

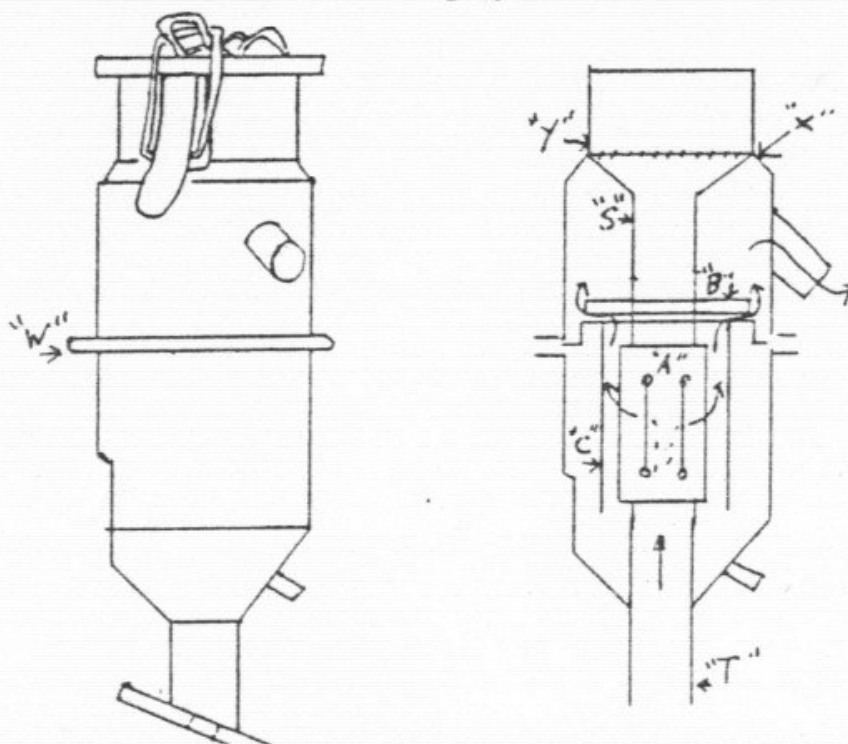
HINTS AND TIPS

From Revd. Peter Low:

Citroën Oil Breather Unit Explained - and One Way of Rearranging It

If you've tried John Nash's system for measuring crankcase vacuum and found it a bit lacking, or if your engine is blowing oil out everywhere, read on. The theory is that the crankcase breather unit, which doubles as the oil filler, creates a vacuum inside the engine which helps to prevent oil leaks. So why are so many donor engines plastered in oil? Often because the whole breather/filler unit has been allowed to come loose on its flange. But probably more often still because the unit's internal Neophrene type plastic valves have become old, hardened and split.

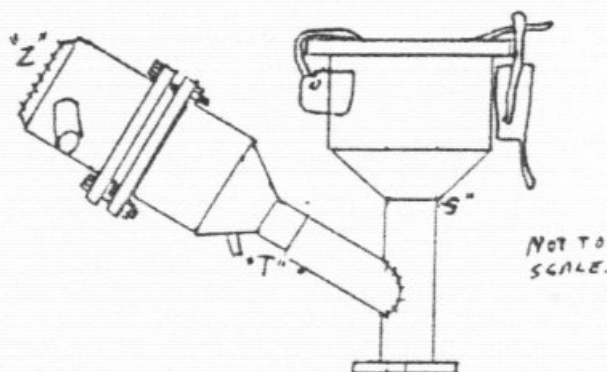
Looking at the diagram showing the inside of the unit, 'A' is a plastic sleeve with slits in it. The crankcase vapour pushes through these slits. The oil hopefully condenses on the steel baffle tube surrounding the sleeve 'C'. Any excess pressure is deflected upwards through the top of this baffle and out under the edge of the other plastic valve 'B' and thence through the breather tube. These valves prevent any back flow of air into the system and create the partial vacuum inside the crankcase. Valve 'B' is retained by three plastic tags. These are often broken, decreasing the efficiency. Valve 'A' is also retained by plastic tags. If these break, the sleeve can work downwards, revealing open holes on the steel tube which it surrounds.



It will be for reasons such as these that Citroën recommend replacement of the whole unit at regular service intervals. I discovered all this as I was building my Lomax 233 about two years ago. At the time I was unhappy with the Lomax method of shortening the breather/filler unit. I'd heard it said that while being shortened, swarf could enter the unit and work down into the crankcase and that any application of direct heat could damage the internal 'rubbers'. Personally, I didn't want to lose the handy flip-top filler cap or the plastic mesh guard inside the filler. It occurred to me, as I examined the unit, that its height is due to the filler being situated on top of the breather. If they could be separated, the problem might be solved.

I cut open a secondhand unit. A while later, after I'd bandaged my fingers, I returned to examine the innards. Both plastic valves were in a horrible state and I could see that there was a way of separating the two units, although it would need parts from two cannibalised units. If the top of the unit is cut at 'X', the top comes away with the cap and the funnel, plus a short stub of tube protruding from the bottom of it. The rest of the top section that you have cut this part from is not needed - throw it away before you cut your fingers even more !

Take another secondhand unit and separate the top from the bottom as you did on the first one (but I forgot to tell you, didn't I ?) by filing off the crimped joint at 'W'. You now cut this top section at 'Y' so that you leave the funnel and cut off only the upright sides above the mesh with the lid attached. The remains of this upper section will be re-united with a lower section to form the breather unit remote from the filler. First the open mouth of the funnel, where the plastic mesh would have been, must be blanked off. I used the surplus flip-top lid trimmed to fit, and welded it round 'Z'.



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Having separated the two halves of the unit by filing off the crimped joint, you may be wondering how to re-join them. I borrowed Nik François' method of two clamping rings held together with eight or ten small screws. This is a useful mod. for a standard unit as it enables internal inspection, and the top can be rotated to bring the breather tube exit into a convenient position. By this time I'd cut open four different secondhand units (whole boxes of Elastoplast) and found them all wrecked internally. So I bought a complete new unit (well, that's what Citroën recommend anyway) and cut it open, just to rob it of its pristine plastic valves !

So far I had succeeded in separating the two units - now I had to re-unite them. I chose to mount the filler on a vertical tube with the breather branching off it at an angle. I found some 16 gauge steel tube that fitted over the stub projecting from the bottom of the funnel 'S', and matched the hole in the original flange, cut from the bottom of one of the units. Another short length of tube into which the tube 'T' would fit, was obtained. This piece of tube had one end profiled to fit the vertical tube, and was gas welded to it. The flange was also gas welded to the foot of the upright tube. The funnel was then brazed to the top and the empty shell of the breather brazed to the end of the branch tube. The whole thing was then painted, fitted with its new valves, and bolted on. The highest point of the flip-top cap is 6" above where the flange bolts to the crankcase, and the breather unit points backwards, reaching almost to the bellhousing. It can do this because having twin carbs. leaves plenty of space there. If you have a single carb., the breather part could be located almost anywhere under the bonnet via a suitable length of hose. It might be best to place it so that any oil condensing in the unit could still drain back into the dipstick tube.

With this unit fitted I have now covered over 10,000 miles, including some pretty hard use. Everything is completely oil-tight and I have never noticed any oil coming out of the breather.