THE STORY OF 'PLONK" A FORLORN MATCHLESS G 80

The beginnings of this tale are shrouded in the mists of time. At some stage during 1952 a G80S Matchless, now named 'Plonk", rolled out of the Plumstead Road Factory in London, UK, all gleaming with new paint work and polished Alloy covers and then set off on a trip to the opposite side of the world where it sat in a dealer's showroom until purchased by some bright-eyed chap .One presumes it was a chap, tho' one never quite knows these things. Sometime later, in the mid 1960's, a rather fun loving young medical student decided that 'Plonk" should become his, a transaction involving money was inevitably involved and Plonk" had a new owner.

Medical study of the human form and motorcycle maintenance skills are not necessarily a match made in heaven, but 'Plonk' remained as a semi- reliable form of transport for the more sporting moments in this chap's life. Over the years the idea of keeping up with the more modern advances became entrenched in our, by now a Registered Medical Practitioner's mind and later model gear boxes, magnetos and wheels were fitted to 'Plonk'. Some of these 'upgrades were not quite as straightforward as one would have hoped, and things ended up somewhat mis-aligned and not being as good engineering practice would dictate. 'Plonk', however, was loved and taken out from time to time with the ride being somewhat of a gamble, as the arrival back to the home base was less than certain. 'Spare Parts in the form of other donor G 80's and their ilk were added to 'Plonk's' treasure trove of 'just in case' parts and the 'Rock Island Retirement Park' became well littered with rusting and much past its 'use-by date' bric a brac. Many years of semi-retirement was the 'Lot' drawn by 'Plonk,' with its owner discovering the joys of being a pensioner. Plonk attended a few local Classic gatherings, and in between these just sat and slowly recycled its oil back into terra firma.

One morning 'Plonk' became an orphan, as our dear friend left us and pursued alternative areas in which to exist. Much sadness enveloped all who knew our friend, many were the hugs and cuddles bestowed upon his nearest and dearest, but 'Plonk' was alone and felt unloved. Tears of oil seeped out from 'Plonk' as it sat, not knowing its fate. In amongst the sad detritus of an unexpected loss, 'Plonk' suddenly felt surplus to requirements and forgotten. As always, there is a savior in these tales and after much scrabbling around under houses, in drawers, on shelves, all the years accumulation of 'Plonk's' "Spare parts" were brought to light and loaded onto a trailer where 'Plonk' joined it all. A bit of a drive and all was delivered to a large shed where it all sat for a couple of months, until space was made in another shed, this one full of enthusiasm and spanners. 'Plonk' was sat up on a bike lift and surveyed with the view that, with some corrective surgery, as well as a regime of therapeutic drugs, it once more it could become a thing of beauty and enjoyment. 'Plonk' started to feel as if there was a place in the world for it to live and be loved once more and willingly submitted to a full body examination. The prognosis was promising, but only if much fettling could be heaped upon it and so it came to pass: -

At this point AMC purists should put this tale down and go for a long, quiet walk down a leafy pathway, for they are about to have their sensibilities well ruffled.

The first thing to be noticed was the dilapidated state of things, the years had been somewhat unkind and efforts to customize 'Plonk' had left it in a rather disheveled and sorry state indeed. A French blue petrol tank, complete with a rusting Triumph luggage rack, a button upholstered chopper seat and two well buggered alloy mudguards did little to enhance things. The motor was coated in a mixture of burnt oil and black paint, with rear crash-bars and a rusting

Matchless Megaphone completing the picture. The front-end of the bike was no better, with battered and rusting fork covers attempting to hide the standard puny little fork stanchions, worn to the point of being scrap metal. A cunning plan to deal to this area had evolved, as a pair of very serviceable BSA forks lay within this new cave of wonderment that was now 'Plonk's' home and in short order parts were made to enable the alloy sliders of the originals to be grafted onto the BSA bits and with a pair of Triumph springs and gaiters, plus a donated pair of old Ariel headlight 'Ears', and 'Lo', we have a 'Licorice-all-sorts' of a front end. A very kindly chap in the Covid-stricken North donated a set of Norton P11 hubs and these were grafted in as well. A dummy assembly run saw all in alignment with things going up and down with nary a hiccup and suddenly there is a front end that looks much better and actually works. The wheel offset was established and now scrimping, and saving was undertaken to get the wheel fitted with a rim that does not consist mostly of oxide. The BSA lock-stop\steering damper was beaten into shape and fitted, and the whole lot topped with a set of bars from the in- house 'selection' available, which also yielded a set of control levers, twistgrips etc. Now to the other end of the machine.

It was obvious, to even the severely visually impaired, that something was somewhat out of alignment when regarded from dead astern. The original Jampot suspension units had been discarded and lay within a box, kept company by another pair, in an equally seized and dilapidated state. The bike had been fitted with a pair of the later model Girling units that sport a different top mount and do not fit the frame without some serious modifications being performed.

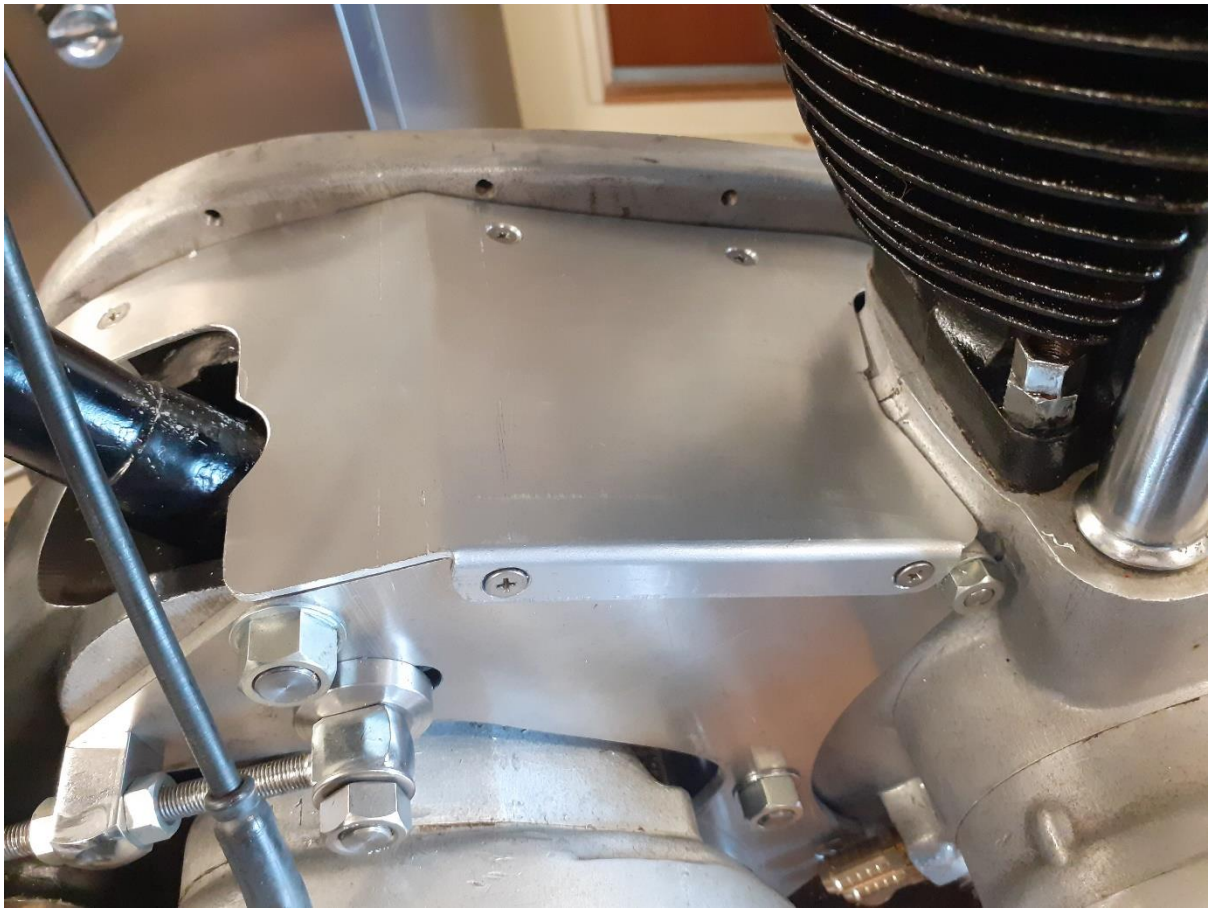
Flying in the face of reams of sound advice, I decided on an attempt to restore a set of these old Jampots, keeping that part of 'Plonk' true to its roots. Deep thought and long visual contemplation, plus, after the purchase of several expensive parts, saw me throw this idea out and fit a set of new Hagon units. All of this investigation revealed that the rear section of the frame was some ¾" out of alignment and the swing arm fork was also bent. Fortunately, there was another swing arm assembly in the boxes of parts, and this was straight. The pivot for same was well worn and there were also some worn sections on the large alloy mount on its bearing faces. I mounted the casting up in the lathe and skimmed both faces to get things back to flat and made some wider bushes to take up the extra clearances. The rear section of the frame responded well to some persuasion to restore its alignment, so now we have things as they should be in that area of the bike. Plonk just thinks it has had a hip replacement!

I am not sure if it just happens that way, or it is a design feature, but these old things constantly develop a covering of oily grit over their entire surface. It could have been a far-sighted future-proofing plan back in Plumstead Road that foresaw recycling of oil as a good thing, or, on the other hand it could be a system of ensuring things do not corrode and will come apart easily, too easily in some cases and sometimes even in an unplanned manner, as has been known by devotees. The result was that everything I touched covered me in black goop. Bold action was called for and the whole plot was disassembled, cleaned and re-assembled, thus providing a more welcoming place to be every morning as I ventured into the shed.

In short order I discovered that both Primary and Secondary chains were well out of alignment, by some 3/8". This is due to the fitting of a later model AMC gearbox, not a bad thing, without the required checks being done. The gearbox is designed to have a Norton clutch fitted to it and a different drive without the engine shaft shock absorber. 'Plonk' still had the Burman 5 spring clutch and the engine shock absorber. Not only was the chain well out of alignment, but the clutch mounting splined bush butted up against the end of the sleeve gear, binding the whole lot up. The splines on the bush were worn-out completely, so a new one was obtained and then 0.150" was shaved off the rear gaining the clearance between that and the end of the sleeve gear. The clutch

basket was absolutely knackered and a new one of those was obtained at significant expense. This also halved the misalignment on the primary side, but spinning the whole plot revealed a good-sized wobble in things. A day was usefully spent in obtaining a lump of 4140 steel and fashioning a pair of support washers that would ensure that the whole assembly would end up true. These needed to be sent to a clever man and made very, very hard, then ground so they are flat. Making then a tad thicker has removed the problem of things not being able to be tightened as Mr. Burman designed. A dummy assembly revealed that the wobble had gone, so it was a good outcome and the beer at the end of the day tasted all that much more refreshing. The joys of old machinery are many and varied! A slightly wider spacer behind the engine sprocket had things as they should be, alignment wise.

Making up a complete new set of control cables soon revealed that the primary chain case was now being fouled by the clutch, particularly when operated. A spacer behind the engine mounting point and a good 'tweak' of the inner case solved that issue. However, there is a hole the size of the 'Chunnel' where the gearbox input shaft enters the rear of the chain-case. How any oil is expected to stay within the confines of the case is beyond me, some serious metal work will be required to affect any sort of seal in that area. Not quite sure what it will look like, but it will give me something to mull over as I await sleep one night.



It is marvelous what a night's sleep and a conversation with a supplier of all things desirable can do. In this case it is the acquisition of a lovely alloy chaincase, that not only has a sliding thingy-whatsit to seal the gear box shafts but is more likely to retain the oil by design rather than luck. The crankcases I have are the earlier ones, so an adaptor piece was needed to mate the two together. The lathe soon produced such an article and with a secondary support fitted just in front of the clutch from the inner case to the engine plate behind, the whole plot was rigidly mounted and fits as

if the Collier Brothers themselves had thought of it. Then there is the small matter of a bunch of ¼" BSF screws required to hold the two halves together. Not the most common item in the corner dairy, however a hunt around and a phone call, which saw the bank account dip, replaced by a set of screws, which arrived a couple of days later. The original set-up had a cover of sorts over the space between engine plates, I decided that with a bit of cunning cardboard shaping I could make something that did this and more, incorporating a cover/chain guard over the secondary sprocket also hiding the unattractive gap between chaincase and engine plate. The cardboard was duplicated in alloy sheet and now it all looks as flash as a rat with a gold tooth.

I had a new set of engine plates cut from 6mm Alloy plate, as the generator was not going to be re-fitted and there would have been an ugly hole left. This of course meant that new spacers were required to fit various ancillary bits and pieces. Whilst on the 'beautification kick' I made a whole set of new studs etc to hold the bike together. The slightly thicker engine plates meant some were too short, others were just plain wrong. Now we have a bunch of new nuts and washers making things look much better plus a bit of a fiddle around the oil intake and exit points on the motor needed to happen due to the thicker plates. I also discovered the later gearbox fouls the plates on one side restricting the movement to about ¼". A little more carving of Alloy being required to address this. Once the new swing arm bushes were fitted and that fitted to the frame it was possible to sit the rear hub assembly in place and set up the secondary chain to run in alignment. A couple of spacers and the job is done. I plan to forgo the 'Quickly detachable' part of the rear wheel assembly to retain the snail cam chain adjusters, so I needed to find a chap to cut a pair of keyways in the new axle I had made. Once all this was done the whole lot was in alignment and firmly held together. Whew! Now for the fun part!

A good friend who very skillfully makes all sorts of things, donated a semi-finished alloy competition style petrol tank to the project and together with a ¾ length seat that was in the vast array of 'parts', will transform the look of things. I also plan to fit a suitable air filter assembly, along the lines of the last competition bikes produced, which in turn requires a left-hand oil tank to be manufactured. My rudimentary skills at metal bashing will be put to the test once more.

The first point of attack was to try and tuck the carburetor in a little closer to the centre of the bike. I fashioned a new inlet stub and together with a 'bent' piece of radiator hose I have managed to do so. The carburetor is a new MkII Amal, 32mm bore, which just happened to be in the "will be used one day box" and it fits in a treat. A large K&N filter from the same box can be hidden away behind a cover that will also conceal the battery that will operate LED running lights, brake light and horn on a total loss system. Jacinda will be so proud I have a 'hybrid' vehicle!!

Rear mudguard fitting time. It seemed to be logical to get this into place before any real work took place on the side panels/oil tank design. Releasing a new rear alloy guard from its resting place in the "Come in handy one day" Dept. saw some serious hitting and squeezing of the lower extremities performed to wiggle its way down past the swing arm and hook up with the lower mounts. My bedside reading some months back educated me as to the way the factory mounted things in the alloy mudguard department. A reinforcing steel strip is fitted inside to assist in the life expectancy of these items. Some 2mm steel strips were beaten and fashioned to follow the inner contour and the job is nearly done. Once all is completed, they will be epoxied in place to prevent water setting up the dreaded electrolysis and rendering my efforts useless. The guard is now well supported and only requires the forming of a rear loop to help the numberplate/tail-light assembly remain permanently affixed.

Flushed with this success, I made up a front ‘hoop’ to mount between the front fork sliders and hold the front guard in position. My metal bashing skills were once more tested as the thing had to have a compound curve to best fit. The final mounting holes will be drilled once the front wheel has been built and installed. Again, a lower support ‘hoop’ will be needed.

The summer months provide a supply of empty beer cartons and having our planet’s wellbeing in the forefront of my mind the cardboard is used as pattern material for designing things such as the LH oil tank and the air filter/battery box covers, of course if a mistake is made then more material is required. The more material requirement has the side effect of increased beer consumption, which in turn, reduces the effectiveness of the design process, requiring more cardboard ----! You get the picture. No one ever said the challenges of being a design engineer were easy!

The fitting of the secondary chain has provided the dimensions for a chain guard, but the original is a little out of line with the different gearbox/ rear sprocket set up, so a call to yet another clever chap, who has a purpose-built folder to make such things, was made and hey presto we had a plan. The inevitable beer carton was drawn on, cut out, tried, trimmed, tried again, a little more trimming and things were at a stage where a venture into metal was the next step. Due to the previously mentioned re-alignment of things a clever bracket was needed to support the swingarm pivot end of things. This, once fabricated and installed, provided the final ‘hard point’ for the chainguard support. A visit to the local sheet metal shop provided the raw material and a serious ‘measure twice, cut once’ session released the blank from its sheet form. The ‘Clever Chap’ and his folder were pressed into use, and we had a chain guard as a result. Some inventive nuts to fasten it to the axle end of the swing arm and all is now in place. The wheels had arrived back from having spokes and extremely attractive period valanced alloy rims fitted, tyres were mounted and now the whole plot looks very much more as motorcycle should once more. Clearance for the tyre was needed on the chainguard, giving rise to some metal removal and the rear mudguard needed to be flattened to clear the chain guard. Finally, all was done, wheels revolve without fouling and chains don’t hit anything as they perform their function. Once that was done the final dimensions for the oil tank could be sorted

Everywhere one looks at such a project there is a ‘little thing’ requiring to be designed, made, and installed. The final moments of cognitive thought each night are filled with the planning of all this stuff. Things have an order to be made/fitted as they inevitably impact on something else and in short order one finds oneself re-making things if a cunning plan is not followed. To this end I needed to ascertain the fully compressed position of the rear suspension so as not to have the recently constructed chain guard smash into the yet to be constructed oil tank. Dismantling the rear suspension units to remove the spring is a job yet to be done, so the easy route of ringing a friend to learn the dimensions was the way forward. I made up a strap to hold the swing arm in this position and then set about cutting up the inevitable cardboard to arrive at a shape that is pleasing to the eye and functionable as an oil tank at the same time. A couple of mounts will need to be added to the rear frame assy. to hold the tank in place via its required rubber mounts.

All the scraps of cardboard were thrown into the rubbish and the final shape of an oil tank, and a matching battery/air filter cover have resulted. Figuring out which of the myriad batteries would best suit was the next task and some head scratching and a call to our friendly battery man saw the item required delivered. Again, the cardboard was called into service and then a most intricately folded alloy platform was fitted with the battery sliding in very successfully.

The pieces of cardboard that would eventually hold oil were finally checked and still seemed to be up to the task, so the next step was to make a couple of wooden ‘bucks’ to beat the final alloy into shape over. Fossicking around in the “Don’t ever throw it away”, pile of timber yielded a suitable lump, then the shape was transferred from cardboard to wood and band sawn to order courtesy of the local ‘Men’s Shed’. Now, finally the time to actually make the jolly things had arrived. Some controlled hitting with a wooden mallet has produced the two shapes and they are now ready to be welded up.

The easy side is the LH one, the battery cover, as it is open at the back, so once the corners have been ‘glued’ and dressed to the final required shape, it is complete. Its mounting is relatively straight forward, with a simple bracket requirement. The oil tank is a much more of a demanding mistress, however. Starting from the top it requires a filler with a screw top. A breather is also required to be fitted to the top surface somewhere and these are fiddly things as a baffle is really a necessity to allow air only to escape. The feed and return pipes are needed obviously, the feed requiring a filter of sorts to protect the oil pump from hedgehogs, small rodents and misplaced spanners that can find their way into the container, it needs to have a back welded in place and mounting points fitted. The biggest issue is the small space to fit the feed and return lines under the battery support and above the chain guard. The idea of fitting an oil filter in the return line was rejected as advice as to the power of the return pump was heeded.

The laws of our land dictate that a registration plate be fitted, together with a tail/stop light so some inventive bending and tweaking of a couple of pieces of alloy strip have seen a mount for same materialize. A mount for the speedo head will also be needed at some later point in time, which will incorporate guides for the control cables to keep things in order. After some serious fettling the new drive unit on the rear wheel was made to work, a cable run and with some serious effort in spinning the rear wheel I could get the chronometric device to register a small flicker, success once more!

The bike has been fitted with a later model rotating magnet magneto, somewhat bulkier than the original. This fouls the front of the barrel, which is not the later type thus preventing correct chain adjustment on its drive. Looking at pictures of later models it is apparent that a man with a hacksaw in the factory dealt to the fins in that area to solve the problem. The same treatment was meted out to the one fitted to 'Plonk', so that little issue is behind us now.

I needed some visual stimulation to keep my dream alive as the myriad of silly little tasks seemed to constantly get in the way. For this I decided that the polishing of the outer alloy cases of the motor primary and gearbox were required to be addressed. Nearly seventy years of nicks, scratches and corrosion had taken its toll on the outer surfaces of these items, rendering them less than pretty. A week was devoted to metal removal by use of a dreadnought file, followed by emery paper and then progressively finer grades of wet 'n' dry sandpaper at the conclusion of which a touch on the buff revealed a mirror like finish. It makes no difference as to how Plonk will perform, but does it make it look better? Does it what? So now it sits all gleaming in certain parts and the result is that project enthusiasm is once more on a high. It is a filthy job to get all this alloy gleaming and one has no fingerprints left on the thumb and fore finger of each hand at the conclusion of the task, but it is worth it to see the final glow of the covers.

The next task is to steal a gas set from a friend and tack all the little brackets for oil tanks, mudguard stays and brake light switches in place, then get them welded and the frame sandblasted and primed ready for a coat of magic rattle can paint. I was most impressed with the results of a friend's repaint on a G9 courtesy of a rattle can, so shall attempt to emulate his expertise. If this results in an acceptable job, I will experience unbridled joy, a nice lass, Joy, bridled or not!

The New Year had arrived and after the obligatory 'silly season' had passed I sat down and contemplated the exhaust pipe and how it was to be persuaded to follow the route mapped out in my mind. I wanted to tuck it inside the footrest on the RH side, so it was to be a rather convoluted shape to do so and duck under the gearbox before pointing skyward and having the 'Muffler' fitted

that I had purchased from a rather industrious Chinaman. This, together with a very expensive piece of bent tube from Armours in the UK, purchased unfinished, as I knew it would need to be well 'adjusted' before achieving its final form, would constitute the exhaust system. The first thing that was obvious was how loose the pipe was in the cylinder head, close inspection showed the head to be belled out at the exit. The lathe was pressed into service and a swage was turned up to press the required shape into a short piece of tube. This filled the bill well and then the serious cutting and welding commenced. I had purchased three 45-degree bends, and these were cut, reversed, tacked and finally the required pipe was constructed. In the myriad of parts that came with 'Plonk' was a set of the earlier footrests that were designed to be mounted on the inside of the lower frame rail, by mounting the RH one on the outside room was available for the pipe to pass inside. The footrest will need to be shortened by about an inch to bring it back to the original position, more welding required! The result is rather pleasing, a small mounting bracket was bent up to secure the muffler and the job is done. The price of chrome plating has pushed me in the direction of clever paint, which will do fine and there is always the option to chrome once I win a major Lotto prize!

The next major job is the tank. I had been given a wire frame that is used to fit the alloy skin to when making such items, this needs to be stretched by about 40mm and then a tank bottom needs to be made that will provide clearance for the motor and carburettor cables etc. much cardboard is now being cut and fitted to arrive at a template shape that will need to be transferred to alloy sheet and bent into submission. This is my first venture into alloy tank manufacturing, not counting the oil tank, which was fairly simple by comparison. I am fortunate to have a local 'tutor' in the art of tank manufacture so will lean heavily upon his expertise.

Somehow, I became diverted and ended up playing with the treasury dept and refurbishing the motor and gearbox. This was probably due to being a bit of an Ostrich and hiding my head in the sand regarding the tank construction. If I can't see it, it doesn't exist!

Lurking in the back of a shed, buried deep in the labyrinth of Onekawa, was a '54 complete bottom end for a G80, this has a couple of advantages over the '52 unit currently sitting in the bike. This grime covered lump was hauled out, stripped of its ancillary bits and pieces, then pulled apart. Basically sound, but worn in areas that need some loving care, read money! After removing many layers of crud, the component parts are now sitting awaiting the arrival of 'Goodies'. I am fortunate to have close by, a chap well versed in these motors, who also has the required bits and bobs to pull them apart without damaging things and furthermore, to reassemble things in a correct manner. Someone in a few years is going to get a very good bike out of all of this! At the end of this mix and match, the timing cover that is currently fitted to the '52 motor that is in the bike, as the above photo shows, will be reunited back to its original set of cases, "Good God, originality"?

The first job the next morning was to press the old timing side bush out of the case, so with 'Senior Management' out of the house, the oven was filled with a lump of alloy and heated. This filled the house with an aroma of 'Bike', but with a few hours on my side hopefully things will be returned to odours of domestic bliss before SWMBO returns. Success! All out and no burnt fingers.

The Drive side was dealt to in the same way and now both cases can be sent out to be vapour blasted. The flange area where the primary chaincase attaches was badly worn so whilst the bearings were and before being blasted, I set it up in the lathe and dressed that up. I will need to make a new adaptor piece, which is fairly straight forward and then these cases are ready for all the newness that is about descend upon them.

The next bits to be attacked were the flywheel assy., bloody heavy lumps, so I set about removing the big end nuts off both ends of the crankpin. Thank heavens for rattle guns! The nuts offered little resistance to the belting these tools can administer and both came off with ease, now to find a suitable press? I am fortunate to have a friend who has a very good press and in short order the 'Wheels' were apart, and a critical inspection revealed that all was well past its use by date! An order was sent off and a parcel of goodies will arrive in due course no doubt.

I busied myself, cleaning out all the nooks and crannies of the cases after they had been blasted and they are ready to be re-assembled once we have the wheels back together and trued up, fortunately the oil pump is in good condition so will do another turn.

The courier turned up the other day with a box full of goodies and one not so goodie. The timing side bush, new, was badly made with big chatter marks in the bore and too big a bore dia. to boot, not sure what to do about this, the idea of making one myself is starting to look rather appealing, but they are an intricate wee beastie to duplicate. Undaunted, I pressed in the drive side mainshaft and also fitted the second bearing to the crankcase, all the while cogitating over what to do with the timing side drama.

Turning aside from the motor I removed one of the lower frame rails and 'lightened it' by removing a large lump that was the original main stand stop. The decision to dispense with the stand was taken some time ago and this lump was impeding the run of the oil lines. I also chopped about 20 mm out of the RH footrest and will need to re-weld that together with the assistance of a clever welder chappie. So now the exhaust pipe is complete, apart from a small bracket needed to be welded onto the frame; the oil lines all run nice and neatly and once the footrest is back in one piece, that whole area is completed.

Back to the motor and its timing side. After several mind clearing rums, I decided that I would throw caution to the winds and make a bush, so after liberating a piece of bronze from the depths of the shed I proceeded to throw gold coloured swarf all around the Lathe. Finally, the blank emerged and was transferred into the Mill where some very little utilised skills were dredged up from the past and after some more swarf production, a serviceable bush appeared. Why did I not do that initially? I don't know, probably it being so long ago that this sort of thing was done I doubted my ability, who knows? Now all that remains is to press it into the case in alignment with all the holes, cutouts, and recesses, what could possibly go wrong? Well! The answer is just one thing! All was fitted, all holes and cutouts line up, the oil pump still fits and rotates, it's just the reamer and pilot that arrived has a tiny issue, the pilot won't fit thru the bearing it needs to, to line things up, Bugger. The vendor says "sorry, it's the best we can do." Back to the lathe to make up a dummy sleeve and back to the oven to remove the bearings in the case to fit the dummy sleeve, Double Bugger!!

The drive side bearings are now totally confused as they have been in, now out and then back in once more, but all is now well. The new bush is reamed to size, the shaft is firmly pressed in and tightened up, all that remains is to fit the big end bearing and the bottom end is complete. Whilst waiting for the rod eye to be honed to the new big end bearing, I took the time to check the end float on the two cam shafts. The easiest way to deal with this is to position the bushes on the crankcase and timing cover so they act as thrust bearings, thus avoiding the use of skinny little shims that are liable to break up. Pressing, tapping, and using sheer will power sorted that out. A visit from 'One Who Knows' about these things pointed out that the cam follower bushes and followers were showing signs of wear that will produce a noisy motor, he happened to have a 'Tool' to remove these bushes, which in spite of being reassured by another 'expert' who claimed that a bit of heat and they will fall out, actually needed a lot of persuasion to be removed, but finally they were. The followers were sent off to be made round and parallel once more and a very expensive piece of bronze was ordered to craft a replacement pair from. Reamers and broaches were obtained and once more, expensive swarf was produced in the lathe.

The conrod had been returned with the big end eye honed to size and so the delicate task of pressing the whole shebang back together began. I have to say that it went rather well, my large arbor press was up to the task, and I managed to get things fairly well aligned. A trip to a friend who has a much gruntier press ensured all was really snugged up and then we addressed the final alignment. A large socket and bar got all really tight and we have a flywheel assy that is somewhat less than 0.0007" away from perfect. Close enough for this old girl methinks.

The assembly of the crankcases was a fairly straight forward affair, tho' how one is to keep them oil tight is a bit of a mystery as the mating faces are very thin in some places. One hopes! Next task was to get the cam timing as close to spec as possible, made a little bit difficult by struggling to finalize the degree specs for 'SH' cams. Once this was established, many thanks to my southern mentor on such things, I then had to decide if to time it as a 500 or a 350. The 350 has the inlet a tooth advanced, giving a bit more overlap. Gurus from afar maintain that this produces a motor with a little more 'pep', so that is what was being aimed for. The purchase of a crank pinion with 3 keyways meant that more effort could be expended to accomplish things the way I desired and after much fluffing about I have arrived at a timing I am happy with. It is not the biggest job in the world to change things if I am all wrong! A final dollop of assy lube on things and all was hidden away behind the timing cover.

Now for the cylinder head. The inlet port, even to my untrained eye, looked as if it could be improved. Knocking out the inlet guide revealed some ugly corners and lumps that were not being helpful to any inlet charge attempting to get into the cylinder. An attack was called for and armed with burrs, emery bobs and a fancy motorized thingy-wotsit, I started throwing British alloy around the workshop. After about 30 minutes things were looking considerably more 'flowy' and the mating of the inlet tract to the short manifold was also completed. A final whistle through with an emery bob made it all look very much better. The replacement inlet guide was dealt to in the lathe to reduce its blocking ability and then driven back it to a well heated head. The valve seats were next to be played with. A very nice set of cutters from a friend produced a seat that with a bit of lapping was looking very good, but wait, there's more! The smart people tell us that things are very critical as to how the seat is approached and left by the incoming 'mix' so a 'throat' job and a blending of the valve was done and now I have a seat that is a compromise between ideal, 1 mm and now a reasonably durable 2 mm wide. Woohoo! The exhaust tract was given a little tickle to remove some obvious obstructions, the guide was in good shape, so was left alone apart from being cleaned out by a reamer, some lapping and we are ready to assemble the whole shebang. Hairpin valve springs

are a doddle to assemble if one has the right tools, I don't, so spent a frustrating time to get all in place and as it should be. Finally, the job was completed, and I walked out of the shed and went for a ride on the Yamaha!

The following day saw the fitting of the cylinder head, which on these old things also means getting the 'crush' right for the pushrod tube seals. I had elected to use Viton 'O' rings, instead of the original tubular seals, so sorted out the correct number and checked the fit to ensure there was sufficient squeeze on all rubber things to retain oil where it should be. A trial assembly of the rocker box revealed that the pushrods required to be shortened to compensate for the 3 mm machined off the barrel earlier. The ends were removed, 3 mm carved off the end of the alloy rod and the ends replaced once more. Now things fit once more!

The box of gears was the next thing to be attacked. Due to a happenstance many years previously an AMC box is now resident within 'Plonk'. This is far from a bad thing as they are very fine pieces of kit, but, being of unknown state, I felt it was prudent to examine its inner being. Once on the bench and having been given a quick clean, I stripped it down and was pleasantly surprised as there was very little wrong. The first gear layshaft bush was knackered, but a replacement from my 'store' corrected this situation; one of the floating bushes had stopped floating, again this was corrected; all that remained was to replace the bearings and reassemble. I had a replacement kick starter pawl, so fitted that and also replaced the gearchange springs and 'O' rings. I set the outer cover up in the lathe and machined a recess for a lip oil seal to fit on the kick start shaft. A new oil seal was also fitted to the sleeve gear. All I needed to purchase was a replacement mainshaft bearing retaining sleeve, as the drive slots on the original were well past the re-use threshold. A quick bead blast and the whole thing looks well fit for use once more.

After a significant amount of grunting, heaving, and swearing, the motor, gearbox and drive train were re-installed in the frame, all mounting bolts were persuaded to fit in their respective holes and I removed my head from the sand regarding tank manufacture and got down to the serious business of actually making it. The original pieces of cardboard were examined and rejected; new ones being made.

After consultation with my 'Guru' as to the best way to tackle the process, I had a plan. "Start at the inside and work out", was the first instruction, so armed with this knowledge a shopping spree for large sheets of cardboard was the first step. Beer cartons were just not big enough. The frame tunnel from steering head to seat nose requires a tapered piece that is wrapped around the tank tube and drops down to the top of the motor. A piece of 2" dia. steam pipe that all people have laying around, formed the mandrel to provide sufficient clearance and after several versions of the tunnel were fashioned from cardboard, I was ready to turn wood pulp into aluminium. A box of beer traded for an "Offcut to order" from my friendly sheet metal vendor and the process of bending it around the mandrel began. The material I chose was 2mm thick, half-hard alloy sheet. This needs to be annealed if one has any hope of shaping it by hand. A scribble with a felt marker and application of heat to remove scribble has the desired effect and by pushing with both forearms and my sizable girth a u-shaped tunnel was formed. Cutouts for rocker boxes, valve lifters and carburettor tops needed to be removed and after some trial and error the final shape emerged. The bottom of the tank is different on each side and these two were shaped to fit the tunnel and match the cutouts. A visit to the 'Guru' and these were tacked in position.

Returning to Plonk the whole piece slid into place and it looked as if it had been made to fit! Well, it had actually! I was happy with how it sat and after fitting the seat pan to check the 'Line' through the bike I was more than happy. The next thing is to position the newly made tank

base with the bike's fixing mounts and mark these to allow them to be welded in position. This will be followed by the petrol tap mounts and once that is done the base can be cut to its final shape. Some careful marking will be required.

As can be seen in the following pictures, all the above has been done, now for the hard part.

The first task was to make a wire 'Buck' to act as a guide for the shaping of the outer tank shell, this is the bit you look at. My 'Guru' had given me one which features in an earlier photo, but the tank I wanted was going to be a little larger, so a new one was required. A couple of lengths of 6mm round steel bar was obtained and after making a template consisting of a lump of 6" x 2 'with many small nails hammered is as a guide, the two outer bottom rails were formed. The front and rear hoops for the frame were next and then I could fashion a piece to act as the spine from front to rear. Filling in the spaces saw more steel bending skills and the whole plot was progressively welded together. At this point my long absence from the skills and precautions of welding escaped down a dark distant past tunnel of forgetfulness, as I ended up with a good dose of radiation burn from the

TIG arc on my inner left forearm. The application of soothing gel to the outside and rum to the inside of my body assisted in a small way, but I did have a couple of days of itching discomfort.

Purchasing a couple of pieces of alloy soon revealed another shortcoming in my metal working life. The alloy purchased was a marine grade, which is as hard as the hobs of hell to work. Annealing it yielded short term relief, but soon work and age hardening made it rather stubborn to take the shape I had in mind. My right wrist was also telling me that it was not used to belting things with a heavy blocking hammer, things were not progressing the way I wished. Hallelujah! My Guru came to share a cup of coffee and somehow happened to have a couple of pieces of the correct grade alloy sheet which I gratefully grabbed.

Whilst all this drama was unfolding in my life, and my wrist was recuperating, I re-thought the front mudguard mounts. Originally the plan was to make them from mild steel and get them chromed, but this is now a very expensive process, a remake in stainless was a far cheaper option, plus gentler task for my still aching wrist! and I can polish that up to as shiny as I like. A visit to the local water jet cutting chappie had a couple of odd-shaped pieces in my hand a week later. Some fine fettling and a little welding have yielded the objects required.

Back to the tank. After destroying my wrist several times, I now have a couple of pieces of alloy that are vaguely equal and opposite being the outer skins. I tacked them together down the centre seam and set about getting the pair to fit the base of the tank. This proved to be a bit of a mission, but finally it fitted in most places. Next task was to ensure the bottom of the two sides sat on a flat surface with no big gaps, more trimming, grinding, sanding required.

The plan for welding the sides to the base entails the forming of a lip along the bottom of each side, tucking under the base and being welded at that point. The fold is approx. 5/16” and is bent using a pair of parallel jaw pliers. This of course tries to straighten out the curves in the sides so again there is a deal of bending, hammering, shrinking going on to get things back to a good fit once more. No one said life was meant to be easy!! To accomplish this the sides were separated and after much ado are ready to be welded together as one.

It is considered desirable to be able to fill the tank with petrol and to this end a very nice Monza type filler cap was purchased. This requires it to be mounted on a spigot that in turn is welded to the underside of the tank top. The purchase of a lump of alloy, most of which will be thrown on the floor as swarf, was duly made and an external thread was cut so the cap can be mounted. I plan to use Devcon as a sealant, which will ensure a degree of permanence, so correct placement of said item will be rather important.

With a degree of trepidation, the two sides were welded together and now sit looking like a tank should look—sort-a! The outside weld was dressed down flush and the long process of smoothing out all the dents, humps, hollows, and hammer marks is in process. Slowly things are coming along, but there is a large gap between a polished alloy tank and what is sitting on my bench at the moment.

The grand plan was for the tank to be painted, but it doesn’t look too bad, so may save some dollars and just ride it!! The end is now in sight as far as the major construction is concerned, the seat being upholstered is the final piece of the AMC jigsaw to be fitted together. Once that is done and all is back from powder coaters and the paint is dry it is time to see if it actually goes!

I had proved to myself that I was indeed a silly old fool by attempting to time the magneto with the oil anti drain-down valve turned off, thus shorting out the low-tension circuit of the magneto! Once this had been realised and the sequence repeated all went as it should.

23rd January 2024, a day to be remembered. Tommo was summoned to provide moral support; he could also be useful if the kick starting proves to be injurious to my health. Oil had been poured into its tank and had proved to have arrived at the pump. The tank was holding its contents too. The primary chaincase had been filled, found to be somewhat incontinent, drained, re-sealed and refilled. So far so good. Petrol was poured into the tank, none leaked out, so with no further excuses the bike was pushed outside, and the moment had arrived. Petrol on, choke fully open, kick to compression, ease it over with the valve lifter and a long swinging kick. Nothing! The process was repeated, with Tommo counting the kicks, this was not helping! After 5 the choke was shut off and a little throttle was applied, a kick back resulted. Well, the magneto was working, 3 more kicks with a little life being shown and then on the 10th swing, life! Very loud life in fact, loud enough to waken the dead, so hopefully Davey heard it, and lay back in the arms of the bevy of angels with a smile on his face. Clouds of black smoke, eight-stroking galore, sent the message that things were a little rich in the fueling department. But it did run.

Some protracted fiddling with jet sizes, weaker slides, and further jet size reductions saw an improvement. Then it decided to have a jolly good go at breaking my ankle with a series of kickbacks when an attempt to re-start it was made. Investigation revealed the auto advance/retard system was not doing too well at retarding, slackening the drive chain to the magneto made things a bit better in this area. Things were still a bit rich, so some further mixture weakening took place, plus I dropped the float level by 1mm. Starting is becoming a lot less hazardous and a little more reliable now.

The primary chaincase has finally decided to stop leaking, but the left fork leg has taken over this task. Investigation revealed that the bolt that holds the damper chamber in place was not as tight as it should have been. I knew I had made a special socket to perform this task, but of course could not find it. A trip to the local tool shop thieves saw me buy two sockets that I knew were the wrong size, but Hey! they were cheap, so I bought them, then I went online and finally bought a rail

of Whitworth sockets, most of which I had anyway, finally finishing off this sorry episode by finding the socket I had made to do the job in the first place. Someone is going to get a whole bunch of hard-to-find sockets in a few years when I do finally pop my clogs! I wonder what else will be revealed as time and vibration act upon the many components?

Some groveling to my somewhat tame upholsterer has given me a date to get the seat padded and covered, I'm not sure that things are going to be sorted fully to allow a trip to the Rally at Spring Creek, but we can hope. Currently the bike is a pig low down and is proving difficult to get any sort of consistent idle, from about 1/4 throttle onwards it pulls like a shire horse but below that it is like a pit pony with colic. I have the smallest pilot jet available fitted, but it still seems too rich. The carburettor is a 32mm MkII Amal Concentric, I have checked the enriching device (choke) and that does not appear to be the culprit. I completely stripped, cleaned and reassembled the carb., but found nothing untoward, more reading perhaps. Who said life was easy?

Another close examination revealed that the carb. Had a two- stroke needle fitted! How this happened I have no idea, as I have never fitted a MkII to a two-stroke in my life?? Resetting all back to the book has made a huge difference, even though I didn't have the correct needle, a leaner one from a Californian spec. Triumph is currently in situ. The other thing that I discovered when removing the mag drive cover was that one of the advance/retard springs had broken and fell out! Bloody hell! How many more curved balls is this bike going to throw? A friend had a set of springs so I have 'stolen' them and fitted them, discovering in the process of investigation that the 350 and 500 had differing springs fitted. Which ones I have is still a bit of an unknown.

I took the bull by the horns and re-set the tappets and with the fitting of the courier delivered correct spec. needle, it was time to give things a bit of a kick once more. I was rewarded by a pleasing bellow with the first kick, things are definitely on the 'up' now. A bit of a fiddle and it sat there idling away in a most contented fashion, then it just stopped. The state of 'Nirvana' is still somewhat elusive, but things are inching ever closer. Will I get there? Who knows, but progress is slowly being made.

A padded place for my bum will assist in putting some miles under its belt, will this help? Am I expecting too much? It does give me things to ponder as the day comes to a close.

So now the seat has been upholstered and life is somewhat more comfortable. Some serious fiddling with both pilot and starting jets has produced a result that is easier to live with, but still not as reliable in the starting and idling department as I would wish for, but I can get it to go after about half a dozen kicks. Maybe it has to do with a bit of over-reading as I opted to advance the inlet cam by one tooth, or was that retarding it by one tooth? This was setting it to the same timing as a 350 that was supposed to produce a bit more "Zip". Once going it does pull well, but at a slightly higher rev range than I would like.

The other thing that came to light on its first decent run, which is probably the same thing, or at least related, was that it is rather high geared, not wanting to pull in top gear until I am doing about 60mph. so a couple of things to play with in the comfort of my shed. Riding it I was pleasantly surprised at the lack of vibes, it runs quite smoothly for a big semi balanced lump.

After the couple of rallies, I attended this year I have opted to fit indicators, so a re-wire has taken place to enable this. The two reasons are that all the world today expects to see flashing lights when a direction change is contemplated, secondly, I have deliberately 'over

speced' things so as hopefully not draw attention to myself whist riding it as it is going to operate outside of the crazy system, we term registration. I have no issue with paying the $50/$60 to annually register the bike, but as it has fallen out of the NZTA system, their doing, not mine, I am not going to spend somewhere around a grand to keep some bureaucrat happy. The bike is not stolen, it will pass any Warrant of Fitness test thrown at it, and I already have two registered bikes that sit in the shed when I choose to ride this one. Make it easy and I will comply.

Being a total masochist, I have set out on this project with one of my aims, being to make the bike 'oil tight'. Now I'm not sure if that was an expression that featured in the vocabulary of British motorcycle designers in the 1950's, but now in the 2020's it is part of mine. Oil seals replacing felt washers, alloy chain cases replacing pressed steel ones, you get the drift the result is very near to the stated aim, but a persistent dribble from the back of the primary chain case has still persisted! Coupled with the thing being capable of 90 mph in first gear and 50 mph in top, reinforced the view that the bike was hopelessly over-geared. Something had to be done. As I had just used the gear box as it was received, albeit replacing bearings and seals, it did not occur to me to check the output sprocket size. Ripping the whole primary to pieces revealed a sprocket that had 19 teeth instead of the standard 16. This is somewhere close to 20% higher than it should be and with somewhere in the region of a whole 20 horsepower to play with, things were somewhat sluggish in all but the two lower gears. I could have just used the lower three and engaged 4th when falling off a cliff, but this approach would be a tad impractical. So, brandishing my wallet at the phone, I discovered that the closest available was a 17 T version. A day later it was in my hands and fitted. Things might still be a bit 'tall' in the top gear department, we shall see.

Whilst awaiting its appearance I busied myself attending to the possible source of oil escaping from the primary chaincase. There is a sliding sealing thingy-whatsit at the rear of the chaincase where the gearbox input/output shaft pokes through, this was seen to not be as close a fit as possible to the case. It is designed to move when one adjusts the primary chain by moving the gearbox and as such is less than oil tight. Maybe the application of some hi-tech silicone sealant would help? Who knows? well we all will after I have tried it!

To change the sprocket, one must remove the secondary chain. Rotating things to expose the joining link, I discovered to my surprise the spring retaining clip had decided to retain itself elsewhere! The joining link plate was just sitting there awaiting its turn to explore the world, most likely miles from anywhere and out of phone coverage. Machiavelli does exist in the world of Classic Motorcycling, or is it Murphy and his accursed law? This reinforced the value of a careful clean and wipe down of our steeds, looking, looking, looking! "Seek and ye shall find" is very true in our world.

The other thing that came to light, or rather didn't come to light, was the death of a source of light. The headlight bulb was a LED device of doubtful parentage, and it left the illumination of darkness to someone else after a very short tenure, no, I don't think it was a Lucas product, but the manufacturer may well have been trained by them!

So, the quest for perfection goes on. The object, one early fifties British motorcycle will ensure that this quest is a long and continuing one, but one has to spend ones time on this 'Third Rock from the Sun' doing something, it might as well be the state of contentment found by fiddling and fettling together with discussing fiddling and fettling with others who enjoy fiddling and fettling, rather that, than sitting, thumbing rosary beads and waiting for the transportation to a high plane that is only found in the bank vaults of religious organizations.

Time to test the new gearing, and right from the get-go things were much improved. A run out on the open road revealed that top gear was in a much more relaxed state of operation than was previously the case. Yes, a 16T would make things a little better, but I can live with its current state for a while yet.

I have developed a starting technique that seems to work reasonably well, a few kicks with the valve lifter pulled in and then a good prod with full choke and life emanates. It sounds a bit of a strange way to go about things, but it works. The bike is still reluctant to idle reliably, its either the auto advance/retard system in a self-determination mind set, or the carburation balance of cut away to pilot jet. Then again it could be the camshaft timing on the inlet side. So many things to play with, so many things to dwell over in one's final wakeful minutes before slumber takes over and turns the mind off, allowing it to wander far and wide into the realms of fantasy known as dreamtime.