Simson AWO 425 Restoration Diary – Part 2

End of Document

Thursday 5th January 2012

The story so far: Part one of this diary was concluded at the end of August 2011 when the bike was cosmetically restored but only mechanically restored sufficient to get an MoT so that I could get the registration process started. The engine needed a total overhaul and parts for this were being obtained for me by a friend in Germany. In the interim I collected a load of parts for his BSA M20 that were duly shipped to Berlin at the end of October 2011. Though I had all the paperwork to carry out the registration I held back because I wanted to register my EMW R35 at the same time. This was a mistake -the saga of this is recorded in the R35 diary but today I did visit DVLA in Bristol and subject to an inspection on 17th January, the AWO should soon be UK registered.

The situation on the spare parts is even more frustrating. Most parts had been collected by end September, the outstanding item being the rebuilt crankshaft. This finally arrived at the end of November 2011 and the box of parts was shipped from Berlin in the first week of December. Nearly four weeks later and it has still not been arrived. Thankfully in some ways, it is not alone. My daughter sent a parcel of family Christmas presents from Munich the same day, this also has not arrived. Investigations are now underway to trace both parcels but it is very frustrating – the project seems to be fraught with delays outside my control.

Friday 20th January 2012

The Simson was inspected by DVLA on 17th and the registration process is now completed. I came away with a historic (free) tax disk and a piece of paper confirming the registration number. The latter also being the authorisation for me to have a number plate made. However, I have made up my own plate for now, later I will get one of the rather nice pressed aluminium plates. The day nearly ended in disaster, I noticed a grating noise when I was hitching up the trailer at Bristol. Inspection revealed a worn bearing and a lot of play in the wheel. Scary as I had been doing 60mph plus down the motorway shortly before. I agonised for some time over what to do. I did consider ringing a friend with a van then realised that I had left at home the ramp and the keys to the locks securing the bikes to the trailer as I did not expect to need them. In the end I decided to drive home very steadily using avoiding the motorway. What a nightmare journey but we did get back ok. I was shaking with tension when I got out of the car.

The spares from Germany have now been officially declared lost by the courier which is very disappointing for me and friend Sebastian. He is already on the case ordering replacement parts but it will take a week or two. The only bright spot from my point of view is that he had a second crank rebuilt at the same time which he is going to send. That will reduce the waiting time a huge amount. For the moment I have to content myself with putting on the tax disk and number plate. The bike is now back in store as there is nothing else I can do until the spares arrive.

Saturday 3rd March 2012

At long last the spares from Germany have arrived. This is the second parcel, the original has never been traced and I don't suppose it ever will now. There are still a couple of seals for the front forks awaited but at least I can get started on the other tasks.

Monday 5th March 2012

Some progress and a potential set back. On the positive side, I have removed the engine and gearbox from the bike which also entailed removing the rear wheel and final drive assembly. Nearly a nasty accident as I forgot that the stand spring was connected to the gearbox and could not figure out why the engine was so difficult to move. Won't make that mistake again and no harm done except to my pride. While the wheel was out I fitted the new tyre I bought last October.

With the gearbox out of the way I was then able to fit the new swinging arms bushes. One went in quite easily, the other was very tight and I had to trim it very slightly in the lathe then ream it to achieve what was still a tight fit. The bushes are made of some sort of plastic or Bakelite material. Next job was to take the head, with its new valves and guides to the workshop in Westbury who are going to do the valve seat replacement. My memory was that both seats needed replacing but when we looked at the head yesterday, the exhaust seat looked ok; possibly just needing a recut to match the new valve. This is the correct 34mm diameter, the one I took out was 36mm which would have been from the earlier 425 engine. Anyway I will let the experts decide.

Back in the workshop I decided to fit the new handlebars as the original ones were really making the bike look sad. At the same time I fitted MZ brake and clutch levers as I had a new pair in stock. I am not sure if the ones that came with the bike were an original type and they did not have ball ends to the levers which always worries me. This change also allowed me to put the horn/dipswitch back to the LH side and provides a mounting for an indicator

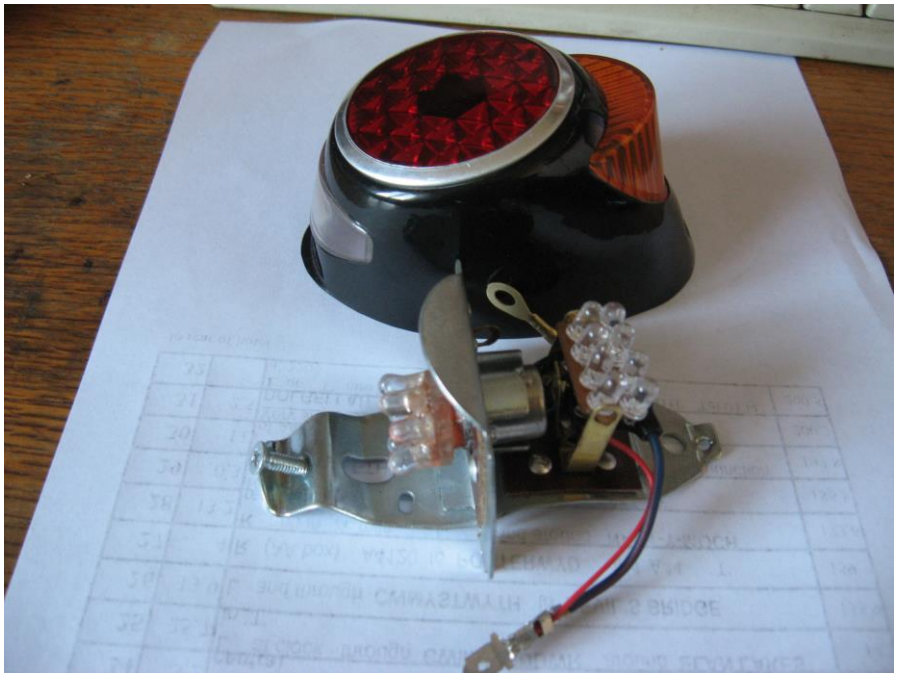
switch on the RH side should I decide to fit winkers in due course. Anyway this bit went well as I hope the picture shows:

While I was working in that area I also made up a new clutch cable from an old but excellent condition BMW clutch cable. This is heavier gauge and nylon lined so should be quite smooth and light. Certainly far better than the old one which needed pliers to move the inner. I will send the old one to Venhill at some point to get a proper one made up to keep as a spare.

I also wanted to fit the new front engine mounting rubbers and spent a good part of the afternoon on this task before retiring frustrated. After a lot of effort I did manage to get one into its lug but the amount it compressed made the hole through the centre no bigger than 8mm. There is supposed to be a steel tube inside the bush which must be about 15mm diameter (the inside diameter is 12mm to take mounting bolt). Trying to force this in, even with copious amounts of soap resulted in a trashed rubber bush. I know they need to be snug but they are way beyond that in tightness; I wonder if I actually have the correct bushes. Time to consult the experts I fancy.

Tuesday 6th March 2012

The weather has improved dramatically so with spring just about here, I had to spend the better part of today on gardening chores so not much progress on the 425. Amongst my box of spares is a new rear light unit of the correct type though a pattern part. I must say I was not too impressed with the build quality considering its high cost and the method of connecting up the electrics is somewhat puzzling. The bulbs are an odd mixture as well. The stop light is conventional single pole bulb mounted vertically. Equally starnge, the lens is orange which makes me wonder if its legal in the UK. The rear light is a small festoon bulb. I was contemplating using led bulbs in deference to the fairly low powered dynamo so tried one I already had made up in the stop light position. This was a good decision as it showed red even through the orange lens. I had to design and make an led festoon bulb. Bit scruffy but it works ok.



Fitting the actual light unit was fairly easy and I did not need to drill any new holes. In fact I was able to block up some spare holes with rubber grommets. Quite pleased with the overall result: Makes the number plate look scruffy so I will have to order a pressed aluminium one some time soon. They have gone up a lot recently near £28 now but they do look good.

With the rear light done I was able to re-fit the bevel box and rear wheel so that the bike can be wheeled around. I did have another look at the engine mounts. I am convinced the ones supplied cannot be the correct. I did find some other rubber bushes in my MZ spares box.

No idea what they are for but I think I will be able to adapt these more easily to do the job if nothing better turns up. I would like to do the forks next but am still waiting for the top seals. If I strip the forks it could be immobile for some time. Time to get out the workshop manual and my German dictionary and think about the engine rebuild.

Wednesday 7th March 2012

I showed the engine mounting rubber bushes to some knowledgeable friends today and it was generally agreed that they were never going to fit. The main problem is the size of the hole in the centre and we discussed how it could be enlarged without reaching any conclusion. However, later I did have an inspiration. Some bushes I found in a spares box were nearly correct and I found that I could machine them crudely by using the rotary wire brush as a grinder. Enough to get the external diameter correct and to chamfer a groove round the centre to help locate the bush. I am tolerably optimistic that this will work. Only other task completed today was to fit the speedo cable.

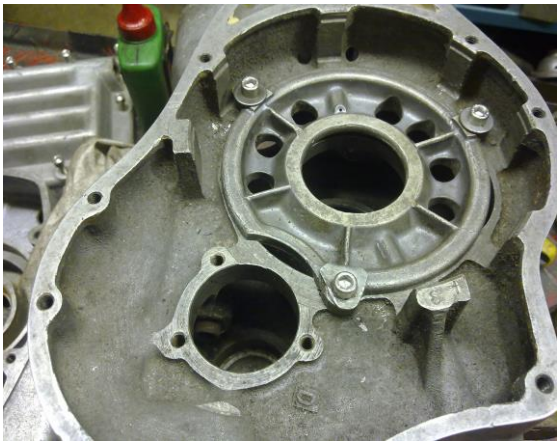
The rolling chassis has now been moved so that the bike lift can be used as a work bench when I start the engine rebuild. It's helpful to be able to get things from all sides. The various bits of the engine are now being cleaned, checked and laid out to make sure I have enough parts and no more. Not having dismantled the engine in the first place, It's a bit of ajigsaw puzzle. I tend to spend a lot of time at this stage just looking and thinking about what goes where and the order of assembly. Nothing worse than finding a bit on the bench that can now only be fitted by partially dismantling the newly assembled engine. The first obvious point is that I will need access to the kitchen oven as the main crankcase is just a tad too big to fit my workshop oven, Finding a window of opportunity to use the oven will be tricky and most likely dictate when assembly can begin in earnest. So far it looks quite straightforward but I am carefully studying the parts book and my google translated workshop manual for clues.

Saturday 10th March 2012

Life has got in the way of the restoration for the last few days though I have spent a lot of time thinking about the engine rebuild and reading the manual. Today I tackled two jobs. The first was to offer up the bare crankcases to the frame to measure up and make the spacers to get it located centrally and to ensure the rubber bushes will work properly. Success on both counts so that is one good job put to bed (I hope). I also modified the old engine bearings to make them an easy fit in the cases and on the crank. I wanted to be able to install and remove the crank easily whilst checking on the end float. I also had to true up the end cover as this very reluctant to slide into place in the case. This was tricky because initially I could not see how to fit the plate in the jaws of my lathe. Eventually I found that I could use the jaws working outwards and very gingerly cleaned up the high spots on the cover. It now fits firmly in place but is not murderously tight to put together and separate.

With these jobs done I was able to assemble the crank in the cases and check the end float; though it proved difficult to detect or measure. Possibly because there is practically none anyway plus the fact that the new crank is very tight on the bearing. In the end I settled for a shim that was the same thickness as the gasket which I will be using. The bad news was that one of the lugs which holds the cover in place broke off. I cursed my clumsiness even though I had been very gentle in dismantling. However, when I looked more carefully, it was

obvious that the think had fractured long ago and was only holding on by a whisker anyway. I did consider having it welded but distortion could be an issue. I think I will be able to use a special shaped washer to clamp the cover, the main support is provided by a deep shoulder on the cover so the lug and its screw are mainly to prevent the cover moving backwards. Will think about this and if in doubt I may have to suspend operations whilst I find a replacement.



I then hit another snag, the new cam follower is slightly larger in diameter than the original and would not fit into its bush. Its case hardened so no chance of machining it to size. Best I could do was put it in the lathe and then polish it with emery cloth. Got through a whole sheet of the stuff and my fingers are sore but it now fits nicely.

Sunday 11th March 2012

My wife went to Crufts at some unearthly hour this morning and was not due back until the evening. It struck me that this was a perfect opportunity to use the kitchen oven without her being any the wiser. So at 6am I was cooking crankcases and fitting the main bearings etc. By 8am the job was done and the oven had been cleaned and deodorised. Assembly of the outer bearing plate, fitting the timing gear, oil pump and sump plate all went quite well.and I was beginning to think the job

was nearly done.

The final job of the day was to be replacing the out timing cover which also holds the third engine main bearing. Fifteen minutes in the garage oven at 100 degrees and it slid on nicely; and the screws were soon done up tight. Then I hit the next snag; the crank was now solid, Backing of the outer timing cover screws a tad was enough to restore movement . I managed to get the cover off and double checked all the preliminary work but could find nothing obvious wrong and for the moment I am baffled. There are ways round it. A much thicker gasket would do the trick (you can see in the picture where I have tested this theory by inserting fragments of additional gasket paper) or the bearing housing could be deepened (though this would need to be done by someone more skilled than me). Time to sleep on the problem.

Monday 12th March 2012

Re-examining all the work I had done I could find no actual errors in crankshaft assembly. The shim I used to control end float would not have affected the issue; indeed removing it would potentially make matters worse. All I can think is the regenerated (the German terminology) crank is slightly longer than the old one by a very small but critical amount. Extra thick gaskets would be perhaps the easiest solution low tech solution but it is a tricky shape to cut and the thicker the gasket, the more likely to squidge so not ideal. Machining the bearing housing would be a better engineering solution but I am reluctant to modify the crankcase quite apart from finding someone sufficiently skilled to do the work. The answer has to be a slightly thinner bearing and a search on the internet identified a variant of the 6205 bearing which has the same internal and external size (25mm x 52mm) but is 13mm wide rather than 15mm. I do not think that the reduction is width is going to seriously affect the load bearing limits as this is really only an outrigger bearing for the dynamo There is a 6206 inner timing side main bearing as well and the reduction of 2mm in width will give plenty of clearance for the outer cover. I have ordered one of these narrow 6205s from Simply Bearings which should be here in a couple of days. At £21 it was not cheap but it should be a simple solution and avoids squidgy gaskets and machining the crankcase.

Tuesday 13th March 2012

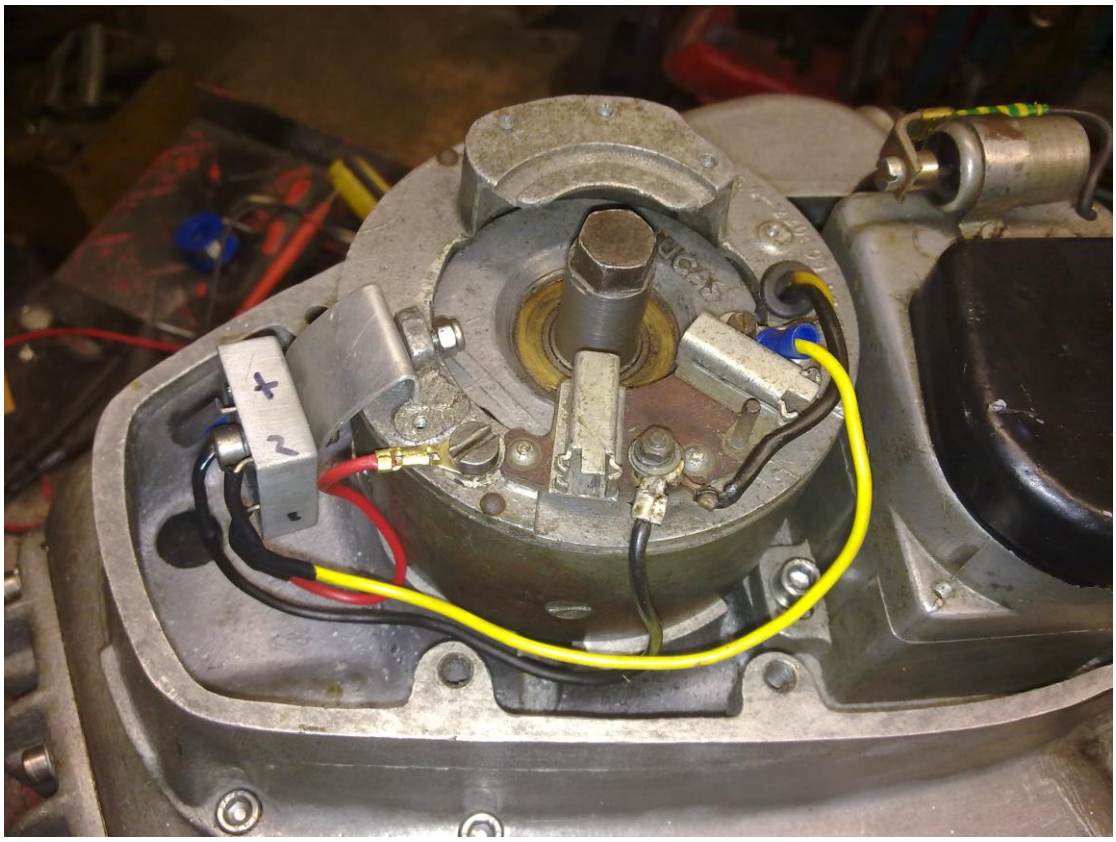
I had best begin todays write-up with a confession. I had to make up an extractor to remove the timing cover and the 6205 bearing. Out of curiosity, I re-fitted the cover without the bearing and tightened it up and guess what, it seized again. Obviously my previous theory about the crankshaft and the bearings was rubbish. The culprit was the engine breather and the cause was my failure to push the camshaft gear fully onto its spindle. A quick tap with the hammer and a drift and everything was perfectly free however tight I did up the casing

screws. Ho Hum but at least I had not got as far as fitting the special 6205 bearing which did arrive later today and will possibly stay in its envelope for a considerable time.

Reassembly now resumed and having fixed the timing cover in place, I switched ends and tackled the flywheel and clutch. Even though I had not dismantled it, the assembly was

straightforward and incident free. The clutch centreing and compressor tool I made some while ago worked perfectly and I was able to do a test installation of the gearbox into the clutch splines with no problems. Then back to the other end to fit the magneto and to figure out how to set the timing. There are timing marks on the flywheel visible through a small hole in the crankcase and once I had figured out which way the engine rotated, it was actually quite easy. I should be able to use a strobe in due course. I even managed to get a spark out of the magneto whilst spinning the engine by the flywheel.

Last bit of assembly for the bottom end was to fit the dynamo. Or rather an alternator I have made by combining a Lucas permanent magnet rotor and an MZ 6v dynamo stator. None of



the dynamos that came with the bike were any good and unbelievably for me, I do not have a suitable spare MZ 6V dynamo lying around; several 12v ETZ alternators (which will not fit) but no dynamos. ON test previously it produced about 5amps. Not enough to run full headlight for any length of time but should support sidelights and keep the battery charged to provide horn and stop light. I do not want to spend any money fixing the old dynamo system if I can help it as longer term I plan to get one of the Powerdynamo systems from Germany .

In the middle of all this activity, the workshop in Westbury rang to say that the cylinder head was completed so this afternoon I took the Matchless G3 for a ride to pick it up. They decided to do both valve seats in the end so it cost £105 in total but at least I do not have to

worry about unleaded fuel. My last workshop activity of the day was to fit the valves and springs to the head. Never tackled hairpin valve springs before but once I got the knack it was pretty straightforward. The only minor problem was that the hole in the bottom spring locating plate was not quite big enough to fit over the top of the new valve guides. Some gentle work with a file soon sorted this out so the head is now ready. I was not really expecting the head to be done so quickly so have not yet had the barrel bored to take the new piston, That is now a priority job for tomorrow, I also need to find out if it is possible to fit the gearbox after the engine is in the frame or if they have to go in together. The former would be easier, the latter will require some additional helpers.

Wednesday 14th March 2012

Only a couple of things to report today but both positive. I spent the morning in Bristol where my friendly engineer Steve at Piston Broke did the rebore on the best of my spare Simson barrels. I do have another barrel and piston which though worn would probably be ok, I will keep these in reserve. He was intrigued about the bike and took a lot of details about the piston etc in case he ever gets an enquiry again. Curiously he had however, heard about and rebuilt a crankshaft for a BK350 (the IFA flat twin 2-stroke which is also on my wish list). The crank was sent to him from Germany which seems very odd but encouraging should I ever get one. I got a reply to my enquiry about fitting the engine and gearbox and am told that it is possible to fit (and therefore presumably remove) the gearbox with the engine still in the frame. There were some suggestions as to how to make this a bit easier. I am going to try this method as it will be easier for long term maintenance to be able to remove and install separately. Bit like an insurance policy, if I know it can be done I am less likely to have to do it.

Thursday 15th March 2012

Fitting the bottom half of the engine into the frame was quite easy with the help of some bricks and blocks of would to get it to the correct height. I was pleased that the new spacers I had made up aligned the engine perfectly so once result. However, whichever way I tried, I could not get the gearbox into the frame and it was obvious if I kept trying, I was going to damage something in my frustration. So I removed the engine and reassembled the engine/gearbox as a single assembly on the bench. Then I phoned a friend who kindly agreed to come round next day to help me.

Friday 16th March 2012

Amazing how easy the job was with two of us to lift and manoeuvre the assembly into place. I had put some pieces of old car top hose over the frame tubes so nothing got scratched, though there are some small dings where I had tried myself previously. To get the assembly in, it is necessary to remove the back wheel and rear drive shaft unit so a second pair of hands was needed to hold the front end down whilst it was removed, The bike is very back end heavy on the stand especially without the engine in place. Anyway the picture below says it all.

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Last piece of assistance from Mike was to help me get the bike back onto the lift so that I had a more comfortable working position. I then connected up the electrics, the clutch cable and the speedo cable without any major issues. The cutch action is wonderfully light and smooth thanks to the BMW nylon lined cable – and the clutch actually works, Whether it will grip under load is something yet to be determined Next task was to wash down the barrel which was still dirty and gritty from the re-bore. Minor snag when I came to assemble the piston It was obvious where the oil control ring went but the two plain rings were of different design, one was shiny and the other was dull and with a small step. A phone call to Steve at Piston Broke confirmed that the shiny one went in the top land and the other should be put in

with the step facing downwards. Piston went on quite easily, the gudgeon pin was a firm sliding fit, unlike my MZs where you have to heat the piston a lot to get the pin to slide. Barrel went on easily as well, things were going too well and I soon found a minor snag when I tried to turn the engine over and it locked up! I had placed a piece of clean rag in the mouth of the crankcase to catch the circlips should I drop one. It helps if you remember to remove this. No harm done except to my pride. The head with valves was already prepared so it went on easily enough. I will need a long reach 17mm socket to use the torque wrench but the bolts are tensioned ok by hand for now. Pushrods dropped in and valve lined up so it was then just a case of adjusting the tappets. Had not read far enough ahead in the manual to know the correct settings so I used BMW settings for now. Final act before bedtime was to fit the carb and the exhaust system plus filling the engine and gearbox with oil. A final turnover with the kickstarter confirmed all seemed well and we had a spark. In theory, tomorrow it will run – we shall see.

Saturday 17th March 2012

This morning I tied up the fuel line to keep it above float level, took of the float chamber cap and poured in a dollop of fuel. Ignition Couple of kicks then I turned the ignition on and the engine actually fired on the first real kick. Initially it would only tick over for few turns and die as soon as you opened the throttle but after playing around with the carb settings I did finally get it to rev and to idle reasonably well. The carburetion is still far from perfect but it was an encouraging start. Mechanically it is a bit more clattery than I had hoped but some of the noise is down to the timing gears which are clearly well worn, As the oil works its way round the system this may well settle down. I decided that it was worth re-fitting the petrol tank and

putting in some petrol. Thankfully John's repair seems to be sound and there was no immediate sign of leakage; Need to check regularly just to make sure. With the seat replaced, physically the bike now looks just the same as it did in August when the picture at the start of this article was taken.

Good points: the oil pump clearly works as there was oil emerging from the rocker gear. The charging system works, at least well enough to illuminate a 21w bulb very brightly so it should keep the battery topped up. The speedo worked fine when I put in in gear and there were no obvious oil leaks. After the first few minutes there was no smoking from the exhaust which also sounds reasonably quiet. However, there did seem to be a lot of water produced to start with and I cannot figure where it came from. It must be condensation but why would this be present in an exhaust system that has never been used?

Not so good points. Starting still a bit iffy and it misfires if you rev the engine. Might be the magneto but my money is on the carb so I will strip and check this over. I am wondering if I can adapt one of my Amal carbs to fit on a swap it out basis. The kickstarter lever is fouling the frame rail and has gouged a groove through the paint. I have adjusted this for now with a washer to push the lever further out and by relieving the back of the lever. This may just be dealing with the symptoms however and the actual cause may be something else like the engine alignment in the frame as there was no signs of this problem when checked the frame before having it powder coated. I went to a great deal of trouble making spacers to centre the engine but perhaps it is meant to located asymmetrically. Will have to seek advice on this from Germany.

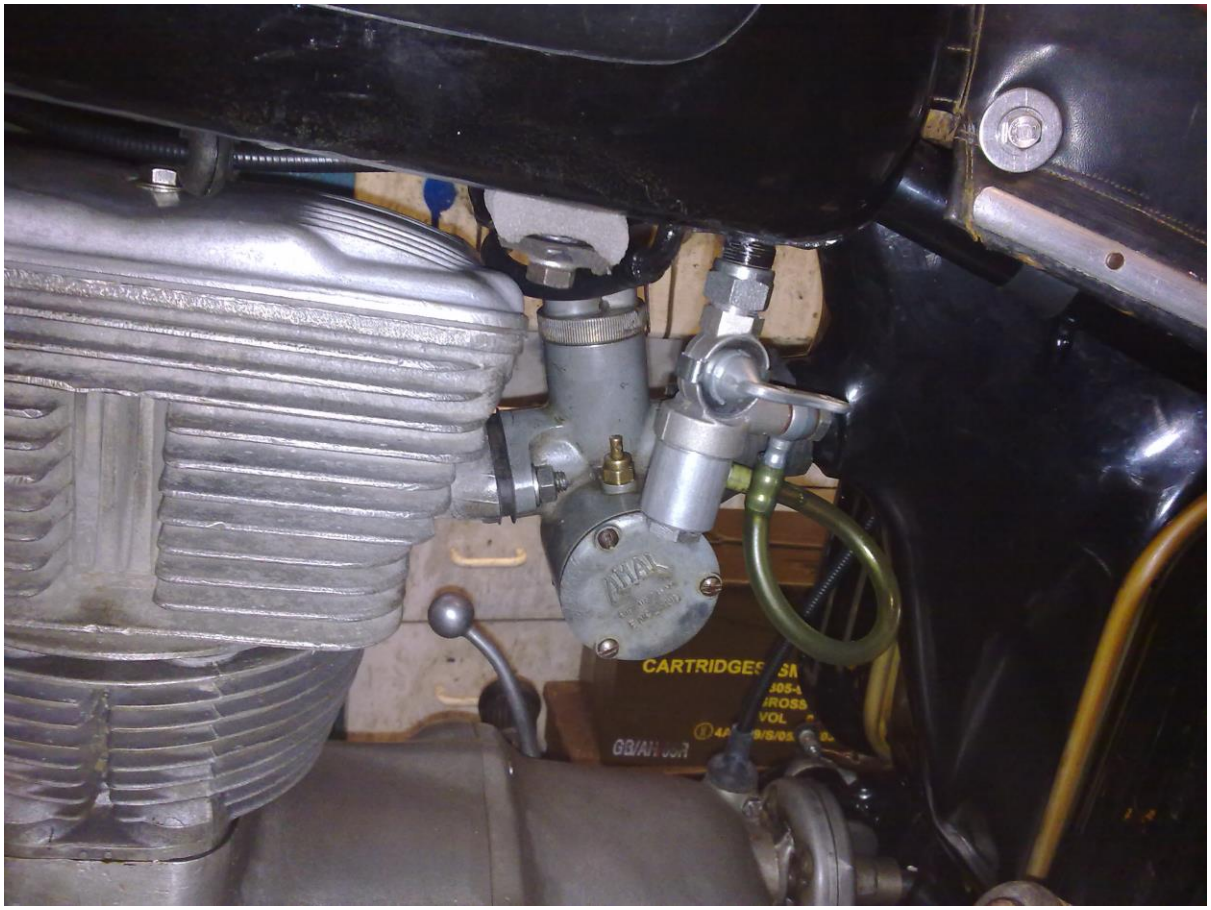
Overall a satisfactory day and I think I will take a break from the AWO for a couple of days to think over the issues and because I need to tackle some other urgent jobs.

Monday 19th March 2012

When I checked over the front end for what I thought was excessive play in the fork bushes today it felt more like slack head bearings so I removed the top yoke and tightened them up. There is still some play but what is left should be handled by the new fork bushes I am waiting to fit. I also searched through my box of old Amal carb bits and have managed to build a 1" monobloc which I intend to try on the AWO. I had to file out the fixing holes by a small amount to make the monobloc fit the AWO stud spacing.

Tuesday 20th March 2012

Well the very scruffy and mismatched bits of Monobloc carb I screwed together last night seem to have transformed the AWO, Only a modicum of tinkering was needed to the tuning setup to get a slow steady tickover and once warm it seemed to rev more cleanly than with the BVF carb. The engine seems to be very sensitive to rich mixture and does not like the carb being flooded despite this being necessary to get it going as there is no choke mechanism. Anyway I think that is a good result and the monobloc will stay in situ for now. I guess I am going to have to decide whether to try and fix the old BVF or simply buy a new Amal carb, the latter seems favourite though getting the correct settings could be tricky. I must dig out my Rupert Ratio book on the C15/B40 engines to get some guidance.

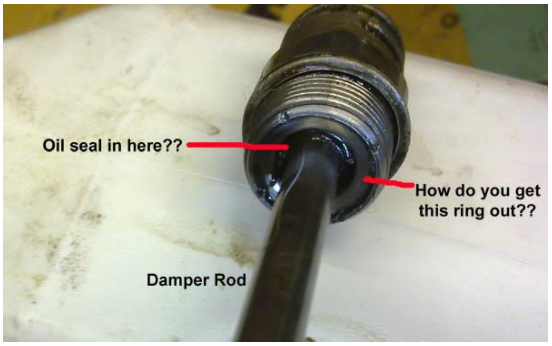


The other thing I did today was to make up some proper sleeved bolts to secure the petrol tank to make sure I do not inadvertently punch a hole through the tank bottom. A set of correct rubbers would finish the job of properly. The temporary ones I have made look naff though they do the job ok.

Sent an email to Sebastian in Germany asking if the fork seals were imminent as this is now the only outstanding task.

Saturday 7th April

The fork seals and bushes finally arrived on the 5th April. There were quite a number of bits in the package, some of which were a surprise. The bushes are actually a composite material almost like wood, much the same as the swinging arm bushes I had problems with. Stripping out one fork leg took very little time and I soon had the thing in bits. The bushes were far too tight both for the stanchion and the slider which is inside the bottom part of the leg. After various false starts, I finally found a safe way to reduce them to size. Very crude and tortuous, but puuting them in the lathe and using emery cloth (several sheets in fact) eventually they were reduced to a good fit both internally and externally. Took a long time as I did not want to remove to much material so I had toe keen removing them from the lather and offering them up. Even when they seemed a good fit, I found they woulf bind bark way down the slider. I fancy this is because there are two bushes separated by a metal tube. The part of the slider adjacent to the metal spacer is probably less worn so I had to adjust my clearances for this as well.



Fitting the outer oil seal was a fiddle as well. The picture below shows the general layout. The seal itself is supported by special washers top and bottom. The outer one held in place by crimping the edge of the seal holder. Took me a while to figure out how the compress the whole assembly to create enough overlap to do the crimping but got there in the end. The seals for the damper assembly were just as awkward and there is a fibre bearing in the top to support the damper rod. This was also too tight but I found a drill which was exactly the correct size and carefully reamered it to size. The seals also had to be held in place by crimping but by now I had the technique. Finally it was all done and I was able to add the fork oil (62ml), grease the bushes and assemble the complete fork.

I found it was very sensitive to the relationship of stanchion to bottom slider. In some positions it was very stiff but in others had acceptable movement. I guess there is wear or distortion somewhere in the parts but I do not want to remove any more material from the bushes if I can avoid it, I spent some time fitting the leg into the yokes such that the fork movement was easy. I imagine they will wear in quite quickly anyway. The experience gained with the first leg meant the second took only a quarter of the time. It also had tight spots but not so pronounced as the other leg. It too is back on the bike. However, whilst fitting it, I noticed that there was a thick rubber bush on top of the metal cover to hold it firmly in place. There was no rubber bush on the other leg when I refitted it and testing it now showed it had a lot of up & down slack. I must have dropped the rubber bush and searched the garage, the workshop, and the garden between without success. I will have to make something up and fit it before putting the mudguard and wheel back in place.

Final action for today was to fit a new inner tube to the front wheel as the old one kept going soft. Not really surprising really, when removed I found the valve had actually separated from the tube.

Another half day should see these jobs completed and the bike should finally be rideable.

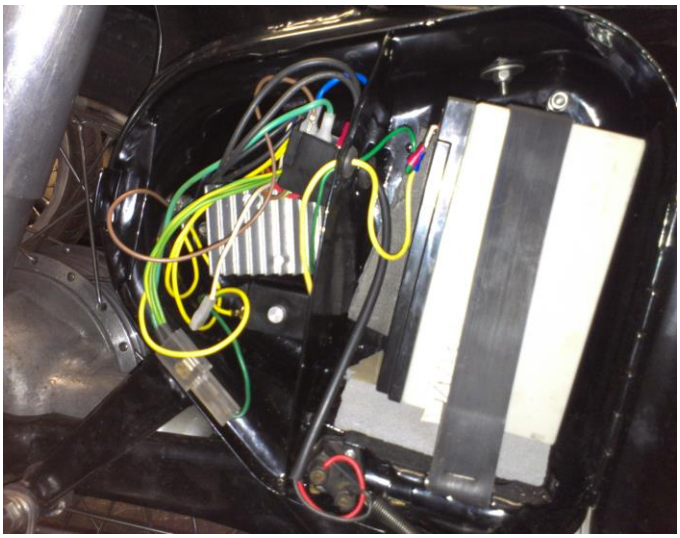
Tuesday 10th April 2012

Last weekend was Easter so family commitments and other things stopped any work on the AWO425. Toady I found a piece of car top hose from which I was able to shape a suitable rubber ring for the metal cover on the fork. It needed a couple of trial assemblies to get the thickness correct but job now done. I also had to re-fit the Amal Monobloc carb as I had borrowed it to fit on one of my other bikes. The bike started quite easily and the fork action was much improved, I fancy that the springs may be a bit tired as it seems to settle quite far down but there is no suggestion of bottoming so perhaps this is how they are meant to be.

Anyway, after a brief test ride round the garden, I decided to risk a trip down the road, All went well for about 25 yards then the bike simply ran out of puff and stopped. Momentary panic until I remembered that I had not put in much petrol as I was at the time unsure if the tank was fuel tight. Sure enough, turning the tap to reserve, I could see fuel flooding down the pipe and the bike restarted immediately. One lap of my road, perhaps ½ mile in total with no issues and back to the garage for a checkover. All seems well, so I parked it up and went of in search of a petrol. Unfortunately, by the time I got back the weather had turned foul and a longer ride will have to wait another day. As I have a number of commitments for the next few days, it may well have to wait until early next week. Something to look forward to.

Saturday August 18th

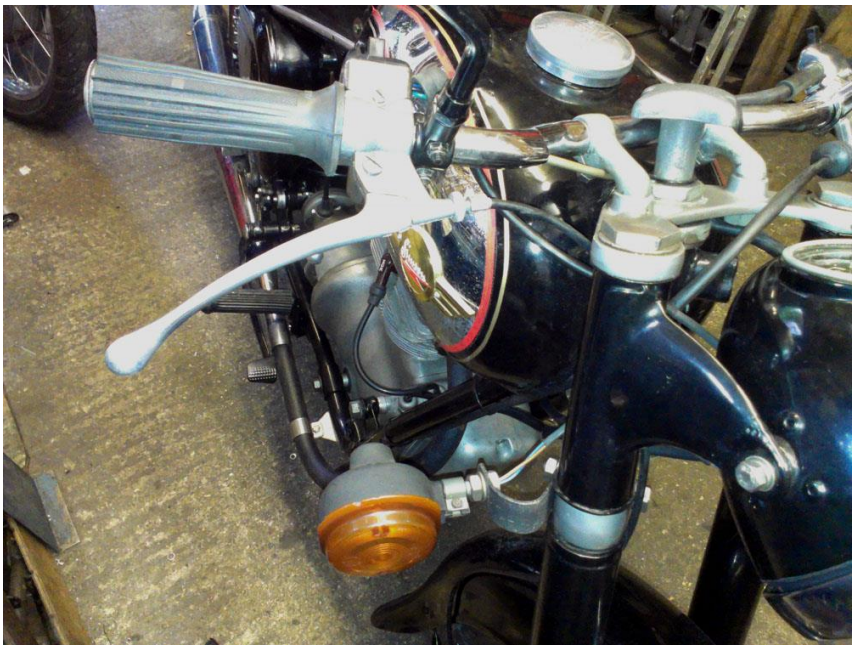
Well the few days turned into a few months due to life getting in the way. I was not overly impressed with the way my home brew alternator was working so I decided to splash out on a new Powerdynamo alternator kit from Germany. This is almost identical to the kits I already have fitted to most of my MZs. The main



difference being its purely a generator, no ignition features – these not being required as the bike already has a magneto. Forgot to take a picture of the engine end of the conversion before refitting the cover so apologies to powerdynano.de for lifting one of their promotional pictures.

The rectifier/regulator is fitted in the battery box where the original 6v regular sat. As luck would have it I had installed a couple of spare wires in the new main loom I made (intended for trafficator wiring originally) so it was fairly easy to connect alternator to regulator. With the bulbs changed and a 12v battery installed, we now have brilliant lights.

This prompted me to experiment with the fitting of indicators, modern riding conditions, particularly at night make hand signals a bit of a safety issue. Took me while to figure out a reasonably neat way of installing the front indicators but eventually I came up with the solution shown below, The indicator switch itself is standard MZ using the mounting provided on the front brake clamp. Wiring was quite straightforward, the only tweak was to include one of my led repeater lights mounted in the hole where the generator charge light normally fits (this is not needed with the powerdynamo system and saved drilling an extra hole for now at least). A powerful indicator repeater is essential on a bike in my view, it's just too easy to forget to cancel and can lead to confusion if not outright danger. Anyway we now



have a nice working set of front indicators. Still have not figured out a satisfactory mounting for the rear indicators and I will of course have to lay in extra cables. Put this on the back burner for now.

Another thing which had concerned me about the bike was the stand arrangements. The centre stand had obviously been repaired many times as it was a bit of a mess. More to the point it was very hard to operate and once on the stand, the front wheel was a good 5-6" clear of the ground. First job was to fit a side stand so that the centre stand could be removed for surgery. Found a universal one that seems to fit ok after I had trimmed the length down by half. According to the shop it was actually marketed for trail bikes. Rather than try to weld back the original foot, I made up a new foot in nylon bar which pushes into the tube and has the bottom shaped to suit. A self-tapper holds it in position. There is a grub screw which is supposed to stop the clamp rotating on the rail but I was not wholly convinced about its effectiveness; just in case, I made up an aluminium plug which is located onto the top fixing bolt and butts against the crankcase. If this transmits engine vibration, I will insert a rubber pad as well.

Having sorted a side stand I was able to remove the centre stand and cut off the bottom 1.5". I offered up the shortened stand and it was much easier to operate and the front wheel just cleared the ground which was what I was aiming for. I then welded in new feet made from 14mm bolt heads and re profiled them with the angle grinder. A further test assembly gave me an easy to use centre stand still with over an inch clearance for the front wheel.. The picture shows the finished stand with the part that I cut off. You can

visualise just how much unnecessary height this would have produced and the brute force needed to operate the stand as it hit the ground so far back you were physically lifting the whole weight of the bike. Not pretty but it will do very well until I can locate a better condition original stand. Wish now that I had done the job before I had the stand powder coated.

Saturday 27th October 2012

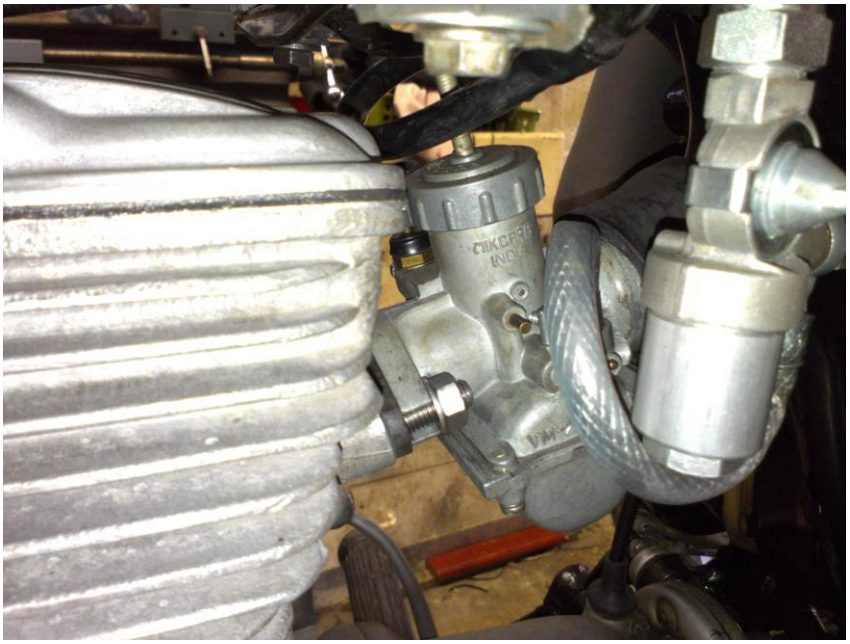
Sadly the 425 has sat at the back of the garage for a couple of months following a rather unsuccessful road test and pressure of work on other things. The two problems were carburetion and the front forks. The latter seized solid on full depression after a short run. Funnily enough I did not actually notice whilst riding the bike. The carburetion issue was a poor tickover and difficulty in starting and generally lumpy running. I had previously thoroughly cleaned and checked over the original BVF carb and there was nothing obviously wrong but it made the bike unpleasant to ride. This weekend I found time to investigate both problems.

I removed the front wheel and the front mudguard and the nearside fork leg. This one clearly displayed the problem as even depressing it by hand made it seize and freeing it required a pair of mole grips and the hide hammer. First thought was to remove the fibre bushes and ease them with emery paper. This proved difficult as I could not get them out of the stanchion. Next thing was to try loads of grease and working stanchion up and down the leg. Whilst dong this I found that the turning the stanchion with respect to the leg made a big difference in term stiffness in operation. Eventually I found an assembly position which maximised ease of movement but minimised any play and no seizing. The trick was then to reassemble the whole thing without losing this sweet spot. After 3 goes I finally got it right. I checked the other leg and it was quite free in operation as removed but turning the stanchion produced the same effect so I had to repeat the exercise on this leg as well. A test drive round the block was completed without the forks seizing. I suspect the problem is uneven wear on the inner tube of the bottom leg and the only real cure is replacement or repair which involves cutting out the old tube and welding in a new one. Specialists in Germany offer this service but it is not be cheap. Hopefully mine will function well enough for the limited mileage I am likely to do.

I have been looking for a suitable replacement carb for some time without a great deal of success. Ideally I would like to fit a 26mm Mikuni but decent second hand ones seem to be like hens teeth as do 1” Monoblocs. I would buy a new one if I could be sure of the jetting etc and that it would work. At Shepton Mallet recently I found a 24mm Mikcarb which is a Mikuni made in India under licence. Physically it looks very similar to the VM24 and was in good condition so I bought it for a few £s. Fitting it was fairly easy. The actual stud centre spacing is about 44mm whereas the studs on the cylinder head are 52mm but someone had already widened the holes on the Mikcarb so all I had to do was centre it. Sealing was no problem as there was substantial rubber ‘O’ ring. The inner free length of the throttle cable was a bit short as well but I got round that for now by removing the adjuster.

Initial results were quite encouraging. Despite the pronounced downdraft, there was no flooding from the float chamber. I did subsequently adjust the float to lower the fuel level slightly to be sure. The engine started ok and revved up but was clearly too rich, then I noticed the starter jet was open. Closing it produced a steady tickover but a marked reluctance to rev, The engine just died completely if the slide was raised to quickly. Opening

the starter jet lost the tickover but did restore the pickup so my diagnosis was weakness above the pilot stage. Raising the needle to its highest level only helped marginally as did fitting 130 main jet instead of the 100 originally fitted. (checking the manual later revealed that the original carb only had a 105 jet). I then removed the slide and filed the base to reduce the cutaway. This also improved matters in the garage but on the road it was necessary to nurse the throttle and let the revs build up slowly. Rapid throttle action still made the engine die. I have the battered remains of a genuine VM24 carb so I compared the needles. The genuine needle was much slimmer so this was duly fitted. By now the engine was quite cold so at first I did not think it had helped over much. However, as the engine warmed up, the throttle response became more reliable and I think this combination might actually work. At the very least I have a steam engine level of tickover. Tomorrow I will give it a road test to see how it performs.



Wednesday 31st October 2012

As normal, life got in the way so it only today that I was able to try the bike on the road. Starting was easy using the cold start device and it immediately settled to a steady tickover. Pickup was a bit hesitant and I had to use fairly high revs to pull away but one on the move it accelerated strongly and sounded fairly clean. What I still had after completing my test route is a hesitation between tickover and around ¼ throttle. My suspicion is that I removed too much of the cutaway in the earlier trials but overall fairly successful and better than the BVF carb. However, I do not feel this is a permanent solution and armed with the knowledge gained so far I will probably talk to the man at Surrey Cycles to see if he can configure me a suitable Amal Carb.

Inspired by my success with warning lights on the BK350, I have also made up an led

assembly to provide neutral and charge indicators for the AWO. As one of the holes is already in use for the flasher repeater, I had to make a dual led assembly with green leds for neutral and red for charging. The assembly is inserted through the cup bulb bracket and wired direct to the relevant point on the ignition switch. The assembly is sealed with blue tack which has been painted black. If it does not work in practise I can still buy some of the proper cup bulbs but at circa £10 each they are not cheap,

I have also found what I hope will be a long term solution to buying AWO and BK spares from Germany. I finally found a site which has an extensive range of spares at reasonable prices compared to some sites and which takes Paypal. Moreover, the proprietor speaks and writes English which will to resolve an problems. An order has been placed for seats covers, exhaust pipe, points and a speedo cable for the BK350. They also do MZ spares so it may be a single source of supply for all my East German bikes. The usual bugbear applies of course in the shape of the high shipping cost so orders will tend to be few but of high value and as with MZ-B may well include parts for friends.

The AWO is now back in the reserve garage awaiting delivery of the bits just ordered.

Saturday 16th November 2012

Quite a lot of activity though not much actual progress. I bought a 26mm Wassell Concentric carb from the VMCC shop to try to solve the carburetion problem. This is a clone of the Amal Concentric but considerably cheaper. I had to open out the fixing holes to match the AWO manifold studs and make up a new throttle cable before it would fit. Unfortunately it has made absolutely no difference to the bad running situation. Starting is not as easy as with my makeshift Mikuni though the tickover once started is reliable. The same symptoms occur above tickover with the engine refusing to rev and cutting out completely if the throttle is kept open. Back to the drawing board and I cannot even send the carb back as it has now been modified. Since four different carbs have all produced the same problem it seems likely that something else is not right. I have now removed the magneto and sent it to Dave Fisher for testing. If its is faulty and he can repair it well and good. Failing that I will convert the bike to coil ignition using the magneto to provide the points and a/r feature. I found a wiring diagram on the internet showing this conversion but have avoided trying it up till now as I did not want to risk damaging the magneto. If he gives the mag a clean bill of health, not sure what I can try next.

That was the negative report but a couple of positive things have been achieved. My last parcel from Germany included a shiny new exhaust pipe which fitted perfectly and new covers for the seats, blue on top and grey side panels. These were a bit fiddly to fit but both are now done. I have also replaced the red tape on the tank with blue tape to match but not very pleased with my workmanship. I cut down blue insulation tape but it's not really good enough so I will have to find some proper tape.

Friday 11th January 2013

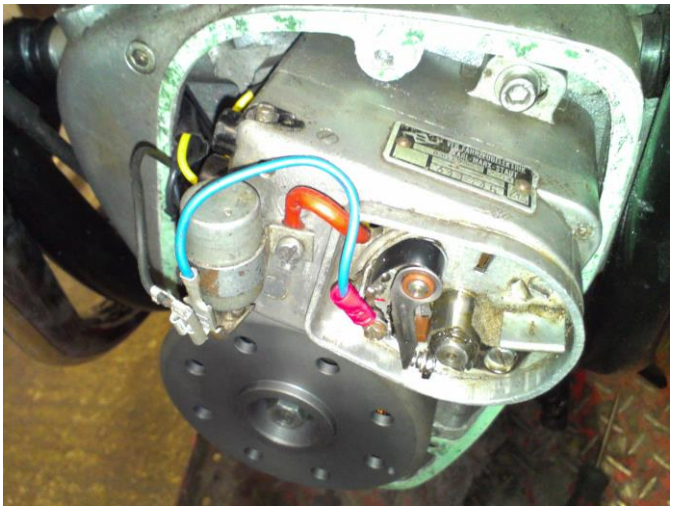
A long gap but in truth until now there has been nothing to report. Dave Fisher has been ill and it has taken him some time to get round to my magneto but he did finally ring through a report a couple of days ago and the mag arrived back yesterday. The news on the mag itself was not good. The spark was assessed as poor and under test got weaker as the speed increased misfiring and then stopping altogether. He fitted the new set of points that I sent

with the mag (which he felt were very good quality) but this made no difference. The good aspect was that this behaviour exactly mirrored how the bike itself behaved and there seems to be every chance that the carb problem I have been wrestling with is in fact a magneto problem. Dave was unable to repair the mag as he has no documentation tpo refer to nor access to any parts. Searches on German ebay and elsewhere have not identified a source of parts other than the points nor anyone who repairs this type of magneto.

The up side was that Dave confirmed that mechanically it was in good condition and would be quite easy to convert it to coil ignition, he even provided some instructions. So as soon as I can clear space on the ramp (The BMW R75 is still hogging this at present) I will attempt the conversion and update the log.

Saturday 12th January 2013

I managed to get the BMW to a mobile state and move it off the ramp so the Simson took its place this morning. Converting the bike to coil ignition was quite straightforward. On the magneto, the original (red) wire to the points from the low tension coil was removed and earthed. Not sure this was really necessary but it stopped it flapping around. The wire from the capacitor was connected to the points as was the black wire which used to be earthed at the ignition switch. This black wire was re-routed to the cb side of the 12v coil and a wire run from the ign switch to the sw side of the coil. Of course it took a bit longer to do as I had to trace the wires in the headlamp shell and make up the cables but still not a long job. Eventually I will mount the coil under the tank (assuming there is room) or somewhere less conspicuous but for the moment it's easy to access in case any adjustments are needed. The pictures show the result.

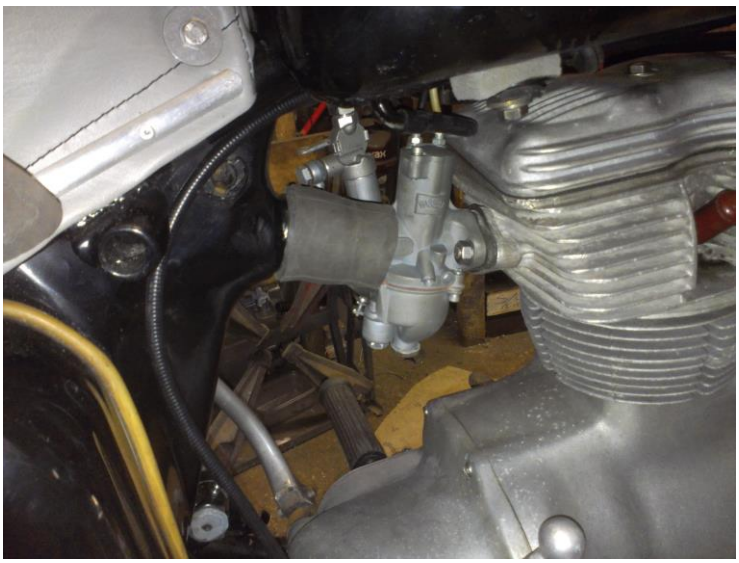


Next task was to set the points gap and check the timing. This required a visit to the computer to look up the owners manual for the procedure and settings. In fact it's quite easy as the mag is timed at full retard and there are some really clear marking on the flywheel visible through a hole in the bell housing; just like the BMW. Not sure how you could do the setting on full advance as the a/r unit is inside the mag body and not accessible. I will put the strobe on it later to make sure it's working ok.

Kicking the bike over showed a good spark so I was rather disappointed when it did not start immediately but after a good tickle it did run but was reluctant to rev and I was beginning to despair that I had not solved the problem after all. It would tick over so I let it warm up and eventually with a bit of help from the tickler I could get it to rev up so things were a lot better but still not quite right.

The tickover adjustment was erratic and when I looked at the run of the throttle cable it was kinked at the point where it entered the carb top because it was under a frame lug. I decided

to dismantle the whole assembly and re-route the cable and while I was at it I fitted the Concentric choke assembly since it was now clear that the bike was very sensitive to weak mixture and needed better enrichment when cold. I had not bothered previously as the original BVF carb did not feature a choke, just a tickler. Finding a suitable choke cable took a while but eventually it was all back together and we finally had a result. The bike starts easily and revs from cold provided it has been tickled and the choke is on. After a couple of minutes the choke can be lifted and it will continue to rev cleanly. The rain was pouring down so no chance for a test ride today but I think we are on the final lap with this problem. I used an MZ choke lever mainly because it was all I had but it is an elegant device and looks the part on the Simson. It is mounted by drilling and tapping a 6mm hole in the handlebar and I did make one small mistake. I should have fitted it as close as possible to the brake lever since there is presently no room to fit the mirror clamp. For now the mirror is fitted to the nearside but this is not ideal if it's the only mirror. Something else I will have to re-visit.



There were a couple of other hiccups along the way, mainly collateral damage caused by me messing around with the wiring in the headlamp. Main issue was the ignition switch which at this period used simple screw connectors and it was all too easy to dislodge cables. Testing everything after I had done the coil ignition conversion I found I had no horn and no stop light. After a lot of investigation and dismantling things (which were in fact perfectly ok) the cause was one disconnected wire at the switch. The generator warning light also started behaving oddly and the neutral light had gone AWOL. Both of these were leds that I had

fabricated as a temporary measure and had worked perfectly last time the bike was worked on. Not sure what the cause of this was but as I now had the proper cup bulbs, I removed all the led bits and fitted the bulbs together with the little coloured glass covers. Inevitably I managed to blow a fuse during the work and that added a delay whilst I found a replacement. Fingers crossed, everything now seems to be working fine so as soon as the weather allows I will take a test ride. Annoyingly, the tax ran out at end December so it will have to be a short and discrete ride. If all seems ok I will ride it over to Melksham for an MoT next week.

Monday 14th January 2013

The threatened snow did not arrive and the drizzle stopped by early afternoon so I took the bike out for a test ride. It started easily with a tickle and full choke and settled to a steady slow tickover. All went well initially but each time I eased off the choke the engine would die even when I had got it well warmed up. Even when warm it did not exhibit the lumpy chugging you normally get when a bike is far too rich. The exhaust did not appear overly rich, what smoke was being emitted was more like condensation which you would expect on a cold winters day. The plug also did not seem especially rich, if anything the central electrode looked white and weak.

Now I am really puzzled, looks pretty much as though the magneto was a red herring and though not in top condition was probably not the culprit. At least I can now ride the bike and continue experimenting. First task will be to fit a much larger main jet. As far as I can recall the Concentric still has the 160 with which it was supplied. I found a 220 and a 250 on the shelf so I will try the largest one first to see what effect this has.

Tuesday 15th January 2013

Changing the main jet had no effect on the problem. To be honest I was not really expecting it to work as main jets normally only have a controlling influence above ¾ throttle but it is the easiest thing to change. The next alteration was to raise the needle to its highest position. The improvement was immediate and it is hard to credit that such a small change could have such a dramatic effect. The engine would rev freely even without the choke in operation. I took the bike for a ride round the block and it was transformed. Looking at the plug afterwards, it still looks a bit pale so I think the mixture is still too weak. I have ordered a .107 needle jet and a 190 main jet to richen things up a bit. Standard settings are .106 and 160. However, I finally feel that I am getting somewhere with the Simson and it's a delightful bike to ride. It does make me wonder whether the magneto is in fact ok to use and once I have fine- tuned the carburetion I may well try reverting to magneto ignition but leave the coil and its wiring in place as a precaution.

Today was not entirely a success story though. Firstly now I can finally ride it properly it seems very low geared and the speedo is wildly optimistic. My gut feeling is that it is fitted

with the sidecar bevel gears. Unlike BMWs, the ratios are not stamped on the casing, but on mine there is a serial number and a large letter ‘S’ stamped alongside which may give a clue (Seitenwagen is the German for sidecar). Not a show stopper even if it does turn out to be the wrong gearing, I imagine I can get one eventually if I think its justified.

The second problem was an own goal. When I attempted to ride the bike for its road test, there was a total lack of forward motion. Visions of slipping clutches or stripped bevel gears loomed large but the solution was much more pragmatic. I had forgotten to tighten the clamp bolt for the rear wheel spindle and possibly the spindle nut. Anyway the spindle had moved enough to allow the wheel to disengage from the drive splines. No harm done as far as I can tell and once diagnosed, it was soon fixed. It did prompt me to run a spanner over all the other nuts/bolts as well.

Monday 28th January 2013

The news jets finally arrived on 26th January. I fitted them both and set the needle in the centre groove to weaken it slightly now that I had the larger needle jet. I am not totally convinced that I need the larger (190) main jet and it will take a while to find out as the motor needs running in so full throttle work is not on the agenda for a few hundred miles. The bike starts easiy with just the choke which can be pulled off within a few moments. Within the limits of the rev band I am prepared to use the carburetion now seems clean and a test ride was completed with no problems.

In fact I now felt quietly confident about the bike so this morning I rang my local garage and was offered an MoT for 4pm today. Of course it was pouring with rain by the time I needed to leave and my normal road to the garage was flooded (again) so we had to go the long way round. Speed was kept down to an indicated 60kph (just under 40mph) though I am pretty sure the speedo is over-reading and it felt more like 30-35mph. The engine did not miss a beat there or back and would have gone a lot quicker if I had wished. The low gearing meant it would pull top gear practically everywhere even up hills without any stress. Not only did I return home with an MoT but the local post office was still open so I taxed it as well. So the Simson is finally legally on the road.

There are still things I would like to do. The tank needs finishing properly and now that I am generally happy with its performance I will investigate the options for this. My preference would be to buy an already refurbished tank from Ebay Germany. I have seen them come up once or twice and for lot less than I would pay for a professional job in the UK. The issue is finding a seller who will accept Paypal and ship to the UK. Of course now that I am looking seriously, none will appear. I also want to fit a bicycle speedo so that I can get a better idea on the accuracy or otherwise of the bike’s speedo. If it turns out that I have a sidecar geared bevel box then a solo type will also be on the shopping list.

One thing I did notice was a slight wobble from the front end which is almost certainly wheel balance. The front wheel itself is high on my wish list for a rebuild. The front tyre came with the bike is of East European manufacture unknown age. Though it’s perfectly legal it was on my wish-list for replacement anyway. I had started to fit indicators, indeed the front ones were functional and had to be removed for the MoT as I had not worked out how to fit the rear pair; this task can now be resumed. There is of course the question of the ignition system. My coil conversion seems to work well though now the carburetion is pretty well

sorted, I am tempted to reinstall the magneto and try that as well. If it is to remain coil ignition then the coil and wiring will need to be moved somewhere less obtrusive and vulnerable like under the tank. Therein of course lies another small but irritating problem, the tank which will have to be fully drained first due to the connecting tube linking the two sides. I am still trying to figure out a way round this matter.

It may seem like a daunting list but none are so urgent as to prevent the bike being used and can be addressed as time and money become available. Overall I found the bike a delight to ride, The expected engine vibes were not evident at the speeds I was using, the riding position is comfortable all the controls fall nicely to hand and the brakes are superb.

Below is the latest picture of the bike which has now reverted to blue trim following the fitting of the replacement seat covers which I seem to have overlooked until now in the diary. The blue trim on the tank is causing me some grief as it refuses to stick firmly to the tank. I suspect the pinstripe roll had been on the garage shelf over long and has lost its adhesion. The gold pinstripe worked perfectly.

Waiting for a fine day to take a picture

Saturday 9th February 2013

Not a lot to report as I have been working on the BK350 – see separate report. I fitted a bicycle speedo and calibrated it to the front wheel this did confirm that the bike speedo is over-reading by a substantial margin. Whether it is because it's the wrong speedo altogether or because the axle ratio is incorrect I don't know. It does tend to support my theory that I have sidecar ratios but I have yet to address this matter other than to watch Ebay.de to see what they cost – so far only sidecar ratio boxes have appeared and they seem to fetch very little which may mean that solo boxes are hens teeth. We shall see.

The front wheel did not respond to well to my attempts at clearing the pronounced wobble. I decided to btke the bullet and go for a new chrome rim and s/s spokes. Stripping the wheel was quite easy the nipples all unscrewed easily must better than the MZ one which frequently seem to corrode to the spokes. The condition of the rime was quite good and a I was tempted to have it re-chromed but decided against it. I will hang on to it anyway as someone may be glad of it. I gave the hub a clean and polish in the lathe, finished on the mop and it is now down with Brickwood wheel builders near Salisbury. I am hoping they will bring it up to the Shepton Mallet autojumble on 2nd March as this will save me a journey. Whilst I am at the a/j I will buy a new 3.25 x 18 front tyre to match the new rear I bought last year. The old front tyre is perfectly sound but of unknown age and make. It will probably get used as a rear tyre for one of the MZs in due course.

In slower time I am watching German Ebay to see if a suitable tank comes up for auction. Preferably one which has been already refurbished as they seem to go for reasonable prices; much cheaper than I could get one done in this country. Failing that I will get a sound tank and have it repainted to my preferred colour scheme of black with silver panels and gold/blue lining.

Monday 11th March 2013

Rang Brickwood today and they confirmed the wheel was done so I drove down to West Grimstead and collected it this afternoon. It looks really good with the chrome rim, stainless spokes and the hub all polished. Sadly I was unable to get the matching Mitas H06 tyre at Shepton Mallet so I have re-used the original tyre for now. An hour in the garage tonight saw the wheel back in the bike and everything re-connected. I will take a picture as soon as its stops snowing though I doubt it will look that much different on film as the camera normally disguises many imperfections.

One other thing which has been annoying me for a while is the blue lining on the tank. The tape I used seems to have very little adhesive qualities and will not hold the bends required without lifting. I have now removed all of it on one side and painted the lines instead. Not a brilliant job but overall I think it looks better so I will do the other side later as well. This is less urgent as the tape seemed to stick better on that side. Still watching German ebay but no suitable tanks have appeared so far.

I kicked over the engine and it started easily and top end rattle apart sounds lovely. Now it all it needs is some better weather to carry on the running-in process. I have written to a friend in Germany to ask advice on the bevel box. Mainly to establish what type I have fitted at present and also how I can identify a solo box should mine (as I suspect) turn out to have sidecar gearing.

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