"I liked the product so much I bought the company".

Readers of a certain age will remember the advertisements featuring this truthful statement from Victor Kiam, successful businessman and late principal of the Remington Shaver company. Victor Kermit Kiam 2nd was born in New Orleans in December 1926; earlier that same year another entrepreneur in another country had bought a company which he had taken a liking to. Not one to pass up a good opportunity, William Morris snapped up the SU company whilst it was experiencing what we nowadays call 'difficult trading conditions'. Production was moved from London to the premises of his recently acquired Wolseley Cars in Adderley Park, Birmingham and from then until the demise of the British Motor Corporation, Wolseley, MG and Morris cars were almost exclusively supplied with SU carburettors and fuel pumps.

Many cars suffer from a lumpy or unpredictable tickover which can be annoying particularly if the engine cuts out whenever the vehicle comes to rest. There can be many causes but usually the carburettor gets the blame regardless. Often a little attention to this instrument will make a good deal of difference to the running of the engine and its owner's sanity. It is relatively easy to get at and an hour's worth of educated tinkering could pay dividends. It is as well to note that if there are other problems with an engine, such as burnt valves or faulty ignition, it is impossible to set a carburettor correctly, and a compromise is the best one can hope for.

These notes are based on the HS2 carburettor but apply equally to the earlier H2 type, which differs slightly in construction but works on exactly the same principles.

The air cleaner is important and should be checked for cleanliness. The paper element type must be renewed if it is not spotlessly clean. Earlier oilbath types should be washed thoroughly in petrol before reassembly, ensuring that clean oil is maintained at the correct level. The air cleaner housing should be temporarily removed before turning one's attention to the carburettor. Its absence won't make any difference to slow - running adjustments. Before removing any parts of the carburettor remember that cleanliness is doubly important here as is the need to handle all components with extra care.

The first thing is to ensure that the petrol level in the float chamber is correct and the needle valve and seating are OK. Remove the three screws holding the float chamber lid, and invert the lid to expose the hinged lever which operates the needle valve. Push its hinge pin out and remove lever and needle. Check that the tip of the needle and its seat in the lid are not worn or damaged, (fig. 1) replacing if necessary. Reassemble the needle and lever then set float height. Carburettors with a brass float may

be set by laying a round bar under the lever as in fig. 2. The diameter of the bar should be 5/16" for HS2 carbs. and 7/16" for the earlier H2 type. Nylon floats need a clearance of 1/8" to 3/16" between uppermost point of float and lowermost reach of lid rim as shown in fig. 3. Adjustment is made by gentle bending of the lever. Remember the thin paper gasket when refitting the lid.

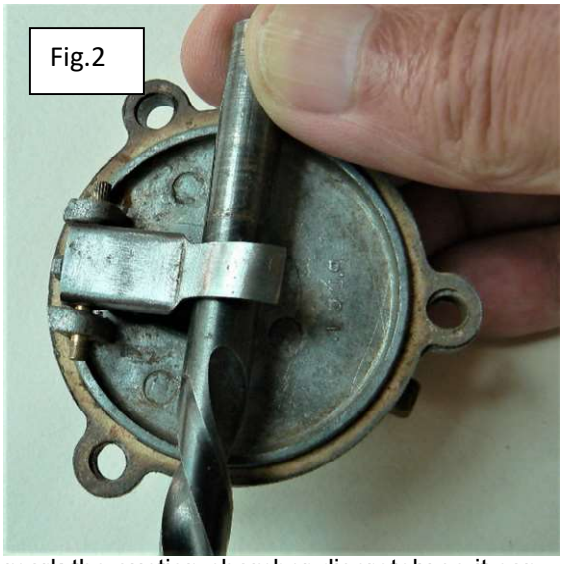
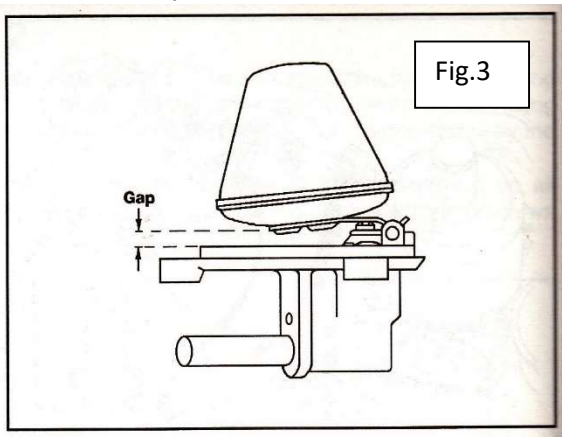


Fig.2

Remove the damper rod from the top of the suction chamber, see that the two screws which hold the suction chamber to the body of the carburettor are tight, then lift the piston with a finger via the air intake or by means of the spring-loaded lifting pin, ARROWED ORANGE in fig. 4. When the piston is released it should fall with a click which is clearly audible. If the piston comes to rest without this noise, mark the suction chamber discretely so it can be replaced in the same position then remove the chamber and using a little petrol, clean its inside surface and the outside rim of the piston. Handle these parts carefully and do not use anything remotely abrasive for the cleaning operation.



Check the needle for straightness and the spring for distortion, but do not try and stretch it, as has been done to the uppermost spring in fig. 5 rendering it unfit for service. Place the piston inside the suction chamber without the spring and ensure that it can rise and fall freely. Assuming all looks well, reassemble the piston, spring and suction chamber without the damper rod and try the lift and drop test again. If not successful, either the needle is slightly bent or the jet will need to be re-centred. Jet and needle replacement will be dealt with in part two. A thin oil should be be poured into the top hole of the suction chamber, just enough to fill the hollow piston rod, before replacing the damper.

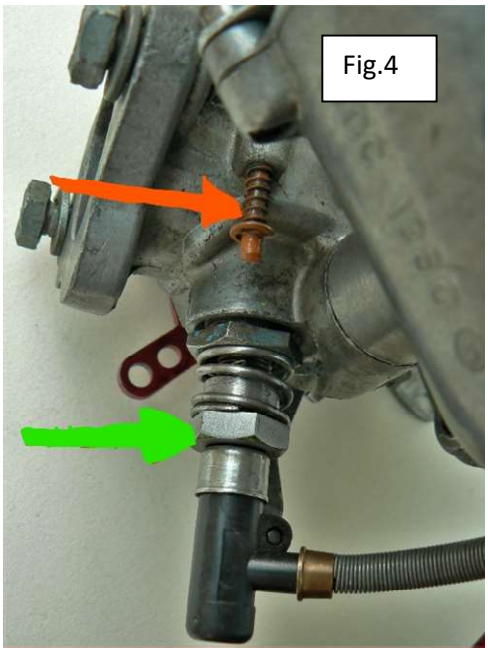


Fig.4

Grasp the throttle spindle and give it a good shake, if there is any sideways movement, the bushes are slack and will admit unwanted air which will adversely affect any attempt to set the mixture correctly.

Alongside the carburettor and attached to the main jet is the linkage for the enrichment device (choke) COLOURED RED in fig. 4. Ensure that this linkage is free to move and that the jet is returned fully under the action of the return spring. The throttle spindle carries an adjustment screw (ARROWED RED fig. 4) which abuts the cam of this linkage, and is used not to adjust the tickover but to set the fast-idling speed when the choke is being used. When the choke is fully off, there must always be at least a small clearance between this screw and its cam. In Fig. 6 is shown a

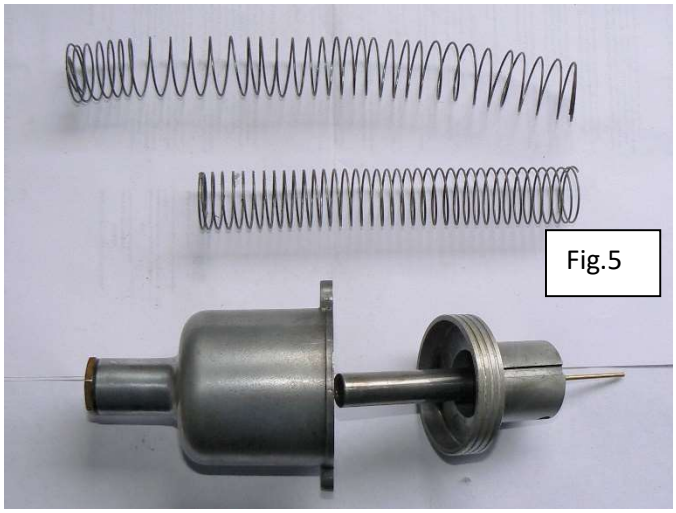


Fig.5

strip of thin card inserted into the gap which represents the minimum clearance required. Detach or adjust the choke cable if the linkage is not being returned fully. Check the throttle cable for fraying and adjustment, both of which may prevent the mechanism from returning as it should. The spring should pull in a straight line with the cable and some adjustment to its anchor bracket may be necessary.

The slow-running screw fits into a lug on the carburettor body and is ARROWED YELLOW in fig. 6. With a warm engine, set this screw to give a moderately fast tickover then adjust the main jet by turning the nut ARROWED GREEN in fig. 4 a little at a time in either direction until the most even running is obtained, then back off the throttle stop screw until the engine runs at a satisfactory tickover speed. Too slow and the engine will shake undesirably - too fast and first gear will always engage with a crunch! The engine should respond to jet adjustments of less than half a turn. If this is not the case, it's most likely that the needle and jet are worn, and should be replaced as a pair.

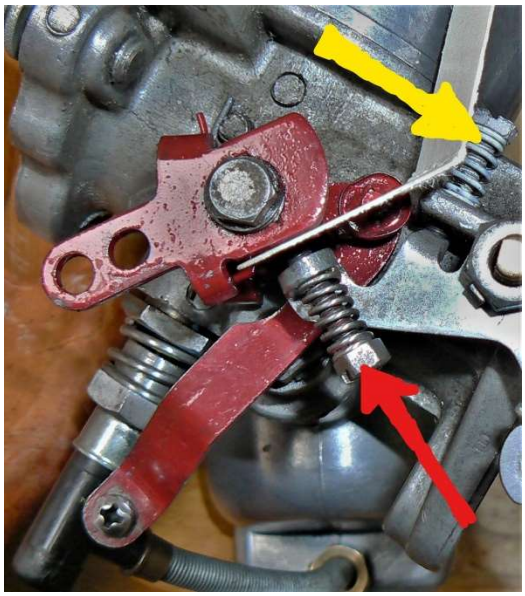
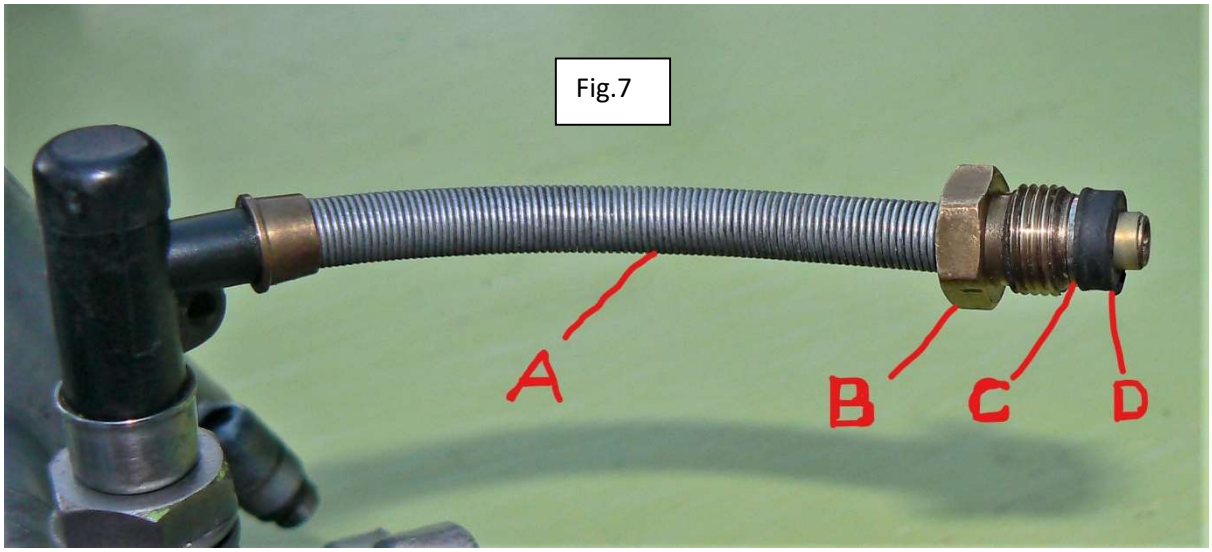


Fig.6

Having achieved the best result, the abutment screw on the choke linkage (RED ARROW, fig. 6) may be set so that the first part of the movement of the choke linkage raises the engine speed to a fast tickover before the linkage begins to lower the jet. The clearance mentioned earlier must, however, be maintained. Adjust and secure throttle and choke cables, finally replace air cleaner. Additional setting of the tickover may be required when the engine is completely hot rather than lukewarm, and may be finalised after a run.

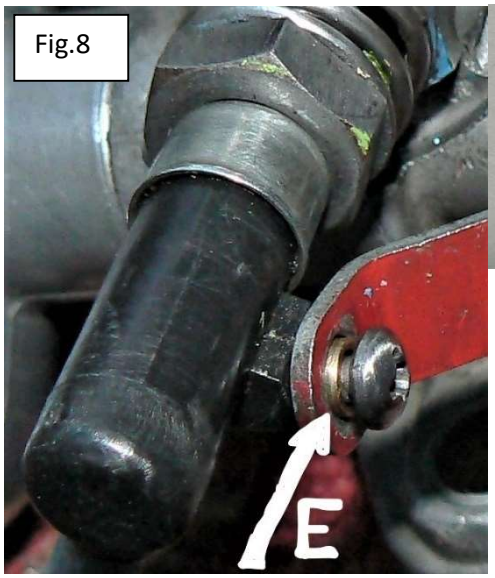
As carburettors go, the SU is a very simple and reliable device with little to go wrong, although of course the few moving parts will eventually become worn. The most regular casualties are the main jet and the needle which slides within it. The two are brought into contact through engine vibration and the fuel passing through acts as a (very mild) abrasive. Older needles and jets are prone to erosion from modern petrol; today's replacement parts are made from a slightly different material which is more resistant.

Both jet and needle are made to extremely fine tolerance; visual inspection even under magnification will not reveal the whole truth. The slightest variation will upset the petrol/air mixture, leading to poor tickover and extra fuel consumption. Slight wear can be countered by adjustment of



the jet, but eventually replacement will be necessary. If the vehicle starts readily in cold weather without choke, or the tickover is not affected by jet adjustment, it may well be time to replace jet and needle. They should be treated as a pair and not replaced individually.

As in the previous article on the subject, text and illustrations refer to the HS carburettor, earlier models differ in detail but not in principle. Things can get a little frustrating around the mid-point of this procedure, so it may be as well to find a soothing radio station and ensure a plentiful source of tea, fags and chocolate biscuits before beginning.



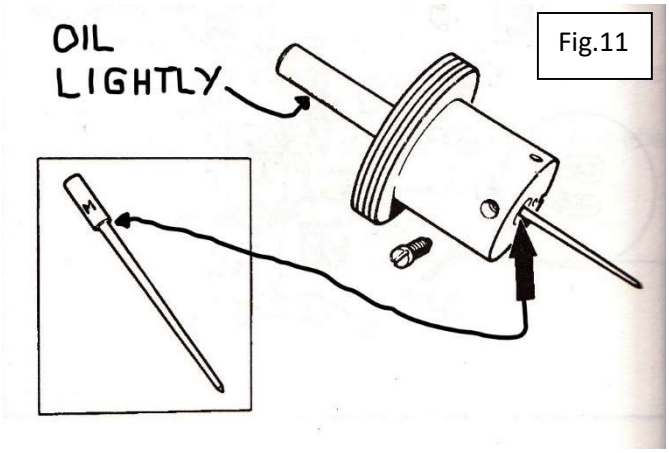
Start by removing the brass sleeve nut which holds the main jet feed pipe into the bottom of the float chamber fig. 7 (B); pull out the feed pipe - the black rubber sealing washer (D) will almost certainly remain on its seating and require to be hooked out. Take out the screw holding the choke linkage to the plastic base of the jet, taking care not to lose the small 'top hat' spacer fig. 8 (E) & fig. 9. The main jet can now be withdrawn.

Turning your attention to the top side of the carburettor, remove the damper rod and mark the suction chamber to enable it to be replaced in the same position. Remove the suction chamber and spring and lift off the piston. To remove the needle the brass screw in the side of the piston should be loosened. Hold the piston in a thick cloth to do this, it will save the loss of flesh if the screwdriver slips! (fig. 10). If the old needle is reluctant to come out, a sharp rap directly on the pointed end should jar it loose. Thoroughly clean the suction chamber and piston before proceeding.

The replacement needle should be inserted until its shoulder is dead flush with the face of the piston as in fig. 11. Accuracy is called-for here. Tighten the screw and put the piston/needle assembly well out of harm's way until required.

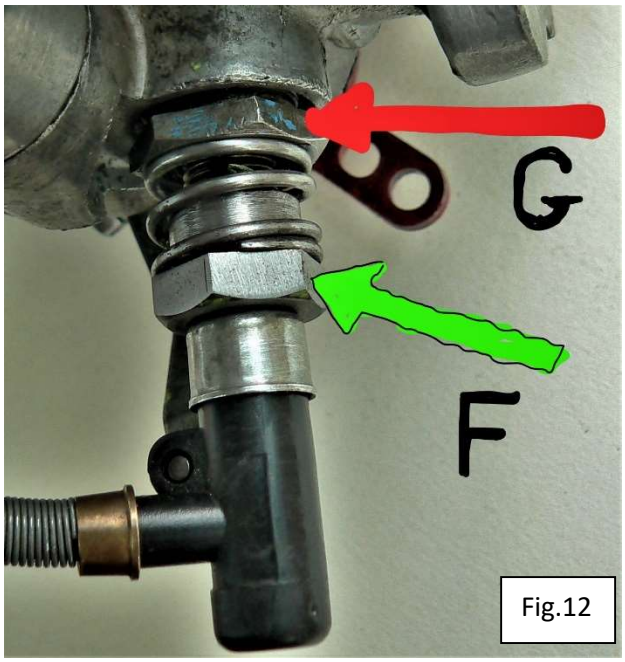
Returning to the carburettor body, remove the jet adjusting nut, fig. 12 (F), and its spring then slacken jet bearing nut (G) a couple of turns. Replace adjusting nut without spring and screw it up

fully, then ensure that the tube into which the jet slides is free to turn. This is a most important requirement and must be ensured to prevent damage to the new needle. If it is not free, unscrew



the bearing nut fully and remove the tube, otherwise known as the jet bearing, clean its flange, apply a little oil and replace, leaving its retaining nut a little loose.

Slide the new jet into place, with its feed pipe in the correct relative position but not connected to the float chamber. Place the piston and needle into the carburettor body then having applied a little oil on the outside of the piston rod to assist its passage (fig. 11), fit spring and suction chamber noting reassembly marks. Do not use force at this or any other stage of reassembly! Push the piston to the end of its travel (SU recommends using a pencil) whilst pressing the jet home against its adjusting nut, and GENTLY nip up the jet bearing nut. Keeping the jet pressed home, try lifting the piston and letting it drop. It should reach the limit of its travel with a satisfying click. Keep slackening the bearing nut and pressing the piston home then gently tightening the nut until this is achieved. The process may have to be repeated many times!! When a satisfactory result is obtained the bearing nut may be tightened a little more. This may change the setting and it will be a case of starting all over again. It can be a very tedious process indeed but sooner or later things will come right and the bearing nut can be tightened fully without affecting the travel of the piston.



Having reached this happy state of affairs, replace the spring and adjusting nut, but not screwing it fully home this time. Put the jet back in and perform the centring test again, just in case! If all is well, reattach the choke arm to the jet base ensuring that the 'top hat' spacer is present (fig. 8 (E) & fig. 9). Do not overtighten the screw, it is threaded into plastic. Lastly, connect the feed pipe to the float chamber ensuring that all the components are assembled in the order shown in fig. 7. Note the steel washer 'C'. Put a little lubrication into the housing to help the rubber washer to seat properly. It is important that the pipe should protrude fully past the rubber washer before insertion is attempted (as in fig. 7), despite the efforts of the protective steel coil to force the assembly apart. Take care not to cross-thread the sleeve nut, and tighten it gently. Extreme force is not necessary here!

The carburettor is now ready to be refitted. After this, and before starting the engine, check the fall of the piston once again. There is always a possibility that another jet-centring adjustment may be required, which can be done reasonably easily with the carburettor in place. Once the centring has been perfected it should require no further attention. Pour a little light oil into the hollow piston rod and replace the damper.

Complete the reassembly and warm up the engine fully before adjusting the main jet to give the desired tickover. All this work can be done with the carburettor in situ, removing only the air cleaner for accessibility. The biggest problem is replacing the feed pipe into the bottom of the float chamber as it is impossible to see properly and highly possible to cross-thread the sleeve nut! Apart from that, and all the lumbago-inducing bending over the front wing it is quite straightforward and it will make you realise that those excellent extended bonnet props pioneered by Dorset MMOC branch are not just for decoration!