

All the way from Queensland's Sunshine Coast in Australia, Wowing's proprietor Pete Loftus sent me details of his new 60" EPP race machine, the Gannet 1.5



Take cover!

MAN-ON-MAN IS IN DECLINE AND ANDY ELLISON'S ON THE WARPATH!

The face of 60" EPP model preparation has changed. The spackle and countless hours of filling and sanding has gone in favour of papering over the cracks with tough laminating film, this resulting in even more indestructible models.

Did the 60" EPP Man-on-Man slope racers break the BMFA league? There's certainly a waning popularity, which gives the impression that the class is being kept alive by a hardy few. It's true that were it not for the input of groups like the Huddersfield club in recent years, then the travelling league regulars would have cut lonely figures on many-a hillside through 2009 / '10. Now that these guys, too, have lost a few key players - and more than a little interest - the league is trying to actively seek new entrants. The existing exponents seem to dabble at this in various online forums but invariably end up preaching to the converted, with the

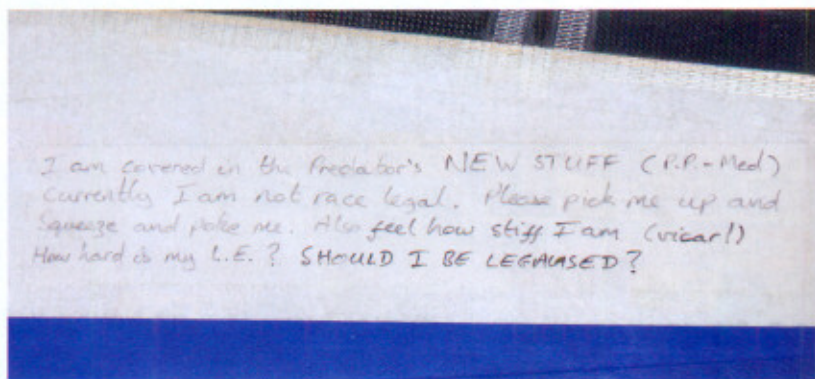
same names (already active pilots in the class), commenting on how they won't welcome any new rule changes - rule changes that may, in fact, create at least a perception of a more 'open door' philosophy. Yes, everybody wants to race fast models, but do they really need to be 5 lb lead sleds with a hundred hours in the build that will bounce off rocks? Let's examine a few issues.

DEVIL'S ADVOCATE

I thought I'd be a little provocative here... a bit devil's advocate, perhaps. Don't hang me for it, I'm a big fan of the 60" leagues for the racing is great fun and very competitive. Alas, the

class has scant representation in the windowless committee meeting rooms of the BMFA's Chacksfield House, and the silent flight magazines that one might expect to be concerned with such things won't touch it unless the models start to appear with roundels and electric motors... So, I'll fall on my sword and try to raise a few issues (whilst putting one or two myths to rest) in the hope that at least one of you out there might give it a go in 2011.

It's true that 60" race machines have become heavier and faster. This is largely attributed to the shortcomings of older models when big winds come along and the





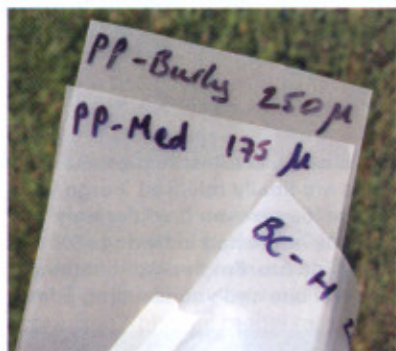
popular new construction techniques using laminating film covering materials. However, you'll also find that every serious 60" racing pilot has a lightweight model in his arsenal for those days (all too familiar some years) where there's hardly enough lift to take fag smoke away. There are no minimum wind rules in 60", you see... Perhaps there should be?

There's some speculation that hours and hours of work are required to be invested in a decent EPP model to make it competitive, and if your building takes you on a certain route, to some extent this is true, however it certainly isn't a requirement. Still, nobody has a desire to see all their hard work undone at the first race of the season in a mid-air with some tunnel-visioned Zagi flier, and this is an issue we'll come on to in a minute. The extensive use of laminating film has decreased build time on these models, and the same highly smooth finishes can be achieved without all that filling and sanding we used to have to undertake. It also tends to make models a bit more ding-proof for the odd bounce here and there, but some pilots seem to have created a scenario where models are built to survive rather than just race - no need, I think.

CRASH & BURN

To the issue of attrition. To finish first, first you must finish! Put four models up in the same airspace and there's bound to be some bumping going on. This, of course, is 'always' accidental (honest!) but it can largely be avoided by better race practice. In America, Man-on-Man racing is undertaken with much more expensive 3m moulded gliders, and there's an etiquette aimed at rewarding the leader and putting

the onus on those chasing to avoid hitting him head-on as he exits a turn, confronted by the chasing pack. In this country we seem to fight as every man for himself. This might not be such an issue if the pack is close on his heels, but when the leader is taken out on the racing line by a model two laps off the pace, is rubbin' really racin'? Surely, you can see how those investing many hours to be



competitive can get just more than a little fed up with the whole thing?

GOOD ENOUGH?

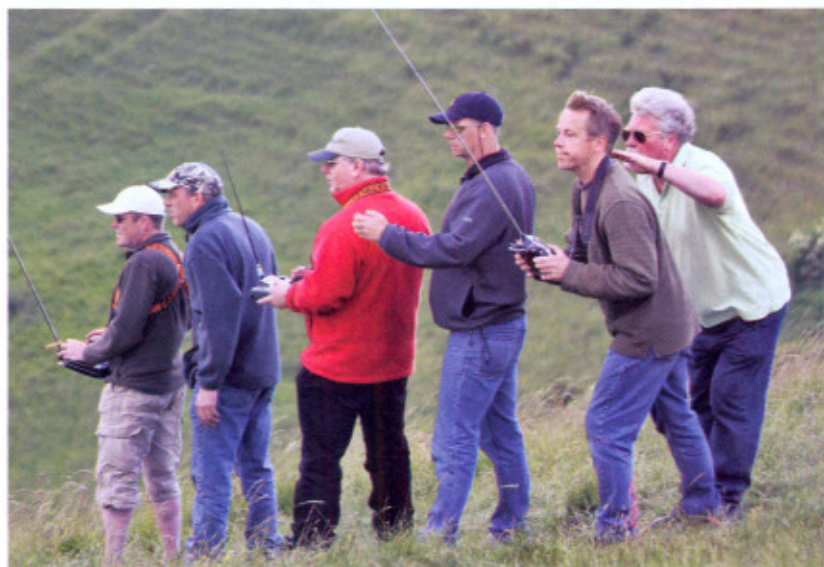
This brings forward the question of pilot competency. Invariably there'll be broad experience in any open slope soaring race, but should there be an entry level of competence for what can be a high energy experience? The BMFA Slope 'A' Certificate would obviously be the perfect assessment criteria for what is a basic task (difficult to do well), but - and I speak as a BMFA Silent Flight Chief Examiner here - the infrastructure of the BMFA Silent Flight schemes is simply not as established as the corresponding Power achievement schemes, and it's unlikely that many EPP league pilots will have ready access to an examiner who can do the deed.

Should we have a 12-month amnesty and set an entry competency

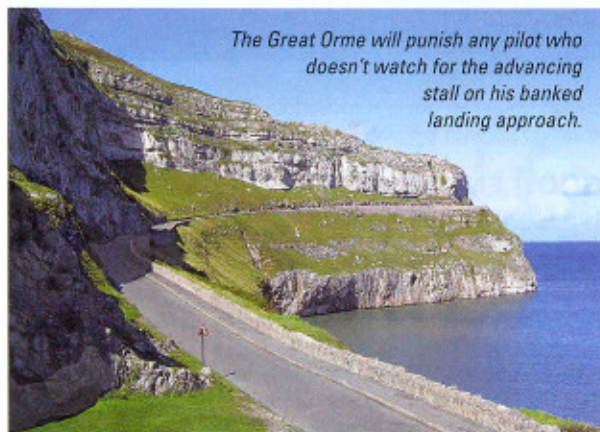
Modern 60" racers are surprisingly similar.

Racing at close quarters can result in a top days flying. Throw a slower model into the mix and mid-air collisions are much more likely.

Hit a model covered in this stuff and you'll know about it.



The 60" class is volunteer dependant, for to race three up you need ten people! Waning numbers lower the quality of racing. Will you be giving it a go in 2011?



The Great Orme will punish any pilot who doesn't watch for the advancing stall on his banked landing approach.

for the league coordinator, but with minimal support from the F3F side in recent years, and minimal pilots flying across the both days, it couldn't get any worse, could it?

Come on lads, sort yourselves out instead of putting your racing in the hands of folk not even flying your class. Leaving the announcement of race dates until February in the racing year also means a compromise on events. Host clubs should be setting aside dates for the league races at their November / December AGMs. EPP is becoming the poor relation... perhaps even a minor inconvenience.

Nevertheless, grasping the nettle, this year Ronnie Lampe has stepped into the big boots left by Clayton Landels as 60" league racing coordinator, and the venues and dates are finally released. I urge you to give it a go even if you're only partially interested in having slopeside fun. I'm hoping that the bug will bite and you can drag a few

mates along. Even if you're not 'in it to win it', you might at least try to beat them with a pint bet on the results at the end of the day. Don't think your model isn't competitive; you might be surprised. A fairly stock Gulp SR took nearly every race in 2010, and that was flown by a flippin' Brummie!

MAKE A DATE

The scheduled BMFA Slope Soaring League dates are below. 60" flies on Saturday, with F3F on Sunday:

- 9 / 10 April - The Bwlch, South Wales
- 7 / 8 May - Tinkers Hill, Huddersfield
- 21 / 22 May - Hole of Horcum, N. Yorks
- 16 / 17 July - The Bwlch, South Wales
- 10 / 11 Sept - Long Mynd, Shropshire
- 8 / 9 Oct - The Long Man, Eastbourne
- 22 / 23 Oct - Whitesheet Hill, Wiltshire

At the time of writing the BMFA Slope Nationals dates are yet to be determined but expect one of the above races to be nominated.

F3F WORLD CHAMPS

Before I leave the slope racing scene it might be worth noting that for the first time, the F3F discipline may be having its own official world championships, to be held in 2012. The UK can send a three-man team to an FAI-sanctioned event plus one team manager, with partial assistance of their funding from the BMFA coffers. Rumour has it that Germany fancies its chances of organising the first race under this banner, on the completely awesome low-level coastal cliffs of the Kap Arkona venue on Rugen Island. A perfect place if you ask me, having flown it extensively during the historic 2004 Viking Race. Nothing has yet been posted by the FAI, though, and such a proposal is suspicious by its absence so it may not yet come off. One thing



Spencer Lisenby has once again upped the Dynamic Soaring world record with a staggering 468mph run with his own design Kinetic 100.

level for 2012, or will bad pilots always be bad pilots no matter what their qualification? I'd put you a quid on the latter, to be honest. And have we forgotten about the rules regarding 'intentional' mid-air, or am I being over-sensitive? Come on, look me in the eye and tell me that's never happened?

STRUCTURE

Now, how about the league structure? Well, travelling the country to sit on windless or rain-wrapped mountains is never good, especially with the price of fuel, and it's true that centralised events plus a fly-off has been discussed many times before for the 60" class. However, a good number of personnel are required to run even a 'two man up' pylon race, with launchers, flag men, pilots and a CD. Fragmenting the league to a smattering of small-field events is likely to kill it stone dead with a single bullet unless entry numbers dramatically improve. National events it is for the time being, then. I do however think it's time that the 60" league split away from the same weekends and sites as F3F events to allow Man-on-Man racing on a Sunday. This will mean more work

Steve Dorling gets his Jart away from the rocks of the Great Orme. Models (such as this) with high wing loadings, suffer more from the advancement of the stall due to wing bank and the Orme landing circuit is no place to discover it.

The coastal bluffs of Rugen Island made for an epic Viking Race and would be a fantastic place to hold the first F3F world championships.

is for certain, however: the UK can't wait until it's so, to determine its preferred F3F team selection process. Expect some online discussions about this soon. Meanwhile, the current front-running proposal is to avoid using the league races in favour of a process that selects pilots based on their top three placing after twin events. One being open to all, and the second having a restricted entry dependant on a pilot's participation at the first event and their best intention to travel to the World Championships should they qualify. Keep an eye on the F3F Yahoo group for more information throughout the year.

ANGLE DOWN

Right, a change of pace is required. It's time to exercise the grey matter.

The following was prompted by my witnessing the landing approach carnage during one particularly windy day atop my favourite sea cliff site, the Great Orme at Llandudno in North Wales.

Many and varied models hit the hilltop that day and most of them during the (often ill-fated) final turn to a landing on top of the slope. The main site on the Great Orme is an easy place to land with little (if any) rocks to dodge and only a minor rotor to contend with. Nothing special, then, however what people failed to appreciate (as they chased the shredded pieces of their aircraft downwind towards England), is that stalling speed increases dramatically with angle of bank. As such their slow downwind leg (with very low airspeed but huge groundspeed) and 60° bank into wind was promoting a sudden stall at low altitude, followed by the inevitable short appointment with terra firma. Let's examine the figures.

The table below shows the increase in stall speed (as a percentage in the far right column) at various bank angles in normally executed level turns, and is a good 'average' indicator for many aerofoils. The load factor (or 'g') through the turn plays a part, and for this purpose equals $1/\cosine$ of the bank angle. The Vs (stall speed of the aircraft with level wings) multiplier equals the square root of the load factor. The table on page 34 shows that once you reach bank angles of 30° or more, the aircraft stall speed increases rapidly; there's a 7% increase at 30°, a 19% increase at 45° and 41% increase at 60°! Four times greater than at 30°. Bank to 75° and the stalling speed is fully doubled!

You can see from this that making low-level turns from a downwind leg



Unexpected stalls on landing, through increased angle of bank, can result in unexpected recovery solutions to be employed.



A traditional 'crash investigation committee' will blame everything they can think of in looking for the cause of the crash but few realise the sudden stall was due to an excessive angle of bank.

that involves bank angles exceeding 20 - 30° should be avoided in a scenario like the aforementioned 'Great Orme windy day' landing approach. While the model may well be rocketing along on the downwind leg in relation to your position, it may not be travelling at sufficient speed to pull the airspeed up high enough to avoid the increased stall speed of the model through the turn. Hence the carnage.

I'd suggest that as a minimum, and to allow a safety margin when near the floor, the airspeed here should be at least 1.5 x Vs before the turn commences, and turning level should be avoided, describing a shallow descent throughout until facing into wind for finals. I hate to see models bouncing, indeed some understanding of these simple aerodynamics might just save a few.

EVER FASTER

With the winds come sneaky visits up the backside of ridges in pursuit of Dynamic Soaring records, and

Spencer Lisenby of California has yet again upped his game to take the record for fastest model aeroplane, which now stands at 468mph! On 2 February 2011 he flew his own

Even the experts can get caught out occasionally. As Viking Race champion Pierre Rondel found out to his cost.





*It's not that crash
that will kill your
model but the
sudden stop at the
end!*

design Kinetic 100 DP to a new world record at Norco, California in winds gusting to over 65mph.

There's a most excellent high definition video of the record-breaking flight on YouTube - look up 'Spencer's World Record 468mph Kinetic100DP flight video' or go here: www.youtube.com/watch?v=rfoxjNg-eg0&feature=player_embedded.

The radar gunner, Chris Bosely, also flew the plane after Spencer, and his flight is included in the second half of the video. The model is a little more visible here as Chris is following the model with a helmet-mounted camera; not that there's a

The full formula for stall speed in the turn would be:
 $V_{sturn} = V_s \times V_s \text{ multiplier}$.

Bank angle	Cosine	Load factor [g]	Vs multiplier
10°	0.98	1.02	1.01 [+1%]
20°	0.94	1.06	1.03 [+3%]
30°	0.87	1.15	1.07 [+7%]
40°	0.77	1.30	1.14 [+14%]
45°	0.71	1.41	1.19 [+19%]
50°	0.64	1.56	1.25 [+25%]
54°	0.59	1.70	1.30 [+30%]
60°	0.50	2.00	1.41 [+41%]
70°	0.34	2.94	1.71 [+71%]
75°	0.25	4.00	2.00 [+100%]

lot to see, but if you can afford the time and the disk space I suggest that you download the HD file and turn up the sound!

Congrats to Spencer. I know that three of these models are now in the UK (Mark Southall, Steve Forbes and Adam Richardson), with two already flying by the time I had to send this to the ed. As a result, we expect to see the British record go higher and higher, perhaps securing the European record for the UK, at last. What will be more interesting still is Joe Manor's response to Spencer's flight when he turns out with his Dynamic 130. Not long now.

To learn more about Spencer's range of models visit his website: <http://dskinec.com>. Put your credit card out of reach first, mind you!

DAMPING ABOUT

Well, it's raining again, so it's another workshop day. Next time I'll be taking a look at the impressive range of cyanoacrylates and polyurethane adhesives from Adhesion Technics Products and (hopefully) the season's start to lead sledding in the mad March winds. I'll be at slopetrashuk@gmail.com if you fancy a chat, or on [Twitter@slopetrashuk](https://twitter.com/slopetrashuk) if you want to follow in real time.