

# MIDGE MAGAZINE



Winter  
2023



Michael's Midge

MOBC. the Midge Owners and Builders' Club



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## Hello All.

Well, Christmas approaches, or has just passed depending on whether I get this out on time. A bit thin perhaps but printable. Send more copy (or chocolate).

I don't think it's going to be a white Christmas, more likely in Yorkshire than here where it's all gone a bit weird. As I write this bit, 23rd Dec, at 19:30 the outside temperature is 9°C, that's about 15° above the expected. No sign of any wolves yet.

Still it does save scraping the ice off in the morning.

John Cowperthwaite and Rosie dropped by for a few hours and we solved most of the world problems. I don't know if the changes will be actioned immediately, but we live in hope. Better than living in sin I'm told. (A little village just outside Wedlock)

The EV (not the Midge I'm glad to say) has suffered another dent, but being newish and covered by the other party's insurance, easily fixed. Fiona watched him do it. (Poor lad was on his first day driving a Sprinter in a cramped supermarket car park) so there was no problem beyond a small inconvenience. Nicely sorted by a professional (Polish) repair shop. And I can be very picky if it's not my problem.

So we are sitting out some rather unseasonal warm, wet, windy weather and fighting the cats for good positions in front of the fire and at night, bed-space.

I only light the fire at a temperature outside of 5°C, but with guests you have to make an effort and I allow myself a small white wine. I try not to drink more as it brings me out in opinions. I was pleased to inherit my father's manual and DIY skills but less so his poor alcohol tolerance. My mother was much more tolerant, especially of gin, but I didn't get those genes. Fortunately Dad and I could both manage the odd whisky.

Anyway, I'd better get this finished up and I'm hoping Santa missed the solar panels, Have a happy one.

JH



Jim Pailing writes.

(I'm going to have to start paying him, or at least elevate him and Rob Shalcross to 'top contributors')

### **'Look for the simple things first !'**

This was one of the few things learnt from my father which he, in turn, learnt, whilst a flight line mechanic in the RAF during the war. His claim to fame was sitting astride a Wellington bomber engine, whilst it was running and dowsing it with two gallons of petrol, found the elusive oil leak that enabled the aircraft to be made operational. Answering a call for help from Robert of Danbury, a Midge owner, the maxim was applied. A 'silly' mechanic had managed to cross two plug leads and also time it 180 degrees out. (Must find out how to do the little 'o' for the degree sign ? No time like the present; Google says ? Ahh! Insert-symbol-more symbols-subset-superscripts and subscripts-select- °. Such joy! Now I can go the Nth °, listen to the 3<sup>0</sup>s, be a Master of the third °, enough, enough ! )

Where was I ? Oh yes; trundling the Midge around the car park and having shoehorned myself in decided that the Midge is definitely a bit on the short side for my delicate build. So, project Marge will need to be looked at with regard to leg room as well as width. So, I think I will substitute Midget springs for the Marina ones as they are 8" shorter which will therefore give 4" extra leg room. With a steeper angle for the first part of the dog leg, I should gain the required leg length.

With the new chassis sections notched to fit the cleaned up front section, it all starts to look like something. Hooking the tape on the front suspension tower lugs and measuring diagonals, the chassis width at the second 'bend' came out at the 40" of the original. So far, so good! Having assembled the side panels, nose cone and bonnet, I was so impressed, I washed the lot down!

I had been a little unsure of the effect of the difference in height between the two vehicles; the Marlin, I thought, much lower but upon measuring the height of the rear of the bonnet line and calculating from Mr Cowperthwaite's plans, the Midge at 26" is only 2" higher than the Marlin. Bearing in mind it used original Herald seats, a pair of lower bucket seats should address the difference.

Initially tried to draw up the chassis on my trusty drawing board to 'fix' length and angle of the 'under door' side members but found too many imponderables for my simple mind, so will resort to empirical engineering, also known as 'it fits where it touches' ! In simple terms, a trial assembly of original items which will determine the required locations. This will give us the position of the rear axle front spring hangers and also the 'dog leg' over the rear axle.

Taking the Dolomite axle and fitting the splined adaptors and a pair of wire wheels, the inner width came out at 48". Subtract 4" to give clearance for tyres and for roll and I think an overall width of 44" should be good. Allow 4" for the prop shaft tunnel and we get 20" for each seat, which is two more than my anthropometric data requires. Bliss!

Then I will take the rear Marlin chassis section and working from the rear, hang the rear spring hangers from the chassis holes complete with springs, fit the springs to the axle and shuffle the axle mounts until I get the required 44" width above the axle (axle is devoid of mounts) and this will give me all the dimensions for the rear chassis from the front rear spring hangers to the rear bumper. All I need to do then is join the front and rear assemblies using the front and rear wings to give the wheelbase and it's 'job done' ! 'tight R's' I have found a man on Ebay who sells a range of needles at a tenner each. But the problem is they are not the common ones but what you do is list the original on MinytLamb's spreadsheet and then list the ones from Ebay and get one that is close. I have gone for a pair that are the same 'incline' but slightly richer. We shall see.



Jim P continues

One of the pleasures of kit car building is the lack of pressure, so when I feel like a change, I can divert to another task. At present we have a set of wire wheels 'cooking' in my battery charger powered de-ruster. After pressure washing, a handful of washing soda, switch on and after a lot of evil looking bubbles appear, 'hey presto', no more rust ! However the original stove enamelling was a little persistent, so out with the compressor and grit blast gun and, ditto, no more enamel. A 'rattle can respray' and a very nice set of wire wheels; even if I say it myself ! But, my local man who would whip off a tyre and replace it for a fiver, has retired. (I blame myself, I suggested that he did !) Now, the price is £15; now that is inflation, if you will excuse my pun ? (Inflation, tyres, OK ?)

Now, dear reader, a few tricks of the trade ! Lest you suspect that our residence is a smog covered manufacturing nightmare; there are one or two rules. After pressure washing the wheels we clean the verdigris off the garden slabs and whilst grit blasting we clean a copper sculpture from wife's art group. The grit blasting sand, raked in, also enhances the lawn. Makes the world go round, see ? However, oil stains on the drive ? Now, that's a different socket on the ratchet handle !

As a totally different project I have been looking for a single carburettor for the Spitfire 1500. I preferred the idea of simplicity, ease of tuning etc. However the prices are a bit high for just the manifold so having bought a twin manifold for a tenner, probably a 1300, started looking for a pair of 1 ¼" SU's instead of the original 1 ½". The web says more than adequate and in any case the diameter of the head ports are only 1 3/8" as are the manifold 'oles so can't see why they fitted 1½" anyway ?



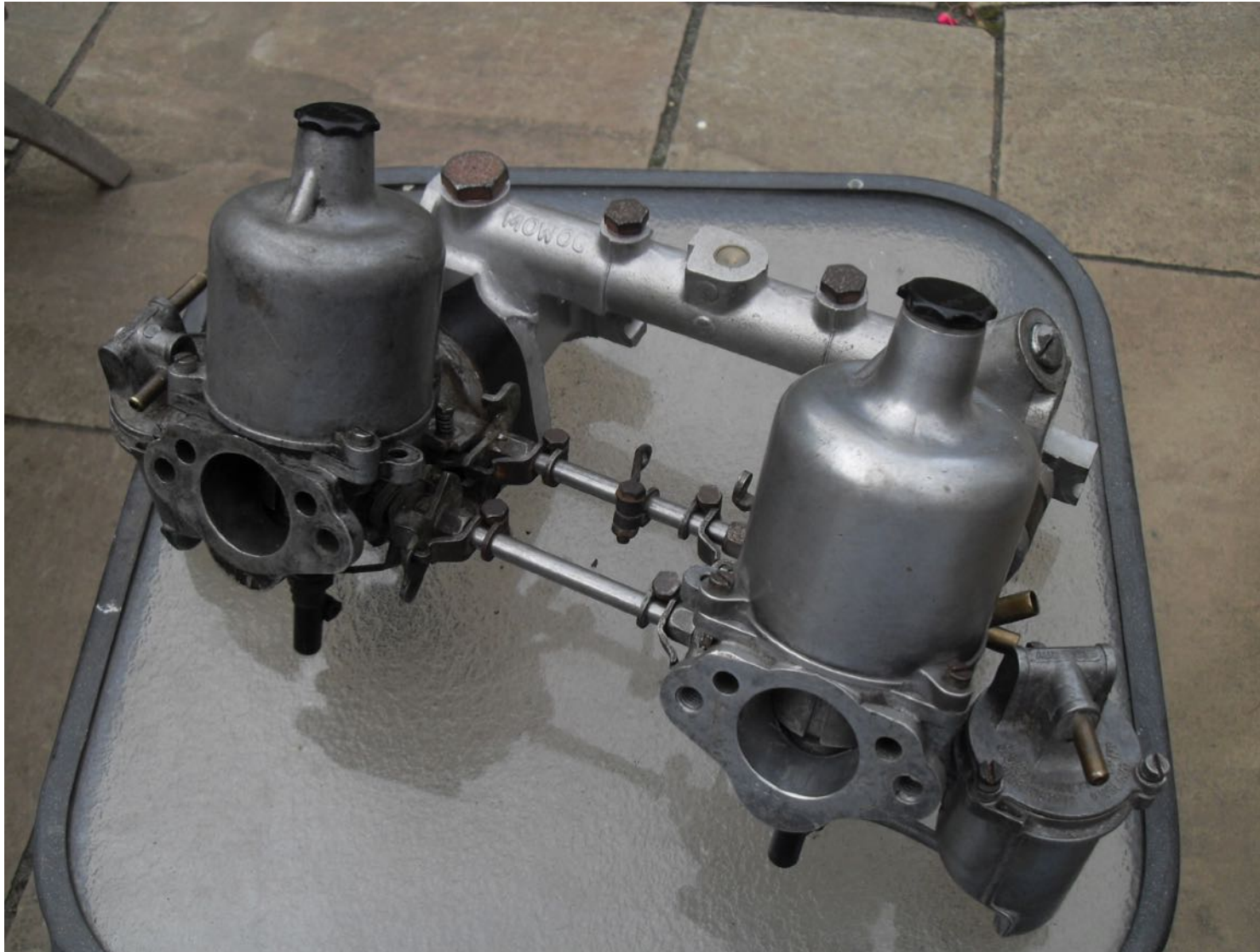
I bought two separate ones but found the one had the wrong angle for the float chamber. Checking on line the difference is down to the plastic grommet that is sandwiched between the float chamber and body. An easy fix with a drill, square it up with a Stanley knife and we are home and dry. The whole set up is a bit wide and suspect will not fit under bonnet, however I have been known to cut holes in bodywork to make things fit ! But it's not 'all work and no play back at the ranch' a, faced with the problem of 'needles', I have discovered a spiffing web site called MintyLamb. It is a spreadsheet format that allows you to select three SU carburettor needles and plot them on a graph. 'What's the point of that ?' I hear from the back. Well, as SU needles are rather expensive and being a 'tight R's' I have found a

man on Ebay who sells a range of needles at a tenner each. But the problem is, they are not the common ones but what you do is list the original on MinytLamb's spreadsheet and then list the ones from Ebay and get one that is close. I have gone for a pair that are the same 'incline' but slightly richer. The result? We shall see.

Having played with the website I have come to the conclusion that most needles are the same with a gentle climb in the air/fuel ratio, as one would expect, but some needles, later in the same series, have idiosyncrasies that, presumably, cater for vehicles with peculiar characteristics, gearing etc.?

My view, totally without foundation, is that if you enrich the mixture, any flat spots will disappear but you will lose economy over the full range. However, as my RAF Dad used to say, 'it's probably 3/5ths of 5/8ths of not a lot !'

JP



I must remember to get Jim to illustrate his rust removal technique and formula for the next magazine JH



## **Track rods, steering racks and toe-in. or Steering Geometry on a re-bodied Triumph chassis.**

I first noticed changes to the tracking when attempting to replace the engine in a Spitfire with a convenient Triumph 2000 engine and gearbox. It didn't go well and I reverted to a 1500. However, while trying, it became apparent that the weight was greater and the track-rod arms developed an upward tilt at the distal ends. This pulls the steering wheels together at the front and is known as toe-in.

Perversely the same effect can be achieved with a lighter engine. I'd not discovered the effect before as my previous attempts had been with similar sized engines and beam axles. However the resulting, if temporary, wheel misalignment made interesting effects on the winding C roads of Hampshire and on a particular bridge in Winchester.

Heralds, Spitfires and consequently Mk1 midges have their steering racks mounted on the forward end of the chassis, so the track-rod arms start out horizontal when neutrally loaded. When the loading on the front suspension increases or decreases, the steering rack and arms are no longer in a straight line. In normal driving conditions, once the tracking is corrected, this isn't too much of a problem and averages out, but older cars need all the grip they can get. With a beam axle there's no rack, just a tie bar between the wheels so a more complex suspension was needed to keep the wheels aligned, otherwise grip was severely compromised and cornering after or during a 'bounce' became unpredictable. This was particularly noticeable as hump backed bridges often had sharp bends at both ends, to allow for shorter spans when crossing railway tracks and canals. In those days smoke, mist and steam would compound the control problems and when combined with the occasional detached exhaust in the middle of the road, all bets were off. Traditionally there are also quite high walls to the sides of such bridges and the white lines often scrubbed off so the term 'blind summit' doesn't really do it justice.

Fortunately there aren't many left now.

I should add in fairness that my shock absorbers were tired, the bushes were a little loose and the cocaine wasn't helping. No, I jest, I was an impoverished student and anyway, you can't sniff cocaine in an open-topped Spitfire. No, not even with a tonneau cover and carefully positioned quarter-lights.

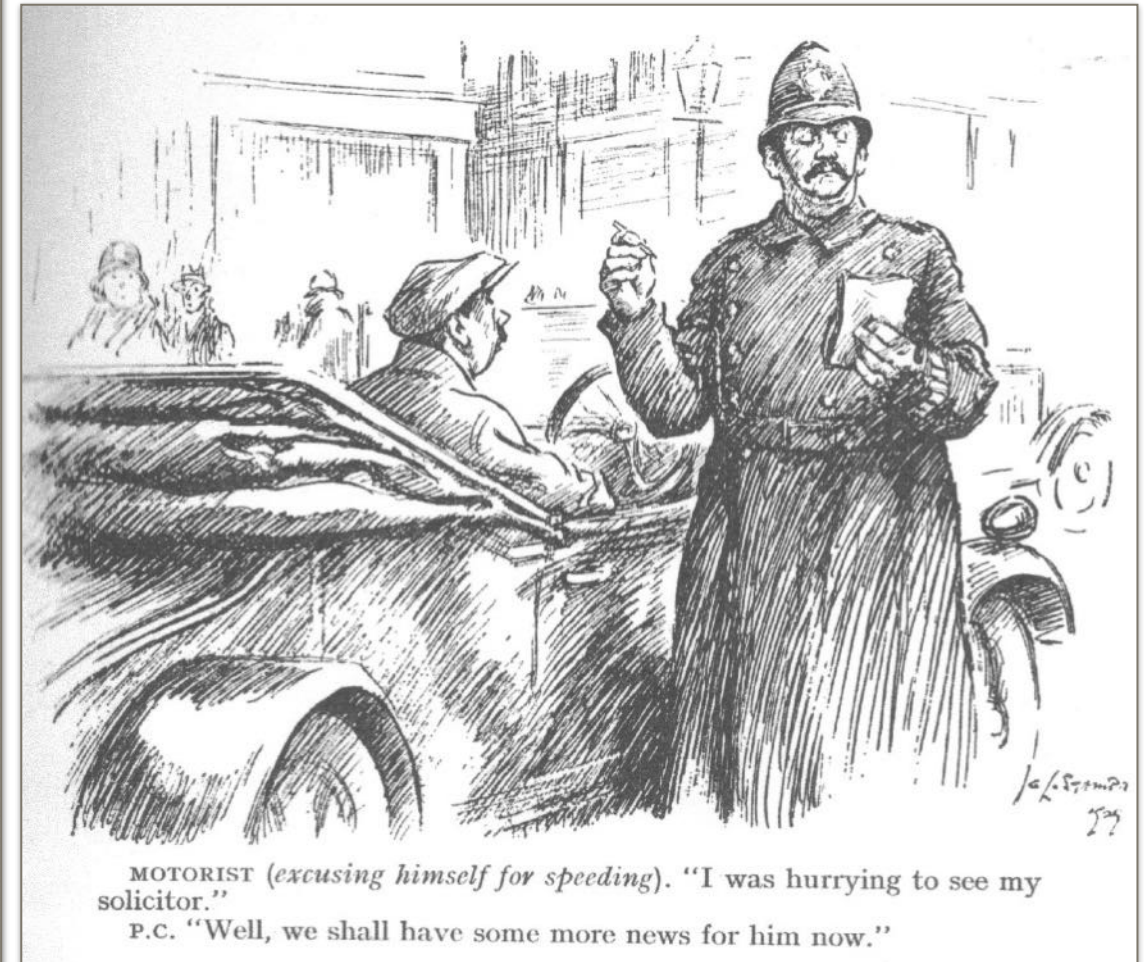
However this wasn't why I raised the subject. Adjustments to the suspension on a Triumph chassis can upset the tracking. Finding the right strength and length of coil springs is the best bet. Burning a couple of loops off is not acceptable, but as long as the tracking is corrected for the flat road it's not often a problem. Hump-backed bridges are one place it can be troublesome, flat they are not.

Most Mk1 Midges have track-rod arms that are less than parallel with (or to) the rack or the ground at rest. This is not of much significance on a flat road, but remember, if the suspension travel is already shortened by the reduced weight then there is less available when the car leaves the ground and rather more when landing. The hump-backed bridges can be a factor here, so the tracking will be compromised when the car lands, weight returns and springs compress. This is true with any chassis mounted rack. The front wheels will toe-in as you leave the ground and toe-out on landing, so you don't want sharp bends as you 'bounce'. Body-roll makes it worse. Stiff shock absorbers help.

There's no perfect solution until somebody works out how to lower the rack, or safely puts a dog-leg in the steering arms. All I can recommend is that, rather than holding onto your hat after a hump backed bridge you keep both hands on the wheel at the correct 10 to 5 2 position (20 to 4 if you have air-bags) and hope that any driver coming the other way has also read this.

Or you could slow down a bit. JH

John Eden found a few cartoons in the Punch Magazine compilation books, so here are two more. Thanks for the card John, and have a happy Christmas.





It's a bit late for a Christmas present, but Rimmers still have trunnion replacements at £486 including VAT. You may need to work up some brownie points with your better half first though. Alternatively there's a complete standard kit of Herald front suspension parts for £72.59 on ebay



Robert MacNay saw this modification to eliminate tie bar bushes on Ford suspension and provide more accurate castor adjustment. More information later.

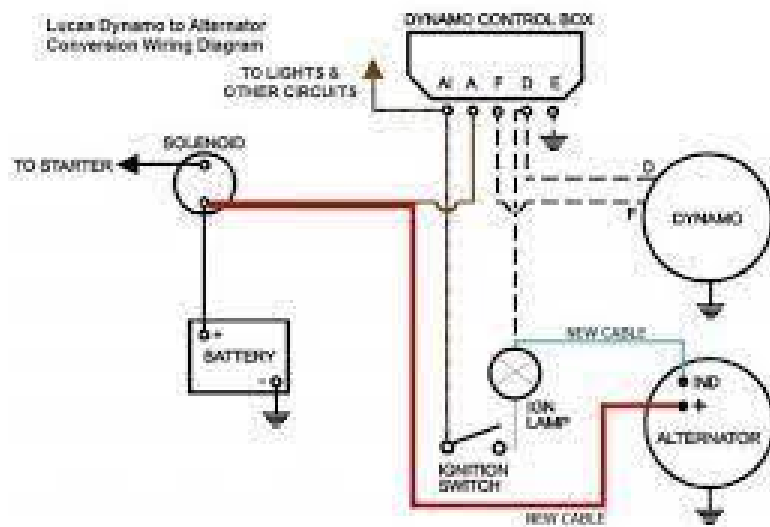
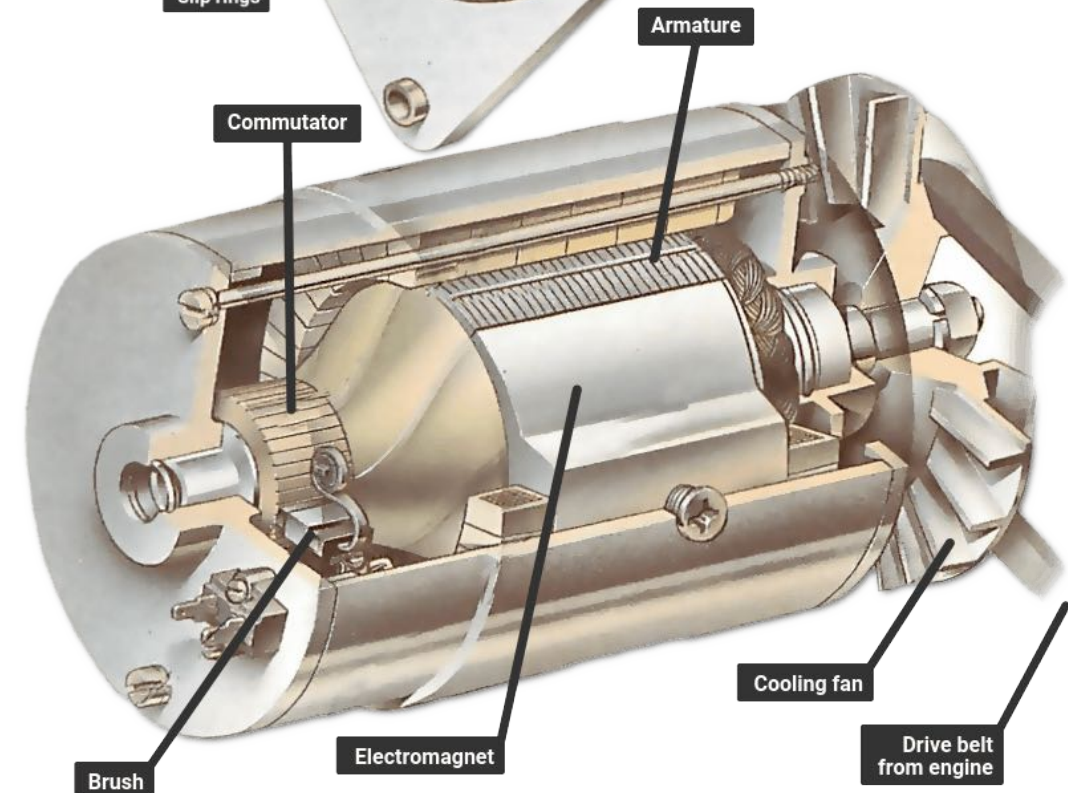
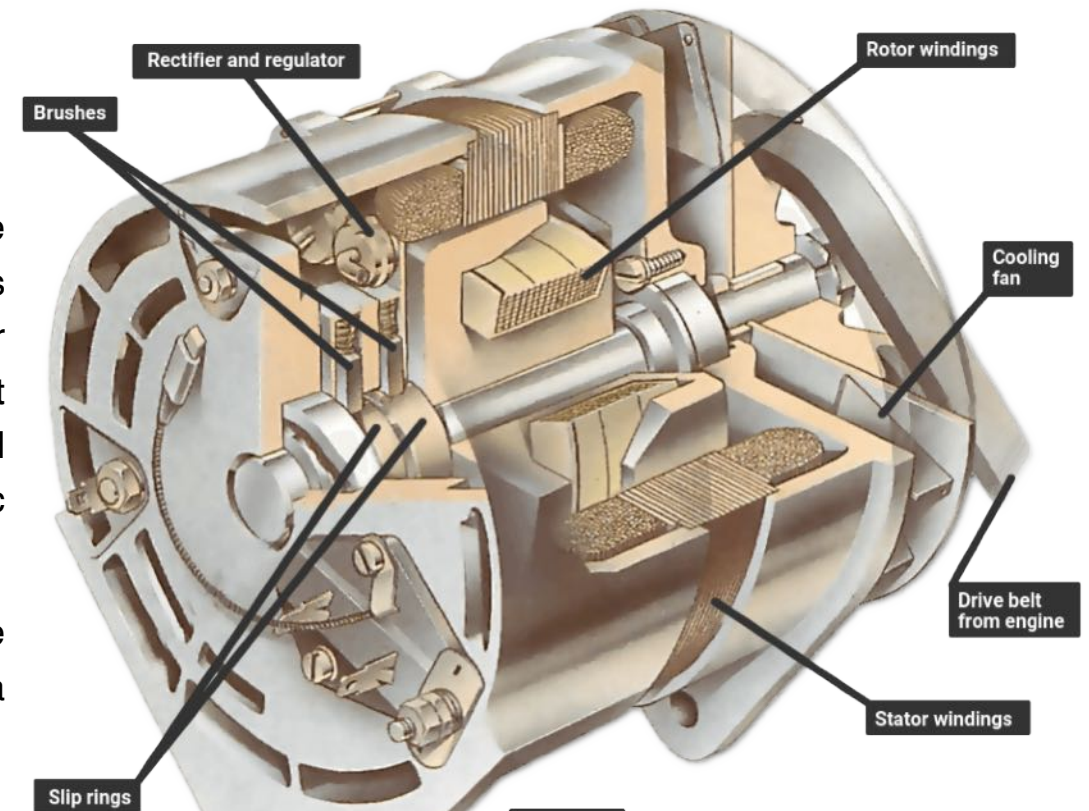


To clear up a few questions.

Alternators make excellent replacements for dynamos and require less maintenance. They also remove the need for a regulator box, replacing them with the regulator and rectifier shown. Alternators still have brushes, but since the contact point doesn't have segments the brushes last far longer. Remember to ensure a good 'earth' on the alternator frame. Rust is quite good as an electrical insulator and while the red light may not come on and it won't charge properly if there's a rusty old washer isolating the adjustment arm. I discovered that at some traffic lights in Edinburgh. This one has a proper earth terminal as well.

It is possible to buy alternators that look like dynamos, but they are expensive, so unless you are going to try making the engine look like a side-valve Morris engine with siphoning coolant I wouldn't bother.

There's an article in one of the older magazines explaining how to swap a dynamo out but this below summarises it.





This page not blank but actually has a picture of a snowman sneezing into a white handkerchief in a blizzard. Rather seasonal I thought.

#### **UK 2023/24 Events**

The Car and Classic site seems to be blank at the moment so try

<http://www.classicshowsuk.co.uk/classic-car-shows-events-search/major-classic-car-show-events.asp>

or <https://www.vintagecarsofeurope.com/events>



Risk avoidance in a Midge, or; How to Survive the Bomb.

After December 1999 I had hoped that we could dismiss the dangers of nuclear\* armageddon, but with the Russians possibly thinking about a surprise Christmas present for the West, perhaps an update is in order, especially considering the UK government's track record, diplomatic skills, and their reaction speed responding to well signposted major events.

In the event, if you are at home at the time of the apocalypse I would recommend leaving the Midge in the garage, thereby avoiding the radioactive dust as well as the road salt, zombies and having the Midge commandeered by the military.

Essentially the Electro-Magnetic Pulse that you get from an atomic bomb would damage such electronics that might be in your car. There are other dangers like fire-storms and tsunami, so a robust metal garage door is worth the investment. Ideally earthed and insulated. For brevity I shall concentrate on those aspects that relate specifically to Midges, assuming first that you are minimising outdoor activity. Few drivers consider the effects of EMPs and nuclear war in relation to Midge care, so this article will explain how to avoid pitfalls in that event, and goes beyond the governmental advice of prayer and putting a paper bag over your head.

Transistors and computers, are vulnerable to EMPs but fortunately there aren't any in a Mk1 Midge unless you have fitted a radio or electronic ignition. The radio would only be a matter of academic interest as the radio stations wouldn't be broadcasting after the bomb and anyway you wouldn't be able to hear it over the wind, general screaming and engine noise. It would be best to turn the radio off completely as Hollywood tells us that it will only transmit eerie noises and bad news. Some alternators, relays, and electronic ignition, if fitted, may have vulnerable electronics. Your indicators should still work as few 'turn signal' relays have transistors, but if yours do not work then I'd encourage hand signals. In the event most of the newer cars with engine management computers (EMUs) will have stopped so you'll only have to watch out for pre 1964 vehicles. If you have a roof and heater then set the internal fan to 'recirculate' thus reducing the dust.

There are some transistors in an alternator, but as long as they are shielded by an earthed casing this shouldn't be a problem. It may be necessary to replace any electronics in your distributor, but I've heard that most Midgers carry the old points 'just in case'. With the lack of sat-nav and mobile phones you'll have to go back to paper maps, but otherwise the Midge should perform normally. No guarantees on hearing aids and pacemakers unfortunately.

You may have a bit more of a sun-tan on the side closer to the bomb, and the corresponding paint might be a bit more faded. 'After sun' moisturiser might help here and possibly some T-Cut for the paint. A spare petrol can might be useful while civilisation gets back on its feet, but try to keep it out of the immediate flash, and a metal can would probably be preferable. Petrol stations will of course be out of action, but since most of the cars will not start, the petrol should still be in the tanks and many pumps still have mechanical handles for manual operation. I would advise heading for home if you have a garage, as the flakes of radioactive fall-out will threaten your upholstery, rag-top or tonneau cover. Sadly, as your phone is unlikely to work, you'll be unable to phone home to get your wife or partner to open the garage door. That would have a small advantage in that if open for extended periods, the inevitable zombie invasion will fill the garage with lurching ex neighbours.

Everybody knows that zombies cannot manage door handles, so if you toot your horn on arriving you'll know your spouse is un-zombified if she can open the garage door. This will expedite your getting the Midge under cover and conveniently clear any doubts as to her condition. Hopefully the larder will be stocked, but if you think that will not be the case then a visit to the supermarket might be in order, and if you are in luck there may be a 'end of the world' closing down sale. Remember not to leave the keys in the ignition and I would suggest using the now unused EV charging bays. In the US there is a plentiful supply of shot-guns but in the UK you will have to resort to pick-axe handles, often available at your local hardware store or iron-monger. With respect, most Midge owners are now past the middle age mark, so, I'd not go for the heaviest pick-axe handle and look for ones that will fit behind the seats. Remember that when you get home the chances are that your wife will be a bit upset at the loss of her friends and relations, so, on return, avoid an itemised report on driving conditions, roads used, obstructions, diversions and interesting mechanical anecdotes which might mean not being hit with the starting handle.

Happy Christmas, JH.



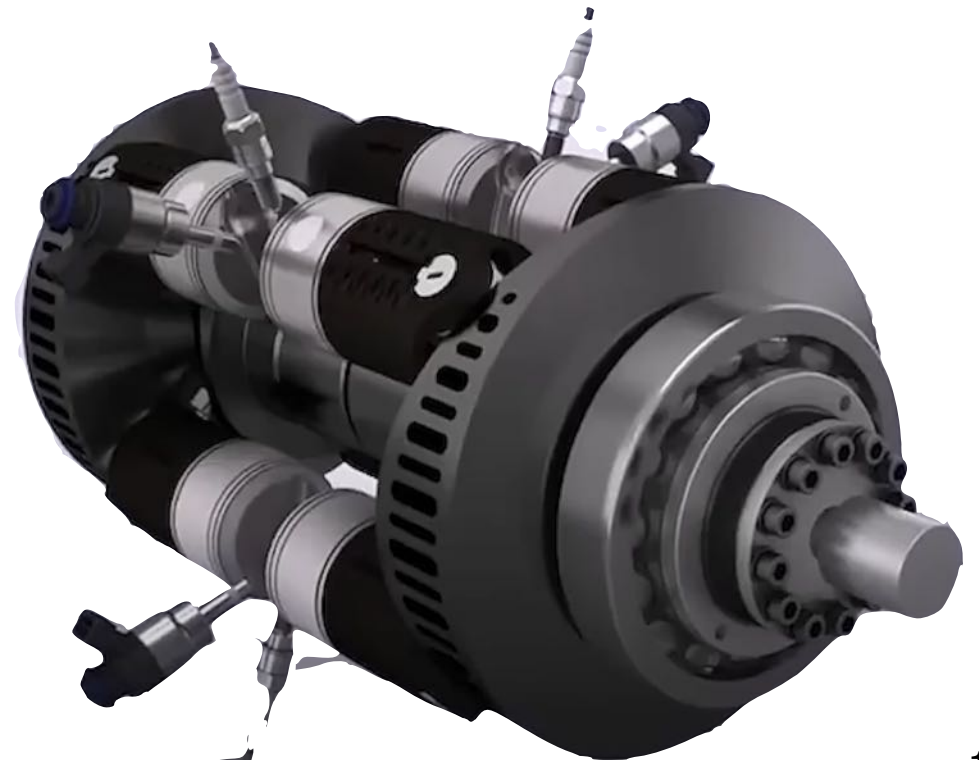
## THE SWASH PLATE OR AXIAL ENGINE

A rather strange engine that seems to have been reinvented in Spain recently. I don't think the new version has anything much to offer but it did remind me and there was a spare page. The swash-plate or axial engine does away with the big ends, little ends, valves, and camshafts. It does reciprocate, but with less vibration. Quite a lot of moving and wearing parts are removed, so it should be quieter. Below is a 4 cylinder version but there are usually 8 cylinders operating on both sides of the oblique plate, or with no cylinder head and two swash-plates, (sometimes referred to as wavy things) one at each end. The video explains that better than many words. The latest design is called a 'one stroke' engine which sadly it is not, but they should have some points for trying, it is quite clever in some of its concepts. It is also expected to run on hydrogen.

The design doesn't develop much power because of the lack of leverage from the crank-shaft, but it is a way of getting eight cylinders into a small diameter for small aircraft or narrow bonnets and should be able to run quite fast, there being no valves to bounce. I can't say I would recommend it as a means of Midge propulsion but it has advantages in that there are fewer parts, adequate heat removal, doesn't burn two stroke oil and can use direct injection which suits diesel, petrol, and hydrogen and runs relatively smoothly with fewer, lighter reciprocating components. The term 'Swash' in the dictionary is given as to swagger with a drawn sword and shield, but a pirate's belt is worn at an oblique angle, so I'm not so sure, maybe it should be a baldric engine.



[https://www.youtube.com/watch?v=9I0\\_3qFmPUM](https://www.youtube.com/watch?v=9I0_3qFmPUM)







John Eden's solutions to common 'tidying' problems.

Being a little unhappy with the cost and the finish of some bonnet catches, I remembered that John Eden had sent me a picture of a bonnet catch. I imagine it would be possible to order them from a supplier of kit-car bits, but also easy enough to make up yourself and much cheaper than the cam-latch type. So I'll just leave that there for your consideration,

The part that goes on the bonnet lid can be made in a number of ways, but I made one for my garage door that was really just a domed bolt and three nuts that the 'finger' latches over.

This particular device has a handle from a tapered square drive T key. The hole cover (or sprung lock escutcheon with spring flap) is available on [TradeFit](#) and if you make the locking 'finger' from plate steel you can make it work with a screw-driver, Allen key or whatever.



While I was retrieving the phot of the bonnet catch I noticed he had made a rather neat cable sleeve from a stainless flexible sink tap hose. Again, it doesn't need much explanation so I'll let you work the rest out.

Both of these ideas came to light when I was demonstrating John's patent carburettor heat baffle from a few magazines back. He was at the time looking for a replacement carburettor (Float chamber various serial marks: 1965 and L910 B30 PSE1 and BTE S.G.D.G.



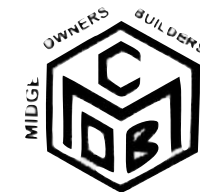
SOLEX) from a '69 13/60. I haven't time to check if he still wants one, but if you find a nice one drop me a line. JH



MERRY CHRISTMAS EVERYONE, AND A HAPPY NEW YEAR.



Of course in-flight refuelling is all much more modern now. The air-craft shown above might be the Harriot type built under license by my great Aunt Hilda Hewlett and Gustav Blondeau, for the Royal Flying Corps, Apart from the reindeer pilot the image is fairly accurate historically for 1915 which would be about right.



## Tailpipe

Seasons greetings to one and all. The weather up here is a bit on the wet, windy and dark side, so motoring for pleasure, quite apart from the fuel costs, is somewhat reduced. Not exactly festive, but on the upside it's not as snowy and frosty as we are used to, so there's less salt on the road and fewer slides in the frost pockets.

We have the advantage of several trees in the garden and that reduces the weather generally but this year the wind has redistributed the leaves and blocked all the gutters, (or rones as they are called here, gutters means thick mud on the ground) so I've been clearing them out. Pine needles are the worst as they can form a waterproof mat that also fills up the down pipes and trap the beech leaves. All this while the rain washes the autumnal detritus from the roof to re-fill those I've cleared. I'm beginning to think about Shetland where there are no trees, or near enough none, because of the wind and sheep. We did see a newly built roof lifted by a recent storm and deposited a ¼ mile uphill, so I guess it's not all good, but the sheep were sheltering behind it so perhaps it's a matter of perspective.

Roll on Spring, or on consideration, the latter part of it after the equinoctial storms.

Winter does have some advantages, the log fire is getting good use, admittedly with the wind-fallen trees providing the fuel, and the cats become more affectionate, at least until I've lit it. Visitors are arriving and the Christmas tree is twinkling. (LED programming or more probably a duff electrical connection.) The turkey is looking nervous.

I quite like the snow, up to a point (somewhere below my knees), as it makes the garden look tidy, but frost I could do without. This year the snow arrived early (November) but there's not been much frost. I have a friend who has settled in Canada, he just laughs at our sprinkling. I know they do metres of snow to our inches but for easier, if occasional, clearing of the yard I was thinking of a snow-blower. However, last time I challenged the weather gods by buying a 4 wheel drive it stopped snowing for several years. Returning when I sold it again of course, but you can tell nature has lost interest in the big drifts of yesteryear. Maybe I'll stick with the manual snow shovels for now, and the exercise is probably good for me and my zombie thumping muscles.

I've found there to be a slight shortage of material, so this will be a bit shorter than some magazines, but it does give me a few minutes to prepare the servants for a visit by Mr and Mrs John C (Dec19th), polish the cats, light a fire and make a cake.

Some of these pages were made in a non sequential manner, so don't fret about any anomalies. By the time you get this the radio should be cutting back on the Christmas carols,

JH