Gasket Sets For Stromberg NA-S3A1 Carburetors For The C-85/90 Engines

Setting the level of the fuel in the carburetor depends on the gasket combinations

In the “used-to-be” days, a low fuel level was confirmed when the engine would quit at full power in a high angle climb, and a too high level was confirmed by clouds of black smoke.

More and more of the FBO’s lack hands-on knowledge of what makes our older planes tick and finding definitive information is getting tougher and tougher as a result. During carb overhaul or float level adjustment or a change of the needle/seat combination, new gaskets are needed to adjust the fuel level and to keep the carburetor leak-free.

When this was first written, more for me and close associates who wanted to find out what really made the Strombergs “tick”, I could make the statement about the level and the gaskets and be understood. Today, an addition to the explanation is called for. The float sits on a fulcrum with its body on one side of the fulcrum and the structure supporting the needle on the other; unlike many carburetors, one does not bend anything on the Stromberg to make things fit or seal and that includes no bending of the float to adjust the fuel level. Consequently, the fuel level is determined by the relative positions of the needle and the seat; it is the relative height of the seat which is changed to change the level, and that position alteration is accomplished by a combination of different thicknesses of gaskets under the seat.

There are kits that contain just the gaskets and the answer you want to know is: "does the carb kit include the under-the-seat-gaskets of different thicknesses which permit you to set the float height"? the Stromberg overhaul manual and parts list calls out four thicknesses of the seat gaskets, 1/64, 2/64, 3/64, and 4/64ths. Whether those sizes are in the kits available from the various catalog sources is known only when you open them...the sellers do not know. This table indicates what I found in the kits from the sources noted. All were usable.

Correct value Thickness	Fresno Air Parts	Leibee	Leibee	Leibee	Aircraft Spruce	Univair
1/64 Inch	1	1	1	1	1	1
2/64	1	1	1	1	1	1
3/64						
4/64	2	3	2	2	2	1

To confuse the issue a bit more, there is a gasket, part number P12XXX, which is supposed to be the first tried under the seat; if it gives the correct level, quit. If it does not give the correct range, you can either remove it and install one of the gaskets above, or leave it in and add one of the gaskets. The manual states that a maximum of two gaskets can be used to get the correct height, so not getting the 3/64 thickness gasket is no loss. There is no hint as to the thickness of the P12XXX nor whether it is compressible, as are the gaskets above, very slightly. The combinations of of 1, 2, and 4 thicknesses, two at a time, would yield 1,2,3,4,5,6, and 8/64’s. With Univair’s kit that I got, the combo’s would be more limited, but only the 8/64s would not be possible. The message is that the kit should contain what you need, not what the kit vendor happened to throw together, so, open and measure right away to confirm that you have what you need.

The gasket sets looked quite similar. A one-to-one comparison on the parts in them showed that the only differences were that some of the metal parts are of aluminum, instead of brass. In two of Leibee kits, some of the brass parts show evidence of discoloration/corrosion, apparently due to being exposed to some

For the story on how to use the gaskets to set the fuel level and how to make the tools which make it straightforward, see my other article, printed in the August issue of the EAA's Antique/Classic division's Vintage Airplane magazine. One of the points made in that story and others when discussing the methods of fuel level concerns getting the combination of gaskets which set the level as desired while at the same time having the seat torqued such that there is not a sneak path via the threads of the seat and carb body. It is so very tempting to loosen the seat just a bit to make the level right. That is one reason the long term test on the bench is necessary, to ensure there is no leak path via the threads from under-tightening.

The gaskets for interfacing the carburetor to the air box and to the induction spider are not covered here because they seem to be readily available. Sometimes, they come in the carburetor kits and sometimes they don't, so you will have to find out the hard way. They are individually available from catalog sources such as Aircraft Spruce.

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