

Assembly manual 652cc Kit VGS

From 602cc to 652cc without mounting a visa-engine!

Please note that the pictures show the previous kit. The new kit is with cast steel cylinders. The procedure is however exactly the same!



The VGS 652cc Kit: more power without the need for a visa-engine. New cylinders that fit your 2CV crankcase without modifications. The kit includes pistons, piston rings, cylinders, gudgeon pins and gaskets.

There are a lot of 2CV lovers who wish to get that extra bit of power out of their engine. There are different solutions to get to that result.

VGS has already developed some powerful engines that are proven to be reliable (652cc, 710cc). To develop these engines we need both a 2CV engine and a VISA engine. As some of you might know, there is a shortage of VISA-engines, so we have developed a new kit to solve this issue. The most popular solution on the market is the BigBore kit.

This is why we came up with the VGS 652cc Kit: with this kit we have managed to overcome the problems of the traditional BigBore kit and not only equal but also improve the benefits of the VISA cylinders.

How to mount the 652cc kit without dismantling the whole engine?

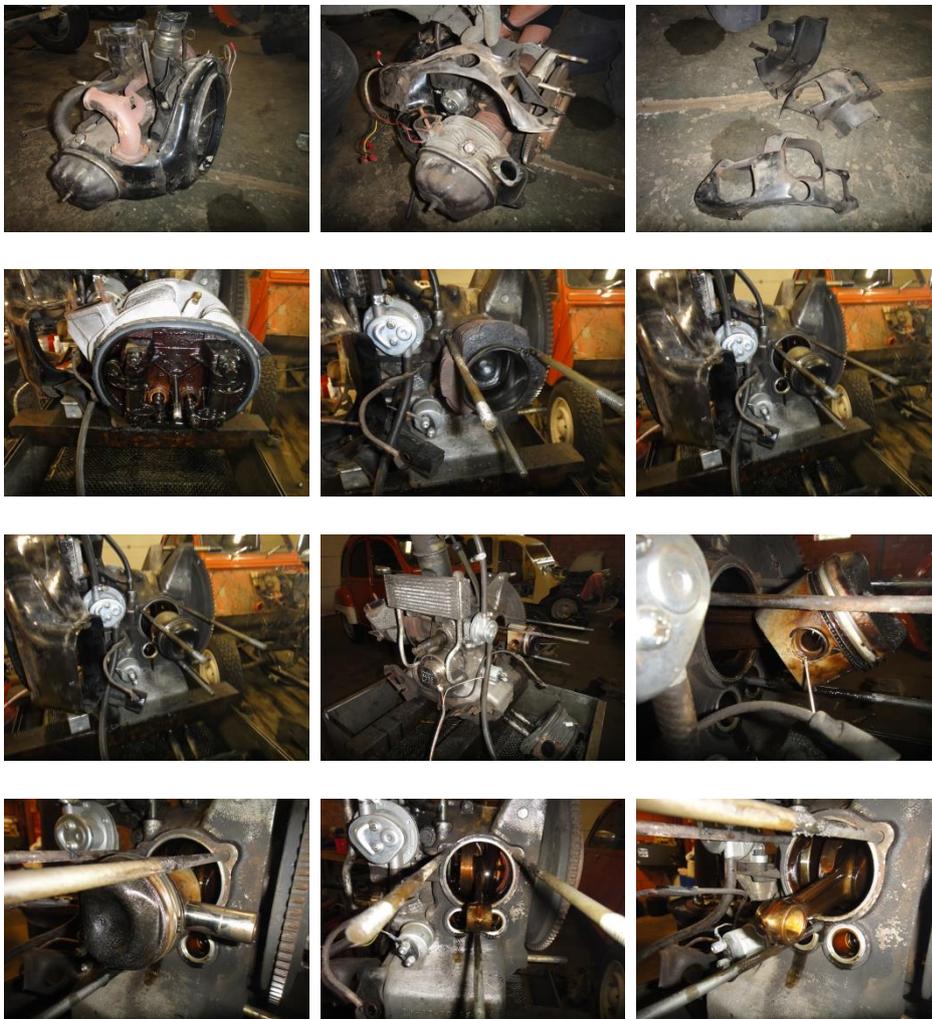
Step 1 : Clean the engine (while it is in the car)

Clean the engine in a carwash with a high pressure cleaner.

Step 2 : Dismantle the engine

After cleaning, you should demount some parts:

- Cylinder cooling cowlings
- Manifold
- Cylinder heads
- Cylinders and pistons: please be careful: the gudgeon pin might be difficult to demount. Disassemble the pin without putting axial force on the con-rods.



Step 3 : Check the con-rods

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Please check that there is NO clearance on the con-rods. You can only start mounting the 652cc kit if the crankshaft and camshaft are in good condition.

Step 4 : Clean the disassembled parts

The crankcase surface between the crankcase and the cylinders needs to be cleaned properly before you can start to mount the kit. You should also properly clean following parts:

- Manifold
- Cylinder cowlings
- Cylinder heads
- Push rods
- Rocker covers
- ...

Always use new gaskets for the assembling (included in the kit).

Step 5 : Mounting the kit

The pistons are pre-mounted into the cylinders and the segments are already correctly fitted. So, don't take the piston completely out of the cylinder. To assemble the gudgeon pin, you should push back the piston (deeper into the cylinder) to prevent the segments leaving the cylinder.



The gudgeon pin is mounted into the piston with 2 circlips. There are 2 little holes in it to help facilitate the assembling process. You might want to put a piece of cloth into the opening of the crankcase to avoid the circlip falling into this. You should only demount 1 circlip from the piston. If the gudgeon pin is mounted under light pressure, you can often take it out without using any tools.



Use oil to lubricate the small end of the con-rod and the gudgeon pin. Carefully push the gudgeon pin into the piston. Make sure that the small end is kept at the right height and that the pin is lined up straight with the hole before pushing.

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! Please note that the piston is marked with an arrow. The arrow must always point to the front side of the engine (opposite fly wheel, direction fan) (because of the pin offset).



Prepare the cylinder heads: Mount new pushrod tube seals onto the push rods.



Check that the valves don't leak. You can check this by pouring a bit of petrol / diesel or degreaser into the cylinder head at the manifold side. If the valve gets wet, it needs to be grinded. We always grind them by default.

Now push the cylinder onto the crankcase. At this moment you can still move the cylinder to the left and to the right. Mount the cylinder in the centre.

If you have properly checked the condition of the cylinder heads, and if the valves still fit well, you can mount the cylinder heads again. Be careful not to damage the push rods. You can do this by tightening the bolts slightly at the bottom and then at the top. Then screw all the bolts in bit by bit. At this moment you don't need to tighten them with a spanner, it's sufficient to secure them by hand.

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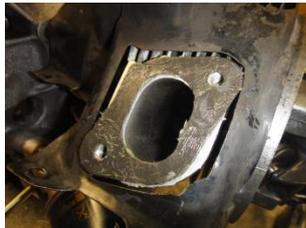
Repeat all steps for the other side of the engine. Please note that the arrow on the pistons point to the front of the engine (opposite fly wheel).

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Step 6 : Assembling the engine parts

You just mounted the new kit. All you have to do now is mount the disassembled parts again. Please clean them properly before mounting.

- Start by mounting the cylinder cowlings. Ensure you mount new inlet and outlet gaskets (included in kit). Check that the surface from the manifold is 100% clean.



- Now carefully mount the manifold. You can loosen the cylinder heads a bit to ease this mounting. First screw in the inlet side, then the outlet side.



- It's still possible to move the manifold forwards and backwards. Position the manifold in the centre and check that it has clearance from the oil dipstick and the crankcase.



- Now carefully tighten the cylinder heads and set the valve clearance correctly.

Step 7 : Replace the jets In the kit the following jets are included: 2x 115 and 2x 120. Start by putting in 2x 115. It's a matter of finding the right jet for your engine. We now replace the first and the second jet (see picture).



Your engine is ready! Please drive at ease for the first 2000km (1,250 miles): all of the parts are brand new and the engine still needs to run in a bit. It's best for your engine to frequently warm up and cool down. In the beginning the engine might make some noise, but this will disappear when all parts are run in. Good Luck !