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Uni Gliding

March 2004

The Official Journal of the Adelaide University Gliding Club



Scenes from the AUGC 2004 Regatta. Top: Part of the starting grid on Sunday - a spectrum of performance, from Leigh Bunting's Grunau Baby at back to the club's PIK 20D at front. (Photo: Dennis Medlow) Bottom left: Preparing to launch the Bergfalke from its outlanding paddock on Saturday using the Balaklava winch. (Photo: Justine Thompson) Bottom right: The feast on Saturday night. (Photo: Derek Eilers)

What's Inside

- Club News - [Page 2](#)
- Calendar - [Page 3](#)
- President's Report - [Page 4](#)
- Acting Treasurer Strikes Again - [Page 4](#)
- AUGC 2004 Regatta - A Summary - [Page 5](#)
- Executive Committee and Other Office-Holder Roles - [Page 6](#)
- Air Traffic Control Clearances - [Page 7](#)
- Administrative Ramblings - [Page 9](#)
- Of Magnetos and Motor Falkes - [Page 10](#)
- Want to fly this weekend? - [Page 12](#)
- Where is West Beach shed? - [Page 12](#)
- Contact List - [Page 12](#)
- Upcoming events - [Page 13](#)

QUOTE OF THE MONTH

"Your meat is smaller than I thought!"

Dave Conway to Dave Hichens, whilst preparing the roast dinner at the regatta.

Club News

Greetings all,

The **AUGC Regatta** was held on 21-22 Feb. Competition Director **Catherine Conway's** e-mail to the aus-soaring and augc-people groups sums up the weekend pretty well so I've reproduced it on page 5. All in all, a lot of fun was had, especially by those lucky people who enjoyed extended upside-down flight in Balaklava's ASK-21. Funny how there's suddenly talk of aerobatic glider syndicates potentially forming within the club now. There's even a suggestion of a new club, the Adelaide Uni Flying Upside-down Club (AUFUC).

Scott Battersby: "Go gliding! It's the ultimate workout for your sphincter!"

Derek Eilers: "OK, two words not to be used from now on: anal and sphincter!"

Just some of the witty repartee heard during **O-Week**, as a small group of club members battled for the fickle attentions of passing students. It was an enjoyable week for those who spent time at the desk: the weather was perfect, we had a bar within spitting distance and plenty of fresh faces to impart the virtues of gliding to. About 80 new members signed up and many more took newsletters or pamphlets. Special thanks to **Scott, Tom Wilksch and Alban O'Brien** who all put in a lot of time each day and to **Derek** who did all the organisation in addition to being at the desk all week. Thanks also to everyone else who pitched in including those who gave up their lunch breaks.

Our **General Meeting/Video/Beer/Pizza Night** on 10 Mar was very well attended. The videos looked great on the huge screen in the Bragg Lecture Theatre - you could see the look of ~~fun~~ excitement in people's eyes so much better. Sadly, we learned that Lucy Wills, the subject of the video 'Lucy Learns to Fly' which we show each year, passed away of breast cancer three days after. She was 28.

Onto recent pilot achievements. **Simon Hackett** flew his Stemme on a cross-country of Karoonda-Waikerie-Peebinga-Karoonda (312 km) on 7 Mar, earning his Gold distance and height gain. **Michael Texler** did a 500 km cross-country from Gawler on 14 Feb in a ballasted Discus (Gawler-Quorn-Gawler). **Igor Blazujevic** got his Silver distance and height gain by flying to Crystal Brook on 14 Mar. Recent conversions are **Derek Eilers** to the Standard Libelle (GTX) and **Ben Ragg** to the Arrow. Congratulations guys! I converted to the Club Libelle (GMI) on 14 Mar and

thoroughly enjoyed it.

The Puchatek is still laid up. **Derek Spencer and Alban O'Brien** completed **THE GREAT PUCHATEK EXPEDITION** last week, which involved them towing the Blue House to Sydney with KRO's fuselage in it - thanks guys! They got to do some flying at Camden while they were there - ask them how good DG-1000's are.

We will need lots of people down at West Beach over the next month. The Arrow is in for its Form 2 (annual inspection) and the Motor Falke is in for repairs to its fin and a number of other things. The more people we get, the better the atmosphere and faster we get aircraft back and flying.



Tom and Trent discuss Tom's imminent nomination for President. (Photo: Derek Eilers)

The **Annual General Meeting** is set for **Wednesday 7 April**. A new Executive Committee will be elected and a number of non-executive positions will be up for grabs. A description of all the various positions is on page 6. Everyone with an inkling of interest in the club's current position and future direction should attend.

See you at Lochiel (and West Beach, and the AGM!),

David
Editor



The O-Week display and protagonists. Left: Tom, Scott, Igor and Derek. Right: Scott, Lana, and Fiona in background. (Photos: Igor and Lana)

March-April 2004



Crystal Brook from above. Taken by Derek Eilers from the Arrow (GNF) on 14 Mar.

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
22 March → Help at West Beach	23 Help at West Beach	24	25	26	27 Go Gliding!	28 Go Gliding!
29 Help at West Beach	30 Help at West Beach	31	1 April →	2	3 Go Gliding!	4 Go Gliding!
5 Help at West Beach	6 Help at West Beach	7 Annual General Meeting 7.30 pm Union Cinema Adelaide Uni	8	9 Go Gliding! Good Friday	10 Go Gliding!	11 Go Gliding! Easter Sunday
12 Go Gliding! Easter Monday	13 Help at West Beach	14 Executive Committee Meeting 7.30 pm Dirk's place (see back page)	15	16	17 Go Gliding!	18 Go Gliding!
19 Help at West Beach	20 Help at West Beach	21	22	23	24 Go Gliding!	25 Go Gliding!
26 Go Gliding! Anzac Day Public Holiday	27 Help at West Beach	28	29	30	1 Go Gliding! May →	2 Go Gliding!

President's Report

Trent O'Connor

Welcome back.

The AUGC Regatta in late February was a success despite rather ordinary weather. We attracted good involvement from Balaklava Gliding Club members and several other visitors and everyone appeared to have a good time, even those who ended up landing in various paddocks around the course. Congratulations to the winners (listed elsewhere) and thanks to Catherine Conway (Comp Director), Anthony Smith (Safety Officer), Dave Hichens (catering guru) and other members who enabled the event. Hopefully these competitions can be reestablished as an annual event for our club.

O'Week was also deemed a success with a lot of new members signed up and a very good turn-out at the introductory meeting. Several of the new recruits have already signed up for the solo package and/or full GFA membership, which is promising.

A less positive feature of recent months has been the airworthiness issues that have cut into our aircraft availability. It has been confirmed that the Puchatek needs to wait on delivery of a new part from the US to repair the damage to the tail fin. Progress has been made in that the plane has been moved to an appropriate repair workshop where it can be fixed very soon after the parts become available. Many thanks go to Derek Spencer and Alban O'Brien who took time off work to make the 3000km+ delivery trip. Once the plane returns from NSW, its Form-2 will have to be completed swiftly. At the time of writing, the Motorfalke is also out of the air due to severe hangar-rash and the Arrow is in the workshop for annual maintenance work. It would be appreciated if people could make a special effort this month to lend a hand at West Beach so we can be flying all the aircraft we are paying for as soon as possible.

There are no new solo pilots to congratulate this month but plenty of other flying goals have been achieved. Congratulations to Simon Hackett for 300km and Michael Texler for 500km distance flights and to Igor Blazujevic for his Silver Distance (50km+) flight. A few people have had their increasing experience recognised by being "upgraded" to new aircraft types – Derek Eilers is now flying the Standard Libelle, and David Batty has tried his first fibreglass single-seater, the Club Libelle. Ben Ragg had also enjoyed the delights of Arrow flying. Congratulations.

Well that's it from me. Other business will be taking me far from Lochiel this year so I will not be standing for reelection as President (or Treasurer, or Assistant Treasurer) at the upcoming AGM. Thanks to all those committee members and others who have helped out during the year and best of luck for next year's committee.

See you in the air (at a safe distance),

.Trent.

Acting Treasurer Strikes Again

Trent O'Connor

Another month brings another overseas trip for our well-travelled Treasurer, so I am back and am effectively Acting Treasurer from now until the AGM. This is not a state of affairs that will continue after the AGM, because one of you lovely readers will be taking over as Treasurer. Another of you will become Assistant Treasurer. You can see elsewhere in this newsletter what is involved in these roles, so I won't repeat that here, but I will say the following to allay the fears of potential candidates.

- The accounts for 2003 – March 2004 will be up to date and the new Treasurer(s) will not inherit a large box of unprocessed paperwork and loose ends.
- In addition to documenting the club fees and charges I have spent a lot of time improving the accounts database and documenting how to use it so it is now somewhat less scary and mysterious than its reputation would suggest.
- Help will be available. Mark Tyler and other recent Treasurers (and I) will not be impossible to contact for advice.

Please consider if you are able to help the club in this capacity. The club will not run for long without somebody doing this work.

I will not repeat the 2003 financial report here, but will close by saying that the club scraped over the line of breaking even, but only with the help of a significant cash injection from sale of the spare Puchatek canopy.

This year will be tougher with a large outlay required for work on the Puchatek, and additional interest costs to be paid on the Motorfalke loan. To continue to break even will require significantly more flying to occur, or a significant increase in charges in the next year. It's your choice which it will be. Think of that next time the call goes out for more helpers to get aircraft maintenance done promptly or a winch driver to enable a flying day.

.Trent.



When former club presidents go bad.

AUGC 2004 Regatta - A Summary

Catherine Conway

An email from Competition Director Catherine Conway to the augc-people and aus-soaring groups (23 Feb).

Hi All

On the weekend we held the first regatta that has been hosted by AUGC for many years. It was very well attended which perhaps underscores the need for these entry level competitions now here in SA for the "next generation".

There were 11 gliders from 4 clubs competing and additional gliders "local soaring". Entries ranged from the Grunau 2 to the Mini-Nimbus. Balaklava shifted their entire operation over to us for the weekend.

Of course after 2 weeks of 35+ temperatures, there was a front through Friday night. Typical!

Saturday was cool - 23 degrees with another front line hanging around south of the airfield most of the day until it finally hit in the evening. The threat of wind and rain meant we set a very small unofficial task of AUGC-Bute-AUGC as many times as you like.

The winner was the club Bergfalke GZM with Mark Tyler and Derek Spencer since they were the only ones to get to Bute and outlanded on the way back. They were retrieved by the Balaklava winch. Second was GZS the Libelle from Barossa Valley Gliding Club, flown by Bryn Williams. The only other glider to actually leave the airfield.

Prizes were also awarded for height gain (3050' - David Hichens Club Libelle GMI) and duration (Bryn Williams - only flight greater than 1 hour).

Sunday dawned with a complete overcast which broke as the temperature hit 20 degrees. Lighter winds and forecast climbs with cu to 4-5000' meant a 119 km task of AUGC-Redhill-Blyth-AUGC was set for the higher performance gliders and AUGC-Snowtown-Bute-Nantawarra-AUGC for the Grunau and Arrow.

There were some outlandings when pilots were caught by the cycling conditions but the final results were:

1st	Keith Willis - PW5
2nd	Derek Spencer/Alban O'Brian - the mighty Bergfalke
3rd	Derek Eilers - Boomerang

There were other awards for

Best Club Two Seater	Derek Spencer/Alban O'Brian - the mighty Bergfalke
Best Junior	Igor Blazujevic - Club Libelle
Best Low hours pilot	Derek Eilers - Boomerang (flying his first competition and his first XC season)
Best Wooden aircraft	Derek Spencer/Alban O'Brian - the mighty Bergfalke

The catering was superb with webbered roast lamb and beef on Saturday and a BBQ on Sunday - David Hichens has once again done a fantastic job.

Thanks to all who helped organise and run the event, and to the Balaklava guys for bringing their winch.

Clubs represented were

Adelaide University Gliding Club
Balaklava Gliding Club
Barossa Valley Gliding Club
Bordertown-Keith Gliding Club

In addition we had visitors from

Port Augusta Gliding Club
Whyalla Gliding Club

See you again next year!

Thanks
Cath (CD)



Visiting competitors in the regatta preparing for the task ahead. (Photo: Dennis Medlow)

Executive Committee and Other Office-Holder Roles

Executive Committee - elected by the club members (usually at AGM)

President

- act as spokesperson for the club
- send reports to affiliated bodies
- chair meetings
- plan/coordinate club activities
- encourage/advise/hassle other office holders

Secretary

- take minutes at meetings
- collect and distribute club mail
- send correspondence
- organise meetings

Treasurer

- prepare budget, monthly and annual financial reports and forecasts
- manage bank accounts, loans,
- advise exec on financial planning
- prepare grant applications
- recommend changes to fees and related rules as required
- pay bills

(other functions shared with Assistant Treasurer)

[ready access to email and PC with MS Office and MS Access required]

Social Convenor

- organise social functions and other events as required

Fifth-member

- be generally useful
- often provides a voice representing newer members

Other Office Holders - can be elected or appointed by the Exec as required

Newsletter Editor

- edit, produce and distribute a monthly club newsletter

[computer and e-mail access required]

Contact Person

- handle enquiries from outside the club about flying
- collate weekly flying list and make transport arrangements

[ready access to email required, mobile phone is provided]

Clubhouse Officer

- organise provision of food and other consumables to clubhouse

Winch Officer

- organise maintenance and modification of operational winch
- optionally organise work on new winch

Assistant Treasurer

- process flight sheets
- process receipts for expense claims
- manage member accounts
- process GFA forms
- maintain membership/accounts database

(these functions may be shared with the Treasurer)

[ready access to email and PC with MS Office and MS Access required]

Publicity Officer

- propose and organise publicity events and materials

Web Site Editor

- update/maintain/redesign the AUGC web site as required
- optionally manage club electronic mail lists

Sports Assoc Representative

- Represent AUGC at Sports Association meetings

Other Office Holders Appointed (not elected)

Archivist

- maintain records of club history

Chief Flight Instructor

- chair instructor panel
- supervise instructing activities and instructor training
- set safety standards

Airworthiness Officer

- coordinate aircraft maintenance
- supervise and arrange training for aircraft maintenance personnel

SAGA Representative(s)

- Represent AUGC at South Australian Gliding Association meetings

Club Coach

- Supervise and promote cross country/competition training

Air Traffic Control Clearances

Mark Newton

Obtaining airways clearances

If you look at a VNC-8 chart in the vicinity of Lochiel, you'll learn something about the airspace in our immediate vicinity.

Directly over the airfield is class-G airspace up to 8500', then class E to FL180, then class-A to infinity and beyond (well - FL600 anyway).

Slightly East of the ridge, however, the story is somewhat different. Restricted area R265D has a lower-limit of 9500ft -- That means we're allowed to fly no higher than 9500 over (say) Snowtown regardless of how high the thermals are going. R265D covers a broad area: To the North it extends just past Crystal Brook, to the East it extends into the Riverland.

South of that (around Nantawarra/Whitwarta) is R265C, which extends from 8500' to FL450. Similar story, lower level.

That means almost all of the cross-country flights we take out of Lochiel will involve flight under R265D or R265C. Which raises the question: What if the thermals are going higher than the lower limit of the restricted areas?

Answer: If you want to go higher you'll need an airways clearance.

There are two ways to get a clearance: Over the phone and via communication with Air Services over VHF.

Phone clearances

The phone number for Adelaide Tower is on the phone number list in the clubhouse. Before calling it, though, you should work through a list of prerequisites. The Air Services staff in the tower are busy, and spend most of their lives marshalling air traffic carrying thousands of lives to and from Adelaide airport. Being organized in order to make it as quick and easy as possible for them to grant the clearance will avoid wasting their time.

They'll ask you some questions before granting the clearance. Have the answers to these questions ready before you call:

1. The area the clearance will cover (e.g., R265D, a ten-mile wide path on a line between Lochiel and Crystal Brook, etc)
2. The upper-limit of the clearance you're requesting. Remember that heights above 10,000' are expressed in flight levels: 12,000' is FL120.
3. When will the airspace be needed?
4. What's a phone number and a frequency the tower can use to cancel ("recall") the clearance if some emergency arises which demands it? NOTE: If you give them a phone number, make sure someone is monitoring it throughout the duration of the clearance!
5. The number of gliders which will be in the affected area.

Once you have all that information, call the tower, introduce yourself, and describe (with precision) what you want.

They're unlikely to be able to grant the clearance immediately – it usually takes between five and fifteen minutes. Give them your number, they'll call back.

When they get back to you, they'll describe the airways clearance they're willing to grant. Note that it won't necessarily be the same as what you've asked for, so pay careful attention to what they tell you. Write it down and read it back afterwards. Remember to note the name of the person you've been talking to.

VHF clearances

The procedure used to obtain a clearance via VHF is similar to the procedure used to obtain one by phone, except that you need to know the correct frequency to use rather than the correct phone number.

Before you start, you should do a bit of mental preparation. So here are a few things to remember which might help out:

1. Remember that you're dealing with professionals, and that almost everyone they talk to during the course of a day are also professionals. This means you should make sure that your radio procedures are correct, precise and efficient. Avoid "umms and ahhs". Think about what you want to say before you say it. Try to make sure that there's nothing in your procedures which would distinguish you from the Qantas pilots who usually talk to the tower.
2. Have a pen and a bit of paper with you before you start. Spend a minute or two writing down what you plan to ask for (briefly, with abbreviations if necessary. Don't spend so much time on it that your lookout suffers!)
3. Make your radio call five to ten minutes before you need your clearance. As you can see above, they need at least that much time when you ask for it by phone; There's no reason why it'll take any less time when you're asking for it by radio.
4. Write down everything they tell you. You need to do this for several reasons. Firstly, you need to read it back to them before the clearance is valid (i.e., it doesn't start from when they give you permission, it starts from WHEN YOU HAVE ACKNOWLEDGED THAT YOU HAVE RECEIVED IT. If you read-back something that isn't the same as what they've given you, then you don't have a valid clearance). Secondly, you'll need a record of it to refer back to later when you're trying to work out whether the course changes you're planning are going to take you out of the airspace you've been cleared for. This is especially important if the airspace they've given you is not the same as the airspace you've asked for.
5. Be prepared to be brushed off. For example, if you call Adelaide Tower during working hours on a week day and ask for a clearance into R265D, they'll refer you to RAAF Edinburgh. E.g., "Adelaide Tower, sailplane Whiskey Victor Alpha ten miles north of Snowtown, eight thousand requesting airways clearance for operation five miles either side of

a line from Snowtown to Crystal Brook not above flight level one two zero."

"Whiskey Victor Alpha, Adelaide Tower, Contact Edinburgh Tower on one one eight decimal three."

"One one eight decimal three, Whiskey Victor Alpha."

6. Be prepared to have your request rejected. This is especially the case if you aren't carrying a transponder and they ask you to "squark" a transponder code. You'd then need to inform them that you don't have a transponder before reading-back the clearance ("Whiskey Victor Alpha is not equipped with a transponder"). They'd then have the option of either providing you with an amended clearance, or rejecting your request. If they reject your request, you are prohibited from entering the airspace you've requested!

7. When you're operating under a clearance, you need to monitor the frequency you used to request it, or any other frequency they instruct you to monitor. The Microair radios in club gliders can be tuned to any aviation-band VHF frequency, you just need to remember to do it when asked. If they need to talk to you to revoke or amend your clearance, you need to be listening. If they told you to report your position at a certain time or place, you need to remember to do it on the correct frequency. Once you've obtained an airways clearance, you shouldn't be using the gliding frequencies.

8. If things are turning to poo and you don't need the clearance anymore, contact the controllers to hand it back. You can't cancel it when you've out-landed (VHF doesn't travel far from the ground!), so you need to do it as soon as it's obvious that the clearance is no longer relevant. If you drop out of the bottom of your clearance into class-E or class-G airspace and it's obvious that it'll take a long time (if ever) to climb back into it, cancel it. You can always ask for another one later if you need it.

The procedure used to obtain a clearance begins with you telling ATC who, what and where you are:

Example:

"Adelaide Approach, sailplane Whiskey Victor Alpha, negative transponder, ten miles north of Snowtown, eight thousand, flight details."

That tells the controllers for our airspace (Adelaide Approach) that you're a glider and you don't have a transponder (so they won't ask you to squark 0355 and maintain 8000). It also tells them where you are, in three dimensions: location AND height. Finally, "flight details" tells them that you've just made this radio call so that they have all the information they need to process your next call.

(you might also consider giving your position as a radial distance and bearing to Adelaide airport - easier if you have a GPS which can display the info with precision, but likely to be inaccurate if you're sitting in a cramped cockpit with a folded map and need to make guesses about the bearing. Note that the VNC chart has distances in nautical miles to Adelaide Airport on concentric rings labelled with things like "90 DME AD")

Adelaide approach will probably respond with, "Whiskey Victor Alpha, go ahead." Then you can request your clearance:

"Whiskey Victor Alpha, present position direct to Crystal Brook, not above flight level one two zero, request clearance."

That's lingua-ATC for, "I want permission to go from my present position to Crystal Brook in controlled airspace."

After a small delay, they'll come back to you with a clearance.

E.g., "Whiskey Victor Alpha cleared fifteen miles either side of track

Snowtown to Crystal Brook not above flight level one two zero, contact

Adelaide Approach overhead Redhill."

(throughout this you'll be scribbling furiously: there are half a dozen separate datapoints there, and you need to remember all of them!). If your altimeter has a "bug" you might like to take the opportunity to set it to remind yourself of the upper limit you've been assigned.

You must then read-back the clearance:

"Flight level one one zero, Snowtown to Crystal Brook fifteen miles, contact Adelaide Approach Redhill, Whiskey Victor Alpha."

After transmission of that read-back, you'll be in receipt of a valid clearance, and you'll be able to operate in the area described by the controller. Don't forget to report when you reach Redhill (and, depending on instructions you receive then, again when you reach Crystal Brook). Remember that if you're cleared to do something, and you do something else, you're effectively operating without a clearance, and your previously legal flight becomes a controlled airspace incursion. So follow all instructions to the letter.

Don't hesitate to cancel your clearance if you find yourself back at 8000' and descending, with minimal hope of getting back into your cleared airspace.

If the clearance ATC has provided is obviously impossible or impractical to comply with (e.g., they tell you to maintain a level, or to "track direct" so you can't deviate off track to find lift, or say you must operate "not below" some height), remind them that you're flying a sailplane and request something that's more in-line with your expectations instead of giving them a read-back after the initial clearance. Any clearance provided by ATC is not legally enforceable until you've read it back, so there's room to negotiate for mutually agreeable airspace before you commit to it (on the other hand, any clearance you do read back is instantly mandatory to comply with, even if it's impractical or impossible! So make sure you can do whatever they're asking you to do before you agree to accept it). Just remember that you may not enter controlled airspace without a valid clearance, so all this negotiation needs to be carried out before you enter controlled airspace, or while you're operating under a different (but still valid) clearance.

Finally, remember your altimetry. As you climb through the transition layer (10000' to FL110), set your altimeter subscale to 1013.2 and start thinking about flight levels instead of feet. On descent through FL110, set your altimeter back (it's obviously useful to write down the subscale reading before you change it on ascent). If you don't make these changes, your altimeter won't be reading the same as everyone else's when you're above FL110, and when you think

you're operating at FL120 you might actually be at FL130 -- Leading to an inadvertent airspace incursion.

Further Information

The GFA Radio Procedures Handbook has a lot more information about airspace and VHF usage. You should have obtained a copy of this publication prior to obtaining your radio operators authorization. If you don't have a radio operators authorization and you're going to get your clearances by phone, you should read the book first anyway.

The instructors panel is also keen to answer your questions, especially that portion of the instructors panel which holds PPLs (Dennis, Catherine, David, Michael, Peter and Steve). Ask away, if they can't answer your question they'll find out the answer for you.

<http://www.airservicesaustralia.com/pilotcentre/aip/index.asp?pg=10> contains links to various sections in the AIP, which (among other things) contains information about standard phraseology used when talking to air traffic controllers, and procedures to be followed when operating under clearances. In particular, section 2 details information about ATC services, and section 3.19 talks about airways clearances in particular.

Thanks to Peter Cassidy for assistance in preparing this article.

Club Hats For Sale



Ideal for summer. Made from lightweight, breathable micro-tex fabric that is UPF 50+. Almost guaranteed to improve your flying skills, help you find thermals / wave and make the ridge work, make you more attractive to the partner of your choice and keep the flies away.

Royal blue colour with club logo on the front. One size fits all. Only \$25.

Contact Anthony on 8269 2687
or anthony.smith@adelaide.on.net

Administrative Ramblings

Trent O'Connor

As I used up the Treasurer column on other matters I will have to use a separate page to harp on about paperwork.

Renewals and Accounts

Most people did the right thing and paid their membership fees before the end of February. Those who did not should send money soon. Anyone who is in the habit of having a permanently negative account balance risks no longer being an AUGC member and/or receiving a visit from the usually friendly (but rather tall and persuasive) AUGC debt collector.

Sports Association Fees

The previous newsletter showed a "junior" rate for Sports Association membership. The Sports Association advises that this is no longer applicable and all non-AU members joining AUGC should pay the same annual fee of \$60 in addition to the club membership fee of \$10. Unfortunately their rules are such that Sports Association membership is a precondition for AUGC membership, even for those who view themselves as social/non-flying members.

GFA Forms

There are now two books of Introductory GFA Membership forms at the airfield. Please try not to lose any more forms. The club is at risk of having to pay a \$5 penalty for each form not returned to the GFA.

Fridge Sheets

These seem to be working well and have greatly reduced the tonnage of coins that needed to be hauled from the clubhouse to the bank. The fridge sheets do not have all new member names on them so if you are a member and your name is not on the list, add it at the bottom. Remember that

these IOUs are inevitably charged to your account at some point in the future so think about that before sending anybody an indignant email saying that your account balance could not possibly be negative because you paid for all your flying.

Flight Sheets and Payments

If you make a cash payment at the clubhouse or launch point, make sure it is recorded on a flight sheet and initialed. Payments that are not recorded will not magically appear on your account. If you can't get your hands on the current day's flight sheet for this purpose, use the previous day's instead. Payments can also be recorded on the back of Motorfalke flight sheets.

Air Experience Flight Charges

Some changes to the AEF charges were announced in a recent newsletter but not everybody has got the idea yet. If in doubt, refer to the tables in the flight sheet folder. Motorfalke pilots should make sure that their AEF customers agree to pay for extra flying before extending their flight significantly beyond 20 minutes. Duty pilots should be checking at the end of the day (or whenever people start going home) that extra flying has been paid for. The O'Week AEF voucher deal for new members is already extremely generous – no need to make it even more so.

.Trent.

Of Magnetos and Motor Falkes

Stephen Kittel

AUGC has acquired a motor glider and this introduces a new array of operational and technical concepts for the conscientious pilot to learn. During the normal conversion process you will be given enough information to become an adequate pilot, but we all should strive to be better than adequate, and a deeper knowledge of aircraft systems will help in this goal. So, for a bit of newsletter filling, lets look at magneto ignition systems as found in aircraft generally and Motor Falkes particularly.

For any internal combustion engine we need a source of heat inside the cylinder to set fire to the combustible gasses there. For petrol engines in cars and aeroplanes a spark plug is used. Now, pretty nearly everyone will have at least had a quick peek under the bonnet of a car and would have seen the spark plugs going into the top of the engine, with their thick high tension (high voltage) leads. If you had more than a passing look you would have seen these leads go back to a "distributor". In the center of the distributor is a single lead which goes off to an ignition coil. The coil is a transformer which takes the cars normal 12V and produces a voltage of many thousands of volts for the spark plug. The

distributor is really a special switch which sends this high voltage impulse to the correct cylinder for firing. This system is named after its inventor and is known as the Kettering system. It is fairly simple but has one drawback, if the vehicle 12V electrical system fails, there is ultimately no supply to the sparkplugs and the vehicle stops.

While this is an inconvenience in a car, it is most undesirable in a flying machine. Consequently, this weakness is overcome by using a magneto. Most aircraft engines will also use two independent magneto systems for extra safety and better combustion characteristics, however motor gliders such as the Motor Falke use Volkswagen derived engines and have only one ignition set, see figure 1.

The magneto is mostly a self contained unit. In the Motor Falke it is attached to the centre rear of the motor and is a Slick model 4230.

Figures 2 and 3 show an electrical diagram of the magneto system and a simplified diagram which will help explain how it works physically. The heart of the system is a rotating permanent magnet which generates current in the low voltage (primary) side of the magneto coil. The magneto coil acts exactly the same as a car ignition coil. So the source of energy for the magneto system is mechanical rotation of the motor, not the battery. More on this point and safety, later. As the engine rotates not only does the magnet generate current for the coil but the points open which tries to stops the current. When the points open and close, the changing (low voltage) current on the low voltage side of the coil induces a high voltage into the secondary of the coil. This burst of high voltage current is directed through the distributor to the appropriate spark plug (whoops, figure 3 shows a distributor for six spark plug, but you should get what it means). The spark plugs and HV leads on aircraft engines differ from automotive types as they are shielded to prevent electrical interference with other systems, such as radios. However, the drawback of this is they have greater capacitive reactance and the HV generated must not only spark across the resistive sparkplug gap, but must also be sufficiently high to overcome the extra reactance from the leads.

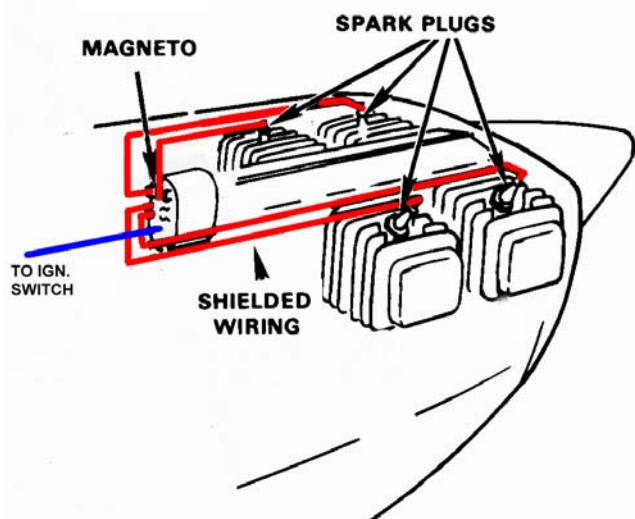


Figure 1

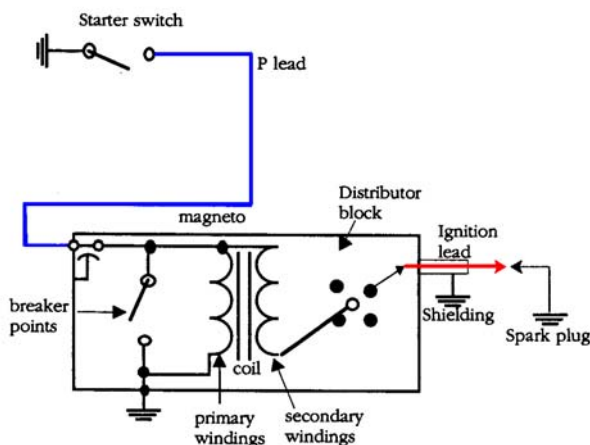


Figure 2

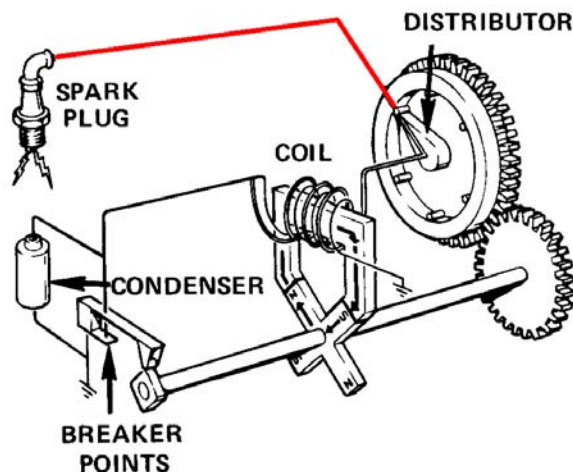


Figure 3

Just the same as cars, the magneto points also have a capacitor (some people still call them condensers) across the points. The capacitor is used to both extend breaker contact life by diverting current away from the points during switching and it also increases the induced voltage to give a more powerful spark.

Now, a non obvious thing, the ignition switch. In figure 2 this is shown open, this is the ON position. This sounds a bit backwards but here's why; the magneto is a self-contained system which works if the motor is rotating. To switch it off we actually put a short circuit across the primary windings. Any current generated now by rotating the permanent magnet will simply pass through the short circuit and not the primary. When the ignition is "off" the magneto still generates current, it just doesn't go through the ignition coil.

An important safety point here is that if the wiring between the magneto and the switch or earth is broken, by vibration for instance, the ignition system is turned on. In this state mechanical rotation of the engine can start the motor. Consequently rotating the propeller is fraught with hazard, even if the ignition switch is off, even at very low rotational speeds. This is because most magnetos use an impulse coupling to assist with starting.

The impulse coupling is included in most magnetos because at low engine revolutions the permanent magnet would only pass the coil very slowly and therefore it would not generate much electrical energy. This coupling stores mechanical energy in a spring until the engine piston is in the correct position to fire. The impulse coupling then snaps the magnet past the coil and generates a voltage spike sufficient for starting. Once the engine reaches a running speed the impulse coupling automatically disconnects. The position that the impulse coupling snaps across is set such that the firing occurs after the "top dead center" piston position. This aids low speed starting and ensures that the engine doesn't backfire and try to rotate the wrong way.

Magnetos are not sealed units. As the distributor switches high voltage, ozone is produced. If this were allowed to build up inside the magneto case, not only would it cause corrosion, but eventually the air would become so conductive the HV impulse would arc across to all connections and the distributor would stop working. (Similarly at very great altitudes reduction in air pressure also causes the same effect, but this is unlikely to affect Motor Falke)

A final comment, for the Motor Falke, if switching the ignition switch to "off" doesn't stop the engine that will indicate that the "P" lead has broken. The ignition will be permanently on. If this is the case, switch the fuel off using the fuel tap in the centre of the cockpit and wait for the engine to die through fuel starvation. This may take some time if sitting on the ground at an idle. Put a major defect in the maintenance release and tell someone with a maintenance qualification immediately. Putting a warning sign near the propeller to keep people away would also be a good idea.

A summary of magneto features.

Magnetos :

- are self contained with most components in one housing.
- are independent of the "normal" electrical system.


- generate higher voltages than similar automotive systems.
- can fire an engine at almost negligible engine rotational speeds.

Just an interesting aside here, the engine chosen for use in the Volkswagen was based on an aero engine design which Dr Ferdinand Porsche was involved with in 1912! This engine was chosen because of its air cooling. This meant the Volkswagen did not have to have a liquid cooling system like other cars and was simpler and cheaper in the area and so it more fitted the ideal of "The Peoples Car". The large numbers of these engines available from post war Volkswagens ensured there was a ready supply of engines for homebuilt aircraft, so what goes around comes around!

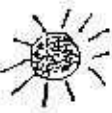


Multiple choice: (a) Mark has realised he will be quoted in the next newsletter for a slip of tongue
 (b) Someone behind the photographer has a bad case of "builder's crack"
 (c) Anthony has just farted (Photo:Derek "Paparazzo" Eilers)

An actual letter handed to a flight attendant on a Qantas flight by an 8 year old girl.



dear Captain
 My name is Nicola im 8 years old, this is my first flight but im not scared. I like to watch the clouds go by. My mum says the crew is nice. I think your plane is good. thanks for a nice flight dont fuck up the landing
 LUV Nicola
 Xx x x



Stay In Touch

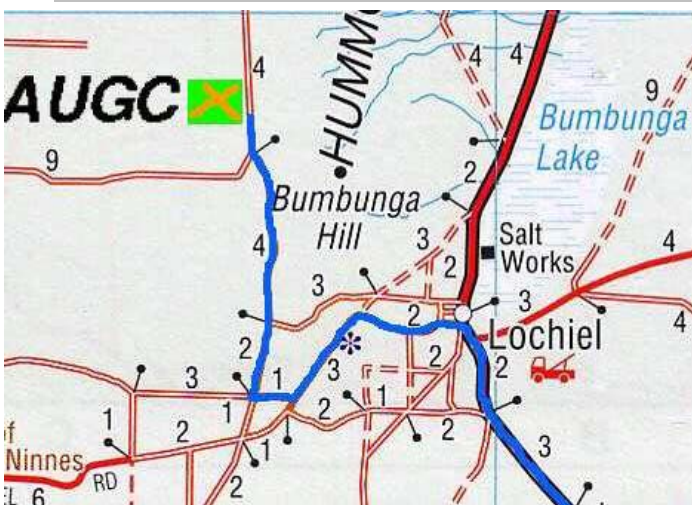
The club has an e-mail group address, augc-people@lists.internode.on.net, that is used to either discuss or arrange things within the club. If you want to stay in touch with the club, subscribe to the mailing list by filling out the online form at <http://lists.internode.on.net/mailman/listinfo/augc-people>. You can still send an e-mail to the list even if you have not subscribed to it.

There is also an 'augc-announce' list for official club announcements, courtesy of our friends at Internode. If you are an AUGC member and have provided your email address then you will already be on this list. If you want to join this list or want to change your subscription, go to <http://lists.internode.on.net/mailman/listinfo/augc-announce>.

You can also get the latest newsletter and up to date news on what is going on at the club's web page: <http://www.augc.on.net/>

If your e-mail address is on the membership database the club's Assistant Treasurer can send you your account updates over the internet. Send an e-mail to: accounts@augc.on.net

Want to fly this weekend?



Want to go flying on the weekend? You must ring the club contact person, Mark, on the Thursday before, between 8.00pm and 10:00 pm, on 0412 870 963, (or by e-mail before) so that he can organise instructors and transport for those intending to fly.

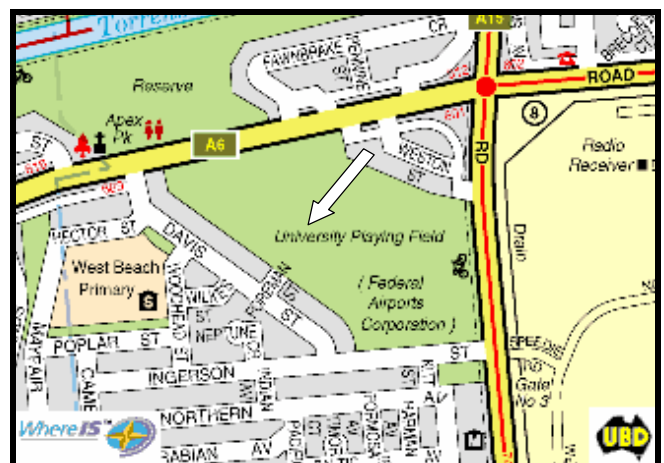
You can either drive up yourself by following the map at left, or Mark can arrange a lift to Lochiel either from the Adelaide University footbridge (meet at 7.15am to leave at 7:30 am), or from the Caltex Service station on Port Wakefield road, Bolivar (meet at 7.45am to leave at 8:00 am).

If driving, turn left from Highway 1 onto Smith St just before the mechanic's shop. About 5 km down the road turn right onto Linton Rd. Take the first right turn from Linton Rd onto Landslide Rd (caution: the intersection has no give way signs). The airfield is about 7 km along Landslide Rd - look for the wind-sock near the gate.

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 and Tuesday evenings. The entrance is at the end of Foreman St, West Beach.

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.



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Upcoming Events

Wed 7 April: Annual General Meeting

7.30 pm in the Union Cinema, Level 5 of the Union Building (just across from the bar!), Adelaide University.

All members are encouraged to attend and cast their vote for new Executive Committee members and other ancillary positions for the year.

Wed 14 Apr: Executive Committee Meeting

7.30 pm at Dirk's place, 37 Maple Ave, Rostrevor. All are welcome to come along and have a say in how the club is run.

Wed 5 May: General Meeting - Basic Aerodynamics

7.30 pm, Margaret Murray Room in the Union Building.

David Conway will be giving a presentation on basic aerodynamic theory. Come along and find out (or debate about) how a wing creates lift and other aspects of flight theory.

Sat 12– Mon 14 June: Flinders Camp

The club's annual flying camp at Rawnsley Park in the Flinders Ranges.

As conditions can be a bit tricky at the Flinders, the camp is not suitable for training purposes. However, there will be opportunities for passenger flights.

There are other activities such as bush walking and trail riding which may interest some. You will need an aerotow rating to fly. Contact Justine Thompson for accommodation arrangements (justine.thompson@adelaide.on.net, 8269 2687).