

Gliding Australian SKY SAILOR

In this Issue:



Hawaiian
Fly'n



A Record
Week



1999
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Over Kauai. All photos: Brett Snellgrove

BRETT SNELLGROVE

Mention Hawaii to many people and it's a pretty safe bet tropical rainforests, sandy beaches and balmy breezes feature prominently in their thoughts. But 14,000 foot mountains towering above acres of cleared pastoral land, and 1,600 foot mountain ridges extending miles down the coasts are as much a part of Hawaii as the swaying palm trees. Yet for many soaring pilots Hawaii isn't the first choice of destination when planning a flying vacation. Here are a few reasons why perhaps it should be.

As an expatriate Australian, I came to Hawaii eight years ago, and have lived on three of the most populated islands in this eight island chain. I've flown paragliders and sailplanes at most of the soarable sites, and watched the organisation here grow from handfuls of renegade pilots flying sites with dubious legality, to well organised groups at registered and insured club sites (though don't infer that all sites in Hawaii are legal; several are still not, so you might want to check first).

In general, the weather and subsequent soaring conditions in Hawaii are strongly influenced by the ubiquitous north-easterly trade winds. These winds are commonly generated in equatorial regions as the earth's rotation acts upon various pressure systems (i.e. Coriolis effect). Trade winds are consistent year round, but not guaranteed, and other wind directions are occasionally possible (typically south-westerly, or Kona winds). The 'trades' feature so prominently in Hawaiian life that the islands are often divided conceptually into windward and leeward sides. This is because not only does the wind influence weather, temperature, and of course soaring conditions, but also the very geography of the islands.

As the trade winds reach the islands, they are deflected upwards by various mountain ridges, and deposit their moisture, in the form of rain. Subsequently, the windward sides of the islands tend to be wetter, cooler, windier and enshrouded in tropical forests. Often you'll find erosion has shaped the mountain ridges into precipitous cliffs and gullies. The leeward sides are usually more dry and barren, with gentler sloping hills rather than cliffs (this is why you'll find most of the resorts clustered here)

Just as the trade winds divide the islands into two differing sides, they also bifurcate the soaring sites into distinct dichotomies. Almost universally, ridge soaring occurs on the windward sides of the islands using shear cliffs, while thermal flying occurs from gentler slopes on the leeward sides.

I'm often asked when the best time of year for flying in Hawaii is. Since flying conditions here are excellent year round, but not all islands have sites permitting all varieties of soaring, a more pertinent question should regard which island to stay on. You need to consider this carefully as the type and quality of flying you do on Hawaii can be largely determined by the island you stay on.

To assist you in making this decision, I'll try to provide an island by island outline of the sites, and types of flying available in Hawaii. Please don't think of this as a substitute for contacting the local pilots; they have more detailed information essential to your safety. Besides, you'll have a much better visit if you get to know the locals.

Oahu

Oahu is the most populated, highly developed and well known of the Hawaiian Islands. If you like night life, shopping and excitement, then this is the island for you. But remember the trade-off: crowds, traffic and noise. Almost a million people on a relatively small island makes for some serious congestion in parts, but it's no worse than many big cities and you can escape much of the crowds by staying away from the south side of the island (from Diamond Head to Ewa beach).

In general, flying here is from steep, high coastal cliffs in trade wind conditions, mostly suitable for highly experienced hang glider pilots. Paragliding is done here (as is the only sailplane operation in Hawaii), but this is not the island of choice for the inexperienced or those seeking thermal flying. The main flying sites are at Makapu'u, Lanikai, Dillingham airfield at Mokuleia, and Nanakuli. All are coastal ridges.

Makapu'u is quite famous and equally spectacular. It's a windward facing site (eastern side) with the launch for hang gliders from one of two well constructed ramps. The ramps front a 1,400 foot vertical cliff. You can drive right up to the launch, but the road is on state property and blocked by a gate. The local pilots have permission to use the road and have the key to the gate, so contact them first. This is definitely not a site for the faint hearted, but on a good day you can fly down the entire windward side of the island (over 30 miles) along the Koolau range. With lush foliage under you, green mountains and waterfalls to the left, and beautiful beaches and reefs to the right, it truly is an awesome site. In season you might even spot a whale or two!

The launch for paragliders is further south on the same ridge. It is reached by walking up about 15 minutes from the main road just before you round the turn to Makapu'u beach. There's no ramp here, but there is a clear area to lay your wing out. It's also a cliff launch so choose your conditions carefully. Since the trades can build unpredictably in the mornings and early afternoons, light trade evenings with the wind straight in are best; you really don't want to be blown over the back here.

Further north the Koolau range moves inland a little and closer to the ocean is another, smaller site at Lanikai near Kailua. Here you'll find the 600 foot Ka'iwa ridge in the Keolu hills. It's a 20 minute hike up a steep ridge to the launches near two old cannon mounts, so you won't see any hang gliders here. Flying at Lanikai is not officially sanctioned, but nobody's going to stop you

either. There are two launches, again fronting a near vertical cliff. I'd recommend the more shallow launch at the southern end; you'll have room to move. Several spines run out from the ridge with the largest at the far southern end, so it's best to fly here in light trade winds with a northerly component; a serious rotor is generated by any winds with a hint of south, so be careful. A further precaution are the houses out front. These have to be overflown to reach the narrow LZ at the beach.

If the afternoon trades wane drastically while you're flying and you drop too low to reach the beach, you might have to land in an old lady's backyard right in her prize tree. She might think you're a prowler and call the police. They might come and handcuff you before finally looking up into the tree, seeing your glider, and letting you off with a warning. I'm just guessing this could happen to somebody; it didn't happen to me – honest!

At Mokuleia, on Oahu's north shore, there is a good ridge that runs behind Dillingham airfield. Although it's on the north shore, it faces in the general direction of the trade winds, but not fully. The wind can be off as much as 30 degrees and remain soarable, however, since the ridge isn't completely smooth, it can generate strong turbulence in places. I've only flown sailplanes here (the only operation in Hawaii) and have been thankful, on more than one occasion, to be flying with a high wing loading. Typically, sailplanes are towed to 1,000 foot asl over the ridge, and dropped off to soar several miles up and down the north west shore. The sailplane operation offers lessons and joy flights at a reasonable price. There's also skydiving further up the airstrip, biplane joy flights and the occasional ultralight, so it's well worth a visit.

The launch for paragliders (and the occasional enthusiastic hang glider) used to be a hike up the ridge behind the hangers, but I've been told a towing operation for foot launched craft is now underway.

The final site worth mentioning is on Oahu's leeward side at Nanakuli. This 1,000 foot plus ridge typically takes more infrequent north-westerly winds to soar. However, on afternoons with light trades, it can experience onshore breezes. Trade winds of any strength usually blow right over the back. If you happen to arrive on Oahu during a week of Kona winds, this may be the only place you can fly. The hike to launch is up a steep ridge about 20 minutes. This site hasn't been used for very long or with any consistency, and I've never flown here myself, but I'm told it can be quite good, even generating



Brett flying his Cage at Alaleakala, Maui.



View from the top – 10,300ft at Haleakala, Maui.

thermals (although the ridge is not far inland). There are several clear landing areas with the school soccer field most commonly used. This site isn't officially sanctioned, but again nobody's going to stop you. You might even get a friendly wave from the locals.

Maui

Maui is the second largest, and third most densely populated island in Hawaii. It's not as crowded as Oahu but doesn't lack for any of the modern conveniences, with several good shopping malls and movie theatres (though some feel the night life lags a little). The Hawaiians have a saying, "Maui no ka oi" meaning Maui is best. While this may be debatable when talking in general, it's certainly true when referring to thermal soaring in Hawaii.

In general the soaring on Maui is from inland thermal sites off gently sloped, grassy launches at organised club sites. It should definitely be the first choice for beginners or the inexperienced, but also offers cross country potential for the more adventurous. I moved to Maui primarily to fly my Cage paraglider, and have found the flying here consistently excellent.

The main flying sites are on the leeward slopes of Haleakala (Maui's 10,000 foot monolith) on the leeward side of the west Maui mountains in Lahaina; and on the nearby island of Lanai (easily reached by water taxi). The best coastal ridge sites unfortunately, have been closed.

Maui is frequently referred to as the valley isle. This is due to the wide, flat valley between the massive mountain of Haleakala to the east and the smaller mountains to the west. The enormous bulk of Haleakala (house of the sun god) provides an effective barrier to the strong trades, while the valley traps the sun's heat to create prevailing anabatic winds up the mountain's west face. The calm zone on this leeward side extends from Kula in the north, to the beach at Wailea in the south. This provides an extensive soaring zone over cleared pastoral land and wooded areas. Since the trades approach from the north-east, and Haleakala runs north to south, a wind shear line is generated at the northern edge of the calm zone which needs to be respected. The launch at the northern end above Kula is at 6,000 feet right beside the road to the summit. Hang gliders frequently use this launch and it's acceptable for paragliders (however you'll have more chance of clearing the tree line further down the mountain if you walk up the

hill behind the roadside launch; it takes about 20 minutes and will give you an extra 300 feet of altitude). Trades with a strong northerly component can push the shear line over these launches, so it's best to check the wind direction further north before launching.

Further south on the lee side of Haleakala is the flight park at Poliploli. It's virtually right in the middle of the western side, so it's protected from even the strongest trades. Launches for beginners start in the cleared slopes at 3,000 feet with an upper launch, easily reached via the road at 6,500 feet. Cross-country flights in a variety of directions are possible from this launch, with flights all the way to the southern beaches possible on good days. The typical flight, however, lasts about 20 minutes from the 6,500 foot launch to the 3,000 foot LZ.

A precaution with all these launches at lower Haleakala is the clouds. As the valley heats up providing the anabatic wind and thermals for launching, it also provides the motive force for generating clouds. These clouds can move in rapidly and completely obscure the mountain down to 3,000 feet. Typically, you'll need to launch around 8:30 am to 10:00 am in summer, and up to 11:00 am in winter, although this can vary considerably.

The summit launch at 10,000 feet is the most spectacular site on Maui. The view is breath taking and flights to the beach are relatively easy for paragliders and hang gliders. The site is reached by continuing up the road from the lower launch for about an hour. You can drive right to the launch by continuing on through the national park. The summit is not protected from the trades, and paragliders typically require very light trade, or southerly wind days that allow the anabatic winds to push all the way to the summit for a launch from the west side (into the valley). Flights from the back or east slope are possible, even all the way to the beautiful town of Hana. Typically however, pilots make the jump back over to the western side by flying through a gap further south at Kaupo. You should be very experienced, well informed and prepared for a long, high altitude hike out of unfamiliar and isolated territory (as the cost of not making the landing zones) before even considering flying the back side.

The final site worth mentioning is behind the town of Lahaina on the southern side of the west Maui mountains. This is another leeward site. The mountains are not as high as Haleakala, and the site is not as well protected from strong trades, but it is quite consistent. This site is about a mile inland facing the ocean and generates strong thermals

in the afternoons. It can be flown more consistently at this time as clouds don't often form here. The local school has created a large "L" in the mountain, behind which conveniently marks the launch. Unless one of the local pilots takes you up in their truck, the launch is about 2 hours hike up a steep hill in 80 degree temperatures, so take some water. The flying here is not officially sanctioned, but six to ten paraglider pilots fly here regularly without difficulty.

Hawaii

Hawaii is locally referred to as the Big Island to differentiate it from the state of the same name. It's bigger than all the other islands combined and has the second highest population, but very low population density due to its size. It's less developed and more quiet than Maui, and the night life definitely lags, but anyone who finds this beautiful island boring needs serious help. It's also the most recently formed island, and with the active volcano at Kilauea still adding material, somewhat of a work in progress.

In general this island has enormous unrealised potential for all types of soaring with good sites at every turn. Unfortunately these sites are almost universally on private property surrounded with a plethora of no trespassing signs. (A German friend of mine claims his English is poor and simply interprets these signs as "no tree pissing" and flies there anyway). Since the pilot numbers here are small and somewhat disorganised, permission to fly these sites has not been forthcoming. Consequently, bandito is a term most Big island pilots are well familiar with. There are launches from the 14,000 foot mountains of Mauna Loa and Mauna Kea, but you'll need a four wheel drive and local help (flight safaris from these mountains are occasionally advertised in various magazines). Recently, a site has been pioneered at Kealahou Bay about 20 minutes drive south of Kailua Kona. I never had a chance to fly here when living on the Big Island, but dreamed about it frequently. There's an 800 foot ridge that runs at a right angle to the ocean extending well inland. It has good thermal potential and is completely protected from the trades. It's even more consistent than Polipoli, free from any problems with cloud, and permission has been obtained to launch from a local resident's back yard. If you're an experienced pilot with a sense of adventure then this could be the island for you.

Kauai

Kauai is referred to as the Garden Isle for good reason; it's virtually covered with lush green rainforest, but it's also very wet. Since it's the oldest island in the chain, it has the most well developed beaches. The population is as small as the island, so it's not crowded or overdeveloped, but again you shouldn't be bored here. This island boasts the most spectacular coastal ridge site in Hawaii, probably the world. The Na Pali coast defies description and has provided the backdrop for many movies requiring exotic scenery. The sea cliff at Na Pali is a trade facing wind site that can be flown by hang gliders from an aerotow launch at the nearby flight park. They also offer ultralight flights so is worth a visit.

There are other windward foot launches on this island, and I'm told the occasional paraglider pilot flies here, but thermal flying is not possible anywhere on Kauai with any consistency.

There is flying on the other islands at Lanai (a leeward thermal site) and Molokai (windward sea cliffs) but none of these sites are flown with any consistency and definitely require local contacts and extensive organisation to fly. I'd pass them up if your time here is limited.

The Sandwich Isles...

...of Hawaii have some amazing flying sites that should satisfy even the most fastidious pilot.

Even if you happen, by some amazing stroke of bad luck, to visit when conditions are poor, it's still an awesome place to spend your vacation. Fabulous windsurfing, surfing, diving, snorkelling, sailing, horse riding, etc, should help you while away the days without getting terribly bored.

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Poli Pol, Maui.



A Record Week

TOM CLAFFEY

Tom and Kerrie Claffey.

Anyone who reads this magazine would realise from reports that this season was the best for some years for long distance flights. My own long flights were done from Narromine in early January in the same weather system that helped Bob Ward gain his 1,000km from Tocumwal, Harry Medlicott set new records for distance to goal and straight distance (1,177km Lake Keepit to Gawler) and Col Vassarotti and others fly 750km flights from Temora. Earlier in the season of course our international friends had a great time at Tocumwal in particular with many 1,000km flights, National records and Women's World records to their credit. Gerrit Kurstjens did a 1,250km FAI triangle (after top scoring the Nationals). I'm sure this did our international reputation a lot of good and we can expect more visitors next season.

Any Aussie pilots wishing to try for 750/1,000km flights should realise that these pilots have done a great deal of preparation. However, you still need to be in the right place at the right time! I can recommend Andy Pybus' May 88 and Rob Dorning's May 83 articles in AG as well as later ones regarding sporting code and Barron Hilton and "Decentralised Comp Rules" by Gary Hollands as essential reading if you seriously want to achieve your flights and then claim them. The weather is a huge subject – Harry is becoming our premier long distance forecaster/pilot and local knowledge is also so important. I was fortunate to have Beryl and Arnie Hartley and Shinzo Takizawa at Narromine to advise me on weather and tasks. I'm sure Ingo was invaluable at Tocumwal. Choice of aircraft will decide what tasks to try, whether distance or speed in a range of categories. All FAI classes have National records and now there are new world records for 15m and World Class gliders. Dave Jansen and Keith Willis have proven you don't need 26m machines to be world record holders. In my own case I own a 15 year old Discus so my goal this year was a 1,000km diploma

done as an FAI triangle for maximum BH points and preferably faster than the old record. I had one week off in Jan to do it!

750km

On Monday, 4 January, I arrived at Narromine at 9am to be told by Beryl that today's the day, am I going to try for the 1,000? Unfortunately my car was in one hangar, FV in another and my GPS in my bag still needing to be fitted to the glider. (What did I say about preparation?) I check on Shinzo: "Ah Tom, today is a 1,000km day, do you require a launch?" After 5 minutes panic, I decided to try for John Rowe's 750km triangle speed record of 119km/h set in 1983. I had never actually done a 750, but I did do 948km in 1994 when Shinzo last told me it was a 1,000km day! Launching after lunch I started at 3,000ft agl at 12:50 pm. As my Joey is not approved for records I needed a start and finish gate crew (Beryl – the claims officer, no less!) and to photograph turnpoints. Ten k's out I climb a few thousand feet in 5-6kt and move on to find better. After a frustrating 20 minutes or so I finally connect with an 8 knotter which takes me near cloudbase. Cruising along at 100kt I'm able to stay high now with few stops required. After turning Hillston the cloudbase is about 11,000ft and the thermals, although only 8kt or so, are very regular and a few times I pull up to thermal only to decide that I'm still at 8-9,000ft so I'll keep going! This continues as I round Springdale and I realise I'm well ahead of schedule. Temora is nearby and I talk to Lisa Turner and hear how the practice days for the Club Class comps are going. I see a number of gliders heading towards Temora and Forbes as I climb to final glide for a fast finish at Narromine. First objective complete as the flight is a new 750km triangle Standard Class record at 131.11km/h. The speed we discover is above the minimum for a first 15m World record but Dave Jansen had done a speed of 133km/h in the Alice in December for new Aust and World records. That

night, as we're having a late dinner, Wendy Medlicott gets a phone call from Harry to confirm that he has landed at Gawler!

886km

The next day, Shinzo and I declare Nrm-Henty-Booligal-Nrm, 1,015km and launch just after 10 am. This first leg reminds me of my other attempt in December 94, blue thermals of 1-4kt using a height band of 1,000-3,000ft. First I'm almost in a paddock then Shinzo is low in the hills north of Temora. The day does not seem to be improving. Passing Temora we meet Dave Pietsch and continue on. At 2 pm, still at 4,000ft, Shinzo declares the day not on and turns for home. A little while later I do the same only to fall into an 8 knotter to 8,000ft after backtracking 20km. The clouds could now be seen to the south and west at over 10,000ft so I turn south again to investigate as I had never been so far south. The crowd at Temora were trying to lure me there with tales of icy beers – I figure I can divert there or to Leeton later in the day. At this stage I think 1,000km out of the question as I need to do an extra 40km to make up for my turnback. Soon I'm at 12,000ft in 9-10kt and I work out that if I average 130km/h I would be home on dark. The run up to Booligal is fantastic and now I need only 120km/h, but it is late and the day starts to die early, blue-ing out all over. After scraping away over Lake Cargelico I head for Condobolin and relay a message home through two other gliders also outlanding at Tottenham. With 100ft under a zero ring setting final glide (with a calculated guess of the elevation of Condo) the thermal stops as the sun sinks. I stay a steady 50-100ft low in dead smooth air for 45km as I approach the airfield. Checking landable paddocks all the way and hoping the reference point for the airfield is on the other side, I see the cross strip and crossing the threshold at 100ft with no airbrake float almost to the windsock – the ARP is the NDB tower on the far side of the runway – whew! After tying down the Discus, I'm almost at the terminal when I hear the phone ring. Beryl has found the number and already arranged an aerotow retrieve for myself for first thing, followed by the guys at Tottenham. A ten minute cab ride into town and I grab a burger and a shower – its 37°C at 10 pm and next time I'm in Condo I'll pay for an air-conditioned motel!

Rest day

Arnie is right on time in the morning so after a 10,000ft tow I arrive at Narromine in time to watch Shinzo depart for a 1,000km attempt. I do a short flight later. The weather is good but doesn't seem as intense as yesterday. I have a rest and recharge my own and the glider batteries. The high pressure system is slipping away but one never knows. Shinzo ends up in a paddock after 900km, bad luck! Bob Ward calls in on his way home from Toc – ecstatic at finally cracking a 1,000km (see his article in the March magazine).

1,000km

On Thursday 7th, as I'm loading water up to 45kg/m² (about half water so I can still climb in the weak early thermals – ask an instructor or a competition pilot), I meet Tomas Suchanek preparing Arnie's ASW20 for a 750km attempt. He needs little encouragement to try a 1,000km with me, despite this being his first sailplane flight for the year after flying in the hang gliding championships (you get the impression he might be a competitive kind of guy!) Since the Temora area was weak early on Tuesday, I decide to go west first, even though this is crosswind (NE forecast with the high backing up to the west a little). Starting overhead at 3,000ft once again at 10:20 am, I'm soon down to 1,000ft and barely climbing – maybe we're too early! Soon Tomas comes in under me and we barely survive for the first hour. As we climb to 5,000ft by about 11:45 am, Tomas gradually pulls ahead by flying more positively than I am. I'm cruising at less than

70kt just trying to stay high. As the day pops and cumulus form directly ahead, I lose sight of him as he climbs to cloudbase while I wallow in broken lift. Finally up to 9,000ft in 8-9kt, Tomas is 30km ahead reporting 13kt well off my track. I travel abeam his position and turn Booligal 50km behind him in a huge blue hole. Soon I'm down to 4,000ft on a 10,000ft day, time to slow down and concentrate on climbing! A flock of ibis show me a climb to 11,000ft. Tomas is now 70km ahead reporting good climbs, I'm able to keep him at 70km all 600km home (soothing my ego a little!) We're staying at 8-11,000ft, only stopping every 40km or so in 9-10kt. With a 20kt tailwind and rarely stopping, we're soon approaching Henty, but there is a high overcast to the south killing the lift and cu's. I climb to cloudbase 10km north of Henty and glide in and back out to the clouds. If the



Tomas Suchanek.

turnpoint was much further south we couldn't have done it. I hear no Benalla gliders today!

Turning north, the clouds are in loose lines with the wind. Tomas reports good climbs and we hear Temora gliders also having fun out on 500-750km flights. Climbing to a high of 12,000ft in 12kt I'm able to cover long distances without turning. Passing Temora at cloudbase, it is obvious the headwind has reduced to only 10kt or so, a perfect task! Blue holes are forming and lift starting to reduce as I report final glide. Thinking of continuing past Narromine, I slow down and cross the finish line at 3,000ft after 8.5 hours for a speed of 117.73km/h. I climb another 2,000ft in a small thermal and could easily have glide out 40km even with no lift. However, with a rapidly weakening sky and a party about to start down at the airfield, together with not really having a crew, I finish the day with some gentle loops and chandelles. As it happens I later read that the extra k's would not have counted towards the BH cup, though they would have given me the free distance record of 1,019km of Andy Pybus, done in this very aircraft FV. At least I beat Andy's old speed record of 105.37km/h and Rob Tuncks' 15m record of 111.62km/h (it's great to beat flapped machines, even Mozzies!). His great distance of 1063.70km is still safe though!

Paperwork

The next day was a boomer again but I was happy to spend the day in the air-conditioning filling in all the paperwork. On checking Tomas' datalogger it was found he turned 40m short of the first turn so couldn't claim his 1,000km despite doing it in over 130km/h! He reckons he will get it next year! I haven't seen the decentralised comp results yet but it will be a difficult year because as well as my 775/886/1,015km there is Harry's 1,177km plus two more 1,000km flights! Can't wait till next summer!





World Class – the Perfect Solution

FRED W. WEINHOLTZ

A paper presented to the World Class

Marketing Summit, Leszno, Poland,

July 1999.

I am reading this paper as a German glider pilot since 1940 and an active club gliding instructor since 1955 who knows the international scene quite well, too. My log-book shows about 11,000 glider launches, 10,000 of them performed with students in double seaters. My total flying time is nearly 6,000 hours. I would like to draw your attention to the fact that, with 40,000 gliding members in the German Aero Club, one third of the worldwide gliding community lives and flies in our country. The nearly 1,000 German clubs still stick to the system of the late 1920's, which was created to guarantee that everybody interested could afford the pleasure of gliding. This was and still is achieved by the iron principle that all work to be done within the community is done on an honorary basis by all who are able to do it. This principle includes all club members, the president as well as the winch driver, the secretary and the instructor. In my club – the Herford Gliding Club – 86 active members are flying 11 seats on four double seaters and on three single seaters, all owned by the club, 25 members are still students, without a license. Past experience has shown that a sufficient number of students is the backbone of successful club operations.

The costs for the members are:

Yearly subscription	400DM (adults)
including insurance:	200DM (youths)
One winch launch:	6DM (adults)
	4DM (youths)
One gliding hour	from 12DM (Ka 8) to
(depending on the type)	24DM (ASK 21 or Twin
	Acro) and after four hours
	in a single flight, free.

At an average of 50 launches and 40 hours per year, the total costs are about 1,000DM for youths (25DM/hr) and 1,500DM for adults (37.50DM/hour).

Looking back into the development of our German clubs during the last 50 years, I can recognise several pairs of gliders – double seater plus single seater – used for instruction and practice in certain time periods:

1954:

We flew Doppelraab and Grünau Baby. Although these gliders were normally constructed in club-owned workshops by the club members themselves, I use the price they were ex-factory at the time: 12,000DM

1960:

Rhönlerche and Specht double, Ka 8 and Spatz single 18,000DM

1970:

Ka 7, ASK 13, Bergfalke double, Ka 8, Spatz single 30,000DM

1999 (today):

ASK 21, Twin Acro double, ASK 23, LS4 single 150,000DM

Now, consider the numbers in this table:

Year	Cost for double & single-seat pair	Glide Angle	Average monthly income in Germany	Cost of the pair in months of income
1954	12,000DM	18	450DM	27
1960	18,000DM	23	700DM	26
1970	30,000DM	27	1,200DM	25
1999	150,000DM	33-36	3,500DM	43

Using figures for a PW-6 and PW-5 pair, we come to the following result:

1999	85,000DM	34	3,500DM	24
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Merely by the purchase of a PW-6 and PW-5 pair for instruction and practice, instead of buying the more expensive gliders, a club can save 40% or 60,000DM. Even more money could be saved because of cheaper insurance, recovered hangar space, simpler (light weight) trailers, lower maintenance, etc., etc.

I am sure no glider pilot has got any doubts about how important the availability of money is for the survival of a club. Just 50 years ago the PW-5 would have been a "super-orchid," longed for its performance ardently. Today, the glide angle and the minimum sink are even below the ones of the club class. But does not a glide ratio of 1:33 meet perfectly the expectations on a glider for instruction and practice? Does the World Class glider not fulfill the wishes of the masses of gliding folks, who desire nothing more from soaring than fun, excitement and recreation? Is a glider able to perform all legs of a Gold Badge, including diamonds, not good enough for a club? And, moreover, does it not meet the requirements of those who want to compare their skills with others, who are eager to fly contests and records? Is it not competitive on all levels up to World championships?

It must be a real pleasure to accommodate double the number of PW-5 in a hangar, compared to normal standard gliders. Clever clubs could construct trolleys in which the tiny World Class glider – wing nose resting

in swivelling molds and tail vertically swung up – could be rolled back and forth. Ten gliders could be stowed in less than 200m². And whoever complained about the painfully strenuous ground transport of the heavy double seaters – particularly in beginners' courses on hot summer days – will welcome the lightweight PW-6 very much.

In the air the PW-5 is easy to handle and extremely manoeuvrable. I myself flew in a thermal a number of 16-second-circles with about 45 degrees bank without touching the stick, just by a well set trim. Because of the narrow radius of its circles, this glider often climbs better than other leading competition sailplanes. This, of course, decreases the difference of the cross-country performance by more than would be expected from the simple comparison of glide angles.

The trailers for road transport can be a lot lighter and consequently simpler than the ones used for conventional gliders. And what a great relief it is for the instructor if he has to send only one person to retrieve a pilot after his Silver C distance. Last but not least, the winch launches are cheaper, because less fuel is consumed, the release height is increased, thinner cables with lower breaking strength can be used, or the usual ones are less loaded and last longer. (The malicious falsehood claiming dangerous behaviour of the PW-5 on winch launching will be touched on later).

Not long ago the World Class idea was launched with much enthusiasm. Cleverly invented and carefully formulated rules had the task to consolidate the importance and to secure the continuance of this class into a far future. Careful market analysis indicated a worldwide demand of approximately 4,000 World Class gliders. But no such thing has happened. Just 220 PW-5s have been sold within five years and the demand has already faded. I want to repeat some arguments I put forward ten years ago, as some of you will certainly remember.

The IGC backed the wrong horse by trying to stimulate world records and world championships for the World Class. They did not take in consideration the fact that more than 90% of all glider pilots around the globe are absolutely uninterested in these matters. And more than 9/10 of the last 10% are bound to other classes and types of gliders. Not the least because of their good financial situation, they fly "orchids" or at least gliders with glide angles better than 40 for purchase prices of three to ten times more than that of a World Class glider. The remaining 1% is a bit more than 1,000 pilots. Some of them have

for Gliding Clubs

bought World Class gliders. The others obviously have not got the money, or are for other reasons not interested in buying a glider at all and prefer to depend on their clubs.

It is a great pity that IGC neglected the needs of the gliding clubs – especially the Middle, West and North European ones – and tried to satisfy the (supposed) requirements of the few handfuls of top pilots, an error which, to my great regret, IGC makes far too often. IGC is in my opinion top heavy in favour of “the upper 1,000.” Instead, they should have taken into consideration that more than three fourths of all glider pilots on our globe fly in the European clubs, and that the views in these clubs regarding the sport of gliding are certainly positive and healthy, but differ a lot from the views of clubs overseas – and even more from the views of many top competition and record pilots.

For convincing the European clubs, a marketing strategy would have been necessary which had at its centre the value of World Class gliders as a pair (double and single seater) for typical club operations: instructing, practicing and pleasure flying, including cross-country flights. The possibility to fly world records and become a world champion with the PW-5 should have been mentioned as a welcome extra, not placed at the centre. In spite of this error, interest in the larger gliding value of the World Class was surprisingly encouraging in the beginning. I had not expected that, because the German manufacturers of conventional sailplanes really did not sing the praises of the new class. Obviously they had not realised that they particularly could capitalise on a gliding population growing because of a successful World Class. However, I myself was very glad with this pleasant development.

Yet the opposition of the German sailplane industry would not have been necessary to damage the World Class. I am sorry to say, but the PW-5 manufacturers in Swidnik did everything themselves to prevent the World Class from achieving the success so many hoped for. They really made every effort to follow a most unprofessional marketing policy, obviously grown from ignorance, arrogance and stubbornness. They themselves strangled the sprouting and even the least interest in the PW-5 by not reacting to letters, faxes, and telephone calls. They ignored rigorously the most legitimate wishes of their customers. Coolly they refused to install simple technical equipment like an air pressure device in the fin, automatic control connections, simple ballast fixtures, etc. Their outrageous

price policy – contrary to the terms of agreement with IGC – and their incredible refusal to pay the agreed price reduction for the PW-5s sent to the World Air Games in Turkey, took care of the rest.

Then, a fatal winch launching accident happened in Innsbruck. Today we know that this crash was not caused by the glider, but by wrong actions of the winch driver and the pilot, obviously from lack of experience. It is a great pity that a few glider pilots misinterpreted and spread rumours about this accident in an absolutely irresponsible way. They promoted a bad reputation for the PW-5, claiming it is dangerous and unsafe on winch launches, and this did considerable damage to the credit of the PW-5. The result was that a number of clubs – dependent on winch operations for reasons of cost – dropped all consideration of purchasing a World Class glider.

Hearing this story, a pessimist would say now that the great idea of the World Class has faded away, but glider pilots are optimists. So they should recognise that it is worthwhile to set the little glimmer of life for this class ablaze, to fan the flames, and by this to achieve the ambitious goal of reviving world-wide gliding as sport. But how can we succeed?

1. We must find reliable manufacturers who bring PW gliders to the market in perfect shape and who treat their customers like they really want to sell the glider.
2. We must convince German manufacturers that they would be the most favoured beneficiaries of an increasing gliding community caused by a prosperous World Class.
3. We must explain to the clubs that the PW gliders are safe in all operations, easy to fly in the air and handle on the ground, of pleasant characteristics and considerably less expensive. Moreover, they are good for diamond flights, for records and championships on all FAI levels.
4. The manufacturers and dealers must go with pairs of PW-6s and PW-5s to the gliding centres, let the club members fly these gliders, and rent them for small charges to club courses, gliding holidays and weekend activities.
5. Let us report enthusiastically in our magazines on thrilling and successful flights, on good results of instruction activities and other interesting stories in connection with the World Class.

We must and we will keep our faith in the World Class and plead its cause wherever and whenever we have got the opportunity to do so. I am sure, it will be worthwhile. ✂

Letter to the Editor ✂

Dear Editor,

I was interested in the comments in the July issue by I.A.M. Verloren about the problems of navigation when the diameter of the Earth seems uncertain. The following comments may not provide a solution, but they may be a contributing factor in the confusion it is probably little known, but the Earth is not a perfect sphere, and its measured diameter depends on just where the measurement is taken. For example the diameter through Australia would not be the same as the diameter taken through, say, Germany or Egypt or Finland. Perhaps this accounts for the variations in latitude and longitude noted by your correspondent Verloren (which, incidentally, is German for ‘lost’). Perhaps this also explains why some of the NATO missiles landed on wrong targets in Kosovo and Serbia. I don’t know the solution to Verloren’s problem. I’ll leave that to the experts.

Allen Ash, Frankston VIC

Ed’s Note: Obviously Verloren did not wish to be found. Perhaps I.C.H. Bin Verloren might have been more correct. Nicht Wahr!



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Jos in his paramotor.

JOS WEEMAES

Having flown paramotors in excess of five years, I often wondered why the glider did not stall under full power. Dennis Pagen, together with some pondering of my own, provided the details for the article below and hopefully the reader will find it entertaining. I have to say that mechanics and forces on flying objects are not my strengths and as a humble pilot I do not proclaim to have the final, ultimate or even correct answer in the explanation of forces on wings.

Let's have a look at a paraglider, without backpack engine, in flight (Figure 1). The force of gravity is represented by W , this is the total weight of the contraption, including the pilot. In a steady flight, without acceleration or de-acceleration, the total weight is always balanced by R , which is a combination of lift (L) and drag (D). Note that the lift force (L) is always perpendicular to the flight path and that the drag (D) created by the glider, the lines and the pilot is always directed opposite the flight path.

In Figure 1, V indicates the direction of flight. This V is a combination of vertical (V_v) and horizontal (V_h) movement. The ratio V_h over V_v is the same ratio as L over D (the Glide Ratio). To maximise the distance travelled you need to maximise V_h and minimise V_v .

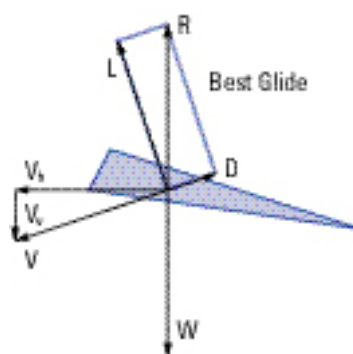


Figure 1

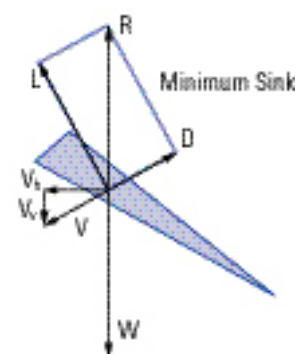


Figure 2

If you pull gently on the brakes, you slow down the glider due to the increased drag (D) as per Figure 2. As the forward speed decreases so does the ratio V_h over V_v , the glider slows down until R becomes equal to W , and you have steady flight again, but now at a reduced speed.

Figure 3 shows a paraglider without backpack engine or paramotor and in Figure 4 you have added the paramotor, which pushes the pilot forwards. The paramotor and pilot are slightly tilted and the force created by the paramotor (F_p) is a combination of horizontal and vertical forces. The advantage of this tilting is that the vertical force (F_{pv}) reduces the total weight of the combination and assists in increasing the flying angle or angle of attack of the glider. This has the same effect as pulling on the brakes. The increased drag (D) however is now counteracted by the force applied by the paramotor (F_{ph}).

Figure 5 shows a steady paramotor flight, the drag (D) is nullified by the force of the paramotor (F_{ph}) and the combination flies in a horizontal direction (V). In this situation, the lift force (L) is the same as the total weight of the contraption minus the vertical upward force created by the paramotor ($W_p = W - F_{pv}$).

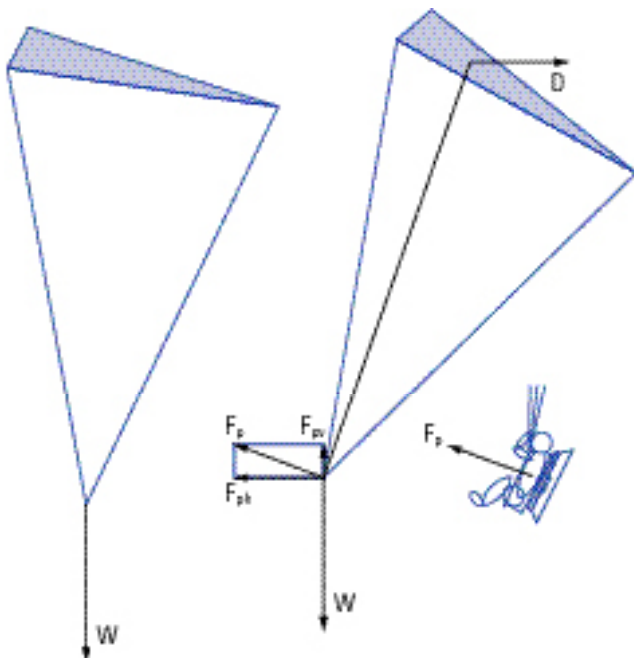


Figure 3

Figure 4

If you accelerate by opening the throttle you increase the force applied by the paramotor (F_p) and this force becomes greater than the drag (D) as can be seen in Figure 6. The resultant forward force (F_r) is the difference between these two. Lift force (L) increases as you pull the glider forward and the net result between the resultant forward force (F_r) and associated lift (L) is the resultant (R) which is greater than the overall weight (W_p). This forces the glider upwards. If you reduce the power, the glider tilts slightly forward, reducing the lift force (L), reducing the drag (D) and the resultant forward force (F_r) becomes smaller. If drag (D) becomes equal to the forward force (F_p) then you are back to level flight.

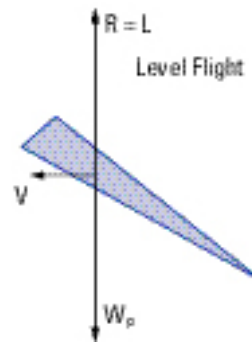


Figure 5

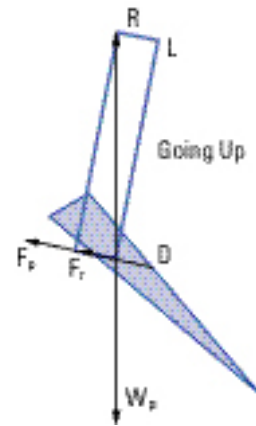


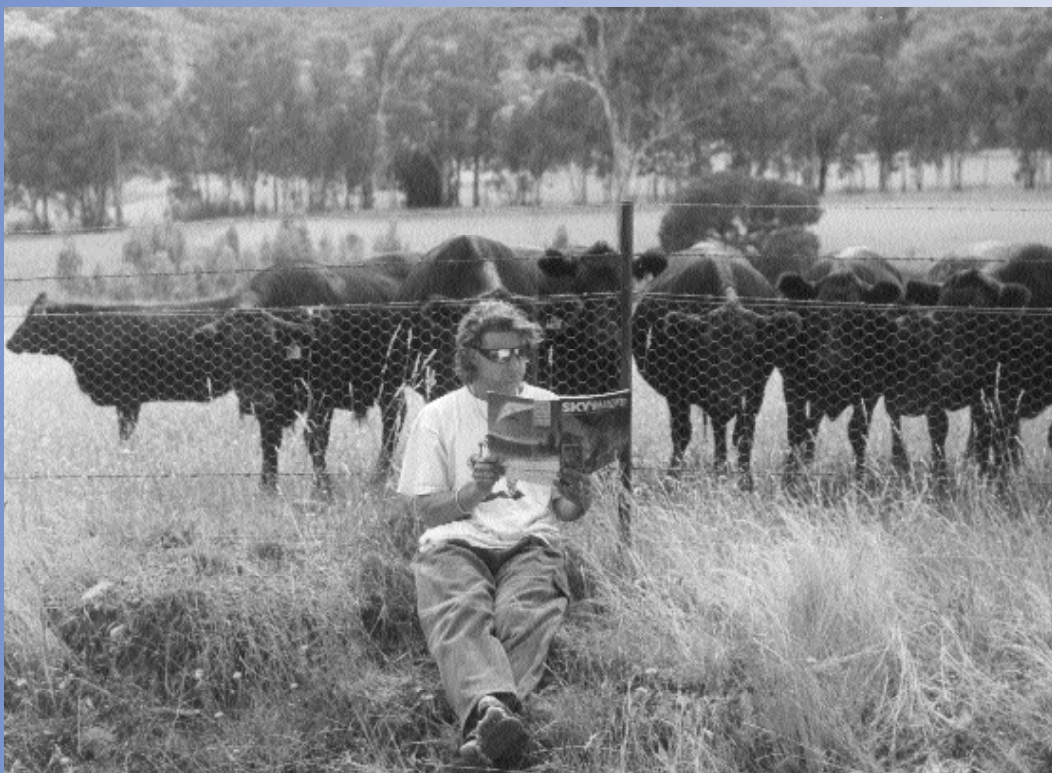
Figure 6

Well, what does all this mean? The stall point for the glider canopy is now delayed because you pull the canopy forward by the force of the paramotor, thereby increasing the lift. The harder you pull, the greater the lift. If there was more paramotor power available, there would be a moment when the canopy would be under such a large angle of attack that the drag (D) would be the same as the forward force (F_p) and you would stop climbing and have level flight. But no stall. A stall occurs as lift (L) decreases to zero due to lack of air speed. The paramotor will ensure that there is airspeed as it pulls the canopy through the air. If you pull full brakes under full power, the drag (D) will increase, the resultant forward speed will decrease and lift (L) will decrease as result of reduced airspeed resulting in a slower climb, or climb reduces to level flight.

Can there be a stall? Under full power the brake lines will have to be pulled much further than where you normally can pull them. This will increase drag to the point that there is no forward speed and hence no lift.



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CANOPY CERTIFICATION IN C

KARL TEXLER

Last year a number of top level international pilots (who were fed up with having to fly uncertified death machines in order to be competitive in the PWC and the World Championships) proposed a set of standards for a competitive glider class.

This concept has since been refined, and the “serial” class gliders are now regularly represented at PWC rounds. Although this year’s World Championships are still allowing factory competition prototypes (usually carrying only a structural certification and with no DHV rating – not really a certification as regards overall flight safety), it is hoped that these will be phased out for the next Worlds (in two years time).

The serial class glider is basically a canopy that conforms to the DHV 2-3 rating or its equivalent. Competition “go fast” accessories such as unsheathed microlines are banned. The aim of this class is to encourage pilots to fly safer gliders, yet still feel that they can be competitive because (presumably) their peers would be flying similarly certified gliders.

By having top class pilots fly safer gliders, it is hoped that the overall safety of the sport at an international level can be enhanced. Formula 1 Grand Prix motor racing underwent a similar dynamic about 10-15 years ago in response to increasingly extreme car designs that went like the clappers when everything was OK, then came radically unstuck when something wasn’t (sort of like a “hot” canopy of nowadays!).

However, by the introduction of the concept of restrictions to the upper end of the sport, a number of issues may surface.

1. Regulation and control

Before, because uncertified prototypes were allowed with just a note from the manufacturer that the canopy was “factory trimmed”, nobody really cared how the glider was trimmed or what profile or panel shapes were employed. If a pilot chose to fly a canopy that might kill him/her, that was the pilot’s own decision (in conjunction with the manufacturer backing that pilot).

If uncertified prototypes are banned, then the reputation of the top pilots, and the manufacturer that builds the canopies that they fly, will be based on a DHV 2-3 serial class glider.

However, even if a glider has a DHV 2-3 sticker attached, it may still have been tweaked (you wouldn’t be able to tell at a glance). With international results at stake, there will be pressure on pilots and manufacturers to alter gliders (illegally) so that they are no longer certified but will perform better. At this level, an “honour system” would have a limited life span. Without some concrete monitoring procedures, gliders from any given pilot/manufacturer would continually be subject to protests and queries from rival pilot/manufacturers.

Who is going to control whether a given (winning/well performed?) glider actually conforms to the required standard? How? Which gliders in a competition should be selected for inspection? Should the competition organisers be responsible for this or should some national/international organisation?

a) Glider trim

Monitoring glider trim (on its own) would be a nightmare. For example, the Nova Vertex (a glider with a very low number of lines) has 77 lengths of line off each wing of the glider, each one potentially different. Each glider is available in around 5 different sizes, each with its own set of line lengths. As gliders get used, (especially with sheathed lines), line lengths will vary as shrinkage and stretch from everyday use take their toll.

To measure a selected glider, the monitoring team would have to have on hand a line chart for that brand of glider in that particular size. Possibly it could be made a requirement that the pilot has to supply a line chart for his/her own glider. The measurement of that glider’s lines may take some time and personal resources.

The method of measuring line length, plus the standard of equipment to be used would have to be decided upon. Allowances for variations in line length (itself a potentially lengthy topic) to allow for wear and tear would also have to be decided upon. How much variation should one allow?

b) Profile and panel shapes

If glider trim is considered a nightmare, what about profile and panel shapes? How can one check out a glider’s profile properly without actually pulling the glider apart or setting it up in a cumbersome jig? What manufacturer is going to give away trade secrets by supplying patterns of the profiles and panels to the inspection team?

A modern serial class paraglider may have between 70 to 90 cell walls of differing sizes and shapes with individually shaped upper and lower panels between these cells. Even if the manufacturer were willing to supply patterns for this process, the checking would be extremely laborious and time consuming.

2. Trends in glider design

When designing and testing a glider, the factors of performance, safety and ease of handling need to be considered. Very often these factors are at odds with each other, so the “black art” of glider design often involves obtaining a suitable compromise between these factors.

When the uncertified factory prototypes are phased out of competitions, the serial class will come to be treated as the “new” competition class of gliders. This means that the performance factor will receive high priority in any design decisions. The safety factor would be fairly fixed (i.e. the glider must be a DHV 2-3 or similar), so the ease of handling factor would have the lowest priority.

What this means is that we may start to get gliders that have extremely good performance (especially glide at speed). Their reaction to collapses will be predictable with a relatively uncomplicated recovery compared to an uncertified “full on” comp wing. However, the handling of these gliders may leave much to be desired (there are already some DHV 2-3 gliders out there like this!). Also, as DHV doesn’t really test the ease with which these gliders tend to collapse in rough air, we may start to get “twitchy” wings that collapse often if not flown exactly right, but nevertheless recover beautifully every time a collapse occurs! Maybe if a valid, fair test for collapsibility were devised, it would solve this problem.

This sort of wing is not particularly pleasant to fly unless maybe you are used to it. Of course the “sky gods” won’t have a problem with this sort of wing (they design and test them, after all!), but what about us lesser mortals? Is it good for our sport to have a situation that encourages this sort of wing?

A possible benefit of this situation is that the manufacturers may come under more pressure to come up with better (nicer)

COMPETITIONS

DHV 2 gliders that are pleasant to fly, but still have a very reasonable performance.

In Australia, the Hang Gliding Federation of Australia competitions committee is promoting a DHV 2 class in Australian paragliding competitions. Presently, this class is open to any pilot provided their glider has a DHV 2 rating (or lower). The aim of this class is to provide encouragement to less experienced pilots as well as older (wiser?) pilots who want to fly a friendlier wing but still want to compete.

This may be desirable, if adopted more universally, because it would leave the 2-3 serial class to be developed more with competitions in mind. Those of us who don't want to fly a serial class glider would have the option of good (fun) flying in the DHV 2 class.

Conclusion

The introduction of regulation of canopy design into the top end of our sport is marvellous, and probably a source of relief for many competition/professional pilots and designers who won't have to fly and design "hot" canopies anymore. It will also contribute greatly to improving the safety image of our sport. However, the idea is in danger of failing if these regulations can't effectively be enforced. Enforcement is potentially clumsy and will add to the cost of running competitions (somebody has to buy and maintain the equipment and possibly pay people to use it).

It may also change the way the high performance certified canopies are designed, but then, there are always the DHV 2 canopies to play with if you don't want to fly a serial class glider.

Here's hoping that all this can be properly developed so that it will prosper!



Certification Standards

The question of certification standards in hang gliders and paragliders has become something of an issue in the last year or so. Some people have been calling for a blanket ban on non-certified gliders at competitions, while others have been claiming that to do so would stifle the development of glider design, which ultimately does benefit all pilots. Paragliding has had a number of severe accidents as a result of gliders that were being made with performance considerations overriding safety aspects and as a result, a lot of discussion has started up on the design standards of competition wings. For this year's Paragliding World championships, the concept of "certified prototype" was introduced to make some headway into getting safer gliders into competitions. The world championships are controlled by the CIVL, whilst the PWC competitions are controlled by the PWC organisation (a separate governing body).

The line strength standards that have been introduced for the paragliders competing at the world championships are something of a compromise between the two sides of the argument. The CIVL is trying to achieve two things; we are looking at following the work that PWC has done, and if they formalise serial class gliders for all their comps then CIVL would most likely do the same. Also, we do not want to make too big a change too soon, as this would only encourage cheating on the standards and therefore add to the entrenchment of the "I can fly what I like" attitude (which is fairly strong in some circles).

Besides this, you must ask the question, how many certified gliders actually conform to the certified plans? In hang gliding, even when you consider the gliders used for recreational flying, not that many. And to make matters worse, the changes that are being made change the stability of the gliders. Changing aspects of the aerofoil shape in a hang glider produces a direct trade-off of performance against stability. Pilots routinely change the batten profile and the luff-line lengths to improve glide. These changes directly impact the stability of the glider (diver!) but it is still "considered" to be a certified glider. The only way to check to see if it is certified would be to make detailed and very time consuming measurements, which the pilot could change again in just a few minutes on launch during setup. Basically we are beating our heads against a brick wall if we are going to try to simply legislate this problem away.

With paragliders, it is more difficult to make changes as the structure is basically sown together. It is easy to change lines though. The lines are a major source of drag, and to have lines as small as possible is an advantage, hence the current rules. How many certified gliders have their original lines attached? Besides this, how many certified gliders are coming out of the factory in not quite

MICHAEL ZUPANC

certified configuration? I know in hang gliding there are a few, I can only guess that a similar thing is happening in paragliding.

With all this said, calling for certified only gliders will have some effect at least, because manufacturers have quite openly produced non-certified gliders for their top pilots to fly in competitions. In the past it was the pilot's choice to fly these gliders, but now even the top pilots are getting scared flying some of these gliders, and of course the other pilots are getting more vocal about flying against these craft.

In hang gliding, the main issues seem to be the not so simple question of stability. Pitch stability is where there is a direct trade-off between performance and safety, and this area of the design is the easiest thing for the pilot to modify. I am not aware of any adverse statistics relating to pitch stability problems with the new gliders in competition, however, there have been a number of problems with hang glider yaw stability. Current certification standards do not specifically test yaw stability, but the design aspects that produce the yawing problem have beneficial effects on performance. This has led to the unusual situation where pilots have rendered their gliders uncertified by putting fins and stabilisers on their keels to make them more stable.

With the serial class concept, paragliding has headed along the direction of design standards where gliders that are certified, but hard to fly, are excluded from competition. Hang gliding has produced a new generation of gliders that are excluding a lot of pilots, simply on the grounds of the large cost difference between these gliders and the previous generation. This aspect is further widening the gap between the factory pilots and the rest. Some valuable ideas on hang glider standards were pushed aside at the last CIVL meeting, largely because of the way they were presented, which was a bit odd and somewhat unfortunate.

Having certification rules is useless if those rules cannot be enforced. We either have people at competitions with vernier callipers and tape measures, with reams of documentation to see what shape a wing is actually supposed to be, or we take another path. The greatest means of enforcing rules in competition is peer pressure. If some great new radical rule comes in that promises to make everyone supposedly compete on even terms, then most pilots will sit back quietly while the "glider modifying" pilots will continue to do as they have always done.

If on the other hand, the subject becomes an intensive issue, then at least people will know about the problems and they will be having a look at each other.

Any ideas?





GLIDING IN JAPAN

GRAEME VERTIGAN, Soaring Club of Tasmania

It was through my annual pilgrimage to Waikerie that I became acquainted with some of the members of the Sky Sports Association of Takikawa, (SATA), and the special relationship that exists between that organisation and the Waikerie Gliding Club. Many SATA members regularly visit Australia during our summer to experience the excellent soaring conditions and the hospitality of the Waikerie International Soaring Centre. In return SATA welcomes the services of itinerant Australian tug pilots and, when circumstances dictate, Australian maintenance personnel as well. During one of my visits to Waikerie I met Mitsuru Marui, a past SATA CFI and highly skilled cross-country pilot. I wasted no time in offering my services as a tug pilot should they ever be required, and was very pleased to be offered a position at SATA for the start of the 1999 season.

Takikawa is located on the mid-western side of the Japanese island of Hokkaido. Although its geographic position in the northern hemisphere is similar to that of Tasmania in the southern, its winter climate is much colder. Up to 2m of snow falls during the winter months when club operations are in recess. By mid-April the snow has melted sufficiently for gliding operations to resume, and the season runs until mid November. The best soaring conditions and the most consistent weather occur during July, August and September.

I arrived in Hokkaido in late April, and was taken immediately to Sapporo for my Japanese aviation medical. On arriving at SATA later the same day, I was impressed by both the organisation and its facilities. Since land is precious in Japan, the airfield is located on a river flat, bordered by a large man made levy bank, on the other side of which is the city of Takikawa. Straddling the levy bank is the hangar, office and clubhouse building, which must be seen to be believed. The complex was built by the city of Takikawa, and is arranged as an aviation

museum in which the gliders are functional exhibits. Beside this, and of equally grand proportions, is the maintenance workshop with an accommodation wing above. A permanent staff of six, with the help from numerous club members, run what can best be described as Japan's premier gliding site.

The club membership totals about 200, and both weekend and mid-week flying are catered for. Student pilots are trained in one of two immaculate ASK 13's, with towing services provided by two French built Robin DR400 aircraft. The hangars contain a further 25 well presented single seat sailplanes as well as two dual seat motorgliders.

In addition to the club's aerotow operation, the University of Hokkaido operates a Dutch built, four drum winch from the same site. The University students are very keen, they trailer their K7 and K8 gliders from Sapporo to Takikawa every weekend, arriving on site about 6 am, after a two hour drive! By about 8:30 am both aircraft are rigged ready to fly and the winch is in position on the airfield. I had the opportunity to observe several winch launches at close hand, and noticed that the winch wire was actually a 4.5mm steel wire rope. Military style drogue parachutes are used together with colour coded weak links for different aircraft. Each wire is carefully checked for broken strands every 25 launches, and damaged sections are cut out and replaced. Wire breaks do not occur.

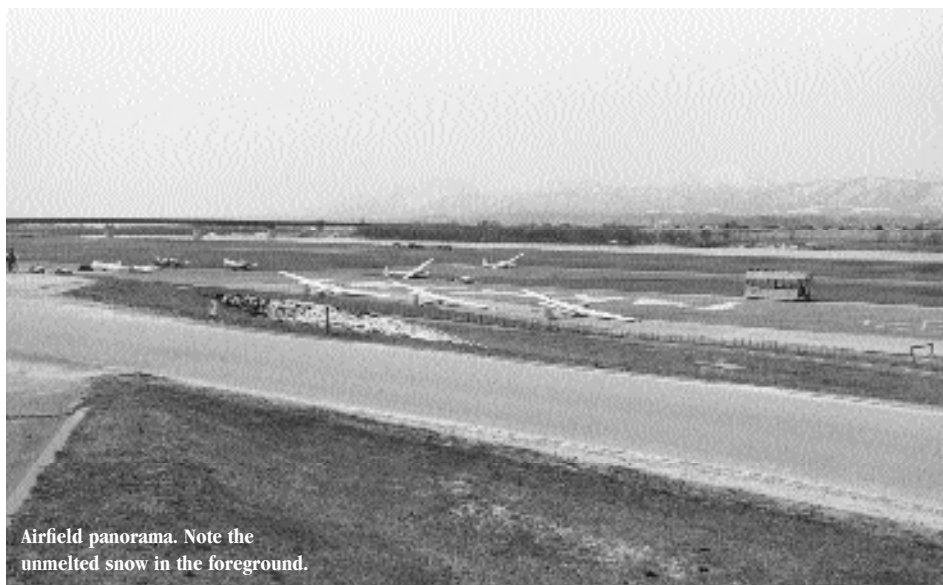
The airfield is every bit as impressive as the other facilities. There are three strips; a sealed 800m runway for aerotow launching, (01/19), beside which is a 1,200m grass runway, and a winch strip of the same length, with two sealed retrieve roadways. Unfortunately there is no cross strip, which tends to prohibit operations in westerly winds.

Left: This is the Rolls Royce of pie carts, complete with radio, PA system and weather station.
All photos: Graeme Vertigan

The gliding operation differs somewhat from that of the average Australian gliding club. Because of the large numbers of launches made each day, a flight service operator, based in the pie cart, controls the entire operation. All aircraft must make a downwind radio call, in response to which the controller will assign a runway for landing. Since launch speed signals are sent to the winch operator on the local area frequency, radio silence is observed by all other aircraft during a winch launch. This system works smoothly, handling up to 70 movements each day. There are always many people on the ground ready to remove the last glider from the runway in preparation for the next.

The Robin DR400 towplane is a low wing 180hp, four seat aircraft, offering excellent visibility and is fun to fly. It is a type rarely seen in Australia, yet it performs very well as a tug. It tows a little faster than a Pawnee and requires about the same right rudder pressure during the climb! Its flaps extend to 60 degrees, and can be used during the 150km/h (80kt) descent. (Things are metric in Japan, airspeed is usually expressed in kilometres per hour, and altitude in metres!) The Robin has a large bubble canopy, and mounted above and slightly in front of the pilot's head is a mirror in which he can easily see the glider in its normal high tow position.

Because the airfield is in close proximity to the city of Takikawa as well as to several other towns along the river, noise is a big problem. As a result the tugs are fitted with an additional muffler slung beneath the fuselage, and a special wooden Hoffman propeller. Both these features ensure a very quiet operation, however to further minimise the likelihood of disturbing nearby residents,



Airfield panorama. Note the unmelted snow in the foreground.

the initial climb out and approaches must be



Hangar parking Japanese style.

along the river, equidistant from the houses on either side. Once above 1,000 feet the tow may proceed over the city. It seems strange to an Australian tugger to tow over a busy city centre, despite the fact that the airfield is within easy reach.

Since the southerly approach to the airfield is made over an 80 foot high road bridge, and that from the north, is over a golf course, the tow rope must be wound onto a small winch in the tug's rear fuselage during the descent. This presents the tugger with an

additional problem. If the rope is released under tension, it can twist itself during the recoil and can bind up in the guide, thus preventing the winch from operating. It then trails along behind. In order to avoid this, at the agreed release height the tugger reduces power and raises the nose slightly to take the load off the rope. He then waves the glider off from its high tow position, looking carefully in the mirror to be certain that the glider has released before peeling away to the left.

The SATA site is located in a wide valley oriented roughly north-south and is bordered by a mountain range on either side. Every square inch of flat land is used for either agricultural or residential purposes and by mid-May the rice farmers have planted and flooded their fields. From the air the valley looks a bit like an inland sea, however, despite the abundance of water, the area produces many good thermals. These appear to form above the slopes on the western side of the valley and are initially marked by a row of small cumulus clouds. As the day warms, they break away and drift downwind across the valley, forming well marked cloud streets that extend well to the east. The western slopes continue to produce thermals throughout the day with the result that the soaring is excellent. With a little care it is usually possible for the tugger to drop each glider into quite a reasonable thermal.

The mountains to the west of the site can trigger wave lift in response to winds flowing in from the Sea of Japan. This can occasionally be contacted from as little as 3,000 feet and within 10km from the airfield. Unfortunately when the wave conditions are at their best there is often a strong westerly wind on the ground, which, in the absence of a cross strip, makes launching almost impossible.

The ground operation is based in the pie cart. As you might by now expect, this too is



The Robin DR400 tug – affectionately known as 'Romeo', the other one is called 'Juliet'.



GLIDING IN JAPAN



Aerial view of Takikawa, the airfield is on the far bank, to the left of the bridge.

an elaborate structure, glassed on all sides to afford an uninterrupted view of the airfield. It is mounted on wheels and can accommodate about 40 people. Before flying operations commence each day all pilots assemble here for a thorough briefing and an appraisal of the expected weather. Lunch can be ordered, and at midday, a large box is delivered from the city, containing hot meals, each packaged in plastic, complete with disposable chopsticks. Very civilised.

After flying operations cease for the day, and all the toys are safely in the hangar, a debrief is held in the clubhouse. Here, over the odd glass or two of 'Sky Beer', the days flights are discussed, and individual achievements are made known to the group.

Two such flights that I should mention were made by university students, who, it turns out, had made their first soaring flights in excess of one hour's duration, in their K8. Because the average winch launch achieves only about 1,600 feet, it is much more difficult for the students to find thermals than for those well heeled souls taking aerotows. In Australia the custom would simply be to 'shout the bar' and honour would be satisfied, but not in Japan! Instead, these two intrepid aviators were taken out in front of the hangar to where a circle about 15 feet in diameter had been painted on the ground. At regular intervals around its circumference plastic buckets filled with cold water were placed, and beside each stood a club member. The unfortunate pilots each took their turn at the centre of the circle, where they were given the opportunity to tell a little about their flight, before being drenched with freezing water from the periphery! Being new to this custom, and keen to take part, I stood beside a bucket which just happened to be on the downwind side of the circle. In the excitement

that followed I soon discovered why almost everyone else seemed to be standing upwind!

Gliding in Japan is expensive in comparison to Australia, however Japanese incomes are said to be proportionately higher. Avgas for example, costs about A\$2.60 per litre. A half hour flight in a K13, including a 2000ft aerotow costs Y5,000 or about \$66, and a 30 minute flight in a Motor Falke will



Club house interior.

cost Y7,500 or \$100.

The Japanese people I met during my stay were all very friendly and helpful. Many spoke English to some degree, particularly younger people who now study English for several years at school. They all spoke English much better than I spoke Japanese!

The Sky Sports Association of Takikawa have an informative web site, complete with an English page. It is well worth a look, and contains further photos not reproduced here. The address is: www01.u-page.so-net.ne.jp/gb3/sata If you are a tuggie and are interested in furthering your flying experience in Japan, contact SATA by email: sata@gb3.so-net.ne.jp, you'll have a great time!

"Open

(or the day Open Class mutinied)

HANK KAUFFMANN

It was one of those "heat low" days, stinking hot on the grid, thermals going nowhere and a forecast of around 40°C for the task area, during the Nationals at Lake Keepit six years ago.

Open Class was given a long task – Lake Keepit to Walgett across the Pilliga scrub, Walgett to Mungindi on the Queensland border, a desolate area with farmhouses 20km apart, then home – some 650km. A sniffer was launched and could only get to 2,000ft in weak thermals. A few of us on the grid struck up a conversation with the weatherman along the lines of, "It doesn't look like a 650km day!", his reply was, "Well it isn't and never was." The tasksetters felt that Open Class had been getting it a bit too easy, and one influential tasksetter walked into tasksetting and announced, "Today we will stretch Open class." The weatherman then confided that the task had been set before he had given the tasksetting panel the weather forecast for the day. With this in mind, and the fact that the day was not shaping up, a few of the Open Class pilots approached the OPS director and suggested that the B task was more appropriate, but no way – come hell or high water, Open Class was to go to the Queensland border via the Pilliga scrub. Now I can assure you that the Pilliga scrub is not a pretty sight at 3,000ft.

Eventually, the sniffer got 2kt to 2,500ft and launching commenced. My last words to Lorraine as I closed the canopy were, "If I outland on the second leg, I will leave some water in the wings and stay with the glider, send Stow out with his tug to look for me, there is no way I am going to walk 20km to an isolated farmhouse in 40°C

Class are Gentlemen”



heat.” I was flying a 17.6m Ventus C just to make up the numbers in Open Class, a competitive aircraft on the strong days, but hopelessly outclassed at best LD, 50:1 as opposed to 60:1 for the 25m ships. There was George, Shinzo and Paul in Nimbus 3s, Mike in an ASW22, Maurie in a LAK12 and Gary in a Nimbus 2. We immediately set off on task, no start games on this day, and very quickly all found ourselves on the same radio channel. We loosely flew together co-operating as the day was still only going to 3,000ft, and we had the Pilliga scrub to cross on the first leg. Safety in numbers.

Progress was slow with numerous grovels, and at 3 pm we still had not reached Walgett, our first turnpoint (remember that this is northern NSW where the days are short). One of our class (I won't say who) got on the radio and suggested that we wouldn't be flying tomorrow as we would all be on the road trying to retrieve our gliders from paddocks up near the Queensland border, and as it takes three to four strong men to derig the big birds, we may even need two days. He then suggested we all turn Walgett and return home via Narrabri to avoid recrossing the Pilliga scrub. This seemed like a sensible suggestion and we all readily agreed as one pilot didn't have a trailer, another didn't have a crew, another had a daughter in the local hospital, and I was chief verifier (plenty of good reasons for avoiding a mass outlanding). Upon turning Walgett, the inversion broke, and we got 6kt to 6,000ft, so we had no trouble getting home via Narrabri. At this stage, we assumed we would all get equal distance points – say 300 or 400 points.

September 1999

Our early arrival surprised the finish line and onlookers, and the news of our “mutiny” was generally received incredulously and with good natured disbelief as the 15 metre and Standard Class pilots started to arrive back. There were many outlandings in 15m Class which had a 500km task to Mungindi and return. Meanwhile, back at the OPS centre, the scorers were scratching their heads as to how to score Open class. Due to the introduction of multiple start points, there was an anomaly in the rules, and instead of getting equal distance points, George was the winner with 1,000 points, and the rest of us received between 995 and 999 points depending on which start point we had used – in other words: We were all winners! When this information spread amongst the pilots, the mood turned ugly, “How can this be?”, “They can't get away with this!”, “This is unprecedented in the history of gliding.”, “The rules will have to be changed retrospectively.” There was real anger out there. One pilot was heard to mutter, “There goes one of those Open Class cowards”, as an Open Class pilot walked by, one pilot came up to me and said, “Your behaviour today was absolutely disgraceful”, (in fairness, he had had a long hard day in 15m Class and didn't get many points for his efforts). You see, it was OK to abort tasks if you received low points, but the thought that we were all virtual winners was hard for them to accept. They take their competition flying very seriously at the Nationals.

The next day at briefing, the competition director got up and said, “You know, if only one Open Class pilot had kept going on task

the rest of you would only have received distance points to Walgett”, to which I loudly interjected, “That would never happen, Open Class are gentlemen.” Well, the briefing room erupted into jeers and catcalls, “Bullshit they're gentlemen, they are a bunch of wimps!”, was the general tone of the jeers, but with much laughter and hilarity, as everyone had loosened up a bit by this time. The Open Class pilot sitting next to me elbowed me in the ribs saying, “I would keep your head down and mouth shut if I were you, before we all get tarred and feathered.” When the tasksetter put up the task for the day, he commented, “Of course, the Open Class task is entirely optional, the pilots might elect to shorten it if the going gets a bit tough.”

To this day, the chief tasksetter (yes, we are still mates) claims that we would have got around as conditions were much stronger to the north around Mungindi, our second turnpoint. Possibly a few of the big ships would have flopped over the fence at last light, but at the time we made the decision to abort, the conditions were such that completing the task appeared impossible.

Subsequently the rules have been changed, however, it really makes no difference if everyone gets 1,000 points or 100 points, as the relative placings on the point score remain the same. Competition gliding is a great sport, but should not be taken too seriously, and whenever a few of us Open Class pilots get together at the bar, we still have a laugh about the day Open Class mutinied. ✂

Petite Peculiarities

Women's Flying Skills Improvement Clinic Canungra SE Queensland, 15-20 March 1999



Watching a "Big Ears" manoeuvre from Beechmont launch. All photos courtesy of Barbara Utech

the underlying reasons for my shortcomings I was then able to find ways of overcoming them. As I progressed from conquering one hurdle then another, my whole philosophy of life began to change.

My own revelations have bought about valuable changes in both my flying and my life in general. The insights I have gained allow me to have great empathy for the difficulties many women encounter in their quest to learn and participate in soaring flight, and also in their quest to be successful in their own life.

The fact that many women who begin to learn our sports give up before they reach a level of competency is certain evidence that somewhere along the line we must be experiencing difficulties in coping with either learning, or finding continued satisfaction in participating in the sport. The understanding I gained through my own learning experiences prompted me to draw up a proposal outlining the concept of a Women's Flying Skills Improvement Clinic. I submitted this to the HGFA in 1995, and asked their support for such an event. The HGFA thought it was a good idea to encourage and maintain the growth of female participation in the disciplines of hang gliding and paragliding, and hence 1996 saw the first of such clinics being held in Manilla, NSW.

This year the second Women's Flying Skills Improvement Clinic was held in Canungra, SE Queensland. The week long clinic allowed participants

to immerse themselves in all aspects of flying, day-in and day-out. There were many people who made this clinic a great success. I would like to thank Peta Roberts for her time in helping with organisational matters; Phil Hystek, Phil Pritchard, Heike Hamann and Drew Cooper for their contribution of caring and thoughtful instruction relating to matters we found specific to women; the Canungra Hang Gliding Club and Canungra township for their warm hospitality; the HGFA for their continued support and funding; and all participants who shared and gained in the experience.

Following are some accounts from various pilots, both hang gliding and paragliding, who have attended these clinics. I hope that by reading these accounts, both male and female pilots will become more aware of our differences and difficulties, learn to help each other, and become a strong and united force in the growth and development of our sports.

"A Recollection" by Barbara

Utech, Sandra Mitchell, Fran Ning and Sara Moser

Barbara Utech (paraglider pilot/photographer, organiser of this year's WFSC in Canungra):

Although I am a female paraglider pilot of some seven years experience, the difficulties I overcame in learning the sport, and becoming a competent pilot, remain evident in my memory like stepping stones in a road to discovery.

In the early years of my flying career, the realisation became clear that the difficulties I encountered (which I am sure were more numerous than most) during this frustrating and sometimes disheartening time, bore very close resemblance to some of the underlying difficulties I was encountering in my everyday life! Many times I was on the verge of giving up, finding excuses like "I'm not cut out for this sport", "I'm not gung-ho enough", etc. etc.

I didn't give up! I realised that life is here to be lived, and that challenges are to be conquered (not run away from)... I eventually won my battle.

My major battle was with lack of self-confidence, as well as a lack of understanding of both my strengths and weaknesses. I had to learn how to believe in myself, my judgment, and my intuition. Self evaluation is a slow process, and as I began to understand

Fran Ning (paraglider and GA pilot, wife and mother of three!):

Society encourages emotional expressiveness in girls, and get-the-job-done stoicism in boys. Both paragliding and hang gliding are still mainly male dominated sports, and usually there are only one or two females on the hill with dozens of males getting ready to launch. Nearly every person is extremely helpful and encouraging towards everyone else, but generally girls need a bit more reassurance than boys do, and possibly in a different way. The open forums during these clinics allows the girls to express their feelings about flying in a way not usually





Paraglider pilots at Beechmont launch. Clockwise from front: Barbara Utech, Phillippa Kirkman, Helen Moriarty, Rebecca Bartlett, Peta Roberts, Maree Wilton, Carolyn Dennis, Liz Kendall, Carolyn Pearce, Phil Hystek (instructor), Sandra Mitchell, Jo-anne Wills, Heike Hamann (coach).

available to them, and to learn from the experiences of other more experienced female pilots. For many girls, particularly those without boyfriends or husbands involved in the sport, flying can be lacking in emotional support, a situation that can only improve with more female participation. Hopefully as more girls fly, women will become aware of this sport and become pilots themselves. This could result in more girls staying in the sport as the comradeship and emotional support, so necessary to them, become more available. The open forum discussions at the clinics also encouraged the less experienced pilots to raise their expectations of themselves with regard to their flying skills, as they related more to other women's achievements.

Sandra Mitchell (PG pilot/nurse):

The word "clinic" sounds so formal and sterile, doesn't it? In my other life as a Clinician (nurse), I can vouch for that; and may I add that a clinic is about the last place I'd want to be outside work!

Ah, but the Canungra Clinic was a clinic with a difference! It was a FUN clinic;

with lots of bonus Warm Fuzzies & Caring-Sharing that we girls just love... both enjoyed there and to take home with us as treasured memories.

Well, we were quite clinical at times, most ably educated in theory at the very clinical setting of the poolside. At other times we were identifying weaker skills, ground handling, improving skills at the launch site, flying, investigating the mysteries of hang gliding and partaking in clinical debriefings at the pub, etc etc. In that short week a huge amount was covered, but I'm sure the consensus would be that we were not at all overloaded. Rather, it was important to live and breathe flying for a concentrated period of time. I have done the latter previously with my very safe and patient instructor (my love to you for all you have done for me, Jean-Luc), but the Canungra experience was quite different.

Importantly, I learned much from my peers as well as the instructors, and received a big confidence boost. As a new pilot (<10 hours), I had been nervous about the 'big launch into the void' without the reassurance of my instructor's wing nearby. This in no way reflects on Jean-Luc, rather, the clinic exposed this as a fairly common transitional problem. The consensus was that the clinic experience was most helpful in alleviating this problem and ensuring that there are now more women flying. Personally, my love of

flight would have precluded my dropping-out, but the clinic helped to stop my procrastination. I then felt more able to move on to my new club, the Sydney Paragliding Club, where kind encouragement and support continues.

I feel that the beauty of the clinic was really powerful, good energy that we created as a group together. The caring, positive regard and mutual respect we had for each other; the relaxed approachability of those instructing; mixing our different skill levels; the encouragement and empathy we shared as a crew of women pilots; and simply being amongst such adventurous, good, kind people. I have made wonderful friends. What a gift it is to meet so many wonderful people in one fell swoop!

Fortunately, the Weather Deities were most benevolent. It was delightful and thrilling to share the beauty of exploring and flying the Canungra district. Canungra is a beaut little town, too.

Very large bouquets to all that had anything to do with the clinic, whether organisers (extra-large size for their effort), supporters, instructors, and those under instruction. We all created something really beneficial in a convivial atmosphere. Count me in for next year for sure – I'll be there with speedbar on!

Left: The Gang. Left to right from back: Pat Roberts, Richard Glasscock, Phil Pritchard, Heike Hamann, Phil Hystek, Sandra Mitchell, Rebecca Bartlett, Helen Moriarty, Tammy Saberton, Maree Wilton, Phillippa Kirkman, Anne van Oosterom, Isabel Reed, Roweena, Shauna Purser, Carolyn Pearce, Sara Moser, Ros Taber, Shirly Lake, Liz Kendall, Barbara Utech, Jo-anne Wills, Carolyn Dennis.

Petite Peculiarities - 99 Women's Fly-In



Liz Kendall displays a novel way of carrying her "bundles".
All photos courtesy of Barbara Utech.

Sara Moser (HG pilot):

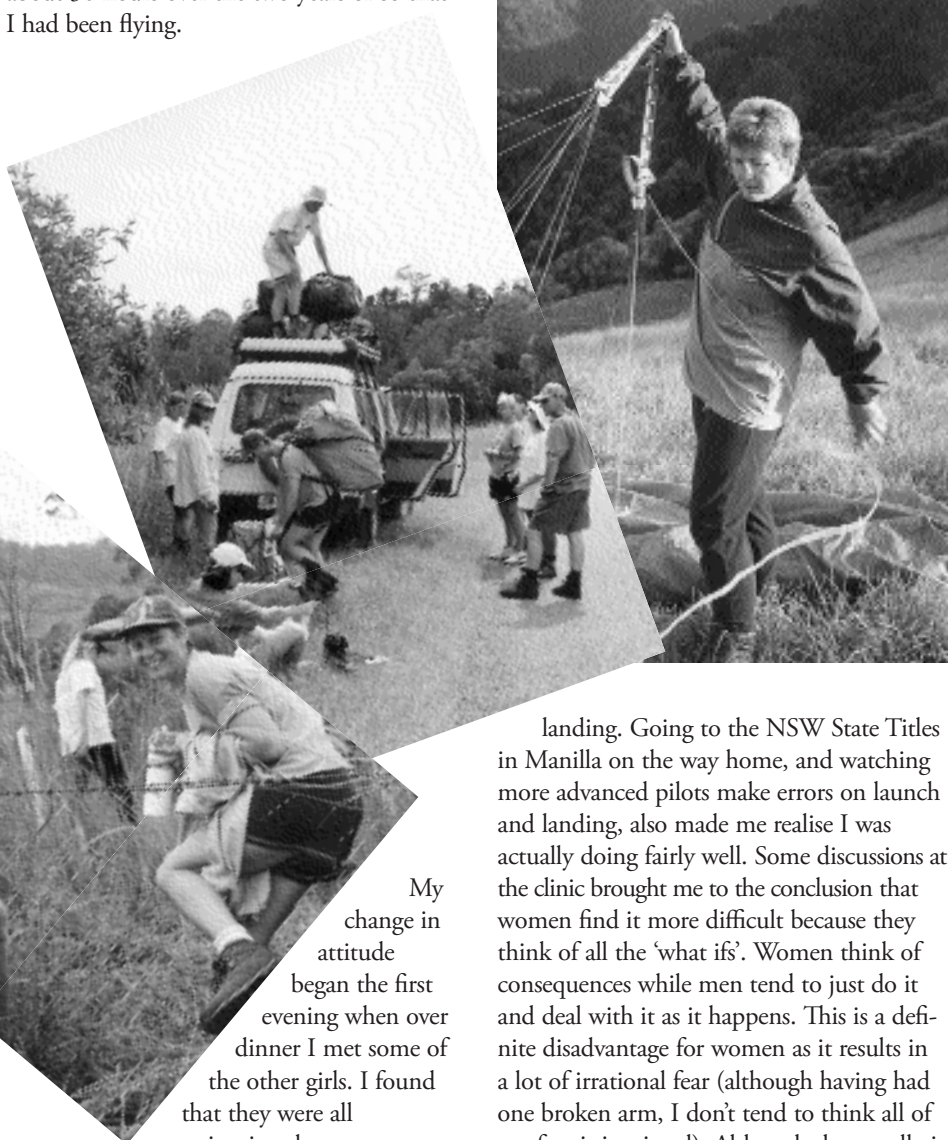
In March this year, I set off with my hang glider from Victoria to attend the Women's Flying Skills Clinic in Canungra, South East Queensland. Approximately 28 hang glider and paraglider pilots from various areas of the country attended the clinic. Here is a personal account of what I gained from the experience, based on my own personal experience and those of many of the less experienced pilots at the clinic (not an assumption that this is every female pilot's experience).

As a female I believe flying presents even more challenges than what it does for men. I have never really been able to pinpoint why, although many discussions have ensued with other pilots as to why it seems different. One of the most obvious areas seems to be the way in which we deal with fear which tends to be a large part of this sport.

I myself have had many struggles with this and have hit a few 'walls' throughout

my 35 hours when I have felt that perhaps it really wasn't worth all the struggle. The latest of these was when I returned from an overseas trip and had not flown for 4 months. My first landing down the coast was certainly not one of my best and I found myself not really enjoying flying and feeling quite scared again. With not much enthusiasm I took myself off on a flying holiday, part of which was attending the Women's Skills Clinic in Canungra in Queensland. I had a couple of flights in Newcastle on the way up, but still arrived feeling pretty anxious and sure that I would be the most scared and least experienced pilot at the clinic. At this point I had about 30 hours over the two years or so that I had been flying.

observation of the women in this sport seemed to be that they were all people who were quite 'high achievers' – people who were used to doing well at most things they do. Consequently not the type of women who give up easily, but also women who have very high expectations of themselves. One of the biggest realisations I had during the clinic was that I was expecting far too much of myself too soon. I was watching guys fly, crash, fly cross-country and just pick themselves up and do it again if they didn't do so well. Meanwhile I would give myself a hard time every time I had a less than perfect



feelings. What a relief to find others that were struggling – some who had less hours, some who had more hours, and to find that they too were feeling they either had to start to get through this fear or give up the sport all together. Looking back, an interesting

landing. Going to the NSW State Titles in Manilla on the way home, and watching more advanced pilots make errors on launch and landing, also made me realise I was actually doing fairly well. Some discussions at the clinic brought me to the conclusion that women find it more difficult because they think of all the 'what ifs'. Women think of consequences while men tend to just do it and deal with it as it happens. This is a definite disadvantage for women as it results in a lot of irrational fear (although having had one broken arm, I don't tend to think all of my fear is irrational). Although there really is no point in worrying about what may happen, it is difficult to stop yourself thinking this way, so women need to push themselves a little more to get through this fear.

I don't think that the clinic changed how I think, but it made me realise that other

women were feeling the same way and it wasn't just me! This is more encouraging than I can explain. Flying with a group of women who understood how I felt and were so supportive and encouraging made such a difference. Not to say that the men I have flown with have not been supportive – they have been wonderful but they just think about things differently. It was such a relief to have people understand why you burst into tears when you break two uprights and your precious glider looks like a pancake (whereas men are more likely to swear and kick the glider – different method, same result!); and why you are paralysed with fear on the hill and just can't launch; or why you won't go cross-country without knowing all the landing options available (and what if you don't know the wind direction?). I also found that on the whole women tend to encourage you for what you did do (e.g. just for launching and getting off the hill) whereas men tend to look at what you didn't do (e.g. why didn't you turn in that lift?). This is not a criticism of men, just an observation, and one which makes flying a little daunting for us females at times.

From left to right: Chivalry is not dead: Phil Pritchard assists Jo-anne Wills through the bomb-out enclosure. Loading up for the trip back to launch. Peta Roberts sorts out the lines of her glider.

The clinic was a chance to improve our skills in a supportive environment with people who were having the same struggles. The instructors were great (they dealt with a whole bunch of scared females exceptionally well) and managed to cater to all the different levels. It was great spending time on the training hill again and having the chance to fly each day so that you had the chance to correct things. I think the combination of flying with other females, having further instruction, having the opportunity to fly every day (instead of having a bad landing and having to wait another two weeks to redeem yourself!) and having the chance to talk to others about your struggles was what made the clinic so successful. It has given me so much. Since the clinic I have flown another 6 hours including flying off Mt Buffalo for the first time ever. Not only that, I am enjoying my flying again. Full of enthusiasm and waiting for the next fly – the way it should be. I can only extend a big thank you to Barbara Utech and Peta Roberts for organising it, and everyone else involved (Heike, Drew Cooper, Phil Pritchard, Phil Hystek, and the Canungra Hang Gliding Club). I hope that we see more clinics in the future. It may just be the key to keeping more women in the sport!



To Fly

*I stand alone on lofty peak and search
the gentle breeze,
In desperate quest for lifting thrusts of air.
I seek to loose the brawny clutch of Earth,
To soar aloft through boundless vale of sky.*

*No Condor's grace nor source of
strength have I,
To chase the zephyred wisps above;
I stand in quiet faith, attached to raucous
coloured wings of cloth,
My trust in wind and sail and mind,
all yearning to be free.*

*And then it comes: the tell-tale bend
of branch
Or wisp of dust from sun-baked
flats below:
A laughing, swirling plume of unleashed air
draws near,
And beckons me to launch into the vastness
all around.*

*With surging pulse I fling my craft upon the
boiling blue;
It swells my wings with breath, with life.
I fly!
Up, up with twisting rise of current, skyward
bound,
In liquid grace through haunts of
Daedalus and Valkyrie.*

*I lurch and twist and bend in arcing paths
Through misty shapes of virgin cloud
and azure pools of light.
In strident patterns freed of earthly sinewed
grasp
I am a spirit moved by whispered forces
in the wind.*

*I share this hallowed space with
feathered form of life
More perfect than my own, yet bound
in quest are we.
My winged friend with gift of flight
I strive to match,
Becomes my guide through drifting
tides of silent flow.*

*And as I behold the cirrus splendoured reach
of his domain,
And sense the breaking free from
Earth now far below,
My spirit soars in awe with reverent strength:
I float, secure, sustained by the breath
of God.*

J. A. Bulger Jr

*Editor's Note: Other great poems such as this
can be found on Stewart Midwinter's site
dedicated to poetry by and for pilots:
www.globalserve.net/~midtoad/Poetry/*

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Using the POST task to best advantage



Mauri Bradney

Unfortunately it creates another collision hazard by increasing the possibilities of head on collisions as gliders use suitable streets or lift lines in opposite directions. The odds on this occurring are relatively low, but there is a possibility...

The original POST had a 500 point score for distance and a 500 point score for speed. However, the speed

part was made complex by penalties for being under and over the specified time interval for the race. This added a non flying complication to the race and it soon lost most supporters. It had to be simplified.

The Speed Only POST uses only an assigned time, typically 4 hours, for the glider to cover as much distance as possible. To score speed points the glider must return home, or distance only points apply. This, in fact, gives quite a high penalty. If the pilot returns home before the set time, then the credited time is the set time. That is, there is a penalty for finishing early, but if it is only a few minutes, this is negligible. If more than the set time then the pilot is credited with the actual time and distance flown. Obviously the plan must be to be on a final glide by the set time and speed out the few extra minutes.

The current version used in Australia is termed the Speed Only POST. This is conducted as a race using a defined set of turnpoints, a task minimum time and speed only if you return home. It uses the same speed formula that is used for Australian Assigned Tasks (AT). If you do not get home points are scored on the same formula for the outlanding on the AT system. The priority remains on getting home as the penalty for not doing so is quite high.

This version of POST is very suitable for handicap events, as it gives the maximum flexibility on distance the glider has to cover. Within a 40% performance difference range, and good handicapping, quite a fair competition will result. It seems to be the best system to fairly provide for handicapped gliders.

MAURI BRADNEY

Speed only POST is the current development of the original POST task developed around 1980. Its prime reason was to reduce the amount of leaching that goes on with Assigned Tasks (AT). It was also hoped that it would reduce the amount of gagging and provide some improvement in safety, particularly in reducing the collision possibilities.

Overseas competitions may have variations of this. At the first World Class event, regardless of where the glider landed a speed was calculated. This was possible as datalogger verifying was used. There was a bonus of 100 points for those who got home. This is actually a more benign formula for outlanders than the Australian. However, it can only be done if datalog verification is used for all flights.

There is a minimum scoring distance set, to prevent people simply doing a very short fast course and retiring for the day. This is usually a very conservative, easily achievable distance. It is debatable whether this has any real relevance or use with the speed only POST task.

If you return at less than the minimum time then you are credited the minimum task time over the distance that you have covered. This is of little significance if it is only one or two minutes less. If thunderstorms or approaching fronts threaten to wipe out the remains of the day it may be much more useful to return half an hour early rather than land out. If you take longer then you are credited with your actual task time and distance. Obviously finishing a little over the minimum task time is ideal.

A major point to bear in mind is that you cannot simply do out and returns between two points. If you wish to go back to a point then you must visit a different one before the next visit. That is, as a minimum, make a triangle. It may be a very flat one if you want to keep the same line. You could go around the same combination of three turnpoints many times. Generally the home field has a turnpoint different to a start point or finish point, so there can be some out and returns done between the home base and outside turnpoints. It will pay to clarify this for each individual competition.

The setting up of the turnpoints for a POST task requires rather more care than for task flying. Of course this is not a pilot decision area, but must be a prime consideration of the competition organisers. It is not adequate to simply use the usual set of turnpoints for certificate flights and the like. The turnpoints must be selected specifically for POST and also the types of gliders to be flown.

If they are more than 40km apart, it will be difficult for lower performance gliders to score well. They will be forced into long into wind runs that no handicap system can adequately overcome. The normal winds must also be taken onto account by the organisers when setting up the flying area. Without careful consideration of these, many turnpoints may be chosen that are virtually useless.

On entering a competition, read the rules carefully. Make notes about the main points. As there are many variations of the POST task rules, it is vital to know which variation you are involved in.

It helps to know the turnpoint list and put them on a map in advance. Pilots may be fortunate enough to select the glider most suited to the particular task area and weather conditions expected.



A map with all the turnpoints marked is useful to consider likely courses. Probably for this type of competition it is best to have a plastic covered map so that wind directions, likely courses and any useful information can be drawn on it each day. You will also need the database of listed turnpoints, start and finish points in your GPS/datalogger and PC.

You must have a good knowledge and understanding of your glider's performance. The lower the performance (in glide angle and speed) the more even light winds will affect you. A 40km leg into a 15kt wind can devastate a 1:29 glider (Ka6) but barely affect a 1:38 glider (Std Cirrus).

Seabreezes must also be considered. By organisers, tasksetters and pilots. If the task time forces the pilot to be still on task long after a seabreeze is at the finish, then the pilot must plan the last turn or even before that for a final glide.

Wind must be a major consideration. Time lost working into wind can never be made up from the eventual downwind run. The different time spent working each way cannot be recovered. If there is 15kt or more wind, working crosswind must be a major consideration. Wind is not all bad. Winds, particularly the stronger winds will also help in the formation of streets and lift lines. Good use of these can help cancel out the adverse affect of wind. The lower the performance the more important this becomes.

Winds are not always as forecast. It is an important pre start exercise to establish what the winds really are. They can be quite different at different heights. It is rare for the ground wind to be the same direction as the wind at cloudbase.

Obviously lift streets and lines will help gliders make better speeds in any race, so it is axiomatic that these must be sought and used. However, as these occur mostly on the wind line, then there is need for some caution. Time lost to the effect of the wind can never be regained. The speed gained by going with the wind never quite makes up for the extra time against the wind for the same distance.

So, using a lift street on the wind line must not position the glider too far downwind, nor should a lot of time be spent in a lift street to move only short distances upwind. Obviously this poses some interesting decisions for the pilot during the flight.

Final glides are best made into wind, as no time is spent gaining height and consequently going backwards. Best to gain the required height with a tail or crosswind and then glide only into the wind for the final glide. So, some distance can be gained with a tailwind for that purpose. If the thermals are going high and winds only moderate, this may be considerable.

It is important to use all the powers of observation and knowledge that you can muster to discern the various signs of lift lines that you can use.

To keep your mind working clearly and logically it is necessary to keep well hydrated, and eat foods to keep your blood sugar level constant. A missed opportunity to use a street will result in a poor score. If a street is there one or more pilots will find it.

Keep track of the speed over the ground that you are achieving. If you find that you are making slow progress along your chosen route, see if you can divert to a different turnpoint. If this is not possible, get off that line as soon as you can.

With the above point in mind try to select routes that do give you a choice at least up to half way along the leg to change

to another turnpoint with minimal loss of distance. If the leg is going well then continue on even further if possible. Particularly if the competition is for lower performance gliders, this is something that the competition planners should keep in mind when setting the turnpoints.

As the flight progresses, you will know what speeds you are making. Plan the last hour so that you can make your final glide into wind, preferably reaching final glide height before the last turnpoint so that there is no thermalling on that leg. That way you will gain from the earlier downwind flying and lose very little for the into wind glide. Good Luck!



SZD-56 "Diana" flown by
Hana Zeydova over the
river Murray, Tocumwal.



Trailer Tyres

In Victoria it is the trailer manufacturers responsibility to select tyres that permit the safe carriage of the total load. If you have purchased an old trailer it would be beneficial to reweigh the trailer at maximum load and ensure that suitable tyres are fitted.



Tyre selection varies according to the weight to be carried, axle layout, and rim size and wheel diameter. Simply stated, a tyre's load-carrying capacity depends on the amount of air in the tyre. The ply rating refers to the strength of the tyre and its ability to be inflated to a certain pressure. It would be nice if we could say that everyone fitted tyres with an adequate safety margin, but this does not always happen. Some trailers are 'undertired', that is they appear to be unable to handle the inherent loads with an adequate safety margin. Radial tyres are preferred by most of the caravan industry as they are rated at higher weight capacity than bias ply tyres. Bias ply tyres are quite adequate for trailers as there are no steering or acceleration forces and generally minimal braking forces.

One can easily ascertain gross trailer weight, and prior to purchasing tyres should read the 'Tyre and Rim Association's Manual' that is held by 90% of dealers. From this it is easy to choose a tyre that carries as a conservative minimum 70% of the trailer gross mass at 70% of maximum pressure. (Or, if you elect, 80%/80%). Note that 'The Tyre and Rim Association's Standards Manual' advises that when passenger type tyres are fitted to trailers the maximum rated capacity has to be reduced by 10% to provide an additional safety margin.

Some owners have a policy of using only dual axle trailers as over time the wear and

tear on the trailer and contents is less. Correct tyre selection also permits a tyre pressure lower than the 70% recommendation that further insulates the load from road shocks.

Light Truck radials are a popular choice for caravans and also suit trailer. Some individuals contend that the extra weight and pressure lower than the 70% recommendation that further insulates the load from road shocks.

Light Truck radials are a popular choice for caravans and also suit trailers. Some individuals contend that the extra weight and pressure of the light truck tyres may cause wheel failure, particularly if the wheels do not have a continuous bead of weld to hold the centre to the rim. If the wheels have done a considerable amount of work, or perhaps have some rust, it is advisable to have someone experienced in wheels to check their condition. If in doubt buy two new wheels that will fit on the same hubs. For those with Holden 5 stud wheels the stud patterns are identical for the newer 13", 14" and 15" rims. Note! Old Holden wheels do not match the stud pattern of the newer wheels. This would, subject to wheel arch clearances, permit upgrading 13" rims to 14", or if one can find any, 15" rims. The private owner can choose wheels identical to the towing vehicle and thus elect to have double spare capacity.

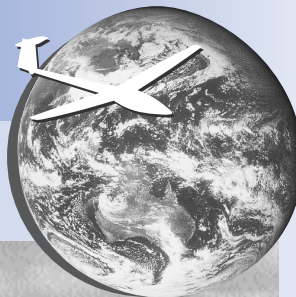
A typical trailer for a 15 meter glider will have a gross weight of about 550-600kg. At 600kg the tyres chosen would need to carry 70% of the load (420kg) at 70% of their maximum rated pressure.

A 175R14LT radial, for example, in 6 ply form at 250Kpa is rated at 555kg for single wheels and 525kg for dual wheels. At 200Kpa (80%) it will carry a maximum of 485kg single, or 460kg dual. At 175Kpa it will carry 450kg single and 430kg dual; this is at 70% of the maximum pressure and would be preferred. The rated capacity of the tyre in the dual use case is reduced to cater for the failure of one tyre and therefore an increased load being transferred to the surviving tyre.

These examples may perhaps seem excessive in regard to the weights carried, but consider the typical glider trailer. It undergoes an inspection at the start of the season and unless one is competing for an 'Outstanding Trophy' is used per chance 5-10 times a year. Most of its time is spent weathering in the trailer park. Yet the tyres are expected to last some 10-15 years and then after a quick inspection are required to tow a previously undefined distance at 100km/h. One needs tyres rated well above minimum standards.

As with most things you get what you pay for. If you save \$60-80 by purchasing cheaper tyres, the mediocre safety factor may some day trouble your expensive toy and also, unhappily, the tow vehicle driver.





Local News



Libelle GUL at Temora comps.

Temora Club Class and Two Seater Nationals

Although the Nationals took place some months ago, there is still some relevancy in the outcome. This contest was the first of the qualifiers for the first Club Class World championship to be held at Gawler in January 2001. In the two weeks prior and during the contest, the weather and the location combined to produce the best opportunity in years for long distance cross-country flying. There were at least 23 flights of over 1,000km flown in south eastern Australia in this period. There were 48 sailplanes competing and 57 pilots. They flew a total of 130,078km. The average task length was 270km and the highest handicapped speed was 129.89km/h.

Bruce Taylor won the contest with Terry Cubley in second place and Hayden Dunn coming third. There was only 24 points separating second position from fourth.

World Club Class Competition

Owners of Club Class gliders who might consider hiring them are invited to contact Daryl Connell as soon as possible.

Gliders for both the Club Class Nationals at Gawler in January 2000 and the World Club Class Comps in January 2001 are being sought.

Please contact Daryl by ph/fax: 02 4284 3338, mobile: 0418 207 107 or email: connell@cyberelectric.net.au

GFA Airworthiness Directives

AD 507, AMT 200 Super Ximango

Issue 1 S/N 200.040, 200.045 to 200.070

Subject: Exhaust pipe movement.

AD 508 Janus C S/N 87 to 252

and 254 to 267

Janus CM S/N 1.3 to 24

and 26 to 36

Janus CT S/N 1 to 6

and 8 and 9

Note: S/N with a stabiliser repair complying with dawning No.

HM 05-30.050 are not affected.

Subject: Elevator mass balance.

AD 509 PW 5 from S/N 17.12.018

Subject: Revisions to the Flight and Maintenance manuals.

GCV 70th Anniversary Dinner

GCV will be holding its 70th Anniversary dinner on Friday evening, 1 October 1999 at The Alma Club. Call Robbie Burns on 9525 5001 after hours if you are interested in attending.



Keith Willis sends this photo of the PW-6 two-seater. He is very enthused with its handling qualities.

Overseas News

News from "Der Adler"

In his February editorial, Reinhold Putzhammer muses about the core business of sport aviation organisations like BWLV. He adds beyond the normal (operations, training, airworthiness and recreation and sporting flying) the target areas of youth promotion and environment protection.

The Akaflieg Karlsruhe celebrated its 70th anniversary with the christening of their AK-5b single seat sailplane prototype.

The Hall-Weckrieden flying club has installed 86m² of solar cells on their hangar roof for electricity generation on site. The system is integrated with the local mains power supply.

In preparation for the 1999 World's in sailplane aerobatics, the Germans have trained with a fleet as diverse as LO-100, Pilatus B4, MU-28, Cirrus-K, Swift and SZD Fox.

Tge ZCanitzer contest venue is announced with a photo of 3 Bocian in formation loop.

In the cold of Stuttgart's January, 86 representatives from clubs met to hear knowledgeable speakers talk about psychology, PR and allied matters affecting how clubs and people work.

In testing at DLR Braunschweig, the kingpostless Exxtacy hang glider has achieved 17:1, permitting it to be listed in the sailplane handicap list ahead of the Grünau Baby. The design includes a trailing edge flap deployable for landing.

Motorfalkes are to be fitted with the 100hp Rotax 912S motor, useable as a motorglider tug.

Speaking of people and gliding, Walter Hiss paraphrases the late Helmut Reichman as saying "Pilots without angle of attack can't improve their performance by wing polishing, rather by polishing their camber changing flaps."

At the AERO exhibition, the "Alpis" motor-glider/ultralight aircraft was introduced. It is a carbonfibre 15m single seater achieving 39:1, with a Solo or Hirth motor for launch. It is intended for certification as an ultralight, but in layout and finish matches sailplane expectations.

In the April issue a concept for a 32.6m Open Class sailplane is presented by using two Nimbus D, connected at the inner wing join.

Translation by Emilis Prelgauskas



White out

RICHARD LOCKHART

So there I was... stuck in Victoria (working, of all things), while the Blue Mountains Club was having a long weekend fly-in at Glennies Creek in NSW. Were they actually allowed to go away without their president? I'd thought long and hard about this, and had grudgingly come to the conclusion that, yes, they could. Oh, well. In order to try and salvage something from the weekend, I decided to head to Bright to visit the famous Mt. Buffalo. This launch has somehow eluded my logbook; although I'm originally from Victoria, I'd left at approximately five hours (flying hours, that is) and so had never experienced what is always described as an "awesome" launch. What's so awesome about it? I'd always wondered. This long weekend I decided to find out.

Friday afternoon saw the car packed with a couple of gliders and a couple of young Western Vic club members who also hadn't yet experienced the 'Buffalo magic'. We had talked briefly during the last few days about our chances of getting a flight. Sure it was the beginning of winter. Sure it was the opening weekend of snow season. But it had been so sunny and warm (in an autumn kind of way) over the last few days, and they never have snow on the opening weekend. So off we went, very confident of at least a short sunny autumn flight from the high and spectacular Mt Buffalo.

We emerged from our tents on Saturday morning to a very overcast sky indeed. Oh, well. Maybe we wouldn't get the *sunny* flight we'd hoped for, but there's nothing (too) wrong with an overcast sky, and maybe it would clear up. 'Was the wind in the right direction?' Well, we couldn't detect any wind at

all. 'Did that matter?' Probably not. Even a sleddie would be great from the wonderful Mt. Buffalo. Without even bothering to try to dispel the freezing morning temperature with a damp wood fire, we set off.

Approaching Mt Buffalo alerted us to another potential obstacle to our flight: cloudbase. It did seem very low today. Was that the top of the mountain we could see just underneath the clouds? Or was, in fact, the top few hundred feet of mountain immersed in cloud? Oh, well. Not to worry. Cloudbase would be sure to lift as the day heated up.

We arrived at the foot of the mount (the beginning of the National Park) only to be stopped at the gates by the park ranger. "Do you have snow chains?" she wanted to know. "We're just going up for a fly," we replied. "Do you have snow chains?" "No, you don't understand. We're *hang glider pilots*. We're just going up for a quick fly." "It's snow season now. By law you have to have snow chains with you," she explained. "But we're hang glider pilots," we explained back. For some reason she couldn't seem to understand the exceptional nature of hang glider pilots. We're as free as the birds in the air. In fact, we're as free as the air itself. Don't bother us with your trivial earthly rules. Let us blow hither and thither amongst the heavenly currents... But she had the key to the gate, so we humoured her by turning around and heading back into town for some snow chains.

Some 30 minutes later, and at a shared cost of \$3.33 each, we were back at her politely smiling face, gently clinking our snow chains through the car window as we drove past. Snow chains, indeed! What did we need them for?

About halfway up the mountain we found out. The light rain we had been experiencing suddenly turned to light snow and ice. Our car decided to careen slowly sideways, perpendicular to our intended continued direction of 'up the road'. Whereas the park ranger could have explained for an hour the virtues of snow chains with little effect on our collective consciousness, it only took 6.5 seconds of sliding uncontrollably on an icy road to do the job. We put on the snow chains.

With that little life threat out of the way (the only 'slipping turns' for the rest of the day would be in the air, we vowed), we turned our minds back to thoughts of flying.



on Mt Buffalo ramp:
Is it on yet?

Okay. It was snowing... but only very lightly. And if you looked out the car window back down the hill, the snow was being blown gently towards you. Great! At least the wind was 'on'. Maybe if it didn't start snowing too hard, and if cloudbase lifted a bit, we'd even get a ridge soar. Funny thing was, as we wound up the road, sometimes changing direction by 90 degrees or more, the snow always seemed to be blowing towards us. Oh, well. I guess that was still good. As long as it was blowing up the ramp. In fact, a little bit of snow in the air might even be a good lift indicator.

We arrived at the launch ramp in the heaviest snowfall I've ever been in. In fact, to be honest, the only real snowfall I've ever been in. It was at this point, as we struggled to see the end of the ramp in the snow filled sky, that we finally gave up the mental optimism struggle that is so often needed to motivate oneself through the long hours of driving in search of airtime. We weren't going to get a fly today.

After amusing ourselves by gingerly standing atop the snow covered ramp and trying to estimate the wind strength by the angle the driven airborne snow made with the horizontal (it was coming up the ramp, we were right about that), we ambled off in search of other amusement. While wandering around the Mt Buffalo Chalet with the other tourists (yes, we had been



Tackling the snowchains – OK, tab A goes into slot B...

another snowball)! Is a short flight really too much to ask for (your last cathartic snowball arcs through the air towards the head of the young child)? Then we went home.

I'll try Mt. Buffalo again next year, in summer this time.



FAI News

World Pilot Rankings

With no competitions deleted since the last publication, the Paragliding World Championships being invalid and only the Swedish Open results added, there is no change in the top places of the Paragliding World Pilot Ranking Scheme.

As the Hang Gliding World Championships start (today), despite the pre-Europeans being invalid due to bad weather, the results from the British League Open held in Monte Cucco have changed the rankings of the top ten pilots. Gérard Thevenot (LUX) is now in the lead with 301 points, just one point ahead of Oleg Bondarchuk (UKR). Manfred Ruhmer (A) is 3rd (296), Gerolf Heinrichs (A) 4th (286), while Steve Cook (UK) and Guido Gehrman (D) share 5th place with 285 points. Richard Walbec (F, 7th) and Jean-François Gérard (F, 10th) are newcomers to the top 10. Andre Wolf (BRA) climbs to 8th place.

The next publication will see the last hang gliding World Championships (Forbes, Australia, Jan 1998) deleted, and the inclusion of the results from the 1999 Hang Gliding Worlds in Italy which have just started.

There have been no Class 2 events, so no change to those rankings. However the next publication of WPRS will see the inclusion of

the World Championships being held in Monte Cucco.

Full rankings can be found on FAI/CIVL website at www.fai.org/hang_gliding/ or the British HG league website: www.theleague.force9.co.uk

Forthcoming hang gliding competitions that qualify for WPRS points are: Category 1: World Championships, Italy (Class 1 & 2) Category 2: Canadian Grand Prix; WHGS Canada; Pre-World Speed Gliding, Greece; Pre Pan American, USA; WHGS, San Francisco, USA; WHGS, New Zealand.

Future paragliding competitions that qualify for WPRS points are: Category 2: PWC Piedrahita, Spain; Jackson Hole, USA; PWC, Morzine, France; British Open, Grand Bornand, France; German Open, Germany; Norwegian Cup, Norway; Telluride Open, USA; PWC La Bresse, France; Snowbird Open, USA; Japanese Nationals, Japan.

Details on these competitions can be found on the CIVL web page www.fai.org/hang_gliding/competitions/comp_schedule.asp

New FAI Record Claims

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

Paragliders – Feminine Category

Claim number 6205:

Type of record: Out-and-return distance

Course/location: Schmittenhöhe (Austria)

Performance: 100.2km

Pilot: Karin Wimmer (Austria)

Paraglider: Gin Bonanza S

Date: 18/7/99

Current record: new

HG with a rigid primary structure/movable control surface(s) – General Category

Claim number 6199 :

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

Course/location: Golden, BC (Canada)

Performance: 34.20km/h

Pilot: Stewart Midwinter (Canada)

Hang Glider: Bright Star Millennium

Date: 10/7/99

Current record: no record registered yet

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





About Recent Articles...

► The Operations Manager's report in the Skysailor May issue stated that the Safety and Operations Committee has decided to introduce currency requirements for all HGFA pilots. They plan to make it mandatory for all pilots to conduct three flights in the preceding 90 day period, or undergo a check flight with an instructor to retain currency. This new policy probably has good intentions, but will probably further diminish the already dwindling number of pilots in the sport.

As a recreational pilot I work during the week and often find it difficult to fly on the weekend because of family commitments or because the weather is not suitable. This is especially true during winter when days are shorter and the number of suitable flying days is even further restricted.

If this new policy is introduced I will find it just too much hassle to organise an instructor and get a check flight. In fact, it may not be possible to find someone at short notice, if for example, the weather comes good on a Saturday afternoon, and I decide to go flying.

So there will be two choices available – either fly regardless of the regulations or decide that it has all become too bureaucratic and get out of the sport. I think you'll find that many other recreational pilots will feel the same.

I have a PPL for light aircraft. The CASA regulations for currency are much less stringent than those being proposed by the Safety Committee. The only currency requirements for a PPL is to do three take offs and landings every 90 days IF you intend to carry passengers, or a flight review every two years if you only fly by yourself. A hang glider is a far simpler beast to fly than a light aircraft – no engine, no fuel, few procedures, few ATC restrictions, no checklists, etc. Also, it's easier to go down to the airport and take a plane up for a few circuits, than to go hang gliding where you may have to wait weeks for suitable weather.

I don't think the accident statistics show lack of currency as the main reason for accidents. It's more often because pilots are pushing the limits or flying in unsuitable conditions.

I'm also sure it would become a hassle for many instructors as well, to the extent that many would simply sign off pilots because they have known them for years. The system would then break down anyway.

I got into this sport because of the freedom it offers, one of which is the lack of bureaucracy. I urge the Safety Committee to reconsider this misguided policy. It has the potential to seriously damage our sport.

Andrew Greatbatch

Editor's note: Refer to the OPS Manager's Report for further discussion on this topic.

► I've been a glider pilot for 20 years and am a cross-country addict. I am always interested to learn more from pilots as to their thoughts on flying further and faster.

One point that I felt was missed in the article "Flying Height Bands", and which I feel is the critical decision when leaving a thermal, according to Reichmann, is, "If I left now can I get to the next thermal and achieve the same or better lift than what I have now?"

Obviously the seven points will help answer this question, but the question stated is the critical one.

The second point I would like to mention is that later in the day, say 3:30, the thermals do not drop in strength so much as become further apart. It is certainly the case that later still the strength drops off. Naturally with the lower glide angles achieved with hang gliders, it may appear that the strength is dropping, but instead it is the spread that is making life difficult.

James Cooper, GCWA Cunderdin

► Max Browne's article in the July issue reminds me of one of the most publicised botched high wind take offs ever. It was during the 1987 Masters (Pre Worlds) at Mt Buffalo, where a second ramp had been built right up in the neck of the gorge, so we could have two groups using Buffalo simultaneously.

The star of this incident was an intermediate standard German pilot who was flying one of the new Bullets, a very high performance glider for the time. This guy was flying as a wind dummy and conditions on the day were a bit blustery, with gusts of over 15 knots. A local TV stringer had been at Buffalo that morning taking video footage for regional TV stations. He was just walking back from the take-off point when he looked up the gorge and saw this guy getting ready to launch. He told me later he thought he would just take one more shot before he left. Lucky for him! The footage he took appeared on nearly every TV news that night.

As with Max, the pilot had two wire assistants and you could see that all three of them were not looking very settled, with the glider bucking around quite a bit. Looking front on, you could see the right hand wire assistant was really holding his wing down, just prior to the pilot giving the OK to let go. With a ramp take-off over a sheer

cliff, there was naturally a strong vertical component, so as soon as the wire assistants let go, the glider zoomed skywards while commencing a steep banked right turn. There was something of a crevasse to the pilot's right and his arc took him up about 50 feet above take-off and then nose down for a tailwind impact at high speed into this rocky, tree studded crevasse. The bang was audible from where I was standing about 300 metres away, and sounded really awful on the video as well. All onlookers feared the worst. Although the glider was totalled, it took most of the impact and he had a good full-face helmet. Accordingly, his injuries were limited to minor neck strain and a few cuts and abrasions.

In short, what this guy did wrong was:

- a) to be too inexperienced for the conditions;
- b) to have at least one inexperienced wire man;
- c) not recognise the glider was not balanced in roll before trying to take off;
- d) not pull the bar in so as to establish a low angle of attack relative to the near vertical air stream.

Whilst Max's mishap was not as dramatic, it does throw up some common problems with strong wind take offs. It is possible that with more new pilots learning largely through towing and/or inland in light winds, familiarity with strong wind techniques may be reducing (compared with the good old days).

There may be some benefits to a two man wire assist if all parties are experienced. However, I believe a single person assist is generally better, mainly because the pilot only has to co-ordinate with one other person who is right in front of them (making visual and spoken communications more reliable and instant). Provided the right technique is used, I have never had a problem with a one man assist, even in winds of 25 knots. Here is my three step method for a safe launch in strong winds.

Step 1. Wire man holds front wires near nose while pilot clips in, does hang check etc. Pilot picks up A-frame in the normal manner as the wire man eases the nose up slightly, so the glider is just lifting.

Step 2. Wire man slides his hands down about one third the way and walks backwards towards take-off. Pilot concentrates on roll control leaving pitch to wire man who will readily feel the wind on his back. Pause at take-off point and both pilot and wire man get settled.

Step 3. Pilot places both hands on base bar as wire man lets the nose lift a little more and moves closer to pilot with fingers over the front wires, not gripping them. Pilot should lean upper body through the A-frame and bend knees so that full (or near full) load

is placed on the hang loops. At this stage, the wire man is still largely controlling pitch, but pilot is able to control roll (If one wing starts to dramatically rise, wire man can transfer hands quickly to pull down on side wire). Pilot flexes knees up and down to maintain load. Release procedure MUST be agreed in advance (e.g. "I'll say, 'RELEASE', then you duck down."). Don't use 'OK' which may be confused with a more general response. Once the pilot is happy he's balanced, he should give the command and then pull in a little more on the bar as he pushes off with his legs. In effect, you should be pulling the glider along behind you during those couple of transition steps. The steeper the hill, the more the bar should be pulled in.

Martyn Yeomans

► I'd like to respond to the article entitled "Promoting the Sport" in the July issue. I am confused as to why Regina Böhler feels the need to promote hang gliding?

I would possibly understand her promotion if she had some commercial interest (such as an instructor or sales rep may have) or perhaps she may just be lonely? How would we be better off if there were more pilots?

I am also confused as to how our sport would be better if our skies eventually became like our roads – overcrowded with people who take these freedoms for granted. How many of these kiddies can she realistically expect will become dedicated hang gliding pilots in 20 years as a result of one afternoon's entertainment?

Yes, the freedom of flight is a wonderful thing. Instead of just entertaining those pre-schoolers for a couple of hours, we should spend our energies teaching young children to understand that too many people, both locally and globally, can only mean restricted habitats for the real birds.

Gary Allan

Amalgamation – Now What?

► I believe that the amalgamation vote reflects a strong message of support to Ian Jarman and the Board. Although there was much discussion about the hidden negatives, when it came time to vote we were pretty clearly supportive. It's a pity the other "real" gliders were not brave enough to give it a go. Such is...

Now the question is where to from here? I hope no one misinterprets this as a "failure" in any way. Now that we know the Executive and the Board has the membership support, we have a great opportunity to revitalise our great organisation.

During Ken Hill's absence we have been returning his inquiries for lessons and tandems, etc and the interest is amazing.

Perhaps some of this is follow-on from the World Series promo. I have had really good responses from TV and radio to coverage of the Classic which will please our little sponsor. I am sure all of this is indication that the growth is already returning and the drought is nearing an end.

My congratulations to the Board and our team lead by Ian. It takes tough leadership to get through tough times. The next time there's talk of amalgamation I'm sure the "real" gliders will be inviting us to the table.

Regards,

Peter Beard, President QHGPA

PS: Perhaps we can use the term "unreal" to describe the HGFA in future.

► I have been pondering the amalgamation proposal result for a while. With the very strong vote from the hang gliding community to amalgamate, does this mean that we now have to take a long look at how we move into the future? As opposed to saying, "Oh well, GFA voted not to amalgamate, so we'll just go back to how we were before this episode in our history."

While I have always believed that HGFA was operating at a fairly efficient level and GFA stood to gain more out of amalgamation than we did, I feel we need to find a way to 'bounce off' this event with some sort of significant directional statement and actions.

Keith Lush

Magazine Matters

► Some time ago I subscribed to APN for a year and liked the laid back and more fun editorial style. However, it wasn't worth the money over winter and I decided to put the money towards the international Cross Country magazine instead. On reading Jeremy Torr's advert for Australian Paragliding News, and the Skyhigh Club, I couldn't help wondering if they are trying to set up a rival to the HGFA. What could be their motive in having a paragliding club that spans the country? One other possible motive is money; the more members they have, the more money they get from the HGFA, which they can then spend on their local sites. If you are a member of Skyhigh but don't fly their sites, your local club, and hence sites, will be getting less HGFA money because of it. Now there are bugger all paragliding articles in Skysailor and I assume it is because many of them are going to APN instead. If you don't fly Skyhigh sites but send articles to APN, think about this: All paraglider pilots in Australia get Skysailor, only two hundred get APN. You will have a much larger audience if you send your articles to Skysailor (or both). There are many, many of us floppy flyers out here that would like to be reading your articles.

Graham Sutherland

► I agree entirely with Chris Attwood's lament at the current lack of classifieds in Skysailor (July 99). The revenue/user pays argument is always persuasive, but realistically, with such a small number of ads, the revenue now generated from this source is insignificant. Please bring back free ads, at least for private advertisers.

The Classifieds used to be a great aid to locating cheap, serviceable equipment – particularly the gear sought by newcomers not wanting to outlay too much until they knew they were in it for the longer term. Aren't we trying to attract and retain new members? This was one very tangible service which HGFA provided to its members. It was withdrawn rashly and against the wishes of the members.

Charging for ads just encourages people to use the internet or other magazines to sell their gear. Unfortunately these media are so diverse that they are difficult to browse, and impossible to exercise any safety related editorial control over. It will not help the safety of our sport if people buy old, unsuitable, or uncertified equipment.

Finally, Skysailor editors are always calling for more contributions from members. Here is an easy way to generate a couple of very interesting pages each month. I know it was always the first page I turned to when my Skysailor arrived in the mail. One never knew what bargains might be waiting!

Peter Dall

Postcards from Overseas

► Thank you for sending Skysailor over to Europe for me. It's great to be kept informed of news from home. The flying so far has been great, with high cloudbases and lots of great days. I have flown Hochfelln and Rauschberg the most. They are near Ruhpolding, 100km south-east of München and 35km west of Salzburg.

Matt Worth

► For those with an interest in the motorised hang glider harness called the "Mosquito", I have a friend, Giles Ratia, who's been flying about a year on one. A beekeeper by trade, he's put together a great Mosquito site at www.apiservices.com/mosquito/ Well worth a look.

Karl Stice

► I would like to know if there are any deaf pilots flying out there in Australia? If so, please contact me at sally@pacificnet.net I would like more info on deaf pilots for my website Deaf Aviation: www.deafaviation.com

Sally Tucker, aka Deaf Ladyhawk

Deaf HG/PG pilot, USHGA certified HG instructor



Regenerative Battery

PAUL MACCREADY
from Sailplane Builder

Some auxiliary powered sailplanes take off with a propeller turned by a battery-powered motor. During flight, using technologies developed for the regenerative braking of battery-powered cars, the propeller can be operated as a windmill and the motor be employed as a generator to recharge the battery. Some altitude is sacrificed during the charging which is usually done in upcurrents; a portion (probably less than one half) of this "altitude energy" can then be utilised as desired later in the flight. Thus the pilot has an additional variable to incorporate into flight strategy and the capability of extending the search for a safe landing site.

Several factors in combination support the concept that Regenerative Battery-Augmented Soaring (RBAS) may be an attractive aspect of future soaring.

Battery power is clean and quiet

The desire for clean and quiet self-launching puts a priority on exploring battery power for auxiliary powered sailplanes. Batteries are limited in the energy per kilogram they can store, but are adequate as an energy source to power the sailplane to heights where atmospheric energy sources can be utilised safely.

Strong upcurrents provide a high power resource

During thermal soaring, and to some extent in waves and slope currents, energy is normally stored as the potential energy of weight times height for later conversion to speed and distance. In moderate and strong conditions, the rate of energy supply (power) is large. Consider an ultralight sailplane with a gross weight of 400 pounds, having a minimum sink of 1.5ft/sec and thus capable of flying on a minimum of 600ft-lbs/sec or 1.09hp (814 watts) of thrust power. In a strong upcurrent netting lift of 1,000ft/min, or 16.7ft/sec, it stores potential energy at a rate of 12.1hp (9042 watts) – huge compared to that used in still air at minimum sink of best L/D speeds. A heavy two-seat sailplane climbing at the same rate, grossing 1,200 pounds including ballast, accumulates energy at triple the rate of the ultralight. Incidentally, all sailplanes will typically dash at high speed to the next thermal while consuming energy

at rates 30 to 100% of the rate of power gain in the thermal.

Solar cells provide only low power

Direct solar power, in bright sunlight, on an area of 2/3 of a 120 square foot wing, will provide about 1,000 watts from high grade photovoltaic cells. Sunshine on the cells and the rising thermal both represent the use of solar energy. In strong lift conditions the thermal, as a much stronger power source, is especially appealing, and some of its power can be used for battery charging. Supplementary charging from solar cells is still an attractive option during the flight, depending on sun availability.

A role model for battery replenishment is the regenerative braking of cars

Recently, with the attention put on battery-powered cars, there has been considerable development on regenerative braking: putting the kinetic energy of braking into recharging the battery rather than heating the brake linings. Thus technologies have become well advanced for charging batteries with rapidly-changing inputs, and the technologies are improving rapidly.

Recharge when the altitude penalty is small

While you are being given large amounts of power in thermals, and also in many wave and slope current situations, you can conveniently take some of that power and recharge the battery used for take off. Use the propeller in a windmill mode, extracting power as you sink relative to the surrounding ascending air, turning your electric motor into a generator. Charging is especially attractive on occasions when the sailplane is in a strong upcurrent but precluded from climbing (limited by cloudbase, an inversion lid, air traffic control, or oxygen requirements, or by the small vertical extent of a slope current).

Spend the energy when it buys you a lot

You can do such recharging on occasions throughout the flight and use the energy to speed to the next thermal, or hunt for lift, or propel you to a safe landing spot, and

perhaps still have enough energy in the battery for a take off the next day.

What is soaring?

RBAS opens up consideration of some philosophical questions about soaring. Virtually all soaring exploits solar energy – almost no other source of energy powers our atmosphere and biosphere (nuclear and hydrothermal energy being the exceptions). Soaring utilises are motion of thermals, winds against slopes, waves, perhaps even wind shear and turbulence. Launching by bungee, foot or horse (drawing on the solar energy in food) is solar use, as is winch (using electricity from various sources such as nuclear, hydro, or fossil fuels), or auto or airplane using fossil fuels (the stored energy of sunlight of millions of years ago) or more recently created bio-mass fuels. A few sailplanes have battery-powered electric motors, primarily for take off. Some charge the batteries by solar cells – usually on the ground before flight. The 1980-81 solar powered Solar Challenger was initially tested with battery power, but its major flights utilised only photovoltaic cell power (plus sometimes thermals).

So what is pure soaring, and what is future soaring?

Setting up new categories stimulates competitions that help to motivate pioneers and to advance soaring. However, rules can stifle innovation, especially in the early stages of a field when the potential, even the categories, are unclear. Paragliders, hang gliders, ultralight sailplanes, Standard, 15 metre and Open Class sailplanes, auxiliary power for various categories, and sometimes age or experience criteria – will another category help or hurt? This topic deserves discussion.

I suggest that RBAS aircraft be used for fun, without competition or any categorisation. As experience grows, perhaps competitions with logical rules will emerge. In any case, RBAS represents a new variable in the soaring equation, an additional factor to optimise as you continually re-strategise your flight.

A brief look at natural flight helps illuminate some of the deeper issues of what defines soaring. True flight has evolved in nature by four different routes; insects first, and then three types of vertebrates: pterosaurs, birds and bats. As with humans, all four types of natural flyers derive energy from food – vegetation, or other creatures that consume vegetation. However, in contrast to surface-

-augmented Soaring

bound creatures, many of these natural flyers evolved to use another energy source – the aforementioned slope currents, thermals, waves, etc. that benefit sailplanes. For some super-soarers such as vultures, the atmosphere typically contributes far more than the food. Most insects fly, and their ancestors have been flying for over 200 million years. Some make use of upcurrents, but the real soarers came later. Pterosaurs survived over 100 million years before their extinction with the dinosaurs 65 million years ago. Birds, that coexisted with the pterosaurs and survived the dinosaur extinction, now demonstrate many excellent soaring techniques (and sometimes share tasks of hunting and using thermals with sailplanes). Bats, being nocturnal, rarely take advantage of soaring. Some quaint pterodactyls, the 11 metre span *Quetzalcoatlus Northropi* (see ff 3/86) from over 65 million years ago, and a giant Teratorn, a confor-like bird from six million years ago, weighed over 200 pounds, perhaps over 300 pounds, and so fit the size and weight range of modern hang gliders and ultralight sailplanes.

With RBAS, sailplanes now are one up on birds. Natural creatures cannot internally store kinetic or potential energy; the RBAS vehicle can. And a plane that incorporates solar cells has another energy source unavailable to natural flyers. Perhaps our envy of the magnificent soaring techniques of birds will change to them envying us because we have several energy sources unavailable to them.

Mechanisms

A propeller optimised for thrust is not optimised for serving the windmill function, and a propeller of any sort idling in the airstream will create drag. There are several approaches to handling these issues. One is for the propeller design to be a compromise which yields good, but not ideal, effectiveness in both charging and power delivery modes. A “true pitch” twist with a symmetrical airfoil might be a good starting point, providing minimum drag when free to rotate. When neither charging nor powering is taking place, this propeller, even with no drag from the motor/generator, is still a source of drag. However, the magnitude of the drag is very small compared to the total vehicle drag (say only a few percent at the best L/D flight mode). The motor/generator drag can be eliminated by a clutch. Another method is to use a low rpm induction motor; no gearing is required, and there is

no drag from permanent magnets. However, such a motor will be relatively heavy.

A more desirable approach would be to fold the propeller back into the fuselage when neither propulsion nor windmill generation is needed. From the efficiency standpoint, the most attractive approach is somehow to use two separate props, one optimised for propulsion and one for generation, both being folded back into the fuselage when they are not in use. A compromise would be to have a four bladed prop on a fore-aft generator/motor shaft, just behind the top of the fin. Design two blades for propulsion and two for windmilling. Fold back and latch the unused pair along the rearward extended shaft, or fold back all four when none are needed. For good efficiency near the minimum sink (or power) speed at which the prop or windmill would often be operated, the diameter should be large. The fin location facilitates having a large diameter prop. All in all, there are many approaches to the electromechanical and aerodynamic compromises of RBAS.

The simplest electrical system is a direct drive to the motor/generator, plus a specific battery voltage. With this system the prop or windmill rpm can be altered by airspeed. Alternatively, the system can select for charge or power with the aid of a controllable pitch prop, or a continuously variable gear box, or a versatile power electronics module that can match battery, prop rpm, and charge/discharge or idling function as needed. System management can be automatic or pilot-operated.

Examples of power and energy

The following example suggests that for a representative system, for a foot of altitude sacrificed to charge the battery, 0.48 foot of altitude is available later in the flight. This calculation ignores the normal sink of the aircraft in a thermal or slope current, assuming we are interested in the additional descent rate caused by charging (a 1,000ft/min thermal assumes the aircraft, without the charging drag, ascends at 1,000ft/min). It also ignores the 1.5ft/sec normal sink rate of the aircraft during the propeller powered climb. If the battery charge is used so slowly that it just covers the normal sink rate, there is no climb added although there is a duration and distance increase. If the battery, motor and propeller systems are reasonably efficient and can provide high power and high climb rate, the effect of normal sink during the brief

climb period will be relatively small. Putting all these factors together, one can generalise that the RBAS system will return to you in altitude equivalent when you want it some 1/3 to 1/2 of the altitude equivalent you “deposited” earlier in the flight.

If the aforementioned 400 pound sailplane extracts an additional 2.7hp (2,000 watts) from the air (its drag power), causing it to descent an extra 3.69ft/sec while charging the battery, then with 75% efficiency (from the combination of windmill and generator inefficiencies) 1,500 watts will reach the battery. Whatever the flight speed, the 2.7hp represents an increase in sink rate of 3.69ft/sec. With the battery later returning 85% of its extra charge, and motor efficiency and prop efficiency combined to total 75%, then 63.8% of the 1,500 watts from charging for a given period is available as propulsion power and can later permit 956 watts to provide later climb for the same time interval. 956 watts of thrust power during climb adds 1.76ft/sec. Thus per second of charge and discharge you lose an extra 3.69ft but then later have an extra 1.76ft of altitude to spend. For every foot lost in charging, only 0.48ft is later recovered. This 48% factor is not as good as obtained with an advanced regenerative braking system or a car because propeller and windmill inefficiency are not part of the car case, and the premium on weight for the airplane compromises motor/generator and battery efficiency.

Lead acid and NiCad batteries typically deliver a maximum of 16-18 watt-hours per pound. This is equivalent to raising the battery weight some 8-9 miles. If a battery weighs 10% of the gross weight, and propeller and motor system puts half of the energy withdrawn into climb, the battery would let the sailplane climb up nearly a half mile (for a machine flight duration of over 1/2 hour in calm conditions). New nickel metal hydride batteries can double the stored height potential, and lithium polymer batteries increase the height over threefold. The battery must be able to handle the occasionally-rapid charge and discharge rates. Batteries designed for high power can deliver in the range of 100-200 watts of power per pound. For motor weight, a reasonable factor for planning purposes is to assume 4 pounds per kilowatt.

The systems designer will find complex interactions between the many design variables. For example, some batteries are



Regenerative Battery-augmented Soaring

inexpensive, some high energy, some high power, and some long life, but every real battery is a compromise because none score high for all factors. Ditto for motors and for associated power electronics and for the overall sailplane structural and aerodynamic design. As for motors, high power per pound motors are available, but operate at high rpm and require gear reductions that add weight, noise and some inefficiency. The pilot is also confronted with complex strategies for making most effective use of the battery system to improve the flight. Some batteries age rapidly if the maximum possible charge is taken from them.

This discussion has been hypothetical, not a report on a demonstrated concept, and so should be considered with caution. The regenerative braking system of a practical battery-powered car may deliver as mechanical energy less than 60% of the mechanical energy going into it. Compared to the car system, RBAS benefits from operating over a narrower rpm range, but there are the added propeller/windmill inefficiencies. Considering everything, the 1/3 to 1/2 overall regeneration efficiency suggested here as obtainable with RBAS is not unreasonable, but achieving it is not a trivial task.

A flight example

The 400 pound gross weight of the ultralight sailplane discussed above is the sum of:

Pilot, chute, and some foot and drink	200 pounds
Airframe	155 pounds
Lead acid or NiCad batteries	40 pounds
Motor	15 pounds

With 10% of the gross weight invested in batteries, the fully charged battery can be used to climb nearly 2,500ft. The take off and climb to 1,250ft leaves the battery 50% charged. Some weak early morning thermals let you stay aloft, barely, as you drift to a hill with a good slope current. You could just stay aloft at an altitude of 400ft above the hill, but instead you choose to go back and forth at hill top level where your climb could be 5ft/sec. You recharge the battery (10 minutes, 5ft/sec, means 3,000ft, that could be converted to 50% of the battery charge, later providing about 1,200-1,300ft of climb capability). Now a thermal mingles with the slope lift and lifts you to 5,000ft. You dash toward where you suspect a thermal will be, but none is discovered, and after you descend to 1,000ft you use all of the battery to take you up to 3,200ft. Venturing further downwind you at last get good lift, but at 4,500ft you see that a stable layer at about 5,000ft puts a lid on what this thermal can do for you so you stay at 4,500ft, recharging at a fast rate that is the maximum your system can handle, say 3,000 watts, and taking only about 15 minutes for a full recharge.

After a 150 mile triangle, late in the day, with battery almost fully charged, you start a long last glide back to the destination, the airport where you took off seven hours earlier. A headwind has increased, and you worry about falling short, but with the battery you climb up to 1,200ft over the airport. While descending to a landing you recharge the battery a bit while steepening your descent. You land with a 65% filled battery, enough for take off to lift the next day.

Some final considerations

The high power available from the windmill-charging mode in strong upcurrents can be used for other applications than later climb. It can operate a heater for flight in cold conditions (or, in concept, an air conditioner for hot weather flight). The electric power can also provide boundary layer control to improve glider efficiency, but in the practical case, at the Reynolds Numbers involved in the ducting and airfoil, and considering weight and complexity, converting stored energy to altitude can be expected to be more productive. For a two-seat sailplane, lights and heat might permit multi-day flights on a slope current. A radio-controlled model airplane, with GPS navigation and a windmill charging system, could make an autonomous, long duration flight on a mountain slope in continuous wind conditions.

For a sailplane, the potential energy of height times vehicle weight is analogous to money in the bank. RBAS gives the pilot an additional "altitude bank account", money that can be withdrawn whenever the pilot wants – as long as enough deposits were made previously to keep the account from being overdrawn. The pilot deals with an unfriendly, greedy bank which has a policy never to extend credit. It also charges a 50% (or more) service fee – consider it a tax – on deposits. The pilot makes deposits when times are so good that the tax is acceptable. Prudence dictates that the account never be completely depleted. The joy of flying will be increased if the pilot know there is some "altitude" available in the account.

Electricity generated aloft, derived from upcurrents, can add a new dimension to soaring.





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GFA Handicaps for Club Class

Principles and Configuration Issues

Principles

The GFA Sports Committee has decided on a number of basic principles should apply to the handicapping system used at the Club Class/2 Seater Nationals.

These principles recognise the essentially subjective nature of the handicap system, and place the decisions as to what handicaps to apply in the hands of a Handicap Committee of 4 who report to the National Competition Committee. The 4 members of this Committee are currently: Convener, Maurie Bradney, Jonathon Shand, Ken Horlock and Cathy Conway.

The principles are:

- That the Club Class/2 Seater Nationals is a contest designed to attract participation by gliders that are no longer competitive in the FAI Nationals. Therefore the handicaps applied should be oriented towards that class of glider and should not be seen to favour higher performance gliders.
- That handicaps should be used to even out observed performance differences between gliders. It is recognised that there are many factors which affect the actual performance of a glider, not all of which are measurable.
- That while a mathematical analysis of glider performance should form the basis of the system, a handicap committee should apply judgement based on experience to correct anomalies.
- That configuration changes to the glider should attract appropriate adjustments on handicap, but that these adjustments should not be punitive.

As far as possible minor variations between gliders should be smoothed, so that gliders of broadly similar performance attract similar handicaps.

The Club Class/2 seater Nationals is a no disposable ballast event. Handicaps are set for this condition and should attempt to even performances to keep gliders competitive over the widest possible range of types.

The handicap weight for each glider will be based on the glider type empty weight plus 110kg for single seaters and 180kg for 2 seaters, this being the normal C of A permitted cockpit loads. Where gliders cannot meet this criteria due to this weight exceeding some other C of A limitation for

the type, the maximum weight permitted within these limitations in the no ballast state will be used.

Note: Type limitations such as the maximum all up weight, maximum no ballast weight, maximum weight of the non lifting parts limit some gliders to less than empty weight plus 110 or 180g.

Configuration

Glider Weights

The glider handicap is based on the performance of that glider at a stated handicap weight. Gliders flown at lower weights (where this is a choice) will not have their handicaps adjusted.

Gliders which can carry ballast to achieve the handicap weight, will not be permitted to exceed that weight. Pilots found to be exceeding this weight will attract a penalty.

Where a glider is flown at a higher weight, by necessity (due to the weight of the glider or the pilot), the handicap will be increased by .002 for each 10kg that the glider exceeds the base handicap weight.

In the Club Class/2 Seater Nationals, it will be assumed that pilots will be flying at the handicap weight or lower for the glider type. If otherwise, pilots will be required to declare the weight at which they will compete before the first contest flight, and will not be permitted to vary this during the event. Failure to do this will attract a penalty.

Configuration Changes

Where a glider enters the competition in a non-standard form, the following changes of handicap will apply. The handicap adjustments will be cumulative when more than one is present.

- For gliders that have a choice of wing configuration (15/17 or similar) that the configuration that is used on the first competition flight must be used for the whole competition.
- A glider which has a different wing section from standard will be handicapped as the glider whose wing section it has, provided that in other respects the gliders are similar. For example, a Mosquito with a Ventus wing section will be treated as a Ventus for handicapping purposes.
- Winglets will attract an additional handicap of .005.
- Wing fillets (where these are substantial and non-standard)

ZEPHYRUS	1.40
OLYMPIA	1.34 315
BERGFALKE 3	1.32 465
BLANIK	1.32 472
KA7	1.32 460
ASK13	1.32 470
ARROW	1.30 280
KA6-CR	1.28 300
PUCHATEK	1.28 524
BERGFALKE 4	1.24 480
PUCHACZ	1.20 560
BOOMERANG	1.18 343
PILATUS B4	1.18 340
PW5	1.18 300
KA6-E	1.16 300
ASK 21	1.16 540
IS 28B2	1.16 574
FOKA 5	1.10 366
JUNIOR	1.07 340
LIBELLE CLB	1.07 328
SALTO	1.04 306
IS 29D	1.04 360
ASW 15	1.02 318
ASW 15B	1.02 360
ASTIR CS77	1.02 380
COBRA	1.02 370
LIBELLE STD	1.02 320
CIRRUS STD	1.00 335
DG 100	1.00 357
HORNET	1.00 364
JANTAR STD 1	1.00 365
LIBELLE OPN	1.00 300
LS 1F	1.00 364
TWIN ASTIR	1.00 520
ASW 19 B	0.98 380
CIRRUS STD	0.98 335
DIAMANT 16.5	0.98 390
JANTAR STD 2	0.97 385
JANTAR STD 3	0.97 390
PIK 20A-B	0.96 360
PIK 20B	0.96 364
PIK 20D	0.96 369
DG 300	0.94 367

will attract an additional handicap of .002.

- There will be no additional handicap if the wingspan is 1cm or less above the nominal wingspan of the standard glider. Where the wingspan has been increased above this, there will be an additional handicap of .001 per centimetre of increased wingspan. The wingspan will be measured as described in the Sporting Code.
- Significant drag reduction measures involving noticeable changes to the shape of wings or fuselage will attract an additional handicap of .002 per measure. This does not apply to profile sealing of control surfaces, smoothing or sealing of canopy or surface gaps, or provision of sealing flaps over openings such as aerotow releases. ✂

To all HGFA members

Please note that any ballot envelopes received after 30/6/99 will be destroyed (unopened). These envelopes were to be used for the ballot only. PLEASE do not send your membership renewal in these envelopes.

Proposed Year 2000 Australian Flying Calendar

Good quality photo's wanted from para, hang and trike pilots for a proposed year 2000 Australian flying calendar.

Please forward with negative or slide to Carol Binder PO Box 336 Bright VIC 3741 Australia, ph: 0417 311 360.

CASA News

Shortly CASA intends to recruit Sports Aviation Inspectors whose task will be to audit and ensure compliance with the safety rules by all Sports Aviation self-administering organisations and by the participants themselves. This short article is an introduction to the role designed to encourage the widest range of applicants.

Airways and Self Administration Branch, Compliance Division is a small branch with a big task. It audits all of the aviation infrastructure from Air Traffic Control and Flight Information Service to Rescue and Fire Fighting Services, Aerodromes and Navigation aids, Airways Engineering Systems, Airways and Instrument Approach Procedure; as well as all aspects of Sport Aviation from ex-military aircraft to paragliders, amateur built aircraft and experimentals to gyrocopters, parachutes to whatever new contrivance comes up next.

The people are highly qualified experts in their own fields who are trained as lead auditors, and who have learned to apply the safety system principles across a range of disciplines. Shortly CASA will advertise for up to three sport aviation inspectors. Clearly it will not be possible to have an expert in every aspect of sport aviation any more than we have an individual full time on instrument approach procedure auditing. The aim is to find people who have a broad range of aviation skills and experience, both airworthiness and flying, as well as experience in the administration of some aspect of sporting aviation. The greater the range of skills and experience across the Branch's responsibility area, the greater the chance of appointment and the higher in the salary scale the appointments will be made.

CASA will provide lead auditor training because we want all our auditors to have done a common course so we all take the same approach – we are getting our act together!

The positions will be Canberra based unless otherwise agreed, and the range of salary is likely to be generally from \$46,000 to \$80,000. General Manager, Tony Rothwell, says, "Regardless of the experience of the individuals, they must be comfortable working in a team auditing any activity within the wide range of the branch's functions. We need people who can back each other up to ensure safety compliance in so many different areas. I cannot hire an expert in every single activity; therefore I have to recruit highly skilled people in some areas, with experience in others, and give them a variety of interesting work."

The formal notice calling for applications will shortly appear in the press with details on the CASA Internet site at www.casagov.au

Anyone wanting to discuss the positions may contact Tony Rothwell at 131 757, ext. 1139 or tony_rothwell@casa.gov.au

Tony Rothwell

Long Flat off Limits

The Mid North Coast Hang Gliding and Paragliding Association would like to notify all pilots that the flying site of Long Flat is now off limits.

This is due to some selfish paraglider pilots from Sydney who have upset the landowner. Thanks for that guys.

Do not fly our sites unless there is a club member present, especially the privately owned sites. We can't believe that it was HGFA members that caused this problem. Visiting pilots will soon find the locals here reluctant to show you around. Especially if you're from Sydney!

Contact Club Members before Flying!

Trevor Kee, President

Mid North Coast HG & PG Association

Mystic Developments

As the Mystic project enters its 4th year, the North East Victorian Hang Gliding Club is pleased to provide an update on the developments at Mystic in Bright.

The sale of Mystic passes over the last three years has enabled the NEVHGC to exercise a two year option on the current lease of the launch and landing sites, and therefore ensure that Mystic does not become enclosed by plantation forest. Works undertaken at Mystic over the past year include the clearing of trees in front of launch, mowing and the continual clearance of wattles and blackberries in the landing

paddock, the planting of trees to ensure shade in the car park in future years, and re-grading of the access road.

In the coming year the club has an ambitious wish list of jobs for Mystic. High on that list includes extending areas on launch for set up, and grassing parts of the landing paddock for packing up your glider. Other improvements we hope to undertake include reinstating the logs marking the car park area on launch, and marking set up and express launch lanes for busy usage times.

The Alpine Shire is currently doing a feasibility study on the installation of a chair lift from the vicinity of the current landing paddock to the launch area. While this is still in the early stages, a preliminary report suggests that it is a commercially viable project. The NEVHGC is actively involved in ensuring that any chair lift will not be detrimental to Mystic as a flying site.

Please remember that most of the work at Mystic is undertaken by a dedicated team of volunteers. An extra pair of hands at working bees is always appreciated. If you are able to help in any way please contact the NEVHGC.

We thank all those pilots that have purchased Mystic passes over the previous years. Your continued support has enabled us to ensure that Mystic remains Victoria's premium flying site.

North East Victorian Hang Gliding Club

Wrong National Ladder

You might have noticed in the last SkySailor there was a hang gliding national ladder published. There must have been a bit of a mix up because this ladder was actually a provisional ladder for next year, and not the current ladder.

You can check out the real version from www.ozemail.com.au/~zupy/index.html

Michael Zupanc

Corryong Cup 2000

Registrations for Corryong Cup 2000 are now being taken! Call Steve Bell on ph: 02 4294 1268 or email: spbell@1earth.net For the best fun comp of the season, come and have a crack at Corryong!

New Products from Airborne

The 220 Fun is now available for sale. Constructed from lightweight high grade 7075 aluminium, it weighs 28kg and can be used for tandem foot launch or aero/car tow.

The Sting 175 is also ready for sale with a 7075 airframe in the standard, X and XC version. The X and XC version has a PX 20 leading edge with faired downtubes and a speed bar. The XC version has a VG system.

The Streak trike wing is now CASA approved. The Streak is a high performance trike wing capable of 60kt at trim and a top speed of 80kt. Call Airborne 02 49449199 for an info pack, email: fly@airborne.com.au, webpage: www.airborne.com.au

Rob Hibberd

Notice of ACTHGPA Annual General Meeting

7 September 1999 at 7:30 pm. Venue Sky Lounge, Yamba Sport Club, Canberra.

ACTHGPA Annual pilots dinner

11 September 1999 at 7:00 pm. Venue Sky Lounge, Yamba Sport Club, Canberra.

3 course dinner and live music. Special guest and presentations. Prizes throughout the night. \$25 per person. Contact Michael Porter on 0415 920 444. All welcome.

Blue Mountains Club News

In a nail-biting finish that came down to the last thermal of the day, Allan Bush is once again Club Champion!

Condition were marginal, with sleddies being the order of the day. It looked like our champion would be decided by duration. Alan Bond, who went into this final round as leader, managed to stretch his first sleddie out to a very credible 18 minutes. When talk of canning the day surfaced, Bondy politely quoted comp rules, and suggested that his flight and the day should stand.

The earthbound gaggle dutifully made it's way back up to launch for a re-flight, and after observing a number more sleddies, Bondy planted roots on the ramp, determined to wait for 'the big one'. Half an hour later, with a few prods from behind (and from the sides, and from in front) Bondy reluctantly gave up on the day improving and ran down the ramp for an excellent sleddie.

And what do you know! Barely 20 minutes later a thermal was found (thanks Kyoko and Matt) which took all remaining pilots to cloudbase. And who happened to be in the launch queue when it mattered? Alan Bush.

Congratulations to all who participated in this year's competition. The next one is already shaping up to be hotly contested, with a few old hands from the Sydney region vowing to give the mountain boys a run for their money.

Richard Lockhart, President

Bogong Cup – A New Direction

Hang gliding competitions around Australia took a dive last flying season. Entries were down significantly in all major competitions. Why? Opinion varies, depending on who you speak to, but themes that seem to come out

continually are that for a pilot to enter a competition they want

1. to have fun
2. to have at least a faint chance of doing well

Glider technology and price have increased to the stage where the average recreational pilot cannot compete at all with the professional/full time pilot, who flies a modified tweaked up topless machine. They still, however, want the fun, the flying, the socialising and the genuine friendly competition that competitions used to be several years ago.

So what's the answer? Well the Bogong Cup is going to take a new direction: a fully class-based event. This isn't new of course; sail boats have been doing it for ages, a few hangie comps have played around the edge of it and the HGFA have talked about it. It is time to actually do it. Pilots will be able to compete 'apples with apples', without being disadvantaged by the glider they own. The Bogong Cup aims to put the real spirit back into a competition.

How will it work? At time of writing there are still a few things to sort out, but the general aim is that the competition will be run in three separate classes: Open, Race and Standard. Pilots will nominate which class they're entering and can only enter one class.

Open Class is aimed at the current generation of topless gliders and will be truly open (thus A, B and C grades will not apply). Awards will simply be for 1st, 2nd and 3rd. Race Class will revolve around high performance 'king post' gliders, with the normal awards for A, B and C grade pilots. Standard Class will be for floaters, or exposed cross-bar gliders. For this Class A and B grade pilots will be amalgamated into one grade, and C grade pilots will make up another.

The aim is that Open and Race Classes will fly the same task and will be scored together. Standard Class will fly shortened tasks (depending on wind conditions) and will be scored separately. Whenever possible goal will be the same for all pilots.

More news in Skysailor as it comes to hand, but mark it down for this flying season (25 January to 4 February 2000) as it promises to be a fun and interesting event.

Canungra Club News

Well, with the AGM of the Canungra Hang Gliding Club only a couple of weeks away, this may well be the last time I have to sit down and put "digits to keyboard" to produce a summary of what the club has been up to of late. I can't say that I haven't enjoyed writing these monthly reports on the club for the national magazine, but it would have

been nice if just once, someone (other than the person who originally asked me to do the job) had said that they appreciated the effort I had gone to.

One thing the club membership cannot be accused of doing of late is a whole lot of flying. Whilst there have been a few soarable days at Beechmont and Tamborine, the XC flying has been limited to the short hops back to Canungra or out to Beaudesert. During yet another rained out weekend I started wondering whether the gloriously dry winters that I remember from my formative flying years were just a figment of my imagination. So I started digging around in the Bureau of Meteorology's ever expanding web site (www.bom.gov.au/). Amongst the tonnes of useful information that had appeared since I had last visited (and which I will certainly make use of if we happen to get another flyable day before the end of the next century) I came across a map of Australia showing different parts of the country in different colours from red to blue. The whole of the south coast of Queensland from Fraser Island to Coolangatta was dark blue. The legend of the map informed me that it was a summary of the average rainfall over the last three months. Scrolling down I discovered the key, which revealed that dark blue indicated an area with "very much above average rainfall in the last 3 months". I knew then that all those hours that I had clocked up between May and September in the early nineties were for real, and that there was some (historical) basis to my boasts that you can fly XC in SE Queensland during winter.

Looking a little further back into the rainfall records I was amazed to discover that the terrible weather over the last 18 months had coincided exactly with the frenzy of activity surrounding the proposal to amalgamate the GFA with the HGFA. With my training as a neuroscientist, and more than a passing interest in the weather, it was immediately obvious to me that the greater than average rainfall during this period can be attributed entirely to an anomaly in the Southern Oscillation Index caused by the heightened cognitive functions of a critical mass of pilots anguishing over the proposed amalgamation. Now that that craziness is behind us I expect the weather to return to something approaching normality, the flying to improve, and the HGFA to take a long, hard look at itself and start to address some of the issues that the membership, rather than the leadership, consider important.

Mark Plenderleith 

I'll choose the eagles any

NATHAN GRIEVE

Sunday, 17 January was a day I learnt an important lesson. Somebody, quite accurately, has coined the phrase: "You cannot hoot with the owls by night and soar with the eagles by day." I know this to be true because I've tested the theory, and failed.

The previous night I had been night clubbing with friends in Melbourne. Determined to have an 'early' night, I got home at around 3 am. I was awake at 7 am and ready to make the one hour drive to Beaufort. Not exactly an ideal preparation for flying... as I was to soon realise.

On this particular day there were only a small compliment of pilots in attendance. It was mid-afternoon when just Greg Porter and myself left for Ben Nevis. Upon leaving my car in the bomb-out, we made our way up to launch to find a westerly breeze blowing at around 15 knots. I hadn't flown since achieving my novice rating at the beginning of November. With a forecast of 37°C and no cloud cover, I was eager for the taste of thermals. Due to my inexperience, only a 30 minute flight followed before I found myself concentrating on nailing the all-important landing. Having put Rohan's Sting 154 down without a problem, I was soon to realise that my car keys were not with the car (where they should have been), but were in fact still sitting on launch in Greg's. To say that my body temperature rose a degree or two would be an understatement. Furious at my carelessness, I relayed my discovery to Greg who was no doubt just thrilled to hear the news as he cruised above the ridge at about 3,500ft agl. I secretly hoped Greg would show me his full array of flying skills and be the first to pull off a top-landing to retrieve the soon-to-be infamous car keys. Wishful thinking...

Before long, Greg had landed and calmly stated (as is Greg's style) the obvious – that somebody was going to have to walk to the top. Seeing as I had left 'my' car keys up there, I volunteered. I had only been to Ben Nevis on one previous occasion, and thus was totally unfamiliar with the region and the terrain (which was about to become blatantly obvious). After a mouthful of water from Greg's 'Camelbak' and some instructions to follow a certain ridge, I took my radio and began the unenviable trek up to launch.

From the outset I felt quite ill. I thought that the knots in my stomach were anxiety related, but with the benefit of hindsight, they were serious warning signs that I chose to ignore. After walking across a few paddocks I came to the base of the giant. Feeling as though a weight was sitting squarely upon my chest, I was physically sick. This provided some temporary relief and I began my ascent. I distinctly remember falling amongst some yellowish bushes. They were full of pollen, and that pollen was soon equally distributed through my mouth and eyes. Common sense should have told me at this point that I was in no condition to be attempting such a climb, but what's the saying about common sense not being so common? In my defence, I will say that I wasn't really in any state to be thinking

either clearly or rationally. All I was focused on was the predicament that my actions had left Greg in.

Thinking back, each time I got to an obstacle, I tended to always go to the right of it. This took me totally off track from the ridge I was trying to climb. Instead of following the gully diagonally up the side, I was trying to climb almost directly up the face. Whilst I had my radio with me, each time I spoke to Greg to confirm that I was still on track, he was unable to find me amongst the dense bush. I insisted that I was in a clearing each time, but obviously it wasn't as clear to Greg as it was to me.

As I continued climbing, I came to realise that my head and face felt as though they were roasting. I had lost my cap somewhere along the way. Realising that I had to at least attempt to stay out of the sun to keep my rising body temperature at bay, I took off my T-shirt and draped it over my head. I continued upward for some time stopping intermittently to rest. Each time I would let Greg know what was happening via radio. As if it were a case of *déjà vu*, I once again felt as though I was burning up. I hadn't noticed that the T-shirt had fallen from my head somewhere. Now totally exposed to the elements wearing just a pair of shorts, I soldiered on.

The bomb-out looked increasingly further and further away. I thought that I must have been pretty close to the top. Badly fatigued due to dehydration and heat stress, I knew that I was in a bit of trouble. My balance wasn't that great, my head was spinning and my legs were cramping badly. At that point, I would have gladly sold my first-born for a bottle of water.

I put what felt to be the last of my energy into one last dash for the top. It was this five or six minute spurt that finally pushed me over the edge. I sat on a rock with my head between my legs. I remember thinking that I had to pull it together because the only person capable of helping me in this situation was myself. However, that was to be my last recollection of the afternoon. Whilst I had blacked-out, Greg eventually walked up to launch himself to retrieve his car and raise the alarm.

I came around approximately 5 hours later to hear the voices of Andrew Grey and his friend Shane. They had heard Greg trying to raise me on the radio. I could see several torches down around the base. I called out to the seemingly 'nearby' voices, but to no avail. I don't recall what happened next as suddenly the voices and lights had disappeared. Perhaps I had blacked out again. I don't know.

Upon realising that I was obviously stuck until morning, I crawled over to a softer patch of ground. Using the moonlight, I managed to scrounge out a shallow hole in the dirt. As I lay in it, I tried to throw some undergrowth on top of me. However the dead leaves and twigs provided no relief to the coolish wind that was getting stronger. Luckily, I found a large overhanging rock ledge. I crawled inside in search of better shelter. Thankfully it was unoccupied by any of the local wildlife.

Nestled into the sharp and often jagged rocks, I fell in and out of sleep. I hallucinated about the strangest things most of the night. First it was somebody dragging me by my feet, and I struggled against them – not realising that I was dragging my bare back, arms and legs across the rugged ground beneath me. Next I found myself struggling to breathe, and this went on and on.

I eventually woke to the brilliant light of day. While I was feeling better mentally, I was physically exhausted. My body felt as though

day...

it was a sponge which had been wrung of every last drop of moisture. I was content to just lay amongst my rocks and try to sleep some more. The pain of the cuts, scratches, bruises and abrasions had dulled. When I tried to crawl out, stand and assess my position, my legs refused to cooperate. They felt like lead weights. I pulled myself up using a near-by tree and gradually tried to coerce them back into action. I could see several more cars down at the bomb-out where this journey had begun. I looked around for my radio so I could let them know I was okay. It was nowhere to be seen, but I could hear it transmit the occasional squelch some 10 or 15 metres below. I had no chance of retrieving it, so I struggled across to a large rockface and sat warming myself in the magnificent sunshine.

After some time, yet another shadow flashed across my face. As I squinted into the sun, a huge steel bird flew close by and circled below me. It gradually ascended to the point where I could clearly identify the bold blue print of 'POLICE' on its side. Such a sight could normally put fear into us law-abiding citizens – but not this day. How I wished they would 'pull-over' and take me away. And after some while, I got my wish. As they gradually swept the trees below me looking for some sign of life, I stood up and raised my hands trying to get their attention. And what a sight it must have been to them. Standing on an isolated rock face, 1,200 feet from the ground clothed in nothing but a pair of shorts. To me, they were a godsend.

They hovered above me for 15 minutes. I resumed my seat on the ground content in the knowledge that I'd been found. I didn't know what they were doing just sitting there in the air – having morning tea perhaps? No, it wasn't that. They were running low on fuel and were marking my position for the four man police-rescue team that was on the way up. Soon after the helicopter had flown off to the west, I heard voices below. My first words to them you ask? "Do you have any water?" They gave me a thermal pullover and a jumper. I tried to nibble on an energy bar, but my stomach was only receptive to water at this stage. While my body cried out for more water, I couldn't stomach it. I felt sick and bloated. They tied a harness around my waste and we began the gruelling 200 foot walk to launch. My legs couldn't climb rocks and support my weight as well. Two of the guys would climb ahead, attach a rope and pull the majority of my weight up. It was strange walking vertically up embankments of around 50 degrees. Stopping four times along the way for me to rest, we eventually made it to the top. A welcoming party of five other police members in two four wheel drives proceeded to relay us back down to the bomb-out where my anxious family was waiting with Greg. He had spent the night in his car just in case I was to have wandered back down. Mmm, I wasn't all alone during the night after all.

A quick hug for mum, an acknowledgement of my dad, brother and sister, and my eternal thanks to the Police Rescue guys cleared the way for me to collapse on the back seat of car. On the way home, my dad's mobile rang with reporters from Win TV in Ballarat. They wanted to interview me and talk to the family. "23 year old hang glider pilot lost..." Ah, the possibilities for sensationalism and stereotypical generalisations were seemingly abundant. Unfortunately for them, I felt like death warmed up, and wanted nothing to do with any of them. 90 minutes later I was home and straight to the doctor. A blood test revealed that my blood was full of poisonous toxins due

to muscle breakdown and wastage from my legs. My body had basically overheated and the muscles in my legs had begun breaking down. A personal chariot was summoned to take me to the Ballarat Base Hospital. While the ambulance was en-route, I tried to answer their million and one questions whilst sucking on an oxygen mask. I was admitted and proceeded to spend the next two nights and best part of three days being rehydrated and detoxified. At the end of it all, I was almost 4kg lighter for the experience.

The nurses all thought it to be quite amusing having a 'celebrity' in the ward. I scoffed at the mere suggestion of it. I certainly didn't feel like one – quite the opposite. They told me that my story was on the local news and all over the radio. I didn't give it much thought after that, but once back home it was obvious that somebody had spilt the beans because almost every person I have ever met wanted to know what had happened. The most common question was without doubt, "Weren't you scared?" – I can honestly say that I wasn't. Looking back, I can see that there was potential for serious accident. For example, I could have quite easily have been bitten by a snake (as Greg almost was) or have fallen and hurt myself, but in that night, I wasn't fully conscious of those possibilities. I was somewhat dulled to the reality of it all. All I had to think about was getting through one night – nothing else.

Despite my adventure at Ben Nevis, it is a place that holds no fear for me. Quite the contrary. I've flown there on no less than ten occasions since, accumulating 16 hours of airtime in the process. It is the site of my highest altitude flight, the longest duration and the launching pad for my first (and only) cross-country flight. It has definitely provided me with the highs and lows of my brief flying career. In a stiff breeze, it's possible to 'park' my trusty skyfloater just out in front of launch. On a few occasions, I've stared down... trying to retrace the wayward path I chose to take that day, straining to see the ledge I huddled near that night, but to no avail. From my vantage point of 2,000ft agl, it doesn't seem nearly as menacing as it did that day. Before I can ponder it for too long... I feel the lift of the wing, hear the scream of the vario and roll into the next thermal taking me up, up and away. Finally, back soaring with the eagles once more.



A safe place to be at the end of the day – the landing field!



A World Class Rep

DAVID HABERCOM, President World Class Soaring Association

On 12 July, five organisations co-hosted a meeting in Leszno, Poland, for the purpose of initiating a co-ordinated international marketing effort on behalf of the World Class and the PW-5 glider. This is my personal account. The sponsors were IGC, Warsaw University of Technology, DWLKK (a research and development firm in Warsaw), the Aeroclub of Poland, and WCSA. Prof. Piero Morelli, chair of IGC's World Class Subcommittee, represented IGC. Prof. Krzysztof Kedzior, chair of the university's Institute of Aeronautics and Applied Mechanics, and several of his faculty represented WUT. Krzysztof Drabarek, president of DWLKK, and his technical director, Rafal Mikke, stood for their company. Waldemar Ratajczak represented the Aeroclub. WCSA director Conrad Suechting and I attended from WCSA. 28 convened, including representatives from four manufacturers with an expressed interest in the World Class. I served as moderator. When WCSA first proposed a World Class marketing meeting in mid-1998, we used the hyperbolic "summit" label out of urgency. Many of those closest to the class felt a deep foreboding about the future, which by all common sense should enjoy spectacular success. Though we received little support for the idea of the meeting at the time, six months later dismal sales figures released by PZL-Swidnik, the only company actually building the PW-5, made the crisis clear to everybody, and the summit began to take shape quickly. Everyone now understood that the World Class had reached the lowest point in its short history. Swidnik's sales had dropped to near zero. Combined with a low turnout for the World Class World Championships, the sales slump shook confidence in the class at all levels, including in IGC, and generated speculation that no one was interested in the little glider, and the class would fail.

Adding fuel to the doubt was Swidnik's remarkable inadequacy in even the most rudimentary marketing practices: no promotions, no package deals, no advertising, no demonstrations, needless delays in removing

an artificially low operating ceiling, disinclination to install refinements, and a disregard for customer relations bordering on the arrogant. The company's manners frustrated the class' most ardent supporters.

All this stood in stark contrast to the sale of 220 PW-5s in less than four years, almost universally positive pilot reports, and enthusiastic endorsements from every owner. More astonishing, a 1995 university marketing study had projected hypothetical sales of up to 4,000 units worldwide – if manufacturers would undertake aggressive marketing programs, something which soaring had not seen since the days of the American company, Schweizer, which had focused only on the US.

When we convened the "World Class Summit" at 10 AM, we needed to accomplish two things: lay the foundation for a co-ordinated marketing effort worldwide, and entice at least one additional manufacturer to enter the World Class within the next few months. Only a manufacturer could justify the financial commitment required for a proper promotional campaign, and only then would the efforts of World Class supporters have much impact. And if a new manufacturer did not appear before year's end, many of us believed we could, as we say in American slang, 'kiss the class goodbye'. I can report that we achieved both goals, and I will get to some details below.

To its credit, PZL-Swidnik sent a delegation, including its commercial director, Ryszard Cukierman, and directors of its glider program, marketing, and sales. And, to its credit, all except Mr Cukierman stayed for the duration, despite getting beaten up again and again by every speaker who alluded to the company's miserable track record.

Prof. Morelli began the presentations with an overview of the present unhappy state of affairs and his opinions about how we got there. Even his gentle manner did not mask the blame he attributed to Swidnik. But he went further and said he would be open to new kinds of international World Class events and a possible "time

extension of the World Class glider beyond 2009 (15 years after the type certification of the PW-5, in March 1994)." Norbert Niessler of Austria's Diamond Aircraft talked about how to shape an ambitious marketing program and emphasised that the manufacturer needed to commit significant money to promotions in order to penetrate this market. Germany's widely honoured Fred Weinholtz followed with a powerful and compelling case for the cost-effectiveness of the PW-5/PW-6 combination for clubs when compared to present alternatives. (More on the PW-6 below.) He noted with frustration the failure of German manufacturers to recognise the PW-5 as the glider which could best enlarge the market pyramid on top of which they precariously perch.

Prof. Mirosław Rodzewicz reported on WUT's ongoing fatigue tests of the PW-5, now indicating at least 9,000 hours of flying life, which allows certification up to 4,000 hours.

Mr Cukierman spoke for Swidnik, making no apologies for past performance but acknowledging that the company might have done some things a little better. He went on to say that:

- 1) the company will continue to manufacture the PW-5,
- 2) will begin production of the PW-6 when prototype tests have concluded, and
- 3) will continue to invest no money in marketing, since its financial circumstances will not allow it.

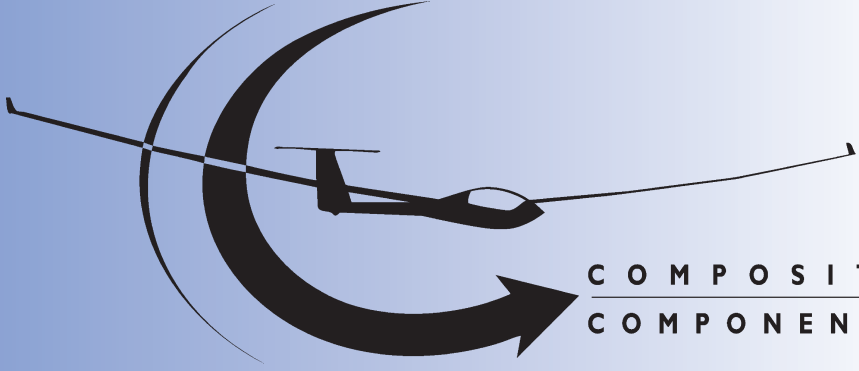
Mr Mikke presented DWLKK's offer to assist any manufacturer in building molds for the PW-5 and PW-6, and described a list of parts it is prepared to manufacture, as well as some retro-fit parts for existing ships. (DWLKK built the -5 and -6 prototypes.)

Conrad Suechting and I described the components of a comprehensive marketing program, beginning with pricing strategies and ending with techniques for keeping customers loyal. We aimed to encourage World Class manufacturers to abandon the mannerly practices that sell high-end ships and push aggressively to achieve the broad-based appeal envisioned in the 1995 market study.

ort

Prof. Ratajczak closed the presentations with an impassioned appeal to take soaring to the Olympics, the ultimate marketing venue. Several hours of general discussion followed, during which WCSA promised to open a section on its web site devoted to factual and documented information about the World Class, designed mainly to combat the persistent and sometimes irresponsible rumours that have filled the information vacuum so far. Did a new manufacturer step forward and commit to the World Class? Yes. I regret that I cannot at this time say who it is, but I can say that the company has access to the necessary capital and seems ready to devote very substantial assets to a worldwide marketing push. I have talked to the principals at length about the hard realities of money, and they seem ready and able. All glider pilots, they intend to manufacture both the 5 and 6 and offer them in a package to clubs. Their target price of less than DM100,000 would make the package an exceptional value. If events unfold as I hope – and have good reason to expect – we could hear an announcement within months and see the beginning of production in the first half of 2000. As for the PW-6, I can say it looks and flies like a heavy PW-5. An approaching storm abbreviated my one test flight, and in any case I lack the piloting experience to offer a significant evaluation. We will have to wait a while for a proper report. One thing is certain: The 6 in combination with the 5 will attract a lot of attention.

In summary: The meeting accomplished the necessary and probably all the possible. The next few months will determine whether this remarkable journey continues into the distant future or comes to a premature end. I, for one, have gone in one day from dark foreboding to strong optimism that the World Class will begin growing again – and can, indeed, strengthen our sport for the benefit of all classes and pilots. ✂



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Summary to 19 July 1999

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HOLMES Aiden James	10113	Narrogin
ENGLISH Brenden Mark	10285	Mangalore
SCHLUSSER Paul	10177	Southern Cross

MARTIN Rubin Daniel	10311	Leeton
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SNELL Simone Margaret	10233	Darling Downs
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GREEN Michael David	10310	Townsville Gliding
BOYD Christine Kay	10312	Renmark

SCHLUSSER Paul	4281	Southern Cross
GREEN Frank William	4282	RANGA

HARDY Ian Francis		Geelong
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Claims for all badges and certificates to:

FAI Certificates Officer:

Beryl Hartley

106 Meryula Street

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:

Gary Hollands

92 Grange Road

Westbourne Park SA 5041

Ph: 08 8230 5722 (w), 08 8271 2020 (h)

Fax: 08 8230 4428

Email: Gary.Hollands@adelaide.on.net



Soaring Calendar

1999 Queensland State Gliding Championships

2-9 October 1999

Practice and Registration: 2 October 1999

At Darling Downs Soaring Club, Jondaryan.

Open, 15m and Std. Class. Contact Trevor

Hamley, ph: 07 38991834 (h), email: hamley@

Transfield.com.au

1999 VSA Airworthiness School

9-15 October 1999 incl.

The VSA is holding a basic airworthiness training
course at the Bacchus Marsh

airfield. For details contact Gary Sunderland,

ph: 03 53675374 during working hours.

1999 Homebuilt Glider Symposium

13 & 14 November 1999

The AHSA annual technical meeting and

flying demonstration. Maupin "Windrose"

and Ultralight gliders on show at Smithfield, near

Nagambie, VIC. Contact James Garay,

ph: 03 93673694.

Narromine Cup Week

20-26 November 1999

Orana Soaring Club will host a seven day Narromine
Cup Camp during the week immediately preceding
the NSW FAI and

Club Comps, also at Narromine. Try for FAI badges

records, decentralised comps,

Barron Hilton Cup or your personal best flight.

NSW State Competitions

FAI and Club (Ex Sports/2-seater) classes

Practice Day: 27 November 1999

Competition: 28 November to 4 December 1999

At Narromine. Contact Armin Krueger, ph:

02 96187799.

Basic Cross Country Seminar

11 & 12 December 1999

At Gawler, contact Rob Moore, ph: 08 82588026.

SAGA Performance Week

12-17 December 1999

At Waikerie. Team flying and coaching for advanced

pilots, contact Bruce Tuncks RTO/S, ph: 08

82527905.

"Barossa Glide"

Australian Club Class Championships

17-28 January 2000

Gawler South Australia. (Pre-world Club Class –
formerly Sports & 2 Seater Class)

Vintage Sailplane 2000 Rally

January 2000

Lake Keepit, NSW. The Vintage Glider Association is

holding their rally at Lake Keepit, near Tamworth,

NSW, in early January. Winch and aerotow available.

For final details contact Ian Patching, ph: 03

94381497.

Year 2000 Homebuilt Glider Fly-In

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New Research Fields

MAURIE BRADNEY

The increasing availability of the GPS datalogger combined with the proliferation of personal computers, has not only made the business of flight verification more positive, quicker and simpler, it has also given us a research tool of great power. We simply need to exploit it.

Advantages of the Datalogger

Until recently the only tool to examine flight performance has been the barograph. It has been quite useful. A careful examination of the barogram can show if a pilot is consistently hanging onto thermals too long, pushing too hard between thermals and having to lose time to dig out of the resultant holes, and a number of variations on those themes.

The datalogger, can now do that and so much more. It can get to the detail of the individual circle. Some work has been done in this area already. We know that Australia's top pilots consistently make thermalling circles smaller than 200 metres diameter. If that is something that helps them to be on top, then that is useful information.

The data from each flight can be examined to discover a number of flight behaviours:

- Position where we contacted each thermal
- Height each thermal is contacted
- Distance and time interval between thermals
- Number of circles in each thermal
- Time and size for each circle
- Wind drift and countering behaviour
- Off track diversions
- Turnpoint behaviour

With some use you may think of many more uses, some of which will perhaps be much more useful than those listed.

With some additional information (reason for the off track diversion – good cloud or streeting, other glider, whatever) further analysis can be made and the whole flight can be broken down to a number of basic performance measurements:

- Thermal strength range – average – low & high
- Climb height gains per turn and thermal – low & high
- Height range for flight
- Missed thermals
- Caught thermals
- Second bite thermals
- Re-centres
- Low saves
- Following? Leading?

Dataloggers as a Tool

The concept is new to gliding. However, gains have been made in almost every sport by such detailed analysis. We will not get far into this analysis before significant improvement will be evident.

By measuring and observing we can make an analysis and possibly increase our understanding of what is going on in the air. With accumulation of data over a period of time we may be able make considerable improvements in performance both on an individual and collective basis.

One performance item that it does not show is wing loading. However, this can be noted in with where the pilot made changes by dropping ballast. Perhaps someone with programming capability will be able to devise something akin to the pilot marker to add this information. Where there is an instrument linked to the datalogger, this should be not too difficult.

It does not seem likely that we will need to get to the detailed statistics that are now attached to each cricket, football or basketball player. However, with the datalogger we now have a great tool for analysing and improving flight performance. From a coaching point of view this is a great breakthrough. With a datalogger, and some time spent examining the results, pilots will be able to make improvements in one summer, that previously took many years.

Even the simple GPS with a memory capability can go some way to achieving this.

If pilots have not already got one, then they should be making arrangements to get one for the coming summer.

Different Dataloggers and Optional Extras

Each make of datalogger has its own format. However, they all can produce the IGC format, either directly, or by a conversion after the downloading process. This creates some work at the setting up stage. The database of turnpoints, start points and airfields has to be in the appropriate format for the datalogger to use.

There is a need for a readily available set of conversion programs. I use Garmin, Joey, and lxfai at present and each has to be entered separately. There are at least ten other different formats. It would be a great timesaver to simply do it once and press the conversion button.

There are some additional tools that can expand our knowledge base considerably.

A program called OziExplorer allows a Garmin GPS track to be placed on a map in bmp (bitmap) format. This somewhat limits its use. However, if the IGC file that all the dataloggers can produce can be converted to the Garmin format, then this will expand its capability enormously. Both formats are text type, so that should not be very difficult for skilled programmers. It just needs one to feel the need to do it.

AusLig produce the quarter million survey series in a number of formats including bmp on a CD ROM set. Unfortunately, the whole set for all of Australia is rather expensive.

There is a single CD version, but it lacks the detail of the main set. However, it could be adequate for the purpose of relating flight paths and where thermals are found to geographical features. If a club collected some 50 or so flights from a summer's soaring, it would certainly reveal some consistently good thermal sites.

Pilots flying frequently in hill areas could certainly produce information to make their flights easier and safer.

With some collective work a thermal map, akin to the one the Germans produced of their country some 20 years ago, could almost certainly be developed.





Everything you wanted to know about

LUKE DODD

A datalogger is a generalised term for an instrument, which records (logs) data with respect to time. This data can then be analysed at a later date. The terms flight recorder (FR), datalogger or logger, are used interchangeably in the gliding community and refer to a Global Navigation Satellite System (GNSS) barographic flight recorder. The function of the data logger is to continuously record the latitude, longitude and height of a glider during flight. This record is then used for flight confirmation or verification according to the FAI rules. All FAI approved dataloggers are equal in terms of producing a secure flight record, no one manufacturer is preferred or superior in this respect.

So why are glider pilots so interested in dataloggers? For all badge, record or competition flights the glider pilot must prove to the satisfaction of the appropriate officials that they actually flew the declared task. Confirmation of a flight requires a number of things; an official observer to supervise the flight, a camera to photograph each turnpoint, and a sealed barograph to confirm the glider remained airborne for the entire flight.

This sounds straight forward, but the whole process had a few gremlins awaiting the inexperienced or unlucky pilot. One had to smoke the barograph paper without smoking or burning the pilot, ensure the barographs clock spring was wound up, and the time base is set to 10-hours not 2! Finally the bulky unit had to be securely stowed somewhere in the glider. In addition you had to photograph the turnpoints from the right sector. Nothing worse than getting back from your first 750km only to discover the barograph wasn't switched on or your cameras batteries went flat! The whole process was a little fiddly and prone to some rather unexpected and frustrating failures.

So where do dataloggers come in? Well they replace the old mechanical barograph and the turnpoint camera, making the process of flight confirmation significantly easier, almost foolproof. In addition flight recorders have a built in GPS so they can provide a useful in-flight navigation display for the pilot. A FR can even be coupled to a flight computer or a palmtop computer, as we shall see.

As mentioned a flight recorder continuously logs the latitude, longitude and height of a glider during flight. The logging interval refers to the number of times a record of the

aircrafts latitude, longitude and height is written to the loggers memory and hence stored for later evaluation. The logging interval is adjustable by the pilot, with 10-20 seconds being a typical setting. The amount of memory available in a datalogger is fixed. A short logging interval will use up more memory and reduce the total recording time available for the flight.

The type of memory used to store the data from a flight varies between the datalogger manufacturers. ROM stands for read only memory, and is a non-volatile type of memory. This means that data (a flight record) is not lost when you turn off the FR. Your flight record remains stored in the datalogger until you clear the logger or it is overwritten by a new flight. Some loggers must have their memory manually cleared prior to take off, if not you risk running out of memory in flight. This is equivalent to a camera or barograph failure! Automatic overwrite is a useful feature of a FR and one less gremlin to upset the flight confirmation process.

Most FRs on the market use an 11 or 12 channel GPS receiver and have similar performance. Even if your datalogger does lose its GPS signal briefly this does not invalidate the flight. The FR will recommence recording GPS fixes as soon as it re-acquires the satellite signal. A few 'dropouts' such as this will not result in an invalid flight record for FAI verification. Data loggers also contain a pressure transducer calibrated to the ISA 1013.2Hpa pressure datum. This is the barograph and provides the altitude data, which is recorded along with the GPS fix.

Dataloggers make turnpoint-rounding confirmation a breeze. Once a valid GPS fix has been obtained in either the cylinder or the photo sector, the datalogger sounds an alarm. This beep confirms that you have rounded the turnpoint according to FAI rules. There is no messing around trying to line up a camera, you simply fly straight to the turnpoint and wait for the alarm to sound. Once it does you can immediately head for the next turnpoint of the task. The method of turnpoint confirmation can be selected by the pilot, either a cylinder around the turnpoint, (adjustable from 0.1-2km), or the FAI photo sector. The competition pilot will definitely save time using a datalogger instead of a camera for turnpoint confirmation.

Most flight recorders also display the glider's track, bearing and distance to the turnpoint and groundspeed. A datalogger can

replace the handheld GPS for in-flight navigation. The FR can be loaded with turnpoints and tasks in much the same way as a handheld GPS.

All dataloggers on the market require a 12 Volt power supply, which is usually provided by the glider's battery. Even if you don't own a glider a FR is easily installed in a club aircraft. FR's have a threaded mounting socket which allows the unit to bolt straight onto a camera-mounting bracket.

Dataloggers also have a security seal, which is incorporated into the case of the flight recorder. If the case is disassembled or tampered with, the flight recorder will no longer function properly. The datalogger will then have to be returned to the factory to be reset. This is a security issue to prevent unscrupulous pilots trying to fabricate flight achievements by injecting data into the logger.

Dataloggers also have a NMEA 0183 output. This is an industry standard method of outputting GPS data from a GNSS unit for use by another device such as a flight computer. The other exciting option for the datalogger owner is to connect his unit to a palmtop computer such as a Cassiopeia E10 or E11. Proprietary software such as 'WinPilot' provides a moving map display, a fully functional final glide computer and a powerful task editor. Using a palmtop computer as a flight computer confers several advantages. It is a very cost effective option for the soaring enthusiast, and can be easily transported between aircraft for pilots utilising club gliders. Also, the display on palmtop computers is about 3-times the size of that used on the current generation of flight computers, and in addition the screen is touch sensitive. You operate the palmtop and the program by simply touching the screen with your finger! Currently Winpilot is available in three versions, WinPilot Lite, Standard and Pro, prices start at \$499US. All versions provide a moving map display and a function flight computer. WinPilot Lite works with any GPS unit supplying the NMEA 0183 output. WinPilot Standard requires altitude data from the NMEA 0183 output string. WinPilot-PRO displays a thermal map and in addition requires a B50 digital variometer.

The software seems expensive, however, you can purchase say a Colibri datalogger, a palmtop computer and the WinPilot software for less than the cost of a Cambridge datalogger. The palmtop also functions very nicely in everyday life as a personal organiser.

Data loggers

More details on WinPilot can be found at www.winpilot.com. WinPilot will run on any WindowsCE compatible palmtop computer. The Casiopeia E10 or E11 is preferred due to the fact it is currently the cheapest and most compact palmtop on the market and for 'readability' outdoors has a monochrome screen.

CE Glide is another program that takes GPS data from your datalogger or handheld GPS and provides a functional final glide and speed to fly computer. The cost of this program is US\$80. More information can be found at: www.ccsi.com/~inadas/. A similar program exists for owners of 3Com palmpilot units, however it would seem that the best programs at the moment run on WindowsCE devices.

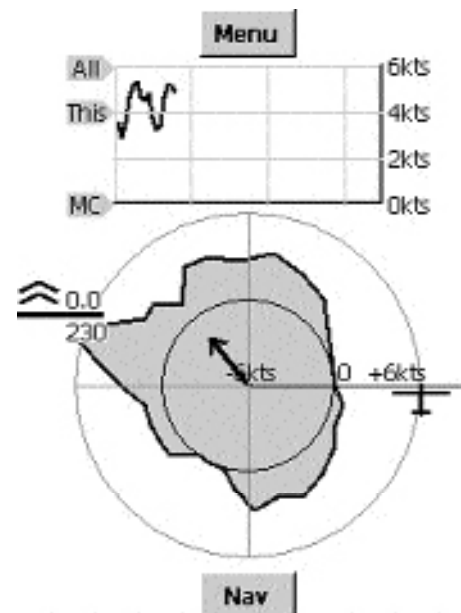
The below figures show a few screenshots from the WinPilot program.



Winpilot final glide



Winpilot Moving Map



WinPilotThermal analyser - WinPilot-PRO

Cambridge markets a similar package called the PALMNAV, which provides moving map display and touch screen operation for their flight computers. However, you require a Cambridge GPSNAV, PALMNAV and of course an LNAV, a very expensive package at around AUS\$7,000. Programs

like WinPilot will work with any GPS device transmitting the NMEA 0183 protocol.

Okay, we have seen what a datalogger does and what it can do, but the main purpose of a datalogger is to allow flight verification and analysis. So how do we do this? All data loggers must be connected to a computer to download the flight record. This connection is made via an RS232 cable, which is supplied by the manufacturer. Your computer will convert the logged flight data into a useful output. An example of the output from the Colibri datalogger using the LXFAL program is enclosed as an appendix to this article. Typically the software output includes a barographic trace, a view of the track flown, close up views of the start/finish lines and turnpoint sectors (showing the gliders track), and a display of the flights statistics. Most programs allow you to re-fly the task, displaying in-flight data in the process. This makes for a very useful training tool to improve your cross-country speed and performance.

Once downloaded to a computer the flight record is stored as an IGC file. This is an International Gliding Commission format, which provides security to the flight record, and prevents pilots tampering with or altering the details of their flight. It also allows you to transport your flight record to another computer and/or flight analysis program for examination. In addition to the manufacturer's software, there are proprietary programs available which will analyse any IGC file, often with significantly more detail than with the manufacturer's software.

So you have decided a datalogger is for you. I will conclude this article by briefly comparing the following dataloggers, the Cambridge GPSNAV, the LX Colibri, and the Volkslogger. All three flight recorders are FAI approved and readily available in Australia. Whilst all three do the same job of flight recording, price and features vary considerably.

The amount of flight recording memory is an important feature of any datalogger. With a 10second-logging interval the length of flight recording time available is; Colibri 79-hours, GPSNAV 27.5-hours, and Volkslogger 20-hours. The Volkslogger will stop recording when its memory is full, if this occurs during a flight then flight verification will not be possible.

The Volkslogger starts recording altitude and GPS fixes from the moment it is switched on, this could reduce the memory capacity if there is a delay in commencing the task. The Colibri and GPSNAV commence flight recording when they detect motion of the glider. Recording stops automatically after the glider has been stationary for approximately two minutes.

As for the display, the Colibri and Volkslogger are similar, showing the usual navigation information on a 2-line LCD display. The GPSNAV has a larger screen with a keypad incorporated. This is mounted remote from the body of the datalogger itself. It will display the usual navigation data in addition to having a track deviation indicator. The GPSNAV will work as a stand-alone datalogger only without the display and keypad, however all task input must be done on a PC prior to flight. The Cambridge has the largest footprint of the three units, followed by the Volkslogger with the Colibri being the most compact.

The GPSNAV and Colibri also have a wind calculation function which displays the wind speed and direction based on drift whilst the glider is thermalling. The GPSNAV and Colibri require an internal lithium battery for preserving the flight record stored in memory. This battery makes the logger less susceptible to transient voltage drops in the gliders power supply. However there is the requirement to replace this battery every few years.

One very useful and unique feature of the Colibri is the ability to display flight statistics directly on the flight recorder's screen after you have landed. You don't have to connect it to a PC.

Currently the Colibri and Volkslogger are similarly priced, whilst the Cambridge GPSNAV is approximately twice the price at AUS\$3,000 with the display unit.

The flight recorder scene is quite exciting at the moment. The ability to connect a flight recorder to a palmtop computer or your gliders flight computer is an excellent capability. This greatly enhances the versatility of the datalogger. Finally, when you consider a FR replaces the barograph, turnpoint camera and film requirement plus functions as a handheld GPS they represent good value for money. A datalogger is a very versatile piece of equipment for the soaring enthusiast.

Fun = Speed?

KARL EWING

A weird idea this, and nervousness keeps clawing at my belly, but once again I reach deep inside myself and forcefully push it down with both hands. "Be intelligent about this", I tell myself, "this launch is exactly like the hundreds of launches you've done before. All you need to do is exercise the simple fundamentals of launching. Come on, you know the drill – nose down, gradually accelerating run, lean through the control frame and finally ease out smoothly once an excess of airspeed has been achieved."

All this logical analysis however can not stop the thoughts rising unbidden from the dark recesses of my mind. "The launch is shallow, its been wafting gently over the back and there has already been a couple of very average launches that almost left the perpetrators staring back at the crowd from behind a tangled mess of aluminum". That brought me to the now quite sizable crowd milling around launch "ooing" and "aahing" at every take off. "What is it about competitions that attracts idiot spectators?", I wonder to myself quietly. I'm sure their one wish would be to see a little savage demolition they can laugh at heartily from the safety of the peanut gallery before climbing back into the Pajero, crawling back to suburbia and that nice, safe nine to five. I smile confidently at the launch marshal and assume the facade of a tough, gung-ho pilot who likes nothing better than taking off from gradual slopes complete with tailwind. All the while secretly hoping to myself that no one has noticed the slight shaking of both hands as I don gloves and pick up the glider.

The crowd chatter quiets down, and the marshal signals to me through my now tunnel vision, that my window is open. I begin gently, then faster, and finally turning on the aggression just before lift off. The noise, the worry, the fear all fall away gradually with the ground as the energy of the take off is somehow beautifully converted into a smooth, whispering climb-out. It is almost a taboo topic amongst pilots, this first moment of detachment, of freedom. You feel that to discuss its perfection amongst your friends somehow cheapens it, and would have them looking back at you strangely even though they know exactly what sensations you are so clumsily attempting to describe. A gradual turn now and the start gate is lined up and within range. "Get angry", I tell myself and bury the bar hard. The response of the glider is both immediate and savage. It leaps forward and down like a scalded cat, complete with the sudden rising hiss of wind noise. The smile comes unbidden to my lips as the first gate flashes past, and in the briefest moment of quiet contemplation I'm absolutely sure its possible to place one palm onto the ground and feel the world rush past.

First turnpoint ahead and I bank the glider up on a wingtip, wincing as the G-forces jam me into the bottom of the harness. Levelling out I twist and turn my head, anxiously scanning for that next turnpoint. I can vaguely make out the shapes of spectators now as they whiz past and dimly hear them yelling encouragement, their voices coming to me as if from a great distance. The twisty, fast section is behind me now and I ease the bar out, just clearing the roof of the ski lodge and slowing the glider substantially in order to make the finish line. I tuck in the arms and point the toes, desperately attempting to eke out a slightly better glide and gain that slight advantage. In my mind I attempt to visualise my glider cutting through the air just that little bit cleaner. The wind noise is diminished now and as it dies the sound of my rapidly beating heart hammers into my consciousness. Time appears to have slowed in comparison to the earlier adrenaline-charged brutality, and there is a quiet moment to gaze down onto the truly picturesque New Zealand countryside as it whispers past.

There is an almost an irresistible urge now to pull the bar in and increase airspeed, sacrificing height in the process, but I hardly

seem to be moving now that I'm well above the ground. I resist the urge and bide my time, my thoughts again turning to maximum efficiency, lowering of the head, Pagen articles and parabolic curves. The finish line is fast approaching now and I can make out the crowd of pilots and gliders cluttered around it. I feel that familiar urge to prove myself, to show my compatriots that I can fly well too. The bar creeps in by itself and the elbows come out, all thoughts of efficiency vanishing as fast as the onrushing wall of white noise.

Fuelled by the twin noises of the Prodigy and the ever present wind blasting in my ears, my adrenaline level hits redline again and the smirk appears on my face. I drop into ground effect well before the line, the grass nearest my vision blurring and the sensation of speed a gift as the glider surges over the finish. Airspeed and a wing dropping fast but an aggressive flare and the CSX behaves itself nicely, lightly dragging a wing and only slightly marring the arrival in front of the always critical audience. I unclip and my grin is so big and so wide that it feels like someone has permanently jammed a wire coat hanger into my gob. Speed equals fun? Oh yes, I think so.

Author's footnote

(Here comes the sermon.) This article/story/mishmash of metaphors is my own perhaps clumsy attempt to describe the strong attraction that the discipline of speed gliding holds for me. I have become aware recently of an attitude amongst many of the old guard in hang gliding (if such a thing exists in a sport that only begun in earnest in the 70's) that this "speed gliding" is the type of thing that seasoned cross-country pilots can safely chuckle about behind closed doors. I believe this attitude is a little unfair to a new and exciting facet of a sport which is in obvious and rather sad decline (the attendance levels at recent major competitions in Australia and elsewhere would seem to support this notion). Some would argue that this is a decline which need not be addressed, that more participants simply means overcrowding at popular sites. I do not subscribe to this theory and believe that hang gliding possesses all the tools to begin to make up ground on the new "cool" adventure sports like snowboarding and mountain biking etc. Increased popularity means increased investment in sites, competitions and our sports

development. Speed gliding should be seen as the friend not the enemy, I agree that cross-country flight offers certain things that speed-gliding never will, but my point is not that one is somehow "better" than the other, but that speed gliding is packaged and ready made to appeal to Joe public. Speed is a commodity that appeals to both the mass media and the general public. Those that doubt this statement should look at the success of motor sport, downhill skiing, bobsledding etc. I am by no means suggesting that we all drop cross country and take up speed gliding. I am simply asking for a little tolerance, and to perhaps give this new discipline a go before passing judgement. On the topic of tolerance I am a little surprised and disappointed at the sometimes thinly veiled venom directed by members of certain disciplines towards others in previous issues of this magazine. We've all heard the now tired statement that "we all have so much in common" repeated ad nauseum so I won't go into it again, but I truly believe we can all respect at least certain aspects of the other disciplines. In Michael O'Brians excellent article he mentions Godfrey Wenness' statement that a \$120,000 price tag for a club sailplane took his breath away. I would contend that the sheer performance of such a machine would also leave one gasping for air. A boring little personal dream of mine is to sneak onto the airfield at a major sailplane competition a kilometre from the finish line and watch one of these Open Class weapons scream over my head at redline in ground effect. It is nigh impossible not to take your hat off to the raw unadulterated performance of these machines. Likewise it is hard not to take your hat off to a pilot like Godfrey Wenness, not just for his record breaking flights but for his work in popularising the sport in Australia. I voted against amalgamation because I have an adverse reaction to mergers and have seen too many big companies merge and promise increased service when in reality the opposite is often the case. I cannot back this statement up with impressive graphs or itemised charts; I can only go on what I see, and what I see is that re-organisation often gives the illusion of progress. But I digress, let's not all move in for a big, comfy, amalgamating and politically correct hug, but instead mutually respect our own separate sports and their directions. God forbid, but if our wonderful sport is to die, let's go down standing on our own two feet and not juggling different agendas. Onward and upward. As Nietzsche said "That which does not kill us only makes us stronger".



WHGS NZ Speed Gliding World Cup

GEOFF DOSSETOR

The second WHGS Speed Gliding World Cup held in the southern hemisphere is set to take place from 18 to 25 September 1999 at Coronet Peak, Queenstown, New Zealand. One day of practice has been set aside (18 September) which you will find most valuable in your preparation.

The entry fee of NZ\$175 (if received before 15 August, \$200 thereafter) includes all lift rides to the launch point at Coronet Peak, 4,000 feet above the valley finish. Loads of prizes will be shared amongst all competitors as well as additional prizes for the top pilots. Prizes in the past have included bungee jumps, jetboat rides, scenic flights, ski passes/lessons, meal/drink vouchers and other local business donations.

Queenstown is the adventure capital of New Zealand and one of the most spectacular places on the planet. As well as taking part in this established event, you can have a great holiday during the ski season. Racing will take place in the mornings between 10 am and 12 noon (an additional round may be scheduled on some afternoons if days have been cancelled). After that you have the remainder of the day and then the evening to live it up. Check out brochures or the tourist website (www.queenstown.co.nz). Queenstown is buzzing with things to see and do. This will be the most fun you've had while at a hang gliding competition. On top of that, you will be scoring points towards a WHGS Speed Gliding ranking.

You can register by sending your entry fee (cheque or bank draft) to the "NZ Speed Gliding World Cup, c/o Geoff Dossetor (Antigravity Hang Gliding), RD1 Crown Range Road, Arrowtown, NZ". Alternatively you can make a telegraphic transfer of funds into the club account. Record your name and make your payment in NZ\$ payable to the "Southern Lakes Hang Gliding & Paragliding Club". Account No: 020948014031500. Bank of New Zealand, Queenstown Branch. Places are limited so get in early. The first 40 paid entries received are guaranteed a place (maximum 50). Whatever method of payment you make, ensure that you also send your name and pilot rating to Geoff Dossetor (mail to the above address or email antigravity@xtra.co.nz). Pilots with less than an advanced rating will be considered on an individual basis – please send details of your experience in this case.

All pilots will be required to be FAI members and NZHGPA (at least short-term) members. Pilot class will be run for open crossbar, 30% double surface gliders such as "Fun" or "Falcon", given sufficient interest.

Bring your family, friends and flying buddies. This is one competition they'll be glad to accompany you to. "Ski Express" and "Value Tours" offer discount deals on accommodation, ski/board rental, mountain passes and transport. "The Flight Park" offer newly finished accommodation facilities. Contact Ski Express via their website: www.new-zealand.com/SkiExpress

There is plenty of accommodation on offer in Queenstown, ranging from \$15 per night backpacker accommodation through to five star hotels. Exceptional deals can be arranged on campervans at this time of the year, though they can be somewhat cold. If you have a group, houses can sometimes be rented out for reasonable rates which become more economical with increased numbers. Availability of accommodation will depend on the amount of snow and quality of skiing at the time. Given the best snow conditions in 25 years then bookings in advance are advisable.



Check out our website, <http://tdtech.co.nz/fly/>

Please email or phone should you require any further information: Geoff Dossetor (WHGS Technical Delegate – Speed Gliding/Organiser) c/o Antigravity Hang Gliding, RD1 Crown Range Road, Arrowtown, NZ. Phone (+64 3)442 0113, Fax (+64 3)442 0118, Email antigravity@xtra.co.nz

HGFA Administration News and Notes (Unreal L/D)

IAN JARMAN, EXECUTIVE DIRECTOR

Amalgamation – What now!

At a meeting held in July between representatives of the GFA and HGFA the results of the ballot on amalgamation was discussed.

The GFA representatives advised that the results of the plebiscite had been discussed in detail by their Executive. They had resolved that:

- (a) because the target 75% 'Yes' vote had not been achieved there would not be a vote for amalgamation put to the Annual General Meeting of the GFA this year.
- (b) Because 55% of members, a majority, had voted in favour of amalgamation the GFA was desirous of continuing consultation with the HGFA to explore all opportunities where we could co-operate on matters of mutual interest.

The HGFA representatives advised that their members had overwhelmingly voted for amalgamation with a 90% 'Yes' vote. Similarly the HGFA was desirous of continuing consultation to identify opportunities to co-operate on matters of mutual interest.

Amongst the initiatives discussed:

(i) Joint Magazine

- set up a joint committee to progress the joint magazine.
- get a detail summary of the costs to date to see how it compares to the budget set.
- commence to set up the framework now for a joint group to handle the magazine and particularly look at advertising sales.

(ii) Joint Meetings

It was agreed to maintain continuing formal contact between the two organisations. The most appropriate way would be that twice a year the organisations hold their regular Board/Executive meetings in a common location and that a joint plenary session be held on the Saturday afternoon going into a joint dinner in the evening. The suggested times of the meetings would be March and the Annual General Meeting in September.

(iii) Membership Management

The HGFA has just upgraded to a new membership management system. The GFA has a need to introduce a new membership system. It is recommended that an investigation be carried out by the GFA to advise on the practicability

and advantages for both organisations in combining their resources to introduce a joint membership management system.

(iv) Joint Promotion Marketing and Sales

- progress to initiate a combined webpage presence
- initiate a plan for joint marketing and promotions, a key element of this would be to include service level agreements with interested clubs and individuals
- initiate a proposal for joint Sales

Whilst the marriage may be off, it does seem that a continuation of a close relationship is of mutual benefit. Honest, we're just good friends!

New Membership Management System

You will notice some change in the format of your membership renewal notice and some more subtle changes to the data on your membership card (gone is the international date format). These changes are part of HGFA's new iMIS membership system.

This is a fully integrated membership, qualifications and dues management system introduced to resolve some Y2K problems, improve office efficiency and allow for growth and expansion into the future. The iMIS software uses fully integrated database modules specifically customised to handle the complexities of a multi-discipline, multi-level certificate and endorsement qualification system. These modules integrate with standard membership data and dues/income journals and are fully compatible with our accounting system.

We have been able to integrate the micro light aircraft register, and in the next phase will be linking instructor certification prerequisite attainment and currency, committee/meetings management modules and national ladder rankings/competition results history. In this second phase we also plan to introduce a new automated membership card system to replace the current rather basic and time consuming manually produced cards. We are currently investigating a possible cross promotion arrangement to underwrite this card upgrade facility.

The final phase will be to take up the iMIS web modules to make the system fully E-commerce capable allowing for on-line activities such as membership renewal, aircraft registration, competition entry and merchandise sales. With appropriate security

clearances in place, members, competition organisers and clubs may also be able to access a range of data and information appropriate to their needs from a non-live version of the system.

Please let us know of any problems with magazine delivery or other membership records data so that we can correct data entry errors without delay and with minimal disruption to your services.

HGFA Board Elections

There will be a full board election during the coming summer to allow for a new "committee of management" to take office at the March 2000 Board meeting. According to the HGFA constitution the powers of the committee are:

Powers, etc of the committee

6.1 shall control and manage the affairs of the federation;

6.3 has power to perform all such acts and do all such things as appear to the committee to be necessary or desirable for the proper management of the affairs of the federation.

Constitution and membership

6.4 the committee shall consist of

6.4.1 the office bearers of the federation; and

6.4.2 5 members

6.5 the office bearers of the federation shall be

6.5.1 the president;

6.5.2 the vice-president;

6.5.3 the treasurer; and

6.5.4 the secretary.

Election of members

6.8 Applications for the election of the Committee of the federation

6.8.1 shall be made in writing by the applicants and

6.8.2 shall be delivered to the Executive Director not less than 30 days before the date fixed for the sending out of ballot papers for the postal vote.

At this stage we require applicants to provide an application in accordance with the rules above. Also to assist the members in making an informed choice about the skills and experience that the applicants will bring to the management of a national sports aviation organisation, please provide a brief and relevant resume in support of your application along with a passport style photo.

CASA-HGFA Agreement Reinstated

Over the past 18 months all sport aviation bodies (ASAC) have been negotiating with CASA to reinstate some form of agreement which involves reimbursement for the costs of the functions and activities we perform to assist CASA in fulfilling its public safety obligations. I am pleased to announce that CASA has decided to re-establish an agreement with the HGFA (and other sport aviation bodies) and will provide some financial assistance to us for the performance of functions as detailed in the agreement. Whilst we have yet to negotiate the terms of the agreement for 1999/2000, the level of assistance indicated should partially reduce the financial burden we face in carrying out these "duty of care" or risk management safety functions. In the current economic and highly litigious climate a failure to re-establish these agreements presented us with the very dismal possibility of handing back to CASA responsibility for some of the safety standards – self administrative functions we have enjoyed for over twenty years. We could have lost control of our instructor and pilot training systems, which would have devastated any chance of future growth or development. With amalgamation not proceeding this news now provides a more positive outlook for the organisation.

September Board meeting and 1999 AGM

The next HGFA Board meeting will be held in Sydney, 17-19 September. This meeting will include the Annual General Meeting and a Saturday night function for the presentation of awards, World and National records, National Champion's etc. At the time of writing the venue is yet to be confirmed, but the latest information should be inserted in the wrapper of this magazine. We encourage all members to mark this date in your calendar and especially for those in the Sydney region to get a group together to come along for a great night out. Were you there for the last Sydney bash? I think some people have never fully recovered so don't miss out on this one.

Business for the AGM shall be:

- to confirm the minutes of the last preceding annual general meeting and of any general meeting held since that meeting;
- to receive from the President, Treasurer, Auditor, Insurance Broker, Operations Manager and Executive Director, reports on the activities of the Federation during the last preceding financial year;
- to receive from the Committee and sub-committees, reports on their activities for the last preceding year;
- to declare the results of sub-committee elections.

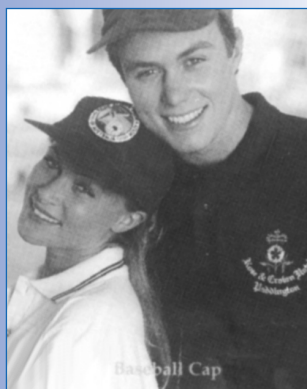


HGFA merchandise

Available from the HGFA, PO Box 558,
Tumut NSW 2720 Phone: 02 69472888
or Fax: 02 69474328



- ◆ \$30 Polo shirt with embroidered HGFA logo in navy, green & white (sizes 16 to 24)
- ◆ \$50 Rugby top with embroidered HGFA logo in navy, green & grey (sizes 16 to 24)
- ◆ \$15 Cap (cotton or corduroy) with HGFA colour logo in red, black, navy or green



- ◆ \$1.50 HGFA Car sticker (no postage required)
- ◆ \$6 Embroidered Badge
- ◆ \$30 HGFA Hang Gliding Training Video
- ◆ HGFA Competitions Manual – no charge
- ◆ HGFA Towing Manual – no charge
- ◆ \$45 1998 Hang Gliding Grand Prix Series video
- ◆ \$5 HGFA Pilot Training Workbooks
- ◆ \$15 Beginning Coaching (Australian Sports Commission)
- ◆ \$35 Better Coaching (Australian Sports Commission)
- ◆ \$35 Hang Gliding or Paragliding training video
- ◆ \$10 HGFA Operations Manual*
- ◆ \$15 HGFA Operations Manual Binder*
- ◆ \$5 HGFA Log Book*

* Replacement Prices only – These items are issued free with initial Full Membership

- ◆ \$5 Postage and Packing (Bulk orders sent C.O.D.)

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HGFA Operation Manager's Report

Medical Examinations

Members undergoing medical examinations for passenger endorsements (whether for initial issue or renewal) are advised that it is not necessary to have the CASA approved Designated Aviation Medical Examiner (D.A.M.E.) forward the medical report to CASA for the issue of a CASA Medical Certificate. This takes time and is an unnecessary impost on CASA's resources. Pilots need only have the D.A.M.E. sign the appropriate HGFA Form (available from your instructor). This form can then be forwarded to the HGFA Head Office for issue or renewal of the endorsement. A list of D.A.M.E.s is available on the CASA website at: www.casa.gov.au/fit_lic/av_med/dame_toc.htm

Pilot Currency

My mention of the proposal to introduce currency requirements for all pilots has met with considerable feedback from clubs and members. Generally feedback has been against the introduction of the new rules (to require that where a pilot has not conducted three flights in the preceding 90 day period, he or she undergo a check flight). Reasons for objection to the rules have been: it seems a bit bureaucratic; it can be difficult to find an SSO or instructor to oversee a check flight, particularly in remote areas; and it should depend on the experience level of the pilot.

On receipt of this feedback I again referred to the HGFA Accident Database, and looking at accidents reported over the past five years (which resulted in pilot injury) I found: In accidents which involved pilots with 20 hours airtime or less (total of 186) – 50% of these pilots had not flown in the past 90 days. In accidents which involved pilot of 80 hours airtime or more (total 262) – less than 10% had not flown in the past 90 days. This trend was similar in all three HGFA disciplines. I believe that these figures support the introduction of currency requirements for lesser experienced pilots. What often happens is that on completion of a course the novice pilot cannot afford to buy an aircraft, then after an extended period buys an aircraft and promptly has an accident. I will be asking instructors to stress the need for newly accredited pilots to maintain currency and explain the need to return to an instructor (or at least a Senior Safety Officer) prior to flying after a break.

I will be referring the matter back to the Safety and Operations Committee when next it meets. I personally favour amending the proposal to introduce currency requirements for pilots with less than 20 hours only (or for

passenger carrying ops as is already required). The statistics certainly support a need.

Insurance Claims and Law Suits

Some time ago I heard that the USA has four times the number of lawyers per capita than any other country. When the US Law Society were asked why there was such an over-supply of lawyers, the response was "the US hasn't too many – the rest of the world has too few!"

It seems that it won't be long before Australia catches the US; I advise any young students out there to study law – there would have to be a growing demand.

I say this given the increasing number of law suits throughout society, and specifically the growing number affecting the HGFA. It seems that though a student signs a waiver to "accept all risk" prior to undertaking a training course, as soon injury occurs, a suit follows alleging negligence by the instructor. This is despite the fact that the instructor has taken all due care to provide a safe training environment and to adhere to our training syllabus and guidelines.

Unfortunately suits against the HGFA are not limited to students. We recently received a claim from a member of the public claiming damages for injury allegedly sustained when falling through a launch ramp. It is claimed that the ramp was dangerous as the planking was weakened by aging. I ask that Clubs that have ramps on sites, or indeed any other equipment, ensure that regular checks and maintenance are carried out to prevent similar claims in the future. If there is a likelihood of members of the public falling from the ramp it may be necessary to either fence the ramp or take steps to prevent injury. One way of accomplishing this is to erect a safety net below the ramp, similar to those erected below chair lift stations in the snow fields. These are usually made from large mesh rope and are cantilevered out around the ramp so that anyone falling from it would merely fall into the net. Such preventative measures will foster public safety and therefore minimise any impact on our insurance policy.

Safety Equipment

Following on from this, I reiterate the need to also take steps to minimise the likelihood of pilot injury by utilising equipment such as base bar wheels, helmets, harness protection and protective footwear. Footwear is an item that is often overlooked, ankle support can greatly minimise the likelihood of ankle injury. The use of this equipment is important not just when flying, but also during ground handling practice – please note the following report.

Accident Reports

No 1

Pilot: Restricted paraglider pilot
Experience: 3.5 hours
Glider: Beginner paraglider
Aircraft damage: Nil
Weather: 5-7 knot breeze
Location: Inland paddock
Pilot injury: Minor fracture to ankle

Description:

During ground handling using reverse launch technique, pilot was lifted off the ground about half a metre. He landed awkwardly and twisted his ankle, which resulted in a bone fracture.

Comments:

This was a very minor incident that resulted in an injury that would most likely have been avoided had ankle protective footwear been worn. Every care should be taken – it can save a lot of pain.

No 2

Pilot: Advanced hang glider pilot
Experience: 2000+ hours
Glider: Advanced hang glider
Aircraft damage: Broken keel
Weather: Light breeze
Location: site
Pilot injury: Nil

Description:

Pilot was unable to soar the hill and quickly lost height. He left the hill and headed out lower than he had ever done before. The site requires that you fly over a lower ridge to get to the landing paddock. Power lines run from the lower ridge, and as he approached slightly above the ridge he could not see the exact location of the wires, though he could see the power pole. As he approached slightly above the height of the pole he was unsure whether he would clear the unseen wires, so turned at the last moment and hit the wires. He let go of the control frame and slid down the wires for a short time prior to falling off the wires. He was able to flare up the slope, landing hard and breaking the glider's keel.

Comments:

Pilot's own observations:
"Know exactly where the hazards are before you fly." "Don't leave critical decisions (that may affect your safety) to the last minute." "Don't be focussed on a particular landing paddock if there are other options, just because your mates are there." Wise words.

Fly safely, Craig Worth

Australia

Manilla Mug Revival

2-4 October 1999

(NSW labour day weekend)

Competing for the Manilla mug trophy. Entry open to all pilots of any footlaunch aircraft. Entry fee of \$20 includes dinner. Register at the Imperial Hotel, Manilla, on the Friday night/ Saturday morning. For further information call Billo on 02 49213804.

Inaugural East Coast Sport Aviation Fly-in

2-4 October 1999

Maitland, NSW

Hosted by the Royal Newcastle Aero Club and the Windsock Flying Club. All types of sport aviation are invited to attend, provided (1) the aircraft is registered with an official aviation body; (2) the pilot is licensed; and (3) a VHF radio is carried. The Hunter Valley has some very scenic flying areas, and many local attractions for the visitor. A number of tents will be available to pilots for a nominal charge, with showers, toilets and catering on site. A number of seminars and forums on aircraft building, engine maintenance etc, will be held free of charge. If possible, could clubs advise of any volunteers available to help with catering, camping, etc.

For further details, contact Dave Caban (Pres) on 02 49682843 or John Robson (Sec) 02 49459792.

Annual Spring Fly-in

17 October 1999

Hosted by the Southern Districts Flying Club and held at the Strathalbyn Airfield (South Australia). All types of sport aircraft and GA are welcome to fly and help us celebrate our 25th anniversary. Food and drink available, trial instructional flights in tandem hang gliders and/or microlights will be available on the day. For further details contact our club captain, Sandy Cummings on (08) 8325 1697 or CFI, Larry Jones on 0408 815 094.

1999 Conrad Jupiters Canungra Classic

22-30 October 1999

Canungra, QLD. Sanction: AAA. Entry fee \$100 plus \$35 site fee. Registration and 'Calcutta' on 22 Oct, 7pm. Paragliders & floaters welcome. GPS mandatory (Garmin or Aircotec). Camera back-ups can be used every day except last day. Prizes awarded for grades A, B, C, Ladies and Paragliding. Int rating required. Closing date for entry: 31 Aug. Late entry fee: \$30. For more info visit the website: <http://tinny.eis.net.au/~tim/classic99/index.html> Contact: Peter Beard, ph: 07 33487150, email: Peter_Beard@msn.com Send entry to: Canungra Classic, PO Box 116, Canungra QLD 4275.

Corryong Fly-In

26-30 December 1999

Meet 12-1pm at the Elliot bomb-out. Free entry. Free camping by the river. Int to Adv rating. Ph: Greg Smith 02 42680589.

Laurieton Christmas Fly-in

27-31 December 1999

The Mid North Coast HG & PG Association will be running a Christmas fly-in at the resort town of Laurieton. Cash and prizes to the value of \$3,000 will be up for grabs and there will be novice, intermediate and advance sections for the prize giving. PG and HG are all welcome. Contact: Trevor Kee, ph: 02 6586 4800 or Lee Scott, ph: 02 6556 5265, email: info@highadventure.com.au.

Hay Flatlands HG Nationals

3-13 January 2000

Hay, NSW. Practice day: 3 January 2000. Registration will take place on 3 January 2000 at the New Crown Hotel/Motel, Hay commencing at 7 pm. Welcome briefing to take place at 9 pm. Sanction: AAA (Nationals). GPS scoring will be used, therefore GPS mandatory (Garmin or Aircotec). Entry fee \$180. Four pilots minimum per strip. Entries close on Friday 24 December 1999. Minimum pilot requirements are: Restricted, tow endorsed, HGFA member. Other minimum requirements: Airworthy hang glider, parachute, instruments, tow gauge, rope, releases, etc, driver, the need to get out of the house and up into the air. Monetary prizes (total in excess of \$4,500) will be awarded to winners in the Skyfloater and Racing classes. Pilots flying in the Open Class will receive trophies only. Emphasis at this year's comp will be placed on shorter courses which will have two or more turnpoints allowing pilots to enjoy the night life of Hay, instead of some isolated farmhouse out in the boondocks! It is envisaged that the minimum course time will be approximately two hours in duration. If you are interested in participating in a low pressure flatlands comp with great prizes send your entry to: Dynamic Flight Pty Ltd, 32 Willoby Street, Beaufort VIC 3373 or email us for further information: dynamic@netconnect.com.au Information booklet will be sent upon receipt of entry fee.

Corryong Cup HG Competition

15-22 January 2000

Registrations and practice day: Sat 15th. Requirements: int to adv rating with inland experience, camera, altimeter, UHF radio, recently repacked parachute, area maps (1:200,000 Wagga Wagga and Tallangatta topographical maps), current HGFA membership. Strictly 60 pilots. Entry Fee of \$80 incl. T-shirt (specify size on entry), sticker, film, presentation night, BBQ during competition, numerous prizes and trophies.

Categories: Open (all competitors) and Entry level (open crossbar and intermediate gliders). Contact details for registration: Steve Bell, ph: 02 42941268, email: spbell@1earth.net For the best fun comp of the season, come and have a crack at Corryong!

Please note: There has been a bit of swapping around of paragliding comp dates...

Apparently some changes were made to prevent clashes with other competitions.

Michael Zupanc & Heike Hamann

Corryong PG Competition

22-29 January 2000

Sanction: AA

Bogong HG Competition

25 January - 4 February 2000

Sanction: AA

2000 PG Nationals

12-19 February 2000

At Bright, VIC. Sanction: AA.

Manilla PG Competition

4-11 March 2000

Sanction: AA

2000 NSW HG State Titles

11-18 March, 2000

Registration at the Imperial Hotel on 10 March. Sanction: AA. Entry fee \$120.00 – includes films, T-shirt and presentation dinner. Minimum pilot level adv. rating or int. with inland experience. UHF radio and parachute required. GPS recommended (if it still works in 2000). Databack camera optional but recommended. HGFA rules and scoring apply with GPS turnpoint and timing verification. Cheques payable to: NSW HG State Titles, 50 Park St, Charlestown 2290. For further details email: BOLIVE@hahs.health.nsw.gov.au or ph: 0249213804 (w)

2000 Victorian HG Open

12-18 March, 2000

Corryong, VIC. Contact: Wesley Hill, email: whill@nm.com or ph: 0408 305943.

Overseas

WHGS NZ Speed Gliding World Cup

18-25 September 1999

The 18th is the only official practice day, the rest set aside for competition days. For more information contact Geoff Dossetor (comp organiser), email: antigravity@xtra.co.nz

Women's Hang Gliding Worlds

18-30 June 2000

To be held in Greece. Contact HGFA office on 02 6947 2888.



The Big Retrieve!

PETER GRILLS

After studying the weather for weeks, I decided that Thursday, 28 January would be “the” day. I was going to attempt a big flight.

Mistake number one. I assumed that conditions would be as good as on my previous cross-countries. The forecast for the day was 35°C and late thunderstorms, not really hot enough but seeing as the “boffins” never get it right, I assumed 40°C would be a safe bet. My initial plan was to be in the air at about 11 am and well on my way by 12:00.

The task, SGC, HAY, RENMARK, SGC, was a total distance of over 750km. Darren had offered to launch me and I had arranged for Adrian to be my official observer. As the morning dragged by it became clear that the day was not going to be as good as I had planned.

Plan “B”. I amended the flight to a 600km attempt: SGC, SEA-LAKE, HAY, SGC. As the wind was a light northerly, I thought Sea-lake would be an obvious choice, then when the day was stronger, on to Hay. Finishing with a nice final glide from about Robinvale, and home for tea.

The glider was parked on the strip, 40 litres of water on board, barograph and water bottle strapped in. I had picked the barograph up from the club table, some good-willed individual had already “smoked” it. I checked the time setting, 10 hours, which would be about right. I had just committed mistake number 2.

Adrian arrived just as the first thermals started rolling through. Whilst waiting, I exclaimed to Darren, “All I want is one bloody cu.” Then as I looked to the south a strong looking cu appeared from behind a tree on the horizon. Obviously “Divine Providence”. This would be easy. Mistake number 3.

Declaration board signed and I was ready to go. Ade pointed out that the camera mount was on the wrong side of the glider, I had realised this, but it didn’t really seem to be a big problem. Mistake number 4.

Finally at about 12:50 pm I was ready to go. Darren launched me to about 1,500ft and straight into a 4kt thermal. My confidence soared. I had decided that I wasn’t leaving the field until I got to 5,000ft. Unfortunately I lost the thermal at about 4,400ft. Three quarters of an hour was spent trying to “get away”. At this stage I realised that my single cu was

the result of the bushfires out in the sunset country – Damn!

I headed off at 5,500ft just as the first real cu’s started to form out towards Hattah. “Let’s go!” Time would be tight but there was a reasonable chance of achieving my task. The cu over the fire was by this time enormous and continuing to grow by the minute. Good progress was made to Ouyen, and on to Sea-lake. I didn’t realise that SL was so close to Ouyen. It’s only about 70km. It is easy to see how SL got its name, the salt lake is huge. Thermals were now going to about 7,500ft. I was working from about 4,000 to 7,000.

Arrived at SL at about 3:00 pm. Now for my first “bodgy” reverse turn and into a good thermal of about 6kt just past Ouyen. The GPS told me I had 209km to Hay and a further 256km to home. If I could average 100km/h I should be home just before 8:00 pm. Conditions through to Swan Hill were poor, with only one reasonable thermal in the 60km distance. By the time I reached Beverford I was down to 2,800 ft and only a weak 2 knotter to “hover” in. I was stuck for about 20 minutes trying to decide what to do. Conditions on the other side of the irrigation area looked good, but that was a good 20km away. I would be down below 1,000ft by the time I got there. After battling to 4,000ft I threw caution to the wind and made a dash. Thermalling directly over

a farmer’s house for 10 minutes or more, I realised that when you can see underpants on the clothesline, you must be low.

Off to Hay and conditions were rapidly improving. 8kt average climbs to 8,000ft were now being encountered, with one “beauty” 10kt to 8,600ft the strongest for the day. Things were looking good. Hay was in sight, I would be there just before 6:00 pm. The phone rang, Adrian inquired as to my position and then informed me that things were getting “rough” back at Mildura. Raised dust, thunder and lightning. His advice was, “Come home. Now!” The temptation of my turnpoint was just too much. A big cu over Hay lured me on. If the storm was in Mildura now, an extra 45 minutes wouldn’t make much difference. My second “bodgy” right hand turn over Hay airport at 6:10 pm

and the final run home. 7,000ft and over 250km to go. Then things started to go horribly wrong.

To the east beautiful cu’s continued for as far as the eye could see, but to the west it was a different story. An almost uniform, dull lifeless sky. Just ahead of me was a cloud that might provide a bit of lift, but clearly I was not going much further. I phoned Darren and said that things were not looking good but

I would continue to “push on”. Halfway to Balranald and I had to accept the inevitable, I was about to perform my first outlanding.

Just as I was reaching for the phone to give Darren the good news. It rang. Darren asked if he should hook up the trailer. “Yes, I will be somewhere within 60km of Balranald, next to the highway.” After hanging up I thought I had better phone my wife, but the phone was dead. I was out of range. At this stage I was at about 2,500ft and had selected a good paddock. I could have gone about another 10km but I was unsure of the territory and this place looked



good. Now, what was the wind direction? A farmer on a tractor unwittingly gave me the answer. I had a tailwind. All I had to do was continue downwind and turn base and final to land directly into wind. Stubble paddock, no powerlines, next to the highway, everything looked good. All pre-landing checks done, perfect circuit and I was on a long final into my chosen landing spot. As I crossed the perimeter I noticed a deep channel around the paddock and thought to myself, "I hope that doesn't go all the way round." I could imagine the retrieve crews reaction, if we had to carry the LS3 out by hand. Half brake out and I cruised in for the best landing I have ever done. I tried to extend the ground run, but the cultivated soil pulled me up very quickly.

6:49 pm, all I had to do was wait! Climbing out of the cockpit I became suddenly aware of the heat and the flies. A quick stocktake revealed I had no food, no water, no communications and worst of all (for me) – five cigarettes. Rationing was in order. At about 7:15 pm I decided I would flag someone down and get them to phone my GPS co-ordinates through

I to know what was to follow. With a lot of time on my hands I decided to remove the tape and disconnect the flight controls. Yet another mistake.

As darkness fell, the flies thinned to make way for the mosquitoes. The wind dropped off. The local storms were now starting to look "real" impressive. Never have I seen lightning like it. A question ran past my mind, "Where do you hide from lightning halfway across the Hay plains?" At about 9:15 pm I thought, "It won't be long now." A gentle breeze started, but it was 180 degrees from the direction it was coming from 2 hours earlier. I now knew what was coming! Hurriedly I started tying the glider down. In the fallowed ground the pegs went to their full depth, but they didn't have any "grab." In a matter of minutes the wind was reaching in excess of 40kt. Not really knowing what to do, I decided that sitting on the tail boom and hanging onto the fin would be my best option. I had my last cigarette in the gale. It must have been quite a sight for passing truck drivers. A lunatic hanging onto the fin of a glider in a dust storm being illuminated by the lightning. An hour later the wind dropped. Rain! This really wasn't my day. Enormous drops of rain pelted the canopy for about 15 minutes. Then it stopped. The mozzies returned.

Do you know how long you can see a set of headlights on the Hay plains?

to Darren. Thinking the "B-double" drivers wouldn't appreciate being stopped I tried to gain the attention of a couple of old ladies driving past. They wanted nothing to do with me. Surprising really, I think I am most attractive after sweating in a glider for 6 hours then wandering around in the middle of nowhere covered in flies and dust.

About half a mile away a road met the highway at right angles. I noticed a Pajero travel down this road almost to the highway. Then stop, reverse, have a good look, then continue on towards me. The farmer didn't even ask me what I was doing. He took my co-ordinates and agreed to phone Darren. After asking if I wanted a ride into Balranald (I thought I had better stay with the glider), he disappeared into the distance.

The flies were unbelievable, but it would be dark soon. Lying in the cockpit I noticed an enormous Cu-Nim, complete with thunder and lightning, drenching the countryside 30 or 40km to the north. I might as well enjoy the show. Little was

About 20 minutes!

Of course I thought everyone was the retrieve crew. Finally just after 11:00 pm a car with a long trailer slowed on the highway. As I walked towards it, it sped up and headed for Hay. I started walking, dejectedly after it. I had lost the will to live. 20 minutes or so later the car returned. I was standing on the road 150m in front of it when suddenly it turned up the road the farmer had appeared from and accelerated away. On the Hay plains no-one can hear you scream...

Eventually they returned. They weren't getting past me this time. Hilly and a somewhat wobbly Mocka and Darren had finally come to my rescue. "Grylls, you have set a precedent. From now on, we will see how far we can outland from the glider club," shouted Darren as he stuck an extremely warm stubby in my hand. Why did they drive past? It appears that there was a discrepancy with the two GPS's on board. Darren's GPS led us

My mistakes?

- 1 Never assume conditions will be the same as on other flights. Every day is different.
- 2 Always smoke and check your own barograph. Mine had been assembled incorrectly and had jammed. The flight would have been invalid.
- 3 The first thermal was from the fire, not from convection.
- 4 If the camera mount is on the wrong way, it totally disturbs your flight pattern making turnpoints even more difficult.
- 5 I almost removed the tailplane when I de-taped the glider. If I had done so, it would probably have been blown to Narrandera by the storm. I doubt that it is a good idea to disconnect the flight controls before you are ready to de-rig.
- 6 Not cleaning all the empty stubbies and cans out of the car before returning it to my wife.

Photo: LS3

straight to the glider.

Mercifully, the de-rig went well, Maurie's assistance was invaluable, as none of us were particularly experienced in this regard. Just before midnight we were on the way home. After a totally exhausting day, I finally ended up in bed at 4:30 am, dreaming of final glide into SGC.

I woke Friday morning with a horrible nightmare, I had dreamt I had outlanded on the Hay plains and everything had gone wrong. Many thanks to all those that made my flight possible, and especially to the best outlanding crew ever assembled. ✂



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☐ Grand Prix

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Phone: (h)..... (w) **Total Hours Flown:**.....

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Type:..... **Registration:**.....

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Pilot 1:..... **Pilot 2:**.....

Dated:

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☐ Yes

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

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 55434493, email: tim@eis.net.au

Vice-President: Keith Lush

5 Fortune St, Sth Perth WA 6151, ph:
 08 93679066 (w), 08 93673479 (h), fax:
 08 94741202, email: keith.lush@hds.com.au

Board Members:

Rohan Holtkamp

RMB 236B Western Hwy, Trawalla
 VIC 3373, ph/fax: 03 53492845, 014 678734,
 email: dynamic@netconnect.com.au

Michael Zupanc (CIVL Delegate)

6 Sibyl Street, Southport QLD 4215, ph:
 07 55325895 (h), 0408 662328; email: zupy@
 ozemail.com.au

Peta Roberts

PO Box 256, Helensburgh NSW 2508, ph/fax: 02
 42943941, 0412 009952, email: epicon@
 ozemail.com.au

Steve Ruffels

Bright VIC 3781, ph: 018 570168, fax: 03
 57501174, email: eagle@netc.com.au

Michael Eggleton

27 Knightsbridge Ave, Belrose NSW 2085, ph:
 02 99754114.

Operations Manager: Craig Worth

(Safety & Operations Committee, Pilot
 Development & Training Committee)
 PO Box 571, Hallidays Point NSW 2430, Ph/fax:
 02 65592713, 0418 657419, email: hgfaops@
 midcoast.com.au

Microlight Public Relations: Paul Haines

Ph/fax: 02 42941031.

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

North Queensland HG Association

12 Van Eldik Ave, Andergrove QLD 4740; Pres:
 Graeme Beplate 07 49552913, fax: 07
 49555122, email: sitework@mackay.net.au;
 Sec: Ron Huxhagen 07 49552913.

New South Wales HG Association

Sec: Steve Hocking, 19 Gladswood Gdns,
 Double Bay NSW 2028, ph/fax: 02 93274025,
 email: nswhga@os04.aone.net.au

Victorian HG & PG Association

PO Box 400, Prahran VIC 3181; Pres: Phillip
 Campbell 03 53343034; Sec: Andrew
 McKinnon 03 95631162; SSO: Rob Van Der
 Klooster 03 52223019.

ACT HG & PG Association

PO Box 3496, Manuka ACT 2603; Pres: Michael
 Porter 0415 920444; Sec: John

Wilson 0419 600636; Trs: Craig Hopkins 02
 62862488 (h), SSO: Peter Dall. Meetings: 1st
 Tue/month 7:30pm, "Sky Lounge" Yamba
 Sports Club, Phillip.

Tasmanian HG Association

PO Box 163, South Hobart TAS 7004;
 Pres: Brett Tooker 03 62503506; Sec/Trs/ State
 Co-ord: Stephen Bayley 0408 154156.

South Australian HG Association

1 Sturt St, Adelaide SA 5000; ph: 08 84101391,
 fax: 08 82117115. Pres: Stuart McClure 08
 82973452; Sec: Mark Tyminski 08 83766117;
 Trs: Gary Stockton 08 82702910.

HG Association of Western Australia

PO Box 82, South Perth WA 6151; Admin:
 Graeme Wishart 08 94449505; PG Rep: Julian
 McPherson 08 93881584 & David Humphrey
 0418 954176; HG Rep: Michael Derry 08
 92840750 (h) & Keith Lush 08 93673479 (h),
 08 93679066 (w); Trike Rep: Graham McDonald
 08 93649226 (h), 0418 910841; Trs: Phil
 Wainwright 08 92424483.

NEW SOUTH WALES

Blue Mountains Hang Gliding Club Inc

Pres: Richard Lockhart 0418 130354, email:
 flytation@mailandnews.com; Sec: Alan Bond 02
 98995351, 9 Finchley Pl, Glenhaven

NSW 2353; Trs: Dolores Sempereboni, SSO:

David Middleton 02 4736 2605; Newsletter:

David Phillips 02 9456 252, email: dphi@jna.
 com.au; Meetings: Last Wed/month, 7:30pm at
 the Blue Cattle Dog Tavern, St. Clair.

Byron Bay Hang Gliding Club Inc

Pres: Bill Bailey 02 66853626, bill@omcs.com.
 au; Vice-Pres: Andrew Polidano 02 66843510
 andrew@byron-bay.com; Sec: James Samuel

02 66804336, freely@mullum.com.au; Trs:
 Shirley Lake 02 66858147, lois@linknet.com.
 au; SSO: Chris Rollins (HG) 02 6689 7217, Brett

(PG) 02 66876907. Meetings: 1st Wed/month
 7:30pm, Bangalow Bowling Club.

Illawarra Hang Gliding Club Inc

Pres: Mark Ryan 0412 424 760; Sec: Tim

Causier 02 4294 8110, email: timcau@
 ozemail.com.au; SSO: James Nathaniel
 02 42627677 or 0413 737077

Kosciusko Alpine Paragliding Club

Pres: Roger Lilford 06 2815404 (h); Sec: Lisa
 Rhyrie 06 2359120, 06 2359060; SSO: Heinz
 Gloor 02 64576019 (w), 02 64567171 (h).

Manilla SkySailors Club Inc

http://gri.une.edu.au/mss
 Pres: Brian Shepherd 02 67852182;
 Sec/Trs: Felix Burkhard 02 67751050, mailto://
 felixb@xyon.com.au; SSO (HG): Patrick Lenders

02 67783484; SSO (PG): Godfrey Wenness 02
 67856545.

Mid North Coast Hang Gliding Association

Pres: Lee Scott 02 65565265; SSO: Dale Davis
 02 65597716.

Newcastle Hang Gliding Club

Pres: Tascha McLellan 02 49278867 (h), 1800
 653935 (w), email: tascha.conrad@hunterlink.
 net.au; V-Pres: Jason Turner 02 49408665 (h),

015 636384; Sec: Karl Kindl 02 49677711;

Trs: Tony O'Connor 02 49529146, SSO: Coastal

— Jason Turner 02 49408665 (h),

015 636384, Inland — Al Giles 02 49430674,

John O'Donoghue 02 49549084. Meetings:

Last Wed/month, Souths Leagues Club.

Northern Beaches Hang Gliding Club Inc

Pres: John Clark 02 99972842 (h); Sec: Mike
 Warner 02 94521217 (h), 02 95573188 (w);

SSO: Mike Eggleton 02 94517127, Park 02
 94502674, Glenn Salmon 02 99180091.

Stanwell Park Hang Gliding Club

Pres: Rob de Groot 02 42942173, fax 02
 42943788, rdegroot@ozemail.com.au ; Trs:
 Karen Lederer 02 42942273, 0411 362273.

Sydney Hang Gliding Club

Pres: Dick Heffer 02 93872613; Sec: John
 Trude 02 98873371; Trs: Greg Wilkinson
 02 98184704. Meetings: 2nd Mon/month,
 Moyes Factory Loft.

Sydney Paragliding Club

Pres: Rob Fakes 02 42942273 (h); Sec: Duncan
 Cross, 48 Cormiston Ave, Concord NSW 2137, 02
 97435128; Trs: Dave Worthington 02 9665
 1465; SSO: Mark Mitsos 02 42949065.
 Meetings: 1st Mon/month, St George Leagues
 Club, Kogarah.

University of NSW Hang Gliding Club

Pres: Daniel Faber 02 93150727, email:
 dfaber@kensocoll.unsw.edu.au; Sec: Jon
 Ingles 02 93150571, email: jingles@kensocoll.
 unsw.edu.au; www.page: www.vision.net.au/
 ~gbeng/HG_Gliding.html

QUEENSLAND

Cairns Hang Gliding Club

Pres: Brod Osborne 07 40534686 (h), 07 4051
 5555 (w); Vice-Pres: Ian Graham 07 40954466;
 Sec: Lance Keough 07 40912117, 31 Holm
 Street, Atherton QLD 4883; Trs: Kasanda

Brease 07 40532586 (h), 07 40512438 (w).

Canungra Hang Gliding Club Inc

Pres: Shauna Purser 07 66793404,
 shaunapurser@yahoo.com; Vice-Pres: Andrew
 Horchner 07 38707709,

0412 807516, afactor@gil.com.au; Sec:

Richard Glasscock 07 55435057, 015 120874,

richardg@qldnet.com.au, PO Box 41 Canungra

4275; Trs: Fran Ning 07 55773260, ning@

asinfo.com.au; SSO: Glen McLeod (HG) 07

55435716, John Botting (PG) 07 33002049,

bottings@bigpond.com

Capricorn Skyriders Club Inc

Pres: Brian Hampson 079 226527;

Sec: Geoff Craig 079 923137;

Brian Smith 079 287958.

Conondale XC Flyers Club Inc

13 Cottman St, Buderim QLD 4556;

Pres: Bruce Crerar 07 54451897; Vice-

Pres: Shane Gingell 07 32851668; Sec:

Mark Savage 07 54416423; Trs: Annie Crerar

07 54451897; SSO: John Blain

07 54948779; Visiting pilot contact:

Graham Sutherland 07 54935882.

Gladstone Hang Gliding Club Inc.

16 Far St, Gladstone QLD 4680; Pres: Colan

McGree 0413 941134; Sec/Trs: Natasha

Atkinson 07 49726840; PR: Brian Duffy 07

49922676; SSO: Geoff Craig 07 49923137, Paul

Barry 07 49922865, prbarry@tpgi.com.au

Sunshine Coast Hang Gliding Club

53 Yungar St, Coolool QLD 4573; Pres: Geoff

Pettigrove 018 061595; Vice-Pres: Mal Price

0412 07450883; Sec/Trs: Cathy Edmunds 07

54463037; SSO: Dave Cookman 07 54498573.

Townsville Hang Gliding Association Inc

Pres: Gary Rogers 077 538565 (w),

077 79264511 (h); Vice-Pres: Peter Scarfe 077

721766 (w), 077 212666 (h); Sec/Trs: Brad

Cooper 077 792853 (h), fax 077 815230;

SSO: Graeme Etherton 077 724467.

Whitsundays Hang Gliding Club

Pres: David Nash 07 49531817; Sec: Ron

Huxhagen 07 49552913, Fax: 07 49555122,

email: sitework@mackay.net.au

VICTORIA

Dynasoarers Hang Gliding Club

Pres: Peter Hannah 03 52632335; Sec:

John Norton; Trs: Rod Trevor 03 52811209;

SSO: Ted Remeika 015 841107;

Rob van der Klooster 03 52223019,

hrt@deakin.edu.au; PR: Warwick Spratt

03 52531096. Meetings: 1st Fri/month,

Bay View Hotel, 2 Mercer St, Geelong.

Eastern Hang Gliding Club

Pres: Geoff Tozer 03 97583250 (h); Sec:

Andrew Medew 03 98227861, 16/25-29

Brougham St. Box Hill VIC 3128; SSO:

Harry Summons 03 59646055 (h), Lance

Sheppard 03 59623570 (h), M/ship: Mark

Jeffree 03 59689015 (h). Meetings: 3rd Wed/

month, Monrose Town Centre Meeting Room,

Cnr Swansea Rd & Mt Dandenong Tourist Rd,

Monrose.

North East Victoria Hang Gliding Club Inc

Pres: Jeanette McLaren 03 57544910;

Trs: Bill Graham 03 57501828; SSO: Geoff

White 03 57501244. Meetings: 1st Thu/ month

7.30pm, Pinewood Hotel, Bright.

www.home.aone.net.au/gilbert/nevhc.htm

Sky High Paragliding Club

Pres: Adam Nienkemper 03 94811122 (w), 03

93057442 (h); Vice-Pres: Phil Savory

03 959772537 (h); Sec: Jeremy Torr

03 97702775 (h), 03 97705770 (w).

Meetings: 1st Wed/month 8pm, Retreat Hotel,

226 Nicholson St, Abbotsford.

Southern Club

Contact: John Reynoldson 03 95970527.

Meetings: 1st Tue/month, Middle Park Hotel,

Canterbury Rd.

Southern Cross Paragliding Inc

Pres: Gary Clarkson 0419 319948; Vice-

Pres: Alistair Johnson 0418 323692; Sec:

Nicole Matthews 03 57501884, 018 450626,

email: nicolematthews@hotmail.com Meetings:

Last Wed/month.

Southern Trike Club

Pres: Mark Howard 03 97511480, 0418

533731, fax: 03 97511584; Vice-Pres: Dave

Wentworth; Sec: Ben De Jong; Trs: John Amor.

Meetings: 2nd Tue/month 8pm, Jakes

Nightclub, 23 Church St, Brighton.

Western Victorian Hang Gliding Club

Pres: Phillip Campbell 03 53343034; Vice-Pres:

Andrew Hume 03 93760907; Trs: Sandra

Holtkamp 03 53492845; Sec: Rachelle

Guy 03 98092974; SSO: Rohan Holtkamp

03 53492845. Meetings: Last Sat/month,

The Golden Age Hotel Beaufort.

WESTERN AUSTRALIA

Avon Valley Hang Gliding Club

Pres: David Drabble, 08 93071816, wescoast

@iinet.net.au; Vice-Pres: Rob Stevenson 08

92211338; Sec: Stephen Hoeffs 08 95275782;

Trs: Michael Derry 08 92840750.

Cloudbase Paragliding Club Inc

Club message bank 08 9487 5253; www.cygnus.

uwa.edu.au/~madmike/paraglid.html; email:

cloudbase@paragliding.org

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