

CARBURETORS



Now we come to carburetors. FIRST go get a working fire extinguisher and put it in easy reach. Trust me... if you work on carbs and engines long enough you will light yourself, or an engine, off sooner or later.

Most carburetor problems seem to come, as you might guess, after the machine has set idle for a while. If it won't start, or only runs with the enriching lever pulled out, you have one or more jets plugged. Notice I said enriching lever...most of the motorcycle carbs have [enriching passages](#) inside the carburetor that, WHEN THE THROTTLE IS CLOSED, provide the rich air/fuel mixture to start the engine. If you open the throttle any at all it cuts this enriching out of the system. So if you are having trouble starting, and everything looks ok, see if closing the throttle helps. This does not apply to carbs with a [butterfly choke](#).

To get to the jets you will have to take the carb(s) off the engine. A shop manual will be very helpful here for float settings and exploded pictures of the [carburetor](#). Take the float bowl off and remove the jets. Sounds so easy doesn't it? Sometimes it is, and other times it's a mass of gook. If it is, scrap as much of the gook out as possible, and boil out the rest with carb cleaner. Now don't throw the whole thing in the cleaner, Look at it first. Does it have [rubber seals](#) on the throttle shafts? Look close... sometimes these seals are hard to see and are not shown in the parts books, meaning you can't get them so you do not want to ruin them. If they are there and you can't get them you will have to scrap and clean the carb body carefully by hand and not soak it.

Before you remove the air screw, turn it in till it bottoms, counting the turns. When you replace it, set it at this setting to start. Sometimes there is a rubber

o-ring and steel washer under the air screw spring. Look for it and if there is one, dig it out with a needle BEFORE you spray carb cleaner in there. The air screw may be covered by a plug similar to this [one](#). You will have to remove this plug to get to it. I usually set the air screw about 1 & 1/4 turns out, if I don't have a setting. When the engine is warm, turn the screw in till the engine stumbles, then out till it stumbles, and leave it at half way in between. Adjust the idle with the throttle stop screw as needed.

You will need to remove the Main jet and the Needle jet. The [Main jet](#) is usually screwed on to the lower end of the Needle jet, locking it into the carb. Remove the main jet and tap out the [needle jet](#). Do this very carefully. It can break very easily. sometimes the needle jet will have an O-ring. Remove the O-ring and soak both main jet and needle jet in carb cleaner. When you put it back in there is a pin in the carb body that fits in a grove on the needle jet. Make sure they match up.

Be careful not to strip or break the small idle jet when you try to remove it. It may be necessary to grind the end of a small screwdriver to fit the jet just right. Even after soaking, the jet may still be plugged. If so take [one wire](#) out of a wire brush and gently push it through the jet. The wire brush shown has wires that are .013" in diameter. The smallest jet drill you can get is a #80, which has a diameter of .0135". So you can use the wire and not enlarge the hole, at least not by much. Yes, I know all the books say not to use anything to clean out the jet hole. However, they live in a world where you can always get a new jet easily and cheaply. This is not the world I live in. Hey, it works for me! Compressed air works good too, only hold the jet in a shop rag so you do not give yourself an [air embolism](#). I usually squirt some spray can carb cleaner into the carb passages, then blow it through with compressed air. I then look down the throat of the carb, as I blow it out, and make sure it comes out where it is supposed to come out, and that those small idle passages are clear. [Wear goggles](#) and don't get so close that you get that stuff in your eyes !

Sometimes the shafts that hold the carb floats can be badly gunked up or rusted. Use a penetrating oil of some kind and let it set awhile. The oil will loosen up the parts so that you can drive out the pin with a very small punch. If necessary, tap on the punch very, very gently. The posts that hold the floats are very weak and break easily. Carb bodies can be very costly to replace ! If necessary make [supports](#) to back up the posts. Spray penetrating oil also works good to free up stuck throttle slides too. If the slides have a [rubber diaphragm](#) on them, spray carb cleaner on a rag and wipe the slide clean. Do not get any carb cleaner on the diaphragm. It will ruin it. While you have the Diaphragm out inspect it for [holes](#). If you have an engine that has good compression, starts well, but just has no power and revs up, ever so slowly... check that rubber diaphragm... I'll bet it has a hole in it !

When you put the fuel inlet needle back in, put one drop of light oil on it so it will move freely in it's seat and not stick before the gas first starts to fill the bowl.

Don't clean the outside of constant velocity carbs with spray carb cleaner unless you are sure they are not the [rubber diaphragm type](#)... the cleaner will eat the rubber ! There is a [piston type](#) of CV carburetor but it's still not a good idea to use the spray because of rubber float bowl gaskets.

If you turn on the fuel petcock and gas pours out the overflow tube, tap lightly on the carb body with a plastic hammer(or something like it). That will jiggle the fuel inlet needle loose. Same thing if there is dirt holding the needle open. If it doesn't work you need a new [needle & seat](#). The tips of the fuel inlet needle can be either steel or rubber. Tips with a groove worn in them should be replaced.

Floats control how much gas there is in the float bowl. The [Tang](#) of the float presses on the float needle (fuel inlet needle) letting gas into the float chamber when the level is low and shutting it off when it gets too high. If the Tang is metal, you can adjust the float level by bending it up or down. If it is [plastic](#), it is not adjustable. [Float levels](#) are different for each bike and are found in the bikes shop manual. If you don't have the float setting and can't find it anywhere, set it so the fuel level is a bit below the top of the float bowl. Make sure no gas comes out of the Float [Over Flow](#) Tube/Hose. The Float Over Flow Tube is at the bottom of each carb. That should get you in the ballpark. Adjust the fuel level down from there as needed. There are many styles of [floats](#). If you have copper floats, and the bike has been sitting out in the cold, with the temperature down below freezing, it's possible for water to get into the carb and freeze. This can [crush the floats](#) and make the carb overflow, when you turn on the gas in the spring. Too high of fuel level can cause the carbs to leak too.

If the rubber boots and tubes, that connect the carb and the air cleaner housing, are old and hard, you should get new ones. However, sometimes they are not available. Try soaking them in carb cleaner. Soaking them will make them soft and pliable. You can soak them from several minutes to twenty minutes or more. Keep checking them till they look and feel right. Too long and it will ruin them. Of course, they are already junk anyway ! You can also heat them in boiling water. This works real good, but they harden up real quick when they cool, so work fast.

You can sometimes rejuvenate a rubber part by soaking it in Armor All. This seems to help the [rubber tips](#) of some fuel inlet needles, provided they are in pretty good condition to start with. You can squirt Armor All on the insides of the airbox tubes to help them slip onto the carbs too.

On the side of some carbs there is another [diaphragm](#) that temporarily closes the slow speed jet air passage when the throttle is closed. This richens the fuel mixture, to reduce backfiring, when coming to a stop. Check it for holes and hope you don't have any. They are quite pricey.

At the bottom of some carbs is an [accelerator pump](#), to pump extra fuel when the throttle is opened. On multi-cylinder bikes usually only one carb has a pump and it is connected to the throats of the other carbs by passages or tubing. Check this diaphragm, also, for holes or cracks. I have heard of people

using a spray on rubber coating called " Plasti Dip " to fix diaphragms. I have never used it but I hear it works. Get it from NAPA part # 765-2527. Worth a try anyway.

The throttle slide can go in backwards...this jams the throttle wide open... Not Good...make sure it goes in the right way.

There are only two adjustments that you can make from outside the carb. The idle screw (Throttle stop screw) adjusts the speed of the idle. The idle air screw adjusts the idle mixture. This is only at idle and does not effect anything above idle. Here is another method to adjust it. Screw the air screw in and out until you get the highest idle speed. Then lower the idle speed with the idle screw and do it again until you get the best idle. The air screw can be located on the right or left side of the carb. It can also be on the top or bottom, in the front of the carb too ! To top it off, if you have a 1980 or newer machine, it may have a [cover](#) over it to keep you from messing with it. You will have to drill or pry it out some how. Watch out, it may be illegal for you to do this, depending on where you live.

If you can't get it to idle, or rather the idle stays real high then drops off and dies, check for an air leak at the carb manifold. Squirt some gas or starting fluid on the manifold and see if the revs change. If they do, you have a leak. If your valves clearances are too tight, it will also effect the idle.

You can make your air /fuel mixture a bit richer or leaner by moving the [carburetor needle clip](#) up or down. Move the clip down a notch to raise the needle, to richen the mixture. Move the clip up to lower the needle, to lean out the mixture. The needle is located in the [throttle slide](#).

You should always turn the fuel off. If you don't and the carb inlet needle fails, it will fill your crankcase full of gas. Not good. If you have a four stroke, it thins out the oil and parts start to weld together... really not good. If you have a two stroke it will fill up the crankcase with fuel and can cause it to hydraulically lock. But at least it will not overheat the engine. A lot of newer bikes have a [fuel petcock](#) with a diaphragm that only lets fuel into the carb if the engine is running. It operates on vaccume pressure. Normally you have three settings. On, reserve, and Prime. Prime bypasses the diaphragm to let fuel into the carb after it has set a long time.

Finally, a word on parts. Use only the carbs manufacturers brand of parts. **Do Not** use aftermarket carb kits or parts. Their quality control is lousy (all of them !) Trust me on this, I speak from way too much experience.