

GLIDEPATH



The Journal of Wessex Soaring Association. July 2020
BMFA Club No 2759

From the Editor

As you may have noticed in the slopeside section of last month's Glidepath we are now able to use Death Valley until the middle of August rather than the end of June as in previous years. This site has not been used much in recent years though I know a number of members have been trying out its delights over the last few months. This extension has come about by Geoff Collins establishing contact with Josh the game keeper there, so thanks are due to Geoff for making the contact and to Josh for allowing us this extension of our flying season there. If like me you consider the term 'mid-August' to be a bit imprecise, Josh has said that he will inform us in due course of the precise date at which we should stop flying there.

The beginning of July will see club events restarting but remember the Covid -19 virus has not gone away, it has merely been suppressed. Therefore I make no apologies for repeating following procedures that the BMFA states MUST be followed during any trip to the flying site.

- Social distancing in accordance with government guidelines **ensuring the minimum 2 metre (and preferably greater) separation** from other people (unless from the same household) is always maintained, including in the carpark, pits and pilot box. *I would also suggest that if you do wish to have an extended conversation with somebody, as well as maintaining the 2m separation it would be safer if you positioned yourselves cross wind relative to each other, so that any droplets you may emit are blown downwind away from both of you. Ed)*
- Latex/Nitrile/Vinyl gloves to be worn or hand sanitiser used immediately before and immediately after opening/unlocking and closing/locking access gates and padlocks
- No sharing of model flying equipment and aircraft (apart from by those sharing a household).
- Hand sanitiser should be considered an essential item in every model aircraft flyer's flight box.
- Anyone displaying symptoms of COVID-19, or who shares a household with any individual displaying symptoms, or anybody who has been told to self isolate, must not fly and should stay at home.

From the Chair

Ian Godfrey

Hi all, firstly some sad news I am afraid. I was informed by his son Nigel Godfrey, that Ian Godfrey our past Chairman, has passed away peacefully. As you will remember he has been suffering from multiple health issues for some while. I sent our best regards to his family. He was our Chairman for many years. I always appreciated his calm level headed approach to issues and I know he really enjoyed his gliding, both full size and model.

Onwards

The restrictions on our movements continue to be relaxed but we must still remain vigilant to protect ourselves (and others) as much as possible. That being said, the committee suggests we can

tentatively resume some club activities. We are outdoors and there is no need for any close contact. We do however, need to remember to use sanitisers etc, whenever shared things may be touched. (Gates, locks, signs etc)

Slope tour

I aim to run the slope tour on SUNDAY 5th July, meeting at Win Green car-park from 10am to depart at 10.30am. As per previous years I will try to end up at a flyable slope. We will go to the three main areas OXO/Swallowcliffe, Horses/Stoney Down and Death Valley. From these I can show all the most used sites. I will send an email out in advance of this notice as well. So far I have 3 people coming along

Flying

I have been flying in one form or another rather a lot recently and really enjoying it; it has provided a much needed escape from this troubled world ! I hope you chaps have managed your own "escape to the skies".

I am pleased to report that the 2020 E-soaring series will be starting on Sun 12th July so I hope to see some of you there

Slopeside by Pete Carpenter

What we believe to be the situation on each slope is as described below, however it is not always possible to contact every landowner each month and we have no wish to pester them. For Sallowcliffe and OXO please take extra care when parking, and do not drive down past the brow of the track in wet conditions or you may get stuck. If in doubt, walk onto the field and track first to check! Please use your own common sense and apply the countryside rules. Therefore if things look different at a site, particularly if it involves crops or livestock, please do not enter and contact me on pete.carpenter12@gmail.com or 01722 328728.

- 1) Winklebury (W to NE wind) - Available.
- 2) Norrington Down (S to SW wind) - Available.
- 3) Donkey Valley (SE wind) - Available.
- 4) Swallowcliffe (NW to NNE wind) - Available. No access into the field, fly from the slope side of the fence.
- 5) Quarry (W to WNW wind) - Available. Access to the slope must be via the Stony Down / Berwick St John route only. Launching and landing from the slope face is OK, but the slope is perfectly flyable from the Berwick St John field. You may encounter some paragliders as they also have permission from the farmer to fly there. In this case it is best to have a friendly chat with them and see if you can agree separate airspaces for models and paragliders.
- 6) Oxo (WNW to NW wind) - Available.
- 7) Horses/Barbara's Field (WNW to NW wind):- Available.
- 8) Daltons 1&2 (NW to NNW wind) - Available.
- 9) Crockerton (NW to NNW wind) - Available subject to rules in slope guide.
- 10) Death Valley (SW wind) - Available till mid August
- 11) Berwick St John (SW wind), Stony Down (ESE to SE wind) - Available. Code on gate padlock is 5823 . Please do not over fly the parked cars on your landing approach at Stony Down.
- 12) East Bowl (NEE to E wind) - Available. There is a gate with a keycode, which is 7850. The shepherd is Mr.Fletcher (red Toyota pick-up) and he has asked that anyone parking on the track put a little note on the dashboard of their car, letting him know that they are a WSA member.

There are also a number of public slope sites, particularly in the Purbecks that anybody can fly from. A list of these is maintained on [Christchurch Club's website](#) so please have a look there for details.

Flat Field Update

If you are the first to arrive at Chalbury go to the green box in the farm yard.

1. The field number is shown on the small plate on the box front . LEAVE THAT WHERE IT IS.
2. Remove the large red plate from inside the box and place it on the box front. It indicates the WSA are on site.
3. Also take the required equipment out of the box and to the flying field, i.e peg board, bungees etc.
4. If it is an event where you are expecting a large number of people take the corresponding field number out of the box and place it on the fence hook at the road entrance to the drive. There is no need to put the number on the hook if you are flying there alone or with just a few other people
5. The last to leave the site, ensure everything is replaced in the box, including the red plate and number on hook if used, but LEAVING THE FIELD NUMBER INDICATOR ON THE BOX FRONT.

Be aware of the field condition, e.g. after rain. Do NOT leave wheel spin marks. If in doubt, park off the lane outside the field. Leave space for farm traffic.

Be aware of footpaths across the fields, Do not launch if walkers are on the paths. Do not launch if horse riders are nearby.

No low flying over power lines. **No flying over farm buildings and the cottage, AT ANY HEIGHT, or immediately upwind of the farm complex.**

Fly SAFELY at all times. Especially launching and landing. Do not launch over cars and do not approach a landing over other flyers, fly a proper circuit.

Report any problems to the flat field rep, Doug Bowmann.

New Products by David Camp

I thought I would pass on some new product info that I had spotted which maybe of interest to some the members. I have been taking the 'Aufwind' German model magazine for many years, no I cannot read German but the pictures are in English! Seriously, since we have lost the magazines like QFI there is no magazine dedicated to either pure soaring or electric powered, although it looks like RCM&E (all that is left now in the UK I think) is maintaining some regular coverage of gliding activity. Of course we have the various web sites/forums, but call me old fashioned (yep!) but it is nice to pick up a magazine and thumb through it. Of course, going back to Aufwind being German language , well if something catches the eye then frequently there will be a web link to follow and use an on-line translator, or just take a few minutes to type text into a translation page. The magazine is published every 2 months and still has glider type models as the main subject matter, of course inevitably many with electric power for launching, but also coverage of wooden built up models and some interesting one-off projects.

Multiplex

This has surprised me, I thought Multiplex had stopped making larger soarers and now just did 'foamies'. I am betting a fair few of us have either owned in the past, or still have, the likes of a 'Flamingo, Alpina, Fiesta, DG600, Kult etc. I am pleased I have held on to my Flamingo 2006 version, still my 'go to' model for the slopes as it will soar well in very light conditions. Well in Aufwind issue 4/2020 in the News section there are two Multiplex designs. The first is an 'Alpina Carbotec'. In the past manufacture of the Alpina range had been by 'Tangent', and when Multiplex dropped these 'non-foamies', Tangent themselves were selling a range of designs, but supply seems very patchy now and I have not seen anyone in the UK importing them in the past few years. Well from what I can glean the 'Alpina Carbotec' is being made in association with a different company, Tomahawk Aviation. This 'Carbotec' version of the Alpina is listed as 4.8m span though a bit pricy in the range of €1,199. Picture below is from a scan of the Aufwind page



The new Multiplex design is the 'Antaris Carbotec' - 3.3 m span, around 3.8kg. and comes with aileron and flap wing, glass fuselage, foam veneer wings with carbon reinforcement. I am betting it is also being made in association with Tomahawk Aviation, but do not quote me on that please. Price circa €879.

Picture below also scanned from Aufwind –



I have checked the Multiplex web site and thus far these two models are not listed; I am guessing production has not started yet.

Now the above are certainly a bit pricey but this new design I have spotted is more affordable. This is from Hollein model shop in Germany, and it was nice to read a bit of background from Carl van Vloten in the June Glidepath. I spotted this when just checking by chance the Hollein web site (with credit card securely locked away!)

The new design is 'Slope Infusion', a 2m design that is not targeted just at flat field thermalling but as the name implies is for slope use. An aileron/flap wing with a Selig S7012 section that should give a good speed range and with only slight dihedral on the outer wing panels it probably has a reasonable aerobatic ability. The construction is typical 'Hollein', laser cut wooden construction using tubular carbon spars in the wing, most likely also a carbon rod leading edge; see the pictures of my 'Climax Evolution' in the June Glidepath to get an idea. A recommended electric power setup is given but there will be an option for a pure glider version, that would be my choice for slope flying. For those wanting to use 'electrickery' the web site advises the recommended setup gives 10-second launches using a Hacker A20-12XL / 10x6 prop and 1300mAh 3-cell battery. Price of the basic kit is €169, with special introductory offer price of €159. The Picture below lifted from Hollein web site www.holleinshop.com.



The Importance of the Point of Balance by Ian Duff

I was once asked at a competition how I fix the centre of gravity on my models. I answered rather flippantly that I generally used a 6 inch nail. He looked confused so I said to him that when you have hammered a 6 inch nail through the centre of gravity, it is not going to move any time soon. He said he would go away and think on that one.

On a more serious note however, a recent email exchange with Nigel on elevator trim settings and centre of gravity (the balance point) of the more modern high performance F5j/F3j type got the brain cells ticking. Given we are returning to RC soaring after a number of months absence I thought the subject worthy of exploration within the club's 'Glidepath' magazine. My apologies if the points made in this article come over as a bit like "teaching grandma to suck eggs".

Terminology

To try to avoid confusing you (and me) in this article I refer to the term "centre of gravity (cg)" as the point at which you physically balance the model (through the use of lead in the nose or the positioning of the battery). What I refer to as the "aerodynamic neutral point" is the point where the averaged

centre of pressure (cp) or lift is calculated to act. This neutral point (cp) moves about the wing chord as the speed of the model or angle of attack of the wing changes. In theory, this point moves rearward as the speed of the model increases and forward as the angle of attack increases.

I will also avoid unnecessary and complex maths, performance graphs, buckets and polars for wing sections as I do not think they will add anything of direct relevance to the main thrust (pun) of the article. To encourage you to read on I will simplify matters though the aerodynamicists amongst you will undoubtedly further cringe at my inaccurate use of terms, like weight instead of mass, speed instead of velocity etc. Also, as with any generalisation, exceptions to the rule exist but what follows holds true for most high performance thermal models. Anyway, on to the subject matter.

How to soar for longer

As many of us do, I have devoted a lot of thinking time and practice trying to perfect the dark art of chasing, locating and using thermals. It is an endless fascination for me but in concentrating so much on this aspect of the discipline of flat field soaring we run the risk of neglecting an equally important aspect, that of the model's flying set up and optimal performance.

Many of us, and I include myself in this (until more recently and coinciding with a move to F5j models), tend to set the balance point for a new model by rough and ready means in the workshop with the clear expectation that we will sort it out when we are down the field after a couple of hand launches and a test flight or two. In doing so, we also tend to start from (and end) at a relatively safe and comfortable forward balance point. What I hope to argue and persuade you through this article is that the position of the cg is worthy of greater care and consideration as its relationship with the elevator trim settings and is indeed critical to the optimal flight performance of the model. Get the lift/drag relationship right via the cg point and elevator trim and the performance of a model can be utterly transformed (and improved); small changes lead to big effects and hence the "how to soar for longer".

Hunting thermals, the flat glide

With the modern trend towards lighter weight (F5j type) high performance gliders, both built up and moulded, optimising the glide angle and speed is critical to the performance of the model. Too fast and you give up height unnecessarily, too slow ditto and worst of all is that to recover lost airspeed you must sacrifice height. What we are looking for in setting up the model to hunt thermals efficiently is the point at which the model cruises around (with the correct wing camber set) at a glide angle and speed close to the point of maximum lift/drag, **and** without constant pilot Tx input. Roughly translated, we are looking to get the model to glide the maximum distance for the least height lost. Here the balance point (cg) is critical as we are looking to achieve a neutral elevator position (minimising drag) in this configuration. Too forward a cg position results in an elevator position requiring up trim and too rearward results in down trim being needed. Both configurations increase drag significantly. As to its visible flight behaviour, too forward a cg position and the model will be less pitch sensitive in flight, less likely to stall in the glide but prone to flying through light lift without noticeable reaction. Too rearward a balance point and the pilot's workload increases greatly in correcting and controlling the pitch of model in flight, and roll, and ultimately degrading the glide performance and risking confusion between turbulence and lift. In the early days of F3j it seemed, incorrectly, that to be an ace pilot (especially state side) you had to have the balance point back on the tailplane. I exaggerate but it was to my mind purely a macho thing !!

David Hobby, a double world F3j champion, wrote a brilliant article on positioning the cg point. He would vary the balance point of the model depending on the conditions and he found that in very light conditions the models that flew best and stayed aloft longer with a balance point slightly **more** forward of the aerodynamic neutral point (i.e. the point at which if you were to put the model into a shallow dive the model would not recover to a flat glide but continue to dive at the same angle until there is a pilot control input). He had worked out by observation that a properly configured balance point (cg) could give up to a 10 per cent equivalent increase in the duration of the flight time in zero lift conditions.

Thermalling

It is here where we see more clearly whether we have the cg point and elevator trim relationship right. Assuming your new model has contacted lift, you have changed the wing camber to thermal mode (i.e. drooped the flaps and ailerons) and commenced a banked turn in the lift, a model with a relatively forward cg will initially dive in the turn and pick up speed. To compensate, most of us would have dialled in some elevator up trim to stop that happening or/and in addition pull back slightly on the elevator stick. Thereafter, the model flies noticeably slower in the turn due to the continued combination of up elevator trim and pilot elevator control input. This high drag configuration compromises the performance of the model in the thermal and its climb rate. Flying slower also degrades the controllability of the model and makes it more prone to the effects of the turbulence within the thermal. What you do not want to do is not make the best use of or lose the thermal you have been searching for and found.

What you are looking to achieve is a fairly flat (or climbing) entry into a thermal and banked turn with little or no change in pitch. Any manual elevator input in the turn thereafter by the pilot should be to tighten the turn, if needed, or to hold the model level at the back of the turn until the thermal core is found.

Ideally, when entering a thermal (in a turn) the flight speed of the model should not increase as the thermal mode (flaps and ailerons droop) is engaged and the model banked into the turn. What you are looking for is a very slightly reduced or no discernible reduction in airspeed (the degree to which is dependent on the wing section used). Air speed in a thermal turn is your friend. It offers greater control, keeps the model closer to the optimum lift/drag point for that revised control surface configuration in the thermal and helps to better identify and manage the turbulence within lift. Rarely is an area of lift a smooth rising column of air. To achieve this optimum configuration most of the top competitive pilots set a cg position where a little down elevator trim is needed as the wing camber increases or the elevator trim is left unchanged. To enable this, a balance (cg) point closer to the aerodynamic neutral point (but still ahead of it) is used. Generally this will be close to or is at the maximum rearward point of the cg range suggested by the manufacturer. This set up, all things being equal, will out-glide (more distance and time to hunt), out-climb in a thermal and consistently out-perform the higher drag configuration.

A new high performance F5j model produced for the 2019 World Championships comes with a recommended 6 flight mode set up; cruise, distance, speed, L/D max, thermal 1 and thermal 2. The latter two modes configure the model when circling. No elevator up trim is recommended for any of the 6 modes and the maximum and minimum points of the cg range are only 3mm apart.

To sum up

None of this is simple or straight forward and pilot preference as to a model's set up and flying characteristics comes in to play. What we are all trying to achieve is to balance a whole range of competing forces and factors and end up with a model that we enjoy flying. However, it is worth remembering that the weight of the model remains constant throughout the flight but lift generated by the wing through airspeed over the wing profile to carry that weight varies with speed. In this, drag is the number one enemy and has become ever more critical at the lower airframe/wing loadings and Reynolds numbers we now fly at.

Most manufacturers give a useful starting range for the cg position and getting the plane to balance within this range is critical – nearly or thereabouts will not do ! Electrical balance scales now can tell you to the fraction of a millimetre where model balances but these are expensive. I use a fine wire (closed loop wire) trapeze arrangement where the wire is trapped between the wing and fuselage at the chosen balance (cg) point - normally measured from the wing LE - and the model suspended using the wire loop. This arrangement allows for fine adjustment to get the desired cg position pretty much bang on. Fine tuning at the field is then about optimising that balance to achieve the desired elevator neutral position (i.e. the max L/D configuration), especially on thermal entry, given the all variables of the handling and flight characteristics of the model and the wing section employed. Hopefully, I have provided some food for thought.

Ringstead Flights Success, Finally by Phil Ford

A great day of slope soaring at Ringstead finally! Previously Frank had a failed trip to Ringstead with a grey mist shrouding the area and then on the following Saturday 20th June I made the hike there. The SSW wind was light around 11 - 13mph and the car park was quite well packed. There was a large contingent of parascenders too, although none were flying. Out in the bay were the cruise ships at anchor and in the far distance a grey horizon. Thirteen miles per hour wind is not really enough for my heavily ballasted flying wing but I thought I would give it a go anyway.

Yes, it flew but not very exciting. I had noticed that the grey horizon was getting closer and closer and the daylight was appearing to be dimmer. Time to land I think! As I made my last turn for landing I spotted in my peripheral vision two dark objects also coming my way from my left. Two parascenders coming in quick at a rapid descent rate too. As I landed behind me I watched the parascenders disappear over the hedge behind the the car line. As I returned back to look out at the bay the ships had disappeared and like something out of a sci-fi horror movie a thick grey cloud was rolling in fast. By the time I had picked up the wing and got the car, just a matter of 30 secs, the cloud was on us. You could not see more than 30 feet in front you.

A guy approached me from out of the gloom and saying the polite "morning" I noticed he was carrying a small glider which if I was not mistaken was the venerable Lidl chuck glider. He said he was a parascender from Southampton but with the wind not too brilliant he had been trying to fly this glider. Of course the conversation quickly went to the cloud which we were still standing in. Apparently he had came down with a large group from all over the South to Ringstead for some flights but it was not going too well at all. "In consolation at least you got to fly the glider so not all wasted time" I said!

Well as it turned out it was a wasted day for me too. The cloud after about 15 mins disappeared as quickly as it had come and the ships and bay were visible again although with a rather grey sky. The wind did not pick up much either and hanging on for an hour to see if it would increase, which it did not, I decided to give up by 11am. Unassembled the my gliders and made way home. On the way whilst queueing at Wool level crossing the sky cleared with nice white Cumulus clouds to just rub it in. Bah!

Checking the forecast, which is what it is a forecast, for Sunday and Monday, the Monday looked very favourable for Ringstead. So, first thing Monday morning checked the live weather station at Portland breakwater (https://weatherfile.com/location?loc_id=GBR00006) and it was looking good. So, with the car still loaded up from Saturday off I went.

A great day at last. Mike Seale, Ian Wettstein, myself and two of WMAC club members were there too. Nearly a whole day with no incidents bar Ian lost a flying wing in the woods down to the right. It is hiding in there somewhere.



Calendar

Sun 5th July , Slope Tour
Sun 12th July, E soaring Round 1
Sun 9th Aug, E soaring Round 2
Sun 13th Sept, E soaring Round 3

Contacts

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