

## SU Carburetors – Send them out or rebuild them yourself?

By Peter Sanderson, Member

After attempting to tune-up my first MGB since the 1970s I came to realize that things were simply not as they were. First there was no British Leyland Dealer offering summer tune-up specials, and local British car experts were few and far between. Furthermore, these experts were mostly booked months if not years out. Then it occurred to me that these carburetors are at least 50 years old and had come from another car, unknown to me.

How many mechanics, owners and other so-called experts had re-built, tinkered with and/or modified these carburetors over the years? How could I even tell what is right or wrong for my engine?

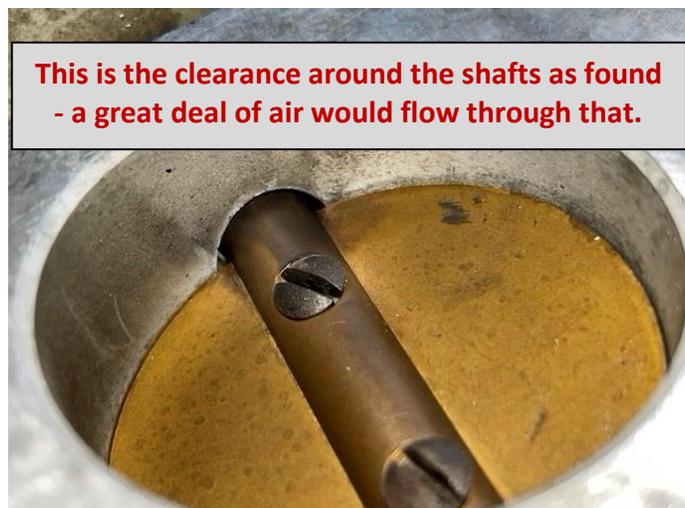
After my first, second and third attempts at sorting my carburetors with help from friends, club members and local experts, I decided to just eliminate the carburetors from the tune-up equation. The only way I could do that was to send them to a professional with a lifetime of experience with these truly “simple” carburetors and have them completely re-built like new. Only then could I eliminate the carburetors as being the culprits when tuning my engine.

That is exactly what I did. I sent them to Island Automotion Ltd in BC, Canada to the attention of Rhys Kent, who will rebuild my two SUs. To send them they needed to be emptied of fuel and damper oil so that they would not smell in the package. This is a condition of shipping by Canada Post, Purolator, UPS and FedEx. I wrapped them in saran wrap and put each carburetor into a large zip lock bag. I then wrapped them with bubble wrap and packaged them safely in a box to be mailed using express post. I took \$ 1,500.00 insurance on the postage.

Within a few days of his receipt of my carburetors I received the first report. I was so excited to read what he had to say about my carburetors. Rhys was able to tell me the number of times people worked on my carburetors, the parts they changed and the parts that were not right for my engine. This was his first report:

*I've got both carbs dismantled. At some point they were partially rebuilt. The good news is the throttle shafts were replaced and are in perfect condition. The metering needles were also replaced with the correct "5" profile for 1967-68 engines, and they are also in excellent condition.*

*The float valves were aftermarket and the float levels incorrect, and the old throttle plates screws were re-used - not a good idea. Both main jets were incorrect for MGB HS4 mounting angles. All those parts are replaced during the rebuild anyways.*





**Here is the Oilite bushing from the outside**

The major item is that the bodies were drilled for replacement bushings. The bushings are "Oilite" type which I find routinely and are incorrect for throttle shafts. The problem is the bodies are drilled already to 3/8 to accept the bushings, and that's the same size for the SU supplied bushings I install. It is unlikely that the drilling was carried out accurately enough to accept my bushings and have the shafts operate smoothly. I will attempt to install the correct bushings and see if they fit and align properly. If they don't then both bodies should be replaced.

The photos show how the Oilite bushings were installed short of the main bore. That would allow air to get around the throttle plates and might have prevented a slow idle. The proper installation is to push the bushing into place close to the main bore to prevent air bypassing the plate. A competent machinist did the previous work, but he did not understand carburetors.

I'll get the parts cleaned up and let you know what I find.

The loose pipe on the front float chamber lid is the vent pipe, and I can re-install that properly at no charge - no need to replace the chamber lid.

I have a good used spring to replace this one, no charge. Those are the four Oilite bushings removed, and the damaged cable clamp which I will replace with new.



**The SU bushing, I use is on the left, compared to the Oilite type.**

After receiving the first report, I did not expect to hear back for several weeks. But to my surprise, a few days later I received my second report.

The photo shows the carbs ready for assembly. As I thought the machining was done very well, so my bushings actually lined up nicely. I've installed them at the correct depth, level with the throttle bores. I also found the correct spring link to go with the replacement return spring, so I have installed that on the throttle interconnecting shaft. Photo of that too. No charge for the link. Re-using the bodies means you get a credit for the shafts and metering needles.



I'll have the carbs assembled by the end of next week. That will go very smoothly at this point, and they will be an excellent pair of HS4's.

Sure enough, a week later I received notice that they were shipped with the tracking number, and he provided some additional information.



*Included in the rebuild are six carb to manifold gaskets. The sequence is carb, gasket, spacer, gasket, shield, gasket, manifold. Also supplied are two air filter gaskets. All gaskets are SU Original. The carbs have to be tightened gradually, and without too much torque initially. Over tightening will distort the flanges on the carbs, so just a firm torque. Then after every heat cycle or two, re-tighten the nuts and bring the carbs to final tight over time. Three gaskets makes for a lot of "squish" and that's why distortion can occur.*

I made an unboxing video on YouTube showing them as received and what came with them. You can [click here](#) to watch. So, the question is, would I want to rebuild these myself or am I happy that I sent them out. I suppose this is a personal question that every MG owner must answer themselves. For me, I watched many detailed "How To" videos on rebuilding carburetors and I just don't think I would have noticed much of what was discovered and corrected at Island Automotion. In my case, I am very satisfied with what I now have.

I had spoken to Rhys on the phone and his knowledge about these carburetors is just incredible. So, I asked him to send me a short article on the types of common issues that exist on the SU Carburetors that he repairs.



## SU Carburetors by Island Automotion Ltd

Written by Rhys Kent – January 2022

SU carburetors have been popular since the end of World War II. Although they were used widely before the war, the increased production required by the conflict made their products less expensive and more suitable to postwar automobiles. So today the SU carb can be found on MG, Rolls Royce, Bentley, Alvis, and many other makes from the late 1940's all the way to the 1980's-literally millions of them. And like any other device or component, they age and wear out in service.

Wear begins in the throttle shaft and the bores in the body casting that support it. The SU factory supplies a bushing to restore the body to original dimension which then accepts a new shaft. To accept the bushings and maintain alignment requires very accurate machining. Most SU's have worn severely over the years, particularly those installations that use return springs that off-set the shaft as it rotates. MGB and Volvo HS installations are about the worst in this regard, with Midget and Sprite close behind.

I find some carbs repaired with .010-inch oversize shafts. This is not a proper repair at all and depending on the carb requires expensive replacement parts to restore the shafts to standard size.

The metering needles wear due to misalignment with the jet orifice and corrode from old fuel and any water that is present. The jet orifice will wear oval from the same misalignment. The cork jet seals used on H type carbs (MGA) degrade causing fuel leaks. The HS jet tubes become brittle and can snap which

results in a huge fuel leak. HD carbs have diaphragms on the jet assembly, and these also become brittle and crack, and again leak fuel at a great rate. New parts properly aligned (a trick in itself) are the only solution.

Fuel level control is critical. The float hinge pins, the float itself, and the needle and seat, all wear to produce a higher fuel level, causing a rich condition. Floats also leak and become heavier as they fill with fuel, causing rich running and eventual flooding.

In general, all this wear produces a rich condition, and the worn throttle shafts and bores require richening the mixture to allow for a smoother, if not smooth, idle. So, the engine “feels soggy” and the sparkplugs become dark brown or black. No amount of adjustment or fiddling will correct these faults. A proper rebuild is in order.

I use only SU original parts and avoid all the aftermarket parts. I receive carbs that have been apart several times, assembled incorrectly, damaged from mishandling, and have incorrect and substituted parts. Knowing how they should be assembled, machined, and restored are matters of experience – that’s what I have and offer.