



# Carburettor

If your carburettors aren't doing their job, it's time for an overhaul. If the ignition system is working perfectly but the engine still isn't running smoothly, performance is down and starting is poor, the problem may lie with the carburettors. Also, if your carburettors constantly overflow or don't work

properly despite the correct fuel supply, these are clear signs that the float needle valves are faulty or there's dirt in the carburettors. Such problems arise most often if you didn't drain the petrol from the float chambers before tucking up your machine for the winter.

1



Access carburettors

2



Remove carburettors

3



Check intake rubbers

4



Clean outside of carburettor

5



Unscrew float chamber

6



Pull out axle and remove float

It's amazing the effect a good internal clean, a couple of rubber rings and a new float needle valve can have. After that, synchronisation is not essential as long as the carburetors were not separated, but better safe than sorry. However, there's no point synchronising the carbs unless the valves are exactly adjusted and compression, spark plugs, ignition cables, etc. and the ignition timing are perfect.

If you'd like to give your bike a bit of a tune-up, now's a good time to install a Dynojet jet kit. It can often help to close any

gaps in the acceleration curve of a stock engine. The trade press has confirmed that this gives improved running characteristics and smooth acceleration. But equally, if you have to adjust your carburetors because of an open exhaust system, a modified air filter or similar tuning measures, you'll find a Dynojet jet kit makes the job considerably easier. The kits, developed especially on the dynamometer for each individual bike model, include all you need for mixture enrichment. Different tuning kits are available, each put together for stock engines or for bored out engines with performance camshafts,

etc. Even on a production bike with the original air filter, you will often get a noticeable boost in power and performance. However, the final fine-tuning on your motorbike can be somewhat time-consuming, as each kit contains jets of different sizes to choose from.

**1** Depending on the type of engine, first you have to access the carburetors. Seat, tank and side cover almost always have to be taken off to get to the airbox, because it has to be taken out or at least pulled back. Once you manage to remove the bulky box, it takes no time to remove the carburetors themselves. It's important to note the location and connections of the vacuum hoses so that you're sure to put everything back in its place afterwards. If in doubt, it's advisable to mark the hoses and their connections to avoid a mix-up. Next, remove the throttle cables and the choke cable. To ensure that the petrol doesn't leak out when the carburetors are removed, we recommend draining the carburetors at the drain plugs (after the engine has cooled down) before removing them from the bike. When doing this, it's essential to ensure plenty of ventilation and never use a naked flame (risk of explosion!).

**2** Once the carburetors are only secured in the intakes, undo the clamps and remove the carburettor bank.

**3** Inspect the intake rubbers straight away. If they are porous, cracked or rock-hard, they must be replaced, as they are the primary cause of carburettor failures due to unwanted air leaking in. Considerably cheaper intake rubbers than the originals are available from component and accessory suppliers, and the Louis catalogue has listings for various scooters.

**4** Before opening up the carburetors, first clean the outside so that no dirt gets in. The dirt is easy to remove with a Procycle carburettor cleaning spray, and a

toothbrush is a handy tool.

**5** Once the outside of the carburetors is clean, you can start dismantling the float chambers. This is not something you should be doing on the floor of the garage. Spread out a large, clean cloth for placing the removed parts on. The most commonly used small cross-head screws made of Japanese soft iron must only be removed with precisely the right size of screwdriver, or else you will damage the heads (soft screws are used because carburettor housings are not exactly very hard either). Applying a penetrating oil beforehand can be very helpful. We recommend repairing the carburetors one at a time so nothing gets mixed up. Ensure scrupulous cleanliness, as the smallest particle could block a jet.

**6** Once the float chamber cover is off, all you have to do is remove the float in order to change the float needle valve. The float axle can be pushed out to one side, disconnecting the carburettor housing and float. Note the installation position of the float and the attachment of the needle valve to the float. If you get it mixed up, then use a carburettor that you haven't dismantled yet as a guide.

**7** **Now for the top of the carburettor:** If the carburettor has a vacuum piston, examine it for deep grooves and the diaphragm for cracks. Undo the cover screws and pull out the spring. Now, carefully take out the piston and diaphragm. The diaphragm generally has an indentation or protruding lip. It determines the installation position and will only fit at one point of the carburettor housing. To check the

diaphragm, hold it up to the light and stretch it slightly at all points. If there is a hole, it must be replaced. Damage typically arises at the edges; specifically, at the piston connection or the outer edge of the diaphragm. Another possible fault is over-expansion of the diaphragm due to vapours, in which case it will feel very soft and is much too large to reinstall. The only solution is to replace it. If the diaphragms are not available individually, they must be bought together with the piston.

**8** **Back to the bottom:** For a proper clean, remove all screw-type jets. Caution: The jets are made of brass and will only accept precisely the right size of tool. To clean jets, it is best not to use wire, as it can easily widen the soft jet material. Instead, spray them well and blow them out with compressed air. Afterwards, hold the jets up to the light to see if they are free of dirt. Before removing the idle mixture screws, be sure to do the following: First, turn the screw, while counting the revolutions, until it is sitting loosely in its seat (but do not pull it against the seat to avoid causing damage). Make a note of the number turns for the later adjustment. Now you can remove the adjustment screw. After cleaning, the rubber ring of the adjustment screw must be replaced. To install the screw, screw it in until it sits lightly (!) in its seat, and then unscrew it the number of revolutions you counted before.

**9** A cleaning spray will take care of the deposits. Generously spray each hole of the carburettor. After leaving it to work for a short time, blow out all holes with compressed air if possible. If you do not have a compressor, the best thing to do is go to a filling station, where you will probably be able



Take off carburettor cover and slide valve



Unscrew jets



Blow out holes with compressed air

to use the compressed air for a small charge.

**10** Often overlooked, but very important, are the additional holes on the air inlet and mixture discharge nozzle of the carburettors.

**11** The seal rings and gaskets to be replaced are removed with a small screwdriver. When installing the new seal rings, make sure that they sit correctly in the grooves provided.

**12** Once you have screwed all the jets back in and replaced the seal rings, hook the float needle valve into the float and reinstall. Carefully insert the piston (if the carburettor has one) with diaphragm and jet needle and make sure the diaphragm is seated correctly.

**13** Before mounting the carburettors in the intake manifolds, all rotating parts must be lightly greased because cleaning will have removed all the lubricant. When installing the carburettors, be sure to position them correctly in the intake rubbers and make sure nothing gets trapped (cables, etc.). Once the clamps are properly tightened (tight, but not too tight), reconnect the choke cable, throttle cable, fuel hose and any other cables. Please make sure that the cables are routed correctly, and readjust the throttle cable and, possibly, choke cable, to the right amount of play (see the motorcycle owner's manual).

**14** At this point we should remind you once again that synchronisation is not essential as part of normal cleaning, as long as the carburettors are not separated, but it is recommended. A repair manual is essential to find the right connections and adjustment screws. Often, various hoses must be closed off before the test (e.g. secondary air system etc.). As the word "synchronisation" suggests, the aim is to ensure that all the carburettors supply their respective cylinders with the required air/fuel mixture to ensure smooth engine running.

For this you need a synchroniser, which measures the intake vacuum of the individual cylinders. The tester consists of two or four vacuum gauges, depending on how many carburettors your motorbike has. Various adapters are included, which allow the tubes of the vacuum gauges to be connected at the points provided on the engine. Ideally, the intake rubbers will have a connection point, in which case the rubber plugs are simply taken out and the tubes connected up. Since the tank generally has to be removed to access the synchronisation screws, an external fuel supply is almost always necessary. Adjustment is done with the engine warmed up and running. Be sure you are adjusting the right screws. And after each turn of the adjustment screws, give the throttle a quick twist and then check again. Please refer to the repair manual for the permitted deviations in the individual values displayed by the synchroniser. Also see the DIY tip "Carburettor synchronisation" on page 62.

Finally, we would like to point out that after installing a Dynojet carburettor kit, it is extremely important to check the ap-

pearance of the spark plugs, as an incorrect air/fuel ratio can cause engine damage and affect your safety on the road. The appearance of the spark plugs should be checked after a motorway test-ride. Other tuning work may then need to be done. If you have insufficient experience and want to play safe, you should have these adjustments done by a specialist workshop with a dynamometer.

10



Do not forget these holes

11



Fit new seals

12



Hook in float needle

13



Re-grease all rotating parts

14



Synchronise carburettors

**Please note!**

These tips for DIY mechanics contain general recommendations that may not apply to all vehicles or all individual components. As local conditions may vary considerably, we are unable to guarantee the correctness of information in these tips for DIY mechanics. Thank you for your understanding.

## We recommend:



### Pressol Multi-Purpose Bowl

This multi-purpose bowl is perfect both for oil changes and for washing soiled parts e.g. in paraffin ■ Un-breakable and oil-, petrol- and acid-resistant!

- Diameter: approx. 34.5 cm
- Height: approx. 10 cm

Capacity: 6 litres.

Order no.: 10003619



### Procycle Carburettor Cleaner

Lifts dirt and deposits (e.g. resin, verdigris, oxidation) in the carburettor jets, emulsion tubes, throttle valves, rotary valves, floats and venturi tubes quickly and thoroughly ■ Also ideal for cleaning the outside of carburettors

Contains: 400 ml Order no.: 10004872

**Please note:** Extremely flammable. Repeated skin contact may cause chapping or cracking. Vapours may cause drowsiness and dizziness. Harmful by inhalation and in contact with skin. Irritating to eyes and respiratory system.

### Dynojet Kits

Further information at [www.louis.de](http://www.louis.de)



### Carburettor Repair Sets

Further information at [www.louis.de](http://www.louis.de)



### Synchronisers

Further information at [www.louis.de](http://www.louis.de)



**We have the right product for you at [www.louis.eu](http://www.louis.eu)**

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NINE!**  
**LOUIS SCORES  
A STRIKE**

For the ninth time in a row, MOTORRAD readers have voted on the best brands in the industry. And for the ninth time in a row we have come top in the Chain Store category. On this occasion, no less than 81.7% of all participants voted for Louis – the best result in any

category ever. Many thanks for your vote of confidence in our products and service. This poll motivates us to become even better, so that this season you can again say: my bike, my passion, my Louis!

