GLIDING AUSTRALIA

Issue 13 July - August 2013
www.glidingaustralia.org

FLIGHT COMPUTERS
& HOW TO USE THEM

JOEYGLIDE - 20M NATIONALS
COACHING - WIG - FLARM

GLIDING AUSTRALIA

No. 13 July - August 2013

COVER PHOTOGRAPH BYBOB FLOOD DUO DISCUC VH-GRL AFFECTIONATELY KNOWN BY SOME AS "GIRL"

Sean Young
Editor
sean@glidingaustralia.org

Adriene Hurst
Deputy Editor
adriene@glidingaustralia.org

West Sunset
Design & Publishing Services
info@westsunsetbooks.com

EDITORIAL SUBMISSIONS
We invite editorial contributions. Please email sean@glidingaustralia.org
Other large files and photographs and can be uploaded at
www.glidingaustralia.org/ga

DISPLAY ADVERTISING & MAGAZINE ENQUIRIES
sean@glidingaustralia.org

GLIDING AUSTRALIA
www.glidingaustralia.org
Tel 02 9332 2822
PO Box 246 Edgecliff
NSW 2027

Official publication of the Gliding Federation of Australia (GFA).
The GFA ia a member of the Féderation Aéronautique International (FAI) through the Australian Sport Aviation Confederation (ASAC)

INSIDE THIS ISSUE

GLIDING FEDERATION OF AUSTRALIA

MEMBERSHIP Click menu - Membership Purchase
www.glidingaustralia.org
Or contact: Tanya Loriot
Membership@glidingaustralia.org

SHOP The GFA Online shop has a range of useful products including a Form 2 kit,
www.glidingaustralia.org/shop1

AIRCRAFT REGISTRATION & SALES, CLASSIFIED ADVERTISING,
Sharon Smith Registration@glidingaustralia.org

GFA OFFICE
Before calling the GFA office, please check out our website www.glidingaustralia.org to buy items, find documents and other information, and renew your membership.

Tel: 03 9303 7805
9am-5pm Monday - Thursday & 9am-3pm Firday
Level 1, 34 Somerton Road Somerton Victoria 3062

SUBSCRIPTIONS
Non GFA members are welcome to subscribe to Gliding Australia. 1 year is $45 inc. GST. ww.glidingaustralia.org/shop1

FROM THE PRESIDENT

The last few months for me have focussed on the GFA's relationship with CASA. We have had two CASA forums: the Sport Aviation Safety Forum and the Regional Aviation Safety Forum. CASA has also visited our premises to spend a week on an Airworthiness audit. Along with other GFA officers and employees, I have met with various members of the Self Administering Sport Aviation Organisations Office of CASA, and with the Associate Director of Aviation Safety.

The message is clear and can be best summed up by reading the latest newsletter from John McCormick, CASA Director of Aviation Safety, see below. I have highlighted several pertinent clauses.

I have previously communicated with you about the enormous pressure the GFA has been under when it comes to updating our manuals, our polices and our procedures. A huge amount of effort has been expended by the Executive team, departments and our key staff. I thank all of them on your behalf.

There is still a long way to go. Currently our most significant project is our MOSP3 and the policies and procedures regarding how the GFA discharges our delegations. In the past CASA has issued our delegations instruments to span several years. Presently, our delegations instruments are issued for three months at a time. Our continued ability to do something as routine as issuing a Certificate of Airworthiness is under constant scrutiny. In the past, there has been less focus on our documentation by CASA and more on the outcomes and, consequently, also by us. Both the GFA and CASA are responsible for the situation we now find ourselves in - a focus on our documentation as well as the outcomes.

I can't stress enough how critical all of this work is to the members. In order to maintain the same privileges that we have enjoyed for years, we need to all recognise and accept that the expectations of the regulator have changed, and this means our responsibilities have changed. Until we move into the Part 149 'Approved Organisation Model', CASA's relationship is actually with you, the members - or rather the aircraft flown by our members - except that what you do must be as a member of the GFA, and in accordance with our manuals. CASA can't make the GFA do anything, but unless we do it, you can't enjoy the exemptions and delegations.

Here are some extracts from the Civil Aviation Order 95.4 Instrument 2011, as amended:

- Subject to paragraph 3.2, CASA exempts aircraft to which this Order applies from compliance with the following provisions of CAR 1988: (aa) Parts 4 and 4A, provided that both the GFA Operational Regulations and the GFA Manual of Standard Procedures Part 3 Airworthiness are complied with.

5. General conditions.

5.1 An aircraft to which this Order applies must not be operated except:

(a) by an individual:(i) who is a member of the GFA; or (ii) who has been given written approval by CASA to operate that aircraft [I note: CASA has advised me that there is no pilot who has been given such approval] ; and

(b) in accordance with:

(i) in the case of an individual referred to in sub-subparagraph 5.1 (a) (i) — the rules, orders, directions, standards, maintenance and operational procedures contained in the GFA Operational Regulations and other applicable manuals and written directives of the GFA; or

(ii) in the case of an individual who has been given a written approval under sub-subparagraph 5.1 (a) (ii) — the conditions included in that approval; and

(c) by a pilot who:

(i) in the case of an individual referred to in sub-subparagraph 5.1 (a) (i) — is qualified in accordance with the standards specified in the GFA Operational Regulations, subject to the limitations which are specified in the GFA Operational Regulations as being appropriate to the qualification held by the pilot.

FROM THE DIRECTOR OF AVIATION SAFETY

JOHN MCCORMICK

As it is now just over four years since I became the Director of Aviation Safety, it is a good time to reflect on CASA's achievements over that period. When I arrived in March 2009, it was clear CASA needed an organisational structure focussed on what the Parliament of Australia had intended when it made the very significant amendments to the Civil Aviation Act in 1995. By aligning our divisional breakdown with our core

functions, as set out in Section 9 of the Civil Aviation Act, CASA now has a sharp focus on its purpose and the activities the Parliament expects to be undertaken to regulate the safety of Australian civil aviation. **It was also apparent that our policies, processes and procedures were in need of updating. Over the last four years we have invested an enormous amount of effort in this task. The outcome of this work is leading us further toward our goals of standardisation and consistency.** Flowing from this are considerable benefits for the wider Australian aviation community - including, of course, the aviation industry and CASA alike.

Important progress has been made over the last four years to re-invigorate the regulatory reform and development processes. Since October 2009, 108 standards development projects have been completed. These include new Civil Aviation Safety Regulations, manuals of standards and advisory material. There are currently 98 ongoing standards development projects. However, the work will not end with the completion of drafting the new regulations. Indeed, this work can be likened to painting the Sydney Harbour Bridge. When you reach one end, it's time to go back to the beginning. **In the case of standards development this encompasses the commencement of post-implementation reviews** and continuous development of the regulatory suite to reflect changes in technology and other relevant developments at home and abroad.

And the process does not stop at merely writing this material. We have ahead of us a number of years during which the new rules and practices will be introduced in both CASA and the aviation industry. **This is a major undertaking requiring some significant transitions over a period and at a pace that allows CASA to continue its regulatory oversight of industry and for industry to be able to absorb the necessary changes. To achieve this requires a massive effort to educate the aviation industry and assist through the transition process.** We have invested heavily in training, education and safety promotion and we will continue to do so.

It is interesting to note that across the various aviation sectors, accident rates have generally plateaued at relatively low levels. Australia has an enviable safety record for which we are frequently acknowledged internationally, but we must now use the data and information available to us to identify the steps we must take next to further improve aviation safety. **Our initiatives in surveillance, safety performance analysis, knowledge and information management, safety education and promotion, standards setting, enforcement and the use of appropriate safety interventions, among other things, are all leading us in this direction.**

In the context of this long list of achievements, and mindful that there is always room for improvement, it is disappointing and dispiriting that so much criticism seems to sometimes be directed towards CASA and individuals within CASA that is without substance, legitimacy or merit. Being a regulator often puts us in that awkward, if unavoidable, position of being 'damned if we do and damned if we don't'. There will always be those who find regulations of any kind not to their liking. However, as a responsible regulator and consistent with the consultative obligations specified in the Civil Aviation Act, we must arrive at the most appropriate position for aviation safety in Australia. Fair and constructive criticism is an important and valuable part of the safety quotient in a democratic society like ours. The baseless criticism we sometimes receive - frequently misinformed, sometimes mischievous and at times personally abusive - is regrettable, unhelpful and dangerously erosive of public confidence in Australia's system of aviation safety.

JOHN F MCCORMICK

On a more uplifting note, you, the members, continue to do some great gliding. I've heard about some wonderful winter soaring and this makes me feel like all the effort is worth it! Send me an email if you have a particularly good flight.

Our international competition representatives are in, or have been in, Europe attending championships. Have a look at the links provided at www.glidingaustralia.org/News/current-international-teams.

I am looking forward to watching as our Joey's compete in Poland. I wish **Matthew Scutter, Eric Stauss** and **Ailsa McMillan** all the very best.

Kerrie Claffey is in Issoudun, France, as I type. Go Kerrie!! We also have **Adam Woolley** and **Ben Loxton** attending the Pre-worlds. Our preparation for the 'Australian Worlds' is underway. If you are interested in being involved, contact Mandy Templecsc@glidingaustralia.org.

If you haven't had a chance, go to our new website. There has been much 'peddling' behind the scenes to migrate to glidingaustralia.org. You might notice that while the migration is happening, data is stored on both sites, and the url switches between gfa.org.au/imis and the new site. Thanks for your patience, and thanks especially to Tim Shirley and Sean Young for their efforts.

As always, keep in touch and enjoy your gliding!

ANITA TAYLOR
PRESIDENT
President@glidingaustralia.org

RANGA SCHOLARSHIP, AWARDS AND TROPHIES 2013

Just a reminder to all that applications for Awards, GFA Trophies and the RANGA Scholarship are now open.

RANGA SCHOLARSHIP

The Royal Australian Navy Gliding Association (RANGA) has established a scholarship valued at up to $1500 annually to be awarded to a person who can demonstrate a strong commitment to aviation but who is not yet at solo standard in any form of flying.

The money is a grant to assist in training in gliding, and will be paid to the club which provides that training. The rules for the scholarship and the process for applications can be found on the GFA Website

The scholarship runs from 24 July 2013 to 23 July 2014. Applications can be made until 3 July 2013.

GFA TROPHIES

These are awarded annually for the best performances in the previous season, that is, from 1 May 2012 to 30 April 2013. Applications close on 31 July 2013. To apply, you should send a claim by email to Tim Shirley at tshirley@internode.on.net, and attach a valid IGC file proving the flight. Please note, I will not accept claims that require me to find your file on the OLC!

The three trophies are:

MARTIN WARNER TROPHY, FOR THE GREATEST GAIN OF HEIGHT

WALLY WOODS TROPHY, FOR THE LONGEST CROSS-COUNTRY DISTANCE FLOWN (OFF THE STICK)

BOB IRVINE TROPHY, FOR THE LONGEST CROSS-COUNTRY FLIGHT ON HANDICAP.

In this case the OLC handicaps are the ones used.

The Wally Woods and Bob Irvine Trophies can be won by the same person, but not for the same flight.

ABOVE: The Martin Warner Trophy

The scholarship runs from 24 July 2013 to 23 July 2014. Applications can be made until 3 July 2013. See www.glidingaustralia.org for details.

TIM SHIRLEY,
GFA AWARDS AND TROPHIES OFFICER

FROM THE CHAIR SPORTS COMMITTEE

At the last SC meeting we spent some time putting together two tables, which are reproduced here.

One shows the competition schedule for the next few years and the other shows the competitions that will be used for selection for these competitions.

Another interesting development is the IGC's acceptance that the Sporting Code is excessively complex for early badge flights. There is currently a move to separate the requirements and rules for badges and records.

The latest draft is here, http://is.gd/TwG9v3

For those who are interested in learning more and staying up to date, there is a mailing list 'igc-discuss'.

You can subscribe here, http://lists.fai.org/wws/subscribe/igc-discuss events.

MANDY TEMPLE
CHAIR SPORTS COMMITTEE
csc@glidingaustralia.org

SELECTION CALENDAR		
	40%	60%
Flapped - POLAND 2014	BENALLA 2012/13 or KINGAROY 2012	KINGAROY 2013
Unflapped - FINLAND 2014	KINGAROY 2012/13 or BENALLA 2013	WAIKERIE 2014
20m FIN	NARROMINE 2012/13 or KINGAROY 2012 or BENALLA 2013	NAROMINE 2013/14
Junior - NARROMINE 2015	NARROMINE 2013 or KINGAROY 2013 or WAIKERIE 2014	NARROMINE 2014

Excluding pilots who attended pre-worlds.

COMPETITION CALENDAR				
		Australian Qualifying Comps	***PRE WORLDS***	**WORLD COMPS**
2013	JUNE		***Unflapped WGC - FINLAND***	
	JULY			**Junior - POLAND 2013**
	OCTOBER	Multi class - Kingaroy 2013		
	DECEMBER	Joeyglide - Narromine 2013		
		20m Nats - Narromine 2013		
2014	JANUARY	Club Class - Waikerie 2014		
	JUNE			**Unflapped - FINLAND 2014**
	JULY			**Flapped - POLAND 2014**
		Club Class - Gundy or Lake Keepit 2014/15		
	DECEMBER	Joeyglide - Narromine 2014	***Junior - NARROMINE 2014***	
2015		Multi class - Waikerie 2015		
		20m nats - TBC		
			Unflapped - LITHUANIA 2015	
	DECEMBER			**Junior - NARROMINE 2015**
2016	JANUARY	Multi class Nats - Benalla 2016	***Flapped BENALLA 2016/17***	
				Unflapped - LITHUANIA 2016
		Multi class -Gundi Oct 2016 or Corowa/Toc in Dec 2017		
2017	JANUARY			**Flapped - BENALLA 2016/17**

MEMBERSHIP RENEWAL

In May the GFA introduced a new website, a new online shop, and a new way to purchase or renew membership through the new website at www.glidingaustralia.org. The most important new features of this system are:

There is no longer any need for usernames and passwords to access the site, though you will need to register when you first use the shop, because it is no longer directly linked to the membership system.

Membership purchase and renewal is best done through the website. After filling in a membership form you will be taken directly to the shop to complete your purchase.

You can renew at any time, not only on the anniversary of joining, and if you wish you can buy multiple years of membership.

We will soon be introducing a process of automatic renewals, whereby your credit card will automatically be charged each year. Of course, this will be an optional service.

We are now sending out renewal reminders by email, however the traditional invoice for membership renewal has been dropped because it was costing too much to process in this way. If you are not in the habit of reading your emails regularly, you may not see you renewal reminder so please either check your email or put a note in your diary.

Members who still prefer to deal directly with the office can do so, of course, just by ringing and talking to our friendly office staff.

We hope you will take advantage of the new and simpler ways to renew your membership. If you have any questions you can contact Tanya at membership@glidingaustralia.org or Tim at eo@glidingaustralia.org.

FAI GLIDING BADGES

TO 3 JULY 2013

A.BADGE

KILKENNY BRODIE A J 11852 CANBERRA GC
BLEULER HANS R 11854 LAKE KEEPIT SC
JAMIESON DANIEL J 11856 NSW AIR TC
KLEIN KERRY C 11860 DARLING DOWNS SC
HAWES COURTNEY A 11867 NSW AIR TC

A & B BADGE

MCCLYMONT COOPER 11861 BOONAH GC
BECKER ROBYN H 11864 NARROGIN GC

B BADGE

WROBLEWSKI ANDRZEJ 11834 GEELONG GC
MCSWINEY ZAC C 11785 NSW AIR TC
DAVIS CHRISTOPHER P 11831 NSW AIR TC
FISHER ALEXANDER 11816 QLD AIR TC
KLEIN KERRY C 11860 DARLING DOWNS GC

C BADGE

GUY CHRISTOPHER T 11635 CABOOLTURE SC
TUCKER JOHN G 11804 SOUTHERN CROSS GC
VENESS JUSTIN (JOE) 11809 SOUTHERN CROSS GC

B & C BADGE

WONG KAH-HO (JAMES) 11759 G.C.V.

A. B. C. BADGE

GRKEMP PETER J 11850 LAKE KEEPIT SC
STOKES LEIGH M 11851 ADELAIDE UNIVERSITY SC
KRYGGER PETER A 11853 LAKE KEEPIT SC
MCCORMACK ROBERT J 11855 TEMORA GC
LEWIS CASEY J 11857G.C.V
WILSON ALAN J 11858 WAIKERIE GC
ANDERSON KIM L 11859 ALICE SPRINGS GC
LUTOVAC ZELJKO 11862 SOUTHERN RIVERINA GC
KEITH JUSTIN D 11863 BYRON BAY GLIDING
THORNE CHRISTOPHER 11866 CANBERRA GC
EDWARDS TODD 11865 KINGAROY SC
ALDER IAN J 11868 NSW AIR TC

SILVER C

KRYGGER PETER A 4822 LAKE KEEPIT SC
TRIDGELL PAUL 4823 RAAF RICHMOND
ALDER IAN JAMES 4824 NSW AIR TC

GOLD C

BINKS STEPHEN W 1692 BEVERLEY SC

DIAMOND GOAL

SHEARER JENNIFER BEVERLEY SCC

MAKING A DECLARATION

Each of the tasks associated with flying an FAI badge from Silver C to Diamonds require a flight declaration with the exception of a gain of height flight. Long gone are the days of loading the camera and smoking the barograph. With the modern loggers and position recorders our pilots are well able to enter their tasks in an electronic version.

Tim Shirley, the GFA webmaster, is setting up a site so that electronic declarations may be sent by email or smart phone to a fixed address. The details will be published on the GFA web site.

The international gliding commission is undertaking a major overhaul of the Sporting Code section 3 rules for badges, records and competition flight for gliding. While this may take some time to achieve I will attempt to bring to your attention any major changes.

BERYL HARTLEY

AIRWORTHINESS DIRECTIVE

ASK 21 and ASK 21 Mi

sailplanes, all manufacturer serial numbers. TCDS Number: EASA.A.0221

ASK 21 sailplane spin characteristics can be controlled using tail ballast weights, ensuring that pilots of all weights can achieve the same spin results. Although the tail ballast weights were designed to control the centre of gravity of the sailplane, these weights significantly affect the inertia terms that govern the sailplane response to spin manoeuvres. Schleicher issued a Technical Note (TN) Nr. 4 in 1980, mainly used in Switzerland, to provide instructions for the Aircraft Flight Manual (AFM) for spin training. These instructions did not provide proper protection against accomplishment of single seated flight with forgotten spin ballast installed.

Schleicher issued a TN Nr. 4a in 2004 to provide instructions to the Aircraft Flight Manual (AFM) amendments to address spin ballast installation and facilitate two seated spin training. However, these instructions did not provide proper guidance for the spin entry techniques. The safety margin in respect to inertia limits was marginal for pilot weights less than 70 kg on the front seat.

Furthermore, in one case, it was observed that a control surface gap was not sealed in accordance with design data approved for that aircraft.

Single seated flight with forgotten spin ballast installed, if not corrected, could lead to sailplane operation beyond its centre of gravity limits. Flights with low inertia momentum around the Y axis as a result of the low weight crew could result in reduced safety margin in respect to inertia limits.

An improperly sealed control surface gap during spin recovery could lead to significant delay of recovery and reduced control of the sailplane.

To address these potentially unsafe conditions, Schleicher issued TN Nr. 4b for ASK 21 model sailplanes and TN Nr. 7 for ASK 21 Mi model sailplanes to amend the associated AFM and Aircraft Maintenance Manual (AMM) procedures and installation of a cockpit placard, as applicable to sailplane models.

For the reasons described above, this AD requires amendment of the AFM, AMM and installation of a cockpit placard.

REQUIRED AS INDICATED, UNLESS ACCOMPLISHED PREVIOUSLY

Model ASK 21 sailplanes:

(1) For sailplanes modified in accordance with Schleicher TN Nr. 4, within 30 days after the effective date of this AD, amend the sailplane AFM and AMM and concurrently install a cockpit placard in accordance with the instructions of Action B of Schleicher TN Nr. 4b, and operate the sailplane accordingly.

(2) For sailplanes modified in accordance with Schleicher TN Nr. 4a, within 30 days after the effective date of this AD, amend the sailplane AFM and

4b, as applicable, and operate the sailplane accordingly.

Model ASK 21 Mi sailplanes:

(3) For sailplanes with attachment for spin ballast at the vertical tail installed, within 30 days after the effective date of this AD, amend the sailplane AFM and AMM in accordance with Action A of Schleicher TN Nr. 7, and operate the sailplane accordingly.

ASK 21 sailplanes, both Models:

(4) Amendment of the AFM or AMM as required by this AD, may be accomplished by the pilot owner in accordance with paragraph M.A.803 of Commission Regulation (EC) No 2042/2003. Action(in

THE EYES OF THE WORLD ARE ON AUSTRALIA

The three years 2014-2017 will see the world's eyes firmly set on Australia, with two world championships scheduled in December 2015 and in January 2017. We also have the option of bidding to host the World Sailplane Grand Prix final to be held in late 2015. See details below. If this bid is successful we will have five events over 26 months - including a pre worlds practice event for each of the two world championships.

WHY IS THIS WORTH DOING?

With approximately 20 per cent of our membership actively involved with competitions, we get a few protests about too much coverage of this aspect of our sport. But whether you love or hate competitions the media is much more interested in competition activity than the thrill of someone's enjoyable soaring flight last weekend. If you can excite this even more with international competitors, then the media, print and electronic, suddenly has a story worth telling.

This sustained international activity is a great opportunity for us to promote our sport in the national media. This should have a flow-on effect for all clubs, exposing the population to gliding and encouraging them to seek out their local club to experience the wonders of soaring. If we can capitalise on this opportunity, we stand to support clubs in their efforts to grow our membership.

For the competition pilots, this is also a great opportunity for them to fly with some of the best pilots in the world during the pre-world events and so challenge and improve their own racing and soaring skills.

For our team pilots it is a great opportunity to capitalise on their home ground advantage. Nothing would excite the media more than a home grown world champion.

JUNIOR WORLD GLIDING CHAMPIONSHIPS DEC 2015

A 'Junior' in aviation sport is defined as someone aged 15 to 25 years. The Junior world championships, held every two years, have been running for the past 16 years with competition in two classes – Club and Standard. This is no low level event. Many of the podium finishers at the juniors are simultaneously getting podium finishes in the 'senior' world comps.

The 9th Junior World Gliding Championships will be held in Narromine in December 2015. I think that the world's Juniors will be eagerly waiting to experience the hot, strong thermals of western NSW. The organising committee has held its first meeting and we are already getting approaches from people wanting to be part of the action. The 2013 Junior nationals (Joeyglide) is the first part of the program leading up to the World championships, and we will be shortly calling for volunteers to help run the 2014 pre world event.

WORLD GLIDING CHAMPIONSHIPS (FLAPPED CLASSES) JAN 2017

This world championships for Open, 18m and 15m classes is certainly the 'Big One' and we would expect 100 or more competitors, despite the large distances for competitors to travel. The site selected was Benalla in Victoria, which previously hosted the 1987 world championships. Benalla's greatest attribute is the facility available to host such a large event - a large airfield with access to the Performing Arts Centre and TAFE college at the entrance, and easy walking distance from a large town. Of course, there is also the varied task area, reliable strong weather and easy airspace.

The first meetings of the organising committee has revealed a very enthusiastic local council and regional development department, and a very supportive community and gliding club.

We will also be calling for many volunteers to help run this event, with a pre-worlds in Jan 2016, a month after the Narromine worlds, and the big event in January 2017.

SOARING GRAND PRIX FINAL 2015

IGC have invited nations to apply to host the Soaring Grand Prix Final in late 2015. The SGP is a smaller gliding event with a maximum of 20 aircraft and a different tasking and racing and scoring format. It is designed as a promotional and marketing event, with a focus on exciting racing and media involvement. If you haven't seen the Chile Grand Prix on YouTube, it is well worth a look.

The GP was invented in Australia and the first event was run as part of the world gliding championships pre worlds at Gawler in 2000. It will be a great opportunity to have the modern version of this event in Australia, and it will form a key part of our promotional campaign.

We have had GP qualifiers run in Australia at Gawler, Narromine and over the past few years at Lake Keepit. Clubs that would like to host the final should express an interest by 27 July 2013 – see details below.

Australia will submit our bid to IGC by the end of September.

EXPRESSIONS OF INTEREST

Clubs wishing to host the SGP Final are asked to express interest by emailing Terry Cubley at CMD@glidingaustralia.org. Interested clubs will be sent an application form to submitted to the GFA Sports Committee and the successful applicant will be submitted as GFAs bid for the final. *GA*

DEVELOPMENT

If you have any questions or feedback please contact me at the email address below.

TERRY CUBLEY
CHAIR, DEVELOPMENT PANEL
cmd@glidingaustralia.org

ONCE UPON A TIME IN A PADDOCK FAR, FAR AWAY

I liked the 1970s - they were pretty good to me. Lots of new experiences, first job, great music and I started my life in gliding.

Among the memorable times we had then were the gliding camps in the Black Springs area of South Australia, at the southern end of the Flinders Ranges about 100 km north of Adelaide. Here the Tothill Ranges rise to about 700ft above the surrounding valley and are ideally placed for gliders to slope soar on the prevailing westerly winds that we get in winter.

Slope soaring had fallen into disuse in Australia when I came into gliding, being overshadowed by the more glamorous techniques of thermal flying which were advancing by leaps and bounds. But there were still some who remembered the charms of the ridge, among them Martin Simons, a former editor of this magazine's forebear, Australian Gliding. Martin had learned to glide in England on the slopes, and promoted a series of camps in the Black Springs area.

These were very successful, and many SA clubs ended up taking part. With much flying and much partying, a certain amount of damage was done to brain cells and also to gliders. Oh well, we were young and high spirits abounded.

Times change and so do fashions. Soon our flared jeans from the 1970s were long gone, and the winter gliding fashion moved from ridge to wave flying. Wave camps have been popular since the 1990s in the Wilpena Pound area in the northern Flinders Ranges of South Australia. The Black Springs expeditions were overshadowed and eventually petered out.

Then in the noughties the idea of reviving Black Springs started to grow. Most things need an enthusiastic individual to make them happen, and a 'champion' emerged in the form of Frank Johann. Frank located a suitable spot, negotiated its use, organised the logistics of gliders and tugs, and so in 2013 after a quarter of a century we were off to Black Springs again for the June long weekend.

What a time! Three days of fun, great flying, good friendships, fine food and the odd glass or two - talk about happy campers.....

A sizeable group of Adelaide Soaring Club members made the trip, many with families. The expedition got underway on Saturday with a dual tow of our DG 100 and DG 505 to the ranges and other members driving up, many with private gliders in their trailers. The paddock we used was large but with slopes in two axes in parts, which added stimulation and made one very careful about proper approaches - good practice. One member added interest by coming up in his Chipmunk - not something everyone would have thought of as a bush plane, but then again it does come from the same stable as the Beaver...

On Saturday and Sunday the conditions were only moderate for slope-soaring, but some members took advantage of the opportunity to re-acquaint themselves with close proximity to a ridge, while others found satisfaction in local thermal flying in a very different environment from the home field.

In contrast, the holiday Monday was a perfect day - the wind was strong upstairs but not strong enough to be uncomfortable on the ground, little cumulus clouds were present and it was possible the to make the transition from slope to thermal flying and back again more or less at will. All day long gliders skimmed along the slopes, with pilots eying each other and the numerous eagles in these rugged ranges very carefully. Some pilots used the lift to gain maximum height, others opted to travel at high speed below the ridge tops where the lift was strongest.

I would not be giving a full picture of the weekend if I only talked about the flying. What a great experience it was! The sky was blue but with white clouds sometimes scudding by above. The days and nights were crisp and cool without ever becoming freezing. The countryside looked beautifully green after an excellent start to the season for the farmers, and the contrast of the graceful white gliders against the green pastures made the scene a work of art. The very generous farmer had made available to us a complex of stone huts worthy of a Banjo Paterson bush ballad - they served all sorts of purposes for us like storage and shelter, though most people opted to camp. In case we lost perspective on what year it was, a huge complex of wind turbines slowly turned on the next range west, a very 21st century sight.

At nights the campfire blazed, the food seemed more delicious as it always does after a day in the open air, the sky was crystal clear and the billions of stars which we never see in the city shone brightly. During the day, those who were not flying engaged in activities ranging from bushwalking to reading to cooking.

All good things come to an end. As the day wore on it was time to pack up and once again the faithful Pawnee took both DGs on tow, disappearing southwards in the lee of the western range. All in all it was a great weekend and there was universal agreement among those present that we must do it again.

Every club that has expeditions away from base finds it is great for member interest and draws us all together. These events need careful planning and good prior publicity but it's worth it. If your club doesn't engage in 'away' expeditions, please consider it - you'll enjoy the experience.

GEOFF WOOD
ADELAIDE SOARING CLUB

GA

As you drive through Cunninghams Gap on the two-lane highway out of Brisbane, a most remarkable transformation happens to the landscape around you. You drive up the ridge, enveloped in trees, looking up steep cliffs, and you top out at some 700 meters above sea level. That is where the highway pokes through the Gap, named after the first European to once do so, with ropes rather than wheels. Leaving the gap behind, you push further West, descending slightly.

You gradually wind your way out of the heavily bushed swells and ripples of the Great Dividing Range. As the road levels off and straightens out more, still some 500 metres above sea level, tree lines become sparser, paddocks flatten out and grow larger,

That is where you find Warwick, the place where the Warwick Gliding Club will host the 2013 Queensland State Competitions in the first week of October. Only two hours' drive from Brisbane, yet with the sort of inland gliding conditions that are perfect for a competition. Now most glider pilot spouses have learned, often the hard way, that 'bucolic' and 'suitable for cross-country gliding' as descriptions of countryside hardly ever go together. Good gliding territory means it is hot and dusty and flat

At Warwick, the weather will almost always let you fly, and as Australian airfields and towns go, Warwick strikes a very nice balance between bucolic and suitable for cross-country gliding. There is something bucolic about the place, the whorling sounds of magpies in the morning, the shops and café's of a cute country town of 15,000 people just a few kilometres away, cupped gently in the Southern Downs.

Yet the terrain around the airfield (YWCK) is flat enough to invite cross-country and competition pilots of every experience level. Competition tasks set to the northwest in particular will gallop over hundreds of kilometres of outlandable terrain. In spring, the Warwick countryside can boil up lines and lines of beautiful thermals and cumulus, almost predictably, reliably, consistently. The blue of the sky between those foamy, cauliflower-shaped white clouds is so deep, so unapologetically blue, that it is as if you're looking straight into space.

The Great Dividing Range, some 40 kilometres to the east of Warwick, offers lift over its trees and gullies and crevasses when the flatness has stopped offering as much. It even offers lift when everything else does too. Queensland, after all, can be a warm place, warm enough to boil up something for everyone, everywhere. At some 200 kilometres from the coast, Warwick is far enough inland to delay or entirely avoid the effects of the sea breeze, and having the Great Dividing Range in the way does no harm either.

But Warwick is more than an airfield. It is one of the most friendly, welcoming places to go gliding, to go shoot the breeze with a beer and fellow pilots, to be briefed, towed, housed, watered and fed. This is what the Warwick Gliding Club does - extend hospitality to visiting pilots like few others, even and perhaps particularly during competitions.

The facilities, bunkhouses, campground, kitchen, large clubhouse with briefing room and lounge, glider parking, trailer parking, renovated ablution blocks and more, are ample. The people are friendly, inclusive, hospitable, welcoming. Warwick Gliding Club hosted the Queensland State Comps in 2011, and organized the Easter Comps at Goondiwindi in 2013. This has given Warwick Gliding Club a track record of successful, smooth and safely run competitions and plenty of organizational and operational experience to build further on. And a track record of well-watered and well-fed glider pilots.

The early-bird entry fee for the QLD State Comps is only $275, if paid before 31 August. On top of that, Warwick Gliding Club will cater three meals each day and will offer you accommodation on its campground or in its bunkhouses, right at the airfield. **Practice Day is Saturday 28 September, with the competition running from Sunday 29 September to Saturday 5 October.**

For more information, see the competition website
www.warwickgliding.org.au/index.php/qld-state-comps-2013
or contact: statecomps@warwickgliding.org
Les Milne 0407 986 142
Phil Southgate 0419 264 713

AUSTRALIA-WIDE COACHING EVENTS

Early cross country pilots are encouraged to attend these coaching events. They are aimed at improving pilots cross country skills and increasing your ability and confidence.

If you are a recent solo pilot who is eager to learn how to explore the sky, these are opportunities not to be missed.

You will learn from top pilots who will share their many years of experience.

These events are run on a voluntary basis by the coaches. Only a small charge may be required to cover costs associated with running the event. Please check with the contact listed for each event.

22 – 28 Sept	Qld Coaching week with G Dale	Kingaroy	Cross-country pilots	Greg Schmidt gregschmidt88@gmail.com
29 Sept – 5 Oct	Qld State Comp Coaching with G Dale	Warwick	Competition pilots	Greg Schmidt gregschmidt88@gmail.com
3 -8 Nov	Speed Week	West Wyalong	Cross-country pilots	Paul Mander paul@mander.net.au
2 – 9 Nov	Bendigo Regatta & Coaching	Raywood	Cross-country pilots	Frank Van Der Hoeven dg101g@bigpond.com
4 – 8 Nov	Private Coaching with G Dale	Lake Keepit	Lake Keepit pilots with prior bookings	Chris Bowman Chris.Bowman@pcce.net
11 – 15 Nov	Keepit Faster Coaching with G Dale	Lake Keepit	Cross-country pilots	Chris Bowman Chris.Bowman@pcce.net
18 – 22 Nov	Intermediate Coaching with G Dale	Benalla	Intermediate cross-country pilots	Tim Shirley tshirley@internode.on.net
23 Nov – 30 Nov	NSW Narromine Cup Coaching	Narromine	Cross-country pilots	Bryan Hayhow gliders@highspeedflight.com.au
25 – 29 Nov	Advanced Coaching with G Dale	Benalla	Advanced cross-country pilots	Tim Shirley tshirley@internode.on.net
1 – 7 Dec	'Girls Just Want to have Fun' Women's Week	Bathurst	Women pilots all levels and SNAGS	Leonie Furze leoniefurze@hotmail.com
7 – 14 Dec	JoeyGlide Coaching	Narromine	Juniors	Bryan Hayhow gliders@highspeedflight.com.au Liam Donald ldonald87@hotmail.com
27 – 31 Dec	SA Coaching Week	Stonefield	Cross-country pilots	Cathy Conway cath@internode.on.net
25 – 31 Jan	VSA Coaching Week	Horsham	Early cross-country pilots	Tim Shirley tshirley@internode.on.net
1 – 8 Feb	Mentoring 2-seater Horsham Week	Horsham	Aspiring competition pilots	Ian Grant ian.grant.gliding@gmail.com
12 – 18 Jan	Mentoring VSA State Com	Bacchus Marsh	Aspiring competition pilots	David Wilson dwjcra@ozemail.com.au
24 – 28 Feb	Coaching with G Dale	SA clubs	Cross-country pilots	Cathy Conway cath@internode.on.net
1 – 10 Mar	Alpine Coaching	Mt Beauty	Experienced pilots	Ian Grant ian.grant.gliding@gmail.com
2 – 6 Mar	Coaching with G Dale	WA clubs	Cross-country pilots	Swain Johnson Swain.Johnson@bentley.com
10 – 14 Mar	Coaching with G Dale	WA clubs	Cross-country pilots	Swain Johnson Swain.Johnson@bentley.com

Coaching and mentoring is also available at State and National Championships. Also, each state runs a lecture series, usually during the winter or off-season months. To find out more details Contact the Head Coach for your region or the Coaching Panel Juniors representative.

Head Coaches

WA – Swain Johnson swain.johnson@bentley.com
SA – Cathy Conway cath@internode.on.net
VIC – David Wilson dwjcra@ozemail.com.au
NSW – Bryan Hayhow gliders@highspeedflight.com.au
QLD – Greg Schmidt gregschmidt88@gmail.com

Coaching Panel Juniors representative – Jess Stauss jmstauss@internode.on.net
National Coaching Director – Peter Trotter peter.trotter6@bigpond.com

CLUB PILOT'S EXPERIENCE AT 20M NATONALS

WORDS BY: GORDON REDDEK

ABOVE: Martin brought his H101 Salto from Mildura to Lake Keepit for JoeyGlide, not knowing what to expect.

Usually, articles about the National Championships are written by highly competitive pilots who fly numerous competitions, are probably familiar with the site, and have at least the expectation of winning a few days. This story is different. The P1, John Ennis hadn't flown in a competition for 23 years and hadn't flown from Narromine for nearly 40 years.

John Ennis, the president of Darling Downs Soaring Club plus club members Geoff Price and Bob Flood and Gordon Reddek from Gympie GC entered as a team flying a club Duo Discus. The team's humble goals were simple: 'to have one day that we didn't come last, to not do any damage and to learn a lot while playing in the 'big boys' yard.'

GORDON TELLS THEIR STORY

We turned up at Narromine a few days early with the express intention of getting a bit of pre-comps flying in to sort out our routine and get accustomed to the site and the weather. Most, if not all of the other contestants had lots of recent competition experience and considerable experience flying from Narromine. John had not flown at Narromine since 1974 and not in a national competition since 1982

On 20 January we flew 185 km in around 3 hours That was just a shakedown flight to get into the air after rigging the aircraft and setting things up.

On the 21st we flew a 343km task with a total flight time of 4hr 51min and 422km on the OLC. This was a pre-practice day task and primarily consisted of a grand circumnavigation of Dubbo followed by an out and return to Warren in the northwest.

PRACTICE DAY

On the 22nd, the official practice day, we flew an assigned area task. Our task distance was 257km which we achieved in 3hr 52min. However, we spent a lot of time at the start line attempting to get a good height. Total flight time was 5hr 28min for an OLC distance of 291 km.

On the 23rd, the first contest day, we completed a 259km assigned area task in 3hr 36min with total time in the air 4hr 47min for an OLC distance of 287km, once again due to spending a lot of time behind the start line. It was a memorable day because the day clagged in badly near the end of the flight and John did one of his tenacious weak thermal climbs, from about circuit joining height, to prevent us outlanding in the middle of nowhere. We also came home late after skirting wide around a storm that had just passed over the strip.

On the 24th we embarked on an assigned area task of about 380km and outlanded one town short of the field, 30km. Total distance flown was 340km and task duration was 4hr 41 min, 358 km on the OLC. We were actually 6hr 58 min in the air due to the time spent behind the start line trying to get a good height. Needless to say, the outlanding just before last light was the big event.

Geoff and Bob were P2 for all of the following days until 31st Jan when I flew the last flight of the comp with John.

This was a fixed distance polygon task with three turn points. The task distance was 352km and we achieved that in 4hr 49min. Total flying time was 5hr 44min for an OLC distance of 381km.

Strangely, after cloudbases of around 8,000 ft or so, our highest climb of 11,550ft was in the blue under high overcast. The highpoint of this flight was the final glide. We picked up a good thermal to 10,000ft close to the last waypoint at 95km from home, and came all the way home taking only the odd bump at reduced speed. The ground speed was 102kts with a 17kt tailwind and we did that stretch in about 25min including landing.

We were the only team that flew without water ballast throughout the competition, partly due to the difficulty of getting to the weigh points and lack of crew to fill the glider.

Only three glider types were represented, namely, Duo Discus, Arcus and Stemme.

A couple of pilots in single seater aircraft were attempting long distance flights in parallel with the comp, and one scored a 1000km on the last day. WOW.

TEAM ACHIEVEMENT

There were nine entrants in the competition, all of them big names except ours. We would have been happy not to come last on one day, and we managed that on three days, in fact. Overall we were last, but hey, being 9th best in the country ain't bad, bro!

In total, during 11 days, John flew nearly 55 hours and more than 5,000km, not bad for an ordinary old club pilot.

PERSONAL ACHIEVEMENTS

- 32 hours in the air in a national competition, that counts for heaps. I did not do that much actual flying but sure understand now how a competition works and what it takes to stay afloat going cross-country. John always was and remains a good teacher.
- Six weeks earlier I had never taken a map up with me. Now I am in the dangerous 'know everything' phase.
- We mastered the Oudie and actually got useful information out, both in the air and on the ground.
- I gradually learned to go easy on P1. He was under much more stress than myself.

So much for the actual flying, now the learning.

PHYSICAL COMFORT

Flying a roughly six-hour flight every day in hot sweaty weather is hard work and requires lots of concentration.

Take plenty to drink and a means to urinate. Surprisingly, knowing we had this seemed to negate the need to use it.

ABOVE: Mark Rowe gives the thumbs up.

LEFT: An evening at the NGC club house included excellent food from Beryl Hartley.

There is heaps of stress all day, especially when you are constantly aware that you are totally on your own without any crew. Do everything you can to make yourself as comfortable as possible. We stayed in a hotel with air-conditioned rooms, comfortable beds, hot showers, a community kitchen etc.

AGRO MINIMISATION

Make every effort to minimise hassles during the event. Here are a few things that caused us grief:

- We did not have a tow bar for the glider. That required us to beg, borrow and steal every single day to get the aircraft on and off the strip, sometimes only at the last moment.
- I had forgotten my handheld radio so we could not use

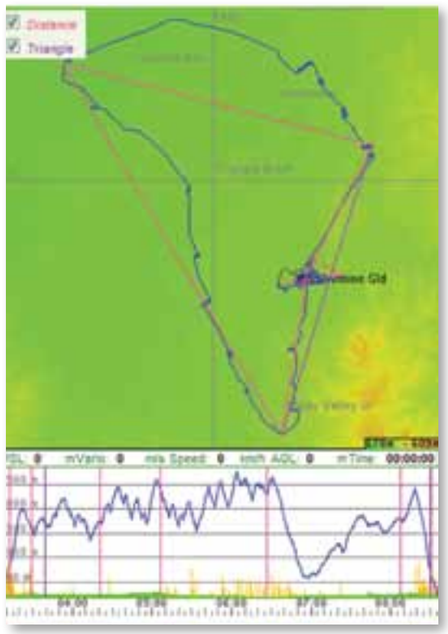
continued over page

BELOW: John Ennis, after outanding in a paddock, said, 'We started too soon, a little before this great sky popped, so we waited 75km north of Narromine for Arnie to come with the Pawnee.'

A smiling Bob flood, having just enjoyed a long flight in DDSC Duo Discus, GiRL. Photo by Koert Jan Schoneville.

John's car to tow the aircraft because the use of a radio on the strip is mandatory.

- We had a Colibri as the official flight logger and had not gone to adequate trouble of making sure that we could download the files from it before we left the DDSC. Needless to say when we tried on site we found we were missing a connection cable and we had to rely on others to help us.
- We had developed a routine over a couple of days. It included packing food and water, preparing the aircraft in the morning, getting everything out of the aircraft after the flight because of rain most nights, logging the flight etc.
- It became clear to me that establishing and sticking to a good routine is beneficial for agro minimisation and keeping everything safe.



RIGHT: This trace shows the flight when 'I grovelled around circuit height in the middle of nowhere surrounded by wet paddocks, with a silent Gordon in the back, I have no idea what he was thinking or how he felt. We had just glided off about 7,000ft without feeling a bubble, not even anything worth throwing a trial turn in.'

All of the above is only important because the more discomfort and agro you have to deal with, the harder it is to get on with the flying.

PEUGEOT 308 DIESEL

This one IS worth mentioning. John has a 2-litre diesel engine in his 308 and had very little problem towing the big Duo trailer to Narromine and back even in some very strong winds. He used about 7 litres/ 100km towing the Duo trailer.

WATER AND FOOD

Putting a small amount of Staminade in the water, just enough to give it a bit of taste, helped me heaps. John introduced me to the habit of eating one cube of Buderim Ginger every hour, and I tried that. It works well. It sort of wakes you up with the small sugar boost, and settles the stomach.

JOHN FLIES BY SMELL

Yup, you read it right. John has developed his sense of smell over the years, to the point where he can now smell which areas of sink precede a thermal. The thermal carries the smell of whatever is on the ground up into its core. John would often say, "A thermal is coming up, I can smell the hay" from such and such field or whatever, and he was right.

YOU MUST HAVE A GPS

Geoff turned out to be an excellent map-reader, and John is good too, but Geoff managed to miss one waypoint on one of his flights. The problem was that at briefing the waypoint was nominated at Wellington not Wellington Airport. They flew wide around Wellington Town but the airport is miles out of town and they passed over it, too, but just missed recording the set coordinates on the Colibri.

Consequently, they only scored to that turning point, the shortest turning point of a successfull long flight that would have otherwise have been RL's best day.

It turns out that in modern competitions, the waypoint is the coordinates and the name is just an identifier. In fact the tendency is to be LESS SPECIFIC about the waypoint name these days. Say a waypoint is called 'Wellington Silo' and the co-ordinates do not match the silo at Wellington exactly. This leads to disputes if a pilot rounds the silo but not the co-ordinate point. So the learning is: Never mind how good you are at map reading. These days you need a GPS to make sure that you have located the waypoint exactly.

BLACK CLOTHING AND THE BRIGHT SCREEN OUDIE

Recently I was made aware at the DDSC that black clothing assists in reading instruments with screens in the cockpit. Light clothing reflects in the screen.

I had a dramatic demonstration of that when I tried to read the bright screen Oudie while looking at the map. The reflection of the map was so bright in the Oudie's screen that I could not read it. When I put the map away and exposed my black clothing to the screen I had no trouble reading it. I found that even the reflection of my hands in the screen made a big difference. The solution to that is obviously to wear dark coloured gloves. For what it's worth, there were two Oudies in the Duo, one for the front seat and one for the back seat. One had the normal screen and one had the new bright screen. I used the bright screen version and found that with dark clothes and a bit of sensible adjusting of the display I could read the instrument virtually all of the time. In comparison the dull screen Oudie would have simply been too much effort to bother with, especially in competition. If you are contemplating buying one of these instruments, insist on the bright screen.

Finally some comments about the aircraft and the flying:

THE DUO DISCUS

After all of that time in the Duo I have the following opinion of the aircraft:

- It has an awe-inspiring glide angle, even dry and very light as we flew it. John seemed to like doing the circuit at the angle that the aircraft is safely capable of flying. I found that very uncomfortable, particularly at the start. The distance that that machine can fly with a bit of height is just wonderful. At Narromine the locals advised us to work with a figure of 10km per 1000ft. for fast final glides. It's a great cruise machine.
- My wonder did not extend to the aircraft's thermalling ability, or more specifically, my ability to thermal it. In thermalling I found it was as hard to push around as any other two seater. Also, because of its great reputation, I had expected it to behave as lightly as the single seaters I am used to, which of course it does not. I had no trouble getting into thermals and coring fairly quickly, but I could not sustain the narrow cores for long. That is why I did not get to do too much flying. A national competition is not the place to be learning thermalling. P1 had a competition to fly, so he got on with it and P2 was left to sort out the navigation, look-out etc and give him some occasional rest.

FLYING PLAN

John had a little table of block speeds he used to determine the speed to fly. After every single thermal he wanted to know the Oudie's calculation of the average vario reading in the thermal. He always used that figure to determine the speed to fly from the block speed table, and he stuck to it tenaciously. If he drifted off the correct speed, P2 got a reprimand for not keeping an eye on the speed and letting him know he was losing focus. As can be expected, the block speed was faster high up and slower when low down. This technique did not win us glory in the competition but it kept us afloat and moving forward much more that I could have done if using my normal half McCready and half 'suck and see' technique. I will definitely be working on a more rigorous and disciplined flying technique in the future.

Thanks to the DDSC and John Ennis for letting me in on their team. Many thanks to Beryl, Arnie and the team at Narromine for putting up with my nonsense, and the great insider view of the competition. GA

TOP: Most days there was some rain to dodge and the sky overdeveloped with big shaded areas to cross when we started late.

JOEYGLIDE

LAKE KEEPIT

BY: LIAM DONALD
PHOTOS BY ALISA MCMILLAN, ERIC STAUSS, ADAM WEBB

With the Bathurst LS4 packed up and only one substantial solo cross country under my belt, I was off to my first comp. You know you're in for an interesting time when there's 20 plus juniors in the same place.

ABOVE: Pre-Start Shear Wave over Lake Keepit,

After arriving from Sydney I rigged the LS4 with the assistance from a few juniors and caught up with a lot of familiar faces and some new ones in the LKSC clubhouse.

AAT – MANILLA (15K), CASTLTOP AG (40K), AF27XS (25K)

On Day 1 I could only manage a start height of 5,500ft and I was getting a little nervous after travelling the first 30km of my first comp day without hitting a bump. Just as I was considering turning around and starting again, I hit 3kts and was quickly back at 5,000ft. The conditions into the second sector over Mt Kaputar looked to be improving so I cut the first turn fairly short and was quickly rewarded with climbs increasing to 6-8kts to 7,500ft over the higher ground. As nice as it would have been to continue under the massive Cu, spotting lightning about 10k in front of me made the decision on when to turn pretty easy. The run home was fairly straight forward and I was happy to have completed my first day without outlanding. A look at my trace that night, however, showed I was taking way too many deviations and this became one of the things I would focus on for the rest of the week.

BELOW LEFT: Sam Schoneveld in the Foreground (Day 3).

BELOW RIGHT: Discus 2 piloted by Matthew Scutter and Skippy.

D.5HR AAT – GUNNEDAH SILO (25K), BAAN BAA AG (25K)

I left Keepit on Day 2 pointing towards Gunnedah at 6,500ft and as I descended through about 4,500ft I felt a definite wind shear and decided that I'd be taking anything to stay above it. It proved to be the right decision after many people were complaining of the weak conditions down low later that night. I reached the edge of the first sector and turned north-west towards Baan Baa. Consistent 3 and 4kt climbs were easy to find if you stayed high and I even stumbled into the occasional 7 or 8kts. Not wanting to go too much closer to the cultivated paddocks, I turned about 10k past Baan Baa, where the sector was centred, and had an easy run home back home.

Truth be told, I could have done much better this day but once I remembered how much fun it is at cloud base, I turned into a little kid and my trace ended up with a few 90 degree turns while I was playing with the cu's.

DAY 3 – 3HR AAT – AG30NE (20K), BOGGABRI AF (20K), PERI AG (35K), MANILLA AF (10K)

We had Adam Woolley compiling everyone's stats for us each day and on the third day I somehow managed to get highest L/D difference, least tries and least altitude lost while circling. Don't ask how, I just followed those fluffy white things. This meant I got to tell everyone what I did at our nightly maggot race, not that I knew what I was doing here either. In fact at one point I was pointing at the wrong trace on the projector.

Owing to the massive L/D for an LS4, over 60 for this first part of the flight, I raced through the first sector and into the second without turning in the 85+ k until the cu to the south-west hit a wall and everything was blue any further in that direction. I figured this was probably the best point to turn for the next sector and had a street to the north-west lined up. Down at 5,000ft now I was hoping the next cloud had something decent, and I had a big smile on my face when I found 11kts back to 8,000ft.

80km further on track and I was approaching a point near Bellata, most of the way into the 3rd sector. Down at 4,000ft now, I think I had fallen out the bottom of the booming height band as things started getting a bit soft. As I watched my average speed drop from over 120km/h to about 95km/h, I decided now would be as good a time as any to turn. As it so happens, it was and I quickly found 7kts and was back over 8,500ft.

I ran the rest of the 135km back home taking a couple of 8 and 9kt climbs and making sure to never drop back much below 7,000ft, finishing the task at 100.4km/h. Seems likes another life time compared to the 1kt on my 40minute flight this past weekend!

RACING TASK – MANILLA AF, COORABIN AF, TURRAWAN AF, PREMER AG STRIP – 350KM

There had being lots of discussion over sending gliders with 10 L/D points difference on the same fixed task, but we were all a bit sick of AATs and I for one wanted my diamond goal. Starting Day 4, the sky over the first 150k of the task to Manilla and Coorabin was filled with cu's and dreams of 150km/h, but with task setters being task setters we had to go through 200km of blue to Turrawan and Premer, a place I now have many words to describe. None of them are appropriate for this magazine though.

Out in the blue I found it was definitely a day for big wings. Climbs of 8kts to 9000ft were around but they seemed just a bit too far apart and I kept finding myself taking a couple of knots to gain 1000ft to reach the next one. After dragging myself around Premer, all the while hearing people I was sure started after me switching back to the Keepit frequency on final glide, I finally made it home at 90km/h. At least I still hadn't outlanded!

DAY 6 – RUN TASK – MANILLA AF, RANGARI AF, GUNNEDAH

Yes, I skipped Day 5. We won't mention the day I was scored as outlanding 1.7km on track. The run task on Day 6, however, was awesome! With a start height over 10,000ft, I ploughed off at 90kts and didn't turn for about 40km. Rounding the second turn, I hit 8kts to 8,500ft and ran downwind of the ridge between Rangari and Gunnedah,

finding 10kts at the far end. Turning Gunnedah I found another 8kts to 8,000ft and ran the 50km to Manila at 100kts without turning and that marked the end of the first lap at over 125km/h. Then things went a little downhill.

ABOVE: The Grid on Day 3.

Turning Manilla the second time, I hit 5 to 6kts of sink, which in hindsight I didn't make the right decision about. I was down at 2,000ft agl and after chatting to someone the night before about how the high ground was working yesterday, I thought I'd hug the ridge next to Manilla. If I had paid a little less attention to how far off track I was going I might have realised I was on the wrong side of the ridge for the prevailing wind. A few hundred feet before having to commit to an outlanding I managed to climb away in a bit more than a knot. This got me back overhead Rangari where I found another 6kt climb. From there I managed to fly the distance most of the way to Gunnedah, with my two hours ending about 5kts short and finishing my flight at 96.6km/h.

I left Keepit having gained an incredible amount of knowledge and multiplying my total number of solo cross countries by 7. Can't complain too much!

GA

BELOW: Lake Keepit airfield looking north

FLIGHT COMPUTERS

WHAT ARE THEY GOOD FOR AND HOW TO GET THE BEST FROM THEM

Graham Parker on final glide to Lake Keepit in an ASG29 with an Altair Panel.

ROSS MCLEAN WITH CONTRIBUTIONS FROM TOM CLAFFEY, BRUCE TAYLOR, AND DAVID JANSEN.

Today almost all gliding Flight Computers basically have the same functionality including, task management, navigation, speed director, MacCready, ballast, bugs, thermal averager, wind, final glide, Netto and so on. Some have extra functionality for optimising thermals, Assigned Area Tasks and real time LD calculation in flight. Most of us have come to look upon this high level of functionality as the norm, but given the large amount of information available in the cockpit now, how do we make the optimum use of it all?

We will concentrate on how best to utilise the information our flight computers provide rather than engage in a brand comparison, which will always be a matter of personal preference and or cost. So what do we really need in our flight computer of choice? Let's ask our three contributors.

TOM CLAFFEY

"I think we put too much emphasis on electronics to the detriment of common sense!

"Some pilots put so much mental energy into them they fail to see the wood for the trees so I like simplicity and ease of use.

"In choosing a system my priority would be a vario you like with good audio, followed by easy-to-use and read map and timing optimisation for AATs, followed by good wind calculation and display, followed by final glide calculation."

BRUCE TAYLOR

"The business of flying efficiently through the air can be accomplished with only a well-compensated audio variometer, an accurate averager and an airspeed indicator. So why do we need any more than that?

- People love gadgets
- Nowadays reading a map has become a lost art
- Competition tasks that would otherwise require some mental gymnastics are now regularly set
- Technology now allows a computer to be available to achieve all of these outcomes for an outlay that is marginally less than ridiculous."

DAVID JANSEN

"Over the years I have used many different flight computers from a simple rotary plastic wheel with a height/distance/wind calculation to the Cambridge L & S NAV, the Zander 940, the Altair running XCSoar and most recently the LX9000.

Back in the days when all tasks were simple racing tasks, there was no need for anything more than a track and a distance to the turn point with a rudimentary final glide capability.

In today's gliding world we have competitions with tasks that vary from straight speed to AAT to RUN to MAT and others.

For Badge and Record flights we also have a complicated sporting code with many various requirements specifying such things as the format or the electronic declaration, the validity date of the barograph calibration, the maximum height loss over a course and more. We use complicated software and hardware to try and plan our flights and execute them flawlessly, which is something we all aspire to but seldom achieve. "

The common thread here is that for simple cross country soaring tasks all we really need, beside the basic flight instruments, is a good audio vario with an averager and something to easily calculate an optimal final glide.

However, once we bring Record/Badge flights and competition tasks such as Assigned Area Tasks and rarely set Run tasks into play, things do get more complicated.

We don't need anything more than the basics just to do these tasks, but to optimise speed and distance around these types of tasks while maintaining that all important 'head out of the cockpit', the advanced functionality of a good flight computer really does make a difference.

A difference that applies not only to optimal performance but, importantly, also to keeping our eyes outside and our mind clear of distractions, they increase our flight safety.

Now let's look at how each of our contributors select and utilise their choice of flight computer equipment in their cockpits.

TOM CLAFFEY

"I have a simple Borgelt vario as my primary, but I am interested in what the newer ClearNav and Butterfly can offer.

The audio needs to be clear and the averager should be large and easy to read. I like two averagers, the smart one giving rapid info and a 20 second one. Comparing the two can be useful in determining whether and when to stay/leave.

I do not use any sink tone or cruise tones, since I'm not interested in sink, but want to fly in lift.

I use Netto on the Altair. If I was setting up a new glider I would be interested in a cruise Netto vario.

The map display needs to be easy to read. I like good wind information from a 'proper' glide computer with smart vario input.

HOWEVER, I have been surprised at how well simple GPS driven devices have worked for me in the last two World Gliding Championships, and some top pilots are now just using a cheap GPS driven PNA with good results - back to simplicity.

For final glide and fixed tasks I would be absolutely fine with an old Cambridge Lnav and GPS/nav.

For AATs I like a moving map display for orientation and task or direction planning, and I really like an optimisation program for timing. The Altair does that well. I could not get as comfortable with that aspect using the ClearNav in a few flights for the Uvalde WGC so I pulled the ClearNav out and put my own dumb, GPS-only driven unit in.

The main thing is pilot familiarity with the instrument. With the Altair I can adjust MacCready, put in a percentage for cloud, maybe 120% cruise efficiency on a good Cu day, and hit 'optimise' to give me a target to fly to get me home five minutes overtime. I generally set it back to 100% for final glide so as not to get caught out. I hate to get home early but hate to outland more!"

BRUCE TAYLOR

"Most of us enjoy the idea of having a shiny new glass display to place carefully on our panel. These can now be had with visibility that is exceptional in all lighting conditions. They have the power to compute any amount of information in only a few milliseconds. Some of this information is useful during the flight to help with decisions that may increase your speed or duration, but most of it is not.

They may also be connected to a number of other inputs that could keep you informed of the position of other gliders relative to your own, the movement of local weather systems, or maybe even the activities of your Facebook friends. We cannot even guess at what else may be available, possibly in the near future. Only a decade ago most of these features were not even thought of. The modern flight computer is indeed a fascinating gadget.

So… by now you might have gathered that I enjoy a simple life in my cockpit. I have already mentioned the three things that I believe really do matter, right at the start. The ASI probably won't change. Electronic or LCD, it will still tell us the same thing. Averagers already tell us what the average rate of climb is, but varios are still

TOP: LX9000 and V5 vario Landscape

LEFT: Borgelt B50 System.

improving. I hate bad varios - or more precisely, badly set-up varios - with a passion, and I love a good vario with an even greater passion.

I like to keep the use of my flight computer as simple as it can possibly be. Generally I keep the information available on the screen to a very basic level, and avoid at all costs any information that is not directly useful in improving my flight. It is of no consequence at all, but I currently use a ClearNav, coupled to a Cambridge 302 vario, soon to be a ClearNav vario as Cambridge have fallen over, and on the main flying screen I can see:

- The current destination
- Distance to that point
- Height above/below glide to that point, or to the finish if it is close enough
- Wind speed and direction relative to the glider's track
- Current MacCready setting
- Time on task
- Current achieved speed on task
- Current L/D (last 20 seconds)
- L/D to my destination
- All of this is overlaid on a moving map, so I know where I am!

If I have set up an AAT, then suggested turning arcs are displayed for the next area

There are a huge number of other information boxes available, but I cannot see how they can improve my speed.

Let's look at a few of these points.

One of the greatest advances is to be able to see exactly what the wind is doing at all altitudes. It helps with knowing where to look above thermal sources, and indeed which thermal sources may be worth looking at. It helps with finding and using wave, and with optimising task tracking if you have the choice.

☛ continued over page

MacCready setting almost deserves a discussion all of its own. I am being completely honest when I say that I set mine on 3 knots and leave it there for the entire flight, unless I run into an enormous thermal within range of home, in which case I might wind it up to 4 knots. I love silence in the cockpit while I am cruising, and this is the best way to achieve it.

You may ask why I want to know my achieved speed so far, as it is impossible to change that. I want to know if this speed is increasing or decreasing, so that I can make adjustments in my distance to run for an AAT to efficiently use up the allotted time.

Current L/D is, for me, a recent addition. During the flight I will occasionally check that number to confirm my feeling about whether it is a day of good runs or not. That will help me to decide how aggressive I want to be for my final glide. Similarly required L/D helps me see a trend in my actual final glide, whether I am gaining on it and can afford to push harder, or not. Using height above/below glide is less intuitive as, for example, 800 feet below glide at 80kms from home is hugely different to 800 feet below glide at 20kms.

Each computer has a different method of calculating suggested distance to run for an AAT, and this is an extremely complex discussion that should only take place after copious beer consumption to enable all possibilities and opinions to be aired.

If I am flying a Grand Prix type event, I will add to this information speed over the ground, and QNH altitude, as these are required for the race-horse start line.

I try hard to have as much of the computer setting up as possible done on the ground, to avoid fiddling with it in the air. Most modern instruments allow this. They also mostly do an auto switch at turnpoints. Keep your eyes outside.

BOTTOM: Cambridge LNAV

BELOW: Cambridge 302-3

Each pilot has their preference on how to set up the final glide calculation. I would suggest for early cross country pilots that they dial in a safety margin above field elevation. Initially try 1,000 feet, and then you may work down to 500 feet as you gain confidence. Many experienced competition pilots use no safety margin. I see no real benefits for either preference – just know what your setting is. I will relate an amusing tale here. Some years back I owned an ASW22BE, on the panel of which I had a PDA, as was the thing in those days. I arranged to borrow an LS8 for a nationals in Kingaroy, as I was chasing selection in the standard class. I took my PDA and installed it in the LS8, but forgot to change the polar settings before starting the competition. Every day I would look out the front when the PDA said I was on final glide, and utter a number of expletives about how flat the glide looked. During this time I was confounded by how difficult it was to get back into Kingaroy, however I always managed to make it work. It was one of my best competitions ever, and I only realised my mistake when I was putting the PDA back into the ASW22!

Some notes about the setup of the variometer. The entire vario system NEEDS TO BE PNEUMATICALLY AND ELECTRONICALLY PERFECT! You cannot fly well with anything less. The brand does not matter, the installation does. If the audio does not match the sensations from your bum, you will become very frustrated.

For our big, Aussie thermals I use a time constant of about 2 seconds for both the audio and the needle. I don't know why I set the needle on that, because I never actually look at it, but it may as well be the same as the audio. This 'lag' seems OK to me, and anything faster is too nervous. Yes, this is only very slightly faster than an old-fashioned Winter mechanical vario, but it seems to work for me.

I do not like cruise/climb switching on the flap lever. I want the vario to give me a steady indication while I am slowing and searching for lift, and some varios change tone when they change mode. The Cambridge and ClearNav have an auto switch function that seems to work well, and that is what I use. A number of varios now also use an averager that resets as soon as you start to circle, which means that you get a good indication of thermal strength within a short enough time that you can roll out and go on if the strength is not satisfactory.

For many years I used a total energy indication for my vario for the whole time, climbing and cruising. It seemed to fit in well with the fact that I was flying on a climb vario setting for the whole time also. More recently I have been using netto in the cruise, but I would hesitate to say that it has improved my speed. You should constantly be looking for better air than what you are in at the moment. If you have 6 knots up on your netto, does that mean you stop looking for something better? I should hope not. For me one of the most important things is to not have the vario swap tones just as you want to feel your way into a thermal, so if your vario system can achieve that while switching from cruise to climb, as both the Cambridge and ClearNav can, then I think that is good. One of the most favoured (and expensive) computer/vario systems currently available cannot do this, and I find it drives me insane."

DAVID JANSEN

"With regard to my personal preferences, I like to keep it simple. This is particularly true with the amount of information that can be displayed on modern instruments. With the myriad choices of aircraft parameters, task parameters, statistics, outside parameters and the like it's easy to be taken away from where the real action is, outside the glider. Choose a simple set of numbers that are essential for the job at hand and leave the analysis until after the flight.

I generally have three pages of displays. One for speed tasks, one for AATs and the final glide page. Some glider computers like the ones that use XCSoar software have fully automatic page switching between cruise, climb and final glide. This is a nice feature because it allows you to fully customise each page with just the information that you need for that particular phase of the flight with no user action required.

I use obvious information such as bearing and distance to the next waypoint, altitude and height above ground on all three pages - with a caveat that the terrain model is probably not that accurate, so the height AGL is a guide only.

The AAT page displays total AAT task time so that I can cross check this against the task that I have loaded, with delta time for en route.

The final glide page has cruise efficiency, i.e. achieved glide ratio and glide ratio required to finish. I like to see 30 to 1 or less for a high speed glide, otherwise I keep a close eye on the required glide angle and fly a speed that ensures that the number is getting smaller. I also use the conventional final glide height above or below display however this becomes less and less important the closer I get to the finish. I also have an estimated time of arrival that I can pass to the waiting crew.

On the vario I generally set a MacCready that rarely exceeds 4kts unless on final glide and the altitude is displayed along with netto in cruise and 20' average in climb. My glider has flap sensed climb and cruise and a smart stick that allows climb sampling when a remote switch is pressed. On the LX9000 I'm using TE compensation rather than pneumatic for the first time. So far it seems to be very good however it is also tied to the V9 vario, which has a significantly improved sensor system. I also carry a mechanical winter vario with conventional pneumatic sensing and a .45lt flask. Apart from the ASI it's the only non-electric instrument I have.

For power I have just converted to the lithium iron phosphate, LiFePO 4 batteries, also called the LFP battery. The LFP stands for lithium ferrophosphate. The main battery has an 18ah PB, or lead acid, equivalent rating and I carry a 9AH LFP as a back up for the avionics and a third 9AH LFP for the engine extension as well as a small PB battery in the tail and solar panels.

I also carry a Mode S transponder with full ADSB capability and this interfaces with the TRX -1090 'blue box' that allows me to see any aircraft, read RPT, with a transponder just like Flarm traffic on the LX9000 display unit.

I fly with zero safety height however I will add a margin of 100'/km that the finish ring is from the airfield plus 200ft, or more if the terrain before the airfield is bad. So, a 3km ring equals a 500ft agl finish, or alternatively I will change the finish point to the airfield after final glide is established and fly a zero safety plus whatever margin is required and adjust speed for a safe circuit. The last thing you want is to arrive 3km from the airfield with no height, no speed and no ideas!"

The message here from our three top pilots is clear, "keep it simple". Select your instrument of choice, become totally familiar with every aspect of its operation and functionality prior to launching off into the wild blue yonder. Do all the adjusting and setting up on the ground before you launch and don't get distracted by constantly fiddling with your flight computer of choice in flight.

Our three contributors also provided some insightful information not directly on-topic but more or less related and well worthwhile reproducing here all the same.

ABOVE: ClearNav Panel

TOM CLAFFEY

"Re MacCready and the speed to fly, I use a lowish MacCready setting for cruise and try to work up to final/expected climb for final glide.

500ft is a good safety height to have set most of the time, burning it off in the last 25kms once visual with the airfield. KNOW whether your instrument uses total energy for final glide or just MacCready, and what this means!

Re speed to fly, I use more of a block speed approach and think cruise speed to fly directors are a complete bullshit selling point for designers! "

Ballast can be a difficult subject. I see it as more of an issue with Standard class, because big gliders still climb well when heavily ballasted due to flaps.

Generally, unless it is a good or better than average day we fly too heavy for optimisation. However if you are flying in a group then the correct weight is heavier as long as you can climb well enough to still rise to top of the gaggle by the last climb. If you are ever struggling to climb or keep up, unless you KNOW the day is about to get better, then it's best to dump some. I always fly the ASG29 full and keep it that way until the day is down to a 3kt average climb. The ASW28 I would only fill to maximum weight on 6-8+kt days. Open class, however, cannot get heavy enough. Although I did dump on quite a few Szeged days, but there the whole day averages were down in the 1-1.5 kt zone.

If an outlanding is looking likely and you are getting low then just open the taps until you are once again established in a solid climb! As a mental guide I think of full ballast as costing me a knot of lift, if averaging 10 kts then it is a 10% cost to carry, if averaging 2 kts then it is a 50% cost. If you are only averaging 1 kt then dump it all!"

BRUCE TAYLOR

Back in the day, we all learned to read maps. We learned to draw our task on a map, how to calculate bearings, allow for possible wind drift, relate ground features to the map and thus track our progress, and in

continued over page

TOP: Butterfly Vario

BELOW : Mike Borgelt's latest B800 Flight Computer connected to a Naviter Oudie running See You Mobile software.

turn use the map to give us a distance from home which we transferred to our rudimentary final glide calculators. Thus we decided whether or not we needed to climb higher to get back, and sometimes we could maybe guess at what time that might happen. Sometimes we got lost. Nowadays none of that happens. We turn on the magic box, if we even bother to carry a map it usually stays tucked neatly away in the side pocket, and the only way to get lost is to interrupt the flow of electrons to the gadget.

For the competition minded, Assigned Area Tasks require some calculations to be done to arrive back at home at the optimum time. This calculation needs some input about how fast you have been travelling, how fast you are currently travelling, how high you are and what it looks like ahead. This can now all be done automatically.

We all know the pace of the advance of technology. Twenty years ago I spent hugely more money, in real terms, on placing an incredibly clunky, unfriendly little box behind my panel that told me things that were only occasionally correct, and required full-time manual input to keep it up to date. In another decade we will laugh at what we love now, and the price will be half of today's rates."

DAVID JANSEN

"We use complicated software and hardware to try and plan our flights and execute them flawlessly, which is something we all aspire to but seldom achieve.

And why is this so? Because the rules and the instruments are complicated and, unless you are totally familiar with the instrument and the rules in combination, then you will be learning from experience and as the saying goes, "Good judgement comes from bad judgement", which is another way of saying we learn from our mistakes. In badge, competition and record flying, this not only costs us time but usually a significant financial investment as well.

Once you are comfortable with the equipment you will be using then the question becomes "How do I get the best out of it?" The answer, I believe, is in another question, "What are you trying to achieve?"

Let's have a look at the different requirements of a flight computer in relation to the scenarios of local club flying, competition or task flying and record or badge flying.

- You decide it's a nice day just to go for a fly.

Do you need to do anything special with your flight computer? Well, not really? Maybe ensure the turn point database is the same one everyone else is using so that if you set off on an impromptu task you are all going to the same place. And if you are planning on making one of those skinny competition final glides getting back to the airfield with just enough energy for a safe circuit, then you might want to check what safety height is programmed into your machine! All the other bells and whistles are pretty much irrelevant for the time being.

- Now you want to step it up a level and fly a pre-declared task either for your own satisfaction or because you've arrived at a competition and the day's task is pre-set.

By this stage in your flying career you should be reasonably confident and capable with your machine, be it rented or owned. You should have both the A and B tasks loaded and know how to shift from one to the other on the ground and in the air, with minimal fuss.

You should be familiar with the water system if you carry ballast and you will have timed the water dump so that you know exactly how much water you have remaining at any given time during the dump. Of course, you will always leave the tie down area at maximum allowable weight because you know that you cannot put water into the glider on the grid or in the air.

I stay at maximum weight until after the start unless there is some obvious penalty associated with being heavy, such as not being able to transition into strong wave or not being able to stay airborne. I would not dump weight for weak shear wave that may only gain you 1,000 feet at the start and then fly a strong thermal day under weight.

Your pre-flight planning will have included some thought on the speed you think you will achieve, when the day is likely to end, and what time window you should use for the start. If you are flying an AAT and you leave a bit early, you can always extend the time above the minimum to achieve a higher overall speed. You will have considered how much of a buffer you should add to the allocated time so as not to come in early.

Personally I shoot for 8 to 20 minutes overtime. However, I can refine that down if the task includes a close in time soak. When the last turn point of an AAT is more than 100km from the finish and the day is high, you can achieve more than 170kph on the leg home and this can really mess up your timing, so know your own capabilities and plan accordingly. Is your computer calculating time to the airfield or the edge of the finish ring?

Are you flying a speed task today? Does your computer have an automatic change to the next turn point? Is it enabled?

With regard to the finish, are you using a finish line at the airfield boundary or the runway intersection? Are you going to program in a safety height or leave the safety height at zero and fly 300 to 500ft above final glide? When are you actually going to be on final glide and at what height should you leave that last climb?

If you are using a finish ring, is your final glide computer calculation to the finish ring or to the centre point of the ring? Should you add a safety factor? Do you know your equipment that well?

On the LX9000, for instance, there is an option to navigate to the nearest point. This option will navigate you to the nearest point on the start line or start circle as the case may be and also to the nearest edge of a finish ring or line. In this situation all the final glide and time calculations are to the edge of the finish ring or line and NOT to the airport. Has the organisation specified a minimum finish height above ground or above mean sea level, or both?

- Now you want to fly badges or even records. By far the most common reason the claim fails is because of the declaration. If you are flying at this level you most certainly should know the rules and your gear.

I have seen claims fail because the pilot played with the instrument in-flight and accidentally re-declared the task thus invalidating the declaration, which is a pre-flight requirement. I have also seen the selection of different start and finish points for a closed course flight - in othe words, the pilot declared the airfield reference point for the start and the runway intersections for the finish, and in this case they were not the same point.

You have to know the sporting code backwards, do the research and planning before the day arrives. Take an example of a big task flown in wave, and you have decided to use the 90° FAI sector for the turn points. Halfway through the flight you see that the second turn point is consumed by cloud from ground level to 40,000ft. Can you still get there? The answer is yes because the FAI 90° sector has no limit as to size. Provided you can get into that sector or maybe even 50km past the turn, then the flight is not a write-off.

So, with all this knowledge and experience how do I actually make decisions in the air?

For instance, how much water will I continue to carry? It's an ancient question and one that is not easily answered. Some people use a straight mathematical relationship between thermal strength and weight - empty below an average of 2kts, and full above 6 to 8kts. Some stay full even below 2kts average. I tend to lighten up a little early if the day is dying in order to stay high, otherwise it's maximum weight all day.

What speed do I fly? Well, the computer tells me that. Sort of! Do you push and pull in every little bubble of lift and street of sink? Ever heard of induced drag? That's the stuff you get when you deflect the controls. I try to slow down gently and look around unless I've flown straight into the centre of that really big thermal and then I accelerate across the centre of the thermal as I leave.

When to start final glide? Is there streeting? You might already be on final glide even though you are 2,000ft below what is required. Should I stop, or cruise home and pick up the difference in the way? It depends.

If the thermal street is strong then cruise fast and make up the difference in the good air - does 170kph or more ring a bell here? If the air is average and you hit a stronger than average climb, stop and take it. If it's, say, 6kts average and you have a MacCready of 3, wind your MacCready up to 5 and then leave when altitude equals height required to get home. I chose 1kt under the average because by the time we recognise that the average is dropping, we are already achieving 5kts or less. Again, the decision depends on what's in front of you. If it's going to be the last climb before the sea breeze then other choices need to be considered."

ABOVE: Triadis Altair

FINAL WORDS

If Tom, Bruce and David could leave you with just a few remarks then I think it would be these:

TOM CLAFFEY

"I have a simple Borgelt vario as my primary.

Your audio needs to be clear and the averager large and easy to read.

I do not use any sink tone or cruise tones, since I'm not interested in sink, but want to fly in lift.

The map needs to be easy to read.

Some top pilots now just use a cheap GPS-driven PNA, put to good use - back to simplicity.

The main thing is pilot familiarity with the instrument.

I hate to get home early but hate to outland more!"

BRUCE TAYLOR

"The new generation of flight computers are truly impressive instruments. Learn to use them for what they are, and remember that the real information is always out the front of the glider. Don't let them distract you, and ensure that you have a good vario!"

DAVID JANSEN

"If there is only one thing that you remember from this, let it be - staying high means staying fast.

Keep your eyes out of the cockpit and stay safe."

Thank you for reading this far into the article and I hope that it has provided you with some extra knowledge, food for thought and will help improve your gliding skills as a result.

GA

In putting together this article I have received generous contributions from Bruce Taylor, Tom Claffey and David Jansen, three of Australia's top international competition pilots. I would like to acknowledge their assistance and thank them warmly for taking the time to share their experience with the rest of us. Their views are summarised throughout the article and are sometimes surprising but always richly informative.

GLIDING AUSTRALIA

GLIDING AUSTRALIA

AUGUST 2013

PHOTOGRAPH: PETER NEWCOMB GERRIT KURSTJENS NIMBUS 4D NSW STATE CHAMPIONSHIPS NARROMINE

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
29	30	31	1	2	3	24
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	1 September

SEPTEMBER 2013

PHOTOGRAPH BY SEAN YOUNG, MARTA NAJFELD FLYING A DISCUS A CLAUB AND SPORTS CLASS CHAMPIONSHIPS, BENALLA

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
1	2	3	4	5	6	1
2	3	4	5	6	7	8
9	10	11	12 Coaching GlideFast - Kingaroy 12 – 17 Sep	13	14	15
16	17	18	19	20	21	22 Coaching G Dale - Kingaroy 22 – 28 Sep
23	24	25	26	27	28 QLD State Comps - Warwick 28 Sept – 5 OCtober	29 Monday 30

WOMEN IN GLIDING WEEK
GAWLER JAN 19-26

LEONIE FURZE

We decided to hold this year's WIG, our Women in Gliding Week, in South Australia to give the girls down there the chance to participate.

All looked very promising for a great week, the seminars sounded fantastic, the instructors and aircraft were all organised and the program set - or so we thought. Then, just a week or so before the event, we heard that WIG Week may not go ahead due to lack of participants and worse still, even the organisers pulled out.

What were we going to do? Two of us were already committed and had our airline tickets to Adelaide purchased. Should we just cut our loses, or do we make this event happen? Thankfully with the amazing help of Michael Scutter as chief organiser the event came together brilliantly.

The educational sessions were among the best ever put together of any WIG week and included talks by a large number of Adelaide Soaring Club members as well as Bernard Eckey who also very generously volunteered his time to give cross country instruction in his two seater for the week. The educational sessions included

- Getting into the right frame of mind.
- Flight analysis - SeeYou tips.
- Flight planning - Predicting soaring conditions/thermal heights using a sounding graph.
- Aerobatics training
- Use of oxygen - What you need to know about buying and maintaining an oxygen system.
- Task setting- Taking into account goals, conditions and getting use of the whole day, the relationship between convection heights, thermal strength and setting an achievable task by calculating a realistic speed for the task.
- Human factors - Physiological considerations - Fatigue, stress, emotion, illness, medication, alcohol, drinking the right fluids, hypoxia, smoking, hyperventilation, ear block, sinus block, vision, scuba diving and aerobatic flight.
- Stress free soaring - Identify, control & overcome stress.
- Official observer introduction - Gliding technology, analysis.
- And no WIG Week would be complete without Secret Women's Business

As it turned out we had a great group of girls - and guys - attend including Jo Wooler, Sylvia Sharman, Jenne and David Goldsmith and Leonie Furze participating the whole week with Pam Richards and Claire Scutter able to attend on a few days. As you will read, each participant achieved something different while attending the Women in Gliding Week.

JENNE GOLDSMITH

WIG Week at Gawler was a great experience. Meeting up with women I have met from previous events plus a couple I had not met before was fantastic – all of them inspirational and adding greatly to the pleasure of sharing this wonderful sport together. Over the eight days we were able to fly every day, for me almost 20 hours of flying, with stimulating lectures, good weather briefings and advice about the airspace requirements preceding the flying. Oh! The airspace! I have never flown anywhere with such complicated airspace limitations. Bacchus Marsh is a picnic. Never mind, we were led through that minefield patiently and were able to take to the air with confidence that we were fully aware of the airspace limitations of the day, which changed daily, whenever we flew.

I enjoyed flying the DG1000 on a site check with Michael Bullock - very nice! - but as always it is the cross-country flying from a site which is most memorable. Although we didn't get any of the outstanding South Australian weather that we hear of, we were able to explore a bit. I went furthest on a day when Leonie Furze and Matthew Scutter were on a lead-and-follow coaching flight. Blue thermals up to 7,800ft AMSL took our Ka6E and me up to Eudunda. Chat from Leonie, Matthew and others further north was not encouraging, so the wimp in me made me turn and run along above the ridge top to Truro, enjoying good air and the view. Stonefield, with its huge hangar, was clearly in sight. Tempting though it was to head out that way, I went for home instead, mindful of warnings that the sea breeze coming into Gawler would bring an early end to the day. After having far too close a look at Greenock, I had a good run with some of the strongest thermals of the day keeping me exploring the confines of the airspace limits for 163km all up before landing.

The relatively early finishes to the day were actually rather nice in that the glider was tucked away early, dinner was at a reasonable hour and we could enjoy an evening debrief and social without getting overly tired. The hospitality offered by ASC members was outstanding. Special thanks to Michael Scutter who organised lectures, briefings and wonderful meals, Mandy and Peter Temple who kindly invited us all to their beautiful home in the hills for a delicious dinner followed by a revealing lecture on flight analysis given by Matthew Scutter. I learned a heap from all those who so generously shared their knowledge with us in the very informative series of lectures we received – Bernard Eckey, Terry Cubley, Andrew Wright, Darrell, Ingham, Mandy Temple and Michael and Matthew Scutter. Thank you all.

JO WOOLER

Thanks to the Adelaide Soaring Club for hosting WIG for 2013 and of course 'chef Michell's' fabulous cooking. It was a pleasure staying in your comfortable bunkhouse, flying in your awesome airspace and meeting lots of your friendly members. Big thanks again to Michael for making the week happen even when it seemed it wouldn't. His efforts to pull together the line up of presentations, instructors, coaches and volunteers to help throughout the week is commendable, thank you to all who contributed.

I enjoyed the insight I received from Franks 'use of oxygen' talk and the 'task setting' talk by Terry Cubley, in particular the mathematics of it all. Michael's positively presented and very informative morning weather forecast along with his boundary familiarization was much appreciated each day. Mandy's 'stress free soaring' talk was extremely helpful and I appreciated Darrell's informative 'human factor's' presentation. Andrew threw in a fascinating impromptu talk on 'flight planning using a sounding graph' and among the many talks that Bernard presented through the week, his 'getting into the right frame of mind' really stood out for me.

My favourite slide in that presentation covered the three simplified zones of 'frame of mind'.

1. Comfort zone - too much confidence.
2. Learning zone - a good mix of confidence and healthy precaution to enable to you to progressively increase your level of skill in our sport in a safe manner.
3. Too much fear for learning here zone - no confidence.

We looked at too much confidence and too much fear and discussed how both can be dangerous in gliding and, indeed, in life! It's interesting to note that all present for this talk agreed that none of us had ever come across a female glider pilot with too much confidence.

The week taught me a couple of valuable lessons, which I will share in the hope that they will help fellow glider pilots in the future.

In regards to the 'confidence' situation, it is important to remain secure in your confidence with your flying ability. Sometimes well-meaning people can seriously undermine your confidence as a glider pilot, knowingly or unknowingly. If you ever feel this to be the case speak up straight away, initially to the person involved, and if you feel this doesn't resolve the situation, talk to someone else with the person involved present.

If you are assisting someone to handle their open class glider and are inexperienced in this, always make sure you have at least three people to ensure the protection of the glider and surrounding objects. If you suggest you go and get another helper to handle their glider and they say 'no, no we can do it', tell them you will not help them without a third person. If you don't assert yourself on this, you may find yourself in a situation where the owner of the glider will make you feel totally or even partially responsible for any damage that may occur.

Having been a member of the Caboolture Gliding Club since 2005, a lot of my flying has been congested with traffic restrictions. I find this a great arena to develop adequate lookout and multitasking skills. Over the years I have attended WIG weeks in Darling Downs and Narromine which have enabled me to stretch my wings and develop my cross country skills. Although I was unable to reach my goal to obtain my Silver C certificate at this year's WIG week, I was most pleased to be awarded the 'most meritorious flight' trophy for recognition of my skilful flying of the Grob 102 once I converted - thanks!

WIG week is a wonderful opportunity to get together with like minded women to support and encourage each other to grow at their own pace in our sport. You don't even have to fly, you can come along to the week to enjoy each other's company and get involved. I look forward to meeting fellow Women In Gliding at our next WIG week.

.

☛ continued over page

SYLVIA SHARMAN

I had three flights while in Gawler. Each was significant to me. Firstly I'm always nervous to climb into a glider with a new person even if they are an instructor. My first flight was with Michael Bullock, a site orientation flight and checking out the airspace. It was quite satisfactory and though Gawler's airspace seemed a bit tricky, Michael kept it simple and all went well. The second flight was quite a challenge for me both physically and mentally. Field landing practice was with Rob Moore in the Motor Falke. I was very proud of my flight and Rob as Michael B was a very helpful, thorough instructor. Finally, I also had a flight with Bernard Eckey in his beautiful Ash25. Bernard's skill in flying and instructing was superb. Although I feared how I would manage thermalling, the Ash was great to fly and thermal with its own majestic FEEL in flight. I enjoyed thermalling it very much!

In all, Women in Gliding in 2013 was very helpful in extending my belief in my own ability, and the hospitality extended to me by the Adelaide Soaring Club has helped me continue to excel to greater achieve many more happy hours of gliding as I recently enjoyed a week gliding in the mountains cross country with the guidance of coaches.

PAM RICHARDS

Although the Women in Gliding week was held at my home club, I was not able to attend very often.I was fortunate to attend a talk by Terry Cubley and a two given by Bernard Eckey They were very interesting and informative.

On the Wednesday, Paul Clift coached me in the DG505 on a 2hr 20min flight to Robertstown and return, about 170kms. It was a difficult day thermal wise with no clouds.I think the highest altitude achieved was 3,700ftand we were quite low over the ridge between Eudunda and Robertstown but with many outlanding options on the eastern side.A most enjoyable flight during which I learned a lot and also how much more I need to learn!

It was great meeting the other Women in Gliding. They were very friendly and supportive of each other and their achievements impressed me. I have made a promise to myself to commit, as they did, to going to an interstate Women in Gliding week to meet up again and enjoy all that our wonderful sport of gliding offers.

My thanks to all the presenters and coaches and helpers,

LEONIE FURZE

All too often life and weather gets in the way of flying and before you know it, you haven't done a cross country flight in about a year. Along with the time, your confidence in venturing away from the airfield has vanished. What keeps me coming back to the Women in Gliding Week is the chance to meet up with old and new friends, as well as dedicate a full week to flying.

My first flight in a glider was aerobatic and this is what initially hooked me to the sport, so when I was given the chance to fly aerobatics at Gawler at the start of the week I jumped at the chance. After all, what better way to have a check flight!

I had been doing some research on buying a glider and I had decided that a Discus B would suit me down to the ground. As luck would have it, Adelaide Soaring Club had two. The following few days I spent flying locally and getting use to the glider. It was as good as I had anticipated and on day four I decided to have a go at a cross country. Getting past the airspace restrictions was new to me and a challenge, but I managed a small 150km task, Gawler, Eudunda, Robertstown return. The weather for the week wasn't booming so on the Thursday I decided to take the day off and do a walk around the sights of Gawler. It's a very pretty town with many old stone buildings, a nice pool and, most importantly, many great Barossa vineyards close by.

Saturday was the last flying day and I was eager to fly but on seeing that the cloud base was only going to be about 4,000ft, I started to have second thoughts about committing to do a lead and follow with Matthew Scutter. He planned a 260km task, Gawler, Burra, Stonefield return, but I needn't have worried because he lead me around the sky brilliantly and only once, as the ground rose up to meet us at Burra, did I get nervous about the possibility of an outlanding. What a great flight - there could have been no better way to end a fabulous week than to make it safely back to the airfield, not land in a paddock.

After the WIG week I only had three days of work before going for another week of gliding with my club, Bathurst Soaring Club, to West Wyalong. It was sensational. WIG week really prepared me to extend my cross country flights. I was rapt to be able to achieve two long flights of 400km and 430km. The best thing about being able to fly longer distances is that I can now keep up with my friends and enjoy the camaraderie at the end of a sensational gliding day.

GA

SAVE THE DATE 1 – 7 NOVEMBER 2014

Before the end of the week, the girls discussed potential venues and timing for next year's Women in Gliding week. We decided that it will be held in November 2014 at Lake Keepit. Changing the timing from January 2013 to November 2014 means a very large gap between events so, with the support of Bathurst Soaring Club, a casual event will be held from 1 - 7 December 2013. The event, aptly named 'Girls Just Want to Have Fun', will entail a casual programme of fun flying and social activities. There is limited accommodation at the club, caravans and a bunkhouse, at a minimal cost and also a wide variety of motels in town for those wanting a bit more luxury. For more info or bookings, please contact Leonie Furze. ozglidergal@hotmail.com

A NICE SET OF FIGURES

Or- Giving a TIF a false Impression.

I took off at 13:00 from Richmond for an hour TIF flight over the lower Blue Mountains. It was one of those few flights where the only way was up, and for a winter's day with top of 17°C it was a nice changefrom a month ago where 1 pip from the vario in a flight was a victory.

The wind was a westerly at 25 to 30kts. After a few S turns above Woodford Station we climbed in smooth air at 4kts to 6,500ft and started tracking down to Warragamba Dam and then wham! – 10kts plus of lift that went for more than 20km as we headed south. At times it was hard to get the nose down enough to stay below the 7,500ft G airspace ceiling. We achieved a nice set of figures to have in winter.

Eventually we headed back into Richmond, still picking up 2 to 4kts of lift

as we neared the airfield, using the airbrake to get down.

The 60 minute TIF went for 90 minutes and he had a big smile on his face. Over the last 10 days with the westerly winds and clear sky I have flown on five days with some nice wave, but nothing as good as today.

There have certainly been some rough patches during this exploration with invisible rotor producing 15Kn+ of sink at times. Nevertheless, the DG 1001M we used (IXZ) is well suited as a self launcher to explore the wave that, under these conditions, is so close to Sydney. I've booked a bunk for Bunyan.

Paul Tridgell, Richmond Gliding Club

GROWING YOUR GAME FOR GIRLS

Why have major sporting bodies have decided that this is to be their major focus for the future? This was the latest 'Sport Talk' run by the Office of Communities, Sport & Recreation, held at Sydney Olympic Park on 30 May 2013. Leonis Furze attended the talk. Here is what she learned.

The day started off with a presentation by Neer Korn, social trends expert and commentator and director of the Korn Group. Neer's talk, 'THROUGH THEIR EYES', allowed the audience to step into the shoes of everyday young Australian girls and see the world as they do. His presentation was filled with learnings, primarily qualitative in nature, based on interviews, group discussions and observations. If any sporting organisation aims to increase their membership, then young girls are a large demographic not to be ignored.

The next speaker Cathy Gorman-Brown (Project Officer, Sport and Recreation) spoke about the massive amount of research that has been carried out on the subject of increasing girls' participation in sport and how to transfer this into practice.

There were over 100 attendees present from a vast array of sporting bodies, and Cathy's findings could be transferred to any sport. The key learnings and elements for success that I thought translated particularly well to gliding were:

- Have a 'champion' in the club, a student or instructor dedicated to encouraging females in the club.
- Offer leadership roles to girls.
- Increase the visual appeal with club facilities, uniforms and so on.
- Make gliding social and fun.
- Suggest themes and special events.
- Increase role models and instructors. Encourage them to be enthusiastic and involved.
- Create a safe and supportive environment.
- Run girls-only programs
- Offer basic skill learning. Build skills gradually. Don't ask a girl to demonstrate a skill or activity unless they feel comfortable and competent.
- Let girls have input into the format of the training session.
- Introduce competition slowly.
- Be patient!

The rest of the day demonstrated via real case studies how the AFL, Rugby Union and Womensport NSW are 'kicking goals' and experiencing exponential growth by developing programs to include women in a traditionally male dominated sports.

1. AFL. You Kick Like a Girl – Good for You! Libby Sadler, Female Football Program's Manager NSW/ACT, outlined the AFL's strategies to increase female participation across all areas of the sport. New initiatives such as AFL Youth Girls - community football competitions, AFL Schools - school based programs, and AFL 9s - the game for everyone, have been specifically designed to incorporate women and girls of all ages and skill levels.

2. Rugby Union. Growing the Game for Schoolgirls. Michael Doyle, NSWRU General Manager Development &Training, spoke on how the sport has been marketing and promoting Rugby 7s to schoolgirls and sportswomen in the lead up to the Rio 2016 Olympics.

3. Womensport NSW. Linking with Local Government. The case study by Amanda Spalding, Vice President WomensportNSW, highlighted the partnerships with local government and sport including the Active Girls program. To date, over 1,200 schoolgirls have participated at council sporting facilities outside their regular PE classes. Womensport NSW are a state-wide, not-for-profit sporting organisation promoting access, participation and equity for women and girls through sport and recreation.

The combined message that came out the 'Sports Talk - Growing Your Game for Girls' was that girls think differently to boys. A fresh approach needs to be taken if you want to grow your sporting organisation and access the massive potential of this largely untapped demographic.

WOOD REPAIR AND FABRIC COURSES

PHOTOS CLIFF PRITCHARD, MARK PILKINGTON AND DAVID GOLDSMITH

ABOVE: Bob Hickman building a nice standard part.

RIGHT: Tested to destruction!

The Australian Gliding Museum has offered wood repair and fabric covering courses in the past at Ferntree Gully. Two courses have now been conducted at Bacchus Marsh. The first was from 10 to 19 September 2012 and was attended by students Cliff Pritchard, Bob Hickman, John Ashford, Richard Cotton, Graeme Cassidy, Dave and Jenne Goldsmith, Ray Ash, John Kingsley, Andrew and Rob Benton and Kim Van Wessem. The course instructors were Alan Patching, John Ashford, Doug Lyon, Gary Sunderland, Ian Bogaard, Bob Wyatt, Jim Barton, Russell Darbyshire from Aviaquip and John Buchanan.

A similar course was run mainly to assist the B-24 Liberator Museum who are refurbishing an Airspeed Oxford, from 13 to 19 May 2013. Attending were Mark Pilkington, David Bevan, Ken Abbott, Ken Hindle, Ian Burston and John Lowry. Instructors were Alan Patching, John Ashford, Doug Lyon, Mal Bennett, David Howse, Peter Tantau, Jim Barton and Russell Darbyshire.

Students commented that the courses were interesting and informative, and they were appreciative of the opportunity to get some practical hands-on experience. Members attending the courses are assigned to make and bring a standard part to supplied plans, for practice. This is then tested to destruction for assessment. More courses will be run in future to ensure that skills common in past decades are not lost. Powered aircraft owners have also appreciated attending the course. Anyone interested in attending future courses should contact Graeme Barton, Secretary of the Australian Gliding Museum, on 03 9802 1098.

RIGHT: Wing inspection by solar light

FAR RIGHT: Glider spar repair instruction

BELOW Russell Darbyshire demonstrates the calibrated iron.

BELOW CENTRE: Careful examination of failure points

BELOW RIGHT : Finishing a rudder - very nice!

SLINGSBY T-35 'AUSTRAL'

PRESEARCH BY JENNE GOLDSMITH

While on a globe-trotting tour to England and America in late 1951, John Wotherspoon arranged with Slingsby of Kirkbymoorside, England, for them to build a modified version of the Slingsby T-31 for the Waikerie Gliding Club. The new machine was to be called the 'Austral' in honour of Australia [1] and, as it was developed after the design of the Slingsby T-34 Sky, it had the Slingsby design number of T-35, or Type 35, allotted to it .

John had a complete kit of parts to construct the fuselage immediately sent by sea to Port Adelaide. It came as a standard T-31B fuselage kit, minus rudder but complete with tailplane and elevator parts.

The wings for the new machine were to have an increased span over the standard T-31B span of 13.2m to 15.64m. To allow for the extra aileron drag expected of the increased span and aileron length, an enlarged, taller rudder was designed. The wings and rudder were to be constructed by Slingsby and sent by sea to Port Adelaide when completed.

The fuselage kit arrived in Port Adelaide early in 1952 and was reported in Australian Gliding as suffering a 'customary delay' [2]. The Customs Department had difficulty deciding whether it was aircraft parts, or parts of an aircraft! “Evidently there is a difference,” reported Waikerie G.C. Secretary Bob Rowe.

The fuselage, tailplane and elevators were very smartly constructed from the kit in Adelaide by a team of Waikerie GC members called the Adelaide Branch, presumably because they lived there. The kit was described as “being very well planned as far as assembly is concerned, being cut to shape and numbered, even down to the screws and washers.” [3]

By April 1952 the completed fuselage, tailplane and elevators were ready and with the wings and rudder expected to arrive a fortnight before Easter, the Waikerie GC eagerly expected that they might have it flying for that holiday break. Sadly, they were disappointed. Bob Rowe reported in AG a rather dismal Easter for the club with poor flying conditions and the non-arrival of the much anticipated Austral wings and rudder [4].

The delay was not long, however. The first flight of the Slingsby T-35 Austral took place on 4 May 1952. Training in the machine began shortly thereafter at a feverish pace, with the whole club operation centring on the two seater. For a while, the club’s comprehensive single-seater fleet of Olympia (Yellow Witch), Kite II, Grunau Baby and H17 was largely sidelined in the effort to train new pilots.

Over the next eight weeks, the club flew 400 flights, all but 20 of them in the Austral. For two of those weekends the Austral was out of the air having a fully enclosed canopy fitted, as it was decided early on that the open cockpit was “too bloody windy” [5]. Fitting the canopy resulted in the glide angle improving “substantially” according to a report in AG. [6]

On Sunday, 13 July 1952, Romily Barratt, son of CFI 'Jock' Barratt went solo in the Austral. At 15 years old, he was believed to be Australia’s youngest pilot at that time.

REFERENCES

1. Australian Gliding No.1, December 1951 (erroneously labeled 1950), page 4.
2. Australian Gliding No.3, March 1952, page 6
3. Australian Gliding No.4, April 1952, page 8
4. Australian Gliding No.5, May 1952, page 3.
5. Australian Gliding No.7, July 1952, page 7
6.Australian Gliding No.8, August 1952, page 9

LEFT: The Austral at Tocumwal in the Bill Riley Collection

FAR LEFT: T35 Austral under restoration at Ferntree Gully. The Austral is now a part of the Australian Gliding Museum collection.

WHAT DO YOU THINK?

Over the last two months we invited members to take part in our Member Satisfaction Survey. We received 373 replies to the survey, which is 17% of or membership. This is a significant response and provides meaningful data for the movement to respond to. The results are detailed here. Thank you to everyone who took the time to complete the survey.

RESPONDANTS

- 5.2% of respondents were women, which is slightly lower than our female participation rate.

- 53.5% of respondents own their own glider or share of one, which probably represents a strong commitment to their sport.

- The question “Would you like to see Gliding Australia published online as well as in printed format?” received a very positive response of 67.6% YES votes.

AGE PROFILE

The age profile of members who responded was fairly representative of our membership, with a slightly greater percentage from our older members.

- 57% are in the age range 46-65 years.
- Only 5% are younger than 25 years. It would be good to get feedback from more of our younger members, as any changes that we make will impact on you the most.

<15	16-25	26-35	36-45	46-55	56-65	66-75	>75
1.1% (4)	4.3% (16)	4.5% (17)	9.3% (35)	22.9% (86)	**34.0% (128)**	20.5% (77)	3.5% (13)

WHAT DO YOU VALUE MOST IN GLIDING?

Participants were asked to indicate from a list of typical gliding activities, which ones they valued most.

Of greatest interest was

- Cross-Country Flying (74%)
- Social interaction (64%)
- Local soaring (51%)

The Vintage/homebuilt group was the smallest, but still a significant number (around 12%).

Coaching, instructing and passenger flying were all around the 40% mark.

- 25% were interested in competition flying

- 25% were interested in gliding management at club, regional or GFA level.

SATISFACTION WITH GLIDING CLUB

So, how happy were our respondents with the service and value offered by their gliding club?

- 0ver 80% of respondents were satisfied or very satisfied with their gliding club in a large range of criteria.
- Highest satisfaction 87% was with the safety culture/ atmosphere.
- Lowest satisfaction ratings were 70% satisfaction with web services and 67% satisfaction with coaching.

21	Improved and more modern glider fleet (in particular 2-seat), instruments and tow planes
19	membership growth to share the cost, workload, responsibilities. Increase number of youth, women
18	provide coaching opportunities, leading to the GPC
18	Clubhouse, bunkhouse, hangar and airfield infrastructure improvement
12	club management structure and skills, professional, improved leadership
11	improved instructing, instructors, training structure and focus
11	increase opportunities to fly - earlier starts, mid week flying, balancing members vs passengers

WHAT YOU SAID

Respondents were asked to offer suggestions for clubs to focus on. The above table is a summary showing the numbers of member who suggested this item.

SATISFACTION WITH YOUR REGIONAL ASSOCIATION

Satisfaction with regional associations was much lower. Many commented that they did not know that they had a regional association. This says a lot about how the regions have been advertising their activities.

- Generally only 45-49% satisfaction over a range of criteria
- Lowest satisfaction 38% was for web and online services

WHAT YOU SAID

Comments were focussed on the following:

airworthiness training opportunities must be improved
communicate purpose and activities of the regional assoc. They are invisible
We need increased activity - events, coaching, training
improve web presence and content
Increase activity and involvement with clubs
focus on improved coaching programs and events
Does it have a purpose. Remove and clubs work directly with GFA

SATISFACTION WITH THE GFA

This was more positive but quite varied, with the majority of criteria scoring around 57%.

- Highest score 76.5% was for Gliding Australia magazine.
- 70% were satisfied with the GFA Protection of our Freedom to Fly (CASA, Airspace) and insurance provision.
- 60% thought that GFA provided value for money.
- Lowest scores (42%) were for Efforts to Gain and Retain Members, Promotion of the sport and Web/online services.

WHAT YOU SAID:

There were a lot of suggestions for GFA improvement.

There were a few really positive comments also, including “GFA is doing a bloody good job”.

The most consistent comment related to the need for an update to the web page.

airworthiness	Airworthiness rights and privileges have been given away without a fight.
Club support	promoting/supporting leadership qualities and training for management within clubs
	Greater focus on supporting clubs; GFA officials to visit & mentor clubs
	Provision of tools to clubs for attraction/retention of new members.
Communication	Simple description of who votes people into power? Where does the money come from? How is it spent?
	Direct contact with individual instructors and airworthiness inspectors rather than going through regions and clubs
	Communicate what the GFA is here for and what members can expect for their membership dollar.
	Update the website, minutes of GFA meetings published in a timely manner.
Cost	I think the balance of new ideas and controlling costs is currently pretty good.
	Provide a better explanation of the reason for increases in costs when the service received seems not to have changed
	Reduce the annual fees
	Reduce the emphasis on sponsoring pilots at overseas competitions
Focus	The GFA needs to focus on the grass roots. The clubs big and small that's where the new members come from.
	Far too much emphasis on competition gliding and "coaches". The future of gliding lies with instructors and new members. .
	To unite the GFA membership around a common vision and purpose,
	focus on attracting new and retaining existing members
	plan of how the experience and knowledge of (the many) older members will be passed on
	Encourage XC flying for fun, not just badges, or competitions. .
	make sure the fun factor isn't buried under an avalanche of regulations, as is happening at the moment.
	create a young and dynamic image of gliding, other countries manage to do it why not us.
	refocusing gliding to less of elite segment of society by moving to winches - aerotow is killing gliding;
insurance	Plain english insurance policies that i can understand. A simple explanation as to what we are and are not covered for.
	I would like to see a "short term comp third party policy" developed.
magazine	have the mag online only and save the money
	If the magazine goes on-line it will lose readership. Take for instance the CASA Safety magazine, I certainly haven't read it since that time.
	more educational articles in the magazine
	Clubs are not effectively educating post-solo pilots for cross-country airspace procedures. The magazine should address this knowledge/instruction gap.
	Advise to members on how to get info from the website by publishing what is available in Gliding Australia.
	Gliding Australia should regularly publish all ADs and amendment to manuals
	The level of airspace knowledge is not sufficient.
	The calendar in its current form is useless.
	I would like to see a regular article in the magazine conducting air tests on gliders including older machines
member development	The gender bias appears unchanged since the early days. The age distribution of members appears badly skewed to older people.
	M&D could introduce a scheme like the UK has with their Junior Gliding Centers: http://www.juniorgliding.com/Becoming_a_JGC/
	Scholarships for secondary students interested in careers in aviation. Part of the secondary-school curriculum
	GFA should be also present on the social media (e.g. Facebook) to more promote gliding to younger population.
	ensuring the fun of flying is made obvious.
operations	Communication of policies and procedures: a new MOSP issued with no consultation, and loads of technical defects. Even CASA goes through an open NPRM process. We still haven't seen a new Instructor Handbook draft.
	GFA training syllabus and instructor competency standards are insufficient to train GFA pilots to the same standard as CASA-trained pilots.
	Where's our Human Factors syllabus,
	The new MOSP is similar to the old MOSP, but with more process overhead and paperwork.
	revising the role of the duty instructor so that they're not responsible for anything outside the training operation. Why should a GFA instructor have authority over a GFA member's private flying?
	Independent Ops privileges should be automatically bestowed upon receipt of a C certificate
	Improve the safety management system
	We have no commonly used ab initio or other training materials that can be obtained by club instructors to deliver a consistent training regime across Australia.
	What policy and action plan do we have for dealing with possible drug or alcohol effected pilots or members of the public presenting for an air eperience flight?
Promotions	Promotion of the sport along the lines of a lifestyle, look at the success of surfing as a lifestyle
	Pursue school programs and even youth activities like the Duke of Edinborough achievement program.
	Promotion of the 2016/17 WGCs is an opportunity to grow our membership
	Offer "Deals" and communicate options for 3mth members to upgrade to 12month members
	Active Advertising and Web Site support from a GFA level would benefit all clubs.
	GFA could sponsor a prize at a film makers convention for the best film on soaring or something of the like.
	Active promotion of image, skill, responsibility of glider pilots, links to other aviation
Sport	Coaches do not know what they are expeced to deliver & the coachee does not know what to expect - all my experience is that coaches do all the flying and I do all the paying!
	Arrange a comp or two over the year for mister average without all our Top Guns and Super Ships competing
	The certificate/badge system is overly officious; total over-kill for issue of basic qualifications/certificates.
Structure	I also see absolutely no benefit in State-level administration;
	GFA needs nothing short of a complete rebuild to improve on the current poorly governed and mismanaged mess.
	I cannot see any benefit arising from 'self-administration' through GFA as opposed to direct regulation from CASA.
	The same people who ran it a decade ago run it now,
	Instead of reacting to increasing workload and diminishing manpower by devolving its functions to the regions, GFA has tried to pull everything into the centre instead.
	When CASA delivers a better and cheaper experience to its users than a member-based organization like GFA, something is going seriously wrong in sports aviation.
	Produce a 21st century organization that appeals to a 21st century customer base - are we still getting any value out of being a federation of state based organizations?

The comments raise many questions and suggestions. We will review and feedback how these can be addressed over the coming months.

GA

WHERE'S MY FLAMEPROOF SUIT?

PERSONAL OBSERVATIONS FROM HARRY MEDLICOTT

If you had to choose the safest country in which to fly gliders, would you choose Australia? Compared with Europe, we have empty skies, no cloud flying, generally better conditions with higher cloud bases, virtually no ridge or mountain flying with their associated high risk and accident levels and most of our flying is done over ultra safe areas for outlandings.

You would be wrong. The statistics for the ten year period ending 2012 show that Australia's total fatality rate per 1,000 pilots is 8.4 whereas the rest of the worlds is 4.6, Even the rate for Germany, Austria and France who fly in the European Alps, notorious for a significant number of fatalities each year, is 4.04 per 1,000 pilots on a cumulative ten year basis.

It is certain someone will come up with a reason why our figures are so high but the facts speak for themselves and are not a credit as to how we manage our sport. What are we doing wrong? I analysed the figures over concerns we are returning to similar conditions in Multi Class which over the 5 year period from 1997 to 2002 resulted in the deaths of two pilots, three parachuting to safety, the destruction of four gliders and damage to not less than four others. Pilots who flew in multi class during this period had a one in ten chance of being involved in a mid air collision. Numbers of pilots competing dropped to low levels.

By way of contrast, the National Club Class competition, based on an entirely different competition scenario whereby pilots chose their turning points and gaggling was almost non-existent, had no mid-air incidents during this period, so far as my memory goes.

I was the originator and coordinator of the National Competition Pilots Safety Committee that analysed the accidents and sought means to prevent them. The changes to procedures instigated at about this time, at least partly as a result of the Committee's work included the following -

Members of the Committee wrote notes about specific safety issues which were collated and circulated to pilots flying in a competition. There was a mandatory safety briefing at each competition. Gaggling, particularly a problem on blue days, was minimised by introducing allocated start points.

Assigned area tasks, of value particularly when gliding conditions were doubtful, were introduced to minimise outlandings and reduce gaggling.

Recommendations were made to task setters to avoid out and return situations and to have an angle of not less than 30° between task legs. It is also important to avoid tasks that result in more than one class returning to the finish on a similar track over a substantial distance. On a couple of occasions, I remember task setting that resulted in most of the fleet, over 20 gliders, flying in weak blue conditions and returning to the airfield in a huge gaggle over a long distance. In a competition at Narromine 26 gliders landed within a few minutes of each other on a weak blue day. A recipe for disaster.

As far as I am aware there has not been a single mid air collision in Multi Class in the ten years since these measures were introduced. FLARM devices were introduced in this period. They are a very useful anti collision tool but not of much use in gaggles where most accidents had previously occurred. We now seem to be returning to procedures similar to those that were used during the period of frightful accidents. We are now using a start line, a certain method on a weak blue day of guaranteeing that many pilots will fly the task together in a large gaggle.

I well remember seeing a glider explode in a shower of fibreglass. The start arrangements were such that all of open class would start together and gaggle their way around a task on a weak blue day. One pilot was killed, another parachuted to safety - just. Of the remaining pilots a number gave up competition flying and who could blame them? One has only recently returned to flying competitions now that we have FLARMs, NOAH pilot evacuation systems and arrangements to minimise gaggling.

There is also a push to only use AATs on difficult days and use fixed turn points wherever possible. Have we forgotten the lessons painfully learnt? The rationale behind reverting to earlier conditions is that they are similar to what is used in international competitions. Also some pilots say they like to 'race' rather than have to work out the best part of the sky to use, perhaps by themselves. We now have Grand Prix type racing for those who prefer this type of flying. A reason for using start lines in international competitions is that pair flying is allowed. In Europe a blue day is usually unflyable whereas here we often use them. It is the preponderance of blue days in Australia which should dictate procedures that reduce the concomitant gaggling.

Having said all this, what can we do in Australia to reduce our accident rate?

Firstly, no one goes out of their way to have an accident and we all believe our personal performance in relation to safety is good. Our airworthiness standards are excellent and airworthiness related accidents are virtually unheard of in gliders manufactured in the last 30 years or so. Accident rates can be reduced and safety enhanced without taking away the fun in flying gliders.

One matter lacking in Australia is a lack of communication concerning safety matters. The information path starts at the GFA, then RTOs, CFIs, instructors and finally pilots. As a pilot, how often have you heard from your club of any GFA advice relating to safety? Our national magazine, Gliding Australia goes to every pilot. How often have you read an article which might increase your knowledge of safety related matters? Regular desensitised reports of accidents, what caused them and how you might avoid them? Virtually never. Plenty of nice photographs, competition related articles, but anything to improve your piloting and safety skills – hardly ever. Our magazine should be a conduit for passing on useful flying skills. I suggested that it would be worthwhile having a database of all instructors and coaches and use it to pass on GFA decisions and advice. Nothing happened.

Another concern is that it appears, without having actual statistics to back it up, that accidents with an instructor as pilot in command occur far more frequently than they should. Not sure why it is so. Gliders with a highly experienced pilot/instructor in command should have an almost perfect safety record. I certainly am not aware of a high accident rate with GA instructors. It has been said, "you can't make an omelette without breaking eggs". This is not acceptable as an excuse. An instructor should always ensure that the flight is ultra safe, even if this means taking control on occasions when it was not needed. If this surmise concerning instructor related accidents is correct, then the causes and instructor training need consideration.

A major problem, not exclusive to the gliding movement, is the reluctance and downright opposition to listen and act upon new ideas. It is as if accepting an idea different to previous held beliefs was a sign of weakness. It is not, of course, and it takes a strong personality to embrace changes. I could give many examples.

Winch Launching Some years ago the British Gliding Association was very concerned at the number of winch launch accidents. They did a survey from their comprehensive records going back to 1976 of all accidents, what caused them and how they could either be avoided or safely handled once they occurred. They promulgated brochures entitled 'Safe Winch Launching' which went to all clubs and pilots. It was shown on their web site together with an interactive quiz and computer simulations of accidents. The result was a reduction of accidents to 25% of the long term average. Serious injury or fatalities that had been running at 3 or 4 per year went down to one. As the Brits do between 250,000 and 300,000 winch launches per year these results are surely significant and beyond statistical quirks. A recent analysis showed them that one cause of accidents had not reduced as it should and often involved experienced pilots. This was a wing tip catching the ground after the launch had commenced with a resulting groundloop or cartwheel. Andy Holmes, their winch launching guru wrote a two page article for a recent edition of their gliding magazine 'Sailplane and Gliding' in which he pointed out the risks involved and avoidance procedures in the very early part of a winch launch. This is how it should be.

Getting their hard won and successful results accepted and becoming part of our training is another matter. One would expect that the GFA would take the BGA proven recommendations and incorporate them in our training. So far wing rocking to indicate the winch launch speed needs increasing has been changed to the signal being the glider lowering its nose and the minimun safe speed during the climb increased from 1.3 VS to 1.5 VS. A good start but there are other items and the changes need to be incorporated in our training manuals If a winch launch pilot was quizzed on the BGA proven findings as to how to prevent an adverse situation occurring and how to correct one if it did happen, expect an abysmal lack of knowledge. Take their recommendation that a hand should be firmly on the release, certainly until speed and good aileron control had been established in order to instantly release if matters went pear shaped such as a wing tip touching or about to touch the ground. They say just touching or having a hand near the release is not good enough. Time is critical and it can take a strong pull to release a glider that is starting to lose directional control. Pretty straightforward but I couldn't get instructors in my own club to embrace the principle. In two recent accidents at the commencement of an aerotow, both serious and in one the aircraft was almost written off, have occurred. In each case the pilots did not have their hand firmly on the release. Having a hand firmly on the release is not a large impediment and if it only saves an accident every 20,000 launches, well worthwhile. My Ventus 2 has the release behind the control column. It could not be reached if left aileron was applied. An extension allows the release to be comfortably held, certainly until the speed has built up and it is time to change the flap setting. It is small items such as this which add to our safety and unless pilots know about them can suffer the consequences.

The GFA requirement it that the left hand be close to the release during the launch. The rationale for not having it firmly on the release is that the manipulation of subsidiary controls on some gliders means the left hand is not even close to the release. On a winch launch there is no need or requirement to operate any subsidiary control. On aerotow flapped gliders, particularly if heavy, often start the ground run in negative flap and only change the flap to positive flap when the speed has built up and the glider is stable. Some pilots start a launch using some dive brake extension to aid aileron control. This poses a problem but some pilots extend the release with a cord to enable it to be operated even when the left hand is on the dive brake lever. The problem could be easily solved by the gfa requirement being that a hand be firmly on the release when it was possible to do so.

Once the glider is airborne the BGA recommendations... At low altitude, below 300 feet - The risk of entanglement with the parachute and rope is greatly reduced if the pilot does not release in both a low and high speed situation. Aerotow is different in that if the launch turns ugly, it is almost always better to be disconnected from the rope. We should learn from hard won experience and incorporate it in our training manuals.

Changes worth considering, not specifically covered in the BGA

☛ continued over page

USING OXYGEN & OXIMETERS

COLIN COLLUM

Regarding Bernard Eckey's article 'Third Time Lucky' in issue 12 of GA, congratulations to Bernard on his achievement. It has left me wondering if I can sell the idea of a pilgrimage to Omarama to my own CFO. I'd like to commend him too on the use of a pulse oximeter. They are now available to purchase for well under $100.00. I must, however, raise two safety concerns relating to high altitude flying.

SAFE BLOOD OXYGEN LEVEL

As an anaesthetist I use pulse oximeters on a daily basis and if my patient's blood oxygen saturation level is less than 94-95% I'm wondering why. At 90% I'm using all the techniques I have available to rectify it to greater than 90%. At 85% I'm deeply concerned as to what is wrong. So I recommend the use of pulse oximeters and I very strongly recommend not letting one's oxygen saturation get below 90%.

It is important to understand that 86% is NOT a healthy blood oxygen saturation. It is approximately the equivalent of flying at 14,000ft without oxygen and is in some ways comparable to flying in the 'coffin corner'. There is only a small, if any, margin for error, particularly for people in the age groups that Bernard and I belong to. There is also increasing evidence of the adverse effects of this 'mild' hypoxia.

Usually the effects of hypoxia (mainly increasing degrees of brain dysfunction) don't manifest themselves above a saturation of 80%, however these studies have usually been done in healthy, that is, young volunteers.

We all develop atherosclerosis, or hardening of the arteries, to some extent as we get older and the circulation can become marginal to more and more areas of our body, most importantly to our brain and heart, so a saturation of 86% could well be below the critical level in some individuals. Also, the body's response to hypoxia in terms of increased breathing and so on is quite limited, which is part of the reason hypoxia is insidious in its onset. This response is likely to be further exacerbated in glider pilots due to our posture while flying, which is not conducive to maximum respiratory effort. So we will not realise that we have become affected by our lower saturation.

Further, although the change in the pressure of oxygen is reasonably linear, at the altitudes in question the oxygen saturation response is not, and a saturation of 86% represents someone who is a long way out on the shoulder of a hill side that is about to become something of a cliff face. In other words, a small drop in the effective oxygen pressure could lead to a much greater decrease in the saturation level.

RADIANT HEAT LOSS

Flying in an unheated aircraft at 20+ thousand feet where the outside temperature is likely to be -20C and possibly down to -40C while wearing shorts and T-shirt is inadvisable due to radiant heat loss to the surrounding aircraft, no matter the incoming heat from the sun. GA

material, would be during the "I" part of the CHAOTIC checks to identify 1.5 VS which can vary between 45 and 60 knots and mentally commit oneself to abandoning the winch launch if that speed could not be maintained The GFA does not have a specific check after releasing at the top of a launch Undertaking a mandatory FUST check before turning would be good practice which might help develop safe practices when faced with an unexpected release.

A practice I employed when instructing or conducting air experience flights was to tell the front seat passenger or trainee that the safety of the flight depended on him carefully looking out to the front and to about 20° each side, as my view was obstructed by him. Getting would-be pilots to carefully look out from day one is a good start. I am sure most instructors do likewise, but perhaps it's a worthwhile suggestion.

FLARMs have been enthusiastically embraced in Europe where something like 13,000 have been installed. They are certainly not a panacea and not of much use in busy gaggles, but they certainly help overall. The human eye is very limited in that it only has a clear field of vision of about 15°. Our peripheral vision is not the help it could be in that an aircraft on a collision course does not move relative to our glider and it is movement which our peripheral vision identifies. My club has a mandatory requirement that the gliders flying from our airfield are fitted with FLARMs. There have been two midairs in Australia in recent months. For FLARMs to be effective both gliders need to have them fitted and working. It seems that this may not have been the case. Would working FLARMs have prevented either of these accidents? We don't know but a fair chance they may have. There is a good case for making the carriage of FLARMs mandatory in Australia and subject to a periodic practical function test. Just preventing one accident could well cover the cost of doing so.

A student applying for an RAA license is given a comprehensive written questionnaire embracing many aspects of flying light aircraft and he is expected to have a good knowledge of overall safety and flying principles.

There is no doubt that in an emergency a pilot will rely on what he has been taught and this extends to procedures which he has not actually practiced but read about. When an emergency happens it is highly unlikely the pilot will conjure up the correct response without prior knowledge. For example, an early pilot caught in turbulence and flying reasonably fast extended the dive brakes and broke the canopy with his head. Even without a practical demonstration, if he had been told to reduce speed, tighten his seatbelts and hold the brake handle very firmly and open them gradually, it is highly unlikely this accident would have occurred. Another example. Correct procedures if likely to run into a fence. Yes, we teach stick forward, wing down, preferably turn into wind and initiate the turn about 50 metres before the fence if likely to hit it, but how many are taught that if flying a glider with a nosewheel such as Grob 103 or Puchatek that pushing the stick forward will probably prevent the glider turning? It has happened. Quite apart from normal procedures and requirements there must be many similar instances where some knowledge of what to do can be a lifesaver. The only way we can be certain that all these scenarios are covered is by giving the trainee a written, open book type test. Again, this suggestion was made to the GFA without a response.

Mid-air I was involved in a mid air collision some years ago and the last thing I want to do is talk about it. However, there are some valuable lessons to be learnt so here are the details. As far as I knew was flying by myself in a national competition in a Discus 2 with a moderately high wing loading. In lift, I initiated a steep turn to the left. About half way around the turn I saw a glider on my extreme right about 100m away, which appeared to be on a collision course. I well remember my thoughts - what can I do? I don't think he has seen me - probably best to just continue and hope he does something or passes behind me. I did not see the actual collision as the other glider hit me from behind and based on damage to my glider and a piece of the other gliders wing tip which remained with my glider, it hit the higher right hand wing on the trailing edge about half way along the wing. I tested control response but after about 5 seconds my glider entered a very steep fast rotating spiral. The data logger which continued to work, indicated a descent rate of 100 feet per second. I exited the glider with great difficulty and was tumbling as in a washing machine. My thought was to stabilise my fall as had been taught by spreading my arms and legs. Quickly realised that I would hit the ground before stabilising and after several attempts, made difficult as I was tumbling and the parachute was moving on my back. Finally pulled the rip cord and the parachute opened a few seconds before I hit the ground very heavily on my side. Fortunately it was a ploughed paddock.

So what are the lessons to be learned? I wondered for some time what, if any, evasive action could have been taken. It was only after research associated with the National Competition Pilots Safety Committee that an answer appeared. I could have rolled the glider level in the time available and presented a smaller target. The other glider would have missed me. Similar principles apply in other dangerous situations. We are taught that when two aircraft are approaching each other that each must alter course to the right. This is OK when the two aircraft are still some distance apart but when an accident appears imminent separation can be achieved far more quickly by changing altitude. If gliders bank to achieve separation, they lose sight of each other, present a large target and the manoeuvre takes far longer to take effect than say, diving. Commercial airliners use the principle of quickly changing altitude. Not every situation is the same but it is good to have an appreciation of what can be done.

Likewise, when leaving a rapidly descending aircraft, stabilising might work when exiting an aircraft flying level but not when the aircraft is heading towards mother earth rapidly. Best to get a hand on the D ring as you are exiting the glider. You may wish to delay using it to clear the aircraft but if close to the ground your best chance is to use it promptly. The survival rate of pilots involved in a mid air and uninjured is 50% in a collision at 3,000 ft. If you are older or less fit the odds are even worse. A NOAH system is said to allow survival as low as 1,000 feet. They are pretty expensive but there are more economical alternatives. Paul Mander made Whoopie cushions which are effective at a cost of about $1,000, are not a fixed part of the glider and do not require engineering orders. An American pilot made a device using a large inner tube, a pressure bottle and a tap. Ask yourself the question. What would you be prepared to pay as you struggled to exit a glider? We correctly make a parachute costing $2,500 mandatory in some circumstances. Maybe all aircraft flying in competitions should have air bags fitted which double a pilots chance of successfully exiting a glider

Lookout The next consideration is lookout. My research showed that in every case where information was available, at least one pilot would have had a clear view of the other glider immediately before the collision. In my case the other pilot in a statuary declaration said he only saw me in the instant before the collision. The conclusion I have reached is that a pilot should not look away from the view to his front for more than 5 seconds.

This article has been written with some reluctance. I have the greatest respect for the many individuals, mainly volunteers, who make our sport possible. Unfortunately, what you don't know can hurt you. Perhaps what has been written will encourage discussion and progress in making gliding safer than it is.

HARRY MEDLICOTT

OPERATIONS PANEL

The article in this issue of the magazine by Harry Medlicott raises a number of issues close to his heart to "encourage discussion and progress in making gliding safer". However, some of his assumptions and assertions cannot pass without a response and I suspect that Harry anticipated this when he referred to his 'flameproof suit' in his title.

Quite often, purportedly 'informed' comment on the gliding accident rate in Australia presupposes the problems lie in the GFA training syllabus. However, the accident statistics don't support this as there are very few accidents caused because pilots were inadequately trained. Indeed, in a recent Court case an allegation that inadequate training (among other things) resulted in a pilot suffering severe injury in an accident was not proven. The predominant causal factors in most occurrences, both in gliding and GA, are the limitations of the individual interacting with, and/or in, complex systems and environments (i.e. human factors related).

Similarly, there is this myth that airworthiness related accidents with today's modern gliders are "virtually unheard of". The fact is, in the past two years we have had 5 accidents and 21 incidents resulting from airworthiness issues. Some may even recall the JS1 accident in New Mexico (USA) in 2012 in which the pilot elected to bail out due to reported loss of control that eventually led to improvements to the rudder control system in the cockpit area.

Another myth is that GFA Instructors are involved in significantly more training accidents than GA instructors. Gliding Instructors certainly are involved in training accidents but so are GA Instructors. ATSB document 'Trends in fatal and non-fatal accidents in private flying operations' shows that between the years 1999 and 2008 some 15% of the accidents (as a proportion of flying hours vs. proportion of accidents for all flying categories) were attributable to Flying Training. It may also surprise the reader to note that the GA training fatality rate was 10% during this period.

There is also a preoccupation with the fatality rate as a measure of how bad we Australians are compared to overseas organisations. The regrettable thing, not least of which is that people die in the pursuit of our sport, is that meaningful statistical analysis is difficult to do because the appropriate data is just not available. One statistic that would be useful in analysis is the number of occurrences per total number of hours (or flights) flown. While we have the occurrence details, we do not have total hours and flight details. Why? Because many pilots do not provide this information when requested at membership renewal time. As a consequence of this lack of data, people now compare our accident rate on a per member basis and conclude, quite correctly, that the Australian fatality rate is abysmal when compared to other countries. Given the rate of decline in membership, even one fatality per year is going to look statistically bad as the sample size decreases.

Nevertheless, accident statistics for the period 1969 to 2013 are sobering. During this period there have been 944 reportable occurrences involving gliders (or 21.45 per year). Of these occurrences, 73 have resulted in fatalities (an average of 1.66 fatal occurrences per year) occasioning the loss of 90 lives (an average of 2.05 persons killed per year). The highest loss of life in one accident was five (ES60 and C172 Collided in circuit at Moorooduc, Vic on 28/09/1980). A further 198 people have been injured, of whom 102 were seriously injured.

Harry states that there is a "lack of communication concerning safety matters". To some extent he is correct and it

OPERATIONS

If you have any questions or feedback please contact me at

cop@glidingaustralia.org

CHRISTOPHER THORPE

CHAIR, OPERATIONS PANEL

is proposed to develop our safety communications via the new website, through magazine articles and bulletins, and via email. Some may already have noticed in the past 18 months that a number of safety related articles have been written for the magazine and a list of occurrences is now available on the GFA website. Our ability to produce more meaningful information is getting better through the IRIS Occurrence Reporting database, and since all occurrences are now visible to the Regional Managers (RTOs/O) they are able to pass on details through their Regional Operations Panels in a more timely manner.

Harry's suggestion that GFA have a "written, open book type test" is shared by the GFA Operations Panel. During the annual meeting in June this year the Panel agreed to replace the oral examination regime with online self-paced learning. Online learning modules will provide structured training to ensure standardisation across the Regions, and will also provide evidence that a pilot has met the appropriate standard for the issue of their GPC and other endorsements. Of course this will not happen overnight as the learning modules need to be developed, technology acquired, and a budget allocated.

The Panel is always prepared to listen to new ideas and every year concepts put to the panel are discussed in detail. Where an issue is considered to have merit, the GFA Panel consults with its Regional Panels. As an example, the lessons learned from the *BGA's safe winch launching campaign* were considered by the Panel in 2011 and subsequently led to the winch 'too slow' signal being abandoned in line with BGA practises. Similarly, the Panel endorsed the content of the BGA safe winch launching initiative. Occasionally, however, certain ideas are not proceeded with following the consultation process. For example, the BGA practice of having a hand on the release during launch was not adopted as the consensus of opinion was to leave this decision with the pilot rather than mandate it. The rationale was explained in a sidebar to an article on the BGA safe winch initiative that was published in Gliding Australia. [See issue 2, Sept - Oct 2011 GA 'BGA Safe Winch Launching Initiative'. ED]

Similarly, following consultation with winch clubs it was decided to leave the minimum winch launch speed at 1.3Vs rather than adopt the BGA's 1.5Vs.

Harry signs off with the statement "what you don't know can hurt you". Hopefully members will now have a better understanding of the issues and we thank Harry for raising them.

CHRISTOPHER THORPE

CHAIRMAN, OPERATIONS PANEL

CRUISING AND HEIGHT BANDS

When I started thinking about this topic, I realised that most pre-solo students start to learn about thermalling almost from their first flight. Instructors will always be looking for and using thermals, partly to prolong a training flight and also to train a student in turning, speed control, lookout and other skills. However, the art of cruising efficiently is rarely part of pre-solo training because the time spent between thermals is taken up with other exercises, and so the typical post-solo pilot has had quite a bit of thermalling time, but little or no exposure to the art of covering distance.

BY TIM SHIRLEY

This article will talk about the principles of how to cover distance in cross-country flying. It is aimed at the beginning X/C pilot, although more experienced pilots might find it interesting as a different approach to the topic. There's very little mathematics here – as G Dale says, "I don't speak Maths", and while that's not totally true in my case, I think that in a general discussion it doesn't make a lot of sense to use too many numbers because they will always vary – glider performance, weather conditions, pilot skill levels all have an impact on actual numbers. But the principles remain the same.

Some of the principles of efficient cruising seem to be counter-intuitive. Don't turn in every thermal. fly faster in sink; heavier gliders go further, don't travel directly to your goal... all very odd, but as I will explain, there are good reasons for all of them and more.

It doesn't really matter what the goal is – speed, distance, competition success – to get the best out of a glider flight requires the efficient collection and expenditure of energy. Energy is gained initially behind a tug or winch, and is then added to every time we thermal. Energy is expended travelling in the desired direction, and the faster we go the more energy the glider consumes. Energy can also be gained by cruising in rising air, or air that is sinking less than average, because that air is helping to overcome the natural tendency of the glider to sink.

If you look at the barogram trace - height versus time - of a cross-country flight, it will be clear that the average speed of the total flight is a combination of climbing speed and cruising speed. So it follows that it is important to climb only in the best thermals, to centre them quickly, and to leave them when the climb rate slows. But there are some inefficiencies in joining thermals, because it always takes a turn or two to get into the best lift, and most of us take a turn or so to realise that the lift has dropped off and it's time to leave.

What is less obvious from the barogram is that all the time the glider is circling, it isn't making any distance over the ground. So if you want to make good progress, it is important to spend as little time climbing as you can. But to do this there is a balance – thermals tend to be weaker and less organised near the ground, so it doesn't pay to go too low. And, the lower you go the more you will be tempted, or required, to take a weaker thermal just to avoid an outlanding.

So there are a few principles – how do we convert that into practical results?

The MacCready theory was developed by a famous American glider pilot back in the 1950s. In general terms, it says that the best speed to fly at any moment is determined by the strength of the next thermal! Of course, we don't know what the next thermal will bring us, so some guesswork is needed – early in the day it may be that we expect thermals to increase in strength, in the middle of the day they may stay fairly constant, and late in the day we may need to be more cautious. The actual speeds depend on the polar curve of the glider, which will be affected by water ballast – the best speed increases with the total weight of the glider, as does the minimum sink speed. If you can find the polar curve of your glider then it can be plotted and some figures determined, though of course this depends on how accurate the polar is. If it came from the manufacturer's documentation it may be a bit optimistic, and of course the glider's condition and age will also impact on it.

Fortunately, the loss of performance due to flying at speeds slightly different from the optimum are not large, and most pilots these days go for flying 'block speeds', which really means flying at a fairly constant speed between thermals. The basic principle remains – in lift fly slower, in sink fly faster – but don't chase the instruments too hard.

It's also true that the speed range of a high performance glider is much greater than that of an older model, because the polar is much flatter. It would be hard to imagine cruising at 100kts in a Libelle, but it would be quite reasonable on a good day in a Ventus 2.

A guide to the proportion of speeds to fly relative to the MacReady 'ideal' looks something like **table 1 below.**

Of course, such figures depend a lot on conditions and also assume you are near the top of your height band, which leads neatly on to the next topic.

Height bands are a way to assess the correct strategy for the next phase of the flight. They divide the available convection height into bands that you can use to decide whether to take a particular thermal or to press on. Most people divide the height available into half, and then once more, so that there are four horizontal bands like **table 2 next page.**

Of course there are endless variations but the principle is what is important. As you get lower, be less choosy – as you get higher, quality matters more if you are going to turn.

	Experienced pilot	Inexperienced pilot
Reliable conditions and/or Cu	3/4	1/2
Unreliable conditions and/or blue	1/2	1/4

Table 1. Speed to fly relative to MacCready ideal.

4500ft-6000ft	Don't stop and turn unless it's much better than you have seen before
3000-4500ft	Take a thermal if it promises a climb as good or better than you expect
2000-3000ft	Take a slightly weaker than average climb, for security and to return to the upper band
<2000ft	Survival – do what it takes to stay airborne

Table 2 . Height Bands

Where you set these bands depends on lots of things. The main thing is to consider what is coming up, because at the start of the day you might expect the height available to improve, while if it is late afternoon the lift may get softer and the thermals further apart.

Experience matters as well as other factors such as the type and purpose of the flight.

You will often hear experienced pilots talk about something called 'changing gear' and this refers to the need to keep an eye on what is happening ahead. A band of cirrus cloud or a blue hole may suggest weaker conditions, so pressing on fast and low might not be advisable, and the height bands need to be adjusted accordingly. A well-formed cumulus cloud or a cloud street could be well worth changing strategy for, as well as direction.

The really important thing in cruising is that it is not the time to relax and just follow the GPS line to your next waypoint. Decisions made in this phase of the flight are at least as important as the climbing and centring skills we use in thermalling. If we need to take some food or have a pee, the cruise is the right time, but it is also the time to observe the sky and the conditions, and most importantly to seek out the energy lines in the sky.

The most obvious energy lines are cloud or thermal streets. Finding and following these can make a major improvement to your X/C speed because they will reduce the number of thermals you have to take. Other indicators of energy lines can include birds and other gliders. On the ground, linear features such as an upwind lake shore, tree line or change in vegetation such as the change from irrigated to non-irrigated fields are worth investigating. Generally speaking, the lower you are in your height band, the more worthwhile it is to divert in search of better air, but even at the top of convection there are advantages to be gained from not slavishly following the GPS. The very best pilots seem to have an instinct for good air, and this comes from both skill and experience.

By contrast, stay out of sinking air. Again, quite significant diversions are useful if they get you out of bad air, and the lower you are the more important it is to escape.

One thing that does trap a lot of early cross-country pilots is the thought that once they are low, they should stay in one area. That is certainly true if outlanding is a possibility and there are few possibilities. However, if you are in the lower part of your height band and there are still landable areas ahead, you might as well press on, though at a lower speed so as to conserve height. If you have no reason to think otherwise, then you have as much chance of finding a thermal ahead as in any other direction, so you may as well continue. The next thermal may not be far away, and then you are off and running again.

You can learn a lot by analysing your flights in SeeYou, and by comparing your own flight with others done on the same day in the same area. Often you can get flights from the OLC, you don't have to actually ask the pilot concerned. The statistics can be very revealing. The most important ones to look at are the percentage of time thermalling and the average thermal strength.

Typically, if you compare a more experienced pilot with a less experienced one in the same air on the same day, the experienced pilot will have a lower percentage thermalling and their average climb rates will be higher. This indicates not only that they are more efficient at thermalling and centring, though that will have a small effect. More importantly, the better pilot is taking fewer thermals but stronger ones. If you have had what you consider to be a good day, your percentage time thermalling will be below 30% and if it approaches 20% then it was a very good day.

You can also look at the amount of time a pilot spent cruising in rising air, because this indicates the amount of time they possibly could have stopped and circled, but didn't. Again, the better the pilot and the better they are able to feel the air and use the energy, the higher this will be. As always though, it's all relative and so to get meaningful comparisons you must compare flights on the same day in the same area – and of course, we all have a bad day at times, even the best pilots.

You can also compare the height bands different pilots use by looking at the barogram traces. The more experienced or more confident pilot is likely to be willing to go a bit lower in search of a good thermal than a less experienced pilot, but often the bands used are remarkably similar. A pilot who continually goes low into the survival area, may not be the right one to try to emulate!

This is not an easy topic to generalise, but I have tried to present some of the principles of efficient cruising between thermals. Every flight is different, which is one of the sport's fascinations, and the key thing is flexibility. There are no rules, but lots of guidelines.

I will leave you with two quotes. The first comes from G Dale, who often says, "Gliding is a game of skill and chance", meaning that there are really no guarantees but there is a way to bet. The second comes from the golfer Lee Trevino, at his peak 30 years ago, who said, "You know, the more I practice the luckier I get." In gliding, as in many sports, both of these hold true.

If you would like to read more on this topic, there are many useful sources but the following are among the best:

Cross-Country pilot's handbook – Document Sport 0037 on the GFA website

Advanced Soaring Made Easy by Bernard Eckey (Chapter 5 in particular)

Cross-Country Soaring by Helmut Reichmann (A bit dated, but the maths doesn't change.)

GA

SECURING OUR FREEDOM TO FLY

Airfields, Airspace & Avionics are increasingly important elements in Australian gliding's 'Freedom to Fly'. A group of Airfields, Airspace & Avionics (AA&A) officers look after gliding members' interests in respect to these three related issues and comprises a regional AA&A officer from each of the five Australia regions plus the national coordinator.

JOHN A SUMMERS
NATIONAL AIRFIELDS AIRSPACE
& AVIATION OFFICER GFA

The National AA&A Officer is appointed annually by the GFA Board and is a member of the Operations Panel while each regional officer is appointed by their respective state divisions. This arrangement is structured to support and add weight to the technical and administrative arms of GFA without conflicting with the separate roles and activities of the Operational and Airworthiness teams and their Regional Technical Officers.

Since 2000, Australian aviation has been subject to significant regulatory change involving many adjustments scheduled to roll out well into the future. Australian Gliding is an important industry stakeholder and participant in the many conversations surrounding these changes. At times discourse has been robust and our gliding/sports aviation sector has strongly impressed all stakeholders of the need for rational, balanced and justifiable change. An important industry-wide objective is that all professional pilots share Australia's airspace and airfields on the basis of harmonious coexistence and sound operational procedures.

GFA's AA&A officers are important participants and contributors to this conversation.

Each regional officer attends the quarterly Regional Airspace Users Advisory Committee meetings (RAPAC) coordinated by AirServices Australia addressing airspace planning. In this way, the specific needs and interests of all gliding clubs and members around Australia are represented. A schedule of meetings can be found at RAPAC dates with RAPAC meeting minutes available on the main page of the new RAPAC web site listed by region.

The National AA&A Officer coordinates between GFA leadership and the various arms of the Regulator dealing with topical issues. When necessary, GFA calls upon its membership with the Australian Sports Aviation Confederation (ASAC) to reinforce debate on important issues as various models of Australian airspace/ management have been formulated, redesigned or abandoned.

Change is inevitable but never easy. Change for the better is critical however, and GFA's key role is to be proactive, a thought-leader and a strong advocate in the process of change. Then, member's 'Freedom to Fly' can be preserved and better outcomes assured.

Culturally and historically, as Australia's aviation sectors evolved over the last century, Australian Gliding has successfully self-administered its own interests. Its success was mostly due to the wise and sensible pioneering pilots and their technical experts who recognised the importance and primacy of the Pilot-In-Charge (PIC) and all that's involved in developing each pilot's skills and the efficacy of the craft they fly.

Now it is important that ALL pending changes reinforce the continuum of this ethic rather than to detract from it. GFA must also retain the ability to take care of its 'own patch'. Therefore changes to airspace, procedural matters, how airfields are configured and used and how upgraded radio and other avionic aids are recommended/mandated, must reinforce PICs exercising responsibility for safe and effective flight rather than to inadvertently subvert it via untoward rules, devices and detractions.

Operational and aircraft equipage changes for Australian Gliding WILL happen quite soon. The standard of radio communications does need to improve to assist in spatial awareness between ALL aircraft in the airspace. Airspace use and compliance also needs to improve. The sports version of ADSB will be mandated for gliders sometime during the next seven years. Importantly, cultural change, change management, training and club/pilot performance will be very important.

Each AA&A Officer brings individual strengths, knowledge and talent for the benefit of Australian Gliding as well as their eyes-and-ears and capacity to coordinate. Your local AA&A Officer's contact details can be viewed at www.glidingaustralia.org.

Some of the activities the AA&A Officers are also involved with include:

- Radio frequency allocations, congestion, and additional allocations for specific events,
- Airspace, particular needs or problems affecting each Club,
- Club security of tenure on Council and privately owned airfields,
- Airfield operational and safety management sharing issues,
- Avionic technical developments,
- Support for specialised training sessions in avionics, radio usage, airspace and similar.

FLARM HEALTH CHECK

The Australian gliding fleet has FLARM installed in significant proportions now and this is assisting us with see and avoid by alerting us to the ones we don't see. FLARM technology gives us what is called 'air to air alerting' and the benefits of this are now apparent.

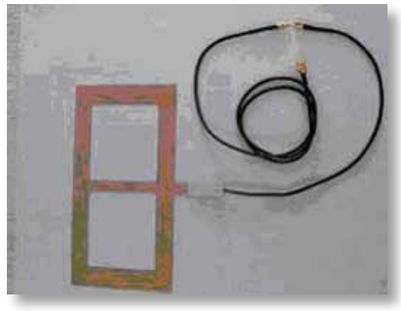
BY GRAHAM BROWN

This of course is only true if the FLARM is working properly and I have noticed at my club the FLARMS are in need of some work. Unfortunately there is no simple test you can do to verify the FLARM is working properly before you take off. The status indicator lights only give some of the status and are not an end to end check. So how do you check your FLARM is OK and what are the common faults?

FLARM has an internal GPS receiver to know where you are where you are going and these signals are picked up from the satellites by the GPS antenna. The GPS antenna is usually a small square block and its top surface must have a clear view of the sky. If the GPS antenna is buried behind the instruments or has fallen down on its side your position and course will not be accurate and may be intermittent.

If you are using the internal GPS antenna in the FLARM then the whole top of the unit must have a clear view of the sky. If you are using the external GPS antenna remember to set the internal DIP switches as described in the manual. The best position for the GPS antenna, or FLARM unit if you are using the internal GPS antenna, is on top on the instrument panel. The FLARM unit also has a GPS status LED that will be green, or off on some old units, when good signals are received from the satellites and the position is calculated. When the unit is first turned on it will be red but after a minute or so, and before you take off, it needs to be green or possibly off, but not red.

FLARM uses a very low powered data link radio to communicate to other FLARMs so the corresponding data antenna is very important to be set up correctly. The data antenna can be either a small pole antenna or a loop antenna, which is now discontinued, stuck on the inside of the canopy. Orientation of this antenna is important as all antennae are directional to some degree. The pole type antenna must be vertical to communicate in the directions of interest. If it has fallen over or bent forward then there will be blind spots in your coverage and reduced range. If you have a loop antenna it should be mounted horizontally but that is hard to do on a curved canopy. On the centre line of the canopy at a convenient spot is fine or you can replace it with a vertical pole antenna. There should also be no metal or carbon obstructions blocking the view of the data antenna to the other gliders. This usually means the best position for the data antenna is again on top of the instrument panel.



The mechanical robustness of the data antennae is not good and I have found many broken antenna. Look closely at the antenna and replace them if they are damaged in any way. Also replace them if you are not receiving anybody or others claim they cannot see you. The half wave antennas are better than the short stubby ones. The stick on loop antennae tend to break the tracks near the connector so watch out for this.

As the data signals are very weak from the FLARM it is easy for interference to affect the performance. Mobile phones will degrade the sensitivity of your FLARM. Turn them off when in the air. It might be a bit of an overkill on airlines to turn off mobiles but not for FLARM, given the close proximity in our cockpits. The frequency of the phones and the FLARMS are close enough to cause some blocking in the FLARM. (850Mhz and 900Mhz compared to the 921Mhz for FLARM) Your VHF radio may also interfere when transmitting but the frequency is further away and you are also aware of each time you make a radio transmission. Mobile phones, conversely, update the network whenever they need to and you don't know when they are transmitting.

The data link frequency for Australia is different to Europe and the US and if set to the wrong frequency you will not receive or transmit anything useful. Visiting pilots with FLARMS that have been used overseas should check the frequency. The FLARM tool software can be used to check and change all the settings including the frequency. This is software that runs on your PC and plugs into the power/data port.

continued over page

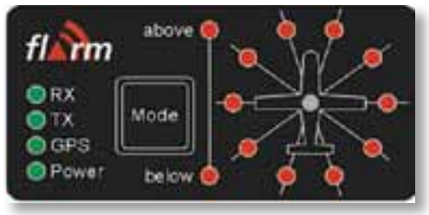
Latest Flarm versions result in automatic channel setting via GPS which is good.

It should also be noted that there is now a hardware difference in powerflarm between US and EU versions. This means that US versions will not work in Europe. However, at this stage EU versions will work in Australia.

It is believed that the older FLARMS had an issue with static electricity destroying the receiver front end. This required the unit to be returned and for a small additional cost, protection could be installed to stop it happening again. This often means replacing the front end RF Transceiver as well.

The receive LED on the FLARM will indicate if it is receiving a signal from another FLARM. Before you take off it's a good idea to get another aircraft to turn on their FLARM and see if your receive light goes green. Our tug has a FLARM so when he or she arrives for the tow I check the receive light.

FLARM requires a software update every few years otherwise they will be incompatible with other FLARMS and will stop working. The last update was Feb 2011 and the next will be Mar 2015. The updates are free and are easy to do if your FLARM has an SD card. If not you have to use the update software on your PC and a connection via the power/data port.



Many of us have FLARM repeaters or small displays in a convenient place in our scan. These devices are not really repeaters so don't expect the lights to indicate exactly the same as the main unit. They are units that separately calculate what to display and timing differences and setup parameters will have them display differently. I have found a lot of these displays not working or not setup correctly. The newer ones are better than the older ones. Unfortunately the reset-to-factory procedure on some of these units, holding down the mode button for 20secs, renders them unable to communicate with the FLARM as the baud rate is wrong if connected to the power/data port. This is the main reason I have found they are not working. Some of them need to be connected to this port for a 3Volt power supply. Later models use a 12volt power supply. To set them up properly, read the instructions for your unit.

There are also traffic displays which show graphically where the traffic is in relation to your glider. These usually show other information such as distance and relative altitude.

Some of us have integrated our FLARM to flight computers and PDAs, however, the serial interfaces on the back of the units have different information on them so again be careful which interface you plug into and make sure the setup for that port is what you want. Also if you connect more than one device to a serial port make sure only the receive wire is connected so your remote devices only listens to the FLARM messages. Your installer or club geek can advise.

When using north facing maps on your PDA be careful with the FLARM indications as the FLARM is designed for indications relative to the direction of the glider.

Nearest mode is the default mode on power up and in flight it will indicate other FLARMS on a collision course up to 3Km. If you can see gliders that you know have FLARMS and there is never an indication of them then you or them probably have an issue. If there are multiple gliders you should get an indication from at least one of them, especially if you are circling.

If your FLARM indicates the distant targets in nearest mode then it will work in collision mode when the targets are a lot closer. I leave my FLARM in nearest mode and try and spot other gliders before the FLARM does. Flashing lights and alarms from the FLARM are automatic in any mode and if expected are no hassle to me. If it goes off unexpectedly and the target is in my view I am disappointed with my lookout.

There is a FLARM web page http://www.flarm.com/support/analyze/index_en.html where you can upload your FLARM IGC data file and get a print out of the received range information for a flight, but it will only be conclusive if there is lots of traffic, such as a competition. It's worth doing this with more that one file over the season to keep an eye on what your receive range is. During a comp I would definitely do it each night to make sure the FLARM is in top condition. (The FLARM shown had a broken data antenna.)

So check out your FLARM before next season or your next comp.

CHECK LIST

1. Check the GPS antenna is facing the sky and clear of everything.
2. Check the data antenna is vertical and clear of everything.
3. Check the data antenna is not damaged in any way.
4. Check the software is up to date.
5. Check the frequency is set up for Australia if the FLARM has come from overseas.
6. Check your repeater is set up correctly. (Sequentially flashing status lights means it is not getting messages from the FLARM, probably due to the baud rate.
7. Check the GPS status light goes green before take off.
8. Check the receive light occasionally goes green when another FLARM is near by.
9. In the air check you are receiving other FLARMS by staying in nearest mode for a while.
10. In the air turn off your mobile phone to avoid interference with the FLARM.
11. Upload the FLARM IGC file to the FLARM web site if you've had lots of FLARM traffic during a recent flight and want see the range you are getting. Do this each night if you are in a comp. **GA**

GFA CLUB LIST

Uplease send any corrections, updates, additions for inclusion in the club list to sean@glidingaustralia.org

716 FLIGHT GLIDING CLUB
JOperations weekends, Public Holidays and school holidays. Club aircraft 1 two seater. Tel# 08 9571 7800

2 WING AAFC
Operations from Warwick airfield shared with Southern Down GC. E, Located 12km NW of Warwick on Warwick-Allora back Rd, L at hall. Other locations as directed by the FLTCDR 229 FLT (AAFC). Operations are aerotow on 1st Sunday and third weekend of every month plus first week of school holidays. Club fleet 2 x two seaters and single seat with Tug. Facilities include own hangar complex. 20 members. Tel# 07 3879 1980. www.2wg.aafc.org.au

ADELAIDE SOARING CLUB
Operations every day except Tuesday and Christmas day Hangars, Bar, Clubrooms, Bunkhouse, Caravan park, Camp sites, Workshop, Club leases airfield Easter Regatta (April), Gawler Week (December), Flinders Ranges camp (May) Gawler (YGAW) -Ward Belt Road Gawler P.O. Box 94, Gawler, SA 5118 Tel (08) 8522 1877, Fax: (08) 8522 3177 Aerotow, Piper Pawnee (BOT PIT) www.adelaidesoaring.on.net

ADELAIDE UNIVERSITY GLIDING CLUB
Operations from Stonefield with Barossa Valley Gliding Club. Winch launching weekends and public Holidays year round. Facilities include, Clubhouse, bunkhouse, toilets, showers, Kitchen, BBQ area and entertainment. The club owns 5 gliders including 2 x two seaters, 4 private gliders. 22 members. Tel 0412 870 963. www.augc.on.net

AIR CADET GLIDING CLUB
Gawler airfield – Two Wells road Gawler. Facilities and operations shared with Adelaide Soaring Club. Located at: -34° 36' S, 138° 43' E. Operations weekend sand school holidays or by arrangement. Aerotow and self launch. 2 private two seater motor gliders. Clubhouse, Bunkhouse and briefing room. 13 members. Tel 08 8522 1877.

ALBURY COROWA GLIDING CLUB
Operations from State Gliding centre Benalla. Tel# 02 6025 4436. Flying by arrangement with aerotow from GCV. 3 club aircraft including 1 x two seater, 2 private aircraft. 4 members. Shared facilities with GCV.

ALICE SPRINGS GLIDING CLUB
Located at Bond Springs 20km's North of Alice Springs.-. Winch launching Saturdays and public Holidays. 4 club aircraft including 2 x two seaters. Facilities include Club house, camp sites, Hangars, Toilet/shower. 20 members. Tel 08 8952 6384.

BALAKLAVA GLIDING CLUB
Weekend operations by winch 10km's NW of Balaklava on the Whitwarta Road. Tel 08 8864 5062. Located at. 4 Club aircraft including 2 x two seaters, 10 private gliders. Facilities include Bar, Canteen, clubhouse, caravan Park, camp sites, workshop, Hangar sites, Club owns Airfield. 49 members. www.bgc.asn.au

BALLARAT GLIDING CLUB
15 members operating from the Ballarat airfield. Airport Road Ballarat. 47.5 E Tel 5339 2444. Aerotow operations most weekends or by arrangement. Single club two seater. Access to hangarage and airport facilities for Bar, showers and rooms.

BAROSSA VALLEY GLIDING CLUB
Stonefield, 16km East of Truro, L 5km, behind Stonefield church, Tel 08 8564 0240, Winch operations weekends and public holidays or by arrangement. 2 club Gliders including 1 x two seater, 5 private gliders. Facilities include canteen, clubhouse, caravan park, camp sites workshops, Hangarage and spare sites. Club owns airfield. 7 members.

BATHURST SOARING CLUB
Pipers Field - (On Fremantle Rd, 1.5km from Eglinton) E. Tel: (02) 6337 1180. Aerotow operations weekends and public Holidays. Club has two tugs and 7 gliders including 4 two seaters. Private fleet is 24 aircraft. Club Facilities include: Clubhouse, ablution block, Caravan park with Power, Hangars, Full Kitchen, Dormitory. www.bathurstsoaring.org.au 91 members.

BEAUFORT GLIDING CLUB
Shared facilities with VMFG and Geelong GC at Bacchus Marsh airfield. 26 members, Aerotow by arrangement with GGC and VMFG, operations on weekends and public Holidays. 4 club aircraft with 2 two seaters, 17 private gliders. www.beaufortgc.org.au Tel 03 9497 2048

BENDIGO GLIDING CLUB
Borough Road Raywood. Operates weekend and public Holidays. Hanger, workshop, kitchen and club room with Showers and ablutions. Winch launching, own airfield. Tel (03)5436 1518. The club fleet comprises a two seat trainer and single seat glider. There are 27 other private aircraft on site. 31 members www.bendigogliding.org.au

BOONAH GLIDING CLUB
is in South-East Queensland about 25 minutes south of Ipswich. Contact the Boonah Gliding Club via Email infomail@boonahgliding.com.au for any queries 7 days a week. If you wish to speak to someone about bookings, call our mobile 0407 770 213. www.boonahgliding.com.au

BORDERTOWN-KEITH GLIDING CLUB
Western Hwy 5kms west of Bordertown, Tel 08 8752 1321. Operations by winch every Saturday or all year by arrangement. 5 club aircraft including 2 x two seaters, 1 private glider. Bar canteen, clubhouse, bunkhouse, Caravan Site, Camp Sites. 23 members.

BOTHWELL GLIDING CLUB
Operates by arrangement from a property 'Thorpe' at Bothwell Tasmania. Tel 03 6223 7615. Aerotow. 1 Club aircraft and two private. 4 members.

BUNDABERG SOARING
Elliott Gliding field, Childers Hwy Bundaberg, Tel 0417 071 157, Winch operations weekends and public Holidays. Club Fleet includes 1 single seat and 1 two seat glider, Private fleet 1 x 2 seat glider. Club Facilities: Clubhouse, Caravan park, camp sites, 2 hangars. Grass and sane runways. www.gliding.inbundy.com.au 27 members.

BYRON GLIDING CLUB INC.
Tyagarah - E side Pacific Hwy, 5km N Byron Bay, entry off Grays Lane, left into Old Brunswick Road and proceed past blue hangars to two white hangars at the end of the track. Tel (02) 6684 7031. Operations are 7 days a week self launch only. The club has 7 motorgliders and 2 private gliders. Facilities include: Clubhouse, kitchen, bathroom, 2 hangars and camping area. www.byronglidng.com 31 members.

CABOOLTURE GLIDING CLUB
45 km's North of Brisbane on Bruce Hwy PO Box 920, Caboolture, Qld 4510 Tel 0418713903 Flying: Fridays, weekends, Public Holidays. Aerotow with Piper Pawnee (SPA) Licensed aerodrome, bar - canteen 85 Flying members www.glidingcaboolture.org.au

CANBERRA GLIDING CLUB
Bunyan Airfield , 1297 Monaro Highway, Bunyan NSW 2630 (13km north of Cooma, Western side of highway), Located at: -36° 08' S, 149° 09' E. Tel# 0429 523 994. Aerotow operations weekends and public Holidays. The club has 4 aircraft including 2 tow seaters. Private fleet is 11 gliders. Facilities include: Clubhouse, bunkhouse, club and private hangars, Club own the airfield. www.canberragliding.org 51 members. Wave flying centre for NSW

CENTRAL COAST SOARING CLUB
Bloodtree Road, Mangrove Mountain NSW 2250, Tel 02 4363 9111. Rope Winch operations Thursday, Saturday and Sundays. 5 club aircraft including 2 two seaters, one private glider. Club facilities, workshop, hangar and clubhouse. 40 members. www.ozstuff.com.au/ccsoaring

CENTRAL QUEENSLAND GLIDING CLUB
Gliding Club Road, Dixalea, 90km's south of Rockhampton, Tel 07 4937 1381. Winch operations weekends and weekdays by arrangement. Club fleet 3 gliders including 2 x two seaters, 10 private gliders. Facilities include: Clubhouse, Bunkhouse, Caravan Park, Hangarage, Club owns the airfield. 26 members.

CORANGAMITE SOARING CLUB
Kurweeton Pastoral Co, Kurweeton Derrinallum - Private strip. Tel 03 5593 9277. Winch and self Launch. Club Fleet 1 x two seater, 2 private aircraft. Flying by arrangement. 5 members

CUDGEGONG SOARING P/L
Gulgong - (199 Stubbo Road, North from Gulgong. Leave on Medley St., road becomes "Barney Reef Road" after level crossing. At 7km, turn right onto Stubbo Rd. Airfield 2km on left). Tel 0418 286 033. Winch operations weekends and by arrangement. All aircraft are privately owned. The club owns the airfield, has a clubhouse, caravan Park, camp sites, workshop and hangars. 10 members.

DARLING DOWNS SOARING CLUB
McCaffrey Field (Warrego Hwy, at 8km W of Jondaryan, turn S down Mason Rd), Tel 0409 807 826. Aerotow operations weekends, public Holidays and by arrangement. The club has 7 gliders including 2 x two seaters. There are 26 private gliders. Facilities include: Bar, Kitchen, Cluhouse, Bunkhouse, caravan park, camp sites, BBQ area, Showers, Wi-Fi, Lounge, Workshop, Hangarage, Club own the airfield. 100 members. www.ddsc.org.au

GEELONG GLIDING CLUB
Shared facilities with VMFG and Beaufort GC at Bacchus Marsh Airfield. Tel 0409 212 527. Operations by aero tow weekends and public Holidays and by arrangement. Monthly winching also available. 3 Tugs, 6 club gliders including 2 x two seaters, 16 private gliders, 61 members.

GLIDING CLUB OF VICTORIA
Samaria Road Benalla, Tel 03 5762 1058, State Gliding Centre of Victoria. Club rooms with Bar and large lounge dinning, Office, Members kitchen and commercial Kitchen Toilets and briefing rooms with storage. Members Caravan Park with Ablution block and dormitory accommodation.. Weekends from April-Sept, 7 day a week operations at other times. GFA approved workshop. 8 club aircraft including 4 two seaters, 41 private aircraft. Hangar space, Large private hangar complex. 115 members. www.glidingclub.org.au

GLIDING CLUB OF WESTERN AUSTRALIA
GCWA is about 1.5 hours, 160 km's east of Perth, towards Kalgoorlie. The club operates weekends and public holidays, with sealed runways, hangar, club rooms and a fleet of 7 aircraft and Pawnee Tow plane. The club operates from the Cunderdin airfield and can be contacted on 0417 992 806 or see us at www.glidingwa.com.au The club currently has 61 members.

GOULBURN VALLEY SOARING
Lot 2, Tidboald Road Wahring, Located at: -36.41S 145.14E. Winch operations Saturdays and Sundays by appointment. 4 club aircraft and 2 private. Clubhouse, Shower and toilets. Caravan Park, Private units, Hangars. 13 members. Private owned strip.

GRAFTON GLIDING CLUB
Waterview Heights (Eatonsville Rd, 8km W of South Grafton). Tel 02 6654 1638. Winch Operations Saturday or by arrangement mid week. The club has two aircraft including 1 two seater, with one single seater. Facilities include a hangar. 8 members.

GYMPIE GLIDING CLUB
Located at Lybong 10 km's sth of Gympie on the bruce Hwy, Tel 07 3285 3508, Winch operations Wednesdays and Saturdays or by arrangement. Facilities include clubhouse and hangarage. The club has 3 gliders including 1 x two seater, 2 private gliders. www.ggc.gympiegliding.org.au . 27 members.

HORSHAM FLYING CLUB
Horsham airport – Geodetic Road Horsham. Tel 03 5382 3491. Weekends and public holidays, aerotow. Clubhouse, Bar, canteen, Bunkhouse, campsites, Caravan Park, Workshop, hangar space. 5 club aircraft including 2 x two seaters. 8 private aircraft.

HUNTER VALLEY GLIDING CLUB
Warkworth - (10km W of Singleton. S along Putty Rd to Mt Thorley intersection, then W towards Denman. 1st turn right after crossing the river at Warkworth), Tel 02 6574 4556. Aerotow operations weekends, Public Holidays and one friday/month. Club owns 2 two seaters and 2 singles and the private fleet includes 16 gliders. Facilities: Clubhouse, bunkhouse, caravan park, camp sites, workshop, club owns airfield. www.hvgc.com.au 54 members.

LAKE KEEPIT SOARING CLUB
The Club lies within Lake Keepit State Park off the Oxley Highway between Gunnedah and Tamworth, Elev 1120ft AMSL. Tel: 02 6769 7514. Operates 365 days a year. Aerotow every day, winch every second Saturday. 9 Club Gliders including 4 two seaters, 40 private gliders. Facilities include Flight Centre; Clubhouse; kitchen/BBQ; double, single, twinshare accommodation; camp sites; workshop; hangarage. 135 members. www.keepitsoaring.com.

LATROBE VALLEY GLIDING CLUB
Latrobe Valley regional Airport – Airfield Road Morwell. Tel# 0407 839 238, Weekends, Public Holidays and mid week by appointment. 3 club gliders, 3 private gliders.

LEETON AVIATORS CLUB
Brobenah - (9km N of Leeton PO, on E of main canal at foot of Brobenah Hills). 26' 07" E. Tel 02 6953 6970. Winch operations Saturday and Sunday by arrangement. Club A/C 1 tow seater and one private motorglider. Facilities include Clubhouse showers toilets, Canteen, hangar with workship, Camping. 7 members.

MELBOURNE MOTORGLIDING CLUB
Moorabbin Airfield, Grange road Mentone. Tel 0418 511 557. Operates Motorglider AEF's around Melbourne anytime by booking. Royal Victorian Aero Bar and restaurant. Controlled airspace operations. 2 members.

MILLICENT GLIDING CLUB
Mt Burr Road Millicent. Tel 0427 977 241. Winch launch operations Sundays or by arrangement. Two club aircraft one two seater, 3 private aircraft. Bar, Clubhouse, Workshop, Hangarage. 9 members.

MORAWA GLIDING CLUB
We are a small country gliding club 410 km's North of Perth We are a winch club with two 2 seaters and one single, operating when we can and usually by prior arrangement. Morawa Contact - 08 9971 1775, Perth Contact - 08 9387 3654 derry@primus.com.au, PO Box 276, Morawa, WA 6623. Current membership is 9.

MOUNT BEAUTY GLIDING CLUB
Mount Beauty Airfield operations weekends and public holidays and by arrangement. Winch launching with a two seater and single seat fleet. 30 members with a range of private gliders and motorgliders. Tel 0417 565 514. www.mtbeauty.com/gliding

MOURA GLIDING CLUB
Location: On Moura-Theodore Rd , 5 mins from Moura, Tel 07 4997 1430. 3 members, operations Sunday by winch. Facilities include Club House, hangar, 1 x two seater.

MURRAY BRIDGE GLIDING CLUB
Pallamana (7km from Murray Bridge on Palmer Rd). Tel 0403 318 277 www.murraybridgegc.com Operations are self launching and by arrangement. 1 club 2 seater motorised and 3 private motorgliders. Club House, Hangarage. www.murraybridgegc.com 15 members.

MURRAY VALLEY SOARING CLUB
Redlands Road Corowa 3km's west of town. Tel 02 6033 5036. Seasonal professional operation, aerotow or self launch. . www.australian-soaring-corowa.com Large hangar, clubhouse with office, internet, bar, Showers, BBQ, Swimming pool, Spa, water ballast, battery recharging services, Paved roads and runways, camping and caravan sites. Two tugs. We own and operate four unique 40ft sea containers to ship 6 gliders per container.

NARROGIN GLIDING CLUB
Located 8 km's west of Narrogin Township WA on Clayton Road This is about 200km's Sth East of Perth. The club features a powered Caravan Park, Ablution Block, kitchen, workshop, Licenced Bar, clean accommodation, Sealed Runways. The club fleet comprises three two seaters and three single seat A/C with Pawnee Tug. The club operates weekends and public Holidays and conducts 5/6 day beginner courses. The club conducts annual wave camps at the Stirlings, Fly-ins to local farms and Cross country courses. Contacts at Tel 08 9881 1795 or 0407088314, www.narrogingliding.club.org.au Members76.

NARROMINE GLIDING CLUB
The club owns and operates Twin Astir, Duo Discus, LS4, Libelle, Discus B. Tugs: club owned Pawnee 260 and private owned C-180.14 private owned gliders.

Facilities include club house with licenced bar and kitchen. Private owned tourist park on site with En-suite rooms,airconditioning, kitchen, recreation room, laundry. Walking distance from town. The club operates full time November to April and Fri, Sat, Sun, Mon for the rest of the year. 46 Members - The club welcomes all visitors. www.narromineglidingclub.com.au

NORTHERN AUSTRALIAN GLIDING CLUB
Batchelow adjacent to the township. Tel 08 8941 2512. Operations Saturdays and public Holidays. Aerotow operations, 1 two seater, 3 private gliders. Club House, Hangarage available. 2 members.

NORTH QUEENSLAND SOARING CENTRE
Corinda Avenue, Columbia, Charters Towers, Tel 0428 797 735, Operations by winch Sundays and public Holidays by arrangement. 5 Private gliders. 13 members. www.nqsoaring.org.au

RAAF WILLIAMTOWN GLIDING CLUB
Williamtown airforce base 25 km's North of Newcastle on Nelsons Bay Road., Tel 02 4982 9334. Club fleet 2 Two seaters and 2 single seat gliders. Facilities include: workshop. 14 members. Operations weekends by appointment.

RENMARK GC - RIVERLAND SPORT AVIATION
Renmark airfield, Turn off 6km on Renmark to Berri Rd, Tel 0417 890 215. Operations weekends, public Holidays and by arrangement. Two club aircraft, 1 private, Bar, canteen, Club house, bunkhouse, workshop, hangar sites. www.sportaviation.riverland.net.au 6 members. Aerotow operations.

SCOUT GLIDING CLUB
Armstrong, (On Morgan Rd, 10km N of Blanchetown, W side of River Murray). Tel 0418 815 618. www.airactivities.sa.scouts.com.au Operations weekends and by arrangement. Self launching 2 x motorfaulks. Club House, Bunk house, Full kitchen and dining facilities, camp sites. 9 members.

SOUTHERN RIVERINA GLIDING CLUB
Gate 3 Tocumwal Aerodrome 2km east of the town. Operations 7 days a week all year round. Launching by aerotow. 3 club operated gliders - 2x2 seaters and one single seater 76 members with a range of private gliders and motor gliders. BBQ and full kitchen facilities. CFI 0358 743 052. Located at -35° 48' 42" S, 145° 36' 30" E www.srgc.com.au.

SOUTHERN CROSS GLIDING CLUB
Located at Sydney Metro Airport Camden, a licensed General Aviation airport, hosting operations in the commercial, private, sports and recreational aviation areas. It has a reputation as Australia's leading sports/recreational aviation airport. Hangar sites available, GFA approved workshop on the aerodrome. Aerotow Piper Pawnee (CPU, FBI, SMS) Flying Friday, Saturday, Sunday, Monday and Wednesday. P.O. Box 132, Camden, NSW 2570
0425 281 450 or airfield on 0402 055 093
www.gliding.com.au

SOUTHERN TABLELANDS GLIDING CLUB
Lockesyleigh" Carrick (11nm NE of Goulburn - N on Hume Hwy 12km, Left onto Carrick Rd, 8km, over railway on right). Tel 0408 647 671. Winch operations Saturdays or by arrangement. Facilities include hangarage. www.stgc.org.au The club has 2 two seaters and a single. 37 members.

SOUTH GIPPSLAND GLIDING CLUB
Leongatha airfield 8km's south of Korumburra. Tel 0437 041 709. Operations weekend and public Holidays and by arrangement, Winch launching with rope. Aerotowing by arrangement. 4 club aircraft including 2 x two seaters. 2 Private gliders. 14 members. Camp sites, workshop, hangar

SOUTHWEST SLOPE SOARING P/L
Operations from Bendick Murrell airfield. E. Tel 0488 531 216. Winch and self launch by arrangement. Club own 1 two seater and has 3 private gliders. Facilities include: Hangar, powered camping area on town water.

SPORTAVIATION – TOCUMWAL
7 day a week all year round operations by Aerotow. Gate 10, Babbingtons Road Tocumwal airport. Tel 0427 534 122. www.sportaviation.com.au 52 members, 5 club aircraft including 2 two seaters, 9 private aircraft. Caravan Park, Kitchen, Bathroom, BBQ area reception/Office, Conference and briefing rooms, Wi/Fi Hangarage water, full time courses. www.sportaviation.com.au

SUNRAYSIA GLIDING CLUB
Winch launching Weekends and public Holidays. 3 km's West of Koorlong, Mildura. Tel 03 5025 7335. 22 members, 2 two seat and 2 single seat aircraft, 5 other private aircraft. Canteen Clubhouse, camp sites. www.sunraysiaglidingclub.org.au

SWAN HILL GLIDING CLUB
Nyah (1km N of Nyah on Murray Valley Hwy).Winch Launching weekends by arrangement. The club has 2 gliders. Bunk house, caravan Park. 5 members

SYDNEY GLIDING INC.
Operations from Camden Airport.. Tel 0412 145 144. Self launch operations weekends and midweek by prior arrangement. Club has 2 self launching 2 seaters. 10 members. www.sydneygliding.com.au

SOAR NARROMINE P/L
Operations from the Narromine airfield west outskirts of town. Tel 0419 992 396. 7 day a week aerotow operation 2 tugs. 10 club aircraft including 3 two seaters. Facilities include: Caravan park with En-suit rooms and showers and air-conditioning. Camp Kitchen self cooking, recreation room with TV and Laundry Facilities. www.soarnarromine.com.au 11 members

SCOUT ASSN OF AUSTRALIA NSW GLIDING WING
Operates from the Camden airfield. See Sydney gliding for location details. Tel 02 9773 5648. Operations with self launch motor glider and 1 two seater glider. Weekends and other sites by arrangement. Membership restricted to youth scout Assn members.

TEMORA GLIDING CLUB
Operations from Temora Airfield 2km's Nth of the township off airport Road.. Tel 02 6977 2733. Operations by aerotow weekends with full time camps in January and others by arrangement. Club owns a two seater, Private fleet, 7 single seaters. Facilities include: Bar, canteen, Clubhouse, camp sites,

VICTORIAN MOTORLESS FLIGHT GROUP
Bacchus Marsh Airfield 8 km's south of Bacchus Marsh on the Geelong Road. Operations weekends, Public Holidays and Fridays. Tel 0402 281928. 115 members, aerotow operations. Two tugs and 7 gliders in the fleet with 4 two seaters and a two seat motorglider. 34 private gliders.

WARWICK GLIDING CLUB
Warwick Gliding Club is a small, friendly gliding club located at the Warwick Airfield on the Darling Downs in South-East Queensland 2 hours drive from Brisbane. Tel: 07 3077 6973 www.warwickgliding.org.au

WAIKERIE GLIDING CLUB
Operations weekends and by arrangement, 7 day operations December and January. Waikerie airfield 3 km's east of town. Tel 08 8541 2644. Aerotow operations. 4 club aircraft including 1 x two seater, 17 private gliders. Trailer park. 29 members. www.waikerieglidingclub.com.au

WHYALLA GLIDING CLUB
Tregalana (25km from Whyalla on the Whyalla to Port Augusta Highway on the Right) Tel 08 8645 0339. Winch launching operations Sundays. Two single seat club aircraft, 1 private. Club House, hangarage available.

CLASSIFIED ADVERTISING
www.glidingaustralia.org

Please send classified advertisements with payment to:
The Gliding Federation of Australia - Classifieds
Level 1, 34 Somerton Road
Somerton VIC 3062.
Tel: 03 9303 7805 Fax: 03 9303 7960
Email: Registration@glidingaustralia.org
Your ad will be placed on the GFA website for a period of 1 month and published in the next edition of Gliding Australia. For the current advertising charges, please go to www.glidingaustralia.org and click Classifieds.

TWO SEAT SAILPLANES

ASH 25 1800 hours Refinished in PU, Cobra metal top trailer, bugwippers, Jaxeda all weather covers, 26m Tips with .5 High Winglets, Mountain High Oxy. Make an offer; Contact **Aaron for more info and pics 0412 867 672**

GLIDERS FOR SALE SINGLE SEAT SAILPLANES

ASH 25 1800 hours Refinished in PU, Cobra metal top trailer, bugwippers, Jaxeda all weather covers, 26m Tips with .5 High Winglets, Mountain High Oxy. Make an offer; Contact **Aaron for more info and pics 0412 867 672**

ASG29E Less then 200 hrs, Engine zero time and still factory inhibited. Cobra trailer always kept in a hangar, comes with all tow out gear. Everything presents like new, would suit the most discerning pilot, available after the Kingaroy Nationals. Asking 175,000 OBO for more details contact **Brad Edwards Mob 0427 202535.**

ASW19b 3500 hrs, winglets, LX160, flarm, Volkslogger, AR3201 radio. Thompson Trailer. Excellent condition.

Current nationals winner. View Kingaroy. $32,000 **jimcrowhurst@hotmail.com 0414 643 900**

ASTIR CS 77 $14,000 ono. Current Form 2, TTH 3795. Borgelt B50, B57, XCOM 760, Flarm, Volkslogger, enclosed trailer. **Ph. 0412 478 644 kahibah@hotmail.com**

Astir CS 77 VH-IKR New canopy, basic instruments, Microair 720. Trailer inclusion to be confirmed. Current Form 2. TTIS 2777 hrs. AUS$14,000 **Astir CS 77 VH-IKQ** New canopy, basic instruments, Microair 720 and open licensed trailer. Current Form 2. TTIS 4187 hrs. AUS$15,000 **Standard Jantar 2 VH- IZY.** Basic instruments, Microair 720 and enclosed rebuilt licensed trailer. Current Form 2. TTIS 3152 hrs. AUS$16,000.Pictures available Contact **Dayle Found 0419808216** or **narrogingc@bigpond.com**

Cirrus b75 nice aircraft. Reg trailer in good cond. Current form 2. $20,000. **katalyst.international@bigpond.com**

Kestrel 19 VH-GSY 3458 hours 1530 launches. Fresh Form 2. Life extension survey completed. Enclosed metal trailer,Parachute etc. Currently based at DDSC Jondaryan $20k or reasonable offer. Contact **John Hook 07 5439 9238** or **johnhook@aapt.net.au**

HPH 304 Shark 18M competition sailplane. 300hrs Altair and Cobra trailer. Ventus2CX 800hrs, LX9000 with stick control, Avionics trailer Partial installation for jet by factory (wiring, Fuel tank and pumps) Reasonable offers considered. **Andrew 0488161844 georgo28@bigpond.com**

HP14V VH-GTZ 40:1 at 52 Knots. Good condition, spare canopy. Licensed trailer. W.A. based. $7, 000 ONO. Contact Roger **mawson.diane@gmail.com**

JS1B VH-GYL SN 27 delivered October 2010. Approx 300 hrs, 90 landings .LX9000 (with voice module), Cambridge 302/303. X-Com radio. Tinted canopy, blue cloth interior.Cockpit vent extractor, brass tailwheel with solid filled tyre. Aluminium Cobra trailer Equipped for jet sustainer retro-fit. $145,000. **Jay Anderson 0418676696**

LAK 12 Open Class for sale. 1996 built; 50:1 (Google Richard Johnston flight test); 20.5m wings; TT 490 hours. Beautiful glider. T/W mod. Excellent trailer. $42,500. Hangared Stonefield. Also gorgeous 1997 Range Rover Autobiography to tow it if wanted; 129,000K; 2nd owner. $18,000**. Chris 0418 234 000. ultrabat@gmail.com**

Mosquito VH-GQD 3000 hrs, winglets, Altair +B50, parachute, MH oxygen, Xcom radio, FLARM, refinished in polyurethane, ballast tanks professionally sealed, fresh form II, clamshell trailer, tow out gear, available Brisbane $36,000.00. **John 0409 679 867 j.ashford@iinet.net.au**

Glasflugel Mosquito - VH-FQC 2200 Hours Total Time, Cambridge Nav/Data Logger, Parachute,Enclosed Trailer, Nil Accidents. Hangered at Warkworth - $26,000 ono Please **Peter: 0427 886 843, pa_brackley@yahoo.com.au**

Nimbus 2 VH-IUS 1800 hrs, 20m with 48:1 glide, excellent condition, recently refinished, competition ready. Mountain High Oxygen, Winpilot, B50, Bohli Mech Vario & compass, Flarm, big cockpit. Full covers, Jaxida canopy cover and Platinum cover. Dual axle trailer with rigging aids for 2 person rig and derig.$40,000 **Peter Robinson 0428 453 794 nimbus2@internode.on.net**

NIMBUS 3T, 25.5m single seat with turbo, approx 3,100 hours. Proven performer, approved mods, refinished, well sealed, Borgelt B100 system, ICOM radio, Mountain High oxy, Komet twin axle trailer, reliable 'Solo' sustainer engine with minimal hours. With Form 2 and usual tow-out gear, covers, etc. $95,000 ono. Pics available on request. **dfourfun@gmail.com** or call **0407 042468.**

Nimbus 3 25.5m, single seat, 4500 hours, finished in PU- exc condition, L Nav, XCOM Radio, Bohli vario, Mtn High Oxy, Oudie, Colibri with FLARM, tail tank, tow out gear, wing covers, Dual Axle German built enclosed trailer with rigging system for 1.5 persons, current Form 2 provided, hangared at Benalla, completed several 1,000 kms flights. Pics available. Price: $65,000. **prhco@bigpond.com 0420 379 068 / 0428 583 746**

Libelle 201B (GLB) for reluctant sale - $17,000. This is the best Libelle in Australia! 1976, about 1100 hrs and 730 landings. Good trailer with all the tow out gear. Great carbon fibre panel (and spare panel) with MIO PDA running xcsoar glide computer, Borgelt B400 vario, digital averager, Flarmnav and logger, parachute. Bracket for oxygen

system, full covers from Kerry covers. Winglets from Streifeneder available as an extra. All well maintained and in top condition. Based in Kingaroy and available now. For photos, goto:**www.dropbox.com/sh/6e4qwivdlvw96ra/R_y_RgjrQQ** Contact: Mark Dalton at **daltonmark@yahoo.com** or **0408 419508**

Ventus2cx VH-ULZ 800hr, Comes with everything Metal top cobra trailer, Altir & Vega computer , Cambridge 302 & 303, Becker radio, winter vario and basic inst, factory U/C warning alarm, LED Flap position indicator , All tow out gear etc. New Glider Coming, $109,000 ONO. **Lars 0428 492 783 lars@activecampers.com.au**

Ventus b Turbo ZK GSP NZ$70,000 15 and or 16.4 metre. Includes trailer (steel frame plywood body) oxygen, parachute, Cambridge GPS, competition instruments, transponder Mode S. Happily owned 12 yrs - built December 1985 - glider hrs 2,960 - engine hrs 37.32 - repainted gelcoat 1996 - new propellor 2012. Ph Tony Timmermans **Auckland 09 478-8858 tony.timmermans@paradise.net.nz**

POWERED AIRCRAFT/TUGS

DG 400. Hangared at Gawler GYO currently has 1,289 hrs airframe and 103 engine (25 hourly recently completed). Chute, Trailer, MH Oxy, covers and spares included. All maintenance and annuals by Morgy. Brilliant climb rate and 15 or 17 meter span gives convenience plus performance plus fun. A steal at $89,000. Contact Richard Skinner on 0419 818 024 or skinnerr@iprimus.com.au

DG400 XJZ, 1990. Self-launcher with auto prop retraction. Refinished 2009, 15/17m span, chute, tow gear, Cobra trailer. Nil accidents. $90K. **John 02 9771 3017 johnormarilyn@yahoo.com.au** or **Michael 02 9546 5785** mkaras003@gmail.com

GENERAL

1. A set of electrically operated bug wipers. Will suit most 15M gliders (SZD55, Discus etc) Offers Invited

2. Dittel FSG 40 S glider radio. A bit old fashioned but still in good working order. $250.00

3. Garmin GPS Map 196 +++ Accessories This unit without accessories retails at $650. Yours for only $375

4. LX 5000 GPS, Nav computer, vario system and data logger. Better features than the L Nav.

Also has a HP PDA (not sure if it works) and all cabling looms. A sought after instrument system a snip at $500

Call Mick on **0418 269 145 mickwebster1@bigpond.com** for photo's and further information.

INSTRUMENTS & EQUIPMENT

Borgelt B40 vario/audio/averager. 80mm. VGC. Popular, easy-to-use instrument. $180 + postage. (03) 9489 4298, robert@softdawn.net

Colibri2 data logger plus accessories purchased Feb 2013 only used twice, latest model..replacement cost 821 AUD sell $700 **0401 249 101 derry@primus.com.au**

Brand New Cobra trailer direct from Australian Agent. In stock here in Australia now! Single axle, fibreglass top. Suit 15 m glider eg Discus B. Save thousands on freight and currency costs! Spare parts also available in stock.

Mike@mike@maddogcomposites.com.au 0408 195 337

GFA CALENDAR

Use the Contact GFA menu at www.glidingaustralia.org to send events the GFA Secretariat for publishing online and in GA

Qld State Championships
Warwick Gliding Club
28 September – 5 October 2013
Warwick Gliding Club will host this year's Qld State comp at Warwick (Massie) Aerodrome and the dates will be:

- Practice day, Saturday 28th Sep 2013
- 1st Comp day Sunday 29th Sep 2013
- Final comp day Saturday 5th Oct 2013

Note this is the second week of the Qld School holidays and Monday the 7th October is a public holiday in Qld.
www.warwickgliding.org.au

Multiclass Naqtionals
Kingaroy Soaring Club
14– 25 October 2013
www.kingaroynationals.com/

Bathurst Soaring Club Cross Course
West Wyalong Airfield
27 October – 2 November 2013
This course is suitable for early cross country pilots and those wanting to do badge flights. But the course and your coach will adapt to your level of experience. The daily format will be:
Graham Brown
gsambrown@westnet.com.au

Speed Week 13
West Wyalong Airfield
3 -8 November 2013
Please register your interest by contacting: Paul Mander **0417 447 974**
paul@mander.net.au

Keepit Fast
Lake Keepit
11 - 15 November 2013
Coaching with Gee Dale
Website: **www.keepitsoaring.com**
Contact: **chris.bowman@pcce.net**

NSW State Championships
Lake Keepit
16 – 23 November 2013
Entries are now open for NSW Championships to be held at Lake Keepit Soaring Club between Saturday 16th and Saturday 23rd November.

See the Club website for further information - **www.keepitsoaring.com** Click on the competition banner and it will lead you to the entry form which you can complete online, including paying the entry fee. There is an early bird discount for entries with full payment before 1st October. **President@keepitsoaring.com**

Narromine Cup
24 - 30 November 2013
www.narromineglidingclub.com.au

Junior Nationals
Narromine
7-14 December 2013
Contest Director, Liam Donald:
ldonald87@hotmail.com
Saturday 7 December is the official practice day. Final Night Dinner: 14 December 2013, Entry Fees: $150 competition entry, $100 coachee entry (please note that the entry fee's will increase to $250 and $150 respectively after 1 November 2013). **www.joeyglide.com.au** and The Aus Junior Gliding Facebook Groupenter.

SA State Championships
Gawler
26 - 31 December 2013
Prcactice on 26th Dec.
1st contest day on 31st Dec
thetemples@internode.on.net

Club and Sports Class Nationals
Waikerie
1 - 11 January 2014
contact Grant Hudson
granthudson4@gmail.com

VSA State Championships
Bacchus Marsh
12- 18 January 2014
Practice day Sunday12 Jan, Comp commences Monday 13 Jan to Saturday 18 Jan. Wind up & Awards Dinner Sat 18 Jan. Contest Director - Ian Patching
patching@westnet.com.au

JS1-C REVELATION

www.JonkerSailplanes.com

Now leading the way in both18 mtr and Open Class

Delivery available in September 2014. Don't miss this opportunity to secure your slot and lock in a fixed price and payment schedule.

Consider these options:

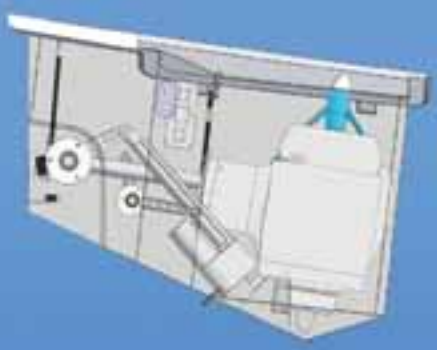
Open Class 21m Wingtips

* 21m wingtips interchangeable with 18m wingtips
* Full CS-22 type certification of 21m tips received in May 2013.
* Integral winglets and fixed wingtip wheels
* Integral wingtip tanks with capacity of approximately 18 litres per tip
* Sprung dump valves for independent jettison of main wing tank water ballast
* Wingtip tank filling equipment
* 720kg Maximum All up Weight, with a maximum wing loading of 58.7 kg/m2
* Fits in standard 15m length Cobra trailer for manageable road transport

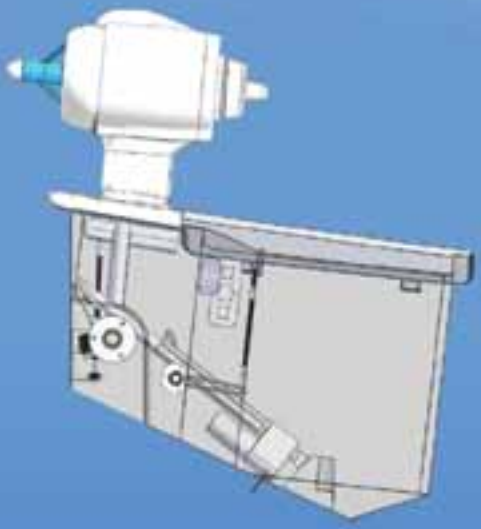
Jet Turbine Sustainer System

* M&D TJ42 jet turbine generating 40 daN at maximum speed of 98,000 rpm
* Jet A1 or diesel fuel with added lubrication oil
* Fully automated computer controlled system operated by a single switch and digital RPM throttle control
* Single 57mm colour Jet Display and control Unit (JDU) for system and throttle control, displaying RPM, EGT, fuel level, fuel flow, battery voltage and battery capacity.
* Engine and mechanical systems mounted in monocoque carbon-fibre box, easily removable for maintainability
* Three fuselage mounted fuel tanks with integral fuel quantity sensors and filters, useable capacity of 42 litres, with fuel filler in engine box for external refuelling
* Engine extension and retraction using an electrical linear actuator with mechanical sequencing to close engine bay doors in extended and retracted positions
* 12V LiFePo 10Ah main battery with circuit breaker box and dual supply connectors
* Nose ballast system with lead plates
* Lightweight earphones with small jack on instrument panel
* Staged pricing of the jet sustainer is available to allow the complete electromechanical and fuel system to be installed during aircraft manufacture and later installation of the jet engine

Jet Engine Display



Engine Retracted



Engine Fully Deployed

CONTACT: Todd Clark - **mobile** +61 409 386 667 **email** toddclark@ hotmail.com
Brett Hunter - **mobile** +64 219 276 26 **email** hunter.b@ihug.co.nz