

Why revise your engine breather?

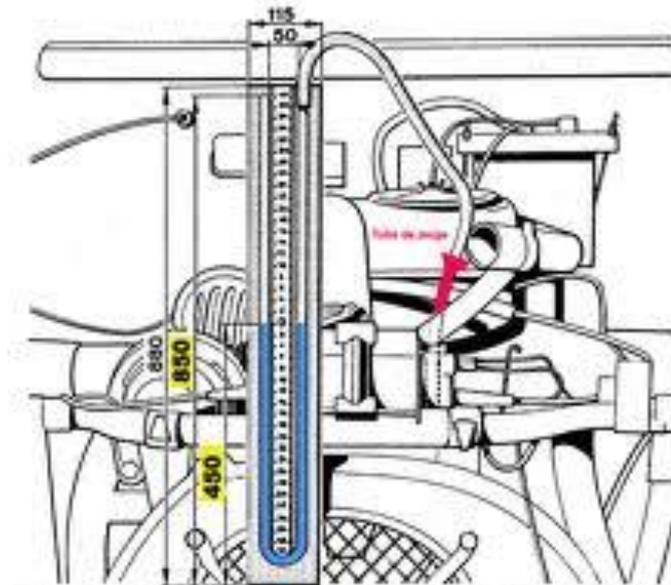
How can you check if your engine breather needs revising? If a 2CV engine leaks oil, this could be due to the engine breather. One often forgets this part when checking the engine or when having a complete revision of the engine.

The function of the engine breather is to create under pressure in the engine. Because the 2CV engine is a 2 cylinder boxer engine, and the pistons go in and out simultaneously, this creates a certain pressure in the engine. When the pistons go out, there is a rubber valve in the engine breather that creates a vacuum. If the rubbers are torn / broken / worn out, this results in overpressure in your engine which creates leaks.

In 2CV, Ami, Dyane as well as visa engines the inner parts of the engine breathers are the same. You can therefore use this manual and our revision kits for all of these types of cars.

The drawing below explains how you can check the condition of the engine breather.

Take out the dipstick and put the tube into the dipstick hole. Use a rubber tube to make sure that the connection is airtight. When checking a cold engine in idle, the water level should rise at least 8 cm at the side which you have connected. If you raise the RPM, one must maintain the difference of 8cm. One often sees that the engine builds up pressure or that there is no movement at all. If one of these scenarios occurs, the engine breather is not working properly.



Revision engine breather

Step 1: Preparing the old engine breather

- Always use an old ORIGINAL engine breather, never use an imitation (later we'll explain why).
- Use a marker to put a line on the engine breather connecting the upper and bottom half of the engine breather. You will need this line to correctly reposition the engine breather parts later on.



Step 2: Opening the old engine breather

You can open the engine breather using a belt sander. If you don't have this, you can use a handheld or bench grinder or a hand file. Make sure you only cut the outside edge that hold the upper and bottom parts together.



Step 3: Dismantling the old engine breather

After you have ground the connection ring, you can dismantle the engine breather. Sometimes you need to pull and push a bit. It also helps to heat the middle part with a blowtorch.



Remove the rubbers from the inside of the engine breather; you can use a screw driver for this. The rubbers are often worn out or hard, if this is the case, they will only work when the engine is up to temperature, because the heat makes them supple and flexible again. We strongly recommend that you always replace them.

Revision engine breather



When you have dismantled all of the parts, you will probably see why the engine breather didn't work properly.



Clean all of the parts before starting to revise the engine breather. You can use brake-cleaner to remove excess oil. You will notice that in the bottom part there is oil, and dirt... This must be 100% clean. Please remember that it's the inner parts which are important, the outside is only for the eye...

Take care NOT to remove the white marking line!

Step 5: Fitting the revision kit

For this manual we use the VGS-revision kit. We always use this because it gives the engine a longer lifetime and better under pressure.



Revision engine breather

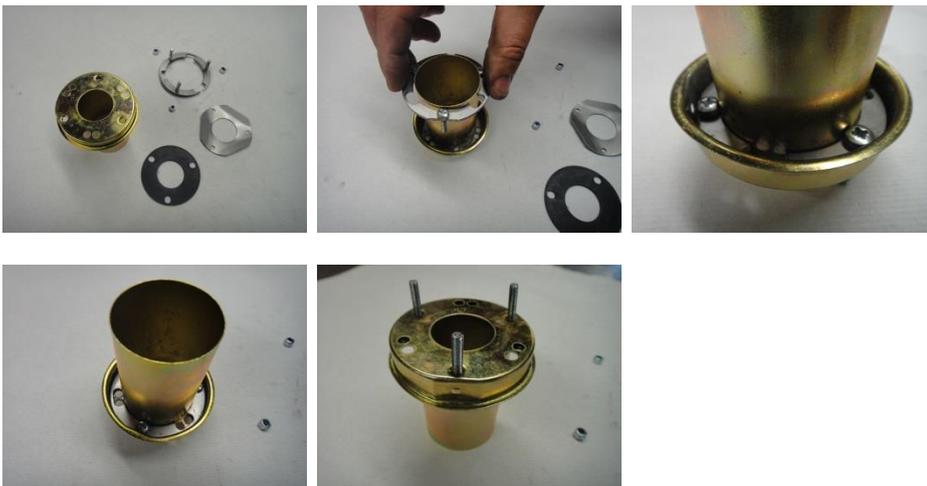
Take your new revision kit and the properly cleaned engine breather.



Drill out the 3 holes in the middle part to 4.5mm. Check that there are no drilling burrs on the underside. (If so, please remove these carefully).



Afterwards take the steel ring with the bolts and nuts. Push the bolts from the bottom to the top through the middle part.



Now you can mount the rubber valve, lay it over the bolts. Please note, if the rubber is a bit curved, the spherical side must be up. The edges at the outside must close as much as possible.



Revision engine breather

Now put the steel 'stopper' part on top of the rubber valve.



Screw on the M4 nuts. First tighten them a little; this way you know that the opposite ring is tight. After that loosen the screws a little, so you obtain a bit of space (approx. 0.5mm) between the rubber and the stopper part.



If the rubber is clamped too hard, the screws are too tight. (See picture).



Too tight

If you are sure that the rubber is not clamped, you can cut out the bolts with cutters. This also serves as an extra lock for the nuts.

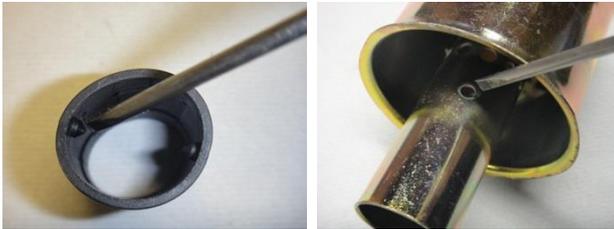


In this picture you can see that the movement of the rubber is limited by the stopper, which results in a better under pressure.



Step 6: Mounting the rubbers

Now take the long rubber with the pre-cut slits. Please check where the bump is inside the rubber. This must fit into the fitting hole in the engine breather (see picture below). If the rubber is mounted correctly, it will always stay in the right position.



Oil the long rubber on the inside. You can do this with your finger or with a brush. This will help to push the rubber into the right position.



Now you can mount the middle part onto the bottom part of the engine breather.



On the middle part there is a flat surface with a hole of approx. 4mm. This is to let the condensed oil flow back into the engine. It is important that this hole is at the lowest point of the engine breather. If not, too much oil will end up in your air filter.

Revision engine breather

Now you can mount the middle rubber. You can push this over as it is or you can also lubricate this rubber.

Please make sure that the rubber is longer than the steel tube on the inside (see picture)! If you use an imitation engine breather, this will be difficult. This is why we always advise you use an **original engine breather, no imitation!** This rubber serves to reduce the built up pressure in the crankcase.



Now we can put the top part onto the bottom part. Please check that the white marking line (step 1) connects well!

You also need to double-check that the flat surface on the outside of the middle part is on the lowest point of the engine breather!



Step 7: Re-connect the bottom and top part of the engine breather

For this you need the white plastic ring, the jubilee clip and some oil-resistant kit. The kit can be bought in different colours; it does not matter what colour you use, as long as it is oil-resistant. Often this kit smells like vinegar.



Push together the 2 parts to check the surfaces meet and that the mounting of the rubber went well. If necessary you can shape the 2 surfaces with a pair of pliers.

After this, split the 2 parts with a screw driver to make a gap of approx. 5mm. (Ensure they don't twist). Make sure that the middle piece is secured to the bottom part. Please check that the little hole is NOT visible, otherwise you have split them a bit too much and the hole will be full of kit, so it won't work anymore!

Now carefully apply the kit, and spread it with your finger ensuring the whole joint is filled with kit. If you don't use enough kit, you might risk some leakages. The excess kit will be squeezed out later on.



Now push together the 2 parts by putting the engine breather on a table and applying pressure. The excess kit will be squeezed out. If this is not the case then you probably didn't use sufficient kit and you should therefore repeat the previous step to avoid leakages later.

Revision engine breather



Now take the white plastic ring, you will see it has a cut, pull the ring open and push it over the engine breather. On the inner side of the ring there is a groove. This needs to be seated over the 2 edges. If the ring doesn't fit well, then either the edges are not straight enough or the 2 parts of the engine breather aren't pushed together sufficiently.



Now you need to secure the ring at the cut section. It's best to mount this at the backside of the engine breather as it looks a bit better.



After this mount the jubilee clip and place the screwing part over the cut section of the white ring. Tighten the jubilee clip and remove the excess kit.



Revision engine breather

Step 8: Mounting the lid

Don't forget to mount the plastic sieve with the curve down.



After this you can remount the lid onto the engine breather. There's also a new rubber for the lid in the revision kit. Push it into the inside of the lid using the flat surface of a screw driver.



Lastly you just need to mount the lid onto the engine breather. Use a small pair of long nose pliers to secure the hooks in place.



Your engine breather is now ready for use. Have fun!



Revision engine breather

For your information...

The engine breather will perform properly after approx. 20 kms. The engine breather is still dry inside and it takes a few kms before it is lubricated on the inside. The oil will help to close the rubbers completely. After 20kms the under pressure will be optimal.

The revised engine breathers from VGS are all:

- Completely dismantled
- 100% cleaned
- Cadmium coated
- Lids painted black
- All have the VGS revision kit
- And... All are put together with 100% professionalism.

As an enthusiastic 2CV driver, I often experience some worn out engine breathers. The imitation ones on the market don't have the same quality as the original ones. I started thinking, about 7 years ago, of solving this problem once and for all. We used to have the rubbers produced from silicon, but now we can source them through colleagues.

In the picture below you can see some prototypes. It has taken quite some time to produce a kit that is easy to mount, affordable and reliable.

