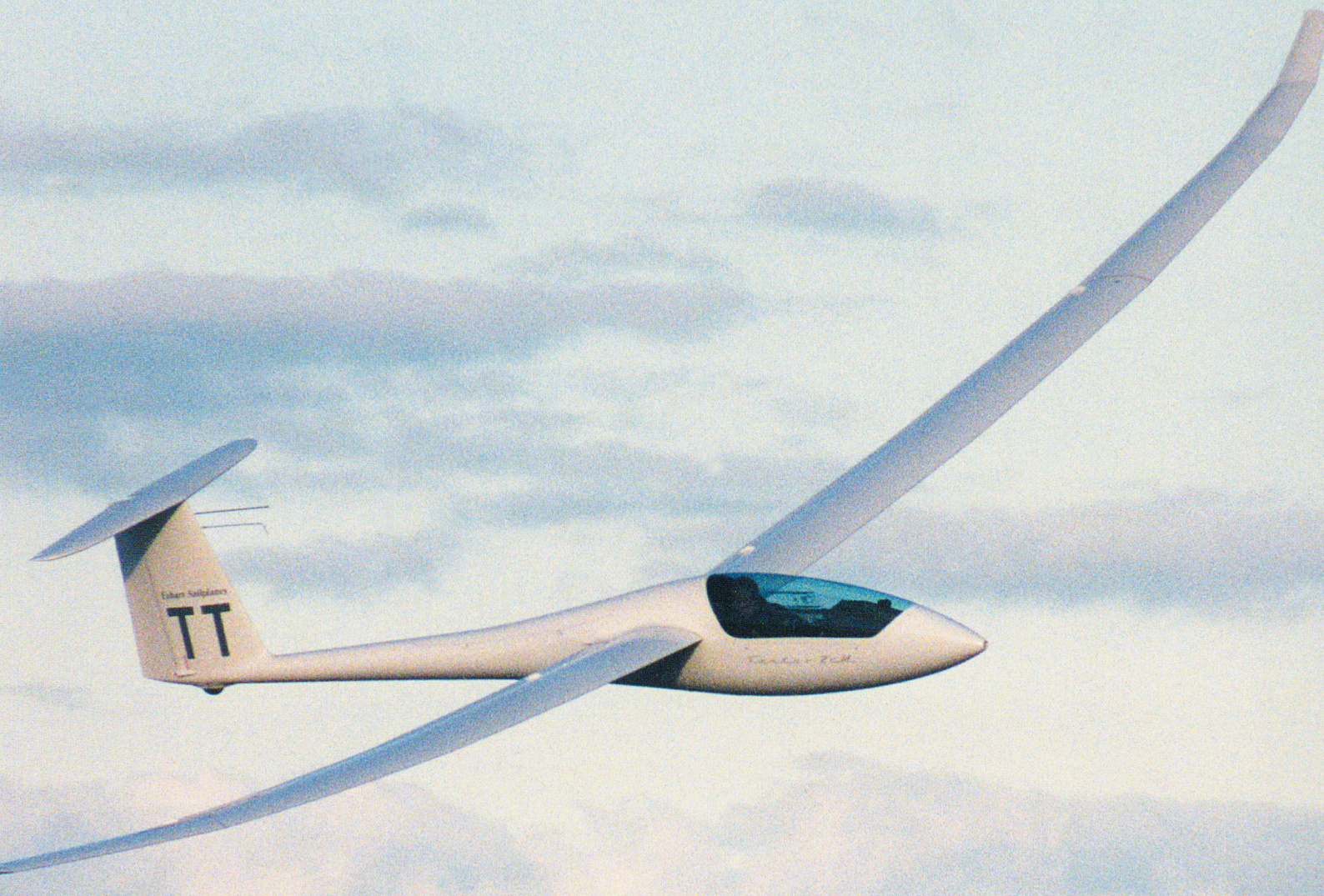
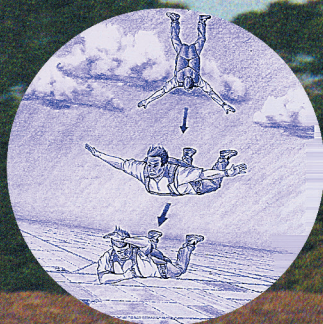




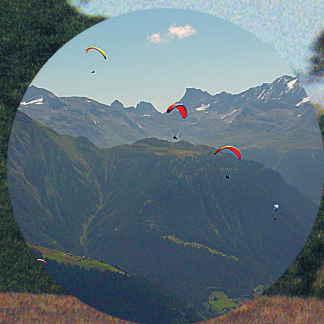
Soaring AUSTRALIA



January 2003



**If the Unthinkable
Should Happen**



**A Recreational Pilot
in Switzerland**



**The Agony and Ecstasy
of Learning to Fly**

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Luke launches at Blauherd, Zermatt
Photo: Bill Brooks



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A RECREATIONAL PILOT IN SWITZERLAND

Bill Brooks

I WAS TAUGHT TO FLY PARAGLIDERS IN 1994 BY BRIAN WEBB. I HAD A FEW HUNDRED HOURS IN SAILPLANES AND A PART SHARE IN ONE, AN ASTIR CS, BUT I FOUND THE SENSATION OF BEING UP IN THE AIR AND OUT IN THE OPEN SO ASTONISHINGLY LIKE EVERYONE'S DREAM OF FLIGHT THAT I BECAME A PARAGLIDING ADDICT AND REMAIN ONE. I WOULD LOVE TO CONCENTRATE ON BECOMING AN EXPERT AT IT, BUT AM FRUSTRATED BY A FULL TIME JOB, CONSTANT STRONG WINDS IN MY HOME STATE, TASMANIA, AND MY FEAR OF HEIGHTS. NONETHELESS, I PERSIST, AND HAVE IN THE LAST FEW YEARS, FLOWN MY PARAGLIDER IN QUITE A WIDE RANGE OF PLACES AROUND THE WORLD. FLYING IN SWITZERLAND THIS YEAR WAS TO SURPASS THEM ALL.

Montagnier, below Verbier
Photo: Bill Brooks

My son Luke, his girlfriend Samantha and myself arrived in Lausanne on 1 August 2002, to call upon a friend we had met four years ago in Piedrahita, Spain. He had said to us then that if we ever wanted to fly in Switzerland, we were to call on him, so we did. We had already decided that if he asked us to stay with him, we would, limiting our visit to perhaps a week so as not to take advantage of his hospitality. We finished up spending five weeks at his house.

Franz Neumaier is an experienced and accomplished paraglider pilot, a modest, humourous man and a wonderful host. German by birth, he has lived in Lausanne for many years and brought up his family to enjoy the mountains as he does himself. Climbing, skiing and paragliding, he has made himself so familiar with them that he can weather forecast with astonishing accuracy. Now retired, but like so many of his fellow countrymen, still very fit, he set about giving us the holiday of our lives and succeeded.

Franz started us off by a gentle introduction to Swiss flying. We went to a pleasant ridge to the north-east, out of the mountains, and flew from Mauborchet, not unlike Mt Borah, down onto the plains below. Having established to himself that we were capable, he took us to Sonchaux, the launch above Villeneuve. Here, as a recreational pilot, I learnt my first Alps lesson – be prepared to forward launch. This probably sounds a bit pathetic but, be honest, how many pilots in Australia do you see waiting on launch for enough breeze not to have to do it? I finished up making quite a few launches from Sonchaux and during none of them was there any breeze coming up the hill. Sometimes from the left, sometimes the



Launch into cloud from Champoussin
Photo: Bill Brooks

right and once, when I had a sore knee from falling into Franz's swimming pool the night before, softly over the back. You have to reef into it and make the glider fly. You are very much helped by the gradient however. Most of these launches are reasonably (occasionally terrifyingly) steep and acceleration is easy. I don't know why I ever worried about it now.

We went deeper into the mountains, travelling south-west from Lausanne. At Champoussin we were above Val D'Illiez and directly in front of Le Dent De Midi. At 10,800ft it was snow capped and we were looking at towering cliffs shredded by steep couloirs. Launch was directly into fragmented cloud and we had to pick our way down. It wasn't really difficult though, just a little overwhelming. The scale of everything is so vast, the slopes around you rise forever, green and rich, then grey and craggy, then pristine white and remote. And always the delicious long glide down into the deep valley with its neat villages and tiny farms.

The landing paddock at Val D'Illiez was bad for me. Powerlines, houses, trees and a downward slope. Students were managing quite nicely, but really I missed a nice five hundred acre paddock anywhere near Manilla. I was smugly pleased to get in okay, even if I was the only person who admired me for achieving it.

Next we moved to Verbier, an upmarket ski resort situated under Le Grande and Le Petite Combin (12,300ft). All this time, we had been living with Franz and his wife Esther. Each day, we had been taken by him to the various launches, each evening given dinner by Esther and never once consumed less than three bottles of his excellent wine between the five of us. "We must contribute,"

Luke checks out Sonchaux, Villeneuve
Photo: Bill Brooks

I said in my terrible French. "Why?" asked Franz. "It is an Australian custom, we are not bludgers" (I knew that word, at least, would stuff him). "You are not in Australia," he replied calmly, "You are my guests here in Switzerland."

Whilst flying in Verbier, we stayed at Franz's mountain chalet. He keeps this now largely for his grandchildren, who are also benefiting from his mountain knowledge. Apart from his more vigorous exploits, he has a vast knowledge of the many delicious mushrooms to be found by those patient enough to search.

In Verbier, I learnt my second Alps lesson. Check your lines with the utmost care before launching. It will not do to lay the glider out, flip the risers up and down a couple of times, then commit to a forward launch. I know, because this is what I did. Once airborne, the glider pulled very heavily to the right. Already, I was some hundreds of feet above the ground. Steadying it up in direction, with fairly extreme left brake, left it tottering along marginally under stall. No amount of jerky pulling freed the tangle, so I was left with a glider struggling through the air instead of flying through it. Every time I allowed it to turn right, it started to dive. Every time I tried to turn left, I was scared of stopping it from being able to fly altogether. I had launched from Les Ruinettes and had to fly down to a small, downwind landing near Verbier, difficult (for me) in the best of times. Fortune smiled again and now I check every last cascade before forward launching.

At Les Ruinettes, I learnt my third lesson too. Check your ground before running. I made a lovely inflation and took off across ground in sad imitation of my surfer son's elegance. Sad because I stepped deeply into a hole in the ground and sat down abruptly, the glider cascading groundward, my genuine bemusement giving rich entertainment to the watching spectators.



Franz checks out Les Mossettes
Photo: Samantha Stirling



After Verbier, we moved on to Fiesch, where we stayed in a hotel, together with some of Franz's flying friends. Fiesch was to be the first strong thermalling we experienced. Launch from Calvera was very busy, with scores of pilots laying out. Conditions were perfect, and gliders were everywhere in the sky like thistledown. I have heard that European launching can be argumentative and tense, as pilots queue up to launch, but this was not the case here. Despite the great numbers, all was amiability, maybe because of the huge launch area. Both Luke and I quickly got climbs, working back behind launch up the local mountain, Eggishorn (10,000ft). As one rose above Eggishorn, the most stupendous view was exposed. To me, this justified all fear, indignity, expense and loss of social credibility ('You must be bloody mad!') that I have endured in pursuit of gliding. The vast Aletschgletscher, stretching over 20km up to the Jungfrau Massif lay before me. The air was cold and crisp, the Eggishorn cap cloud approaching and my glider performing faultlessly. Joyfully at cloudbase, I set off across Fiesch towards Bellwald. In the distance, the dominant mountain Finsterahorn (14,100ft) could be seen behind Fieschergletscher. Luke did



Above Val D'Illiez

Photo: Bill Brooks

even better, getting up to nearly 12,000ft and flying to Grimsel Pass and back (50km). Heavy stuff, dude.

At Fiesch, I learnt my fourth alpine lesson – check the weather with a local pilot

before flying. We all know this, don't we, so why didn't I? I was back here on my own, I had been here before, the sky looked okay for an afternoon flight, so I went up and launched. There wasn't another pilot in the



Massive storm cell building over Monta Rosa
Photo: Bill Brooks



Morning glide from La Tournelle, Verbier
Photo: Samantha Stirling

air, it was 3pm and there was ragged cumulus at around 11,000ft, with a nice up-valley breeze on launch. I quickly collected a powerful thermal in front of Kuhboden and started looking forward to a great evening session. The thermal seemed rough. The higher I went, the rougher it got. Klaxon horns started to sound at a deep level in my brain but I ignored them because I have to balance inherent fear (timidity) against genuine perception of trouble whenever I am flying. Soon I found myself at 10,000ft but

Below: Busy launch at Calvera, Fiesch
Photo: Luke Brooks



View from Les Ruinettes, Verbier
Photo: Bill Brooks

going fast the wrong way – I was headed down valley. It was obvious to me that I had crossed some airmass interface and that the sooner I got down, the better I would be. Flying against the prevailing wind, I soon lost height, and barely scraped my way back over Kuhboden into the valley over Fiesch. Here, I was still over 3,000ft above the landing paddock when all hell broke loose. For 10 seconds, the vario hit three octaves above middle C as it strove to scream out what it was going through. This violent climb was followed by a total collapse of the paraglider,

a thrilling sense of weightlessness and a violent bang as part of the glider re-inflated. I was spun round in a gut wrenching turn. I saw the glider below me, then to one side, then above, then again below me. I squawked in terror and all my mortal dread of being up high and unsupported returned. I was a helpless middle-aged man who should never have done this. It takes a long time to tumble in semi flight from three thousand feet. Even the most frightened of us has the time to appraise ourselves of the situation. Gradually, I stopped squarking and watched the wing and ceased looking at the distant ground. A DHV 1-2 glider, it was constantly re-inflating, despite what it was flying through. If a bit of it was inflated, I

found that I could help it by ever so gently teasing the brake on the inflated side. If most of it was inflated, I could damp down its forward surge, but again it had to be very gentle. If it was in a sort of diving spin, you can use the energy in that to round it into even flight without pulling it into a stall provided you don't overdo it. Truth was, however, I was nothing more than a pair of underpants in a washing machine. As I eventually neared the ground, my fear returned full force. I could see the trees shaking as I

Below: Looking up Fieschergletscher to Finsteraarhorn
Photo: Bill Brooks





The Aletschgletscher from above Eggishorn
Photo: Bill Brooks

Right: Approaching 12,000ft over Grimsel Pass
Photo: Luke Brooks

approached the landing paddock. I set up from up valley, the normal approach, but found myself hurtling down valley with a following wind. At low altitude, I pulled a severe 180 and unbelievably found myself sinking to ground in a landing similar to a strong seabreeze day at home. Unharmed on the ground, shaking with reaction, I watched as the wind switched again and blew the glider towards me, rolling it over and over to tangle itself up at my feet. A handsome young man from the local flying school approached me as I started to pack up. He was not a man who wasted words.

"Did you have a rough flight?" His clear blue eyes evinced extreme interest, he must have watched my entire ridiculous descent. *"Yes."* – *"You should not be flying today."*



Looking down on Zermatt

Photo: Bill Brooks



Sam checks breeze, Luke sets up

Photo: Bill Brooks



"No." – *"There is strong wind from the north, it comes over the mountains and in the late afternoon it mixes with the thermic air – no one ever flies in it."* – *"Thank you – I think I shall remember."* – *"Good, may I offer you a beer."* – *"Yes, thank you, maybe two."*

Our next sight was Blauherd, Zermatt, in front of the Matterhorn, which must surely be the most photographed mountain in existence. It is still a huge thrill to see in reality though, absolutely dominating the area as it stands steep, sparkling and alone. The flying was not much good, so after a glide down over Zermatt we rode the cable car to the top of Klein Matterhorn (12,800ft) and played about in the snow, watching a massive storm building into the stratosphere over Monta Rosa.

The flying was good at Grindelwald the next day, however. A cable car that transferred itself from one hoist to another, round corners, took us up to First (pronounced Feersht). This was the most awesome launch of the whole trip. Directly over the deep valley below us towered the Wetterhorn, and to the right of that, the Eiger north face rose nearly sheer into the sky, topping out at 13,200ft. This cliff is three kilometres in vertical height above the village of Grindelwald. The scale of this scenery is simply staggering when viewed the first time. Over the very top of the Wetterhorn, the tiny dot of a paraglider was utterly dwarfed by its surrounds as a very clever pilot worked the lift from the snow and cliffs.

After a couple of tries, we all got up into good thermals over First. I must admit, I had not much interest in trying to go anywhere.

There didn't seem any point in doing so. At my usual 10,500ft, I was in the best place right there. The savage beauty of the place, the huge, huge vistas in every direction, the endless glittering peaks and glaciers, the distant donging of hundreds of cow bells all made this the paragliding experience of my life. I shall never forget it.

After a while, we all crossed over to the Eiger and flew along the north face. I was too low to maintain, but Luke and Franz did well, hanging in for over an hour working close in over a steep couloir.

And that's about it, really. We finished by watching all the three days fun at the Red Bull Vertigo competition. At the end, we were all seriously sad to leave Franz and Esther. For us, they set an all time record in hospitality – thank you both.



Below: Bill sets up as Luke climbs out
Photo: Samantha Stirling



Left: Paraglider at 13,000ft over the Wetterhorn
Photo: Bill Brooks



Left: Eiger north face from
10,500ft over Grindelwald
Photo: Bill Brooks

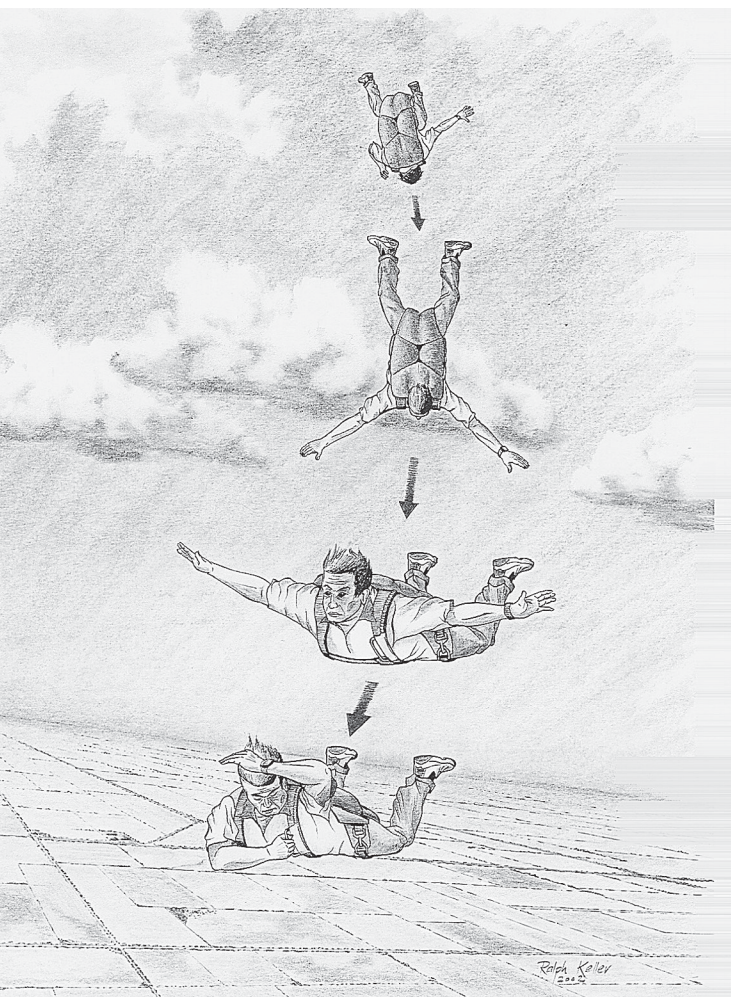
View from the Eiger north
face looking east
Photo: Luke Brooks



If the Unthinkable Should Happen

Ralph Keller

I AM TALKING ABOUT BAILING OUT OF A DAMAGED, OUT-OF-CONTROL GLIDER AND USING A PARACHUTE AS A LIFE SAVER – OBVIOUSLY ONE OF THE MOST STRESSFUL EMERGENCY SITUATIONS A PILOT COULD EXPERIENCE, WHICH WOULD FIRST REQUIRE GETTING OUT OF THE GLIDER AND THEN DEPLOYING THE PARACHUTE – BOTH TO BE ACHIEVED UNDER EXTREME TIME PRESSURE.



Sketch by Ralph Keller

Several texts have been written around the difficulties of getting out of a glider in the air. The subject is outside my area of experience and, therefore, outside the scope of this article. Besides, I would assume that each such emergency scenario would differ widely from the next, making it virtually impossible to give much meaningful general advice.

Fortunately, this is not so when it comes to the second part of the operation – that of deploying the parachute. Here the same basic drill is used every time and, once learned, this can be executed quickly.

In this article I would like to focus on this second part. The exit from the glider may cause problems and consume a substantial portion of the available time, however once this difficult step is achieved I feel it would be a great pity to jeopardise survival chances further due to ignorance of the rather more simple procedure of deploying the chute correctly.

I am no seasoned skydiver. I merely took part in one of the many weekend parachuting courses available at a number of skydiving centres. However, at a good training school with experienced instructors, these two days can teach a great deal about parachuting. They certainly left me feeling confident that I could face a real emergency situation with a good chance of staying alive

– without doubt a very much better chance than before I took the course.

The training also opened my eyes to two fundamental points:

Firstly, jumping from a plane, deploying the parachute and floating to earth under it is not at all the frightening, dangerous undertaking it is often assumed to be amongst those who have never done it. Modern chutes are highly developed reliable devices, which makes the use of them a safe straightforward procedure.

On the other hand, and this is the second point that came over very forcefully, parachuting is only safe if you know what you are doing. Like any other high-speed action it is very unforgiving of mistakes and if something goes wrong at an important stage, disaster can strike fast.

I have been made aware that a small number of gliding clubs have held seminars given by skydiving instructors for the benefit of their members, but these seminars were all centred around theoretical aspects of parachuting only. To my knowledge no practical instruction, affording the experience of real jumps, takes place anywhere in Australia during a glider pilot's schooling period. Nor is any required by law.

Personally, I received gliding tuition at three centres – one in England and two in Australia – but the subject was never touched

at any of them. Furthermore, if my own experience is typical, the topic rarely ever seems to come up in the otherwise far-ranging discussions amongst pilots.

Why this apparent disregard for an aspect of our sport which can be so important if it ever comes to dealing with a mid-air emergency?

My assumption is that the main reason may well be the belief: *"this simply cannot happen to me – if I fly sensibly, stay within the aircraft's performance limits and keep alert to avoid collisions, I will never need to use a parachute."* A view difficult to argue with,

I realise, if one considers how few glider accidents happen which require a pilot to bail out.

I, for one, shared this belief completely until one day it was tested and shaken.

It was one of those great summer gliding days with lift everywhere, when earthbound problems were left behind and flying a sailplane was sheer joy. I was 4,000ft high at the time, soaring alone somewhere over the vast expanse of the Riverina. That's when I spotted the eagle flatten out of a dive and streak towards me in a straight, fast, head-on attack. I had invaded the bird's hunting territory and was being challenged. A moment later, blurred by speed, the large dark shape shot past the canopy and over the wing, so close to the fuselage that I could only brace myself and wait for the impact on the tailplane.

Nothing happened – and when I yanked the aircraft round hard to avoid another pass, the bird was already far away, dwindling fast.

Had the eagle struck, I am convinced that the encounter would have had a very different ending. An adult wedge-tailed eagle weighs four kilograms and we closed at a combined speed of approximately 90kt. According to my calculations the bird's body would have exerted an impact force of nearly 400kg. I cannot imagine that the horizontal tailplane, the most likely part to be hit in this particular case, could have withstood such a severe blow.

If it had been torn off I would suddenly have found myself sitting in an aircraft without any elevator control, which would have nosed over into an uncontrollable dive towards the ground. From 4,000ft the earth would have met us in less than 15 seconds.

My point is that this was a case where nothing could have prevented an accident, had I been unlucky. I was scanning the sky ahead and around me in the usual way one always does when flying an aircraft, but by the time the eagle entered my field of vision it was already too late for any effective avoiding action – and a couple of moments later the whole incident was over.

I continued my flight in a more sober mood, thinking about what could easily have happened and contemplating the disturbing fact that I would have been quite powerless to prevent it. However, it did not shake my conviction that, in the event of structural failure, my parachute training would have allowed me to survive. Without doubt, I would have been as stressed as anybody else and would have had the same problems getting out of the glider. Once clear, though, I feel confident that I would have known how to make immediate and correct use of the parachute on my back.

This was my personal experience, but I am sure that there would be a number of similar scenarios where luck, rather than pilot skill, would determine whether or not an accident would occur.

If, based on the above, I could pass on some advice at this point it would be to seriously consider taking a course at a skydiving school and spend a weekend learning the basics of parachuting – there is nothing to beat expert instruction and practical training, followed by experiencing the real thing.

Skydiving centres now offer a range of options from which to choose:

The traditional training prepares you for jumping out of the aircraft, descending and landing on your own, but at first these will be static line jumps only (a line attached to the aircraft will open your chute). Later, after

about half a dozen such drops, you progress to opening the chute on your own. This is the training I completed and I can recommend it as providing a very thorough grounding in all the various basic aspects of parachuting.

You can also experience your first jump in tandem, harnessed to an instructor. This method is tailored mainly to the person who is after a thrilling once only experience as a “passenger” and, in my opinion, is not the best choice for our purpose.

Finally, you can choose what is called the Accelerated Free Fall where you jump from the aircraft and fall for several thousand feet, with two experienced skydivers holding onto you. At the height where the canopy is deployed, you pull the ripcord yourself and from then on you descend and land on your own. This is a relatively new alternative option and, I think, an excellent one. The student is required to control his attitude in the air during a prolonged free fall and then to activate the chute, descend and land on his own – much as it would need to be done for a rescue jump – but with the safety net of two experienced people in attendance.

Which ever you might select I can promise you a memorable weekend of fun, excitement and lots of interesting new experiences. And, most importantly, you will take away a kind of insurance policy which, whilst probably never needed, will always be there just in case.

However, if you are not convinced that this is for you, let me at least take you through the theory of a typical parachute jump and discuss the important points involved.

We should really start with some equipment checks on the ground – just as we always DI a glider before the day's first flight.

All parachutes have to be serviced and repacked every six months by regulation. A packing card tucked into a pocket on the harness will show the next service date. This will indicate whether a chute is current and, in fact, serviceable.

Inspect the overall appearance of the pack for signs of excessive wear, wet or mouldy patches, frayed harness straps, or rusty metal parts.

Less obvious, but important, is the retaining pin which holds the pilot chute in place (somebody experienced with parachutes will show you its location). This pin must be pushed well through its eye otherwise it might be knocked or shaken free. This would allow the chute to spill out inside the aircraft and, of course, render it useless during that flight.

The ripcord grip should be firmly tucked into its pocket and remain there. If allowed to dangle loose, it might snag on some pro-

trusion during a hurried exit from the cockpit and deploy the parachute whilst you are still trying to get out of the glider. If that happens – and if you are incredibly lucky – the chute might just drag you free of the aircraft. Much more likely, though, lines and canopy fabric will wrap themselves around the wings or tail and you will go down with the glider.

Practise several times reaching the grip with your hand and look at it every time – you must see your fingers close around it. Practise also the correct sequence of:

LOOK – GRIP – PULL (just don't actually pull, unless you wish to stand knee-deep in parachute fabric). By the way, using your eyes is a most important point to remember for any action you have to achieve in a hurry – whether it is operating the canopy jettison lever, undoing the cockpit harness, or pulling the ripcord. Don't fumble blindly because you are stressed, LOOK AT WHAT YOU ARE SUPPOSED TO DO and the do it positively – it will save time and possibly your life.

Lastly, most of us fly with the parachute harness much too loose – how else could we survive five or more hours in the cockpit in reasonable comfort? You will not fall out of a loose harness, but be aware that any slack strap can again snag on some cockpit lever and delay your exit from the glider at a crucial moment. Obviously, an acceptable balance between comfort and safety is required.

Now, if a cruel fate demands it, we are ready to parachute. For explanatory purposes a parachuting sequence can be divided into four distinct phases:

- 1) *The Exit from the aircraft.*
- 2) *The Opening of the parachute.*
- 3) *The Descent under an open canopy.*
- 4) *The Landing.*

I would like to deal with the less demanding, “harmless” phases 3) and 4) first.

The Descent Assume for the moment that you have cleared the aircraft, have pulled the ripcord and are now hanging under a fully deployed canopy which floats gently down through the air. Your life has just been saved and everything is looking a lot brighter than it did a few moments ago. This is the time to hang quietly for a while, try to control your breathing and heart rate, relax and assess the situation around you.

The parachute blotting out the sky above you will most likely be a round rescue chute (similar to those seen in films about World War II airborne operations). Basically, without wind, it descends vertically through the air, although some makes have steering vents at the back of the canopy which give the chute a slow forward drift of about five knots. The round type is preferred as emer-

gency parachute because it is simpler in design and less skill is needed to use it – there is a limited amount you can do apart from hanging under it. This makes it more suitable for the inexperienced jumper.

Your task during this descent phase is to guide the chute towards a suitable landing surface. Steering capabilities with a round canopy are minimal but it is still possible to influence its direction of travel. You can achieve this by pulling the rigging lines down on the side towards which you wish to drift. If the chute has steering vents, it will have two dedicated steering lines – their toggles are fixed to the main riser straps above your head. Tear them off at the attachment points, take one in each hand and you are ready to direct the canopy. Pull the left toggle down and the chute will rotate to the left till you stop pulling – very simple.

When a landing paddock has been selected, your aim is to approach into the wind towards a clear area of grass, whilst avoiding any of the usual problem obstacles – powerlines, fences, trees, animals, buildings or water.

The Landing Under a Round Canopy

The touch-down is always in the military style Parachute Landing Fall (PLF) – not for us the nice soft landings which you see skydivers perform where they lightly connect with the ground, run a few steps, and don't even fall over.

I'm afraid our round chutes come down rather faster, in fact – depending on the canopy size and your weight – at up to six metres per second. This is a bit like jumping off a three-metre diving board but not into water, so you must be prepared for the moment when you hit the deck. Therefore, as you arrive near the ground – at about twice tree top height – you stretch your arms high, grip the rigging lines on each side and pull them down together till your arms are in front of your head and chest. This action will cover your face, your ribs and the vital organs like heart and lungs. At the same time you press legs and feet together hard and bend your knees slightly – this is the approved PLF position. On touch-down your bent knees will absorb the first shock, your face and upper body are protected by your arms and you then allow yourself to roll over in whichever direction the collapsing canopy pulls you.

You are down! You're safe and most probably undamaged.

If you do sustain some injury at this stage, it is likely to be minor only – a bruised backside, a sprained ankle, at worst a broken leg. Considering that you have just survived

a life-threatening emergency situation, personally I would find this an acceptable price to pay.

It is very different, however, when it comes to the Exit from the Aircraft and the Opening of the Parachute. I am discussing these last because they are the two most crucial phases in the whole sequence. Here you set yourself up for either a clean, safe descent or for some nasty and potentially very dangerous problems.

To put it another way: whilst you will not die until you hit the ground, it is at this point – high up in the sky – where a bad mistake may well kill you.

As an example, consider the view I have heard expressed several times on the rare occasions when there was any discussion about bailing out: *"simply invert the glider, fall out backwards and pull the ripcord."* Let me try to explain why this is a recipe for disaster.

The Exit from the Aircraft

Once control of the aircraft is lost, the immediate next step is to achieve separation from it in any way you can and as quickly as possible. Remember that altitude is your most precious commodity here, but a diving glider will eat it up at an incredible rate of roughly 1,000ft every three seconds. Therefore, don't waste even one of these vital seconds trying to invert the aircraft – or attempt to do anything else with it – you will very quickly run out of time. **JUST GET OUT!**

The Opening of the Parachute

Let's assume you have somehow fallen out of the glider backwards. You will not stay in this position for more than a moment. Your arms and legs will all be flailing in different directions, this will create an asymmetrical body shape and you will immediately start tumbling or spinning in the air. Hurting downwards in such an uncontrolled motion – at a fair clip of some 200km/h – it would be doubtful whether you could even find the ripcord grip with your hand. Even if this is achieved, though, pulling the ripcord whilst spinning or tumbling would very likely lead to serious entanglement in the lines when the chute deploys. Tangled lines cause canopy malfunctions, a malfunctioning parachute is of very limited use at best, and you would have a slim chance only of escaping with your life.

Such an action would be a desperation move only – say, if you have cleared the glider at less than 1,000ft above the deck and see the earth beginning to rush up at you. Obviously, in a critical position like that, you would simply pull the ripcord

regardless and hope like hell for luck to be on your side.

Please be aware, however, of the grave risk this involves. Remember also that we have only one parachute (unlike skydivers who always carry a reserve). If we do anything to cause a serious malfunction of this one chute we have no further options – and if it was quite unnecessary that would be a great pity!

How, then, do we jump safely? If there is some height to spare – 1,500 to 2,000ft above ground or more – the approved way centres around the quick attainment of the all-important **STABLE POSITION** in the air before the canopy is deployed.

Once you are falling free of the aircraft in whatever attitude this may be – head first, backwards, curled into a ball, tumbling or spinning – the next immediate action is always the same. **SPREAD BOTH ARMS AND LEGS WIDE, PUSH YOUR HEAD BACK AND ARCH YOUR SPINE.** Very quickly – within a second or two – your body will re-orientate itself into a position where it will stop any erratic motion and you will find yourself falling in a horizontal attitude with your front towards the ground and the parachute pack pointing upwards (see illustration). You have achieved the skydiver's stable free-fall position!

Now open the chute at once, but remember two further important points (which sound long-winded on paper, but can be done together and really take only a moment to perform):

Firstly, as your right hand moves towards the ripcord handle, you must retain the symmetry of your body in the air. The skydiver does this by simultaneously bringing his left arm across his face (see illustration).

Secondly, **LOOK AT WHAT YOU ARE DOING NEXT:** Grip the ripcord handle and check visually that your hand closes around it **ONLY** (fatal accidents have occurred because parachutists blindly gripped the whole harness strap and pulled at it frantically all the way into the ground).

If you now pull the ripcord, fling both arms wide again, with the handle clutched in your right hand. In this way you will have activated the parachute, whilst having retained your stable position throughout the whole manoeuvre.

The ripcord pulls out the retaining pin (the one we inspected during the equipment check), which allows the little pilot chute to spring from the pack. In turn, this will drag out the main parachute, which now has the best chance of deploying cleanly upwards away from you, without danger of lines getting entangled in your limbs. A moment

later comes the welcome, arresting shock of the canopy snapping open above you, and you will find yourself in the descent phase 3) as described earlier.

Enjoy the great view from a unique and spectacular vantage point!

The whole sequence – from having cleared the glider to hanging under an open parachute – should have taken up no more than five or six seconds. This is the correct and safe way, but the fact that it will use up the better part of 1,000ft of altitude should be a further strong inducement not to waste any time in getting out of the plane!

Looking down past your dangling feet you will see the ground waiting to welcome you. The glider might also be there already! All you have to do now is try to arrive somewhere on the many hectares of grass in the selected paddock rather than in the one single tree in the centre.

If, at this point, I hear you say: *"I bet it wouldn't be as easy as all that"* – I couldn't agree more. Of course it is not! What I am trying to get across with this article is the fact that whilst parachuting is not inherently difficult, there is nevertheless rather more to it than just knowing that the chute opens if you pull the ripcord. Furthermore, jumping out of a plane under expert supervision is fun and quite safe, but it requires little imagination to realise that facing a real emergency would be an entirely different matter. Such a situation generates fear and tremendous stress, seconds count, and one's ability to stay alive depends on correct action being taken unhesitatingly and without having to think first. Obviously, words in a magazine can in no way teach this. To give yourself a realistic chance to survive such a predicament, I can only repeat strongly the suggestion I made previously – get practical first hand instruction from a professional, accredited training organisation.

Glider pilots tend to regard parachutes as convenient seat cushions on which our backs and rear ends can recline in reasonable comfort on long flights. Happily for most of us this will remain the chute's only function during all the hours we spend in the sky. However, if the unthinkable should ever happen and we have to part company, in mid-air, with our beautiful aircraft, that seat cushion will suddenly become our only means of staying alive. Fortunately, if treated with respect and the required amount of knowledge, it can be relied on to do its vital job without danger of failing us in our moment of great need.

In conclusion I would like to express my thanks to Ian Matthews, my former instructor, for taking the time to answer my many


questions and for checking this text for accuracy in all points pertaining to skydiving.

With more than 6,500 jumps logged during a career spanning 28 years of both military and sports parachuting, Ian is a very highly experienced skydiver. He is the owner and chief instructor of 'The Parachute School' which operates every weekend from one of two locations in Victoria.

Why not drop in one weekend – or at a centre near your home – and watch the operation? You might feel inspired to take part, experience the fun first-hand and do yourself a great favour at the same time.

In fact, during our discussions in connection with the above article, Ian Matthews mentioned that he would be willing to organise special skydiving courses structured around the specific needs a glider pilot would have in a situation involving rescue by parachute.

If you are interested in possibly participating in such a course, talk to Ian direct, discuss any questions you might have and let him give you all the necessary information. He may also be able to help you with contacts to skydiving schools outside Victoria.

'The Parachute School' can be contacted on: Phone: 03 9432 2419, Mobile: 0413 863 929, Fax: 03 9434 6864. 

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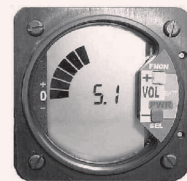
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FLIGHT TO BRONZEWING



Scott Barrett preparing his Climax 13 for flight with low cloud streets in the background

Scott Barrett

RAPTOR DESIGNS HAS OFFERED A LASER HELMET TO THE FIRST PILOT TO FLY OUT OF THE STATE FROM DYNAMIC FLIGHT'S FLIGHT PARK LOCATED AT TRAWALLA IN VICTORIA (50KM WEST OF BALLARAT). MY ATTEMPT WOULD TAKE ME NORTH-WEST OVER THE GREAT DIVIDING RANGE, FOLLOWING LOW CLOUD STREETS AND INTO THE BLUE, OVER THE NEVER ENDING FLATLANDS OF

NORTH-WEST VICTORIA... WOULD I MAKE IT ALL THE WAY TO NSW AND CLAIM THE HELMET PRIZE?

WELL, I'D NEVER ATTEMPTED A FLIGHT OF THIS MAGNITUDE BEFORE. I HONESTLY DIDN'T KNOW.

The early morning sky had me quietly excited. It was 26 October in Victorian spring weather, the cold front had come through the day before leaving a cold, unstable south-south-easter coming in off the ocean. From early in the morning there had been low scattered cumulus, so there was consistent early morning heating. It would get the thermal development off to a good start nice and early and with the good wind strength it would make for a very good distance day. I had done this preparation before; the previous weekend I made the same early morning trip to Dynamic Flight Park. That morning the cloud had overdeveloped early and shut out the sun for a couple of precious hours and put an end to the best laid plans, so that day I went and did some stay at home flying from a hill instead. So it remained that I had not tried to claim the Raptor Designs prize, or, for that matter, ever made an attempt at such a long distance flight before. This day was looking better though, as the sun stayed out and conditions remained promising – it would be a great cross-country day. Everything was falling together, and not that I need much encouragement to fly cross-country, but thankfully my wife is in need of a helmet, was very encouraging and agreed to do a retrieve for me.

I waited with my glider rigged, water packed, tow bridle set, spare weak link tied, gloves on, balaclava on, helmet in hand, waiting and eating as many bananas as we had. I eagerly awaited the tow rope to be re knotted and delivered to the staging area. The day looked to me to be soarable from much earlier; I was using up all my reserve time as I waited. I had previously planned to be away by 10:30am. It would now be 12:00pm before I launched. During the wait I looked over some maps to get a feel for some of the country I expected to cover. Carla, who is a very promising restricted licence pilot, came and asked if I minded her looking on while I planned, interested to know what was going through my mind.

I planned my flight by measuring from a Melways, using my two gloved finger widths to every 50km (it really was cold). It looked to be about 320 to 400+km, depending on where I would cross the border. I estimated the time it would take and the route I would take.

Given the time I would be able to launch by, it still looked worth a shot. My last observation of the isobaric chart was from the previous night and I had a guess as to the curvature of the isobars and likely route. The curves in the isobars would make the wind tend more easterly further north towards the NSW border by some unknown amount. I knew I would be making this one up as I went along. I marked the tow paddock on the GPS and told the GPS to “go to” the paddock where I was. I would use this to give position reports to my retrieve as distance and bearing from launch. It would be pointless to use it to navigate to any goal, because I did not know exactly where I would want to be going. But I needed some reference as I had never been over that country before and I had to give position reports somehow. I wonder if Carla was impressed with this imprecise method?

So, the plan in a nutshell was to go tailwind towards the north-north-west and move to the east (where the border is closer) whenever the opportunity presented itself. Early guestimations looked like either side of Robinvale (south-east of Mildura) would be a good target. It looked like there would still be enough time, as I watched and waited as potential distance evaporated with the time I spent on the ground. It was not going to be an endurance flight, but a race against the sun.

My tow launch from static line was uneventful, at least for me. Steve was doing it fairly hard in the tow car as he dealt with the wind gradient and turbulence. I smoothed it out a bit, as I shut up and let him do his thing. Well done, Steve; could not have done it without you.

I made my departure, taking slow climbs where it was strategic to do so. My first slow ride was off the tow, the very next ride was also slow, before attempting to cross over the shallow forested hill in front of Ben More (Ben More has a south-west launch on it). Cloudbase was at 3,300ft agl which did not leave much working height, but I had a good run after that through the mountains as I tried to stay high, planning a couple of moves ahead by watching the cloud shadows on the ground ahead. I was getting 200ft/min

averages until I was a couple of mountains away from crossing over the Great Dividing Range onto the flatlands.

The terrain in the last of the mountains got a bit tricky and the cloud streets were becoming more fickle; the next mountain was quite shallow with a wide girth of unlandable area. It was time to put myself into a strategically (and physically) safe position and take anything that was not going down. It was timely while I had line of sight over the hills to give my position report. It was a bit of an effort as I could only transmit on the radio and have it well received while in a certain quarter of my turn. Steve confirmed my message (distance and bearing and low).

Flying over the hill was not a nice option, with a large unlandable area around it. I skirted to the side so I had a glide crosswind to the edge if I needed it. I was still going to cross some treed area, because going around entirely would have put me low in a place where the sink was streeting. All going well, I would use lift triggered off the tree line to get over it. I only had about two kilometres of forest on my track but I was low and there would be thermal shadow behind the trees and onto the cleared area behind it as well.

I waited in zeros and "surges" of 200's at the leading edge of the forest and drifted with it patiently, knowing that if it held together it would feed off better ground as it moved beyond the forest. This stage slowed me down a bit but I was still in the game and eventually the lift came good as I expected.

Looking ahead the cloudbase was lifting and the ground dropped away a bit. There were only two more clouds ahead on the last mountain before the flats – it would be blue all the way after that. The next glide to those clouds was long (given the working height I had) and fast. The mountains set the spacing of the lift, and the sink there was very strong, as I had to go lee side as well.

When the sink gets strong my Climax 13 gets me out very efficiently at speeds I would never have dreamed of. It climbs exceptionally well, too. When I am with others it consistently gets me to the top of the stack. With the new C2 batten profile I am pleased that both the handling and performance have improved. It gives me a lot of confidence and I feel that I just can't go down with such a machine. With the tailwind, I guessed my groundspeed to be 110km/h as I straight lined for the next peak, which had just started to generate the whisps of a new cloud. I blasted on into some moderate lift, then slowed a little, waiting for the strong one that I could feel was lurking a little further on. I hooked a good climb of 600ft/min; "That will do, thank you," I thought as I let the VB full off and cranked it up. That was the best climb of the day. That last glide was going to kill my overall speed as I had been driven low by the sink. So I had a long climb this time, but thankfully not from too low down. I was glad it was a 600 up so I would not spend too long climbing, and glad I had traded my glider up to the Climax.

On this climb I looked down my track; I was drifting over the last hill on the Great Divide. The sky was now blue as I climbed under the last cu I would use this flight. The flatlands disappeared into the blue haze a very, very long way away. The drought has left its mark on the flats; it is brown and dry, and of course, flat. Direct tailwind,

if it had its way, would take me more towards Mildura as the isobars curved westward. The border was still a couple of hundred kilometres away. My goal was made a bit closer as I was still moving to the north-east when I could, or as I was forced to as I ran off the end of the streets.

I was a long way from my crew. As I drifted away from the mountains I called in on the radio; although I could not hear anyone I told them where I was anyway, just in case. Monica, my wife, was going to drive for me, but was not going to leave until she had finished her commitment to serving the BBQ lunch in the tow paddock. I would have a bit of a wait ahead of me. With me, I had \$6 of coins, two litres of water remaining and a mobile phone. As I unconsciously cored the thermal, I thought that perhaps I could hitch a ride from wherever I ended up and buy a pie for a very late lunch? It was quite exciting; I was flying confidently and was sure that this was going to be an excellent adventure!

The next glide was going to be slow and conservative, as I had to escape the thermal shadow of the mountains into the blue. I promised myself to take anything that was not going down. However I did not get low enough to get worried and cranked up into a 400ft/min. There did not seem to be much of a dead band around the mountains; I could have raced a bit more into it if it had been marked by cloud. But if I was in the same position again I would make that decision (to be slow conservative for that bit) again and again. The ground had dropped away from my launch height and the top of the climbs raised a bit as well, now giving me about 5,200ft top to ground. The lift at lower heights was to be avoided as it was very torn and harder to work down low as it came up through the wind gradient.

While climbing I watched as dust devils marked the otherwise invisible lift working on neighbouring streets either side of me. I noted the spacing. This is quite important because my street would have to end and I would have to make a jump to the next one. Visualising the distance was good for reference.

I flew directly over large paddocks and over a vast area of dry salt lake as I straight lined it. It was nice and pleasant on glide between, but there was plenty of energy in the thermals and the wind. I had

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been in my own world for quite some time. As I climbed, I had my brain on auto climb mode and was surprised at a new sound over the wind. I was pleased that two eagles had gone out of their way to join me. However they seemed a bit anxious, their cries sounding like, "We don't see many of your type out here and we are going to tear up your sail". We were all more contented when they continued to hold the dominant position in the thermal and were then happy to thermal quietly with me as we shared visual clues to the position of the best lift.

Dry lakes look like dry lakes to me, roads like roads, and all of the paddocks look just like all of the other paddocks, but somehow I felt like I had been here before. Eventually I spotted the town of Birchip, host to the Flatter than the Flatlands competition, and that explained it. I had in fact been here before, competing last Easter.

I passed by a farm that I have had a really good look at before. I had a really time consuming low save there at Easter. This time I used a thermal that looked like it had triggered from the same place, I was pleased that I was higher on this visit and it was much easier to use.

It was getting towards the time when it was imperative to work the lift higher up as the day decayed. This day had always provided a shallow height band to work, making glides conservative, but now the time had come to put extra effort into staying high. Soon I would have to take any lift any time. Because of the wind, the day was going to switch off very quickly.

The last two thermals strongly hinted to the end of the day. There was a forest crossing coming up ahead and it required another easterly movement and another blue street crossing. I topped up, then crossed over until I found lesser sink, indicating that I had crossed the sink line, and then I ran downwind, taking all of the zeros that the lift line offered. Patience was important; there was limited time and ground to cover before I required the altitude for the crossing; I could not pass this lift up. As I drifted near the leading edge of the forest the lift had come good as I got a little higher, and as it then inevitably died to below zeros I moved on to cross the forest on glide. There would be thermal shadow over and well after the forest. It looked as though I would arrive too low to escape into better air, if there was any better air left to be found.

I followed a train line and road, gliding well over and clear of the trees. No longer looking for the next thermal, I extended my glide over the ground as I slowed down and allowed the wind to work for me to cover more ground. I unzipped, turned onto a short base leg in a huge open paddock, and put down beside the road with plenty of time for an easy landing.

On my GPS I marked my position with a waypoint. The "go to" Dynamic Flight on the GPS said 264km! Although I ended up 52km short of the border, that's a personal best distance for me. I had previously flown 100 miles to goal in a competition, but this new best blew that one away. This flight had taken four and a half hours. An earlier launch would have given me enough daylight to make it. Next time!

I packed up on the roadside. I thought that Monica would already have a start on the chase. I had a long social chat with a nice couple who were on the highway on their way home from a Murray River holiday. They were a little surprised and entertained by my story. They confirmed that I was on the Sunraysia Highway. I had landed 17km south of Ouyen at a place called Bronzewing. As I had poor mobile phone coverage I sent SMS (it works well with limited reception), giving distance and bearing to the take-off. That would at least get Monica within radio range. The reply SMS came back: *"OK stay there."*

The next motorists to stop on the road were Col and Kaleen; they were the parents of the landowner. We had a good talk and I

showed them my gear and let them play with my vario. How would I get back? they asked. They laughed at the thought of the distance my retrieve would cover and the time it would take. They said, *"Our daughter lives just up the road if you want somewhere to wait."* Thanking them I assured them that I would really appreciate that. Otherwise I would be out well after dark in the freezing cold south-east wind.

Col phoned on his mobile (CDMA works heaps better than my mobile) and requested my ride. Ten minutes later, Scott, the landowner, arrived. I thanked him for the use of his paddock, told him of my flight and gave him a look at my wing and harness as I finished packing up.

I met the family, Vanessa his wife and children Declan and Reece, both under four years old. Vanessa had delegated Scott to do my pick up, giving him a welcome break from bathroom renovations. I was treated to a casserole tea, which I was very appreciative of as I had missed lunch. I played with the kids and looked at baby photos. When the Channel Nine weather came up on the TV, I could not help but interrupt our conversation to see the day I flew in. The next day's forecast did not look too bad. Vanessa was a little surprised at my interest in the weather, and me saying how good it looked for tomorrow. I was asked if I was going to try again tomorrow. Yes, I did think about it briefly, but I might have been pushing things a bit with my retrieve to do that. Scott said that it has been so long since it rained that he has stopped expecting any and does not bother watching the weather. In drought they are doing it hard, with small yield from the crops. At least prices are up a bit this year.

Monica arrived and met the family. After her long drive she was treated to coffee before our departure. It was my job to drive back via Ouyen for fuel. Monica decided that seeing as we were not going to make it home that night she wanted to stay at the flight park and have a tandem flight the next day. We arrived back at the flight park at 1:30am and as the beds were full we took a couch for the night.

The next day was my turn to help out with tow lines, do hang checks and give pointers. I was also required to do retrieve driving for Monica's cross-country. Monica seems to have a bit of a competitive streak and was determined to get Rohan to take her further than Andy's flight of 8km from the day before. The thermals were wind blown and provided surging, broken lift. Monica was feeling a bit nauseous and was keen to force the landing at 9km out (and was keen to point out that it was enough to beat Andy). I brought them back to the paddock. A fair swap? Needless to say I was nominated for the drive home. Yes, the dedication of my retrieve is very good, I could not ask for more. That day Monica booked in for a hang gliding course with Dynamic Flight. Having seen all the fun of flying, enjoying a tandem, and seeing the professionalism of the instructors Rohan Holtkamp and Paul Rundell, we are both happy that I am losing a great driver.

As Monica remains in need of a helmet, I will have to be back again before her course to have another crack at winning the prize for her. Flying out of the state is more easily achieved in a post frontal south-westerly wind, flying via Bendigo to Echuca being the shortest route. Going to the north is a long way to do it, but that's not really the point anyway. To me it is about pushing my limits, practicing, learning and fun. So I will happily take the long way again.

That was my weekend. It was great. Thanks to Monica for my retrieve, Steve for the tow, Col and Kaleen for stopping to meet me when I landed, Scott and Vanessa for looking after me until I was retrieved, and thanks to Rohan for taking Monica on a tandem cross-country.



JUST CRUISING

A Potential Fuel Problem with Auxiliary Tank System

Michael Rose

HOPE THIS ARTICLE PREVENTS A POTENTIAL INCIDENT. RECENTLY I FITTED AN AUXILIARY FUEL TANK ON MY EDGE-X 503 MICROLIGHT UTILISING THE BREATHER LINE AND IT HAS EFFECTIVELY EXTENDED MY RANGE UP TO ONE HOUR WITHOUT NEED TO LAND AND REFUEL AND I HAD MADE A NUMBER OF FLIGHTS WITHOUT INCIDENT. THOSE WHO KNOW ME SHOULD BE AWARE THAT I CONSIDER SAFETY VERY HIGHLY AND DO NOT TAKE UNNECESSARY CHANCES (DON'T GET TO BE A SENIOR PILOT UNLESS YOU DO), SO I FOLLOWED INSTRUCTIONS OF HOW TO RIG THE SYSTEM AS PUBLISHED IN THE VARIOUS RECREATIONAL FLYING MAGAZINES OVER RECENT MONTHS.

INCIDENT

I filled up the main tank so you couldn't get any more fuel into it to reduce air space (normal practice for this type of system) and then filled the 20 litre auxiliary tank to the brim for the first time. Previously I had only put in 10 litres without a problem. I taxied out to the run up bay and successfully completed the 3,000rpm checks and then lined up for take off. Applying full power I commenced the take off run. So far, so good. Suddenly the power dropped back to about 4,000rpm. I thought my foot had slipped off the throttle so re-applied foot pressure, but with the same result. Aborting the take off with plenty of runway remaining I taxied back to the runway threshold applying full power a number of times with the same result.

Taxiing back to the hangar I shut down and pondered the problem. I assumed that the problem was fuel related so checked all filters, hoses, etc. Everything checked out okay. I considered a kinked breather tube fuel line but this was fine. I reasoned that the only change to the system from previous flights was that I had filled the auxiliary tank to the brim. However, the breather from this tank was still open so air entry to replace the fuel should still occur – or did it?

I removed five litres from the auxiliary tank and then started the engine and proceeded to the run up bay and ran the engine at full throttle – it worked okay. I then conducted some full throttle runs and everything worked properly. I concluded that the full auxiliary tank somehow was preventing sufficient air entering the tank, reducing fuel delivery to the engine.

I took the aircraft for a flight (staying close to the airstrip) and everything worked fine.

I concluded that an internal airspace within the auxiliary tank or a breather tube at least the same diameter as the fuel lines is necessary. I had been relying on the gap between the auxiliary fuel line and the hole in the tank cap to allow replacement air to enter the auxiliary tank and this appears inadequate.

It is essential that such an auxiliary fuel system permits replacement of the consumed fuel with air, otherwise the engine could simply stop due to fuel starvation. In my situation I simply could not get enough power for take off on a very big runway (08 Benalla) due to the air entry not being equivalent to fuel removed – it could have been different on a short strip with obstructions at the end.

CAREFULLY ENGINEERED SOLUTION

I contacted some LAMES (heavy aircraft types) where I work, and they helped me obtain a brass fitting suitable to make a leak proof connection for one of the two caps on the auxiliary fuel tank. I then connected a transparent fuel line to this connection and routed it under the main tank as a new 'breather' line. This new line provides a replacement for the original 'breather' line and is routed carefully and secured to prevent this vent from being squashed by anything.

The auxiliary system now consists of:

- *The original breather line connected through a leak proofed auxiliary tank*

front fuel tank cap. This now becomes the fuel line to connect the main tank to the auxiliary tank.

- *Brass weights connected to the end of the original breather line to hold it down to the bottom of the auxiliary tank (refer previous articles in magazine for details).*
- *A new 'breather' line connected to the rear auxiliary fuel tank cap via the new leak proof connection to this lower tank cap. Don't want a fuel trail, do we?*
- *All lines now routed to prevent squashing.*
- *The original yellow tank caps are retained as extra securing for the lines.*
- *The lines are routed to prevent fuel spilling out should the aircraft ever become inverted (hope not).*

After fitting the new system I filled the main tank to maximum capacity and then filled the auxiliary tank with 20 litres. Next I proceeded to the run up bay and ran the engine at full power – it worked fine with no power loss. I then conducted some fast taxi runs on the runway and everything still operated as hoped. I even ran the engine for some 15 minutes to be sure that the auxiliary fuel was being sucked through to the main tank and to ensure no delayed reactions.

The ensuing one and a half-hour test flight showed that the new system works perfectly. I now have at least 100 minutes extra fuel capacity when I need it, and still room for additional fuel in the other pannier for those longer trips and ground refuelling.





Your Most Important Soaring Instrument

David M Wilson

YOUR MOST IMPORTANT SOARING INSTRUMENT IN THE COCKPIT IS NOT A VARIOMETER, NOR A FINAL GLIDE COMPUTER. IT IS YOUR EYES!

Yes, you do need your eyes to read the instruments. However our eyes are far more important than that.

A soaring pilot needs to see wedge-tailed eagles, willy-willy cores, wisps of newly forming cumulus clouds, other gliders marking thermals, pick out ground features marking potential sources of thermals. These essential clues are often the difference between an outlanding and getting home, or between just competing in a race and getting home first. You need to see those things from several kilometres away if you are to adjust your flight path to meet them.

If you are near the ground, you need keen eyesight to read the features of potential landing paddocks, find potential hazards such as single wire earth return powerlines, rocks, stumps, star pickets, tall crops, slopes and gullies. You need to be able to see this detail from about one kilometre away.

All pilots, even those with an engine to sustain their flight, need their eyes to work overtime to maintain a good lookout to avoid mid-air collisions. The excellent article by John Buchanan (AG/Skysailor – April 1999) described the techniques you should use to scan the sky. These techniques are critically dependent on the performance of your eyes.

Fortunately, we are blessed with two eyes, both connected to a powerful multi-

tasking computer with excellent built-in image processing capability.

It is likely, although I am not aware of any study to prove it, the eyesight of soaring pilots is much better than that of the average of the population as a whole, because those with poor eyesight will gravitate to sports where the deficiencies in their eyesight are less significant. However I am sure that even amongst our ranks, not all of us have perfect vision. By writing this article, I hope to perhaps persuade some of the 30% or so of you who are unaware that you have less than perfect vision to do something about improving the ability to use your eyes when flying. I hope that this will improve your safety as well as the safety of others who fly in your vicinity. It should also improve your soaring performance.

HOW THE EYE WORKS

Today, we have developed a close approximation to the eye in the modern digital camera. Since most people are familiar with a camera, I will frequently refer to the camera analogy to explain how the eye works. The eye (or at least the computer behind it) even has high-powered features seen only on expensive cameras, such as digital anti shake imaging, auto focusing, and auto exposure control.

The eyeball is roughly spherical, and normally about 23mm diameter. Its axis is capable of being pointed in different directions by a group of muscles called the orbital muscles. The brain automatically directs the muscles of the two eyes so that both eyes point to the same object at once.

Retina

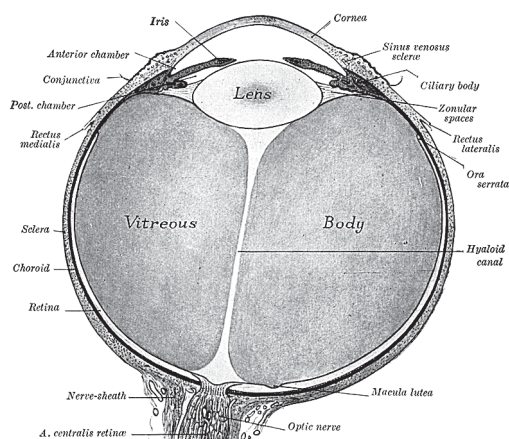
The light sensing part of the eye is called the retina, which covers the back and wraps around the sides of the eyeball, unlike the camera, which has light sensing only on a plane at the back. The wrap around of the retina gives the eye a very wide angle of view,

so that when you are looking straight ahead, the eye can sense movement and shapes out to the side 90° from where you look. In the vertical plane, the eye has wide-angle vision below to about 80°, but upwards only to about 45° above the direction the eye is pointing. If you wear a baseball cap, the upward vision will be dramatically reduced. If you must wear such a cap when flying, copy Lleyton Hewitt, and reverse it.

There are two different kinds of cells in the retina that react to light. The rods react to relatively low light intensity, and do not detect colour. The cones need a higher light intensity, and differentiate between different colours.

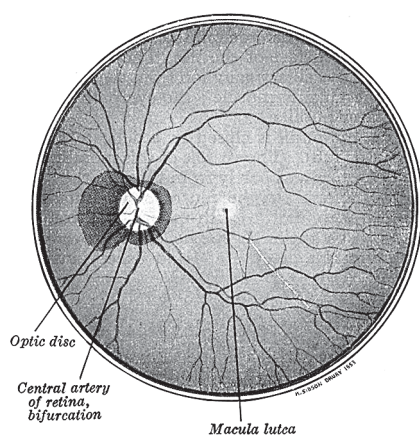
On the axis of the eyeball at the back there is a small region called the macula lutea. In camera terms, this region has a very high number of pixels per mm², and about 20% of the optic nerve fibres terminate in this small region. In the centre of this region is an even smaller area called the fovea, in which the cones are found very tightly spaced, and there are almost no rods. In that area, each light-sensing cell is connected to one nerve. The fovea is only about 1.5 mm diameter. This is the part of the retina on which the image of what you are looking directly at will focus, and in that region, you should be able to resolve fine details such as reading fine print, or detecting what sort of crop is in the paddock below. The visual field accessed in fine detail is only about two degrees wide! For the rest of the retina, there are both rods and cones, and each nerve fibre branches to integrate the signals from a number of adjacent cells, so that the resolution power is much lower.

The optic nerve pierces the retina in a spot about 6mm diameter, a little to the nose side of the macula lutea. In this region there are no light sensing cells, so that using only the right eye, there is a blind spot in the field of view at about 15° to the right of



The eye in horizontal cross-section
(After "Gray's Anatomy")

FIG. 1020.—The macula lutea, the optic disc and the retinal blood-vessels of the left eye as seen on ophthalmoscopic examination.



Optic nerve and arteries affecting the image
(After "Gray's Anatomy")

straight ahead. This blind spot is quite large enough to hide an oncoming glider or power plane when scanning with one eye. For the left eye, the blind spot is about 15° to the left of straight ahead.

Fortunately, the blind spots in our eyes do not overlap. The brain's image processing software seamlessly merges the images seen by the two eyes, so that normally all areas in the field of view are covered by light detecting cells in one eye or the other.

Body of the Eye

The body of the eye consists of a transparent jelly like substance with a refractive index not very different from water. The space between the lens and the cornea is filled with a transparent fluid.

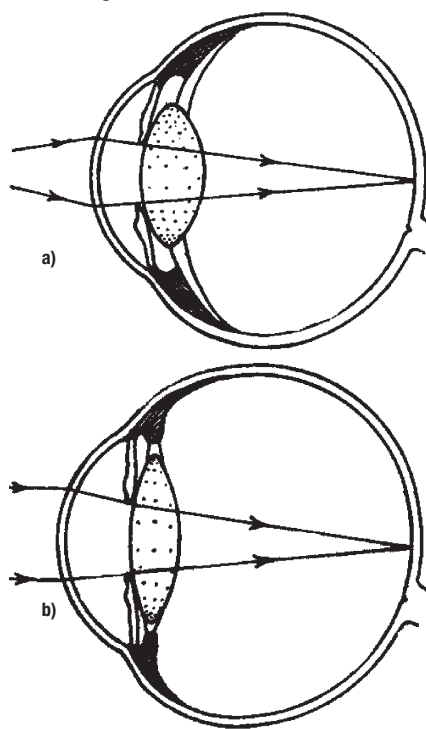
The Lens

The lens shown in the diagram is actually only a part of the lens system of the eye, since most of the refraction of light occurs at the front spherical surface of the cornea. The lens in the eye would, on its own, have a focal length far longer than the 23mm required to focus distant objects on the retina.

Whereas in a camera, the accommodation of different distances of the object is achieved by moving the lens closer or further from the film plane, in the eye, focusing is achieved by varying the shape of the lens. In a perfect eye, totally relaxed, the combination of the curvature of the cornea and the natural shape of the lens suspended inside will focus a distant object onto the retina in the region of the macula lutea. An eye with perfect focus on the retina when relaxed is called emmetropic.

The lens consists of transparent fibrous tissue, with a different refractive index to the liquid in front and the jelly-like substance behind. The lens is suspended by a great

number of fine fibres called the ciliary fibres, which are normally in tension so that they hold the lens precisely in position, and also hold the lens in a stretched out or flattened state. The lens has natural elasticity, and the curvature of the front and back surfaces changes if the ciliary muscle operates. Contraction of the ciliary muscle compresses the ring of fibrous material holding the outer end of the ciliary fibres, reducing the tension in those fibres and allowing the lens to adopt a more rounded shape. This is the way the eye focuses on near objects, such as when reading. In a very young person, the accommodating power available is about 10 dioptries, so that an emmetropic eye can focus on an object as close as about 100mm from the nose. As people get older, the lens becomes less elastic, so that by the age of about 45 to 55 years, most people with normal eyes cannot focus objects closer than the length of their arms, and they find they need glasses for reading.



The Eye relaxed (a)
and focusing on a close object (b)

Focusing is almost automatic, although one can voluntarily contract the ciliary muscles with a bit of practice.

Exposure Control

In a camera, the exposure is controlled by a combination of the size of the aperture and the length of time the shutter is opened. The aperture is formed by a diaphragm which can change the diameter of a small hole through which the light must pass. In bright light conditions, photographers can use a smaller aperture, which results in a

greater latitude in the focusing (more depth of focus).

Adjusting the exposure time does not happen in an eye, although we can blink if the light is too bright.

The eye's aperture is the pupil, the black hole in the centre of the iris. The iris is the coloured part of the eye, and is an opaque diaphragm of contractile tissue. In bright light, the muscle fibres of the iris contract, reducing the pupil to a minimum of about 2mm diameter (equivalent to about $f/16$). In very dull light, the iris relaxes and allows the pupil to expand up to about 6mm diameter (equivalent to about $f/5$). Adjustment of the size of the pupil is automatic and involuntary.

Note that choosing very dark sunglasses will be automatically compensated by the iris opening to let more light through. Since a larger aperture makes the eyes ability to focus worse, dark sunglasses have a detrimental effect on vision. This is particularly true for those persons with defects in their lens systems.

This is not to say we should avoid wearing sunglasses when flying. Properly chosen sunglasses eliminate glare (which is mostly polarised light), filter out the blue light reflected by dust particles within the air allowing the longer wave length light from more distant objects to be perceived, and most importantly, they protect the cornea and lens of the eye from the effects of ultra-violet light, which is known to be one cause of cataracts. However, avoid using very dark sunglasses, or those with a partially reflective mirror coating, which merely open the pupil and degrade your vision.

Image Processing

The way in which the brain can merge the images from the two eyes has already been mentioned.

The brain automatically detects if the image is not focused on the retinal plane, and will adjust the ciliary muscles to achieve the sharpest image possible in the Fovea. Furthermore, the brain has image enhancing software better than our most powerful computers. Provided that the brain sees something, it will try to improve the image. Amongst other techniques, it will compare adjacent frames taken of the same thing, and fill in the blurs.

If you watch some one reading a book, you can observe that the eye moves in a series of little jumps, pointing first at one point until the brain has absorbed the words which fell within the fovea, then moving very quickly to a new point to take in the next group of words. The eyes are used in this way for all sight, including scanning the sky. During the period while the eyes are

actually moving, the brain switches off the image reception in the macula lutea region, though not in the remaining peripheral vision. It is as if the brain takes a series of still shots, perhaps a bit like the conventional movie camera which takes 24 frames a second. You cannot see things when scanning if you sweep your eyes over the area without pausing.

During the periods while the eye is stationary, and processing is occurring, the brain is programmed to detect any movement. Anything which moves relative to the rest of the picture, or changes brightness is detected, (in the whole field of view, not just in the small region covered by the fovea) and the brain will probably choose to direct the eyes at the point where movement was detected for the next frame, so as to see the detail. Objects which do not move relative to the background are quite likely to be missed, so if you are on a collision course with another aircraft, and both of you are moving in a straight line, you are likely to miss seeing it. Similarly, you are more likely to spot a circling glider when the sun glints on the wings than you are to see one which is flying straight.

Scanning while circling, when your course is not a straight line, is much more likely to detect other objects in the sky. Even so, you will not see every object every time you look. Fortunately, the brain is a multi-tasking computer, and we can learn to build in our head a three dimensional picture of where the other object(s) are, and compute where they are likely to be next time you look for them. This skill is not one of the built in programs in the computer's system like the programs for vision.

DEFECTS OF THE EYE

In this article, I am not going to discuss colour blindness, since that deficiency is of little significance for pilots.

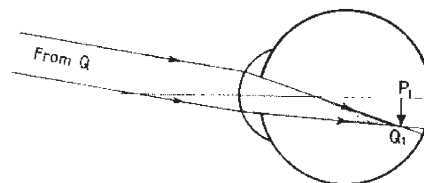
There are four common refractile defects which can be corrected by wearing prescription glasses. The defects range in severity from minor through to major. The major defects usually result in the person affected seeking help and getting glasses. However, more minor defects are not serious enough to prevent a person living a normal life, reading, driving a car, skiing, surfing, etc. Such persons may not even be aware that their eyes could be better, since their experience of the world from birth has been a little blurred, but isn't everyone the same?

Presbyopia – Loss of Accommodating Power with Age

Presbyopia is the loss of accommodating power that develops with age, so that you need glasses for reading. (It is also sometimes incorrectly called long sightedness, which is described below.) Most elderly people end up with glasses for this defect. If you cannot read the map in the cockpit or see the instruments, but have perfect distant vision, you would need either bi-focal or multifocal glasses in which the bottom section of the glasses lens has a magnifying effect, while the top part of the glasses is plain for looking at objects far away. For flying, we need to remember that such glasses reduce the amount of sky that one processes at each frame of the scan, since light coming through the reading part of the glasses will be out of focus. I have had glasses specially made with only a small section magnifying rather than the usual standard of 50% of the lens area.

Short Sight and Long Sight

These conditions involve the lens not focusing properly on the retina when the ciliary muscles are relaxed. About 25% of the population have one of these defects sufficiently severely that an optometrist would prescribe glasses for normal living. About another 40% have less severe defects, which do not affect normal living, but which would affect safety and soaring ability in pilots. These defects can be present from birth, and can become more common with age.



Short sightedness or myopia

In a myopic eye, light from a distant object focuses in front of the retinal plane when the eye muscles are at rest. Contracting the ciliary muscles moves the image even further away from the retina, so that for such persons, distant objects are always blurred (see exception mentioned below). Myopic eyes can focus on close objects.

Those of you who are experienced photographers will know that a camera has a "depth of field". An object being photographed will not come out blurred in the photo if it is within a range of distances, either side of the nominal point on which the lens is focused. The depth of field depends on the size of the aperture (F stop), and in a bright light (f/16), when focused on say five metres, all objects from two-and-a-half metres to infinity will be in acceptable

focus. In a duller light (f/8), the depth of field might be reduced so that only objects between four metres to 10m are acceptably clear. When a person with only mild myopia is in broad daylight, so that their pupils are contracted to a small aperture, this depth of field may be enough that distant objects will not be blurred, even though their eyes focus on five metres distance when the ciliary muscle is totally relaxed. Putting on dark glasses without optical correction will blur the distant objects for these persons.

Short sightedness is corrected by fitting a concave lens of the required power in front of the eye.

Long Sightedness or Hypermetropia

In a hypermetropic eye with the ciliary muscles relaxed, the image forms behind the retinal plane.

In this case, tensing the ciliary muscles slightly will provide a correction, so that such a person can focus on distant objects by using up some of their accommodating power. The depth of field can also help persons with hypermetropic eyes in bright light.

An optometrist would not normally prescribe glasses for hypermetropic eyes unless the condition was severe, since a person can live a normal life using their accommodating power to correct for the defect. They might prescribe glasses for reading only. As such persons get older, their accommodating power is reduced, and they need glasses for reading sooner than those with emmetropic eyes or myopic eyes.

When you scan the blue sky, there is nothing in the background on which the eye can focus, so it will automatically relax. Hypermetropic eyes can easily miss objects while scanning above the horizon because the eye has relaxed and the distant objects are blurred to the extent that wedge-tailed eagles, other gliders and power planes in the distance are not detected.

Some people have advocated that you can fix this by looking at something on the ground first, and then doing the scan. This is unlikely to work because the relaxation of the eye when one looks at the blank sky is automatic and rapid.

Obtaining convex glasses with the appropriate power is the correct way to overcome this deficiency.

Astigmatism

The fourth type of defect of the lens system causing blurred vision is not able to be improved by movement of the ciliary muscles.

In a perfect eye, the surface of the cornea and the front and back surfaces of the lens are all spherical – at least in the area used to

focus on the macula lutea. In an astigmatic eye, one or more of the surfaces is not spherical, usually having a different radius of curvature in the horizontal section compared with the vertical, or possibly at some angle to those directions.

For such a person, the light refracted from the sides of the eye will focus on a different plane to the light impinging on the eye above and below the centre. Everything appears blurred, at all distances, although if such a person looks at a diagram with radial lines, lines in one direction may appear sharp.

To correct for this defect with glasses, the glasses need to be non spherical, and shaped specifically to correct the defect in the eyes lens system.

EYE TESTS

Standard eye tests involving reading a chart on the wall of the doctors office from about two metres away do not test whether the eyes are focused on infinity when resting. A mildly short-sighted person would be able to read the chart at that distance. A person with hypermetropia would be able to focus on the chart by use of their ciliary muscles.

An optometrist will test the eye by putting test lenses of different power in front of the eye while the subject is looking at a distant chart. By shining a light into the lens while the eye is relaxed, and observing the light reflected off the retina, they can determine whether the eye is myopic or hypermetropic. The optometrist can put drops in the eye, causing the eye muscles (both the ciliary muscles and the muscles of the iris) to relax. This is of great help to properly identify hypermetropia. Normally an optometrist or ophthalmologist would pass as normal eyes which are mildly hypermetropic, but with sufficient accommodating power for the person to live a normal life. You need to tell the person testing your eyes that you are a pilot and ask them to take extra care in measuring your eyesight, and, if necessary, prescribe lenses to achieve emmetropic corrected eyesight. Unless the tester is briefed, it is likely that the focus of the testing will be on ensuring ability to read.

DISEASES OF THE EYE AFFECTING VISION

Space does not permit much discussion on diseases of the eye, and I do not claim any expertise. However some diseases cause effects that should be mentioned.

Opacity of the Lens – Cataracts

If the lens loses its normally transparency, the result is blindness. This usually affects the elderly, and is known to be aggravated by

smoking. Damage to the lens is also caused by prolonged exposure to ultraviolet radiation. In cases of partial opacity, the effect is a bit like looking through a pair of glasses that are very dirty or spotty.

Retinal Blind Spots from Burns

It is possible to damage a spot on the fovea by looking at very bright object like the sun. This can cause a permanent scar on a small spot on the fovea, and if you used both eyes, both would be scarred so that the brain's image processor could not overcome the blind spot. The result would be a small spot that annoyingly obscured the point you were looking at. In time the brain may learn to compensate by pointing the eyes so that a different part of the fovea becomes the central spot.

Macular Degeneration

Macular degeneration is a term used to describe a condition where the whole area of the macula lutea loses its ability to see, while the rest of the retina continues to function. The eyes lose their ability to see fine details, and vision appears to have a black area over the central area of the field of view. The causes of macular degeneration are not fully understood, but one known cause is diabetes. Once again, smoking and old age are definitely things to avoid.

Retinal Detachment

Part of the retina of an eye can become detached from the layers beneath it, so that connection between the light detecting cells and the nerves is lost. This results in a blind area in the field of view of that eye. The size and location of the blind patch depends on the size of the detached retinal area. It may affect the central macula lutea, or only part of the peripheral vision. The condition can occur spontaneously, or may be induced by trauma such as a blow to the head.

Glaucoma

Glaucoma is a build up of internal pressure in the fluids of the eye. The pressure does not cause immediate loss of vision, but the pressure damages the cells in the retina, and if untreated, permanent loss of all vision will eventually occur.

Ophthalmologists and optometrists will look for these diseases during any eye examination.

CAN YOU TEST YOUR OWN EYES?

It is quite instructive to get together a group of your friends (preferably at least half a dozen) in bright daylight on a straight

GLIDING FEDERATION OF AUSTRALIA Airworthiness Inspection FORM 2 NOTICE

- ☐ A Form 2 inspection is due
Cheque for \$137* is enclosed
- ☐ A 20, 30 yearly, etc is due
Cheque for \$247* is enclosed
with copy of aircraft log book
- ☐ An initial C of A inspection
and initial registration is due
Cheque for \$511* is enclosed
(tick appropriate box)
on the following aircraft:

TYPE

VH

Please forward relevant airworthiness documents to:

.....

.....

..... Postcode.....

* prices include GST

Forward to:

GFA Secretariat, 130 Wirraway Road,
Essendon Airport VIC 3041

stretch of road. Choose some distant sign like a street name or number-plate on a parked car, too far away to read clearly at that distance, and all walk towards the sign, each person stopping when they can clearly read the writing. You will be surprised by the differences in the ability of people to see distant objects clearly. Such a test will not detect the condition of mild or moderate hypermetropia, but will show quite a lot of people that their vision could be improved.

CONCLUSION

Your eyes are critical for your safety when flying, and you depend on them to pick up the visual clues to help find thermals to stay airborne, to avoid mid-air collisions, and to choose a safe place to land when the thermals stop.

Knowing how the eyes work and understanding the brain's image processing program should help you improve your ability to scan the sky, and see critical things.

My main message is to get your eyes tested and use glasses for flying if your eyes do not focus on infinity when at rest.

Good soaring and safe flying.



When It All Falls Apart



Colin has 44 years of foot-launched flying under his belt

Colin Iles (Article courtesy of Airborne Magazine NZ)

I WON'T EASILY FORGET JANUARY 2001. THE PREVIOUS YEAR I HAD BECOME INCREASINGLY NERVOUS OF FLYING. NOT SURPRISING FOR SOMEONE AFRAID OF HEIGHTS! TRUE. I HAVE ALWAYS BEEN AFRAID OF GETTING TOO CLOSE TO STEEP SLOPES, BRIDGE PARAPETS, TOPS OF HIGH BUILDINGS, AND EVEN CLIMBING UP LADDERS! BESIDES WHICH, AT MY AGE OF MID-SIXTIES, A WEE DOSE OF SELF PRESERVATION SHOULD BY NOW BE A NATURAL BIOLOGICAL IMPERATIVE. SO WHY FLY? I REALLY ENJOY IT. AND OF COURSE HAVING TO OVERCOME MY FEARS IS A CHALLENGE IN ITSELF. INDEED, JUST

TRYING TO BE AS GOOD A PILOT AS I AM ABLE IS A CHALLENGE; NOT TO MENTION THE FABULOUS VIEWS THAT FLYING AFFORDS.

Last year I changed my glider, thinking that this might help me overcome a seriously developing fear of flying which was threatening to end my airborne activities. Early flights on the Astral 2 were extremely reassuring, and with the good weather last winter I was able to do plenty of ridge soaring and experimenting. Consequently I came into the new season full of confidence. In my first comp of the new season I managed a creditable eighth and third in the two tasks. My confidence was overflowing – a likely prelude to a fall, no doubt.

And so on to the Flawkes Bay comp. The first day's task was from Zola's, 45km south to goal. Away late and on my own, I picked a beautiful thermal out front, over a low hill sporting a yellow dried-out paddock on its northern slope. Up to four grand and I was on my way south, watching my GPS showing the distance and direction from Zola's.

Three kilometres on and a similar little hill turned up trumps again. Further on a ploughed field kept me high, but this time, as my turning continued with no change in my vario's sound, I became suspicious. Turning downwind in the direction of goal I found I was continuing to gain height, topping out eventually at 5,200ft (4,500ft agl). Yeah, my highest ever! I guess I was riding the seabreeze front, with a grand speed on trim of 47km/h. I was 15km out already, nearing my personal best of 18km. Great stuff.

Looking back over my shoulder I expected to still be able to see Zola's, but I was too high and too far away. In fact there was not a thing on the horizon anywhere around me to indicate where I was. Zola's had vanished. Suddenly, I was gripped with fear, totally disorientated. I was lost! Lost in space, literally. I can only remember one other occasion when I have ever felt anything quite like this, and that was on a small yacht in the Mediterranean Sea at night, in a gathering storm. This time I was on my own with nowhere to go for

safety, and no way of getting help. "But hang on matey," I says to myself, "Get a grip!" I looked at the GPS and saw it was still going in the right direction. Then I saw Waipawa, and ahead, Waipakurau. Ah, that felt better.

Fear gone. But what a strange and unnerving experience.

Most of my flight had been in blue thermal conditions. However, just east of Waipakurau sat a good size cumulus casting a dark shadow on the ground. It was strangely shaped underneath, I observed, but there was bound to be good lift. Disobeying a fundamental rule of cross-country flight, I ignored some good lift and headed towards the cloud. Then lots of sink. Thinking my flight was probably over, but hopeful of a low save, I circled in over a small paddock. Down to 150ft and it looked like it was all over, when suddenly my wing went crazy. I watched in disbelief at my canopy being thrown around above me like a wet rag. It seemed like parts of it were desperately trying to reopen, but some powerful force was preventing this from happening, at the same time twisting the wing from side to side. There was nothing I could do to help. The wing and I were clearly in deep trouble!

I have never thrown my reserve before, but this was no time for hesitation. I grabbed the handle in front of me and threw it as hard as I could out to the side, watching the unraveling lines snake away from me. As the bag reached the end of the line the beautiful white reserve deployed instantly, then it was over my head under the paraglider canopy. I had read about this before and knew I had to pull my paraglider in so it wouldn't fight the reserve. I grabbed a handful of lines and started pulling, simultaneously looking down to check my height. I just had time to bend and bring my legs together before I literally crashed into the paddock.

For a few seconds I was completely stunned. One moment at 150ft, and the next here I was, crumpled in the paddock.

I lay there for a few moments, then carefully rose to my feet, still unsure as to what had happened. At least I was down safe – and as far I could tell, uninjured – though my back felt strained from the force of the impact. I have never seen the ground come at me so fast. Thank God for my reserve. I knelt down and kissed it, and then of course, photographed it – clearly a moment for posterity.

What had happened? The only assumption I can make is that one of a pilot's worst fears had occurred – I had hit a dust devil close to the ground. Coming off the paddock it had not picked up enough debris to be clearly visible. Should I have thrown my reserve? Thinking back, I was probably through and clear of the dusty by the time my reserve deployed. If I hadn't thrown the reserve I believe the wing would have recovered and a safe landing ensued. However, if I had delayed and the wing hadn't very quickly recovered, it would have been too late to throw the reserve; and then my situation would have



Glider and reserve unceremoniously sprawled in paddock

been disastrous. I survived without serious injury, and that's what counts.

The remaining three days of the comp I couldn't handle. Sure I took off, but once airborne my greatest need was to be back on the ground. Now I made my worst flying mistake ever, and although I tell it here, it is not without a large degree of embarrassment. Ocean Beach, not far from Te Mata peak, is fringed by small hills, soarable in seabreeze conditions. On this occasion I had left my glasses behind, but the site is small and I had already flown there before. Landing in the paddock by the beach I turned to find my canopy draped over the powerlines just behind me! I had known that the powerlines were there, but without my glasses had not seen the lines that I had almost landed upon. No, I was not electrocuted, but with modern carbon lines I don't know why not. Maybe, as Richard Bach might suggest, I was electrocuted then changed to this alternative universe to continue whittling away my nine lives. Not that I have any more left anyway, undoubtedly on at least my third set by now!

And so to the Nelson Nationals, a disappointing nine days weather-wise. The first flyable day I made the Maitai Valley from Barnicote. Nothing spectacular, but passed some of our best pilots whose miscalculation had dumped them at the bottom of the hill. Next task was a flight south. Working weak thermals I found myself three kilometres down the range scratching low around the top of the hill beside a line of pine trees. Sensing something just over the pines I headed over the trees, sure enough finding lift. Hoping for a continuance I attempted a full 360 very close in. Sod's law, halfway around I lost it. Now too close to the trees, necessitated a sharp turn away.

Next moment my wing was horizontally in front of me with a full 50% asymmetric! My thoughts raced. Too low to throw the reserve, silly over trees anyway. I just had to get the wing flying again, I knew, but in the likely event of failure I let out an almighty yell. At least, if I was going in, someone would know about it.

Brakes hard down brought the wing back overhead, but just as one asymmetric came out the other side did another 50 percent. Steer and pump. At least I think that's what I must have done, recovering just 10ft above the trees facing downhill. My over-confidence once again dented, I continued the task much more warily, to eventually join all the other pilots who had been downed around the 10km mark.

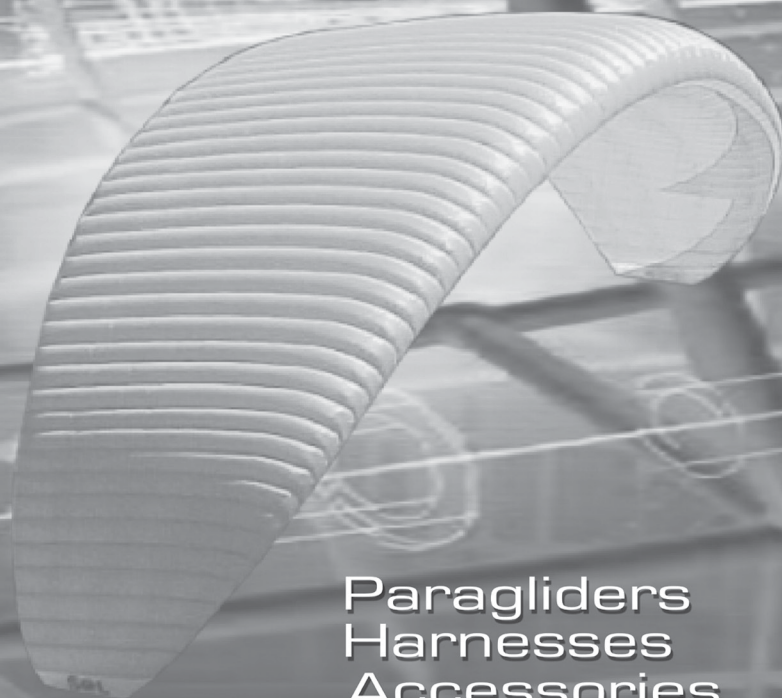
Neither of these tasks were validated, and come Sunday this was our last chance of scoring any points in the Nationals. The upper site at Inwoods was chosen for take off in what turned out, despite cloud cover, to be superb thermic flying conditions. Even the most inexperienced pilots did creditable distances – except me. In the air I became frozen with fear. My collapses and mistakes had truly caught up with me. It seemed a never-ending glide down to a farmhouse in the valley, as every little twitch of the glider filled me with dread. The two thoughts in my head were: get on the ground, and, how much will I get for my gear?

Fear is a horrible feeling, especially when so intense. After 44 years of foot launched flight I was finally giving up. But giving up is not part of my nature. I have resumed flying and intend to continue. My nerves have improved a little, and in the coming winter I shall work to improve further. But one thing I do know, I will temper my confidence with prudence in future – if I really want to prolong my flying career as long as possible. At least I do have great confidence in my Astral 2; it really wants to go on flying no matter what else is happening to it. I also have confidence in the ability of my reserve to open very rapidly – I've proved that.

January 2003



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I am still flying, and learning once again to enjoy. I want to look forward to soon being amongst that elite band of still flying pensioners!



Multicom Frequency Introduction

From 28 November 2002, a new "multicom" radio frequency of 126.7 was introduced for airport traffic separation.

Pilots using VHF radio at uncontrolled airports where there is no assigned CTAF or MBZ frequency are to use the "multicom" frequency rather than the area frequency as in the past. Obviously where there is an assigned CTAF or MBZ frequency, that frequency is to be used.

The reason for this change is to reduce clutter on the area frequency by removing local airport radio traffic. This change will not affect many pilots given that most airports where there is substantial traffic either have a CTAF or MBZ frequency.

Craig Worth, HGFA General Manager

WA State Hang Gliding Open Distance Record Broken!

On Saturday, 23 November the WA State hang gliding open distance record was broken by Phil Wainwright of Karrinyup, who flew 313km from Korrelocking, 15km east of Wyalkatchem, to a point south-east of Mullewa. The record had previously been held for 18 years by Ray Chatfield, who flew 290km from Mt Bakewell near York in 1984. On the same flight, Mr Wainwright also broke the State record for distance to a declared goal – 261km (previous record 192km) – when he overflew Morowa on Saturday's epic flight. On the previous Sunday, the State out-and-return flight distance record was also broken by three pilots, Phil Wainwright, Mark Thompson and Dave Wellington. The total distance was 132km, from Korrelocking to Goomalling and back again. The previous record was 98km.

Mr Wainwright's record-breaking open distance flight took six hours, during which he reached a maximum height of over 9,000ft asl. He had one low save towards the end of the flight from only 600ft agl. The flight was launched from an aerotow behind a microlight aircraft above a paddock in Korrelocking, after which only lift from rising air in thermals was used to maintain height. Mr Wainwright was flying an Australian designed and made Airborne "Climax" hang glider.

The successful record attempts were all achieved during the "333 Week" record setting encampment at Wyalkatchem (16-30 November) which is being run jointly by the Western Soarers HG Club and Sky Sports, the local HG school.

Sam Blight

Paragliding Radio Talk Show

The Paragliding Radio Talk Show, hosted on the internet by David and Gabriel Jebb, is broadcasted every Monday, 8-10am (Pacific Standard Time) on [www.wsradio.com]. Click under aviation section.

Contact: David Jebb, Director of Operations, Torrey Pines Gliderport, 2800 Torrey Pines Scenic Drive, San Diego, CA 92037, (858) 452-9858, [www.flytorrey.com].

CLUB NEWS

Cloudbase PG Club, WA

The 333 Week record encampment run by the Western Soarers Hang Gliding Club has been a great success this year for both hang gliders and paragliders. A record nine paragliders turned up this year. Many personal bests were beaten, plus two State records. Rod Merigan beat the old State open distance PG record by four kilometres, flying 125km on Sunday, 24 November. An excellent flight, even better when you consider Rod has only about 40 hours on paragliders, and was flying a DHV1 Bolero. Mike Dufty, previous holder of the open distance record, doubled the state out and return record, flying a 65km out and return the previous Sunday. Conditions looked good for 200km plus flights, with strong tailwinds, and pilots getting away by 10:30am, but no one quite put it all together on the day.

We are coming up to the summer Albany flying season. Pilots are reminded that the old take off area near the carpark is no longer permitted. All take-offs and landings should be done in the new approved area down the boardwalk to the west.

Mike Dufty

Hill Flyers, WA

The weather this spring has apparently been very different from normal in WA, with the usual south-easterlies only starting to arrive this last week. Perhaps El Nino or global warming. Whatever the reason, there has been only a little hang gliding with short flights at Noondeening and flying in the seabreeze at Gin Gin. Last weekend though, the weather gods smiled on us and turned it on at Mt Bakewell. It was supposed to be a combined fly and working bee with the road linking Lou's launch to the top launch having been marked out and now requiring some clearing.

The good conditions, however, induced the normal psychotic behaviour exhibited by pilots everywhere and I'm sure the work will get done another day. A good crowd turned up to enjoy the excellent conditions

throughout the day from the smoother early morning through the rough and tumble of the midday heat to the smooth "fly anywhere" of the later afternoon. Out and returns were done to Mt Brown with some pilots reporting it hard to get down. One paraglider went over the back to do 68km downwind. Hopefully there will be a few more days like this coming up.

A big "well done" must go to Phil Wainwright for setting a new WA open distance record of 313km during the Western Soarers 333 Week.

Derek Toulalan

NEW PRODUCTS

Bräuniger Galileo



Galileo users can now easily update their instrument with downloads from our homepage [www.brauniger.com]. Here you'll find the latest firmware version at no cost as well as a small uploader tool necessary for transferring it to the Galileo. Anyone

signing up to our News List for the Galileo (also on our homepage) will automatically be informed of any new update!

All versions from Version 2.10 will have the following new features:

- Complete flight displayed as a track with waypoints; complete LCD auto-sizing function with manual zoom
- Real time track display with pilot's position centered. Displayable in a split screen. Climbing and descending displayed differently along the track with easy recognition of thermal centres
- Go-To track line to selected waypoint when Go-To function is activated.
- FAI cylinder graphics (possible radius of 20m to 50km)
- UTM and Swiss Grid co-ordinates selectable
- Easy switching from six user-programmable fields to six additional fields. (by using arrow keys) Allows for a total of 12 available fields.
- Manual flight recorder stop adjustable.

The FAI triangle flight shown on the display (199km!) was flown by Max Altmannshofer on 17 May 2002. Total flying time was seven hours, 42 minutes and 22 seconds on a Laminar 13 MRX.

Bräuniger Distributors: Moyes Delta Gliders, 1144 Botany Road, Botany NSW 2019, ph: 02 9316 4644, fax: 02 9316 8488, web: [www.moyes.com.au].

Flying Planet is now "Aerodyne"

The team demonstrates marked ambitions in its choices and particularly stresses the quality of its products. Aerodyne manufactures all their gliders in their own production plants, based in Mauritius and South Africa. The Jumbe (DHV 1-2 Sport Class) is ready and in production. Demo gliders are available at WindWorks. The Shaman (planned as DHV 2-3) will be in the market at the beginning of the New Year. A school glider and a DHV 2 glider are already on the drawing table of Michel.

WindWorks Paragliding: 02 9913 9086 or see [www.windworks.com.au].

Patrick Rose, WindWorks

Nova Aeron DHV2 and Artax 1/2

Nova has just released their latest DHV 2 glider, the Aeron. To introduce the glider we have chosen to quote from the Nova development material: *"Our reference glider was an Argon C with thin comp lines. It was our goal for the 2-3 development to make a glider with normal, covered lines that had the performance of the Argon C. In the end we managed to develop a Class 2 glider that is even better! The brake pressure of the Aeron is lighter than on the Argon, the handling is more direct and it is easier to turn the wing flat so its climbing performance is improved over the Argon. It is also very dynamic and full of energy. The take off of the Aeron is even simpler than that of the Argon."*

The highly successful Carbon has now been replaced by the Artax. Performance matching a standard Argon with the safety characteristics of the Carbon. Durable Gelvenor cloth and Liros Technora lines combine to deliver durability and quality.

We welcome the performance and safety of the Aeron and Artax to the Australian market.

Contact Alpine Paragliding, 03 5755 1753, <demo@alpineparagliding.com> for enquiries and demo flights.

FAI NEWS

The new Sabiha Gökçen Medal

Adopting a proposal from the Turkish Aeronautical Association (THK), the 95th FAI General Conference 2002 held in October approved the creation of a new FAI Medal, the "Sabiha Gökçen Medal", which will be awarded to women performing the most outstanding achievements in any air sport.

Jean-Marc Badan, FAI Promotional Manager

FAI Corporate Patrons

The "FAI Corporate Patrons" programme will start early in 2003 and offer exclusive services to manufacturers whose products contribute to the setting of aeronautical or astronautical world records. A resolution to this effect was adopted by the 95th FAI General Conference held in October in Dubrovnik. FAI "Corporate Patrons" – a new link between industry and air sports.

Jean-Marc Badan, FAI Promotional Manager

2005 FAI Centenary

FAI was founded on 14 October 1905 in Paris by representatives of aeronautical organisations from Belgium, France, Great Britain, Germany, Italy, Spain, Switzerland and the USA. The first 100 years of FAI will be celebrated in 2005 with events in Paris, the city that hosted FAI until 1998, and in Lausanne, the Olympic Capital and present

FAI headquarters. The 95th FAI General Conference held in Dubrovnik was informed about the planned events.

Full text in English available at [www.fai.org/press_releases/2002/141102_gc5_2005e.doc].

Jean-Marc Badan, FAI Promotional Manager

Minutes of CIVL Bureau Meeting

The minutes of the CIVL Bureau meeting held in France, October 2002, are published at [www.fai.org/hang_gliding/meetings/].

As well as reviews of the Category 1 events and future bids, there are outlines of some of the proposals for the Plenary meeting in Romania, 21-23 February 2003. Any queries please contact <paula@fai.org>.

Paula Bowyer, CIVL Co-ordinator

FAI World Record Claim

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

Claim numbers 7570 and 7571:

Sub-class O-3 (Paragliders) – General

Type of records: Straight distance to a declared goal

Course/location: Quixada – Pedro (Brazil)

Performance: 281km

Pilot: Peter Simonics and Szilard Forgo (Hungary), joint flight

Paraglider: Nova Aero M

Date: 21/11/2002

Current record: 257.4km (23/12/2000, Jacques Coetzee, South Africa)

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





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LIFT – MAKING THE BEST OF IT

– Part 6

CHAPTER 2 – FINDING LIFT

2.1 Structure of Thermals

We have all experienced that thermals can be fairly moody characters. One day they are strong, big, smooth and plentiful but on another day they are few and far between, weak, broken and narrow. What worked well for us one day will not necessarily work on another and where we are finding regular lift today might be heavy sink tomorrow.

So what is the secret and how can we maximise our chances of finding thermals? As usual the answer is “it depends”. Different meteorological conditions result in different thermal behaviour and thermal characteristics.

Useful research into the structure of thermals dates back to the late 60s when Russian scientists used power planes and gliders to sample updrafts over Estonia. Their work points to single or multiple core thermals whereby multiple core thermals are prevalent if the vertical air temperature gradient in the lowest level of the atmosphere is above $0.8^{\circ}\text{C}/100\text{m}$. This very volatile layer is called the super adiabatic layer. It is normally as thin as 300-500ft but can have a depth of several thousands of feet over arid Australia on days with intensive heating and light winds.

These findings equate very well with practical experience suggesting that on days with low temperature gradients thermals are not only small and weak but also usually confined to a single core. On the other hand multiple core thermals are frequently observed in strong conditions (higher temperature gradients) when we can often observe several gliders circling only a few hundred meters apart but enjoying a very similar rate of climb.

Further research has continued ever since but particularly valuable work was conducted in the late 80s. It was performed over Eyre Peninsula in South Australia by the Flinders University of South Australia using an instrumented Grob G109B motor glider with on-board sensitive instruments, a data acquisition and “real time” processing system. Other than helping to reveal the three-

Bernard Eckey

dimensional structure of thermals the research program has recorded flow patterns near thermal updrafts which are of major interest to the gliding movement as a whole. Plotting the accumulated data into a two-dimensional cross section indicated a strong inflow of air into a thermal at lower levels and fairly irregular shaped updrafts. A typical horizontal cross section for a thermal within the super adiabatic layer is shown in figure 16. The arrows indicate air velocity and direction of airflow but please note that the mean wind vector is already subtracted.

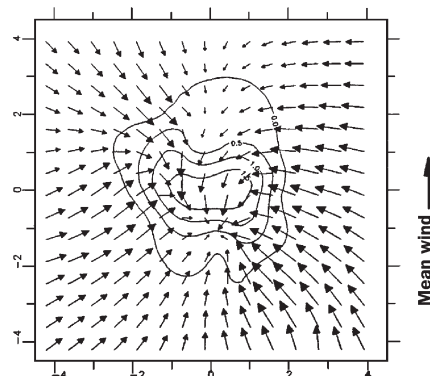


Figure 16: Shape of updraft and direction of airflow at low levels

In contrast the horizontal cross section of a thermal well clear of the super adiabatic level looks rather different. Not only has the mean diameter increased by a significant amount but the velocity of the airflow surrounding the thermal has also decreased dramatically. These findings tend to underscore a widely held belief that gliders tend to drift towards the core while near the ground but the same does not apply for well-established thermals at higher levels.

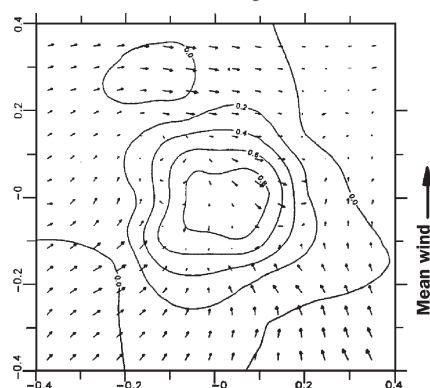


Figure 17: Shape of updraft and direction of airflow at higher levels

If the last two graphs aren't interesting enough perhaps figure 18 can generate some excitement. It shows a vertical cross section through a thermal with weak sink surrounding the thermal but gradually turning into strong lift near the core. Please note that the last three illustrations are not measurements of a single typical thermal but are computer generated diagrams combining data from a large number of updrafts sampled over a single location in South Australia.

All measurements relate to a region of native mallee bushland with an average height of two to four metres and were compiled during the driest part of summer. Therefore we must not assume that thermals are of a similar nature elsewhere and have identical characteristics all year round. After all, we are dealing with mother nature here and as we all know it has always a few surprises in store for us.

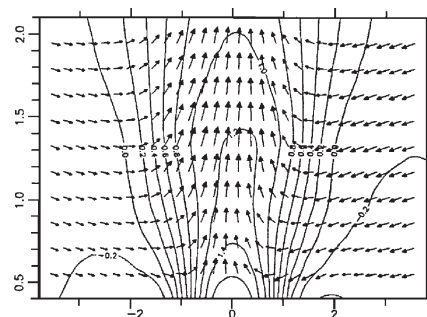


Figure 18: Vertical cross-section in the across wind direction

2.2 Finding thermals on blue days

Having dealt with the fundamentals we can now concentrate on more practical matters and work on finding these elusive thermals out there in the real world. First let us consider thermals in the blue and tackle the old cliché of eventually colliding with a tree when walking through a forest blindfold. Sure, there is always the option of relying on good luck rather than good management, but there are better ways and means of increasing our chances of finding thermals even on blue days. However, we need to understand how thermals form and how they behave.

First of all let me stress that air is NOT heated by the sun but by the ground below. A surprisingly large number of glider pilots is not aware of this rather fundamental knowledge and therefore it might be appropriate to stress this very important fact. If the sun was to heat the air we wouldn't have outside temperatures of -50°C while cruising to our holiday destination in a Boeing or an Airbus. Also we all know from experience that the air gets cooler the higher we climb in a glider and that it can get very cold at altitude even on the hottest of summer days in Australia.

There is the proof we need – the sun's rays do not warm the air as they travel through the atmosphere. It's the ground that is providing the heating, and only after the ground has received sufficient heating from the sun can it then warm up the air directly above it.

Now that we all agree that the ground does the heating of the air we must be able to predict the hottest spots on the ground with some accuracy as these spots are without fail the ones which absorb the sun's energy. Ground which simply reflects the sun (or wet ground with a lot of evaporation) is never a good source of lift as it will not experience sufficient warming. The same applies to ground covered with thick and lush vegetation. Any vegetation ensures a lot of evaporation and the energy required for this evaporation is not available for heating the ground below.

For this reason glider pilots always need to identify which areas on the ground are absorbing heat energy. Without fail they are the hottest spots and the most likely thermal sources.

In flight it is definitely not helpful to ponder about sun reflection and sun absorption properties of the ground below. It is however essential that we assess the temperature difference of the terrain below and a few simple hints might be of help here:

- 1) *We start to look at the ground immediately after release.*
- 2) *We imagine walking barefooted over the ground below.*
- 3) *We direct our flight path over areas assessed to be the hottest.*

A dark and bare paddock would be fairly warm (if not hot) after long periods of exposure to the sun. The temperature of the air just above the ground determines the air's density and if the density is low (due to heating) the air will eventually rise and form a thermal.

In contrast wet ground or one covered with lush vegetation would be much cooler. Here the sun's energy is "wasted" for evaporation leaving the air cooler and therefore heavier. Cold air is always more dense and will stay where it belongs – on the ground. So the consequence of all of this is clear. If we have a choice we direct our flight path over bare paddocks with dark soil or sun-facing slopes rather than over a wet area covered with green vegetation.

2.3 Thermal Behaviour

Although the above fundamentals are well understood by every self-respecting glider pilot they need to be combined with a basic understanding of thermal behaviour.

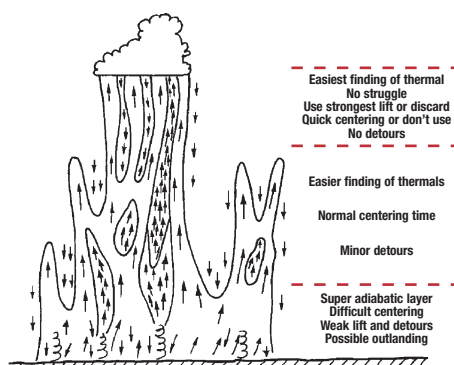


Figure 19: Thermal behaviour on a calm day

The ground is heating the air immediately above it and as long as heating continues this reservoir of hot air slowly grows bigger and bigger. In other words, the warm air of the super adiabatic layer forms a buoyant pocket of air near the ground. Eventually a point is reached where this giant reservoir of warm air can't grow any further – the bubble must deflate again and all this warm air must rise somehow. Warm air is less dense compared to the surrounding cooler air and it is this difference in density which gives birth to a thermal, although in the normal course of events a trigger is needed to start the ascent. This trigger might be a car driving past, it might be a flock of birds, a winch launch, an aerotow or any other form of air disturbance for that matter. For reasons not yet known the air is rising in steeply ascending single or multiple columns rather than going up as one huge bubble. In gliding contests we can often observe all gliders leaving a certain thermal almost simultaneously regardless of altitude. This would suggest that the thermal ceases to exist as soon as the warm air reservoir on the ground is exhausted. Particularly on very hot days, when dust devils go to a great height, we can see that those updrafts are a bit like stretched corkscrews. They are anything but straight and vertical but rather tend to "snake about" with height forcing us to shift our turns constantly.

Research conducted by the Flinders University of South Australia suggests that a rather chaotic situation exists within and around our hot air reservoir near the ground. (please refer to figure 19) Isolated plumes of warm air have been identified just above the main warm air reservoir. These plumes are separating at irregular intervals and can fool glider pilots into believing that they have found lift. In reality they have found only a bubble likely to turn into heavy sink before the turn is completed.

Within the super adiabatic layer it is almost impossible to distinguish between a real thermal and temporarily separating bubbles. Instability within this lower layer allows an easy vertical displacement of air

which in turn makes any air movements almost totally unpredictable. I assume that low level turbulence from vegetation or man-made structures also plays an important role. Therefore it is a good idea to resist the temptation of trying to climb away from such low altitudes. Even if we are lucky and it works once – in the long term it is likely to get us the Darwin award (given to glider pilots who voluntarily withdraw from the human gene pool).

2.4 Thermal behaviour on windy days

Let us look at the behaviour of the same pocket of warm air on a day with moderate winds for this is what we are faced with in the real world.

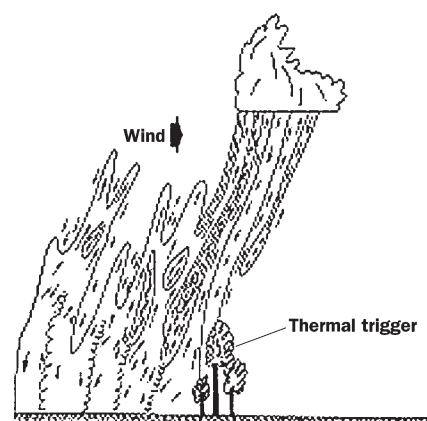


Figure 20: Thermal behaviour influenced by wind

The air is still warmed by the ground below but the hot air reservoir tends to behave differently. Simple observations suggest that a pocket of air can be pushed along by the wind. In fact it is possible for it to move to a paddock next door and it can remain there until a sufficient amount of warm air has accumulated. Eventually the pocket of warm air encounters an obstacle which will make it separate from the ground. Such an obstacle could be a clump of trees, a house, a bordering patch of scrub, a road or perhaps even an abrupt change of vegetation. We refer to them as trigger points as they make the pocket of air separate from the ground and trigger a thermal.

What does all this mean for us? It means that we are wasting our time trying to locate our thermal directly over a promising paddock. It is nowhere near its centre but most likely a fair bit downwind of it. And exactly for this reason we constantly need to identify

- a) *thermal source AND*
- b) *thermal trigger*

It certainly requires some practice to get into the right spot and to develop the skill of identifying thermal source and thermal trigger with some degree of certainty. If we have not already acquired this important

skill we need to make an attempt to develop it and the easiest way of doing just this is to identify thermal source and thermal trigger every time we get established in a thermal. This exercise is particularly valuable if we are finding lift below 2,000ft because at lower altitudes there is seldom any ambiguity as to where it is coming from.

Soon we will get into a habit which makes us fly from one likely thermal source to another. We will also learn to tolerate small detours if it means that we can cruise over good thermal-producing ground. In fact it needs to become a habit (especially while flying at low altitudes) and a task to perform almost subconsciously and automatically. As soon as these tactics begin to work for us we will develop a high degree of confidence in our own skills and as our success rate improves so will our motivation and the enjoyment we get from our sport.

Additionally, when we manage to get into this frame of mind we can attempt to fly cross-country without getting too concerned about outlandings. Gliding is a thinking persons sport. We need to engage our grey matter all the time and make decisions, decisions, decisions.

Getting the majority of our decisions right means that we have managed to make our own luck – and that is when the fun really starts.

2.5 Headwind and Tailwind Thermals

All too often we see pilots getting low after they have rounded a turnpoint or after they have decided to return to base. What can we do to avoid such low spots or even outlandings, and why is it that we often get into trouble after changing direction?

Let me answer the second question first. We get into trouble because we tend to neglect the wind and fail to adopt our thermal entry procedure.

A simple example might help to explain the problem. For the purpose of this little exercise let us assume our thermal is moving along at the same speed as the wind it is embedded in. If we push into a 20kt headwind while cruising at 60kt our speed above the ground would be only 40kt or just over 20m/s. Assuming that the diameter of our thermal is 160m and assuming that we strike the thermal right in the middle it takes about eight seconds to transit it. As we can see we have quite a bit of time to initiate a turn and get settled in the best part of the lift.

Now let us assume we approach the thermal from the opposite direction. All of a sudden our headwind has turned into a tailwind giving us a nice groundspeed of 80kt or 40m/s. However, this time it takes

us just half the time (or four seconds) to fly through the thermal, and that leaves us significantly less room for error. If it still takes us eight seconds to initiate a thermal entry we have missed the thermal altogether and we put our first turn in sink with greatly reduced prospects of finding the core again.

The lesson is very simple. A thermal found in a tailwind situation requires a much quicker reaction on the part of the pilot and more instantaneous thermal entry procedures compared to headwind thermals.

2.6 Mountain Thermals

Flying in hilly terrain further complicates the issue. Not only do we have to consider orographic lifting or sinking of air (general airflow over an obstacle resulting in ridge-lift and a corresponding downwash on the leeward side) but we must also think about the angle of incidence of the sun's rays. Mountain slopes are usually much drier and if these slopes are facing the sun at almost right angle they warm up much quicker and can also be expected to have a higher temperature compared to adjacent horizontal ground. Such slopes are often extremely efficient sources of thermal activity and usually allow us to climb higher as well. The reasons become clear when looking at figure 21.

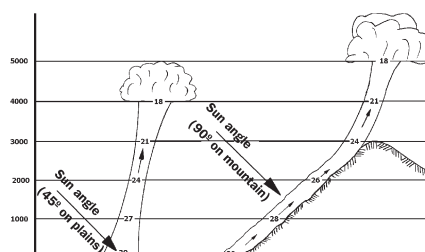


Figure 21 Mountain Thermals

Comparing a flatland thermal with one over mountainous terrain it becomes obvious that the degree of cooling is different. The thermal from the plains experiences a cooling of 3°C per 1,000ft and given the conditions as per the above example forms a cumulus cloud at 4,000ft. On a blue day the thermal would simply come to a hold at about the same level.

Theoretically the same cooling should apply to the mountain thermal, but it doesn't because the air continues to warm while ascending close to the ground and along the mountain slope. Also heating is more intense due to the fact that the sun is striking the ground at almost right angles. By the time the thermal separates from the top of the slope it has picked up an additional 3°C of temperature which not only pushes the thermal to a height of 5,000ft but also makes for a much stronger thermal. In fact,

thermals over hilly terrain might go thousands of feet higher than over the plains.

In this context a word on the strength of thermals. Investigations conducted by M. Hancy suggest that thermal strength is closely related to the height of the convection. On a blue day a value of one knot per 1,000ft minus one is fairly close to the mark and although only a rule of thumb it has proved fairly accurate for the majority of soaring days in southern parts of Australia. For example, this gives us average thermals of five knots on days with 6,000ft convection.

2.7 Influence of Airflow Above the Convection Level

Let's be honest – we have all experienced buoyant air with pockets of good lift for miles on end which rather unexpectedly turns into never-ending sink. It seems like someone has flicked a switch replacing easy soaring conditions by unworkable lift with large patches of heavy sink in between. Our adrenaline levels increase in direct proportion to the unwinding of the altimeter and we ask ourselves: "What on earth is going on?"

If we have not experienced such conditions, we almost certainly will in the future. Perhaps we think of streeting first, but on second thoughts this appears rather unlikely. But what is it that puts us off on days like these? The answer is: "Probably it is the airflow above the convection level," or put another way: "the influence of waves aloft."

Most glider pilots know that the basic ingredients of wave flow are a strengthening of wind with height and a stable layer of air above the convection level. If these conditions are met, plus there is some sort of upwind undulation in the ground, there is a good chance of upper level wave. (Figure 22)

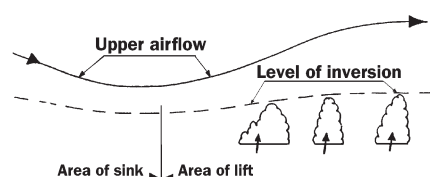


Figure 22: Influence of airflow above the convection level

Just because the above illustration does not show a penetration of wave motion into the convective layer it doesn't mean that it is not affecting the lower levels. On the contrary – what happens aloft has a significant effect on thermal activity below. Wave-like upper airflow not only tends to boost thermals but it can also provide an associated larger scale buoyancy. On the other hand it has the potential of greatly suppressing lift in other areas to the extent that thermals can

become very broken or even completely unworkable.

Even an exceptional weather briefing is not likely to predict such conditions, unless the forecaster has the benefit of extensive local knowledge. This leads to the question: *"How can we recognise such conditions and how can we best deal with it?"*

Well, let's look at days with cumulus clouds first, because we can often get a clue from the accumulation of textbook cumulus in one area of the sky and the suspicious absence of such clouds in another. The reasons are almost self-explanatory when we have a closer look at figure 22. It confirms that in areas of rising air we experience a strengthening of the convection with the added bonus of a higher cloudbase but the exact opposite can be expected under a descending upper airflow.

Although it is not too difficult to soar under such conditions on cumulus days we will find it much harder to enjoy ourselves on blue days. The absence of visual clues makes it very hard indeed to draw the correct conclusions and to implement appropriate flying tactics. However, if we are puzzled by a rapid change in soaring conditions we should suspect wave aloft and – after striking buoyant air – take up a heading perpendicular to the upper wind. If, however, we are in an area of sink we are well advised to take up a heading closely aligned with the upper wind. Needless to say it provides the shortest possible track back into a buoyant patch of air with workable lift. Making the mistake of continuing to search for lift under a descending upper airflow will see us in trouble sooner rather than later.

In this context a word or two on dataloggers and their role in training. Rather

than just using them for flight verification they have proved an excellent tool for flight analysis and for drawing valuable conclusions for future flights in similar conditions. A prime example is the retrospective but positive identification of the conditions described above. Out and return tasks on days with wave aloft will inevitably show good climbs in relatively narrow bands. In fact I have looked at records of flights where the climbs on the way out were in almost exactly the same location than on the way back. One more very good reason for carrying a datalogger even on a short Sunday afternoon training flight. We never know what surprises mother nature has in store for us and what we can then learn while analysing the flight at a later stage.

Well, we have come to the end of another article. Next month we will consider lift under cumulus clouds and related issues.

GFA News

A New FAI Medal

Adopting a proposal from the Turkish Aeronautical Association (THK), the 95th FAI General Conference 2002 held in October approved the creation of a new FAI Medal, the "Sabiha Gökçen Medal", which will be awarded to women performing the most outstanding achievements in any air sport.

Full texts and Internet links available are as follows: Original text in English available in MS-Word form at: [www.fai.org/press_releases/2002/071102_gc4_gokcen.doc], HTML text, links and pictures available at: [www.fai.org/news_archives/fai/000146.asp#000146].

FAI Celebrating its Centenary in 2005

FAI was founded on 14 October 1905 in Paris by representatives of aeronautical organisations from Belgium, France, Germany, Great Britain, Italy, Spain, Switzerland and the USA. The first 100 years of FAI will be celebrated in 2005 with events in Paris, the city that hosted FAI from its foundation until 1998, and in Lausanne, the Olympic Capital and present FAI Headquarters. The 95th FAI General Conference 2000 held last October in Dubrovnik was informed about the planned events.

Full text and Internet links available below. Original text in English available in MS-Word format at: [www.fai.org/press_releases/2002/141102_gc5_2005e.doc]

HTML text, links and pictures available at: [www.fai.org/news_archives/fai/000150.asp#000150].



GFA BADGES & CERTIFICATES

FAI Report – November 2002

A CERTIFICATE

| | | |
|----------------------|-------|---------------|
| Barton, Andrew James | 10758 | NSW AIR TC |
| Long, Francis Paul | 10759 | Darling Downs |
| Howard, Justin | 10755 | Byron Bay |

B CERTIFICATE

| | | |
|----------------------|-------|---------------|
| Tromp, Sara Angeline | 10741 | Darling Downs |
| Barton, Andrew James | 10758 | NSW AIR TC |

A & B CERTIFICATES

| | | |
|----------------|-------|---------------|
| Miyata, Takaya | 10763 | Sthn Riverina |
|----------------|-------|---------------|

C CERTIFICATE

| | | |
|---------------------|-------|--------------|
| Found, Doyle Martin | 10639 | Narromine |
| McKay, Brett John | 10698 | Byron Bay |
| Miller, Patrick | 10372 | GCV |
| Seret, Dirk | 10633 | Adelaide Uni |

B & C CERTIFICATES

| | | |
|--------------|-------|-----------|
| McKay, Barry | 10739 | Byron Bay |
|--------------|-------|-----------|

A, B & C CERTIFICATES

| | | |
|------------------------|-------|---------------|
| Kingswood, Kelly James | 10754 | VMFG |
| Mitchell, Pearce Ross | 10756 | Caboolture |
| Stuebe, Svend | 10757 | Bathurst |
| Ogura, Hiroyuki | 10761 | Sthn Riverina |
| Xavier, Richard | 10762 | Sthn Riverina |
| Esler, Anthony Michael | 10760 | Caboolture |

SILVER C

| | | |
|--------------------------|------|---------------|
| Behnke, Lawrence Philip | 4431 | Caboolture |
| Wishaw, Kenneth John | 4432 | Caboolture |
| White, Caleb Matthew | 4433 | Mangalore |
| Smith, Stuart Douglas | 4435 | Sthn Riverina |
| Oka, Masaaki | 4436 | Sthn Riverina |
| Xavier, Richard | 4437 | Sthn Riverina |
| Roberts, Charles Patrick | 4434 | Bendigo |

DIAMOND DISTANCE

| | |
|------------------------|---------------|
| Carrick, David William | Sthn Riverina |
| Cunningham, Ryan | Kingaroy |

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>



The Agony and the Ecstasy of Lear

PERSPECTIVE OF A PILOT'S WIFE

Dianne McLernon (Article courtesy South-West Microlight Club)

APRIL 1999 SAW MY HUSBAND TAKE HIS FIRST TIF FLIGHT IN A MICROLIGHT. HE ALREADY HAD HIS GFPT LICENSE IN GA, BUT HAD SUDDENLY REALISED THAT THE COST OF CONTINUING THIS SPORT WAS NOT WITHIN OUR REACH. AFTER TWO FLIGHTS IN A MICROLIGHT, HE HAD DECIDED THAT THIS WAS THE TACK HE WOULD TAKE IN HIS AVIATION PURSUITS.



The coastline heading north towards Long Point

In 2000 we were in the eastern states for a short period, catching up on family business. This so-called holiday found us the proud owners of T2-2301. A casual enquiry about availability of trikes for sale saw us signing on the dotted line before we had thought through the consequences. (Steve has a habit of doing this type of spending). We were due to leave Victoria over Easter. We bought the trike three days before the Easter break and had a full three days to buy, build, modify and organise a trailer with which to tow it home. Anyone who has had the pleasure of seeing our trike trailer can attest to the fact, that it was in fact, put together in three days. Regardless, it did serve a purpose and managed to get our trike and us home safely across the Nullarbor.

From then on, it was, we thought, a simple matter of clocking up some hours and getting that elusive piece of paper, a trike pilot license!

Distance, family commitments and a stressful, demanding job saw the obtaining of said piece of paper, a very frustrating exercise.

Without doubt, Bunbury must have its own peculiar weather pattern. We never seemed to be able to time it right. Whenever we left home, regardless of current conditions or forecast, Bunbury was always different... south-easterly at over 15kt if memory serves me correct. At one stage we compared our travelling time with actual flying time and discovered that for a total of 15 hours flying, we had spent some 36 hours in the car travelling to and from Bunbury airport. There were many occasions when we threatened that T2-2301 would go up for sale, but for whatever reasons, we hung in there.

On the opportunities when Steve got to fly, I had the privilege of sitting in an empty hangar while everybody promptly disappeared in their trikes. Aviation, as a spectator sport, is for all intents and purposes... BORING! It's okay when circuits are being flown, but when everyone takes off for a scenic flight... a hangar can be a very lonely place. In fact I was so bored on one occasion, I swept the hangar floor (only to have all the dirt blow

back in when the aeroplane from next door rocked up after his flight).

So three years, 32 hours of flying and 100 hours of travelling later, the moment finally happened. Steve obtained his license! Now came the task of completing sufficient solo hours to gain a passenger endorsement, which of course meant more time sitting in a hangar for me while Steve completed more circuits and solo flights. The boredom made so much easier to take when on one fine summer's evening, Steve and Paul came back from a long flight. Steve was beaming from ear to ear, that it was simply the *"best flight ever! You should see it Di... the weather was beautiful!"* (Maybe I will, one day).

With almost sufficient time clocked up for passenger endorsement, the end was clearly in sight. That was until the now infamous "roll-over" event. Quite unceremoniously, with a gust of wind and a moment's inattention, Steve and T2-2301 turned turtle and met with disastrous results. Our Wizard wing was torn into many neat shreds along the length of the leading edge, the pod was scratched and the wheel spat smashed. Weather 1 – Trike 0. I thought that Steve had actually gone flying and after an hour or so could not understand where he was. No-one had seen him. I was ready to launch an SAR when we found him (with a somewhat bruised ego) and the damaged trike in the hangar.

The journey home that night was sombre. The likelihood of T2-2301 going up for sale, AGAIN, was a very real possibility. I was also in the doghouse for the amount of time it had taken me to look for Steve. (I thought he had taken off and had an accident somewhere). I assured Steve that the hangar was the last place I would look for him or a trike involved in a flying or engine out accident!

So, with Brendan's help, the wing was sent back to Airborne, repaired and eventually returned to us. With a somewhat sizeable dent in our bank account, T2-2301 was ready to roll again, or so we thought. I

ning to Fly



Steve and Dianne. First Flight after endorsement



Heading north towards Point Peron with Garden Island Naval Base in the background (access by the causeway)



Left & above: Shoalwater Marine Park Islands

remember a sickening feeling as we drove to Bunbury to return the wing to the pod. Some 200m before the turn off to the airport, we were met by a police road block. A particularly nasty bush fire was burning close to the airstrip. The police were preventing anyone from going into the area. On the back of our trailer was a newly repaired wing, but I had visions of trying to attach it to a molten pile of fibreglass, fearing that the pod was about to go up in smoke in the fire. Luckily, the fire wasn't quite that close but it was enough to make us think... shit, we should have sold it months ago, while we still had one! On arrival at the airstrip, all was under control. Our fearless leaders were sitting (in relaxed mode with beer in hand) on the Aero club verandah watching the water bombers circling to douse the fire. All was under control.

Steve finally gained his passenger endorsement and I am now slowly getting the nerves under control and enjoying being a passenger. We now have our trike based in Mandurah and can enjoy short drives to the airstrip, allowing us greater flexibility with our flying hours. We have enjoyed some really great January 2003

flights to and around Rockingham and Safety Bay and around the Murray River district.

The final classic irony of our involvement with this sport is that during the frustrations of learning to fly, Steve's work commitments

severely restricted his time available to fly. He is now unemployed, with all the time in the world... but we don't have the money!

Hopefully, sometime this spring, we will realise one of our dreams of seeing the wild-flowers from the air. In the meantime, I continue to be a passenger; I am not interested in learning to fly. I am quite happy being the best piece of microlight ballast that I can be.



Below: Heading towards the Murray Lakes



A Weekend at Forbes

Peter Kestel

WE AWOKE ON SUNDAY MORNING TO THE BLARING SOUND OF COW MOOS OUTSIDE THE BEDROOM WINDOW. AS WE SURFACED I COULD SEE LEN CHASING THE OFFENDING HOOVERS OUT OF THE HOUSE Paddock. FORBES IS UNDER DROUGHT, AND MOST OF THE PaddockS SURROUNDING BOGANOL WERE ARID, HOT AND DEVOID OF FODDER. THE MOIST GREEN GRASS SURROUNDING THE HOME-STEAD WAS AN OBVIOUS ATTRACTION TO THE NEIGHBOUR'S PETS.

I walked around the balcony avoiding the somewhat large stack of empty stubbies that was a reminder of the friendly BBQ the previous night. Only two weeks out of winter, this weekend and the first of hopefully many, several ACT pilots teamed up with some of the locals and stayed over with Len Paton and Desley 'Greenpea' Mather for some pre comp practice. The morning was clear with only the slightest discernible haze on the horizon. Even though the sun was low, you could feel the heat starting to build. I had a pang of nervous anxiety thinking about the day ahead. Moderate to strong northerly winds were predicted, and going by yesterday the sky was going to be, and was, totally cloudless.

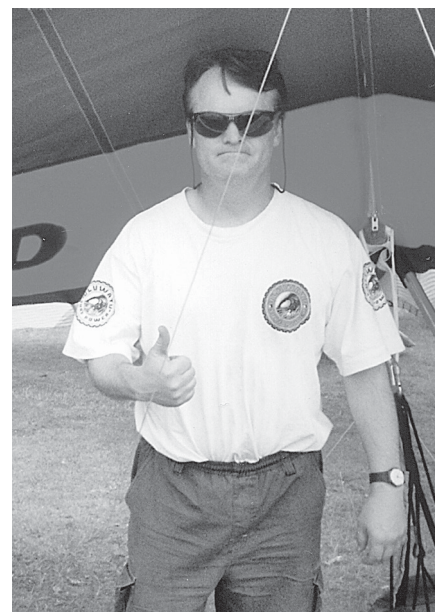
The day before, several pilots had reported it was very cold up high. Guy Hubbard and Dave Seib topped out at 7,000ft asl and Guy didn't wear any gloves. I think he might have had some trouble packing up his glider with fingers an obvious shade of blue, down on the back lawn after flying a local circuit and landing with 'Seebee' back at the property. Saturday was also light and variable but

mainly from the north. We towed up off a narrow country lane with a barbed wire fence only a wing width away on either side. The main problem here is that after release, the rope ends up over the fence. Leonie 'Loon' Kestel (my best half and our most dedicated and experienced driver) and Crouchy worked as a team with two cars to launch 10 pilots several times. It was more than a good effort on their part. Phil 'Champ' Southgate went for a leisurely 70km flight to land just shy of Young, piloting his brand spanker LS3. The rest of us had lots of scratching practice and I tested a new automatic retraction release system (model 2.3, mk4, soon available at Kmart!). The release worked well, however I forgot the basics of actually turning whilst in lift... well, that's my excuse.

Back to Sunday. The orange trees dotted around the yard were all heavy in fruit, so the ACT bats had a good feed for breakfast. And who had the most orange juice stains all over their brand new Moyes Litespeed T-shirt? So I'm blushing, go away. The winds picked up as predicted and by midday had

reached 15kt with higher gusts. Towing was going to be demanding in rough conditions, so the oranges were churning away inside.

Debbie Maher was first away and we watched her scratch out of the paddock displaying excellent thermalling skills to



Phil cracked the 100k!
Photos: Peter Kestel

reach over 7,000ft asl. She was blown 78km down the road all the way to Young, and was one proud and happy pilot.

Next away was the 'Champ' and he only stopped after passing 100km. It was 101km to be precise, and the maximum height gain was 6,300ft asl. Phil cites he could not get through an inversion so his flight was not easy, spending most of the time down low in rough and broken lift. It must have been a good dig.

Dave Seib (LS5) shot out of the paddock on attempt number two and didn't look back, flying over Debbie and landing well past Young.

Now, Mick 'Buckets' Ryan deserves a mention. Buckets is flying a Wills Wing Falcon (that is one of those floaters the size of a jumbo). On Saturday Buckets made it out of the paddock to reach 4000ft asl and he was a happy chap. On Sunday he learnt how not to ground handle in strong gusty conditions. We might call him 'turtle' for a while!

John Wilson and Pat Hulme had short flights. Brad Dennis joined me a few paddocks away. And Len 'the General' Paton in his new Moyes LS4... where did he get to? Took off late, worked it too 8,300ft asl, overtook everyone whilst discussing his life story on the radio (exaggeration), one hand on the bar (yawn), did a circuit of Harden (+100km), could have flown to Canberra (if he lived there) and probably back to Boganol!

Tip: The rate at which you can sustain a tight 360 is indirectly proportional to the amount of beer consumed the night before. Even the best pilots bomb out every now and then!



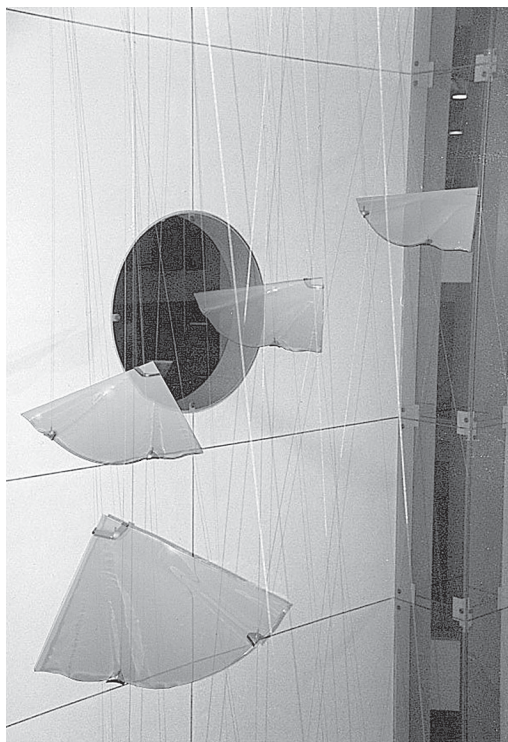
Debbie Maher did well, reaching Young



HANG GLIDERS IN PARLIAMENT HOUSE!

Peter Kestel

DID YOU KNOW THAT EVERY TIME OUR PRIME MINISTER ATTENDS TO HIS DUTIES IN THE HOUSE OF REPRESENTATIVES HE CAN LOOK OUT AT A VERY SIGNIFICANT SCULPTURE? ALIGNED RIGHT BESIDE THE FAMOUS REPS CHAMBER, RESPLENDENT WITH ITS GREEN LEATHER SEATS AND WOOD GRAIN, IS A WONDERFUL PIECE OF ART THAT IS HANGING FROM THE CEILING. FOR NEARLY THREE LEVELS, DROPPING DOWN PAST OPEN WALKWAYS AND IN FULL VIEW OF ALL THE POLITICIANS AS THEY MAKE THEIR WAY TO THE CHAMBER, THIS ARCHITECTURAL INSTALLATION IS TRULY AMAZING.



The artwork was commissioned in 1986 by the Joint House department to Maureen Cahill. To quote from the Glass Artists Gallery in Sydney, Maureen Cahill is "a seminal figure in the Australian glass movement, having established the first glass course in 1978 at Sydney College of the Arts..."

The sculpture is made from 18 large pieces of 'slumped' glass and each has the plan shape of a Rogallo wing complete with billowing sail. The span of each wing would be about 1m and the chord slightly less. Each is suspended on cables forming a three dimensional spiral that closely resembles a gaggle of hang gliders biting into a good core!

I finally had the honour of a quick chat with Maureen about this work and she informed me that the work was titled 'Willy Willy'. How appropriate! She also ceded that each wing was indeed based on a 'flight

shape'. Artists often have an insight beyond most mortals, and Maureen described how the willy willy takes up the "light and superfluous" and leaves the "solid and of consequence" behind.

To me, this inspirational work reinforces and represents my absolute passion for the freedom that we all love and enjoy, especially under our wings.



Now, did it take a humble hang glider pilot to reveal this artwork's true significance? Well, at the very least it certainly got my attention, as I recognised or interpreted this masterpiece as a gaggle of hang gliders thermalling skyward. After quite a few years working at the House, I finally took time out to seek out the artist, and her inspiration.



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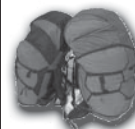
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Letters to the Editors • • • • •

International Free Flight Survey

I am a final year student at Leeds Metropolitan University and am currently conducting research for a dissertation into the potential benefits to tourism of free flight activities. Although my primary focus is Tirol, Austria, I have been looking for ways of also putting this into a European and international context. To this end, I am trying to reach as many fellow fliers as possible in the hope that you may spare a few minutes to take part in what I believe to be the first survey of this kind! I have tried to keep it relatively simple, not to ask too much of you all, and have devised a bog standard online form with a few basic questions pertaining to your flying holiday choices and tendencies.

All you need to do is go to [www.aetherweb.co.uk/pilotsurvey/] and take a few minutes to fill out the form. This could prove pivotal to my success and I appreciate that these things can seem a chore! If anybody is interested in the findings or has any suggestions or ideas they would like to put to me, please get in touch via <Sam@Littlescape.freemove.co.uk>.

Sam Little

Slovak National Aeroklub Junior Championships

The Slovak National Aeroklub has pleasure in inviting all FAI members to participate in the 3rd World Junior Gliding Championships, which will take place at Nitra Airport in the Slovak republic, 5-19 July 2003.

The event is supported by local authorities, who will help in the preparation and organisation. We hope that you will find out the advantages of suitable gliding terrain, good weather and low costs for competitors by taking part in the event.

Anton Liska, Secretary General,
Slovak National Aeroklub

Editor's note: Please contact Tim Shirley (0417 268 073; email <tshirley@bigpond.net.au> for further information.

The Largest Gliding Club Grows Larger

Nothing in my article, 'The Largest Gliding Club Grows Larger' (SA October issue, pp 34-5), should be taken as implying that flying vintage gliders is better or more fun than competition flying. I did not say this and I don't understand how Terry Cubley can find it in my words (SA December issue p 25).

I said the Vintage Club members enjoy flying. That is true. No one was trying to do better than anyone else so the atmosphere was unlike that of a modern soaring competition. That is true also. Different does not imply more fun or less. Different means different.

But there may be some significance for the GFA Development Officer in the other truth that I mentioned. The International Vintage Glider club is growing while apparently most other aspects of the sport are not. Many of the fliers at Achmer were relatively young, not by any means all grey haired veterans. The flying began early and finished late, again, unlike a modern soaring competition. The organisation, despite a multiplicity of tugs and winch wires, could not cope with the dawn till dusk demand for launches.

I base my comments not only on my experience at vintage rallies but also as a former competition pilot and one who has been an observer and reporter at many World and lesser Championships. I used to enjoy competing too. I agree, facing a daily task in competition teaches a pilot a great deal. Attempting apparently impossible tasks on poor or mediocre days, I sometimes surprised myself. (I even took some prizes. I won a State Title and there was one

extraordinary day when I beat Helmut Reichmann, then World Champion, round a large triangle in a Benalla Nationals. That was fun, alright.)

I eventually gave up competitive soaring (about 1980) because the emphasis was all on flying set speed tasks round rigidly specified courses. The necessary skill at this time was chasing enormous gaggles marking the thermals. Anyone who headed off independently seemed doomed to lose. There was also an increased element of risk of mid air collisions. I did not find this kind of contest flying very enjoyable, although I did persist with it for some years.

The kinds of flexible contest tasks that I enjoyed most (and often did quite well at) were voted out by an overwhelming majority of contest pilots. I remember Fred Weinholz at Chateauroux in 1978 despairing: "They don't like it, they won't have it!" when he first suggested a 'pilot's choice' task somewhat like the modern 'POST'. The contestants at that time chose to go on doing what they had been doing. They wanted fun of the kind they had become good at. I was not alone in wanting something different.

I recall one (minor) competition where, during the rather short and unimaginative task, I ran into wave and decided to investigate it, while everyone else was interested only in dashing round the little triangle, finishing and landing quickly. This exploratory sort of flying is different again, and also teaches us something. I have always had most fun soaring alone, with only the occasional sight of another glider.

Modern competitions are not structured in the old way. New types of task and contests have been promoted. With alternative turning points and liberation from the demands of start lines and turn point photography, there is probably more fun and less gagging than 20 years ago. Pair and team flying too, is different and, I am assured, it is fun.

It is only a tendency to get a bit sleepy in mid afternoon that prevents me having that sort of fun myself, now. But one of the best things about soaring is that, providing one remains in reasonable health, there is no firm upper age limit. We can all go on having fun, in our different ways, and competing at top level, for years more than people in most other sports. Anyone for tennis? No?

Martin Simons



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Feedback Forum



Viv Drew

Implementation of Stage 1 of the NAS (by GFA President, Bob Hall)

The decision to implement the NAS is a Cabinet decision and so, while such decisions can be altered, it is now unlikely. However, some important details remain to be agreed – so the nature of operation of the NAS remains to be decided.

Once implemented the NAS will not require any significant change to the way we operate – but it will introduce a big change in attitude – specifically from compliance with rigid mandatory procedures to responsible implementation of sensible recommended procedures. This is an approach which has resulted in superior safety outcomes over many years in the US and which should be welcomed and implemented enthusiastically by all.

It is planned that the NAS be implemented in four stages. The first has already occurred (28 November) and the second and third stages are planned for 2003 with the fourth stage in 2004. (Details on the website – see below)

Specifically with respect to the first stage of implementation, two changes are involved – the first relates to altimetry and the second introduces a multicom frequency for use at airfields with no designated aerodrome frequency.

The changes in altimetry are not relevant to gliders as we do not cruise at hemispherical levels. The current practice of setting aerodrome altitude remains appropriate for gliders.

The introduction of a multicom is designed to remove from the ATC frequency all radio chatter associated with airfields and, in future, all radio calls at aerodromes with no current designated frequency should be on this frequency. When operating at an aerodrome with a designated frequency, pilots should continue to use this frequency, provided it is not the ATC frequency. For most cases the designated frequency will be either an existing CTAF or MBZ frequency. However, in our case it can be a gliding frequency. The NAS regards this as a 'designated' frequency and this practice can continue.

Further, radio procedures at multicom aerodromes are 'recommended'. That is, use of the radio at such aerodromes is at the discretion of the pilot. Where there is no other traffic then no radio call may be the appropriate response. If the pilot considers that a radio call may assist in improving safety outcomes then the pilot should make that call. In most circumstances current CTAF circuit calls should be appropriate.

At this time there are no changes to procedures at CTAF and MBZ airfields.

In our case the choice of the frequency to use depends on radio traffic. The gliding frequencies are designed for en route use and if the use of the gliding frequencies at any airfield interferes with this primary use then the multicom should be adopted as the aerodrome frequency. There should never be any suggestion that glider pilots not use the gliding frequencies for en route use because they are used at an aerodrome. We need to consider whether the GFA might regard the gliding frequencies for exclusive use as en route frequencies and use the multicom for all aerodromes with no other designated frequency. The final decision will depend on workability given the level of radio traffic.

RTO Operations NSW Southern


Aaron Stroop has replaced Roger Browne as RTO Operations NSW Southern.

Aaron lives in Sydney and flies regularly at Bathurst where he is currently the CFI. Like most RTOs, Aaron has a big geographical area to cover and with the assistance of Level 3 Instructors, will be getting around to meet his clubs as soon as he can. Aaron was originally a member of the GCV in Victoria as one of their mid-week instructors and is known as "Big Mac" for his predilection for the golden arches!

GFA AGM/ACM – September 2002

A number of issues were pertinent to record from the GFA AGM/ACM held in September 2002.

- *The Gliding Federation of Australia has adopted the Articles of Association presented in the Round One Papers 2002 to become an Incorporated Association. This is a significant milestone and Maurice Little and Tony English are to be thanked for their tireless efforts in moving the process to a conclusion.*
- *Life Membership was awarded to both Maurie Bradney and Kevin Sedgman for their significant contributions to the sport of gliding.*
- *The Victorian Soaring Association advised that they could no longer continue to operate as an Incorporated Association and requested acceptance by Council to become a sub-committee of the GFA, called the South Eastern Regional Committee, which was agreed.*

As we move into top gear for the soaring season, we wish everyone safe and successful gliding for 2003. 



Optical illusion: A glider on short finals (runway 32 Gympie) with four other gliders on the ground and apparently in the flight path. They are in fact parked on the left side of the runway preparing for a winch launch and the glider on finals is to touch down on the right hand side of the strip as is the long established tradition at the Gympie Gliding Club Photo: Big Marco

GOAL SETTING

**Emilis Prelgauskas – with acknowledgment
to overview material developed by Clem Lenau**

BACKGROUND

One element of the South Australian Gliding Association sporting initiatives is the winter season of coaching lectures initiated by Catherine Conway, in the university venue arranged by Andrew Wright, and material contributed to by trainee coaches.

In the summer this is reinforced by individual pilot/coach exercises, courses in basic cross-country, performance flying, and through to the contest circuit. During winter this is given continuity by the lecture and discussion series, which are open to coaches and interested pilots.

The wider outcomes from these events include the potential for information available (much of it in PowerPoint format) and suitable for use in other regions and clubs.

The ambition is for this work to build on, and expand from, the foundations laid by the late Maurie Bradley.

OVERVIEW

Pilots moving into the sporting aspects of the sport want to develop skills beyond basic rudimentary flying capability of safely launch, circuit and land.

The goals become a ladder of gradually more demanding attention and focus which, together, enable the pilot to achieve better outcomes. (Fly longer, higher, further, faster)

The coaches in the club and region have a contribution to make. These people have the skills themselves, and the capacity to mentor, advise, cajole and motivate the aspiring pilot toward those better performances.

Pilots who want to develop their flying further should seek out these people. This might be done within your home club, or may include others drawn in more widely. (Different coaches will have different things to contribute, but this is a subject for another time.)

BROAD GOALS

It is human nature to want to set a destination – such as, “*I want to be (state which level – local, state, national, world) champion by (state timeline).*”

The problem with this is that it in itself doesn't provide the method of getting there. And of more concern – if it isn't achieved straight off, we can be tempted to abandon the attempt.

Whereas, in life, the really satisfying goals which are memorable are those where barriers, delays and obstacles were overcome. (Which doesn't mean to say we look to have such things in our way, well, not all the time anyway).

GOAL SETTING

For the pilot aspiring to get more from gliding, the opportunity is provided to set personal goals which have a direct bearing on their flying performance.

As noted above, we pilots may have personal goals, which is fine to set as distant benchmarks, but what we need are more immediate task-focused goals which form stepping stones to longer term outcomes.

For the pilot still developing flying skills, it is worth remembering that luck seems to favour those who have prepared themselves to grab it when it comes along.

There is a natural reaction when local flying to believe that if we are staying airborne, then we're doing okay. But a small test often shows how marginal our flying skills are.

A TEST

The test can be as simple as trying to get as far from the home field (upwind by preference) as we can while still remaining in glide range. This obviously means that as we get further away, we are having to work thermals more frequently and stay in the upper (and probably weaker lift) height band to maintain a comfortable glide angle home.

What is found on such a test is that there comes a break-off point where we have to scurry for home. We have failed to find the next thermal within a short enough glide to remain within the glide home angle window.

A pilot who is better at following the lines of lift, who climbs more quickly in the thermal and thus drifts less ground distance during the climb, and who works gusts in the inversion more effectively will be able to go further from home and still be within a comfortable glide angle to home.

This pilot suddenly has a wider operating range, more thermal selection choice, more outlanding alternatives, and, I'd suggest, more fun than those without the skill.

Beginning

So early goals need to include:

- *am I finding the thermal close to the launch point*
- *am I climbing in the thermal as effectively as I can (read and absorb the published material on the subject)*
- *am I doing something constructive after the climb*
- *am I testing my flying skill during this flight*
- *am I planning the upcoming flights*

Early Cross-country

- *have I prepared myself physically, mentally, and have the gear (flight psychology is a subject for another time)*
- *have I prepared the sailplane*
- *have I set a task which will challenge my capabilities*

In Flight

- *am I flying through the best air*
- *am I only stopping to climb when I need to*
- *can I achieve more ground speed by flying smarter rather than at a higher speed*
- *can I make it to (the turnpoint, landable terrain, home)*

Competing

- *am I flying my own race*
- *am I aware of what others are doing*
- *what am I missing – where is the edge (making use of particular weather, thermal-marking gaggles)*

THE COACH

The goals' list given is not extensive, because each pilot needs to tailor their own. This can be done in discussion with a coach.

Finding the right person to mentor and draw from thus becomes a goal in its own right.

Many of the exercises noted above can be done on the ground, during time not on the airfield and not involved in a flying operation, through the process of discussion and critique with a coach.

SOME NOTES

The goal set above has arisen from memorable experience in the writer's gliding.

Winter gliding gives opportunities to spend time circling in zero sink. The general club tradition is to waft around in such stuff for a while, then get bored, circuit and land.

The option however is to stick with the zero sink and try out different angles of bank, thermalling speeds, flap settings – to see if there is anything where the constant height can be converted to even a slight climb.

At a later time this knowledge stored away in the pilot's inventory will mean the difference between outlanding and getting back up and into the flight.

The practice also improves pilot skill at actually holding a set angle of bank, speed and/or position.

I tend to fly a diverse range of gliders. My cross-country experience is that I achieve much the same speeds in the older, lower performance glider in which I have lots of flying hours compared with the significantly higher performance glider in which I have little flying time. Pilot performance often falls away for a while when moving to a new glider compared with the one you can 'fly without having to think about it'. It is also quite useful in a contest environment to be discounted by other competitors early on because you've turned up with something 'uncompetitive'.


Bad days tend to be overlooked with good performances possibly given more prominence than they probably warrant. The message is – fly the same glider a lot. As noted below, this is also part of 'preparing the glider'.


Many hours can be spent physically preparing the glider. But the same hours spent flying are likely to result in higher achieved cross-country speed. This is not to say that it is unimportant to have the glider presentable and fettled, where the pilot believes it is performing at its best. It is. It is part of the psychology that permits the pilot to go faster. To draw an analogy from my hybrid electric car – the aerodynamic changes I've made have made about 1mpg improvement. An aware driving style measures 5mpg improvement in fuel economy. So, I do both. Result together – close to 60mpg.

A flight in a local contest (many years ago), amongst very evenly-matched and similarly low-experience contest pilots. The search was therefore on for something to provide an individual edge. On that day I found a thermal street way off course where, despite the deviation required 90 degrees to course, the achieved overall speed was well ahead of the bulk of the field. Once you have got some of the flying basics in hand, start looking for those things that will give you an edge. Something that works every time, or something on the individual day or flight, including when local soaring.




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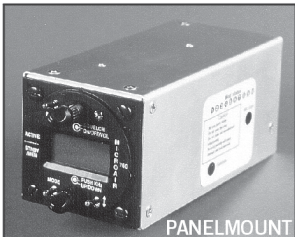


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Paraglider Equipment Survey

Hakim Mentes

YOU HAVE JUST COMPLETED YOUR TRAINING, BOUGHT THE GLIDER AND STARTED LOOKING FOR OTHER FLYING EQUIPMENT SUCH AS RESERVE CHUTE, RADIO, GPS, ETC. THE FOLLOWING TABLE LISTS ALL PARAGLIDING ACCESSORIES AND WHO SELLS THEM. I HOPE THAT THIS INFORMATION MAKES YOUR SEARCH A BIT QUICKER.

| | | | | | | | | | |
|----------|---------------|--------------------------|---|------------|--------------|---|--------------------|---------------------------------|----------|
| Harness | Firebird | Excaliber | Made of Cordura material | 1 | Radios | Icom | IC40s | UHF 40ch, scanning, | |
| | Pro-Design | Jam Pro Compact | | 4 | | | | 5 watts | 4,5,6,7 |
| | Woody Valley | X Rated, X Over, | | | | Icom | IC4 | Airband | 5 |
| | | A Act, X Press | | 4 | | Kenwood | | | 10 |
| | Skyline | Racer, Project, | | | GPS | Silva | Multi-Navigator | 170 x 61 x 30mm, | |
| | | Smart | | 4 | | | | 1,000 waypoints, | |
| | Thin Red Line | Vapor | | 4 | | | | 12ch, altimeter | 2 |
| | Sup-Air | Cocoon, XC, Pro- | | | | MLR | SP24XC | | 4 |
| | | Feel, Evolution, Moovy, | | | | Garmin | E Trex | | 4,5,10 |
| | | Echo, Altiplume, | | | | Garmin | 12 | 12ch | 4,5,7,10 |
| | | Evasion, Bifidus | | 9,10,4 | | Bräuniger | Galileo | GPS + flight computer | 4 |
| | Edel | Corona | M & L size | 5 | Helmets | Sol | | Carbon fibre | 1 |
| | Edel | Evolution, Revolution | S, M, L sizes, new models | 5 | | Lazer | | Open face | 4,5,7 |
| | Apco | Silouhette | Airfoam-kevlar back & side protector | 6 | | Charly | Insider | Full face | 4,5,10 |
| | | | | | | Uvex | | all sizes | 5 |
| | Apco | Contour | Airfoam-kevlar back & side protector, 6 adjust- | 6 | Flight Suit | Apco | Kevlar | Full face, all size & colours | 6 |
| | | | ment, 7 pockets | | | Sol | | | 1 |
| | | | | 6 | | Sup-Air | All sizes | | 4 |
| | Apco | Finesse, Finesse Plus | 15cm airfoam-Lexan back & side protector, low drag, lay | 6 | | Skyline | All sizes | | 4 |
| | | | back option, tilt for landing | | | Gin | All sizes | | 4 |
| | | | SHV certified, 32m ² , weight | 6 | | Ozone | | | 4 |
| Reserves | SkySpare | 32 F | range 60-90kg, sink rate | | | Edel | All sizes | | 5 |
| | | | 4-5m/s | 1 | | Apco | Xtrem | leg, arm & chest neck zips, | |
| | SkySpare | 35 F | SHV certified, 35m ² , weight | | | | | hi collar, made from Carrington | 6 |
| | | | range 78-117kg, sink rate | | | Apco | Comp | Same as Xtrem with low | |
| | | | 4-5m/s | 1 | | | | drag comp sleeves | 6 |
| | SkySpare | 50 | SHV certified, area 50m ² , | | | Parafunalia | | Windproof 'Twill' Nylon. | |
| | | | weight range | | | | | 6 combinable colours. | |
| | | | 135-200g, sink rate | | | | | 3 lining options. Custom | |
| | | | 4.8-5.5m/s | 1 | | | | made in Manilla, additional | |
| | | | | 4 | | | | zipper & pocket options | 7 |
| | Pro-Design | Help 360 & 400 | | 4 | | Fly Mike | All sizes | | 10 |
| | Sup-Air | All models | | 4,10 | Flight Shoes | Salomon | | | 4,10 |
| | Flying Planet | All models | | 4 | | Gin | All sizes | | 4 |
| | Thin Red Line | All models | | 4 | | Hanwag | Fly 2000 | Side wall stiffening, special | |
| | Edel | RS2 | Pull down apex, 120kg rating | 5 | | | | shock absorbing sole | 4,6,7 |
| | Edel | SR3 | Double cap, 4.5m/s sink | 5 | Gloves | Various | | | 4 |
| | Apco | Mayday 16 | DHV certified, 25m ² 16 gore, | 6 | | Edel | | | 5 |
| | | | up to 106 kg, weight: 1.8kg | | | Manzella | | Windstopper material. | |
| | Apco | Mayday 18 | SHV certified, 30m ² 18 gore, | 6 | | | | Leather palm, not too | |
| | | | 75-120kg, weight: 2.2kg | | | | | bulky to hinder pressing | |
| | Apco | Mayday 20 | Afnor/CEN certified, 37m ² | 6 | | | | instrument buttons | 7 |
| | | | 20 gore, 100-160kg, | | Glasses | Charly | | | 10 |
| | | | weight: 2.69kg | 6 | | Eagle Eyes | | | 4 |
| | Apco | Mayday Bi | Afnor/CEN certified, 47m ² | 6 | Back | Advance | | Closed cell 'air' back | |
| | | | 18 gore, 120-200kg, | | Protection | | | protection with flexible | |
| | | | weight: 3.2kg | 6 | | | | rigid removable plate. | |
| | Charly | GSII | DHV Certified, pulled | 7,10 | | | | Can be rolled up for | |
| | | | apex, double cap | | | | | travelling. Suits Winner | |
| Varios | FlyTech | 4005 | 20 memories, 2 altimeters, | 1,5,6,7,10 | Flight Decks | Bräuniger | | & some other harnesses | 7 |
| | | | speed averager, temp | | | Skyline | | | 4 |
| | FlyTech | 4010 | As above plus real time | | | Advance | | | |
| | | | & software for flight | | | | | Front mount cockpit | |
| | FlyTech | 4020 | log storage | 1,5,6,7,10 | Hook Knives | Jack the Ripper 200mm; plastic; yellow; | | for instruments & accessories | 7 |
| | | | FAI certified barograph, | | | | | \$20 | 2,6,10 |
| | | | polar rec., Flychart 4.0 | | | | | | 4 |
| | | | for Windows | 1,5,7,10 | | Pro-Design | | | 4 |
| | FlyTech | 4030 | As above plus full | | Carabiners | Mallion | Rapide | | 4 |
| | | | GPS integration | 1,5,7,10 | | Apco | Gate lock | | 6 |
| | Brauniger | Galileo | GPS & flight computer | 4 | | Apco | Twist lock | | 6 |
| | | | integrated | | | Stubai | Twist lock | Easy one handed operation | |
| | | | | | | | | & auto locking | 7 |
| | IQ Series | Sonic, Comfort, Classic, | | 4 | | | | Steel | 7 |
| | | Comp, Comp GPS | | | | | Trapezoid Mallin | | 7 |
| | IQ Series | Motor | Special for paramotor pilots | 4 | | | Speed system clips | | 7 |
| | Aircotec | Piccolo Plus, Primus, | | | | Charly | | | 10 |
| | | Champion, Top Navigator | | 5 | Speed | Flytec | Harness | Speed sensor with velcro | |
| Radios | Uniden | | 1 watt | 1 | Sensors | | | HG upright mount for | |
| | Icom | IC40JR (Joey) | | 4,5,6 | | | | Flytec varios | 7 |



| | | | | |
|-----------------------|----------------|------------------------|--|--------------|
| Speed Sensors | Flytec | Drag | Speed sensor that dangles below pilot in clear airstream for PG | 7 |
| Wind Speed Indicators | Flytec | Windwatch | Waterproof. Multiple scales. Peak & average memo's. Temp & wind chill | 7 |
| | JDC | Skywatch | Just wind speed (various scales) and smaller than Windwatch | 7 |
| Wrist Altimeters | Silva | Alta | | 2 |
| Vario Mounts | Avocet | Vertech | | 2 |
| | Flytec | Swivel | Enables all FLYTEC varios to be mounted on the harness & swivel universally to the desired position (PG & HG versions) | 7 |
| | Flytec | Soft | Protective harness mount, velcro attachment to chest strap | 6,7 |
| GPS Mount | Flytec | | Swivel mount for Garmin GPS's (not model GPS III or above) | 7 |
| Protective Cover | Flytec | Varios & GPS | Neoprene cover to protect Flytec varios & Garmin GPS's. | 7 |
| Radio Pocket | Apco | | 170 x 60 x 30mm | 6 |
| Radio Access | Icom | Speaker mic | To suit IC40s | 7 |
| | Icom | Case | Leather protective case IC40s | 7 |
| | Icom | Spare batteries | Various | 7 |
| Windsocks | Various | | | 4,9 |
| Windflags | Ozone, Gin | | | 4,9 |
| Para-kites | Ozone | | | |
| Pro-Design | All sizes | Buggies & accessories | | 4 |
| Stuff Bags | High Adventure | Stuff Bag | | 1 |
| | Parafunalia | Stuff Sack | The big sack for a quick pack up - choice of colours | 7 |
| | Apco | Clinch Bag | Expandable nylon bag with shoulder straps | 6 |
| | Apco | Rucksack | Fully adjustable, compression strap, hip strap, 200lt | 6 |
| | | Stuff Bag | UV | 10 |
| Reserve Container | Apco | Front | | 6 |
| Ballast | Apco | Front | Front mounted 5 litre ballast with drinking hose | 6 |
| | Apco | Lower | 9 litres | 6 |
| Tow Bridles | | | Foot & hand release | 4 |
| Tow Releases | | Linkknife | | 4 |
| Books | Pagen, Dennis | Understanding the Sky | | 4,5 |
| | Pagen, Dennis | The Art of Paragliding | | 4,5 |
| | Pagen, Dennis | Towing Aloft | | 5 |
| | Whitall, Rob | | | 4 |
| | Van Santen, H | Paragliding Safely | | 5 |
| Videos | Sanderson, J | Speed To Fly | XC video, 80min of tips & tricks | |
| | | Security In Flight | Reference video for flight safety & manoeuvres | 7 |
| T-shirts & Caps | Various | | Gin, Ozone, Pro-Design, Gradient, Swing & Flying Planet brands | 4 |
| | Various | | Manilla PG, Advance, Gravity Sux, various designs & styles | 7 |
| Training | | Licence course | | 1,4,5,6,7,10 |
| | | XC Tours & courses | | 1,4,5,6,7,10 |
| | | SIV courses | | 4,6,10 |
| | | Acro courses | | 4,6,7 |
| | | Refresher courses | | 1,4,5,6,7,10 |
| | | Tandem flight | | 4,5,6,7,10 |
| | | Towing endorsement | | 4,5,10 |
| | | Paramotoring courses | | 4,5,6 |
| Overseas Tours | Europe Tour | | | 1,4 |
| | | USA Tour | | 1,4 |
| | | Bali Tour | | 1,4 |
| | | Turkey Tour | | 4,8 |
| Reserve Packing | | | | 7 |
| Porosity Checks | | | | 7 |
| Paramotors | Adventure | All models | | 1 |
| | Airfer | | | 3 |
| | Discovery | Cors Air, Radne | | 4,5,6 |

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|------|-----------------------------------|------------------------------|--|
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HGFA General Manager's Report

Craig Worth

ask that all clubs check their details on the magazine contact page and let the office know of any discrepancies. I again also ask that club secretaries return the annual survey/affiliation report if they have not already done so.

Stanwell Park Site Rules

The Stanwell Park Club are still negotiating with the local council to formalise tenure at the Bald Hill site. All pilots flying there are required to familiarise themselves with the site rules and to strictly adhere to them. In gaining approval from the local council, in the interests of safety, an agreement was reached with the local radio controlled modellers that they will not operate their gliders at Bald Hill, providing hang gliders and paragliders not operate at their site near the Otford Pie Shop, north of the Bald Hill site. I ask that all pilots also comply with this requirement.

Motorised Hang Gliding Incident

The following incident was recently received from a pilot flying a home-built minimum trike attached to a high performance glider. In the pilot's words (with some minor editing):

"At approximately 800ft on climb-out, the propeller departed the aircraft for parts unknown over some treed hills. The engine was shut down, an inspection revealed no apparent damage to wing or undercarriage, and a forced landing was successfully made. Inspection revealed that the prop shaft was sheared at the flange which secures the re-drive pulley bearing. The remains of the 20mm CrMb shaft showed the progress of a fatigue crack and a final torn section. It appeared that the crack in the shaft probably began at a scribe line left when the shaft was turned down. This shaft was a locally commissioned replacement for the original Adventure Paramotor shaft which had other, unrelated problems, and it would seem (although it lasted longer than the original) was not made as well as I would have liked! There would have been no way to detect the problem in preflight as the crack point was not visible, nor (unless it was hanging by a thread) would giving a "heave-ho" on the prop have detected it given the amount of material left when it finally let go (the torn section). If there's anything to learn from this, I guess it's that if you build (or modify) your own equipment, and have third parties do some of the work, there are risks involved!"

Hang Gliding Tumble

The following report from the Davis Straub's Oz Report drives home the need to ensure that your reserve parachute has been recently repacked; and that it is essential to have some basic survival equipment in your harness. The pilot, Barry Levine, was flying a US built high performance glider in the Owens Valley. The Owens is desert, though conditions in Australia this summer would be little different. In Barry's words (slightly edited):

Short version:

- *I tumbled, broke, deployed, hiked out*
- *have your 'chute repacked regularly*
- *don't stay on the Sierras after noon in the Summer*
- *carry extra batteries, food, water when flying XC*

Long version:

I was the last one to launch, at 10:50am. Lift was already pretty strong and I climbed quickly over 11,000ft and started north along the Sierra. After several thermals up to 13,000ft my radio died. Lift was strong, sink was strong, and the shadows of the clouds announced a strong south drift. I was looking for one more good climb before the valley crossing when the core I was centering in turned into a glider-breaking machine. I was already in a bank, circling left near best-glide speed (I'd guess about 40mph at sea level, more at the altitude I was flying) when the bar pressure started mounting crazily. I was going up at about 1,500ft/min (this wasn't the time to be looking at the instruments), with the bar still at the bottom of my ribs. Suddenly, the bar was torn irresistibly from my hands, and all that energy came back as a (right) wingover of high angle and small radius. That part was all positive. The tuck followed. I fell into the sail and went over. When I was again right-side-up, I grabbed the bar and pulled in. It was instantly clear that I couldn't fly this glider. It was broken and spinning. LOOK, GRAB, PULL! LOOK, THROW, YANK!

The reserve 'chute worked just like in the manual. I had been spinning toward the left, so I threw it left and aft (forward and rightward would have been too difficult – I think my right arm was pinned against the downtube). Because I had thrown with my left hand, the bridle chafed my right arm as it pulled tight, but that was a minor thing. I was still spinning, but my descent seemed pretty slow, and I was right-side up. I somehow got my feet out of the harness (add one zipper to the shopping list), and then suddenly the spinning stopped as I

reached the earth. I had "landed" on an open gravel slope at about 11,000ft on Mt Goodale, upwind of where I'd been climbing a minute earlier. I immediately unhooked from the wreckage, and then stripped off the harness to get free of the 'chute. It looked benign, lying there on the mountainside, but I did not want to be attached to it if it caught the next thermal! It was about 1:30pm on a July afternoon, and the thermals blowing by sounded like freight trains. I dug out a spare battery and contacted my driver and explained the situation. Checking the glider, I found that I'd broken both leading edges (just outboard of the sidewires), and bent both the left downtube and the keel. The right washout tube had torn out through the sail. I didn't check the crossbars, and didn't determine if the LE's had failed upwards or downwards. I gathered up helmet, 'chute, bar mitts, vario, radio, food, harness and water and started hiking down. I spent the rest of the day hiking/climbing/sliding down to the first dirt road where I was picked up."

Wake Turbulence

Two reports from the UK highlight the need to avoid wake turbulence.

A report UK Civil Aviation Authority states that a microlight on final approach into a landing field saw a military helicopter approach across his flight path and pass in front of him. The microlight pilot reported severe turbulence in the wake of the helicopter and had to apply full power to regain control. This resulted in his landing being completed well into the field. Comment: distraction on final approach should be countered by carrying out a go-around early and repositioning for a further approach. Such an early go-around would most likely have prevented the turbulence incident by putting the microlight above the helicopter's wake.

A follow-up report from Chris Finnigan, the Chief Executive of the British Microlight Aircraft Association (BMAA), reads: "While flying my microlight at around 1,700ft over the countryside, a motorglider which was overtaking me on my starboard side reduced power and increased its nose up pitch to slow down and fly in formation with me for a short while. The motorglider pilot was not in radio contact with me and had not obtained my agreement to fly in formation. However he did keep a reasonable distance away so I was not unduly concerned as there appeared no risk of collision. After exchanging friendly

Right:
Chasing the sun –
A rare westerly
brings out the
local pilots who
are lucky enough
to get away from
work and grab
their gear in time.
Location:
Cottesloe, WA
Photographer:
Sun Nickerson
Camera/equip-
ment used: Ricoh,
RR1



Far right:
Sign of the times
– The slow but
inexorable pro-
cess of pilots
land clubs taking
responsibility
for their busy
sites (Geoff Guest
at Portsea)
Photo:
Brian Webb



waves, the motorglider accelerated away from me and then, to my horror, altered course to pass in front of me only a couple of hundred yards ahead. I attempted a rapid descent to avoid his wake and propwash but was caught and given a fair buffeting. Apart from 30 seconds of quite colourful language from me that was for my health only and was not transmitted over the radio, it appeared that no harm had been done. The motorglider pilot probably did not even consider that what he had done was in any way hazardous to me. What I learned later made my blood run cold. Guy Gratton, the BMAA's Chief Technical Officer has been doing research over the last four years into the "tumble" phenomenon. The tumble is a nose down autorotation of a weightshift microlight. It is very fast (up to 400° per second) and cannot be recovered from, continuing until either the aircraft hits the ground or the airframe fails (usually resulting in the wings folding upwards). Although some pilots have survived a tumble, because of a "sycamore seed" effect of their failed wing, they have been badly injured. Others have been killed. As revealed by the research, one way to enter a tumble is flight through wake turbulence. Others are a "whip stall", a failed loop (microlights are not aerobatic), and disorientation of a pilot without blind flying instruments (in cloud). Those pilots who, like myself, learnt to fly on light aircraft will recall how satisfying it was

to prove that your steep turns were level by feeling the "bump" as you crossed your own wake after a 360 turn. For a microlight pilot this is a real "no-no" as it is possible that even hitting your own wake could start a tumble, particularly if you are steeply banked. Readers who are microlight pilots should not get unduly stressed by this news, as they are very safe if flown within their "envelope". Pilots should be careful when overtaking or flying near microlights to give them a wide berth."

Obviously the need to avoid heavy aircraft wake turbulence also applies to hang gliders and paragliders, probably to a greater degree. Many years ago a pilot was killed after his hang glider hit a helicopter's wake during the filming of a television commercial. The glider was thrown into a tumble and slammed into the ridge below.

Accident Reports

The only accident report that warrants publication this month is the following – please report all accidents.

Pilot: Restricted PG pilot
Experience: not known
Aircraft: approx. nine year old PG, type unknown
Pilot Injury: Broken femur and pelvis
Aircraft Damage: Minor damaged to canopy
Location: Coastal soaring site

Conditions: 15kt wind
Description:
This pilot flies infrequently and hang glider pilots on the site advised that he not fly on the day as the prevailing wind appeared too strong for his experience and his obviously old glider. Nevertheless the pilot insisted on taking off. He was unable to penetrate forward and was blown upward and back toward the top of the ridge behind launch. He was last seen by pilots on the launch heading along the ridge which ran up the coast. He apparently overflowed several areas where he could have landed in the hope of making a beach where he had previously arranged to meet his wife. Unfortunately he was unable to make the beach, and his wife witnessed him, flying tailwind, impact with large rocks at the end of the beach.

Comment:
Obviously the AirManShip displayed by this pilot leaves a lot to be desired, particularly given that he was a low airtime pilot in an old glider, with no recent flying experience. After ignoring advice not to fly, he then opted for his landing of convenience rather than choosing one of several other safe options. He has paid a high price for his lack of caution.

Fly safely, Craig Worth



GFA Development Officer's Report

Terry Cubley

The Development web page should be up and running in the new year. See [www.soaring.com.au] which is an introductory page for the sport of soaring, whether through gliding, hang gliding or paragliding.

This page will be used as the focus for our promotion campaign. The page will give visitors basic information about our sport and how they can get involved. It will direct people to clubs who are wanting to welcome visitors and increase their membership.

Welcoming visitors is fairly demanding for clubs – it uses up valuable gliding time and your members have to work hard to make their visit enjoyable. Some clubs just aren't big enough to handle large numbers of visitors, and others cater for a different group of people (eg: The Adelaide Hills Club does not get involved in basic training, it welcomes current glider pilots who want a different approach to the sport).

All clubs will have been approached to see if they are interested in being part of the new web page, if they want to benefit from our national advertising campaign.

Those clubs that are interested will then need to demonstrate that they are indeed prepared to welcome visitors and are keen to turn them into members. To achieve this, clubs are asked to self assess against a number of criteria. Provided this self assessment meets the minimum requirements then the club is given provisional ACCREDITATION and their information/links, etc, are placed onto the new web page.

At some time in the near future, we will arrange for someone to visit the club to confirm that the ratings given are in fact accurate.

Clubs can decide to participate in the promotion, and can decide to withdraw at any time if they so wish.

If your committee has not received the self accreditation form then you can use the one shown right. How does your club rate – score your own club on this self assessment and compare with the results submitted by your committee. Are there areas where your club can improve – maybe talk to your committee about this, suggest some opportunities for improvement. It takes all members of the club to make yours a member and visitor friendly group.

CLUB ACCREDITATION – Self-assessment

Please answer each of the following questions accurately. Verify the answers with some of your newer members. It is not necessary to achieve the maximum score for each question. Self-assessment will provide provisional accreditation, this will be verified later by an independent assessor.


The following scoring legend advises how to score this self-assessment:

Score 0 – This aspect is not done at all.

Score 1 – We do some aspects of this but possibly not consistently or of a low standard.

Score 2 – We are good at this, we do it well. We could improve the quality or be more consistent.

Score 3 – We are excellent at this, others would see us as an example of what should be done.

| | 0 not at all | 1 some | 2 good | 3 excellent |
|--|---|--------------------------|--------------------------|--------------------------|
| SIGNAGE | | | | |
| 1. Signage on roadways from the nearest town(s) leads people to our airfield. They are easily spotted | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Once at the airfield, signs clearly direct visitors via the safest route to the launch point, hangars, clubrooms | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. At the launch point, signs indicate clearly where to park, danger areas and where to get information | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| BOOKINGS | | | | |
| 4. We have a dedicated phone number and/or website where people can contact our club and they actually get to speak to someone | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. People can book a flight in advance and provided weather is suitable, they can get a flight at the booked time | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| WELCOMING PEOPLE | | | | |
| 6. Visitors can clearly and quickly identify who to talk to at the launch point. Someone actually talks to them | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. A club member looks after each visitor, showing them around, answering questions, arranging the flight | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Facilities at the launch point support a positive experience (shade, shelter, seats, drinks, etc) |  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| FLIGHT OPTIONS | | | | |
| 9. Standard flights provide good value for money for the visitor and also represent good value for the organisation given the resources allocated | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Options are clearly available for people to choose from – longer flights, scenic flights, aerobatic flights, multiple flights (dependent on site and facilities) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| AFTER FLIGHT SERVICE | | | | |
| 11. The visitor is provided with a certificate to commemorate their flight. These are very professional looking and are valued by the visitor | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. The club/organisation has simple, clear and up to date information that is available at the launch point and provided to visitors | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. A club member discusses opportunities to join the sport of gliding and gives the visitor relevant information to take away | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. The club/organisation has package deals available for new members (courses, set fees, pre-purchase deals, etc). At least 3 options required to score 'Excellent' | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| TAKE-AWAYS | | | | |
| 15. Visitors are given or can purchase or a range of items including club information, promotion video, stickers, magnets, etc | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| FOLLOW-UP | | | | |
| 16. Contact is made with the visitor within one month of their flight – phone, personal visit, letter, club newsletter | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**It's mating season Carruthers!
... so keep a damn good lookout.**



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Fax: (02) 6769 7640

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www.users.bigpond.com/keepitsoaring



Contact Addresses

GFA

NSW Gliding Association (NSWGA)

Australian Air League

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

Australian Soaring Centre

PO Box 1315, Byron Bay NSW 2481.

Bathurst Soaring Club

PO Box 1682, Bathurst NSW 2795.

Byron Power Gliding Club

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

Canberra Gliding Club

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

Central Coast Soaring Club

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

Cudgegong Soaring Pty Ltd

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

Forbes Soaring & Aero Club

PO Box 267, Forbes NSW 2871,
02 68523845.

Goulburn Gliding Group

57 Munro Rd, Queanbeyan NSW 2620.

Grafton Gliding Club

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

Greenethorpe Gliding Club

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

Harden Gliding Club

78 Badenoch Crs., Evatt ACT 2617, 02
62585554, 02 62578280, 0418 670291,
[users.bigpond.com/richard.hart/hgc/default.
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 6953 6970.

NSW AIRTC Gliding Club

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

NSW Police Gliding Club

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

Orana Soaring Club

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

RAAF Richmond Gliding Club

RAAF Base, Richmond NSW 2755.

RAAF Williamtown Gliding Club

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

Royal Australian Naval Gliding Association

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

Scout Association NSW Gliding

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

Soar Narromine Pty Ltd

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

Southern Cross Gliding Club

PO Box 132, Camden NSW 2570.

Sportavia Soaring

PO Box 78, Tocumwal NSW 2714,
03 58742063.

Summerland Gliding Club

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

Sydney Gliding Inc. (Concordia GC)

PO Box 633, Camden NSW 2570, 0412
145144.

Temora Gliding Club

PO Box 206, Temora NSW 2666,
02 69772733.

Tumut Gliding Club

PO Box 112, Tumut NSW 2720,
02 69471148.

Wagga Wagga Gliding Club

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

Wee Waa Gliding Club

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

Queensland Soaring Association (QSA)

Boonah Gliding Club

PO Box 107, Boonah QLD 4310,
07 54630190.

Bundaberg Soaring Club

PO Box 211, Bundaberg QLD 4670,
07 41553158.

Caboolture Gliding Club

PO Box 920, Caboolture QLD 4510,
0418 713903.

Central Queensland Gliding Club

PO Box 953, Rockhampton QLD 4700,
07 49371381.

Darling Downs Soaring Club

PO Box 584, Toowoomba QLD 4350,
07 46637140.

Gympie Gliding Club

PO Box 103, Gympie QLD 4570,
07 54867247.

Kingaroy Soaring Club

PO Box 91, Kingaroy QLD 4610,
07 41622191.

Moura Gliding Club

PO Box 92, Moura QLD 4718,
07 47733542.

North Queensland Soaring Centre

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

No. 229 Squadron Australian Air Force Cadets

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

Southern Downs Soaring

PO Box 144, Warwick QLD 4370,
07 33781717.

Tarwan Soaring

PO Box 34, Wandoo QLD 4419,
07 46274080.

SA Gliding Association (SAGA)

Adelaide Hills Soaring Group

PO Box 1, Bridgewater SA 5155.

Adelaide Soaring Club

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

Adelaide Uni Gliding Club Inc., Adelaide Uni Sports Association

The University of Adelaide, SA 5005,
08 88262203.

Alice Springs Gliding Club

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

Balaklava Gliding Club

PO Box 257, Balaklava SA 5461,
08 88645062.

Barossa Valley Gliding Club

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

Blanchetown Gliding Club

C/o 12 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 85412644, 08 85412761.

Whyalla Gliding Club

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

Victorian Soaring Association (VSA)

Albury Corowa Gliding Club

PO Box 620, Wodonga VIC 3689.

Beaufort Gliding Club

116 Tennyson St, Elwood VIC 3184.

Bendigo Gliding Club

62 Lawson St, Bendigo VIC 3550.

Corangamite Soaring Club

Kurweeeton, Derrinallum VIC 3325.

Geelong Gliding Club

PO Box 197, Bacchus Marsh VIC 3340.

Gliding Club of Northern Tasmania

12 Delungra Rd, Trevallyn TAS 7250,
03 63346594.

Gliding Club of Victoria

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

Grampians Soaring Club

PO Box 468, Ararat VIC 3377,
0417 514438.

Latrobe Valley Gliding Club

PO Box 625, Morwell VIC 3840.

Mangalore Gliding Club

PO Box 80, Avenel VIC 3664.

Mount Beauty Gliding Club

44 Roper St, Mount Beauty VIC 3699.

Murray Valley Soaring Club Ltd

PO Box 403, Corowa NSW 2646.

RAAF East Sale Gliding Club

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

Soaring Club of Tasmania

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

South Gippsland Gliding Club

PO Box 475, Leongatha VIC 3953.

Southern Riverina Gliding Club

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

Stawell Gliding Club

20 Jones St, Stawell VIC 3380,
03 53582713.

Sunraysia Gliding Club

PO Box 647, Mildura VIC 3500.

Swan Hill Gliding Club

PO Box 160, Nyah VIC 3594.

Tumbarumba Gliding Club

Mundaroo, Tumbarumba NSW 2653.

Victorian Motorless Flight Group

GPO Box 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 276, Morawa WA 6623,
0407 088314

Stirlings Gliding Club

C/o Post Office, Lower King WA 6330.

WA Squadron Australian Air Force Cadets

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



HGFA

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

HGFA National Office and General & Operations Manager

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

Craig Worth: 0418 657419, <general_
manager@hgfa.asn.au>.

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Rohan Grant (Vice President)

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<President@hgfa.asn.au>.

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Rob Woodward (Treasurer)

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

GFA MEMBERSHIP FEES 2002-2003

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

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

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

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

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

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

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

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

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

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

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

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

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

Microlight Public Relations

Paul Haines ph/fax: 02 42941031.

INFORMATION

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

States & Regions

ACTHGA

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

Hang Gliding Association of WA

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

NSW Hang Gliding Association

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

Tasmanian Hang Gliding Association

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

Victorian HG and PG Association

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

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

Clubs

New South Wales

Blue Mountains HG Club Inc.

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

Byron Bay Hang Gliding Club Inc.

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

Dusty Demons Hang Gliding Club

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

Hunter Skysailors

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

Illawarra Hang Gliding Club Inc.

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

Kosciusko Alpine Paragliding Club

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

Manilla SkySailors Club Inc.

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

Mid North Coast HG Association

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

Newcastle Hang Gliding Club

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

Northern Beaches HG Club Inc.

Pres: Kerry Bradley; V-Pres: Mark Robertson; Trs: Jim Gaal; Sec: Nils Veski; SSO (HG): Glen Salmon 02 99180091; Wayne Fitzgerald 02 99827094; SSO (PG): Mike Brandt 02 98912391; Wayne Fitzgerald 02

99827094. Meetings: 1st Tue/month, 7pm, Mona Vale Bowling Club.

Stanwell Park HG and PG Club

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

Sydney Paragliding Club

PO Box 225, Helensburgh NSW 2508, [www.sydneyparagliding.com/club/], <sydneyparaglidingclub@yahoo.com>. Pres: Enda Murphy 0412 445741.

Queensland

Cairns Hang Gliding Club

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

Canungra Hang Gliding Club Inc.

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

Central Queensland Skyriders Inc.

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

Conondale Cross-Country Flyers Inc.

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

Dalby Hang Gliding Club Inc.

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

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: Phil Lewis 07 54840464; Sec/SSO (PG): Jean-Luc Lejaille 0418 754157; Trs: Michael Powell 07 54425568; SSO (HG): David Cookman 07 54498573.

Townsville HG Association Inc.

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

Victoria

Dynasoarers Hang Gliding Club

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

Melbourne Hang Gliding Club Inc.

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

Sky High Paragliding Club

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

Southern Microlight Club

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

Western Victorian Hang Gliding Club

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

Northern Territory

Alice Springs HG and PG Club

Pres: Brett Lewis 0411 677705.

Western Australia

Albany Hang Gliding Club

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

Cloudbase Paragliding Club Inc.

Message bank 08 94875253; Pres: Mark Wild, 0411 423923, <mark@gastech.com.au>; V-Pres: Robin Rankin, 0407 441463; Sec: Mike Duffy, 16/3-5 Geddes St, Vic Park, WA 6100, 0417 923741, <mikeduffy@graduate.uwa.edu.au>. Trs: Colin Brown 08 94594594, <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, Sec: Mark Harrop 08 90228528, Trs: Peter Harris 08 90219234, SSO: Mark Stokoe.

Hill Flyers Club WA

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

South West Microlight Club

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

Western Soarers Hang Gliding Club

<wshgpc@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.



AUSTRALIA

The Australian Services Gliding Association (ASGA)

27 December 2002 – 10 January 2003

Annual competition at Leeton for all skill levels from late training/early solo through to experienced. Launching is by both winch and aerotow. Limited camping on airfield, good accommodation in Leeton Caravan Park. Contact Nathan Guinness on ph: 03 51467050 (w), fax: 03 51467014 (w), or Denis Lambert ph: 07 46917928 (w), fax: 07 46919010 (w).

27th Vintage Glider Rally

4-11 January 2003

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

NEVHG Club's Spot Landing Extravaganza!

5 January 2003

Mystic Flight Park (Landing Paddock) Bright, Vic. Open 'accuracy competition' for PG and HG pilots with the largest individual cash prizes awarded in Australian competition history! PG Accuracy: 9:30am-1:30pm; HG Accuracy: 2-6pm. Awards presentation to follow. All welcome! Come enjoy live media broadcasts, music, auctions, demonstrations, free giveaways, sausage sizzles and refreshments, all from the Mystic landing paddock. This is a major fundraiser to support the local region's SES and CFA, as well as the NEVHG Club. Note: Mystic is an intermediate site, so all pilots are required to have their int or adv ratings. For conditions of entry visit [www.hgfa.asn.au/~nevhc] or contact Christy Kemp 03 57592701, 0419 508397, <christyk@netc.net.au> or Carol Binder 03 57501507, 0417 311360, <binder_carol@hotmail.com>.

Bogong Cup

6-14 January 2003

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

Corryong Cup 2003

The 20th Anniversary

12-18 January 2003

Corryong, VIC. Come celebrate 20 years of Victoria's best flying with the biggest and best Corryong Cup yet! Party with 10,000ft days and PBs by the dozen! Share and enjoy this event with the friendliest pilots from VIC, NSW, QLD and beyond. Registration/practice day: Sat 11th; comp start: Sun 12th. Come to the best FUN comp of the year. Mt Elliot is one of the most reliable and spectacular sites in the Eastern highlands. It's a hill launch set at the base of the Australian Alps on the border of VIC and NSW. Tasks are generally 50-100km with up to four TPs set to make pick-ups easy. Comp scoring on a handicap basis according to your glider type and flying experience, so everyone has a chance of taking out the top prizes. You must have an Int rating (preferably with inland experience) and UHF radio. This year scoring will be with GPS or camera, whichever you prefer. This is still the cheapest comp in the HG calendar at \$120 (late fee), including T-shirt, TP film, colour topo area map and presentation dinner with floorshow. Places are limited so don't miss out. Cheques made out to 'Blue Mountains HG Club Inc'. Register now with: Steve Bell, PO Box 110 Woonona NSW 2517, ph: 0412 686812, email <spbell@1earth.net>.

Australian National Club and Sports Class Nationals

13-24 January 2003

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

Australian HG Nationals

17-25 January 2003

Hay, NSW. Requirements: GPS, parachute, UHF radio, tow endorsement, HGFA membership. Entry fee: \$190 payable by 20 Dec. Contact: Sandra 03 53492845, <dynamic@netconnect.com.au>. Cheques should be made payable to Dynamic Flight Pty Ltd and forwarded to RMB 236B, Trawalla VIC 3373.

Phoenix Cup

PG in Masquerade II

25-27 January 2003

Bright, VIC, Australia Day Long weekend. This will give all interstate pilots a chance to make it. Last year's Phoenix Cup was a huge success. The atmosphere on launch was absolutely electric. The standard of entrants amazed all the people involved. Outfits ranged from colourful masterpieces to huge flying creations. The pilots involved received an absolute buzz out of the event which ran for two hours, with 25 pilots participating and a large crowd in the landing paddock. This year's will prove to be an even bigger mountain of colour and excitement. The weekend will involve the Phoenix Cup and a special round of the Mystic Cup, a great way to get some points towards the national ladder. Both events are open to all levels of pilots. Details on [skyhighparagliding.org]. Contact: Malcolm Marker 03 94441185 (h), <phoenixcup@oputsnet.com.au>.

Horsham Week

1-8 February 2003

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

Australian National Multi-Class Championships

2-15 February 2003

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

NSW HG State Titles 2003

10th Anniversary

15-22 February 2003

Manilla, NSW. Registration at the Royal Hotel 14 Feb. This is an A grade comp, using GPS verification (no photo verification will be available). Pilot requirements: int rating with inland experience. Entry fee: \$120, includes T-shirt and presentation dinner. Contact: Billo 0412 423133, <william.olive@telstra.com>.

2003 Bright PG Alpine Championships

15-22nd February, 2003

Bright, VIC. Final Rego 14 Feb, Bright Community and Entertainment Centre. Entry fee: \$190 (\$150 before 1 Jan). CIVL Cat 2, HGFA AAA. As with last year, a large range of day prizes and overall prizes in various categories. Max entry of 120 pilots. Min pilot level is int with inland experience. Enter online at [http://home.netc.net.au/~alpcmp/BrightOpen2002/] or to PO Box 428, Bright. Sorry, no credit cards. Contact:

Karl Texler 0428 385144, <brightvt@netc.net.au>.

WA State Soaring Competition

22 February – 2 March 2003

Wyalkatchem, WA. The Western Soarers host the WA State Soaring Competition in 2003. The comp is open to HG and PG pilots. The venue is Wyalkatchem, 200km north-east of Perth, and will be a towing comp (ground and aero). Entry fee: \$100 before 1 Feb, with a \$10 late fee after this date. The comp will be a GPS scored comp using the GAP 2000 system. To cater for all pilots a mixture of difficult, moderate and easy tasks will be called to ensure the experienced pilots are challenged and the new pilots have a chance to make goal. A reserve parachute, helmet, UHF radio and approved GPS are mandatory equipment. Pilots must have an appropriate tow endorsement and current HGFA membership. For more detail visit [http://members.iinet.net.au/~navi/] or email the Comp Director <mark.thompson@team.telstra.com>.

NSW State Gliding Championships

1-8 March 2003

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

Australian PG Open

1-7 (reserve day: 8) March 2003

Manilla, NSW. Final rego on Friday, 28 Feb at Manilla Town Hall HQ. Entry fee: \$160 before 1 Jan (\$180 after). CIVL Cat 2, HGFA AAA. Over A\$5,000 worth of prizes in various categories. Max entry of 120 + five wild cards. Min pilot level is Int with inland experience. Enter online via [www.flymanilla.com]. Credit Cards accepted.

New Zealand PG Nationals

9-15 March 2003

Manilla, NSW. Final rego on Friday, 28 Feb and Saturday, 8 March at Manilla Town Hall HQ. Entry fee of \$150 before 1 Jan (\$170 after). CIVL Cat 2, HGFA A. Over A\$3,000 worth of prizes in various categories. Max entry of 120 + 5 wild cards. Min pilot level is Int with inland experience. Enter online via [www.flymanilla.com]. Credit cards accepted.

Pilots entering both above comps receive an entry fee discount – two comps for A\$280 (Euro140) if paid before 1 Jan. Note: These are some of the last FAI/CIVL Cat 2 comps that count for PG Worlds Team size in 2003 and as a result we expect them to be full. Early entry registration is advised to ensure a place. For more information on both above comps refer to the comp web site or email Godfrey Wenness, Manilla Competitions Organiser, on <skygodfrey@aol.com>.

National Gathering of Trikes

3-4 May 2003

Wangaratta Airfield, VIC. This will be an event of social flying and flying activities such as day trips in the local area, informative seminars and skills improvement exercises. Contact: Ian Rees 03 97621364.

OVERSEAS

Nepal Air Sports Festival 2003

15-30 January 2003

Kathmandu, Nepal. Deepti, the Promotion Manager of the Avia Club Nepal, invites all fans of Aviation Sports to the Kingdom of Himalayas for breath-taking cross-

country flights in your own flying apparatus (microlights, etc) in the Himalayas for a two week event starting 15 January 2003. Be part of a unique and historic event and experience the stunning thrill. This is the first time Nepal has opened its territory for foreigners to fly. Don't miss this opportunity! If you are interested contact us at [www.avianepal.21bc.net].

Mauna Kea Thermal Clinic 8-12 February 2003

Mauna Kea, Hawaii. Achim Hagemann will be organising this PG clinic around Mauna Kea on the

Big Island of Hawaii. Space is limited, so please register early – registration deadline is 15 November. To register (\$275) contact: Paraglide Hawaii, PO Box 797, Mountain View, HI. 96771, USA. For more details email <tofly@excite.com> or ph: 808 968 6856. Clinic requirements: Hang-3 or better/novice with instructor sign off, and everything you need for high altitude XC flying. Food and gas money extra. Clinic includes: 4WD transportation, airport pick up, guide service, free ocean site camping, daily state of the art weather report. Mauna Kea has flying sites at various altitudes, some of them suited for intermediate pilots. Pilots flying here should expect big air, high altitude

take-offs and challenging XC flying. Mauna Kea and the surrounding areas are still unexplored to a large extent.

Third Junior World Gliding Championships 2003 5-19 July 2003

Nitra, Slovakia. Preliminary entries for the event will close on 15 January 2003 and final entries must be made by 31 March 2003.

If you are interested in taking part in the event contact: Tim Shirley 0417 268073 or <tshirley@bigpond.net.au> for further information.

Classifieds

GFA

NOTICE TO ALL GFA ADVERTISERS

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

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PO Box 1163, Penrith BC, NSW 2751.

Ph: 0407 593 192 Fax: 02 4739 0185.

Email: <frowe@optusnet.com.au>

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

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

Single-Seater Sailplanes

MOSQUITO XJQ, 1,600 hrs TT, Oxygen, ATR720, enclosed fibreglass trailer & tow-out gear. \$29,000. Contact: John Ashford (Alice Springs) 0409 679867, <john.ashford@santos.com>.

SZD32A – FOKA5 complete with registered trailer, parachute, etc. Currently in Form 2 & flying at Boonah. Ph: 07 32166363, <dgataylor@itconnect.net.au>.

H201B – GBA 3,000 hrs life extension completed 10 hrs ago. Brand new mecoplex canopy. A1 mechanically, flies beautifully, average appearance. Fresh Form 2. Enclosed trailer. Located Darwin. \$13,500. Ph: 0412 599193, <smcgrath@justinternet.com.au>.

IS29 D, VH-GWI, only 240 hrs, excellent condition, one person rigging equipment, excellent trailer, parachute, wing stands, tow-out gear, etc. Ph: 02 48218251 (h), <pcmm@goulburn.net.au>.

KA 6E SCHLEICHER VH-SSR, 3,616 hrs. Basic instruments, parachute, paint poor, no radio, enclosed trailer. \$9,500. Ph: Ray Ash 02 63742335.

JANTAR 2 VH-KYV. 20.5m Open Class, paint finish no gelcoat problems, three times proven 1,000k machine, C-nav computer, AH, oxygen, ELT, ground handling equipment, removable hinged canopy & solid tandem trailer, GPS & Slimpack parachute, 1/3 share of a real hangar with doors that open 30m. Will sell hangar separately. Contact: Tom Savage 03 97760262 or 0418 336598 or Ron Grant at Benalla.

JANTAR STANDARD 3 SZD-48-3, A1 cond, 12 yo, 1,800 hrs, new Form 2,
 wings re-profiled, winglets fitted. Instr: LNAV, Microair radio, incl. trailer & ground handling equip. \$31,000 neg. Ph: Peter Summerfeldt 07 38861267.

STD JANTAR 2, IZT. Low hrs, Excellent cond, always hangared, always privately owned & based at Gul-gong, Full panel, Ground handling gear & trailer, LS4 performance for 1/2 the price \$30,000, Ph: Neil Bennett 02 47394900, 0438 761472.



Gliding Club of Victoria

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

PW5 VH-GKP. 860 hrs. EC. Basic instr. plus B40 vario & Dittel ATR720 radio. Incl. trailer, tow-out gear, etc. \$22,500 ono (all REASONABLE offers considered). NIMBUS 2C VH-FQL. 3,600 hrs. GC. Basic instr. plus B50 vario, B57 computer, Terra TX760D radio. Wiring for Garmin 12XL & EW logger. Factory trailer, tow-out gear, etc. \$39,500 ono.

We are looking to purchase one of: Discus b, Ventus, LS6 or LS7 & are willing to consider a trade deal, which incl. either/both of the above aircraft. For details contact, Bob Gray ph: 03 57621058 or email: <glidingbla@cni.com.au>.

PIK 20E. Self launching, low hrs, in top condition. Peschages instruments. Ph: 02 60769471.

CLUB LIBELLE GJJ. Excellent condition, Borgelt varios & computer, roomy cockpit, flies beautifully. Enclosed trailer & tow-out gear. Dual batteries. \$18,500. Ph: John Callahan 03 52366290, <johntcallahan@bigpond.com>.

ASW15. Recently repainted, trailer, B20/B21 vario & speed director installed. For more details ph: John 0418 900494.

ASTIR Cs B20/B21. vario & speed director installed. For more details ph: John 0418 900494.

JANTAR ZSD41A. Standard, TT 1,699 hrs, radio, GPS, nose & belly hooks, modified canopy, enclosed trailer & tow-out gear. \$24,500. Ph: John 03 93282536, <johnhrobinson@bigpond.com>.

Hornet GHX. Expressions of interest in the purchase of this Hornet, currently at Forbes, sought. Registered 1977, 2,500 hrs. Basic instruments, parachute, open trailer. Bags for ballast (currently u/s) re-gelcoated 19-85 but needs more work. Elevator safe, but not perfect. Always hangared. Further details on request by fax to PINCUS: 02 9235 3931 or 0408 525 618.

Syndicate Shares in ASK 21. The "Boonah ASK 21" syndicate is looking for additional members to join in a share of the new ASK 21 glider based at Boonah, Queensland. Attractive returns for a minimum investment of \$5,000. Contact: Rob 07 33792258 (h) or for further details see [www.boonahgliding.com.au].

VENTUS 2cm. Full competition panel, clamshell trailer & ground handling gear. \$270k, incl GST. Ph: 03 55939242.

LS4 KYO based at Tocumwal very good condition. Including all handling gear & trailer. 4,500 hrs. \$52,250. Ph: Don 03 58743897 (h).

Two-Seater Sailplanes

ASK 13. GSL. Electric vario, poor paint. \$28,000. Ph: Ray Ash 02 63742335, Gulgong.

SCHEMPP-HIRTH JANUS VH-GWY. 1975, first flown 1976. TT 3,400 hrs, 5,600 landings. \$65,000 ono. For full details visit: [www.geocities.com/janus_sale] or contact Igor Vavrica on 0409 030987.

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Boonah Gliding Club will respond to all offers on the above aircraft separately or together. Post your offers to: "The Secretary, Boonah Gliding Club, PO Box 71, Boonah 4310". For further details see: [www.boonahgliding.com.au].

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General

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MULTI-CLASS WORLD CHAMPIONSHIPS — TEAM MANAGER!

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

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BEAUFORT GLIDING CLUB 60TH ANNIVERSARY RAFFLE

Drawn on Saturday 16 November 2002. Prize A: 0502. B: 0032. C: 0012.

IAN MCPHEE PHONE NUMBER CORRECTION

The correct phone number is 02 6684 7642 (mob 0428 847642) & not as in December display adverts.

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.

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

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



HGFA

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

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

When submitting a classified remember to include your contact details (for perspective buyers), your HGFA membership number (for verification) and the State under which you would like the classified placed.

(Note that the above does not apply to commercial operators. Instructors may place multiple classified entries, but will be charged at usual advertising rates.)

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AIRBORNE FUN 220 nov, lavender/fluoro yellow, white MS, new side wires, GC, \$3,000 (or swap for Sting 175XC or large Shark in EC). Also for sale, Moyes XS142, fluoro yellow LE, white MS, pink/green/white US, with spares, make an offer. Also, Charley Insider full-face helmet, brand new, XL, charcoal grey, \$200. Ph: 0266 280983; 0427 776540; <bbraby10@scu.edu.au>.

AIRBORNE SHARK 144 adv, 160 logged hrs, well kept glider in GC, well priced at \$1,700 ono, inc spare DT. Great value for buyer! Ph: Kerry 0414 475803; <kerrybrad@yahoo.com>.

AIRBORNE STING 154 int, EC, 30 hrs, "sail still crisp". Complete package = UP Comp harness + chute + helmet + brand new Bräuniger vario. \$2,400 ono. Ph: Shane 02 49343084 (h); 0405 154625.

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MOYES FRONT ENTRY HARNESS with parachute, Icom UHF IC-40 GX with headset & Reflex helmet, Flytec 305 SI, \$1700 the lot or will separate. Moyes X2 tandem on wheels, 30 hrs, \$2,500. Moyes X2 tandem glider, low hrs, great cond, \$2,500. Ph: Jamie 0429 696523.

MOYES MAX 157 int/adv, (same as EWings Rage), black/blue/white US, mylar LE, full Moyes logo on TS, approx 140 hrs & in perfect cond, two spare basebars & batten profile, \$2,000 for quick sale. Also, older style harness \$100, & vario/altimeter \$150 (Flytec older style LCD alt readout, analog vario with audio). Ph: Adrian 02 95482720; 0418 642270 (close to Stanwell park location).

MOYES SONIC 165 int, 70 hrs, as new cond, one owner, \$2,500 ono. Ph: Heath 0438 422362.

VICTORIA

FOIL 160B adv, \$500. Moyes Contour harness with parachute, \$1,000. Foil has a Combat sail with only 50 hrs on it. Harness is as new with only 10 hrs use, suit someone 5'10"/178cm. Ph: Robin 03 96816625.

MOYES CSX5 adv, red/white, EC, test fly welcome, can transport interstate, \$1,950. Ph: 03 97621364.

MOYES SX5 adv, 10 hrs. Moyes Max int, 100 hrs. Moyes Contour harness, as new, with 22 gore chute, plus drogue. Flytec vario with airspeed ind, two handheld radios, all as new. GPS Garmin Pilot 3. Spare Max keel, new. All reasonable prices. Ph: Phil: 0438 347950.

MOYES XT 165 adv, speed bar, plus pod harness. Orange/green/white, with pink batten pockets! Great cond, flies well, \$1,900. Ph: Richard 03 98790197.

TASMANIA

AIRBORNE FUN 160 nov, perfect beginner's kit, wheels & manuals, Dynamic Flight Stealth harness (suit 160-185cm), both had 20 hrs, both yellow/purple, EC. Full-face helmet, headset, Kenwood radio + 1 cp, GPS. Sell as package \$4,000 or separate. Will help transport to any state. Ph: Nicole 03 62606250.

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MOYES LITESPEED 4 adv, dark blue/fluoro yellow, dark blue US. Very nice to fly, holds Qld distance record 362km. 180 hrs, aluminium fast bar, spare DT & fibreglass tip, VGC. Priced to sell, \$5,200 ono. Ph: Macka 02 66743004; 0417 751611.

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Paragliders & Equipment

NEW SOUTH WALES

SWING ARCUS DHV 1-2, ocean blue, large (90-130kg), one fastidious owner, 100 hrs, certified for paramotor, EC, \$2,900 ono. Ph: Terry 02 42941981.

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OZONE ELECTRON, four hrs flying time, nearly new, red with blue stripe, weight 80-115kg, \$3,000 ono. Ph: 0405 495 452.

OZONE OCTANE DHV 2, large, weight range 95-115kg, blue with red stripe. Excellent intermediate glider, current model. Winning glider in the 2002 winter XC league. EC, only 60 hrs, \$2,100 ono. Ph: 0417 923741; 08 93552573; <mikeduffy@graduate.uwa.edu.au>.

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PG HARNESS & RESERVE, preferably together, to suit medium (75-80kg) pilot. Possible pick-up from Victoria or Manilla. Ph: Rob 02 96236820; <rsjames@ihug.com.au>.

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