

Volkswagen Cabriolet DIY Guide

Cleaning Hydraulic Lifters/Tappets

This how-to was originally posted on VWvortex.com by "Black_cabbie": <http://forums.vwvortex.com/zerothread?id=1944667> .

Tools needed (does not include tools needed to remove valve cover and camshaft):

- WD40
- 240-grit wet and dry sandpaper
- Gunk, or similar, engine cleaner
- Small paint brush, or Q-tips
- Pliers

As you know, when an engine reaches high mileage, components are not what they were when they were fresh and young. Though the deciding factor is the care that the owner takes to maintain youth reliability of components, regular servicing and oil changes are a must, also the use of good quality oil, not the cheap reconditioned oil.

If you imagine at start up, a thicker oil would take some time to pressurize the tappets, as the oil feed hole is very small, so a thinner oil would flow into this more quickly. Another factor for rattles on tappets is the oil feed hole may become blocked with sludge, subsequently the inside where the piston valve runs would also suffer from this and possible varnish build up.

Now with hydraulic tappets, it is generally best to use an oil that flows well, not necessarily Mobil 0W40, but a range from about 0W – 10W should be fine. I personally have found 5W40 a good compromise.

Engine flush may help, but if they are really blocked, or in fact the spring inside the lifter is broken, there is no way you will know other than taking them out and cleaning and testing each lifter.

Below I will go through the steps required to clean and test the hydraulic lifters, in most cases they are just gummed up.

I have just taken out the lifters out of my car as I'm doing a top end rebuild. I initially thought about replacing them before I learned that they could be cleaned up and tested in their functionality.

Step 1



Remove the valve cover and camshaft.

Step 2



Remove the lifters making sure to label them in relation to their original locations in the cylinder head. Once the lifters have been taken out of the head, give them a wipe, so to clean off any excess oil. Once this is done, find a wooden surface, not your kitchen table, as it will get quite messy, but an old MDF board or similar. Hold the lifter with the open end facing downwards and tap quite hard several times, and see if the piston has moved downwards? If it has it will come off fairly easy with either further tapping or with assistance of a pair of mole grips.

Step 3



This next step would be time consuming, but this is how I did mine as they were badly gummed up. In which case the best thing to do is soak them up in a bath of Gunk engine cleaner or Jizer overnight. But as you soak them, with a pair of pliers try to free up the piston in all 16 lifters so it goes up and down in a smooth manner as this would free it if it had become gummed up. What you will find in the morning is most of the oil would have flowed out of the lifter, simply take them out and flush them with fresh cleaner and a cloth.

Step 4

Now, what you will need to do is get an old pot or something, and as you pull the piston up and down a lot of oil and gunk will shoot out of the hole in the lifter. Keep doing so until no more fluid comes out. After this, try to tap the pistons out by knocking them on a hard wooden surface.

Step 5



Again, fully clean out the inside of the tappet, getting rid of any oil deposits, gum varnish etc. This is done by using a small brush/Q-tips with some Gunk poured onto it.

This picture shows the piston that is fitted inside the lifter, look to the centre, and you will see a ball bearing; this acts as a release valve to let oil in and out of the piston.

Step 6



Now that we have established this, you can get a pointed object, like a small punch or similar and depress the ball, what you will get is the oil will begin to come out, keep doing this until all the oil has come out.

Having done this what you need to do now is to test to see if the spring inside is ok, or whether it's collapsed or broken; this is done by compressing the piston. If all is ok, just clean up the piston, making sure the sides are totally clean with no varnish or gum.

Step 7



We will now go onto see how we can sort out the tappet itself, i.e. the bucket shaped part where the camshaft lobe pushes against. Normally after several thousand miles, you will no doubt have some wear. You will now need to finish the tops of each tappet, this can be done by using P240 wet/dry paper using WD40 as a lubricant, put the paper on a flat surface (a machined piece of steel or a small sheet of glass) and then rub the base of the follower in a circular motion over the paper, make sure you turn the follower regularly as you finish, keep going until there are no scuff marks present.

It should look something like this!

Step 8

If you have some wear on the sides of the tappet, then very carefully and lightly smooth them up with some 1200 or 2000 grade wet and dry paper, but don't overdo it as this needs to be a tight fit inside the cylinder head valve bores.

Step 9

Finally, once all the lifters have been cleaned, assemble the lifters and put them in a bath of *hot* oil. The hot oil will cause any air inside to expand and be forced out. Don't burn yourself! Put the lifters in open-side down. Allow the oil to completely cool; the remaining air will contract and be replaced by oil, which will get them nearly full. Test each of the little ball valves before you put them back together.

* * Remember, **you** are responsible for working on **your** car; Cabby-Info.com, "Black_cabbie", VWvortex.com, 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!* *