SKYSAILOR

Official • Publication • of • the

Hang • Gliding • Federation • of • Australia

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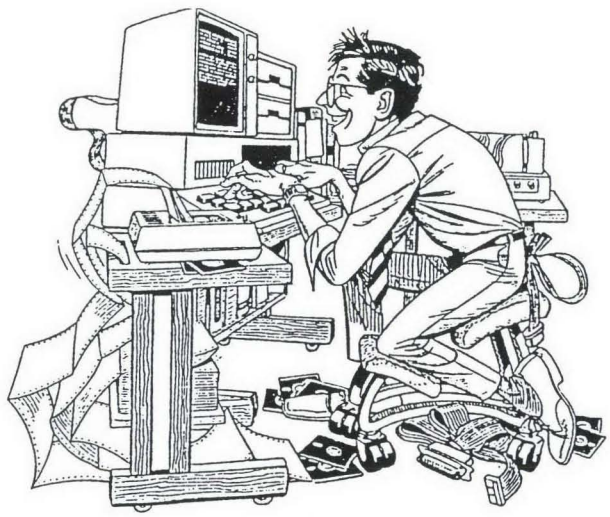

EDITORIAL

I suppose there are a lot of members out there who are pretty annoyed because they did not receive May Skysailor - well, due to a lack of contributions, it was not possible to print that issue.

Wesley Hill

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Skysailor appears approx. 12 times per year as a service to members. For non-menbers living in Australia the subscription is Aus.$48 pa. Overseas magazine subscription is Aus.$65 (sent SAL). Cheques should be made payable to and sent to HGFA.

Contributions are needed. Articles, photographs and illustrations are all acceptable although the editor reserves the right to edit or delete contributions where necessary.

Articles of unknown origin will NOT be published and all contributions should be accompanied by the contributer's name, address and HGFA number for verification purposes.

Neither HGFA nor the editor assume responsibility for the material or opinions presented in Skysailor.

DEADLINE

10th of the month for contributions which are NOT print ready.

15th of the month for market place and anything print ready.

ADVERTISING

Advertising rates are available from the Editor. All ads must be paid in advance.

Layout, separations and extra work incur additional cost.

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

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508/161 GLOUCESTER STREET
SYDNEY 2000
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SKYSAILOR CONTRIBUTIONS

All Skysailor contributions should be sent to:-

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PRAHRAN, 3181

STATE ASSOCATIONS

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

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Keep the articles coming!!

We will give $50 per month for the best black and white cover photo sent in

All photos will be sent back if requested

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COVER PHOTO by Adam Hunt: Danny Scott flying the new Moyes XS at Stanwell Park

PRINTERS: MAPS Litho

THE NEXT HANG GLIDER GENERATION? --- AN APPROACH TO A NEW DESIGN

Kevin Mitchell and Alan Daniel

The development of todays hang gliders appears to have reached a situation where improvements in performance are measured in only extremely small increments over gliders of a few years ago. Most gliders of today are derivations of the Comet with only minor alterations which have improved on this now old design, changes such as the elimination of keel pockets, larger percentage undersurfaces, ball tips, nose cones, and on some types of glider the development and refinement of fibreglass tips have all helped to improve gliders over the past few years. Refinements in the type of aerofoil section now being used and modest increases in aspect ratio have also been of some benefit.

What, however, should be realised is that while all the above improvements have been taking place the sailcloth manufacturers have not been standing still as far as the development and quality of fabrics suitable for use in hang gliders. Although not specifically developed for gliders we are reaping the benefits of the high technology now being applied to sailing craft. When this is taken into account it is fairly obvious that this one factor has probably had as much to do with the improvements in performances as all the design changes have had. Can you imagine a present day glider made of cloth that stretched maybe 3 or 4 times as much as todays cloths and with no mylar coated Kevlar threaded cloths?

All of this is to say that there has been no really significant leap in the performance, and certainly not in any obvious design philosophy, since the introduction of the Comet all those years ago. It is because of this stagnation in development that a different approach to the design of a hopefully much superior hang glider was embarked upon.

The first question to be answered was which direction the design of a competition hang glider should take, is it superior performance at the low speed end of the flight envelope, or should the emphasis be at the other end? With these questions forming the basis of the design philosophy one only needs to look at the direction competition sailplanes have taken, the emphasis is, of course, on the absolute minimum glide angle at the highest possible speed. A wood and canvas sailplane of years ago can easily out thermal, in terms of height gain and ability to work small lift areas, a modern fibreglass sailplane. The old sailplane can do this because it is able to fly slower and therefore turn a smaller radius circle. Where would the old sailplane be at the end of a day of cross country racing or how would the distances compare?

Most modern competition sailplanes have had enormous increases in their top end performances when compared to the old sailplanes, these days it seems that hang glider competitions tend to be going in the same direction as sailplane competitions, distance, speed or both are the main factors. However, other considerations have to be looked at for a hang glider design, it would be impractical to design a glider that had, say, a glide ration of 14/1 at 50 mph but stalled at 30 mph, foot launching and landing would be all but impossible. For these reasons a good deal of compromise is necessary when deciding what the optimum wing area and hence wing loading should be.

There are quite a few other areas however where considerable improvements can be made. The first, or perhaps the most obvious is an improvement in the type of wing section that could be used. Most if not all gliders flying today use wing sections that are not particularly pitch stable, pitch stability of the glider as a whole is achieved by allowing the wing to be rather severly twisted (compared to conventional, tailed, aircraft), doing this means that at reasonably high speeds the tip sections of the wing are actually not flying at an angle that gives a positive Cl (i.e. aren't lifting). By allowing this to happen the tip is not generating lift and in some cases is actually producing negative lift, this in turn is tending to pitch stabilise the glider by applying a force downward at the tip which is then trying to rotate the nose upward because the tip is some distance behind the centre of gravity of the wing. The penalty for twisting the wing so much is drag. Not only is the tip producing a large amount of drag but the whole wing has only one section of it flying at the optimum angle of attack for any given speed and therefore all the other parts of the wing are contributing more drag than they would at their correct angle of attack. It would seem therefore if a wing section that was stable in pitch (having a low or zero pitching moment) could be used with a much smaller amount of twist (washout), the more stable section would then give the necessary pitch stability without such a high drag penalty. Another benefit is that the wing would now have a higher effective aspect ratio because more of the span is working as a part of the wing and not just acting as a stabilising device.

A wing section of this type which would be suitable is not easily found in any published books on wing section data. After much research and studying current data it was decided to design a section capable of fulfilling the requirements. A computer program was written to compare new and different camber lines and thickness forms with mean camber lines and thickness profiles of known and successful hang gliders. When a couple of sections that seemed able to satisfy all the requirements were finally designed (MZO15R and MZO15S) these were sent off to be wind tunnel tested along with the sections used at the root and tip of a well known top competition hang glider. Testing of these sections proved that the path being taken was correct, in fact one of them, MZOI5R, exceeded expectations. The sections proved, at least in the testing, to have significantly lower drag coefficients than the normal

hang glider sections at all angles of attack except at very high angles where they were slightly inferior, this is not much of a problem because the wing should be less twisted and therefore more efficient anyway. These sections however, are laminar flow sections and will not perform correctly unless they are accurately reproduced, and definitely would not work in a glider unless used in a genuine 100% double surface glider, if the upper profiles were used in a glider with any single surface at the trailing edge they would be pitch unstable and dangerous.

Having calculated stall speed and top end speed for different areas, an area of around 140 sq. ft. was decided on as the best compromise for a pilot weight of 10 - 11 stone at the chosen span of marginally over 33 feet. This gives an aspect ratio of about 7.8/1

The next step was to look at existing hang glider sail technology and assess the requirements of the new MZOI5R wing section. Because this glider was to have a full double surface a different approach was needed for the method of construction, high tension loads had to be held in the skins to ensure the very low design twist would be maintained but at the same time both skins needed to be able to move independantly to ensure the turning and co-ordination would be satisfactory. A totally different panel layout and shaping of the skin segments was devised.

Because this glider has been designed from scratch and is not just another improvement of an existing design it has taken a long time and a lot of effort to build, however, the Elite as it is called, has now been developed to the flying stage in prototype form. Initial low sand dune flights showed that the glider did in fact fly and was able to be launched and landed without any difficulty. Further testing from higher sand dunes indicated that it was responsive in roll and appeared to have no other problems.

The Elite was next flown successfully off Stanwell Park for a short flight. The flying and performance characteristics indicated the validity of the general design philosophy. The MZOI5R aerofoil sections combined with the much lower twist and relatively high aspect ratio planform, appear to perform as predicted.

Even with the amount of testing the glider has had, the Elite has shown that it has the potential to be the next generation of high performance flexible wing hang glider and is definitely worth developing beyond the prototype stage.

Kevin Mitchell first became involved in hang gliders in late 1969 by making rogallo ski kite sails for the early hang glider pioneers, including John Dickenson, Bill Moyes and others. At one time or another he has produced glider sails for all the major glider manufacturers in Australia. He has designed or been involved with the design and development of many successful
gliders such as Steve Cohen's SK1 & 1B, SK2 &2B, Skyhook (which was the first Australian glider to win a world championship in 1976) also Cohen's Skydart, Ultra Light Flight System's Swift and Skytrek's Probes 1 & 2.

He has also contributed to the design and development of a number of ultralight aircraft culminating with the present Thruster T300 & T500 aircraft which have so far been exported to 23 countries throughout the world.

Alan Daniel has been flying hang gliders since 1975 and has worked in the industry since 1980. He has been involved in the production of many types of gliders including Bandits, Swifts, Probes and Foils. Making frames in the early years and then sails for the B series Foils.

Competition results include firsts in the Australian National's ('83) and Flatlands at Parkes ('85). He has twice represented Australia at World Competitions.

He is presently working with Kevin Mitchell producing ultralight aircraft skins and components.

First flight off Stanwell, April '89 - photo by Kevin Mitchell

Dear Wes,

Congratulations to Barry Robinson for his March '89 letter regarding the antics of certain pilots flying at Stanwell Park recently. As we all know the site is one of our most important in terms of public showcases. Also, I've always been led to believe that landing anywhere on Bald Hill (particularly in the set-up area) outside the designated areas was prohibited by both the DOA and local site rules. Nevertheless, I've personally witnessed set-up area landings on several occassions this season. Once it was by a well-known local member of our national team on a strong but crowded day. Although several other senior pilots were also present I saw none do anything about it but admire the performance.

Since when does ability and skill override the responsibility to obey the rules and set good examples to all of us lesser beings? Thankfully the majority of pilots I know flying Stanwell have the good of the sport at heart so this sort of behaviour must frustrate them too.

On a much more cheerful note I'd also like to belatedly congratulate Dave Cookman, "Sunshine" Alf and the rest of the Sunshine Coast HGC on a job well done in their running of the annual Rainbow Beach fly-in this past Christmas. We had a great time and will certainly be back for more. Keep up the model work you are doing in maintaining the sites and thanks for your hospitality.

Kind regards,

Brett Bricknell
44426 (Intermediate)

Dear Wes,

This year I went to the Nationals at Mt. Buffalo. I had good feelings about how the sport of hang gliding has grown up in the big wide world of aviation, how we can get together each year and decide who is going to be the king pin pilot, who flies the fastest, best performing newest glider and so on.

Well all this began to change as (as an observer not a competitor) I attended briefings, scorings and launches. Firstly I thought "Where is the sponsor?", and couldn't understand why pilots would pay $150 to enter (half of whom would be eliminated after the first week of flying), not be given any prizes, not be given any pickups and be told to fly courses that went through controlled airspace.

Have we really come of age when, despite very clear instructions from the CAA, the organisers of our National competition can't read or understand a concession that clearly draws pilots and organisers attention to control zone steps around major airports in the area? Consider also that a V.T.C. was pinned next to the concession letter on the notice board and the picture becomes really fuzzy! Then when a pilot nearly gets run down by a Fokker the bleatings are heard far and wide of how it couldn't be a comp pilot. Who else would be silly enough to be flying on the course called for on that day? What comp pilot or other silly pilot is going to stay under 4000' ASL on the most direct route to goal? And is the presence of nice thermal producing hills near Barnawatha (inside CTA) going to deter a comp pilot, considering that these are the last good hills before the flat country? No way! I picked up a pilot two days before "the incident" who with two others had used the same hills and this was on a day when the goal was on a more westerly heading than Lockhart, (the goal on the "incident" day). That pilot incidently landed in CTA.

The CAA is much bigger than the HGFA and consequently has much more clout than we do. Even though we may not like it we usually have to jump when they say so.

This time they said "these are the rules" and people who should know better said "bullshit, we know better".

The other thing that really gets up my nose is the persistance by some people in the HGFA to have trikes/powered hang gliders otherwise known as ultralights controlled by the HGFA. A trike is an ultralight like it or not! The AUF is an organisation set up with the approval of the CAA to oversee the sport of ultralighting is Australia. The AUF is doing a damn sight better job than the HGFA will ever do. I sincerely hope the HGFA concentrate on HANG GLIDING and not dilly around with other types of sport aviation, otherwise the HGFA will come severely unstuck!

If the pro trikers in the HGFA were serious then why are there no certified Trikes on the market now? It has been over three years since the first two seat ultralight was certified and that certification was based on the British (home of the trike) B CAR Sect S which covers, would you believe, TRIKES.

In this day and age we see too much back foot dancing, too many excuses when things seem difficult. Don't let this happen to our sport and our organisation, which I joined because it was the body which controlled HNAG GLIDING.

I would ask each and every member of the HGFA "do you want the HGFA to control and administer hang gliding effectively and efficiently, or do you want to be a member of an organisation that has spread itself over marginal areas so thinly it begins to break up?"

Have a good think and tell people who will give your message to the HGFA.

Remember "It's your sport Ralph" (relevant to Victorian viewers only).

Yours faithfully,

Glenn Wilson
11018

Dear Wesley,

Being an elderly airline skipper holding a miserable novice hang gliding rating, I was most intrigued to read in the March "Skysailor" about the chap in Queensland who did clever things with a chainsaw motor and propellor attached to his hang glider. Mike Coburn tells me that this sort of thing is alive and well overseas - "minimum flying" I believe he called it, so I am writing to seek further information. Perhaps the Queensland chap could be persuaded to write our magazine an article describing just what he did, sources of component supply (propellor, etc), and how he set about learning to fly his machine.

At this stage, I can only claim to have some 6.5 hours soaring time, as cracking suitable weather and wind on my limited and fixed days off is like winning the big one in Tattslotto, so this could well be the way to beat the elements, to a degree, and gain some really peaceful flying.

Congratulations to "Skysailor", - its a most relevant and interesting magazine. Being a comparative new-comer to the sport I must say how much I value the written experiences of others - be they near disastrous or merely resulting in a flight. As with the big-birds, it's obviously better to learn from others, rather than finding out the hard way ones self.

Regards,

WILLIAM CRAIG

William,

I have recently received several photos of the "minimum" you mention. However, I am reluctant to publish them as attempts to copy the design are likely to result in serious accidents - leave design and manufacture to professionals!

- Ed.

ATTENTION ALL PILOTS

Living in a town as small as Bright, you are accustomed to hearing some rather queer and the occassional really bent rumours and stories, rarely being true I might add. However, today I heard something which affects all of us, (maybe not me yet, I'm still at student level). Apparently we will not have the original GOAL paddock (field) for much longer. The owner Mr. M., has surprisingly sold the paddock which has seen many great victories and happy landings for many pilots, i.e. Rick Duncan. I'll never forget Rick battling to victory through hail, rain, thunder and lightning to take out 'World Champion' in that very paddock.

Mr. M. has supposedly sold the land to A.V. JENNINGS developers, for the approximate figure of $7,000,000 (seven million dollars). The proposed plan is for a shopping centre and estate. I suppose we can look on the BRIGHT side (if there is one) and that is that the development probably won't appear for a couple of years down the track, that is if it is approved at all, so I may see or should I say FEEL a landing there yet!

Bye,
(Keep it up)
ROSE FLETCHER

To the Editor: Dear Wes;

As a conscientious hang gliding instructor of some ten years, I put a lot of effort into my teaching. So, when in 1985, I set up my current business "South Coast Hang Gliding Centre" my desire was, and still is, to provide the very best for my students. Our students all receive a student handout before commencing their respective course. It contains such information as introduction of South Coast and its instructors, a history of hang gliding, some basic theory, rules of the air, club and site information, etc... As my talents lay in teaching and not drawing, I commissioned a commercial artist to assist with the necessary art work. I was pleased with the end result and proud to offer the handout to our students. I guess I knew that in time much of my work would be blatantly copied, however it came as somewhat of a surprise to see one full page of the handout reproduced (poorly at that) in Skysailor. (Page 19, March 89)
Whilst I see the need for printing the rules of the air in Skysailor, HGFA does have its own artwork (as printed in the HGFA manual). If you wish to publish other than that I would suggest that you first try asking the appropriate persons. In this particular case the artwork belongs to "South Coast Hang Gliding Centre" with full credits to South Australian pilot and artist Richard Overall.

Larry Jones
Director - South Coast Hang Gliding Centre

Dear Larry,

First, let me apologise for not getting permission to use the artwork. Unfortunately, I "riiped it off" from a newsletter one of the Queensland clubs sent without first checking its source.

- Ed.

KOSCIUSKO ALPINE PARAGLIDING CLUB

Dear Sir,

I would like to advise you of the formation of the above club and wish it to be listed in your publication.

The first meeting of the club was held in Thredbo on Sunday 23rd of April, 1989 and was attended by eighteen foundation members.

The following Club Officials were elected:
Joe Ippolito - President & Publicity Officer
Stuart Andrews - Secretary/Treasurer
Adrian Strudley - Vice President
Heinz Gloor - Technical Officer
Barry Dennis - Safety Officer

Paragliding in Thredbo has become the second most popular activity (after skiing) and, besides our own pilots who come from as far afield as Sydney and Melbourne, has attracted many European enthusiasts. All have found our alpine conditions equal, and in most cases better, with plenty of skill required during take-off and the 1900 foot descent from the top of Mt. Crackenback to Thredbo village. Recent flights have seen Heinz Gloor and Stuart Andrews aloft for around one hour and 3000 feet separating the village green from our flying boots.

Other licensed pilots are welcome to enjoy the ultimate in paragliding from the top of Australia however, due to leasing arrangements, we would like to ask them to contact us first on (064) 576 112 for Joe or Stuart on (064) 576 190 as access to our site is only through Para-Alpina Paragliding Centre.

One of the objectives of our club is to foster the safe image and development of paragliding and with that in mind we would drsw your attention to the Editorial in the December 1987 issue of Skysailor. Item 8 in part reads: "Photos must not be included if the pilot is not wearing a helmets". September 1988, February 1989 and April 1989 issues however, include photos of paraglider pilots not wearing helmets, and we feel that this is not presenting the sport in a safe and proper manner. Whilst applauding the promotion of paragliding in "Skysailor" we feel that the safety aspect should prevail as with hang gliding. We are currently accumulating a library of spectacular paragliding photos we hope to submit some for publication in the near future along with items of interest and club activities from our Publicity Officer.

Wishing Skysailor continued success,

Yours faithfully,

STUART ANDREWS
SECRETARY
16226

Dear Wesley,

At the last meeting of the South Coast Hang Gliding Club a number of members raised the issue of frequent accidents occurring at Hill 60. The discussion snowballed and as a result the club has decided to send this letter.

I shall list the incidents as they were observed by members - no pilots names are included.

* Gyro - no helmet, no dive sticks, hang point too far forward, hanging too high, aluminium 'snap-on' carabiner, no hang check, dangerous attempts at wingovers close to hill. A novice sent to Hill 60 by instructor!

* Mars 170 - wind to North at 15 - 20 knots (not a good direction and too strong for a Mars), turned South on take-off and crashed downwind between Coastguard tower and hill resulting in two broken uprights and keel, a leg injury and lots of abrasions. Student sent to Hill 60 by instructor!

* Gyro - all pink, flying around and behind triangle point on hill - very low. Local safety officer dismayed to find the pilot was an instructor showing off to students.

* Sabre 155 - Glider took off and flew straight out then turned downwind and flew straight back into hill. Impacted on Bitou bush - no injuries, no damage. Lucky?

* Mission - tried to reach the front of spit point to left and upwind of take-off. Failed to do so. Landed on bushes at point within metres of cliff edges to rock platform 5 metres below. Attended by instructor.

* Mars' - Novices attempting to soar lower cliffs on strong days without success resulting in a series of minor prangs (downtubes).

Ensuing discussion of the aforementioned incidents has been summarised to the following;

- there is a problem when students and/ or novices are sent to Hill 60 without their instructor and without any experience at the site. Club members felt this was irresponsible by the instructors and will lead to accidents.

- all students should be accompanied to the site by their instructor

- the dangerous flying by an instructor in a pink gyro is inexcusable and that instructors credibility in such a position should be seriously questioned. Safety officers will in future initiate disciplinary action against an offender in such a situation.

- when does the responsibility for a students welfare end with as instructor, when the money runs out or when the student is ready to take his/her place amongst peers?

- when should a glider be sold to a student? At what stage in the learning experience?

- Safety officers at Hill 60 are reluctant to allow novices to fly there unless they have had logged experience there with an instructor.

- Is it true that there has not been an instructor certification course/seminar for over two years and are therefore all present instructors uncertified?

- Does the HGFA keep a file on all instructors noting the currency of their certification in matters such as First Aid and instructor certification?

- Does HGFA have any control over the process of instruction such as:
* stages of instruction
* duration of instruction
* skills and performance levels to be achieved in stages of instruction
* minimum requirements for attainment of a rating (objective)
* fees charged for instruction?

In conclusion, the pilots in the South Coast club would hope that these matters be thought over by members of the HGFA and would appreciate correspondences via. Skysailor that may lead to solutions/answers to the problems raised.

Harry Docking

President South Coast HGC

Oh, Brother!!

"North Brother is a mountain", Lee
said,
"which comes on in a north-easterly
sea breeze";
Take-offs are normally executed
there
With a reasonable degree of ease.
But one day a novice pilot chose
to fly there when just a bit too tired;
Suffice to say his take-off
left a little to be desired.

He wanted to turn his good strong run
into a little bit of height,
But he pushed the bar out much too
far;
practically pushed it out of sight.
His left wing stalled
and dropped towards
the tops of the blackbutt trees.
As he swooped back toward the hill
he thought,
"The main thing is not to freeze".

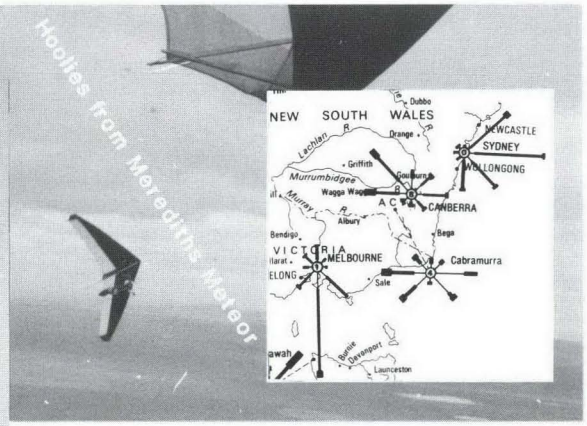
He raced toward the crowd at a
frightening pace
and caused them all to scatter.
At the time he thought that the video
tape
didn't really matter.
Someone on the hill shouted,
"Pull the bar in" - and he reacted as
instructed.
He magically regained control and
flew out again,
but this time unobstructed!

When he landed in the 'bomb-out'
paddock,
a little over one hour had passed.
His body, soul and glider were all in
one piece,
safely back on deck at last.
He sank to the grass
and thanked His Lord
for sparing him that day.
He had made a mistake,
but apart from the video tape,
he hadn't really had to pay!

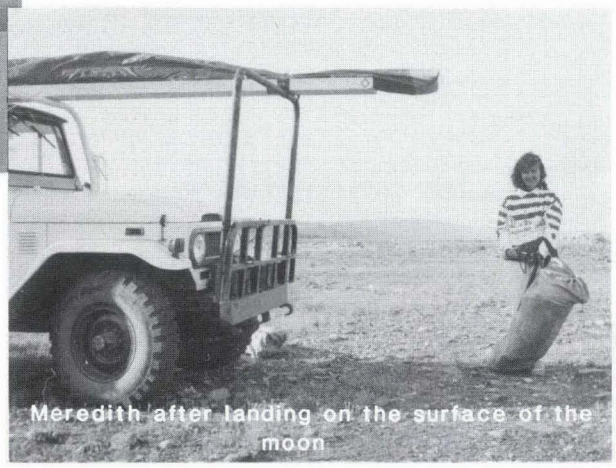
Richard Reitzin

Lake George


Paul without floats at Lake George



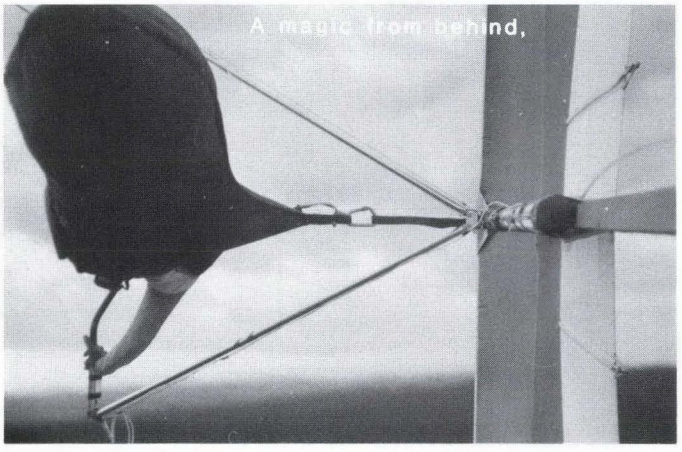
Canberra in summer : Easterlies

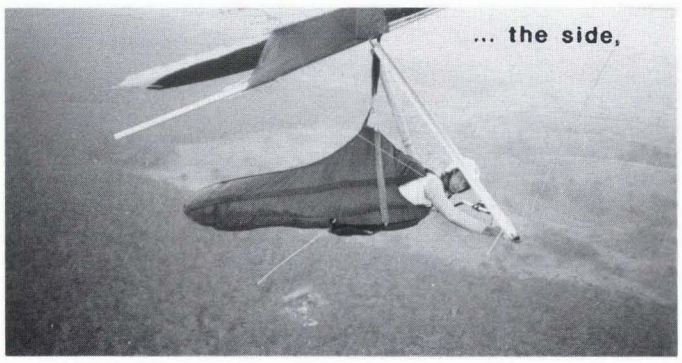

Meredith after landing on the surface of the moon

Flying in the ACT

A launching frenzy at Lake George


Michael away as Chris helps Paul


A magic from behind,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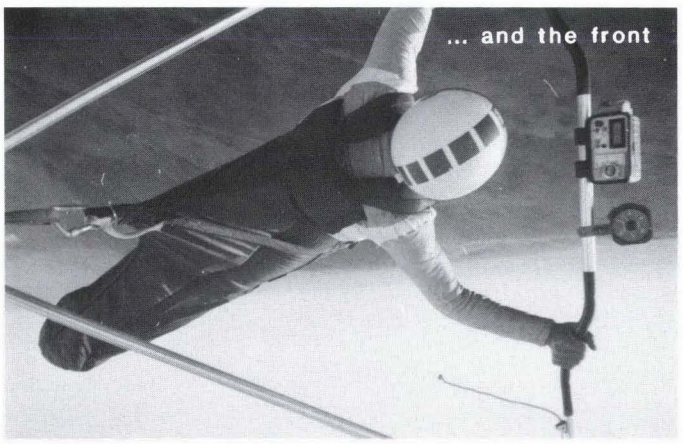
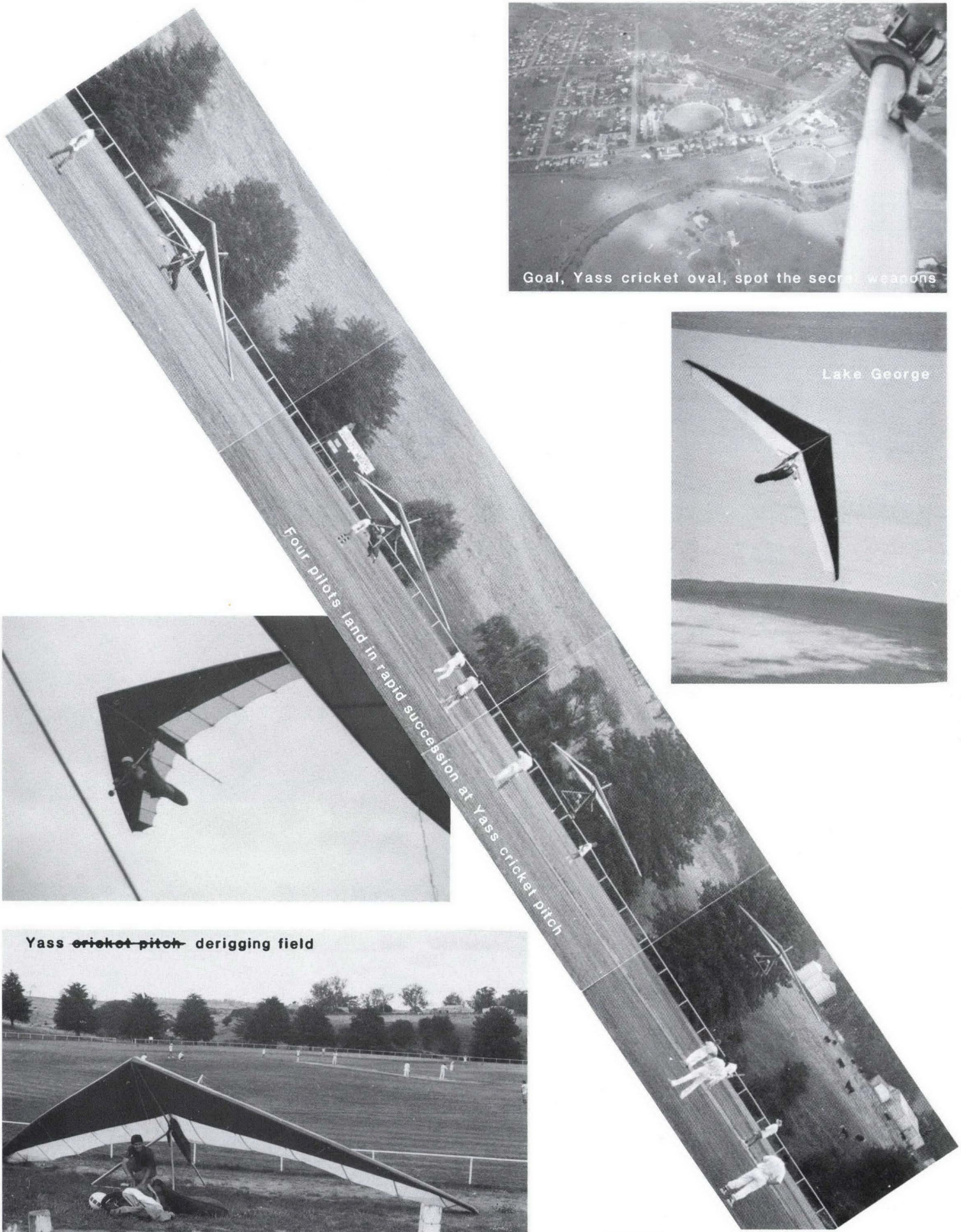
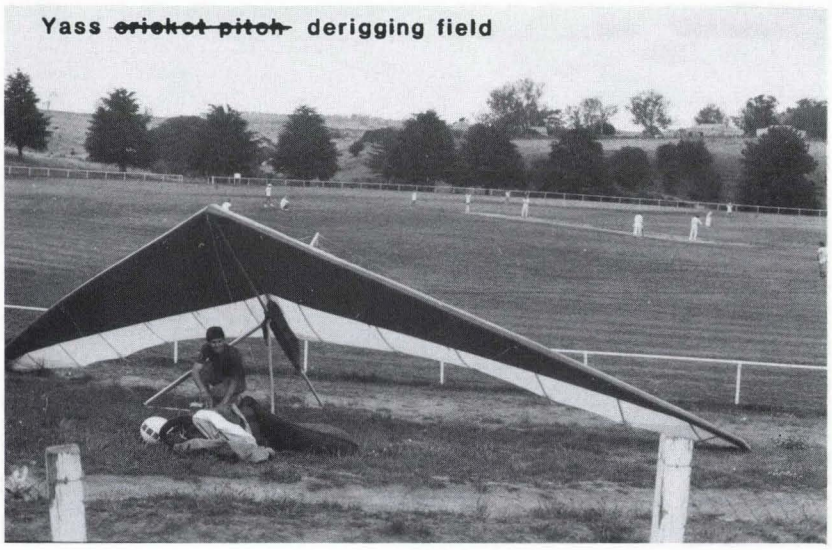

... and the front

Goal, Yass cricket oval, spot the secr[illegible] weapons

Lake George

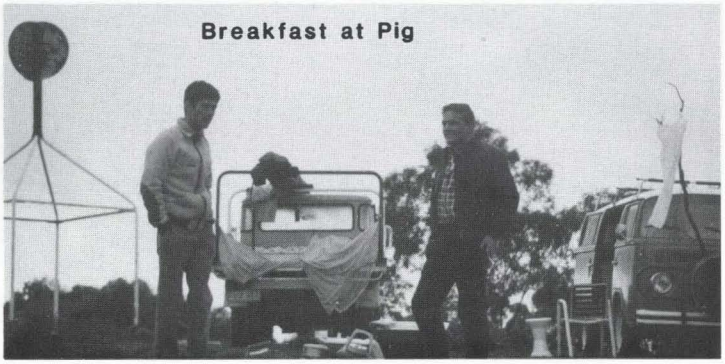


Four pilots land in rapid succession at Yass cricket pitch

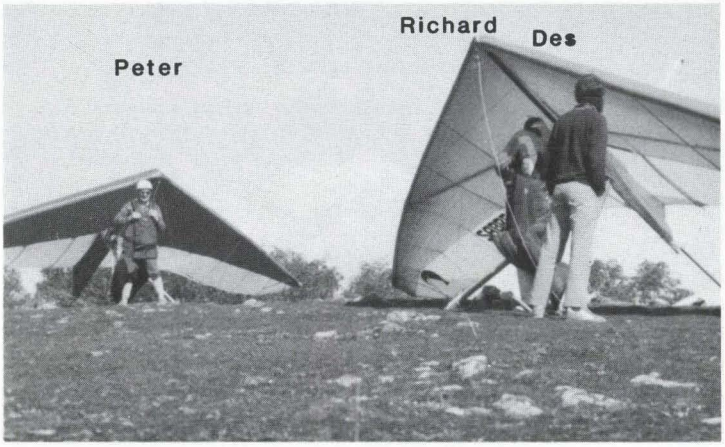


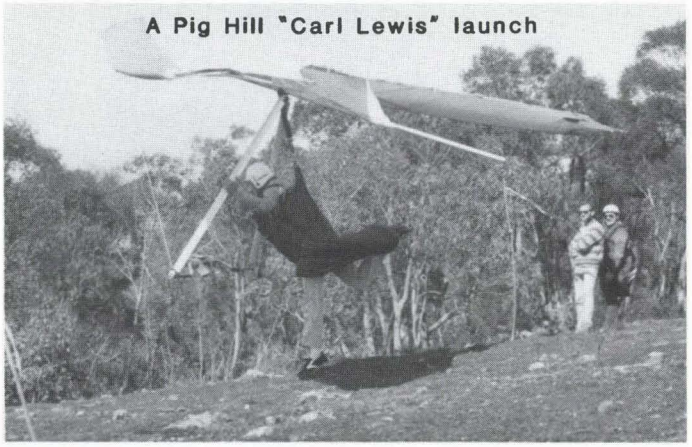
Yass ~~cricket pitch~~ derigging field

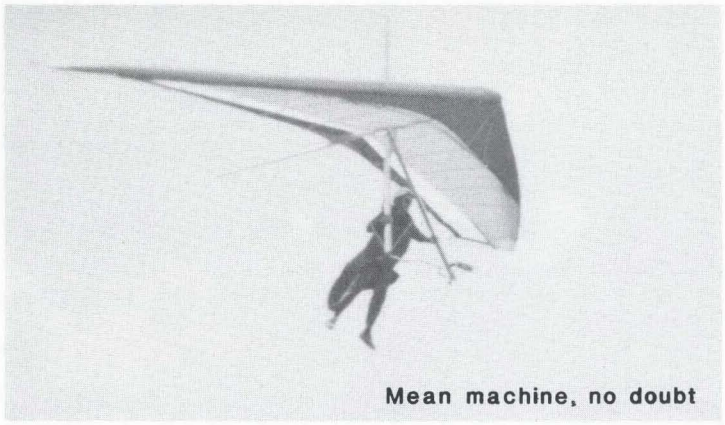
Pig Hill


Breakfast at Pig

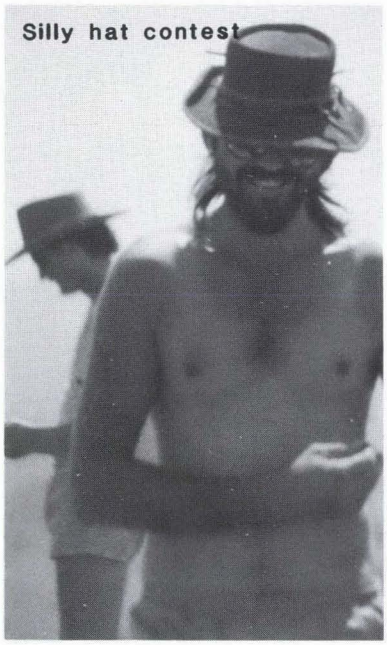

It is not always on


Richard
Des
Peter

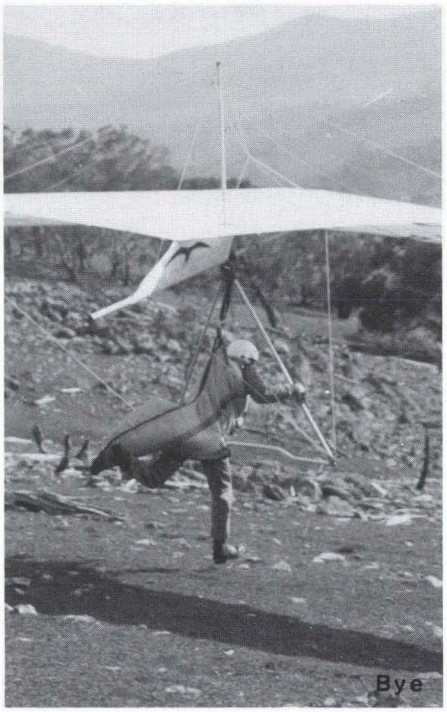

A Pig Hill "Carl Lewis" launch


Mean machine, no doubt


Peter
Patrick


Silly hat contest


Andy and his equipment for a winter soar at Carols


Bye

NEWS FROM CANBERRA

Okay, so the weather hasn't been great, but we still try in the A.C.T. with many missions to Pig and George with different degrees of success.

More luck with the club winch. Club secretary, Tony Gerrard, has been building the world's most amazing winch and at its first test on the bed of Lake George it performed brilliantly. Now all we need is some thermals...

On the negative side we have had too many incidents around Canberra lately. What we have learnt (the hard way unfortunately) is;

1. Pilots must be more careful on all T.O. and landings (or "it's all in the approach" to quote one pilot, said without any front teeth).

2. Self launching in anything other than very good conditions will eventually catch up on you.

3. Hang checks are compulsory on all our sites.

4. Keep clear of clouds.

5. Don't fly close to the hill and remember the rotor.

Overall think safety and please don't crash on ths planet.

On the positive side some eight or nine pilots are doing a first aid course so we can assist at any car accidents we might come across while driving out to sites. And we have a new set of tasks which we have already begun to complete.

ACTHGA Competition Tasks: As at 10 April 1989

1. Spot landing: Three consecutive stand up landings (only feet, keel or wingtip touches) within 5 metres of a predetermined spot after a flight from at least 200 feet above spot level. Distance measured from the furthest point of foot touches (including any touch on the ground until glider is stationary). Top landings do not score. Outlandings with no spot do not score. Witness required.

2. Quality landings: Fifteen consecutive stand up landings (only feet, keel or wingtip touches). Top landings do not score. Flight must be for longer than 10 seconds. Evidence taken from log book.

3. Brick drop / spot landing: Lowest combined distance of a dropped block of wood (or bean bag) and stand up landing from a predetermined spot. The block must be dropped prior to landing approach and spot landing distance is measured as above. Top landings do not score. Witness required.
Paul Geissler 53 metres 27.3.89

4. Lake George ridge race: Fastest self timed run from below the ridge north of Silver Wattle house (below the horizon in line with veranda of Silver Wattle house) to high tension power lines near Bungendore road and return past the house. Class one = high performance racers (Magic, Sabre, Foil, HP, GT, GTR etc.). Class two = intermediate gliders (Mars, Gyro, Mission, Vision, Meteor, etc.).
Richard Parsons (Sabre) 21' 15" 27.3.89

5. Lake George duration and landing: Beginner flight duration of 60 minutes or more followed by a stand up landing within 20 metres of the spot (as determined above). Witness required.
Chris Hoffman 23.2.89

6. Pig Hill duration and landing: Beginner/novice flight duration of 60 minutes or more in thermal conditions (no more than 5 knots east) followed by a stand up landing within 20 metres of the spot (as determined above). Witness required.

7. Pig hill goal tasks: (Photo of goal allowed)
a. - Yass turnpoint then to Goulburn (118km)
b. - Bookham (47km).
c. - Gundagai (78km).

8. 25 km triangle: Any nominated course with photos or witnesses of three turnpoints no more than 9km from each other. Launch and landing need not be at turnpoints.

9. 50 km triangle: Carols range, Black range, Binalong Hill in any order, photos required.
Bredalbane, Gunning, Collector townships in any order, photos required.

10. Open distance: Maximum point to point distance flown from an ACT controlled site within the last 12 months.
Brett Freebody / Bruno Wright 12.2.89 59km (Pig to Gunning)

Finally the club bids farewell to Mark Fletcher, who is off to more stable skies in Sydney. Mark has flown with us for several years and has set a standard for safe, helpful and friendly flying that we should all try to achieve.

Thanks Mark and best wishes from us all,

Richard Parsons

HGAWA

Greetings from Western Australia! While some of our Eastern State cousins are being unceremoniously rained on, we are still looking forward to another month or so of thermal activity.

The Easter break saw a lot of flying activity. It was 'on' everyday at Albany, whilst nearby in the Stirling Ranges the competition pilots enjoyed some classic flying conditions during the Annual Bluff Knoll Classic, won by Brad Cooke. The final day of the competition produced conditions that many of the pilots said were the best they had flown in - i.e. 1,000 up and over 2 km wide! Times at goal were taken on landing (no aerial gate), and with everything going up, we were treated to the amusing sight of pilots desperately searching for sink to circle down in.

On a more serious note, I've been asked to pass on details of a towing accident with a difference. A few of the boys decided to go towing in their relatively new paddock. After setting up and having a few tows, they decided to change direction, and moved the rope to a new section of the paddock. The rope was laid out, and car and glider hooked up straight away - without driving up and down to check the strip first. With no wind and sinky conditions, the car went barrelling down the strip at 80 kmh, with pilot screaming out "Faster! Faster!". With no warning at all, a 2 metre wide trench opened up in front of the car. With a heavy impact the car was swallowed. The two occupants were not wearing seatbelts. The passenger went straight through the windscreen, whilst the driver broke his sternum on the steering wheel. Although hospital treatment was required, these injuries were miraculously light under the circumstances. This incident contains lessons for us all.

Opportunities for students to learn to hang glide in Western Australia have recently been boosted by Airsports Hang Gliding School becoming a full time school, offering students the convenience of week long flying courses, as well as weekend courses. Airsports is now based in Perth, and has flying sites for all wind directions within half an hours drive from Perth. For students wishing to advance their skills to the novice level, Airsports has excellent towing facilities at Dalwallinu, north of Perth. Courses are also run at Dalwallinu for tow endorsements and introductory thermal flying. Airsports, who are also Moyes Dealers, can be contacted in Perth by phoning Andrew Humphries on 381 1221.

Just a reminder that the Perth Hang Gliding Club meets on the 1st Monday of each month at the Wembley Hotel, 344 Cambridge street, Wembley at 7.30 pm. If the 1st Monday a public holiday, we meet on the 2nd Monday. All members, particularly new ones, are urged to attend. As well as having a say in the running of your club, the meeting is also a valuable social ocassion on which to meet new friends and plan flying trips with other pilots.

See you at the Wembley!

VICTORIAN NEWS

Giday Victorians!

Don't feel low about the flying prospects for winter! Take heed from some of our go-for-it pilots: Rob Van der Klooster flying his GTR 151 worldbeater, Tony Klemm rocketing his GTR 162 Worldbeater, Mark Pike piloting his GTR 148 and Steve Kip cruising his (you guessed it) Magic 3 166 had a challenging cross country flight.

The four pilots took off at Winki Pop (Bells) and landed at Lorne! do you know what that means? They flew over Bells South Side, Point Addis, Eumerella and Spion Kop. They are the first to have completed the previously only dreamed flight!

Rob Van der Klooster and Tony Klemm flew cross country down the coast every Saturday for three weeks in a row and made an average flight distance of about 30 kilometres. Tony and Rob flew Mariners to Spion, Bells to Spion and Bells to Lorne! Phew, the ink in my pen is boiling!

Just to curb your excitement I shall change the subject. The towing seminar functioned smoothly with all seven students towing successfully. Conditions at Mooraduc airfield were great for teaching. (Thanks for letting us use your airfield Jack!) Warren Boadle even managed to maintain in a light thermal for about ten minutes without instruments.

I think some of you intermediate pilots are getting too excited so take this: The beach at Portsea is becoming so small and steep that it has become necessary to change Portsea's rating from Novice to Intermediate. ALSO: Flinders Monument changes from Intermediate to Advanced. If ever there was a take off that will "get you" Flinders Monument will!

Nite-e-Nite peoples,

Myles.

P.S. If the greenhouse effect causes the sea level to rise all our costal sites will be smaller. Lucky the thermals will go higher, hey?

SMEATON HILL (KOOROOCHIANG) REOPENED

Negotiations have recently been conducted with the owner, Mr. Alex McMickan and the leaseholder, CAA, of the road and top area of Smeaton Hill. This is a sensitive site and pilots must adhere to the following conditions:

1. Advanced Rating only.
2. No flying during the summer fire danger period.
3. All pilots must contact Gary Hickson (053) 689450 or Colin Johnson (053) 345204 before flying on the day.

There are indemnity forms to sign, a specific bombout paddock and Mr. McMickan must be kept informed of daily activities.

The site is situated 30Km North east of Ballarat, takes south round to North west winds, is 800 feet high and there is no cowshit.

Colin Johnson

NSWHGA NEWS

News from the committee meeting 4.4.89

- NSWHGA will be approaching VicHGA to financially co-operate on a 50/50 basis towards building an earth ramp at Mt. Elliot, Corryong. The local pilots have been involved with planning the ramp and have requested financial assistance.

- Debate over the salaried Coaching Director position continues. Applications have been received and are still invited. A State-wide Instructors conference has been suggested as an alternative.

- NSWHGA wishes to fund the production of a hang gliding video aimed at the general public to improve our public image. Please let us know if you are interested.

- Stanwell Park HG Club have been working with the local council and have submitted a proposal to redirect some high risk powerlines underground.

- NSWHGA asks all local clubs/ instructors to be responsible for their local sites and accident and incident reports. Local involvement is essential at a "grass roots" level.
Accident reports are required in cases of injury, death and 3rd Party involvement. The pilots name is not for publication.
Incident reports are requested in cases of avoidable dangerous situations. The pilots name is not necessary.
This information is essential for HGFA safety records and government submissions.

- Liason between paragliders and hang gliders has not been ideal in some circumstances. Paragliders must be HGFA members and deserve the same courteousy as other recreational airspace users.

NSWHGA will meet on the first Tuesday of every month - 7.30 pm, Room 508, Sports House, 161 Gloucester Street, Sydney. Members welcome.

NSWHGA EXECUTIVE
President: Steve Moyes
(02) 3875114 (w) & (h) 3874472 (fax)
Vice President: Denis Clancy
(02) 2685247 (w) 857246 (h)
261137(fax)
Secreatary: Ben Leonard (02) 6218819

NSWHGA NEWS

News from the Committe meeting 2 May 1989.

-The Sunshine Coast Hangliding Club have approached HGFA for site development funding. As this is a State Association responsibilty NSWHGA is willing to fund the projects on a 50/50 basis with QHGA as both sites are regularly used by NSW pilots. The site improvement involves upgrading of the Carlo Sandblow access track ($1,200) and the Teewah beach ramp ($800). Letters have been sent to QHGA and SCHGC.

-NSWHGA strongly support the concept of an East Coast Site Development Scheme as proposed by S. Hocking, HGFA Administrator in his recent letter to East Coast State Associations. NSWHGA have already proposed joint projects with VHGA and QHGA this year.

-Rob Hibberd is now a HGFA certified instructor having met all NSWHGA's requirements.

-NSWHGA has funds available to local clubs for ANY worthwhile project. In the last two months we have assisted joint projects in Victoria and Queensland and would like to hear of some NSW projects. Projects could include:
-site development or upgrading including signs and notices
-funding joint projects with councils to shift or bury powerlines
-Dayglo balls to make powerlines visible from the air
-assistance with club newsletters

QUEENSLAND NEWS

NOBBY AREA SKYSAILING CLUB.

At the last club meeting concern was expressed about the future of flying sites from urban, rural and commercial development. Members felt the proposed development of the Wolfdeen Dam back up waters, which will surround part of Mt. Tamborine; and urban development on Mt. Tamborine Plateau, present a real threat to this, our only West facing site.

We read with interest, how two clubs in the USA joined together to purchase site real estate securing their future flying use in perpetuity. Discussion on how such property can be purchased and managed revealed a number of options. Ideas varied, including members buying shares securing them the right to free flights while charging non-share holders a fee. Leasing the land for a fee from the Crown or current freehold owner. Once we have control of the land we can see other options of developing secondary benefits such as sub-leasing to mobile refreshment bar, grazing, tourist development, etc.

It was concluded that the time was now ripe for the idea to be canvassed. The threat to flying sites is going to increase, not deminish over time. We are motivated to sensitise pilots to this concern, inviting comments and general controversy with a view that it might lead to eventual positive action.

Rolf Damm
Secretary

CARELESSNESS

Early last year you ran a "trueism" about carelessness. I also read about accident statistics where it showed a pilots greatest risk occurs something around the 65 hours up time. I plead guilty to both. By this time a pilot has about 200 set ups and take offs to his/her credit. So the carelessness starts to set in.

Last month I set up at Rainbow Beach for the ...th(?) time, didn't bother to do a thorough preflight check; after all after 200 times you should have got the hang of it by now and Rainbow is where I have flown more hours than anywhere else. This is home country, nothing will go wrong here .....

The wind was just perfect 12 to 14 knots and just a whisker to the North of dead perpendicular to the face. So I hurried on down to take off. Mt eagerness was so great I put down the kites unsteady behaviour to my rushing things - off I went! Wham! A sharp powerful pull by the Aero to the right and at the same instant I was over the edge and going fast. Pull the bar in and body to the left corner to correct this sudden wind gust (?) on take off and all will be well in the smooth silky air of a coastal flight. NO WAY.

Straight out to sea I went with no left turn. Pull the bar down to my knees and body flung into left corner of A frame; she only just comes round to port. Hell the lift is good I'm going up fast. To my horror I found as soon as I left the port corner of the A frame the Aero wants to turn sharp right and DIVE. The force of this intent is so great I'm quickly convinced I would never be able to stop this spinning dive to starboard once it started. Fear gets real bad when you don't understand why something is seriously wrong and you can do nothing to stop it.

Quick decision to abort the flight. Not so easy some 500 feet above take off you might say. Head straight for the landing zone beyond the bathing area North of take off. All the time the physical effort required to hold the bar so far back and keep my body wedged in the left hand corner soon took its toll. A big worry, would an old fellow like me have enough physical power to last the distance and I'm still getting higher and higher. Did the wind have to be just that much to the North to keep on giving lift over the Park and Caravan Park on a day like today?? This kite is not flying right and thats for sure! To relax the bar one bit forward would invite an instant spin turn to the right followed by that dreaded downward spiralling dive.

At last, while over the bathing area the Aero started to loose height. Another half mile further North I was reunited with mother Earth -- kiss, kiss.

I wonder if you 've guessed it? Yes! One starboard luff line was firmly hooked under number 2 batton tip giving the kind of additional "reflex" no one wants. Had this happened on an inland site where rapid decisive maneouvering is required to land in a small paddock with scattered trees and turbulent air - NO chance. My only option would have been to deploy my chute.

No matter how experienced you are there is never any reason good enough to forgo a proper thorough preflight check.

Rolf Damm

OZONE

I'm not a Greenie, and people who know me will attest to the fact that I'm far from being even slightly Greenie. I mean to say, if I had my way we'd knock over all the trees. Then there'd be more launches, more thermal sources, less obstacles and bigger and better landing paddocks!!

But there have been a lot of ravings in the last couple of years about a part of our environment that we tree lovers of hang gliding should be concerned about, and that is the ozone layer. All the great minds that keep an eyeball on our earths atmosphere say a hole is appearing in this protective sheet above the Antarctic, and this year the arctic as well. This allows unrestricted total ultra violet radiation to reach earth. This in turn does all sorts of nasty things, most of which we can avoid or repair with chemicals. But one part of this we can do nothing about is the radical changes in the patterns of Meteorology (for the idiots among us, that's the weather!).

This little side effect of the atmospheric hole means we will get less air time than we should and have been getting. The reason for this is the greenhouse effect has a twofold effect of concern to us (among others).

Firstly: the polar ice caps and snow on mountain tops (Ayers Rock for example) will melt, thus raising the oceans levels and all those coastal sites will simply disappear. Along with this, places like Widgee and Tamborine mountains will become hills or much lower than they were, and I reckon they're low enough already!

The second and more drastic effect is that it's going to rain a heap more. Apart from the obvious fact that our now treeless hills well erode away and we'll have to spend more time indoors playing with ourselves and less time flying, it also means enormous price rises. Yes, that's right, manufacturers of gliders will be forced to include as standard equipment such things as waterproof glider bags, built in umbrellas and periscopes. Imagine driving up to your favourite 40 foot coastal site for a fly in between showers - Mt Buffalo!!

All this may sound like a very, very slight in the tiniest way to stretch the truth and a complete senseless story - but - there is a moral to it.

No folks it's a greenie bit coming up here ....

Ban CFC's (and once again for the twits reading this, that is Chloro flouro carbons - or the stuff that makes you high sniffing an aerosol can in a concentrated area). And while your banning CFC's, lets rip the airconditioners out of our cars. The gas in car airconditioners is DiChloro Diflouro Methane, a very straight form of CFC. (Now my anti greenie bit)..... I service hundreds of car airconditioners every year and each one of them is at least one kilogram of Freon each - that's hundreds of kilos of CFC's every year from my little workshop, so nya nya...

Seriously though, if you enjoy flying anywhere over here then ban the use of aerosols with CFC propellants and use ones with the recommended substitute - Hydro Carbon! - do you know what that is? NO, well neither do I, but suffice it to say that it's the exact same stuff they make petrol out of, and it just so happens that this government that says ban CFC's and use HC's banned petrol fumes from being allowed out of car's in 1974 and as from 1985 petrol stations who actually have the nerve to store and sell petrol have to have vapour recovery on their storage thanks to keep HC fumes in, and now they're telling us to spray it all over the place?

Why ban Hydro carbons? I don't know that one either, but I will say that it reacts with the UV rays leaking through the hole in the ozone to produce photochemical smog, (and again for the morons among us that's photochemical smog)!

Anyway, like someone always says
Who Cares!

I'm going flying before it starts raining again!

Tim Quick

CONVENTION 1989
2,3 & 4 August
Sports House, Sydney

This year's convention will be held at Sports House, Gloucester St, Sydney on the 2nd, 3rd & 4th August. The room we've booked has a view of the Opera House and the Harbour Bridge (nice). Steve Hocking, our intrepid administrator, scoured the yellow pages to find suitable (for suitable read cheap) city accommodation and found terrific rooms overlooking Centennial Park in the Eastern suburbs and surrounded with pubs. So you delegates can tell stories to each other at night over a few cleansing ales and then jog around the park in the early hours of the morning to activate your neurons before the intense head-banging sessions at Sports House.

This article was supposed to go into the May Skysailor to give the State representatives plenty of time to prepare but unfortunately has had to wait until the July issue. Not what was intended at all.

The thrust of the Convention this year will be threefold as I see it:

1) To decide who the hell is going to run HGFA for the next few years. The present committee have put in vast amounts of time and effort to set directions and goals for the future of HGFA and the membership and it is in our interests to ensure that the next committee can maintain the direction and move towards attaining the goals set.

Only Victoria has proposed a committee, but their plan at the moment, as far as I'm concerned, is unacceptable. I would prefer the committee to remain Sydney based for a variety of reasons.

2) The continuation of the 5 year plan – and you delegates better come prepared to explain how you implemented the tasks that you were set at last year's convention (you have done them haven't you?)

3) To renegotiate the HGFA membership (which at the moment has 6 states and a territory as members) to a more equable membership distribution by, initially, breaking NSWHGA (and perhaps QHGA) up into areas controlled by local clubs. Over the past three years QHGA and NSWHGA have NOT been effective in helping their members because they have NOT been in touch with their members needs.

Transferring authority over to the clubs in these states will go a long way to addressing these problems.

I feel that the time has come to delegate more power to the clubs and at least give them a chance to run their own affairs (with the help and within the guidelines of HGFA).

Finally, to take advantage of the 30% air fare discount, State reps have to stay in Sydney a minimum of three nights and consequently are asked to contact Steve Hocking in regard to their travel arrangements as soon as possible.

See you there

Phil Mathewson

DREW COOPER BREAKS WORLD RECORD – TWICE

News hot from the HGFA batphone is that our Australian team pilots in their run-up to the World Champs in Switzerland are making the pace at the moment. . .

. . . Drew Cooper two days ago (11th June) broke two FAI World records

1) by flying a 157 km triangle flight from Kossen, Austria and
2) by recording the fastest average speed during his flight. His flight is in the process of being submitted to the FAI for ratification.

. . . Mark Newland won the US Manufacturers meet in the USA.

Well done chaps.

COMPETITION CALENDAR

1st World PARAGLIDING Championships
Kossen, Austria, 1-16 July 1989. (Paragleiten, Postfach 31, A-6345, Kossen).

7th WORLD HANG GLIDING CHAMPIONSHIP
Fiesch (Valais), Switzerland, 3-23 July 1989. (Verein WM 89, PO Box 1301, CH-8620 Wetzikon, Switzerland).

Mt. Widgee 1989

Mt. Widgee Open
1st Mike Zupanc
2nd Peter Aitken
3rd Ken Hill
4th Neil Mersham

South East Queensland
1st Mike Zupanc
2nd Ken Hill
3rd Mark Berry
4th Speedy

Encouragement award: Colin McGree

Thanks to Moyes Delta Gliders, Enterprise Wings, Toyota, Nautica Rainbow Beach and to all the other sponsors that help to get this competition going.

Thanks must go to all the pilots who attended this competition.

Jack and Lyn Nash.

1989/90 AUSTRALIAN CROSS COUNTRY LEAGUE

The competition is for flights within Australia between the 1 April 1989 and 31 March 1990. Flights eligible for scoring shall be Open Distance, Out and Return, Triangle, Nominated Goal. The scoring method will be the same as last year. The extra rule this year is: A maximum of two flights from a national points score ladder competition may be used for scoring. Hopefully, this will improve the validity of the competition yet still allow pilots to use some of their better flights from competitions.

The competition will be scored in three divisions:

OPEN - for all pilots

B GRADE - for B grade pilots (including unranked pilots)

LADIES OPEN - for all ladies

The club competition for the BILL POOLE trophy will again be conducted.

National ladder points will be calculated from scores achieved in the OPEN division only.

Scoring

Pilots will have their best five flights scored. A maiximum of three flights from any one category shall be allocated a score.

Flights equaling the best in any category, form previous years XC leagues will score 1000 points. It is possible to score more than 1000 points for a flight in excess of the previous best. All flights will be allocated scores relative to the longest previous flight in each category below:

a) Open Distance 310.4 Km Mark Newland 24/12/85 Parkes NSW
(3.22 points per kilometre)

b) Out and Return 116.2 Km Len Paton 8/1/89 Parkes NSW
(8.61 points per kilometre)

c) Triangle 136.9 Km 89 Flatlands Parkes NSW
(7.30 points per kilometre)

d) Nominated Goal 219.2 Km
89 Flatlands Parkes NSW
(4.56 points per kilometre)

Incomplete flights where a turn point is involved (i.e. Out and Return or Triangles. Uncompleted Goal flights are treated as Open distance) shall be scored as such only after one third of the next leg after the first turn point has been achieved. The score for these flights shall be the points per kilometre multiplied by the distance flown multiplied by the proportion of the course completed.

Score = Points per Km x Distance Flown
x (Distance Flown)
(Course Distance)

Send $5 for Rules and Forms to:
Chris McDonald
22 Crown St.
BELMONT NSW 2280
Phone: (049) 454294

1988/89 VICTORIAN CROSS COUNTRY LEAGUE

These are the final standings for the Vic X/C League

Name	Score
Alan Beavis	4430
Don Rottman	4270
Wesley Hill	4170
Ian Rees	4050
Grant Heaney	3530
Rohan Holtkamp	3490
Colin MacRae	3410
Marlies Eicher (1st - 'C' Grade)	3340
Peter Weston	3330
John Murby	3290
Peter Verhagen	3250
Rob Ruge	3220
Colin Johnson	3220
Mike Rose	3220
Gary Hickson	3210
Alan Blake	3190
Dave Adams	3180
Don Burns	3120
Vince Drew	2980
Ray Kinder	2930
Andy Phillips	2910
Andrew Humphries	2830
Harry Summons	2760
Tony Klemm	2740
Dave Drabble	2590
Russell Dobson	2570
David McCoy	2500
Harry Timtschenko	2480
Peter Eicher	2450

AUSTRALIAN X/C LEAGUE 1988/89

The cross country is over for another year. Guy Hubbard is the winner by a couple of points. Jenny Ganderton was a close second in the open and also won the Ladies Division and B Grade competition. Len Paton was third. The competiotn reached an exciting conclusion with Jenny and Len setting long tasks to take over the lead on the last 3 days of March. Len was really going for it on the last day (in more ways than one but I will leave that to Len). However they only completed about 80% of their task courses which was not enough to win the competition.

The Bill Poole cup for the club having the highest placed three members returns to NSW after several years in S.A. and Vic. The X/C League record for the longest Triangle was increased from 114.7 to 139.6Km. The out and return was increased from 112.6 to 116.4Km. The open distance record of 310.4Km and goal of 197.9Km were not bettered in the league. The big fights in the league are tow launched. There is only a sprinkling of hill launches in the flights of the top ten pilots. The cross country league for 89/90 has started running from 1 April 1989 to 31 March 1990. More details elsewhere.

Categories are:

D Open Distance per Km	- 3.22 points
G Nominated Goal per Km	- 5.05 points
R Out & Return per Km	- 8.81 points
T Triangle per Km	- 8.72 points
c Completed Task	
u Uncompleted Task	

Chris McDonald

These are the final standings for the 88/89 X/C League.

1. Guy Hubbard NSW	149.1Dc	136.9Tc	90.9Gc	206.7Dc	107.4Tu	
	480	1193	459	666	801	3599
2. Jenny Ganderton	79.4Rc	80.8Rc	103.8Tu	109.5Tu	98.0Tu	
NSW	700	712	666	834	665	3597
3. Len Paton NSW	91.4Gc	104.5Tu	184.3Dc	74.0Rc	116.4Rc	
	462	756	593	653	1025	3489
4. Dave Gordon NSW	69.6Ru	172.4Dc	149.5Dc	169.1Dc	130.5Tu	
	489	555	481	545	1091	3161
5. Chris Charters SA	88.6Dc	80.2Dc	86.1Rc	83.0Dc	100.9Rc	
	285	258	759	267	889	2458
6. Ian Ress Vic	110.1Dc	160.2Dc	94.4Tu	115.5Dc	90.5Gc	
	355	516	571	372	459	2273
7. Andrew Humphries	93.8Tu	53.6Gc	64.2Dc	115.3Dc	90.5Gc	
WA	562	271	207	371	457	1868
8. Col Millard SA	80.6Dc	83.0Dc	50.6Ru	118.7Dc	44.1Gc	
	260	267	400	382	223	1532
9. Scott Tucker QLD	106.5Dc	138.2Dc	19.8Gc	95.6Dc	24.8Gc	
	343	445	100	308	125	1321
10. Sue Hansen SA	76.8Dc	75.5Dc	124.0Dc	24.4Gc		
	247	243	399	123		1012
11. Geoff Tulloch QLD	67.0Gc	26.1Gc	26.1Gc	30.4Rc	35.4Dc	
	338	132	132	268	114	984
12. Wayne Lee QLD	72.0Dc	20.6Gc	50.0Dc	47.5Dc	63.7Gc	
	232	104	161	153	322	972
13. Grant Heany VIC	26.1Gc	26.1Gc	30.4Rc	30.4Rc	23.3Gc	
	132	132	268	268	118	918
14. Rohan Holtkamp	51.0Gc	46.5Dc	33.5Dc	41.0Gc	33.0Gc	
Vic	258	150	108	207	167	890
15. Chris McDonald	30.4Rc	26.1Gc	30.3Gc	54.9Dc	32.0Dc	
NSW	268	132	153	177	103	833
16. Pete Bolton SA	84.5Gc	63.5Dc	54.4Dc			
	427	204	175			806
17. Don Rottman VIC	30.4Rc	26.1Gc	26.1Gc	38.4Gc	15.6Dc	
	268	132	132	194	50	776
18. Birgit Svens SA	47.3Gc	31.6Dc	28.3Dc	23.9Dc	63.5Tu	
	239	102	91	77	258	767
19. Colin McRae VIC	30.4Rc	23.3Gc	26.1Gc	10.1Dc	32.0Dc	
	268	118	132	33	103	654
20. Paul Ruddock	74.0Rc					
NSW	653					653
21. Gary Davie QLD	17.2Dc	30.4Rc	22.5Dc	18.0Dc		
	55	268	68	58		449
22. Gerry Gerus QLD	26.1Gc	17.2Dc	34.2Dc	37.4Dc		
	132	55	110	120		417
23. Alan Beavis VIC	14.1Dc	26.1Gc	21.0Dc	34.9Dc		
	45	132	68	112		357
24. Dave Evans QLD	61.9Gc					
	313					313
25. Michael Cabalzar	61.9					
Qld	313					313
26. Greg Wilson NSW	40.0Gc					
	202					202
27. Calen McLeod	17.2Dc					
Qld	55					55
28. Warren Warrick	16.1Dc					
Qld	52					52

ALL-JAPAN LADIES CUP RESULTS

1st Toni Noud
2nd Jenny Ganderton
6th Birgit Svens

THE CORRYONG CUP RESULTS

Deep down in Snowy River country was again the scene for the 1989 Corryong Cup. During the course of 5 days pilots flew a total of over 9,000kms, clocked up over 900 hrs and performed over 250 take-offs and landings without mishap.

On day 1 of the competition the task was a 78.5km "L" shaped course with an out and return on both legs. The winner of the day was Vern Middleton who completed the course followed by Gil Kaltenbach and Dick Heffer.

Day 2 the task was a 93km pentagon. This day was won by Dave Julian followed by George Barry and Vern Middleton.

Day 3 the task was a 71km lap right around the valley. This task was completed by 6 pilots forcing many other pilots down in the placings.

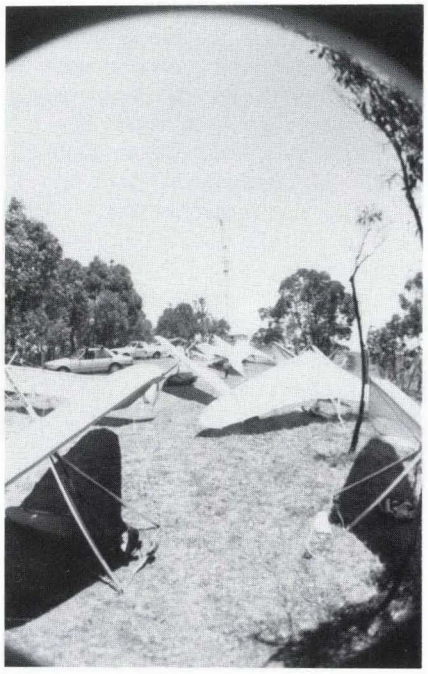
An awards night was held in the Indi Hotel at Corryong with a smorgasbord meal and the bar was open for the first at no cost to the pilots and families which is paid for from the $20 entry fee, after the trophies are paid for.

The results were as follows:

- 1st Vern Middleton
- 2nd George Barry & Gill Kaltenbach
- 3rd Dick Heffer

Best Sports Pilot - Alf Carter.
Alf never ceased to help on take-off and offer to pick up pilots after each day.

Most Supportive Hang Person - Debbie Nathaniel.
Debbie who is secretary of the South Coast Club was seen on day 3 with 10

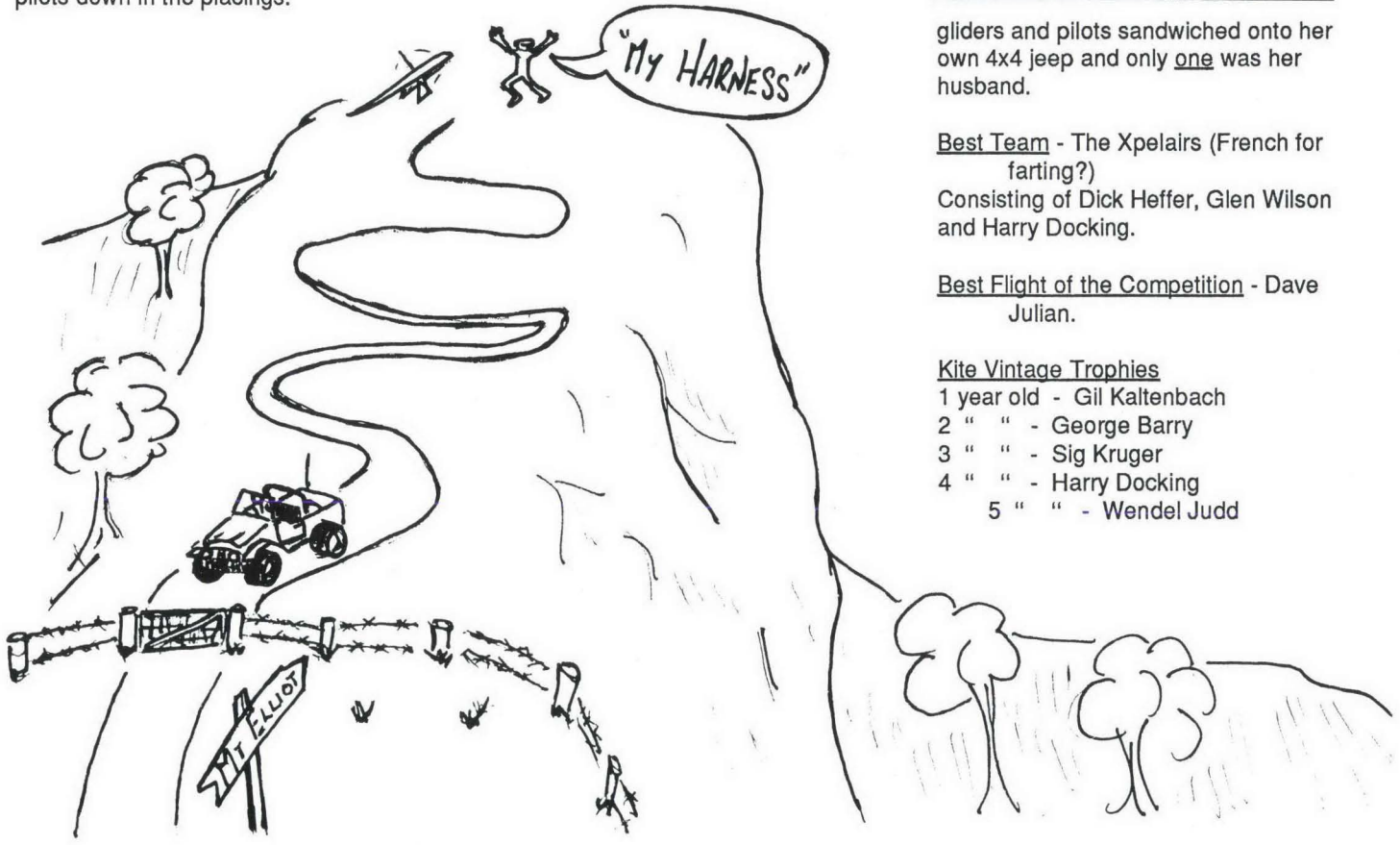


gliders and pilots sandwiched onto her own 4x4 jeep and only one was her husband.

Best Team - The Xpelairs (French for farting?)
Consisting of Dick Heffer, Glen Wilson and Harry Docking.

Best Flight of the Competition - Dave Julian.

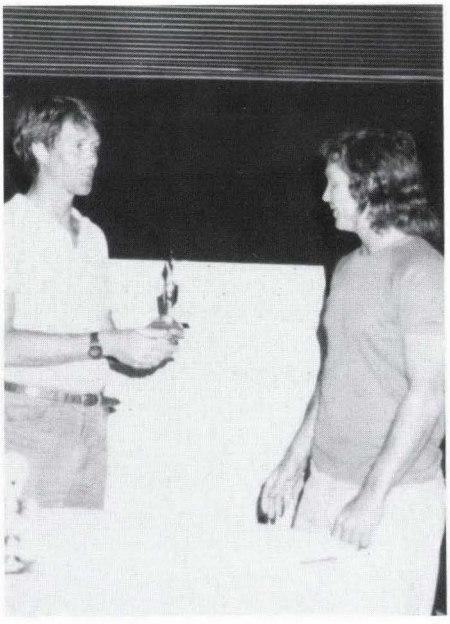
Kite Vintage Trophies
1 year old - Gil Kaltenbach
2 " " - George Barry
3 " " - Sig Kruger
4 " " - Harry Docking
5 " " - Wendel Judd

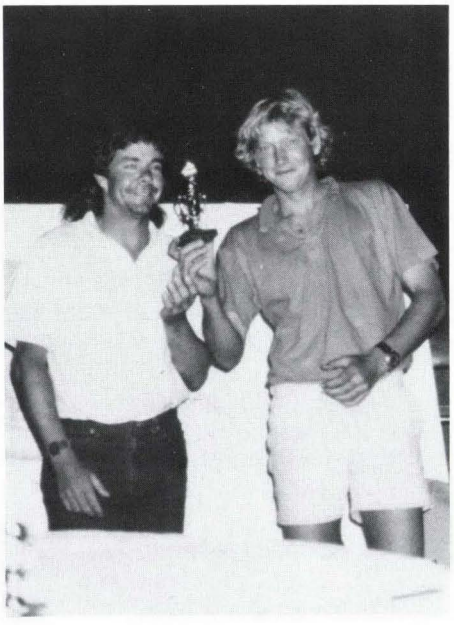


The South Coast Club would like to thank all the participants in the Corryong Cup, the Upper Murray Tourist Association and the people of Corryong for their support.

"STAY SAFE but STAY UP"

Harry Docking





1st place - Vern Middleton

= 2nd - George Barry & Gil Kaltenbach

OVERALL RESULTS

1st Verne Middleton
2nd Gil Kaltenbach & George Barry
3rd Dick Heffer
4th Dave Julian
5th Bruce Wynne
6th Patrick Lender
7th Richard Donaldson
8th Mark Moulston
9th Harry Docking
10th Glen Wilson
11th Wendel Judd & John Kleven
12th William White & Michael Bristow
13th Paul Carter & Bob Barnes
14th Sig Kruger
15th Rob Moulston
16th Knutole Kirkas & Rod Markwell
17th Andrew Philips
18th Natts Weng & Tony Provan
19th Alf Oppogen & James Nathaniel
20th Mark Ryan & Dave Evans
21st Alf Piper
22nd Craig Dochery, Roy Dochery & Barry Weatherburn
23rd Peter Moore & Steve Wurz
24th Russel Dobson & Peter Karnoef
25th Bob Dalley, Craig Hoddinoff, Graem Ward, Graeme Cox & Chris Destree
26th John Rutter, Michael Krockman, Bob Bentley, Melge Skauge & Chris Inkson
27th Stewart Harvey

LOOKING AT WEATHER

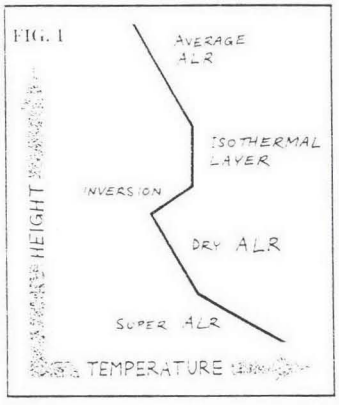
By Alan Russell

reprinted from Wings! March 1989

Weather is a complex phenomenon involving differential heating of the earth's surface (because of the angle of the sun), the rotation of the earth and the movement of large masses of air of different temperatures containing differing amounts of water vapour. These masses take curved paths across the surface of the rotating sphere we call earth. If two adjacent masses of different temperature may be turned into huge spinning "whirlpools" of air which produce weather systems bringing wind, rain, hail, sleet or sometimes brilliant sunshine. In this article first published in Wings! in 1984, Alan Russell delves into some of the complexities of weather which enables us to soar, staying aloft by extracting energy from the air around our aircraft.

Hot and cold air: diabolical adiabats.

The atmosphere is heated (by the earth) from the bottom upwards. The rate at which temperature decreases with height is of great importance in weather systems. This change of temperature with height is called the lapse rate. As air rises it encounters lower pressure so it expands and this makes it cool down.



During this process it exchanges (in theory) no heat with the surrounding air. The expansion or contraction of a gas with no input or output of heat is an "adiabatic" process. Although air does conduct heat it does so quite badly, as people with down flying jackets are glad to testify, so it is most useful to look at the Adiabatic Lapse Rate (it makes the maths easier anyway). Years of measurements around the world have determined an Average Adiabatic Lapse Rate (AvALR) - it is 0.65degrees Celcius per 100m. So for every 100m that you climb up a mountain it becomes, on average, 0.65 degrees Celsius cooler. Fortunately, for those of us who enjoy thermalling, bits of the atmosphere have different lapse rates depending on heating effects and moisture conditions. Dry air cools at the Dry Adiabatic Lapse Rate (DALR) of 1 degree Celsius per 100m.

"Dry" in this context means that all moisture is in its vapour form and has not started to condense. Pockets of air which become hot for one reason or another can reach Super Adibatic Lapse Rates (SALR) of greater than 1 degree Celsius per 100m. When air cools sufficiently for any water vapour to start to condense, it is said to be at its "Dew Point". The actual temperature of the Dew Point depends on the moisture content of the air.

When the moisture condenses it releases some latent heat and the air does not cool as rapidly as it would otherwise. It now cools at the Saturated Adiabatic Rate (SatALR) of 1/2 degrees Celsius per 100m. Fig, 1 summarises these four lapse rates.

An area pf the atmosphere where the air becomes warmer with height is said to be "inverted" and if there is no change of temperature with height the zone is called an "isothermic layer".

Above the Tropopause (the top of the Troposphere) is the Stratosphere, where temperature does not vary with height.

Stability / instability

When a "bubble" of air heated by conduction from the Earth's sun-warmed surface rises, it normally cools at the DALR of 1 degree Celsius per 100m. If the surrounding air is cooler at a lower lapse rate such as the AvALR of 0.65 degrees Celsius per 100m the bubble will soon reach a level where it is cooler than the air surrounding it and will sink towards the surface. This condition is described as being "stable".

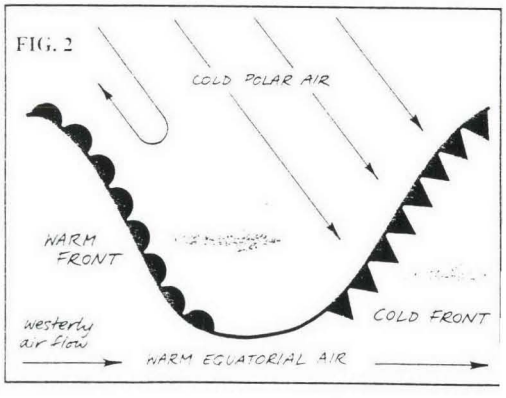
If the surrounding air is cooling at a higher lapse rate - greater than 1 degree Celsius per 100m - then the bubble will continue to be hotter than the surrounding air and it will continue to rise. This does not go on forever as the bubble eventually mixes with the cooler air. This condition is described as being "unstable". Unstable conditions obviously favour the development of thermals and make for a good cross-country flying day.

Hairy heaps and other clouds.

Changing temperature changes the quantity of moisture that the air can carry as water vapour. If warm air containing some moisture is cooled the moisture will condense and form a cloud. If the process is allowed to continue and the correct conditions pertain the cloud droplets will amalgamate and form droplets too large to remain in suspension in the cloud - we call this "rain"!

One of the simplest ways to cool air below it's Dew Point is to force it upwards. A stream of air flowing over flat ground will be forced upwards if it encounters a hill. If the hill is large enough the moisture in the airstream will condense and an "orographic" cloud will form on the hill top. Orographic rain can result.

Bubbles of air rising after being heated by "hot spots" on the earth's surface may cool sufficiently to pass their Dew Points and form "convection clouds". These clouds have a discrete puffy form with flat bases, often described as looking like a heap of cotton-wool and



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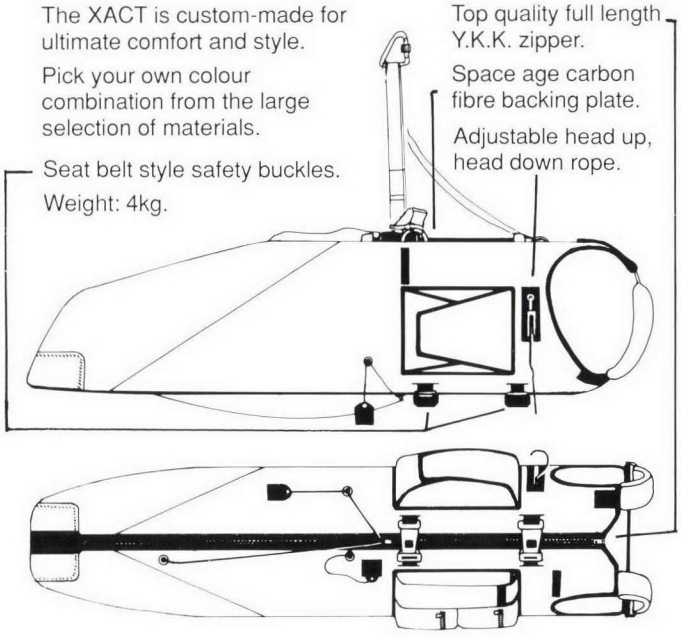

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are consequently called by the Latin for heap: cumulus. These clouds mark the tops of thermals and indicate good, if somewhat bumpy, flying conditions.

Sometimes these clouds are produced by large enough pockets of air to develop into really large heaps with towering dark tops called Cumulonimbus clouds. Nimbus is Latin for rain. These clouds are coloquially referred to as "cunimbus" and - if large enough produce thunderstorms.

Clouds can also be formed when large areas of the atmosphere are lifted and cooled. This happens when large masses of air of different temperatures meet. The masses of air tend to mix and one mass is forced upwards by the other. The boundary between the masses is called a front.

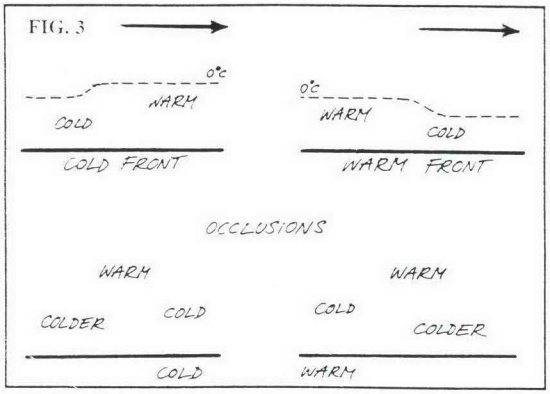
General lifting of masses of air can cause widespread areas of cloud. Layer or "stratus" cloud is a boringly familiar sight to all of us in Britain. If it is well developed, the thickness of the layer makes the cloud appear darker and is called a nimbostratus.

At very high levels the water droplets freeze and form rather prettier clouds. The thin wispy mare's tail or "cirrus" clouds often seen high in a clear blue sky are an example of this type. Cirrus means "hair" in Latin.
these clouds are formed at altitudes of five to thirteen kilometres their distinctive hooked shape is due to the strong winds at these high altitudes. Ice particles which fall to lower levels are left behind and form the hook. As they fall to still lower levels they evaporate away.

Along with a few varieties formed by prefixing the type with "alto-" such as "Altostratus" or "Altocumulus" (meaning that these particular clouds are found at a higher level than would normally be expected) that's all there is to the nomenclature of clouds. I will mention a few special types of cloud in a subsequent article but they are of local significance only.

Frontal systems

Fronts generated by the meeting of warm equatorial air masses and colder polar air masses in the Atlantic are carried towards Britain in the prevalent westerly airflow. Cold and warm fronts are formed by the process of "frontogenesis". See Fig. 2. Without fronts our climate would be considerably different. They cause most of our clouds, rain and variations in wind direction. Fronts come in three main forms: cold; warm and occluded. The weather patterns associated with each type of front are quite different.



Cold fronts

When a mass of cold air encroaches on a body of warm air a cold front can occur. It is marked on weather maps with spiky symbols. The cold air tries to push under the warm air acting as a wedge, see Fig. 3. The slope of this wedge is quite steep, about 1 in 30 to 1 in 100.

Cold fronts are quite complicated, depending not only on the temperature differences but on the relative stabilities of the air masses. They can consequently range from very active, inducing severe weather, to quite gentle producing hardly any rainfall.

A typical cold front in Britain conditions is heralded by cirrus in the distance. The uplift of the air produces cloud and rain. Cold fronts move quite quickly, at up to 20mph, and strong updrafts may be encountered 100 or more miles ahead of a front.

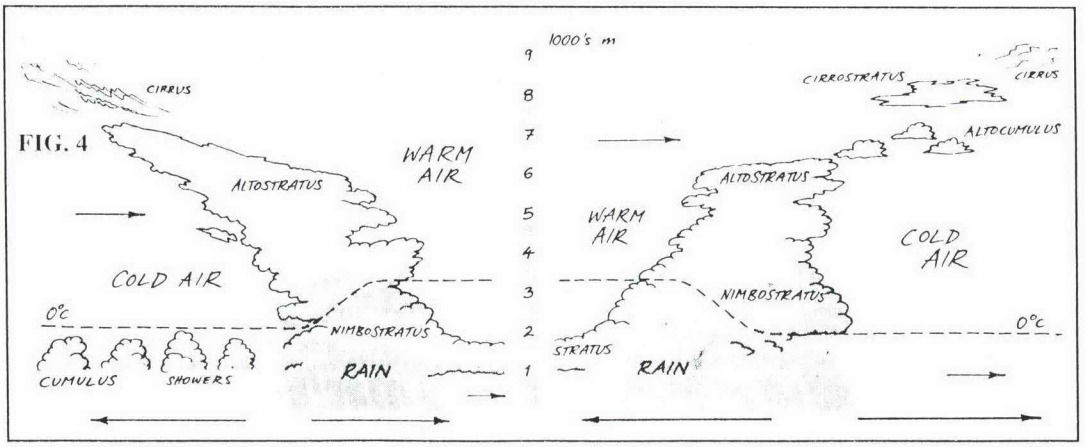
Cold fronts may be hundreds of miles in length. As a front passes it will become noticeably colder and the wind will veer towards the west or north clockwise by 45 degrees to 180 degrees.
After a passage of a cold front it will be clear and cold and the air is often turbulent.

Warm fronts.

In Fig. 2 you can see that the westerly section of the cold northern air is not sufficiently strong enough to penetrate the warmer southerly air and it is consequently turned back. The transition between the warm and the cold air masses, is called a warm front, as the warmer air is encroaching on the colder air. See Fig. 3. Warm fronts are marked on weather maps by small half circle symbols. Warm fronts may also extend over hundreds of miles.

Both masses of air in a cold front tend to be moving in a westerly direction, however in a warm front the colder air is moving back towards the east or the northeast. Consequently warm fronts do not move as fast as cold fronts - their general speeds do not exceed about 15mph. The slope of the transition between warm and cold air is between 1 in 50 and 1 in 400. Fig. 4 shows a typical active warm front.

Warm fronts tend to produce less dramatic weather than cold fronts, persistent drizzle being their worst feature. Plenty of advance warning of



their arrival can be had by observing the approaching high level clouds. As the front passes it will become warmer and winds will veer clockwise by 30 degrees to 90 degrees often ending up southwesterly.

Occlusions

Because cold fronts move faster than warm fronts they will eventually catch up and form an occlusion. The occlusion can have some of the characteristics of a warm front but generally on a much milder scale. See Fig. 3. Occlusions are generally slow moving and represent the final stages in the decay of a frontal system. The weather produced by an occlusion can range from that of the two frontal types to prolonged periods of rain.

By learning to recognise the various cloud types, keeping an eye on the pressure and temperature and remembering the various characteristics of the various frontal types you will soon find it quite easy to become rather good at local short term forecasts. This is obviously going to increase your chances of picking good days to go flying and add to your enjoyment of the sport. Now it's time to look at the weather on a smaller scale and discuss aviation meteorology in more detail, specifically the sort of close to the surface local weather of interest to hang glider pilots.

Hill soaring

After gaining his or her P1 certificate the novice pilot's main aim in life is to achieve that first soaring flight and go on to obtain the Ridge Soaring Endorsement. This will be in "dynamic" lift as thermalling skills come a little later.

To ensure that the thoughts of the would-be ace are those of joy rather than the "ohgodhowdolget down?!" variety, three factors are critically important.

Firstly the pilot should have been given good instructions in flying techniques.

Secondly the pilot should understand why the glider ought to stay up and what weather and site conditions will affect soaring. Thirdly, in situ advice from an experienced pilot familiar with the site is essential. The first and third of these factors should be taken care of by your school and/or club. The second factor lends itself to written explanation, which I shall now attempt.

Gliding flight

By the clever use of an aerofoil section gliders fall to earth rather more slowly than would a non-aerofoil lump of polyester and aluminium alloy of similar size and weight. In addition the glider achieves a fair horizontal velocity in the process.

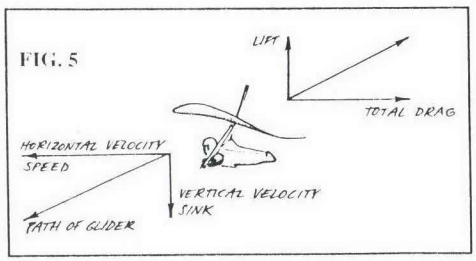
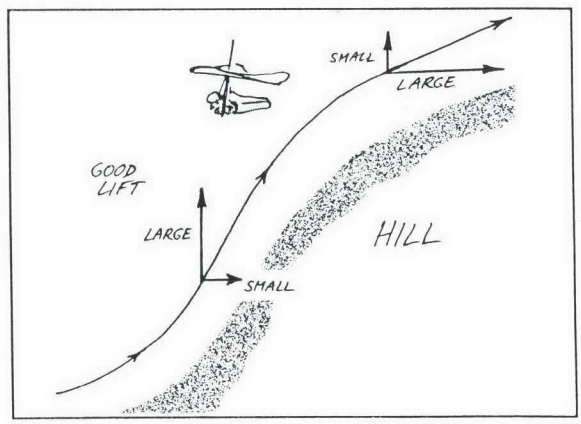


Fig. 5 shows the best glider path of a glider broken up ("resolved") into it's vertical and horizontal components ("vectors"). The best angle that the glider descends at without stalling is called the maximum glide angle, or maximum glide ratio. In equillibrium conditions - that is, a non accelerating glider on a windless day - this is the same as the ratio of the lift vector to the drag vector so this is commonly called the maximum L/D ratio of the glider. The significance of resolving the path of the glider will become clear in a moment.

Hills

When air is moving over a flat surface it will tend to flow parallel to the surface. If the horizontal air encounters a bump on otherwise flat ground it will be forced to flow around and/or over the bump. A rounded hill tends to deflect the air to the sides as it is much easier for the air not to fight against gravity.



The ridge forces the air upwards as it is too long for the air to by-pass. Looking at the airflow on the ridge in a cross section, it can be resolved into vertical and horizontal vectors. So long as the upward vertical vector for the wind is larger than the downward vertical vector for the hang glider, the glider will rise.

The size of the wind vector depends on the steepness of the slope and the strength of the wind. It also depends on the angle at which the wind meets the slope and the stability of the air.

Steepness of the slope.

The steeper the slope, the greater the vertical component. To achieve a sufficiently strong updraft to keep a glider aloft on a very shallow slope, a strong wind is needed. The limitation here is the maximum speed of the glider - it may be that by the time that the wind has increased sufficiently to generate enough lift on the shallow slope you can only fly "backwards". The theoretical slope limitation is that the slope of the hill must be steeper than the glide angle of your glider. The best lift is above and, importantly, in front of the ridge.

A glider with a minimum sink rate (the glider's downward vertical vector) of 180 feet per minute, that is 2mph (most pilots in Britain still buy their instruments callibrated in fpm, not mph or the metres per second. Approximate conversions are 1 m/s equals 200 fpm) would reach it's highest possible point - as you can see - about 200m in front of the hilltop.

Speed of the wind.

The stronger the wind, the stronger it's vertical and horizontal components. However aerofoils do not produce the same amount of lift over their whole speed range. At higher speeds they do not produce as much lift, yet such higher speeds may be necessary to penetrate the stronger winds. Consequently it may not be possible to go much higher than on lighter wind days, especially if you have a glider which does not perform so well at higher speeds, such as most single surface machines.

Stronger winds will also be more turbulent, the slope of the hill, wind and strength and size of the hill will all affect the amount of lift produced. The smoothness of the slope also comes into play.

Angle of wind to the slope.

Wind blowing at 90 degrees to the slope will obviously produce the most lift. Sensitivity to this is increased in proportion to the steepness of the slope. A slope of 75 degrees will produce half the expected lift when the wind is 35 degrees off the slope, whereas a slope of 15 degrees requires the wind to be 60 degrees off before the lift is reduced by half.

Stability

When the airstream is stable the flow is smoother and the zone of lift extends farther out from the hill. When conditions are more unstable it is less likely that the airflow will be smooth, as thermal activity can upset the laminar flow. Hills which may be easily soarable in a 10mph breeze on an unstable day may become unsoarable on a more stable day simply because the air lacks sufficient vertical mobility. In extreme examples such as cliff sites like Beachy Head the air may be unable to flow over the clifftop to any significant extent, making soaring impossible.

Turbulence

Flying a hang glider in dynamic lift involves flying for prolonged periods closer to the ground and in stronger winds than any other form of aviation. Turbulence is therefore a major concern. Turbulence is a swirling motion imparted to the air by some external upsetting force. Turbulence ranges from a global scale (lows and highs) down to tiny swirls too faint to detect. Swirls of less than 0.25mm cannot exist because of the viscosity of the sir.

Turbulence is a problem when it is of sufficient strength and size to make you loose control of your glider. Turbulence which imparts more than about 1/2g to 1g for any length of time is not recommended for flying. Turbulence is generated in airstreams by three main mechanisms.

- By air encountering solids. When air flows around a smooth streamlined shape it will contour the shape. Sharp edges and sudden changes in shape will tend to produce turbulence. In Fig. 6 you can see air encountering a very unstreamlined building. The eddies are produced because the shape is too angular for the air to flow smoothly around it. Standing eddies can form, they do not change position and because they spin around on the spot they are often referred to as "rotors". You should obviously be very careful when soaring sharp edged cliffs of spine-backed ridges.

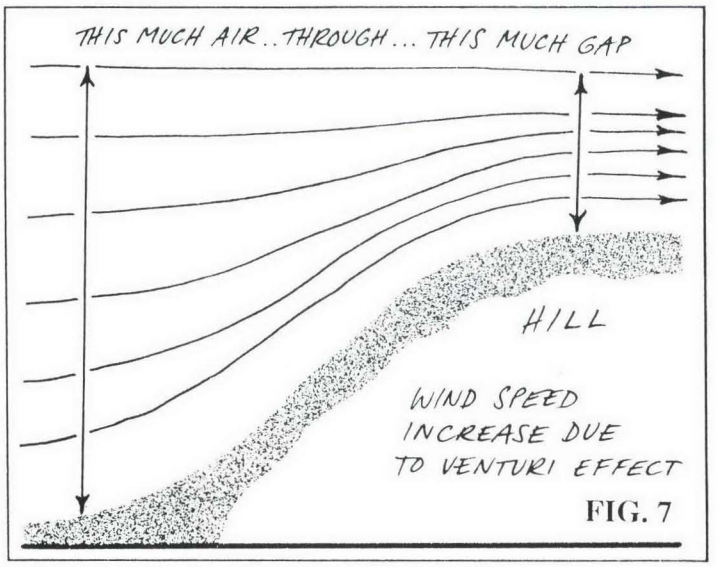
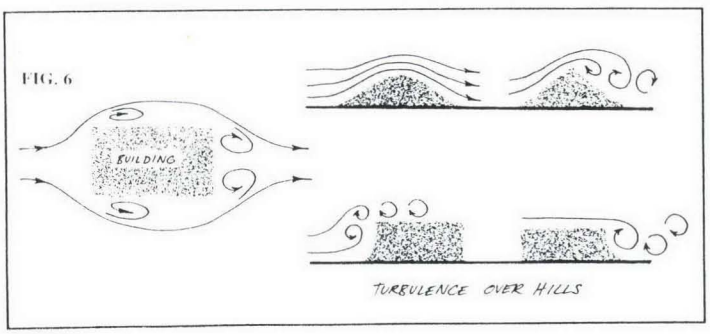


FIG. 7

Turbulence generated by mountain ranges upwind of your flying site can send eddies crashing into your otherwise smooth site. The air flowing over a solid is retarded by friction as it rubs against it and the viscosity of the air results in a reduction in speed proportional to the distance from the solid.

The surface of the earth has just this effect and the wind blows slower the closer it is to the surface. This sets up a "wind gradient". The exact profile of the wind gradient, which can extend over many tens of feet, is determined by the unretarded speed of the wind and the surface roughness. Rough surfaces, such as forests, and strong winds tend to produce a turbulent wind profile. In addition to buildings and hills turbulence can be produced by any object that sticks up into the airstream. Trees can induce quite severe local turbulence and an area of "wind shadow".



- Turbulence induced by penetrative convection. When a horizontal airstream is penetrated by thermic air-currents turbulent eddies can occur. The level of turbulence depends on the wind strength and the energy of the thermals. Often when strong winds are blowing, conditions are not favourable for the formation of thermals as the thermal sources are rapidly cooled by the airstream. Detecting turbulent air is a question of interpreting the indicators all around. Smoke from chimneys, tree tops, crop fields and standing water will often show approaching gusts. Gustiness is more of a problem than wind strength alone.

- Turbulence induced by wind shear. Where two opposing airstreams pass, eddies will form. This often occurs along the line of fronts, where widespread areas of turbulence can form. On a more localised scale, turbulence can often form where a strong inversion exists.

Fig. 8 shows a still pocket of air in a valley which has cooled down in contact with cold earth overnight more than the air higher up. From the valley floor upwards the temperature falls, then rises in the upper air. If the upper air is moving over the stationary pocket, turbulence will be found along the inversion.

Very turbulent conditions can occur when a strong inversion confines all the thermal activity to a relatively narrow band close to the ground. As this can commonly occur without cummulus clouds forming, the weather can look deceptively smooth and unthermic.

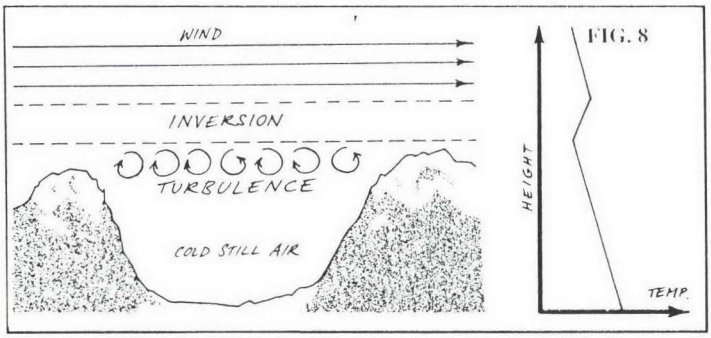


FIG. 8

Measuring wind strength and direction on a hill.

Hand held wind strength meters such as the common ventimeter can easily be transported to the site and used to gauge wind strength, but they are of limited usefulness. They are quite accurate (within one hundred per cent) but they can only measure the wind fairly close to the hill and consequently they are very susceptible to localised effects.

Wind gradient can result in the pilot measuring a totally misleading wind speed. Not holding the instrument parallel to the streamlines will make it under-read badly. The "venturi" effect - created by hills to a greater or lesser extent - caused by streamlines of a parallel airflow being crowded together as they pass over the hill, speeds up the flow and can result in a much altered measurement of windspeed at ground level compared with that at a realistic flying height.

The main disadvantage of the hand-held wind meter is that it may tend to blinker the pilot to other features of a site.

A strategically placed wind-sock which inflates at a known velocity is a useful tool, but it is worth remembering that the windsock will also only demonstrate what is happening in it's immediate vicinity.

HANG GLIDING FEDERATION OF AUSTRALIA

EXECUTIVE MEETING, 28th March, 1989

1. The Meeting began at 7.30 p.m. Present were Phil Mathewson (President), Paul Mollison (Vice President), Bernie Baer (Secretary), Brett Wright (Co-ordinator of Paragliding), and Steve Hocking (Administrator). Apologies were received from Tony Armstrong (Safety) and David Heron (Coaching).

3. Executive Reports

a. Paul Mollison said he hoped, after many delays, to have discussions with the CAA (Trevor Burns) within the next couple of weeks on HGFA's proposals for a new ANO for trikes and Powered Hang Gliders. This had been a colossal task and a saga that had gone on for three or four years, but it was hoped that by the end of this year HGFA would have a new ANO.

b. Brett Wright said (a) his Committee hoped to have a draft on paragliding operations ready for the next meeting of the Executive: and (b) he was considering the possibility of

sending an Australian representative to the 1st World's Paragliding Competition in Austria in July. He would make a recommendation to the Executive at its next meeting.

c. Phil Mathewson undertook to contact the Australian Sports Commision (Neil Richardson) on the distribution of the $15,000 grant for overseas competitions this year (Men's World, Women's World and Kossen Masters) to see if this included a grant for paragliding at Kossen, and how the money for the Women's World Competition, which had been cancelled, could be used.

General Business

a. The Executive expressed its thanks to Denis Cummings for his attendance at the NAPAC meeting in Canberra on 10.3.89, and requested he continue to represent HGFA at the next meeting of NAPAC in September. HGFA will contact the Hang Gliding organisations in various overseas countries to seek details and statistics on the use of radios by hanggliders outside controlled airspace in those countries.

b. The Executive expressed regret that Ian Jarman might not be able to accompany the Australian Hanggliding team to Switzerland as Manager/Coach because of lack of funds. Garry Fimeri should be offered the position, and if he cannot go then Russ Duncan, the 1st Reserve.

c. The Executive agreed that those pilots eligible for a STEP Award, namely Steve Moyes, Mark Newland, Rick Duncan and Carl Braden, should be reminded that their applications should be in before 29th April.

d. It would appear that some Instuctors are not submitting STMs to HGFA, some for up to 12 months or more. They should be reminded that student pilots should be brought into the HGFA at the commencement of their training and the cost of $20 deducted from the fee when the student takes out full membership.

e. The Editor of SKYSAILOR had expressed some misgivings about the cost of printing the magazine. The Executive noted his comments on one alternate quote, and requested that two other quotes be obtained.

THE SECOND ASSAULT.

By Bevan Murray

The second assault of what, we are still not sure.
The great flying and triking and also water skiing or the amount of alcohol consumed by the Japanese pilots.

Yes that is what this article is about. The 2nd very successful Japanese tour of hang glider pilots to the great mid north coast.

Arriving on the 17th of February, Chauffeur driven by the infamous Danny Scott. They made the first day of a seven day package trip at the hang glider haven of Mr Ree Scott, as the "japs" called him.

Arranged by Siebu Sports of Japan, by the raging Kaige (cagey) and with help by Bill Moyes and interpreter itchy nakerrs, makes the trips just one big party for the Japanese pilots, and is a great change for us local pilots, who seem to spend half the time laughing I'm sure.

Basically the weather lately has been a bit disheartening for flying, especially after returning from Parkes where the weather and flying can and was so great. (Shame no one put an article in on the flatlands as of yet.)

But without a word of a lie the MCG turned on a good weeks weather for our visiting friends.

The days usually started at about 6 am with 2 trikes flying out of Lee's place, also for 4 days was the service of Kevin Maguin taking them for flys from Scottys to the beach.

After brekky it was off flying again, North and Middle Brother being used on most days. After flys usually of two and a half hours duration it was off for a bite of lunch. Then back for another session.

Once the days flying and eating duties were over at about 5 pm, it was off water skiing by the compliments of Anthony Muras boat driver extroadiner and $600 Scotty was paying him for his services. Here was an opportunity for plenty of laughs. Its great to watch the expressions of the Japanese pilots as they go into a whip at 100 klm on a ski tube.

There was really only one accident which happened to a pilot of the name "ASSA" when he forgot to let go of the rope when finishing his ski, which made him overshoot and tackle a few rocks, but only suffering from a cut leg and a damaged pride. This did not deter him from the great coming events on the calender though.

Then it was off to the pub for a few drinks and home for a feed.

So these strenuous tasks were carried out for a week ending up with a farewell party at the 12 Lake St Hang Gliding Centre.

Or I should say the house occupied by 4 hang glider pilots and one ski boat driver.

After $10 contributions, 12 cartons of beer were purchased and then the fun began.

We all learnt a lot about our different cultures, but we all learnt that we did not mind having a blinder and a great time.

So the next day the pilots caught the skennars bus back to Sydney, meanwhile Danny and Toyota (a Jap pilot) drove the Toyota (mini bus) back to Sydney feeling pretty seedy, we figured.

So the 2nd Assault was over and now we can look forward to next year's event.

So from the Laurieton boys, syrinana!!

VICTORIA

Foil 160B Racer (Int) - includes spare down tube, hand mitts and map case. Low hours, ex cond $2495- ono
Phone (03) 5833280

Magic III 166 (Int) - Yellow mylar LE, pink sandwhich cloth sail. Easy to see in the air and a good performer. $1000-
GTR 162 Comp (Int) - Yellow mylar LE, black US. 2 years old and in excellent condition. $2300-
GTR 162 WB (Int) - Grey mylar LE, grey and pink US. This has the lot - contender, ultraweave, kevlar TE. 3 months old and less than 40 hours airtime still as new. $3400-
Mission 170 (Nov) - brand new and never been flown. It has a pink LE and fleuro green US. $2700-
Gyro 180 (Nov) - Blue and gold and in good condition. $1100-
Contact Rob Ruge (052) 441587 ah 471319 bh or Rob Van der Klooster (052) 223019 ah 471235 bh

WANTED - EF5 or EF6 in reasonable condition
CB radios AM hand held 5w, realistic 6ch, mike & charger + Lankar 40ch for car, mounts, aerial, vgc $200- the lot
Phone Colin (053) 345204

Magic III 166 (Int) - faired kingpost, speedbar, pitchy, VB, new side wires, batten profile & manual. Good cond $600 or will swap for bigger glider
Cocoon harness, storage bags, red. Backpack type, suit pilot 5'10" + $100
CB radio - Realistic 5w, 6ch, power mike, nicads, charger, mounts, vgc $140
Phone (052) 218872

Vario - make unknown, beeps on up only $50 ono
Paul Tanner (059) 964116

Magic IV Race 166 (Int) - mylar LE, blue US, white 4.8oz dacron main. Full race hardware, fairings, VG, pitchy, 2 spare uprights, etc. 30hrs airtime, excellent cond. Cost $3900, will part for $2990 or nearest sane offer.
Contact Ian O'Neill (03) 2337725

GTR Full Race (Int) - silver grey, light blue, white. Sacrificed to sell - going OS. vgc $2000
Phone Ian Haigh (03) 7493219

2 * Mega II's, Bandit 180 (Nov) - All three flyable $400 each
Phone Rob (03) 4895182

Mission 170 (Nov) - as new cond, only 4hrs use. Blue LE, green MS $2200
(057) 773851

AUST. CAPITAL TERRITORY

GTR 151 Full Race (Int) - Immac cond, 27hrs airtime, ultraweave TE, speedbar. Pink LE, light & dark blue US, white MS. Going OS $2700-
Ph Brett Freebody (062) 957434

Sabre 177 (Int) - tidy, VB, won 1988 Coopla Cup (fast) $500
Magic III 166 (Int) - ex Pendry world winner. Airfoiled, VB, good cond, sandwhich sail. $1400
Phone Richard (062) 886768

SOUTH AUSTRALIA

MARS 170 (Nov) - late model, good cond, low hours. Batten profile, handbook & spare down-tube - $1200-
Flight Design COCOON **Harness**, excellent condition - $70-
Max Browne (08) 2948501 ah 3484574

High Performance Thoroughbred, "WORLD MASTERS White Swannee" It's a full tilt **WORLD BEATER** (Int) & it's a bargain! and your baby for $2500 insured & delivered; don't wait, don't be late, make a date!
Ph. Julius (08) 2611902

WESTERN AUSTRALIA

GTR 148 (Int) - Red LE, pink and yellow top, white US, faired kingpost, tight sail (no flutter), bargain at $1850-
Danny (09) 3873605 ah 3264867 bh

QUEENSLAND

FOIL 160B (Int) - Yellow & gold U/S, red L/E $1700-
Probe II **upright** - $25-
Ph (07) 3492321

GTR 148 (Int) - White with red US. Good condition. $2000-
Carol (07) 3930715 ah 2210555 bh

Excellent **TRIKE** - W.C. 532 Buzzard, pod & instruments with almost new Arrow II, red, white & gold wing $9000 all up
Also fair cond **Arrow I** wing only, flies well $1800
Also steel trailer, with spare $450
Richard Clark (075) 387642 - will instruct buyer if needed

50 * Black & white 36 exp, 35mm **films** $2.50 each
World Beater (Int) - with all extras. Low hours would suit new glider buyer $3400
Contact Jack (071) 863166

EF5 with Fledge 3 style (swept-back) rudders. Excellent cond, value - $700
Foil 165 (Int) - Immaculate $1200
Foil 170 Race (Int) - immaculate $2500
Kasperwing Ultralight - all options, vgc - suitable for hang glider pilots wanting a soarable motorized machine $6500
Stan Roy (071) 459185

GTR 162 Comp (Int) - late model - reinforced TE. Handles well, orange/ white sail has a few marks but very little stretch - - 70hrs approx. Ideal glider for pilot wishing to upgrade or pilot looking for predictable ease of landing & handling $1650
Foil 160B Racer (Adv) - excellent cond - easy to turn & thermals well with good performance $2400
Phone Pat (079)724278 AH

NEW SOUTH WALES

Moyes GTR 162 (Int) - Red L/E, red & white T/S and white U/S. Speed bar, faired k/post & uprights, speed wires. In very good cond $1600- ono. Will freight

Moyes WB 151 (Int) - Made for Flatlands comp, only 15 hours. Kevlar T/E with inverted surfcote L/E. Blue L/E, blue & white T/S, light blue & pink U/S, as new. Perfect for smaller up and coming comp pilot $3500- ono. Will freight
Contact Lance Gregory any time
(065) 598824

GT 170 (Int) - Green L/E, gold U/S, good cond $700-
Instruments - Litek vario & thommen altimeter on bracket $300-
Ph Bill (066) 216655

GTR 162 Race (Int) - Low hours, yellow, blue U/S, blue L/E. Excellent condition $2500- or offers
Phone Garry (02) 644249 ah 2658038 bh

PROBE 2 175 (Int) - White sail, green U/S. Good condition. Plus Moyes cocoon harness suit 5'9"-6' & Para Logic **stirrup harness** Lot $700-
Phone Glenn (02) 6235990 ah

Litec VE 12 miniature **vario.** Brand new, 12 months warranty. Includes warranty card & instructions. Normally $340 sell $280 ono
Litec VE 12 miniature **vario**. $150 firm
Phone (062) 974168

Mars 170 (Nov) - red LE, white main, flies & handles well, vgc. Mylar inserts in LE, low air time $1100
Phone Wal (043) 329228 AH

Aero 170 (Nov) - only test flown, ammaculate as new, fluro green LE, blue US, speed bar, stiff LE. Suit heavy pilot - poor student needs the money
Phone Phill (02) 8886819

532 Liquid cool 2 seater **Trike** & Arrow wing in excellent cond + trailer & lessons $9000
GTR Race 162 (Int) - grey LE, blue US, white top, 7oz sail cloth, ultraweave TE & 0deg tips. Flies beautifully, a bargain at $2000 - no offers
Ph Laurieton 597011 - Mick & Bevan

Foil 160B (Int) - very good cond $1700ono
Pod harness with chute - best offer
Denis Gilbert (043) 591335

Airborne **TRIKE** - suspension, brake, big tank, ultra prop, rotax 277, single seat, Missile 180 wing. Great performer with 10 stone pilot. Dual purpose trailer and accessories. $5000-
Phone (02) 5253787 Brian Silver

PROBE II (Int) - white, black L/E, yellow U/S $1000-
Phone Paul (02) 5883494

TRIKE Wing - Moyes GT 170. Very easy to handle and flys well, low hrs. Red L/E & U/S, white T/E. $1100- ono
Phone (02) 7968323

Moyes GT 170 (Int) - V/B, radial cut sail. As new, 18 hrs flying. White, yellow & red L/E.
Cocoon **harness**, new chute, ball vario & digital alt, spare base bar, CB radio. Plus new apron harness $2000-
Phone John Revelle (02) 5299818

Mars 170 (Nov) - good condition $1000- ono
Sabre 165 (Int) - surfcte, speedbar, faired kingpost, good condition. $1000-
Phone (062) 319087

Sabre 177 (Int) - Blue & orange, comes with XC bag, very good cond, 10th in the Corryong Cup. Suit larger pilot. Would make a good Trike wing or upgrade from your Mars/Gyro $600- or offers
Phone Glenn (060) 761333

GTR 162 (Int) - V. good cond, fully faired. White main, d.blue L/E, l. blue U/S. $2200- ono
Chris Salmon (02) 5284593

Harness - Apron with stirrup, good cond. Suit beginner.
Also **Helmet** - Stackhat, medium, brand new. $50- each
Phone Martyn (02) 4847018 ah

Mars 170 (Nov) - Light blue L/E, white sail with rainbow U/S. Less than 60 hrs airtime, very good cond. No stacks, flies well, includes batten profile $1000- ono
Andrew (02) 9693895 ah 4387351 bh

MARS 170 (Nov) - with padded cocoon harness, helmet and back issues of Skysailor to early 1983. $950- the lot
Vince (02) 4199071 bh 9139252 ah

Borgelt **Vario** - Alt, airspeed, TE Vario, twin batts, averager and audio speed to fly. All the normal fetaures plus extras. Best reasonable offer
Also 6 channel CB
Phone (043) 591335 or (065) 724870

133 Magic IV Full Race (Int) - 12 months old, 30 hours, blue L/E, pink U/S, kevlar T/E, excellent condition. For small pilot, was $2900- now $2500- will take less
Foil 155 (Int) - yellow L/E, rainbow U/S. Give me an offer. Excellent 1st high performance glider
UHF **CB** 40 channels. Electrophone $300-
Phone (046) 255158

165 UP Axis (Int) - 6 months old, like new, full race. Easy to fly and launch. Extras! $2000- ono. Must sell - going overseas
CG 1000 **harness** - excellent condition, fits a 5'7" - 6' pilot. Blue and gold, totally adjustable. The best in low drag and high comfort $400- ono
Nick (042) 943004

150B Foil (Int) - 17 months old, 20hrs airtime, in excellent cond. Speed bar & TE band. Also spare upright & fully waterproof welded vinyl bag included. Light blue/dark blue/white & pink with rainbow pattern $2600 ono
Realistic 40ch **AM radio**. Includes mic & trailing wire $150
Ph. (044)214136 ah

GTR 162 (Int) - Full mylar sail, surfcote LE, race wires, faired tubes. Yellow & white new sail on this airframe and tight as a drum - no flutters $1800
Ph. Harry on (042) 967796

GTR 162 VG (Int) - Blue LE, white with small rainbow US. Speed wires, faired uprights & kingpost, good cond, flies well. C/w 2 spare uprights, manual & batten profile. American Cocoon harness, blue with flying star & rainbow suit 5'10" - 6' pilot. The Lot $1500 ono
Phone (042) 971923

XS info.

Direct from Steve Moyes, currently competing in the U.S. with the new, exciting XS glider. Steve answers the most asked questions about the XS:

Q: How is the handling?

A: "The roll is light because you have got so much rope, that is, the VG travels so far that on loose setting you have billow and on tight setting you have less than no billow. The XS flat turns really well and climbs at an incredible rate. The XS tracks well at speed (40mph). Also you are able to stay on top easily."

Q: How does the XS handle while landing?

A: "The XS has a really slow stall speed, making it easier to land than any other high performance glider on the market."

Q: How is it that the weight of the XS is so low?

A: "We have increased the crossbar strength with the new Ball Joint, located in the centre of the crossbars, this coupled with a new tested leading edge construction that saves 6lbs. The XS is a smaller glider with less batten material, lighter sail area, and lighter hardware. These combined factors gives the XS the very low weight of 69lbs (without bag)."

Q: What are the cloth options of the XS?

A: "We suggest 4oz contender throughout the sale as an all purpose, long-wearing, and high resale material. As an optional extra, we have a mainsail material that is called 'Warp RH'. It is a 5oz material that has heavy Denier threads running the whole length at ¼" intervals. You have the choice of a coloured mainsail in the following colours: White; Lilac; Fluoro Pink; Red; Fluoro Orange; Gold; Yellow; Fluoro Yellow; Light Blue; Dark Blue; Fluoro Green. Also as an option for the Mylar pocket, we suggest Aramid Ripstop (Skrim), the available colours being Fluoro Pink, White, Fluoro Yellow, Mid-Blue, and Red."

Q: What is the batten arrangement?

A: "There are 8 mainsail and 2 half ribs, plus 4 undersurface ribs per side and one nose rib; giving a total of 29 ribs. The XS has a high batten density at the nose area to form a very solid airfoil. At the tip there is also a high density of ribs, radiating out at the trailing edge to stop any flutter problems."

Q: How does the XS handle excess weight?

A: "It is not necessary to have a bigger XS glider for the heavier pilots, as the sink rate ratio is very good."

Q: What is the best glide speed of the XS?

A: "The XS has a glide speed of 30mph, this is better than the gliding performance of any other glider. The XS has an extremely flat polar between 25-30mph, also, the sink rate remains the same when flying at this speed."

Q: What does the new XBAR connection look like?

A: "The new ball and socket joint is ultra-efficient. Bill Moyes invented the system whereby 2 stainless steel brackets hold the crossbars so that when it hinges closed the ball will locate in the centre of the 2 crossbar halves every time. When load testing on the test truck, the ball joint held together and handled the load without a problem."

MOYES

XS

The Champions Glider.

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California 91303.
Tel: (818) 887 3361 Fax: (818) 702 0612

Moyes Delta Gliders P/L., 173 Bronte Rd.
Waverley 2024 N.S.W. Australia.
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