

Uni Gliding

Vol 42 Number 1 - O'Week Edition 2019

In this issue...

Welcome to AUGC!

Flight Theory for the Complete Moofhead

AUGC - Diversity by Design

...And Much More!



The Official Journal of the Adelaide University Gliding Club Inc.

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Editorial

Hi all, and Happy New Year! To our new members: Welcome to AUGC!

This is a special O'Week Edition of UniGliding containing lots of useful introductory information for new members: a description of how this "gliding" thing works, an overview of our (awesome!) fleet and facilities, and everything else you might need to know in order to get involved. Come and give it a go - it's impossible to describe how much fun it is to fly in a glider, so you'll just have to try it to find out!

This issue also contains plenty of AUGC news (some of our members have been *very* busy this summer!), an easy-to-read introduction to basic flight theory (or "what keeps gliders from falling down like bricks"), and great article about the history of our club by one of AUGC's original founders.

Fly safely and have fun!

Teal

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Image Credits

Cover photo:

The Astir awaits (Photo: T. Evans)

Original artwork: T. Evans

Other photos and images by T. Evans except in guest articles and where otherwise noted.

Uni Gliding

A publication of the Adelaide University
Gliding Club Inc.

Uni Gliding is published a variable number of times a year whenever the Editor gets around to it.

Composed using the Scribus 1.4.2 desktop publishing system and MS Office 2016, and published to Adobe Acrobat PDF 1.4.

Printed in Australia.

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Advertising rates available from editor@augc.on.net.

AUGC News & Achievements

Quite a few AUGC members have flown in interstate competitions or achieved other flying goals this summer.

AUGC President Cath Conway flew her Ventus 2 in Open class at the Multiclass National competitions at Narromine in early December, and then in the Sports class Nationals and the Womens' Pre-Worlds a few weeks later at Lake Keepit. As a result of her performance in the Pre-Worlds, Cath has been selected to be on the team representing Australia in the next Women's World Competition. She is the only AUGC member *ever* to represent Australia (and AUGC, of course!) in a World level competition. Impressive work, Cath! You inspire us all.

There was good AUGC representation at the Formula One competition held over the New Year in Leeton, NSW: Leigh Stokes flew the Astir, the newest addition to our fleet, while Heath L'estrage and Nick Gilbert entered in their own gliders (a Libelle and a DG-100).

Leigh then took the Astir to Joeyglide (the Junior gliding cross-country coaching program and national competition) at Waikerie, where he and Michael Conway flew (uncooperative weather notwithstanding).

Leigh also attended a "Coach the Coaches" event taught by G Dale at Narromine, which is by invitation only so is quite a feather in his cap.



Leigh flying the Astir in the Leeton Formula 1 (Photo: f1gp.com.au)

And Derek Spencer continued his trend of epic cross-country flights performed over the Christmas/New Year break by flying over a thousand kilometres (actually 1025.6 kms) in a single flight with Konrad Maierhofer in Konrad's Nimbus 4. A few days later he took the Motor Falke to Tailem Bend, and he and several other pilots went above and beyond the call of duty, working together to give 900 scouts their first experience of flight in a motor glider during the Australian Jamboree in the Murraylands in early January. While there are no GFA achievement badges for getting scouts airborne, if there were Derek and the other pilots involved would definitely have earned one!

Closer to home, James Hobson achieved his first solo flight recently. Congratulations, James! Well done. Also, Darren Alcoe, Ben Carter and Yr Humble Editor converted to the Astir (yay!)

Finally, more long-term AUGC members may be pleased to note that Don Hein, a previous

AUGC News & Achievements (cont.)

AUGC member and CFI of the Club, was awarded a Medal in the General Division of the Order of Australia (AM) in January's awards for significant service to the people of Thailand through social welfare initiatives, and to archaeological research. His wife Toni also received the same honour.

The Astir returns!

Huge thanks are due to the people who worked hard on the Astir (VH-KYR) to get it ready to fly in time for Joeyglide and various other summer competitions and events. For those who don't know: the Astir was purchased last year from Morgy's Glider Works in Waikerie as a "project" aircraft that needed considerable work to be restored to airworthy condition, since it had been damaged some time previously in a heavy landing. Initial major structural repairs and repainting of the fuselage was performed by Martin at Morgy's. After we acquired KYR, AUGC members took over and finished restoring it. These include:

Leigh (many, many hours put into working on airframe & trailer)
Derek (huge effort on trailer)
Sam (trailer)
James H (trailer)
Darren (moral support)
Redmond (airframe and fiberglass minor repair work)
Wolfgang (a lot of fiberglass minor repair work)
Cath (various stuff)



Much gratitude is owed to all of them. Now, lets go out and fly our shiny new bird!

Fleet & Equipment Status

Aircraft

Janus (VU): Operational

K-13 (QC): Operational

K-13 (QS): At West Beach being re-covered and overhauled. Much work has been done; it may be flyable again as early as soon as the middle of the year!

Ka-8 (AQ): Operational

Ka-8 (QU): Operational

Astir (KYR): Operational (although the towing gear is having difficulties at present)

Pik-20 (WVA): Survey in progress, unlikely to be in the air before next summer

Motorfalke (FQW): Almost Operational: it's currently having its harnesses replaced, but that won't take long. It still has some ongoing engine overheating issues in some situations that are being investigated.

Winches

Truck winch: Offline for truck engine work completion

Tost winch: Operational

Trailer winch: Ready for operational testing

SA State Competitions at Stonefield!

AUGC is hosting the South Australian State Competitions over 2 weekends in early March. The competition will be run as a Grand Prix format, which is a new exciting way of racing gliders, and it's also pretty easy to understand compared to other competitions. It is looking like there will be 10+ aircraft flying.

Dates

Friday 8th March – Possible Practice Day
(if enough demand)

Saturday 9th March – Comp Day 1

Sunday 10th March – Comp Day 2

Sunday 11th March – Comp Day 3

5 day break

Saturday 16th March – Comp Day 4

Sunday 17th March – Comp Day 5 (Final Day. Presentation after flying.)



(Photo: AUGC Facebook page)

Coaching

Derek has offered to fly with anyone wishing to be coached, in the Janus. This would be a great opportunity to gain some Cross Country and Competition experience with our very own gliding weapon. There should be up to 5 (or possibly 6) flying days. Let Derek or myself know if you interested in flying any days. We know of Darren so far. Please note, you don't need to be a solo pilot to benefit from this experience.

Astir

The club's Astir is a very suitable glider for the competition. I am unaware of anyone wishing to fly it in the competition at this stage. You don't need to commit to fly the whole competition; you can fly as few a days as you like. It would be great to see it flying. Don't let the title put you off; despite being a State competition, this is a friendly event, and a good opportunity to learn.

Catering

One of the benefits to the club for running such an event is the ability to fundraise through catering. It would be good to try to put on as many meals as possible. If you can help out by doing a meal, please let me know.

Normal Club Operations

There may be normal club ops available during the competition, but it's looking like at least Derek, Leigh & Cath will all be flying in the comp, so you'd need to secure alternative instructors & crew ahead of time. My suggestion would be that if you want to fly during this time, go flying with Derek in the Janus!

If you feel like you might be able to help in any other way, or have questions, please let me know.

Heath (0430 480 608)

Welcome to AUGC!

Hello, new members! (And old ones too, I guess...) Welcome to Adelaide Uni Gliding Club. If you've never been in a glider before, you are in for a real treat! We're all ready to teach you (yes, you!) how to fly like a bird. Learning how to soar with eagles is quite possibly the most awesome thing you'll ever experience. So how does it all work?

The Basics: How does a glider fly?

A glider is simply an aeroplane without an engine. For any aircraft, it's not the engine that keeps it in the sky, but the wings. A powered plane uses an engine to move it forward through the air so that the wings can do their job and provide lift; in a glider, we use gravity to do the same thing. (*More details on this can be found in "Flight Theory for the Complete Moofhead" on p.14.*) A glider turns height into forward motion in much the same way that a vehicle rolling down a hill does. If the air is still, the glider slowly descends steadily earthward as it flies. However, the air is *not* still - sometimes it goes up and sometimes it sinks down. A glider pilot learns how to find sources of lift, and a capable pilot can stay airborne for as long as the lift holds out (often many hours).

How does a glider take off?

There are a variety of ways that a glider can launch into the air, but the two most common methods are to tow it behind a powered plane on a rope (aerotow) and to winch it into the air on a long cable. While aerotow has some advantages (the glider can be towed to any height the pilot desires, and/or to a specific location where there is known to be lift) it is rather expensive due to the cost of operating the tow plane.

But fear not! Winch launches (what AUGC uses) are much cheaper than aerotows. They're also a lot more fun! A winch is basically a stonking great engine mounted on the back of a truck. To launch a glider, the winch winds in steel cable (which is attached to the glider waiting at the other end of the airstrip) at high speed, hauling the glider up into the air rather like a kite. We typically get launches of around 1500'-2000' or so using this method. At the top of the launch the pilot pulls a knob to release the cable, but the glider will automatically release as it continues forward if this doesn't happen.

How does a glider stay up?

The basic idea is to fly the glider in air that is going up faster than the glider is descending. Sounds simple, right? Well, there's definitely an art to finding good lift (you'll learn all about that as you progress in your flight training) but there are a variety of sources of lift that glider pilots can take advantage of to stay aloft. The most common source of lift that you'll find at Stonefield is thermal lift - the sun heats the ground, which in turn heats the air just above it. If this air gets sufficiently heated, it will start rising in invisible bubbles and streams called thermals. Gliders (and soaring birds such as eagles, which we often see around the airfield) circle in thermals and thus rise up in the warm air. Strong thermals can carry a glider up past 10,000 feet on a warm day. There are other lift sources as well, (such as wave lift, ridge lift and convergence lift, which you will learn about as you develop your soaring skills) but the vast majority of soaring during your flight training at Stonefield will involve learning how to find and use thermals to stay airborne.

Welcome to AUGC! (cont.)

How do I learn to fly with AUGC?

AUGC has a number of qualified and experienced flying instructors who will teach you how to fly in our two-seater training gliders. The trainee sits in the front seat while the instructor sits behind them, and there is a full set of controls and instruments for both seats. Learning to fly consists both of airborne instruction where you learn how to operate the aircraft and work out what to do when; and ground instruction where you learn the theory behind what you are doing in the air. Initially the instructor will fly the launches and landings while you learn the basics of controlling the aircraft (flying straight and level, how to make the aircraft turn, and so on) but it won't take long before the instructor starts teaching you how to perform more challenging parts of the flight such as the launch and the landing. When the instructor feels that you are proficient and safe in your flying, you will be invited to fly the aircraft without them in the back seat: to GO SOLO. Typically this takes around 10-15 hours of flight time to achieve, but it can vary a lot depending on how frequently you fly (among other things).

How much will it cost me?

The main costs involved in learning to fly gliders are the following:

AUGC (& AU Sports Association) membership

Gliding Federation of Australia membership (necessary for anyone flying gliders)

Launch costs

Glider hire

These costs are all detailed on page 22.

What happens after I go solo?

Going solo is the first step into a much larger world! Once you are flying on your own, there is a series of progressively more challenging achievement certificates and proficiency badges that you can work toward, as well as learning how to fly cross country. You can also learn how to fly aerobatics or enter soaring competitions... truly, the sky is the limit! If you want to know more about these possibilities, information can be found here:

<http://juniorsoaring.com.au/going-soaring/after-solo/>



Our Fleet

Schleicher ASK-13 (VH-GQS and VH-GQC)

AUGC owns two of these reliable, easy-to-fly two-seater trainers. This type is used for flight instruction world wide, and tens of thousands of pilots have had their first solo in an ASK-13. It has a fabric covered steel tube fuselage with wood stringers and fiberglass nose, and fabric-covered wooden wings and tail. The mid-wing design and one piece canopy make for excellent pilot visibility. The landing wheel is fixed, and the aircraft is fitted with airbrakes.

Wing span: 16m

Minimum sink: 1.56 knots at 37 knots

Best glide ratio: 27:1 at 46 knots



Schempp-Hirth Janus B (VH-GVU)

This is the club's high performance two seater. It is faster, slipperier and more challenging to fly than the ASK-13s and is used for advanced training, especially cross country and competition training. It was purchased with a generous grant from the Hackett Foundation. The Janus has camber-changing flaps and the capacity for water ballast (used in competitions) and is fitted with a non-retractable undercarriage with a disc brake.

Wing span: 18m

Minimum sink: 1.16 knots at 49 knots

Best glide ratio: 39.5:1 at 59 knots



(Photo: Richard Harris)

Our Fleet (cont.)

Schleicher Ka-8 (VH-GQU and VH-GAQ)

AUGC owns two of these simple, fun-to-fly single-seaters. Very much like a smaller version of the ASK-13, these wood, steel tube and fabric gliders are the first single-seater type that most newly-solo pilots fly. With their rugged construction, superb climbing ability in thermals and pleasant handling characteristics, our Ka-8s are an absolute joy to fly. In 1968 Karl Striedeck of the U.S. made a 767km ridge flight in a Ka-8, achieving an out-and-return distance world record.

Wing span: 15m

Minimum sink: 1.3 knots at 32 knots

Best glide ratio: 27:1 at 39 knots



Grob G102 Astir CS77 (VH-KYR)

This beauty is our Standard class single-seat fibreglass aircraft. The Astir has a retractable undercarriage, water ballast capability and a comfortable semi-recumbent seating position - just right for long cross-country flights! It offers good low-speed handling characteristics and great performance, especially in weaker thermal conditions. In 1986 an Astir set a world absolute altitude record of 49,009 feet, which wasn't broken until 2006.

Wing span: 15m

Minimum sink: 1.2 knots at 42 knots

Best glide ratio: 38:1 at 56 knots



Our Fleet (cont.)

PIK-20D (VH-WVA)

The Pik-20D is the high-performance single-seat glider in the fleet. Equipped with camber-changing flaps, retractable undercarriage and water ballast capability, it is easily able to perform long cross-country flights in excess of 500 km. This glider has represented the club at the National Club Class Championships, finishing 6th on one day and in the top 12 most days. It has also represented Slovenia in the World Club Class Championships held January 2001 at Gawler, where we were shown just how fast it could go!

Wing span: 15m

Minimum sink: 1.28 knots at 42 knots

Best glide ratio: 42:1



Scheibe SF-25C Motor Falke (VH-FQW)

This is AUGC's two-seater powered glider. It is similar to the ASK-13 in that it is constructed of steel tube and fabric with wooden wings, but it also has a small motor and propeller. This allows it to launch without the aid of a winch or tow-plane and, if necessary, to stay up when there are no thermals or other lift. The Motor Falke can offer extended training flights on days where there is insufficient lift - an advantage which couldn't previously be offered to trainee pilots at the club. It is also great for general recreational flying, with flight distances not being limited by soaring conditions.

Wing span: 15.3m

Minimum sink: 2 knots at 41 knots

Best glide ratio: 22:1 at 48 knots



Our Facilities

AUGC shares the airfield at Stonefield with the Barossa Valley Gliding Club. On-field we have several aircraft hangars, a clubhouse, a large briefing room, overnight accommodation (both a bunkhouse and comfortable air-conditioned huts) and most importantly... a fire pit! The bonfires that often occur after the day's flying concludes during winter are legendary! We also have several winches (used for launching gliders) and there is a privately-owned plane (Piper Pawnee) hangared at Stonefield which is sometimes available for aerotows. The countryside surrounding the airfield is ideal for gliding. And since gliders do occasionally need maintenance, we have a fully equipped workshop at West Beach where this is carried out by our members (see page 26 for more info about the workshop, and how you can get involved in aircraft maintenance).



Stonefield's biggest hangar (one of several). Some of our gliders live in here, as do our winches, and a number of privately-owned aircraft. This building also houses the briefing room, an office, and a small kitchen.



The briefing room, where we meet at the start of each flying day for pre-flight briefings. Pretty fancy, huh? :-)

The mighty Tost winch, the most powerful of our winches. It sits at the far end of the airstrip and hauls gliders into the air using kilometres of steel cable (similar to launching a kite into the air by running along with it on a string behind you). VROOOM, and up she goes!



Our Facilities (cont.)

After the day's flying is done, chill out in the clubhouse. Comfy couches, internet access, big TV, DVD player... all very relaxed! Sometimes a generous soul will offer to provide dinner for everyone; alternately, you can bring your own food and cook it here in our clubhouse kitchen (not shown). It's the perfect way to end a day!



The firepit in front of the clubhouse, all cleaned out and ready for the next winter bonfire. If you look closely you can see our impressive new outdoor kitchen under the verandah. It's like the biggest, shiniest BBQ you've ever seen. :-)

If you want to stay overnight at Stonefield, you have the choice of basic bunkhouse accomodation or these splendid huts. Each one is airconditioned and has its own fridge, sink and bathroom. You can bring your own bedding, or we can provide some at a nominal charge.



Meet the Instructors!

Cath Conway: AUGC's Chief Flying Instructor. A commercial (power) pilot, she also flies tug planes for us occasionally, and runs her own flight school. A keen competition and cross-country pilot, Cath's priorities as an instructor are to ensure both a high standard of training, and consistency in training.
Has been instructing since 1989.
Gliding experience - about 2320 hours total, of which 840 hours were spent instructing.



Photo: C. Conway



Derek Spencer: Practically a fixture at the airfield. What Derek doesn't know about gliders isn't worth knowing. Flying, repair, maintenance - he does it all! Sometimes known as "The Motorfalke God." (Ask him why!)
Has been instructing since 2002.
Gliding experience - 1500 hours total, of which approximately 800 hours have been spent instructing.

Leigh Stokes: AUGC's Club Coach. Leigh is a fine competition pilot with a strong cross-country focus. He's also a mechanical whiz, and spends at least as much time keeping the winches etc. running smoothly as he does flying.
Has been instructing since 2017.
Gliding experience - approximately 800 hours, of which quite a few were spent flying cross-country or entering competitions.



Redmond Quinn: Has been an AUGC instructor forever, and has taught more trainees to fly than you've had hot dinners. He's also an engineer, 'nuff said.
Has been instructing since 1983.
Gliding experience - 1200 hours total, of which approximately 800 hours were instructing.

Flight Theory For The Complete Moofhead

By Andrew McGrath

The purpose of this article is to attempt to explain, to even the most Arts oriented university student, how a glider (or, for that matter, any winged flying thing) avoids plummeting to a nasty mess on the ground.

Firstly, you may remember being told how a wing flies because it's curved on top and so the air on top has to go further and faster and so on and so on. Well forget that, it's all wrong.

The easiest way to understand exactly how and why a wing flies is through a simple experiment. (I hope that a word like "experiment" hasn't put off all the Arts students and Pure Mathematicians; if you like, you don't actually have to DO the experiment, but can simply imagine.)

To do (or imagine) this experiment, you will need only (or pretend you have) a long, flat, fairly light piece of wood, sheet metal, stiff plastic, cardboard, glider wing, or similar to serve as your "wing". Now, stand in a large open space (or imagine that you are standing in such a space), take hold of one end of the apparatus (this is another complicated word, but it means the "wing" described in the previous sentence), and while holding it out horizontal, whizz around and around on the spot. You will find (surprise, surprise) that by tipping the wing up and down (i.e. rotating it slightly about its longitudinal axis) you can make it go up and down. You will see that if you tip the front edge up a bit, the wing will try to fly upwards; and if you tip the front edge down a bit, the wing will go down. If you suddenly turn the wing at right angles to the airflow, it will stop almost dead and fall down.

"But that's obvious" I hear you say. "It's just the air pushing on the wing that makes it go up and down."

You're right, you know – it *is* obvious. And it's how the wing of a plane, glider, bird, helicopter, or paper plane works.

We can now think about the same experiment conducted in a slightly different way. Suppose, instead of whizzing our wing in a circle to make the air flow past it, we hold the wing out straight in a strong wind. Now we can get exactly the same effect as before by rotating the wing around its longitudinal axis: tip the front edge (the edge facing the wind, or "leading edge" – the back edge is known as the "trailing edge") up a bit, and the wing goes up. Tip the leading edge down a bit, and the wing dives down. Tip it ever so slightly up, and it will just support its own weight.

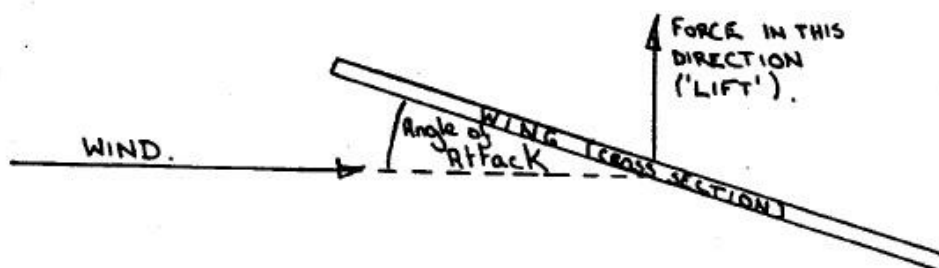
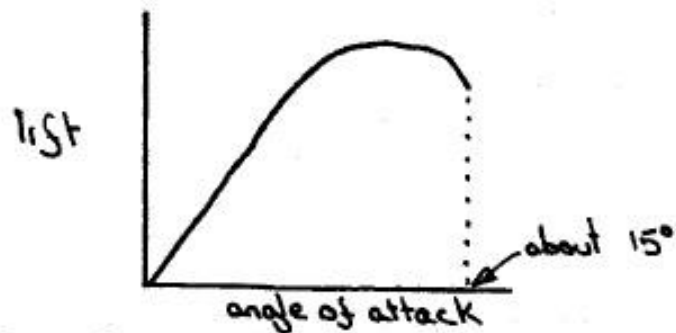


Diagram 1: How lift happens

Flight Theory for the Complete Moofhead (cont.)

Now we can introduce some new terms: “Angle of Attack”, which is the angle between the line of the wing (“chord line”) and the oncoming air (see diagram 1), and “lift”, which is the force in an upward direction caused by the wind blowing on the wing. Now, it is fairly obvious that tipping the leading edge up more (i.e. increasing the angle of attack) will cause the lift to increase (up to a point – remember what happens when the wing is turned sharply up to ninety degrees to the wind). If we put a spring balance or something on the wing so that we can measure the lift, we can draw a graph of lift against angle of attack. (Some people are a bit frightened when they see a graph, but it is really a very simple way of showing exactly what’s happening.)

This graph shows that the lift increases steadily as the angle of attack is made greater; obviously when the angle of attack is zero, there is no lift. A point is reached, however, where a further increase in angle (and thus lift) results in a sudden *decrease* in lift. This is what happens when you tip the wing suddenly right up and it falls down, and is called a “stall”. A stall will occur when the angle of attack



Graph 1: Angle of attack vs Lift

becomes any greater than about 15 degrees. When you were performing your experiment you were able to tip it at a greater angle for the following reason: as soon as the angle of attack starts to rise, the lift increases, and the wing starts to move upward. Because the wing is now not moving horizontally, the airflow past the wing is not coming from the original horizontal direction (see diagram 2). Thus, although the wing may be tipped up at more than 15 degrees, the angle of attack, between the chord line of the wing and the oncoming air, is less than this.

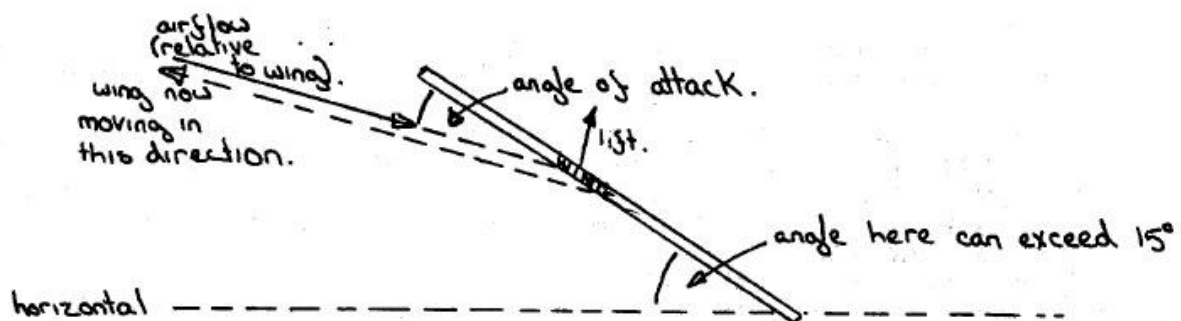


Diagram 2: How lift happens (more complicated version)

Thus to demonstrate a stall in our experiment, the wing must be rotated suddenly, to make the angle of attack high before the wing moves up and changes the direction of the airflow to keep the angle of attack small.

Flight Theory for the Complete Moofhead (cont.)

You may have noticed (or imagined) during the experiment that there is another force on the wing – as well as the air pushing the wing up and down, it is also pushing the wing back; i.e. the wind resistance is opposing the force you are applying to make the wing move forwards. This force is known as “drag”. Drag, like lift, increases with angle of attack.

The faster the wing is moving (or the faster air is blowing past it), the greater is the lift and the drag for a given angle of attack.

It has been found that the shape of the cross section of the wing affects the amount of lift and drag that a wing produces, by smoothing out the turbulent airflow around sharp corners and so on. The best shape (or “airfoil section”) depends on the requirements of the wing; e.g. high speed, low speed, high lift, etc., but is generally something like this:

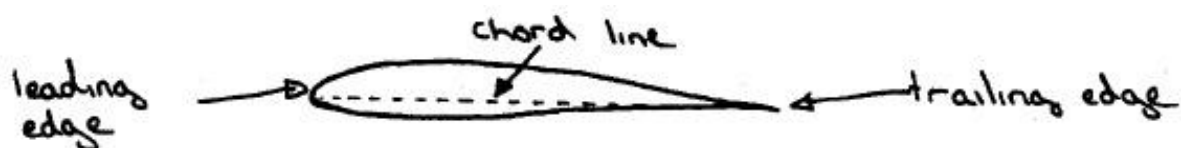


Diagram 3: Cross-section of a wing

Now we will turn our attention from just an experimental wing to a complete glider, where we have a fuselage holding a pilot, supported halfway along a large wing.

With the surrounding air completely still, this glider is whizzing along through the air in a forward direction. The wing is fixed to the fuselage with a slightly positive angle of attack; just enough, in fact, for the lift created at this speed and this angle of attack to exactly equal the weight of the entire glider. So this glider is flying along, not losing nor gaining any height.

If we now change the angle of attack by pointing the nose of the glider slightly downwards, the angle of attack (and hence the lift created by the wing) will decrease. Since the lift is no longer equal to the weight, the glider will start to lose height, to fly downwards at some angle or other. Since it is now effectively sliding downhill, it gains speed. As the speed increases, the lift increases again. Eventually a point will be reached where the lift is once again equal to the weight of the glider, and we are once again in level flight (although at a lower altitude and a higher speed than before) with the nose pointed down somewhat.

Applying the same logic in reverse, if we raise the nose somewhat, the angle of attack (and hence the lift) is increased, and the glider goes up, losing speed until the lift has decreased back to the weight of the glider. We are now at a higher altitude, at a lower speed, with a higher nose attitude.

Flight Theory for the Complete Moofhead (cont.)

Unfortunately lift is not the only force created by the wing – there is also drag. And now that we have a fuselage as well, there is even more air resistance. All of this drag is effectively a force pushing the glider back – slowing it down. To maintain a constant speed against this drag, we can simply put the nose down a little to increase the speed, as described above. We are now flying at a constant speed, with a constant angle of attack, and a constant nose attitude, although the glider is always sliding slightly “downhill” to maintain speed against drag, and slow is slowly losing height.

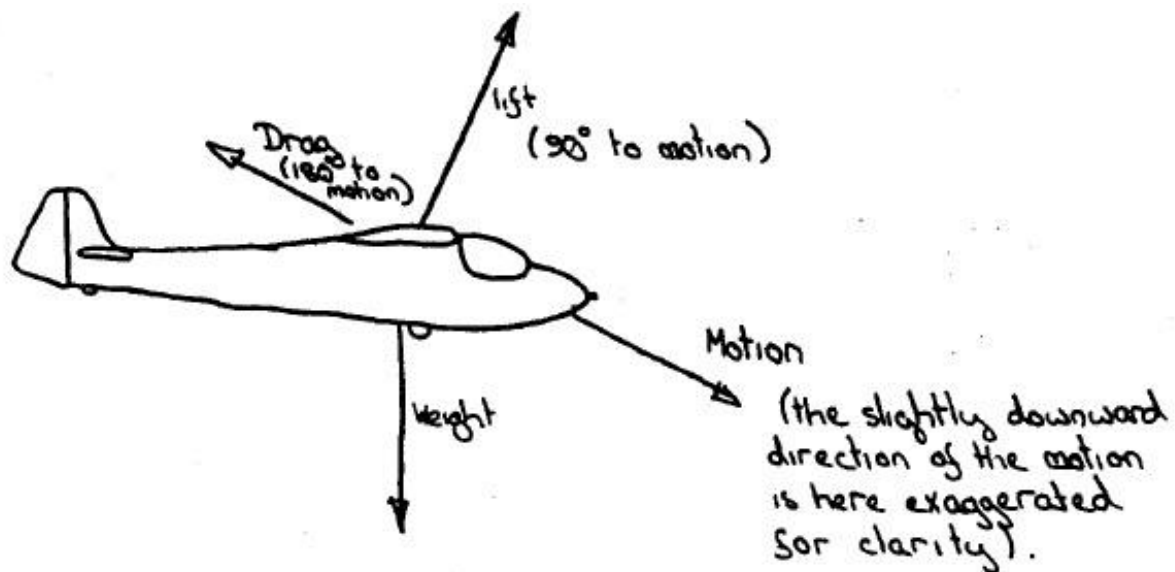


Diagram 4: Forces acting on a glider in flight

And that is why a glider needs to seek out sources of rising air to stay aloft for more than a short time – because eventually when gliding “downhill” you will come to “the bottom of the hill” (the ground) and stop... unless you get an extra boost (lift).



For Sale!

AUGC is selling our Schneider **ES-59 Arrow** (VH-GNF), along with its trailer. This wooden single seater needs a fair bit of work before it will be airworthy again. **\$500 O.N.O.**, enquiries to Cath Conway (contact details on page 27)

Adelaide University Gliding Club - Diversity by Design

By Emilis Prelgauskas

The original Adelaide University Gliding Club (then known as Adelaide University Engineers Glider club) existed in the 1930s, drawing together the public enthusiasm for the new wonder technology of the day - aviation - along with the technical expertise in engineering amongst both staff and students in universities.



*AUEGC's first glider bungee-launches off Tapley's Hill in 1930
(photo source: <http://catalogue.nla.gov.au/Record/2502139>)*

That club made positive contributions to aviation in South Australia in its day, both at the technology level by interaction with early aviation more broadly including early powered flying in its barnstorming, training and commercial modes, and the construction of a primary glider and interactions with 'fettling' of primary gliders owned by others. Pilot progression was also assisted by drawing in experienced power pilots, and through the conduct of expeditions and flying events including the setting of flying records at local, national and Empire standards.

World events in the next decade saw the club wither and disappear.

The impetus for a new variety of Adelaide University Gliding Club began in the 1970s through the enthusiasm of Martin Simons from the university's Education department who flew at Waikerie, and Tony Kiek of the Computer department who flew at Gawler.

This was then ultimately actualised by drawing in other people including this author during his post graduate studies at the university.

AUGC - Diversity by Design (cont.)



*Emilis's Longwing Kookaburra VH-GLZ, which he made available to AUGC for training until the club bought its own two-seater. The Kookaburra is shown here taking off from Lochiel (our home airfield before we moved to Stonefield) in 1977.
(Photo: E. Prelgauskas)*

The 1970s were a halcyon period for tertiary level gliding expansion. They formed a bridge between early teaching gliding electives at some schools, Scouts, Air League and such on the one hand, and adult learning in traditional gliding clubs on the other. Clubs formed at universities of Western Australia, Queensland Tech, Sydney Tech, ANU, etc. RMIT remains a strong link for aviation between academic practice, industry and the recreational and sporting aspects. Some of the university clubs sought alliances with established clubs with an emphasis on discount flying for students. These eventually were absorbed into their host clubs.

Universities have diverse internal populations in terms of age profiles across staff and students, gender spread, and points of origin from around the planet. There is also emphasis on equal service with regard to disabilities of all kinds. As a result, it is a little easier than in the general population to design for diversity.

The long term continuation of the second generation Adelaide University Gliding Club has been assisted by a range of decisions made by the club's founders -

- to establish a specific club for this target population which had control of its own operating site and ground facilities including operations and airworthiness, launch and fleet;
- to draw broadly across the target population;
- to accept opportunities for innovation even where these are not embedded in the sport in general.

AUGC - Diversity by Design (cont.)



AUGC in the 1980s: Bergfalke trainer VH-GZM landing at Lochiel

After an initial scepticism, where the initial cadre of members had to fund the club entirely from their own resources, the University was generally supportive, and at times this support included conditional loans or grants. Their scale was modest but gave other lending institutions reassurance to provide the serious money for fleet and ground improvements. The University administration in due course recognised the club's contribution to university life, with a number of sporting 'Blues' awarded to Guy Harley and this author. In the broader world, Catherine Conway (OAM) has received a succession of awards related to being one of the few women active in aviation across a variety of roles (such as operations, airworthiness and so on). These recognitions help bring gliding to public notice.

Club membership has varied over time both in line with changes in the university demographic, and the evolution of university acceptance criteria across the early 'free' education period through to today's fee paying courses. Throughout, the emphasis on equal access has been in place.

The innovation component has included fleet adaptations up to and including retrofit with hand controls for physically disabled individuals. A succession of students have linked their academic and gliding interests. In the computer department, both mainframe and early hand held device programs were written for gliding outcomes. David Ellis designed an alloy build sailplane as his engineering thesis. This author's successive theses not surprisingly had gliding content. More recently outcomes have included simulator prototypes from both Tom Wilksch and the university engineering workshop through Ian Linke.

AUGC - Diversity by Design (cont.)

This author believes that such emphasis embedded from start up is now serving this club well as society becomes more attuned to diversity in the citizenry as a whole, and through this increases the ability of the sport of gliding to respond appropriately to that awareness growth.



Dates for your Diary

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.

SA State Competitions

Will be held at Stonefield over 8th-11th March, and 16th-17th March
(See flyer on page ? for full details)

Aircraft Maintenance

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

Committee Meetings

Every 4th Wednesday night of the month (usually), at Cath's place (21 Cardigan Ave, Felixstowe). All welcome! Come and get involved in the running of your club (or at least see how it is run...) Check with an Exec member before the meeting to confirm time/date.

Other SA Events & Activities

Flinders Camp 2019

June Long Weekend (8-10 June), possibly extending into the week beyond

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>).

Keepit Regatta (23 February - 2 March 2019), Lake Keepit, NSW.

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

Alpine Coach Course w. G Dale (9-11 March 2019), Mount Beauty, VIC.

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
Astir (VH-KYR)	0.75	0.40	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 (9 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, but are expected to be updated by April*

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 and 1.5 hours Motorfalcon engine time, OR 40 winch launches OR 12 months, whichever occurs first. Logbook, Club, Sports Association and GFA membership 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 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.on.net)**. 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.on.net/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, joining details are on the next page.)

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



The workshop at West Beach

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 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. See you there!

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)



The Pik-20 (AUGC's high-performance single-seater) ready to launch



Learn to fly gliders and soar with the birds!
There's nothing quite like it....

