April '01

Uni Gliding

The Official Journal of the Adelaide University Gliding Club

WHATS INSIDE

- What has been going on around the place? Read page 2 to find out .
- Ooops! We left out an instructor last month! Find out about Peter Cassidy on page 3.
- The AGM is very, very soon! Find out about all of the club positions before you volunteer for them on Page 4.
- Want out help at West Beach shed? Page 4 tells you how to get there.
- What is a duty pilot and what do I do if I am one? Find out on Page 5.
- What does this lever do? Check out page 5 for an article on how to use flaps.
- Lots and lots of things will be happening this year. See page 8 for what's going to be happening soon with the club.

STOP PRESS

13-22 April, Easter and mid week flying at Lochiel: Go flying for the entire week during university holidays. The best way to advance your flying is with several days back to back practice. Call Matt now on 0412 870 963 to let him know which days you will be there.

Quotes of the Month: "I'm responsible!"… Claire Clements now that she has turned 20. "Scott Lewis makes sensitive girls sick!"… Mark Newton commenting on passengers getting air-sickness.

Fire Danger Season: The fire danger season and its inherent fire restrictions, ceases on 30 April 01. The new fire pit beside the club house will be very popular this winter!

ANNUAL GENERAL MEETING

The club's annual general meeting will be held on the evening of Wednesday 4 April at 7:30 pm in the Little Cinema. Meet at 6:30 pm in the Equinox Bistro for dinner if you are interested. This is an important meeting for the club where the reports from last years Executive Committee are tabled and a new committee elected. The club development plan which will set the direction of the club for the next 10 years, will also be tabled for discussion and approval.

Every member of the club should come along (or present a note from their mum).

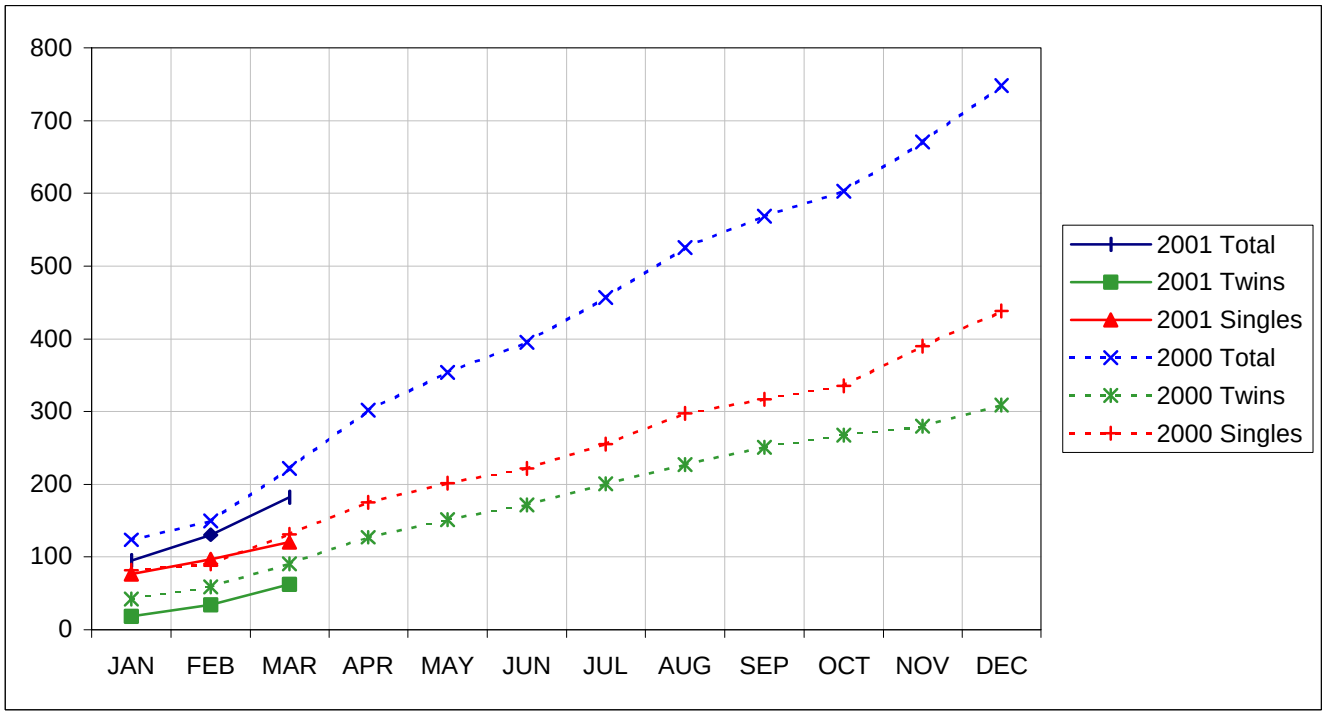
WHAT'S BEEN GOING ON!

Well it has been another busy month for the club with lots and lots going on around the place. Congratulations this month go to **Sonya Fennel** who has gone solo again (we think it is around the fourth time). **Claire Clements** has been very busy with her gliding earlier on in the year, not only did she get her B and C certificates, she also got her passenger friend rating too.

A result from some of the strategic planning nights held late last year and early this year was the decision for the club to design and build a new pie cart. The design of the new pie cart was kicked off with a functional design night on Wednesday 28 March. Whilst it won't be the Hilton Hotel on four wheels, it will be far better than what we have at the moment.

The club executive is considering whether the club should acquire another single seat aircraft to complement the Club Libelle sometime next spring. The Club Libelle in recent times has been an extremely well used aircraft and on some days people have missed out opportunities due to the high demand for that aircraft. The executive committee proposed that if the current trend of single seat flying continues, then the cub will consider acquiring another single seat aircraft. Below is a graph of this years flying compared to last years. As can be seen, the single seaters have been doing as much flying as last year (so far). The two main advantages of getting a new aircraft at around the Club Libelle level is: that it would allow one of the aircraft to go cross country and the other one to do local flying in summer and it would be an additional aircraft of good performance during the winter ridge soaring. In effect the proposed new aircraft would be taking over the Arrow's old role in the club. The Arrow will still be kept for first single seat conversions and for when the weather is particularly good. The disadvantage is that it will put the club under additional financial strain in the following years as the club pays off the loan, as well as being another aircraft to maintain.

The committee decided to put aside 40% of all of the flying income for the next few months to act as a deposit for the proposed new aircraft. As such; the more flying everyone does, the more the new aircraft is justified and the sooner the club will have the deposit together to purchase it with. If you want the club to get another single seat aircraft, then go and do more flying and help prove it.



THE OTHER INSTRUCTOR!

Last months edition featured the profiles of all of the club's instructors. All except one who some how got cut out during the editing, here he is now:

Peter Cassidy: Peter C started flying in 1987 and has been an instructor since 1991. When questioned about his job, he will eventually confess to being a software programmer. Peter also flies powered aircraft and is frequently found tugging (ie: towing gliders) at Waikerie. Peter is famous for many things, most notable of his recent exploits are: his relentless pursuit of the fairer sex, trying to plough the ridge with the Bergfalke's wing tip and trying to single handedly lift the tail of a Twin Astir and doing his back in. Gliding Hours: 892 Instructing Hours: 280

"You're right mate, she is doing well ... considering I should be up there teaching her!"

CLUB POSITIONS

With the Annual General Meeting and the elections for club positions just around the corner, it is a good time to list the club positions and what role they play in the club.

EXECUTIVE COMMITTEE: The executive committee deals with the day to day running and long term management of the club. Meetings are typically held on the third Wednesday of the month at one of the exec members places.

President: Leads the executive committee and provides guidance and direction for the club.

Treasurer: This person is responsible for the management of the club's finances and has a non-executive assistant to assist with the workload.

Secretary: As the title suggests, this person keeps minutes of the executive meetings, collects the mail form the pigeon hole at uni and keeps the paperwork of the club organised.

Social Convenor: Arranges the club's social activities from movie nights through to the club annual dinner in the middle of the year. It is not essential to be a party animal, but it helps!

Fifth Member: Typically the most junior member of the committee, the fifth member manages a couple of minor projects throughout the year and learns how the committee works. For some reason the fifth members always seem to disappear interstate shortly after being elected.

NON EXECUTIVE COMMITTEE: There are a lot of positions in the club that perform important jobs but do not have the authority of the executive committee and do not have to turn up to the executive meetings. These are:

Assistant Treasurer: Assists the treasurer by entering flight sheets into the accounts database after each weekend and banks the money etc.

Newsletter Editor: Tries to put out an informative newsletter each month.

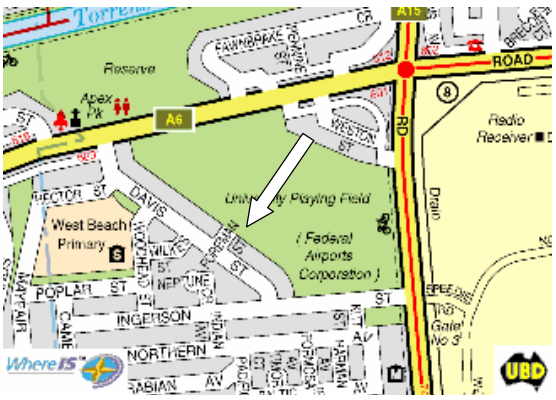
Web Page Manager: Maintains and updates the AUGC web site.

Club House Officer: Ensures that there is plenty to eat and drink in the clubhouse each weekend.

Contact Person: Coordinates the flying activities for each weekend. Gets the club mobile phone. Also acts as the first point of contact for anyone interested in joining the club.

SO YOU WANT TO HELP AT WEST BEACH?

West Beach is where we carry out the maintenance and repair on our gliders and equipment. There are usually volunteers working down there on Monday, Tuesday and Wednesday evenings. The entrance is at the end of Foreman St, West Beach. **Anthony's Bergfalke** is being finished there at the moment. **Winch #3** has had the gearbox fitted to the front engine and now the transfer box needs to be located and fitted.



So you want to help fix the gliders at West Beach, but can't get there? A lift can be available from the Adelaide University footbridge at 7.30pm by arrangement. Ring Anthony on (wk) 8393 3319, (hm) 8269 2687 or E-mail: Anthony.smith@adelaide.on.net.

HOW TO BE A DUTY PILOT

A Duty Pilot is primarily used to assist the instructors in getting the best training and flying for the trainees each day and co-ordinating the launch point. A Duty Pilot can also be used to co-ordinate single seat aircraft if there is high demand.

Step 1: Make up a list of people wanting to fly.

Step 2: Determine what level each pilot is up to.

Step 3: Arrange a flight list using the following guidelines and verify this with the duty instructor:

Check flights are first. This allows the pilot to fly solo later in the day. The exception to this is when the pilot needs post-solo training, where they are fitted in with the other trainees.

Early stage trainees (primary and secondary effect of controls, co-ordinated flight and turns) and TIF's flying is more effective with longer flights where possible. They should be slotted when there is a better chance for a longer flight.

Mid stage trainees (stalls and spins) require height. High launches, booming ridge or thermals are good here, but the flights tend to be short.

Late stage trainees (take-offs and landings) require circuits and short flights. This tends to be early or late in the day when there are no thermals, or insufficient wind for the ridge to work.

Step 4: Preference should be given to those who are helping out. People arriving after the aircraft are DI'd should receive less preference. However, try to be fair in your allocations.

Step 5: Tell every body who is next to fly. Ensure that the instructor/pilot has an idea of how long the next flight should be.

Step 6: Keep an eye on the flight times and call aircraft down once their time is up. Be prepared to change the list / allocated flight times if the weather (or situation) changes.

In addition to this, keep an eye on operations and ensure that aircraft are being retrieved promptly, that one winch driver hasn't done all of the winching and that there are sufficient people to run the operations. This doesn't mean do it all yourself. It is far better to supervise and delegate people to tasks.

Before going flying yourself, ensure that you have selected someone to replace you and that they understand your list and what is going on.

WHAT DOES THIS LEVER DO?

"*DON'T GET INTO A FLAP"* Copied from "Sailplane & Gliding", June-July 2000, pp. 24-25. Phil Jeffery, of Cambridge GC, advises pilots new to flapped gliders or who have to give briefings on how to fly with flaps.

Soon after restarting gliding in 1986, I became aware of a lack of basic understanding about the use of flaps and their effects. Most briefings for a first flight in a flapped glider are along these line: there's the wheel brake; don't Use full flap except in an emergency; it's nicer to fly than [whatever it is you've been flying]. I hope this article will help.

Flaps on high-performance gliders are of the plain variety, consisting of a fairly narrow hinged portion at the rear of the wing. The standard reasons for fitting flaps are: to increase maximum lift available thereby permitting slower flight, and to aid approach control by increasing drag. Flaps also have the

desirable effect of lowering the nose for the approach and landing, resulting in an improved view for the pilot.

In gliders, the use of flaps is more sophisticated: they move up, to improve high-speed efficiency, and in most cases mirror the movements of the ailerons when roll control is applied. The aileron neutral position normally varies up and down to keep them aligned with the flaps, so maintaining the optimum aerofoil shape over the entire span of the glider.

New to flapped gliders and wondering what to do first? Before even Contemplating a launch, study the glider's flight manual where you should find a great deal of very helpful information including much about making the best use of flaps.

The first important fact to grasp is that you now have several VNE speeds, and that's ignoring ones above 3,000m which rarely apply. As flaps move from maximum negative to full positive, VNE will reduce to a surprisingly low figure. High-speed flight after forgetting to change from thermal flap can result in expensive repairs and might even damage your health.

Next, I recommend sitting in the rigged glider, with flaps connected, to get used to the position of the flap lever for the various settings and ensuring the locking mechanism is fully engaged. There has been at least one recent serious accident in the UK due to flaps unlocking on approach.

Now to the fun bit, in the air. The following gives basic information for operating flapped gliders together with explanations of their advantages. These comments are of a general nature and must not overrule any procedures contained within the approved Flight Manual.

THE LAUNCH: For winching, flaps are normally set to zero or, in conditions of light wind, the first positive selection, and remain unchanged throughout the launch. The aerotow gives the first opportunity to benefit from flaps. The marginal roll control during the tricky initial part of the ground run is significantly improved by starting with negative flap, thus raising the ailerons and improving their low speed efficiency. Having accelerated enough for adequate roll control, move the flaps to the recommended take-off position. But for your first flight in a flapped glider, pick a day with sufficient breeze down the runway to ensure adequate control without employing negative flap. This avoids the added complication of moving the flaps during the ground run.

IN FLIGHT: In the cruise you should notice a difference. To keep overall lift approximately constant as speed increases, the coefficient of lift must reduce appropriately. In unflapped gliders, this is done by lowering the nose to reduce the angle of attack. With flapped gliders, most of the reduction in the coefficient of lift is achieved by progressively raising the flap with little change in the angle of attack or pitch attitude. The fuselage stays fairly closely aligned with the airflow for minimal drag whilst the pilot's view of the horizon remains virtually unchanged.

There are other performance benefits from flaps. On unflapped gliders, there is always a speed dependent upon CG position, at which the tail load is at an optimum zero. However as speed increases further, the downward load on the tail must also increase to oppose the twisting moment of the wing. This increases the drag produced by the tail, frequently known as trim drag, and by a small amount the drag produced by the wing as lift increases slightly to compensate for the negative lift now being produced by the tail. But with a flapped wing, there is very little change in the twisting moment of the wing with speed variation, keeping tail loads low. A flapped aerofoil can also achieve much lower parasite drag around the coefficients of lift associated with each flap setting than an unflapped section. These effects improve significantly high-speed glide ratio.

The need to trim the glider with varying speed is greatly reduced: partly due to wing aerodynamic changes, but also because certain manufacturers connect the trim control springs to the flap change mechanism, automatically making appropriate trim changes as the flaps are moved. Normal trimming is of course still required for speed alterations made without changing the flap setting.

THERMALLING: The most efficient way to transition from cruising to thermalling is by use of

flap. Reduction of negative flap will cause the glider to climb with further movement towards positive as speed falls. When approaching thermalling speeds, select about half negative momentarily to level out before going to thermal flap and cranking into the climb. A neat trick when it works! When you finish thermalling, and before accelerating back to warp speed by reducing flap, make sure no one is underneath you.

UPPER AIR EXERCISES: When making an approach and landing, the drag producing and nose lowering attributes of flap come into play. AT height, first evaluate the stall characteristics, as you should when converting to any glider. This is slightly more involved as it needs to be done at different flap settings, particularly the thermal and landing positions (the latter with and without the airbrake). Take care when recovering from a stall not to exceed Vne. If speed is rapidly rising towards one of the lower Vne values, reduce the flap setting and smartly recover from the dive; it's no problem when carried out with plenty of height. Next establish the glider in level flight at 60 kts with landing flap selected, using the first position if it has more than one. Now select zero flap. This normally produces pronounced sink, which could sting if it happened near the ground. Do the same thing but this time, whilst raising the flaps, simultaneously pitch the nose up to the attitude for steady flight at 60 kts with the zero flap. If you co-ordinate correctly there will be no sinking feeling at all. Practice maintaining 60 kts whilst changing the flap setting between the thermal and landing flap positions until you can do it smoothly and without that sinking feeling.

SPINNING: To the best of my knowledge, all modern high-performance gliders will spin when provoked. With flapped gliders, the propensity to spin increases as flaps change from negative to positive settings. Remember this when making final turns and particularly when thermalling with other gliders below. During a recent Open Class Nationals, one pilot managed to spin his ASH-25 when thermalling in a gaggle. I have no doubt this seriously alarmed the occupants and provided interest for those lower down in the thermal who happened to be looking out as 25 metres of spinning ASH went by.

If your glider is cleared for intentional spinning (a few, mainly the very large span ones, are not) try it out at various flap settings. Steve Longland discovered, when doing this in a Pik 20, that he was unable to provoke a spin with negative flap selected. With positive flap it was very different as it now spun easily, in his words: "The more flap the merrier" As with stalling, take care during the recovery to avoid exceeding a low Vne limit: a judicious raising of the flaps may be required.

THE APPROACH: The approach path of a flapped high performance glider need not differ from a similar unflapped one. There are, however, extra decisions to be made regarding what flap settings to use and when to make them. Convention appears to favour selection of thermal flap when slowing to circuit speed thereby lowering the nose for an improved view, and also making circuit judgement easier by reducing the glide angle. A word of caution here. Some of the very large Open Class gliders, particularly the single seat Nimbus 3, suffer from less than crisp aileron control which deteriorates marked at approach speeds with flaps in thermal and landing positions. For such gliders, when conditions are turbulent, I would recommend that selection of thermal and landing flap be delayed until wings level on finals. It is better to minimise changes of flap settings during the final turn as it is just that bit safer done when straight and level either before or after the turn. If you have mis-judged things and find yourself undershooting with flap selected, reducing it may improve the situation. This depends enirely on having maintained adequate speed for sustained flight at the reduced flap setting. You would need to be fairly desperate to risk it before satisfactorily completing the upper air exercises.

LANDING: The only significant difference is that touch down occurs in a roughly level attitude, as opposed to the modern Standard Class glider's tail-first arrival, and at a slightly slower speed. If the wind is light or across the runway, roll control in the latter part of the ground run can again be improved by raising the ailerons through selection of negative flap. This is not required when flying a Schleicher aircraft as the ailerons automatically move up to the zero position on selection of landing flap. It is a clever idea that improves ground roll control for the approach and landing. The slight

downside is a reduction in tip clearance during the round out caused by the outer wings having flexed downwards as the lift reduced in the vicinity of the ailerons.

I am most grateful for all the help which I have received in writing this from Steve Longland, who is working on the latest Instructors' Ground School and John Gibson, who has attempted to straighten out some of my twisted aerodynamic misconceptions. If you disagree with anything, please let me know: I've recently acquired part of an Open Class glider and need all the help I can get. Until now, apart from brief dalliances some years ago with an ASW 20 and a Nimbus 3D, I had stuck to the standard class.

WHAT IS GOING TO HAPPEN SOON

25th Anniversary of AUGC. The 25th anniversary celebrations will include a huge dinner for past and present members as well as a flying weekend. Date to be decided. Call Cathy if you want to help.

Annual General Meeting, Wed 4 Apr: Little Cinema at 7:30 pm. Dinner at 6:30 pm in the Equinox Bistro if you are interested. The big meeting for the club where the reports from last years Executive Committee are tabled and a new committee elected. The club development plan which will set the direction of the club for the next 10 years, will also be tabled for discussion and approval.

Fri 13 – Sun 22 April, Easter and mid week flying camp at Lochiel. Go flying for the week during the uni / school holidays. 10 days of back to back flying available! The best way to advance your flying with several days in a row to practice everything.

Wed 2 May, General Meeting: Basic aerodynamics and basic structures. Come along and learn about some of the theory behind how gliders fly and how they are built.

Sat 19 - Mon 21 May, Pt Pirie Camp. The club is trying to arrange a camp with the Whyalla Gliding Club near Pt Pirie for the long weekend. The airfield however is only suitable for experienced pilots. Flying will still be at Lochiel for everyone else too.

Sat 9 – Mon 11 June, Flinders Ranges Camp. Visit the scenic Flinders Ranges for the Queen's Birthday long weekend. Flying, bush walking, gorge touring and camp fires galore. We are inviting the Waikerie Gliding Club and the Gliding Club of Victoria along this year and may extend the camp to 17 June if there is enough demand. This is a get away weekend. As such we will not be doing training flying. A two seater will be there for site familiarisation flights and some scenic flights.

Uni Gliding
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c/o Sports Association
Adelaide University, SA 5005