



MEWSLETTER 106

May - June 2012

Edited and distributed by Brian W Marshall,
16 Glendee Gardens, Renfrew, PA4 0AL

☎ 0141 886 6117 www.info@kitreg.org.uk



Pictured is John Box's Raptor, his Fox based special. This outstanding vehicle was built on the very last Fox chassis. Still under development, recent changes include fitting a single carb on a special manifold to place the float chamber at the front instead of the twin carb set up it originally had.

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.....



The Reliant Kitten Register

Rebel parts stock held by: - Adrian Hanwell

New Kitten / Fox / Rebel parts stock held by Brian Marshall

E-Mail info@kitreg.org.uk

Rebel alternative parts list contact: John Blagburn

E-mail: wirelessjohn@googlemail.com

Kitten alternative parts list: ****Situation vacant****. Contact the Editor to volunteer.

Fox alternative parts list contact: Duncan Bradford, 52 St. Phillips Road, Norwich, NR2 3BN.

E-Mail hidunc@ntlworld.com

Our Mutual Aid Spares scheme is run for us by Phil Hallam 4, Greenhead Holding, Stevenston, Ayrshire KA20 4JX

Tempest Registrar: Martin Seymour 19 Cedar Court, Churchfields, South Woodford, London E18 2QU

E-mail mseymour@freenetname.co.uk

Mewsletter pictures – should be sent to John Pearce at Toddbury Farm, Slapton Road, Lt Billington, Beds. LU7 9BP

E-mail john@atodini.co.uk

The Register is a member of the FBHVC, which monitors UK & EU legislation and lobbies on our behalf to protect our freedom to use vehicles of all ages on the roads. Readers are invited to show their own support of this worthy cause by becoming members in their own right. Contact the editor for details.

It should be noted that opinions and ideas, information and advice printed in this publication are as recommended by our readers and others, and, while believed to be accurate and correct, such information is given in good faith, and it does not necessarily have the approval of the Reliant Kitten Register, and cannot be guaranteed by either the Editor, or the Reliant Kitten Register. Owners must satisfy themselves as to the suitability of any suggestions made within these pages, as no responsibility can be accepted.

Web page: <http://www.kitreg.org.uk> or have a look at <http://www.reliantkitten.co.uk>

Dinky Cars

RELIANT SPECIALIST

Wennington Marsh Farm, Wennington Road

Rainham Essex RM13 9EE

Tel: 07958 246891

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

INDEX

| | |
|---------------|---|
| Page 3 | Index |
| Page 4 | Editorial |
| Pages 5 & 6 | The Reliant Raptor – by John Box |
| Pages 6 – 14 | Rebel Resurrection – Part Two – by Simon Hodges |
| Pages 14 -15 | Take a seat – by Charles Barker |
| Pages 15 - 17 | Northern Trial by Roger Goldthorpe, part 1 |
| Page 18 | Little girl on a plane |
| Pages 18 - 19 | Federation News |
| Pages 19 – 25 | Getting Technical – Keith Gittus on manifolds |
| Pages 26 & 27 | The last word on those cylinder heads nuts! |
| Page 28 | Epilogue |

O.K., first things first, my thanks to John Box both for allowing me to take the cover picture, and for the story of just how the Raptor came to be.

Right, at the risk of shooting myself in the foot I have decided to include the rest of Simon Hodges Rebel story in here rather than serialise it further, in the hope that I will be on the receiving end of more material over the summer months – you will write to me, won't you?

I have to say that I was impressed by the response to the colour in the last edition, it was rather impressive, both in its variety and the response to the colour!, and so it will, at least part of the time, be staying with us for a while. That said, not so many bright pictures this time, just be patient – and feel free to contribute!



Barry Houghton from Wombourne was asking about electric conversions, something he is working on for his Fox, (on which he is doing a proper overhaul). We have had a number of folk both running and doing electric conversions over the years, but sadly none of those individuals are current subscribers. I ought to do better at having an archive. (One day I'll get organised!)

*Right, I have taken far too long to get to grips with this – Fox rear backplates. There are (at least!) two different types, those that are located to the axle tube with 3 bolts and those located with 4. It seems that the 3 hole fixing ones are available readily for about £25 each, and, I am advised, it would not be difficult, given a template, to modify a 3 hole fixing one to fit a 4 hole axle, and thus become universal in the world of Foxes. So, **I need samples of the 4 hole one** to use to have a template made in order that we can have a small batch of the 3 hole ones adapted to fit the 4 bolt axles. Can you help please? Also Fox halfshafts are like rocking horse teeth, if you know of any please get in touch.*

My thanks to Jim Lugsdon who very kindly offered to make a template for us, as if and when I get samples organised, I'll be delighted to take you up on that kind offer Jim.

I had a call in the middle of April from Alan Blacker (of course you know Alan, he bought Ray Best's Kitten at Erdigg last year) he was wanting to torque down the head on his Reliant engine. He had a torque wrench, but it did not have any imperial calibrations. So I jumped on the internet looking for imperial to metric conversions, and was impressed by the array of options, there at my fingertips were a multitude of options, I could convert Area, Length, Energy, Mass, Flow Rate, Power, Force, Pressure, Temperature, Velocity or Volume. So I tried looking under Force and was presented with no less than 11 options, none of which was ft lbs, so I did a search on ft lbs and was offered Foot-pound-forces which sounded good, but the fabulous internet would only offer to convert ft-lbs into – wait for it.... BTU's, (tell me please, what is metric about a British Thermal Unit?) or Calories, or Cubic centimeters atm (atmospheric pressure) gramme-calories, Horsepower-hour(US), kilogramme-calories,, kilowatts-hour, joules - ho hum, you get the idea!

So I rang Alan Shaw and he came to the rescue.

However I am out of space and time, so we will cover the details next time. Thank you, Alan.

THE RELIANT RAPTOR

By John Box

In 1993 I was asked by Bean Industries to modify the SS1 Sabre to enable the then currently used Ford CVH engine to be replaced by the 'K' series Rover unit.

The firm that had been given this task had spent a considerable amount of time and money without producing the goods. They had however negotiated a deal with Caterham to use their Ford gearbox conversion. To make it fit we had to make a jig to hand drill the Rover crankshafts to accommodate the clutch shaft spigot.

This was the only major snag, apart from repositioning some ancillaries, such as the battery, which was relocated in the boot.

Within 8 weeks we had a prototype running, and, following some body styling improvements, it was soon in production.

Whilst all this was going on we were discussing how to use spare capacity on the 850 engine and gearbox production lines. This centered round re-hashing the Fox as a chassis / cab for coachbuilding purposes such as small municipal vehicles etc., much as the Ant had been. The main change would be to widen the outer rails to line up with the rear springs, and lengthen the wheelbase by about 9 inches.

A completely revised front suspension would incorporate SS1 disc brakes. The front suspension parts were drawn up, and jigs were made in my workshop at about the same time as Beans went into receivership!

This is where the Raptor story starts. As I was owed money that I was unlikely to get, I gathered up all the components intended for the new chassis which included the last Fox frame, and returned home to lick my wounds.

Various other frays into Reliant death throes followed, concluding with putting the last variation of the Robin into production in 1999. All my parts lay around for a few years and I thought it was a pity not to find out whether our new designs would work. So, over many years, using a derelict Kitten as a donor, a new Reliant took shape.

For obvious reasons its parentage is Tempest, but, in fact, none of its parts would fit a Tempest. The wheel base is 3½ inches longer and the front track 3 inches wider. The body is timber framed and is panelled in alloy. The tail panel

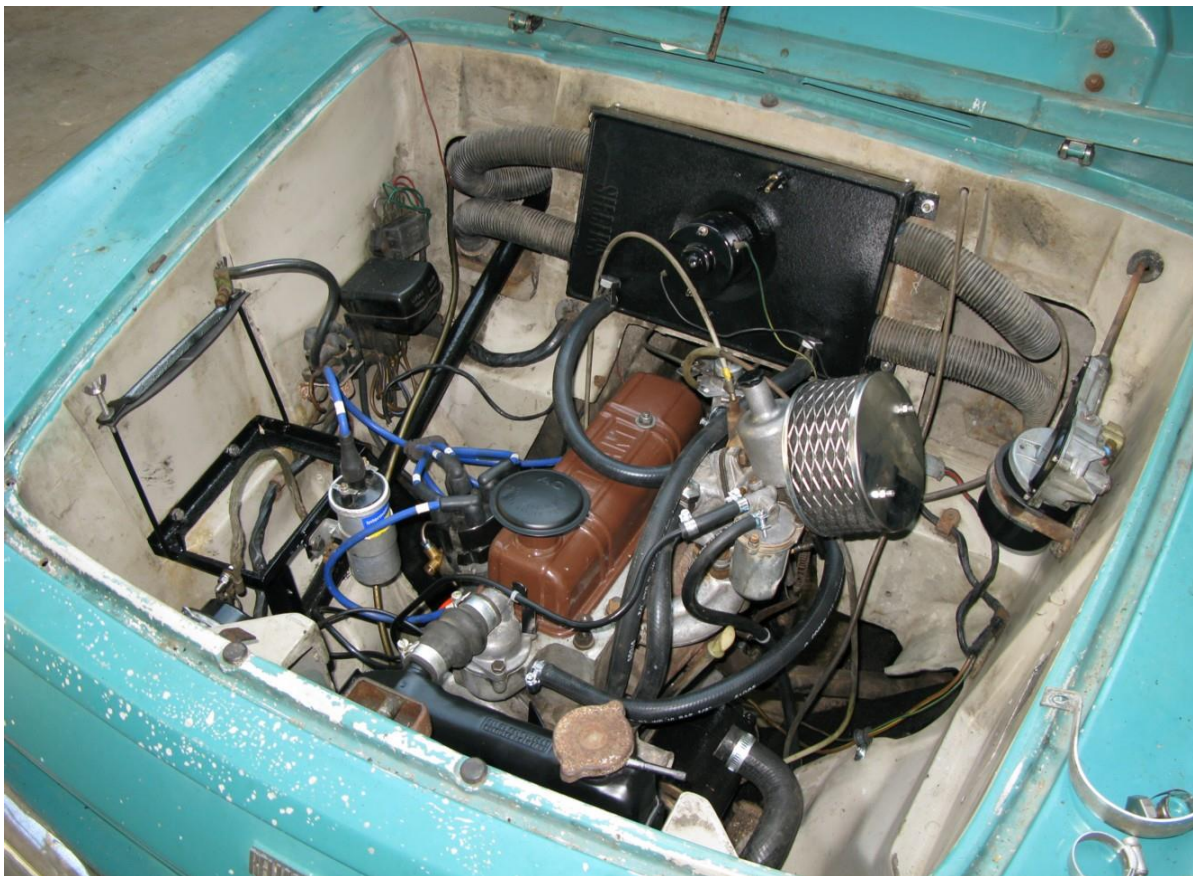


Front brake hoses and cylinders were easy to obtain, being the same as a few Triumph models. The rear hose and clutch hose, however, proved more difficult to find 'off the shelf'. I therefore replaced these with braided stainless hoses made using the old ones as a pattern. My replacement brake pipes were also 'home-made'; I bought 25ft of brake pipe and the correct fittings, then cut the brake pipe to length and flared the ends myself. This proved a far cheaper option than going to the local motor factors for them.

The other stumbling block was to be the brake master cylinder. The one fitted to the 750 Rebel is different to those used on earlier 700 and 600cc cars and proved difficult to find. Eventually a new 'old stock' item was provided by another good friend and thoroughly decent chap, James at CHG Performance in Norfolk. Incidentally, the master cylinders for earlier Rebels are easy to get and dirt cheap (from £12)!

The brake system took a while to bleed, but after a couple of attempts and a bit of adjustment, I had a brake pedal that I felt would work.

I took the wheels home for cleaning and painting, including the spare wheel with its unused tyre. They were all given two coats of white paint and 5 new Falken tyres were fitted.



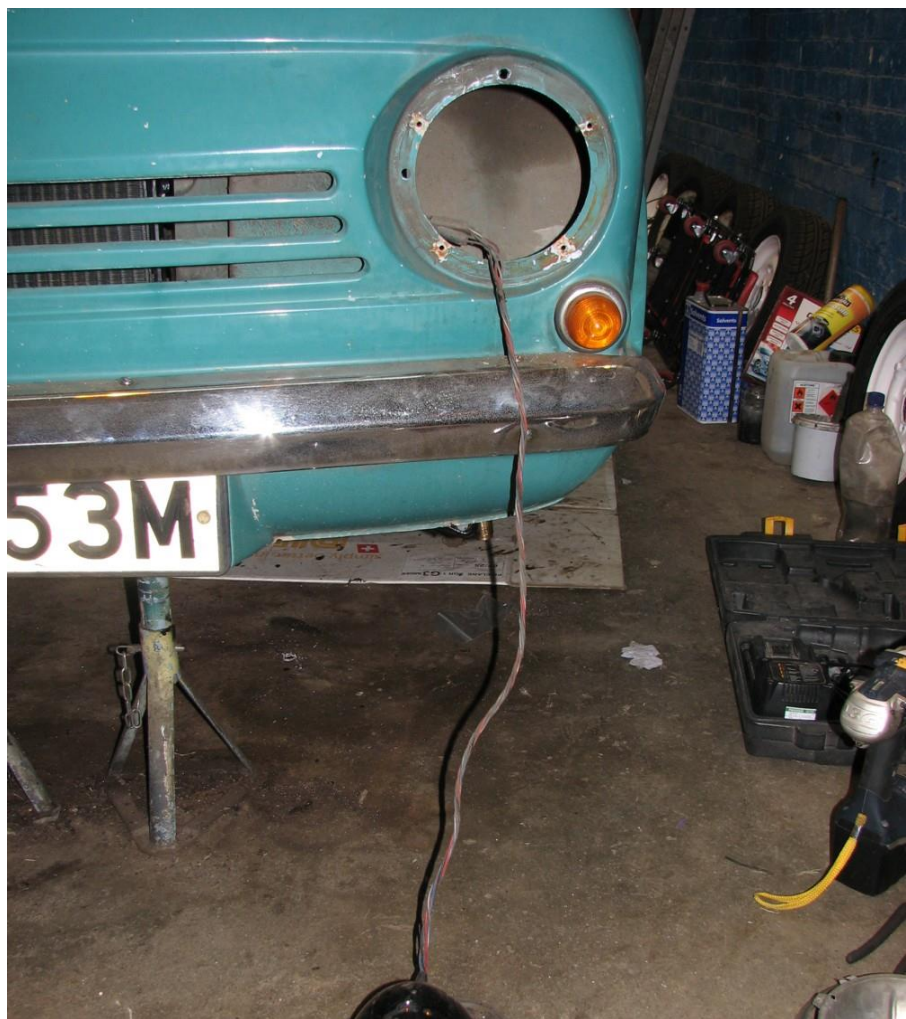
Under the bonnet I gave everything a thorough clean and carried out a full service on the engine. All filters and fluids were replaced, and new spark plugs fitted.

I removed the radiator and fan and gave them a fresh coat of paint, also renewing all rubber hoses. The distributor had a ridiculous amount of play in it, so I replaced it with a later 45d model. Also new HT leads and a new ignition coil were installed.

I removed the entire heater unit from the car. The area behind it was full of dried leaves and other dead plant matter but no mice nests. I cleaned and painted the heater unit, but found the heater motor was seized. I knew I had a Kitten heater motor in my box (shed) of bits; 'problem solved' methinks. Upon closer inspection, however, the Kitten heater motor was different to the Rebel one. Fortunately it was similar enough to allow me to build one working heater motor out of the two.

The clutch master cylinder was the same as the brake master cylinder and so I knew a replacement wouldn't be easy to find. I decided to buy a rebuild kit and attempt to rebuild the old seized item. After a good clean and a long time spent with the airline and penetrating oil, the master cylinder started to move a little. Eventually, after a lot of gentle working backwards and forwards, she was apart. A close examination of the bore showed no signs of wear or damage and so new seals were fitted and the whole thing reassembled. The clutch slave cylinder was also stripped and rebuilt without trouble; I think the seal kit for that was less than £3. The hydraulic clutch circuit was reassembled using new copper/nickel pipe and braided hose. It was a good feeling when the master cylinder did its thing, and the system was bled without any problems.

Once I fitted a battery to the car, I set about sorting out numerous electrical problems. Most of these were traced to corroded connections, bad earths or blown bulbs. A couple of switches were replaced on the dash and some 'non-standard' wiring removed. I was amazed by the amount of spare wire behind the headlamps; I guess it's the same loom that was used on the Regal 3-wheeler.



The next job was to try to keep the glove box shut. I found catches identical to the original for sale in B&Q. However a new catch didn't solve the problem. Every time I shut the car door, the glove box would swing open. It was getting very frustrating to say the least. I tried messing about with little spacers behind the catch to try and get it to work, but still it refused to play. Eventually, I removed the catch completely and replaced it with a magnetic door catch; not original but it works a treat.

It was almost time to put some fuel in the tank and see if she would run. The original Zenith carburettor had been replaced by the previous owner with an SU carburettor, I assumed from a Reliant 850 (it actually turned out to be from a Mini). As I am a fan of the SU and being familiar with its idiosyncrasies, I didn't mind at all. I stripped and cleaned the carburettor, fitted a new float needle and, for safety reasons, equipped it with a later float bowl lid with provision for an overflow pipe.

A new set of points and a new condenser were fitted and the points gap set. I couldn't put it off anymore; petrol was the only thing missing.....

A couple of gallons in the tank..... ignition on, coil disconnected, I turned the key.

The engine spun over; so far so good. I turned the key again, this time I let it spin over until the oil pressure light went out, and I was relieved when this only took a few seconds. I went back under the bonnet and reconnected the power to the coil. Back in the driver's seat I pulled out the choke and turned the key again. Almost instantly she burst into life. She was spluttering and struggling to run, but she was alive and she didn't sound like a bag of spanners. I tried to rev her but she just coughed and misfired. 'Oh well' I thought, 'at least she runs, that'll do for today'. The generator light had stayed on, indicating a possible charging problem. Add that to the 'to do' list.....

The next few hours that I spent with the car were a bit frustrating. I adjusted the timing and carburettor settings and she would tick-over smoothly and quietly, but as soon as I tried to rev her she would splutter and pop and bang. After having checked for air leaks and cleaned the carburettor (again), I finally figured out that I had a faulty condenser. I decided to lose the points and condenser altogether and fitted an electronic ignition module in their place. She instantly started and revved cleanly; problem solved.

So now what?

Fortunately there are private roads where I work, so after checking that the clutch disengaged correctly I was able to slip her into gear and let her move under her own power for the first time since 1996.

First impressions were good. The gears all selected correctly, the steering was positive and the engine seemed very strong. The brakes on the other hand were not very good at all. Although they would stop you, the pedal was almost to the floor before they did. A trip back to the workshop for some investigation was called for. After adjustment to the shoes and the master cylinder push-rod, I had a nice firm pedal that was also a lot higher. Another drive confirmed it, the brakes were ok.

Going back to my 'to do' list, there were just a few little jobs left to do:

- Interior light lens broken
- Number-plate light not lighting
- Dynamo not electrifying
- Balance spring on gear stick not there
- Missing/broken carpet studs
- Master cylinder cover to be fitted
- Temperature gauge not gauging
- Reversing lights not lighting.....

Hang on, that list keeps getting longer..... and I still gotta do something with the paint on the roof, and sort out the broken sun visor, oh and fit a mirror, and those wheel trims are very rusty and need replacing..... Aaaaaaaaargh!..... Ok, deep breath, one thing at a time.....

I had originally set myself the target of September 2011 to get the Rebel back on the road, in time for the annual Tamworth gathering. Due to lack of time to work on the car and with some parts proving difficult to obtain, September came and went and soon Christmas was rapidly approaching.

Back to the car..... Ebay once again saved the day when it came to the wheel trims (nave plates); a set came up in reasonable condition at a good price. They weren't perfect, but they certainly looked better than the rusty, flaky ones which had come with the car.

After checking that the dynamo was putting out voltage, the charging problem was traced to a faulty voltage regulator. A new replacement unit was purchased for a very reasonable £18.

The Interior light lens was still there, but was very thin and brittle. So brittle in fact, that it would crumble into pieces if you touched it. The lens was another MK1 Mini item and a replacement was fairly easy to get if a little expensive.

The missing balance spring for the gear stick was supplied by Dan Rodd's Reliant Farts (that's not a typo) in Worcester. The bracket for the spring was also missing so I fabricated one easily enough in the workshop.

There were no external mirrors fitted to the car. I know it didn't need them for the MOT, but I thought that at least one was necessary for driving in modern traffic. Although I like the idea and the look of 'proper' wing mirrors, I didn't want to drill holes in the wings to fit some. So, thanks once again to Dan Rodd, I obtained and fitted a quarterlight mirror which fixes to the window frame.

The paint on the roof was still a bit of a bugbear. I decided to take all the remaining paint off to a line around the top of the window pillars. Then I filled and sanded the minor damage. The plan is to paint the roof in a complimentary colour, maybe cream. Hopefully that will make the car a bit more presentable (from a distance).

I tested the temperature gauge was working correctly by earthing the feed wire and that was ok, so the temperature sender was replaced and the fault was rectified.

The malfunctioning reversing lights were an easy fix, just another bad earth.

The missing and broken carpet pop studs were available from Woolies Trim, and were quick and easy to fit.

I took the cover off the number plate light expecting a blown bulb. I was proved right regarding the bulb, however the rubber around the bulb holder had perished very badly and I knew I had to replace it. A complete new light assembly was obtained from Rimmer Bros in Lincoln; apparently it's the same as a Triumph TR5.

The list items were disappearing just as fast as my savings, until finally I had just three big items left: insurance, MOT and road tax. Yes, the roof still needed painting and the sun visor was still broken and, if I was honest, there were probably a couple of other little jobs that still needed doing but really didn't matter for the MOT.

A phone call to my insurance company and I had Fully Comp cover.

Then another phone call and the MOT was booked for January 27th.

I took the opportunity in the few days leading up to the MOT to drive the Rebel around at work, just to iron out any teething problems. The temperature gauge stayed at normal and nothing seemed out of place. Unfortunately, due to on site speed limits, I couldn't really open her up and so, except for very short bursts, I couldn't take her above 20mph. How would she perform on the open road? That was my next question.



The day of the MOT arrived and I prepared for the 5 mile drive to the test centre. I put a bottle of water and some tools in the boot (just in case) and set off.....

Now I wish I could furnish you with a tale of an epic journey to the MOT station, with numerous problems and feats of ingenuity to overcome breakdowns that would put even the A-Team to shame, but I can't. The Rebel drove beautifully, all the controls worked well and the temperature stayed at normal or below, brakes were fine and both the oil and ignition lights stayed out. I even saw 60mph on the speedometer (probably nearer 50). The only thing that wasn't working was the fuel gauge; I suspect the sender unit in the tank is stuck. First thing I did on arrival at the MOT station was to check under the bonnet. Everything was just as I had left it, with no loss of oil or any other fluids. That was a good sign.

The MOT started well, the inspector was impressed at the condition of the engine bay and also commented on the great condition of all the steering and

By 10.30 I was on my way to pick up Alan, my bouncer. The weather was sunny and warm but this gave way to gloomy skies as we progressed westwards over the Yorkshire Wolds. We had lunch at Masham and then it was on to Leyburn, and over the top into Swaledale. We wound our way up through Swaledale and into fog as we crossed the high Pennines. Dropping down to Kirkby Stephen we left the fog behind and returned to gloomy skies that stayed with us all the way to Carlisle. Rain had been forecast but this didn't materialize until the moment we pulled up to a halt in the hotel car park!

Having settled ourselves in to our room we decided, in view of Saturday's weather forecast, to put up the bimini rather than struggle with it in the dark the next morning. This proved to be a wise move.

Saturday at 6.30am we picked up our packed lunch and in the dark and in pouring rain negotiated our way out of Carlisle and on to Wigtown arriving at the Stockman's just after 7.00. With the wheels changed and scrutineering completed (where spill kits were the order of the day) we signed on, fixed the numbers and settled down to a bacon sandwich and a cup of tea.. Kevin Barns and Joanne Hart with the other Liege arrived and we exchanged hellos and introductions as we left the warmth of 'The Stocksman' for the car park.

Our start time was 8.46am and with the rain now stopped we set off for 'Allhallows' Colliery' where we joined the queue waiting to tackle this section. The way to the section is along the old track bed of the branch line which had served the colliery, single track and well rutted it was causing some delays as those leaving had to do so by the same route and it was difficult to get out of the ruts to pass. We ran wide in this section turning the right-hander and drifted further and further out to the left where we finally lost traction only managing a 10. Not a good start but we were in the unique situation where we could not finish any lower than last year, dead last! Kevin was waiting in the queue for this section and I was able to advise him to keep tight right. This advice he followed and cleared the section.

On then to 'Leesrigg' for the observed test which is within the Colliery complex. Last time out (Clee Hill Trial) I had failed on a special test but between then and now I have been learning my ABC and drove the test without any problem other than not going fast enough.

A fourteen mile road run through some delightful lanes brought us to 'Black Hole' where we joined another long queue. This was caused by a Marlin getting stuck fast at the top, and took some time to be extricated. The weather had improved and I contemplated taking off the bimini but decided to leave it on as a

I am on the receiving end of more than a few of the following sort of e-mails, seldom do I have any idea from whence they originate, but now and then one makes me smile – this is one such example -

LITTLE GIRL ON A PLANE

An atheist was seated next to a little girl on an aeroplane, and he turned to her and said, "Do you want to talk? Flights go quicker if you strike up a conversation with your fellow passenger."

The little girl, who had just started to read her book, replied to the total stranger, "What would you want to talk about?"

" Oh, I don't know," said the atheist. "How about why there is no God, or no Heaven or Hell, or no life after death?" as he smiled smugly.

"OK," she said. "Those could be interesting topics but let me ask you a question first. A horse, a cow, and a deer all eat the same stuff - grass. Yet a deer excretes little pellets, while a cow turns out a flat patty, but a horse produces clumps. Why do you suppose that is?"

The atheist, visibly surprised by the little girl's intelligence, thinks about it and says, "Hmmm, I have no idea."

To which the little girl replies, "Do you really feel qualified to discuss why there is no God, or no Heaven or Hell, or no life after death, when you don't know shit?"

And then she went back to reading her book.

Federation news - **EDITORIAL NEWSLETTER No 2, 2012**

Our office currently receives newsletters from 173 of our 503 member clubs and every one of them is read and enjoyed by the editor and the Club News editor. It is always gratifying to see snippets from this newsletter reprinted: that is a service we hope all clubs will use. There is a great deal of misinformation printed outside these pages – if you want the unsensational truth about a topic, the Federation newsletter and website are where you will find it. While it is free for all members to use (the Federation just asks for an acknowledgment) relatively few clubs do take advantage of this benefit of membership.

Club newsletters and magazines are then sent to the National Motor Museum where they are archived – this is only the case for hard copies, we do not archive the emailed versions at present. Please do keep sending in your publications and better still some pictures of your vehicles in use as well.

With Drive It Day coming up fast there will be plenty of opportunity to enjoy our vehicles on the road and the chance for photos and reports of the day's events. Please do send them in.

WELCOME

I can report that sanity has suddenly prevailed in an area where the nonsense fairy is the all too frequent visitor. Mildenhall Fen Tigers Speedway Club have had problems with their residential neighbours who, having moved in relatively recently, seemed surprised that a Speedway Stadium would run noisy and regular Speedway and other events. It should also be noted that RAF Mildenhall is also a close operational neighbour.

Last year the residents took the club to court and successfully sued over the noise with the potential to seriously restrict the activities. So serious was the threat of curtailment that the club took the case to appeal and at the appeal hearing the court overturned the original decision, leaving the residents £85,000 out of pocket. Lord Justice Jackson is reported as saying "...their predicament is a result of their decision to purchase a house in an area where motorsport is an established activity".

What a wonderful blast of sanity and how many other established motorsport venues will benefit from this judgement? Clearly we should enjoy our activities in a responsible manner but this can't be allowed to be all one-sided. Perhaps we should offer Lord Justice Jackson membership of the Federation to encourage more common sense, particularly in cases where a £4.3 billion industry is involved.

Getting technical

Very briefly, Peter Wickens, thank you Peter, has found a source of Kitten door window seals, for the winding windows. I have still to identify the part number, the thing is do I just tell you to get them from Nigel and Kay Coles of Phoenix Supplies 01884 849294 or www.phoenixtrim.co.uk - or do I see if we can get decent discounts by buying in bulk? To do that you will need to tell me if you want a set (of 4 – two pairs for each side of both front door winding windows) let me know. Ed.

Inlet manifold mods by hand by Keith Gittus

Once upon a time there was a young car enthusiast who felt motivated to experiment with the then new computer technology and play with what was called a “word processing” software package (Wordperfect as it happens)

Anyway, that is ancient history, I was nigh on half the age I am now – a sobering thought, and I was taking over editing and producing the newsletter / magazine of the Thistle branch of the Reliant Owners Club – I have never really understood if there should be an apostrophe in that title, and if so exactly which side of the s it should go on!

Back then the early editions of “The Rebellion” as we called it, to distinguish it from the various other branch mags which were, and still are, called “Top Gear” were all originals printed on an Epson dot matrix printer that I had been donated a couple of ribbons for.

Enough with the ancient history and reminiscing, a few years later after failing to convince Terry Scott to widen his Rebel Register of the time to include Kittens and Foxes, I was persuaded to begin the Kitten Register, it was all Sandy Riddoch’s fault, he handed me a tenner and told me to get on with it! Oh my, was that really over 2 decades ago – oh yes it was!

Oh, sorry, this was meant to be the technical bit, wasn’t it (oh yes it was!) - not sure if I am beginning to sound like a pantomime character or a priest with those expected chanted responses!. Anyway, I am, I fear, guilty of mass deception, as the real trick with these inlet manifolds is in fact – as I have come to understand things, far more subtle – but here Keith shows us a way of achieving the kind of mod I have been recommending for some time. In Keith’s words then :-

Inlet manifold mod – by hand (almost!)

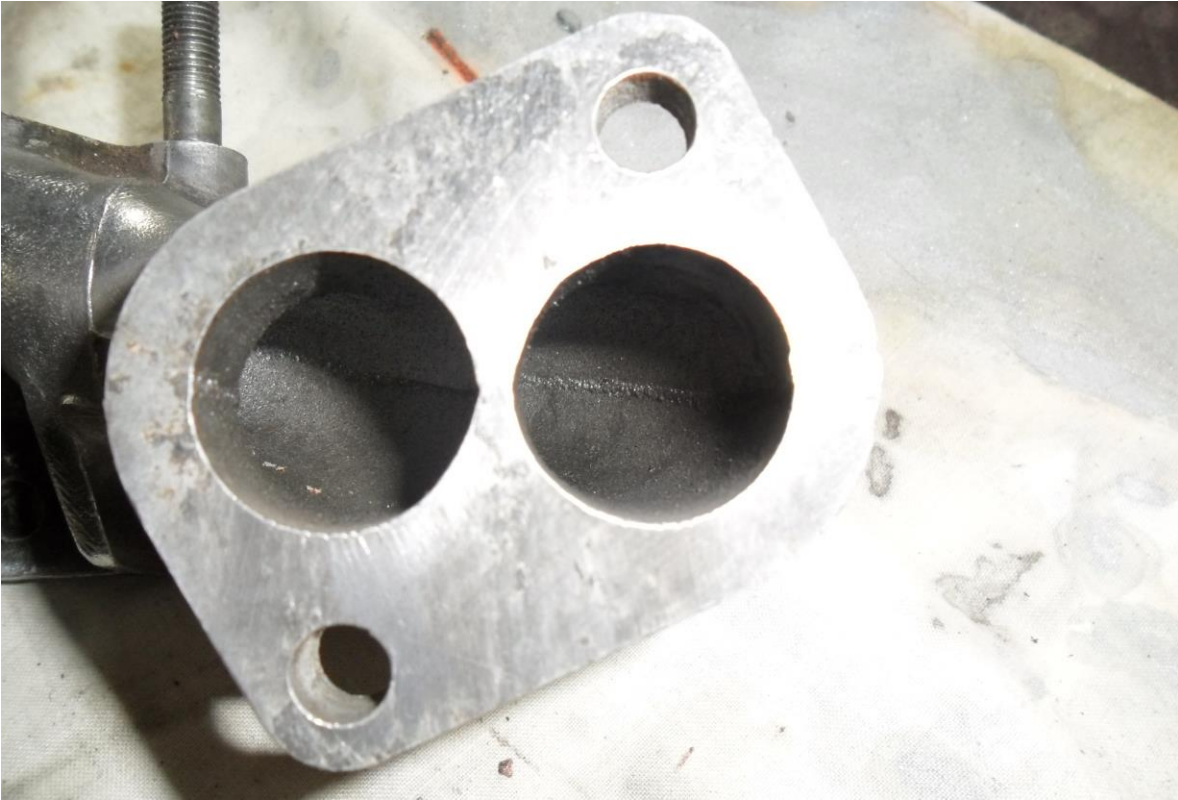
Keith Gittus - a master class



The standard manifold can have what's generally called the Rebel racing mod using some basic tools:- 1/8" drill, 1/2" chisel, a hammer, a burr, an electric drill and a bench with a vice.



The first stage is to choose a small diameter twist drill and drill a series of holes about 3/4" or as deep as you can into the web joining two inlet ports.



Firstly, I asked Keith for a lesson in how to sharpen a drill, sounds basic I know, but something I always struggled with – I was fortunate enough to have a lesson from the late Jock Campbell who was one of the main men who set up the Rolls Royce factory at Hillington that was built specifically to make Merlin engines during the second world war – sadly my scrap rate of drills that I tried to sharpen (if you imagine repeatedly sharpening a pencil, you end up with nothing left but a stump!) under his guidance, was the same as the scrap rate of Hillington built Merlin engines initially – 100% - I did not have the opportunity to improve on that, the factory, thankfully, did!



I particularly liked Keith's trick of using a couple of nuts to check the angle is right, good tip Keith.

Back then to the drilling operation :-



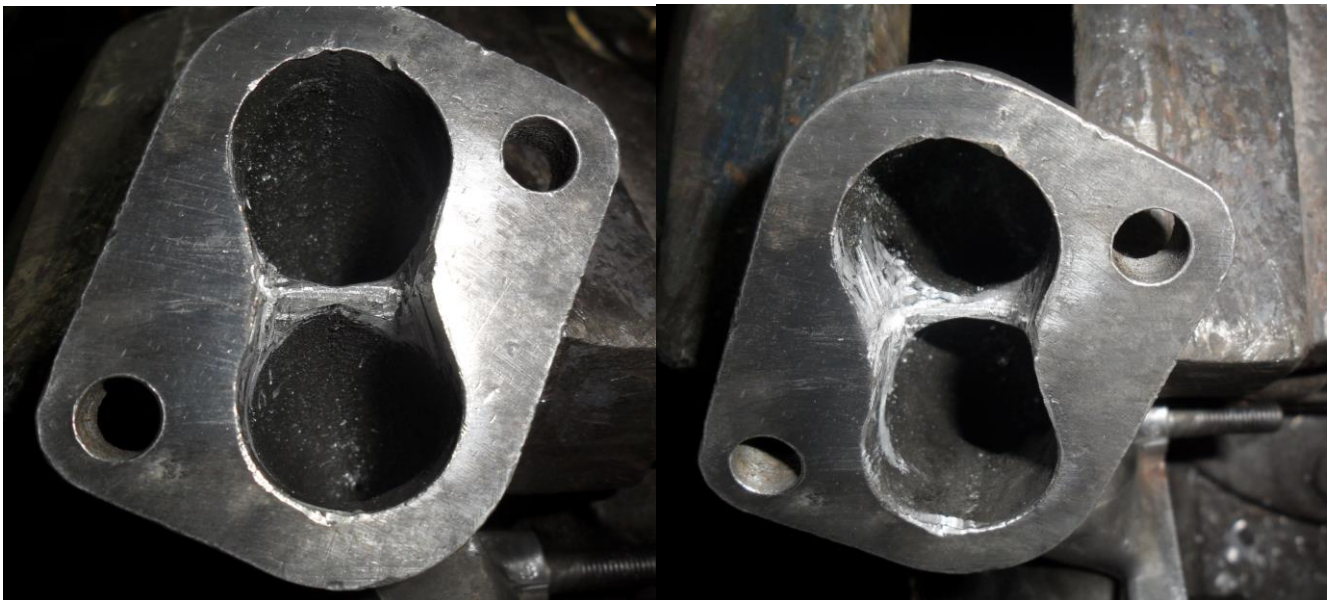
Next chisel out the middle web leaving an upside down vee at the bottom.



O.K., so I didn't quite take that picture at the right time, but you get the general idea, Ed.



Next chisel at a tangent between the outside of the port and the web, do this three further times to complete this stage of the process on one pair of ports. All that's left to do to complete the mod to one pair of ports is to blend in the inside of the bores to give a smooth flow. This is achieved partly by chiseling out the worst of the remaining aluminium, then blend in with a burr, repeat these stages for the other pair of inlet ports.



Keith (0154)

*Many thanks Keith. Obviously having done that to the manifold, work will be needed on the head to permit smooth flow of the fuel / air mixture into the engine, but that, as they say, is another story. **As I'm afraid is the crack that Keith later discovered and asked me to tell you about**, sorry, out of space – something to look forward to next time! Ed.*

Right, listen, back to the matter of cylinder head tightening. It occurs to me that the recommendation for when to pull the head down after fitting a new gasket really ought not to be about mileage or hours of running. In fact the important thing, as I now understand matters, is the number of heating and cooling cycles, and while speculative, I would suggest that the number of them before re-tightening the head nuts is not in fact a terribly big number. More than five (or would five in fact be more than enough I wonder?) and less than fifty, I would venture that ten (who says I don't ever think metric?!?) would do for starters. As to how often you should do it, well I am with Alan Shaw on this, it ought to be more than the once officially recommended.

I know it is a pain having to reset the tappits, but hey, it's good practice, teach a youngster – I always used the rule of 9, (It was a Bank Manager called Archie Keith who taught me that trick!) how do you do it? (truth is that I don't actually know where my feeler gauges are, someone told me you even get metric ones these days!!)

Just writing this reminds me of that really useful tip when setting the valve timing – yes, I once got that wrong by 2 teeth, I honestly think that marauding explorative children were involved, the job was being carried out 50 miles from home over a few days, and I had “wired” the timing gears together just to prevent any chance of movement, but on re-assembly the engine was really difficult to start, and when it did it was the roughest sounding lumpy engine I have ever heard, one tooth out is not in fact too terrible, but two – forget it, absolutely no power at all, if you can even get it started!

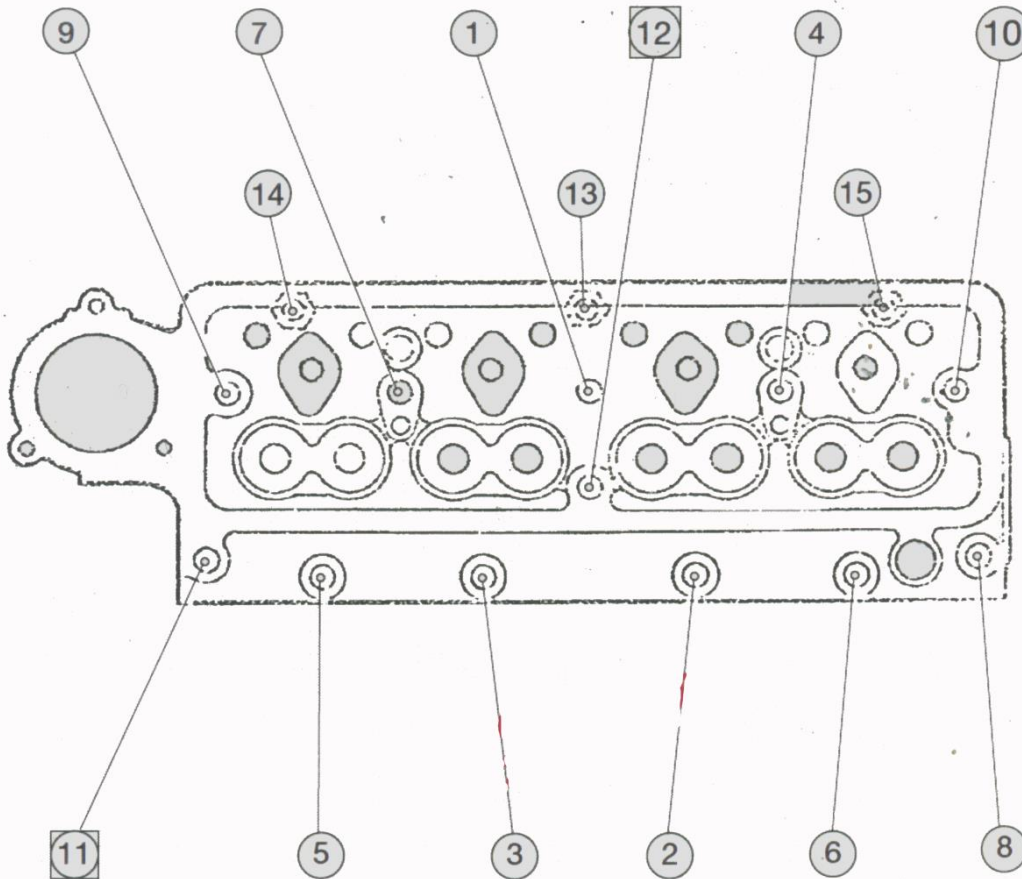
See, sidetracked again! That tip, well, the inlet and exhaust valves on number 4 cylinder are just on the rock – one closing just as the other starts to open, when number one piston is at TDC (Top dead centre) on the firing stroke. Do you know it is so long ago now that I can't be certain, but I think it was Dennis at Michaels that first told me that tip.

Anyway, I realise that you may not have your workshop manual to hand, (and why not?!?) and if your memory is as good as mine, the mental picture of the head – no, not mine, the engine's silly, pay attention! with the studs numbered might be a bit hazy – I mean, how many people do you suppose reading the last edition might have thought that studs 11 and 12 were next to each other? – you knew better of course, didn't you?

Ahh, I've wittered on long enough, bottom of page arriving, what do you mean - at last!?! I needed a full page for the following :- Thanks John.

My thanks to John Box for the following update from the factory (which several Reliant dealers are blissfully unaware of!) :-

CYLINDER HEAD NUT TIGHTENING SEQUENCE/DATA



SEQUENCE DIAGRAM

TORQUE

| NUTS | SIZE | SPANNER SIZE | TORQUE | |
|-----------|----------|--------------|---------|------|
| | | | lbs.ft. | Kg.M |
| 1 to 10 | 3/8 UNF | 9/16 AF | 25.0 | 3.46 |
| 11 and 12 | 3/8 UNF | 9/16 AF | 20.0 | 2.76 |
| 13 to 15 | 5/16 UNF | 1/2 AF | 15.0 | 2.07 |

IMPORTANT: This sequence/data supersedes all previously issued information.

Cylinder head nuts **MUST** be re-torqued after running in.

Nuts should be backed off 1/2 turn & re tightened to the recommended torque.

Cylinderhead nuts **MUST** be re-torqued after “running in”. Nuts should be backed off 1/2 a turn and re-tightened to the appropriate torque as per the drawing above.

Epilogue

Right, you will hardly believe this, it is April the 8th, Easter Sunday, I've just packed Mag 105 to post to you on Tuesday when the mail gets going again after the holiday, and while I am typing this bit now, (before six in the morning, just one of those sleepless nights) this edition is just 3 pages from being complete! Thank you to those whose input has made this possible, this job really is easy given sufficient material.

Both my local Post Offices have run out of sheets of 100 self adhesive second class stamps, but we are well stocked up – better than money in the bank – should I advise my house contents insurance company do you think? The risks we take in life!

Still things to learn, or learn to live with, that picture – well there are a couple of them, but the ones on pages 9 and 10 are good examples, I just can't get text beside a picture, the template I use to get the pages in the right order just won't let me – grrrr – deep breaths Brian.....

Sorry Keith, not only have I yet to locate the pictures of the crack in that inlet manifold, but I am out of space. I'll get on it for next time. Ed

Not many pictures this time, lots to make up next time!

Till then, drive carefully, oh, and do grease those ball joints!

*Resin
Rockets*

Reliant engine tuning for economy or whizz, not quite halfshaft breaking torque, but optimising the Reliant 850 so that its full potential is achieved.

—————
>—————<

Manifolds optimised
Heads tuned, including attention to valves
Carburettor gas flowed
Rockers realigned and lightened

—————
>—————<

Large selection of good used Kitten and general Reliant spares available, just ask for details. Also new wiring bits
- all the funny coloured cables and crimps with electrical advice

Al Osborn 35 Griston Road, Watton, Thetford. IP25 6DN
01953-884681 www.aoservices.co.uk



Joe Mason – 07973 470810

We have a huge range of secondhand reliant spares at:

www.secondhandreliantspares.co.uk

Fresh cars are coming in every week so if you can't see what you want please phone or check the site again.

Check out my **[photo bucket galleries](#)** to get an idea of just how much stock we carry. And don't miss my **[local vocal calendar](#)**.

Complete cars bought and sold. Parts and job lots of spares always wanted. We also do recovery and a delivery service is available within the three counties.

Remanufacturing and engineering

Skimmed brake drums and stainless steel brake line sets.

“Rebel Racing” Inlet tuning modification supplied, big power increase and better fuel economy when used in conjunction with other improvements we can offer. The most fuel efficient car on the road? 70+ mpg possible!! Better than a Smart car or a Citroen C1 (Parker's Guide figures)

How to find me

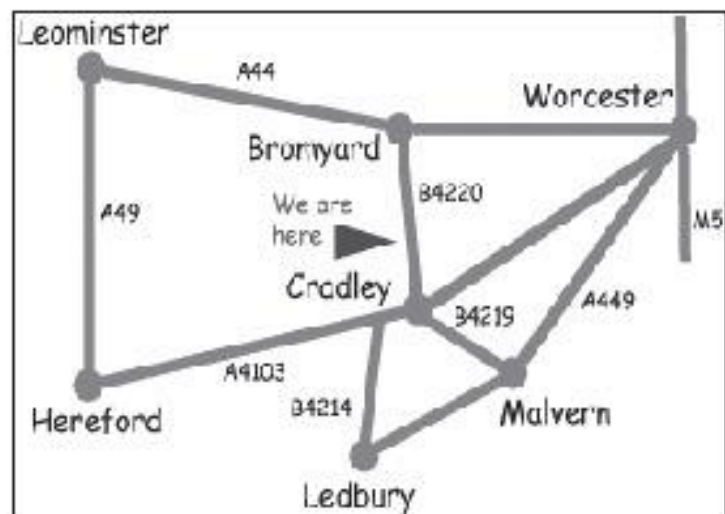
I'm based at Wood End Farm (Out 2 Grass Mountain Board Centre), Cradley, Worcester, Worcs WR13 5JW, England

We're easy to find - take a look at the map and directions.

Opening hours

Friday and Saturday
10am - 6pm ish.

It's always best to ring first, as we're out in the sticks here and a broad band goes on a tractor and we're too busy to check email!



GRAHAM WALKER LIMITED



28 Bumpers Lane
Sealand Road Ind Est
CHESTER CH1 4LT



**RETAIL AND TRADE SUPPLIERS OF
RELIANT PARTS WORLDWIDE
ROBINS TO SCIMITARS**

**OVER 10,000 LINES STOCKED
MAIL ORDER PARTS ARE OUR SPECIALITY
NEXT DAY NATIONWIDE DELIVERY SERVICE**



**SHOP BY PHONE FOR FAST MAIL ORDER
ORDERS RECEIVED BY 4.00PM WILL BE DISPATCHED
SAME DAY**

ALL MAJOR CREDIT CARDS ACCEPTED

TELEPHONE

Mail Order: 01244 381777 - 7 Lines

Fax No: 01244 381262

OPEN

**Monday - Friday
8.00 am - 6.00 pm**

**Saturday
9.00 am - 1.00 pm**

WEB : www.grahamwalker.co.uk **E.Mail :** tracey.jones@grahamwalker.easynet.co.uk

**COMPARE OUR PRICES, OUR QUALITY AND OUR SERVICE
FULL WORKSHOP FACILITIES AVAILABLE**

MOTOR INSURANCE

IMMEDIATE COVER FROM THE SPECIALISTS



Free quotation
Payment by Credit Card
Payment by instalments



Underwritten by a leading UK insurer or at Lloyd's
High quality advice from trained staff
Nationwide Service
Fast, efficient claims handling

Phone Us on 01530 270574