

From mike@michaelforbes.com

Hi all,

Here is the site where you can get what you need and a little info about pop off pressure.

Spring and shim kit

http://www.eccarburetors.com/estore/index.php?main_page=product_info&cPath=207_54&products_id=736 assorted springs and shims used to adjust to any pop off pressure (without cutting the spring or stretching the spring). Cutting and stretching the spring as taught by Alex Varve are not the correct way to achieve proper tune and will create erratic conditions and confuse you.

Pop off pressure gauge

http://www.eccarburetors.com/estore/index.php?main_page=product_info&cPath=207_67&products_id=896

Anyone using a diaphragm carburetor needs to own a pop-off gauge to service their carburetor and trouble shoot any carburetor related problems.

You need to understand how pop-off pressure works, and what its purpose is, which leads to how the carburetor works.

The demand diaphragm is the VIP part use nothing here but original Walbro because the copies leave a lot to be desired. This diaphragm is made out of some trick stuff; a rubber and fiberglass compound type of material. This is the black one with the alloy flat washer looking part in the center with one side having a small round pin sticking down. This pin on the diaphragm is in line with the fulcrum arm and comes down and pushes on one end of the fulcrum arm. This action releases the needle off the fuel inlet seat to let fuel from the pump enter the metering side of the carburetor.

How quickly this action takes place is controlled by the *strength of the spring* that is under the fulcrum arm, to be pushed down by the pin, to release the needle off the seat, to let fuel flow (or to return back so the needle can seal the fuel flow off). The vacuum of the engine on the intake side controls the action of the demand diaphragm. Vacuum on the intake stroke will pull fuel out of the carburetor discharge ports which in turn makes vacuum that forms on the back side of the fuel as it leaves the carburetor and this vacuum pulls the demand diaphragm down to let the needle come off the seat to keep filling the metering side of the carburetor as needed.

The pop off pressure measures the amount of pressure (or spring tension) that it takes to let the needle off the seat. It is where the lb. reading was at max on the gauge as you pump it up and then all of a sudden it drops a bit. Pop off pressure can be anywhere from 6 lbs. on up. Anything under 6 and the needle never really shuts off the fuel flow to the metering side of the carburetor.

When you release the throttle the carb shutter goes closed and the high speed airflow (suction) is closed off from the carburetor. Now the vent on the cover plate (the little hole where we press to prime) allows the diaphragm return back up and the inlet needle drops back onto the seat due to the spring pressure.

The way you use your pop off gauge if you are checking with the carburetor all together either on or off the engine is to replace the short piece of fuel line on the gauge with one about 3 ft. long. Fill this line up with fuel and then plug it onto the fuel inlet nipple on the carb. Remove the high side needle from the carburetor. Pump up the gauge till it pops off just to wet everything up. Now take 2 more readings. When the needle gets to the point where it won't go any more and you

hear a pop it will drop just a tick. This number in front of the needle in the gauge is what the pop off pressure is in lbs. When it pops it must pop and hold with no less than a ½ lb. of drop then hold hard here. A very slow seep is ok and shouldn't hurt you much but most tuners want the reading to lock solid and hold at that little bit of drop from the number they want.

If it won't hold pressure and drops like a rock you can sometimes clean the seat and needle tip to cure problem. If this doesn't work time to go get some rebuild parts.

Pop off pressure you want for most carburetors is 10 to 12 lbs. for carbs on 100 cc and up engines. Smaller engines (Top 80) will like 15 to 20 lbs. These are round numbers and from here it will take some time to find the perfect happy spot.

Looking forward to what you all find out.

Best regards,

Mike Forbes