

Uni Gliding

Vol 41 Number 3 - September 2018



In this issue...

Dawn-To-Dusk Competition Special Edition

Mathematical Analysis of Glide Polars

The World's Most Unloved Trainers?

...And Much More!

The Official Journal of the Adelaide University Gliding Club Inc.

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Editorial

Hi all!

We're well into the winter season now. But fear not: To beat the winter blues we have an extra-big edition of *UniGliding* (the biggest yet!), packed full of great articles and info for you to read while you wait for summer. This issue focusses on the International Dawn To Dusk Competition. What is it? How does it work? Could *you* enter it? Well, read on and all will be revealed!

This issue also contains a detailed article about the mathematics of glide polar analysis, which will tell you all you ever wanted to know about interpreting those polar curve graphs that you see in glider flight manuals. Very useful! And as always, there's the regular club updates keeping you informed about AUGC activities and developments.

You'll note that we're in winter maintenance mode at the moment, with huge amounts of work happening to make sure glider annual inspections are completed so that our fleet can stay in the air. Thanks to everyone who has been helping with maintenance. Super-huge thanks go to Derek and Leigh in particular, who have been working their fingers to the bone recently to get club aircraft ready for YOU to fly.

See you all on the airfield (or in the workshop) soon!

Teal

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AUGC News & Achievements

News

Aircraft Maintenance

If you look at the Fleet & Equipment Status section on page 5, you will see that there is a LOT of aircraft maintenance work underway at present. As you may know, gliders have to be inspected annually (the Form 2 inspections you may hear mention of) or we are not allowed to fly them. AUGC tries to time aircraft annual inspections for the winter period to reduce downtime during the good soaring weather of summer - but that means that a large proportion of our fleet become unflyable and turn into paperweights at around the same time.

Well, that time is **now**. Currently the inspection and maintenance work is falling on the small handful of people who always do it. Recently a couple of club members (Derek and Leigh) have been working pretty much full time on the Form 2 inspections in order to get our gliders into the air again so that YOU can fly them; and a couple of others have also been doing a lot of behind-the-scenes work helping make things happen. To put it bluntly, our maintenance people are starting to get a bit burned-out. While some of this work requires skill and expertise, there is an awful lot of it that does not - lifting things, holding things, painting things, and so on. If everyone who flies in AUGC aircraft could help (even a bit) with the work needed to keep them flying, this would really help take the load off our poor overworked maintenance experts.

All AUGC members who use AUGC facilities and resources should be assisting. If a working bee or other request for assistance (e.g. aircraft rigging) is announced on the mailing list or mentioned on the flight roster, *please* offer to help if at all possible. Come down to the West Beach workshop on Monday nights and help out, at least now and then. It's only fair, isn't it? If we share the work around, we ALL get to have more fun. A fair go for everyone.

And yes, I AM addressing YOU. **PLEASE HELP. YOUR CLUB NEEDS YOU.**

Astirs!

As you may recall from the last issue of *UniGliding*, AUGC currently have a single seater Astir (VH-WUA) on loan from the Australian Junior Gliding Club for a year. Well, the bad news is that we have found an

airworthiness problem with WUA and so we are sending it back to the Juniors at Waikerie so that they can deal with it. The good news is that we will not be Astir-less for long. AUGC have just purchased another Astir of our own! Longer-term members may recall VH-KYR - AUGC used to own this aircraft some years ago. Well, now it is ours again! It needs considerable work, so it will not be airworthy for quite a while yet. But it is a fine aircraft that AUGC has a long history with, so it will be great to welcome KYR back to AUGC's fleet when it is once again flyable!



KYR arriving at Stonefield nicely giftwrapped

AUGC News & Achievements (cont.)

Touring Motor Glider Course

Have you ever wanted to get rated to fly the Motorfalke cross-country and learn to fly in restricted airspace? Well, **Cath Conway** is considering running a course to teach you how to do this, and would like **expressions of interest** from anyone who thinks they might like to give it a go. The course can be largely run out of Stonefield, but the controlled airspace part of it will operate from Parafield Airport. The cost for this course will probably be in the range of \$500-\$1000, but consider this: Getting a similar rating through RA-Aus starts at around \$5000, and doing it through GA would cost you roughly \$25,000 - \$30,000. So if you have considered getting a power plane rating, this would be a *really* cheap stepping stone toward doing so, and would save you a large amount of cash in the long run. Also, fun! Please contact Cath if you are interested.

Mini-Grand Prix advance planning

Do you recall the Mini Grand Prix series of races that AUGC held at Stonefield last summer? Well, they were so much fun that we've decided to do it again! The new Mini-GP series is still in the planning stages, but we have the dates picked out (see Dates For Your Diary on page 26). So this is your advance notice - mark the dates, practice your racing skills, and GET READY TO RUMBLE!

Achievements

Congratulations to AUGC's mighty Prez **Cath Conway**, who was awarded the **Order Of Australia Medal (OAM)** in the 2018 Queen's Birthday Honours during June for services to gliding. Wow! The full list of her services can be found on the GFA website here: <https://glidingaustralia.org/member-services/sport/251-catherine-conway-medal-oam-of-the-order-of-australia> , but they include:

AUGC: President, since 2017 (and on several previous occasions); Chief Flying Instructor, since 2014; Flying Instructor, since 1989; Past Secretary and Treasurer.

Team Captain, Australian Gliding Team, 34th FAI World Gliding Championships, Lithuania, 2016.

Team Captain, Women's World Gliding Championship, Klix, Germany, 2005.

Joint Regional Technician Officer, Airworthiness (South Australia and Northern Territory), Gliding Federation of Australia, since 2017.

Donator, Schneider ES54 Gnome Glider and ES60 Boomerang Glider, Australian Gliding Museum.

Australian Air Force Cadets (AAFC):

Former Flight Commander, 607 Training Flight.

Staff Officer, Gliding National Aviation Operations Wing, current.



*Cath at home in the cockpit
(Photo: C. Conway)*

If you'd like to read more about her achievements, there's a cool article about her here: <https://thenewdaily.com.au/news/national/2018/06/11/catherine-conway-queens-birthday-honours/> - or you could ask her next time you see her on the airfield!

Fleet & Equipment Status

Aircraft

Janus (VU): Operational

K-13 (QC): Form 2 (annual inspection) at the time of writing; expected to be airworthy again soon.

K-13 (QS): At West Beach in pieces being rebagged and overhauled. Wings are half re-covered; most of the maintenance work for the fuselage is complete, and once the last few bits are done it will be re-covered. Soon it will fly again! (Even sooner, with more help at the workshop from members who hope to fly her...)

Ka-8 (AQ): Form 2 in progress at the time of writing; expected to be airworthy within a week or two at most, with any luck.

Ka-8 (QU): Operational

Pik-20 (WVA): Full survey underway, which will likely take a couple of months to complete. Hopefully it will be ready by summer.

Motorfalke (FQW): Operational, although it still has some ongoing engine overheating issues in some situations. Investigations continue.

Arrow (GNF): Goes No Further. Needs more work than AUGC can manage at present to get it flying again (plz to observe the LOONG list of other aircraft currently being worked on by AUGC members) so instead will be advertised for sale.

Astir (KYR): Needs quite a lot of work, so will not be flyable for a while.

Astir (WUA): (on loan from Junior Gliding Club) Non-operational, and has been returned to the Juniors so they can repair it.

Winches

Tost winch: Operational. Had a minor tyre problem recently, but Derek found a replacement tyre on the airfield (!) and it's all fixed now. A spare tyre will be obtained.

Truck winch: Offline for truck engine work completion

Trailer winch: The motor runs really well, but the cable heads need a redesign. Leigh is working on this.

Miscellaneous Important Stuff!

The AUGC-People Mailing List has a new home!

The AUGC-People mailing list has now switched to a new home with Google Groups. There's no point in sending emails to the old one as nobody is using it any more; instead, you'll need to create a Google Groups profile as follows:

- Go to <https://groups.google.com/>
- Click on the blue "Sign in" button at the top right corner of the page
- Select "Create account", and the rest should be self-explanatory.

After you've done that, join the new AUGC-People group here:

<https://groups.google.com/forum/#!forum/augc-people>

When your membership request has been approved by the moderator, you'll be good to go!

If you fly at Stonefield (or intend to do so), PLEASE sign up to the **AUGC-People mailing list!** It's where a lot of week-by-week operational planning takes place: things like "who wants a bonfire and 3-course meal after flying next Saturday?" or "there's no flying this weekend because half the club is off at flying camp in the Flinders" or "we seem to be missing a radio handset; did anyone accidentally drive off with it in their car last weekend?". Everyone who flies with AUGC really needs to be on this mailing list so that you know what's going on.

If you haven't already spotted it, we also have a **new AUGC website address**: we have switched from <https://augc.internode.on.net> to **<https://augc.org.net.au>**. The old one will be forwarded for a while (so you can still use it for now), but it's best to update your bookmarks to avoid future confusion when the old one stops working. :-)

Committee Meeting Minutes

Speaking of the AUGC website, did you know that our monthly Committee meeting minutes can be found on the website? If you would like to know more about the inner workings of how your club is run but can't make it to the Committee Meetings, you can read all about it online! They are located on the Documents page on the Media tab of the website (along with many other useful docs): **<https://www.augc.org.au/Document.php>**

AUGC Logo Design Competition

Due to insufficient numbers of entries, the deadline for entries has been extended until **31 October 2018**. Full details can be found on Page 9. Considering the great prize that's being offered, why not take advantage of this opportunity and give it a go?

DID YOU KNOW that there is an archive of UniGliding back-issues available on the web dating from 1976? As well as being a great repository of articles and wisdom from years gone by, they provide a window into the history of this splendid club, and are a great read as well! Check them out here: **<https://www.augc.org.au/Newsletter.php>**

A New Aviation Challenge: International Dawn-to-Dusk Competition

You're a capable cross-country pilot. You know your VTC from your VNC, and your ERSA from your elbow. You can keep it up for as long as you want, and you've got more achievement badges than you know what to do with. Now you're looking for your next gliding challenge. Well, here's one I just bet you won't have thought of: Have you considered entering the **International Dawn to Dusk Competition**?

This is a long-running annual flying competition: it was started in 1964 by the Tiger Club (a UK aero club) with the encouragement and support of the Duke of Edinburgh. Over the past half-century or so, winning and highly placed entries have been submitted from more than 14 countries including Australia, New Zealand, Scandinavia, Canada, United States, and Europe.

The competition website (<https://www.pooleys.com/dawn-to-dusk>) describes the Dawn to Dusk thusly:

All that is required is for the competitor to set himself/herself a target with a theme and fly it. The Objective of Dawn to Dusk is to encourage the most interesting employment of a Flying Machine within the limits of competent airmanship and to demonstrate the capabilities of pilot and machine in a day's flying, during the hours between Dawn to Dusk, in terms of furthering some original and praiseworthy objective.



Launching the Pik. Is it dawn or dusk? You be the judge.

A New Aviation Challenge: D2D Comp

The rules state that the entrants must be airborne for at least eight hours during a single day, in any kind of aircraft. The flight has to have a theme, and a entrants need to write a report describing the flight (including flight logs, charts and any other relevant material) which must be submitted within three weeks after the flight. The entries are judged according to originality of the theme, flight planning, the flight itself (e.g. how well the plan was adhered to, etc.) and the quality of the post-flight report, and are handicapped according to difficulty, pilot experience, aircraft type, weather and so forth.

The key to doing well in the D2D Competition is having a great theme. A look through the list of previous winners on the webpage gives a hint as to the range and diversity of themes that have won the competition in the past. Winning themes have included "National Trust gardens", "Crossing the Nullarbor Plain", "Battlefields of the Irish Guards" and "Most airfields in one day". As far as I know, a glider entering this competition would be a first. The rules allow for landings and refuellings, so there is no obvious reason why a glider couldn't do it - one could either stay up for eight hours (the most impressive option), or use a self-launcher or tug to relaunch as needed (with an appropriate theme to make this work well).

The person who drew my attention to this (Ron Smith, who you can read more about here: <https://www.amazon.com.au/Two-Up-Ron-Smith/dp/1908135395>) is a previous winner of this competition, having gotten first place in 1994 (and winning the Duke of Edinburgh Trophy for doing so). He has shared his experiences of flying in the D2D in a great article (with lots of pictures!) which you can find on page 10 of this magazine. If AUGC members decide to give the D2D a go, he has offered to provide his (very valuable!) advice and assistance to us regarding the process of entering, theme selection, what the judges might be looking for, and so forth. I'm sure there are lots of possible interesting theme ideas we could come up with - maybe we could fly along the Murray River, or re-enact some aspect of a famous soaring flight, or fly a route that re-traces the track of some famous event or person. Is there some entertaining event in AUGC's own history that could be commemorated or re-enacted? "Most interesting employment of a Flying Machine" has a LOT of scope. (No, we are NOT going to enter the D2D with a "flying nude" theme!)

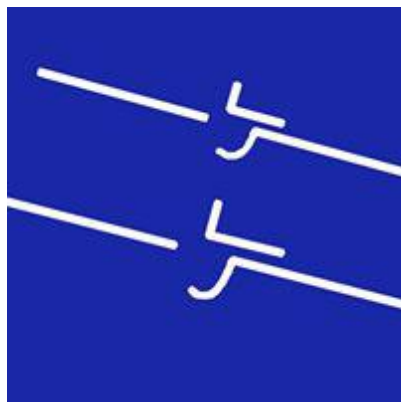
It would take quite a bit of planning and creative thought to come up with a good theme for a D2D entry and to make it happen, so an AUCG entry would need to be a club effort. Not only would it be a great challenge and a lot of fun, but it would also be a great fit for AUGC: *Educational, Interesting, and Quirky* are very "on-brand" for us, as is *Long Aviation Heritage!*

It could also be an interesting and unusual way to raise AUGC's profile, and a real feather in the caps of the team that made it happen. Could that be you? If you have ideas for a good theme and would like to be involved, contact Teal (details in "Club Contacts and Who's Who" on the last page of this magazine) and we can go from there!

Last Chance: AUGC Logo Competition

The Logo Competition deadline has been extended due to a shortage of entries. Wouldn't you like to see *your own art* on AUGC publications, social media and merchandise? And ALSO score yourself a FREE CROSS COUNTRY SOARING FLIGHT with our Club Coach Leigh? If you've considered entering but haven't done so yet, now is your VERY LAST CHANCE to do so! After all, you've got to be in it to win it...

You could be the designer of our new club logo!



This is our current club logo. It's not a bad logo, but we reckon it could be improved and it's time for an update. Do you think you might be able to design a better logo for us? If so, now's the time to give your creative side free rein and show us what you can do!

What the judges will be looking for

- 1) Keep it simple!
- 2) No more than 3 colours, please.
- 3) Gliding related, obviously!

The Prize

This should get you motivated: the winner will receive a FREE CROSS-COUNTRY FLIGHT in our high-performance 2-seat glider (the Janus) with our Club Coach Leigh Stokes (launch cost and aircraft hire included). While the exact duration of the flight will depend on the weather conditions of the day, it's safe to assume that you'll probably be in the air for a couple of hours at least.

The final deadline for the competition is **31 October 2018**, and the AUGC Executive will select the winning entry.

You can enter this contest as many times as you wish. For ideas regarding the sort of logo that could work well, check out the AU Sports Association club list, which shows logos for other AU sports clubs (<https://www.theblacks.com.au/Clubs/ClubList.aspx?S=1>)
The winning logo will become intellectual property of AUGC. The club reserves the right to further develop the winning logo (e.g. to tweak it for easy printing, for example); if no entries are suitable for our needs, it's possible we may decline to choose a winner.

Good luck, and may the best logo win!

Special Guest Article

Dawn to Dusk

By Ron Smith

“We don’t charge landing fees for diversions” - Ron



It was January 1984 and I had just got back to work after the Christmas break. Colin and I were chatting about the holiday, when I asked him if he was familiar with the Dawn to Dusk Trophy. Colin Dodds was a work colleague and also a well-known pilot and author, with many contacts in the de Havilland Moth Club and the Historic Aircraft Association, where he is the current Deputy Chairman.

“Why do you ask?”

“Well, I’ve had a good idea for a Dawn to Dusk Competition flight”.

“Tell me more – having a good idea is the main problem”.

By way of explanation, the Dawn to Dusk Trophy is a flying competition invented at the Tiger Club when the Duke of Edinburgh was a member; indeed, the Duke donated the main trophy for the event. The aim of the competition is to encourage the inventive and adventurous use of aeroplanes by demonstrating what can be achieved in the course of a single day.

The rules are disarmingly simple. During the hours of daylight on a given day normally between mid-April and mid-August, the entrant(s) set off to fly around a route based upon their chosen theme. They are required to spend at least eight hours of the day in the air and must submit a report of their flight within three weeks of its completion. The report must

Dawn to Dusk (cont.)

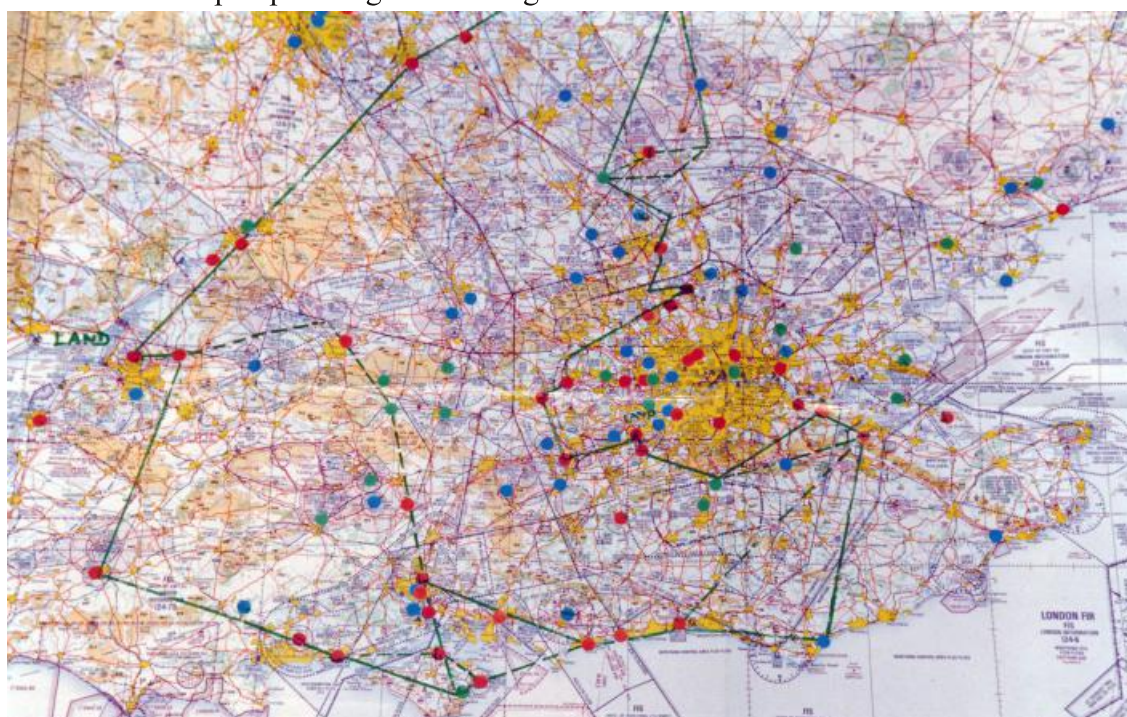
explain why the chosen theme is worthwhile and present background information, flight logs and evidence of the completion of the flight, including photographs of turning points, receipts for fuel uplift and landing fees, etc.

There are a range of awards, which include: recognition for coming in the first three places, with the overall winner receiving the Duke of Edinburgh Trophy; the best report – Tiger Pooley Sword; best solo entry; best entry by an inexperienced crew; long distance trophy; best all ladies entry, and so on. The Duke of Edinburgh continues to chair the panel of judges.

We had been visiting my in-laws over Christmas and they had been discussing the competition, of which I had been aware from earlier visits to the Tiger Club by push-bike from school in the 1960s. On the drive back home to Somerset, I suddenly had an idea for an entry – it ought to be possible to fly around Britain over locations where aircraft used to be built, by companies that no longer exist. The only problem I could see was that my own aircraft had too short a range, and it would be far better if the competition flight could be made in a British-built aircraft.

I outlined this idea to Colin, whose response was “What a brilliant idea, why don’t you start some planning, whilst I see what I can do about an aeroplane.” A quick look through my own aviation book collection, augmented by three days research in the Royal Aeronautical Society Library in London, generated a list of companies and locations. Much to my surprise there were a lot of firms building aircraft during the First World War that I had never heard of, my favourite being The Vulcan Motor & Engineering Co (1906) Ltd of Southport who built some 725 aircraft during the War.

I decided to position red, green and blue stickers on an aeronautical chart representing ‘major / must have’; ‘significant / should have’ and ‘minor / nice to have’. Having given the chart the appearance of an outbreak of some dreadful disease, I settled down to try to find a route that offered the prospect of good coverage for the task.



Dawn to Dusk (cont.)

We needed to avoid Class A airspace and it was obvious that we were unlikely to have the speed and range to cover Scotland as well as England. There also seemed little prospect of penetrating far into the south west, so my old employer, Westland, was also excluded from the list.

The final route extended from Yorkshire and Lancashire down to the south coast, before returning to the Midlands and East Anglia. Based on an assumed endurance of around three hours at 90kt, it looked as if there was scope for a route covering around 600 nm with perhaps three refuelling stops (or two at a pinch).

By the time summer approached we had the bones of a route, but no aircraft. Then, Colin had a breakthrough, having put the word out in the de Havilland Moth Club that he was looking to borrow an aircraft for a week or so in the summer. Back came David Wells with the amazing news that, as he was planning to be away for a period, Colin could make use of his 1936 de Havilland Hornet Moth biplane for the week. More than that, there would be no charge other than our own direct costs in terms of fuel and oil, provided that use of the aircraft was kept below 12 hours flying time.

A quick look at the chart revealed that even with the relatively long range of the Hornet Moth, we would not reasonably be able to complete the entire route in a single day. This was significant, as had there been sufficient range, the route could start and finish at the aircraft's home base Little Gransden.

After further investigation, we decided that the aircraft could be moved on the Saturday to the gliding site at Pocklington, a wartime Halifax station, where the Wolds Gliding Club offered overnight accommodation and promised to make hangar space available for the aircraft.



Logistics were a bit of a problem, as even if the flight were successful, we would end up 125 miles from our take off point, where there would be at least one car to collect. After a bit of thought, we decided to drive (two cars) to Little Gransden, where we would meet Mark Miller, who looked after David's aeroplane. My car would stay at Gransden, and I would drive Colin's car to Pocklington.

We got the aircraft out of the hangar and then there was the usual faffing about with refuelling, maps, oil and aircraft documents.

“Colin, is it OK if I head off now?” – I was conscious of the fact that I was driving and Colin would be flying and probably averaging nearly twice my speed. Colin said OK and tossed me his car keys. This was a mistake, and it was compounded by a separate mistake that I had made earlier.

Dawn to Dusk (cont.)

As I drove north, it slowly dawned on me that we had not removed Colin's headsets from his car. The upshot was that when I arrived at Pocklington, there was no sign of the aircraft, which I had thought would arrive ahead of me. Colin had had to borrow headsets from Mark, who needed to return home to get them.

Eventually, Colin arrived and I made a grovelling apology. Colin was a little concerned at the apparently high oil consumption on the flight up from Gransden. We put the aircraft to bed and were then shown a pretty basic bunk room in the gliding clubhouse. The second problem then hit home. I had not asked what facilities were provided and had blithely assumed we would be staying in a local bed and breakfast. As it turned out, the room was just a room with two single beds and no bedding. I had no sleeping bag and no option but to bed down fully clothed, using my leather jacket to try, rather unsuccessfully, to stay warm.

We studied the weather forecast, which indicated that the weather would be perfect, following the clearance of early fog in the Vale of York. This was a potential issue, as we had to be airborne by 0730 if we were to complete our planned route, including fuelling stops, in the hours of daylight.

True to the forecast, it was foggy at 0600, and the fog cleared to a gin-clear summer's day at about 0930. Monday – the same; Tuesday – the same; Wednesday – the same; Thursday – the same. At least we had the opportunity for some tourism, including visits to the aircraft museum at Elvington and a look at the interesting machines at The Real Aeroplane Company, Breighton. We also had a tourist visit to York, where the draw of an excellent aviation bookshop in The Shambles proved hard to resist; there was also a visit to Beverley for lunch.

It looked as if Friday would finally offer acceptable weather and we were airborne by 0730 heading for Holme upon Spalding Moor and Sherburn in Elmet, en route to crossing north of Leeds Bradford to Samlesbury, Blackpool and Warton. To my surprise, air traffic seemed to accept our unusual routeing without the slightest comment. Colin would call "Golf Lima Oscar 2000 ft on QNH 1020 from Pocklington to Leicester – Navigation competition" and there would be a simple "Roger" and not the slightest question of why an aircraft that was in a navigation competition was headed from Pocklington to Leicester was flying due west, when the direct track would have been almost due south.

The airfields all came up according to plan and were duly photographed as we started to get into the serious business of a route extending over 600 nm with more than 40 turning points. I should say that our navigation aids comprised a map, a directional gyro, a P-type spirit compass on the floor between the seats and a single VHF radio.



Dawn to Dusk (cont.)

It was still early as we approached Liverpool flying at low level down the Mersey estuary to photograph Speke and Hooton Park before heading across to the Airbus factory at Broughton. As we approached the controlled airspace and asked for permission to transit, the friendly controller said “No problem, not above 1500 ft maintaining VFR. I’m expecting an RAF Hawk coming the other way, but you asked first, call westbound for Neston”.



After Broughton, the route took us across Staffordshire over the Boulton Paul test airfield at Seighford, now well-camouflaged by agriculture, continuing from there towards our planned landing at Leicester.

“What do you think of the weather, Colin?” I was looking at a dark grey wall of cloud ahead to the east.

“Doesn’t look great, let’s listen out on the Leicester frequency to see if they are flying”.

This was an astute move, as the next thing we heard was Leicester giving their current weather as 300 foot cloudbase and one mile visibility in rain.

“OK, time for Plan B, Ron. I’d like to get on the ground anyway to check the oil consumption, so let’s divert to Coventry”.

We shut down on a damp, grey, greasy tarmac apron at Coventry next to a DHL Convair 580. I hopped out with the well-named oily rag and wiped off the oil that was trickling down the inside of the undercarriage legs, before it could get as far as the brakes. A check on the oil contents showed very modest consumption and we came to the conclusion that if you topped it right up, it simply threw out the first half litre, before settling down to a very acceptable burn rate.



Dawn to Dusk (cont.)

After refuelling, we set off on the next leg of the route, to Shoreham on the south coast. Suffice to say, the flight thereafter was routine, except for greyer weather with thick haze in the east, instead of the clear blue skies in the west.

The full route flown, with take-off / landing points in italics, was Pocklington, *Holme on Spalding Moor*, *Sherburn in Elmet*, *Leeds Bradford*, *Samlesbury*, *Blackpool*, *Warton*, *Southport*, *Speke*, *Hooton Park*, *Broughton*, *Seighford*, *Coventry (diversion)*, *Staverton*, *Hucclecote*, *Moreton Valence*,



Filton, *South Marston*, *Chilbolton*, *Eastleigh*, *Sandown*, *Bembridge*, *Portsmouth*, *Middleton on Sea*, *Shoreham (lunch)*, *Rochester*, *Wisley*, *Brooklands*, *Farnborough*, *Blackbushe*, *Woodley*, *White Waltham*, *Booker*, *Leavesden*, *Radlett*, *Hatfield*, *Luton*, *Barton-le-Clay*, *Cranfield*, *Peterborough*, *Little Gransden*.

On arrival at White Waltham, we went to the West London Aero Club to book in and pay for fuel, oil and the landing fee. When it came to the latter, the duty manager looked up and said “We don’t charge landing fees for diversions”, Colin said “But, it wasn’t ...” only to be cut off by the manager “I’ll say it again, we don’t charge landing fees for diversions!” When it came down to it, they liked the aircraft and they liked what we were doing with it.



At about 8 pm, we stiffly dismounted from the Hornet Moth and, after a couple of photographs as the sun set, restored her to her hangar after covering some 625 nm in 8.5 hours flying time on a route with some 40 turning points that ranged over much of the length and breadth of England.

With a sigh, we turned to my car and headed back to Pocklington, arriving quite late and finding the clubhouse locked. After a night in the car, we went our separate ways in the morning.

Dawn to Dusk (cont.)

Later in the year, we went to London for the announcement of results and awards. One thing that, in retrospect, we had got right, related to the submission of the report. We had noted that it had to be submitted within three weeks of the flight. We had also noted that there was nothing



to stop you writing the report before you flew, so that's what we did. We also, although we were using 2¼ inch floppy disks, managed to embed a series of black and white photos of relevant aircraft in the text. It's hard to believe how difficult and unusual this was in 1994, compared with today's media and memory-rich world.

We added the colour photos taken en route on separate sheets and presented our report in a binder with an evocative photograph of a Miles Falcon on the cover. We also edited our pre-drafted text to reflect the actual route flown including the Coventry diversion.

At the awards ceremony, we received some good-tempered 'joshing' from John Farley, the famous Hawker Siddeley and British Aerospace Harrier test pilot, who had been on the judging panel and said to Colin "Of course, you guys got marked down because you were the most experienced crew". Colin had 6,000 hours total time: 5,000 as pilot in command and was qualified in multi-jet, multi-piston, twin engine and single engine aircraft and helicopters.

Once the reverse order list reached the last three, we realised that we were going to win something. In fact, we were the overall winners and received the Duke of Edinburgh Trophy; a plaque each to keep; and a certificate signed by Prince Philip in his role as Chairman of the judging panel.

I subsequently expanded and wrote up the research conducted for the competition into a manuscript, which was published as the five volume series *British Built Aircraft*.



Story by Ron Smith, extract from 'Two Up' by Ron & Jim Smith, UP Publications, 2013.
ISBN 978-1908135391 (Second Edition) and 978-1908135445 (eBook).

The World's Most Unloved Trainers?

There's (supposedly) an old Scottish saying that goes "It's as well that everyone doesnae like the same thing, or we'd all run out of porridge." Never was this truer than when comparing the merits of various training gliders, a topic that tends to elicit strong opinions whenever it arises (particularly from flight instructors). In order to determine which trainers are in fact the least popular, a Very Scientific Survey was carried out* to obtain the definitive answer to this very important question.

Honorable Mention: Raab Doppelraab

The Doppelraab made its debut in 1951. A It was designed by Fritz Raab, who apparently couldn't decide whether he wanted to create a trainer or a single-seater, decided to average the two, and came up with this rather bizarre design. While ostensibly a two-seater, the Doppelraab was in truth more of a "1.5 seater". Despite having places for both an instructor and a student, it only had controls for the front seat, and the rear position was *extremely cozy*, as shown in the accompanying photo. In order to operate the controls, the instructor needed to reach over the student's shoulders to manipulate the over-length control column. As well as being an uncomfortable position for the instructor to maintain for any period of time, this could lead to accidental hugging incidents, which certainly tested the student's concentration.



The Doppelraab seating position was "interesting".

Fortunately, the instructor was unlikely to need to maintain this reaching-over-the-shoulders



A Raab Doppelraab in flight

position for a long time. With a maximum glide ratio of 20:1 it had roughly the performance of a brick with wings glued on. Even so, it still needed some kind of lift reduction device for landing, and the prototype Doppelraab had a distinctly unconventional braking system: the wing braces could pivot through 90

degrees such that their entire surface was facing into the wind. This was unsurprisingly not very effective, and subsequent versions were provided with more conventional airbrakes.

* The author asked a bunch of mates and spent a couple of hours trawling through various internet fora

The World's Most Unloved Trainers? (cont.)

Runner-up: Grob G103 Twin Astir

The Twin Astir, that training workhorse of many gliding clubs, first flew in the early 1970s and was immediately dubbed “the Concrete Swan”.



The Concrete Swan

Pilot opinions were very much divided regarding this aircraft, tending to be either something like “It's OK if you like that sort of thing”, or closer to “I'd rather fly a brick – it'd be more comfortable, and would probably perform better, too.” At its best in strong soaring conditions, the Twin's weight provided momentum and stability. However, in weaker conditions this weight and stability led to uninspiring soaring performance.

The Twin Astir was also less-than-inspiring in terms of handling. Very heavy on the controls, sluggish in the roll and extremely under-ruddered, it needed to be flown faster than one might expect to get decent performance out of it. The Concrete Swan was so unpopular in some circles that it even inspired a German campfire song, which started: “Marble, stone and iron flies, but the Astir does not”. (There were apparently many verses to this song.)

The Twin's unconventional mainwheel retraction system (which involved the wheel rotating sideways so that it could fold flat under the rear seat) necessitated what Wikipedia understatedly describes as “a rather unusual seating position” for the poor mug in the back seat. The instructor wound up almost fully recumbent, with feet elevated on the rudder pedals. One female flight instructor described this position as being not unlike sitting in a gynaecologist's chair.

The Twin Astir's undercarriage mechanism was problematic in other ways as well. Made of die-cast aluminium, it was rather prone to cracks and was very well-known for its tendency to collapse during heavy landings. Some clubs dealt with this by permanently fixing the mainwheel in the lowered position. But that didn't always solve the “brittle undercarriage assembly” problem: In one case, an attempt to lower the undercarriage in flight led to a very surprised pilot holding a snapped-off undercarriage lever while the mainwheel remained resolutely retracted.

It has been pointed out that “grob” is the Russian word for “coffin”. I'm sure this is just a coincidence.

The World's Most Unloved Trainers? (cont.)

Winner: Schweizer SGS 2-33

The venerable Schweizer SGS 2-33 was without a doubt the hands-down “winner”, being the subject of the most vehement loathing expressed by the largest number of pilots for any glider.

The 2-33 first flew in 1965. Designed to be easy to fly, forgiving and robust, it had a steel tube and fabric fuselage, and metal wings supported by struts. It was very popular in American gliding clubs (but pretty much nowhere else). Due to the fact that gazillions of them were built they were cheap to acquire; because of this and the fact that it was easy for a new pilot to transition from the 2-33 to the single-seater Schweizer 1-26, a lot of them stayed in service in clubs across the US for many years. It has been suggested that the prevalence of the 2-33 in US gliding clubs is in part responsible for the number of Americans among the top ranks of international glider pilots.



A Schweizer SGS 2-33 in all its ungainly majesty

Its faults were many. It had an uninspiring and draggy design that only a mother could love (especially when compared to contemporary trainers such as the Slingsby T53 and the Schleicher ASK 13). Its performance and handling were as delightful as its appearance. The rear cockpit was cramped and uncomfortable, with no instruments and poor visibility; and for additional instructing pleasure, the unsprung main wheel was located just under the instructor’s bum. The four-position ratchet cable release system was incompatible with every other launch cable system in the world, and apparently the 2-33 tended to collect water in the tail when left in the rain, leading to the centre of gravity shifting aftward as well as causing frame rot if not regularly drained.

The cockpit ergonomics of the SGS 2-33 can most politely be described as “memorable”. Early models placed the trim on the floor, forward of the control column... which was unreachable when the pilot’s harness was securely fastened. Later versions shifted it up onto the side cockpit wall, which still turned out to be challenging for some pilots to reach. In neither case could the trim be reached by an instructor in the rear seat. To add insult to injury, the trim spring only worked in the nose-down direction, so the requirement for constant back pressure on the stick while on aerotow provided many interesting experiences for trainees.

The lack of space in the cockpit caused all sorts of problems when operating the controls. This was not helped by the presence of the airbrake lever protruding *horizontally* (!?!) from the left cockpit wall. It was common to have to lift one’s leg and pass the control column *under* one’s

The World's Most Unloved Trainers? (cont.)

knee in order to get full left throw on the stick, which of course led to removing that foot from the rudder pedal. Truly a character-building way to teach coordinated turns!

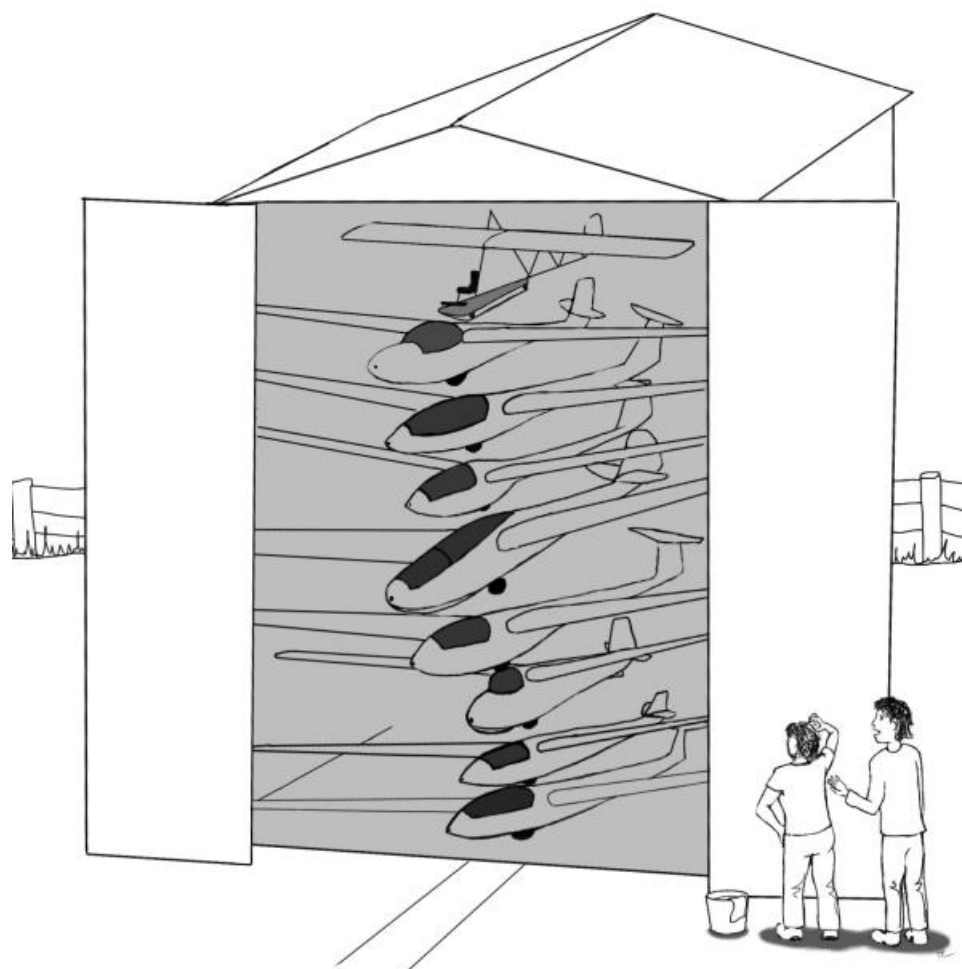
While some pilots apparently hold a degree of nostalgic affection for the 2-33, the degree of loathing expressed by the vast majority of people sharing opinions about it is a very compelling argument for naming the Schweizer SGS 2-33 The World's Most Unloved Trainer. One instructor described the 2-33 as "the vilest glider I have ever flown". Another pilot commented "I flew a 2-33 that had a broken seat pan that was poorly "fixed". So applying 3/4 to full left rudder resulted in me kicking my own ass with the rear rudder pedal."

"Kicking oneself repeatedly in the ass with the rudder pedal" pretty much seems to sum up the experience of flying a Schweizer SGS 2-33.

Photo Attributions

Doppelraab: From an article in Modèle Magazine (February 1981) by Richard Ferrière

Grob 103 photo: Jelle Vanderbeeck



I'm really not sure about this new "high density" hangar...

Mathematical Analysis of Glide Polars

or

First Year Uni Maths Put to a Useful(?) Purpose *By Steve Kittel*

You don't have to know this to fly gliders...
... but if you like maths, have I got an article for you!

In the back of most glider manuals you will find a graph which we call a "Polar" diagram. Just the name should clue in the more mathematically inclined that angles may be involved here. Anyway, the Polar diagram is a diagram which is generated by plotting the sinking speed at various flying speeds. It turns out this data is really useful for people who want to fly gliders and can be used to stay up longest, fly the furthest distance or fly fastest between two points. I am not going to tell you any of that here (well maybe I might, a bit). For detail of how to do that go to a source that talks about cross country flying specifically (and you should do that. Actually, go off and do it now!). Helmut Reichmann's old book, "Cross Country Soaring" or Bernard Eckey's more recent one are good for this.

In this article I have used the data for the Ka8. The values shown on the factory polar in the manual are in kph and metres/sec, but for this article I have converted all the units to be the same. We'll see why later. Polars can be generated in two ways. Either a real aircraft is flown through a range of speeds and the actual values are measured, or the polar can be calculated by the manufacturer. Guess which one is the more optimistic. (The manufacturer's one of course!)

So that I can write a little about the Ka8 polar I should have an illustration of it in this article. I won't make a direct copy of the one in the manual, I'll plot some data from it into Excel and make my own curve. To replicate the curve I could read off a point from the original graph every few knots (or kph) or so and plot them all. But there is a good mathematical trick that saves me all that work. The piece of the curve that we are interested in can be approximated (pretty well) with a second order polynomial of the form $y = Ax^2 + Bx + C$, where y is the vertical speed and x is the horizontal. To work out this curve we need to determine values for A , B and C , so we only need 3 data points to do 3 simultaneous equations. It turns out this is exactly how electronic glide computers store a polar needed to do their calculations. Older ones sometimes have the coefficients set in the hardware and so are specific for that glider only, but newer ones will often give an option for the user to change the three coefficients, and can be transferred from glider to glider without much trouble.

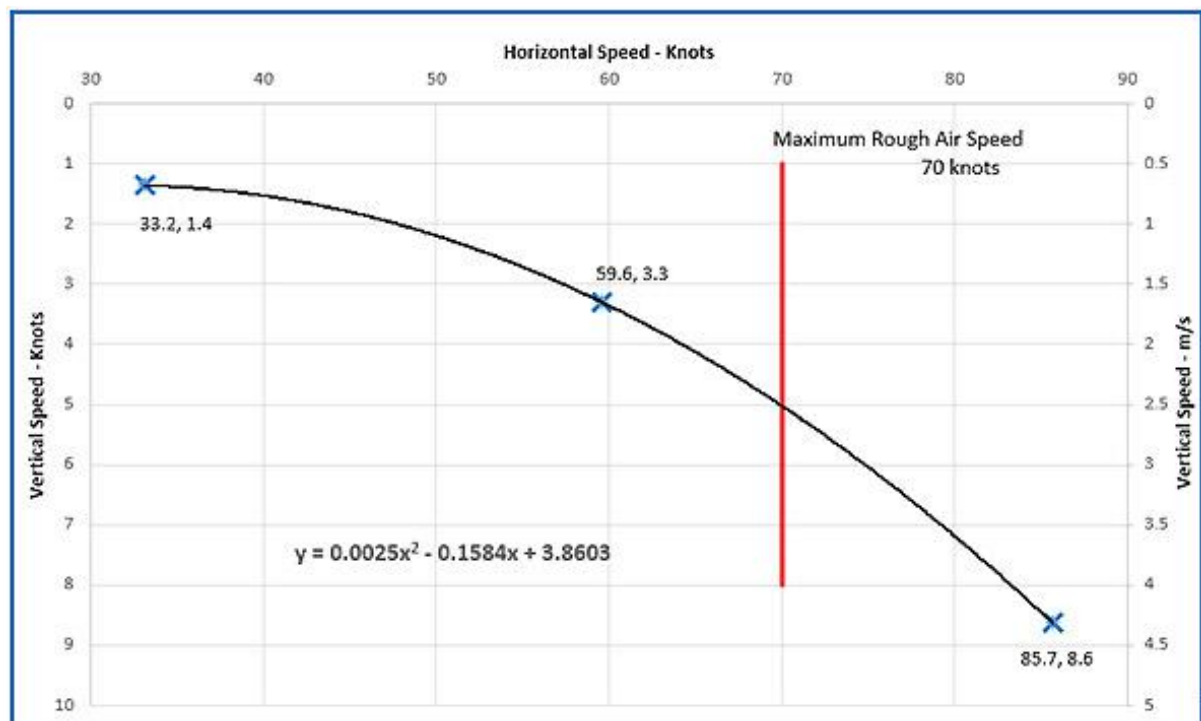
A word of caution here:

- If you want to update the coefficients in a glide computer, using incorrect units for speed (vertical or horizontal) will give different coefficients. Be sure of the units you need to use.
- The only part of the polynomial polar which is accurate is the bit within the two end points. As any mathematician will tell you, projecting past the end points of a curve fit will give wrong answers, and the further past the end points, the "wronger" they will be!

Mathematical Analysis of Glide Polars (cont.)

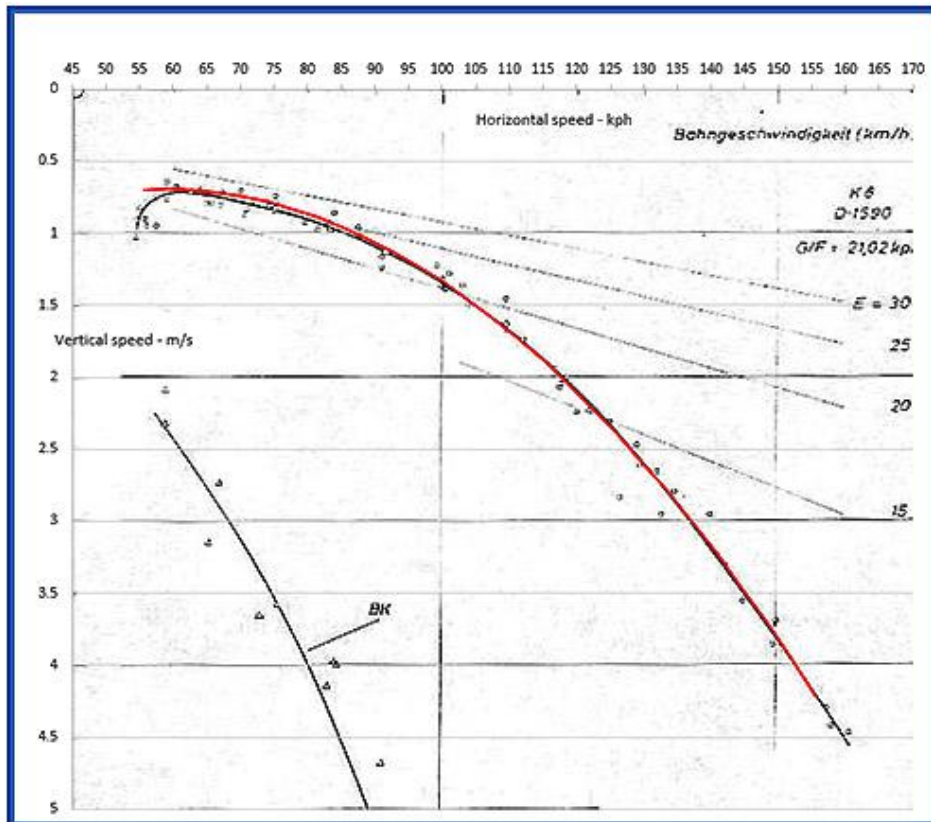
So it turns out that if I pick values of speed 33.2, 59.6 and 85.7 knots, I get matching sinking speeds of 1.4, 3.3 and 8.6 knots respectively, and doing the calculations I get an equation: $y = 0.0025x^2 - 0.1584x + 3.8603$. Note that I have arbitrarily chosen positive vertical values as “sinking” speeds and I am going to draw my graphs up side down (because I can...).

I can now go ahead and plot this curve on a graph. I have also added a vertical scale in m/s, and a red line to show maximum rough air speed for the Ka8. Just because we can do this maths and work out some theoretical speeds to fly *doesn't* mean we can actually fly at those speeds. There can be real structural limitations on the glider which are not usually indicated by the polar performance! In the case of the Ka8, on any strong thermally cross country day the actual flown speed must be limited to 70 knots due to the rough air limitation.

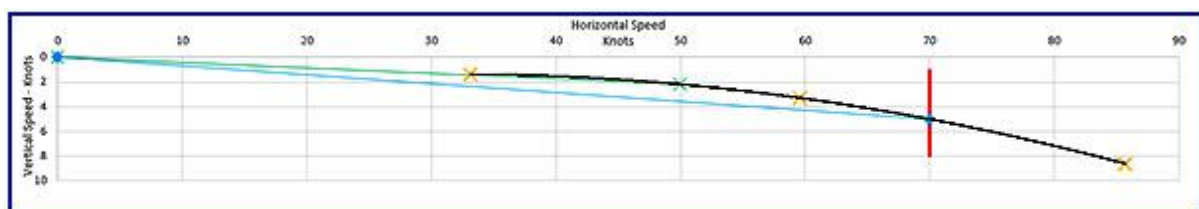


How well does that curve fit? We can have a quick look at the derived curve overlain on an original polar diagram. Actually, this polar is one from a tested glider; the factory one in the manual is a bit hopeful. The fit is pretty good from 100-160 kph (55-85 knots). It is a little optimistic in the 65-90kph (35 to 50 knot) range, and as you can see it goes badly wrong as the Ka8 heads into the stall. Which is fine as we won't be doing any cross country soaring while stalling, or at least I hope you won't be!

Mathematical Analysis of Glide Polars (cont.)



Now, the reason I have chosen to have the vertical and horizontal speeds in the same units is because it makes the calculations easier! If we plot the graph with the same scale axes and we draw a line from the origin (0,0) to any point on the curve we can directly measure the glide angle for that particular horizontal speed (if we wanted to).



In the diagram (above) the angle lines in green and blue are exactly the path the glider would take, and hence the angle that the Ka8 will take through (still) air at 50 and 70 knots respectively. If we wanted to we could measure this angle with a protractor.

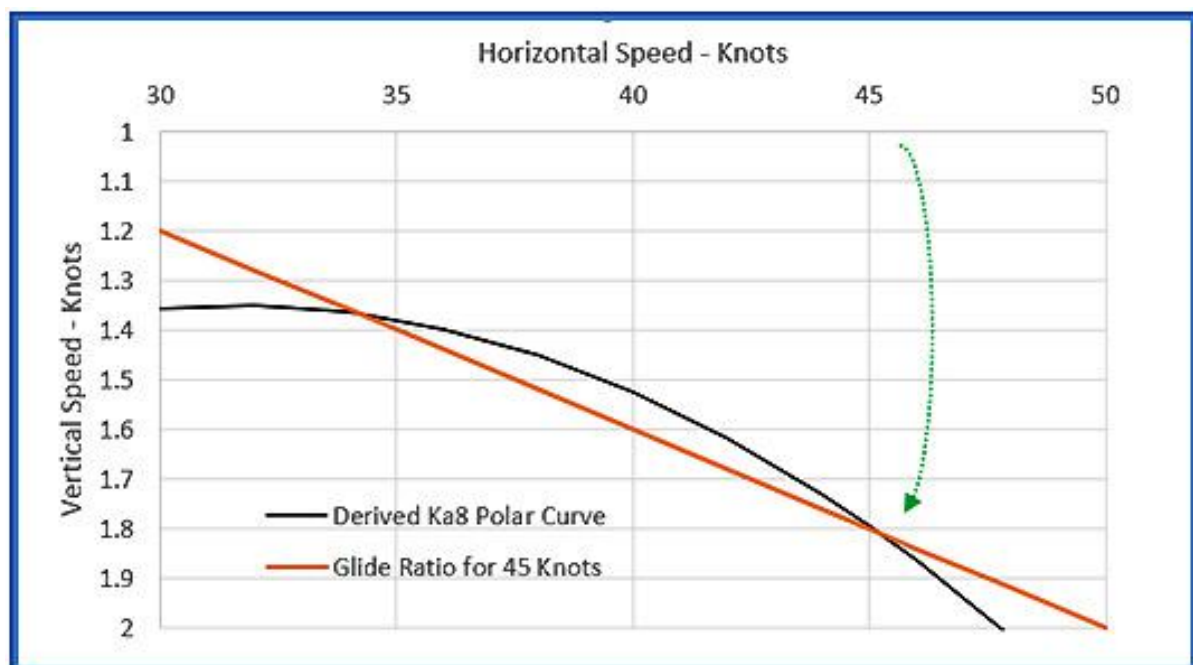
It turns out that all gliders, even not so high performing ones like the Ka8, glide at angles of only a couple of degrees or less. And the best performing ones glide at very shallow angles indeed, so this form of glide angle calculation is only of passing interest. Consequently it is easier to talk about the ratio between the vertical and horizontal speeds (which is the same as the ratio for vertical and horizontal distances for any set time). We call this the glide ratio.

The glide ratio can be easily read off the graph too. For instance at 50 knots the sinking speed is 2 knots, so the glide ratio is around $50/2 =$ (about) 25 to 1, within graph reading errors. Similarly at 70 knots the ratio is $70/5 = 14$ to 1. And here's a handy tip: if the vario in

Mathematical Analysis of Glide Polars (cont.)

the aircraft you fly is calibrated in knots, dividing the speed shown on your ASI by the sink rate shown on your vario will give you the instantaneous glide angle you are achieving!

Another interesting thing is that because the polar is a curve, any line drawn from the origin, which represents an achievable glide angle, will cut the curve in two places. In the example graph below, the glide angle for 45 knots (about 25:1) is the exact same angle for 34 knots as well. This is true at all airspeeds except for one special one we will talk about later. Just remember though, that when we talk about the glide angle for a particular speed we mean the faster of the two *possible* speeds. The slower of the two is usually no good for anything as it will take you longer to cover the same distance.



Caution: Calculus ahead!

As most uni students who have done a bit of calculus would know, we can work out a couple of interesting things from our newly derived Ka8 equation: $y = 0.0025x^2 - 0.1584x + 3.8603$.

Minimum Sinking Speed

If we take the first derivative of that equation, we get: $dy/dx = 0.005x - 0.1584$. dy/dx is the slope of the tangent to the curve at any particular point on it. If we think about it, the place where the curve tangent is horizontal is the highest point on the curve (a local maximum in maths speak) and that highest point on the curve is the lowest value for y (sinking speed). Where we sink the least we will stay in the air the longest**. If we do the sums; $0 = 0.005x - 0.1584$ gives us an x (horizontal speed) value of 31.7 knots. (Remember I said earlier that extrapolating past the curve ends is a bit dubious) the book gives 33 knots, so not too bad, considering.

** Not really useful for cross country, but handy to know if you want to extend the hangar flight to the longest possible time.

Mathematical Analysis of Glide Polars (cont.)

Best Glide Angle

Have you stuck with the article so far? You are persistent! Now, that special speed I mentioned before where there is one unique speed for a glide angle on the polar: this occurs where the line from the origin just touches (is tangent to) the polar curve. That is the best glide angle and it is a useful speed to know as the glider, when flown at this speed, will cover the furthest distance for any height lost (assuming there are no wind effects).

So, we know that the slope of the tangent to the curve at *any* place on the polar curve is given by dy/dx . We also know that a straight line equation is of the form $y=mx + c$. m is the slope of the line (i.e. dy/dx) and c is a constant to account for the line not passing through the origin. Which in our case it will, so $c=0$. That makes it a tad easier. Now our tangent line equation is $y = (dy/dx)x$, which written out fully is $y = 0.005x^2 - 0.1584x$, and we know that our polar is $y = 0.0025x^2 - 0.1584x + 3.8603$.

From here it is a simple (?) simultaneous equation which will give $x=39.295$ knots. (Actual working is left to the reader to check if I am pulling their chain, or not.) Then if we back-fill that into either of our original equations we can determine the corresponding value for y (sinking) is 1.496 knots. Finally, if we find the ratio of those two values we get a glide angle of 26.27.

This compares pretty well with the factory values of 73 kph (39.4kts) for a sinking speed of 0.76 m/s (1.48 knots) and a glide angle of 27.

The factory values are for an aircraft weight of 285/290 kg compared to the independent test which was done at the slightly higher weight of 300kg. If anything, the values for the heavier aircraft should be a tiny bit higher than the lighter factory values. (See, I told you the factory were optimistic!)

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So. The Summary:

For the glider you wish to fly, you can work out a number of important speeds to operate at and its achievable performance by either:

1. graphically, directly drawing on the polar; or
2. with coefficients known to be on the curve, mathematically using a little bit of calculus and simultaneous equations.

This article concentrates on the basic maths behind the polar. There is a lot more information that can be gained by further analysis, including head winds, etc. Modern glide computers work on these principles.

Don't assume all these speeds are actually achievable by your particular glider, check for other speed limitations in the manual.

Don't mix up the units!

Dates for your Diary

Recurring AUGC Events

Flying

Most Saturdays & Sundays at Stonefield. Check the flying roster on the AUGC website (<http://augc.org.au/FlyingRoster.php>) to make a booking.

Mini-Grand Prix Race Series 2018-19

At Stonefield on the following dates. (Full details TBA)

October 13-14

November 10-11

December 15-16

January 26-27

February 16-17

March 23-24

April 13-14

Aircraft Maintenance

Most Monday nights at West Beach. See last page of UniGliding for details.

Committee Meetings

More-or-less monthly, at Cath's place (21 Cardigan Ave, Felixstowe). Exact date and time TBA - ask on the AUGC-People mailing list if you're interested and would like to know more. All welcome! Come and get involved in the running of your club (or at least see how it is run...).

Flying Camps and other Major Events

Bunyan Wave Camp (15-23 September 2018)

Bunyan, NSW.

Khancoban Camp (November 3-6 2018)

Gliding Club of Victoria (contact GCV directly or the AUGC exec for details)

Other SA Events & Activities

Engine maintenance course (2 - 8 September 2018)

Waikerie Gliding Club.

GFA Board Meeting (27-28 October)

Adelaide, SA.

Waikerie Orange Week (17-24 November 2018)

Waikerie, SA.

JoeyGlide Australian Junior Nationals (12-19 January 2019)

Waikerie, SA.

SAGA Coaching Week (6-11 January 2019)

Waikerie, SA.

Dates for your Diary (cont.)

Further Afield...

(Unless otherwise specified, details for all of these events can be found in Gliding Australia or on the GFA Calendar here: <https://glidingaustralia.org/calendar>).

A wide variety of **GFA airworthiness courses** are being held interstate over the next few months. Rather than listing them all here, if you're interested check out the GFA Calendar.

Queensland State Competitions (29 September - 6 October 2018), Kingaroy, QLD.

Vintage Gliders Australia Melbourne Cup Rally (3-6 November 2018), Bacchus Marsh, VIC.

Coach the Coaches Week (11-16 November 2018), Narromine, NSW.

Narromine Cup (18-24 November 2018), Narromine, NSW.

Multiclass Nationals (26 November - 7 December 2018), Narromine, NSW.

Women In Gliding Week (8-15 December 2018), Temora, NSW.

Victoria State Competitions (9-15 December 2018), Benalla, VIC.

Formula 1.0 Grand Prix (29 December 2018 - 6 January 2019), Leeton, NSW.

Women's Pre-World Gliding Championships (31 December 2018 - 11 January 2019), Lake Keepit, NSW.

Club Class Pre-Worlds (31 December 2018 - 11 January 2019), Lake Keepit, NSW.

2-Seater Regatta (13-19 January 2018), Temora, NSW.

NSW State Championships (19-26 January 2019), Narromine, NSW.

Horsham Week (2-9 February 2019), Horsham, VIC.

20m 2 Seat Championships (9-16 February 2019), Narromine, NSW.

WA State Competitions (27 February - 7 March 2019), Cunderdin, WA.

10th Womens' World Gliding Championships (3-17 January 2020), Lake Keepit, NSW.

Fees & Charges*

Aircraft & Airfield Charges

Aircraft Type	Club Rate (\$/min)	Student Rate (\$/min)	Visiting Pilot Rate (\$/min)
Janus (VH-GVU)	0.85	0.55	1.10
K-13 (VH-GQC, VH-GQS)	0.75	0.45	1.10
Motorfalke flying time (VH-FQW)	1.00	0.60	1.50
Motorfalke engine time (VH-FQW)	0.90	0.90	1.00
Ka-8 (VH-GQU, VH-GAQ)	0.50	0.30	0.75
PIK-20D (VH-WVA)	0.80	0.50	1.05

Winch Launches: Student \$7.00/launch, Non-Student \$8.00/launch

SAA Airfield Levy: \$8.00/person/day - applies to anyone that flies.

Memberships

To fly with the Adelaide University Gliding Club it is necessary to be a member of the Club, a member of the Adelaide University Sports Association (AUSA) and a member of the Gliding Federation of Australia (GFA). Membership rates are as follows:

AUGC: Student \$30/yr, Non-Student \$150/yr

AU Sports Association: AU Student \$Nil, Non-Student Junior (under 18yo) \$22/yr, Non-Student 18+yo \$88/yr,

GFA: Student \$143/yr, Non-Student \$275/yr, Introductory (see below under Air Experience Flights) \$40 (30 days)

GFA Membership is required to fly AUGC aircraft. Introductory membership can only be taken out once per person.

Air Experience Flights

Student \$100, Non-Student \$120

This covers up to 20 minutes flight time, GFA Intro M'ship, SAA Airfield levy, up to 2 winch launches. Time in excess of 25 minutes is charged at \$0.75/minute for K13, \$2.00/minute for Motorfalke. **Note:** the GFA introductory membership lasts for 30 days, so if you enjoy your introductory flight(s) you can come back and do it again for several weekends following, and only be charged the club rates for aircraft hire and launches!

Miscellaneous Items

Basic Gliding Knowledge Book: \$25

Pilots Logbook: \$5

DI Handbook: \$15

AUGC Training Book: No charge

Airways-Radio procedures: \$5

** All prices valid at the time of publication; may change sometime in the future*

Special Deals & Discounts*

Air Experience Flight New Membership Deal

If someone who has gone for an Air Experience Flight (AEF) decides to learn to fly, and they sign up to become a 12 month Gliding Federation of Australia (GFA) member whilst their AEF membership (which lasts for 30 days) is still valid, \$40 will be credited back to them. Nice!

Pre Solo Packages

AU Student \$650, Other Student \$650, Non-Student \$900

This covers flying time, winch launches and airfield levy up to solo with the following limits: Includes 12 hours of aircraft hire and 1.5 hours Motorfalke engine time, OR 40 winch launches, OR 12 months, whichever occurs first. Includes logbook and training book. Club, Sports Association and GFA memberships are additional.

Declared Cross-Country Flight Discount

To encourage pilots to fly cross-country without worrying about pesky aircraft hire costs mounting up, this Cross Country Discount is as follows: If you fly a DECLARED cross country flight (i.e. you declare where you are planning to fly to before you launch) then if you are airborne for more than three hours, you will only be charged for three hours of aircraft hire. Bargain! Time to start planning those mighty 8-hour-plus flights!

Bulk Solo Package

If you're a solo pilot you may be interested in this one! For one single bulk payment, you get all aircraft hire covered for twelve months (unlimited hours). Note that this does NOT include launch costs or the airfield use fee, it MUST be paid up-front, and your flying account MUST be in credit for you to be eligible for this offer. Price on request.

GFA Weather Forecasting Software

This one's really handy once you've progressed in your flight training to the point where you're learning about how the weather affects thermals, and are starting to get your head around meteorology for glider pilots. All Gliding Federation members now have *FREE* access to a mini version of the popular Skysight weather forecasting model. The model covers all gliding sites in Australia, with a 4 day prediction and "point forecast" capability, on top of the normal thermal and weather predictions.

You can access the site in one of two ways.

1. Click <https://weather.glidingaustralia.org/> and just register with your GFA membership details.
2. On the GFA web page www.glidingaustralia.org, click on MyGFA and select GFAMet Weather Forecasts.

** All prices valid at the time of publication; may change sometime in the future*

Flying Checklists to Know

There are a number of safety checklists that you will need to learn that need to be performed in certain flying situations.

All pilots **must** use these checks in the form specified here. For more information see the Manual Of Standard Procedures Vol 2 on the GFA website (<http://glidingaustralia.org/>)

Pre-Take Off Check (from **OUTSIDE** cockpit)

- A** AIRFRAME: walk around check for damage and/or defects. Maintenance Release checked, including DI validity.
- B** BALLAST: glider loading is within placarded limitations and trim ballast secure.
- C** CONTROLS: checked for correct sense and full deflections, including airbrakes and flaps.
- D** Check that all tail or wing DOLLIES (or other ground handling equipment) are removed.

Pre-Take Off Check (from **INSIDE** cockpit)

- C** CONTROLS checked for correct adjustment and comfortable access, and rudder pedals adjusted for reach (if applicable).
- H** HARNESS/ES tight and secure, lap belt low on hips (front and rear if applicable).
- A** AIRBRAKES closed and locked.
- A** FLAPS set for take-off.
- O** OUTSIDE: airspace and takeoff path clear, wind checked, ground crew available.
- O** OPTIONS: identify critical aircraft speeds, launch failure actions.
- T** TRIM: set for launch.
- I** INSTRUMENTS: altimeter set to QNH, intact, avionics on and working, radio set to 126.7 MHz.
- C** CANOPY closed, locked & clean.
- UNDERCART: down and locked.
- CONTROLS: full & free movement.

Pre-Landing Check

- F** FLAPS: set to landing position (if fitted).
- U** UNDERCART: down and locked.
- S** SPEED: set to safe speed near ground (1.5 x stalling speed).
- T** Aircraft TRIMMED for selected speed, disposable ballast drained (if present).

Pre-Aerobatic Check

- H** HEIGHT: Sufficient for recovery by 1,000ft AGL (2,000ft if within a 2 mile radius of a licenced aerodrome).
- A** AIRFRAME: Flaps, airbrakes, undercarriage set as required. Trim as required. Hatches and vents closed and locked as appropriate.
- S** SECURITY: Harness secure. Loose objects stowed.
- L** LOCATION: Clear of built up areas, cloud, controlled airspace
- LOOKOUT: 180° plus 90° turns checking carefully around, above and underneath. Do not do a 360° turn.

Cut this page out and have it handy.

So you want to fly this weekend?

If you want to fly this weekend, there are two ways to arrange it. The first (and best) way is to **put your name down on the flying roster!** It can be found at <http://augc.org.au/FlyingRoster.php> and is also a great way to see who else is going up to the airfield on the same day. (Note that in order to access the flying roster, you'll need to register on the AUGC website first; it's easy to do, and the registration page is here: <http://augc.org.au/Register.php>) The other way to book is to call the club contact person **on the Thursday beforehand, either by phone between 8pm and 10pm on 0412 870 963, or by email (contact@augc.org.au)**. Please don't just show up without booking: we need to know that you're attending so that instructors (and transport, if necessary) can be arranged.

OK, you've booked to fly; what now? If you have your own transport, it's easy: there is a map on the AUGC website that shows you how to find us (<http://augc.org.au/FindingUs.php>), or you can navigate your own way there. Note that Google Maps (and other navigation tools) have our location recorded as "**Steinfeld**", not "Stonefield". If you leave the city at 8am, you'll be at the airfield in plenty of time for the 10am pre-flight briefing. If you don't have your own transport, we can help! When you make your booking, either request transport from the contact person when you phone/email them, or if you book online make sure you mention that you need transport in the "Msg" field, and leave a contact phone number so that we can get back to you to arrange it.

There are a few other things you should plan before you head up to the airfield. The details are all spelled out on the website (<http://augc.org.au/ComeGliding.php>) but in brief, you will need:

- comfortable outdoorsy clothes, fully enclosed footwear... and expect to get dirty.
- water, and lots of it (yes, even in winter)
- a hat & sunblock
- lunch (you can bring your own or stop at the awesome Truro bakery on the way, but there is unlikely to be food available to purchase on the airfield)

If you have any questions, please feel free to either ask the contact person, or email the **AUGC-People mailing list**. (You *have* signed up to that, haven't you? If not, see page 32 for details on how to do so.)

See you soon!



Come and fly! You know you want to...

Other ways to be involved...

Stay in touch online

The club has Google Groups email mailing list that is used both for general gliding-related chat and for planning and arranging things within the club (and also sending you your copy of the latest newsletter!). It is very much recommended that members subscribe to this mailing list, which can be done by create a Google Groups profile as follows:

- Go to <https://groups.google.com/>
- Click on the blue "Sign in" button at the top right corner of the page
- Select "Create account", and the rest should be self-explanatory.

After you've done that, join the AUGC-People group here:

<https://groups.google.com/forum/#!forum/augc-people>

When your membership request has been approved by the moderator, you'll be good to go!

You can also stay up to date with club activities by keeping an eye on the following:

AUGC website: augc.org.au

AUGC Facebook: <https://www.facebook.com/AdelaideUniGliding/>

AUGC Twitter: <https://twitter.com/AdelUniGliding>

Get involved in aircraft maintenance at West Beach

The AUGC workshop at West Beach is where we carry out repairs and maintenance on our gliders and equipment. This can range from fixing or replacing small items through to complete strip-down and rebuild of aircraft. We welcome any extra assistance no matter your skill level - if you don't know how to do things, you'll get friendly advice and instruction from the more experienced people there. Getting up close and personal with the insides of a glider is a good way to learn how they work, and great for learning about glider airworthiness and repair techniques. There are members at the West Beach on most Monday evenings from around 7pm onward; if you want to check that people will be at the workshop before heading down, an email to the AUGC-People mailing list earlier in the day is a good way to be sure. If you want a lift to the workshop, that can also be arranged via the mailing list.



The workshop at West Beach

The AUGC workshop is located at the end of Foreman Street, West Beach (next to the AUGC sports grounds): drive through the gate, turn right and park on the grass (or mud during winter) and you'll see the workshop to your right.

Club Contacts and Who's Who

President: Cath Conway (president@augc.org.au)
Treasurer: Redmond Quinn (treasurer@augc.org.au)
Secretary: Leigh Stokes (secretary@augc.org.au)
Social Convenor: Nicola Lieff (social@augc.org.au)
Fifth Member: Derek Spencer (fifth-member@augc.org.au)

Chief Flying Instructor: Cath Conway (cfi@augc.org.au)
Airworthiness Officer: Redmond Quinn (airworthiness@augc.org.au)
Club Coach: Leigh Stokes (jimmytechnologies@yahoo.com.au)
Assistant Treasurer: Derek Spencer (derekspencer@internode.on.net)
Clubhouse Officer: Leigh Stokes (jimmytechnologies@yahoo.com.au)
Winch Officer: Leigh Stokes (jimmytechnologies@yahoo.com.au)
Grants Officer: Darren Alcoe (grants@augc.org.au)
Contact Person: Leigh Stokes (contact@augc.org.au)
Website Officer: Heath L'Estrange (Heath@webadventures.com.au)

SAGA Reps:

Redmond Quinn (rquinn@adelaide.on.net)
Leigh Stokes (jimmytechnologies@yahoo.com.au)

SAA Reps:

Redmond Quinn (rquinn@adelaide.on.net)
Leigh Stokes (jimmytechnologies@yahoo.com.au)
Derek Spencer (derekspencer@internode.on.net)

AU Sports Association Rep: Cath Conway (cath@internode.on.net)

Public Officer: Derek Spencer (derekspencer@internode.on.net)

Social Media (Facebook): Leigh Stokes (jimmytechnologies@yahoo.com.au)

Social Media (Twitter): Teal Evans (augc@chromatic-dragonfly.com)

Newsletter Editor: Teal Evans (newsletter@augc.org.au)

