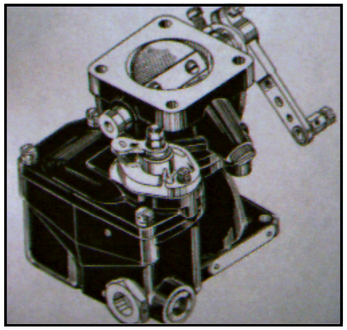
Stromberg Carb Fuel Level and Tools

CARBURETOR FUEL HEIGHT-SETTING TOOL & HOWTO for the STROMBERG NA-S3A1

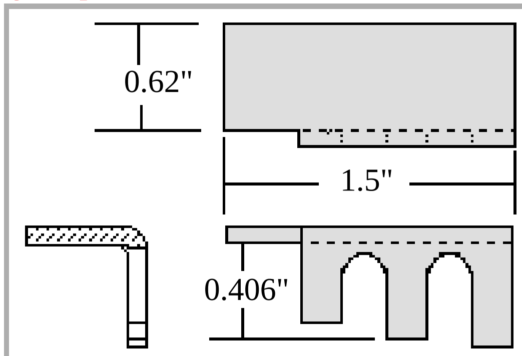


Setting the fuel level in the Stromberg carburetor for the C-85 and C-90 engines is a bit “odd” because: 1) the thickness of the gaskets under the needle seat, 2) the effective thickness of the gaskets is only realized when they are compressed by correctly torquing the seat, 3) there are no guidelines as to how many of what thickness to start with, and 4) there is no easy guide to determine the fuel height. All that said, the job is easy if you make yourself a simple tool and follow these guidelines.

Your A&E or A&I will want to confirm the logic and correctness of the overhaul and level setting steps, so make sure they are aware and take part before you start. Finding this information is getting more difficult each year. Note that some artistic liberties are taken in order to make the sketches understandable rather than precise as to relative sizes of the parts.

The tool for confirming the fuel level illustrated here is made from a piece of aluminum angle and the dimensions shown are what came of using a piece that size so it would fit in the carb as well as establish the fuel level range. The only critical dimensions are those of the lengths of the “fingers”. The ideal distance from the top edge of the bottom half of the carburetor to the fuel level when the thickness of the gaskets under the inlet seat is 13/32cds (0.406), from the Stromberg books and service letters. Without a tool like this, it is very difficult to properly assess the fuel level because there isn’t much space, not much “seeing” space, and the fuel “JUMPS”.

Change to plus 3/64s and minus 1/6th

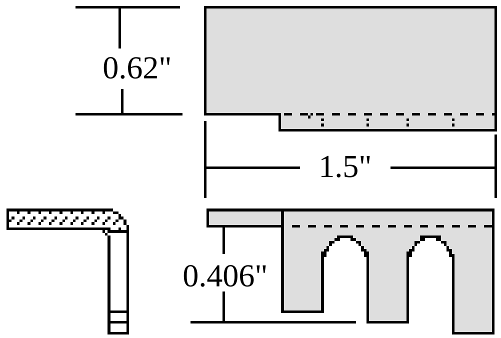


1. Material is 0.12 aluminum angle
2. Break all edges
3 The cutouts between the legs are necessary to prevent the gasoline from "jumping" from one leg to the other.
4. The center leg is the 13/32cds dimension (0.406), the ideal fuel height. The left leg is shorter by 3/64ths and the right is longer by 1/64th of an inch to cover the allowable range.

One of the nice words taught in physics is “meniscus”, and it means the arched interface of any fluid to the wall of its container. How extreme the meniscus is is a function of its viscosity and the cleanliness of the wall where the top of the fluid touches it-----for

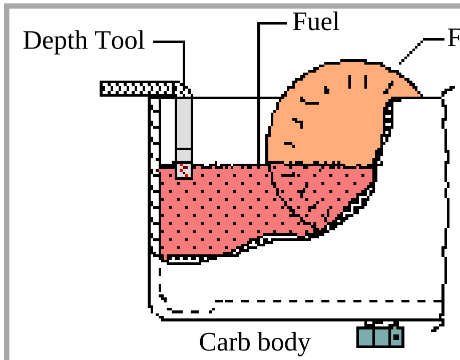
Note that there is a separation between the fingers; if you assume that a stairstep arrangement for the fingers would be easier to make and would be just as good, be forewarned that the meniscus which forms on the long finger as it dips into the fuel will lead to a capillary movement of fuel which makes it appear that the shorter finger (s) is the actual depth, but when you make the tool as shown with the separation, there is no capillary action between fingers and so you get the best assessment of the level. The usual caveat of: “break all edges” is included on the sketch, and it is important to make sure there are no burrs on the bottom ends of the fingers because any little projection would start the climb of the fuel on the finger.

change to 3/64ths shorter and 1/64th longer. get rid of 0/12 and make 0.12



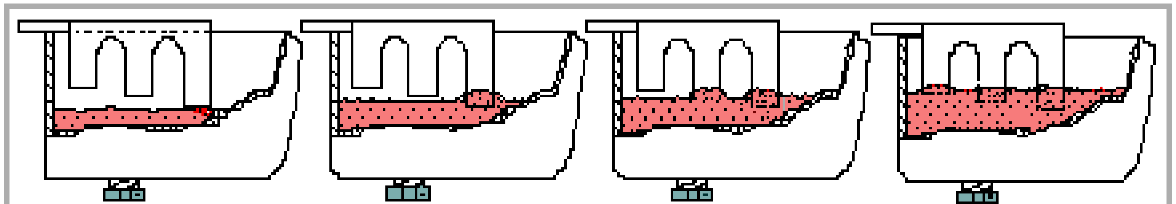
1. Material is 0/12 aluminum angle
2. Break all edges
3 The cutouts between the legs are necessary to prevent the gasoline from "jumping" from one leg to the other.
4. The center leg is the 13/32cds dimension (0.406), the ideal fuel height. The left leg is shorter by 1/32 (0.32) and the right islonger by 1/32 of an inch to cover the allowable range.

It is important, whatever tool is used to measure the depth of the fuel, to make sure the measurement is made away from the wall of the carburetor. Unless there is a gap between the tool and the wall of the carburetor as shown, two things can modify the apparent depth, and these are: 1) the slight radius of the tool corner can sit up on the edge of the carburetor, making it easy to misjudge the height of the fuel, and 2) that bugaboo of the action of capillary action by fuel between the wall and the tool will force the fuel to climb a surprising amount. There isn’t much play room between the wall of the carburetor and the float, so we are talking here about a 1/16th or an 1/8th separation of tool to wall.



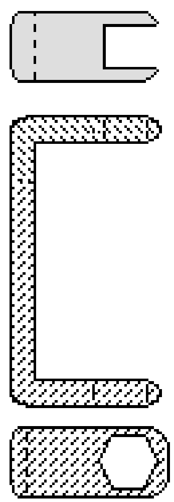
This figure is intended to show the relationship of the fuel, the depth tool, the float, and the carb body. Note how the tool is moved away from the bowl wall to prevent the fuel from "climbing"

The four scenes of the figure following illustrate the four possibilities of the fuel level-------much too low, next, deep enough to touch the finger which is 2/64ths (2/64ths is used here because the tolerances of the level and the thickness of the gaskets under the seat are discussed in 64ths by Stromberg, so I have stayed with their convention) too long, and

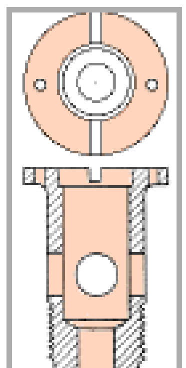

Too low   Low limit   Center of the range   Top of the range

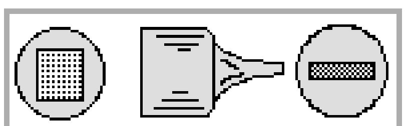
Carburetor Nozzle Torquing Tool

The tool here allows torquing the nozzle; without a tool such as this, a secure attachment to the nozzle during tightening is impossible unless one has a deep, deep socket wrench which will fit the nozzle. The tool shown here is easy to make if one has access to a torch since the wrenches can be easily bent in the vise once made red hot. If you are really good at buying wrenches, you could get a combination wrench, with the box end for the nozzle and the open end the correct size to to fit your torque wrench, normally 3/8ths or 1/2 inch------if the open end is not exactly the size needed to fit the torque wrench, the open end can easily be opened to the correct size with a mill or simply a good file and some patience. It is important to torque the nozzle, just as it is critically necessary to torque the needle valve seat.

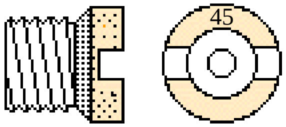

In order to properly torque the nozzle, this box/open end wrench was modified to fit the nozzle on one end and the torque wrench socket end on the other.

The fuel inlet needle seat, made of brass, looks something like this and it has two portions of a wide slot which are to be used to install and torque or remove the seat. Screwdrivers the size necessary to properly fit in both slot portions at the same time are few and far between, but it is important to use something with a wide enough and thick enough blade that there will be no tearout or burring, so we recommend the following tool.





This tool, a bit made to be used with a socket wrench, is just the ticket for installing or removing the needle seat since the size of the blade ensures a snug fit in the



The main jet needs an oversize driver to fit the slot as well. Stromberg cautions that care should be taken not to damage the slot so as not to affect the flow. The 45 is the size for all C-85s but one of three for the C-90.

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