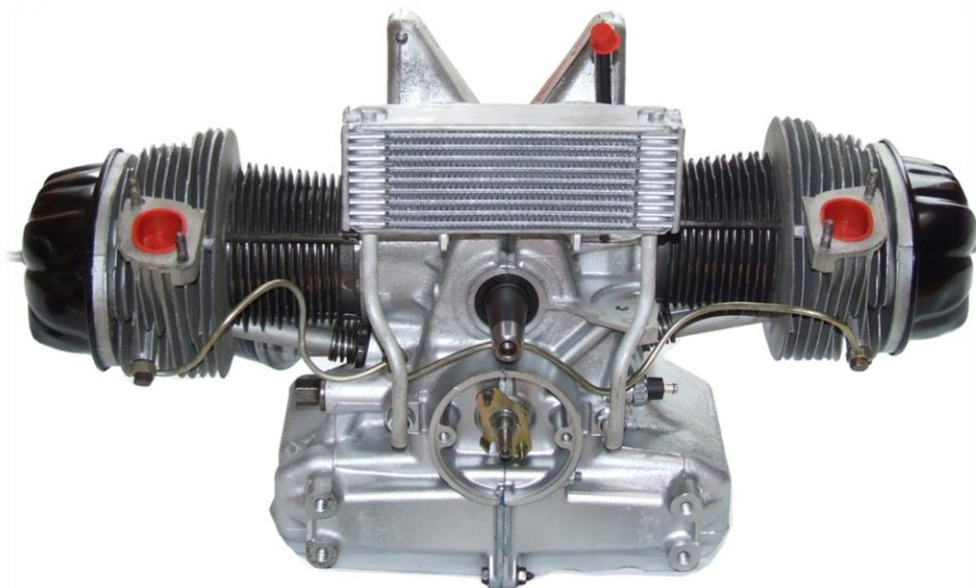


Burton Car Company's overhauled engine:

Burton Car Company has been overhauling specific types of Citroën engines for several years. The following engines for Citroën A-types are available: [2CV4](#) , [2CV6](#) and [2CV6 Big Bore](#). The 2CV6 Big Bore is developed and designed by Burton Car Company.



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1. Our overhauled engine's

All of our engines are sold on exchange basis, which means that for every engine you buy, an old engine needs to be handed in. The item handed in must be of the same type as the engine purchased. When we take in an old engine, we will subject it to a visual inspection to check for major damage and its completeness. Some parts are no longer made new. If you can't hand in a used engine, a deposit will be added to your invoice. Check this document for more information about exchange parts and deposits.

Old engines are completely disassembled first, then cleaned thoroughly. All components get tested separately and measured to make sure they meet factory tolerances. A lot of components are always renewed: the camshaft, valves, valve guides, pistons and cylinders, piston rings, oil cooler, oil line, bearings, oil filter, seals and gaskets are all renewed. The crankshaft itself is completely disassembled and reassembled with new main and conrod bearing via a very specialized process. When the engine is completely assembled it gets tested for leaks, vibrations and noises. When the engine has passed this final inspection we box it and ship it to our clients all over the World. Our rebuilt engines are from a mechanical point of view brand new so you can enjoy it for another 25 years.. Due to the fact that modern machinery can achieve a much greater precision than equipment 50 years ago, we can create a reliable product.

For maximum driving pleasure, the engine can be fine tuned after running about 3000 kilometers. This should be done on a dynamometer on which an expert can simultaneously measure the car's power and emissions under load, to determine a perfect setting for the carburettor. Dutch customers can participate in a special 'power-test-day', which is organized by the Burton Owners Club every few months.

The downside that comes with a remanufactured engine is the fact that it should be run in. Even though the 2CV engine is overhauled using the latest machinery, the technology of the engine remains 50 years old, and thus engine must be run in the first three thousand kilometers. This is very important for the life expectancy of the engine. If problems arise it is almost always in the running-in period. Even more caution should be taken when running in a 2CV-engine, because it has little power. When driving in a modern car not half of its assets are used. In a 2CV it's not uncommon to address all of its power.

2. The first 3000 km of your new engine

As previously indicated, the first few kilometers are very important for the lifetime of the engine. The 2CV engine is mechanically strong, but as with all classic engines should this engine be run in.

What it comes down to is that various parts in the engine, especially the piston, piston rings and cylinder walls must wear into each other. After breaking the engine in, the internal resistance of the engine will be lower, and the engine will turn over more smoothly.

This wearing process develops additional heat. Precisely for this reason, this should be done carefully and controlled.

During the the first 3000 kilometers the thermal load of the engine must be kept as low as possible. An engine fitted with 650cc Big Bore cylinders is especially sensitive to high temperatures, because of the cylinder wall being thinner.

The first 1000 km the engine speed may not exceed 4000 revolutions per minute. In practice, this means a maximum speed of 80 kilometers an hour. We strongly recommend that you choose back roads to drive on, so you can keep a variable engine speed. Keep the engine's rpm between 2000 and 4000. Don't keep a constant engine speed for too long, and for this reason avoid the motorway. Let the the engine cool off or idle for a couple of minutes every half an hour so it can get up to temperature, but has no chance of overheating.

After a 1000 kilometers it's time to give the engine it's first service. Replace the oil and oil filter, as they have collected wear particles from the engine. The valve clearance and ignition should be adjusted if necessary.

An overheated engine can be caused by several things:

- Excessive speed, which always generates more heat because the number of inflammations goes up, more fuel is consumed, and there's more frictional heat between the piston and cylinder wall.
- Too little cool air flowing to the motor, for example by a partially covered grill. Too much air leakage from engine's cooling panels and/or insufficient adduction of heat can also cause overheating.
- Too little engine oil, it's not unusual for an overhauled engine to consume more oil during the running in than normal.

Here are some guidelines:

1. The first 1000 kilometer: Keep the engine's RPM below 4000. Drive at varying speeds and avoid the motorway.
2. After a 1000 kilometers: The engine must have it's first maintaince, including: an oil change, a new oil filter and adjustment of the valve clearances.
3. From 1000 to 3000 kilometers: The engine may run up to 5000 rpm, but try too avoid constant engine RPM's.
4. After 3000 kilometers: The engine is run in, and it's full potential can be unleashed!

3. Warranty information

On your overhauled engine you get a one year warranty regardless of the number of kilometers driven. We will always investigate the problems that you encountered. There are some cases where you are not entitled to a warranty:

- Excessive wear of the pistons and cylinders caused by a consequence of not driving in the engine in properly.
- Problems caused by too little or no oil.
- Improper mounting of the engine and/or accessories
- Incorrect type of carburettor or incorrect carburettor adjustment.
- Warranty request after the warranty period of one year has expired.
- A small amount of oil leaking from the front camshaftbearing is not considered a problem, this is inherent to the construction of the engine.

4. Handing in your old engine:

For each new engine, Burton Car Company needs to disassembled a worn or used one. You should therefore always hand in your old engine. The engine that you deliver to Burton Car Company should be just as complete as the new one you are receiving. This means that you have to remove:

- The complete manifold
- The fuel pump and the push rod
- All of the cooling panels
- The complete ignition
- The clutch and flywheel
- Oil filler neck
- Dipstick
- Engine mounts and brackets
- M10 studs
- Engine oil

5. Other information

Engine oil:

We recommend that you use a mineral oil. The type of oil is 15W40. These numbers represent the thickness of the oil. The brand of the oil is not important, all modern engine oils are a lot better than 50 years ago. Don't use any oil additives when you are breaking in the engine.

After the period of breaking the engine in, the oil should be changed every 7.500 kilometer, or every year, whatever comes first.

Ignition:

Burton Car Company recommends to apply an electronic ignition system for all overhauled engine's, like the 123-ignition. The biggest advantage of such an ignition system is that the timing of the spark is always accurate. This reduces the chance of engine damage due to faulty ignition timing. An electronic ignition is also maintenance free.

Fuel:

All overhauled engines are rebuild for unleaded petrol. The octane number of the fuel that the engine runs must be 95 or higher.

Supported fuels:

- Euro 95/Super 98/Super 100
- Shell V-power (= 97 octane) and most other 'performance' fuels.

We strongly advise you not to use E10 or other Ethanol based fuels.

6. Mounting the engine:

All engines supplied by Burton Car Company have been fired up and checked for sufficient oil pressure , compression and oil leaks. The shipped engine is filled with engine oil.

Special tools required : [Torque wrench](#), feeler gauge.

Torque :

Manifold 19Nm

Fan 41 - 51Nm

Flywheel 42 - 45Nm

Clutch 10 - 13Nm

Engine mount brackets 60Nm

The engine is supplied as a so-called short-block, ie, the crankcase with oil cooler , cylinders, pistons and cylinder heads , but without manifold, cooling plates and other accessories such as oil filler tube, alternator, etc.

When installing the engine these parts must be swapped over, a great opportunity to clean everything. Also, you can now easily choose to renew or change parts such as the [clutch](#) and [fuel pump](#) or mount a [lightened flywheel](#).

The installation is as follows :

Place the engine on a solid table and provide a clean working environment.

The [oil pressure switch](#) is already mounted . This switch is attached to the left-hand side of the block. Above this sensor, the [fuel pump](#) installed. Put the operating pin in the block. Put some grease in the fuel pump and mount the pump on top of it's [thick shim](#). Tighten the two M7 bolts that fixate the pump.

Mount the M10 studs with which the engine is later attached to the gearbox .

Install the flywheel with special [strain bolts](#) , it is recommended to secure these with a small drop of Loctite. The torque is 42-45 Nm . You can lock the flywheel by using a screwdriver.

Mount the clutch onto the flywheel. Use new toothed washers. Make sure that the clutch is centered nicely behind the pressure plate. You can do this using a [special pin](#).

Install the [brackets](#) for the engine's supports at the front of the engine. Use the four original M10 bolts, but use new toothed washers.

If you are choosing to mount a [electronic ignition](#), this is the time to mount it up. Look in it's manual for the correct way to set the timing. You can use any 12 volt power source to set the timing on the workbench.

Put the [fan housing](#) back into position. Also mount the [rubber flap](#) that covers the ignition with its original clips, and make sure that it creates a good seal. Tape the ignition's wiring in with [electrical tape](#) and feed it through the fan house with a rubber grommet.

Now install the cylinder's [cooling plates](#), use the original clips and screws. Make the tunnel as airtight as possible, this will not only ensure a well cooled engine, but a good functioning heater as well.

The fan housing is mounted using the rubber [engine mounts](#), use large washers and toothed rings, or locknuts. Make sure that the rubber mounts are lined up correctly. If the engine mounts are cracked or sheared off, they should be replaced.

The [oil filler neck](#) should be placed next. Use a new [gasket](#). Keep in mind that the oil filler neck does an important job preventing oil leaks, by depressurising the sump. Make sure it is working correctly using a [manometer](#). If the oil filler neck fails to create a vacuum in the sump, it can be overhauled using our [special set](#). Don't forget that the [alternator bracket](#) is fitted with the same bolts.

Next up is the manifold. Go ahead and mount the carburettor on top of the manifold. It is attached with four [M8 nuts](#), these nuts have a keywidth of 12 instead of 13. Underneath the carburettor, a [thick gasket](#) is fitted. This gasket needs to be flattened. Use some sandpaper on a flat surface to rub down the gasket. Also check the gasket for hairline cracks, this could result in the engine getting false air. To prevent this from happening, we recommend that you use a [thin paper gasket](#) on top and under this thick spacer as well.

The manifold can be mounted on the block. The exhaust side is fitted with [copper 4 M7 nuts](#), use 4 [bolts M7x20](#) for the intake side. Use flat washers under the bolts. Make sure all bolt holes line up, before tightening. If this is not the case, there is a chance that the intake manifold is crooked. Keep in mind that a manifold was already mounted to benchtest the engine, so yours should also fit.

Mount up the [alternator](#) and the [fan](#). The fan is mounted with a special [M10 bolt](#), wrench size 14. Use a new [spring washer](#) when fitting the fan. By tilting the alternator, the tension on the [V-belt](#) can be set. The V-belt has the right tension when you can shift it by approximately 1 cm, using one finger.

Installation of the new engine:

Make sure that the two [bushes](#) are placed on the engine's studs, prior to fitting the gearbox. They help center the gearbox. Also, check if the clutch release bearing is in place.

It is possible that the spline of the gearbox won't slide into the clutch plate instantaneously. Let an assistant rotate the fan slightly, until the engine and gearbox slide together. If you are not successful, the clutch plate is not centered properly.

When the drivetrain is complete, it can be placed on the chassis to fit the exhaust system and connect the various cables and wires. Install a new [air filter](#) and new [spark plugs](#) of the type Eyquem C62 or equivalent.

Don't yet connect the spark plug wires. Turn the engine over with the starter, until the oil pressure control light goes out. Now you know for sure that the whole engine is filled with oil.

Wait 5 minutes and check the oil level. Connect the spark plugs next. The engine can now be started. Once the engine is started, it's speed may be increased.