

# free flight • vol libre

1/05  
Feb/Mar





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THE EDITOR IS WAITING while I battle with these words. The struggle has been to find a message for *free flight* readers while being nagged by the certainty that we have heard it all before. So it was a surprise to find an answer to my dilemma in the incongruity I saw between the suffering of the tsunami victims in southeast Asia and the concerns we choose to face in our sport. It appears to me that as critical as insurance costs, contest rules, and club politics are to us, they don't register on the scale of reality that hundreds of thousands experienced in the closing days of December. We are generally free from their need to scramble for food and shelter. As I see it, that should free up resources that may be directed to helping others and getting along. I wonder how exercising that thought could change 2005!

I deeply appreciated Ian Grant's recent call on the Roundtable to "Imagine what could happen if cooperation broke out." There are only two prerequisites for heading in this universally agreeable direction: *imagination* and *action*.

Imagination – to visualize the way our diverse skills, dreams and activities can be combined for the good of us all. Action – to take the first step toward others and to create the momentum needed to overcome obstacles. Few in our soaring community would argue that many have been working hard at doing this:

- Youth learning to overcome the barriers of cost and lack of experience,
- Seasoned pilots offering their skills as instructors,
- Club executive battling through budgets and finding new ways to make the finances work,
- Club members quietly showing up to do their part with no particular recognition expected,
- Committee members at all levels gently responding to passionate concerns and humbly getting on with their responsibilities.

From every Canadian glider pilot to each of you leading with new initiatives or continuing in the routine of ongoing operations, our thanks along with our assurance that in 2005 we will find new avenues of cooperation and ways to support you.

The 2004 flying season is truly over! Remember that the Stachow Trophy applications and flights not recorded on loggers and the Online Contest need to be submitted manually. Please ensure your trophy applications are in to me by 15 February at the latest.

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1/05 – Feb/Mar

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

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Cover

With this month's big article being a history of Schweizer glider production, the cover is honoured with a photo of a 1-35. It was being flown by Dan Thirkill in northern Utah last year.

photo: Bruce Boyes

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# “Gliding is safe...”

... that's a brain-dead attitude to launch with

**Peter Hearne,**  
from *Sailplane & Gliding*

**T**here are some 9000 active British glider pilots. In 2004 (as of August 13), *nine* had been killed in gliding accidents. So the chance of death is currently running at 1 in 1000 pilots/annum. This is more than twice the average British glider pilot fatality rate for the years 1977 to 1997. By comparison there are some 60 million of the UK population all of whom are exposed to all forms of road accidents (drivers, passengers, pedestrians): 3650 people approximately die in all categories of road accidents each year — a fatality rate of 1 in 16,400 per year. In the highest road user risk category, motorcyclists, the latest [government] figures show that some 690 motorcyclists are killed annually in an estimated population of 1.6 million riders and passengers — a fatality rate of 1 in 2300 per year.

The chances of death in a gliding accident are therefore some sixteen times greater than in road accidents in general and some two-and-a-half times worse than the highest risk category, motorcycling.

My personal belief is that many glider pilots have lost an awareness of the presence of danger and that it does not occur to them that they are operating in an environment that not only demands that they pay attention to their own and other people's safety, but may kill them if they do not.

The suicidal mantra: “It's much safer flying a glider than driving to the club” is one of the worst culprits in this respect. Bruno Gantenbrink emphasized this in his excellent article at <[www.dg-flugzeugbau.de/safety-comes-first-e.html](http://www.dg-flugzeugbau.de/safety-comes-first-e.html)>. He points out what many of us have sadly experienced. Very few, if any, of our companions have been killed driving to the club but we all have known a measurable number who have been killed in gliding accidents.

While the BGA's Safety committee and others have made, and continue to make, enormous efforts to improve our deteriorating situation they need a fully attentive and receptive audience. We need to open our minds to the recognition that gliding is not inherently safe and that much greater and continuing pilot awareness of this critical fact is the starting point on the path to restoring a satisfactory safety standard.

Please note that I am not saying that gliding is unsafe, but that it is not *inherently* safe. It needs the pilot's input into the equation to add the necessary ingredient to confer an adequate level of safety by flying intelligently “within the envelope”. Nor am I suggesting that we should, or even could, take all of the risks out of gliding and lower its excitement level to that of a bowling tournament. But whilst excitement and enjoyment have a place in sport, Death does not. To quote Gantenbrink: “Almost all the soaring friends I have lost have been killed due to ‘pilot error’. Some of these errors have been silly little things, the simplest kind of carelessness with fatal consequences. They died because at the critical moment something else was more important than flight safety”.

When the practitioners of other higher-risk sports, such as ski jumping, scuba diving or parachuting, prepare to leap into the air or water, they do so on the presumption that a measurable element of danger is involved and that they are trying to eliminate the unnecessary risks by careful preparation and execution. I suspect that some of us when we strap into the cockpit do so with the presumption that we are entering into a safe environment (“so much safer than that smelly old M25 on which we drove to the club”) and that danger is not present.

If you start with the presumption of *unsafety* you are much more likely to be a safer (and longer-lived) pilot. ❖



## 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, processing FAI badge and record claims, and the selection of Canadian team pilots for 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. An e-mail in any common word processing format is welcome (preferably as a text file). All material is subject to editing to the space requirements and the quality standards of the magazine.

Images may be sent as photo prints or as hi-resolution greyscale/colour .jpg or .tif files. Prints returned on request.

*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 Zone Director.

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## letters, etc

### L'ASSOCIATION CANADIENNE DE VOL À VOILE

est une organisation à but non lucratif formée d'enthousiastes et vouée à l'essor de cette activité sous toutes ses formes, sur le plan national et international. L'association est membre de l'Aéro-Club du Canada (ACC), qui représente le Canada au sein de la Fédération Aéronautique Internationale (FAI), laquelle est responsable des sports aériens à l'échelle mondiale et formée des aéroclubs nationaux. L'ACC a confié à l'ACVV la supervision des activités véliplanes aux normes de la FAI, telles les tentatives de record, la sanction des compétitions, la délivrance des insignes, et la sélection des membres de l'équipe nationale aux compétitions mondiales.

**vol libre** est le journal officiel de l'ACVV.

Les articles publiés dans *vol libre* proviennent d'individus ou de groupes de véliplanes bienveillants. Leur contenu n'engage que leurs auteurs. Aucune rémunération n'est versée pour ces articles. Tous sont invités à participer à la réalisation du magazine, soit par des reportages, des échanges d'idées, des nouvelles des clubs, des photos pertinentes, etc. L'idéal est de soumettre ces articles par courrier électronique, bien que d'autres moyens soient acceptés. Ils seront publiés selon l'espace disponible, leur intérêt et leur respect des normes de qualité du magazine.

Des photos, des fichiers .jpg ou .tif haute définition et niveaux de gris peuvent servir d'illustrations. Les photos vous seront retournées sur demande.

*vol libre* sert aussi de forum et on y publiera les lettres des lecteurs selon l'espace disponible. Leur contenu ne saurait engager la responsabilité du magazine, ni celle de l'association. Toute personne qui désire faire des représentations sur un sujet précis auprès de l'ACVV devra s'adresser au directeur régional.

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### Buckingham Airport to become a housing development

Yes, Buckingham Airport ... I remember it well. Back in 1953, as president of the McGill Gliding Club, and full of enthusiasm, I helped to persuade the members to build the Fauvel AV-36 flying wing. There were a couple of AV-36's being built out west (later finished as CF-HRF-X by Len Russell and CF-HRO, Bill Riddell). We found other interested parties in the east and ended up in a loose partnership consisting of Jacques Coder of Sherbrooke and Brother Hormisdas of Buckingham. After some meetings, they proceeded with a 'mass production' of three AV-36's, each party constructing 3 sets of sub-assemblies.

Jacques Coder undertook to do the cutting and welding of the chrome-moly steel fittings, the McGill Gliding Club was ordering the plans, #47, and most of the materials, including the 1.2mm birch plywood from Finland. Bro. Hormisdas lined up his woodworking class at his École Supérieure Saint-Michel in Buckingham to crank out innumerable ribs and rudders and other wooden parts. Each built their own spars and the final assembly. After several years of construction, mostly by George Adams, the McGill AV-36 was evicted from the workshop at Canadair, just as we were getting ready to cover it. Bro. Hormisdas allowed us to store the glider at the Buckingham airport for a while but it was too far away and we ended up selling it for \$400 to Lucien and Bernard Leduc.

They stored it in a barn for the winter of 1963, intending to cover it in the spring. Unfortunately the glider was destroyed by children who delighted in jumping from the rafters through the wing ribs into the hay. Both the other gliders were finished by that time.

I did end up flying Coder's AV-36 at Elmira during the '57 Snowbird Meet. Bro. Hormisdas' glider was damaged in a landing but in a 1961 letter I have, it was to be repaired "now that they had completed the Cherokee II" (another school woodworking project).

Here's an interesting twist. In 1979 I talked with Guy Lafleur who hails from Buckingham. At the time he was a neighbour of my friend in Baie d'Urfe. He said Bro. Hormisdas was his teacher and all the students knew of his flying, always dressed in full priestly robes. And yes, he also had to spend time in the workshop 'learning aircraft structures'. Imagine, somewhere rests the remains of an AV-36, partially built by the hockey legend Guy Lafleur ... another opportunity on eBay ...?

Ulli Werneburg, on driving to Buckingham to see what was going on, noted: "the housing

development is called "Domaine Vol à Voile" and one of the new streets is Rue Hormisdas Gamelin. At least it is nice to see gliding and the name of the illustrious Brother commemorated by the builders of what seems to be a high quality development."

Hillar Kurlents

### The ancient and the young

I soloed in May 1945, so my 60th year will be completed this spring (the first six years were power only) — still lucky with my health and so still flying. At the other end of the age scale, Rod Morris (a Calgary pilot who flies in Invermere) reported:

"[My daughter] Kenna (15) went solo this year and instead of asking for the car keys, she's asking for the keys to my PW-6! She's already planning to spend half of next summer in a tent on the airfield at Invermere. I am sure son Roger will follow in no time but he needs two more years before he turns 14 plus one to go solo. However, he flew ten hours this year in just four flights including a wave flight to 15,000 feet. All I do is the takeoff and landing and have a good yak with him in between. He has the touch, now he just needs the years and some theory."

Charles Peterson added: "It was my son Niels, enrolled in the Air Cadet program, who got the first licence in the family. I watched him solo, asked about lessons, and when I found out I could get four lessons a day ("you can get more but you'll fry your brain!"), I signed up without even an intro flight ....

It is a delight to fly with your offspring, and I am comforted that when I get to the age when I need a 'safety pilot', I will have only to buy the appropriate 2-seater and I'll spend even more time flying with him. His love of aviation has carried him through the Aerospace Engineering program, and I now find that as with so many other things, he is better trained than I. Fatherhood really can be fun."

Soaring is not dying when there are 15 year old soloers and 12 year old wannabes — but how do we encourage this?

Charles Yeates

### A plug for the Vintage Glider Club

At present there are only four members from Canada. New VGC members are welcome. The website is <[www.vintagegliderclub.org.uk](http://www.vintagegliderclub.org.uk)>.

It promotes the international preservation, restoration and flying of historical and vintage gliders; collects, preserves and publishes gliding info, documents and artifacts; and negotiates with government bodies and other organizations to ensure that interests of the members are protected.

Terry Beasley

# Arthur to Bancroft O&R

Tim Wood, York Soaring

I MADE THIS FLIGHT on 15 August last year, starting at York Soaring's field at Arthur, then on to Bancroft in eastern Ontario, making an out-and-return flight by way of Muskoka and Stanhope. My sailplane was an ASW-27, a 15m flapped ship. I did not use any water ballast on this flight. My declared route was Arthur (start) – Muskoka a/p – Stanhope a/p – Bancroft a/p – Orillia a/p – to Great Lakes Gliding field near Tottenham (finish), a distance of 476 kilometres. My track stuck very closely to this until the last leg, when I was able to return to Arthur instead of finishing at Great Lakes, covering an actual distance of 551 kilometres. On this flight I passed over some very infrequently travelled soaring terrain, and enjoyed the strong soaring conditions over the hard rock of eastern Ontario. My OLC file, *48FA10D4.igc*, is available for download from the OLC webpage.

The day's forecast was favourable, with a high centred over Chicago. (This is Steve Burany's ironclad success omen for a good 500 km day in southern Ontario). The flight route was planned in detail based on the three-day ETA forecast by Dr. Jack. He predicted strong soaring conditions over the high ground from Muskoka east, thermal strengths of over 500 ft/min, and cloudbase around 6000 feet asl. Light winds from the north or northeast of 5-10 knots were forecast over the length of the route, with cumulus cloud cover of 7-15%. The risk of overdevelopment was not rated as high over the area, and the risk of incursions of lake air just about nil.

Predictions for the "soggy triangle" of southern Ontario were good but with lower cloud bases, strong thermals, and the likelihood of ingress of that cool, wet lake air. Overdevelopment risk was significant within the area bounded by Lakes Ontario, Huron, Erie and Georgian Bay. My planning for the flight included working out a time schedule for the whole flight, to help with strategic decisions as things progressed, and to give my ground crew a basis for their movements in response to mine.

My strategy for the flight was to escape as quickly as possible from southern Ontario and penetrate the better conditions to the east, then to remain in the favourable area for as much distance as possible. This implied a good chance of failing to make it home to Arthur. Willing and able back-up crewing in a just-in-case mode was generously provided by Steve Bond and his son, Matt. I thought the airport at Orillia would be a good landing spot if I didn't make it home. The plan for Steve was for him to drive the retrieve truck/trailer out into the general area of Orillia, and communicate frequently by radio as the flight progressed. The viability of the flight from a safety point of view was to always maintain safe final glide possibilities to acceptable landing places. Over the bush of eastern Ontario, this meant maintaining high altitude. For this part of the flight, high cloud bases

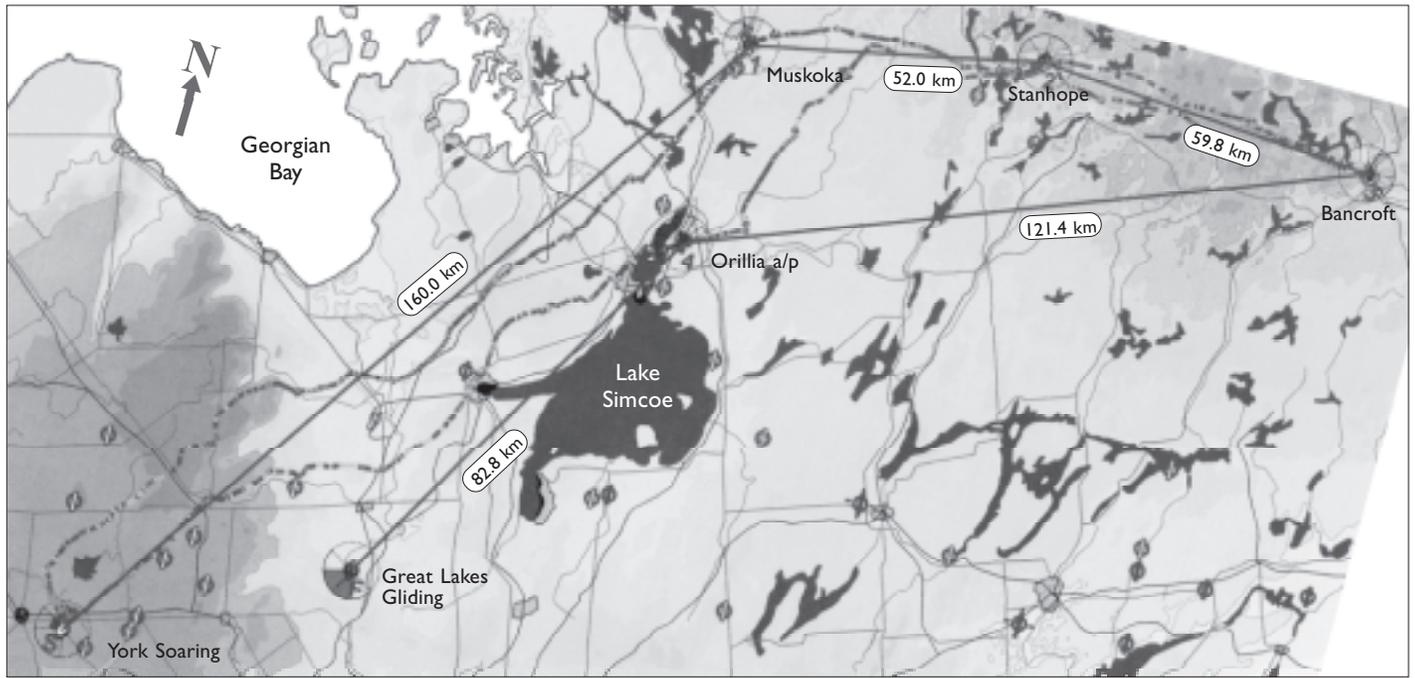
were essential, with consistent thermals, and visible cu. At least half of the flight was planned over inhospitable terrain with rocks, swamps, lakes and no fields. Airports were to be used as stepping stones through the rough terrain: Muskoka, Stanhope, Bancroft, Stanhope, and back to Muskoka or Orillia. South of Muskoka, landing possibilities were abundant.

I got off to an early start at 1100, with a 3000 foot tow above York's field. This took me above the cloud base of the scattered early cu, which were around 3600 feet asl. Dismally weak early conditions rapidly improved. Strong, consistent short thermals soon developed, but cloud bases remained dauntingly low, not much above 4000. I quickly decided to ignore the low cloud base in view of the frequency and consistency of the thermals in my path and pressed on northeast, soon getting beyond final glide home. I was fortunate to encounter a strong cloudstreet which took me from just north of Luther Lake towards Collingwood. Thermals improved north of Camp Borden, and lake effect from Georgian Bay was not evident at this early hour. When I crossed the magic boundary from farmland to rocky outcrops at the north end of Lake Simco, thermal strength took a jump and cloud bases did too.

I was soon at Muskoka airport, by now over thirty minutes ahead of schedule, and conditions were steadily improving. It was turning into a great day in the cottage country along the route I had chosen! Muskoka Tower was cooperative and helpful, with the novel situation of a glider mixed in with the corporate jets and other small power planes. Traffic was brisk. I transited the airport area between 3600-5000 feet. Before leaving the security of final glide back to Muskoka, I thermalled up to 6000 and attempted to stay high for what lay ahead over the bush of eastern Ontario.

The distance from Muskoka to Stanhope is 52 kilometres with no landing places. Stanhope to Bancroft is 60 kilometres, again with no landing possibility. These legs over harsh terrain were uneventful, and I stayed ahead of my planned schedule. At all times I had easy final glide either to my next turnpoint or my previous one, or both. All my turnpoints were paved runways with good road access. Furthermore, thermals were visible and of predictable and consistent strength. Winds were from the north at 6 knots. On the return flight from Bancroft towards Muskoka, I turned south, cutting the corner towards Orillia. I crossed the north limb of Lake Simco from Orillia at 6000 feet, and turned south again.

Then the final chapter of my flight began. I flew south under generally lower cloud bases from Orillia towards



Barrie. From there I saw the amazing spectacle of a very large lake front, marking Georgian Bay air which had moved south by this late hour, on a line connecting Barrie, through Bradford, Alliston, Shelbourne, Luther Lake, Arthur and beyond there into the haze-obsured west. Tendrils of dark cloud hung from a grey ceiling which extended towards the north almost to the shore of Georgian Bay. A parallel line of rain ran east/west several kilometres south of the front. I was close to cloud base when I connected with this system. It seemed to me that the only way home was to attempt to ride along it. I tucked in close to the tendrils on the upwind side at 5400 feet and I was able to sustain altitude reasonably well all the way to Shelbourne, in a thrilling zero sink ride towards home. As my declared finish point of Great Lakes Gliding club field was well south of this lake front that I was travelling along, I elected to pass it by, and instead opted for a return directly to Arthur.

The front became less coherent at Mansfield, and I began to sink. A heavy rain shower developed directly in my path, on highway 89, northwest of Luther Lake. As I got nearer to the rain, I elected to go south around it. I was now down to 2700 feet asl in the vicinity of Erin Soaring's old field, and with sinking spirits I was earnestly looking for the best field to land in. Then I caught the "Halleluia Thermal" on a mini-front on the southwest side of the rain shower, which was pushing a wedge of cold air along the ground ahead of it. This 1 knot beauty got me back up to 3300 and secured the rest of my glide home. I landed into wind in blinding heavy rain, as the shower overtook the York Soaring field. The emotional ups and downs of the last part of the flight were icing on the cake for me, and I sat out the worst of the rain in great spirits and very glad to be safely home.

The flight took 7:26 hours and covered a distance of 551 kilometres at an average speed for the whole flight of 74.2 km/h. I spent 28% of my time in thermals, with an average climb rate of 230 ft/min for a combined height gain of 30,079 feet. I did 46 straight runs with an average length of 11.6 km. The flight was a great thrill and dem-

onstrated to me once again that soaring conditions in eastern Ontario are frequently stronger and more consistent than in southern Ontario.

This flight points to the possibility of using a northern route through Bancroft, Calabogie and the Gatineau Hills as the most effective way to get to Hawkesbury from Arthur. For two years I've been doing downwind dashes from Arthur towards the east using a southerly route, approaching Hawkesbury along the St. Lawrence River Valley. I also did one in the opposite direction along the St. Lawrence on 24 July last year when a northeasterly set in. I have never yet reached Hawkesbury from Arthur, or Arthur from Hawkesbury, my best effort so far being Arthur to Cornwall early last August. Close, but no cigar!

This "northern route" to Hawkesbury from Arthur seems very appealing to me for a number of reasons:

- After watching Dr. Jack's soaring forecasts for more than a year, a few "hot spots" from the cross-country pilot's viewpoint are very clear. These include the north side of the Ottawa Valley between Ottawa and Hawkesbury, and the general area of highlands in eastern Ontario north of Highway 7, including Algonquin Park. Conversely, the area east of Kingston in the St. Lawrence River Valley is generally weak especially late in the day, due to lake effect from Lake Ontario.
- Ulli Werneburg has actually scouted the route on the ground from Pendleton to Bancroft and reports that there are some emergency landing fields at manageable intervals along that path. Ulli has been kind enough to share this information with me.
- Controllers at Ottawa Centre have a good relationship with cross-country pilots in their area and will cooperate when they can, to allow gliders to skirt their control area along its northern margins.

I hope I will be able to pursue these possibilities in 2005 and enjoy more flights over this exciting region of Ontario. Perhaps I'll finally complete a dash to Hawkesbury and other flights north into the Ottawa Valley through Bancroft. ❖

# the Schweizer gliders

dedicated to the memory of Paul Schweizer,  
a true friend of Canadian soaring

Terry Beasley, MSC

**W**ITH THE DEATH of Paul Schweizer and the demise of the Schweizer Aircraft Corporation (it was recently bought by Sikorsky), it is an appropriate time to review the history of what was once the predominant glider manufacturer in North America.

The Schweizer brothers were true pioneers of soaring in North America. Paul, with his brothers Ernie and Bill, and his sisters Helen and Emily, were the children of Paul Sr., a Swiss chef who immigrated to the USA in 1906. The three brothers developed an early interest in aviation and with school friends formed the Mercury Model Airplane Club. After the publication of the June 1929 *National Geographic* article on the birth and progress of gliding as a sport in Germany, the brothers soon changed the model club into a gliding club.

#### Early days – SGP 1-1 to SGS 2-8

With this shift in interest, the Schweizer brothers began the design and construction of a primary glider. Ernie, the oldest brother, who was eighteen at the time and a high school senior, was the primary designer while Paul, aged sixteen, was the enthusiastic spark plug who kept the project going. The glider, the SGP 1-1, was successfully flown in June 1930.<sup>1</sup>

By 1936 the brothers had built and flown two more gliders, the SGU 1-2 and the SGU 1-3, both of fairly conventional wooden construction. Both Ernie and Paul had now graduated as aeronautical engineers and began to study the feasibility of metal construction for gliders. They became convinced that metal was the way to go and designed and built the world's first all-metal glider, the SGU 1-6. During the glider's construction it was realized that it was too complex, so design and construction of the SGU 1-7 began. Both gliders were taken to the 1937 US Nationals at Elmira. The SGU 1-6 won 3rd prize in the 1937 Eaton Design Competition, although the Schweizers thought that the 1-7 was the superior design. A second 1-7 order was received and these successes led to the incorporation of the Schweizer Metal Aircraft Company later in 1937. Unfortunately, no further orders were received as the country was still suffering from the Great Depression of the thirties.

The next project was the SGS 2-8, the company's first two-seater. The design was initiated as a result of a request to tender a proposal to the Air Hoppers Soaring Club of New York City. The glider was first flown in 1938 but completed too late for it to be entered in the 1938 Nationals at Elmira. However, it was taken to Elmira and was flown as a non-participant in the last few days. Several pilots flew it and it was well received.

A second order was received from the Soaring Society of America and the glider was delivered to the SSA at the 1939 Nationals at Elmira. The glider caused considerable interest and further orders were expected.

All the gliders to this time had been built in an unheated barn at the Schweizer family's home at Peekskill, New York. Late in 1939 the Schweizers were persuaded to relocate to Elmira where they occupied the upper floor of a two-storey building that had been a knitting mill. The Schweizer Aircraft Corporation was formed and took over the assets of the Schweizer Metal Aircraft Company. Until this time none of their gliders had been type certified and, as the 2-8 was a two-seater, the CAA (predecessor of the FAA) was reluctant to issue further Experimental certificates. For this reason the Schweizers decided to go ahead and proceed with the necessary work to obtain full type approval for the 2-8. The certification process was completed in the spring of 1940; the first fully certified 2-8 (no. 3) was purchased by the Bell Aircraft Glider Club.

The fourth 2-8 was put on display and used as a demonstrator at the 1940 Nationals at Elmira. On one day the glider was flown by Bob Stanley, chief test pilot of Bell Aircraft Corporation, with Ernie Schweizer, to Washington, DC, a distance of 219 miles. This established a new American two-place distance record. Naturally it also caused considerable interest in the design and further orders followed.

#### World War II, TG-2 (SGS 2-8) and TG-3 (SGS 2-12)

By this time, World War II had seen the use of military gliders by the Nazis and the US Army became interested. This led to more orders and the SGS 2-8 continued in production as the TG-2, until a total of 57 of both had been built. The last one was delivered in August 1942.

By late 1941 the military decided they needed a trainer that handled more like the military CG-4 so Schweizer designed the SGS 2-12 (military TG-3). Due to the shortage of aluminum caused by the demands for military aircraft, there was a requirement to use non-strategic materials wherever possible. For this reason the TG-3 reverted to wood construction with a steel tube fuselage. Better visibility for the instructor was also required. The prototype TG-3 was used for static structural tests at Wright Field (the Army Air Force's proving ground) and were completed successfully. As a result of this, the Air Force ordered seventy-five TG-3's.

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<sup>1</sup> This started the Schweizer project numbering system. First letter: S = Schweizer. Second letter: G (Glider), A (Airplane). Third letter: P (Primary), U (Utility), S (Sailplane), M (Motorglider), X (Experimental). The first numerical digit indicates the number of seats. The number after the hyphen is the consecutive project number. After project 29 it was decided not to assign a project number until the aircraft was actually built and flown. Any letters appearing after the project number indicated variants. SGP 1-1 indicates that the project is the Schweizers first glider, a Primary.

The new glider made its first flight May 1942. In November 1942 a follow-on order was received for a further 38 TG-3's. The last TG-3, serial number 115, was completed in August 1943. It was built as a company demonstrator and still survives today hanging in the passenger area at the Chemung County Airport in Elmira. All the TG-2's and TG-3's that survived the war were sold off as military surplus. Some are still flying and are eagerly sought after by vintage glider enthusiasts.

Schweizer was awarded a lot of aircraft subcontract work during the war years so the business did not rely only on gliders. Despite the wartime workload, the brothers were anxious to have a glider ready for civilian use as soon as possible after the end of the war. At the time the thought was that the most suitable glider would be a simple single seat utility so a new design, the SGS 1-19 was completed and it was test flown in 1944. The project was then put on hold until the end of the war.

In February 1943 the Schweizer Aircraft Corporation moved into a new plant at the Chemung County Airport. This new facility was built as a result of a government program designed to allow military contractors to increase their plant capacities. It was leased to the company and finally bought in 1948.

#### **Post-war, SGU 1-19 to SGS 1-23**

When the war ended it was believed by all the general aircraft manufacturers that there would be a real boom in the sales of light aircraft, including gliders. This turned out to be realized in some respects as by the end of 1945 Piper was building fifteen Cubs per day. Unfortunately for the Schweizers, the same was not true for gliders. Not only had a large quantity of wartime trainers been sold as war surplus at very low prices but they were immediately suitable as dual trainers with a superior performance to the pre-war 1-19's.

Schweizer realized that the 1-19 was inferior to the war surplus trainers so a new wing was designed with a greater span and aspect ratio; this was the 1-20. It made its first flight in 1946. It was not type certified and only two 1-20's were built at the factory, but drawings were made available and several 1-19's were converted by their owners. At this time, preliminary design work also began on a high performance sailplane, the SGS 1-21, but this was shelved until after the 2-22 was in production.

**SGS 2-22** Schweizer had established a dealer network, and feedback from the dealers indicated a demand for a simple and easy to fly two-seat trainer. This led to the design of the SGS 2-22, which made its first flight in February 1946. The design was successful and the 2-22 had very similar flying characteristics to the 1-19, so they made a good complementary pair for Schweizer's dealers. The 2-22 design was developed throughout its production life, which saw a total of 258 built. Variants were the 2-22A, with a longer nose for the USAF Academy to allow room for the crew to wear parachutes; the 2-22B, similar to the A and intended for the civilian market; the 2-22C, with narrower chord ailerons to reduce the rolling stick force; and the final 2-22E that gave the instructor the luxury of a door and side windows. Note that the second suffix K indicates a kit version.



The 1946 US Nationals was held at Elmira and 38 of the 48 competing sailplanes were war surplus military trainers, some extensively modified in attempts to improve their performance. The Schweizer brothers recognized that there was a potential market for a better sailplane and this led to continuing the shelved 1-21 project. An all-metal stressed skin design requires extensive tooling if it is to be built in any quantity at a competitive price but Schweizer had only two orders when the design was completed. Knowing that the demand might increase if the glider did well in competition, they decided to build two, with minimum tooling.

The first was N91856, bought by Dick Comey. He entered the 1947 US Nationals and placed first out of 65 gliders entered. Naturally this success caused great interest but cost analysis indicated that it was not a feasible production design. It was flown by Stan Smith in the 1952 World Championships in Spain where he placed 31st, but five years later won the 1957 US Nationals with it. The second 1-21 built has since been immaculately restored by Walter Cannon and it won the "Best Schweizer" award at the 1995 International Vintage Sailplane Meet at Elmira. I saw it there and it was probably better than new! The 1952 Worlds had thirty-nine entries of which fourteen were pre-war designed Weihses. In addition to this 1-21, two 1-23's were entered – a 1-23B flown by Paul MacCready and a 1-23C flown by Paul Schweizer. Philip Wills (England) flying a Slingsby Sky won the contest.

Although the Schweizer brothers realized that the 1-21 could not be sold at an acceptable price they believed that the aerodynamic design was good and that a very similar design could be produced at a marketable price. This led to the SGS 1-23; detail design started in the fall of 1947 and the first flight was made in July, 1948. It was not completed in time to enter the 1948 US Nationals but three were entered in the 1949 contest. Their results were quite good and further orders resulted.

The 1-23 appeared in several variants, the final one being the 1-23H-15. Only single specimens of the B, C, E, and F variants were built. The B and C both had the span increased to 15.24m; the C also had a stronger spar and thicker wing skins. The D, based on the B and C models, was FAA certified for production. A standard 1-23, C-FZBY, owned by the Canadair club (affiliated with the Montreal Soaring Council) had its wings changed to D wings after the original wings were run over by a car! The E was built for Paul MacCready to fly in the 1954 Worlds. To improve its performance it did not have a landing wheel, simply a faired skid and droppable wheels to assist the takeoff. This glider was later owned by Paul Bikle. (It was



in this glider that, in 1961, he gained the world altitude record and gain of altitude records of 14,101m and 12,894m respectively.) The 1-23F was similar to the E model but the wings had thicker skins and no lap joints. The 1-23G was a production version of the F. The H version was similar to the G with the introduction of aerodynamically balanced airbrakes. The final version was the 1-23H-15 with speed limiting airbrakes and a 15m span to comply with the new FAI Standard Class rules. A total of seventy-two were built in all variants: 1-23 (21), 1-23D (12), 1-23B, C, E and F, (one of each), 1-23G (8), 1-23H (19), 1-23H-15 (10).

Many good flights were made in 1-23's, including Bill Ivans' two altitude records (later broken by Paul Bikle). The first Diamond distance in Canada was flown by Charles Yeates in a 1-23, ZCJ, in 1959. Of interest is the fact that at the 1955 US Nationals a visiting British competitor, Nick Goodhart, flying Bill Ivans' first 1-23, earned the most points but, as a non-citizen, could not be awarded the championship. Dick Noonan of Winnipeg built a 1-23 in 1951/52 from factory supplied parts and was the only non-factory unit. I had the pleasure of helping Dick with some finishing touches when I was attending the NATO Navigation School while serving in the Royal Air Force. I have not determined if this glider is included in the seventy-two total figure; it probably is. I have no knowledge of its registration or later history.

A one-off SGS 1-24 was the joint design effort of Howard (Howie) Burr and Ernie Schweizer. Howie was a Schweizer employee who reached an agreement with the company that he could build his own glider using the plant facilities working after hours. The fuselage began as a standard 1-23 unit but, prior to completion of the wings, it was modified by inserting a ten-inch section between the pilot's seat and the main bulkhead. This was to allow the addition of a small seat to be inserted for one of Howie's sons! The wing was a shoulder mounted original design with a fully tapered 16.9m span. With this greater span and higher aspect ratio than any of the 1-23's its performance was superior to any 1-23. Christened *Brigadoon*, it made its first flight in 1953 and on the first contest day Howie made a declared goal flight of over 300 kilometres to earn his Diamond goal.

Howie later sold the glider, then bought it back again from the same person and finally donated it to the National Soaring Museum in Elmira, NY in 1997. It is currently on loan from the NSM to the "Wings Over the Rockies" Air Museum near Denver, Colorado.

#### Mid-fifties, into the sixties – SGS 2-25 to SGS 2-32

The decision to go ahead with the 2-25 design resulted from a Soaring Society of America proposal for a high performance two-seater to be entered by the American team in the 1954 World Championships two-seater class. The glider was basically a scaled up (120%) version of the 1-23D and was built with minimum tooling using 1-23 detail parts wherever possible. Its performance was somewhat better than that of the 1-23D. It was finished just in time to be entered in the 1954 World Championships and after three contest days it was placing second. Unfortunately, the glider suffered landing damage on a following no-contest day and had to be withdrawn from the contest.

The 1954 Worlds took place in Derbyshire, England, and was the last Worlds where all launches were by winch. It also suffered the worst weather of any world contest resulting in only four days for the two-seaters. I can vouch for the bad weather; I was there as a lowly winch driver.

After the Championships the glider was repaired and loaned to the Sierra Wave Project where it made several flights to over 12,000m. Dr. Joachim Küttner was the pilot on many of these flights<sup>2</sup>. On completion of the project the 2-25 was returned to Elmira. It was again flown by the US Team in the 1956 World Championships two-seater class at St. Yan, France, where it placed fourth out of thirteen entrants (this was the last Worlds to have a two-seater class). The glider never entered production as the cost of full tooling and certification would have made it impossible to sell at a competitive price. It was sold to a private owner who later donated it to the USAF Academy at Colorado Springs where it was badly damaged when a wave rotor tore it from its tie downs.

**SGS 1-26** The 1-26 first flew in 1954 and was Schweizer's most successful glider, if the number built is the criterion for success. From the concept stage it was hoped that it would become the glider of choice for a one-design competition class. In this it most surely succeeded. A contributing factor to its success was that, from the start, it was planned to make it available as an easy to build kit. (Several kits were assembled in Canada. Members of the Canadair club built one over the winter of 1956/57 in a workshop kindly supplied by Canadair.)

The 1-26 is so well known that it is hardly necessary to give it a description. For the sake of completeness, it was of 12.2m span, with a straight tapered wing, partially fabric covered. The wings were fitted with simple hinged spoilers and fabric covered ailerons. The fuselage was of steel tube construction, faired with wooden strips and fabric covered aft of the wing. The cockpit area was aluminum skinned and the nose section was, again, faired with wooden strips and fabric covered up to the spun aluminum nose cone. The gross weight was 261 kilograms. The original kit version was designated 1-26A and of the 139 1-26 and 1-26A models built, 117 were kits.

<sup>2</sup> Küttner pioneered wave exploration pre-WWII and he coined the term "mountain wave". In 1987 he instituted a \$3000 challenge prize for the first 2000 km straight line flight. The soaring community thought this was a safe bet. In 2003 he increased the prize to \$10,000 — and in the same year, Klaus Ohlmann won it for his 2120 kilometre flight in southern Argentina on 23 November 2003.

### The "orphans" of the Schweizer projects and gliders

- Only preliminary design work was done on an SGU 1-4 and SGU 1-5 before the projects were abandoned.
- No details of Project Number 9 have survived. It was a very preliminary study for a sailplane, to be built mainly of wood.
- Number 13 wasn't used; not due to any superstitions of the Schweizer brothers but for fear that potential customers may be superstitious!
- During WWII, preliminary design work was carried out for the SGX 8-10, a 94 foot span troop carrier. Project 15-11, another troop carrier, was abandoned very early as it was soon realized that it was impractical. I have been unable to determine what were projects 14 to 18.
- I found no record of a 2-22D model variant.
- The type numbers 27 and 28 were allocated to projects which never left the drawing board. SA 2-27 was a proposed two seat light aircraft and SA 7-28 a larger commercial aircraft.



Randy Blackwell

a 1-26 — that's it in the foreground

The glider went through several versions. The B was introduced in 1956 and had metal covered wings, except for the ailerons. There were also other minor changes. The C was the kit version of the B. The D version resulted partially as a result of an order from the Indonesian Air Force for thirty units. The opportunity was taken to introduce some changes, not only to facilitate production but also to improve the design. Airbrakes replaced the spoilers and the forward fuselage section was all-metal. The E version was introduced in late 1970 and finally had an all aluminum monocoque fuselage. The gross weight was now up to 317 kilograms. The numbers built were: 1-26 (22), 1-26A (117), 1-26B (184), 1-26C (87), 1-26D (79), 1-26E (200) — 689 in total of which 204 were kits. The last 1-26 was built in 1981.

The 1-26 Association still holds annual contests and a number of their members take great pride in having achieved all three Diamonds in a 1-26.

Laminar flow airfoil sections were first used in WWII. In 1951 the well-known American pilot Dick Johnson clearly demonstrated how they could be used to advantage on gliders. He cleaned up his RJ-5 to improve its glide angle from around 30:1 to better than 40:1 and went on to break the World distance record with a flight of 877 kilometres. By the late 50s European designers were using some of these sections so the Schweizers decided to build an experimental glider, the SGS 1-29, whose sole purpose was to evaluate one of the new airfoils. In order to keep construction costs down, existing component designs were used wherever possible. The fuselage and empennage were from the 1-23G, while the wing had a constant chord (0.96m) and a span of 15m, with similar rib spacing to the 1-23. The spar was built stiffer than normal to help prevent skin deformation in flight degrading

the laminar flow. The glider was flown in 1958. Comparison flights were carried out with a 1-23G with encouraging results.

The 1-29 was flown by Paul Schweizer in the 1959 US Nationals and finished in seventh place. The 1-29 was never intended for production and the only one built is now in the US National Soaring Museum. Dick Johnson won this contest, not in his RJ-5 but flying a pre-WWII German designed Weihe; a wooden glider which, by 1959, must have had that "starved horse" look typical of old wooden gliders.

The SA 1-30 was a very attractive looking single seat light aircraft using a low mounted 1-26 wing on a fuselage similar to that of the 1-26. It used a 65 HP Continental engine and had a Cessna type spring landing gear. It first flew in 1958 and reportedly was liked by all the pilots who flew it. It was decided not to put it into production as it was believed that a two-seater version would have greater sales potential. However, a few years later, while I was on a visit to the Schweizer plant, Paul Schweizer told me that he later regretted the decision.

The SA 2-31 was a two-seat development of the 1-30. It still used a 1-26 wing but, as it was a side-by-side two seater, it had a similar but wider fuselage to that of the 1-30. It, too was quite successful but it was decided not to put it into production as it would be in direct competition with well-established designs from the other light aircraft manufacturers.

**SGS 2-32** By 1961 the 2-22 was becoming very popular as a basic trainer while the number of ex-WWII two seaters had dwindled so there was an increasing interest in a high performance two seater. Schweizer's experience with the 2-25 indicated that a roomier cockpit was desirable, particularly in the western USA where high altitude wave flying was becoming established, as the 2-25 had been found to be quite cramped when wearing high altitude clothing. This led to the 2-32 design becoming a three seater with a roomy front cockpit and a wide rear seat capable of accommodating two, not too large, persons. (The rear cockpit rudder pedals were under the arm-rest fairings of the front cockpit so for use of dual controls only one person could occupy the rear seat). The glider used the NACA 633618 airfoil that had been tested on the 1-29. The wing had a straight tapered span of 17.4m



Tony Burton

The large cockpit and strong wing of the 2-32 led to many being purchased and modified by others for a variety of military tasks, including quiet surveillance and surveillance drones. Amongst these were the Lockheed Q-star, the Y0-3A (above), and the LTV L450.

and an aspect ratio of 18. The elevator was of the all-moving type, fitted with an anti-balance tab.

The prototype flew in July 1962 and a very comprehensive flight and ground test program followed resulting in FAA certification in 1964. The glider became very popular, particularly with the commercial glider operations as two passengers could be carried. Many are still flying today and command high prices on the used market. When the first ones were imported to Canada we had to have special licence endorsements as the normal glider pilot licence had a maximum weight restriction below the authorized flying weight of the 2-32.

Schweizer originally planned on building at least two hundred 2-32's but production was stopped after only eighty-seven as it was realized that the break-even quantity was unlikely to be achieved. It is of interest that their 1000th glider built was a 2-32, built in 1968.

**SGS 2-33** Although, as discussed above, the 2-22 had become a popular basic trainer, Schweizer realized that its performance and handling were not comparable with the single seat gliders to which 2-22 pilots would later graduate. The 2-33 was designed to remedy this situation. To simplify the design and reduce construction costs it was largely based on the 2-22. The performance was improved by the use of a new wing of 15.5m span which was tapered out-board of the strut. It had an aspect ratio of 11.85 compared to the 8.81 of the 2-22. Aerodynamically balanced airbrakes were also installed. The fuselage was based on the 2-22 but it had slightly larger cockpits with a faired fibreglass nose section. The front canopy was fully molded while the rear cockpit had an entrance door on the starboard side with a large opening window on the port side. The horizontal stabilizer was identical to that of the 2-22 but the fin and rudder were new and swept back to give the glider a more up-to-date stylish appearance.

First flight took place in 1965 and production commenced in 1967, the year in which 2-22 production ceased. The glider was an immediate success and went on to achieve a



The Schweizers were very pleased that the 2-22 and then the 2-33 were adopted by the Canadian Air Cadet glider program which began in 1966. The program has made well over one million launches since then in these two models. The Air Cadets have seventy-one 2-33's in service with more being acquired.

total of 579 units, compared to 258 for the 2-22. The only variants were the 2-33A, introduced in 1968 after 85 deliveries, which has a balanced rudder and some other minor changes, and the AK, which was a kit version of which only ten were built (included in the 579 total). Many 2-33's are still flying, particularly at USA commercial operations.

#### **Into the 70s with new single-seaters**

The 1-34 started as an experimental project, known as X-391. The project used a new straight tapered wing of just under 15m span mounted on a modified 1-26 fuselage. The airfoil was one of the then latest Wortmann sections. Two test models were built and were entered in the 1968 US Nationals. Flown by Bernie Carris and Paul Schweizer, both were pleased with the performance. Schweizer decided to go ahead with the 1-34 design, using the new wing on a new monocoque fuselage that had a new all-metal empennage. The glider had an aft mounted fixed wheel equipped with a good hydraulic brake, and a small front skid to protect the nose skins. Production started in 1969 and ninety-three were built before production ceased in 1979. The only variant of this glider was the 1-34R which had a retractable wheel — only nine of these were built (included in the production total).

Preliminary design work on what was to become the 1-35 started in 1978, with prototype construction starting before the end of the year. Schweizer took advantage of a change in CIVV rules that allowed the use of flaps in the Standard class. The 15m span wing was straight tapered with a 23.3 aspect ratio. The airfoil was a Wortmann section designed for flaps. For the first time, Schweizer used metal bonding to attach the aileron and flap skins. The metal monocoque fuselage had a skid mounted forward of the retractable aft mounted wheel. The empennage was all-metal of the fashionable T configuration. Various minor improvements were incorporated during production but the only designated variants were the A and C models. The A had a more pointed nose and the wheel was moved forward to allow the nose skid to be deleted. Later models also had a front hinged canopy that incorporated the instrument panel cover. The C "club" version had a fixed wheel and no water ballast provisions. One hundred and one were built, including all models. Production ceased in 1982.

The 1-35 was an unfortunate experience for Schweizer as CIVV Standard Class rule changes not only caused the design to take place but also rendered it obsolete before it could become well established.

In 1978 only six 1-26's were sold. It was obviously time for a replacement. Design of the 1-36 started in 1979 and it was hoped to commence deliveries early in 1980. The 1-36 was the first Schweizer glider to be given a name, *Sprite*. However it didn't catch on and it always seems to be referred to as the 1-36. The glider was intended to be a replacement for the 1-26 and it was hoped that it would be just as successful and form a newer one-design class. The design used a straight tapered wingspan of 14.1m and an aspect ratio of 15.5, using a Wortmann airfoil, and equipped with balanced airbrakes. The fuselage is an all-metal monocoque. The prototype used the rear section of a 1-26E fuselage and tail surfaces but production versions had a T-tail since the



Schweizer dealers believed that this would improve sales. Seven 1-36's were sold in 1980, followed by thirty-one in 1981. By the end of 1982 it appeared that future prospective sales would not cover the initial design and tooling costs so production was terminated with forty-three built. There were no variants although it had been planned to produce a kit version. (An initial kit was prepared and it is believed that this unit is included in the total production figure). The 1-36 can be considered a success as they are popular with their owners and rarely appear on the used market. It was the last Schweizer production glider.

The SGM 2-37 was developed by Schweizer to fulfil a US Air Force Academy need. The Academy had a well-established glider program and wanted to add a motorglider design to their existing fleet. They had evaluated the existing motorgliders that were available at the time and found that none of them had the performance to allow touch-and-go practice at their 6572 foot elevation field at Colorado Springs, particularly on a hot summer day.



Just landed after flying their replica SGP 1-1 during the 50th anniversary of Schweizer Aircraft in 1989. Pictured (l to r): the brothers Bill, Paul (seated), and Ernie Schweizer. Photo by Kevin Proaper, courtesy of the National Soaring Museum.

The 2-37 design was a side-by-side two seater 18m span aircraft, with an aspect ratio of 18. It had a standard 112 horsepower Lycoming O-235 engine. To minimize design and tooling costs, existing components were used where possible. The aft fuselage and the tail surfaces were from the 2-32 and the outer wing panels from the 1-36. The Academy was pleased with the aircraft and purchased twelve of them. It was given the USAF designation TG-7. It was an attractive-looking motorglider, but having the more powerful engine than other motorgliders, it did not fit the usual national classifications for such gliders. There were several variants built for purposes not associated with gliding, so they're not discussed here.

Finally, although the 1-36 was the last Schweizer production glider it was not the last glider they built. When the Schweizer Aircraft Corporation's fiftieth anniversary was to be celebrated in 1989, the Schweizer family decided to build a replica of their first glider, the SGP 1-1 primary. The original drawings had been lost and this glider destroyed when the old Schweizer barn workshop burned down. Ernie drew up new plans from memory and reference to surviving old photographs. The glider was constructed in time to be test flown by Paul on 18 May and found satisfactory. It was then flown at a public demonstration on 20 May by the other Schweizer brothers, Ernie and Bill, and later by three other Schweizer sons. It was then handed over to the US National Soaring Museum at Harris Hill. Thus Schweizers history ends as it began, with a primary glider. ❖

#### References and acknowledgements

This article would not have been possible without considerable reference to the following books, which are recommended reading.

- 1 *Sailplanes by Schweizer, A History*. ISBN 1-84037-022-X. Paul Schweizer and Martin Simons. Published in 1998 by Airlife Publishing Ltd., 101 Longden Road, Shrewsbury, Shropshire, SY3 9EB, England.
- 2 *Soaring with the Schweizers*, by Bill Schweizer, ISBN-0-9630731-0-9. Published in 1991 by Rivilo Books, Falls Church, VA, USA.
- 3 *Wings Like Eagles*, by Paul A Schweizer. ISBN-0-87474-828-3. Published in 1988 by Smithsonian Books.
- 4 *SOARING* magazine.

Note that items 1, 2, and 3 are still available from the SSA. (Amazon has used copies available). Item 1 is one of a series of books by Martin Simons, all are highly recommended for anyone interested in glider and sailplane designs. He has also written:

*The World's Vintage Sailplanes, 1908-1920*, ISBN 0-85880-046-2. Kookaburra Technical Publications, Box 648, Dandenong, Victoria 3175, Australia. (Available from the US National Soaring Museum, Elmira, NY).

*Slingsby Sailplanes*, ISBN 1-85310-732-8. Published by Airlife Publishing Ltd, 101 Longden Road, Shrewsbury, SY3 9EB, Shropshire, England.

*Sailplanes, 1920-1945*, ISBN 3-9806773-4-6

*Sailplanes, 1945-1965*, ISBN 3-9807977-4-0

*Sailplanes, 1965-2000*, ISBN 3-9808838-1-7

These three are published by: EQIP Werbung & Verlag GmbH, Hauptstrasse 276, D-53639 Königswinter, Germany, and can also be obtained from the US Vintage Soaring Association, c/o Raul Blacksten, PO Box 307, Maywood, CA 90270, USA.

# an Ogar story

from not quite an ugly duckling to not quite a swan

Dave Puckrin, ESC

**B**ACK IN THE 1970'S, PZL Bielsko of Poland designed and built a limited number of a two place motorglider called the SZD-45A Ogar (*Greyhound*). The side-by-side motorglider was imported into the United States with a Limbach engine and upon arrival were re-engined with a Revmaster, another Volkswagen derivative. Neither engine was overly successful. With a published glide ratio of 27.5, an aspect ratio of 16.5, and an empty weight of 1180 lbs, the glider was promoted as a club ship that could be used for initial training and cross-country flights. A single, semi-retractable wheel with outriggers on the wingtips made for awkward ground handling (with 57 feet of wing, many airports proved difficult with one wing down dodging lights or taxiing with a distinct fuselage angle).

Of the sixty produced, 35 arrived in North America. One of these, November Mike, has strong ties to Alberta. NM started life in California and little is known about the glider's first years. Built in 1978, 427 hours were logged in the six years it flew in the USA prior to 1982 when it came to Canada. To have this number of hours, considering it sat damaged for two years of this time, means over 75 hours a year or some very good flying.

The glider was owned by an Edmonton developer, Sandy McTaggart, who had never seen the airplane and didn't have time to bring it to Canada. Bob Porter, renowned as a hot Pitts pilot, was to deliver the airplane to Canada. Wearing a pink jump suit and pink driver shoes he refused a checkout. It was probably his unfamiliarity that caused the poorly latched canopy to depart the airplane at about 50 feet, destroying the prop and hitting the tail. Porter removed the expensive Nav-Com, whether as payment or to

keep it safe is unknown, and left the airplane at the end of the runway. Someone tied it down in a far corner of the airport where it became a 'parts' source.

Two years later, enter Jack Lambie, a well-known sailplane pilot in the USA at the time. Unable to see the aircraft rot away, he contacted Sandy and made a deal to fix and deliver the airplane. As with all projects, three times the budget and many months behind schedule, the canopy was replaced, the tail fixed, and a borrowed tail wheel was returned before Lambie was able to begin the flying portion of his adventure. The twenty-six hour trip from California to Alberta was a series of forced landings, engine seizures, oil loss, and repairs with Mack Truck parts — all of this excitement in the beauty of the Rocky Mountains. How lucky can one person get!

After arriving in the Edmonton area, November Mike's ownership was transferred to the Edmonton Soaring Club by Sandy. The club did not find it usable and sold it to a partnership consisting of Dave Marsden, Deirdre Duffy, Hugh Waller, Mike Apps, and Dave Wallis.

The engine was rebuilt but with no waste gate and no way to control the turbo, life expectancy was half a circuit. To get more control over the aircraft, it was placed in the homebuilt category and a 65 hp Subaru engine was installed. Over the next twelve years the partners added 200 hours to the airframe. Reading the log books show success with the new engine but not without problems. During this time I had a flight and upon landing remarked that the propeller looked strange as it was only clearing the boom tube by a very little. The motor mount was found to be broken, allowing the engine to slump down and only the airframe had stopped the engine and prevented the propeller from cutting off the tail boom — foreshadowing future events.

Being a large aircraft, it was not hangared and remained tied down outside and this soon started to take a toll. The Ogar has sailplane type rigging but a minimum of four people were needed to rig. You could lose friends quickly if you insisted on derigging on more than an annual basis.

Tests performed by Dave Marsden gave the Ogar a glide ratio of 15 to 1 and, being heavy, a strong day (barn doors observed climbing at 10,000 feet) was necessary to achieve soaring flight. A flight to 19,000 feet at Cowley and a 50 kilometre cross-country were the highlights of the partners' flying experiences. Soaring flight was normally done with the iron thermal on low RPM, unless it wouldn't start.





*l to r – Hugh Waller, Dave Wallis, and Dave Marsden at work in the cockpit.*

The Ogar was flying but everyone was losing interest and motivation. The decision was made to sell and

a group from the USA came up to view, take a ride and purchase the airplane in 1996. All was well on the demo flight until, during a low pass, the propellor departed which cut the boom tube and penetrated the wing in two places. The buyer took back his check and left. The insurance company paid out. One intrepid member of the partnership, Hugh Waller, bought the aircraft and started the rebuild.

Six years later Hugh had not completed the rebuild and his life was changing. Although both he and his wife had enjoyed flying the Ogar, relocation and other changes had put the repairs on hold. The fuselage pieces and engine took up most of the garage and the wings filled the back yard ... it was time for another chapter of the Ogar's history.

Dave and Loretta Puckrin had been looking for a two place glider that was affordable and the self-launching capability was a bonus. From the start the goal was to redo the glider to better than new with a modern *proven* engine and a cleaned up airframe. One essential part of ensuring that this was done properly was the agreement that no specific date would be set for completion.

A modern Rotax 912 four stroke engine was installed with a total clean-up of the engine compartment. The new engine

needed a new cowling and, with water cooling, a cabin heat system was installed. The new engine provides an additional 25% in power to 85 hp. Dan Pandur and Bob Robertson are the local Rotax dealers who share space at the St. Albert airport. Thanks must go to them for their help in finding a good used engine as well as help with the installation. The 912s and 914s are the engines in most of the newer two place motorgliders. With a combination of air, water, and oil cooling, the engine can be tightly cowled. All external cooling flaps are motorized and will be controlled by engine sensors. In glider mode all cooling doors close and are flush mounted. The engine change required new controls and a new panel. Bob Hagen and John Broomhall were a great help in this area.

Winglets were added to improve the low speed handling and performance. Dr. Marsden supplied the winglets and the wings were repaired and the boom tube was attached. The cockpit was redone and upgraded and the exterior received a fresh coat of paint.

Without help in the "electron" department, all my airplanes would be electron free. Jim Strong, a former member of the Edmonton Soaring Club and partner in the Jantar, worked with me to build a CNC router machine which was used to cut out the panel. It's amazing to have the ability to layout a panel and then cut it out of aluminum within a thou. Jim also designed and built the controllers for the cooling flaps and engine sensors interface.

A feathering prop was sourced but money has run out so that will wait. In the meantime a three bladed, fixed pitch prop will have to do. With seven gallons of gas on board, cruise times of one and a half hours with reserve will be possible. Cruise should be about 85 mph but all of this remains to be seen.

It has taken three years but the Ogar will be ready to fly this spring. With the cleaned up airframe, closing cooling flaps and winglets, we hope to see performance in the 22:1 area and then, when we win the Lotto and install the feathering prop, the hope is 27-30:1. This prop has documented results of a 30 to 45% improvement over a fixed pitch on the Europa motorgliders, so we feel 28 to 1 is achievable.

We need to go nowhere in a hurry and have nothing to do when we get there, so maybe the Ogar will be perfect for us. With its large interior, if you took out the seat a short masochist could probably sleep in the plane at events such as Cowley. I may fit that description to a tee. I'm looking forward to touring around the province with friends, especially in the mountains. The Ogar may not be competitive with a Stemme or a Nimbus but my bank account has fared well. ❖

*About the author:*

*Dave Puckrin has been a member of the Edmonton Soaring Club since the early 70's and has close to 1000 hours in gliders and 2000+ in power. A towpilot, glider, and ultralight instructor, he currently works on aircraft at the St. Albert Airport. He built an Airbike on his own and a Slepcev Storch, with Loretta Puckrin and John Broomhall. He has rebuilt a number of airplanes including a Skybolt and a Pitts. He can be reached at (780) 418-4440.*

# “Thanks”-giving at Cowley

Jean Claude

**T**HIS YEAR I had a reason to be especially thankful... There were no such expectations when I set off from Canmore, Alberta, early Saturday morning 2 October on a hunch that I would finally see someone or something at the Cowley airfield. Over the years I had driven by it a few times on my regular visits to Windy Point (a windsurfing hot spot at the Oldman reservoir just southeast of the airfield), only to find it deserted and seemingly unused. Having read about some of the events that went on at this field through the surprisingly distant years, the place had, for me, a certain aura to it. I imagined misty mornings where machines, made of the best materials and technology of their time, were assembled and flown into unknown and potentially hazardous conditions, all in the name of discovery and the quest for those fabulous lifting air currents.

As luck would have it, I had surfed upon the Alberta Soaring Council website [[www.soaring.ab.ca](http://www.soaring.ab.ca)] where the Cowley fall camp was announced, only days before the actual event. Having some power experience, I read avidly and arrived well prepared with adequate clothing and camping equipment. The sight of vehicles and not one, but two high wing taildraggers gave me pangs of excitement as I parked my car. Trying to conceal my eagerness, I “nonchalantly” strolled over to a group of men. I don’t think I pulled it off — within minutes of the introductions, Phil Stade “volunteered” me to fly with him as the sacrificial guinea pig for the day, much to the assembly’s amusement. I couldn’t have had a better soaring icebreaker with these enthusiasts.

I was strapped like a papoose into the front seat of a great metal bird called a Blanik and pulled skyward in pursuit of a ragwing towplane as if in a benign dogfight. All along the gentle westerly ride the enthusiastic yet calm voice in my ears, sounding eerily disembodied (cockpit acoustics perhaps?), acquainted me with the cockpit environment and thoughtfully went through an explanation of the conditions we might be encountering on this flight.

As the massive expanse of the Livingstone Range loomed we veered north and, after an interesting bit of sky dancing to keep in step with our partner, we separated with a hearty clunk, instantly entering another realm of quiet. The dance was over and, but for the sound of the wind rushing by the canopy, there wasn’t much of a sense of motion until one noticed the ragged little wisps of cloud growing in size and substance as both the clouds and we ascended at an exhilarating pace. As the ground falls away and the features of the land below blend, Phil lets me take the controls and experience the true meaning of uncoordinated flight. So this is what adverse yaw feels like! What an eye-opener it is to behold such an immediate and unequivocal demonstration of this effect. This fundamental aerodynamic concept had been difficult for me to perceive in the aircraft I had used in my power training. This realization alone would have made my day, adding to my aviating bag of experience, but this was only the beginning of a series of firsts that bordered on the religious for me.

How much fun we had flying right at and then, at the last moment, straight up the rising edge of tumbling rotor clouds as we giggled with glee. All too soon, nearly two hours flew by as fast as we did and we had to make our way back to the field to let others have a go. The way back was no time to daydream as Phil took the opportunity to demonstrate emergency descents and, finally, the landing sequence.

Back on the ground, everyone was very generous with their knowledge and really made me feel comfortable trying my hand at the multitude of tasks required on the busy flightline. The patience and encouragement that I received turned me into a participant instead of a spectator and that made all the difference, once again proving that most of us learn best by doing. After a day filled with wind, sun and discovery, the evening was short and the slumber deep.

Sunday brought more participants to the camp and with them, more opportunities to learn about the operations involved in getting everyone ready to fly. Once again Lady Luck presented herself in the form of an invitation to a flight with Rod Morris in his gorgeous PW-6 as his scheduled passenger would not arrive for some time. What a treat to fly in this state-of-the-art aircraft whose owner showed such generosity toward a newbie such as myself. Following an excellent flight I spent the day furthering my education in Cowley glider culture. It was greatly entertaining to join pilots and company for a meal in Pincher Creek that evening and to hear yarns from such a pool of experience, some good, some humbling and all of them engrossing. One never knows when and where some choice bit of information gleaned in such conversations might become useful.

Another beautiful starlit night followed again by another “offer I couldn’t refuse” from Rod after the pilots meeting spelled another fantastic day for me — little did I know then just how far beyond my hopes it would turn out to be. We were among the first tows Monday morning with a lot of pilots in the process of or having already departed for weekday work in Calgary. Leaving the airfield behind us in a boisterous climb to the west, Rod let me attempt to “box” the towplane. Needless to say, my initial tries lasted only seconds before Rod would assist me in my clumsy efforts, but with a little coaching I improved encouragingly. If the wave was difficult to catch the previous day, this time the small, well-defined rotor clouds led us to it like so many roadside markers. Using up our leftover tow tickets, including an additional stray 1000 foot “wimpy” sticker, we were solidly in lift by the time we released in wave so smooth and narrow that it felt as if we were balancing on a gigantic pipeline. As soon as we deviated left or right of our heading on our way northwards to the Gap, we could see the lift decrease proportionately. During the climb, Rod pulled out his chart and enjoyed pointing out various land- ➔ p22

# A neophyte in Invermere

Dino Santarossa, London Soaring

**W**HEN I HEARD that the fire department that I work for was about to send four of its hazardous materials team members to Suffield, Alberta and that I was to be one of them, all I could think about was that I was being given the chance to fly gliders in the Rockies. I was introduced to sailplanes by Kurt Moser who was a college instructor of mine back in 1980. Years later I started to fly, I have a power ticket, and am now hooked on gliders, flying with the London club on and off for the past four years. When confirmation came for the Suffield trip, I started planning. I fired up the computer, began searching for soaring sites, and came across “Soar the Rockies,” the full time soaring centre at Invermere. I e-mailed Trevor Florence, the operator and owner, and he quickly replied and answered all my questions.

After intense three day training in the detection and mitigation of biological and chemical weapons and now on my own time, I rented a car, bid farewell to my companions, and was off to Invermere. Arriving tired and just wanting to nap after the long previous days, I decided to at least make some introductions. I declined an invitation to sample the soaring that afternoon; I was just too beat to fly. Tomorrow would be a better day both mentally and physically (my Transport Canada pilot decision-making course was paying off). Trevor kindly invited me to join the crew for hamburgers once the equipment was put away.

Arriving early the next morning after a great breakfast, I had the chance to sample the flying. My first flight was in the Lark with Trevor. The briefing was fairly short, he asked me about my gliding experience, which is limited, and soon I was strapped in and given a cockpit familiarization. Off we went behind the Pawnee. At altitude we released and did our clearing turn. The view from release height was grand but I was to see even better in the days to come.

We soared south to Canal Flats, and along the way talked about the perils of mountain soaring. Trevor told me that the lift was consistently found in the same places (home lift), but if the uninitiated were to not connect with the lift, the terrain below is not where you would want to set down.

After reaching Canal Flats we turned north and headed for Radium Hot Springs along the ridge. With Trevor at the controls we centred lift effortlessly. I, on the other hand, had a difficult time entering from cruising speed. I would either blow through the lift or turn too soon and not get into the core. I explained that my previous flights were around the patch and the goal of my flying was to stay up for the club one hour limit. I also explained that I only had four hours solo, three of which were limited to an hour. As it was time to come in near the end of this first flight, I did turns on heading and turns from speed. These may seem automatic to more experienced pilots but it's not something that I had done much of. In my flights at home, I had just lazed around for an hour if I could, practised coordinated turns, and tried to figure out where lift was. There, the speed at which I flew from one thermal to the next didn't change much. I know, I was often told to speed up in sink and quickly get to the next lift, but I wasn't going anywhere fast, certainly not cross-country — barely cross-field!

Over the next few days I added 7.5 hours to my log book with Trevor and had the opportunity to experience wave flight, to fly a 225 kilometre cross-country, and to reach 12,000 feet, all for the first time. I also got to see what there is to look forward to as I progress in this wonderful sport.

I cannot say enough about Invermere and all the wonderful people I met there. The whole crew were fantastic. Trevor, Marc, Matt, and Sebastian were very accommodating and they all made me feel that I was a returning pilot. The club members that I met were great as well. I pitched in to help push gliders or whatever else I could do, and we chatted about their flights and most memorable moments over the evening barbeque. Listening to their stories was enlightening because not all of them were about the soaring but about the times they shared afterwards. This I believe is the true testament of the club spirit you will partake in at Invermere. Most evenings, I joined in the supper with Trevor, his crew and other visiting glider pilots. On my last day I ate dinner with Tim Wood, another Ontario pilot who has become a regular summer visitor to Invermere, and we were able to swap flying stories. What can I say other than, “don't defer your dreams in this life; whatever they may be — include in them a trip to Invermere to fly the mountains. Life is what happens while we are planning our future.

On this visit I learned what I need to work on to improve my flying and why. My goals for those flights at my home club are now clearly defined. When I return, I'm sure I will add more things that I need to work on. Embarking on this trip I thought of myself as a fairly good low time pilot. Now I want to get my flying skills up as far and as fast as I can so that I can enjoy — next time solo — the more advanced soaring experiences that I got a glimpse of at Invermere. ❖

Dino Santarossa





## Canadian Advanced Soaring

### CAS Spring Seminar

keynote speaker: *George Moffat*

9 April, 2005, 8:15 am

la Cité Golf Club – 850 McGill St.  
Hawkesbury, ON

**T**HIS YEAR'S CAS SPRING SEMINAR promises to be one of the best ever. George Moffat, twice World Champion and soaring legend will be making two presentations as well as conducting a book signing for his soon-to-be released book, *Winning II*. Bob Leve, noted soaring pilot and sports psychologist and US Team coach will be presenting his summary of years of research. As well, a full array of leading Canadian soaring pilots will be making information-packed presentations on numerous exciting topics.

Breakfast and lunch will be served.

Note: (C) Common session, (A) Advanced session, (N) Novice session

#### Practice for competition *George Moffat* (C)

Essential for consistent results, practice is obviously the key to improvement whether a pilot has two hours or two thousand. First the talk will deal with the psychological element, dealing with the problems of stress and tension to make them work for you. The second section will consider the uses of experience, recognizing and applying the lessons of past flights, and the patterns of personal strengths and weaknesses. Lastly, we will consider specific practice techniques together with a diagnostic chart that will aid in showing problem areas.

#### Competition flying; a 40 year overview of change – *George Moffat* (C)

Having been fortunate enough to begin serious contest flying in 1962, the beginning of what turned out to be a Golden Age of soar-



ing, George fast forwards from where we were to where we are. Special emphasis will be placed on the ships and their evolution, together with instrumentation, flying techniques, and some of the notable people who have shaped our sport. George has been fortunate enough to have known and flown with many of the legendary greats from Philip Wills to Helmut Reichmann to Ingo Renner, not to mention Klaus Holighaus, whose designs have won no less than 24 World Championships, and still continue to do so.

#### The psychology of a winning pilot *Bob Leve* (C)

We all know that certain contest pilots usually end up near the top of the score sheet and this is no doubt due to experience and flying skill. However, personality and attitude are other factors that affect performance and these were investigated as part of a sport psychology research study. The talk will present the findings of the study which identifies the general characteristics of competition pilots and which of these characteristics are associated with success in competitions. Anecdotal information gleaned from flying with winning pilots will also be discussed.

#### Soaring the Alps – *André Pepin* (C)

Using La Motte, France as a base of operations, André takes us on a soaring vacation in the French Alps. Numerous in-flight images and stories illuminate one of the world's most beautiful soaring hot spots.

#### Soaring Bald Eagle ridge – *Jörg Stieber* (A)

The Bald Eagle Ridge is a section of the Appalachians which stretches from central Pennsylvania to near Knoxville, Tennessee. It's one of the premier soaring locations in North America. Many world record flights have

originated from the Ridge Soaring Gliderport near State College, PA. The presentation covers the unique geography of the area, weather patterns and how to forecast the good ridge days, task options and their challenges, preparation for the long

tasks, and the expected costs. Various sections of the Ridge, as well as difficult areas like gaps, will be presented using 3D *SeeYou* and actual flight data.

#### Soaring for records – *Roger Hildesheim* (A)

Since taking over the role of SAC Records chairman in the fall of 2000 Roger has noticed that this facet of soaring in Canada has not enjoyed the same publicity or widespread enthusiasm as badge or contest flying. This seminar has been created to help demystify

the cloud that seems to obscure the rewards that can be had in record flying or for that matter, attempting to set new records. Specifically it will cover:

- International vs. Canadian records,
- Types and categories of Canadian records,
- Description of the merits of each record type,
- Standards of evidence and why they exist,
- Sample scenario of how to prepare, fly, and submit a record flight,
- Issues that have disqualified claims,
- Overview of the 2005 SAC "Looking for Heroes" contest

#### New techniques using flight recorder data to optimize performance – *Ian Grant* (A)

Ian will present a study of cross-country soaring performance based on flight recorder data gleaned from three seasons of flying by several competition pilots from various sites in Ontario. The aim of the presentation is to highlight and explain the factors that matter most for cross-country speed, in order to gain insights that aid improvement in pilot performance. Ian's presentation will be of interest to competition pilots, to those pursuing badges and records, and to anyone interested in cross-country soaring.

#### Off airport landing – *André Pepin* (N)

André has studied the requirements for safe off-airport landings. In his presentation general strategy as well as aerial observation techniques used to select a safe landing field are presented. A must for those who have yet to not quite make it back home.

#### Soaring forecasts using the Internet *Dave Springford* (N)

This seminar will focus on how to spot a good soaring day a few days in advance. It will go through some weather basics as well as how to read and interpret tephigrams. Weather sources on the Internet will be used to gather data from which you can make your own soaring forecast.

#### Cross-country soaring techniques *Dave Springford* (N)

This seminar is intended for novice soaring pilots who wish to start flying cross-country for fun, badges or contests. Topics that will be covered are thermals, centering thermals, MacCready speed-to-fly theory, and other techniques to effectively fly cross-country.

Space is limited. Book now by confirming with Bob Katz at <fly2hi\_8@yahoo.com>, or calling (514) 989-2212 **no later than March 31.**

Seminar cost – \$50 includes meals and CAS membership for 2005.



# SAC Video Library

Ted Froelich

2552 Cleroux Crescent, Gloucester, ON K1W 1B5

(613) 824-6503 ph & fax- call first if faxing

<fsacvideo@aol.com>

Rental is free but you pay shipping (\$2 DVD, \$5 video) and return postage. Send cheque to address above. Copies: 10¢/min + cost of tape or DVD + shipping (copyright may apply to some of the films in which case you will get the address of the original distributor).

## Professional videos

- P1 *Running on Empty (USA)* 22 min  
Top pilots compete in Arizona. Narrated by Cliff Robertson.
- P2 *Free flight (UK)* 51 min  
Joys and frustrations of soaring in the UK, history, and how gliders are made. Derek Piggott, Hans-Werner Grosse featured.
- P3 *Pure flight (UK)* 30 min  
Cliff Robertson tells power pilots about soaring in Vermont and Colorado.
- P4 *Soaring (USA)* 20 min  
A history of soaring and the 1988 Region 8 competition.
- P5 *Soaring – in harmony with the wind (USA)* 14 min  
Excellent ridge soaring from Stowe, VT.
- P6 *Delta Fox (France)* 24 min  
A flight over the French Alps (to music).
- P7 *Riding the Mountain Wave* 27 min  
The 1982 Cowley wave camp (CBC).
- P8a *Wind Born* 55 min  
Lucy Wills learns to fly gliders and then goes on a spectacular trip across the Southern Alps.
- P8b *Champions of the Wave* 52 min  
World championship won by New Zealander. Good time lapse footage of wave.
- P9 *Soaring in France*  
Collection of 20 professional and amateur soaring films from 4 to 35 minutes.
- P10 *25ème Championnat du Monde* 37 min  
1997 World Championships in France.
- P11 *Silent Flight (Canada)*  
Gliding – good video from the “Flightpath” series on Discovery Channel.
- P12 *Bayreuth 1999*  
The World Championships in Germany.
- P13 *Over Canada*  
Coast to coast, seen from a low-flying aircraft.
- P14 *Soaring, your sport for the new millennium*  
Short soaring promo video based on #P8.
- P15 *Apollo 11 & Columbia '59 (USA)*  
The first landing on the moon and the Space Shuttle Columbia.

- P16 *Apollo 13 (USA)*  
Dramatization of this eventful moon flight.
- P17 *Space (USA)*  
Secrets of the unknown.
- P18 *The Space Shuttle (USA)*  
From the Discovery Channel.
- P19 *The blimp is back* 60 min  
History of the steerable hot air balloon.
- P20 *Abbotsford Airshow*
- P21 *2001 and 2010*  
Science fiction (no gravity!).
- P22 *Black sand – White wings (NZ) [NEW]* 28 min  
Cross-country ridge soaring the west coast of new Zealand.

## Canadian Club videos

- C1 *SAC 50th anniversary (eng & fr)* ea. 15 min  
Soaring from Hope to Halifax.
- C2 *GGC and Pendleton's 50th anniversary*  
Tiger Moth gathering, giving rides and tows. Displays, aerobatics and speeches.
- C3 *Base Borden Soaring Group*  
Winch soaring at its best. Well filmed/edited.
- C4 *Chasing Phantoms, Hope BC* 8 min  
A professionally done filmed slide presentation with musical background, and some breathtaking aerobatics.
- C5 *Winnipeg Gliding Club* 29 min  
TV documentaries and some interesting amateur shots at the field.
- C6 *1982 Nationals at SOSA* 27 min  
High quality documentary by Molson.
- C7 *Bluenose Gliding Club* 90 min  
a. The Harris Hill Soaring Museum  
b. The quiet challenge  
c. A motorglider visit from Florida  
d. Sailors of the sky
- C8 *1989 Flying Week at Bluenose*  
A documentary of activities at Stanley, NS, and a visit to St. Raymond, PQ.
- C9a *Interview with Tony & Ursula* 32 min  
TV interview answering many layman's questions about soaring in general and is very useful in introducing the public to soaring.
- C9b *Building the AV-36* 37 min  
The flying wing gliders built by the “Tear-dee” club members in Calgary in the early 50s. Flying activity in southern Alberta that led to the discovery of the wave at Cowley. Transcribed from 8mm film by builder Bill Riddell who does a “voice-over”.

- C10 *SOSA in the 60s*  
When club was in Brantford (from 8mm).
- C11 *Soaring at GGC in the early 70s.*  
Soaring before fibreglass (from 8mm).
- C12 *AVV Champlain (French)* 5 min  
Intro flight over Eastern Townships.
- C13 *Nats at GGC, MSC and SOSA*  
A collection of video shots.
- C14 *From start to landing*  
Looking over a 1-26 pilot's shoulder.
- C15 Following a hot air balloon.

## Educational videos

- E1 *To be a Pilot (TC)* 21 min  
Overconfident student prangs the club's Cessna 150 in a crosswind landing but is given a second chance.
- E2 *The Wrong Stuff (TC)* 51 min  
A warning to complacent pilots.
- E3 *Ian Oldaker et al (SAC)* ea. ~60 min  
Eight interesting lectures.  
a. *Dangers on tow* – Ian Oldaker  
b. *Airspace use* – Kathy Fletcher (TC)  
c. *Stall prevention on final*  
d. *Joining gliders in a thermal* – Ian  
e. *Stress overload* – Ian  
f. *Dehydration* – Dr. Hanson (TC)  
g. *Post-solo training*  
i. *The important first flying lesson* – Ian
- E4 *Collision Avoidance in gliders (SAC)*  
How to enter a gaggle safely.
- E5 *Why Airplanes Crash (NOVA)*
- E6 *Better Communication for Better Safety (TC)* 26 min
- E7 *Safety by Stress Management (TC)* 40 min
- E8 *Accidents & Pilot Planning (SAC)* 24 min
- E9 *When in Doubt (TC)*  
About ice on the wings.
- E10 *Bon Voyage. But ... (External Affairs)*  
Travel tips for Canadians abroad.
- E11 *Speed to Fly*  
Karl Striedieck from a cross-country video series. Other videos are from the same series (Navigation & Map preparation, Thermals & thermalling, Soaring physiology, Instrumentation, Landing out, and Soaring weather) can be ordered from “Aircapes, Inc.”, (864) 574-4857, fax (864) 574-1886.
- E12 *CAS Symposium* ea. ~45 min  
Eight lectures in Hawkesbury in 1999.

3 Sumac Court, Burketon, RR2, Blackstock, ON L0B 1B0  
(905) 263-4374, <waltweir@ca.inter.net>

The following badge legs were recorded in the Canadian Soaring Register during the period 9 November to 1 December 2004.

### SILVER BADGE

985	Keith Watson	Rockies
986	Taylor Scott	Pemberton
987	Jean-Claude Corbeil	Outardes

### SILVER DISTANCE (50 km flight)

Keith Watson	Rockies	55.2 km	PW-5	Invermere, BC
Taylor Scott	Pemberton	55.6 km	L-23	Pemberton, BC
Jean-Claude Corbeil	Outardes	57.0 km	Pilatus B4	Bromont, QC

### SILVER ALTITUDE (1000 m gain)

Keith Watson	Rockies	1850 m	PW-5	Invermere, BC
Taylor Scott	Pemberton	2380 m	L-23	Pemberton, BC

### SILVER DURATION (5 hour flight)

Keith Watson	Rockies	5:16 h	PW-5	Invermere, BC
Ronald Cooke	Quebec	5:05 h	Grob 102	St-Raymond, QC
Taylor Scott	Pemberton	5:11 h	L-23	Pemberton, BC

### C BADGE (1 hour flight)

2797	Keith Watson	Rockies	5:16 h	PW-5	Invermere, BC
2798	Michael Clarke	York	1:19 h	Krosno	Arthur E, ON
2799	Taylor Scott	Pemberton	5:11 h	L-23	Pemberton, BC
2800	Arvind Jain	Montreal	1:35 h	L-23	Hawkesbury, ON
2801	Anna Rodgers	SOSA	1:15 h	PW-5	Rockton, ON
2802	Sally Ng	SOSA	1:02 h	PW-5	Rockton, ON
2803	Donald MacLean	SOSA	1:37 h	SZD-50	Rockton, ON
2804	Mathieu LeBlanc	SOSA	1:20 h	SZD-50	Rockton, ON
2805	Josh Esser	SOSA	1:05 h	SZD-51	Rockton, ON
2806	Clement Syed	SOSA	1:09 h	SZD-51	Rockton, ON

## 2004 annual report

AS YOU CAN SEE FROM THE TABLE of badge statistics below, 2004 was not a good year for badges. In fact it was the poorest of the ten year record shown. Of course the weather was bad and that didn't help, but there was still plenty of opportunity for C badges and the Silver height and duration badge legs. There were actually more Silver distance legs done than either height or altitude. It seems pretty clear that badge flying is eroding at its base — the beginner badge legs are not being flown. Let's try to do better next year. I'm convinced that badge flying is an important part of maintaining and developing enthusiasm for soaring.

### Change to Turnpoint Observation Zones

Since the inception of the FAI Sporting Code, turnpoint observation zones have been defined as 90° sectors. Effective 1 October 2004, the Code has been changed to also allow the use of cylinders, or "beer cans" as they are commonly called. The advantage to pilots is that they no longer have to plan to go around a turnpoint — they only have to get to within half a kilometre of it. This makes it easier to use the GPS since all GPS readouts show a distance from the "go to" point. There have been many instances where pilots have inadvertently missed entering a turnpoint sector when using GPS units without a moving map. The cylinder type observation zone is designed to help preclude such misses.

Don't stop reading here! There are potential trip-ups to be considered:

- For a given flight you can use only one type of observation zone; you cannot use both cylinders and sectors in your claim.

49 Maitland Street, Box 1351, Richmond, ON K0A 2Z0  
(613) 838-4470, <lucile@istar.ca>

## 2004 annual report

2004 WAS A SLIGHTLY SLOWER RECORD YEAR than previously, with seven records claims received and approved — the details were posted in previous issues of *free flight*. The current table of all records is opposite. New territorial records were established by Dave Mercer (Cowley), Tim Wood (Invermere), and Tony Burton (across Wild Rose Country). New citizen records were established by Rolf Siebert in Ely, Nevada.

Two new FAI record categories were introduced this year, 3 Turnpoint Distance and Free Triangle Distance. A "Looking for Heros" contest to populate these new categories was also launched. See the last issue of *free flight* for the details. The contest rules will also be posted on the SAC roundtable this spring. Tony has updated the record claim forms this fall to include changes from FAI. Please use the forms currently posted on the SAC website for all record claims. In general the quality of the claims paperwork and timely notification of claims was very good this year. Thanks to all pilots and OOs who submitted record claims this year. It was a pleasure to go through them all so smoothly.

Although Tim Wood did not submit any claims from his home base in Ontario this year, he has still been active in the quest for his personal "holy grail" of flying to Hawkesbury from York Soaring. Anyone from RVSS, GGC or MSC interested in taking up the reverse challenge of trying to get to Southern Ontario?

Now is the time of year to get out the maps and look at flying a unique task at your respective clubs. I know that both my 50 km and 300 km goal flights were flown using unusual waypoints and directions. It's a big country; try flying something unusual in 2005. ❖

- If you are going to use cylinders you will have to declare a longer task. The cylinders are 500m in radius and each time you use a turnpoint cylinder you must subtract one kilometre from your total task distance. Also, you have to subtract 500m from your start point and 500m from your finish point if they use cylinders. Therefore, supposing you plan to do a 300 km triangle with two turnpoints, the total distance in your declaration will have to be at least 303 km.

It's possible that the use of sectors could save your flight. Consider a case where you can't get within a half kilometre of your turnpoint due to a thunderstorm. Since sectors are "infinitely" large, it may be possible to enter the sector well beyond the turnpoint and away from the storm.

In summary, keep in mind the fact that there is more than one way to achieve a turnpoint. To be on the safe side, it's probably wise to declare extra distance to allow the use of cylinder turnpoints. During the flight, attempt to meet the requirements for both types of observation zone at each turnpoint. When the flight is over, your OO can then establish which type of observation zone suits the way the flight was flown. ❖

### SAC Badge and badge leg statistics, 1995 – 2004

	95	96	97	98	99	00	01	02	03	04	5 yr avg	% of avg
1000 km	0	2	0	0	0	1	0	2	0	0	0.6	–%
Diamond	2	4	1	0	3	2	1	2	1	1	1.4	71%
Gold	4	6	3	2	4	5	5	5	7	2	4.8	42%
Silver	12	16	8	17	17	7	8	19	19	7	12	58%
C Badges	42	39	30	34	33	15	38	57	26	18	30.8	58%
Badge legs	93	91	79	87	79	67	71	111	99	51	79.8	64%

# CANADIAN RECORDS (as of 15 Nov 2004)

T A record set within Canada – is only shown if “C” record included.  
 C indicates a record by a Canadian citizen originating outside the country.  
 (These are noted only when a greater “Territorial” record does not exist.)

RECORD TYPE	OPEN	CLUB	FEMININE	MULTI – OPEN
<b>DISTANCE (km)</b>				
3.1.4a Free distance	Marsden / Apps Tony Burton Tracie Wark Tim Wood Brian Milner Tony Burton Marsden / Apps	480.6 442.9 T 633.2 C 869.3 515.7 236.7	Ursula Wiese Tracie Wark Sue Eaves Tracie Wark Antonia Williams	Chester Zwarych (Reg Adam) Charles Yeates (Kris Yeates) Trevor Florence (J King) not claimed Chester Zwarych (McColeman) Jock Proudfoot (G Fitzhugh) not claimed Dave Marsden (E Dumas) John Firth ( Danny Webber) Charles Yeates (Kris Yeates)
3.1.4b Free out & return	1093 372.2 T 750.2 C 871.9 T 1394.0 C 433.4 707	2002 2003 2003 2002 2004 2003	607.0 not claimed 750.2 C 508.7 T 592.6 C not claimed 305.0 C	495.0 not claimed 259.9 C 689.0 2002 310.0 T 304.0 C
3.1.4c Free 3 TP dist.	1984 2003 2003 2002 1993 2004 1984	2002 2003 2003 2002 2004 2003	1986 2003 1995 2000 1975	1986 1999 2002 1981
3.1.4d Free triangle dist.	not claimed 652.3 T 1128.9 C 803.7 T 1007.0 C	not claimed 442.9 T 525.5 C 515.7 655.9 C	not claimed 328.0 510.3 C 317.6	421.5 not claimed 510.4 T 510.2 C
3.1.4e Straight dist. to goal	1993 1999 1982 1987	2003 2003 2004 2003	1984 2002 1988	1979 1986 1989
3.1.4f 3 TP distance	not claimed 652.3 T 1128.9 C 803.7 T 1007.0 C	not claimed 442.9 T 525.5 C 515.7 655.9 C	not claimed 328.0 510.3 C 317.6	421.5 not claimed 510.4 T 510.2 C
3.1.4g Out & return dist.	1993 1999 1982 1987	2003 2003 2004 2003	1984 2002 1988	1979 1986 1989
3.1.4h Triangle distance	1993 1999 1982 1987	2003 2003 2004 2003	1984 2002 1988	1979 1986 1989
<b>SPEED, ▲ (km/h)</b>				
3.1.4h 100 km	David Mercer Dale Kramer John Firth Charles Yeates Kevin Bennett Peter Masak John Firth Rolf Siebert Walter Weir Peter Masak Willi Krug Spencer Robinson Peter Masak	133.0 99.0 78.2 T 92.0 C 103.3 T 128.9 C not claimed 103.6 C not claimed	Tracie Wark Tracie Wark Tracie Wark Tracie Wark not claimed not claimed not claimed	Dave Marsden (M Jones) Pat Templeton (Dave Springford) Lloyd Bungey (Tony Burton) Dave Springford (Pat Templeton) Dave Marsden (Ed Dumas) Ian Spence (J-R Fallu) not claimed John Firth (Danny Webber) not claimed not claimed
SAC 200 km	141.5 T 168.1 C 110.6 T 116.3 C 113.1 T 148.9 C 99.0 T 140.1 C 105.7 T 151.2 C 108.8 118.7 C 106.5 C	2004 1999 1984 1994 1988 1985 1987 2004 1991 1985 1982 2003 1987	2003 2000 2001 2002	98.1 T 112.7 C 76.0 T 108.5 C 69.9 T 128.5 C not claimed 88.8 not claimed not claimed
3.1.4h 300 km	1981 1974 1995	2002 2003 2003 2004	1991 1969 1991	1975 2002 1983 2002 1975 1991
3.1.4h 400 km	10485 T 12449 C 8458	2002 2003 2003	8986 T 9772 C 6575	9083 T 10390 C 7102
3.1.4h 500 km	Bruce Hea Walter Chmela Dave Mercer	2002 2003 2003	Deirdre Duffy Antonia Cservenka Deirdre Duffy	Bob Shirley (P Campbell) Walter Chmela (VanMaurik) Bob Shirley (P Campbell)
3.1.4h 750 km	115.2 T 191.3 C 126.3 T 150.9 C 145.0 C 147.0 C	1983 1989 1992 1996 1994 1999	Ursula Wiese Tracie Wark Tracie Wark not claimed not claimed	W Chmela (Heinz Rominger) not claimed not claimed not claimed not claimed
3.1.4h 1000 km	167.0 T 183.7 C 125.9 T 143.0 C 108.6 T 145.9 C 81.5 97.1 T 138.4 C	2004 2004 1992 1995 1966 1994 1990 1970 1993	Tracie Wark Tracie Wark Tracie Wark not claimed not claimed	Trevor Florence (Norman Marsh) Trevor Florence (J King) Proudfoot (Fitzhugh) not claimed not claimed
<b>ALTITUDE (m)</b>				
3.1.4i Absolute Altitude	Bruce Hea Walter Chmela Dave Mercer	2002 2003 2003	Deirdre Duffy Antonia Cservenka Deirdre Duffy	Bob Shirley (P Campbell) Walter Chmela (VanMaurik) Bob Shirley (P Campbell)
3.1.4j Gain of Height	Hal Werneburg Walter Weir Kevin Bennett Walter Weir Walter Weir Brian Milner	113.6 86.1 C not claimed not claimed	Ursula Wiese Tracie Wark Tracie Wark not claimed not claimed	W Chmela (Heinz Rominger) not claimed not claimed not claimed not claimed
<b>SPEED, O&amp;R (km/h)</b>				
SAC 300 km	167.0 T 183.7 C 125.9 T 143.0 C 108.6 T 145.9 C 81.5 97.1 T 138.4 C	2004 2004 1992 1995 1966 1994 1990 1970 1993	Tracie Wark Tracie Wark Tracie Wark not claimed not claimed	Trevor Florence (Norman Marsh) Trevor Florence (J King) Proudfoot (Fitzhugh) not claimed not claimed
3.1.4g 500 km	167.0 T 183.7 C 125.9 T 143.0 C 108.6 T 145.9 C 81.5 97.1 T 138.4 C	2004 2004 1992 1995 1966 1994 1990 1970 1993	Tracie Wark Tracie Wark Tracie Wark not claimed not claimed	Trevor Florence (Norman Marsh) Trevor Florence (J King) Proudfoot (Fitzhugh) not claimed not claimed
SAC 750 km	167.0 T 183.7 C 125.9 T 143.0 C 108.6 T 145.9 C 81.5 97.1 T 138.4 C	2004 2004 1992 1995 1966 1994 1990 1970 1993	Tracie Wark Tracie Wark Tracie Wark not claimed not claimed	Trevor Florence (Norman Marsh) Trevor Florence (J King) Proudfoot (Fitzhugh) not claimed not claimed
3.1.4g 1000 km	167.0 T 183.7 C 125.9 T 143.0 C 108.6 T 145.9 C 81.5 97.1 T 138.4 C	2004 2004 1992 1995 1966 1994 1990 1970 1993	Tracie Wark Tracie Wark Tracie Wark not claimed not claimed	Trevor Florence (Norman Marsh) Trevor Florence (J King) Proudfoot (Fitzhugh) not claimed not claimed
<b>SPEED, GOAL (km/h)</b>				
SAC 100 km	167.0 T 183.7 C 125.9 T 143.0 C 108.6 T 145.9 C 81.5 97.1 T 138.4 C	2004 2004 1992 1995 1966 1994 1990 1970 1993	Tracie Wark Tracie Wark Tracie Wark not claimed not claimed	Trevor Florence (Norman Marsh) Trevor Florence (J King) Proudfoot (Fitzhugh) not claimed not claimed
SAC 200 km	167.0 T 183.7 C 125.9 T 143.0 C 108.6 T 145.9 C 81.5 97.1 T 138.4 C	2004 2004 1992 1995 1966 1994 1990 1970 1993	Tracie Wark Tracie Wark Tracie Wark not claimed not claimed	Trevor Florence (Norman Marsh) Trevor Florence (J King) Proudfoot (Fitzhugh) not claimed not claimed
SAC 300 km	167.0 T 183.7 C 125.9 T 143.0 C 108.6 T 145.9 C 81.5 97.1 T 138.4 C	2004 2004 1992 1995 1966 1994 1990 1970 1993	Tracie Wark Tracie Wark Tracie Wark not claimed not claimed	Trevor Florence (Norman Marsh) Trevor Florence (J King) Proudfoot (Fitzhugh) not claimed not claimed
SAC 400 km	167.0 T 183.7 C 125.9 T 143.0 C 108.6 T 145.9 C 81.5 97.1 T 138.4 C	2004 2004 1992 1995 1966 1994 1990 1970 1993	Tracie Wark Tracie Wark Tracie Wark not claimed not claimed	Trevor Florence (Norman Marsh) Trevor Florence (J King) Proudfoot (Fitzhugh) not claimed not claimed
SAC 500 km	167.0 T 183.7 C 125.9 T 143.0 C 108.6 T 145.9 C 81.5 97.1 T 138.4 C	2004 2004 1992 1995 1966 1994 1990 1970 1993	Tracie Wark Tracie Wark Tracie Wark not claimed not claimed	Trevor Florence (Norman Marsh) Trevor Florence (J King) Proudfoot (Fitzhugh) not claimed not claimed

## Thanksgiving at Cowley

from page 16

marks while I had the opportunity to experiment with slight adjustments to our heading, both on our way to the Gap and then back south to Highway 3. Climbing steadily, we had time to consider the vagaries of fate as Rod related the challenging conditions that his passenger endured yesterday as opposed to the unctuous nature of the wave and the crystal clear panorama we enjoyed now. Indeed, as we searched for and spotted the Claresholm airport to the east, Rod pointed out the Calgary city towers clearly seen slightly below the far northern horizon 140 kilometres distant!

By then we had achieved 17,500 feet but our attempts at further gains were unsuccessful. Since we couldn't get over the airway, whose boundary was near Centre Peak, a decision was made to descend to 12,500 to slip underneath it and explore south of the Crownsnest highway. The exhilaration of our ride down is difficult to put in words. Disregarding any care of altitude loss and adopting a higher airspeed that rendered the controls responsive to mere pressure, flying became an extension of thought and turned into a "look there, go there" exercise. I can best describe the experience as being more than the sum of its parts; "we" weren't pilots in a craft at altitude over the Rockies anymore, "I" was a consciousness at play in the brilliant sunshine amongst cathedrals of cloud, casting an ethereal shadow that raced dizzily in and out following the surface of the white cliffs.

Some reality set in as Rod pointed out that between shooting megabytes of pictures and demonstrating graceful wingovers, and despite our carefree gyrations, we just weren't shedding any altitude. Following another careful scan of the area, we enjoyed some emergency descent practice before crossing the wide part of the valley under the airway and south of the Livingstone Block airspace in worrisome sink.

Just as we were deciding to head back towards the field we found some barely sustaining lift among disorganized clouds just downwind of the range that includes Frank Slide. We took turns as we skirted around, hopped over and dipped under these billows for a while and decided to return by following the horseshoe shape of the valley, staying close in the lee of the mountains to stay away from the sink we had encountered on our way there. As we approached the southern end of the Livingstones we cut for home with plenty of height and floated to a gentle landing afforded by the strong wind and the delightfully slow touchdown speed. Five hours had elapsed. Sounding like a broken record perhaps, I couldn't stop thanking Rod.

In retrospect, none of this could have been possible without the cooperation of everyone involved in this camp, be they pilots, en-

thusiasts, friends or family. Special thanks to Tony Burton for his leadership and frequent words of encouragement, to towpilots Paul Chalifour and Abe Fotheringham for their tireless work and to Peter Vesely for his patient teaching on the field. This is one weekend I will remember after most others have been forgotten. ❖

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## single seat

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**HP-14T**, C-FAXH, 1480h, glider & trailer in good condition. Trailer very stable when towing. New MicroAir 760 with boom mike, ILEC SB8, ELT, O2, new winglet fences. Low maintenance A/C giving good bang for your dollar. E-mail me for current photos. Asking \$19,300. <[spencer.robinson@rogers.com](mailto:spencer.robinson@rogers.com)> (416) 620-1218.

**Phoebus B1**, C-FGBH, 1025h, good cond., basic inst. radio, O2, chute, good condition, one man rigging & tow-out gear, trailer. \$15,000 obo. Imre Bereczki, <[mbereczki@sympatico.ca](mailto:mbereczki@sympatico.ca)>, (519) 842-5463.

**Std Cirrus**, C-GEOD, 1800h. Refinished. Microair radio, elec and mech vario on good TE probe, connections and mounting for Volkslogger and PDA, O2, wing wheel, tow-out bar, trailer nice to tow. Easy flying, great thermalling glider for the low price of \$25,000 obo. Many photos by e-mail on request. Al Hoar, (403) 288-7205, <[gwen.al@shaw.ca](mailto:gwen.al@shaw.ca)>.

**ASW 15**, C-FBEQ, 1846h, built 1970. All ads done, one man rigging device and towout gear. Garmin GPS 2+ with NA database. 720 chan radio, O2, barograph, CofA to July 05. Factory trailer, chute, nice finish. \$15,000 obo. (902) 466-2906.

**Glasflügel 304CZ**, 230h, NDH, always hangared, 15m winglets & 17.4m tips, Roger release, Cambridge L-Nav, vario & GPSNAV Model 20, Sage SV vario, ATR 57 radio, Compaq Aero PDA, tow-out gear, one-man rig. Cobra trailer, solar vent, stabilizer jacks, swing-down supports, centre rail loading ramp. In Ottawa. \$US59,500. Contact: <[rwalker@devon.com](mailto:rwalker@devon.com)>.

**ASW-20**, 1981, 2100h, ELT, Varicalc GPS/computer/recorder, Dittel 720 ch radio, Security 150 chute, 1989 Cobra trailer, tow-out gear. Nick Bonnière, <[bonnifutt@magma.ca](mailto:bonnifutt@magma.ca)>.

## towplanes

**L-19**, '75, 4250h, engine 1290h. O-470-11B, 217 hp, full history. Only two owners since new. Currently in service, fresh annual. VSA has 3 towplanes and is downsizing. Asking \$60,000. Dave Baker at (604) 541-7671 or <[sezpilot@yahoo.ca](mailto:sezpilot@yahoo.ca)>.

## misc

**Parachute**, Security 150, April 04 repack. Best offer. Mike Glatiotis, (250) 354-0308 <[mike-deb@shaw.ca](mailto:mike-deb@shaw.ca)>

**Wanted** Serviceable bailout bottles. Karin Michel, (403) 645-3490, <[kevin.karin@shaw.ca](mailto:kevin.karin@shaw.ca)>.

**Masks**, 2, military O2, plus one mask helmet, and **Bailout** bottle. Fred Wollrad (780) 479-2886.

**Ilec SN10** flight computer with remote control and **Volkslogger** for \$4000. SN10 coupled to the Volkslogger provides an IGC-approved FR system, as well as moving map display, full nav info, wind and final glide calculators, vario, averagers and speed to fly. Dave Springford, <[springfo@allstream.net](mailto:springfo@allstream.net)>.

**Zander SR 940**, Flight computer connected to Cambridge GPS Model 25 with Navigation display. Features: wind, final glide, super E-vario, averager, audio, best L/D, and statistics. Wilfried Krueger, <[Wkrueger@cogeco.ca](mailto:Wkrueger@cogeco.ca)> (905) 845-7825.

**Scheibe L-Spatz 55**, Schleicher **K7**, and **American Eaglet** motorglider kit. Eaglet and K7 are projects. Spatz may need work? Located in Nova Scotia. No trailers. Info plus gliding related items listed at <[http://home.cogeco.ca/~yard\\_sale/](http://home.cogeco.ca/~yard_sale/)> Peter Myers, (613) 531-9364, <[petermyers@cogeco.ca](mailto:petermyers@cogeco.ca)>.

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## magazines

**GLIDING & MOTORGLIDING** — world-wide on-line magazine for the gliding community. Edited by Gillian Bryce-Smith, <[www.glidingmagazine.com](http://www.glidingmagazine.com)>.

**SOARING** — the monthly journal of the Soaring Society of America. Subscriptions, US\$43 price includes postage. Credit cards accepted. Box 2100, Hobbs, NM 88241-2100. <[info@ssa.org](mailto:info@ssa.org)>. (505) 392-1177.

**GLIDING KIWI** — Editor, John Roake. Read world-wide with a great reputation for being first with the news. US\$40. Personal cheques or credit cards accepted. NZ Gliding Kiwi, 79 Fifth Avenue, Tauranga, New Zealand. <[gk@johnroake.com](mailto:gk@johnroake.com)>

**SAILPLANE & GLIDING** — the only authoritative British magazine devoted entirely to gliding. Bimonthly. US\$45 per year airmail, US\$35 surface. <[beverley@gliding.co.uk](mailto:beverley@gliding.co.uk)>

**VOL À VOILE** — une publication bimestrielle éditée par Aviasport. 300 F les 6 numéros. Tel 01 49 29 44 22 <[info@volavoile.com](mailto:info@volavoile.com)>.

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[www.chebucto.ns.ca/Recreation/BSC/](http://www.chebucto.ns.ca/Recreation/BSC/)

**ACES**  
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[robfrancis@tru.eastlink.ca](mailto:robfrancis@tru.eastlink.ca)

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Richard Noël [ickx@videotron.ca](mailto:ickx@videotron.ca)  
[www.cvvq.net](http://www.cvvq.net)  
club phone (418) 337-4905

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[info@erinsoaring.com](mailto:info@erinsoaring.com)

**GATINEAU GLIDING CLUB**  
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[www.gatineauglidingclub.ca](http://www.gatineauglidingclub.ca)

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[www.greatlakesgliding.com](http://www.greatlakesgliding.com)

**GUELPH GLIDING & SOARING ASSN**  
W of Elmira, ON  
Paul Nelson (519) 821-0153 (H)  
[www.geocities.com/ggsa\\_ca/](http://www.geocities.com/ggsa_ca/)

**LONDON SOARING SOCIETY**  
between Kintore & Embro, ON  
Sue & Chris Eaves (519) 268-8973  
[www.lonet.ca/res/mkeast/soar.htm](http://www.lonet.ca/res/mkeast/soar.htm)

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[www.sosaglidingclub.com](http://www.sosaglidingclub.com)

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airfield: 24 km W of Shelburne, ON  
Alex Foster (705) 487-0612  
[www.aci.on.ca/~boblepp/tsc.htm](http://www.aci.on.ca/~boblepp/tsc.htm)

**YORK SOARING ASSOCIATION**  
7 km east of Arthur, ON  
club phone (519) 848-3621  
info (416) 250-6871  
[www.YorkSoaring.com](http://www.YorkSoaring.com)  
[walterc@sympatico.ca](mailto:walterc@sympatico.ca)

### Prairie Zone

**PRINCE ALBERT GLIDING & SOARING**  
Birch Hills A/P, SK  
Keith Andrews (306) 249-1859 H  
[www.soar.sk.ca/pagsc/](http://www.soar.sk.ca/pagsc/)

**REGINA GLIDING & SOARING CLUB**  
Strawberry Lakes, SK  
Jim Thompson (306) 789-1535 H  
(306) 791-2534 W  
[www.soar.regina.sk.ca](http://www.soar.regina.sk.ca)

**SASKATOON SOARING CLUB**  
Cudworth, SK  
Clarence Iverson (306) 249-3064 H  
[civerson@shaw.ca](mailto:civerson@shaw.ca)  
[www.ssc.soar.sk.ca](http://www.ssc.soar.sk.ca)

**WINNIPEG GLIDING CLUB**  
Starbuck, MB  
Susan & Mike Maskell (204) 831-8746  
[www.wgc.mb.ca](http://www.wgc.mb.ca)

### Alberta Zone

**ALBERTA SOARING COUNCIL**  
Tony Burton (403) 625-4563  
[t-burton@telus.net](mailto:t-burton@telus.net)  
Clubs/Cowley info: [www.soaring.ab.ca](http://www.soaring.ab.ca)

**COLD LAKE SOARING CLUB**  
CFB Cold Lake, AB  
Randy Blackwell (780) 594-2171  
club phone (780) 812-SOAR  
[caeser@telusplanet.net](mailto:caeser@telusplanet.net)  
[www.clsc.homestead.com](http://www.clsc.homestead.com)

**CENTRAL ALBERTA GLIDING CLUB**  
Innisfail A/P, AB  
Carol Mulder (403) 730-4449 H  
[cvmulder@telus.net](mailto:cvmulder@telus.net)

**CU NIM GLIDING CLUB**  
Black Diamond, AB  
Al Hoar (403) 288-7205 H  
club phone (403) 938-2796  
[www.soaring.ab.ca/free-flt/cunim](http://www.soaring.ab.ca/free-flt/cunim)

**EDMONTON SOARING CLUB**  
N of Chipman, AB  
John Broomhall (780) 438-3268  
[www.edmontonsoaringclub.com](http://www.edmontonsoaringclub.com)

**GRANDE PRAIRIE SOARING SOCIETY**  
Beaverlodge A/P, AB  
Terry Hathfield (780) 356-3870  
[www.soaring.ab.ca/free-flt/gps/home](http://www.soaring.ab.ca/free-flt/gps/home)

### Pacific Zone

**ASTRA**  
Harry Peters (604) 856-5456  
[petersh@uniserve.com](mailto:petersh@uniserve.com)

**CANADIAN ROCKIES SOARING CLUB**  
Invermere A/P, BC  
Evelyn Craig (250) 342-9602  
[evcrinh@rockies.net](mailto:evcrinh@rockies.net)  
[www.canadianrockiessoaring.com](http://www.canadianrockiessoaring.com)

**PEMBERTON SOARING**  
Pemberton A/P, BC  
Rudy Rozsypalek (604) 894-5727  
[www.mountain-inter.net/soaring/](http://www.mountain-inter.net/soaring/)

**SILVER STAR SOARING ASSN**  
Vernon A/P, BC  
Mike Erwin (250) 549-1397  
[www.silverstarsoaring.org/](http://www.silverstarsoaring.org/)

**VANCOUVER SOARING ASSN**  
Hope A/P, BC  
David Clair (604) 739-4265 H  
club phone: (604) 869-7211  
[www.vsa.ca](http://www.vsa.ca)