

Volkswagen Cabriolet DIY Guide

CIS: Cleaning the Airflow Sensor

(Originally posted to the former VintageWatercooleds.com site, now reposted to <http://www.timbox.net/technotes/cleaning-the-cis-airflow-sensor/>; reprinted here for preservation sake.)

This tech procedure is about cleaning the CIS airflow sensor for better running, and fewer starting and idle gremlins...

After a few days of doing the timing belt and numerous adjustments to the car, it still had a cold start problem, no longer as pronounced, but still remained.

My brother listened under the open hood as I turned over the ignition to get a clue on what could be the problem, he noticed a BUZZ noise that was much louder than usual (once the car actually stayed on idle by itself) coming from the fuel injection system on the top of the air box. [This buzz is actually the frequency valve, controlled by the oxygen sensor. I suggest oxygen sensor replacement before you attempt this procedure.]

After verification with the Bentley, we discovered there was a piece that should be cleaned from time to time to ensure proper flow of fuel to the injectors. "The Plunger" is the part that connects the airflow sensor to the injection system, it is a valve, augmenting and lowering gas flow to the injector system. After cleaning it out, the car starts every time, cold or wet, at first turn of key.

[Proceed with caution - these are delicate parts and are very expensive to replace, do this procedure at your own risk.]

Tools needed:

Long-nosed Vice Grips
13mm crescent wrench
Flathead screwdriver
Rags

Information



This is the fuel distributor. The valve is in the part with the fuel lines connected to it.

Step 1



Using a pair of Vise Grips ("long nose" style), gently squeeze the tubing coming from the fuel filter to the injection system. DO NOT pinch the line, you only need as much pressure as to prevent gas from pouring out. Below it is a bolt; crack it open, remove bolt and copper washer.

Step 2



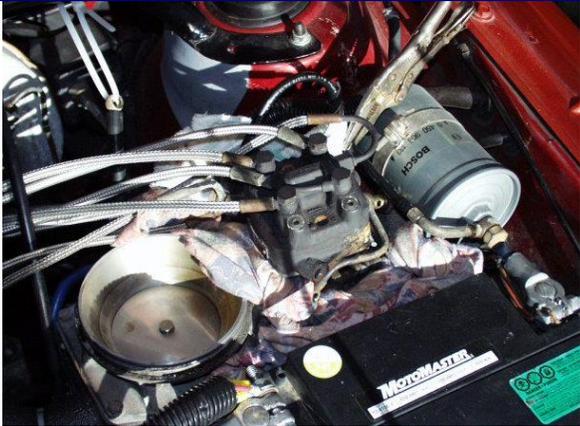
Next to the line you just closed, a line leads to the firewall side of the injection system. Gently crack the line open, and save the bolt and washer.

Step 3



Lastly, on the battery side of the injection system, one last line you need to crack open, and remove the bolt and washer.

Step 4



There isn't much of gas pressure in the area, though I used some absorbent shop cloths; they are really to prevent from fuel being dropped on asphalt (eats through it).

Step 5



There are three flat head screws (the engine side one might require to loosen an injector line and move it temporarily) remove the screws.

Step 6



Gently lift the injection assembly from the airflow box. The plunger should be partially visible as it sits, resting on the edge of the travel limiter ring.

Step 7



Gently pushing on the plunger, you will feel (and see) if there is debris inside the shaft (it should move up and down smoothly, without having to pull on the tip to make it come back in place).

Step 8



Right below the tip of the screwdriver is a lip, preventing the bottom from coming loose; you will need to flatten this upwards to remove the nut of this assembly. At this point, before going to the next step, you should mark on the body where the travel limiter ring position is, as you will need to return it into the same position when reassembling.

Step 9



Loosen and remove the bolt and travel limiter ring, holding the tip of the plunger gently in place ~ do not use excessive force to hold it in position **(IMPORTANT! see why below!)**.

Step 10



Slide the plunger out gently, until the soft return spring comes out with it. Remove both from the unit. Using a soft cotton ear-swab dipped in gasoline, clean out the residues inside the injector body shaft.

Step 11



I noted a few scratches that were probably my cause for idle hesitation on the plunger. Using 600 grit sandpaper, and using a wetting agent (in this case power steering oil), I gently sanded the scratches from the shaft of the plunger until it returned to the original shining metal it was supposed to be. Patience and gentleness is important as this part cannot be purchased separate from the injection unit (which is a mere \$850 in itself).

Step 12



Once the plunger was done, I turned my attention to the airflow box. It wasn't too clean...yes, this is the cleaning tip!

Step 13



Here is a reason why you should NOT use carburetor cleaner to spray under the air box to clean it out – it collects stuff if improperly rinsed out afterwards. Clean it by hand with a cloth dampened with fuel.

Step 14



All Done. I finished by sanding evenly the 3 rest points of the injection assembly so that the plunger would be at the optimal angle of action once re-assembled.

Step 15



Slide the spring back into the injection assembly followed with the plunger making sure you have wiped the plunger with fuel first. Set the limiter ring in its original place and hand screw the nut back in place, tighten it down.

Step 16



Don't forget to push the locking flap back in place, to gently put the injection system back on the airflow box, screwing evenly the flathead screws back in. Then reconnect the 3 gas lines to the unit, check for leaks, release the fuel line. Try to start the car, it WILL take a few turns of the engine to start – until the air has escaped the system, it will be a rough idle, but it should settle down inside of 3 to 5 minutes.

* * Remember, **you** are responsible for working on **your** car; Cabby-Info.com, KamzKreationz, VAG, VWoA, or anyone else are not responsible if **anything** goes wrong while **you** are working on, in and under **your** car!
Use this information at your own risk!* *