

Soaring **AUSTRALIA**



December 2002



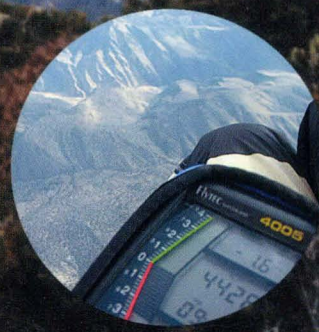
Flying Time!



**Nanolight
Trike Update**



Girls, Girls, Girls



**Paragliding
in the Owens**



Seasons Greetings from the Team at



December 2002

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Take-off at dawn to catch the Morning Glory
Photo: Richard Macfarlane



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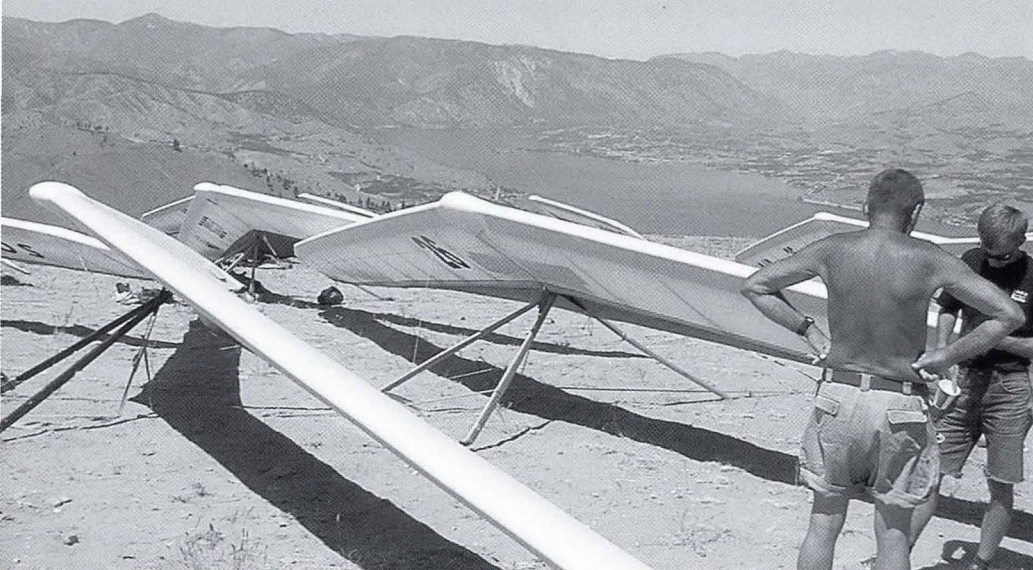
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Competition News	compnews@hgfa.asn.au	Information is forwarded to Soaring Australia and the maintainers of the HGFA website.
Articles, advertisements	skysail@ozemail.com.au	Soaring Australia only content and other content

CHELAN WORLDS 2002



Gliders set up on Chelan Butte

THE FOLLOWING ACCOUNT OF THE WORLDS THIS YEAR, HELD IN CHELAN, USA, COMES FROM THREE VERY DIFFERENT VIEWPOINTS. FIRST WE HEAR FROM MICHAEL ZUPANC (AFFECTIONATELY KNOWN AS 'ZUPY' TO ALL AND SUNDRY), WHO WAS THERE ON BEHALF OF AUSTRALIA IN AN OFFICIAL CAPACITY. NEXT, TONI McERLANE, ONE OF AUSTRALIA'S MOST TALENTED FEMALE

PILOTS, GIVES HER IMPRESSION OF THE HOT AND DUSTY DOGFIGHT. AND FINALLY, KARI CASTLE, AWESOME AND UNSTOPPABLE, TELLS US WHAT IT TOOK TO GET TO THE TOP, AND, DESPITE CARRYING AN INJURY, TAKE OUT TOP HONOURS FOR THE WOMEN'S TITLE.

FROM ZUPY:

The Butte at Chelan is a somewhat curious place.

A sharp pinnacle rising in between Lake Chelan and the Columbia River. Lake Chelan is very deep, like 1,500ft deep. It stretches for about 80km, from the town of Chelan back into the Cascade Mountains, with most of its length being in inaccessible mountainous terrain. The Columbia River, which, curiously, is some 400ft below the lake, is one of the great river systems of North America (well, it used to be a great river, before a squillion dams were built along its course) draining a fairly large area of the west side of the Rocky Mountains. There used to be a waterfall at (of course) Chelan Falls, but this has long since been replaced by the much more utilitarian concept of a hydro-electric station.

As for the flying, well your only option is the flat land which stretches to the west and south (mostly west). North and east is all mountain country with very few roads. The flat plains are only a few hundred feet below the top of the Butte, and they are about eight kilometres or so from launch.

The trick is to get up above the Butte, then get across the river onto the flat agricultural country that is the alluvial plain stretching away into the distance.

The plains themselves have something of an interesting history, as their formation was one of the great natural disasters of all time. Toward the end of the last ice age, glaciers, which blocked entire valleys in Idaho and Montana, were melting. Their bases were still solid ice, but the shallower snow and ice had warmed and melted. As this comparatively warm water started flowing over the ice plugs that formed the dams, they quickly eroded (melted) into the ice, which made the water flow greater, which in turn sped up the erosion and subsequent weakening of the ice plug until it finally broke, sending gigantic torrents of water down the valley. These torrents literally wiped out a few mountains and filled a few valleys with alluvial sediment, which consisted of the usual dirt and rubble, but also "river gravel" stoned the size of houses. It seems this happened a couple of times as the ice sheets retreated, and the result are the plains stretching from the Columbia River (which quickly cut down into the sediment to form

the river gorge) out to Grand Coulee (which I am sure I have heard of in many old western movies, spoken with the appropriate drawl accent, of course). The land was split up into a one mile square grid and settlers moved in, with each getting one square mile of country to farm. The result is a very convenient road network across a large area of grain and grazing country.

Getting on to these flat lands can be a bit tricky at times because you need to get thermals that are generated by the Butte itself. There is no flat land of any significance below the mountain to generate thermals and the water in the lake and river is fairly cool, so this tends to stabilise things somewhat.

The launch is just the end of a spine which runs off the peak of the Butte. It is rounded and fairly open, so you can launch from just about anywhere, although there are the main launches, called "ants in the pants" (there used to be an ants' nest there) "between the rocks", as this launch sends you over a gap in between two rocky outcrops.

Setting up your glider is easy enough, with plenty of open, reasonably flattish space. They also have secured cables running across the setup areas so that gliders can be

Photos: Courtesy Michael Zupanc

tied down against the many dust devils that come through the area. The dry, fine dust is very easily picked up by even small dusties, so while there were plenty of them, they didn't cause much bother. Out on the flats, the fine dust made for quite a spectacle as there were always numerous dusties swirling away.

The fact that the flying area is in a significant rain shadow, being in between the Cascade Mountains to the east and the Rocky Mountains to the west, gives excellent flying conditions. Very reliable and consistent, with the competition period being no exception. However, to add a bit of spice to the equation, the competition was actually three competitions; the Women's World Championships, The Class 2 World Championships (Swifts and the like) and the Class 5 World Championships (Atos' and the like). They were supposed to be separate competitions with little interference between the different groups. A few hassles on launch became evident as the women were often quite conservative on launch, while the men just wanted to get off the hill, but they couldn't 'push' as they were a separate competition!

The Women's Championship soon became a bit of a lopsided event, with Kari Castle winning by a very large margin, some 132% of second placed Claire Vassort. The Russian pilot, Natalia Khamlova, gave them a bit of a push along, finishing third.

Class 5 was a hotly contested and competitive event, with Christian Ciech winning ahead of Alessandro Ploner and David Chaumet.

Class 2 became the Manfred and Robin show, with Manfred Ruhmer winning against Robin Hamilton and Brian Porter.

The weather and task setting throughout the event was excellent. The only hassle was fires. About midway through the comp,

a fire, apparently started by a campfire during a total fire ban, got steadily bigger despite aerial water bombing. As the fire got bigger and more aircraft were being used to fight the fire, we lost the ability to have goal at Chelan Airport because of the fire traffic. General flying was not affected though, as the fire was on the opposite shore of the lake north-east of launch, and all the flying was to the south and west.

One day though, a new fire started beside the main road, out in front of and upwind of launch. This became a drama as it quickly grew, and while the fire crews raced to contain the fire (which was on very hilly terrain) a command to evacuate the Butte was issued. All spectators and essential people were ordered off the mountain, and as the task was already set, the competitors simply launched. Getting them off the hill this way was certainly much quicker than packing up. The mountain was soon empty.

On the last day, smoke from the main fire, which had now grown to a major event which was easily visible in the satellite weather photos, was blown across the lake and over launch by a change in the wind patterns. This caused much head scratching as to what would be possible on the day, and some thought was put into cancelling the last day. However, the task was set, pilots launched, and it turned out to be another good day's flying.

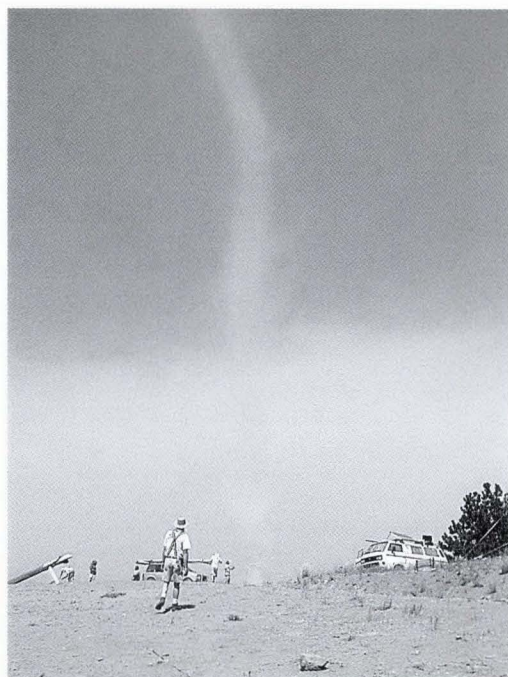
There were the usual glitches throughout the competition, but overall it was an excellent meet, with the notable exception of there being no beer in the goal paddocks – My God! Despite my continual protests it did not eventuate until the last day. Better late than never.

FROM TONI:

So there we were, 20 women in flex wings and fifty men in rigids above Chelan Butte, flying around at 6,500ft waiting for the start time.

Eat your heart out Luke Skywalker. This is real. The Game went like this:

1. *Ensure your peripheral vision is switched on and your telepathic communications are on high (some pilots seemed to have turned theirs off).*
2. *Take time to enjoy the spontaneous releasing of tension and frustration of the male competitors trying to get to launch.*
3. *Launch wherever you can.*
4. *Scratch like hell and climb above the hill.*
5. *Engage in intergalactic combat.*
6. *Cross the Columbia River.*
7. *Grovel on the "rim" of the Columbia River and get up (?). More combat.*
8. *Start the task (approximately one hour later).*



One of many dust devils on launch (they never did any damage)



A Swift launches from Chelan Butte



Toni McErlane, the Kiwi turned Aussie, our only representative

9. *Spot the dust devils and fly right into them regardless of altitude.*
10. *Ensure a firm grip and prepare to climb.*
11. *Complete the course by connecting the dust devils.*

So all in all it was very challenging flying (for me at least). Meeting and hanging out with 20 other female pilots was one of the



Manfred, Winner of Class 2
December 2002



Gaspo was resident of the Canungra area (toured the Oz comp scene) for some time. He was the "weather man" at Chelan. (Sub-ed note: Not sure about the bug – looks like an extra from Men In Black 2.)

coolest things I've ever done and I wouldn't have missed it for the world. Lots of fun, cool girls from all over the world, and some awesome pilots. I made some good friends and learnt a lot.

The weather was pretty good; we flew every day for eight days with some pretty hot temperatures on launch. I had great support from (Judge) Zupy, who clearly stated every morning at team leader meetings to everyone that I was a Kiwi until I made goal, at which time I could then say I was flying for Australia. I finally became worthy on the last day. Better late than never. He also performed his honourary duty by overseeing the "Spit the Dummy" contest at the party on the last night.

Thanks to the AHGPA for partial funding of the entry fee. It would have been fun to have more girls from Oz on the team. Hopefully next time.

FROM KARI:

The 2002 Women's World Championships had a mixture of feelings for me going into it. Early on I was feeling like I didn't want to deal with competing in yet another Women's World Championships, but this competition had a challenge in there for me. For one it was on home turf and I felt like I should be there for the US Team. Secondly, I had to make amends for the fact that the last time I competed in Chelan at the Women's Worlds in 1994 I came in second place. I wanted to win this time on my home turf.

Once I decided to compete I started psyching myself up for the event. I figured if I'm going to enter, I better go to win and give it my best. At the Florida meets I started flying for Icaro and AV8; I took custody of my new Icaro MR 700 and after my first test

flight I knew this was the best move I could have made. I absolutely loved the way this glider handled and performed. This was a key element in my success.

And then I hurt myself. I was flying at home in the Owen's Valley on a typical spring day. The sky was full of clouds, some of them overdeveloping and I decided to put it down before things got ugly. I happened to land while the air was switching around in the LZ and as I whacked in I threw my arm up over my head to protect myself, so ripping some ligaments in my shoulder on impact. I couldn't raise my arm for weeks after that. It was then that I doubted if I could fly in the Worlds... I had five weeks to figure it out.

I completely took care of it and did not fly. I worked on every other part of my body to stay strong and focused. It gave me the time to look inside and work on more of the mental aspects of competing. So that I did, and it was fun!

I remember driving to Chelan still in pain, I couldn't even hang on to the steering



Kari Castle, winner of the Women's title. She didn't have to fly the last day as she was so far ahead!

wheel with that arm, but for some reason I had a feeling that everything was falling into place. I got to Chelan and the weather was cold and windy. I thought, how perfect... more time to heal! So I used the



Smoke from one of the many fires



Corinna Schwiegershausen, another "former" Aussie (German actually)

time to go up to launch and watch other people fly and get excited about it.

The day came when conditions finally looked perfect for my first test flight. Would I be able to do it? I really didn't know, but I launched anyway. I felt a bit of pang on take off, but once in the air it felt great. This was a huge relief, but I still needed to land. My plan was to just go land right away and get it over with. But I was a bit nervous, so I decided to keep putting it off while setting little goals like, "I'll just go fly over to the rim and then go land" and "I'll just go out to the power lines and then back." To cut a long story short, I ended up flying a small triangle because the air was so nice and I was loving flying my glider again. I flew back to Chelan airport and came in for a nice landing. It hurt just a little while flaring, but I knew everything was going to be all right.

From that flight on my concentration was on flying only in good conditions, getting over my fear of landings again and concentrating on a positive mental attitude.

The rest of our team showed up in time for some great practice days. After a memorable flight with my team mate Claire Vassort, we made a secret pact to finish first and second. We didn't care in which order either. Our support crew was invaluable as a constant stream of positive energy. We had the most awesome team accommodations right on the lake with a view of Chelan Butte. I'd say everything was absolutely perfect going into the competition. I felt like... let's get it on and over with!

I've never gone into a competition with such positive energy and such a strong desire to win. I couldn't wait to see if what I was feeling was going to pay off.

It did, and in a way that I've never experienced before. The competition for me was one of the easiest things I've done. I felt no stress, I was having a blast flying with my team and the rest of the pilots in the air, and I couldn't wait for another day with its

challenges. We flew seven out of seven days, with 20 of the best women pilots in the world. The camaraderie of the pilots was unforgettable, which made the Women's Worlds a unique event in itself. I guess you could say I was in the Zone! I was completely happy being right there, which I believe was another key element in my success.

The results of this hard work earned me a third Women's World Hang Gliding Championship Title! It also brought the US Women's Hang Gliding Team the Silver

Medal. Something equally important to me was that my pact with Claire came true – we finished first and second! This was a dream come true!



LEARN TO FLY THE FLATLANDS

- Finding and using thermals
- How to prepare yourself properly
- Maximising the conditions of the day
- How other pilots can help you
- Decision making processes
- The long haul; flying the whole day
- Under 200ft; the art of scratching

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Corryong Cup 2003

20TH ANNIVERSARY CELEBRATIONS

12 – 18 January 2003

Come and celebrate 20 years of the best FUN and social comp in the country!

Last year Mt Elliot, Corryong lived up to its reputation as one of the most reliable and spectacular flying sites in the eastern highlands.

Six days out of the seven were valid days with most of them rewarding pilots with 10,000ft flying.

Scoring is again on a handicap basis according to your glider type and flying experience, so everyone who enters has a chance of taking out the top prizes. Prizes are awarded for the first three positions as well as a prize for the best placed veteran and most improved newcomer to competitions. Day prizes are also given out each day.

You **must** have an Intermediate rating, preferably with inland experience.

This is still the cheapest comp in the HG calendar at only \$100 if you register before 30 November 2002 (\$120 thereafter). Included in this fee is comp entry, 20th anniversary T-shirt, film for turnpoints, (GPS scoring will also be available) colour topo map of the area and the presentation dinner and show.

Places are limited so don't miss out.

Register now with: The Blue Mountains Hang Gliding Club

c/o Steve Bell, PO Box 110 Woonona NSW 2517

Mobile Phone: 0412 686 812 Email: spbell@1earth.net

FLYING TIME!

Jim Kelly

EXACTLY A YEAR HAS PASSED SINCE I JOINED THE
VICTORIAN MOTORLESS FLIGHT GROUP (VMFG)

IN PURSUIT OF NEW ADVENTURES – A YEAR OF EVOLVING PERSPECTIVES. “WHERE WILL I EVER FIND THE TIME?” BECAME “COME ON SATURDAY!” “A WHOLE DAY AT A GLIDING CLUB?” CONTRASTED WITH “IS IT REALLY TIME TO PUT THE GLIDERS AWAY?” “IT IS SO PEACEFUL AND RELAXING” TO BEING TEAMED WITH JOHN FAWCETT AS PART OF A GAGGLE OF SEVEN GLIDERS FIGHTING PRECISELY BUT HAPHAZARDLY TO CLIMB VICTORIA’S HIGHEST MOUNTAIN IN WEAK LIFT ABOVE FEROCIOUS ROCKS AND TALL GUMS REACHING UP TO MEET US. WOW! AND ON OTHER DAYS, AMAZING FLIGHTS OVER MT FEATHERTOP, MT BUFFALO AND MT HOTHAM. EVENTUALLY GEORGE SKARBEEK COACHED ME TO FLY OVER FALLS CREEK! AGAIN, “ESCAPE ROUTES” REPLACED THOUGHTS OF LANDING.

During the year some have started at Bacchus Marsh and not returned. It could easily be the pressures of family, work, etc but perhaps some elements of the journey, when seen without the beauty of the end results, are foreboding. For me, I enjoyed the learning, and the rest has been a bonus. For months I had expressed that I was enjoying the company of the instructors so much that I need not ever go solo! Then

one pleasant Sunday morning we had practiced stalls, spins and thermalling. Whilst strolling back to the launch point after a second simulated emergency landing, Ian Salter quietly reminded me of all the aspects I needed to practice. I became aware of a difference in tense. And then it came. “*Off you go then.*” and “*Are you comfortable with that?*”

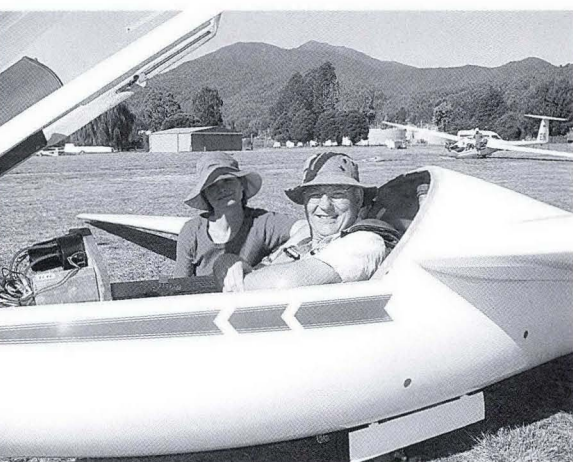
I drew strength from an eagle circling elegantly in the paddock next to us. Ian expertly managed to get me launched without any stress to haunt me and then ‘ping’. the tug vanished underneath and I was alone amongst the splendid clouds with involuntary shouts of joy. What an amazing feeling, yes, the best ever feeling! Thermals found me and I had no trouble keeping aloft – advice from a dozen instructors flooded into my head as each opportunity presented itself. I had time to try many of their techniques. The clouds were beautiful, but hid me from those folk nervously gathered on the ground. Fortunately I failed to hear their worried radio calls and set about thinking of carefully ending this glorious flight. Thankful that my first flight had not been a hurried affair, I brought the Puchacz down to a gentle rest in front of a pie cart bursting with people running towards me. not one of them now able to suggest that 74 minutes was far too long for a first solo!

My maths teacher was responsible. Whizzing out to a country gliding club in his bright red MG, he arranged my first flight. “*Where do I sign!*” After many long hot dry dusty days of driving the winch in curious isolation at the ‘other’ end of the strip and getting the last feeble flights of the day I gave it away. Thirty years later, amongst the screaming Avalon Air Show jets came an eerie silence, then beautiful classical music,

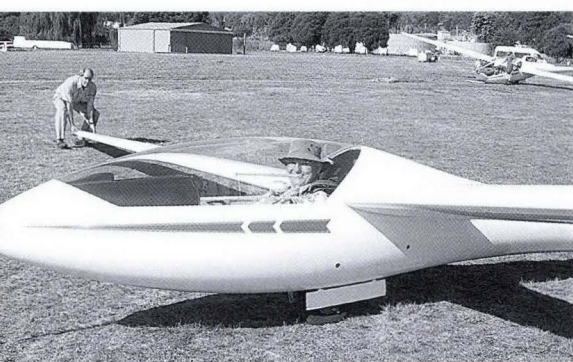
and a polished German accent narrating his silent flight. Eyes skyward revealed Manfred Radius fluttering downward, in elegant swoops and arcs of immense beauty and extraordinary feats of energy release and subsequent retrieval. Many saw it as a daredevil exhibit. For me it awoke the feelings so long ago buried... the chance to fly like a bird... in motorless flight!

The internet helped me to learn a good deal about the gliding scene. Visiting six clubs showed the vast differences between them. VMFG has been fantastic. Almost straight away, Roger Druce kindly arranged a week’s training for just a few of us during the school holidays. Five or six longish flights each per day! Concentrated efforts like this provided the progress we all yearned for. Others were coming one day a month and not progressing. Clearly, I had to be regular to achieve. And that was the easy part. Work had to be better organised to provide the time. Others noted my rejuvenated spirit that seemed to make everything easier. I needed to loose 10kg to fit into the smaller gliders. That happened! Curiously the diet included fresh ginger which I later learnt probably helped to quell some problems with motion sickness. Then the camps! WOW! VMFG members have been travelling to the alpine country for 10, 20, 30 years... hunting the best scenery in the country... in the most exciting, adventurous way imaginable. Lines of bushwalkers streamed like ants as we swoosh past at 150km/h for hours on end. Perfect. To think that I had pondered buying a motorbike for thrills! Even golf!

Casually strolling amongst the gliders at the tiny New Zealand town of Omarama began my next bizarre experience. A 25m



Trudy with Jim Kelly ready for Hornet conversion, Mt Beauty, Easter 2001



Jim Kelly ready for first Hornet flight at Mt Beauty, Easter 2001 – Bruce Abbot on the wing



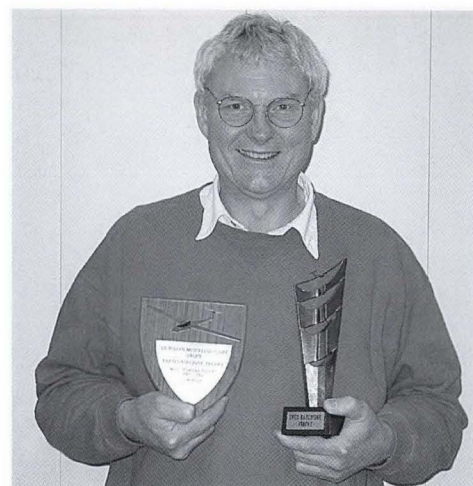
Feathertops

Top: Take-off

wingspan ASH-25 lay strapped to the ground in the gloomy weather. No one was flying. This was a Mecca attracting people from all over the world, but I met them despondent because they couldn't expect to reach 20,000ft today! "Let's unleash that beauty and release it to the skies", I suggested to George Taylor brashly, who asked in amazement, "Are you serious?" During our wonderful four hour 20 minutes, 330km flight we soared around the many glaciers of Mt Cook, over countless gorgeous lakes, steep ravines and exciting bold ridges. Later I learnt that George broke the world long distance record

of 1,101km in 1988, that's almost from Bacchus Marsh to Broken Hill and back, non-stop, in a Twin Astir.


During the VMFG Easter camp at Mt Beauty, Alan Payne and Bruce Abbott manage to convert me to the club's single seat Hornet "SA". Yet another incredible thrill! How can this continue? "SA" is as nimble as Brian Lee's MG, and seems as fast and as fun to fly as Manfred's Salto. She feels like a friend in the sky. On one memorable winter's flight I flew suspended over the airstrip for over an hour in high upper winds, looking down through gaps



Jim Kelly 'Most Promising Student' 2001-2002, with the Fred Gacoigne trophy

between huge clouds. Judy Laker, knowing of my interest in the weather, surprises me with a phone call midweek to share the beauty of the clouds as they briefly revealed the power in the air.

Well, I thought the Hornet was fast! Last week I moved to the next club ship, an LS3a equipped with flaps to adjust the wings to suit each speed – a glider with five gears! Now I begin to see how those big distances get covered! Those Saturday morning winter 'cross-country' lectures are becoming very significant.

At the end of my first year, it seems a good time to offer a big thank you to everyone at VMFG for making my flying dreams come true, especially the voluntary teams of superb instructors and untiring workshop crews who keep the craft safe. Also to Trudy who has not quite understood why I now fall asleep at the theatre on Saturday nights! And to those of you who have been tempted to soar but have not yet caught the bug, let it happen! We enjoy a truly wonderful sport. 



VMFG instructor John Fawcett

How to Score in Italy

Tim Shirley

SORRY TO DISAPPOINT – THIS IS NOT THE LONELY PLANET GUIDE TO PICK-UP SPOTS IN ROME! INSTEAD, IT IS THE STORY OF HOW I ENDED UP WITH AN ALL-EXPENSES-PAID TWO MONTHS AT RIETI IN ITALY, VERIFYING AND SCORING GLIDING COMPETITIONS.

When the Italians lost the right to host the Multi Class World Gliding Championships in 2003, it is fair to say that the Italian gliding community was devastated. The problems lay not with the gliding movement, but rather at a higher level, with the major problem being the publicly funded Aero Club d'Italia – which controls all sport aviation in the country.

As a result of that situation it seemed likely that all the traditional gliding competitions that are held in Rieti each summer would be cancelled, but a rescue mission was mounted by three organisations – the Italian Air Force Gliding Centre, the fledgling Italian Gliding Federation, and the Aero Club d'Rieti (which previously had little involvement in gliding).

The Air Force had already planned to hold the first European Military Gliding Championship in Rieti this summer, and so agreed to assist the other two organisations to prepare and run the events. The Aero Club provided the Contest Director (President Tonino D'Angeli), club facilities, and a couple of the tugs. The Gliding Federation made sure that there was wide support for the competitions from glider pilots and expertise as well in various ways.

The invitation to me came about because they had a copy of my scoring and verifying software which had been used at the World Club Class championships in Gawler last year. The existing software in use in Italy was getting old, and they needed to upgrade, but because of the changed circumstances they had no way to quickly get up to speed with something new – so the three organisations got together and asked me to come to Rieti (at their expense) to help in the scoring and verifying and to train people in the use of my software so that they would be able to use it in the future.

Early in July I arrived in Rieti, which is in a beautiful valley in the mountains about 80km east of Rome. I was quickly made

welcome, by both the gliding people and the local townspeople. The major difficulty was that I spoke no Italian and very few of the local people spoke much English at all. On the airfield this was less of a problem, since nearly all glider pilots speak some English. As time went on I found it became easier – I learned the most essential words, and found that sign language was quite effective as well.

The gliding looked good, but as I discovered on a cross-country flight in a DG500 the landing possibilities next to impossible! Where there are no mountains, the fields are tiny and the valleys are covered in wires. Outlandings are possible, of course, and there were many examples of that – but it requires a lot more care and thought than is typically needed in Australia. These mountains are not as high as the European Alps or New Zealand, but they can be just as unforgiving. The peaks rise to 6-7,000ft regularly with some over 10,000ft.

Their competitions are run on very similar lines to ours, though they use only fixed tasks and one start point per class. The main reason for this was that the software they previously used made it impossible to verify and score other types of tasks, and so they were very interested in our approach to Area Tasks and multiple starts. They use the scoring system from the FAI Sporting Code (the one used in World Competitions) and use only IGC standard loggers even in entry level competition – there wasn't a Garmin in sight, though I saw plenty of WinPilot devices.

The competitions are usually weekend to weekend format, with seven or eight possible competition days. As a result a number of gliders were flown in more than one competition, sometimes with one partner flying one competition and the other flying the following one. Some classes were handicapped, but they do not run a situation where gliders are scored in both handicapped and unhandicapped in the same competition.

The military competition was organised very well, and featured the largest set-up



The Rieti task area
Top: The Aero Club at Rieti

team I have ever seen at a gliding competition. There were the best part of 100 Air Force personnel doing everything from running ropes to building tent villages for the teams, from meteorology to publicity, towing to retrieves. There were teams from a number of European countries represented, the winner being from the Czech Republic.

The Italian Air Force is keen to hold a gliding competition in conjunction with a Military Olympics next year, and this was something of a dress rehearsal for that. So, if there are any Australian pilots with military credentials (a serving or retired member of the Defence Forces) watch out for this one if you want an Olympic Medal for gliding!

The day to day running of the competition was left mainly to three people, and this remained true for all three competitions – there was Franca, who handled administrative matters, and the start line and finish line radios; Wolfram Pramstraller ("Pram" to everyone, and an Italian, despite his name) who did the Ops Directors job, task setting, and, until this year did, downloading verifying and scoring as well – and me, who did some downloading and all verifying and scoring.

The weather was definitely not helpful. "The worst for 10 years" was a common comment and I can believe it. On several occasions we had several successive days of steady rain, and on many of the flying days there were thunderstorms as well. Given that the flying was entirely in the mountains where the terrain is seriously unforgiving, this presented a real challenge to pilots. I was not surprised that nearly half the fleet were motor gliders, and the motors were often



used. Despite the obvious advantage of a motor glider in those circumstances, there were no special rules for motor gliders, they were treated just like the others.

On at least three days during the period the entire fleet landed out – not all physically, since some used motors and some turned back to land at Rieti – but it is rare in my Australian experience to see that happening.

The scoring went well. It was rare for us to work later than 8:00pm, with perhaps a little bit of work in the morning as some outlanding pilots brought in loggers. Scores were always final before briefing and usually completed the previous night. I was regularly able to download a logger and score a pilot while he waited – and I tried to do that as much as possible to show them an immediate result. Of course when there were a few coming in there was a backlog, but it didn't ever last long.

The common brands of loggers were Colibri and Cambridge, with a few Zanders especially among the German and Austrian pilots. The numbers of Colibri are increasing – while Cambridge is still the most common – I don't think that will last. There were a few Filisers, and only a couple of Volksloggers and other types.

What did I learn from the trip? Well, I do know now that the other software packages available for scoring and verifying are no better than mine, and there were many comments to me about the slowness

of scoring in other competitions around Europe. I know that the Italian gliding movement feels embarrassed and let down by its parent Aero Club, and is desperately seeking ways to become independent. I know that shorter (one week) competitions are the best way to go, and I am pleased to see that the GFA is making moves in this direction now. And I know that I am a crazy enough driver to survive driving in Italy!

It was a wonderful experience. Italians are warm, friendly, and have a great sense of humour, and I was made very welcome. The food was excellent – fresh, well cooked and not expensive. And although I was fairly happy to get on the plane to come home, I would willingly do it all again – though I might invest in some Italian lessons next time!



Martin Simons Sailplanes 1945 – 1965

VOLUME 2 OF MARTIN SIMON'S BOOK 'SAILPLANES' HAS BEEN PUBLISHED AND IS AVAILABLE AS AN ENGLISH OR GERMAN VERSION FROM EQIP PUBLISHERS IN KÖNIGSWINTER, GERMANY.

Concerning the previous volume, the curator of the Aeronautics Division of the Smithsonian National Air and Space Museum, wrote:

"Congratulations to Martin Simons for writing a sensational book on soaring flight history, Sailplanes 1920-1945. From the text to the photographs and Martin's superb drawings, this is an outstanding piece of work."

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The hope expressed by curator Russell Lee is being fulfilled. Volume 2, 'Sailplanes 1945-1965' is now published. It covers the revolution in sailplane design during two extraordinary decades in which the sport of soaring was transformed. To take advantage of new aerodynamic discoveries,

designers and engineers struggled to achieve hitherto unknown standards of accuracy. All possible types of construction were tried, leading towards the end of the period to the development of fibre reinforced plastic structures.

Training methods, flying techniques and strategies advanced accordingly. Cross-country distances and speeds previously impossible were achieved, old records were broken again and again until new types of task and competitions became necessary. Those who lived and flew sailplanes during this time, as the author did, found it thrilling and absorbing. Those who read the book will find in it, or be reminded of, this excitement.

The drawings and text are of the same standard as before but more of the photographs are in colour. There are also more pages. The price, nevertheless, is the same.

The first volume is also still available. A third is currently in preparation. Books are available from the publisher <fey@equip.de>.



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FLYING A BAG IN THE OWENS

Eric Metrot



The Owens Valley

In March this year I went for a business trip to California, the Santa Barbara area, and saw a couple of pilots enjoying some ridge soaring close to the famous Rincon surf spot. I stopped by and inquired about the potential of thermalling and cross-countries in the area. They mentioned Ojai in the summer, but also the Owens Valley in autumn where they were going to have the US Paragliding Nationals at the end of September.

This got me thinking – having a comp there should mean that it's actually quite flyable, as I don't think many organisers would have a comp in a place where the chance of bad incidents are huge. And even if I didn't compete, I am an experienced pilot with around 700 hours of flight. One of my best flights was a 100km out and return six years ago from Chamonix where I "para-grew up" before moving to Annecy (another great place to fly) and to Perth, Western Australia, where I have been living for five years. It was actually during that flight that I experienced the strongest thermal in my flying career. After traversing the valley above Sallanches to reach the Aravis, I was looking for something at the base of "Les 4 Têtes" a ridge under the "Aiguille Percée" (the highest peak in the Aravis) when I hit that "thing" – a rocket where I ended up having something like 70% of my wing collapsed, but was still climbing far faster than the scale of my vario, so that I was even wondering for a while whether I should really reopen the wing or not... I actually survived that thermal, even if I have to admit I exited it before cloudbase...

But back to the Owens. I'm trying to say that I have copped some extreme thermals in my life, and even in WA, although I didn't manage to improve my PB as far as distance, I once managed to ride a solid integrated +7m/s from a couple of meters above ground level up to more than 3,000m asl. So I was feeling I should be able to fly the Owens in the autumn.

I had another business trip planned to California in early September, but with my wife being pregnant with a due date of early October, I couldn't really plan a long trip after the business side of

I REMEMBER READING MANY YEARS AGO AN ARTICLE ABOUT THE OWENS VALLEY, A VALLEY JUST EAST OF THE HIGHEST PART OF THE SIERRA NEVADA. MANY SAILPLANE RECORDS WERE BEING SET THERE, BUT IT DIDN'T LOOK LIKE THE PLACE WAS GETTING MUCH ATTENTION FOR PARAGLIDING OR HANG GLIDING RECORDS. A FRIEND OF MINE (A TOP FRENCH PILOT) WENT THERE ONCE AND STATED IT WASN'T A PLACE FOR PARAGLIDING, AS HE SCARED HIMSELF IN SOME BULLET THERMALS.

things. This was quite sad, as Kari Castle, a local top pilot, was organising a clinic there around the 15th before the open.

Thanks to Ian, a recently migrated pilot from California, I still managed to get from Scott Seabass of the Berkeley Hang Gliding Club some precious info about the place and some contacts, so I was really keen to give it a try. I checked the conditions on Sunday before leaving, and it looked too good to be true: absolutely nil wind, high pressure and very high temperature (more than 40°C at Bishop). From my experience in the Alps, these conditions seemed to be the best way to get some amazing flights.

I landed in LAX on Labor Day, and so managed to avoid the usual traffic jams and rushed to the Owens Valley. As I approached the place, I was so excited to see the first cumulus popping as early as 9:30am, really high over the ridge of the Mojave Desert. When I reached the first ridges of the valley, it was looking even more incredible.

Those ridges are more than 3,000m asl, and some perfect streets of clouds were at least another 3,000m above the top of the ridge (not just some little puffs either, but some solid gray-based ones). As I was too late to try to launch from Horseshoe Meadow (a south-east take off, mostly used by hang gliders) I was heading towards the White Mountain, a ridge on the east side of the valley more north, and Gunther, the proposed take off for the US Nationals. But on the way there I saw a car with heaps of hang gliders on top, so I made a quick U-turn and ran into Scott, the friend of Ian that sent me all the information. They gave me a run-down, and it seemed as though the day was actually a little bit tricky, as many pilots did bomb out even if some were on their way to some great flights. On the top of that, they had an epic day the day before, with many pilots making their first 100km flight, and the best ones reaching more than 160km with ceilings at more than 20,000ft! Yes, you did read that right, and with the valley at around 3,000ft, and the highest peak, Mt Whitney, at 14,500ft, you start realising the size of this flying site.



Above White Mountain looking towards Owens

Unfortunately, with such great conditions the day before, most of the pilots were quite tired and were packing up to go back to the cities. That day before actually happened to be said to be the best day in six years, as the westerlies that usually pick-up around noon and create some very bad conditions on the Sierra didn't show at all.

So, back to the original plan and Gunther take off by myself, for a late afternoon flight, and hopefully a landing not too far from the car.

The take off is in an area really clear of trees (quite a change from my local Western Australia take offs), but the local bush is quite hard with the lines, so it was great to also recognise in between those streamers a well cleared area.

The thermals were actually quite strong when I arrived; not too strong to fly, but still enough to make you think twice when you are alone, even if you have an EPIRB in your bag. As it was still early, 4pm, and sunset would be around 7:30pm, I waited a little bit longer, but the clouds progressed a little bit towards the valley, bringing shadow to the take off and hill, to such an extent that it was suddenly so light I was wondering whether I would go up at all or just bomb out.

However, I spread my nearly new Omega 5 and launched at around 5pm in what looked like a cycle. I got a little bit of lift, but was mainly below the take off level at about 2,500m asl. I wandered around, first to the canyon on the left where I got enough lift to get above take off height, and then to the big one on the right, where I got some better bubbles, but still not a real nice column. Slowly, I managed to get 1,000m above take off, and got a couple of turns in good lift, but still not the real thing. As I had enough height to wander around, I went a little bit towards the back ridge (even if in the guide I read, it was mentioned to avoid that), and there I finally got the right stuff – a nice column of +5m/s that I could centre perfectly. But guess what? I had to leave that one at 4,550m asl, as I was starting to get really cold, and I also remembered that the couple of times I did some high hiking, I started having problems at 4,000m. Put that on top of 24 hours in an airplane (pressurised at an equivalent of nearly 2,000m) and I didn't think I could make

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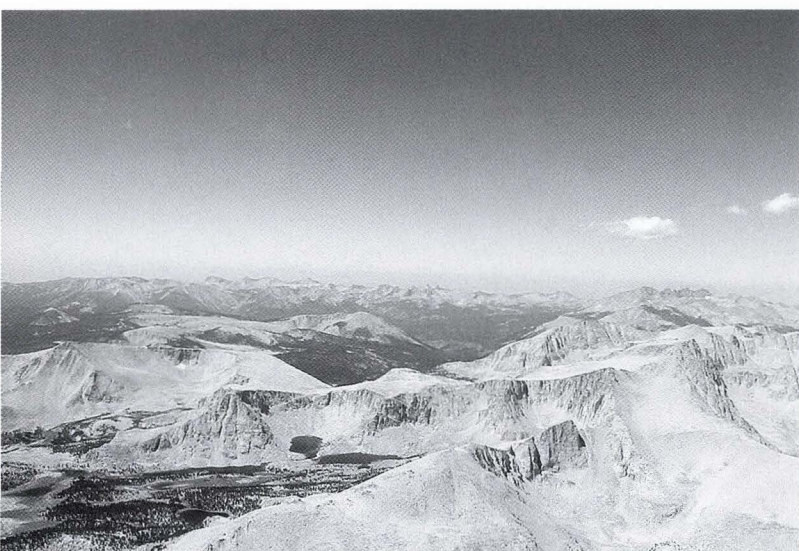
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Above the Sierra at 4,820m



High and happy

it much higher. But believe me, that one would have brought me to cloudbase, which was probably again in the 6,000m+ range... Isn't that amazing?

I happened to find the thermals that day were actually quite similar to WA ones back home. That is to say, really wide with some areas of strong lift, but still surrounded by some lift, and the transition to the sinky places were actually really smooth, not the usual front collapse you get in the Northern Alps.

So I kept flying in the area, trying to push a little bit away, but not too far, as I didn't want to spend the night hiking back to my car.

After one and a half hours I was starting to get really cold, so I went down for a top landing. I didn't realise it was going to be such a fast landing, but found that the slaty rocks there actually dampened my fast landing quite well. I just had to battle a little bit to get the lines out of the bushes. By this stage I could really feel the result of the altitude and the flu I was getting, even hiking the short dis-

tance to the car. I packed up my glider and was in time for a beautiful sunset with absolutely no wind, the clouds getting an orange colour from the dying sun.

What a first day! I didn't even feel my jet lag for most of it...

The next morning I woke to a perfect blue sky and still no wind in sight. I headed up to Lone Pine about 100 miles south to try to catch up with some hangies, but couldn't see any. I went to the bottom of the road heading to the Horseshoe Meadow take off, but the traffic was really low, so I thought I'd actually better go to the take off to check the conditions instead of waiting for a potential hitch hike.

This side of the Sierra is really steep, and the road cut some long lines on the side, with switchbacks at the end of the lines, so in no time, you go from the valley at 1,000m to the take off at nearly 3,000m asl. When I say take off, it is actually more a car park at the edge of the canyon. The wind was actually still getting to that level, so it was looking okay to launch a paraglider, especially as the Omega 5 is so easy to inflate compared to the Boomerang I had before. The cycles were also looking really good, with a nice breeze there, and the trees (pine and small sequoias) just lightly whistling in the middle of the cycle.

As I was wondering what to do, a car came up with two hang gliders on the roof. I met Fred, a tandem addict as shown by his plate (FLY TWO). He confirmed all the information Scott had given me, and proposed to drive my car down, as he wasn't so keen to fly, noticing the wind wasn't really at the right direction in the LZ for him. Another hangie car popped up, telling us there was no wind at the LZ now, and the first puffs of cloud were coming out without much movement. I set up and launched nicely around 11am in the next cycle, headed up the saddle on the right as instructed and started to work some bubbles.

Again, I couldn't find any proper columns to spiral in, but bubble by bubble, I managed to get a couple of hundred feet above take off. At first I tried to head towards the ridge above the road, but found some not so nice conditions, so went back to the saddle and got some more height.

I took a photo, wondering why none of the hangies were getting set up. I headed north to the Sierra end of things and recharged a little bit on the next edge. There was a nice cloud showing above Mt Lone Pine, but during the transition there I encountered some lift, and by playing around, I found a beautiful column of +7m/s integrated. In the bumps, my vario produced some noises I have not heard many times before! But it wasn't bad at all, as that strong core was still surrounded by lift, so it was just playing to get the best part of it.

This time I had put more clothes on, and the sun was shining really nicely, so cold wasn't too much of a problem. But at +7m/s I quickly reached some height, and suddenly I started feeling some pain in my head. So again I had to exit a beautiful thermal, this time at 4,820m asl (16,000ft). This was my PB for height. I'm proud to think that I went higher than Mt Blanc, the highest mountain in Chamonix where I started this amazing sport.

I managed to stay around 4,700m, enjoying the amazing 360 degree view and taking some pictures.

I lost quite some height before reaching the Whitney Portal (a portal apparently not so easy to get through). As I still couldn't see any other pilots in the air, I played it safe and acted on the advice of Fred and Scott, so flew away from the ridge towards the valley, heading to the Lone Pine airport where my car was supposed to be driven. I enjoyed the amazing vertical drop and the temperature slowly rose.

I went through a couple of bubbles, but nothing organised enough, till the last moment about 100m above the airport where I started spiralling in some +2, just to suddenly discover that a dust




devil was building a little bit further on. Being too low to play with it, I quickly landed after 2.5 hours of flight, with one of the most amazing sceneries of my flying career (the best one still remains Chamonix). I only flew 30km, but the start was really slow, and I really flew more to enjoy the scenery than to beat my personal records. I still wonder whether I should have left that first thermal, as I didn't have any collapses. Maybe I could have done a distance PB that day. But this is always the case when you play it safe, and flying alone in such a high level place pushed me more to the humble side, this time at least.

In conclusion, I should say that I was probably quite lucky with the conditions on the two days that I flew, but I would still strongly recommend the place during autumn to any pilot keen to do some great thermic flights. Horse-shoe and the Sierras are maybe really engaged, but if you are there the right day, I wouldn't miss it, as the scenery is so great.

On the other side, the White mountains are not so beautiful in my opinion, but still produce some very wide and good lift. I am sure you can find a time in the day where you will be able to enjoy them whatever your level. As Kari Castle is organising some clinics there, keep the place in mind, and I am sure you won't regret it.

If you are heading to the area, see [KariCastle.com] or [Flyaboveall.com] for information.

I am keeping my fingers crossed that I will be able to get back to this area another time, with hopefully some other pilots to fly with, and some oxygen (or better training) to beat that 4,820m PB. 



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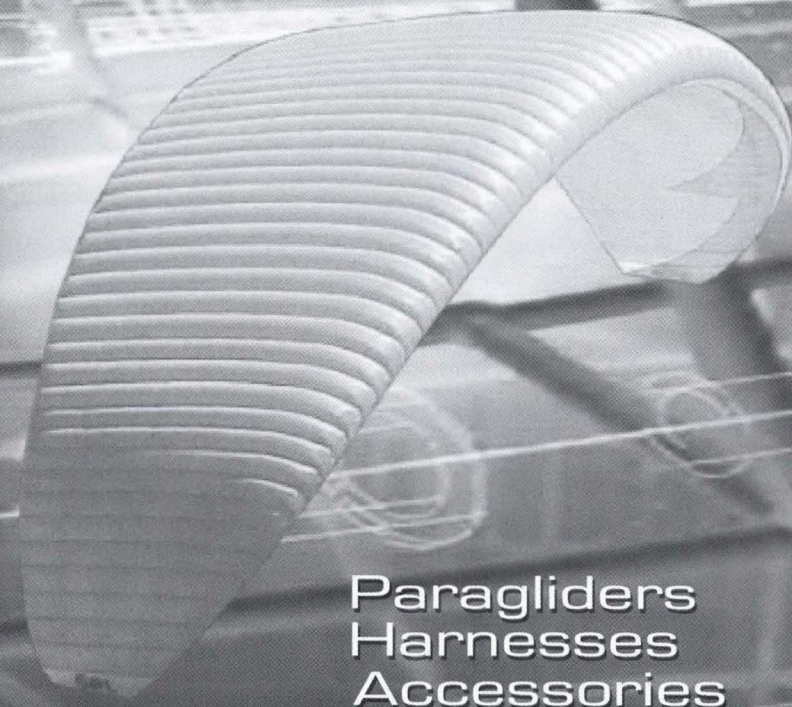
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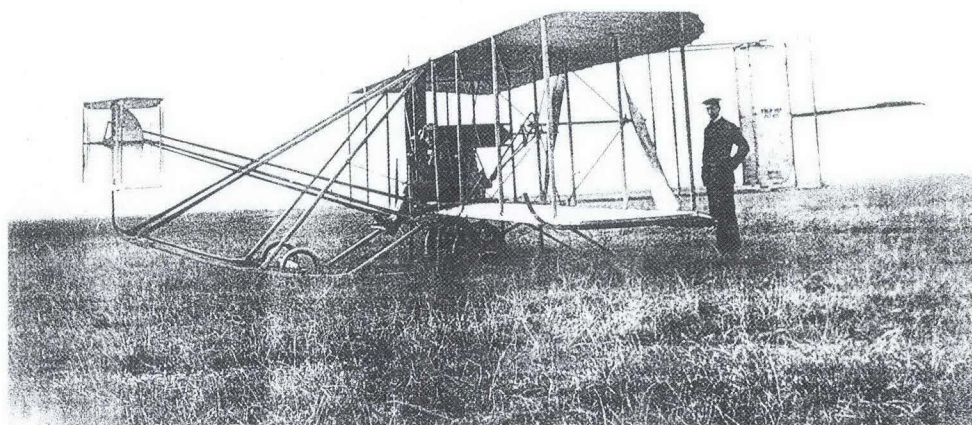
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THE WRIGHT STUFF



The Wright Brothers aircraft, Model A, which flew over Europe. A replica of this aircraft is now being built to plans drawn up by Bill Whitney. CASA has approved the aircraft under the experimental category and it is hoped to be flying by 17 December 2003— the centenary of flight. If you are interested in learning more about the Wright Brothers aircraft project please contact Keith Hayden, PO Box 192, Narromine NSW 2821, phone 02 6889 1770

IN 2003 THERE WILL BE MANY EVENTS, AND POSSIBLY CELEBRATIONS, TO MARK THE 100 YEARS SINCE THE INVENTION OF THE AEROPLANE BY THE WRIGHT BROTHERS.

Actually this was but the final step in a remarkable period of practical research and development which saw the demonstration of controlled flight in 1902 and the birth of flying as an art and a science. The 1902 glider flights ushered in the 1903 aeroplane.

How was it that two obscure cycle manufacturers managed this feat so far removed from the centres of aviation activity in Europe? The answer lies in their characters and intellects. The ability to observe clearly, to analyse evidence in accordance with scientific principles and, above all, the ability to provide simple and practical solutions to complex problems attest to their genius.

THE STATE OF THE ART IN 1900

We are now so familiar with the aeroplane that it is difficult in the year 2002 to appreciate this gigantic step for mankind.

Back in 1902 people had been flying kites for hundreds of years, and the balloon for one hundred years. At the turn of the 20th century there were serious experiments with airships powered with steam engines, electric motors and internal combustion engines. Following the work of Otto Lilienthal there also were many experiments with primitive hang gliders.

Often overlooked, Penaud had invented a series of toy aircraft, including gliders, aeroplanes and helicopters, with airscrews and wings initially fashioned from feathers, later from wood and paper. The motive

power for these toys was twisted strands of rubber.

At the turn of the century the youth of Europe and America were enthusiastic about all things scientific and mechanical, and the invention of a manned flying machine was expected. The older generation was not convinced, given that most of the pioneer hang glider pilots had been killed. However, a few in the scientific community took the proposition seriously and the Royal Aeronautical Society, formed in Britain in 1866, was the centre of research into fluid dynamics and aeronautics.

In recent times many writers have wondered why a simple glider was not perfected at least a hundred years before the Wrights. All the required materials were available. Given a time machine, any modern pilot, transported back into the 19th century could amaze the populace by building a glider and demonstrating flight. But any pilot today knows roughly what a flyable aircraft looks like, and how to fly it. At the turn of the century no one, including the Wrights, had much of an idea.

THE WRONG WAY

Just about every country seems to have a leading experimenter at this time, from Hargrave in Australia to Mozhaisky in Russia. Some made brief 'hopes' in gliders or aeroplanes (note 1).

In retrospect none of these efforts had much chance of success or advanced the cause of practical aviation.

Their failures did increase the total theo-

Gary Sunderland
Illustration: Courtesy Keith Hayden

retical knowledge, but also the degree of cynicism from governments and the general public.

The Langley 'Aerodrome' (note 2) is a useful contrast to the modest efforts of the Wrights. Funded by the United States of America government, it was an equivalent version of the space project of the 1970s. A leading engineer and scientist, Samuel Pierpont Langley headed the project, with a brilliant engineer, CM Manley, as assistant, together with all the resources of the Smithsonian Institution.

The tandem wing design was sound, being based on models developed and tested, at the Smithsonian, by Langley over many years. A large model of the final design was built and it flew remarkably well. Construction of the full-sized 'aerodrome' went ahead, with Manley selected to 'pilot' the craft. He had never been in the air before, or had effective controls, so his task was mainly to tend the engine, which he had designed.

In 1903 the 'aerodrome' broke up during the launch and crashed into the Potomac River. A second attempt was no better. The cause of aviation was set back, rather than advanced, and a number of good men had their reputations tarnished. This flying business was much more difficult than they expected.

Looking back, with the benefit of hindsight, we can see that even if the complicated launching system had functioned correctly, the project was headed to disaster.

The 'aerodrome' was structurally deficient and without adequate controls. The hapless 'test pilot' had no means of control in roll, and little in pitch and yaw. Had it cleared the launch it would most certainly have crashed shortly thereafter.

THE WRIGHT WAY

The Wright brothers were self-taught engineers, scientists, tradesmen and anything else they cared to be. They read, and dissected, all the scientific publications on aviation then available. Wilbur and Orville had become interested in aviation first, at ages 13 and 9, when they were given a pen and toy 'heli-coptère'. Wilbur was fascinated while watching the effortless flight of soaring birds, which he reasoned, obeyed simple laws of mechanics. Later, he clearly described the descent of birds through the air at a fine angle, while the air flowed upwards.

Their circular flight was adopted to remain in these upward currents of rising air. These simple facts are clearly understood today, but at that time many believed that flight was due to the mysterious properties of

bird feathers, while others considered soaring was associated with momentum, as the birds extracted energy from the horizontal wind by slowing down and speeding up.

It was not until 1930 that soaring pilots confirmed that strong vertical currents existed under cumulus clouds and, indeed, in clear air.

The Wright brothers soon rejected complex forms of aerodyne, such as the helicopter and the ornithopter (note 3). The flying machine had to be simple and light to have any chance of success, and the fixed wing flight of birds gave them the clue. Nor did they fall into the trap of attempting to reproduce the complex cantilever wing structure of birds.

It took some additional 30 years to develop the same efficiency in manned sailplanes (note 4).

The brothers did not hesitate to incorporate the work of others where it was of value. Thus they adopted the Pratt trussed biplane structure developed by the engineer, Chanute, for his gang gliders. But their general approach was unique, and related to their observations that soaring birds mainly manoeuvred by rolling into and out of banked turns. They would concentrate on learning lateral 'balance' first. This was the first vital step to success, and is perhaps explained by their bicycle background.

The aerodyne resembles a bicycle in that it only works when it is moving. Without velocity it would fall over, and the operator has to learn 'balance'. A glider resembles a bicycle on a gentle slope. As it moves down the operator can learn to control it. When this is mastered, power can be added, to create the aeroplane, which can ascend, like a cyclist climbing the first hill.

This methodology was in direct contrast to all other experimenters, who assumed that the aeroplane would be stable, like a tricycle, or an automobile, or indeed an airship. Thus, only airship-type controls were ever considered necessary, like elevator and rudder. The Wrights saw the problem clearly, and came from the opposite direction.

AERODYNAMICS

The Wright's first glider was designed using Lilienthal's data, which proved to be incorrect. This is not surprising, given the crude wind tunnels and whirling arm devices used at the time, not to mention Reynolds number (scale) effects and atmospheric differences, their being no standard atmosphere or means to standardise results.

The Wrights built their own wind tunnel, but did not attempt to measure loads directly. Instead, their measuring device balanced the load from their models against the drag of a flat plate in the same airstream. The load on flat plates was known, so a

simple calculation gave them the lift and drag (note 5) of their full-size wings or control surfaces.

During 1902 the Wrights tested over 200 aerofoil shapes and plan forms, including biplane layouts. From these they selected one configuration, which formed the basis for all their gliders and aeroplanes, later enlarging the design to accommodate an engine and, later still, another occupant.

This layout provided a lift to drag ratio of six to eight. That is, the lift produced was six to eight times the total drag of the airframe. For a glider flying in still air this produces an angle of descent of one in six to eight, which corresponds with the glide angle of most common soaring birds (note 6). This 'glide angle' was twice that of the Lilienthal glider and most other experimenters of the time and was a major factor in the success of the Wright aeroplane.

STRUCTURES

The Wright's structural design borrowed heavily from the later Chanute gliders in detail and in materials. The design load factor, that is the ratio between the normal load and the failing load was three (note 7). This was another major decision leading to success. A lower factor would probably have led to in-flight failure, as experienced by

langley, whereas any higher factors would have increased weight to the extent that the aeroplane may not have flown. Most early aeroplanes, those that achieved flight anyway, adopted the same load factor, until about 1912 (note 8).

The Wrights were also aware that there could be a small, but significant, component of load along the chord, both forwards or aft. To cater for this the cloth covering was applied diagonally, so that fibres were able to act in tension and so brace the wings. Other pioneer designers, such as Blériot, copied this method while others like Voisin used (external!) wire bracing for this purpose (note 9).

FLIGHT CONTROLS

Photographs show the Wrights flying the first gliders with their weight forward of the wing quarter chord, similar to the Chanute hang glider. However the Wrights lay face down to minimise drag, and their pitch control surface was in front. This was significant for the development of their first aeroplanes, with low power engines.

With the balancing plane aft, as in the Chanute and most modern aerodynes, the balance load is down, thus increasing the lift required from the wing. In the tail first layout adopted by the Wrights, the balancing plane added to the lift from the wings and



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increased total efficiency. This is vital for flight at very low power, and explains why Paul MacCready also adopted this layout in the first successful man-powered aeroplane (note 10).

A tail first layout is also less stable, which did not concern the Wrights, who desired an unstable aircraft with powerful controls. At very low airspeeds, as for the Wright aeroplane, the fast rate of control response assists the pilot to maintain the wing angle of attack, between three and five degrees, for minimum drag and maximum efficiency.

On a more practical note, having the elevator in front enabled the Wrights to see instantly the control position, and by reference to the horizon, their aircraft's attitude in pitch and roll. Later, a string, or wool tuft was added, which gave an indication of yaw.

While warping the wings provided a powerful control in the rolling plane, the Wrights did not, at first, utilise a yaw control, and the first, 1900, glider did not have any tail surfaces. Later one, then two, fixed fins were installed on the later gliders, until the problem of adverse yaw was understood. That is, the secondary effect of creating lift to roll the aircraft produced drag, which has to be balanced by a moveable rudder. At first this was provided by coupling a moveable rudder with the roll control on the 1902, No 3 glider, and the 1903 aeroplane. Later, they became aware that the effect varied with speed and separate rudder controls were installed.

By October 1902 the first three-axis control system was installed in an aerodyne and flight tested in the Wright glider (note 11). After these successful flights it was only a matter of installing a propulsion system into an enlarged glider and making a powered flight.

ENGINES AND PROPELLERS

The Wrights calculated that only eight horsepower was necessary to sustain their 1903 aeroplane in flight and their first engine actually produced 12 brake horsepower. Because automobile engines were too heavy they built their own engine, a four-cylinder, in line, water-cooled engine, complete with flywheel, which was mainly a lightened version of a 1902 car engine.


The flywheel was a problem in terms of weight, but was necessary to absorb power pulses, so that an even torque was transmitted to the propeller drive (note 12).

Later versions of the engine developed 20hp, in the 1904-05 aeroplane, and 35hp for the 1908 two-seater, model 'A'. Low powers were only necessary to 'sustain' flight because, in the absence of wind, the Wrights later used a dead-weight catapult to accelerate their machines to flying speed.

Like Henson, Stringfellow, Maxim and Langley before them, the Wrights were well

aware of the problem of propeller torque and opted for twin, counter-rotating airscrews. Once again they found the information of propeller design to be inadequate and they had to go back to their own test data and develop their airscrew design from first principles. Their heavy flywheel and drive system was then overcome somewhat by their elegant, slow revving, twin airscrews which had an efficiency of better than 90%.

On 17 December 1903 Orville took off in the Wright 'Flyer' against a 27mph wind, and flew 120ft in 12 seconds. Orville and Wilbur alternated as pilot, with a fourth and final flight of 852ft in 59 seconds completing the day's activities (note 13).

The Wright brothers had ended their quest, and powered aviation had begun (note 14), just in time to take part in the 'Great War'. 

NOTES

1: In this article the definitions of aircraft follow those in the Oxford Dictionary. That is, aircraft are comprised of aerostats and aerodynes. Aerostats include balloons and airships. Aerodynes are made up of kites, gliders, ornithopters, aeroplanes and rotorcraft (autogyros and helicopters), all of which are sustained by dynamic reactions with air. Readers should be aware that in the USA the term 'airplane' is used, which may sometimes include rotorcraft and sometimes not. For example, in the Encyclopaedia Britannica the dictionary definition of 'airplane' is that of an aeroplane, but the attached diagram indicates that a helicopter is an 'airplane'!

2: Langley coined the name himself, and it seemed appropriate at the time, although it was later applied to an airfield with other facilities for air traffic. Readers should be aware that 'loose' terminology was usual at the time. For example, gliders were often referred to as 'aeroplanes'. This is only of importance if contemporary historians do not correct the meaning. For example a recent publication claimed a 'first flight in an aeroplane' when the event was a hop in a hang glider.

3: The Lilienthal brothers intended to emulate bird flight. After Otto was killed his sibling continued the project, eventually building a full-sized machine. It never flew. However, model ornithopters have been flying for many years, with sporadic attempts at a manned flight of a full-sized machine. The ornithopter remains the only class of aerodyne that has yet to be perfected. This is the challenge today for any potential 'Wright Brothers'.

4: Sailplanes are a class of glider designed for soaring flight, and made possible only due to advances in aerodynamic and structural design during the period 1920-30.

5: The Wrights referred to these as lift and 'drift', being the resolved forces normal to, and along, the airflow direction.

6: This still the desired approach angle for modern aeroplanes and gliders. Most modern aeroplanes have an 'engine off' glide angle of about one in seven. Similarly, high performance sailplanes are fitted with drag-producing devices, which are deployed on approach to give a similar one in seven glide angle to landing.

7: Modern, large aeroplanes are designed to a 'limit' load factor of about three to five, but are expected to resist specified gust and manoeuvring loads which

would not have been known to the Wrights. There is also an additional safety factor of one to five applied between limit and failing load. The 'limit' load being when the structure begins to distort from shape. Below and at 'limit' the structure is elastic.

8: In about 1912 more powerful aero engines were introduced, leading to higher flight speeds and capacities to manoeuvre. Consequently, increased design load factors were necessary to prevent failures, with a factor of four, then five by 1915. By late 1918 load factors for fighter aeroplanes had been increased to six or eight ultimate.

9: Fabric deterioration in service was probably the major factor leading to early in-flight failures with Wright, Blériot and similar aeroplanes, leading to the so-called 'monoplane' ban in Britain. The eventual fix was to introduce internal wire bracing into wings for both monoplanes and biplanes.

10: Apart from man-powered aerodynes, other low power designs also utilise the tail first or 'Canard' configuration, notably solar-powered aeroplanes. Certain high-efficiency aeroplanes also utilise the gain in performance resulting from this layout, such as the Rutan Vari-eze' and 'Around the World' aeroplane, and the latest Boeing airliner project.

11: Three axis controls are standard on all practical aerodynes, not just gliders and aeroplanes, but also autogyros and helicopters. Three axis controls have also been adapted to spacecraft, machine tools, robots and any other mechanical devices which have to be manoeuvred in three dimensions.

12: The first Wright engine weighed 'only' 120lb dry. With a radiator, oil and water, plus the transmission the propulsion system totalled over 180lb, or the weight of another occupant. Other pioneers, like Glen Curtis, soon discarded the flywheel and bolted the propeller direct to the crankshaft. The propeller had to absorb the power pulses and pilots had to learn, many the hard way, how to cope with propeller torque. The Wrights were correct at the time, but their complex propulsion system very soon became a liability.

13: These flights started with a take-off from level rails by engine power alone. The catapult launching system was not developed until the following year. Note 14: Given the Wrights' interest in soaring birds it seems strange that they did not attempt to soar their early gliders. As it happened, the first soaring flight in history was in October 1911, when Orville Wright set a duration record of nine minutes and 45 seconds, 'hill' soaring a sand dune at Kitty Hawk. However, this flight was incidental to developing the 'headless' (ie, elevator at rear) glider.

REFERENCES:

1. 'Centenary Journal 1866-1966'. Journal of the Royal Aeronautical Society. Volume 70, January 1966, Number 661.
2. 'Achievement of Aerial Flight: an Engineering Assessment' by JC Gibbins. Aeronautical Journal July-August 1981.
3. 'Kill Devil Hill' by Harry Combs, Houghton Mifflin Company, Boston 1979.
4. 'WW1 Aeroplanes' quarterly journal, Leo Opdycke, Editor. (Too many references to list).
5. 'Kitty Hawk Revisited' by Jack Lambie. Soaring, July 1971.
6. 'The First Vintage Sailplane' (Ridge Soaring the Wright Glider No 5) by Paul A Schweizek. Soaring November 1987.



WHO IS LOOKING OUT FOR YOU?

Stuart Ferguson

DURING MARCH A PILOT VISITING TOCUMWAL HIRED A GLIDER FROM A LOCAL OPERATOR AND PLANNED A 300KM FAI TRIANGLE FLIGHT. AFTER SIX HOURS IN THE AIR THE PILOT WAS FORCED TO OUTLAND NEAR JERILDERIE. NOTHING PARTICULARLY UNUSUAL ABOUT THAT I CAN HEAR YOU SAY?

Having secured his aircraft the pilot walked to Jerilderie. During his five-hour walk, he past several farm homes – it is not sure that he was able to see them as it was a dark night and the road was difficult to follow. Some cars did pass him on the road, but none stopped – who is going to stop for a lone dark figure in the middle of nowhere these days. Arriving at Jerilderie after midnight he booked into a local hotel and went to sleep. It was not until the following morning he phoned the operator at Tocumwal to advise that he had landed out and required an aerotow. Obviously the pilot was either not aware, or did not understand the GFA MOSP which puts an obligation on the duty instructor/operator to commence Search and Rescue procedures one hour after last light for any pilot who has not returned – or to use the jargon “is overdue”.

Knowing their responsibilities the Tocumwal operation people contacted AusSAR advising the on duty coordinator of the situation. They providing AusSAR with as much detail as they could about the flight, but they had no information about what survival gear he may have been carrying, or how prepared he was for an out landing.

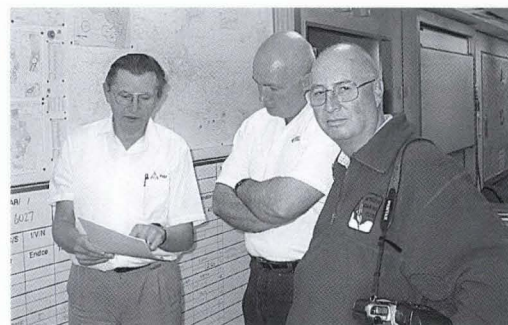
State police were contacted but they had no information, and arrangements were made to conduct an aerial search the following morning. The planned search, to cover the pilot's planned task, required a search area of 987 square nautical miles. Four fixed wing aircraft, with volunteer observers, were tasked as search platforms, along with one helicopter carrying a full paramedic crew as the rescue platform. Despite the fact that the pilot did call in by 8 o'clock the following morning search aircraft were already airborne and the resulting short search cost just short of \$5,000.

Could this happen to you? Who is looking out for you? If your answer is “no one” think again. Not many of us live lives so isolated from society that someone is not looking out for us. When we were children it was our parents, and now when you go gliding it is your duty instructor at your club, or their

delegate. The requirement for the duty instructor to look out for you is clearly written into the GFA MOSP. If you are not aware of this your cross-country training has been lacking. In the case of this incident the Tocumwal operation did the correct thing and contacted AusSAR. If the pilot had experienced a problem during the landing, and had not been able to activate a beacon earlier this would have been the only way AusSAR would have known there was a problem. In this case neither the glider nor the pilot had a beacon, and they are not required to carry one. It would not have made a difference in this case; the pilot had landed safely and did not consider himself to be in trouble.


What could you do if you find yourself in a similar situation? This will depend on what and where you are and what you are carrying. Can you communicate using VHF radio, mobile phone or from the farm property you landed close to. In case things go wrong it makes good sense to carry a portable ELT also known as a PLB and in some cases an EPIRB. These are essential if you get into trouble and run out of communication options, however they should be considered a last line of defence. A small personal strobe light in addition to your reserve supplies of water and food is also a good idea. What is initially a non life-threatening situation can quickly turn into one, given the wrong set of circumstances.

Let's look at some other options. Firstly, it is practical if you are able to safely land close to what looks like an inhabited property – better still a town with a pub. Check if your mobile phone has reception; never depart with flat batteries. Relay your outlanding position via another glider using your VHF radio. When you leave your aircraft leave a note advising anyone who finds it what is going on. If you can't establish contact with other gliders know your local ATC frequencies: you can expect contact with overflying high-level jet aircraft that can pass on your information. If you don't know these frequencies you can also achieve this by using 121.5KHz which most airline aircraft monitor.



Terry Cubley and Eric Sweet visit AusSAR
Photo: Stuart Ferguson

From the prospective of people working in the SAR system the most important issue is that the people who need assistance are returned to a point of safety. Contrary to recent rumours, AusSAR does not charge you for either search or rescue services; this is funded out of consolidated revenue. Rescue is defined as being returned to a point of safety, it is not a free trip home. What does frustrate AusSAR staff is when time is wasted and costly SAR assets are tasked due to someone just being inconsiderate to others, or just plain slack. This could cost someone else his or her life.

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Famous Last Words: "She'll Be Right!"

SUE AND I HAD BEEN LOCKED IN AT BROKE INLET FOR SIX DAYS. THE FIVE BEFORE THAT WERE GREAT, WITH LOTS OF FLYING, BOATING, WALKING AND GENERAL LAYING ABOUT. BUT THEN THE RAIN AND WIND CAME. "IT'LL BE OVER IN A DAY OR TWO," I SAID.

Six days later it was still blowing its guts out and the water was rising – cutting off our exit point. Two days previously I'd moved the Land Rover closer to the exit so we wouldn't get bogged in the rising waters, but chose to leave the trike at the old camp as it was secure, sheltered and setup. It had to stop raining some time... hadn't it?


Well, I guess not. The time had come to leave: another front was brewing and we'd had enough. The trike was three-and-a-half kilometres west of our present camp, a 45 minute walk. So I set off thinking I'd be able to drive it back along the beach. The water had risen to the point that I didn't want to risk bogging the Land Rover.

Peter (Moses) Kelly



Top: High over Broke Inlet
Bottom: A less eventful landing

Unfortunately the hop had shortened my runway somewhat so it was full brake time. Forty-seven metres is what Sue and I measured, after she'd punched me repeatedly, saying, "Don't you ever do that again!"

Ah, the things we do to feel alive! 



Top: The site of our first camp
Bottom: A beautiful sunset over Broke Inlet

I'd timed it so I would get to the trike around sunset, hoping the wind would be at it's calmest. All the way up the beach I kept looking at the trees waving and the water rippling. By the time I was sitting in the saddle, engine purring, and starting to roll in the direction of camp, I'd come to the conclusion that it probably wasn't that bad, and that flying it would be a lot easier than struggling along the beach for all of three-and-a-half kilometres.

So, I swung into the wind (east) and flattened it...

"She'll Be Right!" I'd convinced myself. As soon as I was above the trees, it was on! Ascending somewhat like a butterfly on speed I reached 500ft in a matter of seconds, then wrestled her round for the downwind run. By now I'm thinking, "You bloody fool," and, "I suppose this means that I'm going to Die!"

Downwind was fun... reaching 80-85kt groundspeed and bobbing like a cork. I looked down at the beach; the one that seemed so perfectly adequate from the ground, but now looked decidedly small. I hurtled by.

Now for the 180 degree turn into wind. All the holy teachings of Dalai Brendan and Dalai Paul came flooding back... "Gentle turn... Gentle turn..." At the 90 degree point, a severe gust hit me and the wing dropped like a stone.

Later, watching the video Sue had shot of this madness, right at the point where my wing drops, you can hear her moan, "OH DEAR!"

But I didn't make it through the Academy of Watts (or is that What's?) for nothing. I reefed the bar in and she dived at the ground like a Wedgie on steroids. Bucking my way down with arm movements bordering on epilepsy, I homed in on my little beach.

I've found that shouting obscenities at this point helps me to focus on the job at hand, a bit like the Vikings going into battle! But Valhalla wasn't having me just yet!

Crying my war cry, "F*** YOU JIMMY", I forced her onto the sand after hopping over a stag that had appeared from nowhere.

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"HIT" Valve System (Patent Pending)

Leading Edge Battens

Keara is a Breakthrough Design in Paragliding

It features "HIT Valves", a new concept (introduced by Apco), improving stability and performance at high speed/low angle of attack.

The leading edge also features Flexon Nylon Battens which hold the profile shape at speed.

These two features combined with a new hook-up point distribution on the canopy and speed system gives the Keara performance way above any other glider in its class. In fact, Keara beats all of the gliders in class 2/3 too and many of the Open Class/Competition gliders.

"HIT Valves" (High-Speed Intake Valves – patent pending) increase the internal pressure of the wing both during accelerated flight and in extreme situations, dramatically improving safety and performance.

"How it Works": The Standard leading edge intakes on a paraglider are placed on the stagnation point of the profile at trim speed. This ensures maximum internal pressure of the canopy for this angle of attack.

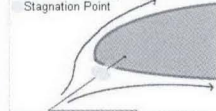
Once you accelerate, the wing is flying at a lower angle of attack, and therefore the stagnation point moves higher on the nose of the profile. The "HIT Valve", placed above the leading edge openings, opens automatically when the stagnation point moves over the valves, pressurising the wing. Only a few valves are necessary over the span of the leading edge to pressurise the entire wing at higher speeds.

The Valves are kept closed at trim speed by the internal pressure of the wing.

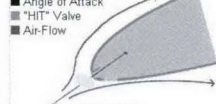
Flexon Leading Edge Battens (pat. pending) support the top and bottom surface leading-edge fabric between the ribs keeping the profile clean and the intakes open. This feature dramatically improves the performance of the wing, especially at high speeds.

The Battens also improve inflation of the wing both during launch and re-inflation in flight.

Valve Closed High Angle of Attack
Stagnation Point



Valve Open Low Angle of Attack



KEARA PERFORMANCE DATA

V-min.	21km/h
V-trim	36-38km/h
V-max.	59+km/h
Min Sink (at optimum wing loading)	<0.9m/s

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ADVS allows cells to remain open for easy launch and quick inflation of the cells, but closes automatically in flight, reducing drag and increasing performance.

PRESTA is equipped with a new, more efficient riser system, evolved from the Simba competition riser, it also has split A for ease of performing Big Ears, etc.

PRESTA flies (as evident from performance data attached) on higher trim speed and much higher top speed. Gliding ratio is also much improved, especially in accelerated flight.

Handling is with a new, fresh feel – direct, coordinated and sporty.

PRESTA PERFORMANCE DATA

V-min.	21 km/h
V-trim	37 km/h
V-max.	50+ km/h
Min Sink (at optimum wing loading)	1.0m/s

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HGFA National Office Christmas Closure

The HGFA Office will be closed for a Christmas break from noon on Christmas Eve, 24 December and reopen on Monday, 6 January 2003. Membership renewals will need to arrive no later than close of business on Friday, 20 December to be processed prior to the break.

A very Merry Christmas and Happy New Year to all.

Kerry, Michelle and Sue

CLUB NEWS

Cloudbase PG Club, WA

The September long weekend was a cracker in WA; about 11 paragliders went out to Wyalkatchem for the WSHGC spring thermal weekend and were rewarded with excellent cross-country conditions. Justin Post, Paul Litznaisky and Rod Merigan all set personal best cross-countries in summer-like conditions. Margaret River has also been turning on the coastal flying with a few awesome days at Conto's.

There have been a few problems with pilots not obeying site rules, particularly at 'The Range'. We have access only by the generosity of the owners, Robin and Karen McKay. One of the conditions of access is that no-one flies alone, not an unreasonable request. Dogs are not permitted on the site (not even inside a car).

Coming events are the traditional Albany Fly-in at Easter, and the State Championships in February. Fly safe, and be nice to the site owners.

Michael Dufty, <cloudbase@hgfa.asn.au>

VHPA Site Survey

The VHPA annual site survey is now online.

This annual survey is used by the VHPA to assist in determining the value of upgrading & maintaining sites, providing site use information to state government and helping obtain new sites. No personal information is collected during the survey.

Could pilots who visited sites in Victoria last season please take a minute to complete the site survey. It is available at [www.vhpa.org.au/].

It does not matter if you actually flew at the site, it matters if you went to the site intending to fly. Please help us to help you.

Mark Pike, VHPA Site Development

NEW PRODUCTS

Digifly

Paragliding Headquarters, the importer of Gradient paragliders, is now also representing Digifly. Digifly is a World Class

manufacturer of HG and PG instruments of exceptional quality with many innovative features. Each model of Digifly vario includes an electronics compass and wayfinder. They are shielded against radio interferences and are covered by a two year warranty. The range of products starts with basic models of vario/altimeter and continues through to highly sophisticated instruments (eg, GPS interconnectable and full blown flight computers with landscape imaging). The sophisticated software is upgradeable and the company provides an excellent support service. Please check out the website [www.geocities.com/pgheadquarters2000] for full details. A 20% discount and money-back warranty applies to the first three instruments sold.

Jiri Stipek, <jstipek@pacific.net.au>



Carver

The Carver paraglider is now on the market – designed for fun, good thermalling and perfect handling. The Afnor Standard label guarantees safe behaviour in all circumstances. The price is attractive too: 2,650 Euros including taxes. Guaranteed for two years and unlimited flight hours! Visit [www.trekking.fr] for more details.

Nova

Nova paragliders have received DHV 1-2 on the Artax and DHV 2 on the Aeron. Information and demo gliders available on [www.alpineparagliding.com].

Windworks Move and Changes

The Flying Planet team, including designer Michel le Blanc, have started up as Aerodyne.

Aerodyne manufactures all their gliders in their own production plants, based in Mauritius and South Africa. The Jumbe (DHV1-2 Sport Class) is in production. Demo gliders are available at WindWorks. The Shaman (planned as DHV2-3) will be on the market at the beginning of the New Year. A school glider and a DHV2 glider are already on the drawing table.

WindWorks has moved to bigger premises in North Narrabeen. A small

shop and a full service is now available (porosity check, glider and harness repair, parachute repack).

We are offering the following brands to our customers: Aerodyne, Gin Gliders, Gradient and Ozone. The address is:

WindWorks Paragliding, 16 Carefree Road, North Narrabeen NSW 2101

For more information, call Patrick Roser at WindWorks 02 9913 9086 or see [www.windworks.com.au].

Cross Country 2003 Calendar

Cross Country magazine's new calendar features 13 eye-popping hang gliding and paragliding images, captured by the cream of free flying's photographers: Andy Busslinger, Uli Wiesmeier, Franck Lechenet, Oli Barthelmes and others. Price is £12/19 Euros/US\$19. Buy online at [www.xcshop.com], email <office@xcmag.com> or ph: +44 1273 470474.

FAI NEWS

World Record Claims

FAI has received the following Class O (Hang Gliders) record claim:

Sub-class O-2 (HG with a rigid primary structure/movable control surface(s))

– General Category

Claim number 7523:

Type of record: Speed over a triangular course of 50km

Course/location: Hearne, TX (USA)

Performance: 46km/h

Pilot: Robin Hamilton (UK)

Hang Glider: Hang glider type not indicated

Date: 22/9/2002

Current record: 40.80km/h (17/5/01

– Davis Straub, USA)

Claim number 7524:

Type of record: Speed over a triangular course of 200km

Course/location: Hemstead, TX (USA)

Performance: 46.3km/h

Pilot: Robin Hamilton (UK)

Hang Glider: Hang glider type not indicated

Date: 29/9/2002

Current record: 43.44km/h (22/8/01

– Marcus Hoffmann-Guben, Germany)

Claim number 7525:

Type of record: Speed over a triangular course of 100km

Course/location: Hearne, TX (USA)

Performance: 55.4km/h

Pilot: Robin HAMILTON (UK)

Hang Glider: Hang glider type not indicated

Date: 30/8/2002

Current record: 34.47km/h (16/8/00

– Davis Straub, USA)

The details shown above are provisional. When all the evidence required has been received and checked,

the exact figures will be established and the record ratified (if appropriate).

World Record Ratifications

FAI has ratified the following Class O (Hang Gliders) record :

Sub-class O-3 (Paragliders) – Feminine Claim number 7155:

Type of record: Straight distance
to a declared goal

Course/location: Quixada – Poranga

(Brazil) Performance: 213.7km

Pilot: Louise Crandal (Denmark)

Paraglider: Boomerang S

Date: 28/11/2001

World Pilot Rankings Update

Changes to HG and PG rankings with 13 competitions added and one deleted. PG Accuracy and Class 2 are unchanged.

Paragliding

Competitions added: PWC Turkey, Belgian Flatlands, German Open, Norwegian League, Dutch Open, Welsh International, Russian Open, Hungarian Nationals, Belgian Mountain comp. Competitions not yet added: Polish Nationals, US Nationals, British Open. South African Nationals were deleted.

The top 10 stays the same. Steve Cox (SUI) in 1st, Alex Hofer (SUI) and Oliver Rossel (GER) stay 2nd with Jean-Marc Caron (FRA) 4th and Marco (FRA) 5th. Achim Joos (GER) 6th, team-mate Norman Lausch (GER) 7th, Jimmy Pacher (ITA) 8th, Torsten Siegel (GER) 9th and Xevi Bonet Dalmau (ESP) 10th.

In the nations ranking there's no change to the top seven but Spain moves to 8th. Switzerland stays 1st, France 2nd and Austria 3rd. Details at [www.fai.org/paragliding/rankings/].

Hang Gliding (Class 1)

Results added: German Open, Brazilian Nationals, Brazilia comp and a correction to the Millau results. No comps deleted.

The top five remain Manfred Ruhmer (AUT), Gerolf Heinrichs (AUT), Antoine Boisselier (FRA), Gordon Rigg and Oleg Bondarchuk, despite the Brazilian competitions. Robert Reisinger (AUT) and Guido Gehrmann (GER) both gain two places to 6th and 7th, pushing Jean-François Gérard (FRA) and Mario Alonzi (FRA) to 8th and 9th. Andreas Olsson (SWE) remains 10th.

In the nations ranking, Austria moved to 1st, France to 2nd. Germany 3rd, UK 4th. The other nations remain: USA, Spain, Australia, Brazil. Ukraine moves to 9th, Sweden regains 10th. Full details at [www.fai.org/hang_gliding/rankings/class1/].

Paragliding Accuracy – No changes.

Class 5

The German Open was added. Christian Ciech (ITA) in 1st, Alessandro Ploner (ITA) 2nd, Johann Posch (AUT) 3rd, Toni Raumauf (AUT) and David Chaumet (FRA) rise to 4th and 5th. Check it out at [www.fai.org/hang_gliding/rankings/class5/].

Nations rankings: USA leads, Germany 2nd, Switzerland 3rd. See [www.fai.org/hang_gliding/rankings/class5/].

Class 2

Brian Porter remains 1st with four comps and Manfred Ruhmer (AUT) in 2nd with only two. Robin Hamilton (GBR) one point behind in 3rd, and Stephen Partridge-Hicks 4th with Bruno Metz 5th.

GBR is in the top spot followed by USA and Austria. Full details at [www.fai.org/hang_gliding/rankings/class2/].

Paula Bowyer

Results from Mun Gyeong, Korea

The winner of the 2002 PWC is Alex Hofer (CH), Scotty Marion (USA) 2nd and Jean-Marc Caron (F) 3rd.

For the women, Petra Krausova (CZ) in first followed by Louise Crandal (DEN) and Elisabeth Rauchenberger (CH).

The winning team is Gin/NCV Porcher Marine, 2nd Aerotact Racing, 3rd UP Team 1.

The country results were Switzerland in first, followed by France and Japan.

All details at [www.pwca.org].

A VHS tape will be available for sale in December covering the whole 2002 PWC.

Next year's season starts in Japan, then Switzerland, Greece and France, and the final will be in the Reunion Island or in Mexico (not decided yet).


Christian Quest,
PWCA Technical Delegate Assistant

95th FAI General Conference

The 95th FAI General Conference was held from 7 to 13 October 2002 in Dubrovnik, Croatia. After accepting seven new countries as FAI Members, the Delegates, who represented 44 nations and nine international Air Sport Commissions, discussed amongst other subjects the third World Air Games, a new concept for FAI Corporate Patrons and the FAI Centenary in 2005. The FAI President and all the members of the FAI Executive Board were re-elected for a new term of two years.

New Concept for third WAG

See article on page 39 for more details.

Full text available at [www.fai.org/news_archives/fai/000137.asp#000137]. 

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A JET GLIDER? WHY NOT!

Ingo Renner

A PRESENTATION TO THE OSTIV CONFERENCE BY
INGO AND JUDY RENNER WHILE AT THE WORLD
GLIDING CHAMPIONSHIPS IN SOUTH AFRICA, 2001

As self-launching gliders have proven to be very popular with those gliding enthusiasts who like to enjoy the freedom of being able to fly when they wish, it is with great enthusiasm that my wife Judy and I made a presentation of the latest development by Mike Burns to the OSTIV conference. Safety has always been my foremost consideration when gliding and to fly a self-launching glider that is easy to start and creates no drag when the engine is running is a remarkable achievement. Pilots have died making bad decisions while trying to start their engines in emergency conditions. Stress to get things going when the pilot should be setting up a circuit often leads to disaster. With complicated procedures, not to mention the increased drag created when a propeller is deployed and sometimes fails to start, things can get out of hand very quickly. Those who have had close encounters think themselves lucky to fly another day. With the jet installation that has been developed by Mike Burns there are only three buttons to push and a delay of perhaps 20 seconds before the glider is climbing away from a possible outlanding.

The following extracts are from an article written by Mike Burns and were the basis for our presentation. Judy introduced our paper and gave the necessary background information leading up to the present design. I covered the technical aspects of the installation and was able to comment on the gliders performance. I had test flown the Caproni and was greatly impressed by the handling

and economical rate of climb that outperformed aerotow with no loss of power to 10,000ft. The accompanying photographs and diagrams were also a part of the presentation using a computer and overhead projector. A considerable amount of interest was shown and Mike is more than happy to discuss more technical aspects of the installation with anyone who is interested.

AN OUTLINE OF AUSTRALIA'S ENTRY INTO THE SOARING APPLICATION OF JET POWER

The first "jet" engine flew in Italy around 1935, well, almost a jet: it performed poorly, used fuel like a fire hose, but that signalled the start of what has become the normal power plant for heavy transport and military aircraft, building up a tremendous history in safety and reliability world wide.

1935 was 66 years ago, so it seems logical to assume that "jet" by now has been accepted in all areas of aviation, not just airlines, charter, commuter and agricultural flying. Not so. It has not been able to make much impression on General Aviation, Recreational or Sport flying.

WHY?

There have been two basic problems that have kept the jet engine away from the "grass roots" areas. Firstly, the cost per engine has been extremely high; far higher than other comparable piston engines! Secondly the fuel consumption has been poor to say the least.

Fortunately those problems are diminishing and in the short term we will see small, pure jet and turbo prop engines filtering into sport and general aviation with some very exciting results. That is already being seen in Australia with at least six projects under way involving small pure jet or turbo jet engines in ultralights and rotorcraft. Tremendous improvements in metallurgy, systems design and robotic manufacture will see jet engines competitive with current

small piston engines in weight, power and fuel consumption within the next decade.

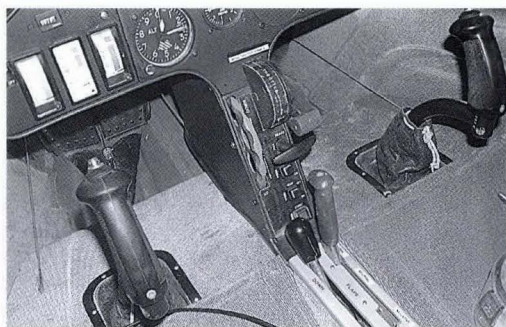
The "jet" which flew in 1935 was built by the Caproni Aircraft Factory in Italy, a factory dating from 1910, starting as a glider builder, becoming a leader in aviation innovation and development. During the early 1960s the Caproni directors set a goal to design and manufacture the best two-seat sailplane in the world. They started with a series of single-seat all metal sailplanes which led to the A21 side-by-side two-place sailplane which first flew in 1972 with a 20m span and a 43:1 glide angle. It was undoubtedly the best performing two-place sailplane built up to that time. Composite materials were too new for Caproni to use in structural areas, so they drew on their enormous metalworking skills to create metal laminar flow wings a, most difficult exercise. The factory also built the A15, 25-metre single-seater using A21 parts, which turned in 1:50 in 1976.

The A21 being "side-by-side seating", of course, cut across the gliding "establishment" which frowned on the side-by-side configuration, neglecting the huge social benefit of side-by-side and the vast improvement in instructor/pupil contact. To prove a point Caproni measured the drag of an early Libelle fuselage and the A21 fuselage (twice as wide) and the results showed the A21 had the lowest drag of the two, being the correct "tadpole" shape and laminar back to the wing.

THE DREAM

But the Caproni directors had another agenda. They had seen the efforts made from the 1920s onward to create self-launch sailplanes that met all of the basic needs of a good self-launcher. Caproni believed that the solution was a "jet" engine, hoping its marriage to a high performance airframe would create for them the best-powered sailplane to fly, up to that time.

Meanwhile over in France, a significant amount of development was being done on





the design and development of a range of small jet engines. One of the first prototype engines, putting out around 78kg of thrust, was mounted into a wooden Fauvel AV45 tailless sailplane and flew quite successfully. That range of engines ended up being developed and manufactured by the French company Microturbo which still manufacture the same engine in a very advanced form.

Back in Italy the Caproni people set their eyes on the Microturbo engine and started to develop the A21SJ or "Jet Caproni", as it became known. So what were the Caproni people looking for?

1. They wanted a simple engine – the Microturbo engine has one moving part
2. They wanted a lightweight engine – the Microturbo weighs 42kg with all accessories
3. They wanted an engine that did not change the glide ratio of the sailplane, while the engine was on or when the engine was off, particularly during engine failure
4. They wanted the simplest and safest engine management to reduce pilot workload to an absolute minimum, believing that in itself would promote flight safety
5. They wanted reliability and long life. The Microturbo engine was certified by the American FAA and the French CAA, based on it being "burst proof" allowing installation inside a man-carrying airframe. The overhaul life exceeding 600 hours.

From 1972 through to 1984 the Caproni factory worked its way through six jet prototypes using the Microturbo engines, starting around 78kg thrust and ending up at 102kg thrust. One of those jets went to Saudi Arabia and while out exploring the desert one day attracted the attention of a heat-seeking missile. Then there were five!

From 1984 onward the Caproni factory was absorbed into the Augusta conglomerate and work on sailplanes and jet sailplanes ceased. Caproni only had one problem with the jets they built; the engines were very expensive, grossly expensive, making the product almost unsaleable. On the other hand they probably did create the best self-launcher in the world at that time and even today there is not much that will even come close to it.

In 1990 the residual jet project parts, engines etc were bought by an Australian enterprise with the view to continuing the jet work here. It took a while, but in late 1997 the decision was made to produce the Australian version of the Jet Caproni. It was soon recognised that Caproni had produced prototypes with some aspects including off the ground performance, which were simply not acceptable. Accordingly, the Australian team sort to produce a "production" model,

utilising all of the original Caproni work, plus significant local design and development to make up the shortfalls. That work ended up with successful flight trials during June 2000 of the Caproni A21SJA.

Now that we have firsthand experience and knowledge gained from flight-testing of the Australian prototype, we can comment on how the Australian development work has contributed to the original Caproni "dream", to create the perfect self-launching sailplane.

THE AUSTRALIAN CONTRIBUTION

A cake is only as good as the ingredients, enhanced by the way it is cooked. Similarly a sailplane is a "package" of aerodynamics and structure enhanced by careful manufacture. The Caproni factory came up with excellent aerodynamics that creates, even now, good performance. The A21S (no engine) has very good cross-country performance with very pleasant control co-ordination and stability. That only came after much development of the earlier A21. Then the challenge was to take that standard sailplane, cut it and shut it, put in an engine and not change any of those good features at all.

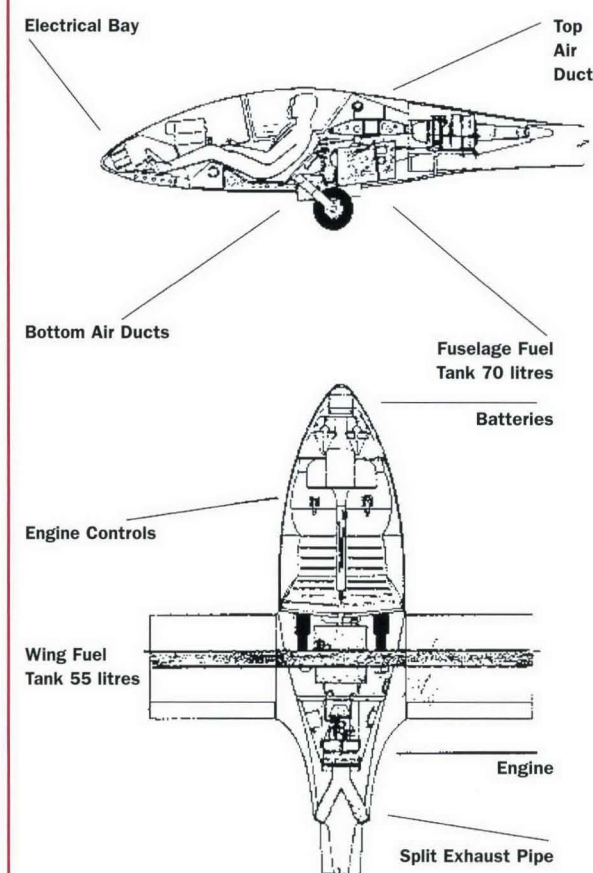
1) Weight and balance

The fuselage diagram shows that the engine (TRS18-046-1, weight 37kg, thrust 100kg) is fitted behind the wing. Fitting, batteries, solenoids, and voltage regulator in the nose corrects that "unbalance". The fuel tank goes in under the wing and the result is a better in-flight CG position, with pilots, than as a pure sailplane. By running a progressive weight and balance program in the computer, weighing everything that came out and everything that went in we had control of that right from the start. The gross weight goes from 64 kg to 765kg, which allows for two pilots at 90kg each and 70lt of fuel.

2) Engine alignment

Once the engine was behind the wing the decision had to be made about its alignment. Any readers who have experimented with the thrust line of a model aircraft or a powered aircraft will know that a degree or two can significantly change the rate of climb and cruise speed. Similarly with the jet engine. Caproni had taken the view that alignment for best cruise was the way to go. Our belief

A218JA FUSELAGE LAYOUT

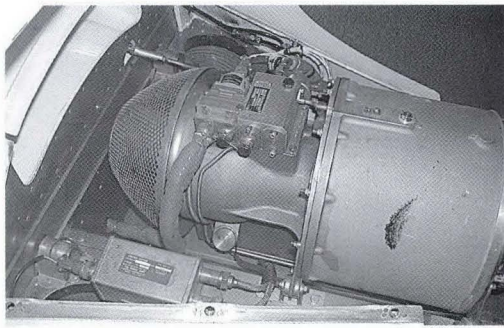


was that we needed the shortest take-off distance and best climb rate. That meant a different alignment of the engine thrust. We felt that best lift-off and early climb would be with about eight degrees of flap down (thermal mode in the sailplane). So the engine was aligned accordingly. Then, of course, came the question: "Will the engine pitch the sailplane nose up or nose down when power is applied?"

3) Engine systems' development

Before putting the engine into the airframe some 18 months of elapsed time were spent with the engine on a test stand. The purpose was to develop up the installation such that full power could be guaranteed with all systems working to specification.

The prime purpose of the test stand was to develop the "Trouser Leg" jet pipe. The pipe is bifurcated as shown in the fuselage drawing to steer the jet away from the tail and rear fuselage. Simple mathematics show that the bigger the angle between the pipes the more actual thrust is LOST. Since we wanted the best possible take-off performance and initial climb rate we reasoned that we needed the lowest losses possible in the jet pipe. So with some development we were able to cut the original Caproni jet pipe offset angle by about 50percent and still not have rear fuselage or tailplane interference



problems. The result being, of a possible 102kg thrust we have 97kg actual pushing the airframe.

4) Engine breathing

The Microturbo TRS18-046-1 engine does not need ram air to feed it correctly; it is designed to draw air off a fuselage-located chamber. But that chamber must be fed with air from one or more intakes, which maintain the correct chamber pressure.

The intake as built by Caproni could not feed the chamber correctly. If you look at the diagram you will see that the engine intake "sucks" air from the top of the canopy line. That area is the LOWEST pressure area on the sailplane. If that were the only air inlet to the engine the engine would actually lose power as it rotated at 45kt into the best climb angle, because it would "think" it was operating in reduced density conditions. Extensive taxiing trials with the original engine intake instrumentation showed this quite clearly with very low air pressure at the engine intake at the point of rotation.

5) NACA intake ducting

The original air intake on top of the fuselage behind the cockpit was built along the lines of the traditional "NACA duct" – an intake geometry developed by the NACA between 1947 and 1952 largely for engine intakes on fighter aircraft. The original design and test data were accessed through the Library of Congress in the USA revealing that there was no real reason why the Caproni air intake should work at all. The Caproni duct was basically the wrong geometry and in the wrong place. Nevertheless we applied the NACA design data as much as we could, but realised that the engine would still be short of air under the design requirements we had set ourselves, which was high angle of attack and low airspeeds. The catch 22 here is that the position for the intake on top of the rear canopy was the most practical, any other intake location quite hard to engineer

6) Experiments

WHAT TO DO? We needed to get a flow of high-pressure air to the engine intake chamber, maximum effect at lift off and rotation, BUT with no increase in drag on the sailplane. We also knew from the test stand results just what pressure should be



maintained at the engine intake to maintain full power.

SOLUTION: The highest air pressure during lift off and rotation is along the underside of the wing and fuselage. With its twin wheel undercarriage layout each of the wheel bays offered themselves as a ready-made intake box for a duct up to the engine intake chamber. Accordingly, two ducts were fitted, total weight one kilogram. Our runway trials were then re-run and the instrumentation showed us clearly that from 35kt IAS to 60kt IAS the high-pressure air supply ensured engine performance. Above 60kt the attitude of the fuselage allowed the NACA duct to take over working well through all speeds up to V_{ne} .

RESULTS

At a gross weight of 765kg the Australian jet achieves around 33m of height after travelling 500m from start of roll. More importantly it rotates positively, does not "sag", accelerates quickly to 65kt where the undercarriage can be retracted, then rapidly getting to 85kt where the rate of climb will peak at around 700ft/minute.

Note: The availability of the NACA research data on the Internet is a significant boost for all designers of all classes of aircraft. And yes, there are filters in the bottom air duct system.

FLIGHT CHARACTERISTICS

Engine start

Master switch on, throttle on idle, press two buttons, wait 22 seconds and the engine is running at idle rpm. That will fly the A21SJA at around 60kt level. The start can be at any speed from stall to V_{ne} . The start cycle is fully automated not requiring fuel or system manipulation by the pilot. In the event of a systems' malfunction the engine

will not start, closing itself down including fuel off and air intake door closed.

Trim

Running at 60kt trimmed straight and level, with hands and feet off the controls, the throttle can be opened slowly to full power. The A21SJA accelerates to best climb speed with no up or down pitch and no roll. Even in a 40-degree turn, changing throttle setting does not induce a pitch change.

Climb

Trimmed to best climb speed, 3,000m are achieved in 12 minutes, ideal for wave flying. With oxygen, 8,000m is possible.

Soaring

With winglets (Australian) and a 230kg payload the A21SJA will thermal in the 47 to 55kt band. Best L/D is constant but moved up to 68kt.

Emergency

The A21SJA power off, has best L/D of around 43:1. On or off, the engine does not change the glide performance. This makes the A21SJA one of the safest self-launchers ever built, reducing pilot stress to a minimum during emergencies.

Noise

At 60kt IAS on idle power the cockpit noise is 55db. At 85kt full power on climb, the level is 47db.

Economy

Self launch to 2,000ft requires eight litres of Jet A1 fuel AU\$9.

CONCLUSION

With a little help from Australia, the dream of the original Caproni directors has been fully met – simple operation, faultless performance and maximum safety in emergency conditions. With the future of small jet engines assured there is no reason at all why the A21SJA cannot be the forerunner of many jet powered self-launching sailplanes in the future.

Numerous existing types such as Stemme, Nimbus 4, ASH25, etc can be readily jet-converted offering weight saving, easier operation and improved pilot safety.

To view the paper in its entirety Mike Burns can be contacted at <glomic@bigpond.com.au>.

The glider has generated a lot of interest on the aerodrome at Tocumwal and we even had a visit from two electricians camping on the banks of the Murray. They couldn't believe their eyes and tracked the glider down to Mike's hangar. Their comment was, "we heard it, we saw it and we thought, this can't be possible!" So the 'Super Caproni' as it has been called by its owner Chris Corrigan, has generated interest in the general public. A definite plus for the sport of gliding!

Letters to the Editor

I read with interest in the October edition of Soaring Australia the report on the Vintage Gliding Regatta at Stonefield last January and in the same edition Martin Simon's article on the Vintage Glider Club International rally. It is good to see such a strong interest in this part of our sport, in particular with the work going on with restoring gliders and the Gliding Museum.

I was disappointed to see in Martin's report a common theme found in many such reports on different aspects of our sport. Having described a series of values, including a desire to "...not strive to do better than anyone else," and to "fly for the fun of it," Martin then goes on to point out that the "atmosphere... was quite unlike any modern soaring competition."

I know Martin quite well and understand that he has a great interest in all aspects of our sport, so I don't intend to be too critical. However, the constant reference in such articles to how this form of the sport is 'better than competition flying' and that these people are 'having fun', with the consequent inference that those in competitions do not have fun and are somewhat different from 'normal' members, is only tending to play some members against others with only a negative consequence.

I enjoy a reasonably wide range of aspects of our sport, but my greatest interest is com-

petition flying. I enjoy it, it is fun, I enjoy the company of the other pilots, I find that I am able to challenge my own abilities and learn new approaches. I would rather spend five to six hours flying cross-country than to stand around an airfield looking at old gliders. I would rather polish my glider for an hour or two than spend hours or days putting fabric on a wing, or painting a fuselage. But I know quite a number of people who do enjoy this, and I respect their patience and skill.

What I enjoy is not better or worse than what Martin does, or the folk at the vintage regatta. We are all enjoying our sport and developing our skills. I would rather that when people tell us how they enjoy the sport they do just that, without feeling the need to finish the statement by saying how it is better than other forms of the sport. Hopefully we can reduce the 'competition bashing' views that are spoken by a number of members, and this in turn will encourage all members to try all of the different options available.

I doubt that I will get too involved with working on vintage gliders, but I do enjoy seeing them, and have enjoyed my time in flying the Golden Eagle and Kookaburra's. I know a number of Vintage Gliding Association members who fly competitions also. There is room for everything.

Terry Cubley, Bacchus Marsh 

GLIDING FEDERATION OF AUSTRALIA

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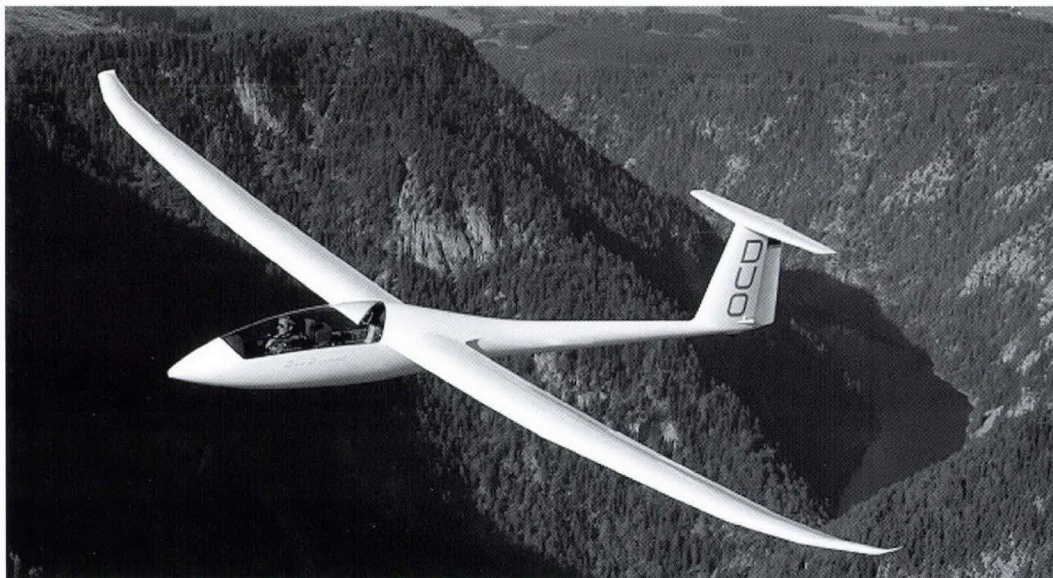
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http://members.ozemail.com.au/~fibremites



Nanolight Trike Update

John Reynoldson

THERE'S BEEN GROWING INTEREST IN LIGHTWEIGHT TRIKES FOR ATTACHMENT TO STANDARD HANG GLIDERS IN THE LAST COUPLE OF YEARS, WITH SEVERAL HOMEBUILTS AND SOME COMMERCIAL UNITS NOW FLYING. SOME PILOTS FLY THEM JUST TO HAVE AN ALTERNATIVE ON NORMALLY UNFLYABLE DAYS, OTHERS TO OPEN UP NEW SOARING OPPORTUNITIES.

WHATEVER THE REASON, IF YOU'RE INTERESTED, THERE ARE A FEW THINGS YOU SHOULD KNOW BEFORE GOING OUT AND BUYING OR BUILDING ONE.



Soaring a nanolight trike high over Milbrulong

From an administrative point of view (in Australia) a nanolight must be under 70kg empty weight. That's the weight of the trike base and wing combined, without fuel. If it's over 70kg, it's a microlight that must be registered under Civil Aviation Order 95.10 (if built by you) or under CAO 95.32 (if it's a commercially available item – in which case it's required to be certified for your and the manufacturer's protection). Sadly, because of the weight of the engines required to generate enough power to climb well, this puts nanolights out of the range of more rotund pilots.

If the unit is under 70kg, you don't need a full microlight licence to fly it. You can get a motorised hang gliding endorsement that requires a minimum of 20 hours and 10 flights hang gliding experience and only five hours of dual microlight time. Most experienced hang glider pilots will find the endorsement simple to get. Aircraft over 70kg require a full microlight certificate.

26 Soaring Australia

That's the administrative stuff – what about the machine itself?

Back in the early days of trikes when building your own was common, most of the trikes tended to the heavy side, and the hang gliders were generally strengthened somewhat to handle the load. This "strengthening" process was a bit arbitrary, as no-one, as far as I know, actually load tested the result or ensured that the glider retained its stability curve with the stiffer frame. Fortunately, these machines were generally flown in ideal conditions and seldom thermalled. These days, however, we expect our nanolights to be able to take us where a normal hang glider goes, including the strong air – not just buzzing around in the morning and evening glassy conditions.

THE WING

Most of the wing manufacturers do not sanction the use of trike bases with their wings.

They carry placards with statements like "all flight loads must be transmitted through the hang loop". If you ask them for advice on whether your wing is suitable for a nanolight, you will probably get a non-committal answer. Nevertheless, you should get as much advice from them as possible before committing to use a particular wing, particularly if any wing modifications are required.

In general, it's recommended that you use a wing which has been certified to carry a pilot weight in excess of the total weight of you and the trike. For light pilots, there's a fair range available, with most of the larger sizes of recent wings being certified to 125kg, with one or two (like the Sting 175) rated to 135kg pilot weight. If you go over the maximum weight, you're outside the certified range and performance will certainly suffer.

The enemy of all powered aircraft is metal fatigue. Remember that the wing was not designed with engine vibration or taxiing across rough fields in mind! While your wing's keel may have been designed to carry the appropriate payload, it was not designed for that payload to be vibrating at a high frequency or jolting up and down. Many of the available wings have very light keels made of 7000-series aluminium which can be pretty brittle and under some circumstances may be more prone to fatigue problems. You should check with the wing manufacturer and the trike builder (if commercial) to see if the keel (in particular) is suitable for the purpose. Because of the loose coupling to crossbars, etc... very little vibration generally gets to the rest of the structure, but vibration also undoes nuts and so-on, so an aggressive pre-flight and maintenance schedule is required.

There is also some concern about fatigue problems in the trike mast caused by repeated heavy control inputs. Some years ago, a few failures in conventional trike masts led to a general strengthening in this area



The Airwave Thruster (UK) nanolight trike under 4G positive load test. You need about 400kg of sand or concrete!

in many designs, plus installation of mast backup cables. Since a nanolight being thermalled certainly does get a heavy workout, a backup cable should certainly be installed if possible and the mast inspected regularly for crazing, etc...

The original keel was also not designed to take a twisting (yaw) load, and (most, but not all) nanolights place significant twisting loads on the keel, unlike a hang loop. In addition, many of the more recent high performance kingposted machines are designed to be flown with the pilot suspended from a short distance up the kingpost. These may complicate the matter somewhat.

The control bar position can be a problem. Because you're seated, the control bar needs to be more rearward than in prone so you can reach it and have adequate pull-in or push-out. This is worst in nanolights where you're in a more laid-back rather than bolt-upright position. There are a couple of ways to get around this, the first being to *reverse the speed bar*. This gives about six inches adjustment which may be enough for some and is safe to do from a structural standpoint. It's also somewhat uncomfortable, plus it can limit your pull-in. The other option is to *make new lower rigging*. This should not be undertaken lightly, as moving the control bar back by replacing the front/rear wires may affect the dihedral of the wing, so you may need new side wires as well (or adjust the length of the base bar to compensate). Needless to say, this should not be done without care, and the cables should be built by a professional! Once again, the wing manufacturer and/or trike builder should be able to provide advice on this issue.

THE TRIKE BASE

In today's litigious environment, you have the right to expect that if you purchase a commercial product that the product is fit for the job. Unfortunately, at present there are no standards published for "nanolight" trikes. Nevertheless you should satisfy yourself that the trike base you buy will be strong and robust enough.

- *Would it meet harness strength standards in*



Working a thermal over Milbrulong

free flight? (After all, then it's just a supine harness! See the photo for an example of a trike being tested for positive load strength.)

- *Is the mast backed up with a cable?*
- *Is the engine well secured with engine mount backups so that rubber failure will not cause major problems? For that matter, is the engine well isolated to limit transmitted vibration?*
- *Is the seat strong and comfortable?*
- *Is there provision for mount of a backup parachute that's easy to deploy, and can you reach the kill switch easily? If there is a backup parachute fitted, is there a length of Kevlar or steel cable bridle which is less likely to get cut by a still-spinning prop.*
- *Is the undercarriage strong enough to take a heavy landing?*
- *Can you start the engine from the seated position? (Rather than having to start it and then get into the aircraft, which has led to a few incidents.)*
- *Is there any sort of braking system?*

IF YOU BUILD IT YOURSELF...

If you look at all the above, it seems a bit daunting for the homebuilder. I can only recommend that if you decide to build, you get as much advice from wing builders as they will give. Look carefully at existing trike designs, and take as much care as you can to cover all the angles. You are the test pilot!

THE PAYOFF

In the end, a nanolight can be a great way to fly. No, it's not purist – you'll get scoffed at as being a petrol-head by mountain and tow pilots (though they will secretly envy you your guaranteed first thermal) and the microlight boys will consider your machine a toy.

Nevertheless, you have the freedom to carry your own launch mechanism in the back of your car, to take off (almost) any-

where, to thermal and fly in comfort and silence when you want with only a small drag penalty, and to explore new locations beyond the reach of the tow or mountain-launch pilot. Or if you wish, use the engine to tour or to just get an air fix.

(For more information on nanolights, you may wish to visit the [www.aerialpursuits.com] nanolight pages for a list of available machines and links to their builders.)



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Girls, Girls, Girls

Tish the Flying Fish

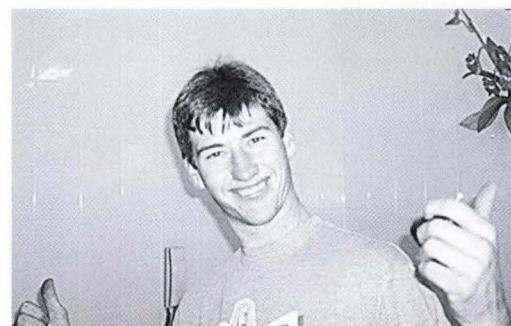
IF YOU GO TO BRAZIL FOR THE BRAZILIAN NATIONALS AND THE PRE-WORLDS YOU EXPECT TO COME HOME WITH MEMORIES FILLED UP WITH HIGH CLOUD BASES AND LONG TASKS.

The reality, however, no matter how good the flying, is that you come home with memories filled up with beautiful dancing Brazilian girls, and the photos to prove that they were real.

Brasilia, the capital of Brazil, has a 3:1 ratio of women to men. So when one hundred male hang glider pilots turn up (good looking, sporty and mostly single) the girls make the most of it, entertaining with dinners, movies, dancing, drinking and of course other things which I'll leave to your imagination.

Neither Brazilian women or men are backward about coming forward; it's something to do with the Latino culture, I think. There is a lot of focus on food, music, clothes and sex. People are also

Jonny Jnr

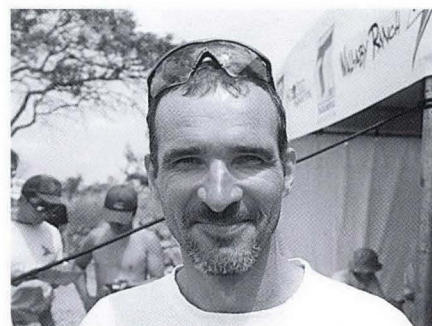


very friendly with strangers, which is great when you're a traveller.

The Aussie team this year consisted of Jonny Jnr, Craig, Rohan, Conrad, Adam and I. Jonny, Conrad and I arrived early to fly the Nationals, which was well worth it because conditions were fantastic. Up to 12,000ft cloudbases with tasks ranging from 100-140km with 15-20km/h crosswind most days. Many pilots made goal all of the eight days.

There was plenty of incentive to make goal. Goal everyday was a huge flat field that almost always had the wind blowing straight down the centre (like the pictures in Dennis' textbooks). It was also right in front of the Brazilian Congress in the heart of the city,

Oleg



flanked by all the Government Ministries. So there were many non-flying spectators.

Not only were there plenty of beautiful girls hanging about waiting to talk to pilots, there were men walking around selling beer, water, coke and icecream for about 60 cents. There were two guys doing massages under the marquee for a few dollars as well. There were two miniature hang gliders set up on frames and many local kids were strapped into harnesses and swung around to give them an idea of what hang gliding is like. It's a great way to raise the level of awareness and excitement about flying. They watch us land, then have a go themselves.

The final glide was over the huge artificial lake and University of Brasilia, past the 12-storey hotels – it was a real blast. There were a couple of landing options close to goal despite being in the city, so it wasn't too intimidating to come charging in low (which I did once or twice).

Landing out was also an experience. Even if you landed away from houses, lots of Brazilian kids would come and hang out as you can see in the photo.

Almost everyone stayed in cheap but nice hotels 500m from goal, and we were five minutes walk from shopping malls with a huge range of cheap yummy food. The whole experience was as convenient as you can get.

We had a local driver/pilot so we learnt Portuguese really fast because he didn't really speak English and we didn't want to get left out. Brazilians are generally mad drivers; there's no such thing as stopping at Stop signs or red lights, and it's just as common to overtake on the inside as outside. Overtaking on the outside usually involves pushing the oncoming traffic into the gravel on the side of the road and they have no qualms about doing this. The 80km ride to launch every morning was a trip in itself.

The Pre-worlds was also a good comp, mostly because it was long, so despite inconsistent weather we managed to get in plenty of rounds. There were some racing days like the previous comp, and many days that started fast, but shut down to 100 up within an hour or so due to thick high cloud or thunderstorms. We lost two days completely to storms and had two scheduled rest days (in hindsight not a good idea) but in general the days had high validity because few people ever bombed out and many got a fair way out on course.

The launch was fantastic. Bulldozed to a nice slope, four launches side by side. Take off was on the edge of a 3,500ft plateau and overlooked the Valley of Parana. After launch we flew over the back towards Brasilia, generally negotiating two or three turnpoints



on the way. Cloudbase usually stepped up 1-2,000ft as we headed towards Brasilia.

The flying in Brasilia is not at all technical and is restricted by the road system. All tasks are done between launch and the city where there are plenty of roads; it is very rare to fly across the valley or in other directions. Also the goal in Brasilia is a high profile one, so good for media attention. So by the end of a month of landing in Brasilia you feel pretty familiar with the place.

Jonny is living proof of how quickly you can learn a new language if you need to. It's very difficult to talk to the girls in English. Jonny's favourite Portuguese phrase was "Oi Gatinha" (literally meaning 'Hi, little pussy cat') and he used it every time a pretty girl went passed him, which is often in Brazil. The girls really like this cat call; it is also used affectionately by boyfriends to their girls.

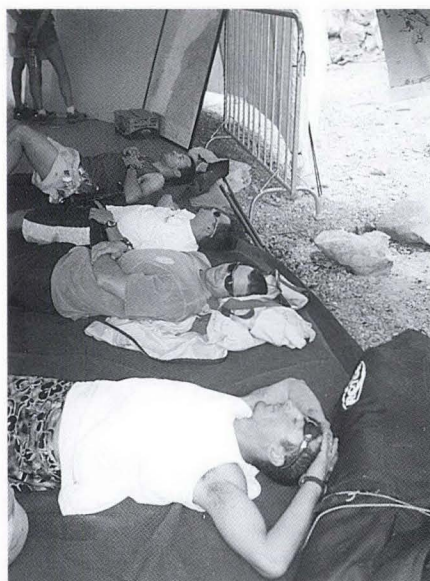
Both awards ceremonies were held at outdoor clubs amidst hundreds of dancing people. They were after midnight and the music was stopped for twenty minutes while trophies were presented, then everyone continued dancing till dawn. There were plenty of girls, so this was a really pleasant change from Aussie awards where the boys have to dance with each other and end up getting bored and really drunk for want of better fun.

God shined down on Brett Hazlett (Canadian National Champ) when he set up a landing approach too high in goal and overshot two fields, dropping down 30ft into a busy multi-laned road. He landed on a lane with no cars imminent and skidded across onto the median strip unhurt. Many people had run to help him, but many had turned away thinking he would be dead, so it was a real relief to see him walking back to the pizza tent in goal.

We took some days off in between comps and visited Chapada de Veadeiros (a beautiful National Park) with Paris, Flavia and Mona. Flavia is a Brazilian pilot, but she lives and works at Quest Air in Florida, and Mona is a pilot from Paraguay. We hiked and swam in the lovely clear rivers, climbed under waterfalls and generally appreciated life. There are many things to do in Brazil that don't include hang gliding, but as usual we flew nearly everyday for the six weeks.

We went out dancing a bit, though you need plenty of energy to keep up with Brazilians because they go out at 11pm and dance all night.

The Nationals was won by Nene Rotor and the Pre-Worlds by Oleg, for more results check out Davis' Oz Report.



Above: Congress flanked by ministries in front of goal

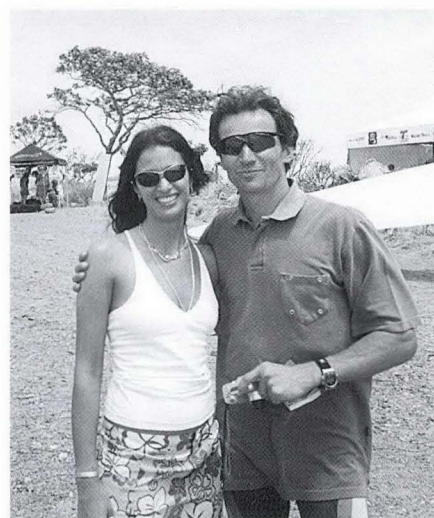
Left: If you party all night you have to sleep on launch

Bottom left: Meleni and elf

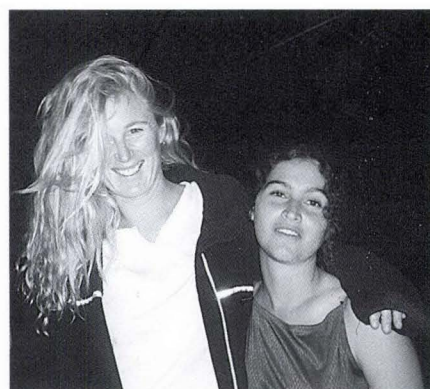
Below: Mona and Flavia



Brazilian beauties Alisa, Ana and Paula



Gerolf and Paula



Tish and Janaina



The Aussie team (left to right): Adam, Conrad, Kraig, Jonny, Rohan, Tish

LIFT – MAKING THE BEST OF IT

– Part 5

Today we will look at practical matters and consider a few hints for ensuring that we don't deviate too far from the optimum angle of bank.

1.9 PRACTICAL HINTS

Now that we all agree on the benefits of thermalling at an appropriate angle of bank we need to consider practical steps for implementation.

I'm the first to admit that it is not easy to properly judge the angle of bank with any degree of accuracy – a statement underlined by the fact that most pilots thermal much shallower than they think. Experience suggests that newcomers in particular tend to circle at less than 30° when they think they are banking the glider 40° or even more. However, here are three simple suggestions which can aid pilots to fly near the optimum bank angle.

The first hint is very easy to implement and probably even the most effective one. I have used it extensively myself and found it extremely useful indeed although requiring nothing more than a piece of wire, a bit of plywood and some masking tape.

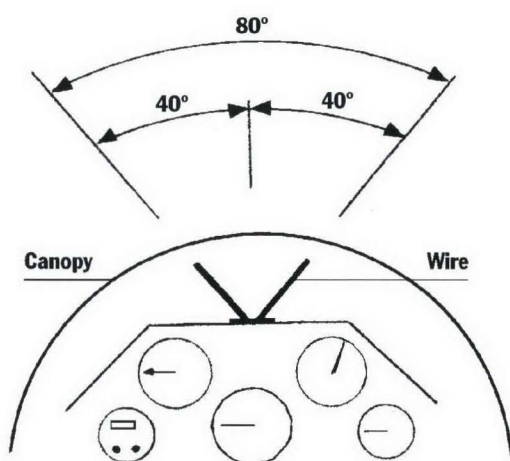
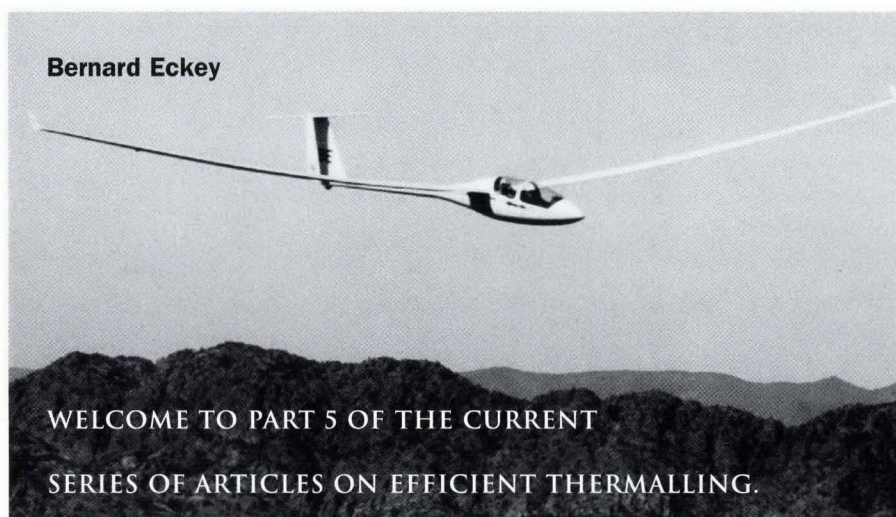


Figure 14: Angle of bank indicator

The wire is bent in accordance with the above sketch and is then permanently glued onto a piece of plywood of approximately 50 by 50mm. Making the gadget only costs a few cents. Best of all it can easily be affixed to the top of the instrument panel with some masking tape. While circling at 40° angle of bank one of the two ends of wire will stand vertically and perpendicular to the horizon. As we check the “nose/horizon attitude” we can also check whether we are



still thermalling anywhere near our predetermined angle of bank, – 40° in this case.

Another method is checking the time for a complete turn. Please refer to the following table showing the circle time at various airspeeds. Provided we maintain a steady speed we can use a wristwatch to check our angle of bank.

Circle Time in Seconds

SPEED	BANK ANGLE IN DEGREES									
	20	25	30	35	40	45	50	55	60	
Knots										
40	36	28	23	19	16	13	11	9	8	
45	41	32	26	21	18	15	12	10	9	
50	45	35	29	24	20	16	14	12	10	
55	50	39	31	26	22	18	15	13	10	
60	54	42	34	28	24	20	17	14	11	
65	59	46	37	31	26	21	18	15	12	
G force	1.06	1.10	1.15	1.22	1.31	1.41	1.56	1.74	2.00	

Table 2: Circle time in relation to bank angle

Last but not least we can use the wonders of modern technology. Dataloggers not only show us where we have been and what height we reached, but when set at a five-second recording interval they also show a perfect square for a 20 second turn. Looking at Table 2 we can see that a bank angle of 45° and a speed of 60kt corresponds to 20 seconds for a full turn. Just what we want.

1.10 EXITING A THERMAL

After gaining altitude in a thermal we need to ensure that the newly acquired energy is put to good use. The recreational pilot is usually keen to retain the energy for soaring whereby the competitively minded one is interested in converting height into distance. Both pilots have one thing in common; they want to exit the thermal in the most efficient manner.

Lift and sink belong together; they always come in pairs. Whether we like it or not, departing lift means that we have to transit an area of descending air. Unfortunately, a lot of energy can be lost by exiting

the thermal carelessly and on the wrong heading. Especially on windy days our thermals often have an elongated shape and therefore it's good strategy to exit the thermal on the wind line. There – and only there – we can expect to transit some buoyant air which can only be good news in terms of our energy retention strategy. (more on that subject later)

Also, it is a common mistake to maintain thermalling speed while transiting weaker lift surrounding the thermal core. Experienced pilots already build up some speed while circling and return to normal cruise speed while going through the outer fringes of the thermal. Quite often even additional speed increases are warranted before contacting sink. Let us look at a typical example together.

A 500m wide area of bad air (sinking at a rate of 2.5 m/s) is transited by two identical gliders. Pilot 1 (let us call him “Mr Slow”) flies through it at just 50kt relying on a low glider sink rate of 0.6m/s. His friend pilot 2 (“Mr Fast”) is in a hurry and shoots through at 90kt knowing full well that at this speed his aircraft is coming down at a rate of 1.6m/s. Who is better off when they both arrive at the far side of the bad area?

Pilot “Slow”:

At 50kt it takes “Mr Slow” just under 20 seconds to cross the sink. Descending at 0.6m/s but adding the additional 2.5m/s of sink gives him a total sink rate of 3.1m/s. Consequently after 20 seconds he has lost a total altitude of 62m or 200ft.

Pilot “Fast”:

Mr Fast is flying at 90kt to cross the sink in just 11 seconds. However his total sink rate

is 4.1m/s (1.6m/s + 2.5m/s) giving him an altitude loss of 45m or 145ft.

It's obvious that pilot "Mr Fast" truly deserves his name. He spent a bare minimum amount of time in bad air and not only arrives at the end of the sink 55ft higher but he is also nine seconds ahead of his slower friend. Best of all he is now already cruising 40kt faster and his friend will lose sight of him before much longer.

There is only one conclusion to be drawn from this simple exercise, we must speed up early enough to guarantee that we cross any sink at an increased appropriate speed. Not doing so will result in wasting altitude unnecessarily.

1.11 PROBLEMS ARISING WHILE THERMALING STEEPLY

Before leaving this subject we need to deal with the problem that the wings travel at different airspeeds while banking a glider steeply. This may sound a bit odd at first but becomes rather obvious when looking at figure 15 below.

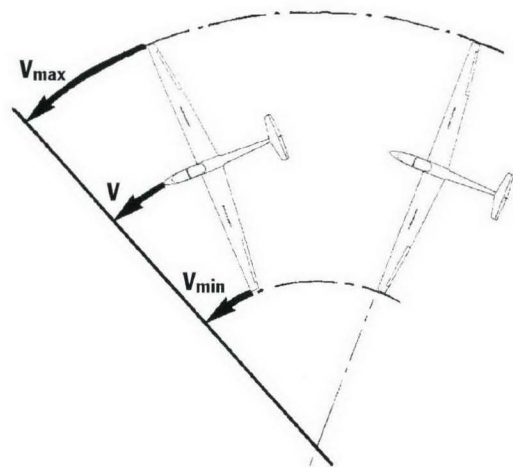


Figure 15: Speed difference between inner and outer wing

While thermaling the outer wing travels a fair bit further in the same amount of time and consequently the outer wing thus moves faster resulting in the production of slightly more lift. In contrast our inner wing travels slower and wants to drop. Having different amounts of lift generated by our wings is hardly noticeable at shallow bank angles but becomes a complication we need to deal with when circling steeply. If we do nothing the outer wing keeps going up and the inner wing keeps dropping. As a result our angle of bank increases steadily and soon we find ourselves banking much more steeply than intended. The resulting higher g-loads quickly reach uncomfortable levels, the speed builds up rather rapidly and newer pilots get overloaded in more ways than one. I'm sure we all know what I'm talking about.

Hand in hand with an increasing bank angle we usually experience a build up of circling speed and under such circumstances it is only natural that we pull back on the stick. Although this always results in a speed reduction in level flight, it only tends to increase G-forces (and speed) while we operate at steep angles of bank. No wonder things can easily get out of control.

What can we do to avoid this unwanted over-banking of our glider and how can we prevent a build up of thermalling speed in the first place? The answer is surprisingly simple. To ensure that things do not get out of control we simply apply a small dose of opposite aileron from time to time – just enough to ensure that our chosen angle of bank is maintained. In other words, we don't allow the bank angle to exceed a self-imposed limit which very much depends on our skill level and the handling characteristics of the glider.

If newer pilots have ever wondered why they had trouble maintaining a steep angle of bank they might have just discovered the reason. Therefore I suggest we put the theory to the test and perform steep turns in neutral air when next the opportunity presents itself? We will soon develop a pretty good feel for the amount of opposite aileron required and the exercise will be of tremendous help to us whenever we are confronted with narrow thermals in future.

1.12 YAW STRING CORRECTIONS

Over the years I have flown with a number of pilots and noticed that many of them only know about the use of rudder for yaw string corrections.

Although only rudder should be used for yaw corrections in level flight we can (and should) use our ailerons for centering the yaw string while thermaling.

Let us assume we are in a right-hand thermal when we notice our yaw string moving out to the left. We all know that applying right rudder will fix the problem straight away. However in a situation like this right rudder also tightens our turn. Tightening our turn might not be desired or warranted at the time as it might move us away from the core of the thermal.

In situations like this we can apply left aileron just as effectively. It will put the yaw string in the centre almost as quickly as the use of right rudder. The resulting shallower angle of bank often comes handy for position changes within the thermal. Whether we use ailerons or rudder is entirely up to us. What we do depends on our assessment

whether a tighter or wider turn is the preferred option at the time.

To sum it all up I have put the options for yaw string corrections during a right hand turn together.

Right turn/yaw string out to the left

Use right rudder for tighter turn OR use left aileron for wider turn

Right turn/yaw string out to the right

Use left rudder for wider turn OR use right aileron for tighter turn.



I would like to suggest we invest a minute or two and work out what control deflections are required for yaw string corrections in a left turn. Completing this exercise will ensure a

proper understanding of the matter and will also enable us to apply it properly next time we fly.

Little refinements like this can make thermaling more pleasant, more efficient and are likely to make a world of difference to our flying.

1.13 GETTING HELP FROM A COACH

Undoubtedly, efficient thermaling is one of the more difficult skills to learn but we need to master it if we want to enjoy our sport to the fullest. Let's not forget that our instructors normally share the cockpit with us for a few months only. Consequently they can only work on the basics with us, demonstrate their preferred thermaling technique, give us some guidance on thermal recognition, thermal entry procedures and help us with thermal centering. Very good instructors might even deliberately fly the glider out of a thermal and then boost the student's confidence by helping him or her to find it again. However, due to various constraints, instructors can seldom pass on as much as they would like but fortunately most clubs now have coaches. Coaches are only too happy to help when it comes to the finetuning of specific skills. However, in this context it is very helpful to remember my instructors standard line: "The mind is like a parachute – it doesn't function until it's open".

Suggesting to a coach to come for a flight in a two-seater is not something that immediately springs to mind for most pilots. After all, flying with an instructor is compulsory, but flying with a coach is voluntary. Understandably pleased that they have banned the instructor from the back seat most new pilots are usually reluctant to invite a coach

to take his place, but learning a bit more has never done anyone harm and skill refinements have never been a disadvantage.

A few flights with a coach are very likely to get us on a much steeper learning curve. They allow us to benefit from the coach's years of experience and enable us to compare our technique with the one our coach uses. Remember, we won't live long enough to make all the mistakes ourselves, so we might as well pick the brains of others and save ourselves some time, some money and possibly even some frustration.

My advice could not be more emphatic – go and grab a coach every time the oppor-

tunity presents itself. The long-term benefits are plentiful, we have every chance of finding better ways of doing things, we increase our chances of success next time we are on our own again and we are bound to get more enjoyment from our chosen sport in future.

However, to gain maximum benefits from our coaching flight we need to put some effort into its preparation. Information needs to flow in both directions for coaching to be most effective. Coaches aren't instructors who teach very basic flying skills. Coaches are a bit like consultants who provide help in specific areas. They are usually poor mind readers and therefore it is always a good idea

to tell them what aspect of our flying can do with some fine-tuning. Such pre-flight briefings usually pay big dividends as the subject can be discussed in a relaxed manner and prior the flight. It also gives student and coach time to think about suitable reading material on the subject and the best possible method of implementation.

In this context we should touch on the benefits of actively watching our coach on a dual flight. Such flights allow pilots to steal with their eyes – a practice not at all in conflict with the law. Just by watching and trying to understand the reasoning behind certain control inputs a lot can be learned and absorbed. This holds especially true in the area of decision-making, a subject we will cover in detail at a later stage.

Having said all of that, it needs to be stressed that dual coaching flights only provide lasting benefits as long as the student is watching the coach very actively indeed. More often than not it is a good idea to take notes during the flight as it stimulates a debriefing and further discussions in a more comfortable place at the end of the day – a good way of adding to the learning experience with a cool drink in our hands.

In between coaching sessions we should use every opportunity to work on the skill in need of further development. Especially if our coach has suggested to concentrate on a particular aspect of our flying we'd be wise to accept his advice. However, as solo pilots we are also free to implement the many hints and suggestions found in good soaring literature. It's still the same solution to the old problem: "If everything else fails..."

Experimenting is part of the learning process and invariably leads to a better understanding of such important issues as thermal structures and thermal behaviour. Even top pilots are still learning some sort of lesson on every flight and fine-tune their thermalling skills at every possible opportunity. What is good enough for them should be good enough for us but even if we have no ambition to rank amongst our top pilots we cannot afford to stop learning after going solo. The opposite is what we should be aiming for – going solo should be regarded as a license to learn.

Well, we have finally come to the end of chapter 1 and our discussions on thermalling. Chapter 2 will deal with thermal behaviour and practical hints for finding of thermals. See you next month.



News from Cambridge

The Cambridge 302 DDV Vario/logger. Mr Cambridge really got this vario right. I recently had a phonecall from a customer about another matter but he had recently bought a 302.

I have never heard so many superlatives in the space of the next 90 seconds. You might ask why have a different response speed with the vario and audio – all I can say please fly with the 302 and you will realise it is so much better than past technology. Trust me it does work. DDV=Direct digital variometer

The 303 is an improved conventional Cambridge GPS-NAV we are used to with the addition of final glide in the up/down position from the home screen. A great club/syndicate feature is the addition of the pilots name on the extreme left – saves having to visit a computer to upload a new pilot.

The 304 is the Compaq Ipaq which Cambridge sell the mount for while Chip Garner's GN software is available from Cumulus Soaring or myself. I strongly recommend the use of the mount as a loose lead can easily damage the Ipaq main board and the Ipaq is non repairable (anybody have a Aero 1550 which is dead as I have one with a broken screen!)

The 306 is the 302 rearseat repeater and most of the new big two-seaters coming into Australia this season are being set up with the 302, 303 and 306.

The 30? are the future developments. As of Sept 2002 there are new Cambridge owners and they are gearing up to supply Australia this season so now is the time to ask. The system is one of the best valued systems available at 60% the price of LNAV GPS-NAV system.

Buying a new glider and want a valuable wing stand? Then get a Cambridge system, Microair radio and Winter instruments and one is yours. I have sold well over 100 Microair radios and I did sell three lemons (summer 98-99) which have been completely removed from the system. Please ask one of the over 100 satisfied Microair customers.

Over 60 different items from Tost, Winter, Mecaplex etc are available and delivered overnight to most of Queensland and capital cities and two days to the rest of Australia

Safe soaring

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WADA and IOC publish new list of banned substances and methods

The World Anti-Doping Agency (WADA) and the International Olympic Committee (IOC) has published the new list of banned substances and methods, which will help guide doping control within the world of sports from 1 January 2003 to 31 December 2003. In releasing this list, WADA and the IOC have provided International Federations, National Olympic Committees and other Olympic partners the required three-month notice before this new list goes into effect. The current list, which was published in May 2001, will be applicable until 31 December 2002.

For the first time, the list of prohibited methods includes a reference to genetic doping.

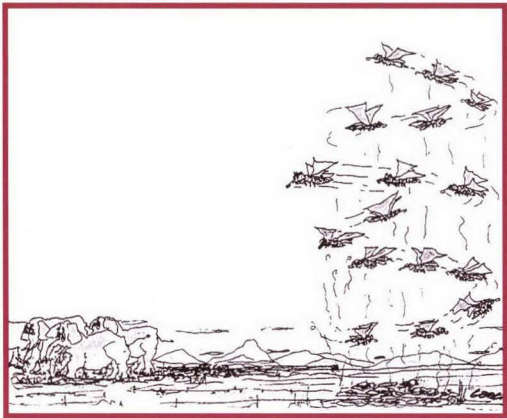
"By introducing the notion of genetic doping into the list at this time, we at

WADA and the IOC are taking into account the important changes occurring in doping techniques," said Richard W Pound, WADA's president. *"New medical technologies may pose new challenges in the fight against doping, but we, together with the scientific and medical communities, are ready to meet those challenges."*

"This list takes into account the dangers of the future and follows one of the fundamental principles of the IOC: the protection of athletes' health," said Dr Jacques Rogge, president of the IOC.

The new list can be found on both the WADA [www.wada-ama.org] and IOC [www.olympic.org] websites.

The next list, which is to be approved in 2003, will be part of the World Anti-Doping Code. The new list and Code will go into effect in 2004.



There he goes... Bill's spotted another "ten knotter"
Cartoon: Codez

Correction to GFA AGM/ACM article

The November issue of Soaring Australia contained an article regarding the GFA AGM/ACM which stated that Miles Gore-Brown had been appointed to the position of Chairman of the Sports Committee. This is incorrect.

The chairman of the sports committee is Rob Moore.

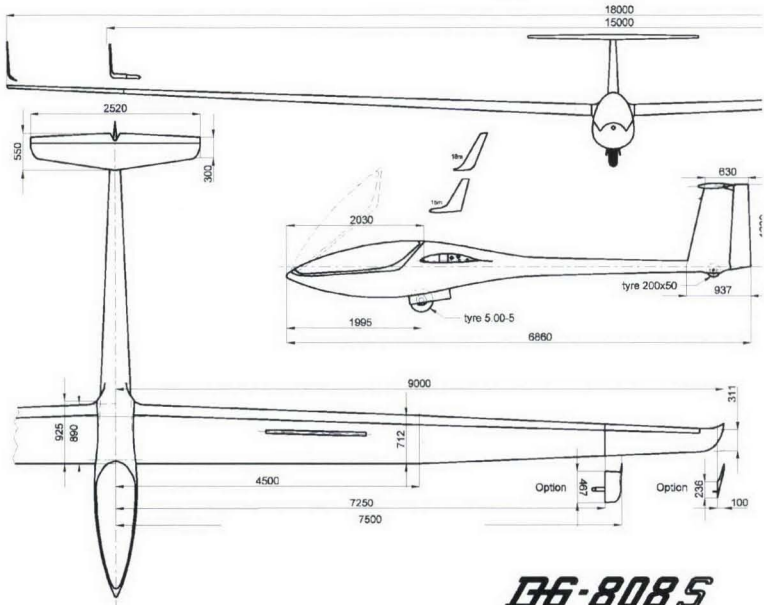


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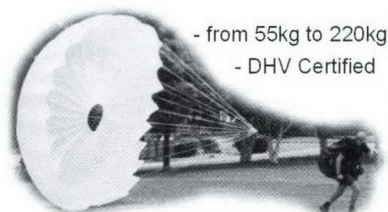


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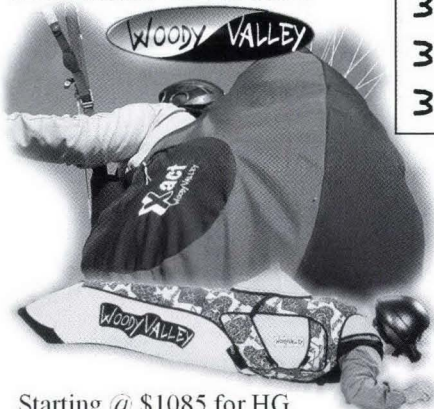
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Need to Know: HELMETS

James Freeman

Almost all pilots will crash eventually. Even a low-speed crash can scramble your brains. Gravel rash and broken bones heal; brains do not. Exact figures are not available for hang gliding, however research shows that around 90% of cyclists' brain injuries can be prevented by a properly fitted helmet.

THE PHYSICS OF HOW A HELMET WORKS

Head injuries are caused by the sudden stop when our head hits a hard surface. The way to prevent the injury is to bring the head (and the brain) to a more gradual stop. A helmet reduces the peak force applied to the head in a sharp impact. The force in a deceleration is inversely proportional to the time taken for that deceleration to occur. The only variable in a crash situation is the time the change in velocity occurs over, as this determines the deceleration and hence the force applied to the head. If we can increase this time by a factor of two, the deceleration (and thus the force) is halved. If we can increase this time by a factor of four, the force is reduced to 25% of what it would have been without a helmet. A human brain can withstand around 400G without ill effect. 400-700G causes concussion with a variable period of loss of consciousness. 700G+ results in permanent brain damage.

To increase the critical time over which deceleration occurs requires a material that brings our head to a safe stop by gradually crushing under load: it should have a very slow recovery rate when squeezed. It also needs to be thick enough and stiff enough to not totally collapse (bottom out) before our head comes to a stop. A material which can do this was developed in the 50s and today nearly all helmets do this with expanded polystyrene (EPS), the same foam used

for packing electronics. Once crushed, the foam does not recover. Spongy foam is added inside for comfort and fit.

But we're not finished. What if the surface we hit is not flat? Rounded surfaces concentrate the force of the blow in a smaller area. The smaller the radius, the greater the concentration. To compensate, we add a hard outer shell to spread the force over a wider area and reduce the concentration.

WHAT TYPE OF HELMET DO I NEED?

A helmet consists of an outer shell, crushable foam, a comfort liner, and a retention strap system. There are at least four critical elements that effect a helmet's protective properties:

1. *Impact management: how well the helmet protects against collisions with large objects.*
2. *Helmet stability: whether the helmet will be in place, and stay in place, when it's needed.*
3. *Retention system strength: whether the chinstraps are sufficiently strong to hold the helmet on throughout an impact.*
4. *Extent of protection: the area of the head protected by the helmet.*

The EPS foam layer is absolutely critical to impact management as explained above. The thicker the layer of foam the greater its ability to absorb impact forces. The firm rubber found in some helmets is a very poor substitute and not recommended.

The shell also plays an important role in impact management in that firstly it holds the EPS together during an impact. Secondly it helps prevent objects penetrating the helmet and spreads the load to the foam, and thirdly it helps the helmet skid easily on rough surfaces to avoid twisting your neck.

Obviously a helmet must stay on even if your head hits more than once, so it needs a strong strap and an equally strong fastener

Ground's The Limit

that cannot be accidentally opened. The comfort liner and straps help hold the helmet in correct position. With the strap fastened you should not be able to get the helmet off your head by any combination of pulling or twisting. If it comes off or slips enough to leave large areas of your head unprotected, adjust the straps again, add some padding, or try another helmet. Keep the strap comfortably snug when flying.

Open face helmets generally represent an acceptable level of protection for your brain, but provide less protection for your face. Full face helmets offer some extra facial protection at the expense of extra weight, decreased peripheral vision and perhaps decreased hearing and tactile sensation. It is also very important that they fit firmly. I was unfortunate enough to have to attend a recent hang glider lock-out incident in which the pilot impacted face first. The impact on the chin guard led to the helmet rotating downward causing the pilots sunglasses to shear his nasal bridge off (later repaired with plastic surgery). Of concern is the extra leverage of the chin guard on the neck, especially some designs in which the chin guard is an excessive distance in front of the chin.

Bicycle style helmet vents mean less foam in contact with your head in a crash, which could concentrate force on one point of your skull. These vents are designed to dissipate heat, which is not always optimal for hang gliding where staying warm is often the main concern. They also tend to have very thin shells.

"Aero" helmets are not noticeably faster unless you fly at competition speeds, and the "tail" could snag in a fall twisting your neck.

Comfort requirements should be considered. Fit, weight, and temperature/sweat control are the most critical comfort needs. A snug fit with no pressure points ensures comfort and correct position on the head if you crash. It may take a half hour of wearing to feel pressure points. Weight is a big issue for long flights. Airflow over the head determines warmth. Vented bicycle style helmets are designed to facilitate heat loss – okay, on the coast but less use at cloudbase. Sweat control can require a brow pad or separate sweatband.

WHEN DO I NEED TO REPLACE A HELMET?

Immediately replace a helmet after you crash and hit your head. Impact crushes some of the foam. The helmet is less protective but the damage may not be

visible. Helmets soften impact, so you may not even know your head hit unless you examine the helmet for marks or dents.

If you can see marks on the shell or notice any foam crush at all, replace the helmet. You may be reluctant to replace a helmet that looks almost as good as new, but if you did hit, you don't want to take chances. If the foam of a bicycle helmet is cracked under the thin shell, it will be more likely to fly apart in your next crash. Replace the buckle if it cracks or a piece breaks off. If you still have a helmet from the 70's without an EPS liner, replace it immediately. They just do not have the protection of modern helmets.

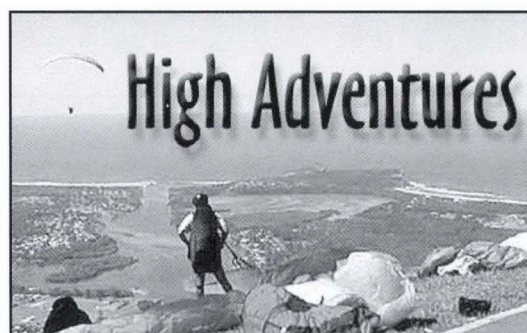
Finally, the protective capability may diminish over time. Some helmets are made of materials which deteriorate with age and therefore have a limited life span. Most manufacturers recommend helmet replacement after five years. Realistically that depends on usage, and most helmets given reasonable care should be good for longer than that. Please note that experience indicates there will be a noticeable improvement in the protective characteristic of helmets over a five year period. Thus, the recommendation for five year helmet replacement has some merit.

WHAT ABOUT HELMET STANDARDS?

Only the Europeans have a specific standard for hang gliding/paragliding helmets. The applicable standard is EN966. Many manufacturers of fine helmets in other countries certify their helmets to other standards.

WHAT TO LOOK FOR WHEN BUYING A HELMET

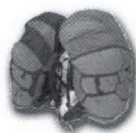
- Look for a standards sticker such as EN966.
- Check that it has a thick layer of EPS foam.
- Check that it has a sturdy shell.
- Put it on, adjust the straps and then try hard to tear it off.
- Look at the buckle for long-term durability.
- Make sure it is comfortable.
- Compare the price to the cost of a prolonged hospital stay.
- Consider the nightmare of being a vegetable.
- You will never regret buying and wearing a quality helmet.
- Remember, your brain is priceless!



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HGFA General Manager's Report

Craig Worth

An early Merry Christmas to all, and many happy landings in the New Year. My New Year wish is for all our pilots to have a safe season with many hours of enjoyment in the air. Please help me with this – good AirManShip is the key.

Volunteers

Members may not realise the amount of volunteer work that goes on behind the scenes to keep our organisation running, it is substantial. I certainly lean heavily on the expertise within our committees. Elections for the microlighting representatives to the Safety & Ops Committee were held at the recent National Microlight Instructor Conference. Kevin Magennis was again elected, along with a new face to the committee, Tony Dennis. Tony is as experienced as any in microlight training and his expertise will be greatly appreciated. As a result of Tony's election, I must sincerely thank Paul Haines for his assistance over the past 10 years on the committee. Good onya' Paul!

Microlighting Fatality

Sadly a fatal accident occurred recently on the New South Wales north coast. Coincidentally I was in the area on holiday and heard of the accident on the local news, so I was able to assist the local police in looking for causes. Though there were no witnesses, the microlight was seen flying by a neighbour four days before the wreckage was found. Indications are that the pilot was trying to land in the lee of a big stand of trees in conditions that would have turned the strip into a rotor zone. It was impossible to say whether the pilot was turned into the trees on approach, or on attempting to go-around – the result was that the aircraft hit the trees half way up, six or seven metres above the ground, then fell to the ground. The trike base hit the trees first, indicating that the aircraft was in a steep turn. The pilot suffered fatal head injuries on impact. He was a pilot in his late sixties and his log book showed a total of around 45 hours, despite flying for over 10 years. The log showed no entry for several years prior to the accident; nor did it show that he had completed the check flights required due to him having not flown the minimum required 10 hours per annum for many years. It appears that the pilot picked the wrong day to get back in the air, there may well have been little wind prior to him taking

off, though indications are that there would have been considerable wind by the time he attempted to land.

Microlight Check Flight Requirements

It is ironic that just a few weeks prior to this accident it was agreed by the HGFA Board to implement a recommendation from the Safety and Operations Committee that the HGFA introduce a biennial pilot check flight requirement similar to the AUF system. All microlight pilots are now required to undergo a check flight with an instructor at least once in every two year period. I appreciate that this will be difficult for some pilots given the size of our country and the relative small number of instructors, but there are valid safety benefits. Instructors providing check flights often find that pilots develop bad piloting habits, particularly in the first year or two away from their instructor. Where distance is a major issue in getting a check flight, an exemption can be sought in writing to the HGFA national office. Such an exemption may be granted where a pilot has completed at least one biennial check flight with an instructor since gaining a pilot certificate; can provide evidence of having subsequently maintained flying currency; and has gained a minimum of twenty five hours per annum.

Updated Advice: Buying Your First Paraglider

The HGFA supports the recent British Hang Gliding Association safety notice. In essence it reads: The situation regarding paragliders suitable for first time buyers has changed sufficiently for updated advice to be published. Previously advice was that: new pilots must only consider Standard Class or DHV 1 or 1/2 gliders. Since that advice was issued, it has become the case that canopies with an increasingly wide range of handling and performance characteristics are gaining DHV 1/2 certification, and many (perhaps even most) of these would not be suitable for first time buyers. It is also the case that some Standard Class gliders would not be suitable for all first time buyers. The updated advice is that: new pilots should only consider Standard Class or DHV 1 gliders. (Some DHV 1/2 gliders may also be suitable, whilst some Standard Class gliders may be less suitable.). The Airworthiness Classification should not be confused with a Buyer's Guide. Use the certification to guide you to the possibilities, but then take advice from instructors, manufacturers (they know exactly

the type of pilot the wing is intended for); dealers, other pilots and magazine reviews to help identify the wing most suitable for you. In Australia I suggest that pilots primarily seek advice from their instructor. Having overseen your training, your instructor is the person most capable of recommending a glider appropriate to your skills.

Airspace and Separation Issues

Several operational complaints have been recently received involving each of our aircraft types. I ask that all pilots comply with our legal obligations, particularly where the safety of other airspace users or the public may be affected. These complaints are not just detrimental to safety; without continued compliance our current operating freedom could be seriously curtailed. Recent complaints include:

1. *A microlight operating within an MBZ (mandatory broadcast zone) without carriage and use of VHF radio. Local GA operators sighted the microlight within the MBZ on several occasions without being able to gain radio contact with the pilot. Investigations revealed that the pilot was a member of the AUF. Obviously our trike pilots would never do such a thing – let's keep it that way!*
2. *A paraglider was reported in Sydney CTA (controlled airspace) at around 7,000ft. An RPT operator sighted the paraglider on a Sunday afternoon above the Sydney's northern beaches. Given the prevailing weather conditions this was most likely a motorised paraglider. I ask that anyone able to identify this pilot to please contact me. History has shown that our Disciplinary Tribunals take a very dim view of this type of infringement. Had the passenger aircraft been a little lower we could all be looking for another pastime!*
3. *A hang glider pilot was reported operating within 10m of a block of home units at an illegal site (the site is situated at Cronulla, less than 16km from Sydney airport). The local police have decided to act on this one.*

Safety Website

The FAI hang gliding and paragliding safety committee (CIVL) now has safety notices available for hang gliding and paragliding. The site is at: [www.fai.org/hang_gliding/safety/]. The site also has links to the German, Canadian and British federations' safety sites. The most recent safety notice relates to preventing spins in rigid wing hang gliders.



Operations Manual Amendments

A number of amendments to the HGFA Operations Manual are currently being printed and will soon be issued. These include the following notable changes:

- A requirement for biennial check flights for microlight pilots (as mentioned previously).
- Requirement for a tandem parachute to be carried for all tandem training operations in hang gliders and paragliders.
- Change of VHF radio call signs for microlights to "Microlight" plus the last four digits of the aircraft rego number.
- Introduction of a requirement for Restricted Pilot Certificate holders to undergo a check flight if not having flown for a 90 day period.
- A requirement for motorised hang gliding endorsement training where an undercarriage is fitted to include a minimum of five hours dual instruction in a microlight.

Accident Reports

No 1

Pilot: Restricted HG pilot
Experience: 4 hours total,
 1.6 hours last 90 days
Glider: "Floater" type glider
 (190ft²)
Pilot injury: Minor scratch only
Glider damage: Tear in sail
Location: Coastal ramp launch
Conditions: 15-20kt ramp launch,
 light turbulence

Description:

As the pilot launched from the ramp a wing dropped and despite attempts to level the glider, the turn continued until the glider was too far behind the ridge to penetrate forward. The pilot flared into low bushes.



Cartoon: Nigel Emerson (courtesy of South West Microlight Club)

Comments:

A lucky one. Witness reports suggested that the launch run and attempts to correct the turn were inadequate. Obviously when launching from a ramp, particularly where there may be turbulence, a strong launch technique is necessary. This does require considerable muscle, with focus on maintaining angle of attack and glider balance in roll. To maintain control in a bigger glider, corrections must be rapid and decisive.

No 2

Pilot: Restricted PG pilot
Experience: 9 hours total, hours
 last 90 days not known
Aircraft: DHV 1/2 paraglider
Pilot injury: Nil
Aircraft damage: Substantial damaged
 to canopy

Location:

Inland thermal site

Conditions:

11kt wind + strong
 thermal cycles, moderate
 turbulence

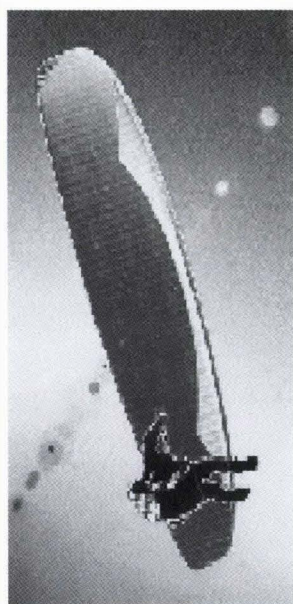
Description:

A strong cycle came through as the pilot launched; the aircraft climbed whilst going slowly backwards up the slope behind launch. Another cycle caused the glider to be driven further backwards into rotor turbulence behind trees which caused a frontal tuck, a tip folded under and the glider was turned into a tree. The pilot landed on his feet without injury.

Comment:

An expensive lesson given that the canopy is irreparable. It certainly appears that conditions were not suited to a low airtime pilot in this glider.

Fly safely, Craig Worth



The Paragliding Centre of S/E Qld

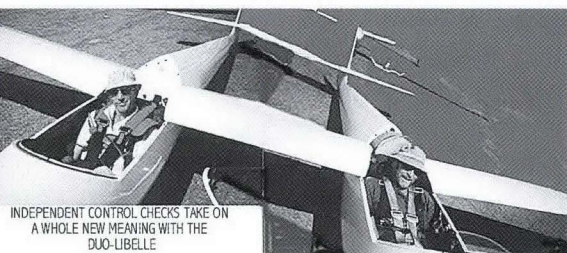
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Both pilots own Libelles. One of the Libelles has been modified to allow wingtip extensions, increasing the span to 17m. The solution was inspired by two photographs, that, when placed side by side, appeared to show a single glider with a configuration similar to the Global Challenger. The mechanics are simplicity itself: the right wing of the 15/17m Libelle was swapped with the wing on the other glider and the end connected to the end of the left wing. The connection uses a 30mm steel tube, similar to that used for the original wing tip extension. The only new component was a tailplane, linking the two fuselages at the rear. The resultant aircraft has a wingspan of 29.5m without the problems associated with long flexible wings and wingtips dragging on the ground. The undercarriage track is 14.5m providing


very stable ground run during take-off and landing. Bending loads are not a problem due to the weight distribution of the two fuselages.

Control linkage is limited to the common elevator. The inboard aileron actuator has been reversed on both halves of the aeroplane. This was necessary to make both control surfaces effective about the rolling axis, ie, the centre line of the aircraft, which corresponds to the wingtip of the standard aircraft. (It is easy to do this on Glasflügel aircraft). However, this does require some coordination between crew and limits the operation of the aircraft to experienced pilots. It has produced some unexpected benefits. If both control columns are moved toward the centre line, all control surfaces on the wing are deflected down, increasing the coefficient of lift and lowering the stall

speed. The opposite occurs if the columns are both moved away from the centre line; reflex flap is obtained for high-speed flight.

Some difficulty has been experienced when entering thermals: the large span and wing arrangement gives the pilot in both cockpits the sensation that the lift is on his or her side. Simultaneous application of opposite stick and rudder leads to an increase in drag coinciding with a loss of lift. A significant loss of height occurs as a result. An intercom system and nomination of a crew captain has solved the problem.

No performance figures are available, although the pilots believe that they would have no difficulty in out-climbing even the latest open class glider. The glide performance exceeds that of an empty Nimbus 3, but is limited on stronger days by the traditional Libelle water ballast limitation.

George and Fred do not want to enter into any correspondence on this project as they have already moved on to their next design. This will be a similar configuration with side-by-side fuselages, although a canard design, to provide greater safety and performance. Rumour has it that they have been running a tape measure over a couple of Discus and talking of twin engines. 



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95th FAI General Conference (2)

– New Concept for the third World Air Games

THE 95TH FAI GENERAL CONFERENCE HELD FROM 7 TO 13 OCTOBER 2002 IN DUBROVNIK, CROATIA, APPROVED A NEW CONCEPT FOR THE THIRD WORLD AIR GAMES. A REDUCTION IN SIZE AND MORE CENTRALISATION OF THE COMPETITION VENUES WILL FURTHER IMPROVE THE POPULARITY AND THE ATTRACTIVENESS OF THE EVENT. A TWO-PHASE BID PROCESS WILL START EARLY IN 2003 TO SELECT THE ORGANISER OF THE THIRD WORLD AIR GAMES 2005.

A SHORT HISTORY OF THE WORLD AIR GAMES

Starting in the mid-80s, the Fédération Aéronautique Internationale (FAI) worked on emulating the concept of an Olympiad for its air sports and developed the idea of World Air Games (WAG). The objective of this quadrennial, elite and multi-disciplinary unique sport's festival was to determine champions in all participating air sports; to motivate camaraderie among the world's top athletes; to showcase air sports to the public and to promote public participation in air sports. The first WAG took place in Turkey (1997), the second in Spain (2001). Both events included around 3,500 participants, with 2,000 athletes competing in more than 20 events spread over eight different competition venues.

NEW CONCEPT FOR THE THIRD WAG 2005

In an effort to render air sports even more popular and attractive to the media the FAI Executive Board appointed the WAG Co-ordinating Committee (WAGCC) to work out a new concept based on the experiences collected during the previous WAGs. The 95th FAI General Conference held in October at Dubrovnik was an excellent opportunity for Mr BJ Worth, Executive Chairman of the WAGCC, to explain the guidelines according to which the third WAG will be organised in 2005. The most significant elements intended to establish an event with more impact are a reduction in size (maximum 1,000 participants); centralisation and reduced number of competition venues (maximum three venues within 100km); a reduction in the length of WAG events (maximum six to seven days) and time-sharing between events at the competition venues.

To attract a maximum number of spectators, the opening ceremony will take place on a weekend at a central venue with all participating athletes parading. A show segment will be included to present all WAG air sports: aerobatics, aeromodelling, ballooning, gliding, hang gliding, helicopters, microlights, paragliding and parachuting.

INTERACTIVITY WITH THE PUBLIC

To improve attendance of spectators and enhance their interest in air sports, a static display of aircraft and equipment used by the athletes, competitor profiles, and a description of each event with its objective will be available at the competition venues.

LAUNCH OF BID PROCESS IN EARLY 2003

The next WAG organiser will be selected by a two-phase bid process. Early in 2003, FAI will invite FAI members, cities, regions and corporations to bid for the right to organise and host the third World Air Games. A bid package will be provided to qualified entities that submit requests to FAI; the package will include all relevant instructions, information and documents for completing the WAG bid form.

A dedicated Internet page with detailed information will be published at [www.fai.org] later this year.



Editor's note: Australia, through ASAC, is considering making a bid for the 2005 third World Air Games.



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GFA Development Officer's Report

Terry Cubley

As mentioned in the November edition of *Soaring Australia*, we are progressing with a promotion campaign for our sport. The intent of a national promotion is to raise the profile of our sport in targeted markets, in this case those with other interests in flying. We will sell a general message to raise the interests of those who may have thought about gliding in the past but who may have thought that it was too expensive or too dangerous. Once we have alerted them that we exist, it will then be up to local promotion to get them into the air.

The major components of this national campaign are:

1. *Advertising in some national magazines. In the new year we will be placing advertisements in aviation magazines. First to be targeted will be Flight Safety Australia and Airborne magazine.*

Flight Safety Australia is the CASA safety magazine which is distributed bi-monthly to 90,000 licensed pilots and cabin crew around Australia. Airborne magazine is the most popular magazine for aeromodellers. The plan is to target aviation magazines in an effort to present ourselves to people who already have an interest in flying. The message will be around how safe, affordable and exciting our sport can be.

2. *Web page. The advertisements will promote our new visitors web page [www.soaring.com.au]. This web page has been developed in cooperation with the Hang Gliding Federation and the front page will welcome people to the sport of soaring and they can then select from the options of gliding, hang gliding or paragliding. By the time this edition of Soaring Australia is published, the web page should be in action, at least at a fairly basic level.*

The Gliding section will provide information on what the sport is about, how gliders fly, what is possible in the sport, and most important, how they can participate. The general information will be supported by specific information on clubs and commercial organisations that can accommodate their needs.

Those clubs that are interested in welcoming visitors and increasing their membership can be included on the new

website. To be accepted on the site, the club must meet some basic standards in terms of their facilities and organisation, and in how well they treat people who are potential new members of our sport. This accreditation process will be fairly straightforward. Clubs will be asked to self assess against a list of basic criteria and those who achieve the minimum level will be placed on the new site. There will be an external validation of this assessment so that we ensure that our advertising sends people to a club or organisation that is making the effort to increase our membership.

The soaring.com.au website will provide details of the accredited clubs including location and contact information. It will also link through to the club's own website.

The visitors' web page will also link through to the gfa.org.au site so that keen people will be able to find out information on all clubs and other activities within the whole organisation.

Clubs may want to consider carefully if they would like to participate in this promotion activity. There are some real benefits but of course it requires some effort to look after people and to try and turn them into members.

What about small clubs?

Approximately 20% of our total membership are members of clubs with fewer than 20 members. Fifty-five percent of our clubs have fewer than 20 members. This is primarily a result of Australia's demographics. The large clubs are generally within reach of major capital cities, the smaller clubs are often in less populated regions. These regions are of course where some of the better weather and airspace is to be found.

These smaller clubs have particular problems in terms of continued development and with increasing membership. The most critical issues that have been raised with me recently revolve around

- Ability to operate
- Insufficient instructors
- Fixed costs such as insurance

The first two points are somewhat related. Clubs require a Level 2 instructor to be in charge of operations on any day they fly. If a small club only has one or two Level 2 instructors, then these need to be on the airfield any time that the club operates. The only exception is if all of those operating are Independent Operators. This is fine for the older members, but newer people will find many

restrictions and it doesn't take many days when they cannot fly before they take up some other sport.

The Regional Operations committees are considering options to solve this particular issue; hopefully this will happen reasonably soon so that these smaller clubs have a chance to improve their activity.

The other issue that is raised by a small number of instructors is an inability to constantly provide training to new members. Either the instructors have to constantly turn up week after week, which many have been doing for years, or the student will suffer slow progress and probably leave.

A number of clubs are moving away from this situation, realising that they just don't have the resources. Some clubs have non-instructing days or weekends, or only at certain times of the year – this means that the students know when they can turn up and the instructors can do some of their own flying. Others don't do any instructing at all, sending their new members to do courses at professional organisations or larger clubs some distance away.

One suggestion recently from Ian Patching from VMFG was for his club to move into a small club for a week to run a training course. This enables the small club to advertise/promote training to local people and then for the large club to provide the resources and people to actually run it. An excellent idea, and if it was done on a regular basis, some of the smaller clubs may have a chance to replace some of their long-serving members and so share the workload.

Insurance costs

This is a growing cost for most clubs, and the small clubs have to spread the cost of public liability insurance across only a few members. Often the premium for public liability is a function of the cover, not the number of members. Spreading this cost over 10 members is quite different from spreading it over 100 members.

It would be good to see if some group public liability insurance could be arranged to support these clubs.

Many operate from private property and liability insurance is critical for their on-going operation.

I am keen to hear from smaller clubs about the issues that face them, and from anyone who has suggestions on how to help with their specific situation.



BADGES & CERTIFICATES

FAI Report – October 2002

A CERTIFICATE

McKAY Barry Douglas	10739	Byron Bay
McKENZIE Donald Alan	10740	NSW Air TC
TROMP Sara Angeline	10741	Darling Downs
NASH Stuart	10747	NSW Air TC
BROWN Rhys	10749	NSW Air TC
SMITH Aaron Mark	10750	NSW Air TC
SAWELL Ian William	10752	Lake Keepit

A AND B CERTIFICATE

VAN WAGONER Kieran	10746	NSW Air TC
--------------------	-------	------------

C CERTIFICATE

TANKARD Lewis Arthur	10652	GCV
FOOTIT George Alexander	10409	Geelong
FIALKA Francis Joseph	10691	GCV

B AND C CERTIFICATE

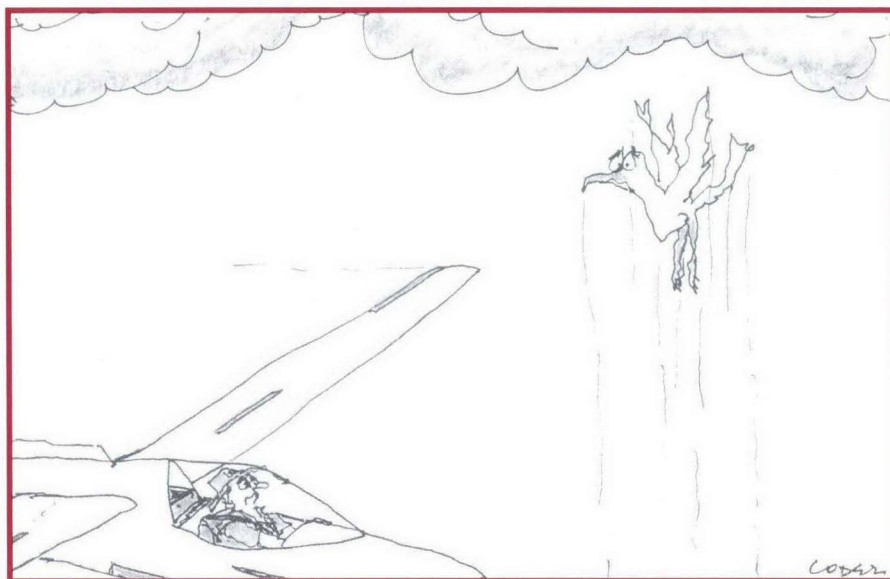
HARTMANN Mark Werner	10720	Darling Downs
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A, B AND C CERTIFICATE

STOTT Adam Mark	10742	Adelaide Uni
JOHNSON Swain Robert	10743	GCWA
TRAINOR Michael Francis	10744	Adelaide Soaring
STEPHENS Kenneth Race	10745	GCV
UTHER Geoffrey Colin	10748	Sthn Cross
VASILIADES George	10751	GCV
SMITH Stuart Douglas	10753	Sthn Riverina
KELLY James Kingswood	10754	VMFG

GOLD C

EENSTED Phillip Michael	Sthn Downs
-------------------------	------------



As the red-beaked yellow thwarbler hurtled heavenward... Carruther's instructor's words, "500ft" and "cloudbase", arose in his consciousness.

Cartoon: Codez

DIAMOND DISTANCE

EENSTED Phillip Michael	Sthn Downs
-------------------------	------------

DIAMOND HEIGHT

JOHNSON William Urquhart	Geelong
SZEMIS Olgerd	Geelong

DIAMOND C

JOHNSON William U.	204	Geelong
SZEMIS Olgerd	205	Geelong

Claims for all badges and certificates to:

FAI Certificates Officer Beryl Hartley

PO Box 275, Narromine NSW 2821

Ph: 02 6889 2733 (w), 02 6889 1250 (h)

Fax: 02 6889 2933, Email

<hartley@avionics.com.au>

Decentralised Competition entries to:

Chris Stephens

PO Box W48 Wanniasa ACT 2903

Ph: 02 6231 4121, Email

<poboxw48@dynamite.com.au>

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info@forwoodflightandfun.com

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**AIRFER
PARAMOTORES**



Contact Addresses

GFA

NSW Gliding Association (NSWGA)

Australian Air League

NSW Gliding Wing, 1 Perry St,
Kings Langley NSW 2147.

Australian Soaring Centre

PO Box 1315, Byron Bay NSW 2481.

Bathurst Soaring Club

PO Box 1682, Bathurst NSW 2795.

Byron Power Gliding Club

PO Box 815, Byron Bay NSW 2481,
02 66847627, 0428 847642.

Canberra Gliding Club

PO Box 1130, Canberra City ACT 2601,
02 64523994, 0428 523994.

Central Coast Soaring Club

PO Box 1323, Gosford South NSW 2250,
02 49772740.

Cudgegong Soaring Pty Ltd

PO Box 352, Frenchs Forest NSW 1640,
02 94522777, 02 94530777.

Forbes Soaring & Aero Club

PO Box 267, Forbes NSW 2871,
02 68523845.

Goulburn Gliding Group

57 Munro Rd, Queanbeyan NSW 2620.

Grafton Gliding Club

11 Lighthouse Crs., Emerald Beach NSW
2456, 02 66561979, 02 66561979, 0428
244614.

Greenethorpe Gliding Club

Weerona Young Rd, Grenfell NSW 2810,
02 63431375, 02 63431375.

Harden Gliding Club

78 Badenoch Crs., Evatt ACT 2617, 02
62585554, 02 62578280, 0418 670291,
[users.bigpond.com/richard.hart/hgc/default
t.html], Sec: Richard Hart 02 62585554.

Hunter Valley Gliding Club

PO Box 9, Newcastle NSW 2300.

Kentucky Flying Club

The Hill, Kentucky NSW 2354.

Lake Keepit Soaring Club

PO Box 1525, South Tamworth NSW 2340,
02 67697514, 02 67697640.

Leeton Gliding Club

PO Box 607, Leeton NSW 2705,
02 6953 6970.

NSW AIRTC Gliding Club

41 Simpson Ave, Forest Hill NSW 2651,
02 69227526.

NSW Police Gliding Club

27 Bourne St, Wentworth Falls NSW 2782,
0427 592744.

Orana Soaring Club

PO Box 240, Narromine NSW 2821,
02 68892733, 02 68891229.

RAAF Richmond Gliding Club

RAAF Base, Richmond NSW 2755.

RAAF Williamtown Gliding Club

c/o Mr AJ Lee, 10 Federation Dr.,
Medowie NSW 2318.

Royal Australian Naval

Gliding Association

PO Box A37, Naval Air Base, Nowra
NSW 2540.

Scout Association NSW Gliding

Dr Reg Mitchell, 15 Harrison Ave,
Eastwood NSW 2122, 02 93519660,
02 93519540.

Soar Narromine Pty Ltd

PO Box 56, Narromine NSW 2821,
02 68891856, 02 68892488.

Southern Cross Gliding Club

PO Box 132, Camden NSW 2570.

Sportavia Soaring

PO Box 78, Tocumwal NSW 2714,
03 58742063.

Summerland Gliding Club

PO Box 820, Lismore NSW 2480,
Sec: David Wright, 02 6621 6495 (w),
email: <wrights@nor.com.au>

Sydney Gliding Inc. (Concordia GC)

PO Box 633, Camden NSW 2570.

Temora Gliding Club

PO Box 206, Temora NSW 2666,
02 69772733.

Tumut Gliding Club

PO Box 112, Tumut NSW 2720,
02 69471148.

Wagga Wagga Gliding Club

25 Beauty Point Ave, Wagga Wagga
NSW 2650, 0427 205624.

Wee Waa Gliding Club

(formerly Warrumbungle Gliding Club)
PO Box 586, Wee Waa NSW 2388,
02 67954333.

Queensland Soaring Association (QSA)

Boonah Gliding Club

PO Box 107, Boonah QLD 4310,
07 54630190.

Bundaberg Soaring Club

PO Box 211, Bundaberg QLD 4670,
07 41553158.

Caboolture Gliding Club

PO Box 920, Caboolture QLD 4510,
0418 713903.

Central Queensland Gliding Club

PO Box 953, Rockhampton QLD 4700,
07 49371381.

Darling Downs Soaring Club

PO Box 584, Toowoomba QLD 4350,
07 46637140.

Gympie Gliding Club

PO Box 103, Gympie QLD 4570,
07 54867247.

Kingaroy Soaring Club

PO Box 91, Kingaroy QLD 4610,
07 41622191.

Moura Gliding Club

PO Box 92, Moura QLD 4718,
07 47733542.

North Queensland Soaring Centre

PO Box 5790 Townsville Mail Centre
QLD 4810, 0500 811011.

No. 229 Squadron Australian

Air Force Cadets

3 Hedlow Court, Carindale QLD 4152,
07 33989745, 0148 984752.

Southern Downs Soaring

PO Box 144, Warwick QLD 4370,
07 33781717.

Tarwan Soaring

PO Box 34, Wandoo QLD 4419,
07 46274080.

SA Gliding Association (SAGA)

Adelaide Hills Soaring Group

PO Box 1, Bridgewater SA 5155.

Adelaide Soaring Club

PO Box 94, Gawler SA 5118,
08 85221877, 08 85223177.

Adelaide Uni Gliding Club Inc.,

Adelaide Uni Sports Association
The University of Adelaide, SA 5005,
08 88262203.

Alice Springs Gliding Club

PO Box 356, Alice Springs NT 0871,
08 89526384.

Balaklava Gliding Club

PO Box 257, Balaklava SA 5461,
08 88645062.

Barossa Valley Gliding Club

PO Box 123, Stonefield via Truro
SA 5356, 08 85640240.

Blanchetown Gliding Club

c/o 12 Alta Rd, Modbury SA 5092.

Bordertown Keith Gliding Club

PO Box 377, Bordertown SA 5268.

Gawler Gliding Club

PO Box 135, Cockatoo Valley SA 5351.

Millicent Gliding Club

PO Box 194, Millicent SA 5280.

Murray Bridge Gliding Club

PO Box 1277, Victor Harbor SA 5211.

Northern Australian Gliding Club

PO Box 38889, Winnellie NT 0821.

Port Augusta Gliding Club

PO Box 272, Port Augusta SA 5700,
08 86436228.

Renmark Gliding Club

PO Box 450, Renmark SA 5341,
ph/fax 08 85951422, mob 0417890215.

SA AIRTC Gliding Club

PO Box 2000, Salisbury SA 5108.

Waikerie Gliding Club

PO Box 320, Waikerie SA 5330,
08 85412644, 08 85412761.

Whyalla Gliding Club

PO Box 556, Whyalla SA 5600,
08 86404432, 0413 127825.

Victorian Soaring Association (VSA)

Albury Corowa Gliding Club

PO Box 620, Wodonga VIC 3689.

Beaufort Gliding Club

116 Tennyson St, Elwood VIC 3184.

Bendigo Gliding Club

62 Lawson St, Bendigo VIC 3550.

Corangamite Soaring Club

Kurweeton, Derrinallum VIC 3325.

Geelong Gliding Club

PO Box 197, Bacchus Marsh VIC 3340.

Gliding Club of Northern Tasmania

12 Delungra Rd, Trevallyn TAS 7250,
03 63346594.

Gliding Club of Victoria

PO Box 46, Benalla VIC 3672,
03 57621058, 03 57625599.

Grampians Soaring Club

PO Box 468, Ararat VIC 3377,
0417 514438.

Latrobe Valley Gliding Club

PO Box 625, Morwell VIC 3840.

Mangalore Gliding Club

PO Box 80, Avenel VIC 3664.

Mount Beauty Gliding Club

44 Roper St, Mount Beauty VIC 3699.

Murray Valley Soaring Club Ltd

PO Box 403, Corowa NSW 2646.

RAAF East Sale Gliding Club

c/o Gary Mason, 9 Weir St, Sale VIC 3850.

Soaring Club of Tasmania

c/o Bruce Thompson, 34 Clinton Rd,
Geilston Bay TAS 7015, 03 62552191 (h),
03 62252561 (CFI).

South Gippsland Gliding Club

PO Box 475, Leongatha VIC 3953.

Southern Riverina Gliding Club

PO Box 78, Tocumwal NSW 2714,
03 58742063, 03 58742705.

Stawell Gliding Club

20 Jones St, Stawell VIC 3380,
03 53582713.

Sunraysia Gliding Club

PO Box 647, Mildura VIC 3500.

Swan Hill Gliding Club

PO Box 160, Nyah VIC 3594.

Tumbarumba Gliding Club

Mundaroo, Tumbarumba NSW 2653.

Victorian Motorless Flight Group

GPO Box 10961, Melbourne VIC 3001,
0402 281928, 03 98486473.

Wimmera Soaring Club

PO Box 158, Horsham VIC 3402

WA Gliding Association (WAGA)

Beverley Soaring Society

PO Box 136, Beverley WA 6304,
0407 385361.

Gliding Club of Western Australia

356 Abernethy Rd, Cloverdale WA 6105,
08 92774148, 0409 683159, 08 96351023.

Morawa Flying Club

PO Box 276, Morawa WA 6623.

Narrogin Gliding Club

PO Box 276, Morawa WA 6623,
0407 088314

Stirlings Gliding Club

c/o Post Office, Lower King WA 6330.

WA Squadron Australian

Air Force Cadets

Headquarters, RAAF Base, Pearce,
Bullsbrook WA 6084, 08 95717800,
08 95717877.

HGFA

All correspondence, including changes
of address, membership renewals, short
term memberships, rating forms and other
administrative matters should be sent to:

HGFA National Office and General & Operations Manager

PO Box 157, Hallidays Point NSW 2430.
Ph: 02 6559 2713, fax: 02 6559 3830,
<office@hgfa.asn.au>.
Craig Worth: 0418 657419,
<general_manager@hgfa.asn.au>.

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38 Addison Rd, Black Forest SA 5035,
08 82325405, 0408 808436, fax: 08
82237345, <rob_woodward@ultimate
positioning.com.au>.

GFA MEMBERSHIP FEES 2002-2003

Membership:	Normal	Family
NSW/WA/QLD	\$171	\$135
Victoria	\$172	\$136
South Australia	\$175	\$139

Student Membership:	Full	Family
NSW/WA/QLD	\$106	\$70
Victoria	\$107	\$71
South Australia	\$110	\$74

Short-term Membership:	1 Month*	3 Month*
NSW/WA/QLD/VIC	\$24	\$36
South Australia	\$33	\$45

International postage for Soaring Australia
to be added to membership fees:

Zone One	Zone Two
New Zealand	\$54
Singapore	\$60

Zone Three	Zone Four
Japan, Hong	USA, Canada,
Kong, India	\$60
	Middle East
	\$66

Zone Five
UK, Europe, South America,
South Africa
\$72

*Note: Once only purchase to Australian residents, thereafter 12 month membership to be purchased.

Stewart Dennis PO Box 118, Dickson ACT 2602, ph/fax 02 62470008, 0429 158721, <sdd20@telstra.com>.

Nigel LeLean 11 Mullaway Rd, Lake Cathie NSW 2445, ph/fax 02 65854723, 0419 442597 (m).

Bill Moyes 173 Bronte St, Waverley NSW 2024, 02 93875114, fax: 02 93693342, <Bill_Moyes@hgfa.asn.au>.

John Reynoldson 68 Teddington St, Hampton VIC 3188, 03 95970527, fax: 03 95981302, <John_Reynoldson@hgfa.asn.au>.

Mark Thompson 40 Hovia Terrace, Kensington WA 6151, 08 94912417 (w), 0428 729028, <mark.thompson@team.telstra.com>.

Microlight Public Relations

Paul Haines ph/fax: 02 42941031.

INFORMATION

about site ratings, sites and other local matters, contact the appropriate State associations, region or club.

States & Regions

ACTHGPA

PO Box 3496, Manuka ACT 2603; Pres: Steve Foggett 0417 313589 <sfoggett@dc.com>; Sec: Mark Elston 0428 480820 <Mark.Elston@defence.gov.au>; Trs: Tony Davidson 0500 883322 <td@silktel.com>; Committee members: John Chapman, Michael Porter, Matt Davey, Brett Robinson; SSO: Peter Bowyer 0412 486114. Meetings: 1st Tue/month 7:30pm, Yamba Sports Club, Phillip.

Hang Gliding Association of WA

PO Box 82, South Perth WA 6151; <hang_gliding_association_wa@hotmail.com>. Admin: Richard Williams 08 92943962, <rickandalice@hotmail.com>; HG Rep: Mike Thorn/Sam Blight 08 92988174 & Steve Hoefs/Dave Wellington 08 9397 7250; PG Rep: Mike Duffy 08 93823036, Dave Humphrey 08 95745440; Trike/HGFA Rep: Keith Lush 08 93673479 (h), 08 93679066 (w).

NSW Hang Gliding Association

Sec: Steve Hocking, 19 Gladwood Gardens, Double Bay NSW 2028, ph/fax: 02 9327 4025, <nswhga@s054.aone.net.au>.

North Queensland HG Association

12 Van Eldik Ave, Andergrove QLD 4740; Pres: Graeme Beplate 07 49552913, fax: 07 49555122, <sitework@mackay.net.au>; Sec: Ron Huxhagen 07 49552913. South East Queensland HG Association Pres: Greg Hollands <greg.s.hollands@transport.qld.gov.au>, PO Box 61, Canungra Qld 4275 07 38448566.

South Australian HG Association

1 Sturt St, Adelaide SA 5000, ph: 08 8410 1391, fax: 08 82117115; Pres: Stuart McClure 08 82973452 (h), <stuart.mcclure@csiro.au>; Sec: Mark Tyminski 0411 414 816, <marknjan@senet.com.au>; Trs: Robert Woodward 08 82977532 (h), <rob_woodward@alternatepositioning.com>.

Tasmanian Hang Gliding Association

19 Christella Rd, Kingston TAS 7050, [www.thga.net]; Pres: Anthony Mountain 03 62299011, <anthony.mountain@hydro.com.au>; Sec/Trs: Mico Skoklevski 0418 398624.

Victorian HG and PG Association

PO Box 544 Northcote Plaza Northcote, VIC 3070, [www.vhpa.org.au]. Pres: Geoff Tozer 03 97583250 (h), <gtozer@bigpond.com>; Sec: Adam Dixon 03 96895739 (h), <dna@smartchat.com.au>; SSO: Rob Van Der Klooster 03 52223019 (h). Site weather-

boxes: Three Sisters 0409 864700, Buckland Ridge 0407 356295, Mt Buffalo 03 57501515, Ben More 0417 112062.

Clubs

New South Wales

Blue Mountains HG Club Inc.

Pres: Peter Burditt 0418 435204, <artisan@sia.net.au>; Sec: Jim Grant 02 47588625; Trs: Allan Bush 02 47738037, <fairallan@pnc.com.au>; SSO: Dave Petrie 02 47871610, <petrie@lisp.com.au>; Allan Bush 02 4773 8037, <fairallan@pnc.com.au>; Newsletter: Alan Bond 02 98995351, <skybond@primus.com.au>. Meetings: 3rd Wed/month, 7:30pm, Blue Cattlelog Tavern, Mamre Rd, St Clair.

Byron Bay Hang Gliding Club Inc.

PO Box 1903, Byron Bay NSW 2481, [http://bbhg.tripod.com/]. Chairperson: Andrew Polidano 02 66843510, <info@poliglode.com>; V-Pres: Brett Cook 02 66876907; Sec: Brian Rushton <byronair@optusnet.com>; Trs: Brian Braby 02 66280983, <bbraby10@scu.edu.au>; SSO (HG): Brian Rushton 0427 615950; SSO (PG): Lindsay Wooten 02 66847318. Meetings: 1st Wed/month 7pm, Byron Golf Club.

Hunter Skysailors

James Thompson 0418 686199, <james.b.t@hunterlink.net.au>; Sec/Trs: Neil Bright 0412 689067, <enzobright@bigpond.com>; SSO: James Thompson 0418 686199.

Illawarra Hang Gliding Club Inc.

Pres: Mark Ryan 0412 424760; Sec: Tim Causer 02 42948110, <timcau@ozemail.com.au>; SSO: James Nathaniel 02 4262 7677, 0413 737077.

Kosciusko Alpine Paragliding Club

[www.homestead.com/kapc]; Pres: James Rye 02 62359120, <ryemicalago@netspeed.com.au>; V-Pres: Nigel Hack 02 64576452, <freexoz@snowy.net.au>; Sec: Charles Palmer 02 62925664, <palmerc@charlespalmer.net>; SSO: Heinz Gloor 02 64567171.

Manilla SkySailors Club Inc.

[www.mss.org.au]. Pres: Brian Shepherd 02 67852182; Sec/Trs: Felix Burkhardt 02 67751050, <felixb@xyon.com.au>; SSO (HG): Patrick Lenders 02 67783484; SSO (PG): Godfrey Wenness 02 67856545, Trikes: Willi Ewig 02 67697771.

Mid North Coast HG Association

HG contact: Trevor Kee 02 65871213 or 0418 569 660; PG/WM contact: Lee Scott 02 65598655, 0429 844961.

Newcastle Hang Gliding Club

PO Box 64 Broadmeadow NSW 2292; Pres: Mick Hurley <fly176@hotmail.com>, 02 49432903; Sec: Adam Donaldson <adsnic@rivernet.com.au>, 02 49472466; Trs: Brad Cootes <hugest@bigpond.com>, 02 4952 1428; SSO: Al Giles 02 49430674 & John O'Donohue 02 49549084, Scott Alder 02 4951 4581 & Jason Turner 0419 997196. Meetings: Last Wed/month, Souths Leagues Club.

Northern Beaches HG Club Inc.

Pres: Kerry Bradley; V-Pres: Mark Robertson; Trs: Jim Gaal; Sec: Nils Veski; SSO (HG): Glen Salmon 02 99180091; Wayne Fitzgerald 02 99827094; SSO (PG): Mike Brandt 02 98912391; Wayne Fitzgerald 02 99827094. Meetings: 1st Tue/month, 7pm, Mona Vale Bowling Club.

Stanwell Park HG and PG Club

PO Box 258 Helensburgh NSW 2508; Pres: Robert Lepre 0411 082642, <pepielepre@ozemail.com.au>; V-Pres: Shannon Black 0414 344363; Sec: Darryl Millington, 0413 978784; Trs: Andrian Le Gras 0417 027 771; SSO: Rob Lepre (HG), Martin Wykoski 0410 575025 (PG). Editor: Nick Purcell 0414 779191, <npurcell@ihug.com.au>.

Sydney Paragliding Club

PO Box 225, Helensburgh NSW 2508,

[www.sydneyparagliding.com/club/], <sydneyparaglidingclub@yahoo.com>. Pres: Enda Murphy 0412 445741. ACT

Dusty Demons Hang Gliding Club

PO Box 1003, Fyshwick ACT 2609. Pres: Leeroy Patterson 02 64561590, 0427 220764, <leeroy@dustydemons.com>; V-Pres: Tove Heaney 02 48494516, 0419 681212, <tove@dustydemons.com>; Sec: Scott Hannaford <scott@dustydemons.com>; Trs: Joe Fussell 02 42943942, 0419 635045, <joe@dustydemons.com>; SSO: Grant Heaney 02 48494516, 0419 681 212, <grant@dustydemons.com>; Editor: Kath Kelly 02 64561590, 0427 220764, <kath@dustydemons.com>.

Queensland

Cairns Hang Gliding Club

Pres: Bernie Zwahlen 07 40965593, <zwahlen@ledanet.com.au>; V-Pres: Joe Reyes 07 40555553, <reyes@ledanet.com.au>; Sec: Lance Keough 07 40912117, 31 Holm St, Atherton QLD 4883; Trs: Nev Akers 07 40532586, <nevjoy@ozemail.com.au>.

Canungra Hang Gliding Club Inc.

PO Box 41, Canungra QLD 4275; [www.triptera.com.au/canungra]. Pres: Jon Durand Snr <durand@ausinfo.com.au>, 07 5533 3596; V-Pres: John Ripley <crip_ripley@hotmail.com>, 07 32898275; Sec: Karen Sexton 07 55277636, 0410 433711, <kazbahtoo@yahoo.com.au>; Trs: Shirley Lake <chlgctreas@mac.com>, 07 5543 4047; SSO: Andrew Horchner <afactor@gil.com.au>, 0412 807516.

Central Queensland Skyriders Inc.

915 Yeepon Rd, Iron Pot QLD 4701. Pres: Bob Pizzev 07 49387607; Sec: Grant Suthers 07 49361790; SSO: Geoff Craig 07 4992 3137, <gicraig@tpg.com.au>, Paul Barry 07 49922865, <prbarry@tpg.com.au>.

Conondale Cross-Country Flyers Inc.

Pres: Peter Buch 07 54949579, <buchy9@bigpond.com>; V-Pres/SSO (PG): Graham Sutherland 07 54935882, <grahamsu@mail.cth.com.au>; Sec: Sue Buch, 343 Commissioners Flat Rd, Peachester QLD 4519, 07 54949579; Trs: Kim Hodson, 16 Gizeh St, Enoggera QLD 4051, 07 3354 1910; SSO (HG) & ML instructor: Russel Groves 07 54450084.

Dalby Hang Gliding Club Inc.

27 Van Gogh Pl., Mackenzie QLD 4152; Pres: Daron Hodder 07 38762133; Sec: Rod Flockhart 07 32193442, 0412 882639, <flockhartrod@hotmail.com>; SSO: Damien Gates 07 39017401; Trs: Cameron McNeill 07 38913457.

Mt Isa Soarers

Contact: John Ennis 07 47494832, 07 47433847 (w), 0409 591701. Visitors must call John before flying local site.

Sunshine Coast Hang Gliding Club

PO Box 227, Rainbow Beach QLD 4581; <intheair@ozemail.com.au>. Pres: Phil Lewis 07 54840464; Sec/SSO (PG): Jean-Luc Lejaille 0418 754157; Trs: Michael Powell 07 54425568; SSO (HG): David Cookman 07 54498573.

Townsville HG Association Inc.

Pres: Clint Smith 07 47747650; Sec: David McMahon, 07 4772 3858, PO Box 103, James Cook University, Townsville QLD 4811; Trs: Graeme Beplate 07 47732913; SSO: Graham Etherton 0427 831797.

Victoria

Dynasoarers Hang Gliding Club

Pres: Darren Brown 03 5222 8625; Sec: Tony Hughes 03 52437661; Trs: Greg Holt; SSO: Ted Remeika; Rob Van Der Klooster 03 52223019, <hrt@deakin.edu.au>; Meetings: 1st Fri/month, venue see: [vhpa.org.au/dyna].

Melbourne Hang Gliding Club Inc.

[www.vhpa.org.au/melbourne/], <melbourne@vhpa.org.au>. Pres: Andrew Medew 0413 433537; Sec: Vanessa Sparke 03 9458 3780; SSO: Geoff Tozer 03 97583250, Kevin Grosser 0410 022225. Meetings: 3rd Wed/month at 6:30pm at the Palace Hotel, 893 Burke Rd, Camberwell.

North East Victoria HG Club Inc.

[www.home.aone.net.au/gilbert/nevhc.htm] Pres: Horst Wimmer 03 57501075; Sec: Garrit Verway 03 57551074; Trs: John Coulton 0427 300656; SSO: Karl Texler 03 57501733. Meetings: 1st Thu/month, Alpine Hotel, Bright.

Sky High Paragliding Club

[www.skyhighparagliding.org]; Pres: Geoff Guest, <president@skyhighparagliding.org>; VPs: John Styles, Alister Johnson; Trs: Clinton Amal, <membership@skyhighparagliding.org>; Sec: Malcolm Marker, <secretary@skyhighparagliding.org>. Meetings: 1st Wed/mth 8pm, Retreat Hotel, 226 Nicholson St, Abbotsford.

Southern Microlight Club

Pres: Kel Glare 03 94395920 (h), 0421 060706; V-Pres: Ben Delong 03 97898970; Sec: Ian Rees 03 97621364; Trs: Dianne Pierpoint. Meetings: 2nd Tue/month 8pm, The Manningham Club, 1 Thompsons Rd, Bulleen.

Western Victorian Hang Gliding Club

Pres: Stephen Norman 03 98536554, <ursula@starnet.com.au>; V-Pres: Glen Bachelor 0419 324730; Sec: Nathan Grieve 03 53673106; <nathan_grieve@yahoo.com>; Trs: Phillip Campbell 03 53313812, <campbell@giant.net.au>; SSO: Rohan Holtkamp 03 53492845. Meetings: Last Sat/month, The Golden Age Hotel, Beaufort.

Northern Territory

Alice Springs HG and PG Club

Pres: Brett Lewis 0411 677705.

Western Australia

Albany Hang Gliding Club
Pres & SSO: Simon Shuttleworth 0407 950 536; Sec: John Middleweek 08 98412096, fax: 08 98412096.

Cloudbase Paragliding Club Inc.

Message bank 08 94875253; Pres: Mark Wild, 0411 423923, <mark@gastech.com.au>; V-Pres: Robin Rankin, 0407 441463; Sec: Mike Duffy, 16/3-5 Geddes St, Vic Park, WA 6100, 0417 923741, <mikeduffy@graduate.uwa.edu.au>. Trs: Colin Brown 08 94594594, <ccbrown@bigpond.com>. Meetings: 2nd Wed/month 8pm, Rosie O'Grady's Pub, South Perth.

Goldfields Dust Devils Inc.

9 Broadarrow Rd, Kalgoorlie WA 6430. Pres: Murray Wood 08 90215771, Sec: Mark Harrop 08 90228528, Trs: Peter Harris 08 90219234, SSO: Mark Stokoe.

Hill Flyers Club WA

Pres/SSO: Rick Williams 08 92943962, 0427 057961, <hillflyers@hotmail.com>; Sec/Trs: Dave Longman 08 93859469. Meetings: Last Wed/month, 7:30pm, venue announced on the HGAWA hotline 08 94873258 weekend prior to meeting.

South West Microlight Club

Pres: Brian Watts 0407 552362; V-Pres: Don Wilson 08 97641007; Sec: Paul Coffey 08 97251161; CFI: Brendan Watts 0408 949004.

Western Soarers Hang Gliding Club

<wshgc@hotmail.com>, PO Box 483, Mt Hawthorn WA 6915, [www.iinet.net.au/~navi]; Pres: Mark Thompson 08 93684497, <mark.thompson@team.telstra.com>; V-Pres: Paul Blachford, <pcblachford@bigpond.com.au>; Sec: Phil Wainwright, <phil@iqpc.net.au>; Trs: Graeme Sharp 08 94457044, <GSharp@stothoare.com.au>; SSO: Mark Stokoe 08 9581 3572; Events & Promotion: Krista Gaunt <kristagary@wn.com.au>. Meetings: 1st Wed/month 7:30pm, The Irish Club, 61 Townshend Rd, Subiaco.



Soaring Calendar

AUSTRALIA

Victorian Spring Comp 14-15 December 2002

Bright/Beaufort/Birchip. The Vic Spring Comp is back. To be held by the VVHGC at Bright over the Melbourne Cup Weekend (2-5 Nov) and two subsequent weekends at Beaufort and Birchip (16-17 Nov & 14-15 Dec). For an info pack ph: Steve 0438 360655 or Carla 0422 021033 or email <carla_pierce@middletons.com.au>.

4-day Coaching Weekend 6-9 December 2002 (inclusive)

Bacchus Marsh. Bookings essential. Accommodation available on site or in town. Contact: Terry Cubley on <cubley@netconnect.com.au>.

The Australian Services Gliding Association (ASGA) 27 December 2002 – 10 January 2003

Annual competition at Leeton for all skill levels from late training/early solo through to experienced. Launching is by both winch and aerotow. Limited camping on airfield, good accommodation in Leeton Caravan Park. Contact Nathan Guinness on ph: 03 51467050 (w), fax: 03 5146 7014 (w), or Denis Lambert ph: 07 46917928 (w), fax: 07 46919010(w).

Gawler Week Xmas Regatta 27-31 December 2002

Great flying and New Year's Eve party. Contact Andrew Wright on 08 83034648 or <andrew.wright@adelaide.edu.au> to register interest.

27th Vintage Glider Rally 4-11 January 2003

Host Club, Barossa Valley Gliding Club Stonefield SA. Fun flying and vintage comp. Details contact: Ian Patching 03 94383510 or <irtkpatc@melbpc.org.au>.

NEVHGC's Spot Landing Extravaganza – 5 January 2003

Mystic Flight Park (landing paddock) Bright, Vic. Open 'accuracy competition' for PG and HG with the largest individual cash prizes awarded in Australian comp history! 9:30am-1:30pm PG Accuracy; 2-6pm HG Accuracy. Awards presentation to follow. All welcome! Come and enjoy live media broadcasts, music, auctions, demonstrations, free giveaways, sausage sizzles & refreshments, all from the Mystic landing paddock. This is a major fundraiser to support the local region's SES and CFA as well as the NEVHGC. For conditions of entry visit our website at [www.hgfa.asn.au/~nevhc]. For further info: Christy Kemp 03 57592 701, 0419 508397, <christyk@netc.net.au> or Carol Binder 03 5750 1507, 0417 311360, <binder_carol@hotmail.com>.

Bogong Cup – 6-14 January 2003

Mt Beauty, VIC. The 6th is the registration/practise day. Entry fee \$190, includes \$15 site fees. See [www.cool-ether.net.au/australianopen] for more details or contact Tove <chggpc@goulburn.net.au>.

Australian National Club and Sports Class Nationals 13-24 January 2003

Temora Gliding Club, Temora, NSW. Entry forms available from Geoff King, Temora Gliding Club, PO Box 206, Temora NSW 2666, or the GFA website [http://www.gfa.org.au/].

Corryong Cup 2003 12-18 January 2003

Corryong, VIC. Celebrate 20 years of Victoria's best flying with the biggest and best Corryong Cup! Party with 10,000ft days and PBs by the 44 Soaring Australia

dozen! Registration/practice day: Sat 11th, comp start Sun 12th. Tasks are generally 50-100km with up to four turnpoints to make pick-ups easy. The comp is scored on a handicap basis according to glider type and flying experience, so everyone entering has a chance of taking out the top prizes. You must have an intermediate rating (preferably with inland experience) and UHF radio. Scoring will be with GPS or camera, whichever you prefer. Still the cheapest comp in the HG calendar at only \$100 if you register before 30 Nov (\$120 there-after). Cheques made out to 'Blue Mountains HG Club Inc'. Fee includes comp entry, 20th Anniversary T-shirt, turnpoint film, colour topo map of the area and a presentation dinner with floorshow. Places are limited. Register with: Steve Bell, PO Box 110 Woonona NSW 2517, ph: 0412 686812, <spbell@earth.net>.

Australian HG Nationals 17-25 January 2003

Hay, NSW. Requirements: GPS, parachute, UHF radio, tow endorsement, HGFA membership. Entry fee: \$190 payable by 20 December. Contact: Sandra on 03 5349 2845 or via email at <dynamic@netconnect.com.au> for further details. Cheques should be made payable to Dynamic Flight Pty Ltd and forwarded to RMB 236B, Trawalla 3373.

Phoenix Cup – Paragliding in Masquerade II 25-27 January 2003

Bright, VIC. Last year's first Phoenix Cup was a huge success. Outfits ranged from colourful masterpieces to huge flying creations. The pilots involved received an huge buzz out of the event. This year's will prove to be an even bigger mountain of colour and excitement. The date has been moved to the Australia Day long weekend to give interstate pilots a chance to make it. The weekend involves the Phoenix Cup and a special round of the Mystic Cup, a great way to get some points towards the national ladder. Both events are open to all levels of pilots. Details at [skyhigh.paragliding.org]. Contact Malcolm Marker on 03 94441185 (h) or <phoenixcup@oputnet.com.au>.

Horsham Week 1-8 February 2003

After more than 30 years, Wimmera Soaring Club members have retired from hosting Horsham Week! But it's still on, being organised by the regulars. As usual, camping available on site. All classes. Please let us know if you'll be flying. Contact: Noel Vagg (Snake) ph: 03 9743 6830 or <noeljanvagg@primus.com.au>.

Australian National Multi-Class Championships 2-15 February 2003

Benalla, VIC. Gliding Club of Victoria. Contact Gary Brasher for more info, <brash@eisa.net.au>.

2003 PG Alpine Championships 15-22 February 2003

Bright, Victoria. Final Rego 14 Feb, Bright Community and Entertainment Centre. Entry fee: \$190 (\$150 if before 1 Jan). CIVL Cat 2, HGFA AAA. As with last year, a large range of day prizes and overall prizes to be had in various categories. Max entry of 120 pilots. Min pilot level is intermediate with inland experience. Entry: From 1 Sept 2002 online at [http://home.netc.net.au/~alpcmp/BrightOpen2002/] or to PO Box 428, Bright. Sorry, no credit cards. For enquiries, contact Karl Texler on 0428 385144 or <brightvt@netc.net.au>.

WA State Soaring Comp 22 February – 2 March 2003

Wyalkatchem, WA. Western Soarers host the 2003 WA State Soaring Comp open to HG and PG

pilots. The venue is Wyalkatchem, 200km north-east of Perth, and will be a towing comp (ground and aero). Entry fee: \$100 before 1 Feb, with a \$10 late fee after this date. GPS scored comp using the GAP 2000 system. To cater for all pilots a mixture of difficult, moderate and easy tasks will be called to ensure the experienced pilots are challenged and the new pilots have a chance to make goal. A reserve parachute, helmet, UHF radio and approved GPS are mandatory equipment. Pilots must have an appropriate tow endorsement and current HGFA membership. For more detail visit the Western Soarers website at [http://members.iinet.net.au/~navi/] or email the Comp Director <mark.thompson@team.telstra.com>.

NSW State Gliding Championships 1-8 March 2003

Cudgong Soaring Club will host the NSW State Gliding Championships at Gulgong from 1-8 March 2003. All classes catered for including Club and Sports Class. Enquiries to Christine Meertens Ph: 02 9452 2777 Fax: 02 9453 0777 email: meertens@ozemail.com.au

Australian PG Open 1-7 (Reserve Day: 8) March 2003

Manilla, NSW. Final rego: 28 Feb, Manilla Town Hall HQ. Entry fee: \$160 before 1 Jan (\$180 after). CIVL Cat 2, HGFA AAA. Over \$5,000 worth of prizes in various categories. Max entry of 120 + 5 wild cards. Min pilot level is intermediate with inland experience. Entry: From 1 Oct 2002 online via [www.flymanilla.com]. Credit Cards accepted. For more information refer to the competition website or email Godfrey Wenness, Manilla Competitions Organiser, on <skygodfrey@aol.com>.

New Zealand PG Nationals 9-15 March 2003

Manilla, NSW. Final rego: 28 Feb and 8 Mar at Manilla Town Hall HQ. Entry fee: \$150 before 1 Jan (\$170 after). CIVL Cat 2. Over A\$3,000 worth of prizes in various categories. Max entry of 120 + 5 wild cards. Min pilot level is intermediate with inland experience. Entry: From 1 Oct online via [www.flymanilla.com]. Credit cards accepted. For more information refer to the competition website or email Godfrey Wenness, Manilla Competitions Organiser, on <skygodfrey@aol.com>.

National Gathering of Trikes 3-4 May 2003

Wangaratta Airfield, VIC. This will be an event consisting of social flying and flying activities such as day trips in the local area, informative seminars and skills improvement exercises. For details contact Ian Rees on 03 9762 1364.

OVERSEAS

Nepal Air Sports Festival 2003 15-30 January 2003

Kathmandu, Nepal. Deepti, the Avia Club Nepal, invites all fans of Aviation Sports to the Kingdom of Himalayas for breath-taking XC flights in your own flying apparatus (microlights, etc) during a two week event starting 15 Jan. Be part of a unique and historic event and experience the stunning thrill. This is the first time Nepal has opened its territory to foreigners to fly. Don't miss this opportunity! If you're interested contact our website [www.avianepal.21bc.net].

Mauna Kea Thermal Clinic 8-12 February 2003

Achim Hagemann will be organising this PG clinic around Mauna Kea on the Big Island of Hawaii. To register (\$275) contact: Paraglide Hawaii,

PO Box 797, Mountain View, HI. 96771, USA.
For more details email <tofly@excite.com> or
ph: 808 968 6856. Clinic requirements: Hang-
3 or better/novice with instructor sign off, and
everything you need for high altitude XC flying.
Food and gas money extra. Clinic includes:
4WD transportation, airport pick up, guide
service, free ocean site camping, daily state
of the art weather report. Mauna Kea has flying
sites at various altitudes, some of them suited
for intermediate pilots. Pilots flying here should
expect big air, high altitude take offs and
challenging XC flying. Mauna Kea and the
surrounding areas are still unexplored to
a large extent.



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Classifieds

GFA

NOTICE TO ALL GFA ADVERTISERS

All advertisements and payments can be sent
to Angel Administration at the following:
The Gliding Federation of Australia/Advertising
PO Box 1163, Penrith BC, NSW 2751.
Ph: 0407 593 192 Fax: 02 4739 0185.
Email: <frowe@optusnet.com.au>

Advertisements may be emailed in high resolution
(300dpi at 100% size) using TIF or EPS formats.
Photographs may be provided in either photo print or
slides. Disk photographs are not suitable. Photographs,
slides or disks may be returned. Please include a self-
addressed and stamped envelope for the return of any
promotional material.

All GFA advertisements must be paid for prior to
publication. (Payment by cheque, money order or
credit card). Don't forget Classifieds deadline is the
25th of the month, for publication five weeks hence.

Single-Seater Sailplanes

MOSQUITO XJQ, 1,600 hrs TT, oxygen, ATR720,
enclosed fibreglass trailer & tow out gear.
\$35,000. Ph: John Ashford (Alice Springs)
0409 679 867, <john.ashford@santos.com.au>.



Gliding Club of Victoria

The Gliding Club of Victoria is restructuring its
fleet & therefore offers for sale:

PW5 VH-GKP. 860 hrs. EC. Basic instr. plus B40
vario & Dittel ATR720 radio. Incl. trailer, tow out
gear, etc. \$22,500 ono.

NIMBUS 2C VH-FQL. 3,600 hrs. Basic instr. plus
B50 vario, B57 computer, Terra TX760D radio.
Wiring for Garmin 12XL & EW logger. Factory
trailer, tow out gear, etc. \$39,500 ono.

We are looking to purchase one of: Discus b,
Ventus, LS6 or LS7 & are willing to consider
a trade deal, which incl. either/both of the
above aircraft. Ph: Bob Gray 03 5762 1058,
<glidingbla@cni.com.au>.

SZD32A FOKAS complete with registered trailer,
parachute, etc. Current Form 2 & flying at Boonah.
Ph: 07 3216 6363, <dgaylor@itconnect.net.au>.

PW-5 WORLD CLASS GLIDER. TT 83 hrs, better
than new condition! Custom-built fully enclosed
trailer. Ph: 02 6257 0501 or 02 6290 1730.

H201B GBA 3,000 hrs life extension completed
10 hrs ago. Brand new mecoplex canopy. A1
mechanically, flies beautifully, average appear-
ance. Fresh Form 2. Enclosed trailer. Located
Darwin. \$13,500. Ph: 0412 599 193, <smcgrath@justinternet.com.au>.

KA 6E SCHLEICHER VH-SSR. 3,616 hrs. Basic instru-
ments. Parachute. Paint poor. No radio. Enclosed
trailer. \$9,500. Ph: Ray Ash 02 6374 2335.

IS29 D, VH-GWI, only 240 hrs, excellent condition,
one person rigging equipment, excellent trailer,
parachute, wing stands, tow out gear, etc. Ph: 02
4821 8251 (ah) or <pcmm@goulburn.net.au>.

LS4 KYO based at Tocumwal very good condition.
Incl. all handling gear & trailer. 4,500 hrs.
\$52,250. Ph: Don 03 5874 3897 (ah).

STD CIRRUS ZR at Tocumwal. Incl. trailer. Low hrs
at 2,860. \$22,000. Ph: Don 03 5874 3897 (ah).

JANTAR 2 VH-KYV. 20.5m Open Class, paint finish,
no gel-coat problems, three time proven 1,000k
machine, C-nav computer, AH, oxygen, ELT,
ground handling equipment, removable hinged
canopy & solid tandem trailer, GPS & Slimpack
parachute, 1/3 share of a real hangar with doors
that open 30m. Will sell hangar separately. Ph:
Tom Savage 03 9776 0262 or 0418 336 598 or
Rod Grant at Benalla.

PIK 20E. Self launching, low hrs, in top condi-
tion. Peschages instruments. \$67,500. Ph: 02
6076 9471.

CLUB LIBELLE GJJ. Excellent condition, Borgelt
varios & computer, roomy cockpit, flies beauti-
fully. Enclosed trailer & tow-out gear. Dual
batteries. \$18,500. Ph: John Callahan 03 5236
6290, <johncallahan@bigpond.com.au>.

JANTAR STANDARD 3 SZD-48-3, A1 cond, 12 yo,
1,800 hrs, new Form 2,
 wings re-profiled,
winglets fitted. Instr: LNAV, Microair radio, incl.
trailer & ground handling equip. \$31,000 neg.
Ph: Peter Summerfeldt 07 3886 1267.

Two-Seater Sailplanes

L13 BLANIK GVL. Good condition. Basic instru-
ments, Terra radio, 30 yearly due 2003. Open
to offers. Ph: 03 5023 8167 (ah).

ASK 13 GSL. Electric vario, poor paint. \$28,000.
Ph: Ray Ash 02 6374 2335 (Gulgong).

SCHEMPP-HIRTH JANUS VH-GWY, 1975, first flown
1976. TT 3,400 hrs, 5,600 landings. \$65,000
ono. For full details visit [www.geocities.com/janus_sale] or ph: Igor Vavrica 0409 030 987.

IS28 B2 VH-GIL. Good cond, smart paint, radio,
electric & mechanical varios. Fresh Form 2.
\$25,000. Forbes Soaring & Aero Club. Ph: 02
6855 2252.

Motor Gliders

DG400 Based at Camden, own T-hangar complete
with all ground handling equipment, trailer &
parachute. Well equipped with low engine & air-
frame hrs. Rare opportunity to buy a 1/4 share
in a good syndicate. \$29,000 or near offer.
Ph: Terry 02 4647 7734, 0418 868 727 or
<terryoxborough@mpx.com.au>.

DG-400 VH-XJD. Tinted canopy, Slimpack chute,
good trailer & ground handling gear. Just been
fully refinished by Roger Bond. Immaculate
condition. Ph: 02 4471 7223.

STEMME S10. Share for sale in one of the best
self launchers in the world. Based at Camden
airport near Sydney. Own T-hangar. Kommet trailer.
All the good gear. Ph: Tom Gilbert 02 4655
7079, <tnjgilbert@bigpond.com.au>.

Instruments and Equipment

WALTER DITTEL FGS71M VHF Comm – New stock
– in stock – Call Arnie at Airborne Avionics 02
6889 2773 or email: hartley@avionics.com.au.

General

TUG OWNERS PILOTS

Earlier in the year we commenced a passenger
flying operation at Lilydale airport in order to
create a greater awareness of Gliding in the
Melbourne market & to attract new glider pilots.
As a result, we are now running two operations,
one in Benalla & one in Lilydale. This is
stretching our resources. We are looking for the
following support:

- We would like to cross-hire a TUG for Lilydale
for the period mid-October 2002 to end of
March 2003.
- We are also seeking tug pilots & Level 1 & 2
instructors, who are willing to join our roster in
Lilydale & possibly in Benalla.

This represents an excellent opportunity for
instructors & tug pilots, who live close-by & who
would like to do some more flying. You would be
part of an effort, which will ultimately attract
new members to a number of clubs around the
State & will therefore benefit the wider gliding
movement in Victoria. If you are interested,
please contact: Bob Gray, Manager Operations,
Ph: 03 5762 1058, <gcvbob@gmx.net>.

MULTI-CLASS WORLD CHAMPIONSHIPS — TEAM MANAGER!

Expressions of interest are sought for persons
wishing to act as Team Manager for Australia's
team at the 2003 Multi-Class World Champion-
ships in Lesno Poland. The dates are July/August
2003. The Team Manager is responsible for
organising & managing the team both before &
during the event, & representing the Team to the
officials of the competition. It is suited to a per-
son with good organisational skills who has a
good knowledge of gliding competition. Assis-
tance with expenses will be provided on the same
basis as to the funded pilots on the team. If you
are interested, please contact Tim Shirley on:
0417 268 073 or <tshirley@bigpond.net.au>.

PARTIALLY BUILT KIT SAILPLANE. Incl. materials,
red'g trailer. Reluctant sale. Ph: 0408 744 013.

GERMAN SOARING CALENDAR 2003

Available from Mike Cleaver, 9 Treharne Pl, Melba
ACT 2615. Contact 0412 980 886 or <wombat@netspeed.com.au>. Postage \$7 per parcel + \$45
each NSW, VIC; \$46 SA, S Qld, \$47 elsewhere.

Classifieds

TASMAN TROPHY!

Expressions of interest are being sought from pilots interested in representing Australia at the NZ Nationals, as our Tasman Trophy entrant. The requirement is that the pilot must not have represented Australia internationally. The Tasman Trophy is a one-on-one competition within the Nationals, with the pilots flying gliders of approximately similar performance. It is the responsibility of the hosting nation (in this case NZ) to provide a suitable glider, but all other costs are borne by the pilot. If you are interested, please contact Tim Shirley on: 0417 268 073, or at: <tshirley@bigpond.net.au>.

Gliding Publications

AUSTRALIAN HOMEBUILT SAILPLANE ASSOCIATION: James Garay, 3 Magnolia Ave, Kings Park VIC 3021. Ph: 03 93673694, [www.geocities.com/capecanaveral/hangar/3510].

FREE FLIGHT: Bi-monthly journal of the Soaring Association of Canada. A lively record of the Canadian soaring scene & relevant international news & articles. \$US26 for one year, \$47 for two years, \$65 for three years. 107-1025 Richmond Rd Ottawa, Ontario K2B 8G8 Canada, email: <sac@sac.ca>.

SOARING: Official monthly journal of the Soaring Society of America Inc., PO Box 2100, Hobbs, NM 88241 USA. Foreign subscription rates (annually): \$US43 surface delivery; \$US68 premium delivery.

SAILPLANE & GLIDING: The only authoritative British magazine devoted entirely to gliding. 52 A4 pages of fascinating material & pictures with colour. Available from the British Gliding Association, Kimberley House, Vaughan Way, Leicester, England. Annual subscription for six copies £17.50.

SAILPLANE BUILDER: Monthly magazine of the Sailplane Homebuilders Association. \$US29 (airmail \$US46) to 21100 Angel St, Tehachapi, CA 93561 USA.

TECHNICAL SOARING/OSTIV: Quarterly publication of SSA containing OSTIV & other technical papers. Annual subscription: 70DM. OSTIV c/- DFVLR, D82234 Wessling, Germany.

GLIDING KIWI: Official bi-monthly publication of the New Zealand Gliding Association, edited by John Roake. Specialises in up-to-date overviews of the world soaring scene & Omarama the NZ base for many of the current World Records.

\$A44 annually (Send A\$25 for 12 months back issues). New Zealand Gliding Kiwi, Private Bag, Tauranga, NZ.

AIRBORNE MAGAZINE: Covering all facets of Australian & New Zealand modelling. The best value modelling magazine. Now \$60pa for six issues. Plans & other special books available. PO Box 30, Tullamarine, VIC 3043.

HGFA

Classifieds are free of charge to HGFA members up to a maximum of 40 words. One classified per person per issue will be accepted.

Classifieds are to be delivered directly to the sub-editor, by email or post, not by phone. The deadline is 25th of the month, for publication five weeks hence. Submitted classifieds will run for one issue. For consecutive publication, re-submission of the classified must be made, no advance bookings.

When submitting a classified remember to include your contact details (for perspective buyers), your HGFA membership number (for verification) and the State under which you would like the classified placed. (Note that the above does not apply to commercial operators. Instructors may place multiple classified entries, but will be charged at usual advertising rates.)

Hang Gliders & Equipment

NEW SOUTH WALES

AIRBORNE CLIMAX adv, brand new, flown 8 times only. Bright orange/lilac US with white mylar TS. Std Climax speed bar & foiled DTs, plus two new spare DTs still in the packing. \$7,500. Ph: 02 66854181 (h); 0413 338749; <hazard@nor.com.au>.

AIRBORNE CLIMAX 14 adv, only one season new, flown 55 hrs fully logged, most inland. All original, even DTs. Well looked after. Dream to launch & land. \$6,200. Ph: Alan 0408 470544; 02 98995351.

MOYES SX6 adv, new sail (80 hrs) orange/light green, tuned up, flies sweet, personally signed by Pipeclay eagle. Ph: Trevor 0418 569660; 02 65871213 (h).

AIRBORNE SHARK 156 adv, blue/white, 70 hrs old, crisp sail, never gone in. Great glider, flies beautifully, \$2,800 ono. Also, Danny Scott racing Harness, suit 5'6" to 6'4", \$400 ono. Going overseas, other gear for sale. Ph: 0417 794441; 02 97262114.

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like a floater. Weighs 36kg so can be managed by one person. Set-up time about same as high performance flex wing. Selling to help fund a sailplane. Save many thousands off new price. \$11,000 or near offer. Ph: Paul 0404 851876; 02 96997720 (h); 02 82323853 (w); <huntrp@ozemail.com.au>.

COCOON HARNESS in GC, suit 5'8" to 6'4", \$200. Moyes Flex harness in GC, to suit average pilot, \$200. Airborne Shark 144 adv, orange/white, in GC, \$2,200 ono. Danny Scott harness, brand new, the last one to be made, suit 6ft tall, has a Second Chance Pocket Rocket parachute already fitted ready to go, an absolute steel at \$900 for the whole lot. UHF Radio \$150. Hook knife, new, \$40. Tandem Glider, Falcon 225, Willis Wings, just renewed all wires, blue/green/white, in okay cond, great for a floater, \$1,000. Ph: 02 42948694; 0411 082642.

ICOM IC40G UHF handheld radio with two long-life batteries, car charger & mains charger, \$200. Email Al <aprice@ozemail.com.au> or ring 02 49430674 evenings.

MOYES SONIC 165 int, as new, EC, flown 80 hrs, spare DT, \$2,800. Ph: Heath 02 49422362; 0438 422362.

MOYES XT 145 int, GC, blue/red US, spare DTs, \$2,000 ono. Ph: Kath 02 64561590; 0427 220764; <gonegliden@ozemail.com.au>.

MOYES XT 165 adv, mint cond, less than 20hrs, \$2,800. Moyes Xtreme harness & chute, suit 180cm, mint cond, \$1,000. Helmet & vario also available. Ph: Alf 0417 706040.

MOYES XT 165 int, GC, new cover, view & test fly Newcastle. \$1600. Ph: 02 49347917.

MOYES XTRALITE 147 adv, dark & light purple US, in EC, spare DT, new sidewires & hang loop. A bargain at this price, \$1,000. Ph: 0418 252 221; 02 48851176; <chetcut1@bigpond.com>.

WANTED: Harness & reserve, preferably together, to suit medium (75-80kg) pilot. Possible Christmas pick-up from Victoria. Ph: Rob 02 96236820; <rsjames@ihug.com.au>.

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E-WINGS FOIL C 139 adv, white LE & TS, blue/orange/white US, \$750. Sjöström vario, VA-EX, \$300. Aussie Skins Racer harness, black, \$450. Reserve parachute (Paradynamics), \$200. Uniden UHF radio, handheld, \$100. All one owner from new. Sell separately, or the lot for \$1,500. Ph: Vince 03 56637710.

MOYES CSX5 adv, red/white, EC, best offer around



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MOYES SX4 adv, 80 hrs, all white, only flown inland, EC, \$3,000 or reasonable offer. Too much temptation for my son who flies an XT so it's gotta go. Ph: 03 57501158 (w); <gilbert@bright.au.com>. MOYES XT 165 adv, speed bar, plus pod harness. Orange/green/white, with pink batten pockets! Great cond, flies well, \$1,900. Ph: Richard 03 98790197.

MOYES XT 165 int, blue/yellow VGC, flies well. Canadian made pod (\$1,200 new). Must sell, best offer accepted. \$1,800. Ph: 03 92901109.

MOYES XTRALITE 147 adv, mylar sail, low hrs, GC, white with black US, blue logo with std bag plus extra ripstop waterproof glider bag, \$1,700. Danny Scott "Twister" front entry harness, side chute pocket, suit 5'8"-6'1" light-medium build, \$300. Garmin 45 GPS, \$200. Ph: John 0419 899383.

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AIRBORNE STINGX 140 int, 45 hrs, EC, grey/white/pink, looks new, two spare DTs, crisp sail. Wheels, Bräuniger vario, Woody Valley harness to suit medium build about 5'10", reserve chute, helmet, all well maintained \$3,300 Ph: John 0407 295210; <john02@netc.net.au>.

GPS MAGELLAN 315, brand new, still in box. 6"x2"x1.3", weighs 7 ounces. Warranty valid for 12 mths. Cost \$390, sell \$300. Ph: Bill 0419 882405.

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Aeros Combat2 14 adv topless (153ft2), white with yellow US stripe, white TS, Wills Wing low drag uprights with carbon airfoil basebar, as new condition, same glider as Oleg Bondachuk flew to win the 2002 Pre-Worlds, \$7300. Ph: Neil 0407 463668.

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MOYES XTRALITES 137 adv (two of them). One white/pink US with two y.o. sail & new sidewires, \$900 ono. The other mylar white/purple US with new sidewires, \$500. Both have small control bars. Ph: Colin or Sue 08 83771641 (h).

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EXPLORER HARNESS with twin fuel tanks, prop brake, low running hrs on new motor supplied by Airtime Products Qld, will freight in Oz, \$4,350 ono. Ph: Steve 08 92773879; <stevecar@inet.net.au>.

MOYES XT 145 int, orange/line with pod harness & emergency parachute, vario & UHF radio, \$1,500 ono. Ph: 08 99573942 (w); 08 99634778 (h); <dave.richards@Harmonygold.com.au>.

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PARAGLIDING HARNESS JET WIT by Sky, M size, front reserve container. RRP \$890, goes for \$590. As new cond, under warranty till 5/03. Ph: Jiri 0414 332737; jstipek@pacific.net.au>.

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TANDEM APCO FUTURA

42, turquoise/white, 45 hrs use. Also, APCO harness fitted with tandem reserve. Someone must want this glider. Make me an offer. Ph: Neil 07 54822199; 0438 131910.

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ADVENTURE F3 PG motor, 210cc, about 10 hrs old, electric start, carry bag. Good shroud with carry bag, all in EC. \$5,000 or \$7,200 the lot. Ph: 08 8289 9940; 0412 885785.

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AIRBORNE AIRJETS 2000, 138 hrs TT, 582 engine, Wizard wing, with 1 flying suit & two jerrycans. This country trike is in EC, \$22,000 ono. Ph: Michael anytime 0417 024185; 02 69533811.

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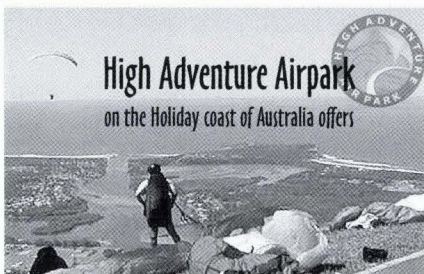
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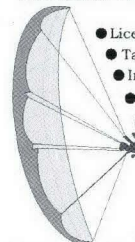
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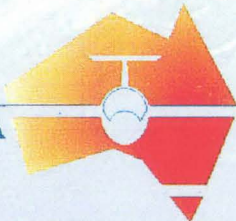
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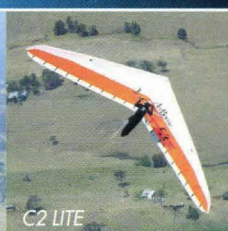
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 Short Pack Length 3.8 m / 12.5 ft
 Pilot Hook In Weight Range (Inc. Equip.) 55-90 kg / 121-198 lb
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 VA (Max. Rough Air Manoeuvring Speed) 74 km/h / 46 mph
 VD (Max. Steady State Speed) 115+ km/h / 70+ mph

CLIMAX 14
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 Aspect Ratio 7.5
 Nose Angle 128-133°
 Double Surface % 92%
 Batten 24 + 6
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