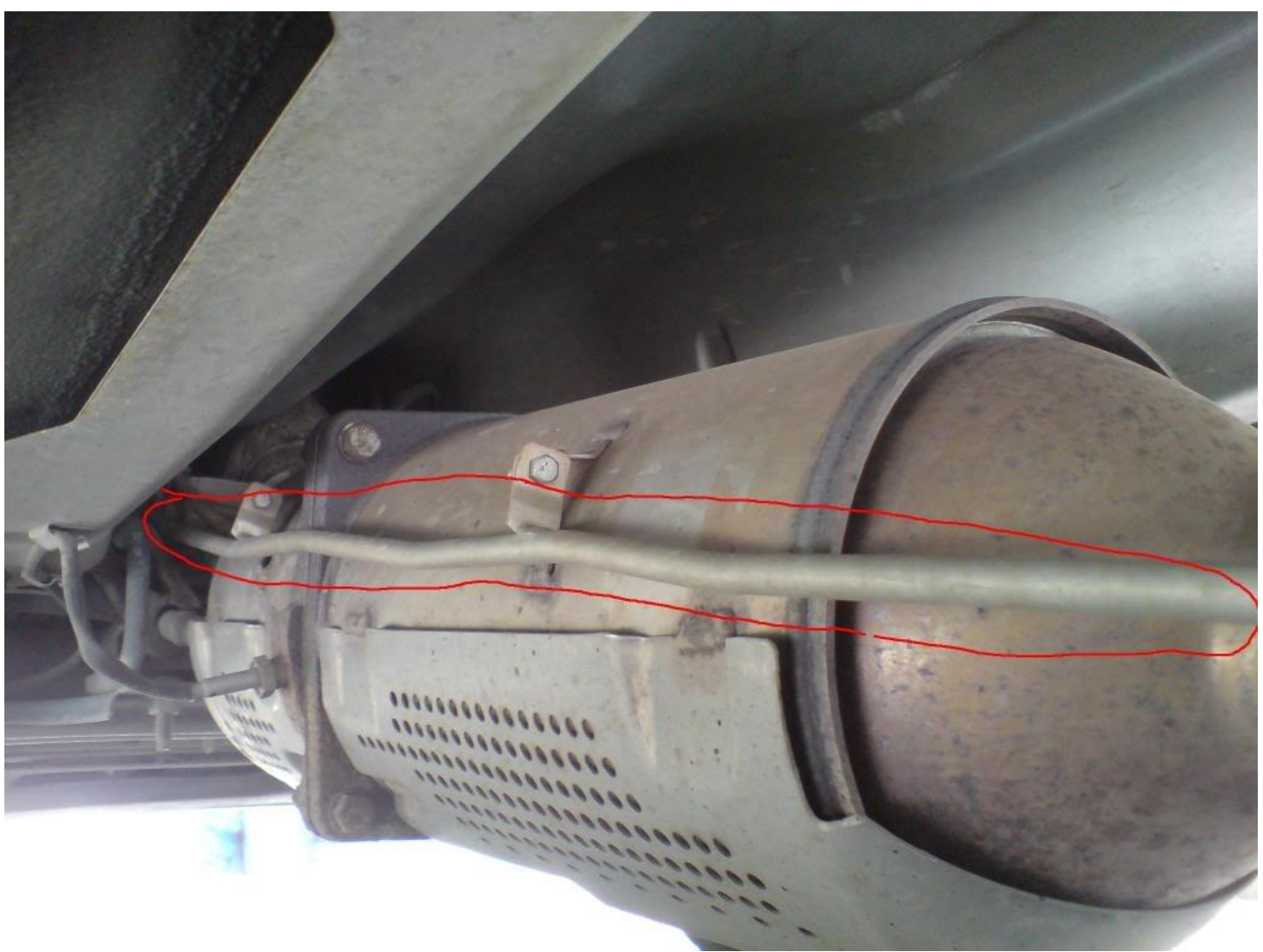


Figure 2



Figure 3

3, Free the exhaust from its hangers in the middle and towards the back of the car, these can be stiff but with enough wiggling they will come. The back end of the exhaust should now drop and rest on the ground (figure 4). You will find access to the top 2 of the 4 bolts that secure the filter to the cat now greatly improved.



Figure 4

4, Un-do the 4 bolts mentioned above (figure 5), these will be stiff and 'gritty' as they have been heated and exposed to road debris but will come with a big enough ratchet / breaker bar (which is one reason you want the car high off the ground as you need space to swing it). Remove filter from cat (figure 6) making sure not to damage the gasket and note its orientation (figure 5).  
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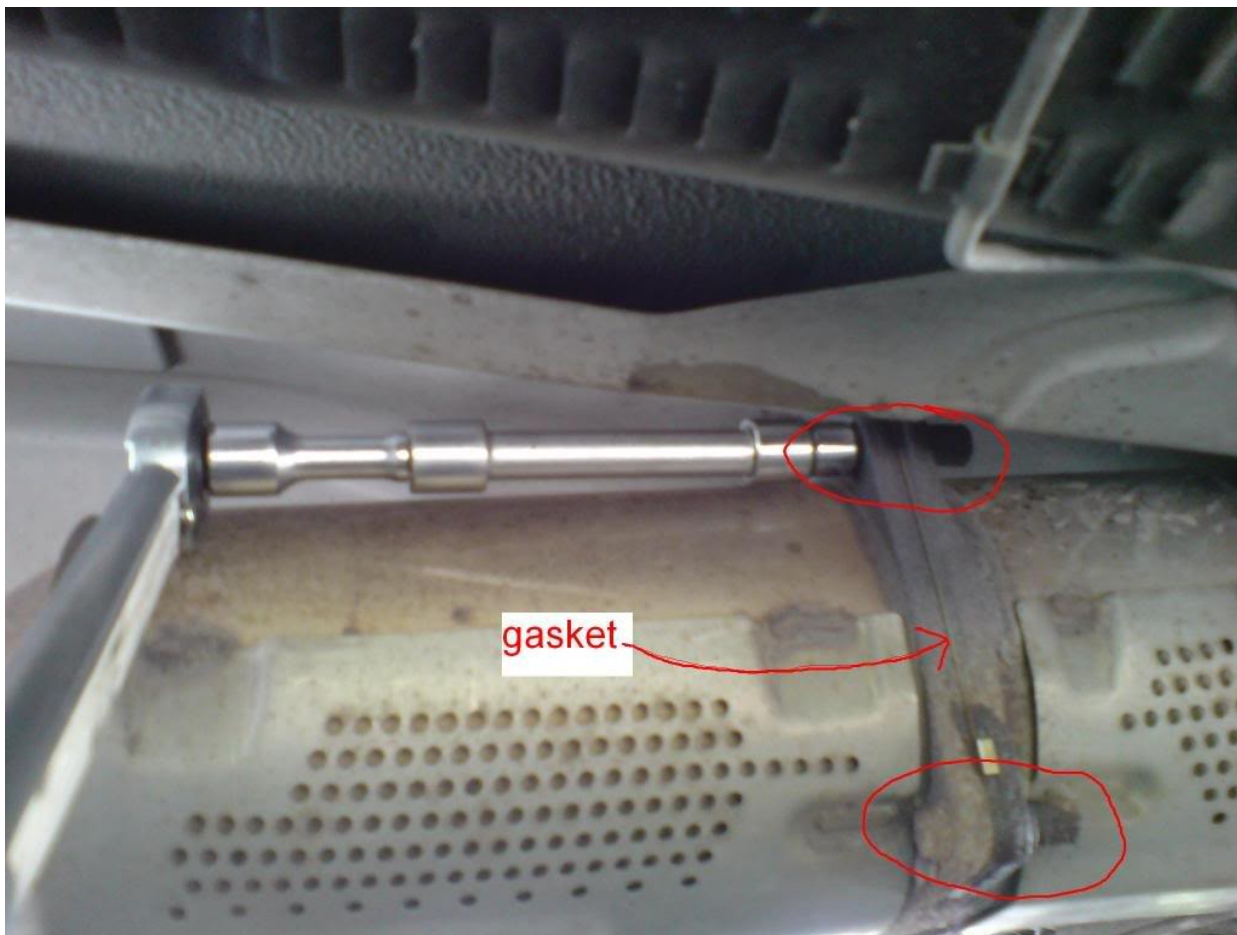


Figure 5



Figure 6

5, The back and middle sections of the exhaust including the filter should now be free to remove from the underside of the car. Separate the exhaust pipe from the filter canister (figure 7). The graphite filter CANNOT be removed from its canister, do not try as you will break it.

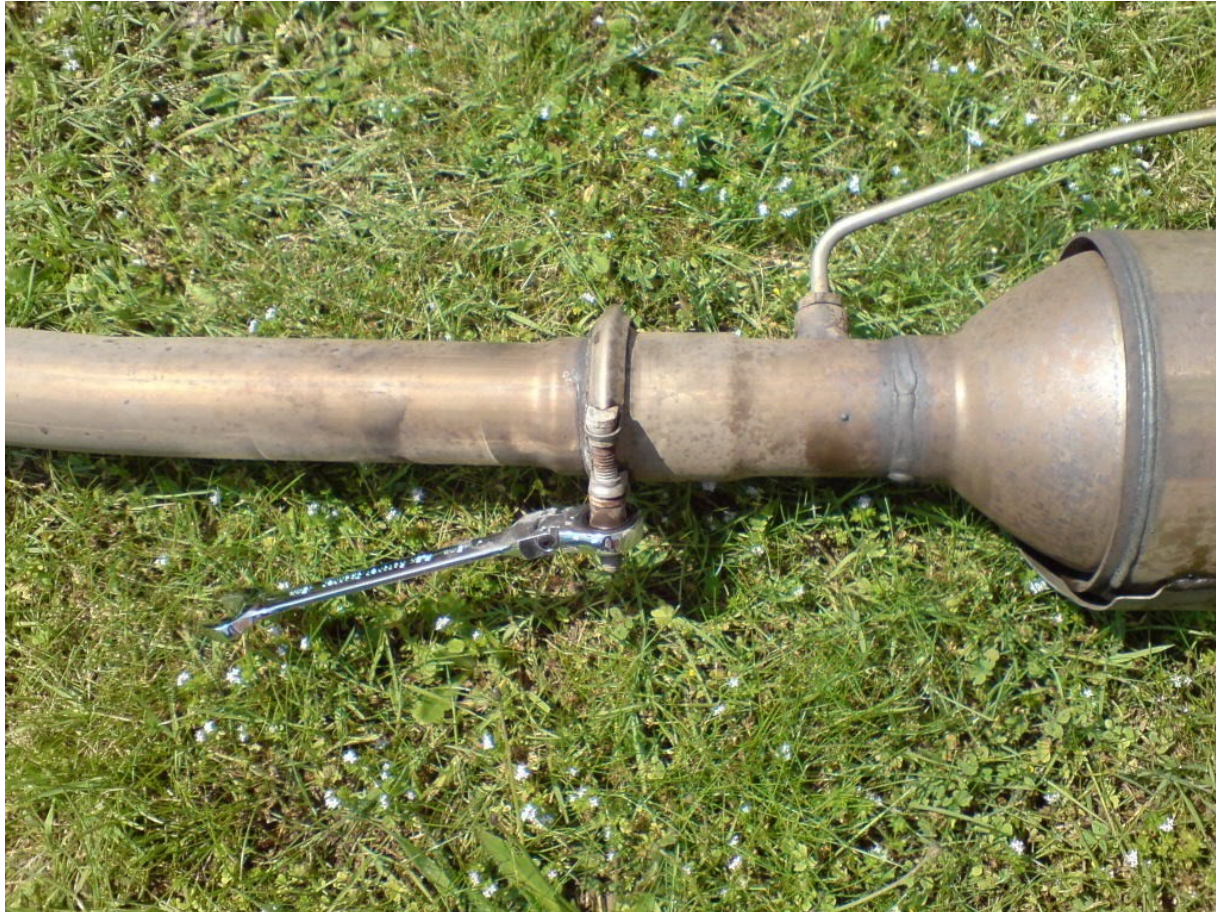


Figure 7

6. Aim a pressure washer directly at the graphite filter, remember to squirt in the opposite direction to exhaust flow (figure 8). Lots of white goo and black soot should come out (figure 9). Keep this up until all water runs clear. Be sure to move the jet around to cover all areas of the filter. I must emphasise at this point that a standard hose will NOT do, I used one first and the water went clear so I thought I had done enough, I then used the pressure washer just to make sure and found I removed a LOT more goo than with the hose.



Figure 8



Figure 9

Some people have reported that the filter pressure sensor is very sensitive to moisture and costs approx £200 to replace if damaged, it may well be worth while drying the filter over night on a radiator or similar to avoid problems.

7, Re-assemble, reverse of removal, sorry i dont know the torque figures for the various bolts. Use exhaust sealer on any standard exhaust joints you have disturbed but NOT the filter to cat connection as this has a gasket

8, Run engine gently to dry filter, alarming amounts of steam will emerge for five mins (figure 10), do not race engine as exhaust joints will not be dry.



Figure 10

9) Have a beer and say 'well done me' as that just saved you a few hundred quid.