



Soaring AUSTRALIA

March 2004



**Gulgong Nationals
– The Friendly Comps**



A Bright Christmas



**From Wollongong
to the Whitsundays**

March 2004

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Ron Fox in VMFG Hornet GSA viewed from Mt Buffalo

Photo: Andrew Rigby

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LOCKHART CLUB SHOOTOUT

– 24 to 29 November 2003

Grant Johnson

BACKGROUND

The Wagga Wagga Gliding Club was founded over 30 years ago and first operated from Downside, just to the north of Wagga Wagga. Since 1990, the club has operated from Lockhart – about 60km west of Wagga Wagga.

In 1998 the club went into recess and then, through the leadership of Bob Phillips, recommenced operations in May 1999. The club owns and operates four gliders amongst its current 16 members. To put the membership/activity in perspective – we rarely have a crew of less than eight members and we were at the airfield every Sunday this past year and flew most.

Activity at the club has shown amazing progress. In the 1999/2000 year 186 hours, 570 launches and very little cross-country was flown. The 2002/3 year recorded 411 hours from 1030 launches and almost 5,000km in cross-country.

Much of the success through this period was due to the commitment and discipline of Bob Phillips as President. Committee meetings were held to a monthly routine and a pilots' panel meeting introduced to discuss the finer aspects of gliding.

Unfortunately, Bob passed away in May. Since then we have worked hard to keep the momentum going that he established.

One of his more recent initiatives was an Open Day with free flying for those who showed a genuine interest in our sport. The result was three new members. This may be an exercise we repeat again as our current ab-initios progress towards their first certificates.

We place a report in the sports section of the local weekly newspaper that has a coverage of every household and business in Wagga Wagga and surrounding villages. This has led to several enquiries and keeps the name of the sport out there in front of people. Past (and present) members enjoy

keeping in touch with club activity via the weekly report.

In November we hosted a cross-country coaching weekend facilitated by Lisa and Peter Trotter. The weekend was a huge success and helped to introduce many of our members to new gliding dimensions. For some it helped to put something more tangible to what the GFA can offer to clubs.

Another recent activity was a flying week at the end of November. It was something that had been loosely planned about a year ago – a fun week of flying by independent operators seeking various goals.

It was decided, tongue-in-cheek, to call it the "Lockhart Cup Shootout" in competition to the also fun, but more organised, Narromine Cup and Outback Shootout. No big wings or dataloggers for us – just some good 25+ year-old technology in the form of Blaniks, early generation GRP single-seaters and barographs and cameras.

THE WEATHER

A high that moved from the Bight to the Tasman Sea during the week influenced a great week of cross-country weather. The winch was able to stay at the eastern end of the strip all week with easterly winds tending to the north by the week's end.

Thermals went to an 8,000ft cloudbase on the Monday rising to 9,500ft north of Lockhart on the Wednesday. The atmosphere became warmer and drier as the week progressed and as a result the days started later and turned blue by the end of the week. Climbs to 10 and 11,000ft were made in the blue on Friday and Saturday.

Wednesday was the pick of the week with early starts and two 700km triangles flown.

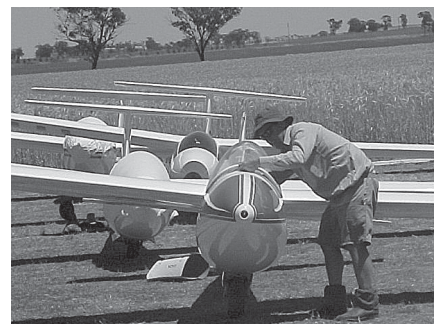
THE CREW

We hosted visitors from Mt Beauty (Ian Cohn), Leeton (Al Dickie) and Sale (Gary Mason). A combination of local motel, clubhouse and on-site caravan accommodation was utilised by the nine people attending.

THE GLIDERS

A privately owned Blanik (GYJ) belonging to Mark Bland and Mike Pobjoy joined two Blaniks from our club (GUH, GYE).

The single-seaters consisted of the club-owned Astir CS77 (IKS) and Club Libelle (GJH) joined by a privately owned Open Libelle (GUK) and LS1f (GMF).



THE ACHIEVEMENTS

Monday saw Mark Bland (Open Libelle) and Grant Johnson (LS1f) venture off to the mountains after a run north to Ardlethan. Overdevelopment cut their exploration of the Gundagai/Tumut area short but they had fun overflying Wagga Wagga and its airport at Forest Hill on the return trip to Lockhart – 380km achieved for both.

An earlier start on Tuesday resulted in a 500km triangle flown by Grant Johnson (LS1f). Al Dickie (Open Libelle) made a fast run around a 300km triangle.

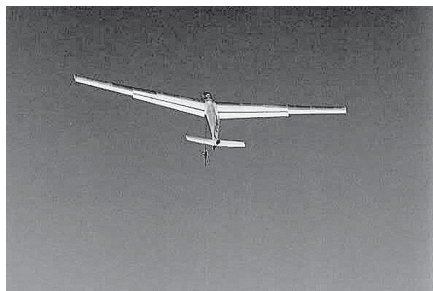
Frank O'Donnell and Max Thompson continued with the Form 2s on the two club-owned single-seaters.

Wednesday was looking good for a long task. Mark Bland and Grant Johnson declared an 800km triangle with Lockhart as a remote start. They launched at 10.30am and were straight into lift to a reasonable height. Out on track they went with an initial goal of turning Culcairn and being at Parkes (almost mid-distance) by 2.30pm.



Lockhart crew

Photos: Ian Cohn and Grant Johnson



When they arrived at Parkes at 3.00pm, but into air with a much higher cloud base (9,500ft), they decided to push on towards the final turn at Hillston. Progress was still not as expected so they turned Tullibigeal and headed home for a 705km task – the longest so far flown from Lockhart.

The other big achievement for the day was Ian Cohn's seven-hour Blanik seat endurance! Ian stayed aloft around Lockhart to relay progress reports from Mark and Grant.

Al Dickie completed another fast 300+ km on Thursday as conditions started to turn blue. Two Blaniks (Mark Bland and Ian Cohn at the controls) made out-and-return flights to Narrandera at 80km/h. At the end of the day, Frank O'Donnell and Grant Johnson completed Form 2 evaluation flights on the two club single-seaters. They climbed to some cloud scraps at 10,000ft and landed around 7.30pm only because a clubhouse dinner had to be cooked.

Friday saw blue conditions and a later start to flying. Mark Bland (back in the Open Libelle) and Grant Johnson (LS1f) flew down to Corowa. Mark went on to look at (should read "look up at") the dam wall at Mulwala before returning to Lockhart.

Tony Howe had another long soaring flight with Frank O'Donnell and kept beating his previous personal best duration and height. Ian Cohn just kept adding Blanik time to his Wednesday and Thursday endurances.

Saturday turned out to be better than we all expected. Mike Pobjoy arrived and launched before noon. He completed a 150km triangle in his Blanik and then soared locally until mid-afternoon.

Max Thompson achieved some well-earned local soaring having spent all week March 2004

working on the ground with numerous tasks. Mark Bland (Open Libelle) and Grant Johnson (LS1f) went up to Leeton and home for a 170km out-and-return. Their run back started at Leeton at 11,000ft and had them home in 25-minutes for a ground speed of over 200km/h.

Brendan Judd took the Astir CS77 to a season best altitude of 11,500ft

LESSONS

We often miss one to two hours of soaring in a morning – early starts being essential for longer cross-countries.

Look-out cannot be over-emphasised. We saw numerous other gliders during the week operating from other sites to our south and north. Some were a long way from home and running under the same clouds but often in the opposite direction!

We also learnt to establish operational procedures at our site. We are not accustomed to having several gliders returning from cross-countries around the same time. A good procedure-based briefing at the start of each day becomes essential. Also, not being used to multiple or long cross-countries we don't operate a SAR register but we will in future.

A fun week, 90 hours of flying, 4,500km of cross-country. A little more hangar-rash, some Blanik-bum, the grass cut and two Form 2s completed!

The week further established bonds with clubs like Leeton and Mt Beauty that we hope to develop more as the season progresses.



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RIDGE LIFT AND SLOPE SOARING



Part 4

Bernard Eckey

hill to its left shall give way by turning away from the hill.

Rule No. 4:

When hill soaring, a glider shall not be flown lower than 100ft above ground when within 100m horizontally of a person, dwelling or public road.

No need to elaborate on the last two rules other than to say that ridge-soaring is often conducted as a club activity. That makes it likely that several gliders occupy a ridge simultaneously and the need to thoroughly brief all pilots new to ridge soaring on these rules becomes very apparent. Knowing exactly what the rules are is a precondition for implementing them and is an important step in making ridge-soaring as safe as possible for all of us.

In this context I would like to introduce a rule of my own, if I may. The rule suggests that you never assume that the ridge works as well on the way out than on the way back. In other words, the lift can suddenly die without any prior warning. If we ever assume that the ridge will be working just because it worked a few minutes earlier we might be in for a big surprise one day. The best we can hope for is that this surprise happens while we still have enough height to get to an airstrip or at least to a safe landing area.

2.8 FLYING HIGH ABOVE RIDGE-TOP LEVEL

Provided we are several thousand feet above the summit we can adopt tactics akin to flying in conditions of streeting. In other words, we are employing the classic MacCready theory of speeding up in bad air and slowing down again as soon as our backside senses an updraft. Flying in this fashion is called dolphin soaring because viewed from a distance it very much looks like the up and down swimming motion of a cruising dolphin. When we are doing it right it cuts down on time in sink but at the same time maximises time spend in updrafts and that tends to improve our cruising speed substantially. Just make sure the control inputs are not too severe as aerodynamic losses can otherwise cancel out any such gains.

Needless to say that dolphin flying does go hand in hand with quite major altitude variations and therefore it is essential to keep

Like no other gliding activity ridge-soaring demands our undivided attention to safety matters. The old saying that speed kills might hold true on the road, but when it comes to ridge-soaring this statement could not be further from the truth. In fact I don't know of any gliding accident caused by excessive speed but sadly I know of a few resulting from insufficient airspeed close to the ground. Every self respecting glider pilot instinctively adds a few knots when descending to circuit level – something we were all taught during our first few flights in a glider. But if we fly faster in the relatively smooth air of the circuit we must do it even more so in an environment of severe turbulence for obvious reasons. First and foremost speed maintains a safety buffer above the stall and allows us to convert speed into altitude if required. In addition speed does significantly improve the glider's control responsiveness – a highly welcome by-product when battling with turbulent ridge lift.

The lesson is clear, in the interest of safety the speed is to be kept up for as long as there is only a thin layer of air between us and the rocks below – it will save our bacon one day.

While in close proximity of the terrain we are exposed to rotor-like eddies with occasional severe downdraft. Usually such downdrafts are short-lived but gaining altitude only to lose it again in next to no time is not at all uncommon. To prevent a close encounter with the ground we take advantage of the topography and execute an instant escape by rolling the glider away from the hill into clear air. Even shallower ridges do provide a fairly rapid increase in ground clearance and although it cannot be denied that operating close to the ground contains a greater element of risk, we can almost

completely eliminate such risks by doing the right thing and by wearing belt and braces. If you like, the belt is our speed reserves, and the braces are the escape routes away from the ridge for increased ground clearance.

Now that we all agree that turning away from the hill is paramount in terms of safety we should not be surprised that it is regarded as rule No 1 for ridge soaring. No ifs and no buts, unless we are well clear of the ridge we always turn outwards – away from the ridge.

Sorry for bringing up the subject of rules, but since we have started we might as well get on with it. The good news is that there are only four of them, they are easy to remember and mostly just plain common sense.

Rule No 1:

All turns must be made outwards, ie: away from the hill.

Agreed, it makes perfectly good sense and is an essential safety strategy. We never turn towards the ridge, even if we are a seemingly long distance away.

Rule No 2:

A glider overtaking another glider when hill soaring shall do so by passing between the overtaken glider and the hill.

Most certainly another good idea, isn't it? If the slower glider decides to turn away from the hill and the overtaking glider is between the overtaken glider and the hill there is no danger of a collision. Still, I suggest we all make it a habit to look over our shoulder and twist our neck as hard as we can before, and while performing, a turn. It must become second nature and should be done regardless of whether we know the position of other gliders or not. In aviation we never assume, we always check.

Rule No 3:

If two gliders approach each other head-on while hill soaring, the glider which has the

the eyes on other traffic and not on the instruments. After all, our backside and our audio-vario provide us with more than enough information on the vertical movement of air making it totally unnecessary to keep a close look at the variometer. In fact a reliance on the vario is counterproductive as it gives us misleading information on the exact location of the strongest pockets of lift. The reason is the lag time in our instruments but we won't elaborate on this any further other than to say that interested readers will find additional information on the subject in my first series of articles for this magazine.

2.9 DANGERS

It is important to stress that ridge soaring pilots face danger if they under-estimate the strength of the upper wind and fail to realise that they are slowly drifting across the ridge and into sink on the downwind side. Just cast your mind back to Figure 2 which highlights that the sink downwind of the ridge is even stronger than the lift upwind of it simply because the additional sink rate of our glider needs to be included in the equation. As an example, we might enjoy ridge lift in the order of five knots but can easily experience twice the rate of sink (or even more) downwind of the ridge. On top of that we always have to battle a strong headwind on the way back into rising air.

There are plenty of stories where pilots rapidly lost altitude in the down-wash of the mountain and got a very close look at the ridge from the wrong side. It even happened much quicker than they ever thought was possible. Imagine you see the variometer needle pushing hard against the bottom stop and your track back into lift is blocked by a rather frightening looking mountain. Your blood pressure would go up rapidly knowing that there is almost no chance of finding lift downwind of the ridge.

Sadly some of these stories had very expensive or even tragic consequences when landings in unsuitable terrain had to be attempted. Let's not forget that ridge soaring is often conducted in some of the most inhospitable areas of the country. Yes, the countryside might be breathtakingly beautiful but the rather unforgiving nature of such terrain calls for extreme caution and dictates conservative safety margins at all times.

2.10 A PRACTICAL EXAMPLE

The soaring season was at its peak when a promising weather forecast and a near optimum synoptic situation provided suitable conditions for a long distance flight

over South Australia. I managed to convince a friend of mine to join me for a 1,000km attempt in our medium performance 15m gliders. Being mid-week we had to talk a fellow club member into coming out to drive the winch for us but he made it clear that he could not hang around to pick us up in the event of an outlanding.

We quickly agreed that we could live with such a risk and headed straight north where even better conditions were expected. The day improved in line with the forecast allowing us to progress reasonably well although the forecast cumulus clouds were missing. Approximately 250km north of our home airfield I took a climb back to 8,000ft for a glide into more mountainous terrain when extremely strong sink set in. It did not matter what I tried – the total energy variometer seemed to be stuck hard against the bottom stop and the altimeter kept winding down at an alarming rate. My trusty old Pik 20 D never liked to be driven much above 85kt but Mr MacCready dictated well over 100kt to get out of sink quickly. Soon I was down to 2,000ft and looking for a paddock. The scenery in the far north of South Australia might be truly beautiful but the outlanding possibilities are few and far in between. No wonder I was feeling uneasy and was beginning to wonder whether I would make it onto a rather low ridge which had a farmer reaping his meagre crop just upwind of it. The dust coming off his header indicated that the wind was right on the little ridge but the question was whether the lift was good enough to prevent me from getting to know the farmer personally.

Yes, I just made it onto the comparatively tiny ridge, but it soon became apparent that it would only allow me to maintain altitude around ridge-top level. The fact that I was not having a retrieve crew back at the airfield and the knowledge that someone had to drive at least 300km to get me made me dump even the last drop of water and forced me to concentrate like I had seldom done

before. Although I was constantly getting a very good look at the trees I was able to regain my composure and began to evaluate the options available to me. Only then it occurred to me that I had none. If I was to prevent a meeting with the farmer I had to test my patience and play the waiting game until the ridge produced a thermal for me to climb away in.

Although my mate was high and kept advertising that he was having a great time I was getting ever more determined to cling to this ridge for as long as necessary. After what seemed to be a very long time the ridge did eventually give birth to a rough but welcome thermal which got me back to more comfortable altitudes and soon made me forget about my earlier thoughts that only mentally disturbed persons can voluntarily expose themselves to such punishment.

Jokes aside, the flight never got me anywhere near my 1,000km diploma on that occasion but it is still very fresh in my mind even after more than a decade. The reason for sharing the story with you today is to suggest that a good knowledge about ridge lift is bound to come handy one day and that sound ridge-soaring skills are essential for recreational and performance orientated glider pilots alike.

DISCLAIMER

Heeding legal advice I would like to conclude by stating that the information contained in this series of articles is believed to be reliable, but its completeness and accuracy is not guaranteed. The author does not accept any liability, whether direct or indirect, arising from the use of this information.

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Preparing for a day of ridge-soaring



The Birchip tow paddock

BOILED LOLLIES TO BROKEN BICKIES – Part 1

Helen McKerral

I HAD NO IDEA WHAT TO EXPECT. NOT PATSY, LARGER-THAN-LIFE OWNER OF THE MT WYCHEPROOF MOTEL AND BREEDER

OF SPECTACULARLY UGLY YET STRANGELY APPEALING CHAMPION PUGS. NOT THE FLIES – SLOW, STICKY BUGGERS THAT DON'T BUDGE UNTIL YOU PHYSICALLY BRUSH THEM OFF, AND WHICH FLY DOWN THROATS OFTEN ENOUGH TO COMPRISE APPETISER. NOT THE DUST THAT SMELLS OF SUMMER AND MIXES WITH SWEAT TO TURN EVERYONE'S LEGS AS BROWN AS MINE. NOT THE STUBBLE, SHARP ENOUGH TO PIERCE A SANDAL AND – OUCH! – THE SENSITIVE PARTS OF A GIRL'S ANATOMY.

And, my God, I certainly didn't come within cooee of guessing the mind-blowing exhilaration of XC flight. All of you who said so were right: it IS different from the coast. NOT better... just different. One is expansive, soaring high linked only to clouds and air; the other intimate. One is thermalling like an eagle as a speck in the sky, the other the touch-and-gos of a gull. Icecream and chocolate: Why choose one? I want both! This story is about my first sweet taste of XC flight.

Birchip – actually, the tow paddock 20 clicks north of town – hosts several hang gliding competitions. In central northern Victoria, it's perfect for XC, especially for nervous pilots like me. For a start, the paddocks are big – four square kilometres is the norm. Crops struggle along on whatever scant rainfall sprinkles down during winter, so the immediate area lacks vines, orange trees or other glider-eating irrigated plantations that make such deceptively attractive landing zones when viewed from five grand. Instead, farmers grow wheat, oats and barley in the good years, of which this has been one. This season was late, so only half the crops have been harvested and now huge combines, each one the value of several nice houses, are rolling their way through the remainder. Although an emergency landing near the edge of an unharvested crop in fields this big would barely impact farmers, we're asked to land in stubble or grazed pad-

docks to retain goodwill. Stubble is easily distinguished from the air: the flattened stripes from the combines' huge wheels stand out like the proverbial. We're warned to avoid dark brown crops: dry canola ferociously slashes trousers and gliders to shreds.

There are sheep, too. Forget white and cuddly. These angular creatures are the same colour as the dirt, and as cute as hyenas. Still, unlike horses and cattle, sheep are safe to land beside. Late in the week, Kiwi Matt is heard yipping enthusiastically from the air at a lethargic mob below him to mobilise them into triggering a bubble. We point out to him that, being a New Zealander, he need only have told the sheep as much, to get them to flee!

Because the area is sparsely settled, powerlines are mercifully sparse too, though they run alongside all main roads. The biggest danger is the SWER lines – one line atop a pole with no crossbar and one insulator. They lead to every farmhouse and shed, cross paddocks at unpredictable angles, are practically invisible from the air and cause nasty hang gliding accidents. Fortunately, the abundance of cropped paddocks this year means they're more obvious from the pattern in the stubble or grain where machinery has been driven around the poles.

Straggly eucalypts line paddocks and roadsides, as well as the dribbles of rivers and creeks. Elsewhere, virtually none – perhaps one clump per paddock – you'd need to aim

well to hit them. Trees at downwind corners of paddocks often funnel thermals and are good triggers.

And the area is flat. I'm guestimating but, at perhaps 300ft, Mt Wycheproof is barely a hillock. But who's counting when there's no natural landform rising more than about ten feet within hundreds – even thousands – of square kilometres? All these things combine to make any pilot's first outlanding as stress-free as it can possibly be. There are even dams, conveniently dotted about as wind indicators!

So the first morning, we're gathered in Patsy's Motel dining room with its bad paintings and good atmosphere. Our first pilot briefing. We're welcomed, then: *"This is NOT a competition. The aim is to have FUN and to make Personal Bests."*

I'm hopeful but sceptical. I'm afraid we'll get an incomprehensible weather briefing, drive to the tow paddock, and then everyone will fly away, leaving me floundering briefly about the sky in the hope of blundering into a thermal before blundering just as quickly back to earth. When learning new physical skills, my experience of a lifetime sniggers that connection between neuron and muscle takes a long time to fire.

Although the pilot briefing does start with a weather report, synoptic charts are displayed AND explained. As the week progresses, we get more detail – temperature traces, why blue days are blue, and vast

Photos: Mark O'Keefe

amounts of general meteorology. On the first day, there's safety tips – launching, landing out and radio procedures. Subsequently, the briefing is never less than an hour, based on weaknesses our tour leaders have noticed, plus lots of theory. Bernard's Cell Theory, thermal triggers, lapse rate, cloud formation, streeting, speeds to fly, you name it. It's fantastic because, often, we'd drive out to the paddock and – voila! – Bernard's Cells! Inversions! From whiteboard to real life.

There are about 18 of us. Tour leaders are Rohan Holtkamp and Paul Rundell of Dynamic Flight Park. Steve and Colin are tow drivers, retrievers, and all-round good guys. Participants range from experienced pilots who have returned year after year, to complete XC novices like me. Damo and Jilly haven't cracked double figures in their logbooks yet; Ken only gained his licence the previous week! (But when he then flies miles almost every time he launches, we discover that he is, in fact, a sailplane pilot too). Tassie Steve is back for seconds from Tasmania, Kiwi Matt is here for the first time. After an encounter with a dust devil a while ago, Andy has had a couple of seriously broken bones and is getting back into the saddle with considerable demons to vanquish (he does). Big Marko had his first XC flight the previous weekend. Of about fourteen pilots, five have never flown XC. In fact, during the week, every XC virgin flies at least 20km, most of us at least twice. Every pilot who has flown XC before, exceeds his previous best distance, often several times.

Gliders include one rigid (Exxtacy), flown by quiet achiever elder of the group, Steve N. There are topless wings (Aeros Combat-2, Climaxes), several intermediate wings (Sting 2 XC), Airborne Funs and two advanced kingposts (Xtralite, Shark), plus the Flight Park's Fun 220 tandem. I've brought my Falcon 175 and my little Shark 144.

After the briefing, we gather gear, load gliders onto vehicles, and head to the paddock. We're all kind of quiet – nerves, probably. I've got the familiar mix of anticipation and butterflies that hits whenever trying something new in my glider. Several people eat their lunchtime sangers and the van fills with the smell of pickled onions. I resolve not to order onions again. Outside, the flat country unrolls and, at midday, we reach the tow paddock. We exit the airconditioned vans and heat smothers us like a prickly blanket. It's "only" about 37°C but, out here in full sun in the stubble, it easily gets 10 degrees above that.



Geoff lands nicely.

We set up the trailer in the south-western corner because the light wind is trending north to north-north-east, and Steve and Col line up twin tow strips in the Fore-runner and Suby. Everyone slathers on sunscreen and insect repellent.

I chuck battens into the Falcon. I've never flown country like this and it's been six months since I've car towed, so I resolved earlier that my first day here should not be on the Shark, which I've never towed and on which I've logged just 10 hours. But – wonderfully – there's no pressure to use this faster wing. That initial briefing (NOT a competition) has already engendered a supportive, collaborative atmosphere. Of course, as the week progresses, the more experienced and talented pilots engage in plenty of good-natured competition but, in the paddock, the same pilots cheer on us novices. Kiwi Matt's enthusiastic yells of "GO, Jilly! GO Damo! GO whomever!" become a heartwarming familiar battle cry. And at the end of the day, around Patsy's dinner tables, we're equals – pilots who love flying.

I have six tows the first day. Doesn't sound many but I'm buggered by the end because we rug up in warms, which is nice if you get away and hideous if you don't, although Marko proves to us during the week (T-shirt at seven grand) that his Theory of Distance ($\text{Distance Flown} = T \times 1/\text{clothing worn}$) may yet one day be included in gliding manuals.

Damo chases Jilly downwind to Birchip. Novice Ken leaves the paddock, too. Marko goes even further, after bombing out a few kilometres from the paddock, returning, setting up and flying again. That's another thing: if we fly less than 10 k's, we're retrieved

ASAP so we can try again. Others fly further: Geoff Tozer does 95km from his very first tow. During the week, the disappearing speck of Steve N's Exxtacy becomes the norm.

There are just two of us left in the paddock at the end of the day but, to my surprise, I'm not disappointed. This environment is so different to the coast and even the inland hill sites in South Australia. As well, Ro has flown my glider and noted a problem with my new harness that I thought was fixed. He's fixed it some more and my landing flares have suddenly become easier. He also points out that my ancient LRF vario is not working properly. This is kind of good news (an excuse! an excuse!); I borrow a Bräuniger for the rest of the week. I've remembered everything from my tow endorsement course six months ago. Even better, after we release, Ro or Paul relays instructions to all who need it: go left, turn tighter... upwind more. They exponentially increase our chance of success.

But the biggest lesson of the day is the realisation that I'm still mentally chained to the tow paddock LZ. Circling back, I start feeling nervous the moment I think I can't punch back to reach it. So, after releasing from one tow, I grit my teeth and keep circling, though I'm low and uncertain I can get either away or back. I land in the paddock behind the LZ – barely five hundred metres distant but, somehow, helpful. Baby steps.

Lying in bed that night, I'm grateful my instructors back home were tough on fast finals. On the coast where I normally fly, slack finals rarely snatch you from the sky and it's easy to get into bad habits. Here, landing in the middle of the day, in super



Steve Norman ready to launch in his Exxtacy

hot unstable air, slow finals eat you sooner rather than later. My fellow pilots mostly have good to excellent landing approaches, but the local country nevertheless claims the downtubes of half a dozen gliders during the week, which is a rather awesome strike rate. Still, I'm filled with anticipation for tomorrow.

Day two is again light and variable. In the paddock, Ro peruses the sky and pronounces it one of the Top 10 Days he's ever seen. Forecast cloudbase is ten grand, and fat cu's dot the blue invitingly. Textbook stuff. On the ground, dusties rip through our setup area. Andy is, understandably, jumpy. You can spot dusties easily in the dirt paddocks, but they're difficult to see when they start nearby in the stubble. Instead, you hear them first, a strange high whistling as they vibrate the stalks. *"Dusty!"* someone yells, and all rush for gliders. One dusty flings several folding chairs into the air. They seem almost to have personalities, these apparitions. From a distance, they look as variable as the pilots around me: some tall and slender, others wide and solid, some moving purposefully while others dart about in apparent indecision. Although I later learn during a briefing how dusties are formed and where, at height, I can find the lift that generates them, I still believe, deep down, that some are just plain mean.

Towing starts. I'm in my Falcon again in these light conditions (too fast a run on the Shark). It's hot – pulling on my polarfleece immediately before getting into my harness is torture. The harness itself with chute, packup gear, water, spare batteries, muesli bar, etc, weighs at least 15kg, and it feels a helluva lot heavier by the third tow.

I'm not having much luck today. I just can't "visualise" the thermal in the air and realise that, on the coast, I've been using landmarks below me to do so. Here, higher above the featureless stubble, this is impossible. Again and again I fall out, even though we are towing to 1,800ft plus. My coordinated turns are not. After the third tow, I wilt onto a folding chair, drink another litre of water and contemplate the emptying paddock. On the radio, I hear pilots making big distances. It's 4pm, but the sky still looks great. Ro thinks it will be on till sunset, 8:30pm. I glance with loathing at my jacket. One more tow? Paul notices my look and my hot face and says, *"Don't worry about the jacket, just go."* So I launch in my red tank top and cargo pants. Bare arms and shoulders. Aha, Marko's Theory of Distance!

The tow is a good one and I hit a nice, blessedly WIDE thermal (thank you, Wind Gods). Ro directs me. Amazingly, five minutes later I'm still in it! Just turning and turning! I've no idea of how I'm doing it, but part of me must because, even after I've drifted back and Ro is no longer instructing, I keep going up! Three thousand feet! Drift is slow in these conditions. At 3,500ft agl, I'm higher than I've ever been in my wing. No temptation to head back to the tow paddock this time! I've cut the umbilicus at last and the sense of freedom is exhilarating. I whoop with glee, my heart is bursting, it's so full. The land below is breathtaking. I expected this dry, flat, cropped landscape to be boring, but my perspective makes it beautiful. I fly over a bitumen road and radio my position again, though reading the map nauseates me. Farmers chat on the same band, pilots relay positions, Paul comes back

to me with encouragement: just keep doing what you're doing! To be honest, I don't really know what I'm doing, but something in my subconscious or body does so I start to relax and enjoy. Up to 4,000ft – chicken-feed to experienced pilots, mind-blowing for me. And then I fall out. I fly the search pattern we've been taught but no luck, so head straight downwind. Clouds everywhere, but I have no idea whether I can reach them or if they are growing or shrinking. Later, we talk about these things, but right now it's too much to take in anyway.

Then I luck upon another thermal! Back to 4,000ft. Five thousand. Six. I yell with delight. I'm the one who's turning but it feels as if the whole landscape, the whole world and universe are turning around me! Turning, turning... Urk. My stomach begins to do the same.

My double-sided laminated map has large scale one side, smaller scale on the other. Not expecting to fly far, I'd faced the larger scale outwards... but now, to my astonishment, I've flown off it! Twenty kilometres! The accuracy of my radio communication to notify base of my position, not good to start with, deteriorates further. *"Bitumen road going south-west from, um, third set of silos south of the town with the wheat storage thingies?"* Another "road" I follow turns out to be a railway. In my excitement I occasionally say south-west instead of south-east but, because I've been radioing regularly, retrieve have a good idea of where I am and patiently radio back affirming things.

On the coast I'm in the air, but married to the ridge. Here, I'm truly separate from the ground, the trigger that generated my thermal far, far away. Never before have I felt so much a bird, a part of the air.

Do birds get cold? My fingers are clawed around the bar – I've forgotten to use my fairings! My hands creak open and I slip them into the mitts. It's cold but not freezing, though goose-bumps cover my bare arms. Adrenaline is keeping the chills away! Climb, climb. 6,600ft. Yeee-haaaa! Such a sweet moment. Boiled lollies, for sure.

Suddenly the air gets rougher, pitching me about. Later I learn it's an inversion layer but, right then, I don't know that. The thermal is going up but no longer smooth, and my stomach protests ever more insistently. I fall out of the thermal, but it is fear that causes it and I don't search for it very hard. On glide.

I reach the highway. Most of the pilots who left earlier headed south to south-south-east, but the wind has changed since then and I'm heading east-south-east. I decide to



follow the highway towards Wycheproof to simplify retrieve. Besides, maybe the road, railway, trees and silos will be good triggers. Yes, another thermal! I circle in it briefly but am carried too far east, so I head south again. It is after 6pm but the air is still incredibly buoyant. I reach Wycheproof at about 3,500ft with my stomach complaining bitterly.

Wycheproof is a typical small country town, distinguished by a railway line running down the middle of the main street, separating north- and south-bound traffic. After years of drought in the region, neglected shopfronts display dusty crocheted teddy bears and hand-lettered opening hours on paper sticky-taped to the front doors. Later in the post office, I read the final newsletter of the town's Catholic school – with just 20 or so children, it's finally closing. But the people here are friendly, the two pubs are alive with smoke and conversation and it's harvest time, with trains on the lifeline rails and grain trucks on roads around town. Wyche will survive.

From the air, I can barely make out the mountain – it seems no higher than a BMX hump. I completely forget to look for the motel where we're staying. It's awesome flying by the town but I'm nervous about

landing close to all those houses and powerlines so I divert eastwards. Flying between a dark dirt paddock and what might be the dump, I find another thermal, a beauty. I turn in it a few times and realise I'll puke within five minutes. Decision time: will I like flying for another five days in a harness and helmet that reek of chunder? Quickly, I glide on.

To be honest, I'm ready to land. I've been up for nearly three hours and my roiling stomach is now seriously detracting from my enjoyment of the experience. At a wasteful height that will make seasoned pilots cringe, I decide to land. Five minutes later, I'm still at three grand! Ridiculous! Lift everywhere! Another few minutes, same height, I choose a nice four square kilometre stubble paddock at an intersection, radio position, and pull in to shut up the vario.

Textbook indicators welcome me – a dam indicates a light north-north-east, though it's east-south-east at height. I have plenty of time (more than my stomach wants, actually) boxing the field. Trees and a road line its southern boundary, powerlines and another road the west, while farmers work a paddock a few kilometres east. I set up over the trees, refine my direction and scream in with my stomach forgotten, my

heart in my mouth, and the bar pulled in as far as it will go. It is my first ever landing out. If I stuff up, I'm on my own. I'm glad I'm in my familiar Falcon and not the Shark. Come in fast, into ground effect, whizzing above the stubble then reach for it, and I'm there, a perfect landing! I unhook quickly from the glider, feeling safer that way. "YES!!!" I yell at the sky, "YES, YES!!!" I've done it, my first XC! I feel powerful, humbled, exhilarated... nauseated.

An hour later, glider packed, dusk falling, my radio says, "Helen copy Andy in retrieve..."

Three hours.

6,600ft above launch.

51 kilometres.

A banner moment, unforgettably sweet. Although my stomach says it can't get any worse than this, my head says it can't get any better. At last I've truly experienced the highs and lows of XC flight... haven't I? Well, no, not really. Not by a long shot. And the following days prove I'm wrong on all counts... in the most unexpected of ways.



Read the conclusion of 'Boiled Lollies to Broken Bickies' in next month's issue.

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The Grampians Soaring Club's IS-28

Promoting the Sport or Earning a Dollar

Maurice Little

MY GLIDING CLUB MAKES A FAIR BALANCE OF BOTH THESE BUT THERE ARE HIDDEN COSTS.

For the past six years the Grampians Soaring Club, GSC, has trekked some 120km south of its base in Ararat to the pretty holiday coastal town of Port Fairy in Victoria's southwest. Home of the famous folk festival each March, Port Fairy enjoys a Christmas/New Years tourist boost which

easily doubles its inhabitants for three to four weeks from Christmas to the end of January. The GSC takes advantage of this each year for as long as we can staff an operation and for as long as people want to fly, and the weather holds up. This is usually about two weeks.

Port Fairy is one of Victoria's first settlements and as a safe harbour was many years ahead of Port Phillip Bay, I am told. It is rich in history, complete with 12 shipwrecks, whales, extensive seal habitat, camels, wind farms, and easy access to the classic Great Ocean Road, the Grampians and rich western farming district. All this only serves

to attract visitors from Melbourne, Adelaide, Sydney and even Queensland.

So far our efforts have not seemed to noticeably exhaust the available market, however the mix has changed as you might expect from more locals, to more visitors taking advantage of our flights. When the weather is fine the spectacle rivals that of Byron Bay or Coffs Harbour and has to be seen to be believed.

So what do we do? The six years have seen relatively small but encouraging beginnings of five days and a simple flight, develop into a more marketable and, it seems, acceptable package which appears to find the balance between value and a fair price. There will doubtless be readers howling "too cheap", but the trick is not to scare the horses either, with most purchasers being families on vacation. The package at present is \$85 per flight for non-students, which includes about 20 to 25 minutes flying including aero tow unless aerobatics are requested, introductory GFA membership and GFA promotional video. It also includes an A4 digital photo and memento of the occasion, which we take pre-take off and process and provide on landing.

We obtain free storefront display space from many retailers for which the club provides material. We place a small advertisement in the local paper a week or two prior to operations and we secure the complete support from council and the locals who also benefit from our presence by offering their visitors another feature to remind them of Port Fairy. It helps also to be very close to town and on one of two access roads leading to the village. Town is just three kilometres west of the field.

The strip is an ALA on the same CTAF as nearby Warrnambool. It has no cross strip and usually suffers onshore breezes often at right angles strengthening as the day goes on. It becomes quite a challenge at times and is not for the uninitiated since the strip width is about one-and-a-half wingspans of our IS28, which is used in this instance.



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Photos: Maurice Little

One side of the strip is bordered with thick swampy tussocks and a lock about 20-metres north but parallel to the runway. The other side is bordered by a town access road some 20-metres away followed by sand dunes and the beach. Curl-over and turbulence make every take off and landing interesting and rarely has the wind been down the strip. On tow the whole outfit can be over the water on either side at under 300ft.

When it's all working fine and the weather forecast cooperative (which is about 70 to 80 per cent of the time) we are booked solid at least one day in advance, sometimes two. When the weather intervenes we can lose two days in succession and are only able to re-schedule about half of these bookings. A great day sees 20 flights starting at 9.00 am and running through to 7.00 pm on the half hour. Earlier starts are possible occasionally but usually sea fog forces a later start. Later finishes are only possible in one direction as landing into the sun on this strip after a long day with salt deposits on the canopy can be an unworkable combination.

In a good two weeks the club earns \$12,000 to \$14,000 after costs. It has been instrumental in clearing all debt, putting the club in a position to double its hangar space by another 10 bays and still have money in the bank to allow for a modest fleet restructure.

The negatives are: The same old hands making themselves available, which is wearing a little thin. Maintenance costs on both the tug and the glider have risen and both aircraft suffer accelerated corrosion due to the hostile environment. It also means higher insurance costs. It can be argued that it also interrupts normal flight operations and can risk existing membership loyalty. It can equally be argued that with the other four club aircraft and the winch, normal operations can continue back home for those available over what is usually a family period.

What of the future: Further refinement of the package, possible tinkering with the cost and time present on site. Maybe we will see a steady decline in patronage as the regulars return and have been there, done that. Maybe we will need to revert to two-yearly intervals. For now, however, it works pretty well and a reliable and consistent presence has been a major factor. We each have our views but no one can be sure of the answers and every year is a little different for different reasons.

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A Bright Christmas

Natalie Loveridge

TRAVELLING THE SEVEN-AND-A-HALF HOURS FROM SYDNEY TO BRIGHT, VICTORIA, WITH THREE PILOTS AND LADEN WITH PARAGLIDING GEAR WAS AN UNCOMFORTABLE START TO THE CHRISTMAS HOLIDAYS, BUT WE WERE ALL ANTICIPATING SOME EXCELLENT INLAND FLYING. MY TWO TRAVELLING COMPANIONS WERE MY PARTNER BEN AND PARAGLIDING BUDDY MARKUS. INSTRUCTOR PATRICK ROSER IN THE WINDWORKS TROOPE WAS FOLLOWING BEHIND WITH MORE EAGER PILOTS.

Patrick had decided to organise the trip during the Christmas holidays as it was a good opportunity for some ex-students to get together for some more inland experience. Holidaying with pilots of such different abilities was a little nerve wracking though, especially since they were all male and more experienced, but I was up to the challenge.

I had been told Bright was a beautiful village with only one take-off, 'Mystic', which takes a north-north-west, although another site called the 'Pines' is nearby. I was also told about the two resident thermals at Mystic – Marcus and Emily. Marcus is to the left of the take-off and Emily, who is harder to find, sits on the right hand ridge.

As we neared Bright our spirits were soon dampened by the torrent of rain that

greeted us and our flying nerves changed to worries of a wasted journey. Two days later, after trying to view the take-off from the house through the torrential rain, the sky cleared and our smiles and gliders came out with the sun.

Our first visit was to the landing area which is north-east of the take-off. It is a nice long field with a spot landing area and plenty of trees to park your pick-up vehicle under. Patrick gave us a chat about the area with some landing advice, and warned us of the steep wind gradient. We then bustled all our gear and ourselves into the Windworks Troope and began our ascent up Mystic, which takes around 20 minutes.

The road is graded well and the journey is very scenic. As we climbed higher and higher I realised this was going to be quite a challenging flight. Mystic is around 800m high and quite awesome when you get to the top. The forest of pines in the valley look tiny and you only get a visual of the landing paddock after you have taken off. I am used to flying the coastal sites of the Northern Beaches, with a few hours flying inland at Manilla and Tumut. Mystic was bigger than both and my biggest challenge yet.

As we travelled up the mountain we listened in to the very useful wind monitor (channel 21) which the local school have set up. It told us the wind speed and direction at take-off every five minutes or so – very handy if you don't like waiting around or making pointless journeys. When we arrived at the top on our first flying day the conditions were good, although coming from coastal sites a little more wind would have been nice.

Launch was easy – there is a lot of room and it slopes away nicely. Most of the take-off area is covered by Astroturf, so there is no fighting with those little roots that snag your lines. All the guys couldn't wait to get into the sky and catch some thermals. I was



A busy day

a little more hesitant when I saw the awesome lift, but got away eventually.

I fly a XS Gin, which is nice and stable. I was very happy with my choice when I flew Mystic as I am not keen on turbulence – and there can be a lot. The second day we flew the weather conditions changed from gusty wind to none, and then to high winds again. I was fortunate to go early as all the others ended up following me down to the landing soon after take off as the air was very bumpy and not quite right. The landing area can also be quite gnarly as thermals can lift you on your final, leaving you underestimating the landing space needed. I also found that the wind can swing round at the last minute – nice!

There can be some times that are very smooth though, and two eager friends and I decided to go alone up the mountain for an evening flight. The view at sunset would be awesome. We left at 5:30pm without a guide and soon realised that the path was not so obvious. After several discussions about visual references of particular trees with 12 not 11 branches we thought we had taken the right route. After a further 20 minutes it



Markus takes off...



... and up he goes



Another busy day

seemed we were not on the right track, and rather than take the advice of a rational female to turn around, Markus decided to take the four-wheel-drive up a short cut of scree and uneven ground. Two minutes later, after the car had popped out of four-wheel-drive and was sliding backwards, I decided to bail out and was followed by Ben. Admittedly Markus' driving skills prevailed, but he wrecked his tyres and I had a 10 minute uphill walk. After this little experience, flying from Mystic seemed an easy travelling alternative.

The local school is called Alpine Paragliding, who we bought a three day pass from to fly the site. They seemed a pretty organised bunch – the Mystic Cup is a regular event which we experienced on the Saturday. As it falls on the weekend, local and visiting pilots came out in droves. It had been relatively quiet up until now with only a few other pilots flying at any one time. They set a task, which was to fly the fastest time travelling along a particular route. When the launch window came it meant that it was 'on' and there was a queue of paragliders taking off. The take-off can take five or six preparing to launch at any one time, so at one point there were up to 30 paragliders thermalling the same area.

I decided to wait until there was less congestion.

There was one accident during our stay which didn't turn out too badly in the end. Just as I was about to take off I let another pilot leave before me. It was quite early and the conditions were stable. After taking off she attempted to make quite a tight turn too near the hill and went into a negative spin and ended up getting dumped into the face from about 50-100ft. Unbelievably she was okay (apart from a scratch on her finger) but I was not so good after witnessing it and refrained from flying that day.

I did fly the next day, but after take off and a few words on the radio from ever watchful Patrick I realised that my lines had a knot in them. As I was flying towards the landing paddock Patrick advised me not to make any sharp turns to my left as my glider could stall (I thanked God for my DVH 1 again). I decided that rather than do my usual 360 to lose height I would land in the adjacent field. The knot popped out by itself as I made my gentle turn and I landed safely. Patrick had a few words with me afterwards regarding my pre-flight checks, which were obviously not up to scratch.

Patrick also gave some extra help on radio to some other paraglider pilots who were attempting their first asymmetrical



Ben takes off



Markus and Ben fly towards the resident thermal

collapse and/or spiral dives. Everything was executed perfectly under Patrick's supervision and everyone felt like they had really achieved something that day.

On the last day we went up Mystic for a final evening flight, but the wind was coming over the back so we couldn't take off. There were two paragliders and a hang glider in the air that must have got away before the wind direction turned and were higher than I had seen anyone fly for the whole week. The air was perfect – no inversion and smooth but strong lift. As we waited and hoped to see if the take off conditions changed, we watched the lucky few get higher and higher until it seemed one paraglider had had enough and was trying to avoid any more lift and was 'big earing' it down. He tried for about 10 minutes, and as it didn't seem to work he tried a spiral which was a little more effective and he eventually came into land.

As we sat there jealous of those flying, someone mentioned what a funny sport paragliding was. Here we were desperate to take off into great lift, yet those that were up and in challenging air seemed to want to come down!

Thanks to Patrick Roser and Windworks for an amazing Christmas experience. 

CONFIDENCE

Louise Burnham

IF BEING A FEMALE PILOT TRAVELLING AROUND THE WORLD ON MY OWN HASN'T TAUGHT ME ABOUT CONFIDENCE, THEN DOING AN ACRO COURSE IN NEPAL CERTAINLY HAS! THAT COURSE WOULD BE WELL WORTH AN ARTICLE IN ITSELF, BUT IN THE MEANTIME I'D LIKE TO JUST SHARE MY THOUGHTS ON THE SUBJECT OF FLYING CONFIDENCE. IT DOESN'T MATTER WHETHER YOU FLY HANG GLIDERS OR PARAGLIDERS, COASTAL OR CROSS-COUNTRY – THE HUMAN EMOTION BOLSTERING, AND SOMETIMES HINDERING, OUR FLYING PASSION IS THE SAME.

Everybody knows that if you don't fly confidently, you fly badly. At some point, probably after an incident (not necessarily resulting in an accident), gripped with fear you've had to fly again. A friend of mine had an accident last year on landing and now when he goes to land back in this place his landings are never perfect. We sat down and had a chat about it and I was surprised when he said, *"Every night when I go to sleep, I remember the accident."* I suggested that he start to reprogram his brain by thinking only of good landings. Every time the accident came to mind he was to think immediately of good landings. Later he told me that it was beginning to work.

I had a similar problem with launches; they were always bad and this was largely because I was sold a harness that was too big for me when I left school. Years of different instructors only telling me what I was doing wrong only served to reinforce the fact that my take offs were crap. Interestingly, my take offs were always fine when I was alone or with friends. So I decided to adopt a different technique to overcome my confidence problems. First I surrounded myself by good positive thinking people and then copied really good technique. The positive people were some Indian friends of mine from Manali. Every day before I took off, I'd watch them, give myself a good positive image of what a good take off should look like, and copied it. Then, hey presto, my take offs got good. Don't get me wrong, I still do some bad launches, just not as often,

and usually when I've got something to prove – well, a guy to impress!

So now my confidence has started to come back after a summer of "nearly" being scared (I refuse to let myself believe that I get scared when I fly, rather "concerned" or "uncomfortable"). I've started to do acro and now my English friends think I'm overconfident! My Indian friends and some girl friends think I just have balls. I know I take risks every day I do acro, but the difference is I know the risks that I'm taking.

There is a big difference between being confident and overconfident. Being confident means that you know your abilities and understand your limitations well. However, when you are teaching yourself something new you must be confident and go beyond your current limitations. This might easily be confused with over confidence, but the difference is you still understand your limitations and are probably a bit concerned (scared, deep underneath it all), though you won't admit that in public. Compare this with an over confident person who believes that just because they did a SAT once they are a master of acro, or just because they flew 100km once they are great cross-country pilot. For the unconfident person, this may make them believe that they are not so good. The trick is to alter the way you think about your flying. Instead of measuring yourself against other people, begin to build a picture of what a good pilot should be. Work out how you are different from this image, then build a plan of how to get there by setting small achievable goals. Before long, as you

achieve each goal, you will begin to feel that you are a better pilot and your confidence will increase.

This certainly used to happen with me. I definitely used to compare myself to other pilots, but also I had this image of a perfect pilot. Because I never built a plan until now of how to get there, it felt like I was never progressing down this path. Now I have set small easily achievable goals, I am a much more confident pilot.

Another important step on the road to becoming a more confident pilot is to learn to discern advice. For me, this was a big turning point. Not all advice is equal, and some people just like to tell you how to do things. They do this to everybody, not just you. The trick is learning to take this advice humbly and then work out what to do with it. Don't do what I used to do, which was to become personally upset. If you do a bad landing in a busy place, somebody will comment on it. It doesn't matter if your last hundred landings were perfect. Learn from the mistake and don't dwell on it.

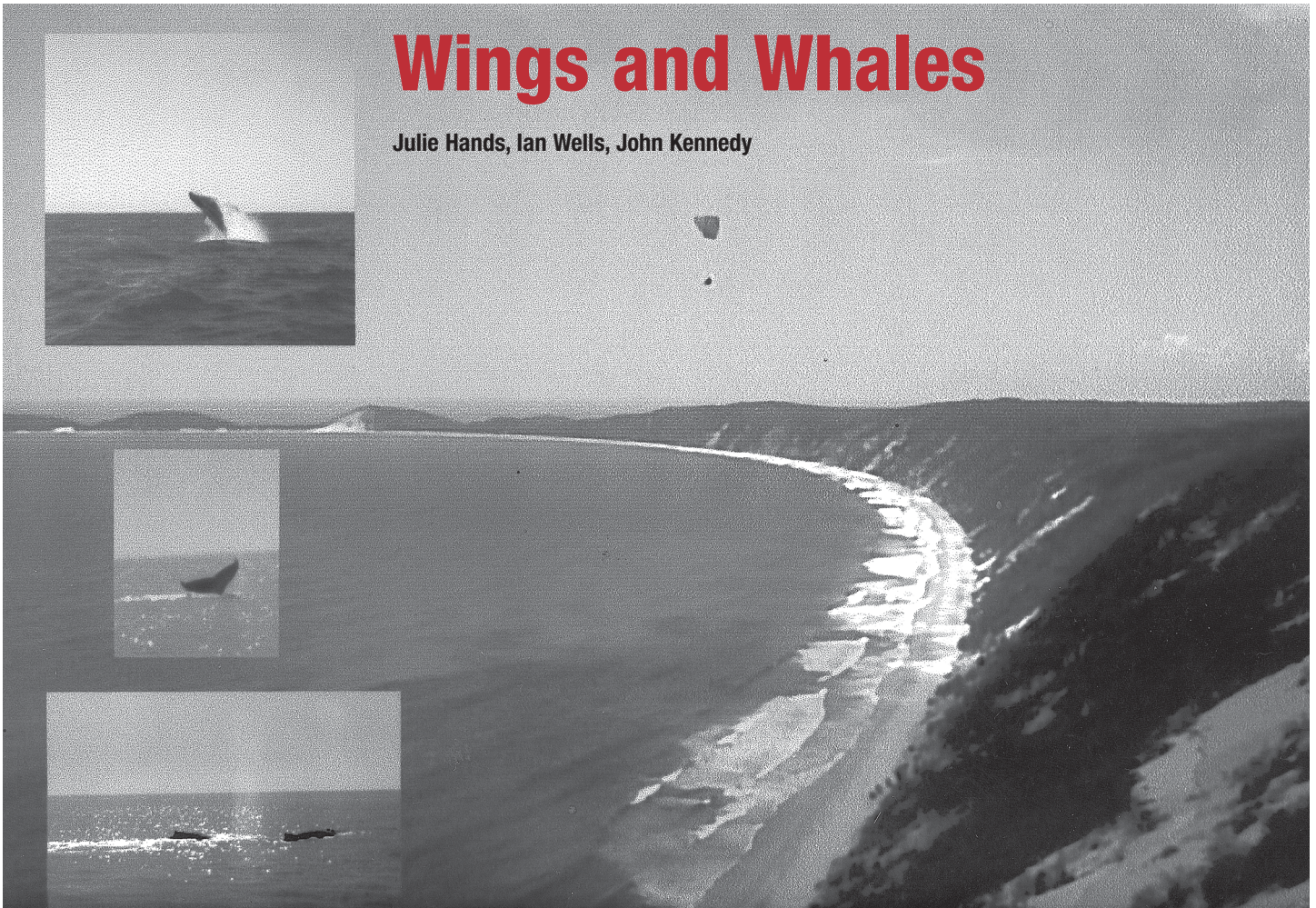
As a last point, we would all become better pilots if we offered positive advice more often. When was the last time you said to someone "great take off", or "great landing", or "excellent thermalling"? No; we save positive advice only for exceptional feats like getting to goal, or flying over 100km, or a perfect SAT. So I issue a challenge to you: three positive comments in the next month and see what happens.





Wings and Whales

Julie Hands, Ian Wells, John Kennedy



23 OCTOBER 2003

We had waited all day, under the shade of the trees, on the edge of Carlo Sandblow at Rainbow Beach, for the wind to behave itself and blow in from the sea (north-east), not off the land. We were 'visiting pilots' from The Whitsundays, so spent the day sharing stories and discovering mutual friends with the locals.

What happened next we will never forget.

At 3:30pm the wind came on. Glider check, picnic away, launch. The lift band was huge due to some sort of convergence; we were able to fly right out over the sea and still be in lift.

Jean-Luc, who had been waiting to take a tandem, now briefed his passenger, checked his gear and looked out to sea checking conditions. "Look, a whale!" He put the word out over the radio and we all drifted over to have a look.

There were about six paragliders and two hangies flying with us. On closer inspection there were three whales (two adults and a calf) with an escort of six dolphins. They were blowing, rolling, tail flipping and breaching as they made their way across the bay to Double Island Point. With their new baby they were returning south after their annual migration to our home, the Whitsundays, where they deliver their calves

March 2004

in the safety and shelter of our beautiful islands during the winter. They were as unaware of us as we were transfixed by them. How privileged we were to have a show like this. Radio chatter was incessant as we all wanted to share the experience, then quiet came over us all as we absorbed the special occasion and didn't want to break the spell.

How often have you heard someone say, "Always fly with a camera, the day you don't you'll be sorry!" Guess what? Only Ian had a camera, but it was in his backpack! As far as we knew, no one else had one, so it was up to him to record this amazing spectacle.

"There I was," he said later, "1,000ft up, nearly one kilometre out to sea, undoing my leg and

chest straps so I could stand in the harness seat and reach the damned camera... only joking!"

It did take some great manoeuvres (ones yoga people would dream of) to reach it, but he did, and snapped the whole film.

We all played at our sports for about an hour then had to part, the whales to continue their watery journey and us to avoid one!

We headed back to town and landed outside the lifesaving club, where we packed up and again began talking about our very special natural encounter.

A great shared experience and a great flight to put in the log.



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AUSSIE PILOTS CONNECTION

A NEW WAY TO COACH

Lessons learnt from the British

Lisa Turner

Gliding in Australia has produced some exceptionally talented pilots who have excelled in the local arena, however, only a few of these pilots have succeeded at the highest levels of international competition. All of the RTO Sports have set themselves the goal of having an Australian pilot stand on the medals' podium at most world championships. We know that Australian pilots have the skill and ability to achieve this but have been perplexed why our pilots do not appear to be as competitive at world championships. We started by looking around at the pilots and nations who have been performing well and saw that over the past few years, the UK has emerged as a force to be reckoned with at most of the recent world championships. In order to find out how they are achieving this and

what Australian pilots need to do to reach this standard we asked Martyn Wells, a British world competition level pilot and current coach of various British world championship teams, to share with us his experiences of coaching.

At world championship level team flying is allowed and the British have developed team flying into a fine art. The combined skill of two or more pilots has proven very successful for the British as is evidenced by the number of current world champions and other medal winners from the UK. The most significant difference appears to be that the Brits have a disciplined approach to coaching their team and getting the cooperation of all of their pilots to this process.

They also send a coach, in addition to the traditional team manager, to each and every world competition allowing the pilots

to focus solely on their task of flying each day. The role of the coach is to assist with understanding the rules, weather, task, tactics for the day, to ensure the pilots remain focused on their flying objectives, and to provide operational/tactical support to the pilots from the ground (particularly with assistance in POST or AAT task options). It is clear that in order to be competitive in world competition, Australian pilots need to change their traditional approach of largely flying as a group of individuals.

In December 2003 a coaching camp was held in Benalla, Victoria involving Bruce Campbell, Peter Trotter, Lisa Trotter, James Cooper, Mitchell Turner and myself as State sports coaches and Paul Matthews as National coach. Leading this week was British Coach and team member Martyn Wells. The aim of the week was to develop

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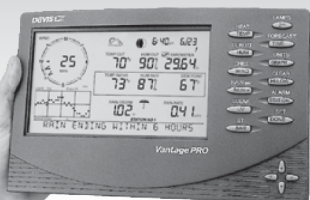
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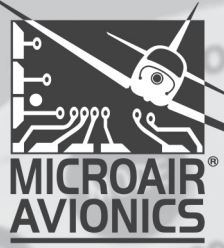
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our coaching skills to enable us to coach national level teams to reach our world championship goals as a nation. The week comprised theory workshops in the mornings followed by flying sessions where the theory was put into practice with the State coaches as the pupils.

Throughout the week we were taught specific team flying techniques in single-seat gliders as well as flying dual with Paul or Martyn in the back seat as coach. We also focused on flying new tasking styles such as assigned area tasking (AAT) with a sector instead of a full circle, as is often used in world championships. These new tasking styles were often purposely overset, under set or set incorrectly based on the predicted weather and created a high cockpit workload when coupled with learning to team fly. Needless to say, as coaches we quickly appreciated what is required by pilots to perform at the top level and how difficult and mentally draining it can be to do this. It demonstrated to us that a great deal of practice is needed in order to team fly effectively in competition situations.

We conducted theory workshops before and after flying each day as well as rainy days. These included detailed competition theory, discussing coaching experiences with Martyn, coaching in Australia, the future of Australian coaching and the future of Australian pilots at world championships. Much of the discussion involved how to increase participation in competition and gliding generally with everyone in agreement that there needs to be a greater focus on junior pilots and assisting them to participate and develop in the sport.

Two other training weeks were held in the following weeks involving three promising junior pilots, three female pilots likely to attend the next Women's World Championships and the squad for the next Club Class World Championships. This week was lead by former world champions Brian and Jill Spreckly and Bruce Taylor. These two weeks put into practice the newly acquired coaching skills and team flying techniques.

The weeks were successful on several levels. They raised the focus of the coaches from early and intermediate cross-country flying to include high-level competition flying. We now have a greater understanding of what is required to coach world championship teams and achieve the goal of seeing an Australian on a podium. The coaching also benefited the coaches on a personal level because we were taught how to coach by being coached ourselves. For me personally the success of the week was demonstrated through my performance at the FAI Multi-

class National Championships where I flew my fastest ever speeds and achieved a first and second day placing amongst a small yet highly experienced field. It was clearly a personal best for me and I know from speaking to others who participated in the coaching weeks that their flying has also improved. The week provided me with a lot of personal motivation to increase the level of competitive flying that I do, to set myself new gliding goals and to increase the type and amount of coaching that I conduct.

It has become clear to us as coaches that the future of our sport rests with the development of a strong junior movement that fosters and encourages young pilots into the sport and provides them with visible goals to achieve that keep them in the sport.

The British coaching system demonstrates the success and self-perpetuating nature of the junior movement as ex-junior pilots (say 35-year-olds) who are now flying in world competitions are making the time to coach the current junior pilots in the same manner they were coached because they understand the benefits of the coaching and how successful it can be. The coaching weeks are a new concept in Australia, which I know will provide an invaluable training tool for upcoming pilots and teams and help to take our sport to the next level and achieve our goals as a nation.



Lisa Turner, winner of the Sir Donald Anderson Trophy which is awarded to the pilot with the best performance at a first or second nationals – *"For me personally the success of the week was demonstrated through my performance at the FAI Multi-class National Championships where I flew my fastest ever speeds and achieved a first and second day placing amongst a small yet highly experienced field."*

Photo: Frank Turner

SEATBELTS

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Nationals Returning to Dalby

Ralph Henderson

TEN YEARS AFTER THE AUSTRALIAN NATIONAL CHAMPIONSHIPS WERE FIRST HELD AT DALBY, THE AUSTRALIAN MULTI-CLASS NATIONAL GLIDING CHAMPIONSHIPS ARE RETURNING TO THIS GREAT SITE. THE CONTEST WILL BE HELD THE WEEK AFTER THE QUEENSLAND STATE CHAMPIONSHIPS, WHICH WILL TAKE PLACE AT KINGAROY.

The practice days are 4 and 5 October and the contest days are 6 to 15 October 2004.

It is worth looking at some of the comments that were made after the 1994 Nationals. These comments are taken from an article in Australian Gliding, December 1994.

The 33rd Nationals at Dalby can probably be described best as FAST!

The consensus of opinion of pilots during and after the comps was that Dalby provided some of the best, most consistent weather for many years. So impressed were they that at the pilots' meeting, a proposal was made to include Queensland in the annual rotation for the hosting of the nationals.

But, as for 1994 Dalby was "superb".

Day one

Task Warwick, Chinchilla 405 km for open.

Day two

Open Class flew 495 km. I heard several pilots claim that it was their 'best ever' day of gliding.

Day three

Again the day looked great. Task to Brookstead, Pittsworth, Chinchilla and Jandowae.

Day four

A winning speed of 140km/h.

Day five

Another strong day with tasks up to 487km. The day was described as a "romp". All the

classes had the first three placegetters over 130km/h.

Day six

The day may well be remembered for the civic reception held for everyone involved in the competition. The Dalby Municipal Council and Wambo Shire Council made us feel very welcome with dinner, drinks and a band provided in our honour, all set in the beautiful park in central Dalby. It was a great night and followed another great day of gliding. Thank you Dalby!

Day seven

395km task for Open Class.

Day eight

Open Class went to Inglewood, Goondiwindi and Miles, 548km.

Day nine

Rightly described as WOW! This was a day to remember. Ingo Renner won open class flying the 472km task at an incredible 156km/h. Brad Edwards won Racing Class at 142km/h. Brad reported 13 and 12kt thermals consistently with nothing under 10kt. What a wonderful place Dalby is!

Day ten

Open Class flew 447 km.

Gliding was the winner.

The atmosphere of these nationals was more like a world championships. The crowds of spectators on the weekends made

us feel welcome and positive about our sport, despite the occasional concern for the safety of onlookers.

The local media was supportive and interested and townsfolk made us all feel they would gladly have us back. I know of many pilots who said they would certainly be glad to return. That coupled with the brilliant weather made Dalby a memorable nationals.

This year's nationals will be hosted by the Darling Downs Soaring Club, following the club's success in hosting the 2002 Queensland State Championships at Jondaryan in October 2002 and the Queensland Easter Competition at Dalby in April 2003. These two competitions attracted 48 and 55 gliders respectively.

Strong support is again assured from the Dalby Town Council and the Dalby Chamber of Commerce.

Organisation for the nationals is well underway and we are aiming for 50 entries, with at least 40 entries from Australia and 10 from overseas. More information will be provided in future editions, but in the meantime please email me if you would like more information, <rhenderson@austarmetro.com.au>.

CONGRATULATIONS KEITH WILLIS

Keith Willis passed the 1,000-hour mark in a PW-5 on 16 January this year – possibly the first person in the world to achieve this distinction.

Keith has had 283 flights at an average of three hours and 32 minutes per flight; has flown 38,283km cross-country; and has averaged 167km on 229 cross-country flights.





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Black Forked Lightning

Dave Shorter

AT 8,000FT OVER BOGGABRI, CRUISING TO THE NEXT CLOUD,

A FLASH OF BLACK STREAKED DOWN IN FRONT OF ME FOR

BARELY AN INSTANT AND THEN IT

WAS GONE, DISAPPEARING

BELOW MY GLIDER.

Spine-tailed Swift flies with several quick wing beats followed by fast raking glides, and sometimes indulges in diving displays

From 500ft above, the swift materialised in a vertical dive, with rapid darting movements, twisting and turning in fantastic contortions of flight, a zigzag of black lightning. It seemed to be powering all the way down, its wings flapping, correcting and adjusting with extraordinary deflections to perform these stunning aerial acrobatics.

In a blink it was gone leaving me spellbound.

Was it chasing insects or do they do this just for fun?

The fastest and most aerial of all birds, swifts are often found in flocks occupying a thermal column, feeding on flying insects carried aloft. Somewhat like swallows their flight is much faster, direct and sustained on backswept bladelike wings.

According to Graham Pizzey's Field Guide to Birds of Australia, flight is either slow and wheeling, or very fast and direct with downward raking dashes and dives at speeds estimated to exceed 150km/h.

True swifts cannot perch and usually need a vertical drop to reach flying speed. They nest in Asia during our winter on vertical surfaces (their glutinous nests are used in birds nest soup renowned in Asia) and migrate to Australia during our summer months spending the rest of the year on the wing.

They drink in flight from the surface of rivers and lakes and feed on flying insects, rising under some conditions to thousands of metres. Swifts are believed to sleep on the wing and they copulate in flight.

We can admire the majesty of an eagle or a pelican hanging in a thermal but give me a swift any day for absolute performance.

When will someone design me a glider with the capability of a swift?



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RESULTS OF CLUB CLASS NATIONALS – Waikerie (12-23 January 2004)

			TOTAL	1	2	3	4	5	6	7	8	9	10	
1	Ritchie P	AUS	WUZ	922.6	945.1	815.8	760.8	988.8	960.8	917.4	909.4	550.1	897.9	964.2
2	Geiger T	AUS	HDL	908.5	905.4	734.9	727.0	908.7	943.2	968.4	936.2	595.3	880.0	978.2
3	Cubley T	AUS	DH	903.1	911.9	802.3	755.3	953.6	883.1	925.7	807.5	601.1	885.1	1000.0
4	Beyer W	GER	ES	888.6	784.9	801.3	670.6	881.4	1000.0	829.4	953.1	655.0	948.0	865.4
5	Wondergem H	HOL	CT	856.2	749.3	881.3	782.9	838.0	970.5	782.9	906.3	451.2	0.0	864.6
6	Gilbert T	AUS	CK	829.9	0.0	0.0	792.4	843.0	491.0	844.9	915.6	496.2	876.6	926.9
7	Wilson D	AUS	ZAE	826.2	800.4	666.5	783.0	828.0	887.5	930.9	910.0	504.0	719.9	770.0
8	Buskens P	AUS	JG	818.6	909.7	144.6	774.6	824.7	926.5	918.6	881.4	542.3	854.8	951.0
9	Tabart T	AUS	TT	814.2	785.0	762.2	596.5	778.9	847.7	872.9	885.1	550.0	823.9	784.6
10	Trotter P	AUS	QG	810.1	0.0	0.0	701.4	822.8	607.4	782.2	873.1	522.5	0.0	920.0
11	Durrant M	AUS	OD	803.1	817.4	800.5	664.0	730.6	882.4	789.5	853.4	619.1	797.2	628.0
12	Horlock K	AUS	JZ	781.3	608.5	791.4	666.4	756.1	805.5	782.8	876.3	576.8	716.9	795.5
13	Huggins A	AUS	OP	742.0	804.3	611.6	646.8	858.3	742.3	757.3	825.9	24.4	859.4	874.3
14	Trotter L	AUS	L88	740.3	0.0	0.0	755.0	996.2	510.4	1000.0	937.8	579.3	0.0	0.0
15	Woodward D	AUS	GWK	739.1	1000.0	985.7	764.5	167.5	477.1	936.5	277.4	460.7	965.1	943.6
16	Mosiejewski J	AUS	UKA	739.1	562.7	863.9	532.3	914.4	544.5	843.1	764.3	487.6	796.8	668.4
17	Feeg M	AUS	UH	737.5	743.0	514.5	558.6	817.3	577.8	890.7	0.0	573.4	790.3	759.6
18	Stevenson G	AUS	BL	734.3	756.1	852.2	789.4	871.4	527.3	817.5	379.5	574.5	495.5	869.2
19	Robinson P	AUS	IUS	730.3	750.9	737.2	800.0	671.2	459.2	816.4	681.5	493.7	787.8	696.8
20	Shand J	AUS	XH	716.0	0.0	126.2	740.4	1000.0	0.0	777.8	975.6	631.3	1000.0	792.1
21	Conway D	AUS	QH	695.4	719.7	806.0	621.3	744.7	877.5	754.7	847.7	522.8	355.0	315.8
22	Cleaver M	AUS	KI1	690.9	0.0	514.0	0.0	718.1	0.0	834.2	0.0	0.0	752.6	625.7
23	Szemis O	AUS	UD	689.6	703.6	743.8	665.0	689.8	923.5	753.6	690.7	560.2	779.9	0.0
24	Eldridge P	AUS	UKD	677.7	688.7	590.5	587.8	764.8	444.9	722.6	767.8	368.4	780.7	681.5
25	Gregory M	AUS	ZS1	653.7	697.7	0.0	557.1	0.0	543.3	0.0	659.6	0.0	679.9	0.0
26	Buelter R	AUS	WQF	634.5	937.5	86.9	651.9	973.1	590.6	914.5	1000.0	437.5	0.0	398.1
27	Hart R	AUS	EL	634.4	632.3	217.9	0.0	759.3	882.5	826.8	600.2	528.1	790.5	751.8
28	Nankivell S	AUS	UI	619.1	695.2	0.0	0.0	71.0	521.7	792.5	718.8	512.3	727.3	700.5
29	Conway C	AUS	WVA	596.3	711.7	459.9	610.3	651.3	597.7	0.0	801.5	0.0	0.0	810.4
30	Willis K	AUS	ZAW	565.3	582.4	206.2	543.3	648.0	741.4	526.4	601.8	333.3	527.5	627.0
31	Anderson J	AUS	MT	559.0	484.0	758.2	581.3	716.8	504.6	540.8	298.9	176.1	661.6	555.2
32	Brown S	AUS	SM	557.7	547.7	117.9	657.8	0.0	482.0	697.4	715.4	217.4	717.9	554.3
33	Long D	AUS	VE	520.2	572.4	66.4	604.1	0.0	349.7	714.8	639.7	317.5	523.3	603.0
34	Cleland/Grech C	AUS	XON	505.9	584.3	698.5	416.3	280.7	373.6	467.8	326.2	350.4	668.1	610.0
35	Gregory A	AUS	ZS2	462.0	0.0	149.2	0.0	524.3	0.0	455.6	0.0	351.2	0.0	663.9
36	Shirley T	AUS	KI2	449.2	579.1	0.0	427.6	0.0	535.3	0.0	391.6	67.8	0.0	0.0
37	Taylor B	AUS	BD	438.6	905.8	958.9	715.5	914.6	645.5	0.0	0.0	0.0	0.0	0.0
38	Vincent G	AUS	AX	418.6	617.3	104.8	324.3	651.9	0.0	602.4	510.6	427.3	372.9	340.5
39	Musgrave B	AUS	BP	409.4	462.5	100.6	0.0	0.0	736.8	561.3	242.3	10.2	495.5	519.1
40	Prelgauskas E	AUS	TJ	325.5	76.3	144.1	0.0	409.5	515.0	0.0	553.8	417.4	631.1	0.0
41	Hackett S	AUS	CP	319.0	0.0	0.0	0.0	0.0	0.0	792.3	115.0	123.6	332.1	121.8
42	Wright A	AUS	AM	202.2	388.9	117.6	0.0	0.0	66.6	400.0	0.0	29.3	495.5	6.7
43	Humphrey R	AUS	EM	192.5	0.0	0.0	0.0	0.0	0.0	94.2	242.6	349.4	209.8	0.0



FLIGHT AND THE INTERNUTS

Martin Simons

BROWSING THE INTERNET CAN BE REWARDING, IF TIME CONSUMING. MUCH CAN BE LEARNED. FORGOTTEN FACTS MAY BE RE-DISCOVERED AND NEW ONES FOUND. UNFORTUNATELY THERE IS ALSO A VAST AMOUNT OF RUBBISH. MATERIAL DISHED OUT ON THE INTERNET IS NOT INDEPENDENTLY SELECTED OR EDITED IN ANY WAY. THAT, INDEED IS ONE OF ITS ADVANTAGES. ANYONE CAN PUBLISH ANYTHING AT ALL WITHOUT FEAR OF REJECTION. (ANY FRUSTRATED AUTHOR OR LOVESICK TEENAGER CAN TAKE ADVANTAGE OF THIS.

A good deal of what appears on the web is, unfortunately, garbage. People all too often take whatever they find there to be established truth. They can be seriously, even dangerously, misled.

In flight theory, a recent example is found in a letter to 'Soaring Australia' (August 2003, page 22). This letter begins, *"I was scrolling round a couple of Hang Gliding Websites"* and later remarked *"I think it has been generally accepted that Bernoulli's principle plays no part in generating lift."* He goes on to cite the Coanda Effect together with Newton's Laws of Motion. I replied briefly to this letter (October page 32), saying, among other things, *"Maybe he has been browsing the internet. Don't believe everything you see there."*

It most certainly is not generally accepted that Bernoulli's Theorem plays no part in generating lift. Beware of the internuts.

There was a reply to my reply (December SA, p 29) in which the writer reiterated that *"many publications and authors attribute lift solely to the application of Bernoulli's principle, which is, I am convinced, incorrect."* I feel obliged to respond.

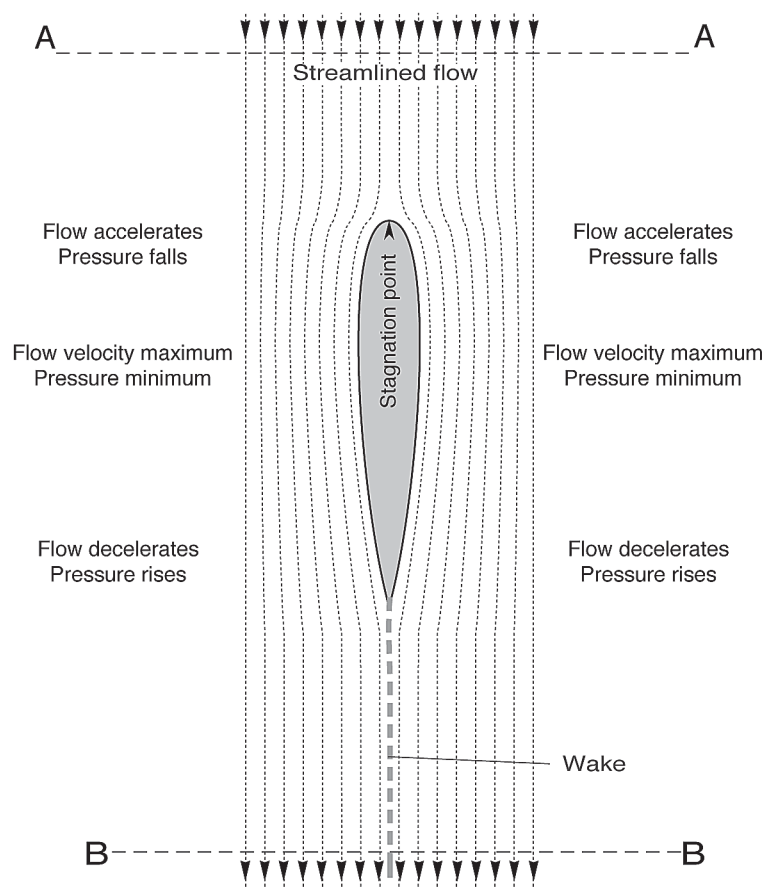
It is plainly ridiculous to suppose that there is any conflict between Newton, Bernoulli and Coanda. Bernoulli and Coanda both applied Newtonian laws and their results were strict applications of Newtonian principles to fluid flows. It is difficult to avoid a long dissertation but I will be as brief as I can by confining myself to one main question. No great depth of scientific knowledge is required in order to understand what follows. The only equations required involve simple addition and multiplication.

Bernoulli, working in the eighteenth century, was thinking chiefly of water in its liquid form. The theorem is an expression

of the fundamental laws of conservation of energy and matter. The proof can be found in every reasonable textbook of

aerodynamics although it is often, perhaps too often, taken for granted by authors of more general works.

Figure 1 Bernoulli theorem applied to a symmetrical fin at zero angle of attack



A symmetrical fin at zero angle of attack. In each time interval as much air flows past B - B as passed A - A. The fin forms an obstruction around which the flow must pass. As the streamlines show, the distance is greater than that for the unobstructed flow. The flow velocity must increase to a maximum and then decrease. There is an equal decrease of pressure on the left and right surfaces of the fin. No lift results



Air is a fluid. Briefly, in any fluid flow, pressure and velocity at a point are interdependent. As one increases the other decreases. This relationship is expressed in a simple equation:

$$P + Q = \text{Constant}$$

As Q rises, pressure falls and vice versa.

Q is aerodynamics is shorthand for a more complex factor in which flow velocity appears:

$$Q = V \times V \times \rho$$

(P is the local pressure at any point. The Greek letter ρ (rho) stands for fluid density and V for the flow velocity.)

The Bernoulli theorem is quite fundamental in aerodynamics. It appears over and over again in important calculations, and if it were incorrect the aircraft we fly would never get off the ground. Note particularly that since the velocity, V , is squared in the equation (multiplied by itself), relatively small changes in velocity of flow have large effects on the pressure. Putting it the other way round, a small change of pressure produces a large change of velocity.

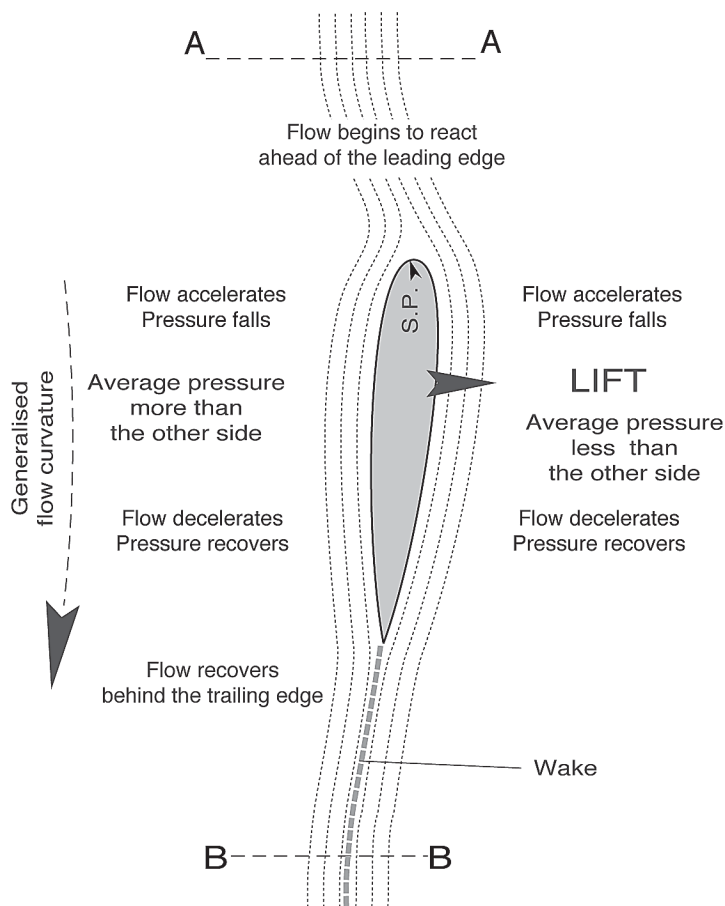
As with your bank loan or insurance policy, conditions apply. The flow must be streamlined, turbulence is not allowed for. (For instance, if a wing is stalled, the streamlining breaks down and Bernoulli does not work.) Heating of the air caused by friction, and compressibility effects related to high Mach numbers and supersonic flight are neglected. At gliding speeds this is acceptable. It is also assumed that no energy is added to the flow from any external source. (This last item becomes important when the 'Coanda' effect is discussed. I shall say something about this later.)

I also assume in what follows that the flow is two-dimensional. That is, I will not examine in any detail the effects on the flow of wing tip vortices although in a much longer article these would have to be discussed.

In Figure 1, the Bernoulli theorem is applied to a symmetrical form, such as a fin. In the diagram the airflow is shown as a number of streamlines running generally from the nose to the tail of a glider, and continuing beyond. The fin is immersed in the flow. The streamlines follow a curved path round both sides, then converge again at the trailing edge. Note that the divergence begins somewhat before the leading edge arrives, and the convergence continues some distance aft of the trailing edge. There is also a 'wake', indicating an aspect of the fin's resistance to the flow, i.e. 'drag'. This is characteristic of fluid flows passing around obstructions.

Air cannot pile up in heaps like blowing sand or snow and the density is constant (low Mach number, negligible compressibility). Hence, in each time unit as much

Figure 2 Bernoulli theorem applied to a symmetrical fin at a positive angle of attack



At a positive angle of attack a symmetrical fin produces lift because there is a difference in the air pressure between the two surfaces. The average flow velocity over one side is more than the other so the pressure varies accordingly and a lift force results. Note the generalised curvature of the flow. The lifting surface has a turning or rotating influence. This leads to important consequences for advanced theory.

A symmetrical wing or tailplane operates in the same way.

mass of air leaves the system at the line B – B as the quantity passing A – A. The route taken by the flow on either side of the fin is longer than it would be with no obstruction, but the necessity remains for all the air passing A – A to arrive at B – B together. Since the paths taken by the streamlines around the fin are longer, the average velocity must increase to cover the greater distance in the same interval. There is a corresponding decrease in air pressure on both sides of the fin.

The highest pressure on the profile is at the leading edge stagnation point where the speed of flow relative to the wing is effectively zero. The actual value of the pressure at this point can be measured in practice with the open end of a standard 'pitot' tube pointing upstream. From the stagnation point, the flow accelerates on both sides, and the pressure falls. After passing the maxi-

mum thickness point of the profile, the flow begins to decelerate and the total pressure begins to return to the original value which it had at A – A. Thus, the pressure on both sides of the fin decreases aft of the stagnation point, reaches some minimum value, then begins to rise again as the flow decelerates. This is indicated in the diagram. Pressure changes of these kinds can be and have been measured on innumerable occasions and their reality is beyond dispute. They match the Bernoulli predictions.

Since the fin is symmetrical in section and aligned exactly with the flow, the pressure variations on the two surfaces are equal and they cancel each other out. The fin exerts no side or yawing force. (There are, nevertheless, forces tending to pull the fin skins off.)

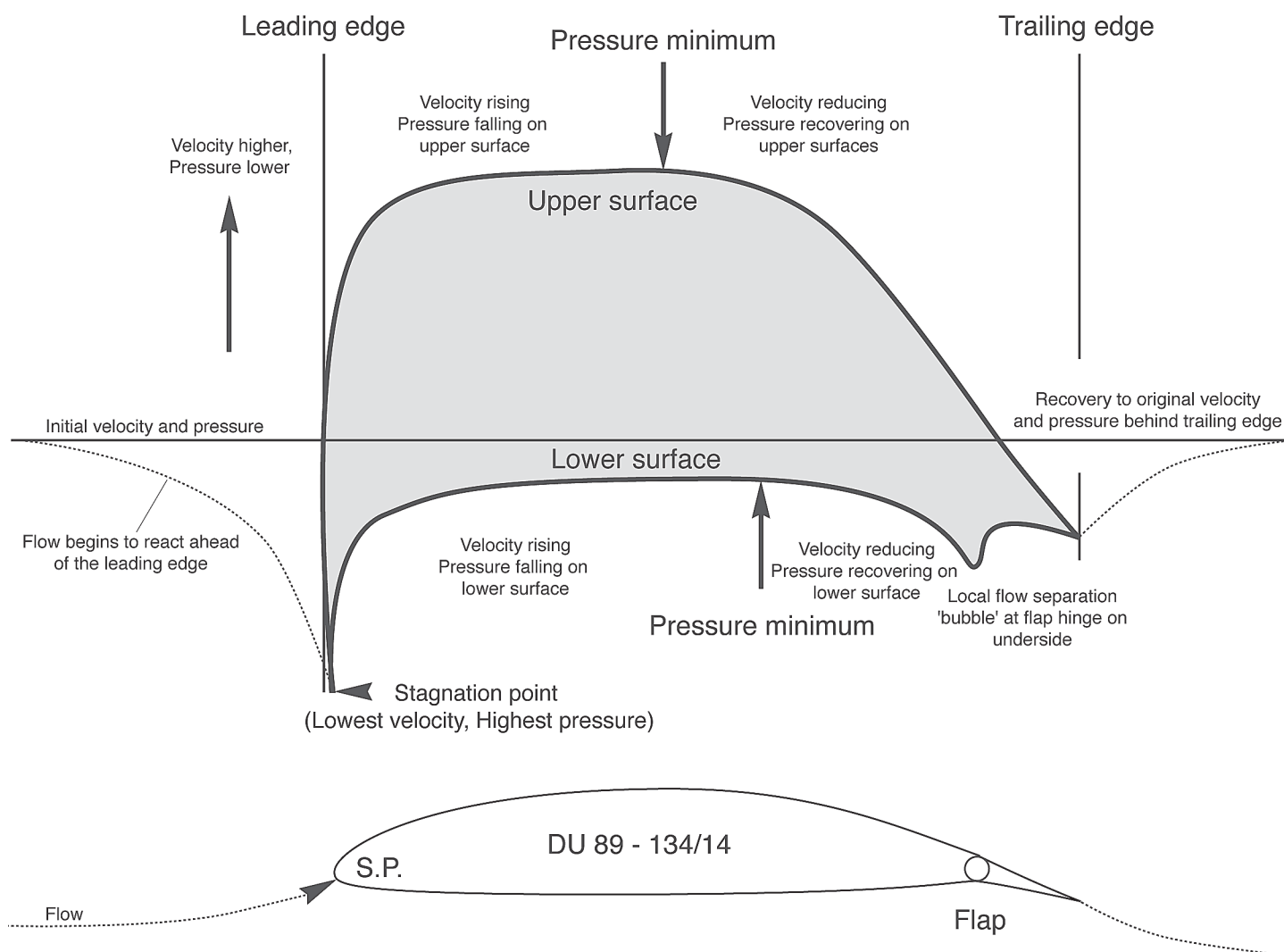


Figure 3
Measured and computed velocity and pressure variations over a cambered wing profile
at one degree angle of attack with flap down 12.5 degrees
(ASW - 27)

Note that when the wing is generating lift the stagnation point is below and slightly aft of the extreme leading edge.

Suppose, now, that the glider yaws slightly (Figure 2). The effect is to give the symmetrical fin a slight angle of attack relative to the flow, say four or five degrees. This is not enough to spoil the streamlining. The air continues to flow smoothly over both sides, taking a longer route than it would if the fin was removed. Hence on both sides, as before, there is a reduction of pressure aft of the stagnation point, a minimum is reached, followed by an increase in pressure as the flow begins to decelerate again. Every diversion from the straight path is associated with interdependent velocity and pressure changes.

Even though the profile is symmetrical, the flow pattern now is not the same on both sides. There are differences in the average velocities and hence differences in the total of the pressure forces on the two sides. This difference is the LIFT. It arises just as predicted by the Bernoulli theorem.

It should now be clear that if an aeroplane or glider has a wing or tailplane with a symmetrical profile, everything in the diagrams here remains the same, except now, diagrammatically, the streamlines may be supposed to follow a path across the page, rather than down. (Turn the page anti-clockwise through ninety degrees.) An aeroplane designed specifically for aerobatics will usually have a symmetrical wing profile because it then flies inverted just as easily as it does the normal way up. With such an aircraft, the angle of attack of the wing when inverted will be the same, in the negative sense, as when upright (although to the observer on the ground, this may not be apparent). Bernoulli works both ways up.

Most aircraft do not have symmetrical wing profiles, they are usually cambered. The main reasons for this are to reduce drag in normal flight, and to bring down the

landing and take off speeds. There is no fundamental difference in the argument. In Figure 3, for example, the wing profile of a modern sailplane (ASW 27) is shown, with the measured pressure and velocity changes plotted on a standard type of chart. At a moderate angle of attack the camber increases the pressure difference between the two surfaces, allowing more total lift force to be generated at a given airspeed. (The irregularities near the trailing edge on the underside are caused, in this case, by some local flow separation near the flap hinge.)

Certainly, when an aircraft with cambered wing profiles flies inverted, the angle of attack required to generate the required lift is not the same as when the same wing is oriented normally. But the Bernoulli equation still works perfectly so long as the flow remains streamlined.

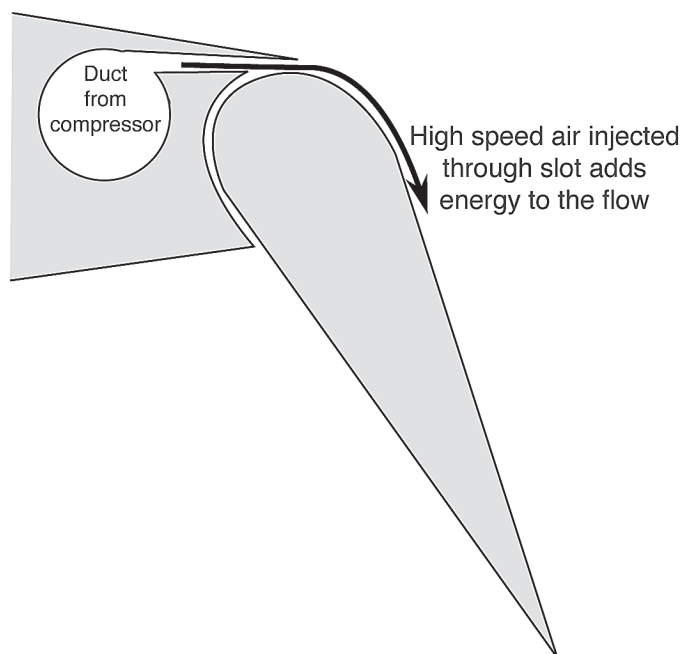


Figure 4 The Coanda effect applied to a flap for STOL or VTOL aircraft

Finally, a few words about the Coanda effect. Coanda, a Romanian, did pioneer work in aeronautics late in the nineteenth century, some of it by setting himself up on a platform on a locomotive rushing along a track at 90km/h, taking measurements of the airflow over wing profiles. Other people, at about the same time, were doing the same in wind tunnels.

Later in a very distinguished career, Coanda worked as Technical Director at the Bristol Aircraft works in 1912 until 1914. During this time he discovered that hot exhaust gases from an engine above a wing sometimes allowed Bernoulli streamlining to continue when normally the flow would break down. He later took advantage of this effect and designed several aircraft (and ducted fan power units) in which a powerful jet or sheet of air was injected from a powerful blower into the flow on the upper side of a wing, tangentially to the surface. The high velocity of the introduced flow, in accordance with the Bernoulli theorem, created areas of decreased pressure. Streamlining was preserved when, without such additional energy, the wing would stall. The wing could lift successfully at abnormally high angles of attack. Coanda designed and flew several aeroplanes relying on this effect,

The Coanda effect nowadays finds application chiefly for 'blown' or 'jet' flaps, as illustrated in Figure 4. By taking power from the engine or compressor and adding energy to the flow, pressure and velocity variations over the front of the flap can be modified for special purposes, such as short or vertical take off and landing. To suppose

that the Coanda effect casts some doubt on the fundamental Bernoulli/Newtonian theorem is simply a confusion. The effect tends to maintain Bernoulli flow by adding energy when, without it, the streamlining would break down.

There is of course much more, but to say it all would require a lot more work and space. In any case, everything is readily available already in trustworthy books by recognised and respected authors. I will mention only two.

Fred Thomas' *Fundamentals of Sailplane Design* (College Park Press, Maryland, USA, 1999) is not too difficult for a non-specialist to understand. Bernoulli's theorem features on pages 6 – 8. Thomas was genuinely a full Professor and head of department at Braunschweig for much of his working life. His students have designed and built many very successful aircraft.

Foundations of Aerodynamics by Arnold M Kuethe and Chuen-Yen Chow,

(Wiley & Sons, New York, 1976). This is a very much more advanced work and requires higher mathematics. Bernoulli is in Chapter 3. (My edition is the third. There have probably been several more since then.)

The writer of the letters I mentioned earlier mentions a book he has found on the internet. I have not seen this work, but if it supports the stated convictions some serious doubts arise. Apparently this text has been placed on the FAI web page; under what circumstances and with what kind of prior scrutiny and selection I do not know. I would not have thought of asking the FAI bureaucracy for reliable aerodynamic advice. Have qualified critics reviewed this text? What did they say about it? Is there any thoroughly researched and tested evidence in it? Are the reported startling discoveries confirmed by test and measurement? Have some shattering results of this research been replicated in other scientific laboratories and reported to conferences? Where can we find these reports? In AIAA and RAeSoc Journals, or even our own OSTIV journal *Technical Soaring*, for instance? I seem to have missed them.



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42nd Australian National Gliding Championships



“The Gulgong Airfield has been sanctioned for use by the Royal Flying Doctor Service following a visit to the site by Captain Tim Griffiths during the Australian National Gliding Championships. Ian Harris, the Gulgong Airfield caretaker, now has the airfield prepared to 2,000m in length and an average of 200m wide. This allows current RFDS King Air aircraft to land at Gulgong. The gliding club has offered it free of charge to the flying doctor service for community benefit.”

Mudgee Guardian, Don Mahoney

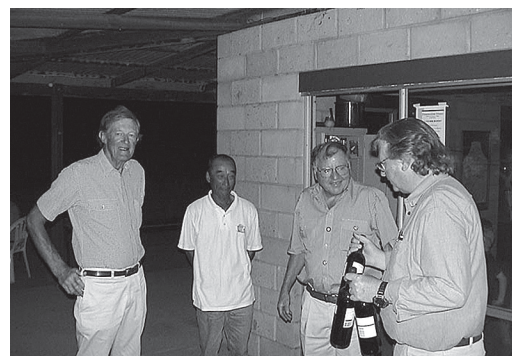


— Gulgong, NSW



“Superb soaring conditions resulted in a new gliding record being set during the championships. German competitor Michael Sommer set the fastest speed ever recorded by a 15m glider in Australia of 159.55km/h over a task of 600km during the first week of the championships.”

Mudgee Guardian, Don Mahoney



42nd Australian National Gliding Championships Gulgong, NSW – 28 December 2003 to 10 January 2004

THE FRIENDLY COMPS

Ross McLean

THE 42ND AUSTRALIAN NATIONAL GLIDING CHAMPIONSHIPS... "THE NATIONALS", IT SOUNDS LIKE THE SORT OF COMPETITION THAT ONLY THE TOP HOTSHOT PILOTS GO TO WITH THE LATEST GREATEST EXPENSIVE PLASTIC FROM GERMANY. THE KIND OF COMP WHERE, IF YOU ARE NOT ONE OF THE TOP CLIQUE, YOU WILL FIND IT A VERY DAUNTING AND LONELY EXPERIENCE. CERTAINLY NOT THE SORT OF ENVIRONMENT FOR SOMEONE LIKE ME IN A 20-YEAR-OLD ASW19B.

If that's what you think, and that's certainly what I thought, you could not be more wrong. This was one of the friendliest, challenging and most enjoyable gliding experiences I have ever had, and there was not a prima donna in sight.

Certainly, the competition attracts Australia's foremost 15m and Open Class pilots, (it is the Nationals), and, yes, there is an array of some pretty impressive machines, ASW28, LS8, ASW24, Discus, etc, but guess what, Lisa Turner (yes a GIRL) flying a 1982 model LS4 beat all that expensive kit and all the top guys, to win day five, come in second on day seven and was placed sixth overall (fourth place in the Australian pilot line-up).

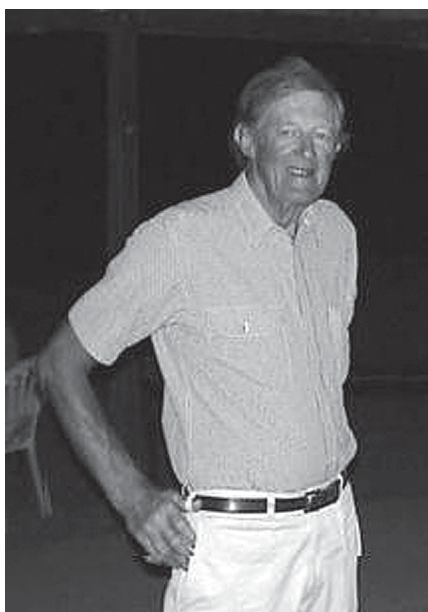
If you are a competent cross-country pilot and have access to something like an ASW19, Pik 20, LS3, ASW20, DG200 or better you should be competing in 15m Performance Class at the next Nationals and you will be very welcome.

There are a lot of clubs out there with Duo Discus, Nimbus, DG500/800/1000, and ASH25s on their lines, all of which will allow you to compete very effectively in Open Class. You will have a great time, meet some terrific people and enjoy some of the most interesting and challenging gliding to be found.

This competition has changed, it had to in order to reflect the reality of the Australian gliding scene, or cease. The unfortunate fact is that the cost of new sailplanes is soaring higher than most of us mortals can afford. Add the naturally aging population of the Australian sailplane fleet and it becomes obvious that unless we want an exclusive competition between the same five pilots



Sir Donald Anderson trophy winner Lisa Turner



Australian Open Performance Class champion Tony Tabart

every year in their \$150,000 plus gliders, something had to give.

That meant a number of significant things changed. The most significant being the introduction of an extremely fair and surprisingly accurate handicap system allowing older gliders such as LS3, LS4, SZD55, ASW20 and ASW19s to compete with the

ASW28, LS8, Discus and Ventus 2s. The Open, 18m, 15m racing and Standard Classes were merged into just two classes, Open Class and 15m Performance Class.

Guess what, the best pilot wins.

It's now similar to the Club Class Nationals except that in this competition all aircraft are permitted to carry water ballast. So you can tune your aircraft's performance to suit the conditions. Big day, lots of water; scratchy low day, less water; all the time maximising the glider's polar curve for the conditions.

Nor are the two competitions mutually exclusive, in fact a number of the pilots here subsequently went on to Waikerie to compete at the Club Class comps.

Imagine walking in to a national gliding competition and having some of Australia's best pilots giving you guidance, advice, and most of all, encouragement. Never happen? **Wrong.** It happens. This was my first Multi-class Nationals and not only was I made to feel very welcome, I was regularly provided with advice and guidance on how to fly the task, what to avoid, how to adjust for the changing conditions through the day, how much water to carry, where to look for lift on track if (when) I got low, where to start (and when) and given great encouragement when I got around the task and home.

The start point gaggles were a pleasure to fly in, well, as far as gaggles can be. Gaggles in a competition can often be the scariest part, they never seem to be in the centre of the lift and there seems to be a glider everywhere you look. These were not scary; each pilot flew with courtesy, patience and safety. Plus, the gaggles were never too large as the nine designated start points were well distributed around the local area and each



Shinzo Takizawa, runner-up in the Open Performance Class

pilot had a choice of three start points on any one day.

There is an interesting rule at the Multi-class Nationals regarding use of radio. Team flying is not allowed and there are only two radio frequencies approved for use, 122.9 for start/finish and gaggles and 122.7 for chat. This means that a "brains trust" of top pilots can't get together on their discrete frequency and assist each other along the task, leaving the lesser lights to struggle on their own. It's a great rule and it forces pilots to fly on their individual merits, leaving room for new blood to come up to the top of the heap. This may change only slightly in the next nationals where up to three frequencies per class may be assigned. All frequencies will be published and any competitor is free to listen out on any of the designated channels.

The competition was affected late in the week by some poor weather forcing the task to be cancelled on three days running. Interestingly, the very conditions that caused the cancellations allowed Shinzo Takizawa to take his Nimbus 4 DM to 20,000ft in wave. (Bother, why didn't I fit that oxy system).

When Tony Tabart became the first Australian to win a day at a world comp in 1972, Lisa Turner had not yet been born. Tony competed at these Nationals and won the Open Class and Lisa Turner was awarded the Sir Donald Anderson Trophy, (best performance at a first or second nationals). Don't think you are too old to compete, nor too young just come and give it a go.

And, just to prove that the expensive German stuff doesn't always win the day, a new 15m speed record was set at this nationals by visiting German pilot, Michael Sommer in a Polish SZD 55 that Tom Gilbert had rebuilt from a wreck. Michael hooted around the 421.2km task at an average speed of 159.55 km/h which is about as fast as Nick Hunt could have done it in the Pawnee tug. So who needs an LS8? (well... they are nice).

It was interesting to see the number of "family fleets" present. Tom and Kerrie Claffey brought their ASW28 and Discus (left the DG400 at home), Peter and Lisa Trotter arrived with their LS8 and syndicate

ASW20, (they were then going on to Benalla to drop off the ASW20 and pick up their other syndicate Ventus for the National Club Class Comps at Waikerie), and the Turner family arrived in force with a glider each, Frank was flying his ASW24E, daughter Lisa was in the LS4 and son Mitch flew his Jantar 3 before heading off to compete in the Tasman Trophy.

Just makes you sick doesn't it? It's easy to get the wrong idea and think these guys are all rolling in money. But, the thing is that they are definitely not rich, (well except for Frank but he's a lawyer so he can't help it). They are very dedicated gliding families who have chosen to spend their hard earned cash on gliding rather than shoes for the children, or a second dress... So don't buy that \$80,000 Commodore, get a brand new Discus CS for the same price and stick with the old Falcon for another year or two.

The next Multi-class Nationals are later this year at Dalby, Queensland, in October 2004. Why not schedule the time now and start getting yourself ready for some of the best and friendliest gliding you have ever had. Hope to see you there.

RESULTS

OPEN PERFORMANCE				TOTAL
1	TABART, Tony	TT	Australia	937.6
2	TAKIZAWA, Shinzo	37	Australia	935.4
3	WESTON, Dion	WA	Australia	906.1
4	WARD, Bob	BW	Australia	893.0
5	HENDERSON, Ralph	JSR	Australia	663.7
6	STROOP, Aaron	GO	Australia	657.6
7	GATELEY, Keith	BSC	Australia	455.3
8	HART, Robert	AW	Australia	449.9
9	WADE, Brian	AW	Australia	311.5

15M PERFORMANCE				TOTAL
1	SOMMER, Michael	55	Germany	949.5
2	MATTHEWS, Paul	LG	Australia	924.8
3	TROTTER, Peter	L88	Australia	921.3
4	GOSTNER, Thomas	GT	Italy	895.4
5	GEORGESON, Andrew	GAG	Australia	834.3
6	TURNER, Lisa	HDK	Australia	824.8
7	CLAFFEY, Tom	TC	Australia	799.0
8	TROTTER, Lisa	IC	Australia	776.3
9	CLAFFEY, Kerrie	FV	Australia	766.8
10	WEBSTER, Mick	IZR	Australia	703.6
11	TURNER, Frank	UKB	Australia	688.9
12	McLEAN, Ross	UKF	Australia	313.3

ENTRANTS (Name, Rego, Handicap, Aircraft)

15m Performance Class

CLAFFEY, Kerrie	FV	1.010	Discus
CLAFFEY, Tom	TC	1.000	ASW28
GEORGESON, Andrew	GAG	1.000	LA8-a
MATTHEWS, Paul	LG	1.000	LS8
McLEAN, Ross	UKF	1.035	ASW 19
SOMMER, Michael	55	1.010	SZD 55
TROTTER, Lisa	IC	1.000	ASW20
TROTTER, Peter	L88	1.000	LS8
TURNER, Frank	UKB	1.010	ASW24E
TURNER, Lisa	HDK	1.020	LS4a
WEBSTER, Mick	IZR	1.010	LS3a
GOSTNER, Thomas	GT	0.960	Ventus 2AX

Open Performance

GATELEY, Keith	BSC	0.980	DG 505
HART, R & WADE, B	AW	0.980	Nimbus 2C



Australian 15m Performance champion Paul Matthews with his wife Nikki



German National Michael Sommer, winner of the 15m Performance Class of the 42nd Australian Nationals



Ross McLean

HENDERSON, Ralph	JSR	0.980	Duo Discus
TSTROOP, Aaron	GO	0.920	ASH25
TABART, Tony	TT	0.960	Ventus 2CM
TAKIZAWA, Shinzo	37	0.910	Nimbus 4DM
WARD, Bob	BW	0.960	Ventus 2CM
WESTON, Dion	WA	0.910	ASH25M

TROPHY RECIPIENTS

15M Performance Champion	Paul Matthews (15M Trophy)
Open Performance Champion	Tony Tabart (Dr Mervyn Hall Trophy)
State Teams Contest	Paul Matthews, Shinzo Takizawa, Dion Weston (GFA Teams Shield)
NSW "A" Team	Lisa Turner (Sir Donald Anderson Trophy)
Novice Award	Tony Tabart (Masters Trophy)
Over 60s Trophy	Michael Sommer (Gulf Air Trophy)
International Pilot Contest	

FROM WOLLONGONG TO THE WHITSUNDAYS

Ian Forsyth

THERE IS NOTHING LIKE BEING ABLE TO TAKE OFF FROM YOUR HOME FIELD, POINT THE TRIKE IN THE DESIRED DIRECTION, KNOWING THAT YOU CAN JUST KEEP ON GOING TO NEW AND EXCITING DESTINATIONS. YOU CAN LAND ANYWHERE, SEE WHAT ONLY A FEW SEE AND EXPERIENCE WHAT ONLY A FEW EXPERIENCE. THIS, FOR ME, IS THE FEELING AND ENTICEMENT OF CROSS-COUNTRY TRIKING.

My Edge X 503 with Wizard wing, although not specifically designed for cross-country travelling, handles it very well. Its large wing and slower speed does make it a little susceptible to headwinds and turbulence at times, but it's nonetheless quite stable and comfortable to fly long distance – and the Rotax 503 just keeps on going.

Having been on cross-countries before, I thought I was reasonably prepared, however I soon realised that I needed just a little more equipment for this trip, such as a satellite phone, an EPIRB, a warmer flying suit, UHF radios for the support vehicle and trike, a complete set of flight charts (WAC, VTC, VNC, ERC Low), spares for every occasion, camping equipment, fuel and water containers, and the support vehicle – a 1995 4.1 litre six cylinder Ford Futura Station wagon. My father, with his doctor's permission, offered to drive the support vehicle, and I managed to get time off work and a leave pass (very costly) from the wife. The Edge X was, of course... ready to fly.

10 JULY 2003

Took off from RWY08 Albion Park at 11:15am into a light south-easter, but after gaining a little height, the wind turned into a 4 to 5kt north-west headwind. However it

was only light so we continued for Goulburn. At Robertson, I tried to contact my father but UHF reception was extremely poor – very faint and breaking up. Also, others monitoring the same frequency made it even more difficult. However, the flight progressed – on past Fitzroy Falls Reservoir, curving around the beautiful deep valleys and sheer cliffs of the Shoalhaven Gorge, winding erratically towards Goulburn – very nice. Landing on the grass strip (RWY26), I taxied over to the parking area and refuelled the trike for the next leg to Cowra. From here Ned McIntosh's cross-country refuelling system came into its own. The extended fuel capacity of 64 litres equated to approximately six hours total usable fuel (at my current consumption rate). Fuel therefore was never an issue on long hops. Once airborne I headed for Cowra, settling into the light headwind. As there was some tiger country ahead, I decided to head north-west for Boorowa and then turn north to Cowra. The Goulburn-Cowra leg was mostly overcast with smatterings of sunshine piercing through the cloud onto the hills below. The air was smooth and progress was as expected. At Cowra, the windsock was dead – always good news. I landed at 4:30pm after a two-and-a-half hour flight. The only activity at the field was in the Fred Fahey Airservices hangar, so I wandered over to see if I could get hangarage for the night. Fred was very kind and helpful and found a space for me. Knowing the trike was safe meant that we could relax, get a meal and maybe do a little sightseeing.

11 JULY 2003

A 10 to 15kt northerly was forecast, but I took off anyway that morning, for Wollongong in the north. The windsock at Cowra was still dead and take off uneventful but as I gained height the air became very rough.

As my groundspeed dropped to 14kt I realised that something else was coming. I radioed my father and we turned back for Cowra. Back in the hangar, we watched as the weather deteriorated, with the wind on the ground howling at 30++kt from the north-west and gusting. Slept at the airfield overnight, in the front seat of the car (**not** recommended). We did this most nights to cut down cost and to enable earlier starts, however the resulting disrupted sleep is not worth it – believe me! That night the sky gave a hell of a performance – spectacular cloud formations and lightning flashes and down came the rain – 14mm in Cowra (isn't there a drought?).

13 JULY 2003

Took off at Cowra and found myself doing 56kt. The miles passed rapidly and I was landing at Coolah after a three-hour flight. Coolah is a Council airfield, not well maintained and deserted. The airfield is brown gravel with tufts of grass growing through, making it rough. The office has cobwebs, dust and piles of insect dung, and there is an old toilet which although complete, had obviously not been used for some time. The airfield had an air of gloom and hopelessness about it, and I was keen to leave. But where was my support vehicle? Not long after landing, a local farmer came nearby to work with some cattle, so I trekked over to have a chat. *"Not many planes land here now. Phone in the office used to work. Road to the airport comes through my property. A bit difficult to find the turn-off. Signs to the airport were taken down years ago."* My father arrived in the car some two hours later, complaining about the difficulty of finding the airfield. After refuelling, I took off a little late for Lake Keepit. Stay to the right of Gunnedah and then head for the south-west of the Lake – easy. At 10nm I radioed in and a pleasant



My father relaxing at Wondai airfield



Near Bell



Kingaroy

female voice advised that no gliders were in the air and that they would clear the roos from the airfield. Coming in I could see the little four-wheel buggy zipping this way and that, chasing roos – quite funny. I landed just before last light on the slightly downhill grass runway and taxied over to the buildings. What a change from Coolah! The facilities at Lake Keepit are exceptional. Cabins for hire, hangars, clubhouse, well equipped briefing room, well established gliding operation and grass airstrips for every direction – all run very efficiently by Jim Stanley. If only trikes had facilities like this.

14 JULY 2003

Took off late for Inverell, and the thermals had already started. I tracked north-east to Manilla, turned north along Fossickers Way, through the valleys to Barraba and up to Bingara. There were light green rolling hills, with silvery shimmering streams encircled by an expanse of dark green forest, and pretty little valleys hidden between rugged mountain ranges – quite beautiful. At Bingara I turned north-east out of the valleys and headed for Delungra and then west-south-west to Inverell. The thermals had persisted through the valleys, but were getting quite rough as I came out into the flatter fields. But where was the airfield? Normally at 10nm you should be able to see an airfield and at five nautical miles you can almost get out and stand on it. But with Inverell from five nautical miles you wouldn't guess that there was an airfield there at all. At three nautical miles I still had to look hard for it, and there it was, at last. Circuit was quite rough, and I was glad to land. I then tried to use my mobile phone, but no luck. One of the guys in a nearby hanger advised that the only place that you can get reception on the airfield is in the centre of the aircraft parking area. *"They're having me on here,"* I thought.

But I walked out anyway and sure enough, it worked! Fortunately, John Newby of Inverell Aviation kindly made a space available in his hangar for me, so we put her to bed and went to visit my uncle, who lives at Bukkulla.

15 JULY 2003

Took off from Inverell and flew north over Inverell township and on to Bonshaw, which is just on the NSW/QLD border. Then following the Bruxner Highway north-east along the border, I turned north into Queensland and over Texas township, continuing on to Inglewood. At Inglewood it was rough in circuit and I was forced to do the base leg low over the township. The airfield was Council owned but obviously well looked after – a very neat, single grass strip, but still with no one in attendance. It sure is a strange feeling. You make all these inbound and circuit calls in case of air activity and at most of these Council strips there is no one in the air or on the ground to hear you. They feel, and usually are, deserted. Having said that, as soon as I had stepped out of the trike, an old gold Ford Falcon sedan raced up to the field. Inside sat Jim Sullivan. He was very friendly and helpful, and watched as I refuelled and took off for Dalby. The air was smooth and I sat back and enjoyed the flight. I headed north through Milmerran and Cecil Plains, where the views were spectacular. Fields for as far as the eye can see. Fields of all different colours, some striped, some plain – like a magnificent patchwork quilt. Absolutely breathtaking. However, by the time I reached Dalby I must have been tired and possibly a little too relaxed. Coming in to land did seem a bit fast. Then I looked at the windsock and realised. I could not believe it, but I had just landed downwind. The locals were not impressed, but they were still kind enough to provide me with lockable hangarage for the night.

16 JULY 2003

The next morning, after sleeping at the field again, we carefully removed the trike from the hangar and checked everything out. The aerial at the top of the kingpost had received a beating going in and coming out, and needed straightening. Most hangars are too low at the doorway for trikes, and this one was no exception. Finally took off from Dalby and headed north-north-east to Bell and on over the Bunya mountains. Forest became more prevalent, so I elected to climb to 5,000ft. It was smoother there anyway. Not long after clearing the mountains, I passed Kingaroy and headed north to a small grass Council strip surrounded by forest called Wondai. It was very rough in circuit and on finals it tossed me violently in all directions. The wind was a little crossed and turbulent after coming over the nearby trees. Again, there was no one to be seen, but the facilities were quite nice. There was a main clubhouse (locked) for the flying club, clean toilets, another clubhouse with old but very comfortable armchairs on the verandah, some open hangars and a generally pleasant environment. It wasn't too long before the flying club's Jim McGee arrived and opened up the clubhouse for a cup of tea and a biscuit. I finally took off for Gympie at 3:30pm, which seemed enough time. I was wrong. At the current rate I wouldn't make it to Gympie. I needed more speed, so I pulled the bar in to my stomach and increased the throttle. I had the poor old 503 running at around 6,000rpm and getting about 50kt (airspeed) straight and level in a Wizard. The miles passed agonisingly slowly and the sun began to set. From about 20nm out I abandoned following the road and set course straight over rugged hills directly for Gympie airfield. At five miles out I was at 5,000ft, gave my inbound call and dived down to the airstrip. Just on last light I touched down on



On the way to Gympie

RWY14. A few minutes later, it was completely nightfall – pitch black. Brett Souter kindly offered me hangarage, and helped me to take the wing off the trike base, manoeuvre the rigged wing through the entrance (the aerial still bent) and set it up on a bench in the hangar. We then easily popped the trike base into the hangar separately.

20 JULY 2003

With the help of Bob Silver, a very experienced hang glider pilot and trike CFI, we were ready to do the next leg, comprising a landing at “Monduran” and then on to Gladstone. “Monduran” is a privately owned field set on a citrus farm about 25nm west of Bundaberg, 107nm from Gympie. The air was very rough on take off but settled down

after a while and I made my way through the mountains and headed north, following the Bruce Highway past Maryborough and on to Howard. Here the views of the expansive forests and inlets out to the Coral Sea are spectacular. I wish I’d had the time to explore these beautiful areas more completely, but Gladstone was the day’s destination, and flying time was precious. So I turned away from the coast and navigated over some unavoidable sections of tiger country, under and around some ominous looking low clouds (some wave-like), past Childers and on towards “Monduran”. Overflying the airfield I could see two open hangars (each with aircraft), a fruit processing/packing plant, an office/amenities block and a warehouse – quite an operation. The strip was

smooth grass with a fence and trees running down one side, but was extremely rough in circuit with a crosswind 90 degrees to the strip at 15kt gusting to 18. It was good practice and I was happy with the landing. At 3:35pm my father still hadn’t shown up, so I transferred the fuel from my spare can into the main tank and took off. With height, I was able to contact him, and off we headed for Gladstone. I was now 64nm out from Gladstone, and last light was looking like a problem again. Here we go, bar in, engine revs up all the way. Boy, is Lake Monduran beautiful. Groundspeed however, was looking good, GPS indicating over 70kt at times. I could feel strong wind gusts pushing me from behind, lifting the back of the trike up about two to three feet and letting me down again, trying to nudge me along. The trip to Gladstone was spectacular: rugged hills, meandering waterways, endless coastal views – very nice. Over the field at last and a 56kt groundspeed turned to 14kt on finals. I would have pondered on this, except that I became a little busy fighting turbulence – 20 to 30ft drops, erratic air, wild swings. It seems the Qantas crew had also commented about the turbulence on RWY10, and were they right! So I kept the power on and the bar in, all the way to the ground. Once on the ground, the strong wind was evident, being extremely hard to hold on to the wing while taxiing. Kevin, the airport groundsmen, kindly introduced me to Libby and John Green, who graciously allowed me to put the trike in their hangar fully rigged.

22 JULY 2003

We took off at 9:30am in a 10 to 15kt south-east, destination St Lawrence. By about 10am the air became very rough. The thermals were really firing. Passing Rocky I contacted Control and Tom Turner gave me clearance to pass “not closer than six nautical miles” and wished me well on the trip. And the thermals kept coming, not even allowing me to draw a breath between hits – left, right, front and back in quick succession; lifting me 200ft in one hit to dropping me a similar amount in the next. I navigated to St Lawrence – just follow the Bruce Highway, keep an eye on the bends of the road and its relationship to the railway, townships and crossroads and at about 80+nm from Rocky look out for an airfield. Very rough in circuit (notice a pattern?). I was landing at 1pm; prime thermal time, and these were strong. The trike just didn’t want to come down, staying up until about halfway along the long gravel strip, where I turned into the 15kt (gusting to 20+) crosswind, landing between the runway markers. It had been



On the way to Maryborough



Inlet off Broad Sound
Photos: Ian Forsyth

a good flight (to date my longest continuous flight, 142nm). The wind was now getting stronger, so I broke down the trike, laying the wing flat on the ground (just in case). Well, St Lawrence airfield is, you guessed it, council owned, and is accordingly, deserted – no people, no buildings, no toilet. Just a windsock and a phone in a box on a short post, in a field nine kilometres from town.

25 JULY 2003

We were up at first light, and the south-west change had brought with it very cold temperatures. Just removing the trike cover left my hands aching for over half an hour. Everything had to be dried out in the sun and the wing needed to be rigged. Notwithstanding, departure time was 8:30am, our earliest start yet. I had reached 1,500ft, and had 56kt on the GPS and was in smooth air. Having contacted Mackay control for clearance, I followed the Bruce, heading north-west for Proserpine/Whitsunday Coast. Suddenly I started experiencing heavy turbulence. At first I thought it was just thermals because the day was warming up, but with strong wind coming over the mountains to the south-west and encountering a lot of sink I realised that following the road had led me into the lee of the mountains. I immediately turned away from the mountains and applied full power. Eventually the sink dissipated, and I slowly climbed above the rotor effect and into smooth air once again. The views were amazing. About 15nm

past Mackay, the Bruce passes between the mountain range on the left and Mt Blackwood on the right. Flying at the same height as the top of Mt Blackwood you could see the coast reaching in – the colour and perspective was amazing. Continuing further north all the way up the coast there are magnificent mountains, sparkling waterways and patchwork fields of sugarcane. The groundspeed was great now, about 62kt. I was now visibly passing cars and trucks! The hours passed and I made my inbound call to Proserpine/Whitsunday Coast MBZ. Circuit was rough, as expected, and I now had a gusting 20+kt south-easterly to land in. Proserpine ground staff advised that there was wind sheer on runway 11, but only strong turbulence was evident when I came in. My landing was less than graceful, but I was happy to be down and now able to make a much needed toilet stop – whew! The wind on the ground was very strong and with little protection from it on the airfield, securing the trike required constant vigilance. While I was waiting in the wind with my trike, the airport groundsman raced over in his Hilux to check out my situation and to show me the King Brown snake that he'd caught in the Qantas passenger lounge. I was fortunate to obtain a space in the huge helicopter hangar, as the wind was just too strong and deteriorating. With a forecast of strong winds over the next two days, it looked like an enforced holiday in the Whitsundays – it could be worse!

28 JULY 2003

Pulled the trike out of the hangar at 8am, considered my circumstances and decided that Proserpine/Whitsunday Coast would have to be the end of this trip. The growing frustration with communications, sleeping conditions, food, increased costs, an over-packed support vehicle, my father's health, and the weather (out of the last 21 days, only eight days were flyable), dictated that we would fly no further.

However... Even with the inadequate preparation, we still made it to the Whitsundays. With the experience of this trip, next time we'll go further!

FINAL TRIP STATISTICS

Distance flown:	1,238 nautical miles
Hours flown:	33.5 hours
Trike fuel:	325 litres
Average speed:	37 nautical miles/hour
Fuel rate:	9.7 litres/hour



Camping at St Lawrence

The 2003 NSW State Gliding Championships

– YET ANOTHER VIEWPOINT

Michael O'Brien

GLIDING COMPETITIONS ARE CHANGING. IN QUEENSLAND, WHERE I NORMALLY FLY, PEOPLE HAVE PUT QUITE A LOT OF EFFORT INTO MAKING COMPETITIONS MORE FUN. I THOUGHT WE HAD DONE A PRETTY GOOD JOB. HOWEVER, ON ATTENDING THE NSW STATE COMPETITIONS, I WAS SHOCKED TO FIND WE (QUEENSLAND) HAVE BEEN OUTDONE!

Lake Keepit is a pretty fine site. Crikey, it is as Australian as a gliding site could be. By late afternoon the airfield is usually covered in kangaroos. The country is varied, with large areas of wheat paddocks, and a few mountain ranges to remind pilots of the first rule of cross-country: *"It is impossible to cross over a mountain when it is higher than you."* The infamous Piliga Scrub is in the task area. It is not very high, but it is very wide! This is the perfect area for some very serious racing.

Gliding competitions are changing. When I first attended them, there were lots of grumpy old men, who seemed to enjoy making life as miserable as possible for the organisers. Well the organisers have struck back! And they seem to be the clear winners every day. We start with the Contest Director, a member of the local club who has the rather unusual name of Little Petunia. Now with a name like that, it is perhaps no surprise to find that he is somewhat reserved. In the whole week I never heard one person call him by his first name. Many just called him by his surname of Petunia. He flies with the registration letters LP on his glider. I knew Mr Petunia was going to run a serious competition.



The Fairy Godmother

Photo: Malcolm Bruce



Competition Director, 'Little Petunia'

Photo: Malcolm Bruce

HUMOUR

Accidents are not funny, and I suppose it is every contest director's biggest wish that everyone gets home at the end of the contest, with no injury and no damage to any glider. Wishing does not make safety happen. Neither do long and boring safety briefings. A balance needs to be found, and the esteemed contest director came up with a cunning plan to make his wish come true: He appointed a Fairy Godmother!

Now the Fairy Godmother is a new innovation, and it is good to see someone has had the vision to rectify this major shortcoming of previous competitions. The Fairy Godmother is absolutely crucial to the safety of the competition. She makes sure everyone is alert at briefings. She gives out rewards (usually beer) for good behaviour. She always manages to catch a few wrongdoers at each briefing, to the delight of the masses, but she handles this with such grace and charm that the poor victims invariably forgive her. I

cannot give details of any of the wrongdoers, as I certainly would leave myself open to a libel case. However gifts given out included Viagra, condoms, and makeup, and each of these was related to a specific area of activity in which the poor victim had been sprung.

Most importantly, when the Fairy Godmother went down the line to punch tow-tickets, in her gauze skirt and tiara, she gave each pilot a blessing with her fairy wand.

SERIOUS ABOUT SAFETY

The fairy Godmother is all seeing and all knowing. She reports everything of relevance to the contest director.

However real safety issues are, of course, handled in a serious manner. The briefings on the first two days were very comprehensive and relevant. Lookout was discussed in some detail. Multiple start points were defined to minimise pre-start gagging. Radio procedures were discussed in some detail. Except for the towplanes, there was minimal talk on the CTAF, making the frequency available in case someone really needed it. All turns were right hand only pre-start, and a V_{NE} of 70kt applied. The finish line was actually an arc of radius one-and-a-half kilometres, to give time to slow down prior to joining circuit. This seemed to work well for most pilots on most days.

SAMMY THE SNAIL

This new award was truly innovative. It was not given just for slow finishers, as everyone knows that in a few years time some of those slower people might be contest winners, and nobody wants them bearing a grudge when payback time arrives. To win it you had to be slow in an innovative way. Peter Trotter,



Club Class champion, Michael O'Brien

Photo: Colin Turner

who flew brilliantly, won the award on the day when his wife Lisa (in another class) beat his speed. One pilot won the award by flying the task in the reverse direction. Another pilot went around all the turnpoints, but very slowly, and inspection revealed much of the task was done with the glider in the trailer, but the GPS still turned on.

The actual snail was made of painted clay, about the size of a garden gnome, and the poor winner had to take it around the task in their glider the next day. At one stage, the snail was actually kidnapped, and a ransom note was sent to briefing. This gliding is heavy and serious stuff!

GROUNDHOG SPEED

This concept is based on the 1993 Buddhist Cult Movie "Groundhog Day". In the movie, Phil, the main character, gets trapped in a time warp, where one day is continually repeated. He can choose his own actions, but everything else is always the same.

A key part of the movie is how Phil gathers information to gradually refine each day. Now Phil initially uses this to immoral ends. By continual exploration of alternatives, he eventually manages to seduce just about every woman in town. Of course glider pilots are always of the highest moral March 2004

standards. For us the concept is totally different: If we could continually fly the same day again and again, learning where all the best thermals were, exploring different start times, how much faster could we fly? This ideal is "Groundhog speed".

I think most pilots at most times fall a fair way short of "Groundhog speed". But the performance by Peter Trotter in Standard Class must be getting up there. Not only did he win the competition, he won every day, and most times by healthy margins. This was in standard class, which is the real racing class where the biggest numbers and the best pilots tend to be found.

This is what is so great about competitions. They just totally open up your perspective of what is possible.

QUEENSLAND STRIKES BACK

Well, I started by admitting that NSW may have run a better competition than we do in Queensland. However, the Queenslanders turned up in droves, and we did rather well in winning three out of five classes. As well as taking your trophies, we will certainly steal a few of your ideas on how to run a great competition.

Great work Lake Keepit!



GLIDING FEDERATION OF AUSTRALIA

Airworthiness Inspection

FORM 2 AND C OF A NOTICE

- ☐ A form 2 inspection is due and a cheque for \$143* is enclosed
- ☐ The C of A requires renewal. A cheque for \$33* is enclosed for renewal and the existing C of A document is returned
- ☐ Initial registration package is required and a cheque for \$363* is enclosed

* Fees include GST

A) DOCUMENTATION REQUEST

- ☐ Please send me a change of certificate and owner document
- ☐ Please send me an application to register an aircraft form

Aircraft Type

Registration marks VH -

Address to which documents are to be sent is:

Name

Address

.....

State. Postcode

Forward to: GFA Airworthiness Secretariat,
130 Wirraway Road,
Essendon Airport VIC 3041

IMPROVING YOUR (GLIDING) PERFORMANCE

Geoff Hastwell

IT WAS A GREAT WEEK – OR, IN MY CASE, FIVE DAYS. HELD AT THE WAIKERIE GLIDING CLUB BETWEEN 4 TO 10 JANUARY THIS YEAR, THE PERFORMANCE WEEK FOR GLIDER PILOTS INTERESTED IN IMPROVING THEIR SKILLS AND KNOWLEDGE WAS EXTREMELY VALUABLE. THE 10 PILOTS PARTICIPATING, LED BY BRUCE TAYLOR, BERNARD ECKEY AND CATHY CONWAY, COULD NOT HELP BUT GAIN IMMENSELY FROM THE PRACTICAL AND THEORY EXPERIENCE.

Rather than provide a day one, two, three, etc, account, I'll discuss the various areas covered by Bruce and the team under sub-headings, hoping to encapsulate what transpired in our lecture room and in our aircraft...

PHYSICAL/FITNESS ASPECTS

At 'the end of the day' – and, in an average gliding comp 'at the end of 12 to 14 days', a physically fit, alert, fresh pilot is obviously going to have an edge on a flier not up to par in these departments. Thus our theory sessions discussed and stressed the importance of stamina and focus in cross-country work, of grabbing rest after a day's flying and on lay days, and avoiding too much alcohol. A pilot in a sedentary job during working days should aim to take up some tennis, swimming, jogging or gym-work, and KEEP FIT for flying...

During a task, basic but sometimes neglected factors like hydration and keeping blood sugars up are important. On a four to five-hour flight, two to three litres of water is a minimum to carry. Unfortunately, some (most?) pilots think lessening fluid intake will prevent them having to worry about jettisoning urine in flight. A bad mistake. Much better, for both male and female pilots, to arrange a viable relief system to:

- a) *allow/encourage you to drink plentifully, and,*
- b) *avoid possible danger of bladder infection and loss of concentration due to too much urine inside...*

Nutrition is also vital, but make sure it's the right sort. To best nourish both brain and body, low fat carbohydrates are best – bananas, dried fruit, nuts and raisins are all excellent in-flight foods to nibble. Avoid lollies and chocolate, as they raise blood

sugars too quickly; when this occurs, insulin levels go 'through roof' and worse problems can follow...

Oxygen, I used to think, was only for those going higher than 10,000ft for any length of time. As I quickly discovered, even flights above 7,000ft for a period can cause insidious oxygen starvation and its associated dangers. Certainly, one's performance and safety are much improved with on-board oxygen.

SAFETY

Which leads straight into this section – 'stayin' alive', to quote the Bee Gees, and ensure that fellow pilots remain in the same happy condition.

Lookout during flight needs constant attention. There have been many tips on scanning appearing in our magazines over the years; sadly, the lower and more tired one is, the more likely he/she is to forget them all... Bruce told us that, when in this position, he chants a mantra to himself: "*Get your head out; get your head out of the cockpit.*"

Keeping current in your aircraft will obviate dangerous situations. Commonsense tells us that flying a comp after only 10 glider hours in the preceding four to five months is not only bad percentage success-wise, but also adds unnecessary stress and danger levels during a flight.

Gaggle flying always requires care and respect for fellow pilots. Highly experienced pilots, said Bruce, seem to automatically fly safely and smoothly in a gaggle; conversely, low hour pilots, through nerves or ignorance or lack of skill, can be very scary to gaggle with. So, to help us all, some KISS principles to keep in mind for gaggles:

1. *Have ALL other gliders in sight as far as possible at all times.*
2. *Ensure all other aircraft can see you.*

3. *PLAN your entry of and exit from a gaggle.*

4. *Be certain all other aircraft understand your intentions.*

Overall, summed up Bruce, we should take speed off prior to joining a gaggle, not enter it at cruising speed. We also usually fly a little flatter in a gaggle, and should not turn inside another glider. In Bernard's words, '*Never show another pilot the belly of your aircraft.*'

As far as risk of collision during a glide, remember that the aircraft coming towards you directly in front is also going to be very hard to see. Be aware of the difficulties that sun and cloud add in spotting other gliders, and that a bigger machine is not as manoeuvrable as a 15m ship. To conclude, having lost several friends in mid-air, Bruce soberly said: '*You need to be scared about the possibility of collision in the air – it's no fun...*'

INSTRUMENTS

One very pertinent observation here is that if a pilot is nervous about the chances of his/her ASI or altimeter failing in flight, he/she is not ready for competition flying. A corollary of this is that, generally, we tend to use our instruments TOO MUCH. The better a pilot, the less that pilot will be monitoring instruments; on the other hand, he/she will be carefully monitoring the 'feel' of the glider and the sound of the audio and air outside.

So – to help lessen 'the stares', try covering ASI and altimeter in flight – even covering the vario panel and fly on audio only. You will, says Bruce, become a much better pilot...

FINDING LIFT

Is, of course, much of what it's all about for us! Bruce and Bernard provided many invaluable pointers on this, often at a

de-brief after a flying day. One excellent adage: *'Keep positive at all times, even after a low point.'* Yes, this is difficult to put into practice, Bruce acknowledged, but if we can be both physically and 'internally' high after a save, we will enjoy our flying that much more and be a better pilot for it.

There are various theories on 'search flying' versus 'straight line flying'. In the former, a pilot deliberately weaves his/her glider, always veering into rising air, and, as a consequence, often needing to thermal less often. The 'straight line' pilot, on the other hand, flies straight towards a trigger point on the ground ahead, almost 100% certain a thermal source will be waiting... As Bruce put it, we aim to 'string these triggers together' to optimise the flight. Maybe a combination of both techniques is the way to go...

On days with wind over 10kt and an inversion, there will usually be streets of thermals. So, when needing lift in a lower part of the flight, turn directly up or downwind to hit the little bubbles of turbulence which tip off a thermal not far ahead.

WORKING A THERMAL

'The real direction of any glider race is vertical,' averred Bernard! In other words, pilots who consistently use the best part of a thermal, and work it efficiently, will be the winners in a comp.

One aid to practice optimum bank angle in a thermal is the 'guide wire', said Bernard. This consists of a small piece of thin wire bent in the centre in an 80-degree angle and stuck on top of the panel. Then, when thermalling left or right, the pilot aims to keep the appropriate arm of wire parallel with the horizon. This helps work out the best bank angle (in most cases) to use in a thermal.

Flying with 'top rudder', indicated by the yaw string a little to the outside of your turn, is used by some pilots. It's meant to provide more stability for the glider in a thermal, making speed control easier and hence faster climb rates. Other pilots eschew this technique. I guess you can only try it to see whether or not it works for you!

THERMALS

Geoff Vincent, one of the participating pilots, compared a thermal to water being boiled in a Pyrex container. What you see happening to the liquid is much the same as what happens to the air rising (and falling) in a thermal mass. And when you reflect that this mass is composed of hundreds of thousands of tonnes of air, you have some idea of the forces involved!

Several years ago, research in a Grob 109 motor glider by Associate Professor Jorg March 2004



Adelaide Soaring Club's Discus, Balaklava Club's ASK21 and Hornet, and Bernard Eckey's ASH25

Hacker of Flinders University gave us excellent data on the shape of a thermal. It is certainly irregular, and on windy days is elongated in plan view. The higher levels of a thermal are more regular and neatly-structured – no surprise to those who remember scratching at steep-banked angles in lower lift while having no problems at all at higher altitudes.

In hilly terrain, thermals will be very often triggered from the sunward-facing slope. Put simply, the warmer ground is rising, and thus heating the air alongside it – the thermals produced go higher, with less cooling than above a flat piece of ground.

Thermal wave occurs when the inversion level is above cumulus clouds on a windy day. The cus become an obstacle to the wind, which (as in slope soaring) has to go up and over them. If we can position our aircraft at the base of the cloud, aiming upwind, we can sometimes 'slope soar' the cloud and encounter very strong lift. We can recognise signs of thermal wave by a tapering off or 'waterfall' effect on the downwind edge of the cloud, as well as an up-curling on its upwind edge. (DO be aware of the rapid drift rate in this form of lift, and the fact that, above cloud, navigation is made difficult.)

The 'sunny side of life', at least concerning clouds, is often excellent lift, said Bernard. Because the sunward face is the hottest part of the cloud, its release of latent heat gives improved lift. And of course, what applies to one cloud will apply to others. Two excellent meteorology books are Wally Wellington's 'Meteorology for Glider Pilots' and Tom Bradbury's 'Meteorology and Flight'.

FEEL

To be several steps ahead of the game is a good maxim for cross-country flying. So, said Bruce, use your eyes, ears and backside to thoroughly 'experience' the air around.

Some aircraft have better 'feel' than others considers Bruce, but whatever your ship, fly at 65 to 70kt to best 'communicate' with the air. Yes, at this speed, the glider will 'talk' to you, though any slower and the feel will go. Even turning the audio off or down at times can increase your chances of 'reading' the air around and discerning just what it is doing in relation to your glider.

We know we are nearing a thermal as sink increases and turbulence gets stronger – but the sensitivity and 'feel' a pilot possesses is crucial in knowing just when and in which direction to turn. It is not always easy, said Bruce, but improves with constant practice.

In this regard, the ability to 'change gears' is a valuable one. European pilots are, generally speaking, more proficient at going down a gear or two in a tricky situation – their patience with weaker lift often pays dividends on low days, more common in Europe. 'Marking time' in the air is a great asset, and to this end, Bruce recommends flying on poorer days to avoid being a 'fair weather pilot' only.

I missed Anthony's presentation on Reynolds Numbers as well as the final day of Performance Week. But learn I did, and hope to put into practice much of what Bruce and Bernard imparted to us. It's not all that surprising that Bruce has achieved highly in top level gliding comps, and that Bernard has held an Australian record for a 1,000km task. Thank you so much, fellers, and to Cathy Conway of SAGA for her trouble in organising the week.

To the lovely Waikerie ladies, catering so superbly every day, thank you, and our gratitude to Waikerie members in general for ensuring our time at your club was happy and safe. I hope the FAI Club Class Comps went beautifully!



MY POOR TAIL

Alice

UNFORTUNATELY I AM BACK IN HOSPITAL AGAIN – WELL ACTUALLY IN A “PRE-OPERATION” AREA WHILE A DECISION IS MADE AS TO WHICH HOSPITAL I WILL BE GOING TO FOR MY SURGERY. SINCE I FIND IT HARD TO WRITE IN MY PRESENT CONDITION, I HAVE ASKED BRIAN WADE TO BE MY “SCRIBE” – WHICH IS AS IT SHOULD BE AS HE IS THE CAUSE OF MY CURRENT PREDICAMENT!

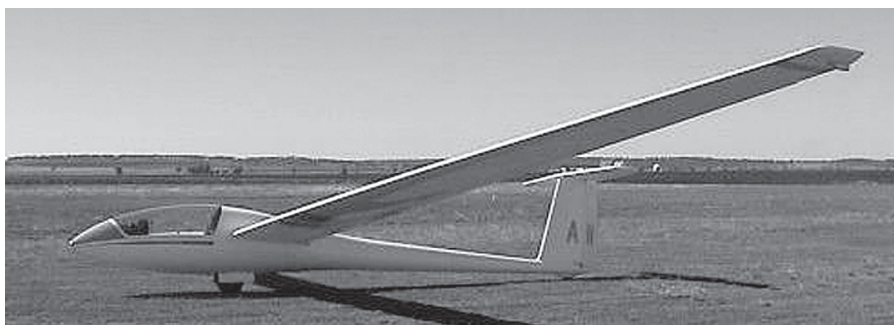
To go back a bit in time, in the middle of December I took Brian on a flight from Jondaryan to Watts Bridge where I re-acquainted myself with winch launching – I must say I really had forgotten just how fast I am able to climb with that wire tugging at my most private parts!

Then I was tucked safely away in my trailer and spent Christmas at Robert’s house before the long, but not unpleasant drive down to Gulgong for the Multi-class National Competition. I was really looking forward to keeping company with some of the upper class again; not that I have anything against the company I keep at Jondaryan, but a lady does have to maintain her standards.

There were 19 other gliders competing at Gulgong, but just seven others with big wings like mine. It was an absolute joy to be sharing thermals with all of them – they were so well behaved that I never felt concerned for my safety when in their company. I wouldn’t normally mention this in public, but I did learn quite a bit from watching some of those other “long wings” and listening to their stories as we relaxed in the tie-down area each evening.

On the second practice day it was Brian’s turn to fly and I must confess that I was a bit annoyed to find that, for the second day in a row, they filled my wing tanks with rather dirty dam water – not quite the standard that I expect! Churlish of me I know, but I couldn’t resist whacking Brian on the forehead with my tailplane as he went to attach the tail dolly. This left him covered in blood, and me feeling quietly smug!

Robert and Brian flew with me on alternate days as the competition progressed. We had some great times together and some not so great! Soaring at 13,000ft over the Warrumbungles in company with some quite aggressive eagles was one memorable event for me. Not so memorable were the struggles that I had to keep first Robert and then Brian from putting me into a paddock far from home. However for the



Alice prior to Day 6, Gulgong

first five competition days I managed to get them both back safely and we had a lot of fun together.

Then on day six I took Brian on a 412km racing task Gulgong – Tullamore – Trundle – Gulgong. Pre-start I managed to coax him up to 10,000ft and was looking after his health thanks to my nice new Mountain High Oxygen system which gave him a measured pulse of oxygen at the commencement of each breath.

On the first leg we stayed high for the first 30 minutes or so, but then, despite my best efforts to have him keep on track and not chase “iffy” clouds (something that I picked up during our evening chats), he decided to head for a cloud street well to the south. As I tried to tell him, the street had virtually disappeared by the time we got to it and so we had a very slow first leg. Although I managed to get him up to 13,000ft early on the final leg, we were well behind the rest of the field, it was getting late and I wasn’t particularly impressed by the look of the sky on the home heading.

As we passed Wellington I did my best to convince Brian to land at the airfield there and get an aero tow home, but his “can do” attitude prevailed and we pressed on in almost continuous sink until, when abeam Goolma, we were down to 3,000ft agl, with about 40km yet to go. About 10km to the north I could see some paddocks that looked good enough for me to land in and I urged Brian to head for those and not leave the area

unless I could get him up to final glide height. This time he followed my advice and for about 30 minutes I did my very best to find him some decent lift but it was not to be!

And so it was that we headed for an outlanding in a stubble paddock that we had been examining in some detail for the last 20 minutes or so. It looked ideal from circuit height, but as we got close to the ground I could feel Brian tense as we both realised that the stubble was quite a bit higher than that which we had seen driving around the task area. As we settled onto the ground I tried hard not to let one wing drop, but some three or four seconds after we touched down my left wing must have caught in the stubble because we suddenly did a very fast 540 degree ground loop, coming to rest in the middle of the field. Naturally my pirouette was graceful, but that did not prevent my fuselage snapping just forward of the fin and some extensive damage to my tailplane.

Brian got out of the cockpit, said something that a lady should not repeat, and headed off into the distance. He later returned with the landowner and his family who were most sympathetic as to my plight and asked lots of questions about what I can do.

Next morning Brian and Robert came back with my trailer and with the assistance of the landowner, patched me up as best they could and tucked me into my trailer.

Which is why I am now awaiting surgery!

For the uninitiated, Alice is Nimbus 2C, VH-GAW.

GFA News

FAI NEWS

Third World Air Games Cancelled

During its meeting held on 26 and 27 January in Lausanne, the FAI Executive Board decided, with regret, not to continue with the selection procedure for the organisation of World Air Games in 2005.

The two final bidders, Malaysia and Poland, have been informed of this decision. The Board judged that insufficient time remained available between now and the target date in mid-2005 to solve the various organisational problems that had been identified.

This decision did not in any way denote a lack of confidence in the two bidding countries. Both have been thanked and congratulated for all the work they put into their candidacies, and invited to consider submitting bids for events in future years. The FAI Board looks forward to launching a new invitation to bid as soon as the necessary consultations and evaluations amongst the different Commissions within FAI have been successfully completed

New World Record Claim

Class D – Gliders/Claim number: 8374

Sub-class: DO – Open Class Gliders/



John Fawcett in VMFG glider LS3a CQP viewed from Mt Buffalo

Photo: Andrew Rigby

General Category

Type of record: Free triangle distance

Course/location: Chapelco (Argentina)

Performance: 1 458 km

Pilot: Klaus Ohlmann (Germany)

Crew: Claus-Dieter Zink (Germany)

Glider: Schempp-Hirth Nimbus 4 DM

Date: 16/01/2004

Current record: new

GFA AIRWORTHINESS DIRECTIVE

GFA AD 605 – Issue 1

Type affected: LS4b, serial numbers 4830 to 41054 inclusive.

Subject: Life extension to 12,000 hours and increase in maximum weight of non-lifting parts subject to conditions.



GFA Badges & Certificates

FAI List – February 2003

A CERTIFICATE

Sage, Karen	10923	Lake Keepit SC
Rowe, Cristy Jane	10929	Lake Keepit SC
Misund, Stig	10934	Byron Bay SC
Anderson, Peter J	10937	Byron Bay SC
Hennessy, Graham W	10939	Darling Downs SC

B CERTIFICATE

Hanes, Thomas John	10895	NSW Air TC
Goda, Akinori	10784	Orana SC
Austin, David Harold	10782	Caboolture GC
Straume, Nathan	10798	RAAF Richmond

A AND B CERTIFICATE

Murray, Shaun T	10915	Narrogin GC
Weller, Paul	10921	GCV
Thornton, Ryan J	10922	Qld Air TC
Crawford, Robert W	10931	Narrogin GC

C CERTIFICATE

Thornton, Ryan J	10922	Qld Air TC
Goillon, David	10936	Beverley SA
Love, Catherine Jane	10893	Balaklava GC

B AND C CERTIFICATE

Benbow, Damien Lee	10816	Qld Air TC
Ledwidge, Adam W	10779	Qld Air TC

A, B AND C CERTIFICATE

Rigby, Andrew	10916	VMFG
Fox, Thomas R O	10917	VMFG
Downes, Ian A	10918	VMFG
Coup, David Robert	10919	GCV
McLennan, Timothy D	10920	Beverley SA
Shearer, Neil Gregory	10924	Bendigo GC
Wetherspoon, Peter J	10925	Darling Downs SC
Eilers, Derek Johann	10926	Adelaide University
Eustace, Desmond JG	10927	Bathurst SC
Waldron, David Roy	10930	Summerland SC
Robinson, Richard M	10932	GCV
Ishii, Taro	10933	Orana SC
Maddocks, Andrew M	10935	Boonah GC
Speedy, Nigel A	10938	Adelaide GC

SILVER C

Ferguson, David P	4513	Darling Downs SC
Eilers, Derek Johann	4514	Adelaide University
Jinks, Stephen P	4515	Bendigo GC
O'Sullivan, Gregory J	4516	Geelong GC
Stauss, Ulrich	4517	Balaklava GC
Wakefield, John LL	4518	Lake Keepit SC
Straume, Andrew ER	4519	Darling Downs SC

GOLD C

Wilson, Timothy X	1577	Narrogin GC
Thompson, Jennifer J	1578	Darling Downs SC
O'Sullivan, Gregory J	1579	Geelong GC

DIAMOND DISTANCE

Holding, Simon Edward Alice Springs GC

DIAMOND GOAL

Wilson, Timothy Xavier Narrogin GC
O'Sullivan, Gregory James Geelong GC

DIAMOND HEIGHT

O'Reilly, Damien Marian Beverley SA

DIAMOND C

Busher, Peter Gerard 211 Beverley SA
O'Reilly, Damien M 212 Beverley SA

600KM DISTANCE

Williamson, Peter C 88 Bathurst SC

750KM DISTANCE

Bellair, John Terence 113 Bendigo GC

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>.



Low loss flying Winning by not losing

James Freeman

In competition there are three possible ways to win:

- *You can have equipment that completely outclasses that of your competitors.*
- *You can perform better than your competitors in one or more aspects flying.*
- *You can specialise in avoiding mistakes.*

Low loss flying is the art of winning by avoiding a whole lot of little mistakes. Few pilots properly appreciate how long a second is and how quickly those seconds add up. Just because you don't have somebody near you so you can see that they are beating you by a second mile doesn't mean they're not doing it.

EQUIPMENT

There are numerous adjustments that can be made on any glider that will help the pilot gain an advantage in contests. It is paramount to reduce drag to an absolute minimum. A gain of perhaps five percent is possible from doing this.

Your glider should be in perfect trim. Turns waste energy and will detract from your performance. You must be intimately familiar with the handling characteristics of your glider. This is especially vital for that low level save that can make or break the entire competition.

Besides changing the physical properties of your glider, what else can save a few seconds? Consider your glider, harness and instruments. Does everything really work all the time and are you really confident about it?

TECHNIQUES

Top out before the start. To facilitate this launch early. Only leave without having topped out if weather conditions dictate an early start may be vital.

Fly faster through the sink surrounding a thermal both on approach to, and departure from, the thermal. Use your speed on entry to pull up into the core. Build speed for departure while flying through the core.

Do not circle in weak lift when you have an altitude buffer. But remember, never leave lift low – landing is much worse than being slow.

Do not be sucked in to weak thermals by large gaggles. I don't know why, but whenever you see a large gaggle, lift is generally feeble. Assess whether the gaggle is worthwhile or not. Obviously when you are low and desperate gaggles are always worthwhile. Otherwise, note the bank angles. It's almost certain that a decent thermal has tightly banked gliders. The only exception is very late or very early in the day, when ther-

mals are gentle sorts of things, easily frightened off by tightly banked aggressive gliders.

One of the most common mistakes that all of us make at one time or another is to keep on circling, fat, dumb and happy, when lift has dropped off. Unless there is good reason to continue climbing, all you are doing is wasting precious seconds.

Fly the correct speed ring setting. There is virtually never any reason for a zero speed ring setting.

One place to gain a lot is between thermals. All the top pilots work the hardest when they are flying from thermal to thermal. The things to work at are indications of cloud streeting, indications that you are in a trough of sink, and indications of likely thermal strength up ahead. Timing cloud and dust devil duration is a useful trick.

There is absolutely no point in heading for a dust devil or cloud when you just aren't going to get there in time. Changes in weather conditions or terrain are often very important. You must know when to put your foot on the accelerator (eg: breaks in an overcast sky) and when to use the brake (eg: sand, irrigation areas, blue holes, cirrus, etc).

Shave the turn points closely. Have your camera ready. Every 10 metres past costs at least one second.

Make accurate final glides. Height over the goal line represents time wasted climbing somewhere along the course.

Low loss flying isn't dramatic. It isn't showy. It does demand a good deal of discipline. It also works.



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DHV 1-2

New Site Record

A new site record was set from Little Nellies just 40km inland from Laurieton.

Three pilots flew over 90km crosswind at a cloudbase of 8,000ft along west of the coast of Port Macquarie to Kempsey.

Saturday afternoon was fine, smooth soaring on North Brother and the Sunday conditions were quite unexpected.

Lee Scott

FAI NEWS

European Microlight Championship

The 8th European Microlight Championship will be held from 31 July to 7 August 2004 at Castelo Branco, Portugal. Information is now available at [www.emc2004.net/].

World Record Cancellations

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

Claim number: 7387

Sub-class O-5 (Hang Gliders with rigid primary structure/movable control surface(s) without pilot surrounding structures and fairings.) – General

Type of record: Speed over an out-and-return course of 100km

Course/location: Zapata, TX (USA)

Performance: 32.8km/h

Pilot: James Lamb (USA)

Date: 23/06/2002

Current record: none

Reason of cancellation: claim withdrawn by the NAC.

World Record Ratifications

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

Claim number: 7885

Sub-class O-3 (Paragliders) – General

Type of record: Distance over a triangle

Course/location: Pralognan la Vanoise–Fort Steynard–Tête du Parmelan–Pralognan la Vanoise (France)

Performance: 237.1km

Pilot: Pierre Bouilloux (France)

Paraglider: Gin Boomerang

Date: 10/08/2003

Previous record: 203.6km (19/06/2000, Klaus Heimhofer, Austria)

FAI congratulates the pilot on his splendid achievement.

World Record Claims

FAI has received the following Class R (Microlights) record claims:

Claim numbers: 8306, 8308, 8310 (Class R (Microlights))

Sub-class: RPL2 (Microlights: PG Control/Landplane/Flown with two persons)

March 2004

Pilot: Helmut Stern (Austria)

Crew: Anja Zotter (Austria)

Powered paraglider: Sunflightcraft

"Air Chopper" & Sycon Chiron 340 Course/location: Sarvar (Hungary)

Date: 26/12/2003

8306:

Altitude/Performance: 4,575m

Current record: 3,409m (30/03/2003, Alenka Prah, Slovenia)

8308:

Time to climb to a height of 3,000m

Performance: 24 min 58 sec

Current record: 39 min 06 sec, 30/03/2003, Alenka Prah, Slovenia)

8310:

Speed over a closed circuit of 50km without landing

Performance: 52.62km/h

Current record: new

Claim number: 8307 (Class R (Microlights))

Sub-class: RPL1 (Microlights: PG Control/Landplane/Flown with one person)

Type of record: Time to climb to a height of 3,000m

Course/location: Sarvar (Hungary)

Performance: 16 min 51 sec

Pilot: Istvan Kocsis (Hungary)

Powered Paraglider: Sunflightcraft "Explorer" & Sycon Chiron 340

Date: 26/12/2003

Current record: 22 min

30 sec (10/08/2000,

Howard M. Gish, Jr, USA)

The details shown above are provisional. When all the evidence required has been received and checked, the record will be ratified (if appropriate).

Third World Air Games Cancelled

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The two final bidders, Malaysia and Poland, have been informed of this decision. The Board judged that insufficient time remained available between now and the target date in mid-2005

Change of HGFA Sub-editor Email Address

Richard Lockhart, the HGFA sub-editor for Soaring Australia, can now be contacted by email on <soaring.australia@hgfa.asn.

au>. This change is being made to bring our contact email address for the magazine into line with other HGFA email addresses. Please delete <skysail@ozemail.com.au> from your records, effective immediately.

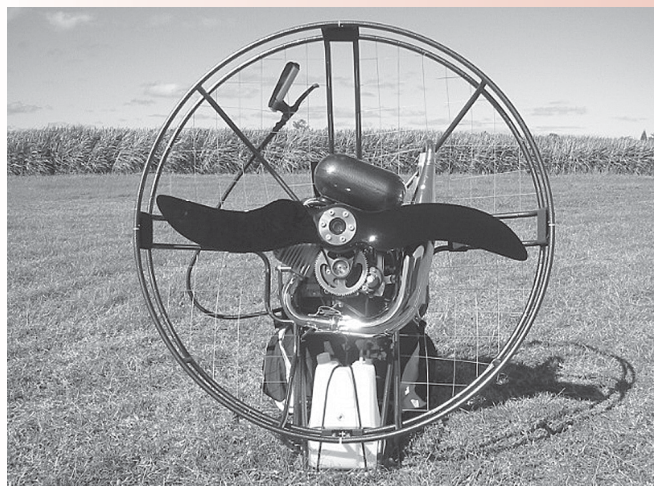
to solve the various organisational problems that had been identified.

This decision did not in any way denote a lack of confidence in the two bidding countries. Both have been thanked and congratulated for all the work they put into their candidacies, and invited to consider submitting bids for events in future years.

The FAI Board looks forward to launching a new invitation to bid as soon as the necessary consultations and evaluations amongst the different Commissions within FAI have been successfully completed.



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AUSSIE MADE & SERVICED – WHY BUY ANYTHING ELSE

Paraglider Review:

SKYWALK HYPE

Hakim Mentes

SPECIFICATION & SET UP

Weight in flight range:	65-90kg
Rating:	DHV 1-2
Harness:	Edel ProLight
Risers Separation:	40cm
Weight in Flight:	91kg
Speed Ranges:	35km/h trim to 51km/h max (DHV specs)



OVERVIEW

The Hype is the intermediate class glider of Skywalk Paragliders. It was flown many times at two different locations, Red Rock (coastal) and Bright (inland).

CONSTRUCTION

The Hype utilises four risers system with floating B and C risers. It incorporates all the good features of a modern design glider which includes: full internal stitching, diagonal V-rib construction and reinforced trailing edge.

Lines are connected to the risers via typical triangular malleon arrangement. Although it is not my preferred method, it seems to be the norm these days to use O-rings to keep the lines in place in the malleons.

All risers and lines are colour coded which helps to identify them easily.

THERMALLING & HANDLING ROUGH AIR

Despite its DHV 1-2 rating, the Hype is an active glider and moves around a bit. A little pilot input makes flying far more enjoyable in active conditions. During my two days test flights at Bright during NTVO, I did

not experience any collapse or anything bad in nature.

TURNS

This glider turns, turns really quickly and efficiently. Less experienced pilots need to be aware of the responsiveness of this glider before trying it for the first time.

Response to control line input is spontaneous, but response to weightshift only is slowish. Weightshift combined with a slight control line input results in a nice turn.

CONTROL (BRAKE) LINE FORCE

Required control line input is on the soft side. It is nice and good for long XC flights, but again, pilots changing from a school glider to the Hype need to consider this point.

TAKE OFF AND LANDING

I practiced many take offs and landings with the Hype and it behaved very tamely. No overshooting or dragging behind at take offs.

ASYMMETRIC COLLAPSE

Being such a responsive glider, I was curious to see how it would behave when experiencing an asymmetric collapse. To my surprise it behaved nicely. When experiencing a 50% asymmetric collapse, it turned less than 90 degrees and continued flying without diving to pick up speed to recover. This is one of the areas in which a lot of fast DHV 1-2 wings perform unsatisfactory, they recover quickly but they dive to pick up speed in order to do so.

BIG EARS

Thanks to the split A-risers system, Big Ears are a piece of cake. Easy to reach and easy to pull in. Once released, they gradually open.

SPEED BAR

The Hype has a soft speed system which I liked. Easy to push out and easy to hold it there.

B-LINE STALL

B-line stall is not difficult either to initiate or hold. I should have explored this aspect of the glider a bit more. It pitched back and forward a couple of times before stabilising over my head. It is an effective height reduction method, but did not give the drastic decent rates that some other gliders do.

CONTACTS

To find out more about Skywalk gliders or to have a test flight, contact the Victorian Paragliding Centre: Alister Johnson, Victorian Paragliding Centre, mobile: 0418 323692, email: <alisterjohnson@ihug.com.au>.



Letters to the Editors

Real Hospitality

Recently we were conducting a towing clinic at Micalago Station, Michalago, NSW. Unfortunately the weather gods were frowning on us this particular day. Being unable to fly, someone had the idea to travel down the Monaro highway towards Cooma, and visit the Canberra Gliding Club at Bunyan Airfield.

On behalf of all members of the KAPC, we would like to give a sincere thank you to members of the Canberra Gliding Club who extended us such warm hospitality and made us feel very welcome. We hope to return the favour sometime in the near future.

Alex Johnson, Secretary, Kosciusko Alpine Paragliding Club

Congrats on a Great Mag...

... the stories, the layouts, the pictures, all great. I really look forward to my Skysailor – er, Soaring Australia – every month... even when I've had a lay off for about a year now, with no flying at all, due to other pressing issues like lawnmowing, Sunday Church and such.

Well, I just got my new mag in the mail today and as soon as I tore open the bag and took it out I noticed something was really wrong... I stared at it for moment and realised – the cover had been printed completely upside down. I was a bit shocked and opened the inside pages to find that page after page had all been printed upside down as well as the back cover too... Now, I'm an open-minded, easy-going sort of a bloke, who doesn't mind a joke, but this was making my head spin. I went into the lounge and leaned up against the wall to stand on my head. Now, as I'm unaccustomed to this circusy theatrical mode, the blood quickly went to my head and made me really dizzy, as well as being too difficult to hold the weight all on my neck muscles. I did however manage to read the first two pages before I passed out.

I thought maybe I could try to read the mag in a mirror. But then, it would not only be the wrong way up, but back to front as well. How can you win?

Alas, the predicament seemed unconquerable until I remembered an old hang gliding trick I learned back in the 80's. So, I immediately got my old pod harness out and hooked it up to the clothes hoist and clipped it in. I have a small carabiner in the boot of the harness that I use to hang it up by when I clean it. Well, with much physical exertion I poked my feet up into the harness through the top and slowly hoiked myself up as far as my feet could go, to hook my toes over the foot stirrup, which then allowed me to pull the shoulder straps over thus supporting my weight, so that I was hanging vertically straight down, just like a bat... kinda' reminds me of that time I fell out of a really big thermal at the Flatlands one year and went over the falls for what seemed an interminably long moment... I lost nearly 100ft... actually, that's where I got the idea.

Anyway, I managed to read the whole mag through once I had relaxed my heart rate, and I found that the extra blood going to my brain actually helped me to understand some of those technical sailplane articles much better, as well as appreciate what it must feel like doing a full 180 loop over the top (except that it's just the initial diving part of it that you're stuck in).

Well, I love hang gliding, and maybe I'll get back into it again soon... Thanks for all the good work, but please... don't do this to me again. God only knows what might have happened if I'd opened the bag from the other end.

Jules Makk

PS: I feel much better now that I've had a cup of tea.

GRADIENT

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2003 AUSTRALIAN CHAMPION
2003 NZ CHAMPION

Congratulations to RON MCKENZIE!
Congratulations to CRAIG COLLINGS!

*** NEW! ***
The all new DHV 1-2 GOLDEN has finally arrived. It took 18 months to develop and now it is the most recent design in this category. This new benchmark for intermediate gliders is now available for around **\$4,000**

*** NEW! ***
Vario FLYER by DIGIFLY. Packed by features like 100 flights memory 3 altimeters 200 hours battery life and much more the FLYER is probably the most advanced entry - level vario available. It can be yours for a bargain price of only **\$445.00**

CompeGPS software now available on CD. You can have a demo version for free (\$5.00 if it has to be posted). If you like the demo, it can be upgraded for only \$142.00 any time. This program lets you to download and review your flights from GPS or the GAVITER, GALILEO, TOP NAVIGATOR style instruments in either 2D or 3D, project them into maps and store them in a detailed electronic logbook.

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ACT, NSW - Michelago Paragliding - www.geocities.com/michelagoparagliding

WA - WA Paragliding Academy - www.waparagliding.com

HGFA General Manager's Report

Damian Gates

Jillian Borst

Tragically, on 18 January our flying community lost a bright local star in the World of Women's Paragliding. Jillian was an exceptional talent and well respected for her abilities and friendship, both locally and in her home country of NZ. I had only met Jill briefly a few times and was surprised at the loss even I felt on hearing the news. I can only offer my deepest sympathies to those most affected by this tragedy; to Craig, Jill's family and friends, please know that my thoughts and those of many others who have expressed their feelings to me are with you during these sad days. It is at these times we realise how close we all are; many have expressed the feeling that it is more like a family than simply a community, as they have come together to respect, celebrate and remember the life of a truly talented and sorely missed friend and passionate free-flying pilot.

Hay Pre-Worlds HG

I have just returned from the Hay Pre-World Hang Gliding Championships and was impressed with the organisation and running of the event as the test competition for the Worlds at the same venue next year. Well done Paul, Wes and the Dynamic Flight team who were ably assisted by Lani Houston and Misty Dunn from Hay Tourism and Development in the organisation and lead up to the competitions: The Hay Open and the Pre-Worlds. The Hay Shire has assisted enormously in preparation for these two events and that support is set to continue for the major event in 2005; it could not

happen without these people and the many more who help behind the scenes.

The Waradgery Club, the venue for the HQ, is an excellent place to hold the championships from, and next year with a new coat of paint and banners, posters and sponsorship advertising, it will provide one of the most user friendly and professional outfits I have seen at any free-flight event in Australia. Free internet access was provided by Telstra Country Wide for all, six computers (to be ten in 2005), a bar just a stumble away, and a beautiful deck to enjoy a few drinks on.

Jim Zeiset, appointed CIVL Steward for this year's event, helped with advice on technical matters and provided feedback on what will need to be accommodated, both logistically and technically, at the Worlds event. I also had a few points for Paul, as he had himself, and all were well received. With the chance of government funding for the Hay Shire next year, facilities and the overall logistical arrangements will be far above what was provided for this year. This should stand us in good stead for perhaps another World Championship bid to host the World PG Championships in the near future – watch that space.

Accident Reports

I must stress that all accident reports received and published here (and even those not published here) do not intend, nor ever have intended, to apportion any blame or fault upon any person; they are reproduced only in the interests of safety and to ensure that we may all become better pilots and find more satisfaction, and less grief, in pursuit of our flying passions.

No 1

There is nothing sadder or more terrible to cope with than the loss of a loved one. It can also be said that there is no greater responsibility than to do our utmost to ensure that mistakes aren't repeated. The Inquiry into the tragic loss of one of our advanced PG pilots is not yet complete, so a full report here would be premature, but initial investigations suggest that inadequate pre-flighting of unfamiliar new equipment may have been a contributing factor. The issue of pre-flighting seems to revisit these pages with disturbing regularity. Please don't let these words, or the passing of a loved one, go unheeded: Always thoroughly pre-flight; when changing to new equipment a new routine must be developed and focused upon until second nature, meaning pre-flighting a second or third time to begin with; if ever distracted from your checks, start again from the beginning.

No 2

Pilot: Restricted PG
Experience: 18 hrs, 1.5 hrs last 90 days
Glider: DHV 1
Pilot injury: Nil
Glider damage: Three cells torn RHS
Location: Inland soaring site
Conditions: Light to nil winds
Description:

The pilot was new to the site and some cycles were coming through from the south-west (southerly launch). Pilot decided on a forward launch during a lull from this launch rather than the south-west launch due to its narrowness and some intimidating aspects. The wing inflated well but did not get off the ground cleanly, though the pilot decided to go anyway. Once in the air the pilot was unable to clear trees at the end of launch, flared into them and had the wing suspended in the trees with feet on the ground.

Comment:

Launches are optional, landings are mandatory. The pilot's own comments, "On reflection I should have aborted the launch and reconsidered whether to go again" seem to address the matter well.

Support

Harry Buckle

My very good friend and fellow pilot, Damien Ragland, in a show of comradeship and support, has written the following poem for me. I'd like for this poem to appear in Soaring Australia, as a tribute to Damien for keeping in touch with me and for caring.

I CAN FLY

Damien Ragland

This is mine, my dream and my reality
This is where I stand wanting, and this is where
I am truly free
My wings I feel stretching from the centre of my back
Tugging at my torso to fly
An urge like no other
Many times before I've seen this flight

And now I feel the wind as my only rite of passage
I can feel the grass around my calves and the
stones beneath my feet From the corner of my eye I
can see the run
But the horizon is my focus
The wind my energy
The hills and thermals my modem
This moment is where it truly is, where nothing
else matters
I know it's right and I go – hard
Every morsel of energy through my feet until I feel
my wings tilt toward the sky
Know now your dreams are realised
Your soul has shifted and your person has been
freed beyond any human comparison
In the now and ever present moment
Your wings become you and you them
You are one, bound together, together bound

General Manager's Office

Damien Gates

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General Manager's postal address:
PO Box 130, Underwood QLD 4119
HGFA office postal address:
PO Box 157, Hallidays Point NSW 2430

Soaring Calendar

AUSTRALIA

Manilla PG Open 2004

28 February – 6 March

Manilla, NSW. Final rego on Friday 27 Feb at Manilla RSL Club HQ. Entry fee is \$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 level of inland experience. Entry: from 1 Oct 2003 online via [www.flymanilla.com]. Credit cards accepted. Organiser: Godfrey Wenness ph: 02 6785 6545; <skygodfrey@aol.com>.

National Trike Gathering

3-4 April 2004

Wangaratta, VIC. The Southern Microlight Club is holding this HGFA sanctioned event a little earlier than previous years, so mark it on your "must not miss" calendar, then set to and make the appropriate bookings. Last year was our most successful event to date with more than 50 trikes attending, including a large group flying in from South Australia. We are negotiating with our previous caterers to provide breakfast and lunch on the Saturday and Sunday, and we intend holding a dinner at a local hotel on the Saturday evening. A great camping ground is located at the airport or alternatively Wangaratta has numerous motels/hotels a short drive from the airport. We intend distributing registration information closer to the date. To enable us to have your correct contact details, could you register your interest with our secretary Jeanette Walker on (03) 5941 2721, mobile 0438 418 808 or email <jesta@wingdriver.com.au>. And of course, you are most welcome to spread the word far and wide.

PG State of Origin 2004 Competition

9-11 April (Easter)

Mt Borah, Manilla, NSW. This competition is aimed at the nov/int pilot looking to try a competition in a friendly and relaxed way, with the opportunity to even win with the use of a handicapping system. Novice pilots have won the last two years, last year a novice from NSW and the year before from Qld. HQ is The Royal Hotel, first briefing 9:30am Friday 9 April. Sanction, Grade C (pending). Contact: James Thompson 02 49468680, <james.b.t@hunterlink.net.au>.

Easter Gliding Competition

10-17 April 2004

Chinchilla, QLD. Practice day: Friday 9 April. Contact: Robert Hart <hartr@interweft.com.au>.

Flatter Than The Flatlands

9-12 April 2004

Birchip, VIC. HG pilots are invited to the 11th annual Flatter Than The Flatlands cross-country towing competition. The event will be conducted over the four day Easter long weekend. Entry fee is \$70 and incl. maps, daily prizes, presentation dinner, scoring, goal beers and lots of fun. After the flying each day, social events including a Red Faces competition (mandatory event per team), movies and much more will be held with prizes awarded. Cameras not required, GPS recommended, parachute compulsory, lots of fun guaranteed. Entries will only be accepted from teams of five pilots. Entries open Wednesday 11 February 2004 at 8pm. Entries will accepted on a first come basis. Places will be confirmed on the competition website after the full team payment is received. Following the success of previous years' events, get organised early. There will be approximately 12

tow strips, two of which will be held in reserve for South Australian teams until 10 March. To enter, phone Ian Rees on 03 9762 1364.

Queensland State Gliding Championships

26 September – 2 October 2004

Kingaroy, QLD. Practice day: Saturday 25 September. Contact: Doug Flockhart <doug@ozgroup.com.au>.

Australian Multi-Class National Championships

6-15 October

Dalby, QLD. Practice days: Monday 4 October and Tuesday 5 October. Contact: Ralph Henderson <rhenderson@austarmetro.com.au>.

Alice Springs Masters' Games

16-23 October 2004

A low key and social competition for anyone over the age of 35. To register or for any enquiries contact Darren Edwards, ph: 08 89550014, or Simon Holding, ph: 08 89534100.

Australian Junior Gliding Championships

28 November – 4 December 2004

Temora, NSW. A handicapped, single-seater event, water ballast is permitted. Pilot pairs are encouraged. To be eligible you must be a junior pilot under the age of 26 with a Silver C and current cross-country rating. Two-seater coaching will also be available for juniors below this standard. For further information please contact Mitchell Turner on 0413 444614 or email <Executive.director@telstra.com>.

OVERSEAS

2004 Flytec Championship at Quest Air

16-24 April 2004

Quest Air Soaring Center, Florida USA. The Flytec Championship meet purpose is to have a safe, fun and fair competition. Our focus is to have a relaxing and affordable meet that is a great time for everyone involved. Registration begins 15 Dec, 9am East Coast Time, online at [www.flytec.com] or for help phone (352) 429-0213 or fax (352) 429-4846. Register early, last year the meet filled up in just a few days! May limit size to just 90 pilots. Sanction: USHGA Class A and applying for CIVL/WPRS points meet. Flex, Rigid and Swift class. Location: at the end Sun'n'Fun Air Expo, Quest Air Soaring Center, 6548 Groveland Airport Road, Groveland, Florida, 34736. Fees: only \$375 (add \$100 within 30 days of meet). Tow fee separate. Meet Organiser: Steve Kroop and the Quest Air Family. Meet Director: David Glover. Awards and Prizes. Mandatory Pilot Briefing: 7pm, Thursday, 15 April. Pilots must have flown in a USHGA aerotow competition previously or have written prior meet director or safety director approval. Pilots must have successfully aerotowed the glider model in competition conditions at least ten times. USHGA intermediate rating and membership with aerotow sign-off required minimum 7 days prior to start of meet. Pilots must have specific Garmin or approved GPS units. Meet format is cross-country race to goal with or without turn points. USHGA rule book along with local meet specific rules will be used. Scoring Race – GAP/ GAP modified. See online registration form for requirements and restrictions.

IGC World Gliding Championships Calendar

2007 and beyond

2007 WGC – Juniors, Bid selection = 2005*
2007 WGC – Women's, Bid selection = 2005*
2007 Alternative Events, Bid selection = 2005*
2008 WGC – 15 Metre, 18 Metre, Open, Bid selection = 2005
2008 WGC – Standard, Club, World, Bid selection = 2005
2009 WGC – Juniors, Bid selection = 2006
2009 WGC – Women's, Bid selection = 2006
2009 Alternative Events, Bid selection = 2006
2010 WGC – 15 Metre, 18 Metre, Open, Bid selection = 2007
2010 WGC – Standard, Club, World, Bid selection = 2007
* Sites for these WGC's will be selected in 2005. After 2005 sites for all WGC's will be selected three years prior to competition.
2011 WGC – Juniors, Bid selection = 2008
2011 WGC – Women's, Bid selection = 2008
2011 Alternative Events, Bid selection = 2008
2012 WGC – 15 Metre, 18 Metre, Open, Bid selection = 2009
2012 WGC – Standard, Club, World, Bid selection = 2009
2013 WGC – Juniors, Bid selection = 2010
2013 WGC – Women's, Bid Selection = 2010
2013 Alternative Events, Bid Selection = 2010
2014 WGC – 15 Metre, 18 Metre, Open, Bid selection = 2011
2014 WGC – Standard, Club, World, Bid selection = 2011

NOTE: This calendar is shown as running through 2014 for illustrative purposes only. The calendar and structure of the World Gliding Championships will continue on as shown after 2014 (until changed or modified by the IGC Plenum).

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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.

Byron Soaring Centre & Aeroclub

PO Box 549, Byron Bay NSW 2481
02 66844244.

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

16 Fuller St, Mullaway NSW 2456,
Sec: Bob King, 02 66541638 (h), 040
388551, <kingb@coffscs.nsw.edu.au>.

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.
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 152S, South Tamworth NSW 2340,
02 67697514, 02 67697640.

Leeton Gliding Club

PO Box 607, Leeton NSW 2705, 02 69536970.

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 Williamstown 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,
02 46558882.

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), <wrights@norcom.au>

Sydney Gliding Inc. (Concordia GC)

PO Box 633, Camden NSW 2570, 0412 145144.

Temora Gliding Club

PO Box 206, Temora NSW 2666, 02 69772733.

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 54632630.

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 49973265.

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 Aero & Soaring Club

PO Box 144, Warwick QLD 4370,
07 38923473.

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 Altola 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 8541
2644, 08 85412761.

Whyalla Gliding Club

PO Box 556, Whyalla SA 5600, 08 8640
4432, 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

58 Hales Street, Wynyard TAS 7325,
03 64422108.

Gliding Club of Victoria

PO Box 46, Benalla VIC 3672, 03 5762
1058, 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 1096J, 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 232, Narrogin WA 6312, 0407
088314 or 08 98811795 (weekends).

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

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

HGFA General Manager's Office

Damien Gates, PO Box 130, Underwood QLD
4119, ph: 07 32198516, 0417 766
356, fax: 07 32199560, Email <general.
manager@hgfa.asn.au>.

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

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Paul Haines ph/fax: 02 42941031.

States & Regions

ACTHGA

PO Box 3496, Manuka ACT 2603; Pres: Steve Foggett 0417 313589, <sfoggett@hotmail.com.au>; Sec: Mark Elston 0428 480820, <mark.elston@defence.gov.au>; Trs: Tony Davidson 0500 883322, <td@silktel.com>; Committee members: Michael Porter, Sascha Moroney, Craig Donnell, Tim Grabovszky; SSO: Peter Bowyer 0412 486114. Meetings 3rd Mon/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: Rick Williams, <hang_gliding@dodo.com.au>; HG Rep: Gavin Nichols, <gknichol@tpg.com.au>; PG Rep: Mike Duffy, <MikeDuffy@graduate.uwa.edu.au>; Trike/HGFA Rep: Keith Lush, <keith.lush@inet.net.au>

NSW Hang Gliding Association

Sec: Steve Hocking, 19 Gladswood 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, <marknjn@senet.com.au>; Trs: Robert Woodward 08 82977532 (h), <rob_woodward@alternaterepositioning.com>.

Tasmanian HG & PG Association

19 Christella Rd, Kingston TAS 7050, [www.thga.net]; Pres: Anthony Mountain (Sth HG pilot) 0407 299011, <president@thpa.net>; Sec/Trs: Mico Skoklevski (Sth HG pilot) 0418 398624, <secretary@thpa.net>; PG contact: Rob Steane (Sth PG pilot) 0418 146137, <paraglide.info@thpa.net>, Bill Brookes (Nth PG pilot & HG info) 0409 411791, <northern@thpa.net>.

Victorian HG and PG Association

PO Box 157 Northcote VIC 3070, [www.vhpa.org.au]. Pres: Carolyn Dennis; Sec: Steve Norman; Trs: Lisa Charleston; SSO: Rob Van Der Klooster 03 52223019 (h). Site weather-boxes: Three Sisters 0409 864700, Buck-land Ridge 0407 356295, Mt Buffalo 03 57501515, Ben More 0417 112062.

Clubs

New South Wales

Blue Mountains HG Club Inc.

Pres: Peter Burkitt 0418 435204, <pburkitt@ozemail.com.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 47738037, <fairallan@pnc.com.au>; Newsletter: Alan Bond 02 98995351, <skybond@primus.com.au>. Meetings: 3rd Wed/month, 7:30pm, Blue Cattle Dog Tavern, Mamre Rd, St Clair.

Byron Bay HG Club – see Northern Rivers Hang Gliding and Paragliding Club

Dusty Demons Hang Gliding Club

PO Box 1003, Fyshwick ACT 2609. Pres: Lee Patterson 0427 220764, <leeroy@dustydemons.com>; V-Pres: Tove Heaney 02 48494516, 0419 681212, <tove@dustydemons.com>; Sec: Scott Hannaford 0417 272498, <scott@dustydemons.com>; Trs: Dan Watters 0410 347801, <daniel.watters@csiro.au>; SSO: Grant Heaney 02 48494516, 0419 681212, <grant@dustydemons.com>; Editor: Kath Kelly 02 6456 1590, 0427 220764, <phase9@snowy.net.au>.

Hunter Skysailors

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

Illawarra Hang Gliding Club Inc.

27a Paterson Rd, Coalcliff NSW 2508. Pres: Frank Chetcuti 0418 252221 <chetcuti1@bigpond.com>; Sec: John Parsons; SSO: Tim Causer 0418 433665 <timcau@ozemail.com.au>.

Kosciusko Alpine Paragliding Club

[www.homestead.com/kapc]; Pres: James Rylie 02 62359120, <rymicalago@netspeed.com.au>; Sec: Alex Johnson 0411 748713.

Manilla SkySailors Club Inc.

[www.FlyManilla.com]. Pres: Kevin Chisholm 0404 944395; V-Pres: Suzy Smith 02 6785 6545; Sec: Paul Cox 0417 355897; Trs: JJ Bastion 0427 161504; SSO (HG): Patrick Lenders 02 67783484; SSO (PG): Godfrey Wenness 02 67856545, SSO (Towing): Rhett Rockman 0428 428962; Trikes: Will Ewig 02 67697771.

Mid North Coast HG Association

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

Newcastle Hang Gliding Club

PO Box 64 Broadmeadow NSW 2292; [www.nhgc.asn.au], <fly@nhgc.asn.au>.

Pres: Mick Walmsley 0425 273407; V-Pres: Glen Selmes 0418 471353; Sec: Matt Olive 02 49423131; Trs: Tash McLellan 0428 278867; SSOs: Al Giles 02 49430674, John O'Donohue 02 49549084, Tony Barton 0412 607815. Meetings: Last Wed/month 7:30pm Souths Leagues Club.

Northern Beaches HG Club Inc.

Pres: Sandy Thomson 02 99812019, 0419 205220, <planky@bigpond.com.au>; V-Pres: Steve Phillips 0413 108091, <stephenphillips@optusnet.com.au>; Trs: Jim Gaal 0414 799 822, <jimg@acay.com.au>; Sec: Owen Pearce 02 99133547; SSO (HG): Glen Salmon 02 99180091; Wayne Fitzgerald 02 99827094; SSO (PG): Wayne Fitzgerald 02 99827094. Meetings: 1st Tue/month, 7pm, Mona Vale Bowling Club.

Northern Rivers HG and PG Club

PO Box 1903, Byron Bay NSW 2481, [http://bbhg.tripod.com/]. Pres: Eddie Gray 02 66841795, <edgrey@linknet.com.au>; Sec: Ward Gunn 0414 356588; SSO (HG): Ashley Willmott 0428 560248, <ashley@lis.net.au>; SSO (PG): Lindsay Wootten 0427 210993, <lindsaywootten@bigpond.com>.

Stanwell Park HG and PG Club

PO Box 258 Helensburgh NSW 2508; Pres: Chris Fogg 0412 904800, <fogg@idx.com.au>; Trs: Adrian Le Gras; Sec: Scott Zwanenbeek <scottz@internode.on.net>; SSO: Tony Armstrong <tony@hangglideoz.com.au>, 02 42949999.

Victoria

Dynasoarers Hang Gliding Club

Pres: Darren Brown 03 93971233 (w), fax: 03 93974566, <dbrown@bmlegal.com.au>; Sec: Dale Appleton 0408 382635; Trs: Greg Holt 0418 516058; SSO: Rob Van Der Klooster 03 52223019, 0408 335559; Publicity Officer: Harry Buckle 03 52214544, <monument@pipeline.com.au>. Meetings: 1st Fri/month, venue see: [vhpa.org.au/dynal].

Melbourne Hang Gliding Club Inc.

PO Box 8057, Camberwell North VIC 3124; [www.vhpa.org.au/melbourne/], <melbourne@vhpa.org.au>. Pres: Andrew Medew 0425 702957; Sec: Vanessa Sparke 03 9458 3780; SSO: Geoff Tozer 03 97583250, Kevin Grosser 0419 022225. Meetings: 3rd Wed/month at 6:30pm at the Palace Hotel, 893 Burke Rd, Camberwell.

North East Victoria HG Club Inc.

[www.hgfa.asn.au]. Pres: Paul Harrison 0428 356239; Sec: Garrit Verway 0427 551074; Trs: Jill Borst 0438 328636; Web: Barb Scott 0408 844224; Meetings:

ALL CLUBS PLEASE CHECK DETAILS IN THIS SECTION CAREFULLY

Could all Clubs please ensure they maintain the correct and current details of their Executive Committees and contacts here in the magazine. Specific attention is directed to the listing of SSOs and SOs for the Clubs. Please ALL CLUBS and nominated Senior SOs and SOs confirm ALL SSO and SO appointments with the HGFA Office <office@hgfa.asn.au> to ensure that those holding these appointments have it listed on the Membership Database and can receive notices and correspondence as required. Appointment of these officers is required to be endorsed by Clubs in writing on the appropriate forms. Sometime in the future if confirmation is not received, those listed in the Database where no current forms or confirmation is held, the appointment will be taken as having expired.

Damien Gates General Manager, HGFA

Check [www.home.aone.net.au/gilbert/nevhc.htm].

Sky High Paragliding Club

[www.skyhighparagliding.org]; Pres: Colin Page 0411 555128; V-Pres: John Styles <jdstyles@hotmail.com>; Trs: Clinton Arnall 0415 229315, [membership@www.skyhighparagliding.org]; Sec: Georgia Buckingham <secretary@www.skyhighparagliding.org>; Web: Tony Tidswell <webmaster@www.skyhighparagliding.org>; APN Editor: Julie Sheard 0425 717944 <editor@www.skyhighparagliding.org>; SSOs: Kevin Gingell-Kent, Alister Johnson, Adam Neinkemper. 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 DeJong 03 97898970; Sec: Jeanette Walker 0438 418808, 03 59412721; Trs: Dianne Pierpoint; Newsletter: Barry Wood <jbwwood@bigpond.net.au>, Michael Rose <mrose3@bigpond.net.au>. Meetings: 2nd Tue/month 8pm, The Manningham Club, 1 Thompsons Rd, Bulleen.

Western Victorian Hang Gliding Club

PO Box 92, Beaufort VIC 3373, [www.vhpa.org.au/vrhgc]. Pres: Glenn Bachelor 0419 324730, <GlennB@pocketmail.com.au>; V-Pres: Mark O'Keefe 0412 473724, <mokeefe@bigpond.net.au>; Sec: Andrew Edney 0438 571445, <candrew.edney@edag.com.au>; Trs: Phillip Campbell 0419 302850, <campbell.p@giant.net.au>; Web/Database: Damian Georgiou 0413 677090, <damaian@bachomp.net>; SSO: Rohan Holtkamp 0409 678734, <dynamic@netconnect.com.au>. Meetings: Last Sat/month, The Golden Age Hotel, Beaufort.

Queensland

Cairns Hang Gliding Club

Pres: Russell Krautz <rkrautzr@yahoo.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.chgc.asn.au]. Pres: Brandon O'Donnell 07 33999850 (h), 0416 089889, <olofly_@hotmail.com>; V-Pres: Raphael Mackay 07 55345190; Sec: Col Hjorthoj 07 55437248 (h), 0429 312067, <col61@gil.com.au>; SSO (PG): Rob Wilton 0418 732325, <robertmarie.wilton@bigpond.com>; SSO (HG): Ken Hill 07 55435631, 0418 188655, <kenhill@primus.com.au>.

Central Queensland Skyriders Inc.

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

Conondale Cross-Country Flyers Inc.

Pres: Peter Buch 07 54949615, <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 33541910; SSO (HG): Russell Groves 07 54450084.

Dalby Hang Gliding Club Inc.

27 Van Gogh Pl., Mackenzie QLD 4152; Pres: Daron Hodder 0413 515160, <daron

@powerup.com.au>; Sec: Rod Flockhart 07 32193442, 0412 882639, <flockhartrod@hotmail.com>; SSO: Damien Gates 07 3901 7401; Trs: Cameron McNeill 07 38913457.

Mount Isa Soarers

John Ennis 07 47494834, 07 47433847 (w), 0409 591701, <ennisfamily@bigpond.com>. Visitors must contact John before flying local site.

Sunshine Coast Hang Gliding Club

PO Box 227, Rainbow Beach QLD 4581; <intheair@ozemail.com.au>. Pres: Mark Savage 07 54416423, <marksavage@dart.net.au>; Sec/SSO (PG): Jean-Luc Lejaille, 0418 754157, <rainbow_flyer@hotmail.com.au>; Trs: Michael Powell, 07 54425568

SSO (HG): David Cookman 07 54498573.

Whitsundays HG Club

Pres: Graham Lee 07 49546726, <gdsrlee@hotmail.com>; Sec/Trs: Ron Huxhagen 07 49552913, fax: 07 49555122, <sitework@mackay.net.au>

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.

334 Belmont Ave Kewdale WA 6105. Mes-sagebank 08 94875253; Pres: Wieslaw Zdanowicz, 08 92493707, <spoton@starwon.com.au>; V-Pres: Robin Rankin, 0407 441 463; Sec: Mike Duffy, 16/3-5 Geddes St, Vic Park, WA 6100, 08 92771906, <MikeDuffy@graduate.uwa.edu.au>. Trs: Colin Brown 08 94594594, <cobrown@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, <dustdevils@hgfa.asn.au>; Sec: Peter Cepuritis 08 9022 2084, <pcepuritis@kal.snowdenwa.com>; Trs: Richard Breyley 08 90227684, <Richard.Breyley@harmonygold.com.au>; SSO: Mark Stokoe 08 90911297, <Mark.Stokoe@health.wa.gov.au>.

Hill Flyers Club Inc.

<hillflyers@dodo.com.au>; Pres/SSO: Rick Williams 08 92943962, 0427 057961; Sec/Trs: Dave Longman 08 93859469. Meetings: Last Tues/Month, 7:30pm, Venue: Rosie O'Grady's Pub, South Perth.

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, <pblachford@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.



Classifieds

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All advertisements and payments can be sent to Angel Administration at the following:
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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.

GFA

Single-Seater Sailplanes

ASTIR CS, GDT. 2,750 hrs. B50, Microair radio & Joey. Trailer in excellent cond. Old oxy gear & tow-out gear available. Heartbreaking sale. \$22,000. Current Form 2. Ph: Dave Donald
07 38143886 or <ddonald@dodo.com.au>.

DISCUS 2b "76". This glider has absolutely everything. Factory prepared for the WGC in Bayreuth. In immaculate cond. As new Cobra trailer with all extras. This glider has achieved three national records. Unique purchase arrangements to suit buyer, term payments over 12 mths possible. Vendor finance available. Extras to suit buyers budget. Buyers in NZ: this glider was originally on the NZ register. Shopping to NZ is possible. For further details contact: Miles Gore-Brown 07 55789904 or <mgsbsia@pacific.net.sg>.

JANTAR STD 15M, IIT. Sn. NB994. Low 750 hrs TT, fresh C of A. Enclosed trailer wing dolly & dust covers. Excellent cond, Ricoh vario, Edo Aire 720, \$28,000 ono. Ph: 03 94371155.

K6e. Based in Gulgong, NSW, enclosed trailer, \$8,500 ono. Ph: John 07 49756613 (evenings).

MOSQUITO. One owner, no damage history, template profiled wings, good competition record. Aircraft with basic instruments \$31,000. Ph: Bruce Tuncks 08 82527905.

PIARTUS B4. Excellent cond. New paint, well filled & finished. Tinted canopy, chute, 4-wheel open trailer. \$13,000 ono. Ph: 07 49371381.

LS3a 15M flapped glider, IZR. Built 1978, excellent cond, low hrs. Borgelt B50/B11, Garmin GPS, Joey logger, 760ch radio, Cradle & wiring for a Compaq PDA. New ballast bags. Unregistered but usable trailer. \$39,500. Ph: Mick Webster 0407 834531, <mickwebster@bigpond.com>.

LS1D CTG. 2,900 hrs. 3,000 hrs life extension completed, new Form 2. This glider was always privately owned, never pranged, delight to fly, excellent cond, competition tuned, c/w basic instruments, radio, closed fibreglass trailer, tow-out gear & parachute. \$23,500. Ph: Tobi Geiger 03 54286991, <tobi1@hotmail.net.au>

LS4A, HDK. Proven Nationals performer, never damaged, refinished, excellent cond, tail tank, Cambridge L-Nav & electric audio vario, PZL vario, 720ch radio, 1,900 hrs, enclosed metal Thompson trailer with VG fittings, easy 2-person rig, tow-out gear.

Ph: Frank Turner 07 32318888 (w), 07 33783302 (h), 0419 702416 (m), <fturner@thymac.com.au>.

NIMBUS 2. Excellent cond, low hrs, original gel-coat, winglets, slimpack, lambswool int, full wing & tail covers, all tow-out gear, new tyre, factory dual axle, fibreglass trailer, 800 Zander flight computer, etc. Dual batteries, nose hook, new canopy, dual cameras, ready for 1,000k flights. \$50,000 ono. Ph: 03 9305

3872 (w), 03 57832794 (h), <brimold.aabaa@bigpond.com>.

Due to fleet restructuring, Waikerie Gliding Club now offers the following aircraft for sale:
Hornet, GMU – One piece canopy mod. Borgelt B20, 21, 24 & 25 vario/glide computer system, Microair radio & basic instruments. Enclosed trailer. Tow-out gear. 4,100 hrs, \$24,000.

LS1F, GEB – Wing fairing mod. Borgelt B20, 21, 24 & 25 vario/glide computer system, radio & basic instruments. Schroder clamshell fibreglass trailer. Wings, stabiliser & rudder refinished professionally tow-out gear. 2,636 hrs, \$23,000. Ph: 08 85412644, fax: 08 85412761, <wisc@riverland.net.au>.

SALVAGE – 1976 Schempp Hirth Janus Glider No 27. Badly damaged when canopy opened on take-off. Contact: Warren Stewart, A&G Loss Adjusters on 0418 836 538 for further info.

Two-Seater Sailplanes

K13 based in Gulgong NSW, \$25,000 ono. For details ph: John 07 49756613 (evenings).

K7 RACING SAILPLANE, GFR. Excellent cond, paint & fabric both well maintained. Recent Form 2, incl. wing & fuselage covers, good trailers. \$25,000. Ph: Jim or Anne 02 98768176.

Self Launching/Motor Gliders

DG400 Based at Camden, own T-hangar complete with all ground handling equipment, trailer & parachute. Well equipped with low engine & airframe hrs. Rare opportunity to buy 1/4 share in a good syndicate. Ph: Terry 02 46556212, 0417 239332 or <terryoxborough1@optusnet.com.au>. MUST BE SOLD – SHARE REDUCED TO \$20,000.

DG400, XJD. Tinted canopy, Slimpack chute, good trailer & ground handling gear. Just been fully refinished by Roger Bond. Immaculate cond. Ph: 02 44717223.

MOTOR FALKE Hoffman Prop, flip flop radio, good cond. Cross-country motor glider or just local fun \$28,000. Ph: 02 99587311 or <adbinoutdoor@yahoo.com>

MOTOR FALKE, GIK. 1700 Limback. B fuse & C wings make it the best soaring model. Very good cond. throughout. Transponder, Strobe, VOR, GPS, ELT, New Jaxida cover. Located Darwin. Fly away or will deliver. Ph: 08 89855330, <gavinwr@hotmail.com>.

SUPER XIMANGO, GFU. Excellent cond. TT 439 hrs, engine 392 hrs, \$120,000 ono. Ph: 03 98878319.

Powered Aircraft/Tugs

PAWNEE PA25-235 A1, FAL. Two-seater Pawnee available February 2004. Engine run "On Inspection" near end of recommended TBO \$36,000. Ph: 08 8541 2644, fax 0885412761, <wisc@riverland.net.au>.

General

AVTEC AVIATION. Repairs & Maintenance F.R.P. Ph: Roger Bond 07 3389 4843

SOARING FLIGHT SIMULATOR PC v4. The best gliding simulator in the world. Buy online from [www.GlidingShop.com] with orders shipped worldwide. Free demo download available. All updates free of charge. Enquiries to: <sfs@glidingshop.com>

Instruments & Equipment

NEW PARACHUTES: Short pack ATL M88/90 \$1,925. Slim line long pack ATL 88/92-S \$1,925 incl. GST. Airborne Avionics P/L Ph: 02 68892733. Fax: 02 68892933. Email: <hartley@avionics.com.au>

SAVE! SAVE! ICOM IC-A23 VHF/VOR handheld comm incl. GA headset adaptor. Special price: \$630. IC-A5 \$530, Affordable VHF handheld. Incl GST. Airborne Avionics. Ph: 02 68892733. Fax: 02 68892933. Email: <hartley@avionics.com.au>.

GPS!! GPS!! GPS!! GARMIN GPS II Plus \$475. GPS III Pilot \$855. GPS 12XL \$525. New GPS 196 \$1,675, GPS 295 Colour \$2,150. Prices incl. GST. Airborne Avionics P/L. Ph: 02 68892733. Fax: 02 68892933. Email: <hartley@avionics.com.au>.

NEW CANOPIES: Dimona H36 \$2,970, Grob twin rear \$1,650, Std. Libelle \$1,650, LS \$1,980. GST incl. Windows & vents available. Aviation Acrylic Mouldings Pty Ltd <aamoulds@senet.com.au>.
Ph: Ian or Cecilia Linke 08 82513780.

NEW CAMBRIDGE 302A low price logger with or without nav display now here. Test-fly a Cambridge 302 soon – various have really improved ("SeeYou" included)! [www.mrsoaring.com] <iankmphee@bigpond.com>, Ph: 02 66847642.

Gliding Publications

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.

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>.

NZ GLIDING KIWI: Official magazine of Gliding New Zealand. Edited by John Roake. Read world-wide with a great reputation for being first with the news. A\$52 pa. Personal cheques or credit cards accepted. Write: NZ Gliding Kiwi, 79 Fifth Avenue, Tauranga, New Zealand. Email: <gk@johnroake.com>.

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.

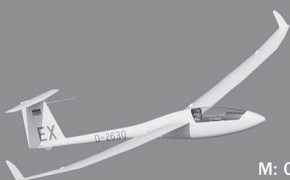
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HGFA

Hang Gliders & Equipment

NEW SOUTH WALES

AIRBORNE CLIMAX 13 adv, 2 yrs old, 70 hrs, blue/white US, 2 spare DTs incl, XC bag, manual, batten profile, some C2 mods, ground & aerotows sweetly. Can arrange test flight, \$5,200 ono. Ph: 02 48682869 (after 5pm); 0417 420956; <aljebrad@hotmail.com>.

AIRBORNE CLIMAX 14 adv, GC, 100 hrs, blue US, XC bag, spare DT, \$5,500. Ph: 0418 435204.

AIRBORNE FUN 190 nov, red LE, blue US, GC, cheap glider for novice pilot, \$1,500. Ph: 02 68634477.

AIRBORNE FUN 190 nov, 13 months old, 20 hrs, carefully flown, flies like new, spare DT. Will buy smaller glider. \$2,500. Ph: John 02 93447932; 0414 218391 (or leave message).

AIRBORNE FUN 220 tandem or big boy's glider, 20 hrs, brand new cond, red LE, yellow US, \$3,200. Also, Pac Air V2 tandem glider, sail brand new, airframe in EC, purple LE, pink US, \$4,000. Also, Airborne Sting 154 int, frame in EC, sail in fair cond, grey LE, peach/light green US, \$1,200. Ph: Tony 0417 939 200; <tony@hangglideoz.com.au>.

ATOS Rigid wing HG. Bargain price, \$7,900 ono. GC, great XC performance, 19:1 glide & good sink rate. Easy to fly & lands like a floater. About same set-up time & weight as topless flex wings. Incl. factory tail. Now get my performance fix flying sailplanes so MUST sell. Ph: Paul 0404 851876; 02 96997720 (h); 02 82323853 (w); <huntp@ozemail.com.au>.

EXPLORER harness, almost new, 1 year old, 7 hrs, royal blue, electric starter motor with the pull start option incl, foldable carbon fibre prop, dual fuel tank, manual (& parachute optional add \$450), \$5,800 ono (a savings of \$1,125-\$1,400 from new). I am upgrading to nano-trike as it's difficult to run with arthritis in knee. Also, Xact Moyes harness in OK cond. with recently packed chute (will separate), \$400. Ph: "Evan" 0409 660716 or 02 93692967.

FLYTEC 4030 GPS-Access flying instruments. Incl. software, cables & speed sensor. All normal functions plus speed to fly, final glide calculator, FAI approved barograph, etc, etc, \$950 ono. Also, Racing harness – Dynamic Flight Skorpion, suit pilot approx. 172cm tall. Ph: Paul 0404 851876; 02 96997720 (h); 02 82323853 (w).

MOYES SX4 adv, black/purple US, just tuned up at the factory, looks good & flies great, 2 spare DTs plus basebar, 100 hrs only, \$2,300. Ph: Luc 0404 499514; 02 91301076 (h).

QUEENSLAND

EXPLORER powered harness, low hrs, prop brake, plastic tank, intake silencer, \$3,900. Ph: Wayne 07 49454070 (h); 0427 454070; <waynesam.lane@bigpond.com.au>.

EXPLORER powered harness, medium size, blue, \$3,200. Radne powered soaring trike base, \$2,750. Ph: Bob 07 49466305.

MOYES XT 165 int, dark blue/fluoro green/white, speed bar, GC, approx 90 hrs, with wheels, \$1,200. Ph: Mark 07 55448225; 0402 223945; <mark.swan1@bigpond.com>.

AIRBORNE CLIMAX 14 adv, 120hrs TT all inland, yellow/white US, full mylar, with slip stream A-frame, light weight XC bag, spare DT, C2 batten profile

& keel cover. Flies straight & true, 18 mths new, \$5,000 ono. Ph: Rod Flockhart 0412 882639; 07 32193442.

ACT

MOYES LITESPORT 149 int/adv, 60 hrs, great colours, \$1,600 off new price ono. XT 165 int, in GC, flies straight with bar-to-the-knees, \$1,600 ono. Moyes harness, suit 5'6", \$300. Ph: Ross 02 62551178; <rosshggp@hotmail.com>.

GARMIN 12 CX, same as a 12 XL but with the coloured screen, 2,048 trackpoints, only used in 4 comps, about 2 yrs old. Looks like new – \$385 – incl. pouch, instruction manual, new batteries (& turnpoints for Canungra, Bright and Wanaka). Ph: Chappo 0412 159472; <chappo@apf.asn.au>.

SOUTH AUSTRALIA

MOYES XT165 int, VGC, Bräuniger digital vario, Garmin GPS, 2 UHF radios, full-face helmet with headset, plus flight manuals & other bits & pieces. Best offer over \$1,400. Also for sale separately: D. Clarke pro pilots headset, normally \$500, sell for \$240. Ph: Bill 0409 670908; <billcrowe1@bigpond.com.au>.

VICTORIA

AIRBORNE SHARK 156 adv, EC, red/white US, sail in great nick, flown mostly inland. Performs well. Ideal for 85kg+ hook-in weight pilot. Incl. spare DT, extra lightweight XC bags. First to see will buy, \$1,800 ono. Ph: John Reynoldson 03 95536445 (w).

COMBAT 137C adv, white top, red US, spare keel, 80 hrs. Moyes harness & parachute, Sjöström vario, lcom 40G radio, full-face helmet. Suit 60-65kg pilot wishing to upgrade to \$6,000 adv equipment, VGC, \$2,500 the lot. Ph: 03 95637363.

AIRBORNE CLIMAX C2-14 adv, 150 hrs, slipstream A-frame, mylar sail, white/blue/white US, VGC, \$5,800 ono. Also, Aeros Xtreme harness, 4 yrs old, suits fat boy chest, 105cm x 175cm height x 85kg, incl. 20 gore Hi Energy chute with swivel, \$600 ono. Ph: Phil 0407 042634.

WANTED – XT 165 or similar for use with Nanotrike. Must be in excellent cond. & have a max pilot weight of at least 120kg. Will pay \$500-\$800 depending on age & cond. Ph: Mark 03 54261364.

WESTERN AUSTRALIA

AIRCOTEC ALIBI vario, \$190. Reserve parachute, large, \$210. lcom IC40 UHF radio with spare battery & headset, \$180. Ph: Ken 0402 249014; 08 94582021.

Paragliders & Equipment

ACT

SWING ARCUS DHV 1 1/2, 65-85kg, blue/white with red swing, 18 hrs incl. handling, always achieves good height but stable & ideal for beginner, \$2,000. Ph: Jocelyn 0417 838958; <joc_harvey@hotmail.com>.

NEW SOUTH WALES

SIGMA 5 DHV 1-2, size 28, approx. 80 hrs, \$3,100. Ph: Darren 0418 211886.

QUEENSLAND

DISCOVERY PARAMOTOR TOP 80, \$3,900. Lowrider trike base & int wing, \$5,900. Both in GC. Ph: Bob 07 49466305.

EDEL ATLAS DHV-1 medium, blue/yellow, perfect first glider, only 32 hrs, all by me. Supplied with carry bag & manual, \$1,500. Ph: Geoffrey 0408 420808 (Sunshine Beach).

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The range includes a Standard Class glider the LAK19 , and a Racing Class glider the LAK17A. Both models available in 18-metre and turbo versions. The LAK 17A performed very well at the recent World Championships in Leszno.

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I have a LAK 17A Turbo due into the country early 2004, and this aircraft will be available for inspection.

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