

SAILPLANE & GLIDING

VOL. 65 NO.3



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Pete Stratten advises on licence ratings and qualifications, as pilots convert into the new licensing system



MEMBER OF THE ROYAL AERO CLUB AND THE
FEDERATION AERONAUTIQUE INTERNATIONALE



 **THE MAGAZINE OF
THE BRITISH GLIDING
ASSOCIATION**

JUNE/JULY 14 VOLUME 65 No 3

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COVER STORY

Guy Westgate pilots a glider for a parachute jump in Spain. Closer to home, why not think about getting into glider aerobatics? See article on p38 (Guy Westgate)

DEADLINES

Aug/Sept 14

Articles, Letters, Club News: 6 June
Display advertisements: 20 June
Classifieds: 7 July

Oct/Nov 14

Articles, Letters, Club News: 8 Aug
Display advertisements: 22 Aug
Classifieds: 8 Sept

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PUBLISHER

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> The BGA was asked by the GA Alliance member organisations to take the lead in responding to the recent TAG/Farnborough controlled airspace proposal consultation. In leading the effort – working closely with other air sport bodies – the BGA has helped encourage more than 3,000 responses from across the gliding, general aviation and non-aviation communities. Further developments will be reported on in due course.

> The 2014 BGA Waypoint list was published at the end of March. There has been one deletion, three minor changes of wording and 23 new points. The deletion is NTN - Newton, near Nottingham, which is now a business park and the alternate point is a big roundabout at BNG - Bingham. The new points are near the following places: Bath (1), Berwick (2), Edinburgh (1), Exeter (4), Leicester (1), Plymouth (4), Shrewsbury (8), and York (2). The 2014 BGA List contains a total of 1265 Waypoints.

> The newly-formed British Human Powered Flying Club is holding a rally at Lasham between 28 June – 6 July, with at least six human powered aeroplanes expected. More information will be available at: www.bhpf.org.uk

> A series of temporary airspace restrictions are in place around sporting events this summer. These are being established to cover the UK stages of the Tour de France (5-7 July) and for the entire duration of the Glasgow Commonwealth Games. The Tour de France airspace restrictions will roll with the riders as they progress through each stage, with mini RA(T)s being turned on and off throughout each day. Generally, the restrictions will extend from surface level to between 4,500-6,000ft. See www.ais.org.uk

> The advice for pilots intending to fly in France has been updated on the BGA website. See www.gliding.co.uk/bgainfo/licensing/downloads.htm#france

> Congratulations to Mike Young, who came 11th in the 5th FAI World Sailplane Grand Prix Championships in Sisteron, 9-16 May. The winner was Didier Hauss, with Sebastian Kawa second and Uli Schwenk third. See next issue for full report.

> We are sorry to report the sudden death, in late April, of Peter Redshaw of the Lakes Gliding Club. Peter was the driving force in the scanning project which helped to create the online archive of Wally Kahn's complete set of UK gliding books and magazines.

> The April/May Club Gallery featured an impressive 'shark' pic by Charlie Waygood. Charlie is a member of Dorset Gliding Club, not Dartmoor as stated.



■ Students from Nene Valley GC's gliding scholarship programme spoke of their achievements as the search began for the next candidates from nearby Abbey College, Ramsey. The meeting was attended by local dignitaries, as well as BGA Chief Executive Pete Stratten. (Doug McLoed)

Glider pilots honoured

CONGRATULATIONS to the glider pilots presented with Royal Aero Club awards by HRH The Duke of York at a ceremony at the RAF Club, London, in May.

RAeC Diplomas were presented to Paul Conran and Mike Randle.

Paul has represented the UK in the World Glider Aerobatic championships on several occasions and is currently National Glider Aerobatic Champion. He has spent an enormous amount of time promoting and teaching aerobatics.

Mike has been flying gliders since 1954 and instructing since 1955. He always has time for those with a genuine interest to learn and has served many years on the BGA's Safety Committee as a Regional Safety Officer.

Ayala Truelove was awarded a RAeC Silver medal. She took up gliding in 2001, entered her

first competition three years later and now has a hat-trick of Silver medals won in the Women's Worlds of 2009, 2011 and 2013. Ayala is one of the founder members of Women Glide (UK).

Acknowledgment was also made of Buckminster aerobatics prodigy Robbie Rizk, 15, being awarded the first FAI Breitling Youngster Award, as reported in the Dec 13/Jan 14 issue (p4).



Paul Conran (left) and Mike Randle were presented with RAeC Diplomas by RAeC President HRH The Duke of York (Martin Gammon)



■ The 7th Youth & Education Support (YES) Annual Aviation Education Conference took place at Brooklands Museum, Surrey, in April. The Air Scouts and leaders pictured above took part in some of the presentations, with information and guidance offered on aviation-related activities and careers advice and support, which is available through a number of established organisations. <http://yesflyers.org.uk> (Photo by Susan Newby)

TORCH TROPHY TRUST AWARD FOR 'WOODY'

NORFOLK GC's Roy Woodhouse was recently presented with a Torch Trophy Trust Award by HRH the Princess Royal at a ceremony at the Army & Navy Club, London. The awards, which are now in their 51st year, are made to volunteers who have shown outstanding dedication to sport in their local communities.

Roy 'Woody' Woodhouse has been Norfolk Gliding Club's longest-serving CFI and chairman, as well as a volunteer for over 30 years as company secretary. He has encouraged junior and disabled access to the sport and is well known for his renditions of "Haya got a loit, boy" and other witty monologues from his Norfolk heritage.

This year the Trust also presented a lifetime achievement award to its President and national sporting hero, Sir Bobby Charlton CBE, in recognition of his lifelong service to sport.

Sir Bobby said: "My congratulations go out to all of the volunteers who have been recognised at this year's awards - they are the unsung heroes of sport and their achievements and dedication are truly admirable."



Roy Woodhouse receives award from HRH The Princess Royal

Committed Junior wins Winter Series

THE 2013/14 Juniors Winter Series was won by Alex Harris, 17, who showed real commitment by turning up and flying at all the events, **writes Matt Davis**. He completed his Silver duration at the Mynd and challenged himself to fly from Denbigh, a site that can be a little intimidating to the inexperienced.

Of the six flying days available to us, every single one could have been used for training and four of them were soarable, using ridge, wave and thermals. This just shows what can be achieved, even when some forecasters had written the days off completely. Some of the highlights included 77 launches in one day at the Mynd, lots of first wave climbs at Denbigh, and putting the only flights on the BGA ladder at Dunstable.

We had 50 people entering each event this year, which perfectly demonstrates that the Juniors movement is alive and well in the UK. Next year we really go on tour, with a long weekend in Portmoak to kick things off from 16-20 October 2014. Once again thank you to all of the clubs and everyone who came along to make it epic.

EASA outlines plans for GA

EASA gave three presentations at the recent AERO exhibition in Friedrichshafen, outlining its future roadmap for General Aviation (GA) regulation. A central theme was a recognition that regulations designed for commercial air transport are disproportionate and excessive for GA. EASA stated that they have set three objectives to address some of the issues that we are all facing: to change the way that the EASA system operates; to change the current principles applicable to light GA; and to simplify the regulations applicable to light GA. Statements such as "consider delegation of oversight functions to user organisations" are obviously positive. However, the devil will be in the detail and nobody should expect changes overnight. The BGA, through Europe Air Sports, will continue to be deeply involved in any change process. EASA has set up a GA-specific sub-site at <http://easa.europe.eu/ga>

DATES

NATIONALS, REGIONALS AND OTHERS

Standard Class Nationals	Lasham	24/5-1/6/14
Open Class Nationals	Lasham	24/5- 1/6/14
Worlds	Rayskala, Finland	22/6-6/7/14
(unflapped & 20m two-seater)		
Competition Enterprise	Nympsfield	28/6-6/7/14
18 Metre Class Nationals	Hus Bos	5-13/7/14
Wenlock Olympian Gliding	Long Mynd	13-19/7/14
Worlds (flapped)	Leszno, Poland	21/7-10/8/14
Club Class Nationals	Dunstable	26/7-3/8/14
15 Metre Class Nationals	Tibenham	16-24/8/14
Junior Championships	Lasham	16-24/8/14
Two-Seater Competition	Pocklington	17-24/8/14
UK Mountain Soaring Champs	Aboyne	31/8-6/9/14
Glider aerobatic competitions		
Glider aerobatic nationals	Saltby	29/5-1/6/14
World Glider Aerobatic Champs	Slovakia	7-16/8/14
Saltby Open	Saltby	19-21/9/14

■ **BGA Club Management Conference, 22 November, 2014 at Warwick University**

LASHAM REGIONALS

24/5-1/6/14

SHENINGTON REGIONALS

21-29/6/14

NORTHERN REGIONALS

26/7-3/8/14

MIDLAND REGIONALS

26/7-3/8/14

BICESTER REGIONALS

9-17/8/14

BICESTER REGIONALS

9-17/8/14

INTER-SERVICES REGIONALS

9-17/8/14

DUNSTABLE REGIONALS

16-24/8/14

EASTERN REGIONALS

16-24/8/14

GRANSDEN REGIONALS

16-24/8/14

BIDFORD REGIONALS

23-31/8/14

> During 2013, the BGA was awarded a Centennial Fund Scholarship from the RAeS of £3,000. Following an application process, 10 scholarships of £300 have now been awarded to young pilots between the ages of 14 and 21: Lucia Gray (Yorkshire); Conrad Morris (Mendip); Sarah Aze (Wolds); James Taylor (Buckminster); Alistair Lounds (Seahawk); Rozanna Toomer (Lasham); William Andrews (Yorkshire); Jamie Carruthers (Essex & Suffolk); George Hunter (Booker); and Nat Ridgeway (Essex). Congratulations, and we look forward to hearing about your achievements.

> The Guild of Aviation Artists' 44th Annual Summer Exhibition will be held at the Mall Galleries, London, from 21-27 July. Pictured below is this year's entry by John Dimond, entitled *Per Adua*. John was awarded the Pooley Sword (for best painting depicting sport aviation) last year. He is a volunteer Air Cadets motor gliding Instructor and holds a PPL. Admission to the exhibition is free. For more details see www.gava.org.uk



> British Women's Team members will be running development weekends on 5-6 July (Hus Bos) and 20-21 September (Lasham). Single-seat and two-seat places are available for those wanting to improve their cross-country and racing skills. See www.womenglide.co.uk



Liz Sparrow (right) with Wendy Head, who came second in this year's Compette (Claudia Hill)

Grand Prix style Compette

THE Compette was thought up a few years ago by Liz Sparrow et al and is a short, weekend comp, hence the term Compette, **writes Claudia Hill.**

It takes place on the first May Bank Holiday weekend. In most years there has been a Southern and a Northern Compette (the southern leg at Lasham, the northern leg organised by Tim Milner at Pocklington), and there's even a trophy, awarded to the venue whose competitors have gone the farthest distance, or got closest to the other venue. This year, however, there was no northern version as Tim is busy preparing for the Worlds in Finland. The Southern Compette took place at Bicester - for a change of scenery, to make it more easily accessible to people who live slightly further north, and because Bicester were running their Grand Prix and invited us to gate-crash. We brought our own scorer, Jeremy Pack, but were able to use Bicester's GP infrastructure.

And what a glorious Southern Compette we had - our seven competitors flew tasks

on two brilliant cross-country days, and some even tried to make it a three-day compete.

Day 1 was a Grand Prix task with variable barrels, although we didn't do the GP start and started a little later. Base task was 300km with barrels of up to 10km-ish for the lowest performance gliders, which meant the clubbies did tasks of around 220-250km. Liz came first, Jeremy second, and I was third. Liz also came first in the overall Bicester Grand Prix scoring for that day.

Day 2 was a slightly shorter GP task, but based on the same principles as Day 1. Liz unfortunately was U/S and decided not to fly, so the day results were: 1st Wendy Head, 2nd Jeremy, 3rd myself (beaten by Jeremy by 39 seconds!).

Only the first two days are scored, which made Jeremy the overall winner, with the Compette trophy going to the south this year, as there was no northern version.

On Day 3, I was going to launch from my home club at Weston and do the GP task from BIC to make it a three-day compete. Fellow compete pilot Philippa Roberts kindly messaged me the task and barrel sizes, and I decided to fly our club's DG-505 with a mate instead of my LS4 on my own. It took us 2.5 winch launches before we managed to find a bit of weak lift in the murk (you couldn't even see Oxford from Weston!), and it took us about 20 minutes to work our way up to 2,000ft. I was exhausted and I wasn't even doing the flying! I decided to scrub and I think Bicester did, too.

A massive thanks to Bicester for letting us gate-crash their GP, for making us feel very welcome, and huge thanks to OJ for organising us all. We'll be back...



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CAMPHILL'S NEW L975 CROSSING

IN THE good old days, gliders were allowed to cross airways without any fuss or bother, we just had to cross expeditiously and as near to straight across as possible, **writes Dave Salmon**. Then in the 1990s this privilege was stopped. With help from Carr Withall, then chairman of the BGA Airspace Committee, we started to negotiate a crossing of the major east/west airway L975 (B4 in those days) about 20km north of us, and also areas where we could climb high enough in wave to get Diamond height.

These negotiations stalled many times, but eventually, about 12 years ago, we got agreement for two wave boxes and two crossings.

The wave boxes have been used regularly, but the crossings very little. This was probably due to the relative complexity of opening the L975 crossing with Manchester, then the Leeds crossing with Leeds/Bradford. Two other factors were that few pilots then had the RT licences needed to use the higher part of Box B and the crossings, and there was also concern about dropping into the Leeds/Bradford Class D airspace, below the crossings, if height couldn't be maintained. It was all just a bit too much for most pilots.

A few years ago, control of all this airspace, apart from Leeds Class D, moved to Prestwick, so only one airspace control unit had to be dealt with. A step forward, and Prestwick controllers have proved to be friendly and co-operative.

In April 2013, after a climb in Box B, the crossings were opened and used successfully, but, we were later told, an inexperienced controller made a procedural error and routed a commercial flight under the glider, albeit at least 4,000ft below.

This created a great furore at NATS and, through no fault of ours, the crossing agreement was "temporarily" suspended, whilst they sorted it out. This suspension went on and on, and being concerned that an even more user-unfriendly agreement might eventually be proposed, last October, the Camphill Airspace Committee decided to be pro-active. John Williams agreed that we should negotiate locally, rather than bring in the BGA Airspace Committee.

We contacted NATS at Prestwick and in exchange for a much bigger L975 crossing,

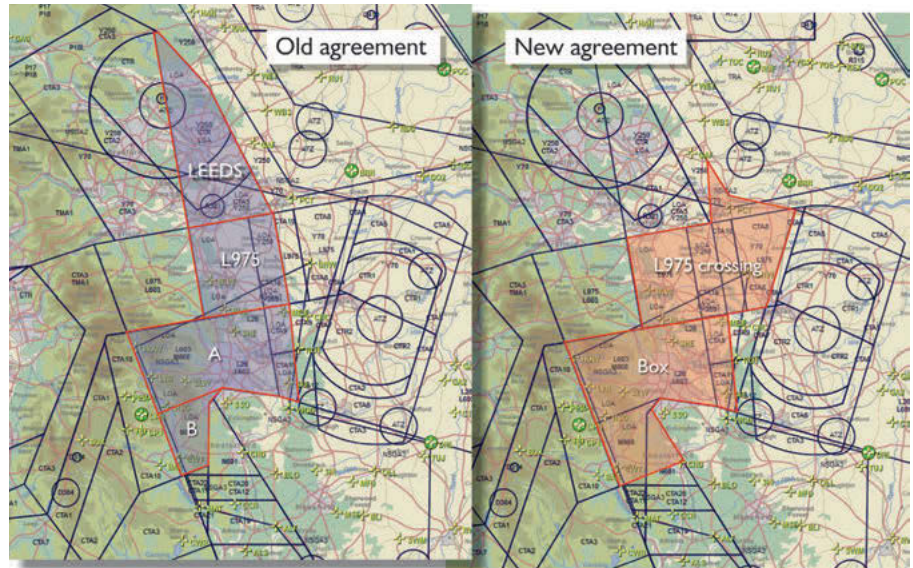


Illustration by Steve Longland, using FlightMap background

as a quid pro quo we offered to give up the Leeds/Bradford crossing. This bigger crossing would give us an exit from Box B into uncontrolled airspace in Yorkshire, unlike under the old agreement, where the only exit was into the Leeds/Bradford crossing. We thought that this would be attractive to NATS, as Leeds/Bradford is a very busy airport, and that they would be very pleased to have us out of their hair.

Postive response

We were gratified to get a quick and positive response. After some fine tuning of the actual area to be designated as the new L975 crossing, the Manager ATC Procedures & Airport Interface at Prestwick went to work and eventually we were asked for a meeting to discuss their proposals for a new agreement. This was held at Camphill in early March.

The operation of the new agreement is very much in line with the previous one, but with some important and advantageous, mainly geographical, changes.

There is now only one, bigger wave box. Box A and Box B have been consolidated, and what was Box A is almost doubled in size. The whole of the new box can be opened initially to FL100, then progressively to FL190. Previously only in Box B could we go higher than FL100.

There is now one bigger crossing, that extends the original to the east as far as RHDS CTA 4. The Leeds crossing no longer

exists. We now contact only Scottish Control for everything, and although under the previous agreement the crossing could be opened no higher than FL120, we can now request up to L190, exactly the same as the box. The operating height band used to be very narrow over Leeds, between FL85 (the top of Leeds Class D) and FL120; it is now from FL55 or FL65 (the bases of the two sections of L975 involved) and FL120, and can be requested up to FL190. The wave box is activated, as now, by a phone call to Scottish Control.

Then there is the Derbyshire Non Secondary Surveillance Radar Area, part of which roughly coincided with our wave boxes, though extending well beyond it to the south. However, it did not extend very far into the old or new crossing areas. The CAA has stated that, under AIP Gen 5.3.4.1, we are controlled when above FL100 in the box and crossings, and, as no other traffic is allowed, when using them we are exempt from using a transponder even though above FL100. It is emphasised that this is not exploiting a loophole; it is the CAA's interpretation of the law. The Yorkshire NSSRA overlaps into the crossing, so we can then enter that to continue north.

We are pleased to acknowledge the efficiency and speed with which this negotiation has been dealt with by NATS at Prestwick. The suggestion for change was made on 30 September 2013, and the new agreement became operational on 1 May.

SAILPLANE & GLIDING



Andy Davis
Competition flying



Paul Whitehead
SLMG



Howard Torode
Airworthiness



Derren Francis
Tugging



Mike Fox
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Dr Peter Saundby
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Andy Holmes
Winch operating



John Williams
Airspace



Alison Randle
Development



Bruce Stephenson
Vintage gliding

S&G is privileged to be able to call on the advice of some of gliding's leading experts. If you have a question for our experts on any of the subjects listed above, contact the editor (details p3).

EXPERT ADVISERS

OLD LOG BOOK REVEALS AMAZING COINCIDENCES

ON 11 April 2014, Yorkshire Gliding Club member Adrian Melia was successfully sent solo. The supervising instructor was David Hill.

Adrian had first been introduced to gliding, YGC and Sutton Bank as a five-year-old when, 47 years ago, he witnessed his father, Mark, being sent solo.

Adrian did take up gliding himself as an adult, but stopped flying some years ago. He joined YGC last year.

Basking in the success of his solo flight, Adrian dug out his father's old log book to compare experiences. To his surprise he found that the supervising instructor who had sent his father solo was none other than the very same David Hill (who first flew at Sutton Bank in 1954). Also, both Mark Melia and his son, Adrian, went solo after 37 training flights.

Mike Smith, Yorkshire GC



Adrian Melia (right) and instructor David Hill, who also sent solo Adrian's father, Mark, pictured below with Les Licholson and Foka 4



What's to stop women gliding?

"GET girls gliding" (p38, April/May 14) – that sounds like an order rather than an invitation. A bit like "Get girls washing the pots."

I hear political parties and others advocating higher participation by women in representation on the boards of listed companies, or being cabinet members in the government. Now gliding.

Positive discrimination (which this is) is surely wrong to the right-minded.

If women wanted to learn to become glider pilots, what is there to stop them?

If a woman wants to be an MP, then a member of the cabinet, all they have to do is stand up and get on with it. If they are able, if they are suitable for gliding or politics, or whatever else they choose FOR THEMSELVES, good luck to them.

I don't have a problem with female members in our sport, I do have a problem with those who say "We want more women doing gliding" (S&G April/May page 41), deciding for others what the others can decide for themselves.

Adopting these sorts of campaigns did

get women the vote, as well as other rights which are now rightly taken for granted, but maximising female participation in realms where they already have equal rights (unlike some golf clubs) – give over.

Positive discrimination and political correctness don't go hand in hand with common sense and individual freedom of choice. Despite what the soapbox dancers might say to the contrary.

Tony Flannery, chairman, Burn GC

Liz Sparrow responds: *Tony is right that any woman can choose to learn to glide – but in practice most don't, and that's where it all gets quite difficult. Remember the spoof job ad 'Building labourers wanted, male or female, must be prepared to strip to the waist in summer'?*

In practice, virtually all the people you

Please send letters (marked 'for publication') to the editor at editor@sailplaneandgliding.co.uk or the address on p3, including your full contact details. The deadline for the next issue is 6 June

see at a gliding club are male, white and middle-aged. It creates a community, culture, facilities and operations that those people are comfortable with, but which may not suit other groups so well. So it all becomes rather self-perpetuating.

Some women will join in regardless, but currently only seven per cent of BGA clubs and five per cent of comp pilots are women. I don't think anyone would suggest that's a real reflection of the split of male/female desires - it's surely based on the history of both the sport and wider society. Expectations remain different and that's what Women Glide UK is trying to address. I didn't need anything to encourage me to go gliding, but what about all the women who aren't at gliding clubs? Or who drop out while learning a syllabus that's been perfected over years for the needs of the average (= non-female) pilot? I think that's a reasonable thing to want to change.

Meanwhile, we're hoping not to have to chain ourselves to anything, or get trampled to death by Derby prospects, in order to achieve a higher percentage of women in gliding.

Conversion in three steps

MANY thanks to Liz and the rest of the BGA team for producing the excellently precise and concise guide to getting your LAPL(S) or SPL.

For those that haven't yet done it, it's now very easy if you follow three simple rules:

- 1) Don't even attempt to understand the CAA website.
- 2) Download the Guidance Notes and Form from the BGA website. (Note to BGA: you could make it easier to find the link.)
- 3) Do exactly as Liz tells you.

It can take some time to be processed as, of course, the CAA are having to sort out all pilots, not just us. So unless Liz says differently, I suggest you do not wait until next January before doing it.

Geoff Guttery, Bowland Forest GC

BGA Office Manager Debbie Carr responds: I am glad to hear that Lizzie, our lead on FCL Licences, is being so helpful, but I would like to stress that it

is very important that you do read the Guidance Notes before completing the application form. This is self-explanatory. However, should you need further guidance then my team is here to help.

Time to avoid a bumpy ride?

WHILE I commend Dorset Gliding Club for sorting out the problems with their cables (*Taking care of your crimp joints*, p6, April/May 14), I am left wondering whether it was part of the old joke, how many glider pilots does it take to change a ferrule? If the cable has so many joints to warrant a team to change the ferrules, may I suggest it's time to change the cable? It must be like launching on a cobbled street.

Phil Chapman, winch driver, Surrey Hills Gliding Club



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Editor: Nigel Everett

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Aero Friedrichshaven 2014

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■ Trig was displaying its TT21 and TT22 transponders and 8.33kHz radios, the TY91 and TY92, which are now available. Marketing manager Jon Roper said: "We can boast the largest volume of transponders sold in Europe." www.trig-avionics.com

■ Butterfly Avionics has merged with Garrecht Avionik to form AIR Avionics. Its product line is called AIR Glide and offers "flexible, high quality and easy-to-use" soaring avionics. www.air-avionics.com

■ LX Navigation's stand featured the Zeus nav system (reviewed in S&G, Feb/March). Also on display were new products: LX 528, LX Zeus CAI, LX Zeus retrofit, and LX 5000 retrofit. www.lxnavigation.com



■ EASA had a prominent presence, with regular talks on the stand and daily press conferences. EASA's stand promised "simpler, lighter, better rules for GA". We were told: "This new approach to small GA will identify options to alleviate processes and implement fundamental changes." Potential EASA 'changes' don't affect anything in the short/medium term, but watch this space. EASA test pilot Dominique Roland is pictured below during a presentation.



■ Next year's AERO is 15-18 April, 2015

> **AERO 2014 PHOTOGRAPHY BY
SUSAN NEWBY/PAUL MORRISON**

AERO 2014

S&G reports on the gliding interests at Europe's biggest aviation fair, held in Friedrichshafen in April



■ The Ventus 2cxa FES exhibited by LZ design attracted interest, especially from glider pilots visiting the show. Chief of production Matjaz Brus said: "We worked with Schempp-Hirth, who made changes to the moulds to allow for battery fitting and cables to the motor." Luka Žnidaršič, who invented the FES with his father, added that they were now just waiting for the paperwork, with a test flight planned for shortly after AERO.

Steve Jones, from Schempp-Hirth UK stockist Southern Sailplanes said: "We intend to fit a FES to our own Ventus 2cxa this winter. The FES has attracted a lot of interest from a number of people within the UK and Schempp-Hirth are proud to be the first major German sailplane manufacturer to have a viable electric



sustainer fitted into one of their gliders. It will also incorporate the latest generation of Maughmer winglets for the Ventus 2cx, which have flown recently with impressive results.

"The price is not fixed yet. We expect it to be at a similar level to the Turbo, but it is still early days."

www.southernsailplanes.com

www.front-electric-sustainer.com



■ British vintage glider heritage was the theme of the VGC stand, manned by (left to right) Gere Tischler, a German member of the VGC, who organised the VGC stand; VGC Chairman Jan Forster; VGC Rally Secretary Klaus Schickling; VGC President Nick Newton; and Graham Saw, VGC Vice-President, who had towed his Petrel from Booker Gliding Club to take pride of place on the stand.

www.vintagegliderclub.org



■ Stemme was exhibiting a prototype of the Sky Sportster S6 EW. With a wingspan extended from 18 to 20 metres, the aircraft has a glide ratio of 1:38, plus a new wing design that should increase the range by 5 per cent and reduce fuel consumption. Test flights are due in the summer, with certification expected by the end of the year.

www.stemme.com

■ HpH was displaying the Jet Shark, a self-launching Shark MS and a fuselage from the Twin Shark 20m flapped two-seater. Customer feedback is being sought on the cockpit and instrumentation of the Twin Shark (pictured below). UK distributor Craig Lowrie said: "Getting it 'right' will determine demand over many years, even if being a little later means losing some early business to Schempp or Schleicher." HpH are hoping to fly the glider this year and bring it to next year's AERO. www.hphUK.co.uk



Photo by Guy Westgate

■ EuroFOX Aviation's Roger Cornwell (above) with the EuroFOX IS, making its debut at AERO. It features the new engine option of the Rotax 912iS (100hp). Roger said: "The 'standard' in the glider tug is the 100hp 912ULS; a few clubs with slots booked later in 2014 will be having the 912iS or the 914. The 912iS and 914 are retrofitable if needed, but EuroFOX 912ULS works well."

The standard 912ULS EuroFOX tug with tugging pack costs £52,000 (inc vat); the 912iS and 914 are likely to cost £60,000.

www.eurofoxuk.co.uk



■ Albastar exhibited its 13.5m glider (€52,000). At last year's AERO we were told that it would be available at the end of 2013, however, it is still waiting for certification. www.giders-albastar.com



■ SkyLaunch Managing Director, Adam Greaves (above left), in discussion with Oxford GC's Jon Christensen www.skylaunchuk.com

■ German company Actionpro displayed a range of cameras for use in a variety of sports, including gliding. The GoPro competitor is hoping to break into the UK market. www.actionpro.de

■ The Phoenix electric motor glider (below) features an electric motor developed by Phoenix Air's Martin Stepanek. The electric Phoenix can be flown for one hour, with two and a half hours required to recharge the batteries. Martin is looking at a system for charging using the propellers, letting them windmill when not in use and using the spinning action to run a regeneration system for charging the batteries. Wingspan - 14.46/18m. Glide ratio - 1:36/1:40. www.phoenixair.cz



> TURN TO P12 FOR MORE AERO NEWS

THE TIMES THEY ARE A-CHANGIN'

UK pilots share their own experiences from this year's AERO

THE Times They Are a-Changin'. So said Bob Dylan, and this was certainly the opinion I was left with following my second visit to the annual AERO exhibition, which is held at the Friedrichshafen Messe in Germany each April, *writes Paul Morrison, chairman of Oxford GC*

As this was an 'even' year, and therefore not a gliding year, the show was smaller than 2013 and did not have a dedicated gliding hall, what gliders there were being distributed evenly around the expo. However, small is hardly a fair description of the show as, with 12 halls and outdoor display areas, it was still a much larger show than any UK equivalent.

From a glider pilot's perspective it was notable that there was no new glider, in the truest sense of the word, to be found anywhere. HPH Sailplanes were there displaying their Jet Shark, a self-launching Shark MS and a fuselage from the new Twin Shark. Interestingly I learnt that they have now abandoned their plans to build a new Twin Shark club level training glider, concentrating instead on two-seat cross-country performance. This is a shame as I

still feel that there is a market for a new club type trainer to replace the K-13s and K-21s, otherwise where are the new generation of hot shot glider pilots to come from?

There was also a Front Electric Sustainer (FES) fitted to a Ventus 2cxa on display, with the promise that ultimately it will be possible to fit this onto other existing gliders. This is why I think Bob Dylan was onto something when he wrote those lyrics, as the only unpowered gliders to be found at the show were the impressive turnout by the VGC – Graham Saw's Petrel and a T-21C (lowered and extended!) attracting much comment – and a K-21 and an ASW 22 being displayed by a re-finishing company. Does this mean, therefore, that the unpowered glider, without any means of getting itself into the air or sustaining flight other than by thermals etc, will soon be confined to the vintage displays?

Each year there are a number of exhibitors keen to demonstrate their latest 'eco-friendly' products. Of note, there were a number of electric powered gliders and TMGs on display, including Pipistrel with its conventional and electric powered Taurus (complete with solar

powered trailer and the promise of sufficient power to give a 3,000m climb), an electric Phoenix and the Albastar 13.5m glider with an FES fitted as standard. With a promised L/D of 42:1 I think this new 13.5m deregulated glider and its peers could soon become a regular sight on our airfields.

Stemme also had their new S6 on display, although with a 20m span, a wider track undercarriage, a fixed non-folding prop and a quoted L/D of 36:1, it seems they are positioning this product firmly in the Touring Motor Glider market place, with the S10 remaining as their premium high performance aircraft.

As this was a 'non-gliding' year, DG were not there as an exhibitor, however, to reinforce Bob Dylan's comments above, they were proudly publicising their involvement in the new two-person 18 electric motor powered Volocopter. A mock-up of this was on show last year, but this has now flown (albeit with a remote pilot) and with DG not being the only gliding type supplier now being associated with this, I think we are seeing a fusion of the various types of aircraft, with manufacturers diversifying.

This is very apparent in the powered aircraft that were on display, the vast majority of which being two-seat composite aircraft designed to fall under the VLA/LSA class of aircraft with a MTOW typically less than 600kg and 450kg in the VLA/Microlight class. Cessna had its new TTX on show, Cirrus its SR22 GTX and Robin had its latest product on show, but with purchasing and operating costs suitable for only the deepest pockets, I feel it is the non-EASA aircraft that we will be seeing in the skies and indeed getting tows behind, as a number of these new aircraft had hook options available. Unfortunately, though, it seems that as always UK pilots will be denied access to these aircraft, as very few are certified for use in the UK and even fewer manufacturers showed any appetite to obtain UK certification, given the costs involved.



The LAMBADA S-LSA motorglider, not certified in the UK, has the option of 13m or 15m wingspan. It can be fitted with a towhook and aerotow tests have been successfully conducted in several countries, with various glider types up to 650 kg MTOW. www.adcompair.com

Why this is the case in an allegedly pan-European environment I'm not sure, but this does need to be addressed if UK pilots are not to be denied access to the latest generation of aircraft/gliders and tugs.

In conclusion, it's a great show and I'd encourage any UK pilot, glider or power, thinking of making the trip to do so next April if you want to see the cutting edge of recreational flying and feel the spirit of optimism that pervades through the event. Hopefully by 2015 this sense of optimism won't be stifled as you cross the border back into the UK.

Nick Newton, VGC President

NORMALLY gliding is only a prominent feature of Europe's largest aviation exhibition, AERO, every second (odd) year. However, for the past few years the Vintage Glider Club (VGC) has been invited to exhibit, lending interest and colour to the event, on an annual basis.

The theme of the VGC contribution this year was the British vintage glider heritage. Four Slingsby gliders were on display. Graham Saw's Petrel, which he had towed from Booker GC (a round trip of 1,400 miles) held pride of place. Also exhibited were a Prefect from Germany, a Tandem Tutor from Switzerland and a T-21C (T46) – forerunner of the Capstan – from the Netherlands. This last glider had recently undergone a five-year rebuild, having been written off previously.

Much interest was shown in the VGC stand by visitors from many European countries, as well as further afield, including Israel, Turkey, Switzerland, China, Japan,



Graham Saw's Petrel held pride of place at the Vintage Glider Club stand (Alexander Gilles)

USA, Australia, Russia, Ukraine and Croatia. (So although it was billed as a European exhibition, it had many more visitors than might have been expected if it had only appealed to the Germans!)

Guy Westgate, Southdown GC/GliderFX/Aerobility ambassador

I FLEW out to AERO to ferry Aerobility's new Tecnam low wing trainer back to UK, significant as it was purchased through fundraising by NATS, and is the first EASA certified type to have hand controls fitted directly from manufacture.

My highlights of the show were the proliferation of sleek plastic aircraft, mainly using the ubiquitous Rotax912 engine, a few

with tow hooks too! Regrettably very few will be flying on a 'G' reg, due to our unique licensing categories. Also the stunning FK51 scale Mustang, a perfect Rotax powered composite scale copy of the WW2 fighter, complete with speaker system to replicate the noise of the 1500HP Merlin.

Jon Christensen, Oxford Gliding Club

A VISIT to AERO has become an obligatory annual pilgrimage. Gliding manufacturers don't major in 2014, these exhibitors choose to appear on alternate years. There are still lots of things to see and to give the idea of scale, if you have an interest in all things flying related like me, it took two full days to see everything. I did, however, press buttons on lots of new instruments and convince many sales staff to let me sit in their nice shiny new planes.

There were still several gliders present, from the vintage crew with a T-21C and Petrel, to the modern HpH Jet Shark and new Twin Shark fuselage to name a few. The boundary between pure gliding and powered flight seems to be becoming less clear with the advent of better electric motors and battery technology. There was the FES (Front Electric Sustainer) on display and, even in the non-gliding world, there was a pure electric single engine plane on show with a claimed one-hour endurance. I know there is range anxiety in a pure electric car; having a pure electric plane (non-glider) adds a whole new dimension! While I'm talking briefly about the powered side, it was interesting to see a Wankel engine suitable for GA now with a reasonable TBO (Time Between Overhaul) thanks to some exotic ceramics. Interestingly it runs on more affordable diesel, but bizarrely still uses spark plugs.

There were many avionics on display, LX navigation provided an impressive demonstration of the large screen Zeus for the glider panel upgrade dream sheet. On behalf of my gliding club (Oxford), I had the opportunity to compare various items under one roof, like 8.33 radios for the impending expense and parachutes for replacement of ones reaching end of life. Thanks also to Skylaunch for bringing some needed parts with them for me to collect.

Locally, outside the expo, the Dornier Museum and Zeppelin Museum are both worth visiting and, if you have deep pockets, you can take a sightseeing trip in an airship. For the non-aviation minded, it is on the shore of Lake Constance with many other things to do and see.



Aerobility's new Tecnam low wing trainer on its way back to the UK from Friedrichshafen (Guy Westgate)

BADGES: MORE GAIN LESS PAIN

Tony Cronshaw asks FAI/BGA badges officer Basil Fairston and leading coach Kevin Atkinson for tips to help badge hunters maximise their chances of success

A BADGE flight is a significant self-challenge for any glider pilot. No matter the badge in question, picking up the gauntlet and committing to work towards the next level represents a personal challenge to perform beyond the pilot's previous level of achievement.

Tony Cronshaw asked two leading experts for tips on how to maximise the chances of gaining that next badge/leg, and minimise the pain of failed attempts and failing to satisfy badge rules.

TONY: *Technology for logging badge flights has progressed enormously in the past few years. What sort of devices are most popular?*

BASIL: Approved IGC loggers have become very popular for badge claims. GPS position recorders (approved on a national basis) have also recently emerged as a lower-cost solution for early stage badges. Relatively few pilots now use smoked barographs, but EW barographs (types A, B and D) are still allowed, both as barographs and as GPS position recorders. Cameras were, of course, disallowed some years ago.

TONY: *What's the difference between an IGC logger and a GPS position recorder?*

BASIL: An IGC logger records GPS position and barometric "pressure height" every few seconds. Newer loggers are approved for all badges and for records whilst some older models have had their approval downgraded to badges only, not records, due to their lower level of security [1].

By comparison, a GPS position recorder stores GPS position and GPS height. Because GPS height is not the same as pressure height, a 100m penalty is applied to any critical height information. For instance,

a Silver height claim would need to be 1,100m when flown with a position recorder. Approved position recorders [2] are only allowed for badge legs up to and including Gold.

Loggers and position recorders both generate files in IGC format that can be downloaded onto a computer and viewed in detail. A security code on the end of the file allows detection of any alterations to the file, for example, an attempt to manually edit the file to move a point into a turnpoint sector when, in reality, it was just outside.

TONY: *One area of possible "gotchas" is flight declarations. What are the key things to be aware of?*

KEVIN: A declaration is a MUST before getting airborne for any badge flight using a logger or position recorder [3]. A template for a paper declaration is available on the BGA website, along with the BGA list of turnpoints/trigraphs and the badge claim form. But don't leave the declaration entirely to the last minute: Plan possible tasks in advance and note down the details. It will then be quicker and less error prone to complete the declaration. Remember it MUST be signed by an Official Observer (O/O) BEFORE the flight.

TONY: *What is the Official Observer's role?*

KEVIN: If you expect your O/O to be the perfect butler, appearing just when needed, then don't be surprised if Jeeves also expects you to be the perfect gentleman/lady! If you discuss things beforehand, eg intended logger/recorder/barograph, turbo issues, etc, your O/O will be in a better position to verify the logging equipment/glider was correctly configured, supervise downloading of the data and assist you in completing the claim form.

TONY: *How do we use an electronic declaration instead of a paper declaration?*

BASIL: Electronic declarations must also be made before the flight, but don't need an O/O signature, which is more convenient.

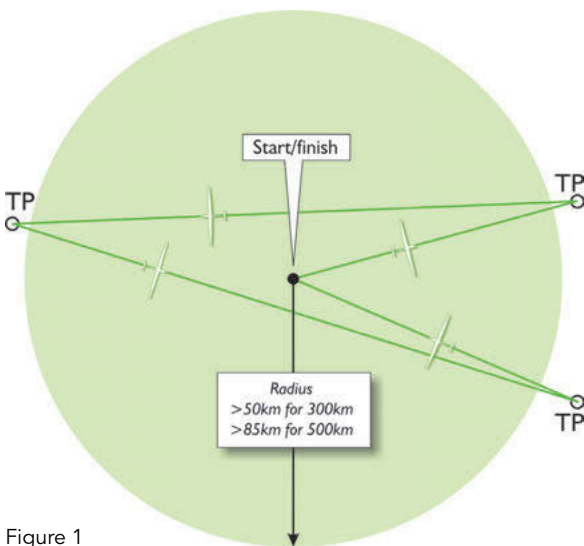


Figure 1

A DECLARATION IS A MUST BEFORE GETTING AIRBORNE FOR ANY BADGE

Depending on the model of logger, the task and declaration details are either downloaded to the logger or manually entered on the logger. The declaration details are then automatically added to the start of the IGC file as part of the secure data.

TONY: *Can a declaration be made by email?*

BASIL: Yes, this option was added recently. To be valid, the email declaration must arrive at the O/O's computer before the pilot takes off. No signature from the O/O is needed, but asking for an acknowledgement of the email's safe arrival could be a wise precaution.

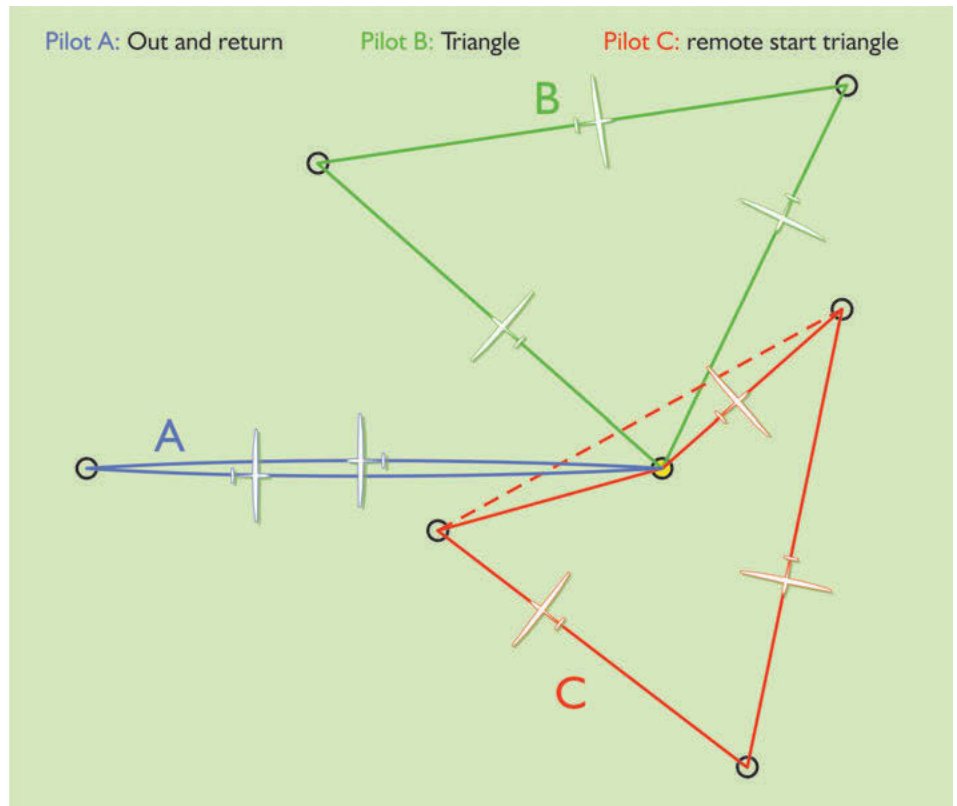
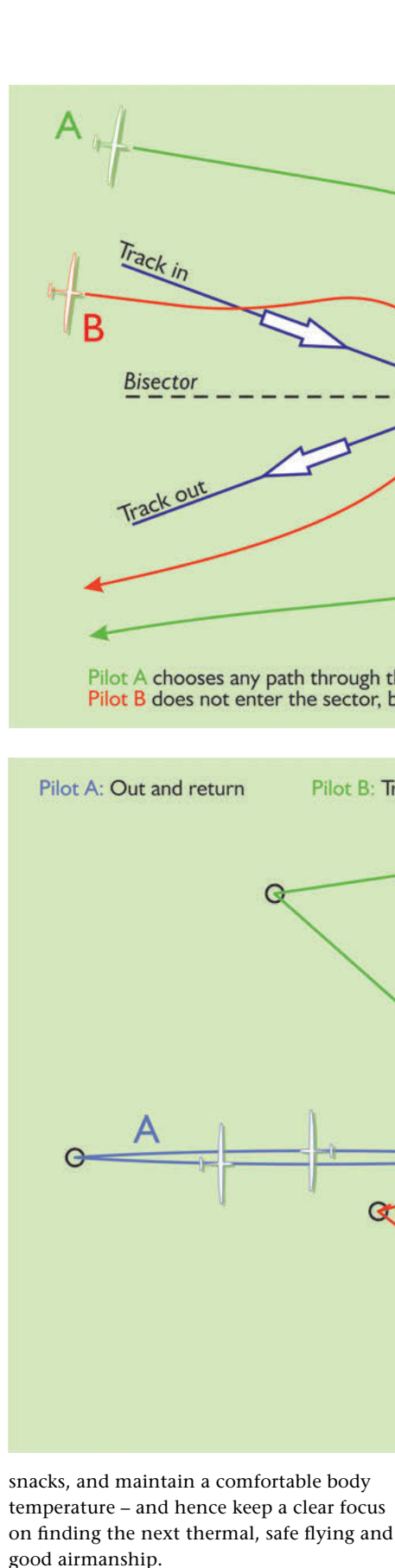
TONY: *What is the situation if the pilot makes multiple declarations, eg makes a new paper declaration for a different task? Or makes a paper declaration, but inadvertently has an old electronic declaration left in the logger?*

BASIL: Only the last declaration is valid, based on either the electronic timestamp or the signed time on the paper declaration. Inadvertent electronic declarations, or electronic declarations with incorrect details, can be a problem: Reading the logger's manual, practising using the logger and downloading files would be very wise ahead of the big day. One option is to clear the electronic task in the logger so the IGC file will contain a blank declaration and the pilot then uses a paper declaration.

TONY: *What are the options for claiming a 5-hour duration?*

BASIL: The Silver/Gold duration is a flight of five hours between a start point in free flight and a finish point before landing. The maximum height loss allowed between start and finish is 1,000m. The flight can be monitored by continuous observation provided the tug pilot records your release time (or a launch marshal if it's a winch launch) and you find an O/O (or two witnesses) to sign the landing section of your claim form showing the landing time. However, data from a logger, position recorder or barograph tends to make things more clear cut, especially if you "notched the trace" after release: It's then easy for your O/O to establish: (1) your release time or select a suitable start point; (2) your landing time or select a suitable finish point; (3) your height loss has not exceeded 1,000m for the start-to-finish 5-hour period.

KEVIN: For a 5-hour duration it's vital to stay hydrated, have pee-bags, eat fruit/



snacks, and maintain a comfortable body temperature – and hence keep a clear focus on finding the next thermal, safe flying and good airmanship.

TONY: *What are the key issues when* ☞

(Top) Figure 2: turnpoint control
(Above) Figure 3: 100km Diploma or Diamond goal (300km) tasks
(Far left) Figure 1: Example of using three TPs for Gold (300km) or Diamond (500km) distances



Tony Cronshaw is an Ass Cat instructor at Cambridge Gliding Centre with over 1,000 hours gliding. His enthusiasm for helping the next generation of pilots includes running courses for visitors and members, and leading CGC's recruitment and retention sub-committee



Kevin Atkinson is the club coach lead for the BGA Aim Higher initiative (www.gliding.co.uk/bgainfo/aimhigher.htm). With more than 7,500 military jet hours (Tiger Moths to Typhoon), Kevin started gliding at age 13 at Ouse GC (now York), flying his first solo on his 16th. Kevin has over 3,500 hours gliding, including competing in UK national and regional competitions



Basil Fairston has been the BGA Badges Officer since 1992. He has three Diamonds, is a Full Cat instructor and "a mediocre regionals pilot". Basil says he is currently building a single-seater microlight for when he fails his EASA medical

✎ *making height claims?*

BASIL: A height claim needs a gain of height between the highest point reached and any previous low point. The gains required are 1,000m for Silver, 3,000m for Gold and 5,000m for Diamond. Pilots should aim to "notch" a low point after release, especially if using a barograph: This is better than relying on the tow pilot's recollection of the release height.

Remember that climbing away from a winch launch makes it virtually impossible to determine from a barograph trace the height at which soaring started. An IGC file without a notch might be OK if it shows where the glider started thermalling. I'm not saying that you can't get a height claim without an obvious low point on a barograph. If your gain is well over the minimum, then I'm quite prepared to make an estimate for the launch height based on the tug pilot's release certificate or the likely height available from a winch launch. However, if the height gain is marginal, the lack of an accurate low point can result in the badge claim being rejected. Also, if using a GPS position recorder, remember the gain must be 100m greater than the badge requirement.

TONY: *A traditional problem has been the "1 per cent rule". How does this affect cross-country badge claims?*

BASIL: This rule aims to ensure the pilot soared, not just towed high enough to glide the required distance. It states that the loss of height between start and finish points must not exceed 1 per cent of the distance flown, and for flights greater than 100km must not exceed 1,000m. Above 100km, a distance penalty can be applied [4].

TONY: *What are the implications for 50km Silver distance claims?*

BASIL: For Silver distance, if a minimum 50km is flown, the maximum height loss allowed is 500m or 1,640ft using a logger or barograph (but only 400m or 1,312ft for a position recorder). This is not usually a problem for claims made with IGC file evidence, as there will usually be logged start and finish points that satisfy both distance and height loss requirements: for example, a finish point above the landing airfield to establish the pilot arrived without excessive height loss. However, 50km claims using only a barograph can't benefit from this approach, because the only points that can be proved are the point of release and point of landing.

TONY: *What shape of task would you recommend for a 50km Silver distance?*

KEVIN: The obvious choice is a "downwind dash" to another gliding club at least 50km away. It may be tempting to consider a "flat triangle" (around two turnpoints, with a 50km leg in the middle), or other tasks landing back home, but these have downsides (total distance over 100km; turnpoints to round). It's better that the pilot gains from the experience of landing at a different airfield and practises a trailer retrieve. It makes for a more interesting adventure and prepares for greater things.

TONY: *What are the options for Gold distance (300km) and Diamond distance (500km) claims?*

BASIL: Gold and Diamond distances are distance flights, as opposed to goal flights, which we will discuss in a moment. A distance flight doesn't need to have a declared start or finish point, but any turnpoints used (up to a maximum of three, all at least 10km apart, see figure 1 overleaf) must be declared. The start can be: (1) the point of release from tow; (2) the point where the motor is stopped for a motorglider; (3) a declared start point; (4) a point logged in the start sector; or (5) the crossing of the start line. In practice, if you are doing a declaration then you might as well declare a start point. If you don't and your tug pilot tows you too far down track (eg 4km down track on a 303km task) then you have a problem. But see about finishes later. If you declared a start point then you have the option to fly back to the start point and start from there. Control at turnpoints is shown in figure 2.

A finish can be: (1) The point after landing where the glider comes to a halt; (2) the point where the engine of a motor glider was started; (3) a point logged in the finish sector or the crossing of a finish line if you declared a finish point; (4) any logged point chosen post-flight. This last option is very powerful. If your tug pilot towed you 2km too far down track, then you can extend your task by flying 2km beyond your intended finish point and then fly back home. If your start was too high (see 1 per cent rule) then you can look for a point you logged before landing that was high enough (and far enough) to satisfy the rules.

TONY: *What are the options for claiming the 100km diploma and the 300km Diamond goal?*

BASIL: The 100km diploma and 300km Diamond are both goal flights, which must be flown as a declared triangle or an out-and-return (figure 3). Goal flights must have a declared start and finish point, ie the same point! You must make a start and finish by logging a point in the start/finish sector (1km radius) or crossing the start/finish line (figure 4). Note: Just landing back at your home field isn't enough and can cause problems. For instance, if the clubhouse is the start/finish and situated at the opposite end of the field from the direction of finishing, the pilot might land at the home airfield without finishing properly, especially if arriving back low. So, if possible, choose a start/finish point on the task side of the airfield.

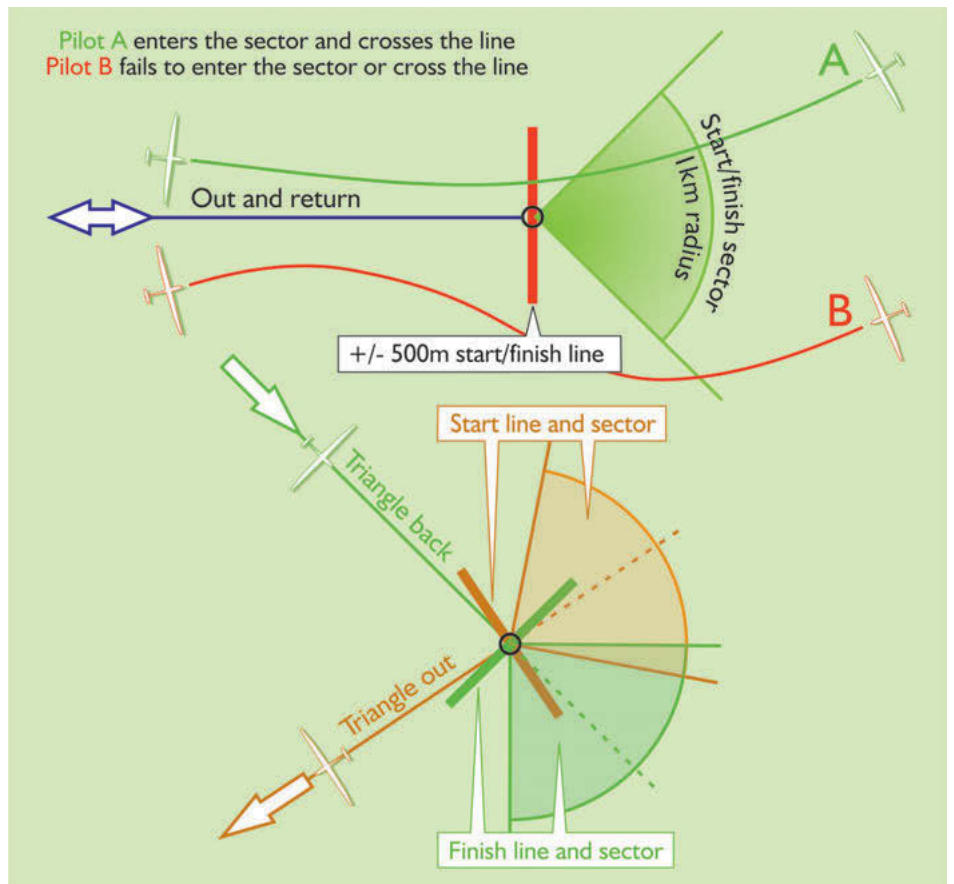
TONY: *What tips would you recommend when planning 300km and 500km flights?*

KEVIN: Longer flights, such as 300km and 500km, mean that the weather for the full length of the planned route cannot be foreseen. It's very likely that the sky structure will change more than once during the flight, meaning greater or less amounts of cloud, spreadout, or blue conditions. It's therefore wise to practise shorter cross-countries first in a variety of different weather scenarios, including blue conditions, venturing towards areas which are different from home, eg the coast, hills or flat lands, and developing an understanding of reading the sky.

To prepare for a 500km means flying tasks at speed; 60km/h is useless as this will require over eight hours of endurance, concentration and good weather. It's worth practising shorter tasks of 100/200/250km at closer to 85km/h so the 500km becomes a six-hour flight. This will mean practising rejecting weak thermals you don't need to climb in, learning to use lines of energy, hence avoiding stopping to climb, especially into wind. Talk to others and pick their brains about possible tasks: Flying longer tasks could mean planning to avoid bottle necks due to airspace, big hills, avoid sea breezes, and so on.

TONY: *What further advice would you offer?*

BASIL: The job isn't done until the paperwork is finished. Read the badge claim form and then do what it asks. If it says "This section must be completed for all flights", that applies! Please don't let your form be rejected needlessly. Check



it carefully and I will hopefully be in a position to confirm your success.

Figure 4: Start/finish for 100km diploma or Diamond goal (300km) (Illustrations by Steve Longland)

[1] See www.fai.org/gnss-recording-devices/igc-approved-flight-recorders for a list of approved loggers.

[2] www.glidering.co.uk Search: Approved GPS position recorders listed at www.glidering.co.uk/bgainfo/competitions/forms.htm

[3] Exception: A height or duration badge claim made with a barograph or GPS position recorder does not need a declaration. Sporting code 1.4.2

[4] For details of specialised situations, please consult the FAI Sporting Code www.fai.org/igc-documents

THE JOB ISN'T DONE UNTIL THE PAPERWORK IS FINISHED. READ THE BADGE CLAIM FORM AND THEN DO WHAT IT ASKS

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www.eesaviation.com
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Complete maintenance and repair service for all aircraft
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Photograph courtesy of glidingsport.com



Ian and Jan Atherton fulfil their long-held ambition to soar the Canadian Rockies, flying from Invermere Soaring Centre, British Columbia

BACK in February 2006, my wife Jan (also a glider pilot) and I were fortunate to have our three-week honeymoon exploring New Zealand's beautiful South Island. Whilst there we spent a day flying at Glide Omarama. I had a wonderful flight in ridge, thermal and blue wave with Lemmy Tanner, whilst Jan had a flight with a young Charlie Tagg. We also met an enthusiastic Canadian instructor, Trevor Florence, who was also working for Gavin Wills. It turned out that Trevor was the CFI/owner of the Invermere Soaring Centre in British Columbia.

Trevor made quite an impression on us and we promised ourselves that if we ever managed to visit the Rocky Mountains we'd look him up and take a flight from Invermere.

Fast forward six years to 2012 and we finally manage to fulfil our long-held ambition to visit British Columbia and take a touring holiday through the Canadian Rockies. We start in Vancouver and both had fantastic fun with some flying lessons on a float plane at Fort Langley... but that's another story. A few days later we took a sleeper train to Jasper and, after a couple of days there, we drove the rest of the way through the Rockies. Blessed with fine weather (unlike the UK) we finally found ourselves at Invermere and checked into our hotel with great expectations for the next couple of days.

Invermere Soaring Centre is located in the east of the beautiful Canadian Rockies. The pilots that fly from Invermere consider it one of the best mountain soaring sites in the world, with a wonderful mix of thermals, ridge and wave. The best soaring season is May to September, with cloudbases typically from 9,000-15,000ft.

June, July and August are the months to go for records. Flights of over 500km are often completed by experienced pilots, with visitors from all over the world utilising the favourable soaring conditions found at Invermere. In June 2000, Trevor Florence flew a new world record, 638km in a Club Class glider. And, in the

NORTHERN



middle of July 2000, visiting pilot Hans Binder from Switzerland flew a distance of 850km.

The next morning we turn up at Invermere Airfield at around 10:30, as agreed. Trevor is already off soaring in his Libelle. We are met by another familiar face; none other than Lemmy Tanner, now working for Trevor for the mid-summer soaring season. Lemmy greets us and we make a plan for flying. We both want to fly the Duo, so it is agreed that I will fly today and Jan will fly tomorrow. Lemmy has another flight to do in the IS-28 first before we fly together, so we make a plan to team up at 1pm. We offer to help push some gliders, but Trevor's cadets have that covered, so we kick back and enjoy a picnic in the sunshine.

After lunch Lemmy and I roll out the Duo Discus (comp number 007) with help from the cadets. As we are planning to get up close to the mountains, Lemmy P1s from the front seat and I climb into the roomier, and for me rather more familiar, rear cockpit. The Pawnee pulls up and we take a tow to

the western edge of the Kootenay Range and release on to the ridge.

Lemmy hooks into a thermal and, after climbing a few turns, he hands control over to me. The day is excellent and we climb to cloudbase, which by this time is around 9000ft QNH. Lemmy reckons that this should be enough height to cross the wide valley and push westwards past the airfield and into the Purcell Range, where the high glacial lakes and spectacular glaciers are formed. I level the wings and we push into wind following a street.

The cloudbase increases as we head west. We continue to climb as we bumble into wind. Then, as we reach the eastern edge of The Purcells, we get a kick in the pants and I dig the wing in and hook into 8kts! As we climb I'm almost overwhelmed by the beauty and amazed that as we get to see beyond the ranges that immediately surround us, a seemingly endless array of peaks is revealed beyond, and then more beyond those.

We are so deep in The Rockies that even as the thermal tops out at almost ☁

(Above and far left) Soaring over the Purcell Mountains – a range within The Rockies, with peaks around 10,000ft AMSL and containing multiple glaciers and glacial lakes (Ian Atherton)

■ Ian's flight with Lemmy can be seen at:
www.onlinecontest.org/olc-2.0/gliding/flightinfo.html?dsId=2611040

■ If you find yourself in this part of British Columbia it's an experience not to be missed. More details can be found at:
www.soartherockies.com
www.adventurevalley.com

EXPOSURE

AS WE GET TO SEE BEYOND THE RANGES THAT IMMEDIATELY SURROUND US, A SEEMINGLY ENDLESS ARRAY OF PEAKS IS REVEALED BEYOND, AND THEN MORE BEYOND THOSE



Ian Atherton is a commercial pilot and Full Cat gliding instructor, with a share in an RF4D motorglider. Jan is a former Ass Cat and holds a PPL, with a share in a Jodel light aircraft. They also own an ASW 20. Ian and Jan live in Oxfordshire, but most of their mountain soaring is flown from Talgarth in South Wales



The pilots that fly from Invermere consider it one of the best mountain soaring sites in the world, with a wonderful mix of thermals, ridge and wave. The best soaring months are May to September (Below) Jan and Lemmy in Duo with Trevor helping and cadet holding rope

✈ 13,000ft we still cannot see beyond the vast mountain ranges that make up The Rockies. The peaks seem like rows of sharks teeth reaching out to infinity. It's a truly magnificent sight that dwarfs the spectacular Southern Alps!

We push on and I hand back control to Lemmy for a while so I can take some photos and video of the stunning scenery. The thermals increase in strength, though we also practise some ridge-running along the glacial range. Our route finally arcs round back towards the valley and we have enough height to jump the valley again and close the loop, soaring back along the Kootenay Range

before finally returning back to Invermere Airport after a fantastic two and a half hours touring the "local area" and covering around 190km.

Lemmy lands the Duo and we roll up to the waiting cadets with pinpoint accuracy. We clamber out after a truly memorable flight. It's the Duo's final flight for the day and I offered to help with cleaning 007, but the cadets again have it covered and they remove the glider and push it back to its hangar.

Meanwhile, I follow Lemmy towards the clubhouse and meet up with Jan, keen to share my experience and show her the photos I've taken. We sit in the shade on the porch and, would you believe it, Lemmy emerges from the clubhouse with gin and tonics for us! This is the life.

Soon afterwards, Trevor lands in his Libelle after a full day's cross-country soaring. We are invited to stay for the evening and enjoy pizzas and more G&Ts with our new friends, watching para-gliders soaring the Kootenays, before finally returning to our hotel.

The next day is a repeat, but this time Jan flies with Lemmy, whilst I take in some rays. The wind has swung round since yesterday so they spend the afternoon exploring the Kootenay Range to the east. The highlight for Jan is passing a herd of caribou whilst ridge-running at 8,000ft. Eventually they return with Jan beaming.

We thank the gang for their hospitality, especially Trevor and Lemmy, and inevitably I buy the T-shirt. Then we're off again continuing our tour...



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ANOTHER TWO BARRELS PLEASE...

(Photograph by Eifo.sk)

Why should we ever put water in the glider? Ed Johnston continues the debate on the pros and cons of using water ballast



Rolling out at Uvalde dropping the last of the water, during the 2012 Worlds (Andy Smart)

IN HIS recent article (*To water or not to water?*, p8 Feb/March 14), Tim Macfadyen eloquently makes the point that with water in the glider you can gain speed flying faster between thermals for roughly the same glide angle, but you lose speed with a slower rate of climb. The slow climb cancels out a lot of the benefits of a faster glide, and perhaps the best way to go faster is to dump the water and just climb faster instead.

So far so good... However, we have just argued that increasing performance in the climb makes us go faster. What about increasing performance in the glide by finding more positive air between thermals? After all we spend at least 50 per cent of our time flying straight.

Before even thinking about water imagine, say, a typical 70s designed 15m glider which flies 75kts between thermals at 30:1 and stops in a 2.5kt climb. That pilot is doing OK, achieving a tad under 70km/h. (This is a bit cruel, a ASW 20 dry will do about 32:1 at 75kts, but it makes the numbers nice and round.)

If, by good skill and luck, you manage to climb at 3kts (a 20 per cent improvement in climb performance), you go around the

countryside at a tad over 75km/h.

But let's say an equally cunning pilot does it differently, and luckily manages to route between thermals in good air achieving 36:1 (also a 20 per cent improvement in performance) – that pilot achieves exactly the same 75km/h!

Cheat!

But haven't I just broken the rules? "Surely a glider of a certain performance can only go so far from a given height?" quoth outraged of the club bar! Well yes, I have broken the rules, just like we all do by flying a careful route between one thermal and the next, spending as much time as we can in rising air. So my routing pilot has simply spent half the time in the air finding a better way between thermals, rather than my climbing pilot spending half the time in a stronger thermal at the end of the run. Both end up getting the same over-all improvement.

The question is, if you have to choose one, which improvement is the pilot most likely to achieve?

Anyone can cheat!

So can you, as a pilot, beat the glider in the glide more easily than improve in the climb?

As Tim says, really good pilots can out-perform their gliders between climbs.

But I am not (just) some self-important competition pilot bigging up what he can do. Last winter I ran coaching sessions at Dunstable, which included analysing flights of pilots with a wide variety of experience. Pretty much every one showed achieved glide ratios significantly better than the still-air performance of their gliders.

Many pilots were able to achieve their theoretical Max LD, or better, at much higher inter-thermal speeds. On my birthday last year, Tim achieved 50:1 in his ASW 20 at 70kts average inter thermal speeds. (I am sure he was inspired, or would have been if he remembered my birthday!)

So let's get our pilot, who works at their routing to achieve 42:1 at 75kts and still 2.5kt thermals between glides. Now they are achieving 82km/h! Much more respectable and entirely achievable!

Conversely, for the climbing specialist to get the same improvement by flying at 75km/h at 30:1, you must find a 3.5kt thermal on a 2.5kt day, making up the time by climbing faster. You might get that lucky once, but at every climb? Convinced yet?

Secret benefits...

But something else really important has happened: My routing pilot, flying better in the glide has stayed further away from the ground, then spent less time climbing not so far in a weaker thermal! Compare this with my climbing pilot, who has had to find an exceptional climb from lower down to achieve the same speed. So what would you rather do, spend the time working in the glide to stay near the clouds, or hurtle downwards to low level, requiring a super strong climb to make up the time?

That is why...

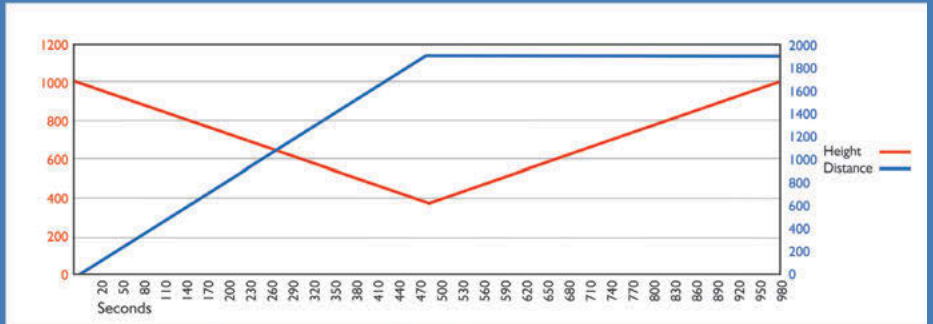
So I make the bold assumption we all prefer the former; and this is where water comes in. In stronger conditions, you spend less time climbing, dragging that load up, and more time gliding with the heavier glider helping for every straight line kilometre. This can increase the glide/climb ratio from about 50/50 (the original example) up to 80 per cent gliding or even more!

But more than that... By following the approach of seeking energy and distance in the glide, even in moderate conditions you spend much more time gliding and getting the benefit while also increasing the chance of finding the strongest thermals.

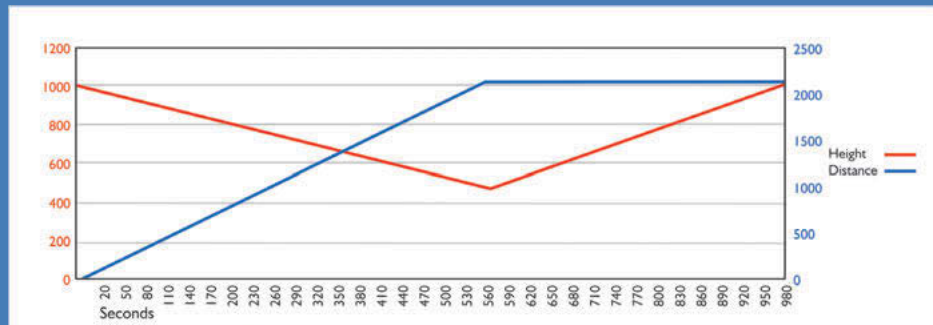
● Cutting more air simply increases the chances of bumping into a strong one 🐞

Average	Value	m/s
Vg kts	75	38.58
GR nn:l	30	30
RoC kts	2.5	1.29
Long term Av	kph	m/s
XC speed	69.45	19.29

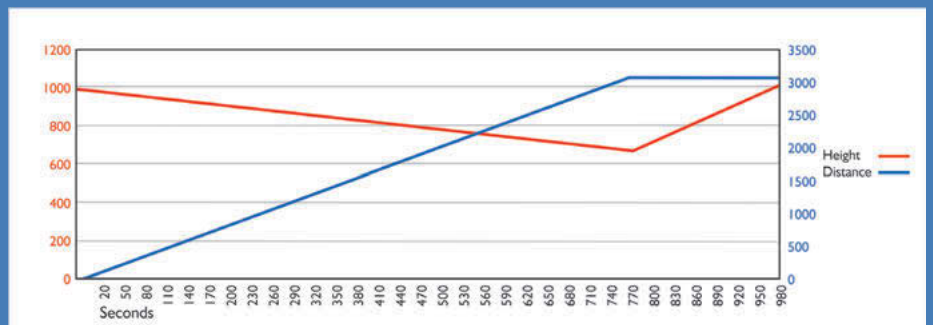
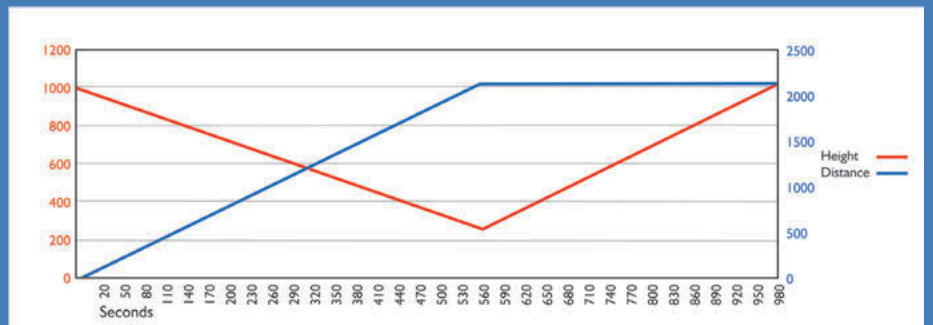
CAN YOU, AS A PILOT, BEAT THE GLIDER IN THE GLIDE MORE EASILY THAN IMPROVE IN THE CLIMB?



The height and distance gained in a classical glide/climb sequence



Above and below: the first diagram shows the 'routing' pilot staying further from the ground. To get the same performance by only improved climbs (below) you carry much more risk of landing. Of course, it is best to route well and then stop in the stronger thermal!



Ed had a good day on his birthday, achieving over 80 per cent in the straights



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The catch?

So what's not to like? Stretching out the glide (rather than just burning a hole in the air) has nothing but an upside, right?

Well no, you still have to make the thing go up at some point. And here (as with the rest of his article) Tim makes perfect sense.

Heavy gliders have increased sink rate and turning circle. Both these things are important in every thermal, but more so in tighter broken thermals than big wide ones.

What kind of thermal?

Note I didn't say weaker rather than stronger; it is the nature of thermals rather than pure strength that has greatest effect on climb performance. Wide steady thermals allow heavy gliders to climb well, while sometimes they can't climb at all in strong tiny cores.

C of G position

The next word of wisdom from Tim is glider setup. You have to have your aircraft balanced, especially flapped gliders with small tail planes where you might as well fly a drogue 'chute if the C of G is too far forward.

If you can, weigh the glider with you in it and different amounts of water in the wings. Get someone technical to do the calculations, but when you have you will know exactly how much water to put in the tail for any given weight in the wings.

Practise!

When you have the C of G right then get practising. If you are not used to flying your glider heavy, you will tend to turn too fast and too wide; then all of the downside of a heavy glider is massively exaggerated.

So practise! Find a difficult blue day with a 2,000ft lid and local soar with 200lb of water on board. Practise tighter turns and find optimum speeds.

Build your confidence, find the limits, get comfortable with the heavy glider in the climb and you will find yourself keeping up with your lighter compatriots, then waving cheerio in the next glide!

But don't overdo it. I once nearly landed out at Olney because I dumped all the water, and the glider felt so weird at min weight that I missed a core in which others climbed away.

Water is a state of mind

The wisest of words in Tim's article is that speed is driven from a pilot's state of mind more than any other single factor. Mentally, a pilot with a heavy glider isn't expecting to stop in those little top-up thermals that rob your speed.

One flight, I was convinced that the water I had kept on board the LS6 was sufficient to penetrate through the sea air to Aston Down. After my safe, if marginal, arrival I opened the taps and about three pints came out! A certain other pilot in his dry ASW 20 knew he couldn't get back and landed in a field...

Once you get used to the extra weight, then everything gets another round of better. The glider can go on for ever, who needs to stop in these boring thermals, why didn't I put another couple of barrels on?

So put on another two barrels!

Build up that positive mental attitude by:

- Preparation (weigh the glider with water on, get the C of G in the right place)
- Practice (haul round water on local soaring flights and smaller cross-countries)
- Performance (work at stretching the glides by routing through lift, reduce time needed to climb).

Before you know it you will be reaping the benefits and see your cross-country speed step up!

PS

Despite all indications in this article to the contrary, the glider still has much more performance light and in the air than heavy and on the ground.

PPS

All the stats in the article work from the magic formula for cross-country speed. Those that were kind enough to come to the Dunstable Coaching sessions will be familiar, but – long story short – after messing about with the units m/s, kts, km/h, etc, you get the gloriously simple replacement for MacCready:

$$V_{xc} = V_{st} \times RoC_{cl} / (RoC_{cl} + RoS_{str})$$

V_{st} = Average Speed in the straights (towards the next objective)

RoC_{cl} = Rate of Climb in thermals

RoS_{str} = Rate of Sink in a straight line

THE GLIDER CAN GO ON FOR EVER, WHO NEEDS TO STOP IN THESE BORING THERMALS, WHY DIDN'T I PUT ANOTHER COUPLE OF BARRELS ON?



Ed Johnston flew Nimbus 4 '176' in the 2009 European Championships in Nitra. It was generously loaned to him by David Innes, now sadly missed (photograph by Elfo.sk)

■ You can find Ed Johnston's spreadsheets and coaching material at www.engsys.co.uk Navigate to 'Gliding' and then 'Coaching'



Ed Johnston has been flying since going solo with the ATC at 17 and currently flies from the London Gliding Club. He has all three Diamonds and has been National Champion in Standard, 15m and Open Class – so far only 2nd in 18m. Ed has represented the UK in all four classes at European and World Championships



■ If you would like your previously-unpublished photographs to be considered for inclusion in Gliding Gallery, send them to: editor@sailplaneandgliding.co.uk or upload to: www.sailplaneandgliding.co.uk/dropbox



This page, clockwise from top:
A smooth evening in early March saw Jake Matthews in Seahawk's Junior, towed by G-BYFL to do some aerobatics. The combination is pointing toward the Lizard Peninsula

The club's Puchacz coming in to land - the sun and blue skies creating ideal conditions to view Cornish skies

The smooth Cornish air in the evenings make the thrill of aerobatics a must

N53 coming in to make a perfect landing, with one of Seahawk's juniors at the controls (Photos by Jake Matthews)





This page clockwise from top:
EB28 '13' recently returned from its 3,000-hour check in Germany. Ed Downham and Steve Lynn rigged and flew on 21 March, between sunshine and quite a few showers. This shot of Cranfield is typical of the day (Steve Lynn)

Taken during Cambridge University Gliding Club's expedition to Edensoaring last September. The pilot in the K-8 is ex-CUGC member James Shaw (Malcolm Morgan)

John Bridge took this photograph looking north from Ladybower Reservoir in the Peak District on 25 May 2013, flying his LS6c on a 507.9km task, GRL-LYR-SHO-GRL. John says that the really interesting part was encountering a massive increase in cloudbase from 4,000ft to 6,500ft in just 10km between Clay Cross and Matlock

Taken at RAF Keevil last October, these are the first four Air Scouts and Air Explorer Scouts from Cippenham to benefit from the RAeS Centennial Fund, Scout Association and Wiltshire council grants (Chris Jones)

T-21 photographed last May at RAF Keevil (Chris Jones)





WINGS OVER ARABIA



WINGS *Over Arabia* is about a groundbreaking gliding expedition featuring two Saudi Royal Princes, led by UK pilot John Bally. This is no ordinary expedition that you or I might organise with fellow club members; everything about it is bigger, better and more extravagant. As well as the three glider pilots each flying his own Stemme motorglider, there was a ground crew and a film crew with a Twin Otter support plane and a Bell Jet Ranger helicopter.

The author, Roger Harrison, took many of the stunning photographs himself through the open door of the support plane. The book describes the six days of the expedition as observed from the support plane – regrettably there are only rather limited quotes from the glider pilots themselves. The narrative is interspersed with numerous beautiful photos and with descriptions of the varied and dramatic geology and of the history of the terrain below.

The book itself is of a quality and weight that classes it as a “coffee table book” and can be read from cover to cover or simply dipped into. It is written for the general reader who doesn’t know much about gliding, so don’t expect the sort of detail you would get in a *Sailplane & Gliding* article. However, there is enough about gliding to whet the appetite and to make you appreciate the superb soaring potential of Arabia. The route covers varied terrain with powerful desert thermals, sea breeze convergence

and mountain soaring. The outlanding possibilities are limited and the distances covered extraordinary.

Harrison emphasises the hostility of the varied terrain that they fly over – for example: “All of this landscape will suffer no damage at all should a relatively tiny plastic glider crash into it at speed. Sadly the reverse is not true.” I wonder if he doesn’t appreciate quite how far a modern glider can go to reach a suitable landing area. In an interesting appendix about the Stemme he quotes the glide ratio as 50:1, but goes on to illustrate this incorrectly with an example of a glide ratio of just 5:1.

If you buy this book for the photos, to learn about the geography of part of Saudi Arabia and to marvel at the sheer scale of what these three pilots achieved in six days, you won’t be disappointed.

Phil King, Herefordshire GC



Wings Over Arabia is published by Tarah International and Medina Publishing
Hardback, 112 pages, £45
ISBN: 978-0956417077

THE HEIGHT OF ACHIEVEMENT

Just how good can it get? Wyn Davies enjoys a week's expedition to Portmoak with Devon & Somerset Gliding Club and bags himself a Diamond height

PUT our names down for the October 2013 Portmoak trip early in the year, promising my wife, Marie, that if the weather looks poor we will not go to Scotland, but have a holiday in the sun somewhere.

Weather watching for me started earlier than is healthy. The week before our trip the easterlies were blowing hard across the whole country. Then gradually, as our trip drew closer, the wind was forecast to back to the west – and at a strength that I'd never think of flying in at home.

What a gift. We arrived the afternoon of Friday 4 October with a westerly airstream forecast for Saturday and the first few days of our holiday

We had travelled by van and parked with the caravans at the Loch end of the field. On day 1, we got up early and rigged W7 (my LS7WL). Alan Boyle gave me a site briefing followed by a familiarisation flight, that exciting first trip downwind to the Bishop Hill and meeting ☺

↳ the reliable ridge lift from a gentle westerly air stream. Then it was time for my first solo on the Bishop Hill. Back and forth many times with the occasional foray across Loch Leven to see if there was any lift to be had, and then scuttle back to the Bishop Hill for a height boost. Wonderful.

It was busy on the hill and sometimes I would see another layer of gliders soaring the hill above me, separated by thin cloud – how I wished I could work out how to join them, but that was for another day.

On my third day, the wind had picked up. I took W7 to the launch area and put tyres on the wings before having a chat with Chris Robinson, the duty pilot. He said it looked fine and that we should have a dual flight to show me some things to watch out for. Above the Bishop, with noticeably more energy than at the weekend, I could feel this was another level of flying the “hill”.

Chris showed me where wave set up in various winds and the best places to search during the week to come. I tried to make a mental note of all the markers for airspace on the ground, and match this with my newly acquired chart. Information overload – for my learning aptitude – I’m sure, but some of it must have sunk in. I launched W7 around midday and stayed up all afternoon playing in the energy on the hill. I returned early as I had a date with Marie, to visit Edinburgh, a saunter along the Royal Mile and a sumptuous meal at the Scotsman. Taking in the air on a balmy October evening in Scotland with a T-shirt on was not at all what I had dared dream of.

The following day – more searching and scratching. But later in the afternoon, there was a radio message about wave being entered at West Lomand! Off I trekked and joined several gliders to rise above the cloud and enter a wave system that allowed us to head out to the west at 6,000ft. This was my first time with so many gliders all tracking along a wave bar at varying levels, with views of fluffy white energy stretching away into the distance.

Wednesday 9 October

I spent two and a half hours making trial pushes out from the Bishop Hill across Loch Leven, only to find myself lowish over the water and scurrying back for another reliable height boost. I saw my North Hill gang were working out further west so I started a different approach. At 3,000ft pushing into the wind above the Loch, I kept a constant height, but nothing too exciting. The sky was



blue and there was no obvious sign of where to go.

Then, on one sortie, I pushed further west by a half mile or so – further out of my comfort zone – to find a gentle and continuous beep beep from the vario. My mountain high oxygen system was set to 5,000ft and when that started delivering, I changed it to 10,000ft. I concentrated like mad to try and keep in the lift and, after passing 6,000ft, made a call to the others about where I thought I’d got in.

I had need to use the “plumbing”, and with the outside temp at -5°C, decided that it should not freeze the exit pipe. All worked fine – for now at least. I continued the searching and rose to about 9,000ft absolutely spellbound, and did not dare hope it would continue.

Then the spell was broken – the lift ceased. I was stuck, and in falling air. I zig zagged back and forth, trying to cover my ground, using the trace on the Oudie, but the wave was not there any more. The wind up here was stronger and I was unsure which way to go. With Edinburgh Airspace not far behind me, it was an easy decision to push forward and fast, and with 50kts of headwind it was slow progress.

It took me nearly 30 minutes of searching and eventually I found there were clouds forming, showing signs of where the lift was to the west. I drew a mental picture of where I guessed the rising air would be to make those patterns. “Beep beep” and I was ↳

(Above) Descending from smooth as silk air to the ‘washing machine’

(Facing page) On 9 October, Wyn Davies reached 19,000ft in his LS7WL (Wyn Davies)

THE SENSATION OF BEING AT THIS ALTITUDE WAS GLORIOUS; THE VIEWS AWESOME. THE SUN WAS BRIGHT AND THE SKY A LIGHT BLUE ON THE HORIZON, SEEMING TO DEEPEN AS I LOOKED ABOVE



Wyn Davies started gliding at DSGC in January 2010 when he was 56 years old. He has flown 180hrs P1 and enjoyed training both at his own club and at La Motte Du Caire, which is another favourite spot for some great mountain flying – if a bit further afield



Sun rays over Loch Leven (Wyn Davies)

☞ back in. Somewhere between Balado and Kilross. Much further north than lower down.

The oxygen started again. And the beeping continued, with a steady climb and the altimeter ticking off the 000's pushing through 12, 13, ... Wow this is just going on and on – making minor adjustments to where the best lift seemed to be. At just over 19,000ft, I decided I had better call it quits as FL19.5 was not far above me now. At this height my temperature gauge was against its stop of -20°C (I heard later it was -27°C at this level). I had six layers on top, and two layers on my legs. Ski gloves, mountain socks and thick walking boots helped, but I had to keep wiggling my toes to keep them from freezing.

In the cockpit it was warm and sunny, but I made the mistake of breathing out while looking around and the canopy close to my mouth frosted over – making it totally opaque for a six-inch circle. The sensation of being at this altitude was glorious; the views awesome. The sun was bright and the sky a light blue on the horizon, seeming to deepen as I looked above me.

I had been warned of potential damage due to thermal shock to the glider when descending too quickly, so, not wanting to risk harming my wonderful conveyance, I spiralled slowly down, enjoying the marvellous views. Losing the 000's, the smooth as silk air changed abruptly as

I passed through about 5,000ft, becoming bumpy, almost the “washing machine”.

I levelled out at 2,000ft and heard a warning call from Ron Johns – the wind on the field was “boisterous” and “very gusty”. I registered that and prepared for my downwind.

I was slightly disconcerted that my undercarriage could not be lowered. In hindsight I should have gone to the Bishop Hill and flown the hill while I sorted it out. Instead I struggled and pulled and pushed the lever. The problem must have been caused by “the fine plumbing spray” on my way up, which had put a nice coat of ice across the undercarriage doors. Although it was now 2-3°C outside, the wind chill must have kept the ice in place. A wheel-up landing had become an option in my thinking. I lost 700ft before I could relax with the undercarriage “down and locked”. What a wonderful day. Not sure when I will come down from cloud nine.

In the club bar that evening, with much animated discussions of various epic flights and “badges” achieved, my wife Marie made a very apt comment: “You are all behaving like a bunch of Cub Scouts discussing who has just got the wood craft badge”. She’s probably quite right, but I am still excited about a great flight – and the shiny badge, Marie!

This was really my lucky day. Will I go again? Too right – the dates are in the diary and holiday booked. Will the weather gods give us another six days of exceptional flying in a week? Well, if I am not there, how will I ever be able to enjoy it if they do?

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WHEN LIGHTNING STRIKES

Lightning strikes can destroy a glider. Alan Lapworth investigates what causes lightning and whether it is possible for a glider pilot to forecast it with any accuracy



EVEN in fair weather conditions there is an electric field in the atmosphere. The earth itself possesses an overall negative charge while high up in the ionosphere there is a positive charge which results in a vertical electric field of around 100 volts/metre. An average person standing has a potential difference of nearly 200 volts between their head and feet. Only the high resistance of air stops them from suffering a nasty shock. It would require a considerably stronger field for the air to become conductive, but this may happen in the vicinity of large convective clouds.

Clouds, water and ice

When a thermal rises to the condensation level, water condenses on tiny particles present in the air and, as the air continues to rise, the droplets slowly grow larger. Continued growth by condensation is very slow – and evaporation at the dry cloud edges is very fast – but eventually, after an hour or so, some droplets reach a size of around 40 micrometres that allows them to descend relative to the smaller droplets, collide with them and coalesce. Continued coalescence

eventually enables drops to reach the size of raindrops (about 5mm) which fall out of the bottom of the cloud. Many of these raindrops evaporate before they reach the ground, and a large proportion of rain evaporates even after it has reached the ground. Beyond the limiting size of 5mm, raindrops split up into smaller drops as they fall. Usually a cloud has to grow to a depth of at least 5,000ft before any rain falls out of it.

If the cloud is not growing vertically, droplet growth is very slow and stratiform clouds may take a day or so to produce raindrops, usually in the form of drizzle.

When cloud drops rise above the freezing level they do not immediately turn to ice. In fact the temperature has to fall to around -24°C (ie $\sim 15,000\text{ft}$ above the freezing level) for half the water droplets to turn to ice and to around -40°C before all water droplets turn to ice. So above the freezing level a mixture of supercooled water and ice is found. This is one of the dangers for aviators as supercooled droplets can freeze on impact with an aircraft. The -40°C level may be $\sim 25,000\text{ft}$ above the freezing level, so that there is a large volume of cloud with a water-ice mixture. In such an environment, ice particles at temperatures below -10°C grow quickly at the expense of evaporating water droplets. The ice particles are themselves slow

to evaporate so that the cloud edges become less well defined – as is particularly well illustrated by the anvil heads of cumulonimbi which have very fuzzy edges.

Provided the cloud grows at least 5,000ft above the freezing level (fig 1), the quickly growing ice particles are soon large enough to fall below the freezing level and melt to become large water droplets. This mechanism is believed to be a major factor in producing heavy showers out of cumulonimbi (fig 2). If the cloud updraft is strong enough to keep them within the cloud, ice particles can grow by collisions with supercooled water drops to hailstone size (around 1cm) before falling out of the cloud.

Electric fields in clouds

Once significant amounts of rain, and especially of ice, have formed in a cloud then centres of charge start to separate and electric fields build up. There are a number of possible mechanisms for charge separation in cloud, some of them involving interactions of water or ice particles with the fair weather field, but the most important mechanism is now believed to be due to collisions between ice particles and water droplets. Small ice crystals are emitted during collisions of supercooled water droplets with ice crystals to form graupel. These small crystals carry a positive charge while the larger particles of graupel gain a negative charge.

The positively charged smaller particles are lifted up towards the cloud top while the larger negatively charged graupel drop down to the base of the cloud.

Although this mechanism is important at mid-latitudes, some observers have reported lightning in tropical storms where all the cloud is below the freezing level.

Lightning

A number of different charge centres build up in the cloud and these discharge to each other as between-cloud or within-cloud lightning strokes. The reflections of these are called sheet lightning. Very large (usually) negative charges build up at the cloudbase and, especially if cloudbase is low, discharge to earth as a lightning flash. Only about a quarter of all lightning strokes are to the surface.

The initiation of a lightning strike is not well understood. Although large electric fields of around 200,000 Volts/metre build up in clouds, they are not large enough to initiate the breakdown necessary for a stroke. This may need a field of 3,000,000 Volts/

metre. One hypothesis is that cosmic rays are involved in the initiation. Once started at cloudbase, a 'leader' conducting channel opens up and extends downwards from cloudbase in a series of jumps, often forking as it goes.

At the tip of this downward 'leader', x-rays are generated by the accelerated electrons produced. Near the ground it is met by an upward discharge, usually from some sharp protruding object. This completes the circuit and several strokes each lasting less than a millisecond quickly shoot up along the conducting path (Fig 3). These strokes carry currents of over 30,000 amps and have temperatures of 30,000°C.

The whole series of strokes only takes about ¼ second. The fast rise times mean that current tends to flow over surfaces and intense magnetic fields are generated. One of the dangers to people on the ground is the current running over it near to the strike position, so that the danger is lessened if feet are together. Strikes also generate an intense radio wave or electro-magnetic pulse (EMP), which can damage electrical equipment.

These are negative strikes. Although they are dangerous, it is believed that positive strikes are even more dangerous although they are rarer (~10 per cent of the total). These consist of only a single, but very powerful, return stroke between the ground and a positive charge centre in the cloud – possibly the positive charge centre at the top of the cloud. They carry much higher currents of ~300,000 amps. A stroke from the cloud top to the ground can reach out beyond the cloud and may strike up to several miles from the storm cloud. A positive stroke is believed to have been involved in the midair breakup of a K-21 glider based at Dunstable on 17 April 1999.

Thunder is created by the sudden expansion of air along the path of the lightning strike. As sound travels far more slowly than light (~300m/s), the delay in hearing the thunder after seeing the lightning can be used to estimate the distance to the strike – approximately a mile for every five seconds delay.

The greatest number of thunderstorms occur in warm, moist regions of the earth at the equator. Thunderstorm activity ☁

A POSITIVE STROKE IS BELIEVED TO HAVE BEEN INVOLVED IN THE MIDAIR BREAKUP OF A K-21 GLIDER BASED AT DUNSTABLE ON 17 APRIL 1999



(Top left photograph on facing page) Figure 1: Cumulus clouds rising through the freezing level over the English Channel

(Far left photograph on facing page) Figure 2: Heavy rain over the Humboldt mountains seen from Glenorchy, New Zealand

(Above) Figure 3: A lightning strike – the brighter main stroke consists of several strokes in quick succession

IN THIS CONTEXT, WINCH LAUNCHING OF GLIDERS POSES A SIGNIFICANT RISK OF LIGHTNING STRIKE IF CONDUCTED UNDER A DEEPLY CONVECTIVE CLOUD



Figure 4: A kite balloon tethered by wire rope and flown at a height around cloudbase is in great danger of being struck by lightning



Alan Lapworth has been gliding on and off since 1972, mainly with Oxford GC. He joined the Met Office in 1974 and retired in 2005

↪ diminishes with latitude and is practically non-existent at the poles. Views from earth orbit show that lightning strikes are correlated in neighbouring clouds and sometimes many neighbouring clouds will discharge simultaneously.

The positive charge at the tops of thunderstorms appears to diffuse upwards and seems to be responsible for the fair weather electric field. Overall, there is a circuit with thunderstorms acting as a battery, creating a potential difference which discharges slowly by ions drifting downwards along the fair weather field.

Dark lightning, gamma rays and anti-matter

A recent discovery (by satellites) is that some thunderstorms also generate intense bursts of gamma rays. These 'Terrestrial Gamma-ray Flashes' (TGF) are also referred to as 'Dark lightning' and are more intense than solar gamma rays. They appear to be generated by avalanches of runaway electrons near the tops of thunderclouds. They are believed to be associated with internal cloud lightning discharges. In some cases anti-matter (positrons) has also been detected. The amount of radiation generated is significant. If a plane flies within a thundercloud during a dark lightning event, the passengers could be exposed to a similar amount of radiation to that incurred during a whole body CT scan.

Sprites, elves and blue jets

In recent years, it has been discovered that not all electrical activity in thunderstorms occurs below cloud top. Discharges of different types (known as blue jets, sprites and elves) have been observed emanating from active thunderstorms striking up towards the ionosphere. These are not like the lightning at lower levels, but are more akin to the discharges in fluorescent tubes. Blue jets strike upwards from active cumulonimbus tops to heights of around 50km. Sprites are red and glow over large regions between 50-80km, while Elves are a halo type of discharge at around 100km. They appear to be capable of causing damage to instrumented stratospheric balloons.

St Elmo's fire and ball lightning

Apart from cloud to ground lightning

described above, there are other lightning types in which electrical activity is not directly associated with a lightning strike. Two such are ball lightning and St Elmo's fire. St Elmo's fire is a point discharge current from a sharp object on the surface, which slowly leaks away the induced positive charge in the ground to the cloud above without a lightning leader having reached down towards it. It is a plasma discharge and can be induced around pointed objects by fields of ~1000 Volts/metre. The masts of sailing ships are sometimes affected.

Ball lightning has been reported many times, but is not understood. It consists of a glowing spherical discharge of diameter ~20cm or more that persists for up to a minute and often travels horizontally. Sometimes it terminates quietly, while at other times with an explosion.

Forecasting lightning risk

The position of a lightning strike can be determined by measuring the arrival time difference of the emitted electromagnetic pulse at three different stations. Displays can be found online at sites such as *metoffice.com*. However, this only detects lightning once it has started. Otherwise the two best forecasting methods are based on either the development of convection above the freezing level or the presence of moderate to heavy rainfall as seen on a radar display, also available online.

A large kite balloon (fig 4) tethered by wire rope and flown at a height around cloudbase is probably in the greatest danger of being struck by lightning and indeed such strikes are observed to happen even in situations where no other lightning strikes occur. Therefore forecasting lightning is of the greatest importance during such flying operations. Because the presence of ice in a cloud is known to be a risk factor, the observation of convection through the freezing level is generally taken to be a primary initial warning during such operations. The extension of convection more than around 5,000ft above the freezing level is usually sufficient to cause the balloon to be winched down, as is the observation of altocumulus (above ~7,000ft) clouds (fig 5) indicating the potential for further convective growth. Since rainfall radar has become available this has proved an immensely valuable resource in short-term forecasting ('nowcasting'), as the proximity of medium to heavy rainfall can be detected at an early stage, especially at night when

cloud observations are hard to make.

Such a degree of caution in forecasting the likelihood of lightning is essential when operating large tethered balloons – many have been lost to lightning strikes. However, it is much more difficult to estimate when conditions pose an increased risk of lightning strike for gliders. Gliders often operate when small, but active shower clouds are clearly visible (fig 6) – which would be unacceptable for large tethered balloon operations. However, it seems reasonable to cease launching gliders if any thunder is audible or lightning visible.

In this context, winch launching of gliders poses a significant risk of lightning strike if conducted under a deeply convective cloud, especially one with associated rain. Flying within such a cloud is clearly asking for trouble – any aircraft may suffer a lightning strike within an active cumulonimbus, but gliders are fragile and are easily damaged. GRP gliders are particularly at risk if they have not been properly bonded.

The case of the Dunstable glider mentioned above is interesting in that the strike took place when the glider was in clear air half a mile horizontally from the cloud. Lightning detectors operating at the time showed that this was probably a positive stroke, which as noted above would be more powerful than a negative stroke. Ground observers reported that the explosion was exceptionally loud.

Conclusion

In conclusion, the main factor in generating a lightning strike is the presence of ice in a convective cloud. Any cloud rising rapidly through the freezing level is a risk factor. However, it is difficult to decide on a reasonable criterion for terminating gliding operations before the first rumble of thunder is heard.



(Above) Figure 5: Altocumulus clouds above 7,000ft indicate potential for further convective growth
(Below) Figure 6: Gliders often operate when small, but active shower clouds are visible



Employment Opportunity - BGA Chief Technical Officer

The BGA holds a number of approvals in support of the continuing airworthiness management and maintenance of a large fleet of EASA and Annex II aircraft. In addition to its oversight functions, the BGA airworthiness organisation provides a significant level of additional support to owners, operators and BGA inspectors.

The BGA Chief Technical Officer will be stepping down from the role at the end of September 2014. The BGA intends to recruit a replacement during August 2014 resulting in a handover period. This is a competitively remunerated and rewarding opportunity to make a difference working with and leading the development of a very motivated and fundamentally volunteer team.

*For full details including job description and an application form, please contact Pete Stratten pete@gliding.co.uk
All enquiries will be treated in confidence.*



Guy Westgate asks 'What has EASA ever done for us?' and discovers unexpected benefits

SINCE the BGA published its road map of how to follow the 'grandfather rights' route to secure ratings before licence conversion, there has been a renewed interest in aerobatics. It is perhaps driven by our British indignation – that Brussels won't stop us doing something we have done for years? Or perhaps it's the realisation that if we do nothing this year, then an aerobatic rating after 2015 will require a much longer (expensive) EASA approved course?

The problem with aerobatics is that many glider pilots want to do just the occasional loop, or just teach the basics, but the new ↗



AEROBATIC



BATICS

Requirements of the BGA Standard Aerobatic Badge

The BGA Standard Badge can be assessed by any Full Cat instructor (with CFI authorisation) or a BGA aerobatic instructor.

The test flight needs to include:

- 45 degree diving line
- 45 degree climbing line
- loop
- wingover (chandelle)
- humpty bump (a loop with a vertical up-line and vertical down-line)
- 270 degree turn.

The flight should be flown solo and assessed from the ground.

The six required manoeuvres will take between 1,100-1500ft to complete, and so it is convenient to start at 3,000ft, with a planned finish height of 1,500ft and a hard deck of 1,000ft. No 'warm up' or practice manoeuvres should be flown before or after the test sequence, and failed manoeuvres cannot be repeated or practised during the test.

The sequence should be continuously observed, so not flown too far away (or too close), or hidden behind clouds.

There are two ways to fail a manoeuvre with a zero score, a soft (PZ) and hard zero (HZ). In competition, all figures are scored from 10, with a point deducted with every perceived error of five degrees or more. It is quite possible to end up

with a zero score from an accumulation of perceived errors, but because they are only perceived errors, and often the skill of the judge is as fallible as the pilot, a soft zero (also called a perceived zero) would not fail the whole badge test flight. A fail for a hard zero would, however, be awarded for the wrong figure flown, or a gross error in a manoeuvre.

The manoeuvres don't have to be perfect, but to avoid a hard zero, the figures must all be flown correctly; the glider must not stall, the humpty bump needs to have a defined up and down line and the chandelle must be flown around the turn (not fallen through at the top).

At the entry levels of aerobatic competition, breaks are permitted without penalty, so if you need to pause, to collect your thoughts or correct a large heading error, it would not fail the badge test.

Lastly, because the judges are not necessarily trained to British Aerobatic Association standards, the separate figures are not scored, instead the sequence is given a pass/fail grade as a whole.

The BGA keeps a record of all aerobatic badges awarded, so there is no need to supply further evidence on EASA licence conversion.

✎ EASA rating system is 'all or nothing'. **Whatever level you fly at, if you wish to use your LAPL(S) or SPL to fly aerobatics as pilot in command of an EASA sailplane you will need an aerobatic rating.**

The easiest way for most pilots to get the aerobatic rating is to establish existing aerobatic privileges and then carry them across on conversion to the new EASA licence. The simplest method to do this is to hold the BGA Standard Aerobatic Badge.

There is a requirement to have received a briefing on the theory of aerobatics before the issue of the aerobatic rating, and the BGA aerobatic progress record card has a sign-off for 'theoretical knowledge' in preparation for the standard badge test flight. The theoretical syllabus is specified in AMC No 1 to FCL.800, and also on the BGA website, and includes topics such as aerodynamics, flight envelopes, limitations, safety and legal considerations, and knowledge of the manoeuvres to be flown.

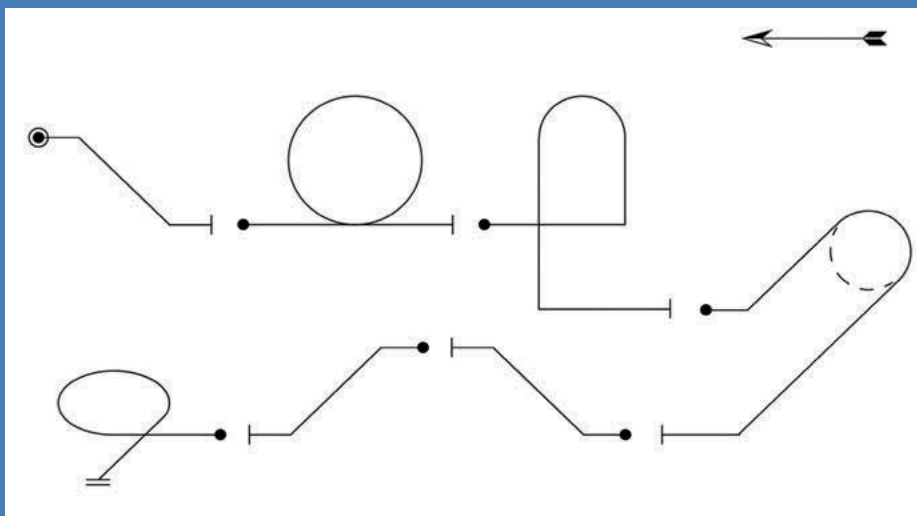
EASA instructor qualification

Gliding instructors who currently teach aerobatics should now have a BGA aerobatic instructor endorsement and this endorsement will convert to the EASA aerobatic instructor qualification. The EASA instructor qualification will permit teaching the full aerobatic syllabus, including rolling. However, to ensure high standards are maintained, the BGA will initially limit the privileges to instruct 'standard' or positive 'g' figures' only. This BGA limitation will be lifted for appropriately experienced instructors, who will be permitted to additionally teach 'advanced' or negative 'g' figures (similar to the privileges of the current BGA Advanced Aerobatic Instructor Rating).

The challenge for the aerobatic community has been to fashion a contemporary syllabus, which is relevant to the task of delivering a focused and confidence-building package of flights, to tutor pilots to pass the BGA aerobatic badge test flight and give them handling skills and knowledge, and for the instructors to pass on some of the latest 'best-practice' methods of instructing the basics.

Another new opportunity to instil confidence and improve safety is to train an 'upset recovery procedure', something common with the airlines, but not routinely taught in gliders.

The aerobatic manoeuvres themselves



A typical BGA Standard Aerobatic Badge test sequence. Although not strictly necessary, there are advantages to learning the basics of Aresti, the language to draw an aerobatic sequence. For the six Standard Badge manoeuvres, the pictograms resemble the shapes of the figures, and the Aresti diagram can help with visualisation of the sequence.



(Above and photo on pp38-39) Spanish airline pilot Carlos Garcia Camacho getting to grips with rolling the Aerobility MDM-1 Fox from La Cerdanya in the Spanish Pyrenees. Carlos enrolled on an aerobatic course a month before completing his Spanish glider licence (Guy Westgate)

have not really changed over the past few decades, but much of the theory has moved on, particularly in the area of human factors, how we fly the manoeuvres and how we teach them.

The Standard Badge test flight is, by its nature, an aerobatic competition program and therefore some of the coaching for the test flight is to learn a competition discipline, as well the manoeuvres themselves. These competition techniques include learning to position the glider in a place that can be seen easily by the evaluator or judge, planning for a certain height loss in the aerobatic sequence, respecting a 'hard deck' and separating the manoeuvres into distinguishable figures, appropriately separated and flown in a defined sequence. Much of this discipline has a positive spin-off

beyond the badge flight, both for handling confidence and flight safety.

So we might ask what has EASA done for us? The increased enthusiasm for aerobatics and uptake in training has been noticeable and the safety argument is clear: new skills, precision, confidence, discipline and understanding of glider limitations and capabilities first hand.

The revived interest has had a very positive knock-on effect, with the number of advanced aerobatic instructors doubling in the past 12 months and the 2014 Dan Smith memorial trophy K-21 aerobatic competition over-subscribed for the first time in its history.

■ In the next issue, Guy will explain some of the new techniques to fly and teach standard level aerobatics better.



■ Guy Westgate has been flying aerobatics in gliders since 1987, and now flies the MDM-1 Fox, the only glider purpose-built to train aerobatics. Through the disabled flying charity Aerobility, Guy offers pilots of all abilities the chance to experience the thrill of learning aerobatics
www.gliderfx.com
www.aerobility.com

GETTING A GRIP



MacWet gloves were excellent for use in the cockpit, but not ideal for other gliding activities

■ **A range of MacWet gloves are available, priced between £27.99 and £29.99.**

For more information see www.macwet.com

MACWET Gloves are advertised as all grip, no slip sport's gloves. A *uniquely responsive material that guarantees maximum grip. The only glove of their kind, MacWet's quality products are currently being used in 35 varied sports which require the unparalleled grip of gloves in all manner of weather conditions. MacWet gloves are so versatile they can be used in practically any sports activity where grip and sensitivity are required.* This is how MacWet advertise on the internet.

The gloves were given a stringent outing at London Gliding Club, Dunstable, on one of the few flying days in February. Use varied from general use on field, winch driving and from both a glider pilot and tug pilot's view.

The pair supplied were first tried flying in a glider with good grip on stick. They did not slip when operating release toggle. Feel for switches, re-setting instruments and using ptt button was excellent and they kept hands

reasonable warm. This was the same response when used in the tug.

When used around the winch it was a different story. They did not keep hands that warm. Driving winch and using controls in cab were good. Unfortunately at Dunstable we use steel cable; these gloves are not strong enough for this purpose. I would not use them for repairing cables and any heavy work.

During work on the field, hooking ropes and cables to gliders, there was good grip and feel. At one point during trying them we had a sharp shower of rain and had to make a hasty retreat to the clubhouse on the buggies and tractors. By the time we arrived, the gloves were very wet and had to be dried out before further use.

My opinion is that although a very good glove, it is not very good for gliding other than in the cockpit.

Allen Kefford, London Gliding Club

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More information is available on the BGA website. If you want to just discuss informally, please email Steve Lynn at Stephen@srlynn.co.uk, or please just download the application forms at <http://www.gliding.co.uk/forms/clubmanagement/PhilipWillsMemorialFund-ApplicationForm.pdf>

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PASSION FOR A LIFE OF FLYING

Seventeen-year-old Alex Harris already holds a Silver C and sports aerobatic rating. He reveals what motivated him to start gliding and why nothing will stand in his way

I FIRST went flying with my dad when I was just three, in a Condor which he built. I was sat on top of as many cushions as my dad would dare to put under me and still barely managed to see over the instruments. At the time, my favourite thing about going flying was scaring away the kids that used to play cricket on the runway, by going what felt like v1 towards them. At age three, it's quite amusing! And as long as I had my teddy bear we could go flying.

I continued this "joy riding" until I was nine years old. For my ninth birthday I got my first proper flying lesson, with my dad in a Cessna 152 (surprisingly father teaching son in this case somehow worked and minimal fights broke out between us). These

flying lessons continued, but in the power world you have to be 14 to start logging hours, so all my hours done prior to 14 would have been redundant.

At this time (aged 11), I was out skiing in France with the British Ski Academy and caught a glimpse of this strange looking aeroplane with huge wings and no engine. It was low and fast, screaming along the French Alps. With my power experience, I knew that this strange aeroplane with huge wings was flying, but I just didn't understand how. I was, however, more annoyed because it looked like he was having so much more fun than me! I took my eyes off this aircraft and concentrated on my skiing (still intrigued as to what it was). At the end of the day, I used my schoolwork time to research what I had just seen. I soon realised that this strange looking aircraft was, in fact, a glider.

On my return home to England, we went on a bike ride up to the local gliding site, the Essex Gliding Club. We were spotted by club chairman Brian Murphy, who let us onto the airfield to see the aircraft and meet some of the members. To my amazement I was offered a flight. On that day my passion for flying was blown to a whole new level; the flight was incredible.

My parents, being very supportive of my flying, enabled me to join the club and its very generous cadet scheme. As you can imagine, I was at the airfield every weekend, washing gliders, running with wings and retrieving gliders when they had landed. I was given advanced warning as to the wait I would have to endure before I could go solo; I was 11 at the time and the solo age was then 16. This didn't stop me, as I continued to work hard around the club and do loads of flying.

By the time I was 13 or 14, I was at solo standard with two or three years left before I could go solo. Luckily for me, my passion and devotion for flying was enough to keep me more than interested in gliding, but for some it would have been beneficial at this stage to have met some other juniors to show them that there were some other really cool guys



Alex Harris with cousin Laura, who visited the club for a trial lesson of her own

in gliding. Gliding is NOT an old man's sport; this would be a good opportunity to show all your friends what gliding is all about. My friends are totally amazed by gliding and, if it wasn't for other commitments, they would be down learning to fly!

In September 2012, I was aged 15. After years of waiting to finally go solo, my club CFI, Dave Hertzberg, gave me the phone call I had been waiting for: "The solo age is being brought down to 14 in October!" I was so excited that I could finally progress with my gliding. There was only one more month to wait.

The day of my solo was the most nerve-racking that I have experienced. On 10 October 2012, just a day after the new laws on solo age were passed, I flew on my own for the first time. I came into ownership of my K-6e G-DCEM just a few months after my solo. It got me through my Bronze and Silver and I will be flying it in the Lasham Regionals and 2014 Junior Nationals.

I was selected to fly the Junior Nationals in a two-seater in 2013; this was one of the best weeks I have ever had. I was receiving training for my gliding and also got introduced to the Juniors – a bunch of the coolest guys you will ever meet, with a wealth of experience. They were a breath of fresh air for me (having learned in a club dominated by older people). I could finally relate to people of a similar age to me about gliding and share different experiences or just chat about flying.

I was lucky enough to come in contact late last year with Paul Conran, who gave me an amazing introduction into glider aerobatics. From this point on, my gliding became three-dimensional. Now I'm totally devoted and focused on my aerobatics and am always going through aerobatic programmes in my head and practising every weekend. I will be competing in aerobatic



Alex Harris is now "totally devoted" to aerobatics and will be competing this year

competitions this year, alongside the racing comps. Aerobatics have an amazing safety record and whether or not you would want to compete, aerobatics should certainly be tried. I thank Paul for all the help he gives me. Let's hope we can get some results in the future!

In conclusion, I would say to people of a younger age that gliding is an amazing sport. I can almost guarantee that your school friends will find gliding cool – don't sit back and say to yourself that gliding isn't cool because my friends don't do it. Don't let that get in the way of your passion. Besides, if you told your friends about what you can do in a glider and maybe got them to have a go they will almost certainly be a bit jealous. If (like me) you're in a club with little junior membership, come and meet the Juniors at one of the next events – The Air League day or the Junior Nationals, for example. You will be welcomed with open arms. Flying is my life and passion; nothing will get in the way.

FROM THIS POINT ON, MY GLIDING BECAME THREE-DIMENSIONAL. I'M TOTALLY DEVOTED AND FOCUSED ON MY AEROBATICS

■ Alex Harris, 17, holds a Silver C and a sports aerobatic rating. He is currently part way through his FI course and has flown over 150 hours and 450 launches (most of which were done in Alex's K-6e). He is also solo in T-61 Venture. Alex flies from from Essex, Buckminster and Anglia

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KEEPING HOLD OF YOUR PRIVILEGES

Pete Stratten advises on licence ratings and qualifications

AS EXPLAINED in the in the April/ May *S&G* article *SPL or LAPL(S)?*, it's important to identify which licence you want to apply for. Having ticked either SPL or LAPL(S) on the BGA Licence Conversion application form, you need to carefully consider what privileges and additional ratings, certificates and authorisations should be included in your licence. The aim is that you convert into the new licensing system with no loss of privilege.

The diagram at the bottom of the page lays out the relevant 'components' of an

SPL or LAPL(S). The medical and licence types (indicated in blue) were covered in the previous article. This article considers the remaining components, but in doing so does not replace the BGA website guidance.

■ **Launch Types.** The SPL or LAPL(S) includes winch/car, aerotow, bungee and self-launch privileges. On conversion, an applicant is limited to the launch types asked for and evidenced in the conversion application. The limitation can be subsequently removed for other launch types by carrying out specified training with an instructor who must sign the logbook entries.

■ **Touring Motor Glider.** A TMG is a powered sailplane where the engine or propeller does not retract, eg Falke, Dimona. An SPL or LAPL(S) can include TMG privileges. On conversion, an applicant who requires TMG privileges needs to provide evidence of holding a valid UK SLMG or JAR TMG class rating.

■ **Sailplane Towing (in a TMG).** Some TMGs can be used for towing. SPL or LAPL(S) holders who have TMG privileges and wish to tow need to hold a towing rating. On conversion, an applicant who requires TMG towing privileges needs to provide specified evidence of SLMG/TMG flying and SLMG/TMG towing experience.

■ **Aerobatics.** Aerobatics are defined essentially as a deliberate and abrupt or abnormal manoeuvre not necessarily for normal flight or training other than for the aerobatic rating. On conversion, an applicant who requires an aerobatic rating needs to hold one of seven options specified in the conversion guidance, one of which is the BGA Standard Aerobatic Badge.

■ **Cloud Flying.** A holder of an SPL or LAPL(S) requires a cloud flying rating to fly inside cloud. The conversion requirements are at the time of publication under development and therefore the rating is currently unavailable. Once it is available, the CAA will add a sailplane cloud flying rating to an existing SPL or LAPL(S) at zero cost during the conversion period.

■ **Flight Instructor.** Holders of a valid BGA instructor assistant or full instructor rating who have a specified pilot in command experience can on conversion apply for a Flight Instructor (Sailplanes) certificate. Where on conversion the applicant also holds a BGA MGIR, the Flight Instructor privileges can be extended to include 'sailplane only instruction in a TMG'. Where a valid CAA SLMG FI or JAR TMG FI rating is held, unrestricted TMG instructing privileges can be provided. Towing instructor privileges (in a TMG) can be included where the applicant provides evidence of the specified experience. Aerobatic instructing privileges can be added where



An aerobatic rating requires one of seven options specified in the conversion guidance, one of which is the BGA Standard Aerobatic Badge (Guy Westgate)

■ www.glidering.co.uk/bgainfo/licensing/easalicensing.htm

LAPL Medical	Class 1 or Class 2 Medical
LAPL(S)	SPL

Launch types	Touring Motor Glider	Sailplane Towing (in a TMG)	Aerobatics	Cloud Flying
--------------	----------------------	-----------------------------	------------	--------------

Flight Instructor Flight Instructor Coach	Flight Examiner Flight Instructor Examiner Senior Examiner
--	--

on conversion a BGA aerobatics instructor endorsement is recorded by the BGA. The requirements for converting cloud flying instructor privileges have yet to be established.

■ **Flight Instructor Coach.** Flight Instructors are trained by Instructor Coaches. On conversion, an instructor can apply to hold Flight Instructor Coach privileges (known under the rules as FCL.905.FI(i) privileges) providing that a BGA instructor coach record is held by the BGA.

■ **Flight Examiner.** Flight Examiners carry out licence skills tests and proficiency checks. Existing BGA Flight Examiners who have subsequently completed a Part-FCL examiner standardisation seminar and examiner Assessment of Competence can apply on conversion to be authorised by the CAA as a Flight Examiner (Sailplanes).

■ **Flight Instructor Examiner.** Flight Instructor Examiners carry out instructor skills tests and proficiency checks. Existing BGA Flight Instructor Examiners who have subsequently completed a Part-FCL examiner standardisation seminar and examiner Assessment of Competence can apply on conversion to be authorised by the CAA as a Flight Examiner (Sailplanes).

■ **Senior Examiners and Conversion of Examiners.** Senior Examiners are authorised by the CAA to standardise the other categories of examiner. A number of Senior Examiner (Sailplanes) have been authorised from within BGA by the CAA and are currently developing the standardisation programme for those who wish to include the Flight Examiner (Sailplanes) and Flight Instructor Examiner (Sailplanes) authorisation during their licence conversion. Those who intend to hold any examiner authorisation should hold back from licence conversion until they have completed the standardisation programme, which includes a CAA approved seminar and specific Assessment of Competence.

Hopefully you've read the bits that apply to you and they make sense. The BGA Licence Conversion application form guidance attached to the application form will guide you step by step through the conversion requirements and application process. To quote one of many who now hold a licence: "My conversion application was accepted first time. Key to success was thoroughly reading the information on the BGA website."

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Logos: dgac, Région PACA, MOYENNE DURANCE, and various regional and national symbols.

BGA CLUB ANNUAL STATISTICS

1 OCTOBER 2012 TO 30 SEPTEMBER 2013



	MEMBERSHIP							FLYING				NEW PILOTS		
	Full Flying Members (Adult)	Full Flying Members (Junior)	Affiliated Members	Female Members	Temporary Members	Non-Flying Members	Winch Launches	Total Launches	Total Hours Flown	Solo	Bronze Endorsement	Cross-Country Endorsement		
Andreas Gliding Club	8	3	0	1	20	0	55	109	24	0	0	0		
Angus Gliding Club	10	2	0	1	7	0	150	150	28	0	0	0		
Banbury Gliding Club	46	1	0	1	132	1	0	955	503	0	0	0		
Bath Wilts & North Dorset Gliding Club	82	7	60	4	111	25	2219	2935	1554	6	4	2		
Bicester Gliding Centre	150	26	103	18	1244	83	9845	12653	5000	14	4	4		
Bidford Gliding Centre	51	6	0	4	113	13	0	895	750	0	0	0		
Black Mountains Gliding Club	54	10	0	5	319	6	0	1955	2149	4	1	4		
Booker Gliding Club	117	13	0	8	733	21	0	4167	4161	7	6	6		
Borders Gliding Club	89	5	0	2	135	21	0	1746	1517	3	1	0		
Bowland Forest Gliding Club	86	9	0	7	474	34	2869	2869	1120	0	0	0		
Bristol & Gloucestershire Gliding Club	150	12	18	10	553	39	3208	4427	3889	4	2	2		
Buckminster Gliding Club	130	22	0	8	553	3	2249	4401	1524	6	5	4		
Burn Gliding Club	76	9	0	5	235	16	2698	3290	1194	3	1	2		
Cairngorm Gliding Club	34	4	0	4	48	2	45	653	861	1	0	0		
Cambridge Gliding Centre	153	22	536	18	537	47	5732	6878	4039	11	6	5		
Channel Gliding Club	26	1	25	1	122	0	847	855	208	0	0	0		
Cotswold Gliding Club	122	17	20	4	530	62	5318	5763	3219	3	4	6		
Dartmoor Gliding Society	40	4	0	2	81	0	2240	2240	421	3	4	6		
Darfton Gliding Club	51	10	0	4	189	2	3197	3203	1102	3	2	2		
Deeside Gliding Club	75	18	0	10	252	36	0	1817	1908	4	0	0		
Denbigh Gliding Club	12	4	0	0	196	23	121	681	200	5	7	8		
Derby & Lancs Gliding Club	121	9	0	5	454	31	5491	5491	2270	8	5	3		
Devon & Somerset Gliding Club	132	12	15	9	393	45	5383	6098	1776	0	0	1		
Dorset Gliding Club	35	4	0	1	165	18	549	1113	464	3	0	0		
Dumfries & District Gliding Club	9	2	0	0	14	1	27	27	5	3	0	0		
East Sussex Gliding Club	86	7	0	3	231	36	1653	2536	1077	1	2	2		
Eden Soaring	23	7	20	1	151	3	1461	1461	750	2	3	0		
Essex & Suffolk	86	15	0	5	378	3	3989	3994	1811	2	2	0		
Essex Gliding Club	55	6	0	6	128	10	1488	1602	640	1	1	1		
Glidesport (Bidford)	15	2	0	0	314	0	0	724	1500	2	1	2		
Herefordshire Gliding Club	25	0	0	3	73	8	0	501	555	0	1	0		
Highland Gliding Club	25	6	34	5	57	6	242	1083	730	2	1	2		
Kent Gliding Club	109	31	4	18	324	19	3048	3613	517	3	3	1		
Lakes Gliding Club	25	5	0	1	96	11	0	392	226	0	1	0		
Lasham Gliding Society	567	100	24	71	904	103	14744	22022	6350	34	15	16		
Lincolnshire Gliding Club	27	3	0	2	86	2	1082	1082	158	0	1	1		
London Gliding Club	204	25	0	15	830	41	5515	10833	6300	15	14	15		
Mendip Gliding Club	46	13	0	3	209	10	1642	2039	390	3	1	0		
Midland Gliding Club	90	20	10	6	227	10	5166	5264	2683	5	4	5		
Needwood Forest Gliding Club	39	3	0	2	191	14	1264	1264	353	0	0	0		
Nene Valley Gliding Club	48	22	0	7	290	11	2565	2621	676	1	1	2		

Norfolk Gliding Club	87	47	30	32	572	80	2355	3409	1651	2	2	2
North Devon Gliding Club	5	0	0	0	55	0	0	100	50	0	0	0
North Wales Gliding Club	24	1	0	1	78	1	1265	1265	192	2	2	2
Northumbria Gliding Club	59	11	0	4	209	3	417	1283	517	2	1	0
Oxford Gliding Club	57	12	0	6	379	23	2948	2948	1054	7	1	2
Oxfordshire Sportsflying Club	122	2	0	3	48	3	0	750	1420	0	0	0
Peterborough & Spalding Gliding Club	47	2	15	2	137	8	0	1236	873	3	2	3
Rattlesden Gliding Club	54	3	0	7	131	22	1678	1837	766	1	0	0
Sackville	2	0	0	0	0	0	0	60	30	0	0	0
Scottish Gliding Centre	251	13	30	14	365	0	7572	8779	6735	14	8	11
Shalbourne Soaring Society	51	0	0	2	170	3	2385	2385	836	2	1	2
Shenington Gliding Club	90	13	0	11	396	2	4517	4980	1982	6	6	5
Shropshire Soaring Group	66	8	0	3	104	3	0	96	111	0	0	0
South Wales Gliding Club	153	40	0	7	372	28	386	4006	3487	2	3	4
Southdown Gliding Club	75	26	60	6	209	38	3173	3858	1127	7	5	3
Staffordshire Gliding Club	85	15	51	6	320	14	4629	4687	1527	3	1	4
Stratford On Avon Gliding Club	49	6	0	0	193	4	3329	3329	618	2	3	1
Surrey Hills Gliding Club	8	0	0	0	0	0	0	200	150	0	0	0
The Motor Glider Centre	213	31	0	7	326	0	3858	6526	3329	5	3	1
Trent Valley Gliding Club	59	3	12	0	343	3	3604	3851	994	4	0	3
Ulster Gliding Club	45	1	8	1	250	2	0	855	557	0	1	2
Upward Bound Trust Gliding Club	30	4	0	1	43	0	1619	1626	287	3	1	0
Vale of White Horse Gliding Club	26	2	0	3	144	0	0	796	506	1	1	1
Vectis Gliding Club	15	1	0	0	36	2	0	94	46	0	0	0
Welland Gliding Club	28	3	0	2	126	12	817	990	332	0	0	0
Wolds Gliding Club	128	19	20	12	509	61	5584	6993	2736	4	4	1
York Gliding Centre	112	19	0	3	209	8	327	2144	1362	5	4	3
Yorkshire Gliding Club	156	26	272	16	594	46	790	4269	4280	1	1	4
SERVICE CLUBS (AGA, RAFGSA, RINGSA)												
Anglia Gliding Club	43	10	0	5	125	0	1170	1270	336	5	1	1
Bannerdown Gliding Club	52	13	8	5	97	1	3288	4121	1506	2	4	2
Cranwell Gliding Club	55	4	90	5	18	4	4435	4586	1347	5	1	2
Fenland Gliding Club	39	4	0	0	14	1029	1272	405	0	1	1	2
Four Counties Gliding Club	48	60	105	3	103	0	2626	2791	1021	5	4	4
Fulmar Gliding Club	26	2	0	3	15	3	see Highland GC					
Heron Gliding Club	34	4	0	2	52	10	298	761	240	0	0	0
Kestrel Gliding Club	39	4	0	1	111	2	1064	1155	341	2	1	0
Portsmouth Naval	79	6	0	3	125	12	1533	4049	1237	9	2	3
RAF GSA Centre	85	6	35	12	4	0	1912	4375	1852	11	1	2
Seahawk Gliding Club	21	6	0	2	0	0	97	249	162	0	2	1
Wrekin Gliding Club	21	12	0	2	90	0	1358	1712	389	3	1	1
Wyvern Gliding Club	139	11	0	9	35	0	3292	3586	998	4	0	0
Subtotals	6117	947	1605	481	19016	1209	170568	241429	113233	33	178	176
Total Club Membership	8273											
Total Participants	27289											
Clubs	83											

The British Gliding Association (established 1929) is the governing body for the sport in the UK, representing and furthering its interests in an increasingly competitive environment. Its mission statement is "to provide effective leadership and continuity of gliding and soaring in the UK". You can use the interactive map at www.gliding.co.uk/findaclub/ukmap.htm to locate the club you require. University gliding clubs are listed at www.gliding.co.uk/findaclub/university.htm

HOW TO HELP BOOST YOUR CLUB'S FIGURES

WHAT can you, as a club member, do to help? In addition to talking to visitors, there are other easy ways to encourage healthy flying activity at your club.

Your club committee may have developed ideas over the winter and is now trying things for real – perhaps starting daily briefings, or giving the gliding day a structure by doing check flights first and trial lessons last, with those needing time in the air getting their training flights after lunch. Please do what you can to support the committee – they are volunteering on your behalf.

Promote a good launch rate: spot land; fetch that glider in off the field; be ready for the cable; don't chatter to the pilot at the front of the queue; be alert. Fly more – take that extra launch. Have one less cup of tea – help get the field set up first. Have a go in the club K-8 and remind yourself just how much fun they are.

Alison Randle
Development Officer
alison@gliding.co.uk



In recent months, club stats have proved beneficial in supporting four clubs in relation to planning threats, such as windfarms

VITAL STATISTICS

ANNUAL statistics from clubs have now been submitted (see p48). For several years now, the basis for collecting the figures has remained constant, which means we are finally getting nearer to having a reliable set of figures to show general trends and we can use the figures much more reliably as a basis for other work.

On the face of it, nearly half of clubs grew last year. Clearly we need to understand the mechanisms at work here, but the main message is that growth is possible. The most likely source of new members is not the club next door, but from trial lessons. Naturally a trial lesson must be purchased, implying that either they or someone they are close to believes that gliding is something they will be interested in. Despite this, conversion rate in gliding is generally low (1-2 per cent), although some clubs now achieve 4 per cent, yet in disability flying it is around 20 per cent.

A fundamental factor in determining whether a person will come back relates to how welcomed and included each individual feels. All club members are ambassadors for the sport – we all have a role to play. Follow up is critical too. It probably starts with how they are encouraged out of the cockpit and the conversation that immediately follows. Is there any assumption that they will come back? Try a cheery 'See you next week!' as they leave.

Remember, regardless of whether they bought full membership before they left, they are members. How many people do you know can decide to spend several hundred pounds without going away and thinking about it? Why not use the temporary membership status that they already have in order to get people back for the second, third or fourth time? Get them hooked in, and then they will buy!

Three-month (or six-week or one-month) membership is a remarkably powerful marketing tool. Some clubs at the Club Management Conference were reporting that they moved their open

days to May or June and encouraged people to come back during the summer on their three-month membership.

It all needs further enquiry to investigate the relative success rates, but on the face of it the signs are good. It will probably remain a bit of a numbers game, and not all the three-month member returners will stay, but if they've had a good time, told friends and families and paid for more launches and a bit of soaring, so what? Isn't that what your gliding club is for? A fun and social place to fly from.

Statistics, as we know, are rarely absolute; figures and anecdotal reports need further research to gain effective understanding. Once qualified, we can use them to inform discussions at the Club Management Conference (22 November 2014); develop case studies so other clubs both here in the UK and elsewhere can pick out useful information to improve their own systems; and to build and develop BGA initiatives.

Lobbying

The Development Committee uses BGA annual club statistics for our ongoing work on your behalf: for the consultation responses (latest being alcohol licensing); project planning and funding bids; and lobbying work (latest on outdoor economy and the CASC scheme). They are vital when we are arguing the case with local planning authorities that the local gliding club brings economic and social benefits – real reasons to explain why granting permission to that planning permission will have costly unintended consequences.

We also use the stats when working with clubs with security of tenure issues at their site and they, in turn, use them to garner support for their case locally. In recent months we've supported four clubs in relation to planning threats and another four clubs in relation to lease renewals.

The BGA uses the figures to counter regional and national threats that, if implemented, would have a seriously limiting impact on gliding in the UK. Your club activity matters; your stats are vital.

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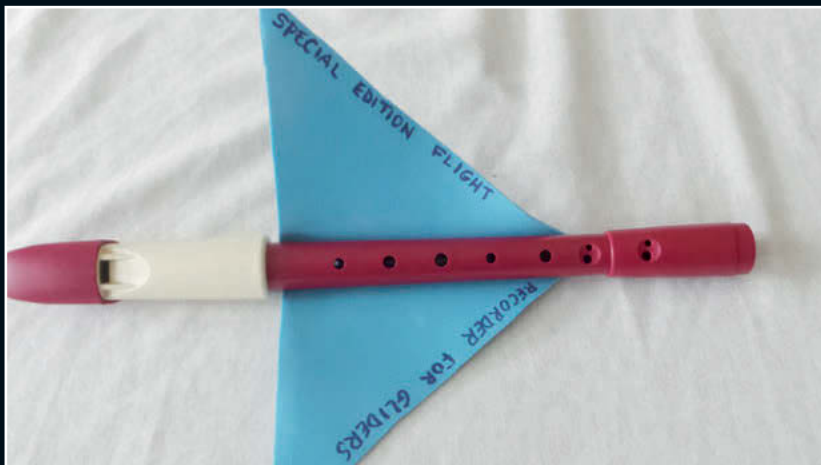


■ Essex & Suffolk GC paid a visit to East Bergholt High School recently and surprised students and teachers alike with a rigged glider in the school hall. Eighty students watched presentations by club members on the theory of how gliders can stay in the air, how the controls work, and the schemes available to them at ESGC, which is a Junior Gliding Centre. At the end, their tutor asked: "How many of you would like to try gliding?" The reply was instantaneous, with 70 hands shooting into the air. The first 30 hope to take to the air at the end of April.



Teaching an old dog new tricks...

■ Cranwell Gliding Club's safety dog, Izzy, says: "Get those pre-flight checks done - don't be distracted." (Photo: Kev Atkinson)





This page clockwise from top (then centre): Yorkshire hosted 60 members of the WI, celebrating their centenary, which involves passing a baton from one region to another. They wanted it to be flown in for the handover and asked if the club could help. CFI Andy Parish obliged and the aircraft arrived over Sutton Bank to the sound of *The Ride of the Valkyries*. As it came to a halt outside the clubhouse, 'St George' and his 'Damsel' were greeted with a rousing rendition of *Jerusalem* from the assembled club and WI members

Cranwell's Toby Evans flew his first solo flight two days after his 14th birthday (Tom Grover)

George Goodenough in his Cirrus, about to head off for a flight in what proved to be quite a good day at Burn on 10 April (Kevin Moseley)

Wave above Burn, three days later, on 13 April (Ian Myles)

Facing page anticlockwise from centre: Buckminster's Motorfalke BVKK with syndicate motor glider (Chris Hayball)

Bidford glider in space? Gillian Stewart's ASW 15b (Simon Wall)

"Well, Dad said he wanted the latest flight recorder!" Surrey Hills' Roy Musselwhite received this birthday present from his son



■ Matt Davis, current Juniors champion (left) with the new cadets picked for the 2014 scholarship scheme at Nympsfield (Bernard Smyth)

■ Our thanks to all the photographers and to our *Club News* contributors for sending these in. If you'd like to submit your previously-unpublished photographs for possible inclusion somewhere in *S&G*, please email them to: editor@sailplaneandgliding.co.uk or upload to: www.sailplaneandgliding.co.uk/dropbox



CLUB NEWS

BANBURY (HINTON IN THE HEDGES) **WWW.BANBURYGLIDING.COM** **5204355N 00118784W**

WE are lucky to have an airfield which we can fly from even with all the rain, although at times we have to share with our power friends. On several weekends we have welcomed visitors from other clubs who are not so fortunate. We have several new members, but congratulations should go to George Whales, who joined this year as a past member of Shalbourne and re-soloed very quickly after brushing up on his aerotowing skills. George says he is glad to back in the air again after a couple of years not flying. We are all looking forward to getting the rust off our boots.

David Sibthorp

BANNERDOWN (RAF KEEVIL) **WWW.BANNERDOWN.CO.UK** **511858N 0020631W**

CONGRATULATIONS go to Kevin George, Robert Tomaszek (solo) and to Paul Randall for completing his Bronze cross-country. We welcome to Ali Arnold as our new DCFI and are glad to see R12 back from Slovenia looking awesome. Youth gliding is progressing well with new solos on the cards. Our AGM showed that, despite the loss of days on last year, soaring and launches were up. Good luck to our treasurer Frank Soowamber as he sets out for RAF officer training.

Ian Harris/Deborah Hackett

BATH, WILTS & NORTH DORSET (THE PARK) **WWW.BWND.CO.UK** **510742N 0021445W**

LUCKILY for us the Park is just less than 700ft AMSL or we might all have drowned. However, it was not all doom and gloom: we had a rewarding Sunday when wave appeared just off the winch and everyone had a good time. Summer course lists are filling up. We had a very successful safety evening, led by Dick Dixon, with more members attending than ever, and the AGM is planned for 3 May followed by our Open Day on 5 May. To finish on a sad note, we have lost Dick Hadow, long time staunch member, who kept us in order by managing the club rotas beside much else.

Chris Basham

BIDFORD (BIDFORD) **WWW.BIDFORDGLIDINGANDFLYINGCLUB.CO.UK** **520803N 0015103W**

THE winter storms resulted in one of our launch point caravans being damaged

and one of our canvas hangars being destroyed. Our dinner/dance in February was very well attended, with Peter Harvey as the guest speaker. Jon Wand was presented with the Ladder Trophy. We are looking forward to our advanced soaring week with our friends from Talgarth.

Mike Pope

BLACK MOUNTAINS (TALGARTH) **WWW.BLACKMOUNTAINSGLIDING.CO.UK** **515848N 0031215W**

MEMBERS at Talgarth were stunned by the early death of John Price in March after a very short illness. John was a stalwart member, always willing to help make things run smoothly through tugging or providing advice and help. His happy smile and personality will be sadly missed by all who were lucky enough to have known him. Our K-13 is back in the air resplendent in a new colour scheme after a major repair. Bo Nilsson is now on site helping our seven days a week operation run smoothly and cater for visiting pilots and members! A big turnout by members for a spring working weekend has left the club looking better than ever.

Robbie Robertson

BOOKER (WYCOMBE AIR PARK) **WWW.BOOKERGLIDING.CO.UK** **513642N 0004830W**

AFTER our recent AGM, there are a number of new faces in the club structure. We say "thank you" to Geoff Tabbner for five years' service as chairman, and welcome Dennis Campbell to his new role. New committee members are Hugh MacDonald, John Sugden, William Parker and Mark Wolff. We have a new landlord; Sean Brown of HeliAir has bought Arora's shareholding in AAA. He has assured the club that he wishes to develop the airfield for General Aviation and he sees all the existing tenants as essential. Meanwhile the Talgarth expedition was considered to be a success and the June one to Klippeneck in Germany will be almost on us by publication date.

Roger Neal

BORDERS (MILFIELD) **WWW.BORDERSGLIDING.CO.UK** **553514N 0020510W**

WE held our AGM and prize-giving on 29 March. All in all, it has been another great year for the club. The prize winners were: Helen Frazer (Coulson Trophy for completing her

Gold), Bill Stephen (Boomerang Trophy for his out-and-return at Saltby) Robin Johnson (Presidents Cup for his efforts in building our EuroFOX) and Andy Bardgett (Irwin Cup for highest climb and The 'Old Gits Trophy' task.) Well done to all. As mentioned, our EuroFOX is now just through its testing phase and we're all looking forward to the savings.

Rich Abercrombie

BOWLAND FOREST (CHIPPING) **WWW.BFGC.CO.UK** **535301N 0023714W**

BOWLAND Forest kept flying over the winter and even managed to improve the airfield, adding a new hardened landing area suitable for use in wet conditions when flying from either end. We have also spent time upgrading and maintaining our ground-vehicle fleet and arranging for the replacement of the hangar roof, so we'll be ready when the good weather comes. Many thanks go to Ian Hamilton, who retired as club treasurer at the AGM after many years in post, and good luck to Carol McLay, who is replacing him. Thanks and congratulations too, to Ian Bannister, who was made an honorary life member for his unstinting and selfless work in the club workshops.

Keith Clarke

BRISTOL & GLOS (NYMPSFIELD) **WWW.BGGC.CO.UK** **514251N 0021701W**

FOUR new cadets on scholarships were welcomed and met Matt Davis, British Junior champion, who briefed them about staying in touch with UK Junior Gliding. On their second flights they all soared between 30 and 50 minutes in wave, thermal and ridge. We hosted Rockpolishers at Easter – results in next issue. Dave Hallsworth returned from abroad to run things this summer. A parachutes volunteer is being sought, as Ken Brown is giving up after being unsung chute tsar for almost 64 years. The southerly wind kept light just long enough in March for Matt DiFrancesco's first solo. Well done.

Bernard Smyth

BUCKMINSTER (SALTBY) **WWW.BUCKMINSTERGC.CO.UK** **524912N 04228W**

WE'VE had a few thermic days so far, with John Tilford achieving the first soaring flight of 1hr 14min, in February, and Cameron Still with the longest duration of 2:03. Our Bronze

(Left to right): **Banbury's** George Wales after going solo in the K-13 (David Sibthorp); Dan Cash is congratulated by **Booker** CFI Richard Crockett after his first solo, converting from PPL (Doug Hilton)



lectures have been a big success, so thanks to Danny Lamb for organising them. The Inter-University Club Competition has been confirmed for August 2-10. April has seen the focus of our lectures turn again towards the challenge of cross-country expeditions, in the hope we can get a prompt start for the season. The recent good weather has enticed many pilots back into the air and over the past week the club has sprung into life again with winch, aerotow and motor gliding activity.

Tim Beazley

BURN (BURN)
WWW.BURNGLIDINGCLUB.CO.UK
534445N 0010504W

OUR soaring season got off to a good start in March with Alastair Mackenzie reaching 11,500ft in wave and completing a 150km flight using thermals. We congratulate Andy Kitchen (BI), augmenting our instructor team. Ian Myles is thanked for his hard work in installing new windows in our clubhouse, as is Dave Chafer for getting our Number 2 Winch back into service after a major engine overhaul. Finally, all members have been saddened by the deaths from cancer of Dave Butler and Dr Stan Kochanowski. Both were active members of the club in the past, with the latter organising a very enjoyable visit to Poland a few years ago. They will be greatly missed by all.

Chris Cooper

CAMBRIDGE (GRANDSDEN LODGE)
WWW.GLIDE.CO.UK
521041N 0000653W

AT our AGM Richard Brickwood was elected as president, Andrew Watson and John Birch join the board and Phil Jeffery and Iain Baker join the committee. Many thanks to outgoing president Mike Smith and committee member Greg Monaghan. Thanks also to Peter Cunnison, Robert Verdier and George Sanderson, who have worked tirelessly to complete annual maintenance on the club fleet. Congratulations to Finn Sleigh (Alex Ward Memorial fund award for young pilots). Richard Ladley takes over from Keshav Thirumalai as chairman of the university club from June. Our new Skylaunch is commissioned; open day was 13 April; and join us at the Gransden Regionals on 16-24 August for some great competition (Call office 01767 677077).

Peter Wilson

CHILTERN (RAF HALTON)
WWW.RAFGSA.ORG/CGC/
514733N 0004416W

CONGRATULATIONS to Peter Mann on winning the Winter Ladder for retired people – sorry, the Weekday Winter Ladder – while some undeserving wretch won the Weekend Winter Ladder by dint of having their own aircraft available for the one weekend when the local ridge worked and the airfield was serviceable. The airfield still suffered from ground water issues well into March, but this did not stop UCLUGC escaping to the Mynd and having a successful expedition there (over 85 flights completed, flying four out of six days), while back at Halton Sarah Willocks passed her Bronze exam. We are all looking forward to the 'soaring season' with hopes of much better weather than earlier this year.

Andy Hyslop

COTSWOLD (ASTON DOWN)
WWW.COTSWOLDGLIDING.CO.UK
514228N 0020750W

WE welcome Don Puttock as our 2014 course instructor, and Nick Cave as winch driver. Our weekly courses started in March. Thanks to Fraser Wilson, the majority of the club fleet has been maintained and ARCs renewed in readiness for the summer. We had an excellent start of season party, organised by our UWE students. During the party, our deputy chairman Adrian Giles presented the annual club awards. Josh Vaggs won the Akehurst Cup (Best Junior), while Paul Gentil was given the Mike Weston award (Distinguished service over several years). Other award winners may be seen on the club website. Matt Page has just finished commissioning our Wifi link to allow paperless flight recording.

Frank Birlison

CRANWELL (RAF CRANWELL)
WWW.CRANWELLGC.CO.UK
530231N 0002936W

MARCH was a significant landmark for our club, as Toby Evans was sent solo two days after his 14th birthday. With a serious look on his face just before the launch, a well-executed circuit and spot landing prompted a big cheesy grin. Many of his friends were amazed at what he'd done. Many thanks to the Caroline Trust, who support and encourage young people into flying. The weather continued to improve through early spring allowing some soaring and short cross-

country runs. So with routes planned, maps at the ready and, obviously, GPS programmed we look forward to the coming season.

Zeb Zamo

DEESIDE (ABOYNE)
WWW.DEESIDEGLIDINGCLUB.CO.UK
570430N 0025005W

WE have an opportunity for a self-employed aircraft engineer to run their own business based at Aboyne, to maintain DGC fleet and the opportunity to expand operations to cater for light aircraft maintenance. Contact Glen Douglas at the club for more details. After six months, we finally finished rebuilding the Puchacz trailer; next in line for refurbishment is the Junior trailer.

Glen Douglas

DENBIGH (LLEWENI PARC)
WWW.DENBIGHGLIDING.CO.UK
531239N 0032312W

THE UK Juniors Winter Series visit was a great success. Many were able to arrive Thursday and get in a couple of really good days on Friday and Saturday, many with their first experience of both ridge and wave. By all accounts the social side went well – the DIY bar certainly resulted in some very successful partying deep into Sunday morning! Extremely strong winds on the Sunday meant that the decision was taken not to fly. Spring wave season has got off to a great start – we're just getting under way as this goes to press, but have every hope that visitors will bring the Diamond height weather.

Clare Witter Holland

DERBY & LANCS (CAMPBILL)
WWW.DLGC.ORG.UK
531818N 0014353W

THE airfield has withstood the ravages of the very wet winter well. We are all sorry to lose Sylvia Insley, our resident cook and cleaner for many years. Anne Robinson is to lead a Women's Open Day to promote our female membership numbers, which have fallen. The first serious cross-country of 2014 took place on 24 March with an O/R of 170km. We have been a seven-day operation since 14 April, with Alan Jolly back again to run things in the week, and Sean Allgood driving the winch. We have been awarded a grant of £50,000 from Sport England towards the building of an equipment storage building and a new glider workshop.

Dave Salmon



(Left to right): **Buckminster** Chairman Roger Keay bids farewell to Stuart Black; **Burn** Instructor Ian Gutsell didn't shout 'Banzai!' or ask for a glass of sake, so it must just be the latest headwear! (Kev Moseley); good sky, great westerly for the Juniors' Winter Series visit to Llewenni Parc in February (Clare Witter Holland)



DEVON AND SOMERSET (NORTH HILL)
WWW.DSGC.CO.UK
505107N 0031639W

DURING the wet winter, more DSGC members stayed in the air more often, and for longer than they might have expected, thanks to our reduced price aerotowing policy for days when use of the winch would cut up the muddy field. People were therefore at the launch point and ready to fly on several days that delivered more than the forecast promised – including spectacular wave and reassuring ridge lift. Congratulations to junior members Luke Knight (first solo at NHL), Matt Smolinski and Peter Bennett (conversion to K-6), to Tim Peters (first solo), chairman Lisa Humphries (election to BGA Exec Committee) and vice-chairman Andrew “Muggles” Muggleston on Gold height (at Omarama).

Jonathan Stoneman

DORSET (EYRES FIELD)
WWW.DORSETGLIDINGCLUB.CO.UK/DGC
504233N 0021310W

NOT much flying activity over the past couple of months has meant more time for doing jobs, and all of our club fleet will have been CofA'd by the time this goes to print. Thanks to those who have selflessly toiled in the workshops, and others who have done administrative jobs, grass cutting (Charlie “The Shark”) etc. Progress on our EuroFOX purchase is well under way, with John Halford travelling to Czechoslovakia in May to do some ‘prep’ work. We are all looking forward to the superior aerotows. Nick Barnes and Chris Woolgar are hoping to arrange a “first launch at daybreak and last launch at sunset” day for June.

Colin Weyman

DUMFRIES & GALLOWAY (FALGUNZEON)
WWW.DUMFRIESGLIDING.110MB.COM
545638N 0034424W

AT last we are up and running again and with two new members. All our pilots have had check flights and the cobwebs blown away. We have also got two more members trained up on the winch, giving more flexibility for pilots. Weather permitting, we will have our flying week again the first week of August. We are hoping to maybe combine this with an open day for the public. Our new runway is doing its job, now all we need is some good weather.

Wendy McIver

EAST SUSSEX (RINGMER)
WWW.SUSSEXGLIDING.CO.UK
505423N 0000618E

ESGC is airborne again! So far we have had one K-13 operating winch-only, with our redoubtable instructors trying to get everyone checked out and current for the new season at best possible speed. We have one K-13 in the workshop being recovered and our tug has taken longer than expected to bring back online, despite the best efforts of our great engineering team. We are looking to have the situation sorted as soon as possible. Our annual dinner is coming up, with a change of venue and the inclusion of a three-piece band (lead guitar, bass and kazoo (played by the author)) will reinvigorate this important event. Here's hoping for a great season!

Will Harley

EDENSOARING (SKELLING FARM)
WWW.EDENSOARING.CO.UK
544152N 0023506W

EDENSOARING has the use of a second K-13 for the 2014 season, thanks to an offer from Bicester. Our trial flight promotions over winter have been a tremendous success. We have pretty much full cover for instructors for the season and have ground crew arranged up until the end of August at this (early April) stage. The local ATC are getting their youngsters trained with us and we are up for another great season – hope to see you here.

Keith Natrass

ESSEX (RIDGEWELL)
WWW.ESSEXGLIDING.ORG
520253N 0003330E

WE are once again back at Ridgewell and enjoying flying from our home base. We must thank all those, under the guidance of Dave Jones, in ironing out the airfield after all the wet weather we have been having. We must also give a very big thanks to the Anglia Gliding Club at Wattisham for their hospitality during the winter to enable us to stay current, not forgetting the housing of our gliders in their nice warm hangars. Our Bronze lectures are going well and we thank Don and Mike for organising these for us. We are all looking forward to a good season.

Peter Perry

ESSEX & SUFFOLK (WORMINGFORD)
WWW.ESGC.CO.UK
515630N 0004723E

A VISIT to East Bergholt School on 1 April was attended by 80 students, who listened to a presentation by Dick Skinner. The youngsters received it very well. A first for the Essex and Suffolk gliding club was to have a rigged glider in the school hall, a surprise for students and staff. The photograph, on p52, shows the set-up just prior to the class arrivals. Our airfield has now dried out considerably after the wet weather and we have seen a pleasing surge in new members and general flying activity.

Adrian Tills

HEREFORDSHIRE (SHOBDON)
WWW.SHOBDOINGLIDING.CO.UK
521429N 0025253W

AT last the weather has started to pick up and we've had some very good wave days, some of which fortunately coincided with the London Club's annual visit. Phil King showed the rest of us how to do it with a 471km flight, which we think may be the longest distance ever flown entirely in Wales. The local hot spot at Radnor was the key to the flight, reminding us why Shobdon is such a good base for wave flying. Our EuroFOX build is finished and the first engine run was done yesterday; we are looking forward to reducing the price of our aerotows as soon as we can start towing with it.

Diana King

HIGHLAND (EASTERTON)
WWW.HIGHGLIDE.CO.UK
573508N 0031841W

THANKS to Helen Chalmers for arranging the food for this year's AGM. At the prize-giving, Stuart Naylor was awarded the “monkey” for a very wet retrieve; Ian Tait earned most meritorious flight for his win at the UK Mountain Soaring Championships; Phil Penrose received the National Ladder Flights prize and the absolute height gain cup; Tony Mountain the prize for the longest flight in a club glider (with Stuart Naylor); and John Campbell was awarded the CFI's shield for his outstanding work on our website – check it out! HGC received £400 from local distilling company Diageo (makers of Johnnie Walker) towards providing FLARM for our K-21; we aim to have our whole fleet fitted with FLARM.

John Thomson

(Left to right): A happy group at the end of the **London** Gliding Club pilot development course, which was held in March and blessed with good weather (Andrew Sampson)



LAKES (WALNEY)

WWW.LAKESGC.CO.UK
570752N 0031549W

SPRING is here and we are enjoying flights in wave over the Lakeland Hills with snow covering. It feels such a privilege to see the Lake District like that. The best heights recently have been over 12,000ft. Two new tug pilots – Lewis Alderson and Chris Richardson – have started their training. The EuroFOX factory was visited by Roy Jones and Peter Redshaw, who spent some time there building our new tug and probably re-organising the factory. We have the panel here and the rest arrives soon, so an intense building session will start soon. *(We regret to report the death of Peter Redshaw, after this club report was submitted.)*

John Martindale

LONDON (DUNSTABLE)

WWW.LONDONGLIDINGCLUB.CO.UK
515200N 0003254W

CONGRATULATIONS to cadets Scott Halsey and Sam Venables on their first solo flights, and to Ed Bittenbender, Krassi Frampton, Dennis Keegan, David Morgan and Steve Nicholl on achieving their RT licences. Our March pilot development course was a great success, blessed with good weather. Flying activities continue with the Easter comp, soaring course and task week, racing week (21-29 June), and the Algek Cup aerobatics comp for members. The expeditions to Shobden and Cerdanya had good weather and wave conditions. Other groups will be off to Saarl and to La Motte. As always, guest pilots are very welcome at the Dunstable Regionals (16-24 August) and will never have to worry about a retrieve! See our website for details.

Andrew Sampson

MENDIP (HALESLAND)

WWW.MENDIPGLIDINGCLUB.CO.UK
511544N 0024356W

THE construction of our new glider workshop is progressing very well under the direction of Lez Saker and Roger Harris. Although the winter affected our flying statistics, we just about managed to match last year's launches. Unfortunately potentially good ridge days were spoiled by orographic cloud over the airfield caused by the moist air from the Somerset Levels. We are looking

forward to a better soaring season, with the start of the Inter-club League. We have a bunch of young pilots, who are eager to get involved. We have two spring courses arranged this year: the first for general club flying, run by Terry Hatton, and the second for continued instructor training, run by CFI Tony Webb.

Barry Hogarth

MIDLAND (LONG MYND)

WWW.LONGMYND.COM
523108N 0025233W

WE continue to be fortunate with the weather on the Mynd resulting in plenty of flying. March 16th was a particularly good wave day; amongst others, Duo Discus KA (the two Richard Bennetts) and Duo Discus 494 (David Crowson and Denise Hughes) had excellent flights. We have welcomed visitors from Cambridge University Gliding Club and London University Gliding Club and are looking forward to a visit from Bristol University. Currently our Dutch friends are with us again, having cancelled last year because we were snowed in. Today (8 April) they have been bungeeing all day. Meanwhile, members David Wedlock and Ben Hughes both achieved their five-hour durations, with Ben Hughes also managing his Silver height.

Steven Gunn-Russell

NENE VALLEY (UPWOOD)

WWW.NVGC.ORG.UK
522612N 0000836W

A PERIOD of relative calm at Nene Valley has allowed winter maintenance to continue apace! Thankfully, the winter has seen flying activities on most weekends at Upwood and progress has continued. Upwood has clearly become a haven for the venerable K-6 and yet another example has arrived, this time for Gareth Furguson. Following the success of the Gliding Scholarship Programme, launched in 2013, a search has begun for candidates from the nearby Abbey College. A presentation was held at the school in March, where students from the 2013 scheme spoke about their achievements. The meeting also welcomed a number of local dignitaries, as well as BGA Chief Executive Pete Stratten, who spoke at the event.

Keith Wilson

NORTH WALES (LLANTYSILIO)

WWW.NWGC.ORG.UK
530239N 0031315W

AFTER quite a few years of holding prices steady, we have reluctantly had to make some increases in order to raise our income level, which was in danger of getting out of kilter. We are about to ship our K-7m, which has been bought by a new club in Cyprus; hopefully by the time you read this it will have arrived safely. Most of the solo members have been converted to our new PW6, which is a big step up from a K-7. Members are also converting GPs onto the new LAPL computer generated medical. We are hoping the weather is kind to us all over the rest of the summer. Good luck and safe flying.

Brian Williams

OXFORD (RAF WESTON ON THE GREEN)

WWW.OXFORD-GLIDING-CLUB.CO.UK
515249N 0011311W

THANKFULLY nothing as dramatic as a murder to report this time, but we have had a spurt of new members and conversions with George Barrett, Freddie Turner and Ben Vickars all now enjoying the lonely cockpit of an Astir. In addition, Jon Hunt has realised how quiet the cockpit of a K-13 can be on a first solo; our congratulations to them all. The club has hosted a 'refreshment' of BGA Inspectors and, at the BGA Conference, the club was honoured and delighted to receive the Bill Scull Safety Award. This now has pride of place on our clubhouse wall, while our safety officer remains concerned it may fall off and hurt someone!

Norman G Nome

PETERBOROUGH & SPALDING (CROWLAND)

WWW.PSGC.CO.UK
524233N 0000834W

THE advantages of operating at sea level, from a flat fenland field, may not be that obvious; but, being surrounded by ditches, the club has fared better than most. The grass runway survived our wettest ever winter, virtually intact. Our two SZD Puchacz gliders are in prime condition, having been thoroughly serviced, while the Grob Twin Astir has had major work to bring it back to an excellent 'semi aerobatic' condition. Both tug planes – Pawnee and Beagle Husky – have been fully overhauled recently and the committee agreed unanimously to offer



(Left to right): **Oxford's** Freddie Turner in the Astir (Jake Jezzard); Jon Hunt is pictured with Richard Hall after first solo at **Oxford** (Lisi Laks); seventeen-year-old James Gutman and his instructor, Keith Walton, after his first solo at **Portsmouth Naval**



the single-seat gliders with free flying time, until Easter. Stuart Henderson and David Lewis have both joined our illustrious 'squadron' of tug pilots. Colin Church has completed his Bronze theory, while Ross Morris and Tim Beasley have begun their FI(S) Instructors course. Our summer open weekend is advertised for 12-13 July and there will be many other displays and attractions to check out. We have an amazing offer to attract new members to the club with five free aerotow launches being credited to their account. Paul Davey has updated our club website. Our chairman and secretary attended the Annual BGA Conference, which had asked for initiatives to help reverse the decline in our sport. Consequently, we have some new voucher offers designed to support this enterprise.

Tim Beasley

PORTSMOUTH NAVAL (LEE ON SOLENT)

WWW.PNGC.CO.UK
504855N 0011225W

THE long awaited break in the weather is finally with us. Both Parham and Ringmer members joined us over the winter in order to remain current and even brought their training aircraft with them. The lack of soaring has allowed James Kirby, Russell Winters, Sam Hepburn to attain their aerobatic badges, thanks to our newly-qualified advanced aerobatic instructors, Graham Tucker, Keith Walton and Andy Durston. We congratulate James Gutman (solo at 17). Chris Bishop, James Kirby, Russell Winters and John Travell have converted to our very popular Discus! Also, in May we will be heading up to Eden for a week in search of wave, long ridges and good local ale.

David Hurst

SCOTTISH GLIDING CENTRE (PORTMOAK)

WWW.SCOTTISHGLIDINGCENTRE.CO.UK
561121N 0031945W

WE have made a good start to the year, solo Nigel Baston, Bronze Tom Sneddon, Stephen Barclay and Ken Sharp (also with cross-country endorsement). This year the SGU was awarded the Challenge Trophy for the most folk who completed this hurdle, scaled for the number of instructors available on site (11 for 22); for a big club, a huge accolade. A big thumbs-up to our CFI and his team of instructors. Ian Dandie (a former CFI at the

SGU and also the chair of the BGA instructors committee, as good as it gets) has been awarded a Certificate of Merit by the Royal Aero Club; well done! At last, spring.

Chris Robinson

SEAHAWK GLIDING CLUB (RNAS CULDROSE)

WWW.SEAHAWKGLIDING.CO.UK
500509N 051520W

THE club has just taken part in a Royal Navy led expedition to the Black Mountains Gliding Club. This saw Commander Chris Brining taking up the club Puchacz with the aim of flying, showing serving men and women of the Royal Navy what gliding is all about. Some civilian members of the club also came along, bringing up the Junior and flying. The club wishes to say a huge thank you to Black Mountains for their support and use of their aircraft. We would like to thank Martin Cropper, Gerry Martin, Don Puttock, Chris Bryning, Steve Moore, Jordan Richards for their support during this expedition, which proved to be a most thrilling adventure.

Jake Matthews

SHALBOURNE (RIVAR HILL)

WWW.SHALBOURNEGLIDING.CO.UK
512014N 0013239W

SPRING has sprung and we are making the most of every opportunity. Wavey Wednesday (19 March) provided lots of fun, with club members sliding round the sky, clocking up almost 7:30 of flying off 24 launches. The beautifully recovered JPC looks brand new and is handling likewise. Thank you to all who worked so hard on the project. We are holding an open day on 11 May and a task/soaring week beginning 11 August. Thanks to Ken for volunteering to drive the winch during task week. Congratulations to Jonty for going solo. After a 30-year lay-off from flying, Andrew P popped in to take a look, flew and joined on the spot.

Claire Willson

SHENINGTON (EDGEHILL)

WWW.SHENINGTON-GLIDING.CO.UK
520507N 0012828W

FINALLY the chance for some new kit to grace the launch point. Pride of place goes to our new Supermunk tug – and a big thanks to tugmistress Christine Bell and tuggie Tim Treadaway for their hard work. We also have a bright new shiny Skylark 4, thanks to a team

led by CFI Phil Marks and Tim Donovan.

At the annual dinner, prizes went to Eric Lown (Highest Achiever), Trish Langlands (Best Flight), Michael Bell, Colin Hales, Lech Zakrzewski and Alistair Frier. At our AGM we gained a new treasurer in Paul Fletcher, and a new secretary in Jon Carlton – many thanks to Tez Bowler and Jane Jervis, who previously held these positions. This year's Shenington Regionals in June are full, but we do have a (visible) waiting list if you still fancy coming along. Visitors are always welcome, but call the office first regarding midweek visits.

Tessa G Whiting

SOUTHDOWN (PARHAM)

WWW.SOUTHDOWNGLIDING.CO.UK
505532N 0002828W

OUR field was closed for most of the winter, which is something of a record. Rumour has it that a dove was seen hovering over the clubhouse in early spring, carrying a green shoot, which indicated wave. Andy Wood took full advantage, soaring to 4,000ft given this heaven sent opportunity. At the AGM, Duncan Stewart and Paul Marriott gained their BGA Aerobatic Instructors' certificates, and Roger Coote was awarded the BGA Gold medal for exceptional services to gliding. But the main topic which preoccupies our membership is the proposed development of Farnborough Airport. This will have serious implications for all users of airspace in the South East of England.

Peter J Holloway

SOUTH WALES (USK)

WWW.USKGC.CO.UK
514306N 0025101W

WE are grateful to Dave Roberts, Paul Gentil and the other members of the Cotswold Gliding Club for their kind hospitality at Aston Down earlier this year. This enabled us to keep flying, using their long (and dry!) tarmac runway while our tug and winch were away. In the middle of March we celebrated the resumption of flying at Usk with wave flights to 8,300ft and 9,600ft. The benefits of our recently improved drainage are clearly visible from the air and, with our newly overhauled winch and a borrowed tug, members have been busy carrying out their annual checks and maintaining their currency ready for the main soaring season.

Stuart Edinborough

(Left to right): Eddie Room, tugmaster and committee member of **Wolds** for over 40 years, receives a BGA Diploma for his services to gliding and the club, from Mike Fox; first solos at **Yorkshire** for Kit Bottomley, left (George Rowden) and Lewis Gray (Richard Cole)



STAFFORDSHIRE (SEIGHFORD)
WWW.STAFFORDSHIREGLIDING.CO.UK
524940N 0021212W

IF THERE are any expert land drain people in the BGA family, now would be a great time to do an article for S&G! Our near-perma-CFI Peter Gill has at last been granted a well-earned retirement thanks to the excellently qualified Ian Carrick. We took great pleasure in awarding Peter an Honorary Life Membership for his enormous contribution to the club. The AGM was well attended and we were able to report an excellent surplus for last year. We are looking at acquiring a towhook equipped Rotax Falke for MG training and more flexible gliding tuition – also increasing flying days, etc. Congratulations for chilly winter first solos go to Dan Batchelor and Mike Rees Boughton.

Neil Frost

THE GLIDING CENTRE (HUS BOS)
WWW.THEGLIDINGCENTRE.CO.UK
522626N 0010238W

EASA Licence - Cloud Flying and Aerobatics training is available through our approved instructors/examiners and desk-based training packages. Our AGM in April was well attended and a new committee is in place. We have a new technical officer and thank our out-going one for his sterling service. From March, it's been proper thermal cross-country time. The 18m Mini Grand Prix is just over the 18m Nationals and HusBos Challenge Cup are July/August events. And the ever-popular club task week starts late August. We hope you're with us, whatever your task. There's a lot going on so, check the website. You can always phone the office too, for all things HUS.

Tony Lintott

TRENT VALLEY (KIRTON IN LINDSAY)
WWW.TVGC.ORG.UK
532745N 0003436W

MAJOR changes have occupied us of late. Long-standing chairman Vin Marchant retired in March, as did treasurer Barry Rendall. Both have made significant contributions over the years and we hope that they enjoy more time for flying. Several other committee members stood down at the AGM, making room for a new team led by chairman Richard Hannigan. They will drive an ambitious campaign to acquire ownership of our airfield. We

have two new BIs in Dave Plumb and Pete Dixon; congratulations to them. A dozen or so members participated in an intensive aerobatics course held at Kirton over a long weekend. We extend our sincere thanks to Ian Gallacher for his time and first class teaching skills.

Geoff Davey

UPWARD BOUND TRUST (HADDENHAM)
WWW.UBT.ORG.UK
514635N 0005630W

CONGRATULATIONS to Henry Ollis on achieving his Silver Duration on 8 April during a club expedition to Talgarth. Several members enjoyed a few days flying at Talgarth in April. Our AGM was held in March, with positive news reported for the last year. A new booking system is being put in place to help plan our courses and other flying activities this season.

Chris Scutt

VALE OF WHITE HORSE (SANDHILL FARM)
WWW.SWINDONGLIDING.CO.UK
513614N 0014030W

EXCITING new developments are afoot for spring 2014 at the VOWHGC with two new (to them) gliders purchased by members and a third looking like new, with an immaculate remoulding. Chairman Pete Berridge got his Discus back from Slovenia with a new gel coat; Jeff Lynes was showing off his beautiful LAK-19 complete with turbo, while Ed Morris took to the skies in his newly-acquired Cirrus 75 at the end of March. Richard Hypher tried his hand at aerobatic gliding and gained his BGA Standard Aerobatic Badge in short order, thanks to the excellent instruction of Roger Barber at Lasham. Certainly no lack of enthusiasm at Sandhill Farm. Date for your diary: The Flying Pig Festival 12-14 September – flying and rock 'n' roll all in one place!

Richard Hypher

WOLDS (POCKLINGTON)
WWW.WOLDS-GLIDING.ORG
535541N 0004751W

HERE at Pocklington we've been steadily working through the annual refresher flights and have had a few nice wave flights with the strong winds. Our members from the University of York continue their progress, with Peter Wickes gaining his Bronze and

cross-country endorsement. Tony Frazier and Sam Roddie have done great work renovating our website, just published at www.wolds-gliding.org. Several members represented the club at the funeral of popular member Bill Dick and passed on the many tributes to Bill posted on our website. As the weather warms, we look forward to many of you visiting us to fly this summer with preparations well under way for this year's two-seater competition.

Paul Docherty

WREKIN (RAF COSFORD)
WWW.WREKINGLIDINGCLUB.CO.UK
523824N 0021820W

AT LAST the dry weather has allowed us to commence operations – a welcome relief to all. Dave Judd has (again) managed this year's first-hour-off-the-winch. Our fleet is in fine fettle after a sterling effort from everyone, especially Mike Gagg and Nigel Readman. We are now able to supplement our winch launching with PJ, our temporary Pawnee, after its refurbishment. We have also received G-BUNB, our replacement MG. Preparations are well advanced for the Inter-services comp in August (details via WGC website or www.isrgc2014.co.uk/).

Ian Redstone

YORKSHIRE (SUTTON BANK)
WWW.YGC.CO.UK
541338N 0011249W

THINGS are accelerating nicely as the season gets under way. Lots of ridge, wave and thermal and we've already done significantly more flying than at this time last year. EASA transition seems to be progressing well – we seem to be ahead of the game on LAPL(S) and SPL licences. Now that we've integrated the EuroFOX into our fleet, we've been able to reduce aerotow prices by 20 per cent and offer tows to 1,000ft at winch prices. That's important because we can only winch in one direction, so it's opening up a whole new training environment. Finally congrats to our two first solos – Kit Bottomley and Lewis Gray.

Chris Thirkell

S&G's thanks as usual to Debb Evans for editing this issue's Club News – Susan Newby, editor



■ The gliding club ATZ is situated inside RAF Cranwell MATZ with other powered flying operations taking part on the south airfield. The delineator is Cranwell Avenue (main road running E to W between the airfields) and all gliding club circuits are made to the north side of the grass airfield. Visitors should obtain PPR before flying in.

> CLUB FOCUS

RAF CRANWELL

AT A GLANCE

Membership:

Open to all Service, ex-Service and MoD civilians, with individual and family rates available

Launch type:

Winch: £5
Aerotow: variable height dependent

Club fleet:

Duo Discus, K-21, K-13, LS8, Discus, Astir, K-18, Chipmunk, Grob 109b

Private gliders:

9

Instructors/Members:

20/70

Types of lift:

Thermal, occasional wave

Operates:

Weekends and Bank Holidays

Contact:

Launch point mobile: 07970 869501
Radio A/G: 129.975Mhz
www.cranwellgc.co.uk

Long and Lat:

53O231N OOO2936W

RAF CRANWELL Gliding Club is based on the north airfield of RAF Cranwell (the south has military powered flying), which is grass, runs in a SW to NE direction and allows us to take advantage of the prevailing wind most of the time. The SW boundary is only a short distance from College Hall through which many famous faces have passed, such as Prince Charles, Douglas Bader and Michelle Goodman (the first woman to be awarded a DFC) to name but a few.

The club started operations in 1951 as the RAF College Gliding Club, initially to support the Cranwell Officer Cadets Scheme. The club became part of the RAF GSA in 1972, by which time it had a fleet consisting of two T-21bs, a K-7 and a K-8, which were launched by two RAF twin drum winches. Cross-country flying was limited to Silver distance and the occasional short out-and-return flight, although John Delafield (part of the British Team at the time) dropped by in a Kestrel 19. The fleet further improved in 1976 and from 1982, it expanded to include a Chipmunk, Motor-Falke, LS4, Twin Astir, Blanik, Ventus CT and Janus. This had an

impact on the development of the club in terms of cross-country aspirations, with many members participating in competitions. The club also formed a partnership with Nottingham University Gliding Club.

In 2012 the club celebrated its 40th anniversary. Famous people to have flown at RAF Cranwell Gliding Club during that time include Prince Feisal of Jordan, who went solo in 1986, and Kate Winslett, who took a trial lesson back in 1999.

The club has a good hangar, workshop facilities and a clubhouse in which many social events are held. Being a member of the RAFGSA, the club recruits predominantly from the RAF and sister services. It has members serving at a number of local stations and from as far away as RAF Boulmer in Northumberland. However, it is also open to other individuals, civilian and ex-Service,

We operate a modern fleet of 'glass' aircraft, but still have a couple of staple older aircraft in the form of a K-13 and K-18. At the time of writing, we believe we have the country's youngest pilot, having soloed two days after his 14th birthday.

Zeb Zamo




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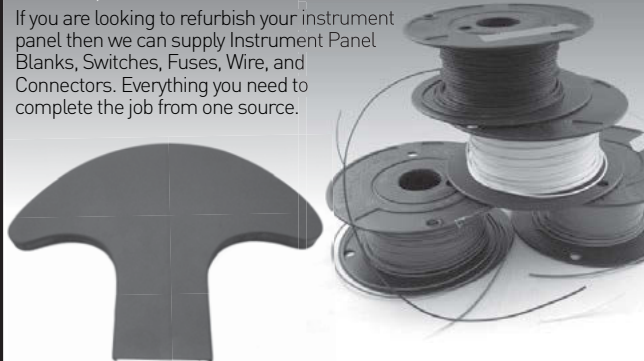
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GET STUCK IN!

Peter Underwood continues to take us through the pitfalls and rewards of bringing something special back to life

SO, LET'S assume you've found a glider which could, perhaps, become your "intended". Let us have a look at what you have got to do in order to assess the labour and burden which you may be about to undertake.

You may as well remove all the fabric



The first rig was in July 2010, then Peter left it for a while before finishing the Grunau. Willy Hackett test flew it at Shuttleworth in June 2011, flying it in the display the same day (David Underwood)



Peter Underwood learnt to fly, in 1947, in Tiger Moths. He took up gliding in 1969. Peter was the BGA and VGC technical liaison officer 2001 - 2007. He and his son David are in the process of finishing a prototype Kirby Kite. This glider will fly from Haddenham, home of the Upward Bound Trust Gliding Club and where during WW2 the type was used in the training of Glider Pilot Regiment pilots

covering, it will probably need replacing anyway. Now you can really assess what you've got. Here and there you will have to take off some areas of the plywood covering too. What you have to do is look at the structural integrity of the whole airframe.

Do not, yet, throw away the old fabric; it may answer some questions later regarding the structure before you took it all apart. Similarly, take lots of photographs of the structure; you cannot have too many, and even then you will find later that you didn't take a picture of the one bit you can't quite remember how it went.

Another consideration is permissible cockpit loads. In the "old days" when these gliders were designed, people were smaller and lighter than we are today. You may find that you are too heavy for your intended to accommodate you. Perhaps your relationship could never be consummated. That could be quite frustrating.

And now we come to the bitter bit – adhesives or, to us peasants, glues. Pre-WW2, casein glue was widely used in glider construction, both in the UK and overseas. Prior to this, glues made by boiling down horse carcasses were common. You are unlikely to find examples today – well, I hope not! Casein is a white or cream coloured glue made from milk. It has, or had, moderate resistance to damp, so most casein glued structures of the age we are talking will require considerable regluing. You can tell when casein has "gone off", it smells of cat's pee if it has.

Standard Repairs gives advice on joint preparation using synthetic glues where the original joint was made using casein. This involves neutralising the old casein remnants with two applications of a synthetic hardener. Some years ago, I remember talking to a chemist at Ciba-Geigy, the then manufacturers of Aerodux and Aerolite. He said that such treatment was not necessary

and that all that is required is that the old casein is conscientiously removed to provide a surface into which the new adhesive can penetrate. This is the practice I have used for years without adverse consequences.

Standard Repairs, incidentally, makes no reference to Kaurite glue. During the '40s, casein was replaced by synthetic adhesives, in the UK by Aerolite and Aerodux, and in Germany by the dreaded Kaurite. Aerolite is a clear or creamy two-part adhesive; the glue is applied to one side of the joint with a liquid hardener applied to the other. You may find that the hardener has stained the surrounding area green or purple. Aerodux is a brown two-part adhesive where the glue and hardener are mixed together before application to both sides of the joint resulting, unless precautions are taken, in a rather messy joint. Kaurite is another two-part glue; as with Aerolite, the glue is applied to one side of the joint and the hardener to the other. Its colour can vary from brown with or without a pinky tinge, to pure pink. It could be confused with Aerodux, but the Kaurite joint is usually much less messy.

My experience with Kaurite is that it is less resistant to damp and ageing than other synthetics, but each case must be judged individually. I have come across casein joints still sound after 60 years, younger Kaurite joints where the adhesive has crystallised or just vanished, and others where the Kaurite is still sound. Although Aerodux and Aerolite seem to have longer lives, so much depends upon the initial glueing practice used and variations in how the glider has been stored and looked after during its life. For sure, you are going to be involved in a lot of regluing, whatever glue was used initially. You will also find that various types of glue have been used during the glider's life.

Metal fittings. You may be lucky and find during your in-depth inspection that the various metal fittings – brackets, pins, nuts and bolts, etc – are only lightly corroded and, with suitable treatment, are reusable. If not, you will have to manufacture new parts.

Most of the metals used in old airframes

are easily substituted by materials of more modern specification, so materials are no real problem. Fabricating new metal parts, unless you are already skilled in that area, will entail you learning new skills, or the work will have to be contracted out. All welding must be carried out by a CAA approved welder – and it will cost you!

Most nuts in older airframes were locked by peening over the end of their bolt. Corrosion will probably demand the replacement of many nuts and bolts. Modern equivalents are readily available; use locknuts instead of peening.

Also needing consideration are the control cables. Are they reusable? Oh yes, and has your intended any instruments, or have they long disappeared? Needless to say, all the materials used during the forthcoming restoration must be of “aircraft quality”. Get your inspector to guide you on this one, and be thankful you are not dealing with an EASA Annex 1 type.

The above is just a taste of what you should do before you commit yourself to a restoration project. In real life you may not have the opportunity to make such an in-depth assessment, in which case you have to commit yourself guided by gut feeling. Of course, your heart will want to override your senses, but be cautious.

It was like this with my Grunau Baby; the work that I had to do far exceeded – it always does, no matter how clever you are – what I had initially estimated. But, I had always wanted a 2b, here was my chance, and I was not disappointed.

In last month’s article there was a photograph of the Grunau with her clothes off, just about ready for recovering. Pre-WW2 and early post-war gliders were covered with a lightweight cotton fabric, in the UK called Madapolin. This was replaced by an early synthetic called Aeroline – awful stuff. Now we have the later synthetics Diatex and Ceconite. If you are a purist you may wish to use Madapolin in the recover, I think it is still available? I always use one of the lighter-weight synthetics.

For me, recovering is one of the delights of the restoration process. It’s tinged with a little sadness because you are saying goodbye to the structure beneath on which you have lavished countless hours of labour and love (and sometimes cursed!) But you are adding beautiful flesh to those bare bones in order to recreate a thing of beauty and, maybe, it will not be too long before it flies again – with you at the controls?



Peter Underwood’s Grunau, restored to the markings of a WW2 Luftwaffe military glider pilot’s training unit (Steve Kirkby)

One final point, let the BGA CTO know of your project. Good luck. No, not with the CTO; with the project!

With the Grunau, I chose to present the glider in the markings of a WW2 Luftwaffe military glider pilot’s training unit. I should explain that some years ago I restored a Slingsby Kite 1 to the markings which that particular glider carried at No. 1 Glider Training School during the conflict. This was in order to remember the men of the Glider Pilot Regiment. With the Grunau, I wanted to remember their German counterparts – once our adversaries, now our friends. I trust you will concur.

**YOU ARE ADDING
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BGA accident/incident summaries

AIRCRAFT

Ref	Type	Damage	Date, time	Place	PILOT Age	Injury	P1 hours
161	PIK 30	minor	23/07/13, -	South Wales GC	70	none	~2000
Prop damage. During a familiarisation flight the pilot was unable to stop the prop windmilling in the airflow, despite following the flight manual procedure. Trying a technique that worked on his glider the pilot decided to lean the pylon back a little to reduce airflow through the prop. After a couple of turns of the retraction handle the prop tips struck the pylon door, removing the tips and cracking a blade.							
164	Duo Discus	minor	18/08/13, -	Wolds GC	61 / 32	none/none	1250
Minor damage to wingtip during competition field landing. The pilot tried to start the turbo during the circuit and when that failed the extra drag and high rate of descent meant that the glider landed in an undershoot field. The field was soft, the groundrun was short and ended in a groundloop.							
166	ASW 24	substantial	26/05/13, 16:05	Bowland Forest GC	69	none	not reported
Damage discovered during annual believed to have happened during a previous wheel-up landing. The pilot had omitted to retract the wheel after the winch launch and then put the wheel up during his pre-landing checks before landing on a grass runway. External checks at the time found no visible signs of damage, but a later internal inspection, with the seat pan removed, found damage to internal GRP mouldings and signs of damage to the fuselage underside.							

2014

1	Grob 109	substantial	01/10/2013, 15:10	RAFGSA Chilterns GC	60	none	3000+
Heavy landing bent the undercarriage legs, allowing the prop to hit the runway. The sink rate increased at the end of the approach and, despite the P1 closing the airbrakes and rounding out, the TMG hit the ground hard.							
2	Discus	substantial	05/10/13, 13:15	Trent Valley GC	68	none	26
Glider hit by aerotow rope. The glider was thermalling near the airfield when the tug appeared from behind and to the left as it descended over the glider. The tug was returning after towing another glider and the pilot did not see the Discus until after he had overflown it. The rope was dragged across the glider damaging the fin, rudder, elevator and wing. Both aircraft landed safely.							
3	DG-500	minor	06/10/13, 14:00	Deeside GC	76/75	none/none	280
Wheel-up landing on tarmac runway by visiting pilots. The P1 did not carry out any post-launch or pre-landing checks and forgot to lower the wheel. Strong turbulence and a busy circuit may have been a factor.							
5	Twin Acro	minor	17/10/13, 13:00	Lasham GS	69/66	none/none	not reported
Broken canopy after the unlocked rear canopy came open early on during a winch launch.							
6	Grob Astir	minor	17/10/13, 16:05	Bristol and Glos GC	61	none	not reported
PIO ending in hard landing which broke the undercarriage doors.							
11	K-13	minor	23/11/13, 13:45	Kestrel GC	51/15	none/none	450
Nosewheel axle and supporting structure damaged. The landing ground run rolled over an access road crossing the grass landing area and the glider's nosewheel hit the raised side of the road.							
13	Puchacz	minor	27/11/13, 12:30	Trent Valley GC	70	none	41
Tailplane hit small bush on approach, leaving a large crack in the leading edge gelcoat.							
14	K-21	minor	30/01/13, 11:00	Chilterns GC	-	-	-
Fuselage dented by falling cable. After a simulated launch failure, the glider ended up about 150m from the winch and about 45° from the winch line on the downwind side. The winch driver assessed that, based on the previous launches, the glider was clear of where a cable was likely to fall and confirmed this to the launchpoint controller. The next glider to launch did not appear to correct for the crosswind, drifted more than the previous launches and released on the downwind side of the winch. Despite the winch driver's efforts, the parachute landed just in front of the glider and the strop and attachment ring hit the glider.							
16	K-21	minor	11/12/13, 11:05	Essex & Suffolk GC	not reported	none	not reported
Rear canopy opened during winch launch, shattering the perspex.							

Incidents

157	K-13	minor	28/09/13, 15:00	-	-	-	-
Cracked canopy. The canopy slammed shut as the pilot was strapping in; it was later discovered that the lanyard was 75mm shorter than it should be.							
158	ASW 20	none	10/09/13, pm	-	-	-	-
Glider took off with the canopy unlocked. When an extra tug became available at short notice the pilot was rushed into being ready.							
159	DG-500	none	14/09/13	-	-	-	-
The instructor in the rear seat was unable to get out of the glider after landing until after he had taken off his parachute. The folded-over and stitched end of a parachute leg strap had slipped between the height-adjustable part of the seat pan and the seat support.							
160	ASW 22	minor	6/07/13, 17:00	-	-	-	-
Damage to glider flap, trailer and car during towing incident. A wing caught on a trailer, the tow arm came off the tail dolly and the glider rolled into the rear of the car.							
162	K-21	none	04/08/13, 14:05	-	-	-	-
Ballast weights came loose during a simulated launch failure. The weights and attachment bolt were believed to have come from Schleicher, but comparison with known factory parts from another club revealed the weights to be 2mm thicker and the bolt to be 20mm shorter than factory parts, leaving barely enough thread to secure the weights.							

BGA accident/incident summaries *continued*

AIRCRAFT

Ref	Type	Damage	Date, time	Place	PILOT Age	Injury	P1 hours
163	K-21	substantial	28/09/13, 18:00	-	-	-	-
<p>Damage to fuselage caused by dolly while hangar packing. The glider was wheeled onto the castored dolly and then pushed sideways down the centre of the hangar. When the packers tried to push the glider into its allotted bay, the castors stuck on their original alignment, the dolly remained still and the packers pushed the glider over the end stop and off the dolly. The front end of the dolly tipped up and ripped a large gash in the underside of the glider.</p>							
165	ASW 15	none	21/09/13, 16:15	-	-	-	-
<p>Wheel-up landing at the end of a wave flight.</p>							
2014							
4	n/a	n/a	n/a	-	-	-	-
<p>Fasteners on parachute leg straps inadvertently came undone on trial flight passengers. It was noticed that if the locking lever was not pushed fully home the strap could easily come undone.</p>							
7	PW6	none	05/10/13, 18:05	-	-	-	-
<p>Wingtip hit launchpoint bus at very slow speed at the end of the landing ground run. At the end of a long day, and possibly dehydrated, the instructor had assessed that there was adequate room between glider and launchpoint bus.</p>							
9	Puchacz	none	26/10/13, 16:30	-	-	-	-
<p>Cable fell off the airfield after 1,200ft cable break. The club were autotow launching with an estimated crosswind component of 13kts.</p>							
10	ASW 15	substantial	30/10/13, 11:30	-	-	-	-
<p>Tow out incident. A wingtip caught on a fencepost, twisting the low elevator onto the towbar, which then bent the elevator torque tube.</p>							
12	-	-	23/11/13, 13:00	-	-	-	-
<p>Instructor hit by falling winch cable. After a simulated winch launch failure, the student landed ahead and the instructor and student walked with the glider back towards the launchpoint. Meanwhile, the winch driver confirmed to the launch controller that the glider and pilots were clear of the cable and that it was safe to continue launching. The next glider took off and subsequently had a real launch failure, breaking the weak link. The falling cable drifted sideways in the crosswind, striking the instructor as it fell, fortunately not causing any injury.</p>							
15	-	-	05/12/13	-	-	-	-
<p>Glider trailer blown through trailer park damaging three other trailers in the process. Winds gusting above 65kts were reported.</p>							

In a recent S&G survey, you told us that you would like to see more in-depth coverage of accidents and incidents. Edward Lockhart is now providing a little extra detail, where available, in the listings on these pages. We would also like to publish (anonymously) your stories of particular flights that have taught you a valuable flying lesson. Please send details to editor@sailplaneandgliding.co.uk or by post to the address on p3.

Photo: Alastair Mackenzie

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Accidents can happen – we are only human after all, but pausing to think before leaping into your cockpit could save face, or worse, later. None of us wants to be faced with an Undesired Aircraft State (what you and I might call a crash)

Don Puttock looks at some thought-provoking methods of improving safety by anticipating the things that might go wrong for us



UNLESS you have had your head well and truly in the sand for the past few years, you will know that the way we train glider pilots will, in the future, be governed by a new set of European rules. The new training syllabus includes an introduction to Threat and Error Management (TEM). This element introduces interesting and thought-provoking methods of operating for all pilots – not just for instructors and their pupils.

This article introduces the concept of Threat and Error Management that, although new to gliding, has been credited with improving safety within virtually all the other flying disciplines.

TEM as a concept

I'll explain in a bit more detail soon, but in its very broadest sense TEM might be described as a way of attempting to anticipate things that could go wrong for us and the errors we are likely to make. In turn these errors may lead to an Undesired Aircraft State (UAS). An Undesired Aircraft State is a situation where the aircraft speed, position or configuration is incorrect for the phase of flight. This type of situation reduces our safety margins and needs to be avoided. There are situations during which we

routinely prepare ourselves for potential problems – for example, the eventualities check before launching. TEM attempts to broaden this type of thinking to all phases of flight, including the preparation, so that we can anticipate threats (the cable breaking, or being distracted during rigging) or errors (not maintaining speed after a launch failure, or failing to take account of a crosswind). This reduces our workload because we have already anticipated the situation and we know how to handle it.

'But that's just Airmanship!' I hear you cry. TEM is so much more, but there are certainly some crossovers. However, how were you taught airmanship? It was certainly introduced to me when I was learning, but it wasn't really a structured part of the syllabus and it is left to the individual to 'pick up'. Some do, some don't.

TEM in more detail

TEM is about learning to anticipate potential safety issues before they occur, recognise them as they occur and recover the situation before it becomes serious.

Most of us have seen or heard the stories of pilots being caught out because they didn't anticipate a problem may occur, or failed to recognise it when it happened. TEM

is a way of training ourselves to anticipate and recognise problems.

Threats

Threats are defined as events that:

- Occur outside the influence of the pilot (ie not caused by the pilot)
- Increase the operational complexity of the flight
- Require attention and management if safety margins are to be maintained.

The list of potential threats is large, but examples might include:

- Weather
- Distractions
- Other people and their errors
- Health
- Currency/recency
- Other airspace users
- Airspace
- Inadequate training
- Equipment failure

Threats are always there, but sadly pilots do not always anticipate them.

Errors

It is an unavoidable fact that pilots, as humans, will make mistakes. What is important is to recognise likely mistakes that might be made and avoid that situation or 'trap' the error in some other way.

Errors are defined (in the official TEM language) as pilot actions or inactions that:

- Lead to a deviation from pilot or organisational intentions or expectations
- Reduce safety margins
- Increase the probability of adverse operational events on the ground or during flight.

Listing errors could take up lots of space, but here are some examples:

- Pilot allows himself to be distracted
- Pilot 'fixates' on one issue and fails to spot another issue
- Pilot grows accustomed to the problem presenting itself in a particular way
- Pilot fails to follow a standard procedure
- Pilot puts too much trust in technology
- Pilot assumes he is correct
- Pilot fails to recognise a threat
- Pilot fails to see situation developing
- Failing to anticipate a threat:
 - > The cable/rope might break
 - > I might program the GPS incorrectly because I'm inputting data manually
 - > A distraction might mean I didn't rig my aircraft properly.
- Failing to recognise a situation when it arrives:

- > What's that huge airfield ahead? Ah well, it can't be anything – GPS says I'm in the right place!
- > During rigging my mate stops for a chat.
- > The winch running out of fuel gives unusual symptoms of a launch failure.
- Failing to recover correctly or safely:
 - > After the launch failure, I didn't achieve a safe speed before turning.
 - > Having entered airspace I ignore the situation as it's not important.
 - > While on the approach I fail to monitor my speed and, as a result, it reduces dangerously

It is clear that we cannot recover from an undesired aircraft state unless we have recognised the situation in the first instance. It is often the case that a pilot does not recover because he didn't realise he needed to.

To help us recognise the situation developing we need to anticipate the possibilities. Most pilot errors are human error; things like fixation, distraction and habituation are major contributors.

Threats that might lead to errors and their management

There are broadly two ways of managing, and they are illustrated here. 'Anticipate and plan', or 'recognise and react'.

Anticipate and plan

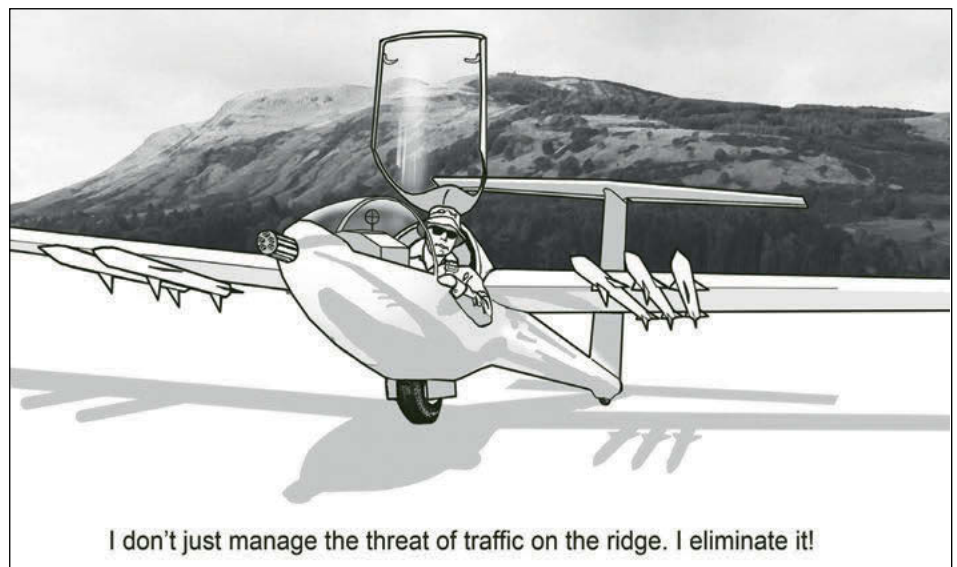
If we anticipate a potential threat or error, we already know how we will deal with it and the threat is avoided. For example: There is a strong crosswind across the active runway today. We are operating circuits on the upwind side. This means that we will be drifted towards the

**MOST OF US
HAVE SEEN
OR HEARD
THE STORIES
OF PILOTS
BEING CAUGHT
OUT BECAUSE
THEY DIDN'T
ANTICIPATE
A PROBLEM
MAY OCCUR,
OR FAILED TO
RECOGNISE
IT WHEN IT
HAPPENED**



Winch launch into a rain shower – what could possibly go wrong? (Mike Fox)

Cartoon by Matt Wright,
Devon & Somerset GC



EVEN FOR SEASONED PILOTS ON A CROSS-COUNTRY, JUST PAUSING TO THINK BEFORE LEAPING IN COULD SAVE FACE, OR WORSE, LATER



Don Puttock is a professional gliding instructor and CFI at Dartmoor Gliding Society, and course instructor at Cotswold GC. He has 6,000 hours, PPL and MGIR

✈ landing area on the downwind leg, and it might mean that we overshoot the centreline once we turn final. We will anticipate this by heading upwind slightly on the downwind leg, and we will start our turn onto final much earlier than we may be used to.

Recognise and react

Rather than anticipating the threats, we recognise them as they are occurring or just before. This is not 'as good' as anticipating them as the workload during the flight goes up, but better than not responding at all.

For example: We notice we are drifting towards the landing area! Better head out a bit. I'm now overshooting the centreline on my final turn. Better not panic and accept that I'll have to s turn and possibly land further into the field.

It can be seen from this example that the aircraft was in an undesired aircraft state, but the pilot managed to recognise the situation as it developed and recover the situation.

Finally, if the pilot fails to anticipate and recognise the situation at all, not only has safety been compromised, but there may easily be a serious accident.

Summary

- Threat and error management is a kind of defensive flying.
- At the hub of the concept is anticipation, recognition and recovery.
- If we fail to anticipate and recognise, an undesired aircraft state is inevitable.

Conclusion

From 2015, TEM will form part of the

training syllabus for all new pilots. During instruction, TEM is easily incorporated into a pre-flight brief; crosswind on take-off – anticipate the downwind wing trying to go down during the ground run.

But how can established pilots make use of this new (well, new to us) technique? What would be great is if all pilots got into the habit of thinking about the potential threats and likely errors before getting airborne.

Even for seasoned pilots on a cross-country, just pausing to think before leaping in could save face, or worse, later. Is there anything new happening on this flight? Perhaps, for example, you are flying with a friend in another single-seater. How will you communicate? Who is 'leading'? Have you discussed where you are going and what the route options are? What will you do if communications fail? What are the fields looking like at this time of year? Do you really want to fly on this low cloudbase day across those hills with no land-able fields. Maybe you will be near some ATZs during the flight. Might be an idea to have the frequencies handy just in case.

I think you get the idea, and I'm sure that it's something that most people do before they fly. If not, I hope that this article has given some food for thought. As ever, safety isn't about making anything less fun; it's thinking a bit about how things can be less challenging. Just a few minutes or even seconds spent before the flight might make all the difference. **Remember – superior pilots use their superior judgment to avoid situations which would require superior skill.**

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Sholto Hamilton (Dick) Georgeson, MBE (1922 - 2014)

DICK GEORGESON, the pioneer of cross-country wave flying, died at his home in Christchurch, New Zealand, on 27 March 2014. He was in his 92nd year and the last of those to whom Philip Wills dedicated his book *Free as a Bird* - the others were the Orsis of Italy, the Igguldens of Australia, and the Laschs of South Africa.

Fortunately, Dick also published a gliding classic entitled *The Leading Edge* (reviewed in *S&G* Feb/Mar 2004). Thus we have his account of a most remarkable life and his courageous, successful exploration of the New Zealand wave systems both for altitude and, most importantly, for distance flights. Through his numerous world records, the rest of the gliding community came to understand the enormous potential of utilising wave energy, which can be used from dawn to dusk, obviates the need for circling, and enables very high true airspeeds thanks to the lower air density at altitude.

Dick's pioneering work was further developed by New Zealanders Ray Lynskey (the world's first 2,000km flight) and Terry Delore (over 2,500km). Most recently, Klaus Ohlmann and others have applied the same techniques in the Argentinian Andes, including a flight over 3,000km, whilst John Williams has shown how 1,500km can be achieved in the UK using Scottish wave.

Thanks to Dick, we are all now aware of wave, its potential and how to exploit it, to the point where we almost take it for granted. But we should never underestimate the achievement of its original exploration, starting with low performance gliders. Dick's Slingsby Prefect now hangs in the Queenstown Airport concourse, whilst his Weihe, which he acquired from Philip Wills in 1952, is in the Ashburton Aviation Museum. His Skylark 3 has been restored to flying condition and is available to vintage enthusiasts and junior pilots.

Dick's mother died soon after he was born, whilst his father was presumed lost at sea. Thus Dick was brought up by his uncle and aunt, Bill and Peggy Hamilton, at their home on Irishman Creek Station in the then remote Mackenzie Basin. Here Dick gained his engineering skills in Bill's very successful workshop, which ultimately



Dick Georgeson in the Weihe that he acquired from Philip Wills

produced the world-famous Hamilton Jet boat.

Bill and Peggy imbued in Dick their joyful, creative approach to life and the belief that there are no problems, only challenges, whilst the spectacular surroundings enabled him to observe the power of the wind on the landscape and the lenticulars it generates called the Northwest Arch. Peggy was Philip Wills' first cousin, and when Dick first visited the UK in 1948 Philip took him to Dunstable where he learnt to glide. He demonstrated his enthusiasm and ability there by obtaining his Silver 'C' within six months, and then returning to New Zealand, where he started exploring the soaring conditions in the Mackenzie Basin with the Prefect.

Over the next 40 years, Dick broke a succession of world records. Perhaps the most spectacular was his World Goal Record of 1,254km achieved in January 1978, which also illustrated his personal qualities of courage, belief and tenacity. This record involved starting from a farm strip in the Takitimu Mountains near the south-western tip of the South Island and then flying the length of both Islands, crossing the Cook Strait, to Hicks Bay on the Pacific coast of the north-eastern tip of North Island. The take-off point was 700km from Dick's home in Christchurch on mostly shingle roads, and he made 27 attempts before final success. He was awarded the FAI's Lilienthal Gold Medal and the MBE.

In the last years of Dick's life he spent more time sailing, but kept in close touch

with the gliding community. He was young at heart and enthusiastic to the end, loved and admired by his family, friends and all who knew him.

He is buried at Burke's Pass cemetery on the approach to the Mackenzie Basin alongside his mother, Peggy and Bill Hamilton, and his other Hamilton and Wills relatives.

Justin Wills, New Zealand

Glide Omarama's Gavin Wills, who was a cousin and friend, adds: If Ed Hillary was our hero in the mountains and Peter Blake our hero on the seas, then I suggest that Dick Georgeson deserves to be our hero of the skies.

Winning for Dick was a great motivator, but it was the adventures he had and the people he met along the way that for him, counted more than just winning. He never forgot someone who helped out with his exploits and many who did become lifelong friends

His favourite world record was the 1978 distance flight from Lake Te Anau in the south to Hicks Bay on the very tip of the North Island's East Cape. It was almost 1,300km of engineless flight. But talk about tenacity; it was his 27th attempt that was finally successful! He launched in the company of Dave Speight and Bruce Drake, but made some mistakes and got left far behind. Talk about determination. At 3 o'clock in the afternoon, with more than 800km or two-thirds of the flight left to go, he was only at Hororata, 800ft above the ground and seemingly

about to land. However, the fact that his mates were ahead, coupled with his first wife Helen's colourful encouragement on the radio and a scrap of lift, gave him the determination to continue and the patience to dig in. The rest was history. He managed to reconnect with the wave, got high and raced on across Cooks Straight to land at Hicks Bay to meet his buddies, just before sunset.

I was honoured to take him on his last glider flight. He was nearly 90 and almost blind. After releasing from the tow plane above Omarama, I said "you fly" and he gently took the controls and proceeded to circle the glider in a smooth thermal. Like the expert he still was, he climbed the glider high to look out across his beloved Mackenzie Country to Lake Pukaki, Irishman Creek and to Mount Cook shining in the distance.

We cruised around in silence for an hour or so then, as the sun set, we did a couple of loops and landed gently home. As I levered his frail body from the cockpit, he stretched up and took my hand in his still vice-like grip and, with a twinkle in his eye and that mischievous grin of his, he said: "Thank you. That really was a jolly good flight".

Dick, now it's our turn to salute you one final time. To thank you for an inspirational life that you lived to the full.

Dreams are definitely worth following. You were indeed a lucky man.

Capt Richard (Dick) Hadlow



RICHARD "Dick" Hadlow was a gentleman and very modest aviator, who accomplished many things. Flying, in any form, was his passion and few pilots have enjoyed and excelled in so many areas

of aviation. He started and finished with gliding, but also flew fighters, trainers, business jets, large passenger jets, light aircraft and helicopters over a period of 60 years, split evenly between the RAF, Britannia Airways and on various committees.

He was initially trained on the Tiger Moth and Harvard before progressing onto fighters including Venom, Vampire and Meteor. Dick started his lifelong passion for instructing for eight years on the Jet Provost, becoming a Flight Commander at the RAF Central Flying School. To

avoid being deskbound, Dick took the opportunity to fly helicopters, principally the Whirlwinds based in Singapore, where he became very adept at landing in clearings while flying over the vast forests of Indonesia and Borneo.

Dick retired from the RAF in 1973 when a desk job became the only option and went on to fly business jets before joining Britannia to fly all over Europe on the 737, then worldwide on his favourite airliner the 767. He flew mostly as a captain and training captain, managed a float plane conversion in Orlando and even felt the need to plummet earthwards while bungee jumping in Australia.

In his spare time, Dick amassed 22 years with the RAF Air Experience Flight, flying Chipmunks, Bulldogs and Tutors. His passion for flying has inspired many budding pilots.

He was chief training captain for Russavia at Duxford, where he and his colleagues took members of the public pleasure flying in vintage aircraft, including the Dragon Rapide, Chipmunk and Tiger Moth. Dick also took his young sons (Chris and Mike) flying in an Auster and Chipmunk - they too have become accomplished, professional pilots.

Display flying figured throughout Dick's career. In 1965 he won the CFS aerobatic BRABYN staff trophy displaying the Jet Provost. Later he displayed the Venom, Vampire, JP and Meteor for Jet Heritage on the airshow circuit. He often displayed the Chipmunk at Duxford. He also found time to be a display evaluator.

A keen member of the Royal Aeronautical Society and GAPAN for many years, Dick served on various committees, including FOG, concerning flight safety and helped write several publications aimed at future pilots. He was a significant part of an action group who supported the pilots in the Mull of Kintyre Chinook appeals. He also spent years as a trustee on the RAF benevolent fund and supported the Wiltshire air ambulance through fundraising. It was a great tribute to him that the air ambulance performed a flypast at his funeral. For completeness, he was also a spotter, dragging his sons along lines of parked aircraft to note down their registrations at countless airshows.

Dick left behind a great deal more than the nearly 18,000 hours that his log books can testify to. A true gentleman,

Dick's presence will be sorely missed by many people, especially those of us who fly from The Park. We offer our sincerest condolences to his wife and family.

John Hull, Bath, Wilts & N Dorset GC

Stan Kochanowski (1943-2014)

DR STAN (he was a doctor of medicine) as we all called him at Burn, was a larger than life character to those who got close to him.

Stan had a sharp wit, a quick mind, and could always be relied upon to have an opinion on just about anything.

He was always ready with advice when you had the odd ache or pain, or a broken leg. This help and advice were appreciated by many within the club, myself included.

The only problem that I found with Stan was if you hadn't allowed at least half an hour when you called him on the telephone; he could be hard to shake off once he got into full flow, but every word of help or advice were 100 per cent from the heart,

There were some who didn't have the luxury of having Stan as a friend, but no one as far as I am aware had anything other than good to say about him.

Now that he has gone, I and others have lost a very special friend, who bore the illness that took him from us with fortitude. He knew what his situation was, how the illness was progressing, and just how it was effecting his body.

The telephone conversations became much shorter; Stan would say what he needed to say to keep me current on his situation as it was when I called. And would always end with "Thanks for your call, and for your concern, it's very much appreciated."

Stan died on 5 March, aged 70. Our sympathies and our condolences go to Jan his wife (who he referred to as management), to his son Andrew, and to his daughter Suzanne.

A very special friend indeed, Stan Kochanowski. Dr Stan.

Tony Flannery, chairman, Burn GC

Horst Lange (1925-2014)



BUCKMINSTER Gliding Club lost its oldest flying member with the death, in February, of Horst Lange at the grand age of 88.

Horst's career was a little unusual! Born in

Germany, he was a cadet in the Hitler Youth - flying a Grunau. He was then trained for the Luftwaffe on FW 190s at Nuremberg, but due to fuel shortage everything was closed down and he did no more flying.

Horst then had a choice to make: either to join the SS or to become a paratrooper. He joined the Second Division of the Paratroopers and did his training jumps at Cologne.

Later he was in action in Caen following the D Day landings, where he suffered a shoulder wound and was captured. He was brought to Southampton first of all, then moved to Kempton Park, and later to a camp at Carmarthen and sent to work in parties dismantling the anti-tank concrete constructions. His pay for this was 2/6d per week, which was increased at some stage to 5/-! This increase meant he could purchase cigarettes and small items. The Red Cross also gave each man £1 at Christmas, so he always supported their cause in later years.

From Carmarthen he was moved with a group to Allington, near Grantham, finally being allocated to work on a farm at nearby Marston. His employer, eventually his future father-in-law, agreed that he could court their daughter, Edna. They were married in 1949 and in the early 1950s he was granted British nationality.

With his brother-in-law, he later became a partner on the farm. This partnership worked well with hard work, but later on they sold the farm. He was then employed by various engineering firms, utilising the skills he had gained whilst with Fokke Wolf in Germany.

Horst was able to rekindle his love of flying and joined the Trent Valley GC at Kirton-in-Lindsey and subsequently Buckminster GC at Saltby. He amassed over 3,000 hours in gliding - in later years he enjoyed aerotows in the Puchacz, always to 3,000ft! And he was a superb winch driver. His last flight in a Puchacz was as recent as September 2013, a couple of months after his 88th birthday, after which he enjoyed a birthday cake on Saltby's bus.

Horst was a lovely man - a gentleman, always willing to help others and who always had a smile on his face. He will be greatly missed. He is survived by his wife Edna and daughter Janet and family, to whom we send our sincere condolences.

Roger Keay, Buckminster GC

Vic Carr (1926-2014)



VIC CARR, who died recently aged 87, had a long and involved flying career in our sport of gliding.

After four and a half years in the RAF at the tail end of WW2, Vic joined

the London Gliding Club at Dunstable after reading about the sport in old copies of S&G during his time in Singapore!

Learning to fly by ground slides, Vic went solo in a nacelled Dagling and, later on in 1949, did his Silver duration in Grunau Baby and shortly after that, his Silver height.

In 1950 he joined the Coventry GC at Baginton airport where, in 1956, he completed his Silver 'C' no.480 in Olympia 2b 'Jacobs Ladder'. His Gold 'C' distance leg was also done in an Olympia from Edgehill to Mevaggissey in 1957. He was appointed Coventry GC's second CFI from 1956 to 1958.

In 1960 he was invited to join a group to form a Leicester GC to start at a new site at Rearsby where Auster Aircraft were based and he became the CFI of this new club. During his time at Rearsby, he introduced the system of training *ab initio* pilots entirely by aerotow as this meant that both soaring training and more pupil handling time could be accomplished. He thought that they were the first British club to do this and that this was a highlight in his flying teaching career.

I well remember Vic's article in S&G at the time; *Throw away the winch*. He was never afraid to speak his mind.

In his Skylark 4 in 1963, Vic's Diamond goal was achieved in an out-and-return from Rearsby to Marlborough and back, completing his Diamond badge with his height claim in 1976 in his Kestrel.

Following this, he was appointed to be a BGA examiner and he subsequently left the Leicester Club to rejoin the then Coventry GC at Husbands Bosworth, where he became CFI again in 1970-71 - the only man to have done this onerous job twice!

Vic left Coventry GC in the mid-70s to help found the Shropshire Soaring Group at Sleep.

During his time at Sleep, he also became chairman of the BGA Instructor Committee and introduced a glass glider - the Twin Astir - as a training aircraft for

more advanced instructor training and soaring exercises. Vic and the late Bill Scull visited many small gliding clubs in order to improve training standards. He and his syndicate also owned a Kestrel and explored the extensive Welsh wave systems, climbing occasionally as high as 27,000ft, flying over Snowdon and as far as the Welsh coast on good days.

I had cause to be grateful to Vic for his encouragement in my early days of soaring and of later friendly advice when I took on his former role of CFI at Husbands Bosworth.

Vic retired from flying in 1999 with 4,000 hours flying experience, which included solo and instructing from 4,000 winch launches and 3,000 aerotows. He continued to enjoy a visit to the club bar and recount old stories about flying well into his eighties.


His devotion to soaring and training standards are still felt today through his forward thinking and example.

He is survived by his widow Mary, and four children and nine grandchildren.

Ron Davidson, The Gliding Centre

BGA BADGES

No.	Pilot	Club (place of flight)	Date
SILVER HEIGHT			
	David Wedlock	Midland	07/03/2014
	Matthew Cook	Midland	07/03/2014
	Ian Campbell	Cairngorm	23/03/2014
CROSS COUNTRY ENDORSEMENT			
	Carl Love	Gliding Centre	12/02/2014
	Max Lazenby	Cotswold	16/02/2014
	Roger Rhodes	London	28/02/2014
	Richard Slater	York	01/03/2014
	Peter Wickes	Wolds	01/03/2014
	Christopher Matten	Dartmoor	22/02/2014
	Karon Matten	Dartmoor	22/02/2014
	Michael Watkiss	York	16/02/2014
	Samuel Hill	London	11/01/2014
	John Vickers	Angus	09/03/2014
	Kenneth Ward	Essex & Suffolk	19/03/2014
	Egor Kyshtymov	Lasham	22/03/2014
	Guy Dutton	Imperial	30/03/2014
		College	
	Derek Pope	Cambridge	31/03/2014
	Philip Dwyer	Kent	12/04/2014
	Paul Randall	Bannerdown	13/04/2014
	Malcolm Warwick	London	15/04/2014
	David Barbour	SGU	18/04/2014
	Graham Wright	Essex & Suffolk	20/04/2014
	Jack Hargreaves	York	20/04/2014
	Kenneth Morgan	South Wales	17/04/2014
	David Sibthorp	Banbury	21/04/2014
	Patrick Fowler	Lincolnshire	19/04/2014
	Oliver Metcalfe	Lasham	18/04/2014
	James Morley	Lasham	21/04/2014



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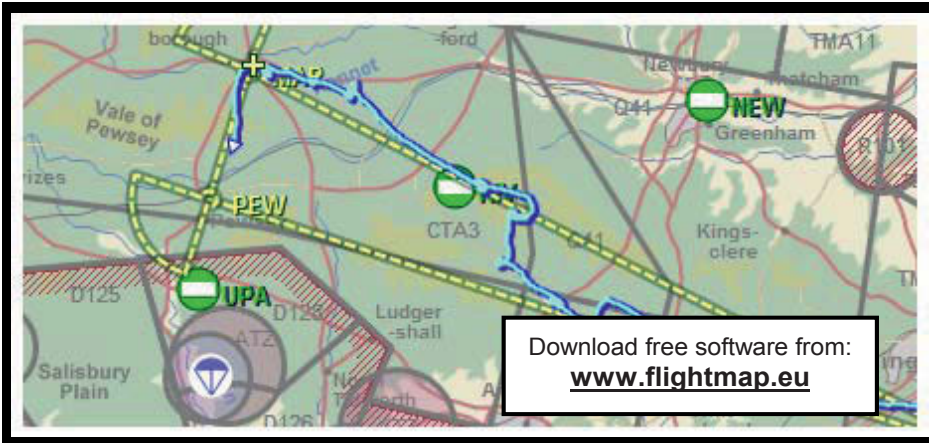
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The UltraEFIS is a stand-alone device with Ultra bright 3.5" sunlight

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The display gives true attitude, indicated and true airspeed, altitude, heading information and a slip ball. The alternative HIS display gives full navigation information using its built-in updatable world-wide Jeppesen Database.

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CAA Charts

Civil Aviation Authority

Flying with the current chart is not only sensible, it is also a legal requirement. All CAA Chart prices remain at £15.99

NEW EDITIONS

The latest chart updates are:

SOUTHED40 1:500,000 Southern England & Wales	3rd April 2014
ENGLANDSOUTHED18 1:250,000 England South	1st May 2014
NORTHEDED37 1:500,000 Northern England	29th May 2014
BORDERSED9 1:250,000 Borders	26th June 2014

Polylack

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CLEARVIEW **£12.95**



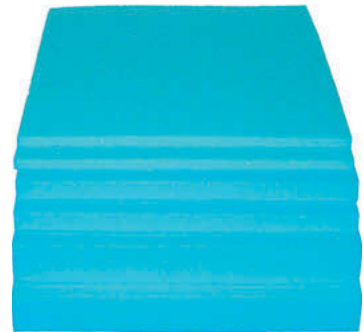
Dynafoam

Dynafoam is the only energy-absorbing foam scientifically tested at the UK Defence Evaluation Research Agency (see Dr. Tony Segal's article in S&G December 2013). It is specified by UK and USA military forces for use in military vehicle seating for protection against mines, and in ejection seats.

Dynafoam has a wider operational temperature range than any other comparable product, and has been widely identified as the most effective and durable seating foam on the market; and the most comfortable when used with a 12mm Soft Dynafoam comfort layer. It is recommended by EASA for pilot protection (Safety Recommendations 2009-014 and 2009-015).

It is supplied as standard in rectangles 460 x 410mm, other dimensions can be supplied to order.

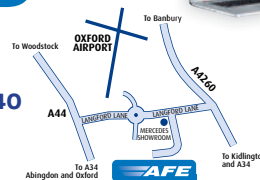
DF05	12.5mm thick Firm Grade	£27.95
DF05SOFT	12.5mm thick comfort layer	£27.95
DF10	25mm thickness Firm Grade	£37.99
DF20	50mm thick Firm Grade	£55.99



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