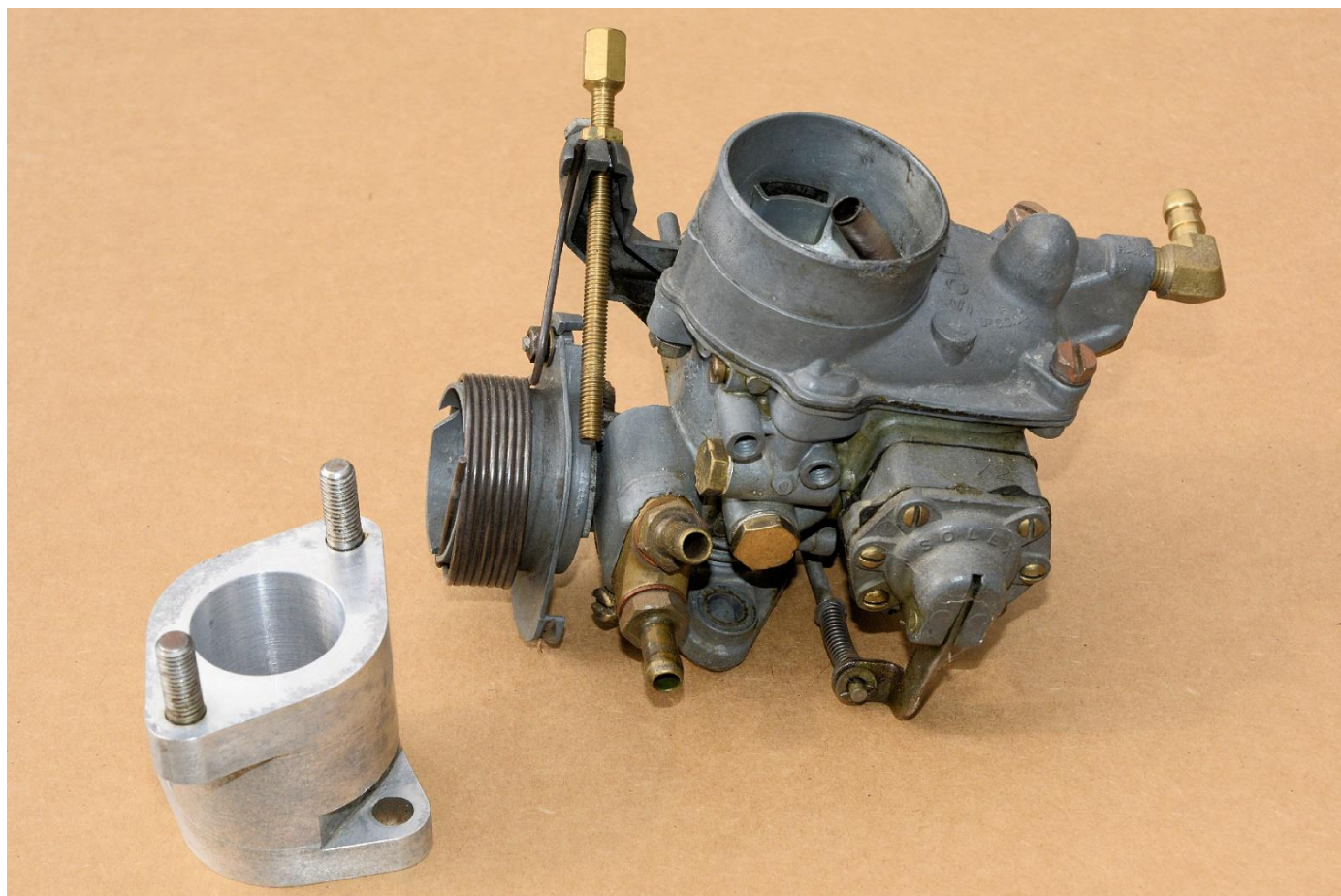


TECHNICAL NOTES SERIES

JOWETT JAVELIN – PA, PB, PC, PD & PE
JOWETT JUPITER – SA & SC



– PART XXV –

SOLEX CARBURETTOR CONVERSION

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*Compiled by Mike Allfrey – 18th December, 2005.
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THROTTLE IT!

While overhauling an engine for our Jupiter, a decision was made to try something different in the fuel system. In the past Maurie Dodd has mentioned the installation of Solex carburettors from a Bristol or a Standard Vanguard and, he has always bragged how well his Javelin ran on a pair that he installed some years ago. As we all know, Bristols (and, yes, Vanguards) are thin on the ground right now. So what to do? After some discussion with Ray Hoey, it was decided to go for a pair of Peugeot 403 Solex carburettors. Part of the reasoning here was that the 30 VM Zeniths used on later Javelins and Jupiters, are also specified for six cylinder Austin truck engines, and Peugeots (and their owners) are frugal cars, so, why not try a pair? A quick visit to Pugwreck in Bayswater, and my hands were filled with a grotty pair of 403 specification Solex carburettors. These were taken over to Wilson's Carburettor Service for overhaul. It was felt that, as long as the carburettors were kept Peugeot authentic, if they didn't work on the Jupiter, they could still be sold at the Bendigo National Swap Meet.

The Solexes, of course, have a different size mounting flange and the throttle bore is 32 mm diameter. A stack mounting from aluminium was machined for each carburettor and the inlet ports in the cylinder heads were bored out to 32 mm. At this stage there was a bit of a dilemma about the orientation of the two carburettors, and it was decided to mount them with the throttle butterflies at right angles to the original Zeniths. The reason for this was to retain the Peugeot throttle fittings and do away with the Jowett-style cross-engine throttle link rod. It would also be easier to attach the water pipes to the throttle body heater manifolds. In addition, the fuel enrichment cold start devices were easier to operate from the one side.

Right: A Solex carburettor mounted in position.



In the illustration above can be seen the throttle actuating snail assembly and the self-contained return spring coiled around it. This view is of the RHS carburettor and the hot water return tubing to the coolant inlet elbow installed. The inlet to the throttle body heater manifold has not yet been connected. Also in view is the diaphragm type accelerator pump. The elbow on the right is the connection for the oil temperature sender housing.

Thus, the installation of the carburettors had been worked out in theory. There was still the link between the accelerator pedal and the two throttle shafts to work out! Sketches were drawn of various linkages, but they always finished up with some sort of across the engine shaft or link. Another visit to Pugwreck to find out how Peugeot went about operating the throttle, revealed a very nice, very flexible throttle cable. Two were bought on the spot! An executive decision was then made to operate the throttles via two synchronised cables. The Peugeot throttle arms are equipped with a wrap around snail-like cable guide, and this feature, along with the return spring was kept. The beauty of this system is that the throttle lever operation is smooth and progressive, and, best of all, the return spring and its anchor is self contained on the carburettor. Things were looking better.

The carburettors were mounted on their tall mounting adaptors and installed onto the engine. The throttle cable control system was left until the engine was installed into the car. A close look at 1950s Formula One throttle control mechanisms revealed four and six carburettor systems controlled by cable. My reasoning told me that if Vanwall could do it successfully with four throttle bodies, then I could do it with two! After making several sketches, one point was



clear, the accelerator pedal had its own return spring and each Solex carburettor had its own return spring – thus, it would be but a simple matter to devise an intermediate drum, rotated by a single cable from the pedal and, have attached to the drum two precisely located cables, one for each carburettor.

Left: The superb, most marvellous, excruciatingly interesting, technically weird, precision machined, exciting, beautiful, over-engineered, a generator of "What is it?" questions, to "How does it work?" questions, brilliant, accomplished, splendid, entrancing, thoroughly interesting and simply practical throttle operating device yet seen on a Jowett.

The result as shown here is a machined drum with three throttle cable grooves. Mounted on two 8 mm ball bearings with an oil filled space between them,

the drum is free-spinning. The assembly is mounted on a single bolt with a bracket that carries the three throttle cables and the two choke cables. Individual adjustment is provided for each throttle cable. The whole assembly is rubber mounted on the coolant radiator mounting. The cables are anchored to the drum with two 4 mm grubscrews each, and

the standard clamping devices are used at the carburettor ends. Initial adjustment was a little bit fiddly, but once in place, it worked first time.

Then came the incredible part. The car is equipped with an electronic vehicle immobiliser that cuts out the petrol pump, ignition and starter circuits. This had been wired in with a relay so that it could work within a Positive to Earth electrical system. Having installed an electronic ignition system, as per Tony George's article in the last issue of *The Javelin*, it was necessary to rewire the immobiliser to suit its original Negative to Earth system. This was a little confusing as all the cables are black, and the original installer had cut off the cable identifying tags! It was as the job was thought to be completed, and the first check was taking place that, after the remote controller had activated the immobiliser, the ignition was switched on. The petrol pump started clicking away and I briefly touched the starter button – instantly, the engine fired and settled down to an even idle! Mind-boggling stuff! And, there was no coolant in the radiator yet. Thankfully, oil pressure had been pumped up previously.

Instant starting, no flat spot on opening the throttle, steady idle – even when fully warmed – the question has to be asked, what to do now? The next weekend was the Christmas Lunch Run to Wandong – should the current carburettor settings be left alone? It was decided to leave the settings as made by Wilsons and see what happened, there was always the option of turning round and jumping into the Rover if all was not well. So we left with plenty of time in hand and the drivability of the car was amazing. There was no petrol smell, no flat spots at all, even idle at traffic lights and, while running in, good performance. The throttle opening is very progressive and controllable and the fact that the engine starts instantly, hot or cold, must mean that things are good in the ignition department. Fuel consumption for the 104 mile round trip was no worse than with the original Zeniths.

Some thought has been given to the 'sideways' orientation of the float chambers. Will petrol supply be affected by cornering forces? So far, there is no evidence of this condition.

We shall have to see what happens. But the best result of all this is the absence of a strong petrol smell after stopping the engine. There is, so far, no petrol residue around the carburettors at all.

The coolant heated throttle bodies start warming soon after engine start up, so there should be no icing concerns. It has to be said, Peugeot sell many cars into Belgium and Holland as well as the Normandy home market. These low lying areas have prime carburettor icing conditions, and Peugeot must have responded to concerns in that area. Sadly, Jowett did not address this concern.

My thanks to Tony George for providing the research and how-to on the electronic ignition system. Thanks also to Ray Hoey for suggesting the Peugeot 403 Solex carburettors.

Mike Allfrey.

And Then It Went Wrong

The throttling cables used were obtained from the local bicycle shop. All too soon it was found that the inner cables did tend to stretch easily, needing regular adjustment checks. The cables may have performed in their bicycle application, but as a much-used throttle setup, not good. One morning while setting off from home, and only a few metres from home, the RHS cable dislodged from its actuator cam and, as a result, wedged firmly between the cam and the carburettor body. This was to the extent that the throttle spindle was bent.

Both carburettors were taken to a local repairer and, after that were never the same again. Excessive black smoke, along with incessant flat spots on opening the throttles were a real headache. Then the Jupiter was off the road for eight months, due to my health, and the awful petrol that we contend with now turned into a sticky, clinging mess. This was cleaned up and fresh petrol poured into the fuel tank. Several attempts were made to tune both carburettors, at the slow running adjuster screws, the engine could not be made to 'hunt' and the flat-spots persisted. The exhaust smoke was such that concern that the cylinder bores were being washed clean of their lubricant.

I gave up on the Solexes.

The engine is being fitted with a Petrol King petrol pressure regulator and a pair of Zenith 30 VM-5 carburettors from a Javelin. The reason for this action is because of a personal dislike of throttles being pushed open by the outer cable. Also, with so many very much speed limits being introduced, there is no real need for performance that, with modern petrol, may not be there anyway.

Mike Allfrey – 31st March, 2017.