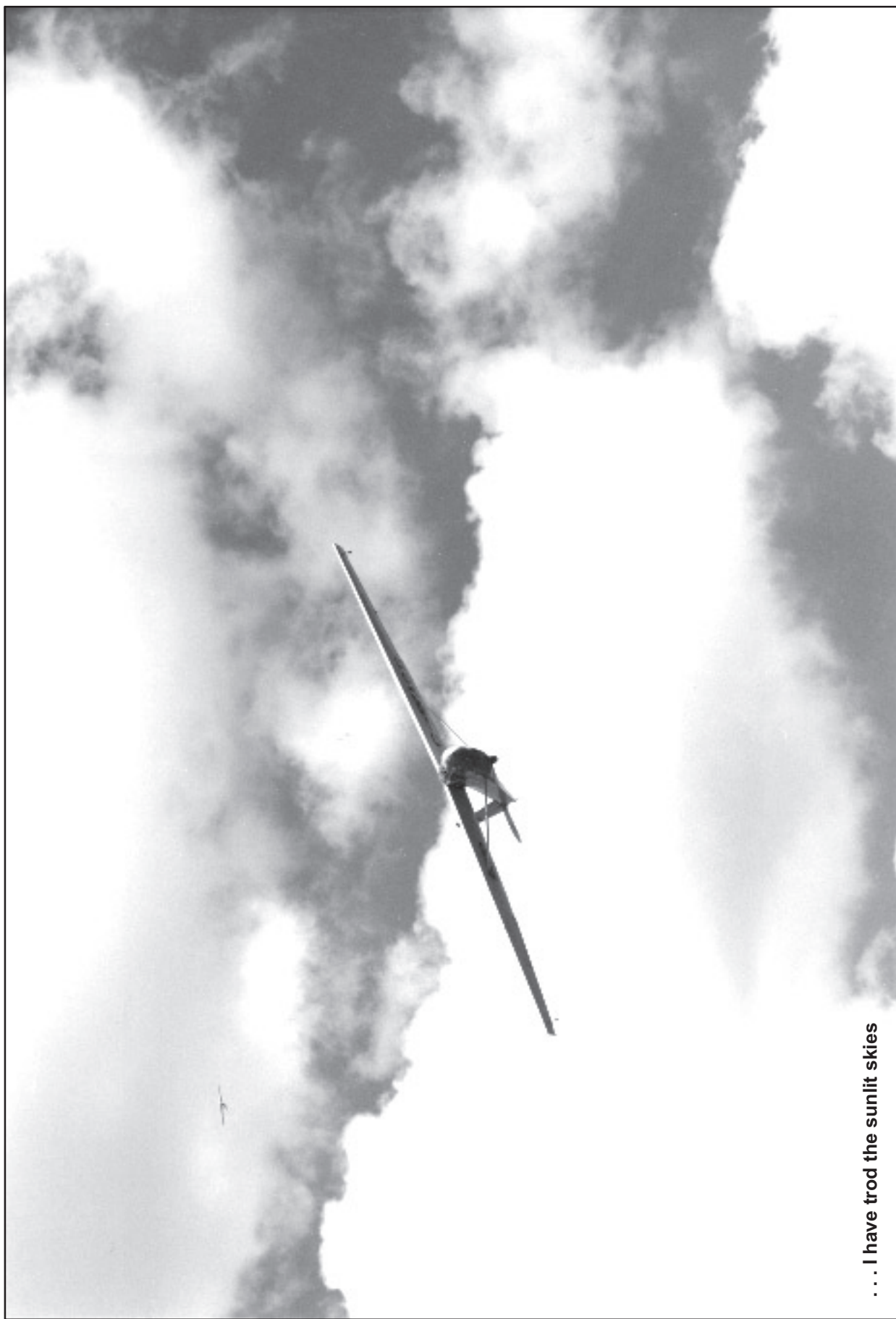


free flight • vol libre

4/92
Aug/Sep



... I have trod the sunlit skies

POTPOURRI

My deepest sympathies and condolences to the family of Don Hill, who lost his life in a glider accident at Invermere, BC on 3 June.

I wish Andy Gough a speedy and complete recovery from his serious injuries due to a glider accident in Pennsylvania. I urge Canadian pilots to purchase trip insurance prior to any travel to the USA. Andy's medical bills have been estimated at several hundred thousand dollars! Read the fine print on any policy you are contemplating purchasing – some have exclusions on non-commercial flying or 'high-risk' sports. Blue Cross, for example, provides reasonable trip medical insurance but does have a gliding exclusion on the death and disability benefit rider to its package.

To all members of SAC
for the rest of the season

— if you wish —

FLY FAR

FLY FAST

FLY HIGH

but above all,

FLY SAFELY

Al Sunley

free flight • vol libre

Trademark pending Marque de commerce en instance

4/92 Aug/Sep

The journal of the Soaring Association of Canada
Le journal de l'Association Canadienne de Vol à Voile

ISSN 0827 – 2557

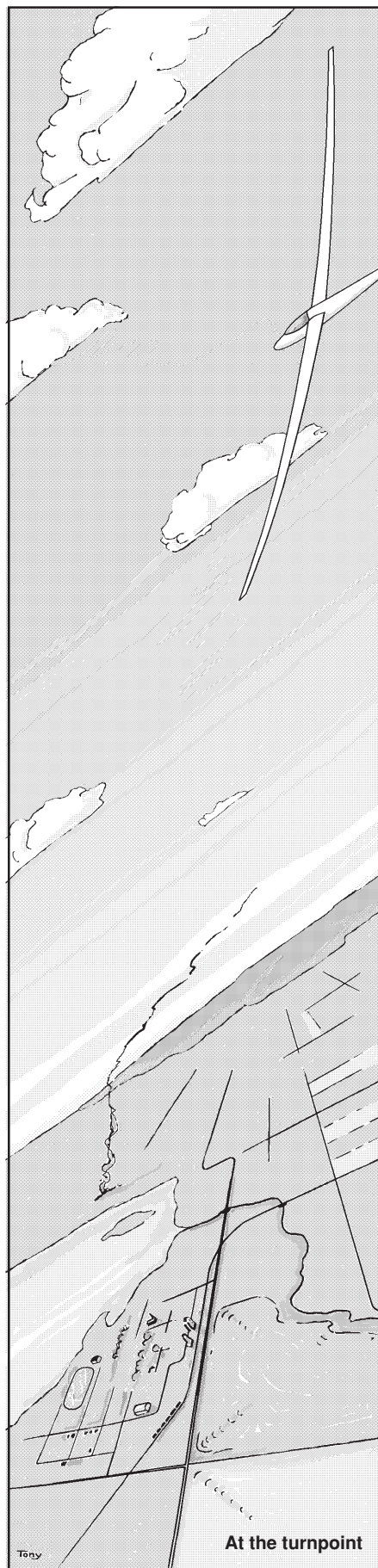
- 6 **Skywatch**
unhelpful clouds and areas to avoid — Tom Bradbury
- 8 **8 days of competition**
the 1992 Nationals — Bill O'Brien
- 9 **1000 point days**
a winner's eye view — Ed Hollestelle
- 11 **Well, almost a 1000**
a winner's eye view — Nick Bonnière
- 12 **Report on GPS trials in New Zealand**
the system works — John Roake
- 13 **A new wing rises from the ashes**
DG-800 and the factory fire

DEPARTMENTS

- 5 **Letters & Opinions** — I was wrong, questions from a new member
- 14 **Training and Safety** — DND seat cushion tests, failure of control couplings, book review on Derek Piggott's *Gliding Safety*, accidents and incidents
- 16 **SAC Affairs** — National office news, a reminder on trailer insurance
- 17 **Obituary** — Helmut Reichmann
- 18 **FAI page** — Current badge legs, new records, new SAC flight declaration form available

Cover

A 2-33 or two sail over York Soaring territory a couple of years or so ago.
Photo by Jack Humphries



EDITORIAL



It's a strange year, isn't it? Blame Mount Pinatuba in the Philippines, whose volcanic ash in the stratosphere has reversed the greenhouse warming for a while in the northern hemisphere, and "el Niño", the warm Pacific current which locked the jet stream over Alaska in the west and the Great Lakes in the east and which gave Canada a no-winter winter — or not — depending on whether you were from BC or from somewhere slightly further east. The result is that average soaring conditions haven't occurred at all. In fact, "average" has taken on that southern Alberta definition of average temperature — what you have for an instant on the way from too cold to too hot and back.

So far it seems that the only way to get any soaring done this year is to enter a competition. Ontario and Quebec have had a soggy spring and a soggy early summer, with many clubs not getting their ships out of the hangar until May, and the only decent stretch of weather there seems to have occurred during the ten days of a good Nationals which is reported on in this issue. Calgary pilots were soaring in March but had to dig trailers out of 10–15 cm of snow at Black Diamond mid-May to haul them to the Provincials in Innisfail. Here in Claresholm, ranchers were shipping stock away from the area because there was no grass growing out in the foothills, then at the end of June an all-time record 5 to 12 inches of rain fell in less than two weeks! Great for everyone except glider pilots who got drowned out at the Mountain Soaring Camp just over the Rocks at Invermere (which has been rained out for three years running now no matter what week we pick). I missed every inch, being at the US Sports Class Nationals in Ephrata, Washington, a contest I had been practising two years for. It was great soaring in the Columbia Basin — and we could see all that rain up north over the mountains while averaging well over 300 km a day for seven of nine days. This competition used 'speed only POST' rules in which only a minimum flying time is set for the pilots; there is no requirement to be back on the mark. If your speed is improving during the day you keep flying. I would recommend that this brand of POST be tried in our contests too.

I got some flak on the last issue — I made no mention whatever of the Nationals at Hawkesbury, not even in "Coming Events". I plead guilty on the Coming Events oversight, I had taken it out of the 2/92 issue as there was a large ad for the Nats on that issue's FAI page, then forgot to re-insert it for 3/92. Naturally the organizers were upset; getting competitors to sign up was hard enough without the lack of advertising. BUT, in my own defence, the organizers didn't send me any new contest information either. I'll print anything I get on soaring events to help fill the magazine, so do your part and keep me informed. I try to anticipate events and generate my own notes but don't count on my memory — middle age is slowly rotting it.

A letter opposite by Svein Hubinette asks, in part, for more club news. I would like to see more too but I can't write it — only a few clubs are good at sending me their gossip regularly, so again I ask club executives to make sure *free flight* is on their club mailing list, but especially observe the deadline just below and to the right and have someone write me a few lines on how you are doing. (This is only a 20 page issue this time.) The Board is considering Svein's letter, but what he writes compels me again to remind pilots that communication is a two way street — some of his questions have simple answers that a query to his Zone Director or even the MSC club executive could have answered.

Enjoy your flying and keep working at getting better at it.

Tony Burton

The SOARING ASSOCIATION OF CANADA

is a non-profit organization of enthusiasts who seek to foster and promote all phases of gliding and soaring on a national and international basis. The association is a member of the Aero Club of Canada (ACC), the Canadian national aero club representing Canada in the Fédération Aéronautique Internationale (FAI), the world sport aviation governing body composed of national aero clubs. The ACC delegates to SAC the supervision of FAI-related soaring activities such as competition sanctions, issuing FAI badges, record attempts, and the selection of a Canadian team for the biennial World soaring championships.

free flight is the official journal of SAC.

Material published in *free flight* is contributed by individuals or clubs for the enjoyment of Canadian soaring enthusiasts. The accuracy of the material is the responsibility of the contributor. No payment is offered for submitted material. All individuals and clubs are invited to contribute articles, reports, club activities, and photos of soaring interest. A 3.5" disk copy of text in any common word processing format is welcome (Macintosh preferred, DOS ok). All material is subject to editing to the space requirements and the quality standards of the magazine.

Prints in B&W or colour are acceptable. No slides please. Negatives can be used if accompanied by a print.

free flight also serves as a forum for opinion on soaring matters and will publish letters to the editor as space permits. Publication of ideas and opinion in *free flight* does not imply endorsement by SAC. Correspondents who wish formal action on their concerns should contact their SAC Zone Director whose name and address is given in the magazine.

The contents of *free flight* may be reprinted; however, SAC requests that both the magazine and the author be given acknowledgement.

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letters & opinions

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est une organisation à but non lucratif formée de personnes enthousiastes cherchant à développer et à promouvoir le vol à voile sous toutes ses formes sur une base nationale et internationale. L'association est membre de l'Aéro Club du Canada (ACC) représentant le Canada au sein de la Fédération Aéronautique Internationale (FAI), administration formée des aéro clubs nationaux responsables des sports aériens à l'échelle mondiale. Selon les normes de la FAI, l'ACC a délégué à l'Association Canadienne de Vol à Voile la supervision des activités de vol à voile telles que tentatives de records, sanctions des compétitions, délivrance des brevets de la FAI etc. ainsi que la sélection d'une équipe nationale pour les championnats mondiaux biennaux de vol à voile.

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Les épreuves de photos en noir et blanc ou couleur sont acceptables. Les négatifs sont utilisables si accompagnés d'épreuves. Nous ne pouvons malheureusement pas utiliser de diapositives.

L'exactitude des articles publiés est la responsabilité des auteurs et ne saurait en aucun cas engager celle de la revue *vol libre*, ni celle de l'ACVV ni refléter leurs idées. Toute personne désirant faire des représentations sur un sujet précis auprès de l'ACVV devra s'adresser au directeur régional de l'ACVV dont le nom apparaît dans la revue.

Les articles de *vol libre* peuvent être reproduits librement, mais la mention du nom de la revue et de l'auteur serait grandement appréciée.

Pour changements d'adresse et abonnements aux non membres de l'ACVV (\$20 par an, EU\$22 dans les Etats Unis, et EU\$28 outre-mer) veuillez contacter le bureau national à l'adresse qui apparaît au bas de la page à gauche.

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Any service of Canada Post to above address. Commercial courier service, c/o "Claresholm Local Press".

COMMERCIAL ADVERTISING
National Office (613) 739-1063

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I WAS WRONG

Admitting you were wrong is never easy but here goes. I was wrong. I was quite wrong to lambaste Jim McCollum in such a personal way in my earlier letter. The gliding movement depends on volunteers like Jim to keep it operating. Jim is one of the brightest guys I know and he works hard for SAC. I hope Jim will accept my apology.

Dixon More SOSA

QUESTIONS FROM A NEW MEMBER

This is my second season as a member of MSC with about 80 flights to date. Apart from *free flight* I also subscribe to SOARING and Sport Aviation. As a member of the EAA I see tremendous enthusiasm and growth opportunities in this segment of aviation, while on the other hand each issue of SOARING is full of gloom and doom about our sport — feel a loser and you will become one. With a proper plan, enthusiasm, and a professional approach we can achieve tremendous growth.

Both the US and Canada has one SSA/SAC member per 20,000 inhabitants, while the EAA has ten times the membership. With a certain critical mass (say 10 members) needed to sustain a club we must reduce this ratio significantly to reach more population centres. In my company's Montreal plant (Pratt & Whitney) we are about 1 per 1000 employees and, as shown by a recent lunchtime display by the Champlain club, there is tremendous interest (and unawareness) for the sport.

Arising from the annual report, I have the following comments and questions:

\$ and ¢ issues (SAC vs SSA)

Our total SAC membership fees are proportionately 50% larger than the SSA's, while we only make about half as much in sales and merchandise and one tenth in magazine ad revenue. Expenses are proportionately on par with the SSA. The SAC is clearly in need of additional sources of revenue as highlighted in the "Treasurer's Report".

It is noted that almost 60% of revenue goes towards office expenses and travel and only a miserly 1.5% (\$2000) towards publicity — incidentally about the same as in the MSC annual budget. Why only one publicity officer, and who takes care of recruitment?

Pioneer Trust Fund To our older members this may well be a sacred cow, but please explain its original purpose and annual use. Can some of the money be put to better use such as enhanced membership services and in attracting new members?

Insurance Your statistics covering the 8 year period 1984-91 shows a total premium paid of \$2,403 mill with 51.7% paid out in losses. With a typical industry admin. cost of 25% this represents an annual loss of \$75,000

to the SAC (if administrated by the SAC) and a further \$70,000 to the community. We can surely do better.

Membership Categories What is the breakdown of members in each category? Why both categories a and b, and what is the purpose of groups f and g? Are we attracting corporate sponsors?

Free Flight Print quality and layout is good and is promised to get even better. The content mix is good, but should be more directed to casual readers. More international coverage of events, new products and club operations would be welcome. The same goes for our Canadian scene — what are our clubs doing (equipment, flights, membership successes/failures etc.)? Front page is generally uninspiring (see SOARING) and rear page wasted with club info — full page ad please.

The success of *free flight* is vital to our sport, but to succeed we must reach a larger audience. Comparing *free flight* to SOARING (in my opinion not a good comparison as SOARING is a mostly boring magazine full of "shop talk" and letters of doom and gloom for the sport) we charge \$20 (6 issues) vs \$30 (12 issues). Our ads are free, they charge \$9.10 (minimum) with pictures extra. They print their advertising policy and order form in each issue — we don't. They average 64 pages per issue vs our 24 with advertisements on 70% of the pages vs our 10%. To reach a larger audience we must:

- add colour — cover page minimum
- attract more ads and charge for them such as twinning ads with SOARING. Ads from the aviation community including our own clubs, and other commercial ads.
- General distribution such as news stands, libraries, aershops and our flight lines. With a publishing cost of \$3-4 we can make a profit and reach a larger audience. If we can't do it — let's talk to specialty publishers and ride the wave of the improving economy.

National Aero Club magazine I don't agree with Mr. Burton's comments in issue 3/92 that Canada (population 27 million) is too small to have one. For comparison, Norway with a population of 4 million has a monthly aviation magazine — much in colour. Our problem is fear of the Americans and a lack of faith and initiative. Canadian successes are possible!

In conclusion, I hope my letter will generate some dialogue. The sport has tremendous mass appeal, but we must do a better job of reaching out and making the sport more accessible. Why, for example, is glider aerobatics almost considered a pariah within our community, when it is perhaps one of our best ambassadors. Manfred Radius was by far the most impressive individual performer at the St Hubert Air Show — surpassed only by the Snowbirds, but they were nine and had power.

Svein Hubinette
Montreal Soaring Club

SKYWATCH

Unhelpful clouds and areas to avoid

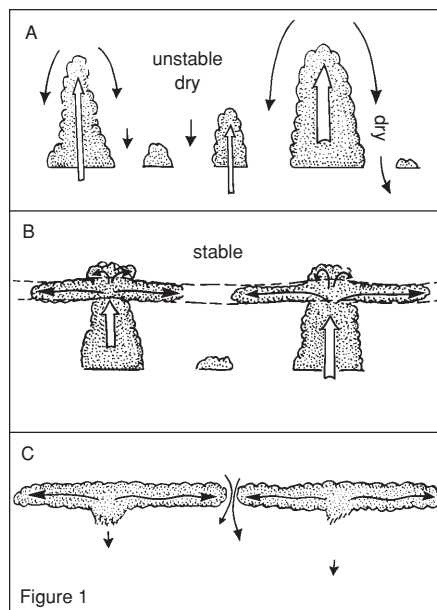
Tom Bradbury

from SAILPLANE & GLIDING

THE ARTICLE IN THE LAST ISSUE was concerned with describing thermals and suggesting where to find the best lift. Now we will describe unhelpful clouds and some areas to avoid if you want to keep clear of strong sink.

One of the most common kinds of development is the spreading out of cumulus to form an almost total layer of stratocu. It frequently happens on days which would otherwise provide magnificent soaring conditions. Figure 1 shows three stages in the spreadout process.

A illustrates an unstable airmass with relatively dry air aloft and no inversion. Here the cumulus tops are very irregular, some high, some low. Each tower displaces some of the dry air aloft and brings it down amongst the cumuli. This reduces the humidity in the cumulus layer and as a result clouds tend to evaporate more readily once the thermals inside have ended. In these conditions clouds remain well broken, a fair amount of sun reaches the ground and thermals are evenly distributed.



B shows what happens when the cloud tops are limited by a moist inversion. The inversion checks the growth of the cumuli so that all the cloud tops are much the same level. The up-currents are diverted sideways when they reach the inversion and the moisture they bring up from below is spread out horizontally. If the air in and above the inversion layer is very dry, the cloud usually evaporates before forming a complete layer.

When strong thermals bump into the inversion they produce turbulence which draws dry air down from aloft. This reduces the humidity under the inversion and may prevent the spreadout from becoming total. Over the oceans weaker but more prolonged convection gradually brings up so much moisture to the inversion layer that eventually the flattened cumuli join up to form a huge area of stratocu. This kind of cloud layer is very common over the sea and coasts on the eastern side of large anticyclones.

C shows how the spreading layer of stratocu cuts off further heating so that the thermals die out overland. The stratocu often forms large cells of 50–100 km diameter. Narrow cracks separate the cells. A line of sink can come down through long lived cracks.

How old fronts cause spreadout

Active fronts have a great depth of cloud; when the front weakens and dies it is usually because some major system has made the air subside over a large area. For example, the development of a ridge or new anticyclone usually weakens a front so much that nothing is left except a band of very moist air tucked underneath the subsidence inversion. The analysts at major Met centres usually drop such fronts from their charts so you will not find them on the TV or press weather maps.

Sometimes you can guess where they should be by mentally extending the fronts which are shown. These dead fronts are a menace to good soaring. The invisible moisture is just what is needed to encourage the growth of a stratocu layer a few hours after the first cu have formed.

Cycling

Over the sea one sees little sign of a cyclic change in these stratocu layers but over land the cloud layer often breaks up when there are no more thermals to maintain a supply of moisture. Then the sun comes through again, more thermals develop, and the new gaps are quickly filled in. The length of these cycles seems unpredictable; it may be only an hour but too often the spreadout lasts till sunset.

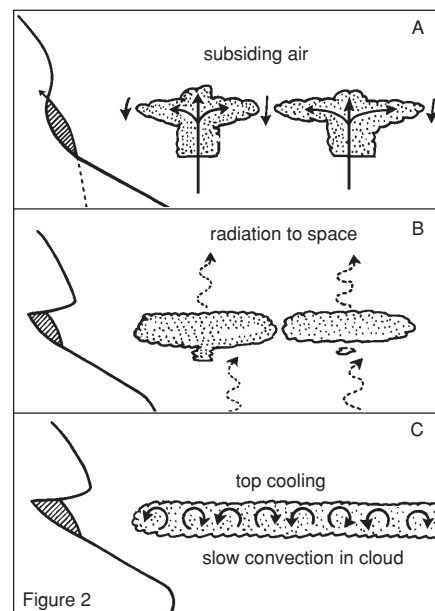
When stratocu become self supporting

A layer of stratocu formed by cumulus spreadout does not always break up when there are no longer thermals underneath. If the layer becomes thick enough a new process takes over which can keep the layer intact for several days.

All objects radiate heat; at night the ground cools by radiating heat away into space. Clouds radiate heat too; the base radiates heat back to the ground (which is why the

ground does not cool so much on a cloudy night). The tops of cloud radiate heat away into space and become cooler in the process. The cloud top cools more by night than by day but even on a summer afternoon the top loses heat.

Cooling the cloud top has two results: first it makes the inversion stronger and second it makes the cloud slightly unstable. This is because the temperature hardly alters at cloudbase but the cloud top becomes steadily cooler. The process is illustrated in Figure 2.



A is the early stage before a complete cloud cover had developed. The curve on the left represents the temperature with a gentle inversion at cloud top. The shaded bit shows where the cloud fits in.

B shows almost total cover of stratocu with the top radiating heat away to space. The cloudbase also radiates heat but this downward radiation is more or less balanced by upward radiation from the ground. Cloud top cooling has made the inversion sharper.

C shows the final stage when the layer of stratocu has become unstable. The new instability is very slight but it does produce a gentle stirring through the whole cloud layer. This keeps taking moist air up to the inversion to maintain the cloud cover. Most stratocu layers have a billowy top showing the result of this convective stirring. This internal convection maintains the cloud layer without any help from thermals rising from the surface. Flight above such a layer is usually very smooth

but it becomes slightly turbulent if you let down into it.

Early morning signs of spreadout

Many potentially good soaring days start with cloudless skies and very good visibility. The signs of spreadout are:

- Unusually early appearance of the first cumulus clouds. This shows that very little heat is needed to set off thermals.
- The cu tops go shooting up quickly instead of growing gradually. This shows the air is particularly unstable, at least in the lower layers.
- The rising cu form narrow towers, the tops are well rounded but the bases do not stay flat for long. This suggests that although there is lots of energy available it is badly distributed. On good days the cu grow less rapidly and have broader longer lasting bases.
- Little lenticular caps (pileus clouds) appear over the cu tops and are soon absorbed into the rising towers. Pileus are produced by air pushed up ahead of a rising thermal. They may even show up above a blue thermal. They are a good indication of very moist air aloft, air which needs little lifting to reach its condensation level.
- If clear visibility allows you to see developments over hilly regions, watch how things go over the mountains. Spreadout often develops first over mountains. The layer of clag extends over the plains a few hours later.

Coping with spreadout

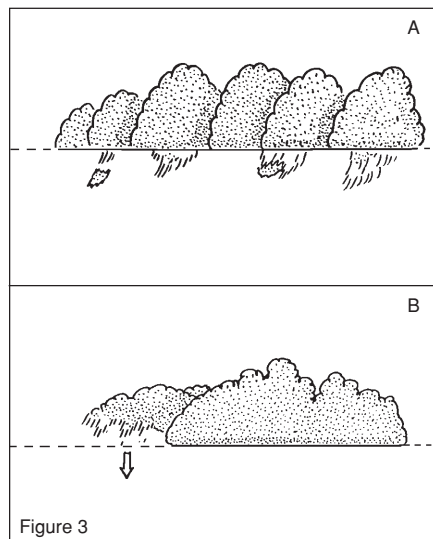
I have never been successful on a spreadout day; it is my usual excuse for landing out. However, the better pilots keep going for astonishing distances but they often make large diversions from the direct track. If the cloud cover is not total, one can:

- Try the sunny edge. There is often good lift under the boundary clouds where the slanting rays of sun warm the ground under the edge of the cloud sheet.
- While following this edge divert to any little puffs just off the main sheet. Surprising good lift occurs under the rather scruffy bits of cloud within a mile of the main edge.
- If the route goes anywhere near a coastline of estuary try diverting nearer the sea. Approaching the coast is rather like going back in time; one finds conditions as they were earlier in the day before the spreadout developed.
- Take any opportunity for a cloud climb. Strong thermals take cu tops well through the inversion and you may come out into dazzling blue skies several hundred feet above the cloud layer. This doesn't last long of course but such a climb can add many minutes to the glide.
- When down below the cloud sheet look out for any darker patches, especially if there are cloud fragments below the main base. In the very unstable air below spreadout one may encounter unsuspected thermals. These are easier to work higher up so it pays to take any lift available while still fairly high.

Staying out of sink Avoiding sink is almost as important as finding good lift. If on a particular day most clouds give their best lift on the upwind and/or sunny side, then it is worth making a diversion to avoid the opposite end. Some pundits make a habit of curving round the dud bits when approaching a good looking cloud. Thus they get round Murphy's law which says that the direct track to the next lift shall always pass through sink.

Here are some items to look for:

- Look at the cloudbase, especially at the downwind end of a cloud. Rapid decay [can take place in minutes] at the downwind end of a bank of cumulus. See if the base has become ragged with hanging straggly bits.
- If you see tendrils hanging down compare their level with the general cloudbase. Tendrils which go well down below the main base are usually good signs. Bad signs are tendrils which start far above the main base. These are just the remnants of a dying cu; see Figure 3. A shows tendrils below the main base;



these are usually a good sign of lift. Sea breeze fronts and other convergence lines often look like this. B shows tendrils formed from a decaying cloud; they are mostly above the main cloudbase and almost invariably indicate sink.

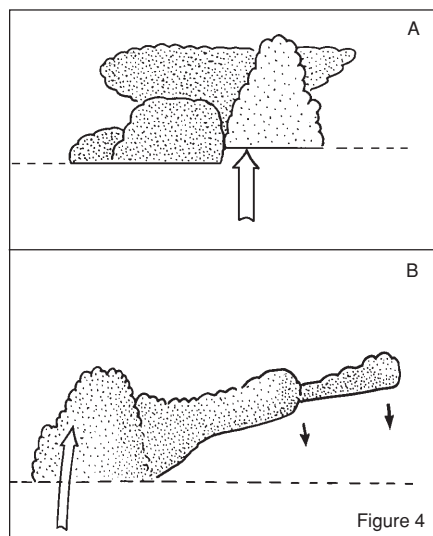
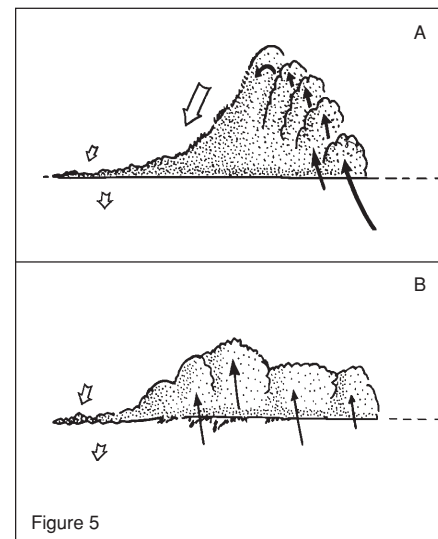


Figure 4 shows two kinds of cloud step. A is the kind which has its best lift close to the step and under the higher base. Steps like this are caused by the conjunction of moister and drier patches of air. Dry air gives a higher cloudbase and better lift.

In B the steps have been caused by the cloud top being blown sideways by stronger winds aloft. When this happens the displaced top loses its lift and one must go to the main base to find the active thermals. This sounds confusing but one can usually spot the difference in a step due to drier air and a step caused by the cloud top being blown sideways.

Clouds with tails

Horizontal tails to a cumulus cloud often show which end is subsiding. Figure 5A is a diagram of a cloud showing where a succession of cells were building the right hand side but descent of air was suppressing the left side. Figure 5B has a much shorter tail on the left where the cloud is dying. In the middle and towards the right there is a nice flat base with little tendrils suggesting lift.



Sloping (not horizontal) cloud tails can be an indication of cloud formed in rather strong winds when a narrow thermal is torn away from the surface before it is big enough to produce a decent sized cumulus.

Blue holes

It is apt to be disconcerting when one discovers that all the clouds ahead have vanished, leaving a great blue hole. There may be several reasons for such a gap:

- The area ahead may be low lying and too damp for thermals. Broader parts of the Severn or Thames valleys are examples of such dead areas. They are particularly bad after a wet spell.
- Sea air may have moved in from the coast.
- There may be a boundary between the moist cumulus-filled air and much drier air which has a condensation level too high for cu. In this case it should still be soarable in the blue.
- The inversion may have come down below the condensation level. There will prob-

continued on page 15

8 days of competition NATIONALS '92

Bill O'Brien
AVV Champlain

Pre-contest This was almost the Nationals that wasn't. The task of hosting a competition was considered too difficult by several clubs so for a time it looked as if we would skip this year. However, a small group of people from three clubs — Champlain, Hawkesbury and Rideau Valley Soaring — braved the Montreal January weather to meet about organizing this event.

The aim was to run Nats that would be properly managed but done with a minimum of fuss. To some this was considered an impossibility. So we set out from our January meeting in search of windmills ...

The Nationals Mafia From Champlain came Bill O'Brien. Ken Brewin trotted over the hill from Pendleton, bringing with him an army of last year's hitmen including Rick Officer who ran the flight line, Beth McCollum and Sandy Brewin, responsible for the office, and Christine Futter who controlled the start and finish gates. Our western connections provided George Dunbar with his scoring programs. Wolfgang Thiele came to process the films. Weather briefings were concocted by Bernie Palfreeman. Ted Froelich did photo interpretation and brought his satellite system to help Bernie with his black magic. Many others also came to tow, push, pull, load water and assist with all the other things which are essential to the running of a contest. The work was shared between many different clubs; it worked well, and maybe, just maybe, this may become a formula for future nationals.

The Practise Days You Westerners listen closely — two days of 10 knot thermals, cloudbase at 7000 feet agl. What a great start. Okay, I'm lying. Practise Days: none.

Day 1 We awoke to blue sky. After confirming that we were not dreaming, we set about preparing for competition. The pilots' meeting started a little after 9:30. Soon after, we found ourselves on the takeoff grid. Due to the absence of a proper shakedown during practise days, we had some scrambling to do but everyone was ready with high expectations. After sending up two sniffers, the group was launched in just under an hour thanks to the efforts of the Hawkesbury-McLaren-L19 towing team.

Competitors set out on the 'A' task and soon realized that this particular task day was to be no gift. Soon in the afternoon, the outlanding calls started. On this day there were to be nine such calls with the last being made by Dave Springford, who only admitted defeat at 6:45 and of course chose to land next to the farmhouse with the freshest strawberries.

The thermals were blue and good all the way to Smiths Falls. Downwind to Summerstown presented the pilots with a choice — divert south to a line of cu or stay on the course. Those who chased the cumulus lost the day. The final glide from Summerstown was best accomplished by those with height, as little lift was to be found. The winner of the Standard class was Ed Hollestelle and Wilfried Krueger won the 15 metre.

24 June ... Several birds were spotted walking along Highway 17 near Hawkesbury.

Day 2 This day's task was Hawkesbury-Morrisburg-return under conditions that were less than ideal. The cu were wisps and for the most part the lift was weak. The most successful strategy was get high and stay high. The turnpoint was particularly poor for lift; many pilots found themselves on the ground far from home. Those that returned had many stories of low saves and close calls.

Colin Bantin won the day in the 15 metre class and Jörg Stieber took Standard class.

Day 3 A three hour POST task was called which was best for those who ventured in the direction of Smiths Falls. The 15 metre class was won by Wilfried Krueger; Ed Hollestelle won the Standard class.

Day 4 On this warm and very hazy day the task was Buckingham-Iroquois-return. Cloudbase was 5000 feet with some strong lift north of the Ottawa River; however, height was greatly needed going into the high overcast encountered over the turnpoint. Competitors crossed several blue holes and were aided on the final leg by a fair tailwind. S1 (Dave Springford) almost used this tailwind to its fullest advantage before falling short of the field by only a few hundred metres. Nick Bonnière was the fastest in the 15 metre class with Jörg Stieber winning his second day in Standard.

Day 5 High cirrus, little wind, and haze provided for less than outstanding conditions and a small course; Casselman-Pendleton-Alexandria-return was selected as this day's task. Small 2-3 knot thermals demanded patience of the pilots and many turnpoint photos were of the close-up variety. The leg from Casselman to Pendleton was very weak, but pilots who made it were rewarded by good lift at Pendleton. Alexandria was very sunny and the return to Hawkesbury was done very delicately; Wilfried Krueger tip-toed in on a 2800 foot final glide while several others fell short.

Newly arrived Ian Grant won in the Standard class while Nick Bonnière made it two in a row in the 15 metre class.

Day 6 We awoke to rain and listened sceptically to the weatherman's call for rapid clearing and a possible task in the afternoon. He was correct even though the task to Gatineau was shortened to Buckingham on the grid. Walter Weir won the 15 metre class after a save from 1200 agl and dumping his water. The lift was very poor until several participants bumped into a hawk nicely centred in a 5 knot thermal just west of Montebello. There were ten landouts on this day, however S1 and DW (Charles Gower) savoured their returns, and so did their crews.

Jörg Stieber took another day in the Standard class, while Walter Weir earned his place in the 15 metre class.

Day 7 The day looked very good until cirrus quickly covered the sky. The lift was initially strong, even under the cirrus, but rapidly diminished. As launch was completed, cancelling the day was considered but a POST task of 2.5 hours was set instead. The best course of action was to the east, although several competitors completed Rigaud-Lachute with other combinations. Other choices did not favour one very well.

The completion of a small task by one competitor in quick time resulting in good points caused a great deal of commotion. A further clarification of POST rules may be brought out by today's experience.

Day 8 On this final day of the competition we were treated to some very good weather and a 3 hour POST task was called. Walter Weir brought 2W in for first place in the 15 metre class while Ed Hollestelle took the Standard class.

As the last gliders were slid into their trailers one and all retired to a local gourmet restaurant highly recommended by DZ (Robert DiPietro). The overall winner and winner of the 15 metre class was Walter Weir with Ed Hollestelle taking the Standard class. The best triangle trophy was won by Jörg Stieber in Standard and by Nick Bonnière in 15m, and Charles Gower won the best novice prize.

The competition rapidly faded into memory as contestants left the Hawkesbury area. This was a competition that almost wasn't but through the teamwork, cooperation and the CAN DO attitude of several people from different clubs things managed to come off well. After all the work and effort, pilots and contest supporters actually admitted to having a great deal of fun. This was the first "no frills" national contest and I have no doubt in my mind that this is the way to go in the future in order to keep the cost and effort down on the contest organizer's part. ●

		DAY 1 (294.3 km)			DAY 2 (164.8 km)			DAY 3 (POST)			DAY 4 (243.9 km)			DAY 5 (143.5 km)			DAY 6 (117.2 km)			DAY 7 (POST)			DAY 8 (POST)			total score									
		day pos	km/h	pts	day pos	km/h	pts	day pos	km	km/h	pts	day pos	km/h	pts	day pos	km	km/h	pts	day pos	km	km/h	pts	day pos	km	km/h		pts								
15 METRE CLASS		1	Walter Weir	ASW-20B	2	89.0	959	2	75.0	760	4	298.0p	98.5	878	6	81.6	818	3	56.0	872	1	62.4	751	6	72.8	41.4	748	1	287.4	76.8	1000	6786			
		2	David Frank	ASW-20	3	85.5	924	3	63.2	699	5	292.3p	92.3	830	4	95.1	964	4	55.1	860	6	54.4	651	6	100.3	49.1	957	5	239.8	62.7	825	6710			
		3	Nick Bonnière	ASW-20	6	78.6	855	5	(125.9)	448	3	296.1	109.1	924	1	98.0	996	1	61.0	941	3	59.2	711	3	100.5	50.1	967	2	253.2	63.8	856	6698			
		4	Ulli Werneburg	ASW-20B	8	(273.4)	495	6	(100.2)	356	2	311.4	112.0	959	2	96.8	983	2	59.5	920	5	58.4	701	5	100.3	47.1	938	4	246.1	63.9	844	6196			
		5	Colin Bantin	ASW-20	4	81.5	884	1	82.5	799	1	82.5	799	6	233.6	79.3	p649	7	74.5	741	6	54.5	852	8	(36.7)	113	2	100.5	52.7	992	3	240.5	66.5	851	5881
		6	Wilfried Krueger	LS-6B	1	93.1	1000	9	(59.6)	212	9	(59.6)	212	1	329.5	115.0	1000	5	87.0	876	5	54.9	857	4	58.9	707	8	(38.2)	0	190	10	dnc	0	4842	
		7	Robert DiPietro	ASW-20B	5	81.2	881	8	(63.0)	224	7	229.5p	71.6	645	8	73.3	728	7	(122.6)	447	10	dnc	0	10	dnc	0	1	100.5	53.6	1000	6	208.7	65.3	788	4713
		8	André Pepin	DG-600	7	78.0	849	4	61.5	691	4	61.5	691	8	220.8p	63.8	583	3	95.4	967	10	dnc	0	2	61.6	741	9	(33.8)	0	168	9	172.4	45.3	595	4594
		9	Dave Springford	ASW-20	9	(177.8)	322	7	(82.4)	293	7	(82.4)	293	10	(120.8)	0	183	9	(243.0)	463	8	(109.7)	400	7	48.2	574	7	72.8	34.7	686	7	225.7	56.8	762	3683
		10	Bob Gairns	ASW-20	10	(39.0)	71	10	(10.6)	38	10	(10.6)	38	9	185.1p	58.6	527	10	(226.1)	431	9	(30.2)	110	9	(33.8)	104	10	dnc	0	0	8	210.8	53.6	716	1997
		1	Ed Hollestelle	SZD-55	1	81.2	1000	2	72.4	839	2	72.4	839	1	287.9	96.1	1000	4	71.4	810	2	57.3	662	4	(38.9)	43	1	100.9	54.5	509	1	288.5	72.5	1000	5863
		2	Jörg Stieber	LS-4	3	77.0	969	1	76.2	865	1	76.2	865	2	273.6	91.3	p925	1	93.6	1000	4	(133.8)	511	1	59.3	158	2	100.5	53.5	504	2	241.3	60.4	835	5767
		3	Dave Webb	DG-300	2	78.2	978	3	66.6	799	3	66.6	799	4	239.0p	74.3	784	2	78.2	868	5	(86.5)	330	5	(33.8)	37	4	100.5p	38.2	438	5	205.9p	49.0	684	4918
		4	Stewart Baillie	Std Cirrus	4	74.2	948	4	62.5	771	4	62.5	771	6	211.3p	67.2	706	5	71.1	808	3	48.1	624	9	(20.8)	23	5	(120.4)	0	367	8	149.2	44.0	562	4809
5	Paul Thompson	LS-4	5	72.1	932	6	(100.2)	367	6	(100.2)	367	3	225.5	78.5	800	3	77.1	859	7	(45.5)	174	3	43.6	143	10	(14.0)	0	43	3	213.0	60.6	787	4105		
6	Dave Mackenzie	SZD-55	9	(110.9)	263	9	(62.2)	228	9	(62.2)	228	5	203.0	70.2	718	6	62.3	732	9	(30.2)	115	11	(7.8)	9	6	28.1	36.4	220	9	(100.2)	0	174	2459		
7	Dugald Stewart	Cirrus 75	8	(191.7)	454	7	(65.3)	239	7	(65.3)	239	7	182.1	67.8	669	8	(66.8)	164	10	(28.6)	109	10	(20.3)	22	9	(38.2)	0	116	7	121.0	55.8	595	2368		
8	Charles Gower	Hornet	11	(27.2)	64	7	(65.3)	239	7	(65.3)	239	10	(94.0)	0	163	7	(219.4)	540	6	(68.0)	260	2	47.0	146	11	(0.0)	0	0	6	186.5	49.9	667	2079		
9	Kerry Kirby	Std Jantar	7	(269.9)	639	4	66.2	p771	4	66.2	p771	8	(153.2)	0	266	10	0	0	8	(40.2)	154	7	(32.9)	36	8	(46.7)	0	142	11	dnc	0	2008	2008		
10	Ian Grant	LS-4	12	dnc	0	12	dnc	0	12	dnc	0	11	dnc	0	0	10	dnc	0	1	59.2	670	5	(33.8)	37	7	(58.4)	0	178	4	203.0	51.1	704	1589		
11	Fred Hunkeler	Std Jantar	10	(90.4)	214	10	(23.2)	85	10	(23.2)	85	9	(95.1)	0	165	8	(66.8)	164	11	(12.5)	48	8	(21.6)	24	3	28.1	99.3	453	10	(62.8)	0	109	1262		
12	Richard Longhurst	Ka6E	6	(277.2)	656	11	(6.5)	24	11	(6.5)	24	11	dnc	0	0	10	dnc	0	12	dnc	0	12	dnc	0	11	dnc	0	0	dnc	0	680	680			

() values in brackets are distances in kilometres if pilot landed out
 "p" denotes the application of an overtime distance penalty and/or a points penalty

STANDARD CLASS

1000 POINT Days

Ed Hollestelle
 SOSA

Day 1 This first day was my second flight with the SZD-55 which I had borrowed for the competition. (Ed will be writing a flight report on this new Polish ship for the next issue — ed.) An assigned course of 294 kilometres was given with turnpoints at Smiths Falls AP and Summerstown AP.

Bernie Palfreeman, contest weatherman, had promised fairly strong conditions for this day with the average lift to be 4-5 knots and the strong ones even better than that. So I had put 30 gallons of water in the main tanks and 7 litres in the tail tank. After the start it became clear that most of the course was in the blue and only a few wispy cu appeared over the first turnpoint. I had planned on starting late because at first the lift was not as promised and I hoped it would improve with the higher temperatures later in the afternoon. The lift was quite lumpy and thermals were short-cycled and had very narrow cores.

As I was playing the waiting game I did some realistic calculations and decided that leaving earlier than initially planned could save the day in case it turned into a distance flight. As it turned out some of the 15 metre pilots had the same thoughts as I found myself with ST (Nick Bonnière) and DZ (Robert DiPietro) halfway up the first leg in the Casselman area.

This was the upwind leg of the triangle and since the thermals were hard to core I was contemplating dumping the water shortly before the first turnpoint. Near Kars, DG (Dave Webb) joined me so I decided to hang on to the water and compare my climb with the loaded DG-300. Just before Smiths Falls I found the strongest thermal of the day (over 6 knots on the averager) which I took up to over 6000 feet. I rounded the turnpoint and pushed towards the east looking for another strong one. It was hard to find any good lift and again I contemplated dumping the water at the next thermal. Just north of Morrisburg I found a very strong and narrow one that initially was hard to core. It was only then that I realized that this SZD-55 climbs well with water if flown slower than most other ballasted ships I have flown. The next thermal between Cornwall and Summerstown AP confirmed my findings and by forcing myself to slow down and core steeper it started to click.

As I rounded the last turnpoint I was very pleased to still have my water as the last 60 km were into wind. To my surprise I met with DZ again over Alexandria to top up for the final glide. I thought for sure he had long passed me early on the second leg.

This was my first final glide with this ship and this computer, and at 4200 feet and 35 km out with a 10 km headwind the Head-up Display said I was okay with 200 metres to spare. Just as I decided to leave, so did DZ. It worked out exactly, and I finished the first day in fine



Svein Hubinette

style with first place. About half the Standard class made it back, with Richard Longhurst flying his Ka6 to within 17 km of home.

Day 3 The weatherman promised good lift with cu initially at 4000 feet, later lifting bases through the afternoon and towering cu and a chance of CB later in the afternoon. A 3 hour pilot selected task was given.

A perfect day for a POST. As it turned out I had volunteered to be the sniffer and took off a little early. The initial lift was only over the factory grounds just west of the field. Rather than landing full of water I parked myself in the thermal and after about 20 minutes I flew around the field to find weak to moderate lift up to 2500 feet. We started the launch and soon we could see the overdevelopment beginning north of the river and spreading at high altitude to the south of Hawkesbury.

I wanted to start around 2:30 and stayed high to keep the bugs to a minimum. But when I finally moved back north towards the start point I found that Hawkesbury was under total overcast. The remaining gliders milling around were not playing start gate roulette but simply couldn't climb to a decent start height in the dead air.

I made a quick decision not to go back to the south to regain more altitude for a higher start but elected to start low and get out of the area quickly before things got worse. Heading southwest to the sun after the start, I spotted a few cu lined up and after bouncing the

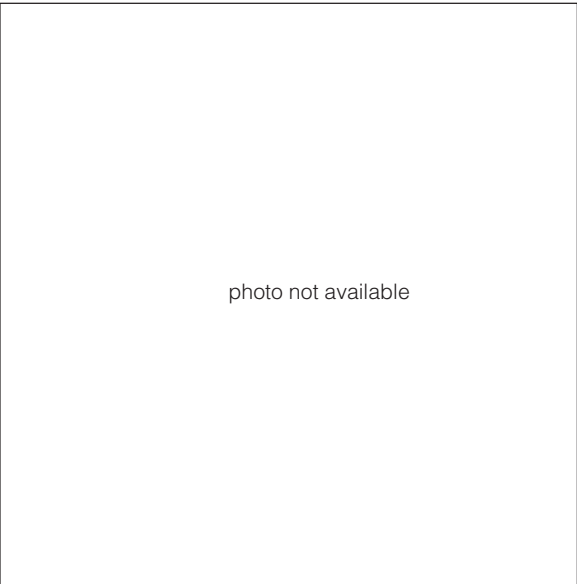
first one I hit the core of the next one and got rewarded with a Uvalde style climb of 8 knots on the averager to cloudbase.

The next cloud I had picked earlier was rapidly spreading at the top and falling apart at the bottom, and beyond I could see a lot of blue sky so I made a quick decision not to carry on to the southwest but divert south instead. To claim the distance covered I photographed Maxville and then headed for Summers-town where some good looking cu were developing. I found good lift about halfway and headed back north.

As I approached Alexandria I noticed that the area to the north of me just south of the Ottawa River had recycled and I could see a cloudstreet forming between Pendleton and Hawkesbury. So I took Alexandria at about 5000 feet and went for a 30 km glide towards Pendleton connecting with the cloudstreet at about 1800 feet and 10 km east of the turn. By the time I shot the turnpoint I was back up to 2500 and climbing straight under the street towards Hawkesbury. I made a few twists and turns here and there and arrived over Wendover almost at cloudbase. I took the picture and ran the clouds back to Casselman and then all the way back to Wendover again. By now there was some rain in spots and the large shadow on the ground warned me of the overdevelopment. So while I was climbing to cloudbase I considered my options and instead of taking a chance on running back into the overdevelopment I calculated that from 6000 feet just northeast of Wendover I had enough height to fly to Lachute and back to Hawkesbury (57 km) in still air (the wind would cancel out) and I had about 30 minutes left. As it turned out I had 300 feet to spare and 30 seconds on the clock when I returned. I had covered 288 km at 96.1 km/h.

Day 7 The weatherman predicted bands of middle cloud to cut off lift in large areas of the task area so another POST was set for this day. The sniffer today was Wilfried Krueger and although shortly after his launch the sky filled in with the promised middle cloud, there was good lift initially so the whole field was launched to find out that the "big heater" was turned off and there was little or no lift left.

During the launch there were quite a few re-lights. Because of that — and due to the fact that I discovered I didn't have sufficient film in my backup camera, I moved to the back of



Bill O'Brien

photo not available

Walter Weir, the new 15 m champion, accepts the MSC Trophy from Pierre Pepin

the line to rectify my problem. After release I could not find any good lift until I moved way east of the field over the only sunny spot to be seen for many miles.

Pilots from the front of the line started at heights up to 5000 feet minutes after my release while I struggled at 2500 feet to get a decent height. When I finally reached the top of the thermal at 4500 feet I had to fly back 6 miles to the start point, so I took my start picture at 3500 to return to the same thermal at a little over 2000 feet. It was clear that the air was very unstable but the sun could not reach the surface to make it happen.

It was a matter of finding sunny spots to get anywhere today and it was to the east that there were some breaks in the middle cloud.

I thought for sure that many pilots had recognized what was happening and would be many miles ahead of me by now. But the fact that the first thermal back on course was working even better after I returned and I was still flying with about half my ballast must have helped because just before Rigaud I caught up with a gaggle of four — Dave Webb, Colin Bantin, Nick Bonnière and Robert Di-Pietro. We took a picture over Rigaud then headed for Lachute, crossing the river under the cloud cover in very smooth air, sinking lower and lower. But then a sunny spot appeared ahead of us, and sure enough, by the time we arrived over it there was the lift. Smooth and weak but it was there and as we climbed it improved until the sun disappeared and shortly after the lift was gone again.

Canadian Team nominees

Based on the results of their scores for their past two Nationals, the following pilots are nominated to the Canadian Team which will fly in the World contest in Sweden in 1993:

George Dunbar SAC sporting committee member

- 15m class – Walter Weir
Nick Bonnière
Dave Frank
- Standard class – Jörg Stieber
Ed Hollestelle
Dave Webb

I went further north towards the turnpoint and for a short while the sun appeared and we had 4–5 knots lift and a cloudstreet started forming all the way to some point just north-east of St-André-Avellin.

After turning the Lachute airport turnpoint I headed west for the hills toward St-André as there was enough time left to get there and back home. It didn't happen, the high cloud cover quickly thickened over the area and the lift dissipated as fast as it had started. The cu fell apart in front of me so I changed direction towards Hawkesbury. With more than 40 minutes to go and hardly any useable lift left I decided to go home and get my speed points. To use some of the extra height I went for Wendover to get an extra 30 km. But I still needed one more climb to get there and back.

I found a very weak thermal just west of L'Original and slowly climbed the extra 500 feet needed to get me to the last turnpoint and back home. I had struggled for almost two hours to fly just over 100 km — and even beat the 15 metre in speed, but not Fred Hunkeler in our class.

Fred decided after starting at a great height to go on a straight final glide to Wendover and back for a total of 28 km at a warp speed of 99 km/h. Fred was awarded 453 points for this and I ended up with 509 points. Robert DiPietro (DZ) in the 15 metre class flew exactly the same course I did and ended up with 1000 points. Though not intentionally, Fred has made us take a closer look at the rules and our scoring system for POST tasks!

Day 8 This was a bit of a difficult day for our forecaster. The lift was to be fairly strong but the question was cu or no cu. The task committee's first choice was a 4 hour POST with a long triangle as a second choice. Since the cu more or less prevailed this last day's task was a 4 hour POST.

After the start I headed towards the south-west where some wispy cu were forming. They were very short-lived and by the time you hit them the lift was already gone. To save the distance covered, I took Pendleton and then headed south where the clouds looked a little more defined. As it turned out the lift wasn't any better — very broken up and hard to core no matter where you searched. Flying towards Alexandria I kept pushing in search of better lift. The best to be had was about 4 knots and after rounding the turn I still could not figure out where the better areas were.

So I went back to Maxville under a good looking cloud but the lift was not there. As I rounded the turn some nice cu were building just south of Wendover and I decided to try the north. On my way to the first cloud I saw some gliders milling low in the big blue hole and realized that other pilots had the same problems. The second cloud was the day's saver and I climbed from quite low at a steady 8 knots to cloudbase.

From Wendover I connected with a good lift street to Lachute and from there south to Rigaud. Going back under the same cloudstreet I almost blew it by getting low just across the river. I missed the last cloud and had to nurse one in the blue from about 1200 feet and 2–3 knots. It turned into a regular 4 knotter by the time the cloud formed and after reaching cloudbase I headed for Hawkesbury and started planning my last 45 minutes or so. The plan was to go from Hawkesbury back to Lachute and home. As it turned out I hit a nice 6 knotter right over the river on my way out and this gave me some extra time. Bumping a few clouds there and back gave me the extra height and time to go to Wendover and then back home. After 288 km at 72 km/h I crossed the finish line with less than a minute to spare. I gained 165 points on Jörg Stieber, enough to end up in first place overall and win the class. ●

Well, almost a 1000

Nick Bonnière, Gatineau

THE TASK ON DAY 4 was a 243 km triangle with Buckingham and Iroquois as turnpoints. The forecast was good, with 4–5 knot thermals up to 8000 feet predicted for later in the day — the trigger temperature was quite high though which forced a late launch of the grid.

The lift wasn't very good over Hawkesbury, but looked great across the river into the Gatineau Hills, so I flew north to some black looking clouds. Surprisingly the lift was not very good there either, 2–3 knots, reaching 6000. I flew in the direction of the first leg while waiting for the gate to open and expected to see more gliders but only Dave Frank and Dave Webb appeared.

When the gate opened, I was hanging around at 6000 feet looking for other gliders. At 2 o'clock I decided to start and crossed the river back to the airfield. As I took my start picture I saw quite a few gliders milling around lower to the south; that explained why I hadn't seen any north. I immediately crossed the river to the north again and managed to get a few good 6–7 knot climbs, so I was cruising at cloudbase at 95 knots. Halfway down the first leg I suddenly noticed a high overcast over the Buckingham turnpoint so I immediately slowed down and climbed as high as I could. I diverted well to the north where a few cumulus remained and tried to stay high, using all the lift I could find, and reached the turnpoint at 4500 feet.

Heading south on course for a good cu, I reached it at 3000 and climbed to 5000. The overcast did not extend south but there were no cu on course. I decided to divert well inside the course to stay with the cumulus, but none worked, and I found myself at 2500 feet at Casselman well downwind (almost on the last leg of the triangle). I managed to find a 2 knot thermal at 2000 feet and stuck with it. Conditions started to improve with new cu developing on course.

As I worked my way into wind, finding 6 knot thermals, I saw a glider ahead. It was MZ (Ulli Werneburg) — he had started after me, but told me later that he had passed me by going straight along the course line.

We reached the turnpoint at about the same height and headed home together. All of a sudden a swarm of gliders appeared, heading into the turnpoint, so I realized I was not doing too badly after all. Ulli and I got a good climb at Morrisburg and moved on a little south of course to stay with the cu. There wasn't much lift to be found however, and we badly needed that last good thermal. I finally found a 4 knotter which took me to final glide altitude, and Ulli joined me 300 feet below. Just to be sure, I headed north to line up with a couple of cu on the course line.

The final glide was uneventful, and I got home just enough ahead of MZ to win the day, and 996 points. ●



Report on GPS trials in New Zealand

John Roake

from New Zealand Gliding Kiwi

THE TRIALS OF THE CAMBRIDGE prototype recording GPS were carried out in New Zealand on 8–12 February, in time to present a report to the International Gliding Commission meeting in Paris in March. The aim of the exercise was to evaluate its viability with the long term view of introducing them for use at the 1995 World Championships at Omarama. It is envisaged that they will eliminate the necessity of photography for turnpoint verification. Cameras at Omarama are expected to be used in a back-up mode only.

The unit was brought to New Zealand by Cambridge engineer, John Good and was tested in a Schleicher ASW-15, flown by Dennis Crequer of Hamilton. The unit weighs one kilogram without battery and measures 16x10x6 cm, with the battery (on this particular trial) weighing an additional 0.5 kilograms. It is expected that the production unit will have batteries built in or attached.

We were impressed with the results the prototype produced. 3D position was recorded at intervals between two and ten seconds, with accuracies consistently better than 50 metres. The memory capacity of the unit will record a minimum of 20 hours, but more likely to be nearer double this length of time.

Small antenna The antenna was a cylinder 10 cm long by 3 cm in diameter. However, the production antenna will likely be disk shaped, approximately 8 cm in diameter and 1 cm thick. Tests showed that the antenna can be successfully mounted inside the fuselage of the ASW-15. A metal or carbon fibre sailplane will require a different mounting position but the antenna is so small, and of insignificant weight, that its mounting above the instrument panel or attached to the canopy frame would present no problems.

Power consumption The battery power consumption of the prototype is around 400 ma (12 volts) but has had no engineering/research on the problem of power consumption and the designers expect to be able to make improvements.

More satellites yet to be launched

Because the constellation of satellites is not yet complete, there were questions as to how much of the day sufficient satellite coverage would be available. The coverage proved to be no problem for these trials and in fact with further satellites yet to be launched, coverage can only improve. However, the tests showed that as a sole means of monitoring competition flights, satellite coverage will not be sufficient until approximately the end of 1993. There is no reason why the units cannot be satisfactorily used as of now, but with a camera back-up.

In the tests, there were two occasions when the trace showed a flight gap of two kilometres, which was insignificant, but the designers are insisting on the caution as outlined above. They are also insisting on thorough flight and competition trials before releasing the concept to production.

Overview of features

- Continuous recording of latitude, longitude and altitude. (Typical accuracy 50 metres).
- Post-flight downloading and analysis of position fix data. This produces:
 - start and finish times
 - task speed
 - in the event of a landout, precise distance
 - the ability to analyze and confirm the correct rounding of turnpoints
 - available is a plot of the actual flightpath (which can be sectionalized and exploded on the screen to any desired scale). You can actually step by step show the turnpoint rounding on the screen which positively eliminates any possible dispute
 - a barograph style trace of height/time
 - the task turnpoints shown on the printout (optional)
 - the flight can be analyzed and start/finish times and scoring distance for non finishes can be fed to the contest scoring program

Additional features The data on the prototype is stored on a data card (PCMCIA — Industry standard) but the designer is not yet convinced that this will be used on a removable basis on production models.

The downloading to the IBM-compatible computer took no more than 10 seconds including connecting the cable. Data analysis took only a matter of seconds. If 120 competitors presented their GPS for downloading at the same time, the estimate is that it would only take 45 minutes to provide a complete analysis of all flights and an official score sheet for all classes, using only two persons.

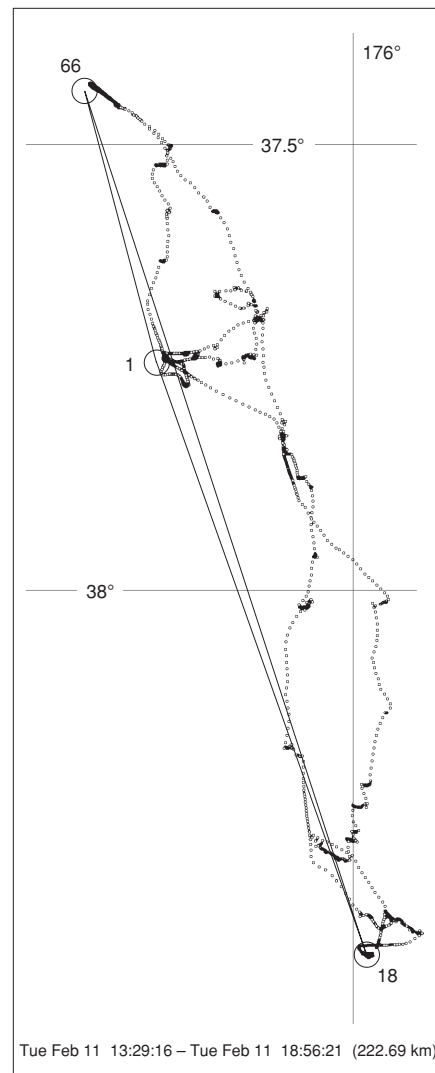
With all turnpoints pre-loaded into the GPS before the contest, the unit can provide confirmation of start including altitude control, rounding of all turnpoints, and finishes. It also has the ability to flag any airspace violations.

If the start height for a task is set at a predetermined height the unit will provide an indication of a good start or an indication that the pilot exceeded the height limit. The unit will also indicate to the pilot when he has rounded a turnpoint.

The design engineer confirmed that Cambridge will soon be able to demonstrate an

“add-on” feature to the package. Position reporting to an electronic scoreboard back at the contest site is not only possible but is now a reality and so gliding will become a spectator sport, possibly by 1993, but certainly by 1995 — something many of us have dreamed about for 20 or more years.

Personal observations The prototype does everything and more than what was specified in the original overview and is a major breakthrough for the regulation of gliding championships. The speed with which Cambridge Aero Instruments have produced the unit is indeed creditable, and as they are the only manufacturer to present a unit for testing, they must at this stage be regarded as the preferred suppliers for the competition tests. Units were to be tested at Swe-Glide (Sweden, June 29, following which a decision will have to be made as to the next step).



A NEW WING RISES FROM THE ASHES

A serious fire (possibly deliberate) in April in the wing production workshop at the Glaser-Dirks factory damaged the DG-600/18 wing molds (which were also to be used for the new DG-800 motorglider) and destroyed DG wing spare parts warehouse.

Instead of reconstructing the wing molds unchanged, Glaser-Dirks decided to take the opportunity to design completely new wings for the new DG-800. The new wings are designed without compromise for 18 metre wingspan. This is evident by the larger chord at the wing tip compared to the DG-600/18 wing. This feature offers gentle stall characteristics as the airflow will first separate at the inboard wing. Also the thermalling performance will be improved as the wing tip pointing to the centre of the circle will still operate at reasonable Reynold numbers.

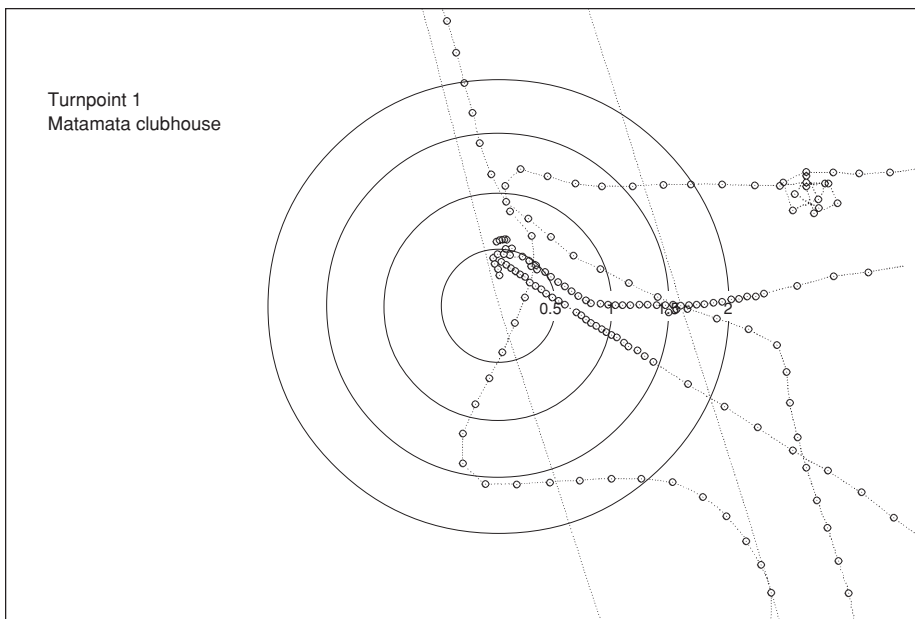
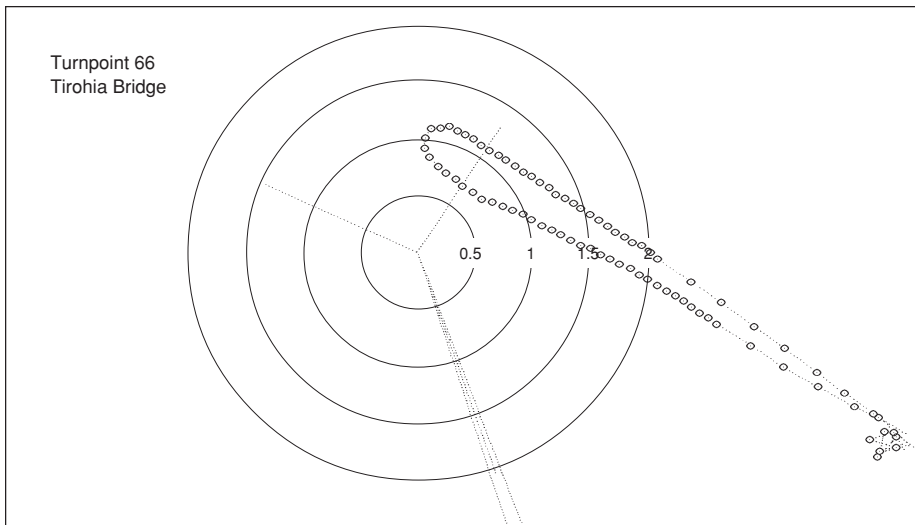
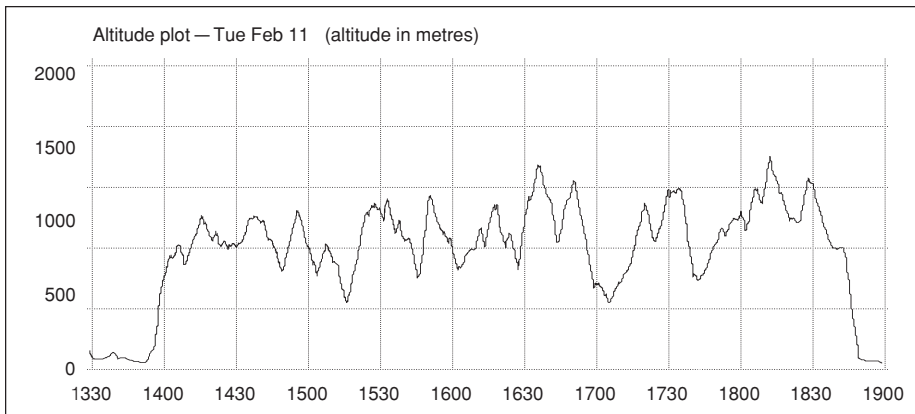
The main changes are the new wing sections DU 89-138/14 and DU 92-137/14 designed by L.M.M. Boermans of Delft University. The DG-800 will be the first sailplane using these new airfoils. With drag coefficients as low as offered by the extremely thin HQ 35 wing section used on the DG-600 the useable maximum lift coefficients could be increased. So the new DG-800 can be flown in thermals much slower and with lower sink rates than the DG-600/18 metre. Even more important are the gentle stall characteristics of the new airfoils which will enable the pilot to get the full performance out of the aircraft with low amount of training.

To produce new molds in a short time is impossible with normal techniques. Therefore the master molds will be machined computer controlled over their full length. These are the first sailplane molds using this method. In addition to the time saving, high precision of the profile contours is possible.

Due to this production method of the master molds, the completion is scheduled already for autumn 1992. So it is feasible that the first production DG-800 will fly before the end of 1992. This means that the delay due to the fire is only approximately half a year. For this delay the buyer will have a better aircraft which secures the best performance and characteristics available for the foreseeable future.

Other news from DG is the development of a fully aerobatic version of the DG-300 costing about an additional DM 3000. It is expected to be available from January 1993 in both the Standard class and Club versions.

The DG-300 Acro will not allow water ballast, but the additional structure will give it load factors of +7 and -5 through the entire speed range. This compares to +5.3 and -2.65 at maneuvering speed and +4 and -1.5 at maximum speed for the "standard" DG-300. The Acro is being produced at the Yugoslav plant near Graz.



Some test results from the trials The diagram on the opposite page is an overview of the Matamata task area. The task of February 11 is depicted, a flat triangle starting at point 1 (Matamata), north to point 66 (Tirohia), south to point 18 (Atiamuri), then home. The plot represents the actual flight path of the ASW-15. It lies generally east of the course line because the pilot favoured the better thermal conditions to be found over the high ground there. The top diagram is a plot of altitude versus time similar to the sort of plot produced by a barograph. The middle diagram depicts detail at a turnpoint. The circles are in kilometres to indicate the scale. The incoming and outgoing course lines are shown along with an FAI observation zone. The flight path near turnpoint 66 was relatively simple, though a few turns in a thermal are plotted at the lower right. The bottom diagram shows the flight path near the home field. It is complicated because takeoff, pre-start, start, and landing are all shown. The nearly vertical straight lines are the courseslines.

training and safety

DND SEAT CUSHION TESTS

A 1986 DND study on seat cushions used by the Air Cadets in Schweizer gliders confirms that foam cushions amplify the G loads on the spine as a result of a hard landing. Thanks to Neil Macdougall for making the report available to free flight.

The study, entitled "The dynamic performance of a variety of Schweizer glider seat cushions under vertical impact loads", DCIEM #86-C-28, used a wooden mockup of a glider seat mounted on an impact sled which, for this test, produced a velocity change of 21 mph with a peak deceleration of 17 G. Accelerometers were placed on the pelvis and chest of crash dummies to measure the G loads on the body arising from the sled deceleration. Two dummies were used, a 'heavy' 95th percentile 215 lb male dummy and a 'light' 5th percentile 101 lb female dummy.

Tests were made using 2" and 4" thick foam rubber cushions, and various thicknesses of "energy-absorbing" foam materials such as Temper-foam® and Ethafoam®. The results were measured in terms of a dynamic loading function (measured in G's) related to the acceleration of the seat pan, the damping of the system of seat/cushion/dummy, the natural frequency of vibration of the system, and the acceleration of gravity.

The general result was that peak accelerations to the spine increased as the thickness of the foam increased and pilot weight decreased, that stiff foams such as a Styrofoam used as a cushion spacer had a negligible effect on spine loading, that pilot weight had little effect on spine loading with energy-absorbing foams, and that these foams reduced spine loading. The increases with foam rubber thickness result from "bottoming" of the dummy, that is, the compressing foam absorbs a negligible amount of energy before the dummy makes contact with the seat, and the difference in velocity between the seat and the dummy at that time causes a large acceleration of the dummy.

Noting that a value of 20 of this function corresponds to a 50% probability of spinal injury, and a value of 22 would be almost certain to cause severe spinal injury, and that a base value of 26 resulted with no cushions used on the light dummy under these test conditions, the test runs produced the following values:

4" foam rubber, heavy dummy	30-31
4" foam, light dummy	36
8" foam, light dummy	39
2" energy-absorbing foam heavy dummy	29
2" total energy-absorbing foam of various types, light dummy	28-31

Tony Burton

FAILURE OF CONTROL COUPLINGS

I want to report to you a problem I had with my Cirrus. The quick couplers on the spoiler controls broke at the thread on the balls on both the left and right spoiler connectors (IHotelier assemblies). The first one happened after the glider had been assembled. We noticed that the left spoiler did not close properly and on checking found that the ball part of the coupling had broken off at about the thread line where it screws into the bellcrank. When we got the new balls, we decided to replace the aileron balls as well as those for the spoilers. When we removed the right ball from the spoiler it seemed to be intact but it broke in my hand. The four balls were then replaced by new ones.

Fortunately these problems occurred on the ground or I might have ended up like the one reported in the Sept '91 SOARING where the glider was wrecked when a fitting uncoupled in flight. The failure of the balls disturbs me, particularly the second one. I don't know why they let go. There was a Service Bulletin about this problem, and my logbook shows an entry for March 1970 when the balls were replaced. Have other pilots had the same problem?

I reported this to the DoT and also thought I should mention it in free flight, as other owners with similar quick connectors may wish to have a close look at these fittings.

Harold Eley

Regina Gliding and Soaring Club

BOOK REVIEW

Gliding Safety by Derek Piggott
A&C Black Ltd., 35 Bedford Row,
London WC1R 4JH. £17.50

Most of us have a few favourite books, books we can refer to time after time. Some of mine are, amongst a few others, the 1942 edition of "Flight Without Power" by Lewin Barringer; the slim, but oh-so detailed 1964 edition of "Flying Training in Gliders" by Ann & Lorne Welch (this is my secret bible; no better book on glider training has or will be written); and a number of Hungarian books I have.

One can never have enough books. While browsing around in the aviation section of a library I do not usually go to, a blue book with the name Derek Piggott caught my eye, "Gliding Safety". It took as much as 300 milliseconds to grab it, much longer to read. (Was I ever surprised about the progressiveness of this library — municipal libraries seldom have books younger than 10 years old).

This is one book that every glider pilot should read and should be mandatory reading for every instructor.

Perhaps it should be part of the curriculum of the SAC Instructor Course. The book was published in 1991 and it is not cheap, £17.50 means that it would cost us about \$40. Maybe SAC could get a deal from the publishers. It

should certainly be on the list of goodies we have for sale. I hope someone in the SAC directorship picks up this ball and plays with it. The book has over 200 pages and is in four sections:

- 1 Avoiding gliding accidents
How accidents happen
Ground handling damage
Cockpit checks
Swinging and ground looping accidents
Winch and car launches
Spin and spin related accidents
Advice on making field landings
Aerotowing accidents
Low G sensitivity
Cloud flying
- 2 Moving on to other types
Polishing your flying
First flights in new types of glider
Advice on using flaps
What kind of glider should I buy?
- 3 Better gliding instruction
Notes for new instructors
Teaching look out
Simplifying the instruction
The final turn
Teaching aerotowing
Teaching other pilots to fly gliders
Safety and glider aerobatics
Tape recordings for gliding instructions
- 4 Converting to gliders
Coming into gliding
Power pilots learning to glide

Each section has a number of sub and sub-sub sections, so it is easy to find the subject one is interested in.

Concepts that are not in the book and would be nice to see in a future edition are the hazards of slope soaring, mountain flying, and passenger carrying.

Truthfully, I have not read every word of it yet, but I shall. This is not a book to read in 21 days, but to have for reference, to go back to regularly, when the occasion calls for it, when searching for a solution. The book discusses thoughts that one seldom has a chance to read about, as most other books concentrate on primary training and on high performance flying. This book touches subjects others have not yet touched. One may not agree with absolutely everything Mr. Piggott says, but the idea is in the open and it makes the glider pilot think.

I can give no greater compliment.

George Eckschmiedt
Member SAC FT&SC



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SKYWATCH

concluded from page 7

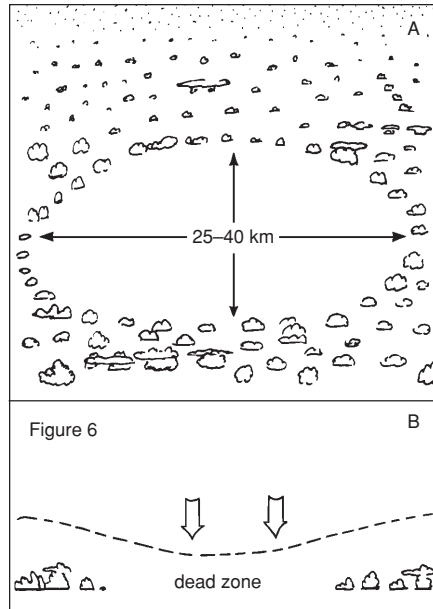
ably be thermals in the blue but the lift will be weaker since the depth of convection is less. If the tops of cumuli have been getting steadily lower it probably means the inversion has been coming down.

- The area may have been under fog in the early morning and the temperature has been slow to rise. It is risky to head out into such an area. Thermals form much later in areas which have been under fog at dawn.
- There may be a local area of unusually strong subsidence aloft inhibiting thermals. This is rather uncommon and is described in the next paragraph.

Localized subsidence Subsidence, the slow descent of air from aloft, is common when anticyclones and ridges are developing. The process is important because it produces a stable layer or inversion a few thousand feet above the surface. It is usually assumed that anticyclonic subsidence is seldom more than 3000 feet/day. I believe subsidence can behave like sink between clouds. Sink is usually very gentle when averaged over a wide area but one may encounter small regions of much stronger sink. In the same way anticyclonic subsidence is normally far too gradual to be noticed by an aircraft but there may be places where it is concentrated into a small area and then the sink is much more powerful.

"Double Eagle", the first helium filled balloon to cross the Atlantic, encountered something of this sort when still west of Ireland. The crew saw a large circular hole in the solid stratocumulus sheet below. When the balloon (which had

been above 20,000 feet) passed over this blue hole it began a descent which could not be checked till it was down to 4000 feet. They lost 15,000 feet in under an hour despite dropping ballast.



A similar kind of subsidence may occur overall too producing a blue hole in the field of cumulus. Figure 6A is a sketch from high up looking down on such a blue hole. 6B shows a cross-section. If you arrive at the edge of a big blue hole ringed with cumuli think twice before pressing on into the gap. Flying round the perimeter under lots of active clouds is quicker than heading out into the dead bit

where you may become stuck low down in very weak lift.

Since one rarely knows just what has produced a blue hole it frequently pays to divert round it if at all possible. I have known an expert detour round three sides of a square rather than head out to an almost certain field landing in the blue.

Closing thoughts Drawing lines on maps is a most valuable aid to navigation but one should not feel bound to fly rigidly along these lines. I suspect that one reason for the failure of many early cross-country flights is that the pilot felt impelled to stick to the direct line. It is much more important to follow lines of energy and divert to the good looking clouds and avoid the decaying bits. Try to stay high and take any strong lift you fly through even if you do not need a climb just then.

Look at the cloudbase rather than the top as you approach it. The nicely domed top of a cumulus may be offset from the place the next thermal enters the cloudbase. The lift you hope to find may not yet have produced its own dome. If you are already high look at the shadows on the ground. If the cloud shadow looks full of holes you are more likely to find sink than lift underneath it.

Experts who hurtle round triangles at speeds in excess of 100 km/h know when they can safely ignore these kindergarten rules. They can nearly always retrieve an error by scraping up again from a low point. Speed is a secondary consideration on early cross countries and for these it pays to fly a winding track following the energy and staying high as long as possible.

† DON HILL

Our good friend and long time member of the Vancouver Soaring Association lost his life in a gliding accident near Invermere BC on June 3. Don had a Gold C with 2 Diamonds. Don's cheerful personality and his willingness to share his aviation experience will be missed by all of us.

Joe Gegenbauer

Coming Events

Aug 16-22, **SAC western instructor course**, hosted by Cu Nim. Course director Mike Apps (403) 436-9003.

Aug 17-21, **Beginner's cross-country clinic**, Rockton, ON. Paul Thompson (416) 387-4222

Oct 2-4, **SAC Board meeting**, Kingston, ON

Oct 3-12, **Cowley fall wave camp**, Cowley, AB

5-7 Mar 1993, **SAC AGM**, London, ON

INCIDENTS & ACCIDENTS

- 27 May – SOSA, LS-4, C-GMZZ. Struck power lines on off-field landing. Serious injuries to pilot. Glider a write-off.
- 3 June – Vancouver, DG-400, C-FADG. Flew into mountainside at Invermere. Fatal.
- 7 June – Regina, DG-300, C-FEQH. Trailer rolled during transport, wing damage.
- 10 June – Champlain, Pirat, C-FCUM. Rudder cable broke at takeoff, major wing and tail damage.
- 13 June – Base Borden, 2-33, C-GCSY. Undershot runway, gear damage.
- 14 June – SOSA, G103, C-GGLA. Rear canopy damaged when opened on takeoff roll.
- 25 June – Air Sailing, Ka6E, C-FOLO. Groundlooped on crosswind off-field landing. Possible write-off.
- 6 July – SOSA, Citabria, C-GKXJ. Groundloop on landing. Bent prop and blown tire.

NATIONAL CFI SEMINAR SLATED FOR 1993

The Soaring Association of Canada and the Ontario Soaring Association are planning to co-sponsor a CFI Seminar on Safety and Instruction in 1993, possibly in conjunction with the SAC AGM. Provincial Associations have been asked to assist in funding CFI delegates to the seminar through their safety programs. More information will follow at a later date.

AWARD FOR BEST AUTHOR

SAC is offering a worthwhile prize beginning this year for the best article to appear in *free flight* written by a SAC member. The Board will judge the crop of stories and choose a winner.

SAC affairs

Joan McCagg

SAC Executive Secretary

The last issue of *free flight* contained a couple of letters expressing concern regarding the need for a full time employee at the National Office. Some have also questioned 48% of the budget allocated to administration with only 5% allocated to Flight Training and Safety. These percentages do not reflect the details of where a lot of the budget is spent. Since the computer accounting system in the office is designed for small business, many of the items listed under office expense, postage, and phone actually relate to committee expenses.

For example, many Flight Training & Safety committee expenses appear as administrative expenses. The chairman's phone expenses are charged to the office phone expense account. This is done due to the lack of time available to actually accrue his expenses to the FT&S budget, so his calls are charged directly to the office phone account. This is also true of some postage charges allocated to office expense as I do not record FT&S postage as an expense against their budget unless it is a large mailout. Postage on mailing the instructor's course manuals is charged to FT&S, most other postage is not.

It should be noted also that the FT&S committee is not charged for any secretarial expenses, which, if this were a larger corporation, would be done. Ian does a tremendous amount of work for FT&S and it is certainly a pleasure to do his typing and mailing to the various clubs and CFIs. There is also the time involved in the preparation of the instructor's course manuals, and the cost of couriers used to have copies of the material made.

Perhaps a truer account of office expenses would appear if I were to charge my time to FT&S and other committees as an expense when work is performed specifically on their behalf, but this would be time-consuming work itself providing no benefit to the members.

So it is a fallacy to believe that the only work done in this office is the accounting and inputting membership details in the computer (though accounting does take one full day a week, sometimes more). Part of the accounting includes bank deposits. On average, preparing the deposit takes 45 minutes and if I go to the bank during work hours it takes another hour. I deposit 3 to 5 times a week; however, most banking is done on my way home on my own personal time. This also applies to refilling the postage meter, an average 45 minute trip out of the office, again on my own time.

The expenses of *free flight* production are also less than what appears on the financial statement. The cost of the AGM report insert and the cost of the Soaring Stuff inserts were allocated to *free flight* as an expense until recently. Now that the printer is invoicing these costs separately, the *free flight* expenses will

be somewhat lower as the Soaring Stuff insert, for example, will properly appear as a cost of sales.

What do I do on any average day?? On Monday, June 29th, 1992, this is what happened in this office:

- 8:30, check the answering machine for messages — none today.
 - Handwritten note from Beth — a member did not receive latest issue of *free flight*. Looked up his address and mail a copy to him. There is an invoice left when Beth unpacked the plaques for the Nationals; date stamp and put in folder for payment.
 - Friday's mail contains new memberships from two clubs; entered them.
 - Call from Tony to invoice Village of Cowley for a *free flight* subscription.
 - Assigned OO number to member, made copies for Walter Weir and club CFI and entered number on member's records on computer, filed in club file.
 - Invoiced DoT for a SAC membership (call from Ian).
 - Called Mike Apps re Western Instructor's course. Not in, left message.
 - Transport Canada called — they are updating their files and needed information.
 - Pierre Pepin called re insurance for items being used at Nationals. Called Sedgwick who requested a list; prepared list and faxed to Sedgwick.
 - Put a shipment of T-shirts etc. away; folded and stacked according to size.
 - Mailed AGM report to COSA (it was returned, wrong address) and corrected address on computer.
 - Packaged and mailed two sales orders.
 - Member called looking for his SAC number. Mailed out latest issue of *free flight* to this member who hadn't received it.
 - Removed addresses of three members whose *free flight* was returned "address unknown or moved".
 - Visitor to SAC office. An hour spent discussing various SAC affairs.
 - Left at 4:30 to take mail to post office (some parcels too large for mail box in front of the office).
- This is more or less an average day at a 'slow' time of the year, many are busier. I didn't take a lunch hour, I rarely do, nor do I take coffee breaks. ●

A REMINDER ON TRAILER LIABILITY INSURANCE

This note is to remind private owners that the SAC insurance policy does not cover their glider trailers. Liability coverage may be extended to it from their auto policy — physical damage may require separate coverage.

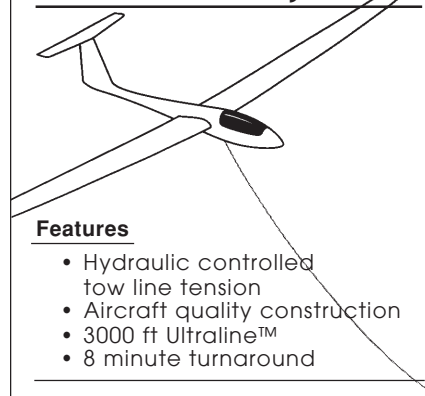
The SAC policy does cover physical damage (up to \$5000) arising from an accident in which a SAC member is pulling a club-owned glider trailer.

This additional coverage was added to the insurance policy after it was found that in Ontario (and perhaps other provinces having government no-fault schemes) there was no protection for a driver pulling a trailer they did not own.

JOAN HAS YOUR KEYS

Joan says that someone visiting the office (or ACC) in July left a set of keys behind. Clue: one of the keys is for a Chrysler product. Call her at 739-1063 if they are yours.

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† HELMUT REICHMANN

Marfa, Texas, 1970. To everyone's astonishment, the 28 year-old German in the LS-1 succeeded at his first World Championships, almost effortlessly, in carrying off the coveted Standard class title, leaving highly regarded favourites virtually stranded at the start.

On March 10, at about 4:30 in the afternoon, Professor Dr Helmut Reichmann died when his Discus collided 50 miles north of his launch site at St Auban with an LS-4 flown by 21 year-old Lars Gölz from Weinheim, flying out of Sisteron. Although some 9000 feet asl, the collision occurred only 1000 feet or so above the mountainside, and the two pilots had no chance. Helmut had just celebrated his 50th birthday.

The deaths of a young pilot and an experienced three-fold World Champion left the gliding movement throughout the world stunned. Was it an unavoidable stroke of ill-fortune? Or a momentary lapse of concentration on the part of one pilot or the other? Could it have been the glider pilot's irrepresible urge always to out-climb others in a thermal? Nobody knows, nor ever will.

Helmut was an international idol in the world of gliding. He first encountered the sport of gliding in his youth, on the Wasserkuppe, and immediately succumbed to its charms. He then flew at Mainz, where he was studying, before joining the Akaflieg (university gliding group) in his home town of Saarbrücken. In 1965, at the age of 23, he won the German Junior Championships and in the two succeeding German National Championships qualified for Marfa, where, at the first attempt, he won his first world title. He took part in five successive World Gliding Championships. In three of them he mounted the winner's podium. After Texas, there was Waikerie, Australia, in 1974 where he won in an LS-2 after a breathtaking neck-and-neck struggle with Ingo Renner. Then, in 1978 in Châteauroux, France, flying the experimental SB-13 of Akaflieg Braunschweig in the 15 metre Class, he displayed great tactical skill and took carefully calculated risks to beat Karl Striedieck into second place. Gliding enthusiast and radio journalist Werner Schwipps broadcast on short wave to the world at the time: "Whether Helmut won the title in spite of, or thanks to, the SB-13 will remain a mystery."

Nobody had ever before won three world gliding titles. Helmut Reichmann decided to leave it at that. He held long discussions with friends and then, in the autumn of 1978, announced his retirement from competitive international gliding at the home of his friend, Bruno Gantenbrink. But this in no way meant that he was turning his back on gliding. From the Regional Soaring Centre at Marpingen, also largely his creation, he continued to fly cross-country all over Germany and France. He took part in gliding expeditions throughout the world and generously gave of his knowledge and skill to newcomers to gliding.

He was federal coach to the German gliding movement, and as gliding spokesman in official German sporting bodies (Deutscher Sportbund, Deutsche Sporthilfe), he succeeded in using his powerful persuasive skills to win friends for soaring flight amongst the highest level decision makers and sports administrators, and to strengthen the reputation of glider pilots within the 20 million strong "Deutscher Sportbund". He also knew success as an author. His two books, Cross-Country Soaring and Flying Sailplanes became standard works of reference throughout the world. Finally, with his friend Barron Hilton, he helped make the Barron Hilton Cup the most important and attractive international gliding event outside the World Championships.

Professionally, as well as in the air, Helmut was a born teacher, a man with a heartfelt pedagogic vocation. He began his university teaching career as head of gliding at the Sports Studies Institute of the University of Saarbrücken, a job which earned him the nickname "Professor of Gliding". Later, he was Pro-rector of the School of Fine Arts, teaching experimental sculpture. He had an extraordinary talent for seeing connections, for spotting young talent and for explaining complicated processes in simple words, using easy examples.

He was always ready to help. Typically, it was towards the end of a training flight — when Helmut had been leading a group of four members of the young German improvers' squad around the French Alps — that the tragic collision happened. The gliding movement, all of us have suffered a grave loss.

Fred Weinholtz

from SAILPLANE & GLIDING

1995

SAC is 50 in '95. That's three years away, but now is the time to start the preliminary planning and brainstorming to make the occasion memorable. The Board of Directors is looking for ideas for special projects, festivities, AGM features, etc. to celebrate the occasion. If you have any suggestions, please pass them on to Al Sunley or your Zone Director.

A special large edition of *free flight* is planned for 1995, but what will go in it? Your ideas on data, stories, personalities, etc. are welcome now. The editor is particularly looking for your very best photos for a colour section, so plan on shooting something striking.

FAI badges

**Walter Weir, 24 Holliday Drive
Whitby, ON L1P 1E6 (416) 668-9976 (H)**

The following Badges and Badge legs were recorded in the Canadian Soaring Register during the period 1 May to 30 Jun 1992. As you can see from this short list we are having a bad soaring season so far this year, particularly in the east.

DIAMOND ALTITUDE

David St Jean	SOSA	5484 m	Grob 102	Minden, NV
Alex Szabo	SOSA	5669 m	Grob 102	Minden, NV

GOLD ALTITUDE

David St Jean	SOSA	5484 m	Grob 102	Minden, NV
Alex Szabo	SOSA	5669 m	Grob 102	Minden, NV

C BADGE

2341 Raymond Emond	Quebec	1:09	1-26	St Raymond, PQ
2342 Harold Weidemann	Edmonton	1:30	2-33	Chipman, AB
2343 Derek Brewin	Gatineau	1:05	ASK-13	Pendleton, ON
2344 Jim Thompson	Regina	1:24	1-26	Strawberry Lk, SK
2345 Frank Weiss	COSA	1:54	2-22E	Chemong, ON

As of 8 July, the following clubs have still not sent in a list of their current OOs and therefore do not, at present, have any qualified OOs:

Air Sailing	Bulkley Valley	Windsor
Alberni Valley	Grande Prairie	York

It is necessary to print the names of these clubs because many SOOs can't remember whether their list has been sent in.

FAI records

**Russ Flint, 96 Harvard Avenue
Winnipeg, MB R3M 0K4 (204) 453-6642**

New Canadian records have been approved as follows:

Absolute altitude – Feminine, territorial, 8986 m, 15 Oct 91, Deirdre Duffy, ASW-15, C-GRXQ. Flown at Cowley, AB. Supercedes the past record of 8035 m set by Ursula Wiese in 1982, also at Cowley.

Gain of height – Feminine, territorial and citizen, 6575 m, 15 Oct 91, Deirdre Duffy, ASW-15, C-GRXQ. Flown at Cowley, AB. Supercedes the past citizen's record of 5898 m set in 1969 by Antonia Williams (Cservenka) at Black Forest, Colorado, and the past territorial record of 5720 m set in 1982 by Ursula Wiese at Cowley.

100 km Speed to goal – Open, non-FAI, citizen, 147.7 km/h, 2 Apr 92, Walter Weir, ASW-20B, C-GGWW. Flown from Whitwell to Crab Orchard, Tennessee. Kevin Bennett holds the current territorial record of 118.7 km/h.

NEW, NEW!

SAC flight declaration form

Tired of using those old SSA forms to write your declaration on? SAC now has a new, improved, all-Canadian form with more room to write, easier to read, and guaranteed CFC-free. These forms will be needed now that the new Sporting Code requires the form to be photographed through the canopy with a mounted camera — the blackboard on the wall is out. (Note to clubs — get busy on building camera mounts for your club XC ships). Form is 11" x 17" on heavy paper and available from the National Office at 10¢ per sheet. Clubs are urged to buy in bulk for their members to minimize postage and handling costs.



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Trading Post

SINGLE SEAT

1-23(Std), CF-ZBR, #16, 1951. Complete overhaul, new parts, new interior, new paint. Custom built enclosed trailer, plus open trailer. A vintage gem. Don Sutherland, (604) 886-3131 (leave message). Whole package for low 20s.

1-23G, C-FZDO, \$12,000 firm. Basic instrumentation, electric vario. Contact Kurt Hertwig (519) 686-0332 or Andy Gill (519) 660-0523.

SKYLARK 4B, 18m, O2, T&B, radio, chute, trailer, very good condition. Soars on a puff — the best L/D for your dollar. Bev or Dave Lewtas (514) 455-7786.

M100-S, C-FBNG, #59, 540h, never damaged, re-covered & Imron paint (white/red trim) 1987. Std instruments, Ball 401 TE with audio, chute, covers, wing stands, encl metal trailer. \$8700. Mike Perrault (514) 331-9591 eve.

PIONEER II, C-GLUV, in mint condition, new canopy, standard control stick mod, elec. vario. Alum trailer can be towed by small car. \$9000. Paul Daudin (514) 621-2535 or Albert Sorignet (514) 331-4614.

Ka6E, C-GTXP, 730h, good condition, kept in encl metal trailer. Full instrumentation, O2, chute. At Edmonton. \$11,000 obo. Morvyn Patterson (403) 458-9527, Barb MacKintosh (403) 472-1634.

HP-11A, C-FUKB, 518 h, all-metal, standard instruments, CB radio, open trailer available. The highest performance for your dollar — has completed Gold and Diamond flights! Must sell quickly, only \$13,900. Bob Patterson (416) 457-5238 (9 to 9).

JANTAR STD 3, US\$24,200. **SZD-55-1**, US\$36,900. New, basic instruments, special finish, FOB Poland, end '92 delivery. Call (403) 488-4446, fax 488-7925.

LARK IS29D2, C-GBEQ, about 1000 h, excellent condition, never spent a night outside, C of A to Aug '92, Radair 360, Cambridge elec. vario, O2, instruments, chute, metal encl trailer. Asking \$22,000. Denis Gauvin (418) 842-6456.

LIBELLE H301B, CF-XGE, O2, 720 chan radio, wing covers, encl metal trailer. \$15,500. Rob Minchin (403) 639-2365 (H), 594-6719 (W).

MINI-NIMBUS, C-GLDR, 1978, about 700 h, Terra 720 radio, PiroI vario & speed director, chute, O2, encl fibreglass trailer. Call Guy Peasley (403) 281-4626 (H) or Al Stirling (403) 242-1191 (H).

ASW-20, C-GTRM, 447 h, pristine condition, all ADs, mylar seals, Smiley bags, O2 with A20 reg, Dittel radio, Winter vario with Cambridge netto, Ball vario with audio, Cambridge Mk IV & speed director, 50K' Kollsman altimeter, turn coordinator, Bohli compass, Comet trailer. Rick Matthews (604) 538-5382.

Trading Post ADVERTISING

- Personal sailplane and sailplane equipment ads are free for SAC members, \$10 per insertion for non-members.
- Ad will run twice. If ad is to continue, notify editor for each additional two issues. Please notify editor if item is sold.
- Normal maximum length is 6 lines. Ads are subject to editing if space is limited.
- Send ad to editor, NOT National Office.

TWO PLACE

BLANIK and LARK, SOSA, contact Fred Hunkeler (416) 470-2612.

BLANIK, C-GVXS, 2470 h, clean with basic instruments both cockpits. Asking \$10,000. Gordon Hicks, (514) 625-7335.

GROB 103, C-FAML, 830 h, all ADs completed, standard instruments, custom dollies & fuselage cradle, etc. for trailer. \$37,000. Alberta Soaring Council, (403) 625-4563.

MISCELLANEOUS

Winglets. Kit for HP-18 or HP-16/RS-15 without aileron counterweights. Four molded fibreglass skins and materials. \$500. Ed Hollestelle (519) 455-3316.

Sage SV vario, Schuemann box for ASW-20, Winter barograph 12k scale. Bryce Gormley (613) 692-3107.

Trailer and fittings for a Grob 103. Chris Eaves (519) 268-8973 (H), (519) 452-1240 (W).

Open glider **trailer**, 25' x 4', torsion bar suspension, 480 x 8 tires. **Blanik winch launch bridle**. Niagara "**Chairchute**" flat 26' canopy, red container, '92 repack. Replogle **barograph** (new) with extra graph paper and seals. Scott **O2 mask** with mike, outlet hose and elbow for A14A regulator, new and never used. Bob Sturgess, (403) 526-5248.

Drag chutes, want to buy 16' diameter ring slot canopy drag chutes, ex-military no. 1670-00-833-311, for use in winch operations. Write Bluenose Soaring Club or call (902) 466-2906.

TOW ROPES

Spectra - Dacron - Polypropylene

1-3/4" forged tow rings \$6.19

call **David F Bradley** (215) 723-1719
fax (215) 453-1515

MAGAZINES

SOARING — the journal of the Soaring Society of America. International subscriptions \$US35 second class. Box E, Hobbs, NM 88241 (505) 392-1177.

SOARING PILOT — bimonthly soaring news, views, and safety features from Knauff & Grove Publishers. \$US20, add \$8 for foreign postage. RR#1, Box 414 Julian, PA 16844 USA.

NEW ZEALAND GLIDING KIWI — the official publication for the 1995 World Gliding Championships at Omarama and the bi-monthly journal of the N.Z. Gliding Association. Regular updates on preparations for the 1995 event. Editor, John Roake. \$US25/year. N.Z. Gliding Kiwi, Private Bag, Tauranga, N.Z.

SAILPLANE & GLIDING — the only authoritative British magazine devoted entirely to gliding. 52 pp, bi-monthly, and plenty of colour. Cdn. agent: T.R. Beasley, Box 169, L'Orignal, ON K0B 1K0 or to BGA, Kimberley House, Vaughan Way, Leicester, LE1 4SG, England. £12.40 per annum (US\$20) or US\$30 air.

AUSTRALIAN GLIDING — the journal of the Gliding Federation of Australia. Published monthly. \$A38.50 surface mail, \$A52 airmail per annum. Payable by international money order, Visa, Mastercard. Box 1650, GPO, Adelaide, South Australia 5001.

SUPPLIERS

REPAIRS & MAINT.

Sunaero Aviation. Glider repairs in fibreglass, wood, & metal. Jerry Vesely, Box 1928, Claresholm, AB T0L 0T0 (403) 625-3155 (B), 625-2281 (F).

Vankleek Sailplanes Ltd. Specializing in sailplane repairs in wood, metal, or composites. Call Günther Geyer-Doersch (613) 678-2694.

XU Aviation Ltd. Repairs in wood, metal and composites. C. Eaves (519) 452-1240 (B), 268-8973 (H).

INSTRUMENTS & OTHER STUFF

Barograph Calibrations, most makes and models. Walter Chmela, (416) 221-3888 (B), 223-6487 (H), #203, 4750 Yonge Street, Willowdale ON M2N 5M6

Bug Wipers. Mechanical device for in-flight wing LE cleaning, newly developed in Europe after 10 years of R & D. Widely used at world contests. Cdn\$690. **Mylar seals**, Cdn\$190. Peter Masak (Performance Enhancement Inc.) (713) 579-2254.

Variometer / Calculator. Versatile pressure transducer and microprocessor based vario and final glide calculator. Canadian designed and produced. Skytronics, 45 Carmichael Court, Kanata ON K2K 1K1. (613) 820-3751 or 592-0657.

Firmal Electronics. Cambridge variometers and flight computers, including new L-Nav. TE probes, netto filters and gust filters (clearance sale on nettos and g.f.s.). Cambridge warranty service and repairs. Call for details, (613) 731-6997.

MZ Supplies. CONFOR foam, Becker radios, most German soaring instruments. 1450 Goth Ave, Gloucester, ON K1T 1E4 tel/fax (613) 523-2581.

NON - SOARING ADS

To increase SAC advertising revenues, *free flight* will accept personal advertisements in "Trading Post", your house and Chevy included. (The Italian soaring magazine has a full page ad for toilet seats — in colour — they are fibreglass, though.) Chris Eaves commented that he bought his car and CD player from glider pilots, and with a free flight circulation of 600 in Ontario alone, most in or near Toronto, a pilot market is there. Tell other pilots what you have.

non-soaring ads
\$10/issue for max. 5 lines

COMMERCIAL ADVERTISING

	B&W	Colour
Full page (7-1/4 x 10)	\$275	\$750
Back cover inside	325	1,000
1/2 page	160	475
1/4 page	95	
1/9 page	55	

Quoted prices for a single ad. Discounts for multiple insertions. Many other fractional page sizes available. Contact the National Office for full information on rates and sizes.

PROVINCIAL ASSOCIATIONS

NOVA SCOTIA SOARING ASSOCIATION
5546 Sentinel Square
Halifax, NS B3K 4A9
(902) 455-4045
President: Gordon Waugh

FEDERATION DE VOL A VOILE DU QUEBEC
1034 St-Denis
Montréal, PQ H2X 3J2
(514) 849-5910
President: Robert Binette

ONTARIO SOARING ASSOCIATION
94 Willcocks Street
Toronto, ON M5S 1C8
(416) 964-5810
President: Lorna Novosel

MANITOBA SOARING COUNCIL
67 Granada Cresc
Winnipeg, MB R2Y 0P9
(204) 837-7280
President: Lloyd Davies

SOARING ASSOCIATION OF SASKATCHEWAN
78 Schneider Crescent
Regina, SK S4R 7R5
(306) 545-6856
President: Gary Bozek

ALBERTA SOARING COUNCIL
Box 1916
Claresholm, AB T0L 0T0
(403) 481-3866
President: Marty Slater

BC SOARING SOCIETY
9280 - 168 Street, RR 10
Surrey, BC V4N 3G3
(604) 576-9646
Secretary: Christine Timm

MARITIME ZONE

BLUENOSE SOARING CLUB
Box 843, Station M
Halifax, NS
B3J 2V2

QUEBEC ZONE

AERO CLUB DES OUTARDES
CLUB DE VOL A VOILE
288 Bertrand
Le Gardeur, PQ
J5Z 4R9

AERO CLUB SPORTAIR
c/o Denis Trudel, 1120 Wolfe
St-Bruno-de-Montarville, PQ
J3V 3K5

CLUB DE VOL A VOILE APPALACHIAN
Box 271
Sherbrooke, PQ
J1H 5J1

ASSOCIATION DE VOL A VOILE CHAMPLAIN
30 des Orties
La Prairie, PQ
J5R 5J3

CLUB DE VOL A VOILE DE QUEBEC
Box 9276
Ste Foy, PQ G1V 4B1

MONTREAL SOARING COUNCIL
Box 1082
St. Laurent, PQ H4L 4W6

CLUB DE VOL A VOILE MONT VALIN
3434 Ch. Ste Famille
Chicoutimi, PQ G7H 5B1

ONTARIO ZONE

AIR SAILING CLUB
c/o OC Rec. Platoon, CFSPER
Don Mills, ON M3B 3N6

ARTHUR GLIDING CLUB
10 Courtwood Place
North York, ON M2K 1Z9

BASE BORDEN SOARING
c/o OC Rec. Platoon, CFSPER
CFB Borden, ON L0M 1C0

BEAVER VALLEY SOARING CLUB
Box 394
Thornbury, ON N0H 2P0

BONNECHERE SOARING
Box 1081
Deep River, ON K0J 1P0

CENTRAL ONTARIO SOARING ASSOCIATION
Box 762
Peterborough, ON K9J 7A2

ERIN SOARING SOCIETY
Box 36060, 9025 Torbram Rd
Bramalea, ON L6S 6A3

GATINEAU GLIDING CLUB
Box 883, Station B
Ottawa, ON K1P 5P9

GUELPH GLIDING & SOARING ASSOCIATION
183 Norfolk Street
Guelph, ON N1H 4K1

KAWARTHA SOARING CLUB INC.
Box 168
Omeme, ON K0L 2W0

LONDON SOARING SOCIETY
Box 773, Station B
London, ON N6A 4Y8

RIDEAU GLIDING CLUB
Box 307
Kingston, ON K7L 4W2

RIDEAU VALLEY SOARING SCHOOL
Box 1164
Manotick, ON
K4M 1A9

SOSA GLIDING CLUB
Box 81
Rockton, ON L0R 1X0

TORONTO SOARING CLUB
c/o S. Foster
10 Blyth Street
Richmond Hill, ON
L4E 2X7

WINDSOR GLIDING CLUB
Box 2172
Walkerville, ON N8Y 4R8

YORK SOARING ASSOC.
10 Courtwood Place
North York, ON
M2K 1Z9

PRAIRIE ZONE

GRAVELBOURG GLIDING & SOARING CLUB
Box 213
Lafleche, SK S0H 2K0

PRINCE ALBERT GLIDING & SOARING CLUB
219 Scissons Court
Saskatoon, SK
S7S 1B7

REGINA GLIDING & SOARING CLUB
Box 4093
Regina, SK S4P 3W5

SASKATOON SOARING CLUB
Box 7943
Saskatoon, SK S7K 4R6

SWAN VALLEY SOARING ASSOCIATION
Box 850
Swan River, MB R0L 1Z0

WINNIPEG GLIDING CLUB
Box 1255
Winnipeg, MB
R3C 2Y4

ALBERTA ZONE

COLD LAKE SOARING CLUB
Box 2108
Medley, AB T0A 2M0

CU NIM GLIDING CLUB
Box 2275, Station M
Calgary, AB T2P 2M6

EDMONTON SOARING CLUB
Box 472
Edmonton, AB T5J 2K1

GRANDE PRAIRIE SOARING SOCIETY
Box 446
Grande Prairie, AB
T8V 3A7

PACIFIC ZONE

ALBERNI VALLEY SOARING ASSOCIATION
Box 201
Port Alberni, BC V9Y 7M7

BULKLEY VALLEY SOARING CLUB
Box 474
Smithers, BC V0J 2N0

MILE ZERO CADET SOARING ASSOCIATION
Box 603
Dawson Creek, BC
V1G 4H4

VANCOUVER SOARING ASSOCIATION
Box 3251
Vancouver, BC V6B 3X9

SAC SUPPLIES FOR CERTIFICATES AND BADGES

1	FAI 'A' badge, silver plate pin	\$ 5.00
2	FAI 'B' badge, silver plate pin	\$ 5.00
3	SAC BRONZE badge pin (<i>available from your club</i>)	\$ 5.00
4	FAI 'C' badge, cloth, 3" dia.	\$ 4.50
5	FAI SILVER badge, cloth 3" dia.	\$ 4.50
6	FAI GOLD badge, cloth 3" dia. <i>Items 7-12 ordered through FAI awards chairman</i>	\$ 4.50
7	FAI 'C' badge, silver plate pin	\$ 5.00
8	FAI SILVER badge, pin	\$39.00
9	FAI GOLD badge, gold plate pin <i>Items 10, 11 not stocked - external purchase approval given</i>	\$35.00
10	FAI GOLD badge 10k or 14k pin	
11	FAI DIAMOND badge, 10k or 14k pin and diamonds	
12	FAI Gliding Certificate (record of badge achievements)	\$10.00
	Processing fee for each FAI application form submitted	\$10.00
13	FAI badge application form (<i>also stocked by club</i>)	n/c
14	Official Observer application form (<i>also stocked by club</i>)	n/c
15	SAC Flight Trophies application form (<i>also stocked by club</i>)	n/c
16	FAI Records application form	n/c
17	SAC Flight Declaration form (<i>also stocked by club</i>) per sheet	\$ 0.10
18	SAC guide "Badge and Records Procedures" ed. 5 (sold out, ed. 6 coming)	
19	FAI Sporting Code, Gliders, 1992 (<i>payable to ACC</i>)	\$ 5.00

Please enclose payment with order; price includes postage. GST not required. Ontario residents, add 8% sales tax (items 15-18 tax exempt). Items 1-6 and 13-18 available from SAC National Office. Check with your club first if you are looking for forms.

ARTICLES ACVV POUR CERTIFICATS ET INSIGNES

Insigne FAI 'A', plaqué argent
Insigne FAI 'B', plaqué argent
Insigne ACVV BRONZE (<i>disponible au club</i>)
Insigne FAI 'C', écusson de tissu
Insigne FAI ARGENT, écusson de tissu
Insigne FAI OR, écusson de tissu <i>Les articles 7-12 sont disponibles au président des prix de la FAI</i>
Insigne FAI 'C', plaqué argent
Insigne FAI ARGENT
Insigne FAI OR, plaqué or <i>Les articles 10, 11 ne sont pas en stock - permis d'achat externe</i>
Insigne FAI OR, 10k ou 14k
Insigne FAI DIAMAND, 10k ou 14k et diamonds
Certificat FAI de vol à voile (recueil des insignes)
Frais de services pour chaque formulaire de demande soumis
Formulaire de demande pour insignes (<i>disponible au club</i>)
Formulaire de demande pour observateur officiel (<i>disponible au club</i>)
Formulaire de demande pour trophées de vol de l'ACVV
Formulaire de demande pour records FAI
Formulaire de déclaration de vol de l'ACVV
FAI Code Sportif, Planeurs, 1988 (<i>cheque payable à l'ACC</i>)

Notre paiement devrait accompagner la commande. La livraison est incluse dans le prix. TPS n'est pas requise. Les résidents de l'Ontario sont priés d'ajouter la taxe de 8% (les articles 15-17 exempts de taxe). Les articles 1-6 et 13-18 sont disponibles au bureau national de l'ACVV.