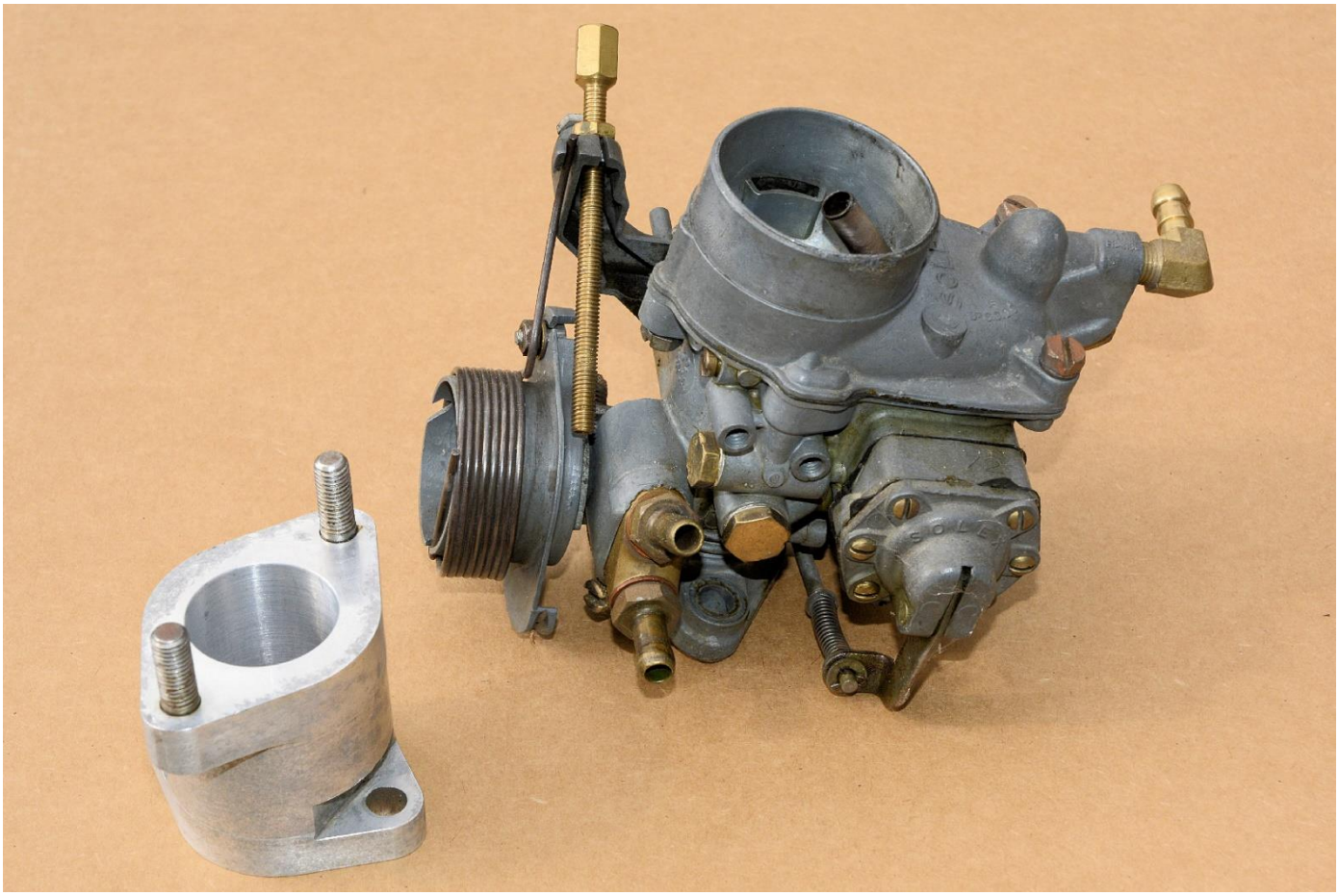
TECHNICAL NOTES SERIES

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



– PART XXVII –

SOLEX CARBURETTOR CONVERSION
AN EXPERIMENT

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Compiled by Mike Allfrey – 18th December, 2005.
Revised – March, 2024.

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WARNING!
ASBESTOS COULD BE PRESENT IN GASKETS AND FIBRE WASHERS

INTRODUCTORY COMMENT FOR TECHNICAL NOTES

These introductory notes should be read prior to reading Part XXVII of the Technical Notes Series.

The Jowett Technical Notes Series have been an ongoing activity for several years. That means that some techniques and specifications may have been superseded in later notes on the same, or associated topics in the series. Also be aware that some topics and recommendations may be specific to certain Engine Serial Number ranges. It appears that, in Australia, the various State Main Agents did not carry out Service Bulletin information during Jowett active times. A set of known Service Bulletins is in Part III.

Some of the notes are restorations of what was written by members of the Jowett Car Club (UK), the Jowett Car Club (NZ) and by members of the JCCA.

Over the years of involvement with matters Jowett, and with the dawning of the personal computer age, a personal decision was made to help members of the Jowett Car Club of Australia Inc. with technical information. Included with the Technical Notes are ‘restored’ versions of the Javelin and Jupiter Maintenance Manuals and the associated Spare Parts Catalogues. Future generations will prefer to flick through images on their personal device screens, rather than leafing through pages in a tattered and oil stained book to access information.

The term 'restored' has been used because it soon became apparent that, as with our efforts in restoring Jowett vehicles, we desire excellent quality of workmanship in the reproduction of Jowett related documentation. Not for us the crude, and crooked, photocopies that have been issued over the years. These have, even though accurate at their time, become partly out of date.

Hence the decision to ‘restore’ the publications and documents that have come to hand.

It should be noted that the Javelin and Jupiter Spare Parts Catalogue is a combination of all the catalogues that were to hand (from 1948 to 1953).

The Maintenance Manuals were originally written on the assumption that they would be used by skilled motor mechanics who had attended service training courses conducted by Jowett Cars Limited and after works closure, were made available for owners who had reasonable mechanical knowledge of motor car maintenance and overhaul.

Included with the Technical Notes Series is a Lucas Overseas Correspondence Course, which can be of great assistance when trouble-shooting electrical problems related to your Jowett, or any other British vehicle of the same period.

Please be aware that this is an ongoing project . . . .

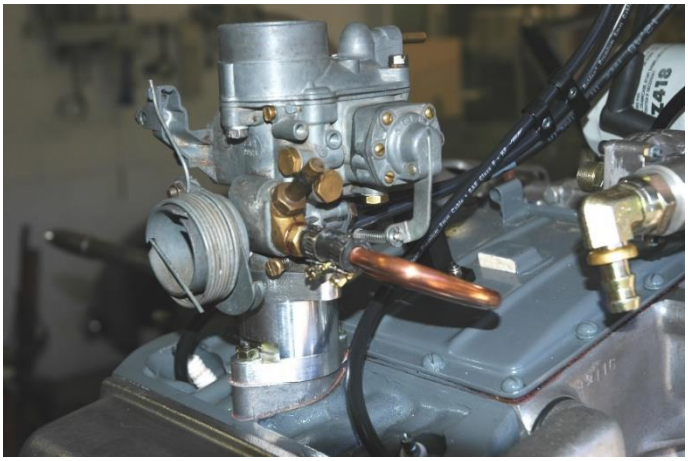
Mike Allfrey – February, 2024

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, Standard Vanguards) are thin on the ground right now. So what to do? After some discussion with the late 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 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 Solex carburettors, 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.



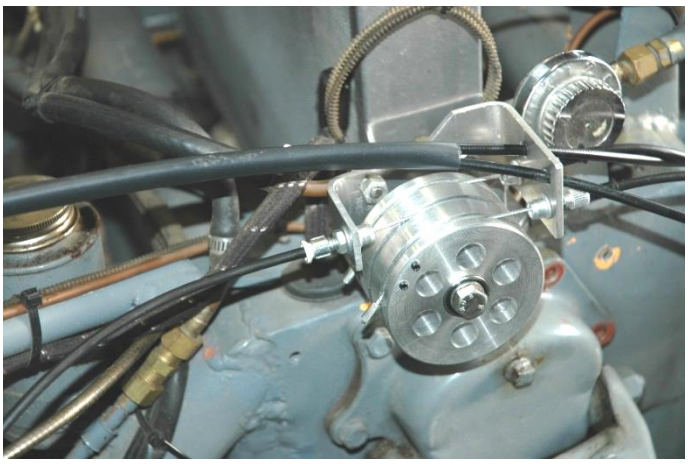
Right: Figure 1. A Solex carburettor mounted on a machined adaptor.

In *Figure 1*, can be seen the throttle actuating snail assembly and the self-contained return spring coiled around it. This view is of the R.H.S. carburettor and the warm 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 large elbow on the right is the connection for the oil cooler at the oil temperature sender housing. The set up also allowed a simple strangler (choke) operation, by using two cables to operate the pair of stranglers.

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! A 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.

Solex Carburettor Installation

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 a number of 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 a simple task 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.



Right: Figure 2. The superb, most marvellous, excruciatingly interesting, technically weird, precision machined, exciting, beautiful, vastly over-engineered, a generator of: "What is it?" or "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 in *Figure 2*, is a machined drum with three throttle cable grooves. Mounted on two 8 mm ball bearings with outer sides sealed and 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*, refer to *Technical Notes Series – Part XX – Electronic Ignition*, 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. 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 next? 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. However, it was found that during enthusiastic cornering on long sweeping curves, the engine would cut out. This prompted thoughts about having modified mounting adaptors machined along with revisions to throttle and strangler operating cables.

Then a certain Javelin engine came into my workshop . . .

There was one very impressive aspect about the installation – the carburettors could be set at the throttle stops so that the engine idled smoothly at just 400 rpm, indicated on the rev counter.

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, which can be likened to the run from Euroa to Kilmore. 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, Sort Of Wrong

The throttle 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 R.H.S. throttle spindle was bent.

Both carburettors were taken to a repairer in Richmond and, after 'repairs' were never the same again. Excessive black smoke, along with incessant flat spots on opening the throttles were a real headache. The air intake system was exhaustively checked for leaks in attempts to cure the flat spots, but to no avail. The engine could not be set to a low-idle speed lower than 1,000 rpm. It really has to be wondered why these characteristics came to cause so much difference? Stainless steel throttle cables with Teflon lined outer sheaths were also tried, but nothing could improve the situation.

Then the Jupiter was off the road for eight months, due to health concerns, 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’ at all and the flat-spots persisted. The exhaust smoke was such that there was concern that the cylinder bores were being washed clean of their lubricant.

Therefore, I completely gave up on the Solex carburettors.

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 reduced 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.

Postscript

The Jupiter has performed reasonably well with the Zenith carburettors installed. A pair of 30 VM-5 Zeniths were purchased from club stock. They were rather tired (aren’t they all?) and were taken to Wilson’s Carburettor Service for fettling. This job was rather expensive due to the throttle bodies being excessively worn at the points where the throttle butterflies had made contact with the bores in the area where the port for the vacuum advance is located. How could such happen? Easy to diagnose, the throttle spindle bores were excessively worn – probably by a stronger return spring for the throttle link. The end result was that a pair of new throttle butterflies had to be made, at relatively huge cost.

Refer to *Technical Notes Series – Part XXI – Zenith Carburettors* for further information about how the Petrol King fuel pressure regulator can be fitted.

Mike Allfrey – 3rd March, 2024.