



To all our readers and a very prosperous New Year.....

RELIANT KITTEN REGISTER

Mewsletter 127

November – December 2015



This is Kevin Clarke's Liege. You can read more about it on pages 17-21 of this issue. Congratulations to Kevin on getting it through its IVA in August this year.

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The Register caters for all the under 1 litre Reliant 4-wheeled vehicles plus all of their derivatives: Foxes, Rebels, Tempests, Salamanders, Ciphers, Jimps, Asquiths, Vantiques and all other specials including the Liege.....



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**SALES, SPARES, REPAIRS,
ENGINE RECONDITIONING**

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E & o e

Welcome to our Christmas edition, never mind where did the year go, where did the decade(s) go?

I can hardly believe that is was almost a quarter of a century ago that I started this, how I cringe looking back at the first few editions!

Oaks and acorns spring to mind though, and it is not all bad.

Those souls who were brave enough to risk investing in me 5 years ago, now find their subscriptions due for renewal. Will I still be doing this in 5 years time? I certainly hope so, but, after the pretty full on year I have just had, one cannot offer cast iron guarantees, however, I'm game if you are.

Thanks to John Pearce (for an answer he gave to a question Chris Tooth asked) and Kevin and Dave of Liege fame, this edition is more than half done at the end of August! So, I can take a few months off! (No, I really am not going to make it monthly!)

I do need to focus on helping to keep David Leslie Kitten motivated, (*though we ought not to lose sight of your Fox David!*) the Kitten is his new car, you saw it on the cover of the last edition, it is causing him great frustration, because he is spending a lot of time and money on it every other week. Not why he bought it! And of course it is taking resources away from the Fox, which must be close to a decade into its rest period.

I think it is not really surprising, when a car is pressed into service after years of being laid up, that there are almost bound to be teething problems. Things will improve David, just fit the new dampers and back springs and see how things settle down. A new radiator might help the cooling (or lack thereof) too.

I have just bitten the bullet, made a decision, and am hoping I don't regret it! I have decided to treat you to an **extra large Christmas edition** by adding an A4 sheet, so that is 4 more pages than usual this time, don't say I'm not good to you.

I am always in awe of Rum Car News, oh that I should ever feel so in command of the software!

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Keith was asking an interesting question the other week, ball joint greasing was the topic, what grease do you use he asked?

He uses Silkolene G62 EP I believe, how about you?



.....

Rebel Round up - Rebel Pick Up

By Ian Johnson

I left my previous update with the body tub pretty much complete, and contemplated how I would lengthen the wheelbase to accommodate the bed. I had considered using a subframe from a rear wheel drive car such as an MR2 or possibly Volvo 340 or DAF, which would give me a second gearbox. But not being in a position to offer any of these up, and most seeming to have either coil springs or shocks that mounted on the body rather than the subframe. I thought about a heavier axle such as an MGB which I had, but decided on balance I would stick with the Reliant axle, which would allow me to keep the same wheels and brakes. I also want the vehicle to remain as much of a Rebel as possible.

To give the vehicle any sort of proportion, I reckoned that I would need to add at least a foot to the wheelbase, as the more bed I could fit



in front of the axle the more I could have behind it. I decided against lengthening the chassis, which is not entirely straight forward, as it tapers like an Austin 7, rather than being parallel like a Kitten. Lengthening the chassis would also turn the car into a new vehicle in the eyes of the DVLA, and hence need an IVA type approval.

I decided to move the axle as far back as I could on the chassis, and use a trailing arms rather than leaf spring suspension. This gave me about another 16 inches of wheelbase, so adds 2½ feet to the bed. I bought a prefabricated 5 link system intended for the Locost 7 self build car. These are usually fitted to Ford Escort axles. The Escort axle is a single casting, so much more rigid than the Reliant axle. I am aware that trike builders tend to mount the Reliant axle rigidly because it will tort and break half shafts in a 5 link system; for this reason I made up a cage to prevent this, and which also forms the mounts for the springs. If I ever have to split the axle, I can cut the cage and put a bolt up joint in it, but I do not see the need at this stage.



Probably the most expensive single item was the prop shaft, which was lengthened by 16 inches, and fitted with new U.J.s. Given that the Rebel has a gearbox extension, it's not so long as to need a centre bearing.

I had a beam welded across the rear of the chassis to take coil over springs, and a pair of bolt holes with tube inserts (to prevent the chassis walls compressing) done by a local fabricator, as I am sure his welds will be stronger than mine. These were the only additions to the chassis itself.

I used MG TF coil overs partly because I have an MG TF, and could measure them, and that they come in a variety of rates should the ride not be good. The Rebel is quite a bit lighter than the MG but the springs are canted over, so I think they will be fairly close.



Next the brakes, the service brake was easy, as it was just a case of using a longer brake pipe and remounting the flexible hose. The handbrake however, I had to start with again, as the axle brace prevents the use of the fairly elegant original system.



I have a friend with a garage, and I rooted through his old stock of cables, looking for a BMC one that would at least fit the hubs. A Metro cable connected well at the wheel end with a couple of mounts on the axle frame, and the compensator was placed on the suspension tube on the chassis; this all works pretty well, and means that I can easily get a new cable when required.

The axle now sits where the fuel tank used to, so I had to use a different tank, which was just as well as the previous one was dissolving. I had thought about putting a 12 gallon Rover P6 tank across the back of the cab, but it was a bit too close to the prop shaft, so I went for a (Real) Mini tank which sits pretty much the same way up as in the Mini, and gives me 7½ gallons and a working fuel gauge.

The exhaust already was a stainless system that exited under the nearside sill, so needs no changes.



Having finished the chassis, I then moved onto making a back

using 3mm angle iron. I let a pair of trailer mudguards into the back, and MIG welded it to a box section base, that then bolts to the chassis with 4 U bolts. It weighs about 40kg, and is boarded with 6mm ply on the sides, and 9mm for the floor. The rear lights connect via a trailer socket to give me the option of using a different back, or possibly an artic type trailer (but that's a project for another day).

I still have a few electrical and trimming jobs to do, but once it is finished, I will present it for Mot testing, and after that I will need to get the body type changed by the DVLA. Which got a little more complicated with the abolition of the LVLO's, but assuming they accept it as an original chassis, it should not be too big a problem. Insurance hopefully will be Ok, it won't be my main car, I have a garage, and am a middle aged man living in the Outer Hebrides who does not play in a band!



So hopefully my final update will see me on the road, just my Kitten based sports car then.



Regards Mark (Johnson) Summer 2015 - No. 205 from Benbecula

I had the good fortune to meet Mark and Michelle recently when they were able to call in for a coffee and a quick visit to the lock-up on their way home from a holiday in England.

Great to see you both again. Ed.

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Ahh, a small space, just room to ask, on behalf of Duncan Bradford :-

Indicator rocker switch melting vs LEDs.

Does anyone have experience of fitting LED indicator lamps to get over the problem of the current melting the hazard/indicator switch? - this haunts me every MOT time!

Duncan. [hidunc@ntlworld.com](mailto:hidunc@ntlworld.com) or tel.:- 01603 663311

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Liege Page(s)

SOMERSET SCATTER

Julia, my Liege Kit Car, remains almost entirely Reliant based, is now approaching her 16th birthday in this incarnation, and has covered about 50,000 miles. The car and I, both keep fairly active with the Motor Cycling Clubs long distance Trials in the Winter, and various shows and runs in the summer. The MCC organise an event, each year, out of the Trials season, and this year it was a 'Scatter Rally'. I was not sure what this involved, but a friend has taken part in a similar annual event through the City of London, at night, for several years, and unsuccessfully tried to persuade me to take part. So I thought, perhaps I should give this a try.

Information slowly became available. The rally would cover the whole of Somerset, and involve plotting six figure grid references using no fewer than five 1: 50,000 Ordnance Survey Maps. It began to sound interesting. Then it became apparent that it was to be in two sections, the first starting at midnight, and the second, after breakfast, the following morning. I had to work quite hard on, my wife, Ann, to persuade her that she would love to navigate the byways of Somerset in a tiny open sports car, but she was adamant that she was not going to do the night section, which was a pity because that covered Exmoor. So we compromised and entered the daytime half. Ann gradually became keener, she loves our Motor Club's Treasure Hunts and this had the makings of a gigantic treasure hunt. To make a weekend of it and to encourage the navigator, I booked a Premier Inn for two nights, before and after, as the start was about 70 miles up the road from us.

Just over a week before the event, we were sent the Regulations, a Control Card, Answer Sheet, and a list of eighty (YES 80!!) six figure map references. Fortunately we only had to plot half of them, the rest were for the night section. This involved only four Ordnance Maps! It transpired that we were to be issued with a list of clues, one for each reference, at the start. To add to the interest and complication, each plot was given a value of 15, 20, 25 or 30 marks and

you only had to visit 30 out of the 40 locations. There was a penalty for too many! The aim of the rally was to achieve a high score, and so it was preferable to visit locations with the highest values and, of course, come up with the correct answers to the questions. The references were scattered widely over the central and eastern parts of the county. How do you start to plan a route? Obviously you plot the 40 references, but these are now on four different maps, so, transfer them to a road map to get them all on one sheet. Being greedy, my instinct was to go for the 'expensive' ones. We planned a route linking all the 'higher marks' and added in a few 15's to make up the 30 locations. This route zigzagged across the whole area and with a maximum time of seven and a half hours, could we cover the distance in the time? But how far was it? Out came the little wheeled map measurer. We thought we would be lucky if we could average 20 mph and the distance worked out to be about 150 miles. Optimistically, we thought we might just do it, and if it got a bit tight, we could miss one or two off the end and run for home.



'The best laid schemes of mice and men oft will gang aghay'. We arrived early at the start, at a Pub, just outside Taunton, in time for breakfast, scrutineering, and signing on. We were joined by the other day starters and those who had done the night section, with various

tales of success and failure. It was a lovely June Saturday morning, and we were on the road at 09.00. Driving was the easy part of this event, and the first 11 miles of our route, on A roads, gave us a false sense of security. We had spent a lot of time plotting the route, it was all marked in pencil on the O.S. maps, together with the plotted grid references and as well, Ann, had printed a summary of the route with mileages and clue references. She also had the list of questions and a separate answer sheet. Can you imagine coping with all this paper work in an open car at 30/40 mph and navigating country lanes. Juggling all this, we approached the first clue from the wrong direction, which proved to be the start of our problems.

The locations could be 10-15 miles apart or we could have two or three in a couple of miles. Ann soon filed most of the paperwork and navigated entirely from the map, referring to the clue and answer sheets as necessary. Some of the navigation was difficult, nothing to get a fix on, one occasion we passed the end of a tiny lane with a clue but ended up covering another two or three miles before we could fix it and came at it from the opposite direction. Some of the clues were difficult to spot where vegetation had grown and in one case a whole seat had been enveloped, and the occasional sign had vanished. Enough of the excuses, we found all the clues we looked for, but were dropping further behind our time schedule. We stopped for a brief lunch break and to review the situation. The only clue that was worth 30 points was by Chew Valley Lake, which was not too far north, so we decided to head for that, picking up a couple of others on the way. It was then almost three o'clock and we had to finish by four thirty near Taunton, the decision was made to pick up three clues in the immediate area and then high tail it to the finish, hopefully picking up two or three more en-route.

We missed a turning and had no time to back track. Three clues gone! We had to make a mad dash for home sticking to the bigger roads. Ann retained her cool, and we did manage to find a couple more answers, and still hand in our Card and Answer Sheet with a couple of minutes to spare. We had covered about 170 miles, averaging over 20

m.p.h., largely due to the race for the finish.

So much for our gentle tour of Somerset in the June sunshine, we had not done anything like it before, and it was a major learning experience. I was disappointed that we had only visited 19 of the required 30 plots. We had spent a long time planning, had a hard day's motoring (even I was thankful we had not done the night section as well) and spent a long time debriefing to decide how we could do better next time!

45 vehicles were entered (on two, three and four wheels) but in the event only 38 started, with just over a third doing the day time part only. 'Sat. Navs.' were accepted, but from the results, did not seem to give any advantage. Two competitors managed to visit 60 locations and come up with the correct answers and the highest overall score was by a solo motorcyclist. A great achievement! Of the day only group, two achieved the maximum 30 correct answers. Our 19 answers were all correct which gained us fifth place (day) and won us a 'Silver Award'.

We hear the event is to be run again next year, so, can we change our tactics, improve our performance and hopefully get a 'Gold Award'? (always assuming I can persuade the navigator to have another go!)

Mike Oakins No. 292 from Modbury (*that's in Devon*)

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## Breaking News!

There's been a fight in the biscuit tin. A lad called Rocky hit a Penguin over the head with a Club, tied him to a Waggon Wheel with a Blue Riband, and made good his Breakaway in a Taxi. Police say Rocky was last seen just After Eight in Maryland with Ginger Nut, known to Police as Rich T. They didn't leave a crumb of evidence, so the Jammi Dodger got away with it!!!



# **Liege Restoration and Re-Build**

**By Kevin Clark**

**October 2015**

A few years ago I had been on the outlook for a classic car to restore. A TR3 interested me, but the high starting price and not really knowing the true restoration history put me off, plus I didn't want anything too big for my single garage and workshop.

My background is not hugely mechanical, so a friend suggested a kit car might be the best way to learn about cars. I had caught a glimpse of the odd photo of a little roadster that looked ideal – but I had no clue what it was. I spent months trying to identify it, turns out it was the Liege kit car, of which only 60 or so kits were made between 1997 and 2005.

Keen to see the Liege in real life, I travelled down from Edinburgh to the 2013 Northern Trial in the Lakes. Three Liege were in action, the hill climb sections were fantastic and the sight of them bouncing up and around corners was enough to hook me. The Liege was designed and produced by Peter Davis from Bidford on Avon, and it turned out he had a car (Kit 015) for sale that had not passed the original SVA test several years before. We agreed a price and I picked up the dismantled car in a hire van in June 2013.

The donor for the Liege is Robin/Kitten/Rialto. To my advantage all of the heavy duty donor integration work had already been done, mine was more a restoration. However, there was one issue I needed to overcome - there was no V5 for the original donor car, but there seemed to be ways around it.

The Build really has three phases, with need of a different 'bible' at each stage:-

Macro Build – using the fairly short but concise Liege 10 page manual and several hand drawn diagrams.

Micro Build – using the trusted Robin Haynes manual, and Club member photos.

IVA Compliance – using the reams of IVA guidelines and standards.

During the Macro Build, all chassis parts were shot blasted and power coated, and I prepared all the fibre-glass parts for spray painting. The creation of the rolling chassis and an engine start was a great moment in April 2014, and we lowered the newly painted body on not long after. I got the Robin donor seats re-covered in black leather – a bit extravagant, but I wanted to keep this link to the Reliant heritage. I also replaced the radiator, rocker head, and got a few of the dials refurbished.



The recovered seats (and alloy rocker cover!)

For the Micro Build, I have an electronics background, so decided to build my own wiring loom in situ.

I tried to keep classic crimping to a minimum, preferring to use push connector blocks. I sat and looked at the sprawling cables coming into the dashboard for about 4 weeks before taking the plunge to cut the

cables – I just organised the common bundles like an electronics bus. This worked well in terms of keeping it quite neat. Driving the car up and down my local farm road in June 2014 was another great milestone. I started to look at booking the IVA test.....

It seemed the DVLA had tightened up all possible 'routes' to obtain donor V5s. Basically between this and an unexpected change of job, I parked the project for 6 months. However, in a burst of energy during a dark Thursday in Feb 2015, I bought a 1992 Robin with matching engine number and V5 and had the engine out the car by the following Monday.....

When lowering the 'new' engine onto the chassis it was apparent the front engine plate was warped - the Robin must have previously been in a shunt. This was no easy job to replace and we managed to damage the water pump in the process. Several replacement water pumps later we fitted the now gleaming 'new' engine by end of March 2015. Despite some of these challenges this is testimony to the little Reliant 850cc engine, I really marvel at how robust and flexible it is.

I started to check off all the IVA/SVA fail items other Liege had encountered. This felt like an endless first guessing task. In the end I took the advice of a Club member and just applied for the test, i.e. at least I will have a definitive list to work from for the inevitable retest. This proved true – having not passed the 5 hour grilling mainly due to a) a weeping rear break pipe, b) prop shaft bolts not being long enough (I had used thicker locknuts than normal), c) jagged edges on the side exhaust and mirrors and d) emissions were too high, my 'idling mode' obviously too easy to see through! However, there were numerous other items I thought I'd get picked up on, and didn't – the seats were the main item I didn't think were compliant, but they 'got' the effort I had gone to and the look I was trying to maintain.

I eventually passed the re-test in August 2015 – which took about 20mins. I have nothing but respect for my local IVA testers, I thought they were very pragmatic and helpful. During the test they continually stressed it was a 'team effort' on safety and compliance – much more collaborative than some of the horror stories I had heard from other test centers.



Just home having passed the SVA Test - August 2015

So, what next? I'm currently getting an expansion tank made, will get a roof cover made over the winter months, rear shocks need replaced (it wasn't a weeping rear break pipe, more a weeping rear shock absorber!), and perhaps a new exhaust and manifold.

I don't intend to do hill climbs but more likely touring events. Overall it's been a great experience and one I'd thoroughly recommend.

Thanks to the Kitten Register and Liege Car Club members for their tireless help.

Since then I have taken some more pictures which Brian may choose to share with you :-

Kevin Clark No. 981 from Haddington (*near Edinburgh*)

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Many thanks Kevin, both for the article and wonderful pictures.



The Strange Case of the Petrol Engine.

Or Vested Interests Rule!?!

By Jim McKillop

As a young child I was intrigued by the fact motor vehicles could travel about without obvious means of propulsion. Other than some noise and fumes, there was no clue as to how this was done. As I grew up I became aware that my father often had to stop at a garage and “fill up”. A liquid was dispensed from a hose and produced what was, to me, a pleasant smell. There was a device under the bonnet which also needed oil and water from time to time. Of course, this being the immediate post-war years, just about all cars, and many commercial vehicles had petrol engines. My father often talked about the pre-war cars being better built and more economical than the crop of mass-produced new cars then appearing on the roads. “Cheap transport for the masses” is an oft repeated phrase. Some cars even had very old-fashioned side-valve engines.

By the time I started secondary school I had a fair idea how a car engine worked, having helped Dad with a succession of the older cars we ran. My science teacher told the class that petrol engines were so inefficient that - “they will soon be a thing of the past”. The figure of 14% thermal efficiency as being the theoretical maximum for an ideal petrol engine was mentioned, and that was before all the mechanical losses incurred in driving auxiliaries and transmitting power to the wheels!

On studying Thermodynamics, I learned this could be shown to be true from what is called the P-V diagram for the engine’s particular working cycle.

It is a fact that the ancient steam engine in the Paddle Steamer Waverley is more fuel-efficient than a modern petrol car engine, and before WW2, steam lorries far out-performed the petrol ones in speed and economy.

There is a close relationship between compression ratio and thermal efficiency and this is the main reason diesel engines can be theoretically more efficient (40%).

This fact was well recognised and before WW2 diesel engines were widely used in industrial and marine applications. (please read about the suspicious death of Rudolph Diesel).

A recent BBC4 programme recalled how the Royal Navy had petrol powered submarines in WW1 with a range of 260 miles. German U-boats were roaming the Atlantic with diesel engines and a range of 11 THOUSAND miles. By the late 30s Germany had developed powerful light, high-speed diesels suitable for road vehicles and even aircraft, such as the prototype ME 109 fighter.

In Britain the Sentinel steam waggon had an under-type engine very similar in layout and design to the diesel engines in modern sprinter trains!

After WW2 diesel took over as the preferred engine for commercial road transport. Even model aircraft had abandoned petrol engines, using diesels instead.

Now here is the big question. Why on Earth did anyone carry on with petrol car engines? Why have they spent untold billions over many decades trying to improve them when they were always going to be a shockingly inefficient and polluting means of propulsion? If diesel engines had been given all that investment they would have started consistently winning at Le Mans ages before they did in 2006. The huge 18,500hp diesels now being fitted to large cargo liners are claimed to get 50% thermal efficiency whilst the latest petrol car engines are lucky to get 10%.

My own view is that in an "ideal world" diesels would have taken over for all road vehicles and piston-engined aircraft from the 50s. The unhealthy emissions would have been tackled early on by catalysts and particulate filters as currently used on the better diesel cars. Long before now at least all private cars would be plug-in electric vehicles i.e. no "hybrids" or hydrogen fuel-cells, which to me are simply ways of conning people into buying petrol. (Please read the scandalous story:- "Who Killed the (GM EV1) Electric Car?").

All the fuss about bio-fuels is a sop to the Green lobby and proliferates inefficient I.C. engines, whilst the growing of the crops damages the environment and is now being blamed for food shortages.

Another issue affects nearly all new cars sold. The engines are in effect de-tuned to some extent. This may be to protect the engine from co-arse drivers and so reduce warranty claims. In my experience about 10% better fuel economy is possible by re-tuning (or re-chipping the engine ECU). This is not widely advertised because 10% less fuel used means 10% less filling stations and 10% less tax revenue.

I am afraid the answer to these questions may turn out to be mainly the vested interests of big businesses and the political clout they possess. Politicians will always listen to arguments where tax revenues are at stake. The same situation has caused LED domestic lightbulbs to take so long to appear in the shops whilst we were being fobbed off with “low-energy” rubbish. Blackpool started using LEDs for their famous Illuminations as far back as 2002!

It is unfortunate that there are certain lighter fractions produced in the refining of petroleum, and these toxic by-products have to be disposed of somehow, much in the same way as fluoride waste from industry is being sold to the water companies to “improve dental health”.

A ray of light now shines through the murk! Diesel motorbikes now exist, and a T.T. Race class has been introduced in the I.O.M. for electric motorcycles. As numbers of electric vehicles and demand for charging points increase, surplus motor fuels can be diverted to power stations to be burned efficiently.

It is ludicrous for supercar and superbike enthusiasts to discuss their machines cutting-edge technology, carbon fibre, and advanced metallurgy. They need to be made more aware that their inefficient, noisy, polluting engines should have been outlawed at least 50 years ago!

The cynical might say that technology is developed and applied to suit vested interests before the needs of Society as a whole. Is this what living in a democracy is about?

Jim (McKillop), Scimitar and ex Kitten owner from Cardross.

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## Cipher disc update by Dave Corby

Ever since I've had the Cipher I've been unimpressed with the front drum brakes. While they worked OK they never really gave you the confidence they would stop you quickly in an emergency. They had also developed a strange habit of pulling to one side and then during a journey could either cure themselves completely or switch to pulling to the other side, not a great driving experience. In spite of stripping down both sides, I couldn't find an obvious reason for this behaviour. So for the next MOT some serious work on them was needed, it was just a question of what to do, fix the drum problem, or convert to disc's?



After a chat with Joe Mason at Reliant Spares, I decided to go for his disc brake conversion kit, which he assured me was fine with 13" wheels, but hadn't been tried with the Cipher's 12" wheels, and would probably be a very close fit, if indeed they fitted at all. So I went ahead

knowing full well this may cause more problems than it fixed.

The kit comprises a pair of discs, calipers, brake pipes, custom spacers and mounting brackets, and a couple of 10mm wheel spacers. I should have taken a picture at this point, but I forgot.

The old drums, back plate, steering arm and hub, are all removed, and after a quick clean up of the stub assembly, the first part of the kit, a spacer, can be fitted.



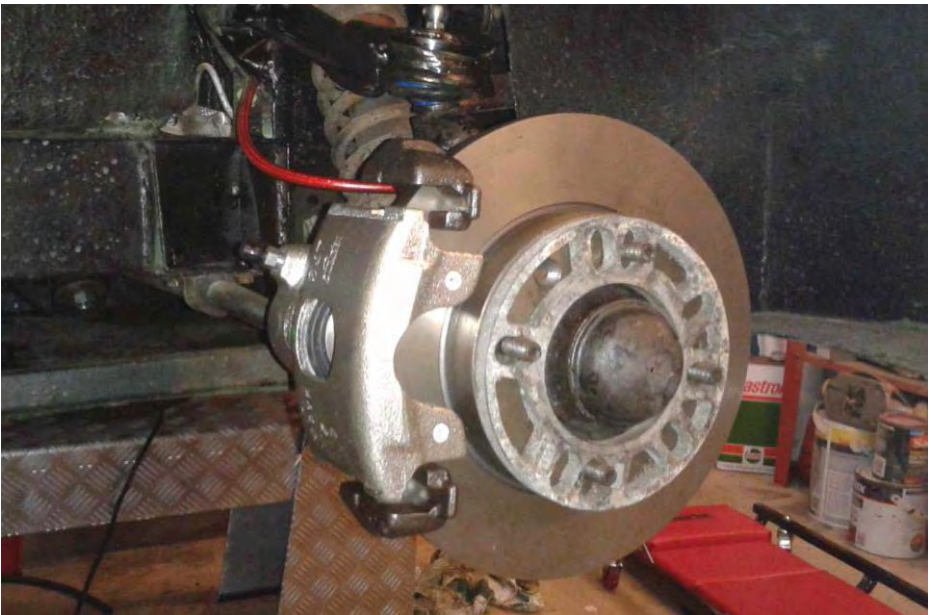
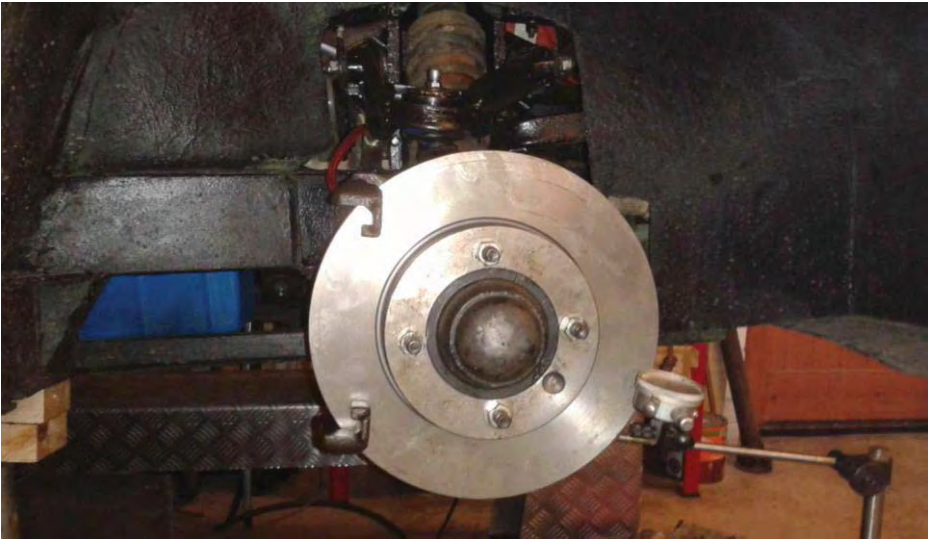
And then the caliper mounting bracket can be fitted.



Next the hub needs to be fitted to the disc. Not so fast now, the Reliant hub is slightly rectangular in shape and requires the corners grinding off slightly to fit the inside of the disc. The disc is held in place ultimately by the wheel nuts, so I used sockets as spacers and then bolted the disc on so I could check the disc run out. So far, so good.



Lastly the caliper carrier and caliper are fitted.



So, let's cut to the chase.

No it doesn't work with 12" Cipher alloy wheels. (In spite of grinding a caliper and carrier as much as I dared, and certainly more than I would have liked). So new 13" wheels became an additional requirement. After a bit of research I worked out that MG Midget or Austin Healey Sprite wheels have the right PCD (101.6mm), (*that would be 4" in real money, Ed!*) are 13" and the offset is only 3mm different to the Cipher. The Cipher wheel is ET+17 and the Midget wheels are ET+20. If I did this again it would be worth looking on eBay in advance for some suitable wheels. I have now fitted imitation 13" x 5 minilites in silver which I think look OK on the Cipher.



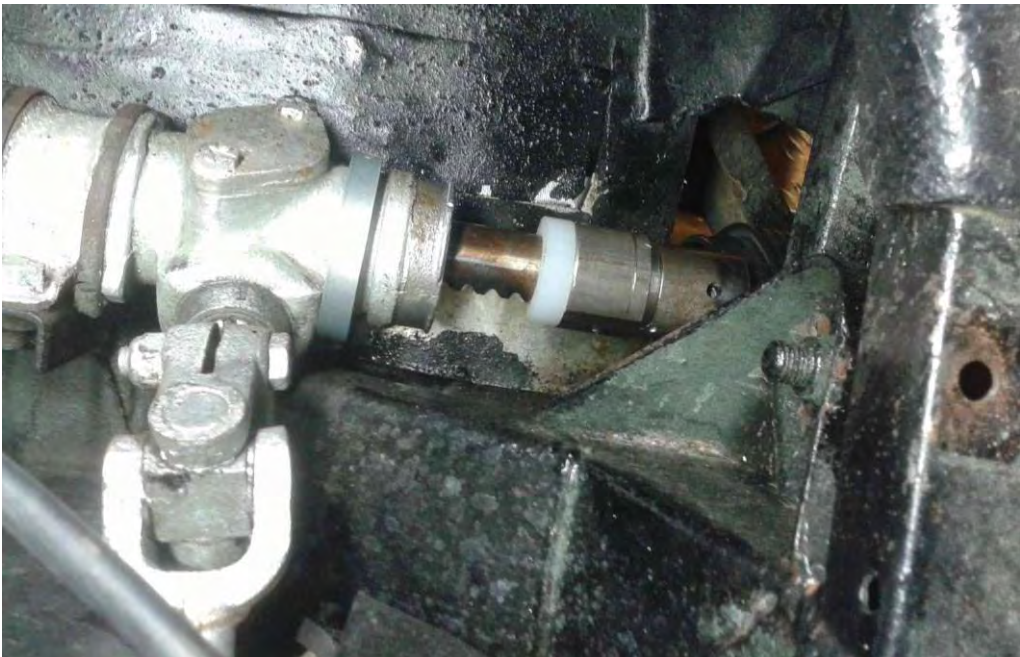
The wheels required the supplied 10mm spacers to clear the caliper. This also meant that I had to replace the original wheel studs with 50mm wheel studs to allow for the spacers.

When it came to working out what tyres to fit I got things slightly wrong. I went for 175/70 tyres which should allow a better range of tyres, and I thought would fit and clear all the bodywork and suspension yet

keep the rolling diameter similar to the original wheels. However, they fouled the lower wishbone at the front on full lock. To get around this I have added a packing spacer in the rack on both sides. I used Nylon 6 tube which I cut into 10mm thick washers, and then removed a quarter segment as per the pic, to allow it to be clipped on to the rack.



I then fitted this on to the rack just behind the inner steering ball joint, one either side. I'd like to say I'd thought of this mod myself, but the idea came from Ford many years ago when they sold a similar solution as part of a wide wheel kit. This may also help improve the life of the steering rack gaiters as they aren't so stretched now on the reduced full lock.





The man replied, “I know you didn’t, but your neighbours did.”

.....

## Federation News

As you know I often allocate a page for this, but the reality is that in all probability those who are particularly interested get your own copies of their fine publication, so the need to say much in here really is not that great.

John (Pearce) again attended the AGM for us this year, and tells me that there were no surprises, and while they are always busy and diligent, things are as under control as possible.

(I have to say that I still believe the battle to better legislate regarding LED lights should not be taken as lost, just because the powers that be refuse to engage, really does not, in my opinion, mean we should give up trying to get common sense to prevail, but I never did know when to accept that some things are just too difficult to change, and common sense is, sadly, an endangered species!)

.....

## Lower ball joint update

As you know, Duncan Bradford, James Holland, Alan Shaw, and Keith Gittus, have all helped us to secure these, and we are able to offer them, new (still preferably on an exchange basis).

**They are available to our subscribers for £100 a pair delivered, or £125 if you cannot supply old units.**

**These prices are current from January 2016 and subject to review by the end of the year. Note this offer is only open to RKR subscribers. The retail price is £85 each, but these folk can save as tenner a joint by returning an old unit first.**

Sales so far have been steady but slow, and the returned old units so far are helping to secure the long term future.



## Epilogue

Welcome to the end of another year, I am once again delighted to have so much material here, (really this whole year has been very easy for me on the Mewsletter front, thanks to the articles that many of you have supplied, I know I've said it before, but a big **thank you** to those concerned, it makes a huge difference and is greatly appreciated) and in such good time, so much so that I am only a page away from completing this edition at the end of September!

Frustratingly however I am that close without Kevin Clark's article on the important business of his Liege build, something to look forward to next time, or.... (Can I squeeze an extra A4 sheet into this edition, and still keep the envelope within the weight and thickness limits of a second class stamp – not an issue for our electronic readers mind you!) ***what am I saying, you will know the answer to that by now!***

Special thanks to Dave Corby for his Cipher input this time, and Mark Johnson for the update on Robert's old Rebel saloon, now a pick-up. It seems like a lifetime ago Arleen and I took that car from Ayr to Skye, where Mark collected it on its way to Benbecula. John (Stork), that was the last time I saw you too, I must get up to Glenelg again.

Preying on my mind as we reach the middle of another decade are things like wishbones, Fox rear axles, and the fact that I probably need to delegate more sooner rather than later. That said I really do appreciate all the not inconsiderable help that I enjoy at the moment.

So, with the end of the page / year / 5 year subs almost upon me, it only remains for me to wish you and yours good health and happiness for 2016, and do lubricate those moving bits! Till next time, drive safely.

*Brian*

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