

Clear Dope

March 2021



Chichester and District Model Aero Club: Committee 2021

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Hello everybody hope you are all well and active. Many thanks to Bill Ingram, Jeff Cosford, Bill Owen, Colin Stevens and David Brown for sending me articles for inclusion for this months CD



Control Line – what's That? By David Brown

I've been asked to write a short piece for 'Clear Dope' about my take on control line flying, which for many CADMAC members is probably a completely alien 'Parallel Universe'. Before I begin, I must point out that there are a number of other club members who are far more expert in this field of aeromodelling, including Dick Stepney who competes in F2B Aerobatics at national level, but, for what it's worth, this is 'what I do'.

I was brought up in Ashted, Surrey, and was for some years in the early 1970s a member of the Leatherhead club, where a group of us flew control-line on a field we knew as 'The Dip', now buried under the M25 motorway but marked by a grey footbridge. I remember in particular flying KeilKraft 'Spectre' and Mercury 'Cobra' and 'Crusader' models with well-behaved OS glow engines. A mate and I also regularly wandered through the woods on Saturday afternoons to Rushett's Farm, now also bisected by the same motorway, to watch members of the Fleet club flying RC. I remember the 'standard' motor at the time (no electric then, of course) was the HP61F, and I distinctly recall a beautiful dark brown and yellow 'Capricorn' pattern model, so much prettier in my view than today's unequal-span biplanes with contra-rotating props. The fliers were very friendly, answered all our stupid questions and never complained about us getting in the way; errant cows were often more of a problem! Despite this, RC has never really 'floated my boat' enough to get me involved, although most of my aeromodelling friends moved onto it.

I more or less gave up on going to University in 1976 but picked up again about six years ago on retiring from a working career teaching Science, my latent enthusiasm being nudged by the reintroduction of 'Aeromodeller' magazine and the discovery of a local club (This one!) while trawling through the internet. I built a couple of 'Mini-Scorcher' wings with 1cc PAW diesels and first flew again at one of the outdoor summer evening meetings at Fishbourne in 2016. Although clearly very much an RC-oriented club, a small and growing group of us do fly CL fairly regularly, including Mike Notter, Pete Machin, Ron Hastie and myself, and in 2020 some of us flew at Portshole on weekdays for the first time as and when when lockdown allowed. There always seems some interest when we bring along models to club nights (remember them?), and the number of people flying these models at Fishbourne seems to be increasing. I'm also a member of the Crawley club and SAM 35, and try to get to Old Warden or Buckminster for their vintage events when I can. I like the out-of-the ordinary, retro and sometimes slightly maverick idea of control line – it's certainly not an outdated form of aeromodelling, just different. It's ideal for 'own designs' and there's little choice but to 'build your own'. And I like to play with noisy, oily and sometimes uncooperative IC motors; where they don't cause annoyance, of course.

It would be great to see others giving it a go. If you haven't got an existing model gathering dust in the loft to resurrect, the necessary 'bits' are still surprisingly easily obtainable, including an almost unlimited number of plans on Outerzone. For those who can't stand oily and noisy I.C. motors, electric C.L. is totally feasible. Dens Model Supplies and Sussex Model Centre are good places to start. PAW diesel engines are still made in Macclesfield and beautiful state-of-the-art Oliver Tiger copies, fuelled by the recent upsurge of interest in vintage combat, are produced in the Ukraine and elsewhere. There is a huge selection of second-hand engines on ebay and elsewhere, but prices are definitely on the 'up', particularly for anything even remotely interesting.

Anyway, here are a few of our models, most of which have taken to the air at Fishbourne or Portshole in 2019 or 2020. I'm sure most will be familiar to those who had a 'KeilKraft Handbook' or read 'Aeromodeller' in the 1960s. I'm not the neatest or most accurate builder and still find getting an acceptable paint finish a problem – just don't look too closely.

1) 'Wonky Picador': The shape is the classic Mercury 'Picador' 24" span flying-wing stunt model but using a simplified structure of profile fuselage and thick wing leading-edge with no spars. Nothing needs to be pinned down while building and the wing can be kept flat by weighting down on a sheet of glass. It is powered by a PAW 100 diesel and flies nicely on 35' lines, standard for this model size. This took to the air for the first time in the twilight at Fishbourne in September 2020. The name comes from the fact that, despite heavy investment in engineer's squares, some of the ribs are not quite straight.

Portshole in September 2020. The two smaller ones are 22" span and have PAW 149s. All the models shown here have wings covered in Solartex, made wipe-clean with a coat of water-based polyurethane varnish, which seems totally impervious to diesel fuel. The larger model flies on 52' lines and the smaller on 42, again standard for 2.5cc and 1.5cc respectively (so I won't keep repeating myself).

3) 'Profile JR': This is another simplified Mercury kit design, in this case the 'New Junior Monitor'. The original log fuselage is replaced by a profile and the wing construction simplified as for the 'Picador'. Power is a black-head AM25 which starts really easily but is hard to adjust to get a consistently good run – it probably needs more running-in. This model also flew at Portshole in 2020 and is definitely one of my favourites at the moment.

4) 'Manx Kitten': This peculiar flying-wing biplane was more-or-less scaled from a three view in the 'Control Line Handbook'. At 20" span for a ball-raced PAW 149, it was fast but easy to fly. Unfortunately, it is no more, but I'm quite tempted to build a full-size 32" span version for a '35' (6cc) motor.

5) 'Mini El-Scorchio': This is a simplified 'Mini-Scorcher', which was a kit made by A. A. Hales in the early 1960s. It's a somewhat annoying build as there is barely a right-angle to be seen, but it's an interesting shape. It is powered by a green-head PAW 06 with an interesting history, being originally imported to the USA and sold by Eric Clutton (of 'Sharkface' fame) before being returned to Britain. The flames on the leading edge were simply made with red and yellow 'Solartrim' and look good at first glance, but the sharp tips tend to peel away. This model had several outings in 2019 but didn't get in the air in 2020.

6) Pete Machin's own-design 'U-2' flapped stunter for OS25 FP. It hasn't flown yet but, like Pete's excellent RC designs, I'm sure it'll go really well. Inspired by Frank Warburton's 1964 design, but slightly reduced for OS 20 FP power, it has a 48" wingspan.

7) Anyone who used to fly CL in the 1960s will recognise the shape of this classic combat wing, again from the building board of Pete Machin. Actually, this is a 15% enlarged 32" span 'XL' version of the Mick Davis 'Dominator', again by Pete Machin, for a PAW 19 TBR.

8) The 'Ketchup' built by Mike Notter, which clocked-up a fair amount of air-time at Portshole in 2020. (CL 866 from the Model Aircraft Plans Handbook No.1. 1995 Edition). It's a very simple to build beginners 28" span stunter/ combat model for 1.5cc engines which flies very well and is easy to handle. It's moderately tough but doesn't like being tent-pegged. (Does any model?). This example is covered in Solartex and fuel-proofed with Poly-C in vulnerable areas. The engine is a 1960 Frog 150 diesel which provides more than enough power.

9) 'Tuffy' from a free plan in Dec1962 Aeromodeller Magazine, also built by Mike Notter. A 28" span stunt trainer for 1.5cc engines, it's designed to be difficult to break (ostensibly) and includes a slightly odd protective teardrop-shaped pod for the engine. The pod was retained here because it was thought to maybe have a beneficial aerodynamic effect, insofar as helping to maintain line tension in high-ish winds (TBC). It is yet to be flown but will have an ME Snipe (1.5cc) engine installed. I've also included a picture of the plan.

I hope this might encourage some more of you to have a go at control line in 2021. Or, if not, I trust it provides a little nostalgia for some of you.



Junior Monitor complete



Manx Kitten Middle Wallop



Mini El-Scorchio



Peter Machin U2 OS25FP



Peter Macin Dominator XL PAW



Mike Notter's "Ketchup"



Mike Notter's Tuffy ME Snipe



Jeff Cosford Writes

Flightline 1600mm Spitfire.

I can't wait to fly this new lockdown project which Santa brought me. It is from Motion RC, bought to make full use of a set of 6 cell lipos, bought for the Freewing Avanti jet. Once I bought from Europe based Motion RC, they kept tempting me with their great range of models. And the Spitfire has such good reviews.

It seemed a lot to pay for a foamie, but the quality of design and fittings dispelled those thoughts, what with the metal retracts, 80a esc, motor, 4-blade prop and metal gear servos. The decals took ages to apply, especially as some came without enough sticky, so I had to glue them on.

I hope it flies as well as my Hangar 9 Spitfire, which has an SC90 4-stroke, but it won't sound as sweet. Help with weathering welcome.



Image and Presentation - How it's Done

This is has little to do with aeroplanes, but knowing a number of members enjoy the use of camper vans, I offer the following in the hope that it will be of interest in these deprived times.

It's about the grand-daddy of all the vans, pioneered many decades ago in Japan, and only marketed there, but inspiring all of the designs we see today.

Its makers really pushed-out the boat with its promotion by going to Italy, commissioning a whole new opera to celebrate its launch. The opera, scored by K. Puccino. was entitled "Touring Dott." being cleverly adapted from the the RAI TV series on the caravan touring exploits of Dottore E. Choli. The opera needed some singers of reasonable talent, and from nowhere emerged three middle-aged fortune-seekers from a veteran pop-group called "Thirty Quid", although they later preferred to be known as the "Three Tenners". To give them their due though, they turned-in a creditable performance in the Verona inauguration, in preparation for possible European marketing, and went on with many more notable successes.

The vehicle, as you will have is guessed by now, was the "Nissan Dormer", and this name was given to the opera's most popular aria. What an inspired strategy to have their promotion stamped with the Italian language and flair - the name just rolls off the tongue. Always following rather than setting trends, Britain was out of the picture, famous marques like the "Vauxhall Cavalier" and "Ford Cortina" just don't have the same lyrical piquancy. That said, British Leyland could have come close with their Italianate "Austere Allegro".

In its time, an enticing vehicle to own, but although greatly tempted, and given its price and the costs in ordering from Japan, I really didn't have the yen for it.

Keep safe - Colin S.

From humble beginnings -



The 'CADMAC' trailer for Sale

CADMAC are the proud owners of a small trailer which is stored in a barn at Oakhurst Farm near Portshole. It was formerly used to transport the large mower to and from the flying field but has not been used for a few years so is now surplus to our requirements.

The Committee is open to reasonable offers from any member who would like to buy the trailer. It seems to be in good condition with good wheels and tyres. There is a number plate/light board with it but that has not been tested. Having been in the barn for a few years it is pretty dirty but we are sure it would clean up well.

If you are interested please contact the Secretary. Ken Smith



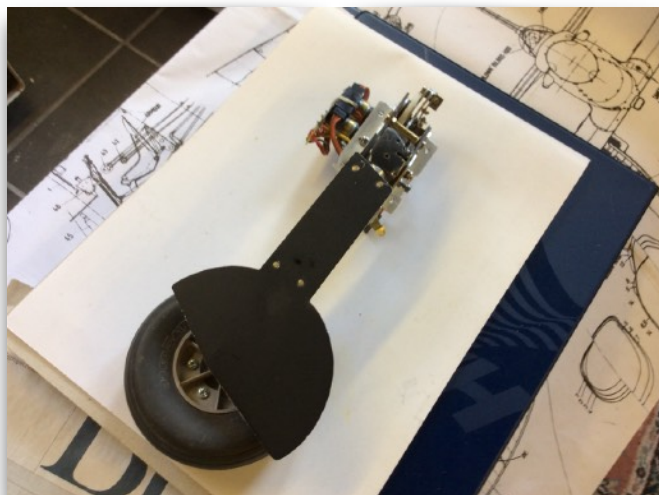
A Life Time in Modelling. (part 5) by Bill Ingram

I bought the plan early in 2016 and spent some time looking at the possibility of using a screw retraction system but came to the conclusion that the space from the pivot to the centre of the wing was not adequate so decided to construct a wing part around the undercarriage area to get a better idea of what the options could be.

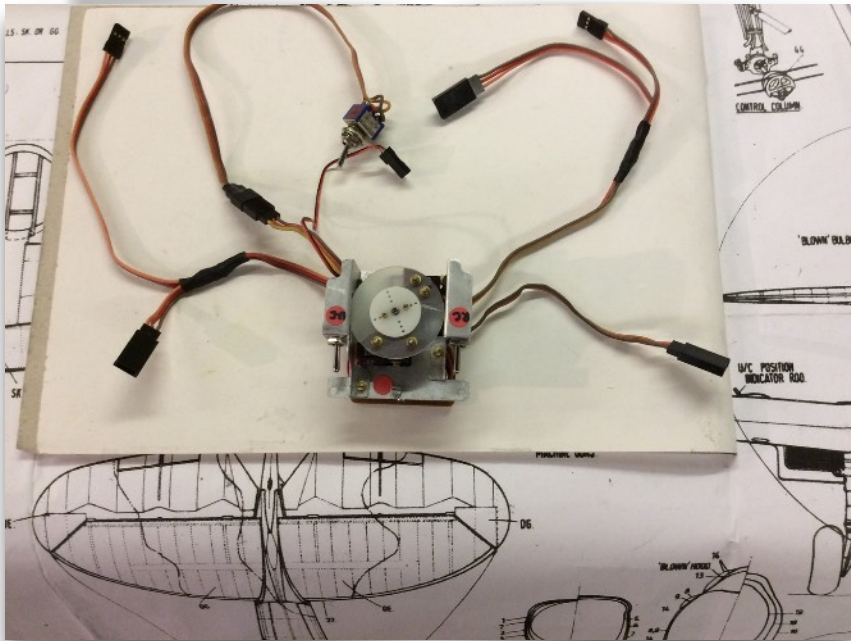


After some initial engineering models with a source of geared motors I had used in the FW

the rear mounting bearer was lowered by 3mm. See photo, this allowed the under carriage drive mechanism to rotate to be extracted. The total time spend on developing the retract system was significant the main problems being the gearing to cope with the finished weight of the leg with a counter balance spring in the main pivot block, getting the correct speed of retraction, getting the micro switches used for travel limits located and getting an adjustment capability the meet the required angle of the down and up position, after many redesigns the result is below. Oh and also being able to get it in and out of the wing, but it has to be in the half way up or down position to do this. The finished weight equals the commercial option. However there is a control device required. This is required to control each leg individually, the difference time of operation of each leg and had to use only



basic electrics. (my electronic design capabilities never quite happened)



This drives each leg from a micro servo using miniature double pole relays and micro switch's with an offset cam from a 6 volt supply. The time delay between each leg operation is adjusted by a servo slow device. The build of this plane I found out has to be very accurate in the early stages as later on problems will arise making things more difficult. The final result after three and a half year is shown below



In the photo to the left the inner split flaps according to the plan are flat, but if you look at a the inner tip there is a small curve at the inner end. the originals where replaced by the ones above and are in aluminium to allow for this. The full size plane has flap down indicators see below and also the undercarriage has down indicators as seen in the first photo. I always build the wings first now but in my younger days the fuselage was more interesting and the wings boring.

The final result after three and a half year is shown below



Powered by two, three cell lipos in series at 22volts , the size /weight was selected to achieve the correct cg. Cooling is by a front cowling flap weighted just to shut when at rest, also the exhausts are moulded hollow to allow air extraction. The plan and cockpit canopy supplied assume no opening, so opening was achieved by new mouldings and frames, an exercise in its self to get the correct clearances. All roundels and major letters are painted on using masking and various spray techniques. There has not been a need to add any lead in this, thank goodness.



For a Xmas present, I think about three years ago I was bought a SE5 kit by Vintage Models. This kit is very accurate in its drawings and laser cutting, with jigs supplied as part of the construction. The roundels supplied are paper and not transfers so I opted not to apply them. As we are now in lock down again I needed



something to do as I would be climbing up walls etc, so thought about building a glider for the Trundle. I went there one day before confinement, two people were flying. I decided to carry a model up the track on a windy day was not going to be easy for me. I needed something simple an Electra came to mind so I ordered the plan and wood, it would be by electric power. I

remember test gliding one on a day in Mansfield that it needed packing to trim the glide on the tail and therefore to cope with this now it was decided to install a flying tail plane to trim the glide and also give some wind penetration if required, wings are built, fuselage is built, tail and installation of controls are in etc, covering will be silk, (very expensive from C and H fabrics @ £15/mtr) but is only white so I have bought some yellow dye, hopefully when I get around to covering the dyed yellow will be ok. For heavy landings the under carriage is pivoted at the rear and swings back with the wheels under the wings.

I always did think the wheels used in the 1960's should be useful at some time!! Hopefully this should allow me to do some gentle flying.

Hope you have enjoyed the read and we will all get flying soon.

Regards Bill Ingram



Mavic Pro 2 An Article by Bill Owen

I first started building and flying models with my dad before I was ten. Most rubber band and free flight attempts didn't get far and I was a control line failure writing off several models without completing a lap, but had some success with free flight IC and Jetex. By success I mean I was able to fly the model a couple of times without crashing and fixing them.

I used to read RCM&E and looked at the adverts for reed radios with six or more switches and articles on building your own single channel system. This was basically a box with a button on it and a fiendish escapement I never quite understood, made by classic names like Macgregor. I remember reading David Boddington and Galloping Ghost in RCM&E and even tried to make some printed circuits without success.

Much has changed in the hobby in all that time (60 years), but I have always been interested in the flying, the building and the electronics side of the hobby. No one builds Galloping Ghost transmitters by hand any more but cheap electronics from China and elsewhere has had a tremendous effect on the hobby. Nowhere more than in the field of quadcopters and drones.

All this time my other hobby/passion is photography, and I am a keen member of Chichester Camera Club. During my life I have returned over and over again to both of these hobbies.

When I first saw a camera drone I wasn't that impressed, I thought it would be boring to fly and the cameras on the affordable models were pretty basic, OK for video but not much good for stills. Then along came companies like DJI with their Phantom and latterly Mavic models. The Mavics had cameras that are capable for taking reasonable quality images at affordable (in camera terms) prices. The Mavic models are very compact, with folding legs and fully gimballed cameras and I started to get interested. We then had a talk at our camera club from a photographer that visited Mongolia and brought back some stunning images taken with a drone and that set me off thinking seriously about buying one. The speaker kindly sent me a raw image so I could look at the quality and I was then really sold.

I looked at the Mavic range, which in order of increasing cost and weight consists of the Mavic Mini, the Mavic Air, Mavic Zoom and Mavic Pro, most of these are now second generation i.e. Mavic 2 Pro etc.

With the new CAA regulations the Mavic Mini is very tempting especially if you just want to take video and the occasional photo as it is under 250 g.

The Air and Zoom are a good compromise a bit heavier and the Zoom has a zoom lens, however I wanted the best camera and sensor and so I went for the Mavic 2 Pro, which has a 1" sensor and camera made by Hasselblad. If you are not a camera buff then the image quality of a camera depends on the lens, the number of pixels and the size of the sensor. Bigger sensors typically have bigger pixels, which capture more light and give less noise, so sharper, clearer pictures. You also need to consider the safe operating range.

The Mavic Pro is also the heaviest and most powerful and therefore more stable in windy conditions and since this area tends to be very windy it made sense to consider that as well.

I picked up my Mavic 2 Pro Combo from ebay second hand, which saved a few hundred quid and it comes with a case, 3 batteries, controller, cables and spare props.



You need to supply a decent SD card to hold the images and video footage. The controller works with your mobile phone to provide a screen and control station. I have been flying quads for a while so I was pretty confident that I could fly the Mavic, so when it arrived I headed over to Porthole farm for a test flight, which I figured was about as safe a place as I could find. Here are the first two pics I took:



Flying the Mavic is quite unlike anything else I have flown, it is so stable. It literally does not move from the spot unless you feed something into the controls and has many automated features including taking off and return to home and land automatically. Taking video and still pictures is really easy as you can compose the image on the phone screen and then press a button.

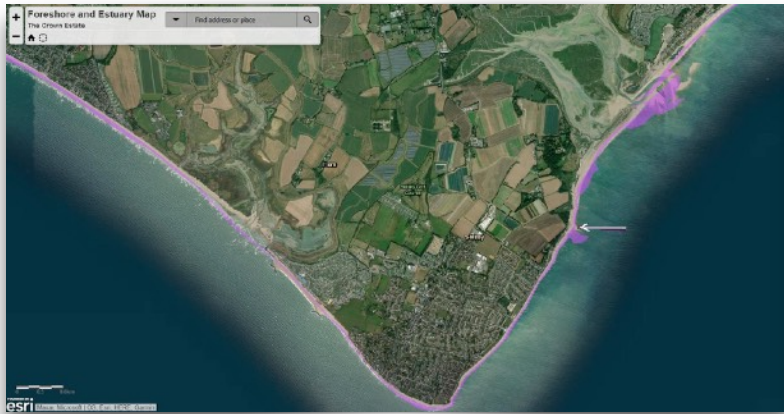
To compose a picture you generally hover in a suitable place and at the height you want and use the Yaw (rudder) function to rotate the drone to point the camera where you want to. Then the camera gimbal can be adjusted up and down to get the horizon or subject where you want it, when you are happy you just press the button.

To move the drone left or right you use the Roll (Aileron) and it will move left or right, the Pitch (Elevator) control forward and backwards and the throttle controls altitude. When the controls are left alone the drone just stays exactly where you left it, even if the wind is gusting.

The next question is where can you fly it? This is not a simple question to answer and needs to be broken down into a number of parts.

Firstly, you have to consider where you are going to take off and land and whether you have permission and whether it is safe. Most of these things are covered in the new CAA regulations and for this size of drone it is basically away from people and property and generally you need land owners permission if taking off from fields etc. Obviously, you can't fly in the exclusion areas around airfields, military bases etc. But the Crown Estates are quite in favour of drones and they own most of the inter tidal zones, so taking off and landing on quiet beaches and the coast is generally OK, but for details see their maps <https://www.thecrownestate.co.uk/en-gb/what-we-do/on-the-seabed/coastal/metal-detecting-and-drone-flying/> .

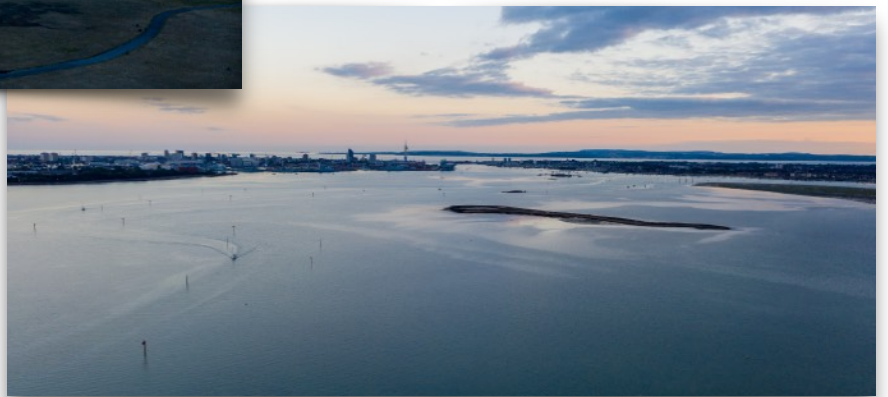
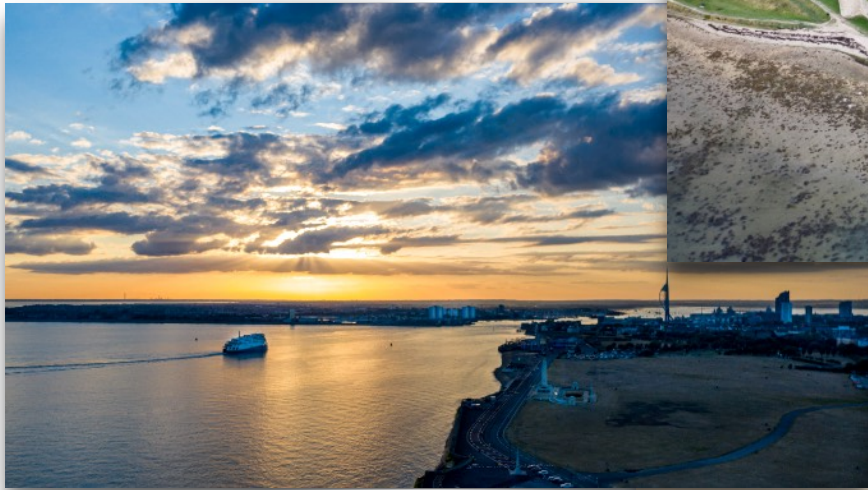
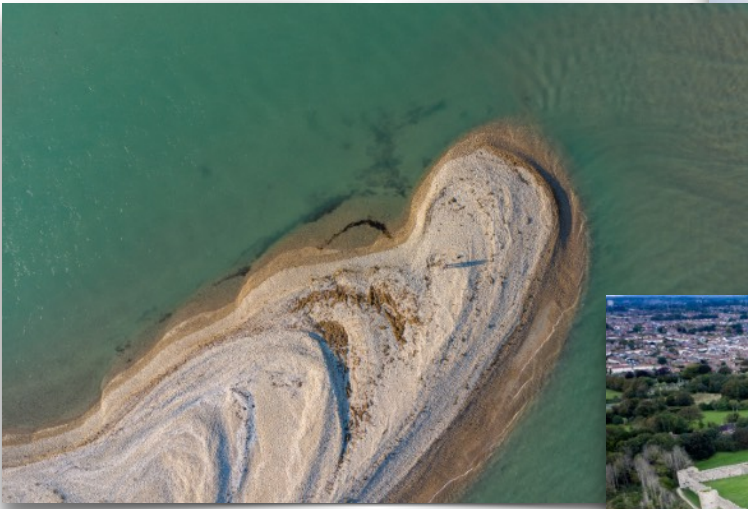
Around here there are notable exceptions such as the Witterings and East Head and of course you mustn't fly over nature reserves such as Pagham Harbour reserve. Here is the section where I live in Selsey, the purple areas being Crown Estates i.e. areas where you may take off and land (subject to by laws etc) and the picture shows a view look south towards Selsey taken from roughly where the arrow is pointing to.



Once in the air you must keep the drone in sight at all time and below 400 feet. Also away from occupied buildings and gatherings of people (the exact rules depends on the weight of your drone so see BMFA/CAA for details). Apart from that, providing you respect privacy, you can fly pretty much anywhere an aircraft can fly. That said, you have to be aware that there are many people that seem to object to drones on principle, so you need to be considerate and not attract attention. To get the best light you need to go out at dawn and dusk, which is often when things are quietest anyway.

Here are a few shots taken around my favourite local locations:





Before lockdown I was able to take the drone around in our Motorhome to Dorset, Devon, Cornwall, Rutland, Peak District and Lancashire and I have included a few pictures here. I was hoping to take advantage of the late winter morning and the lovely morning and evening light that winter brings, but I have not been able to use it at all due to lockdown. How I envy the fishermen still able to pursue their hobby!

Here are a few from our travels:



For me the Mavic is really just another camera, but one that happens to get different views and gives a new perspective on things. If you want to get a buzz from flying then you need to look at quadcopters and FPV, but that is another story.



Happy flying (and shooting)

Jeff Owen

Tim Kerss' Ripmax Alienator, with forward swept wings - an interesting and rare model, no longer in production.



Flying alone on Thorney is not recommended however pilots are requested to concentrate on flying within the grass area to the west of the runway.

When Driving Around Thorney be aware of young children on bikes

Please Try to leave Porthole as tidy as possible, making sure no fuel is left on site & lock the gate.

From 1 Jan 21 BMFA Article 16 is law: know the separation minima!

The Commander at Baker Barracks Thorney and the MOD have decreed that there shall be NO drone flying whatsoever

30 metres from "uninvolved" persons"

15 metres when taking off & landing, subject to mitigations

When flying at Thorney please keep an eye out for traffic(all kinds walkers, horses, bikes, runners, and low flying aircraft) coming from behind the flyers and inform them accordingly

The club Facebook page is now in its fifth year. It has over one hundred members. It contains many contemporary site reports, and has a wealth of photos in its archives.

Administered by Nick Gates. David Hayward & Ken Knox

Here is the link:-

<https://www.facebook.com/groups/Chichesteraeromodellers/>