

# free flight libre



2009  
Summer



## *the Winds of Change*

A rainy day at the Western Soaring Competition, so an opportunity to fly the computer and get this column written ... As an organization, SAC has been evolving and changing since its inception in 1945. During the early years, there was no office address. The directors were elected to manage the organization, and the mailing address was that of one of the directors. In 1966 the first secretary was employed by SAC. By 1980, the workload for directors and secretary had become too demanding, and a full time Executive Director was also employed. Between 1980 and 1999, there were three different office locations in Ottawa. A factor in each of the moves was the increasing rental cost of office space. An opportunity came to purchase an office condo, and it has been the SAC headquarters until now. At that time, Jim McCollum, who had been involved as executive secretary since the mid-80's, became the Executive Director. The new structure reduced administrative costs considerably – they had in previous years consumed more than 50% of the SAC budgeted expenses. What did these changes mean to the average SAC member? The vast majority, more interested in soaring than in administration, noticed little change.

Three years ago, Jim indicated that he was considering “retiring”, and the directors began considering options. We concluded that it would not be possible to replace Jim without a considerable increase in costs (read: membership fees). Many options were considered, including moving the office and sharing staff with an existing non-profit organization. A report based on meetings with COPA indicated the cost of renting office space and services with them would not be feasible (see SAC documents web page for details).

At the directors meeting last November, Eric Gillespie, Ontario Zone director, proposed the idea of contracting out the office administrative portion of the SAC workload with no executive director and with the understanding that greater responsibility would fall on the board and the various committees. That got me rethinking the discussions we had earlier had with Kevin Psutka, the COPA president. This was a much different model than previously considered. After much discussion, SAC and COPA directors reached an agreement for contract management services using the current COPA office staff. COPA is an aviation organization with vast experience in many of the same areas of concerns as SAC, and I am confident that it will be a good fit.

Now, for implementing the next big change! As of 1 July, the current SAC office will close. The phone, fax number and e-mail address will remain the same. The mailing address will change to that of the COPA National Office (*see bottom of page 4*). Clubs will be notified accordingly. SAC business will carry on as usual. Unless we run into unexpected problems, the members should again notice little change. SAC will continue to exist and to retain its status as a non-profit organization. We will keep the current condo office until we are certain that this new corporate structure will meet the needs of the members. The plan is to earn some rental revenue in the meantime. A copy of the management agreement will be posted on the SAC documents web page.

Some highlights of the management agreement include:

- A three year renewable agreement unless mutually terminated.
- A management fee of \$2000/month.
- Provision of general office and administrative services by COPA to SAC, including:
  - maintaining appropriate databases – bookkeeping and banking – ordering and distributing SAC supplies
  - distributing membership cards and tax receipts – administering or redirecting phone, fax, e-mail, and postal correspondence.

We realize there may be some adjustments and growing pains, but your board has supported this decision fully, and is committed to making it work. It should represent a considerable reduction in administrative expenses. Jim has been involved in SAC business administration for nearly twenty five years, and was a contributing SAC member for many years before that. He was very involved in making the transition. Beth has also contributed greatly as a volunteer over the years, both directly (with everything from stuffing envelopes to organizing SAC AGMs) to supporting the many extra hours Jim spent in his position, mostly without holidays or benefits. We all owe them both a huge vote of gratitude for outstanding service to SAC.



# free flight

2009/3 – summer

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## what was your plan for this season?

Carolina dreaming

land of the Long White Cloud

caveat emptor

Hudson River

a low cost total energy probe

having a Lark

concentration and relaxation



### Cover

a forest of empennage on the grid at the  
Region 5 contest in Perry, SC, in April.  
SOSA member, Jerzy Szemplinski,  
won the 18m class in his ASG-29.

photo: Maria Szemplinska

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### NOTICE

The mailing address of  
SAC has now changed.  
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masthead.

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# What was your plan for this season?

David Wilson, State Coach for Victoria, Australia

This article was inspired by a talk given to Australian State Coaches by Sandy Iuliano who has won a world championship in triathlon. Sandy described how she had planned her training program for five years leading up to her win in that championship. The talk was part of a Level 2 coaching course for the State Coaches. In this article I will attempt to translate the ideas presented into a gliding context.

**E**VERYONE IS AN INDIVIDUAL, and each of us has our own ideas of what we want to achieve out of our sport. Not everyone aspires to be the world champion. I'm sure that everyone participating in the sport of gliding does so because they want to feel a sense of enjoyment – that almost goes without saying. However, how many of you have thought about how to maximize that sense of enjoyment? What is it that you enjoy? How can you achieve that enjoyment in greater measure?

When you started gliding, all of you will have had the goal of soloing. Having achieved that, you may have set another goal or two, and perhaps achieved those also. Are you now just coasting? Is gliding not as much fun as it used to be? If so then maybe you need to reassess what you want to do and set yourself some new goal that is achievable. One way in which humans get enjoyment is to achieve self-imposed goals. This is the reason why gliding has a graduated set of goals starting with going solo, getting your C badge, being cleared for cross-country flying, then achieving your 50 kilometre Silver distance, then your 300 kilometre Gold distance and other height and duration legs, right up to a Diploma for achieving a flight of 750 kilometres or greater.

These pre-defined goals suit many pilots, but there is nothing to stop you defining your own. You might, for example, really enjoy the scenery when you go flying, and you might set a goal of flying into the mountains, where the scenery is much more spectacular. You might be of a scientific bent and decide to carry out performance testing of a range of gliders. This goal made Dick Johnson of the USA famous. There are any number of possibilities for a goal that suits you.

My point is that setting a goal is an *individual* thing – no coach can do it for you. You have to decide what you want to achieve. The important thing is to *have* a goal, because it gives you a purpose in life, and working towards a goal is one way to get enjoyment out of what you are doing. Having a goal is the start. However, it is not enough. You need a plan about how you will achieve that goal. One of the coaches at the meeting said, and I do not know if he was quoting someone else, "failure to make a plan is a plan to fail". Failure is not an enjoyable experience, so we need a plan.

The planning process which follows is so general that you could apply it to any aspect of your life, from paying off your mortgage, finding the right life partner, becoming a better marathon runner, finding more time to pursue your hobby or getting your child through school. For this article, what are the elements of a plan for gliding?

- *Where do I want to go?* A statement of the goal.
- *Where am I now?* Identify the skills or attributes that have to be acquired to reach that goal.
- *How am I going to get there?* Identify opportunities for acquiring the attributes and skills required. Establish a graduated series of steps leading towards that goal. Make a timetable and a commitment to exploit those opportunities.
- *How am I doing compared to my plan?* Record what was actually done. This is a continuing review process.

⇒ p26



## 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 the 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, published quarterly, with issue deadlines below.

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.

Send images as your highest-resolution .jpg or .tif files. Photo prints are also acceptable and will be 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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Deadline for contributions:

**10** March, June  
September, December

# letters, etc

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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 vélivoles 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.

*free flight* est le journal officiel de l'ACVV publié quatre fois par année.

Les articles publiés dans *free flight* proviennent d'individus ou de groupes de vélivoles 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.

*free flight* 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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## About spins and circuit mistakes

George Eckschmiedt

The last *free flight* was a keeper again. I very much enjoyed all the articles, without exception, all were entertaining and educational, but I particularly welcomed three of them: *Boot-Belly-Push*, the 2008 accident analysis, and the SAC insurance report.

Spinning is of particular interest to me, having unfortunately witnessed several spin-in accidents. I would try to spin any glider that was allowed to spin. I hope other pilots flying the V-tailed Std. Austria, HPs, etc. will elaborate on their results. *Boot-Belly-Push* is a very good summary that I feel should have been part of the FT&SC's work decades ago when I was part of that group, but we were too busy discussing the different recovery techniques for incipient vs. full spins. There was never any doubt that for recovery from a full spin the process was: *full* opposite rudder, centre ailerons, pause, stick forward until rotation stops, and recover from the resulting dive. The "stick forward" part was the result of much discussion on how much forward (one of our members said I will *bend* the stick forward if I have to). These steps are supposed to be effective for all gliders.

The item that got most of my attention in the article was references to the spinning of the L-23. Henry Wyatt states that it "will exit the spin before the elevator is moved at all". Well, not all L-23s. I call our L-23, C-GVSL, a "dishonest spinner". It has caught me by surprise – I discovered this during an annual check flight with a pilot in the front seat who normally would not require additional ballast, so the CG location was not an issue. We tried to enter a right spin, starting with the traditional sin of cross-controlling at low speed. We were slowly turning right, with the right wing down, fully cross-controlling the rudder, continuing to slow down. VSL went into a right spin, with full opposite rudder!

Now consider this – we have a spinning glider that is supposed to do everything by the book, so by the book we are supposed to apply full opposite rudder. But wait, we already *have* full opposite rudder! Huh? Centring the ailerons and moving the stick just a bit stopped the rotation and recovered from the dive, but it was a surprise – spinning right with left rudder. It took time to recognize this, even if it was just a few milliseconds. If on a final turn a glider drops into a spin, the Law of Primacy kicks in and the pilot does not

need any more surprises, and does not have even milliseconds. As Dan Cook wrote, "When the reaction of the aircraft is not what they expected, the resulting surprise (stress reaction) can often manifest itself as a momentary paralysis or lapse in their decision cycle."

This maneuver was repeatable, and I do not know why this happens with this L-23. I have to be careful here, as I did not try it with other L-23s and I do not recall this condition with L-13s. I was flying the L-23 again recently and verified the full left rudder, right aileron spin to the right. It did not get into the "funny" spin every time, but it sure does, depending of how far down the right wing is. Could this be an effect of the T-tail of the L-23? I will let smarter people try to explain it.

I very much welcomed Dan's report, and his analysis and conclusions. It is a lot of work (how well I know it!). His thoughts strongly correlate with those I expressed above, particularly with unwelcome surprises in the final stages of the landing. And, for the reasons explained above, for the last forty or so years I have been emphasizing the circuit flying and the last turn to the final.

Dan is absolutely correct in all what he wrote, but I would like to focus in on a few items. There are reasons for them. We have been flying circuits ever since – well – since we've been flying. It has been all the same, except for giving different names for the circuit locations. The Brits recently introduced the 5-sided circuit (diagonal on base turn) that may or may not be applied at all locations, and not be welcome at many airports. We changed the names, added names like High Key area, Goal #1, #2, Aiming Point, Reference Point, when all we want is a reference point to gently touch the ground. We complicate things with the flaps and dive brakes to compensate for a poorly planned circuit.

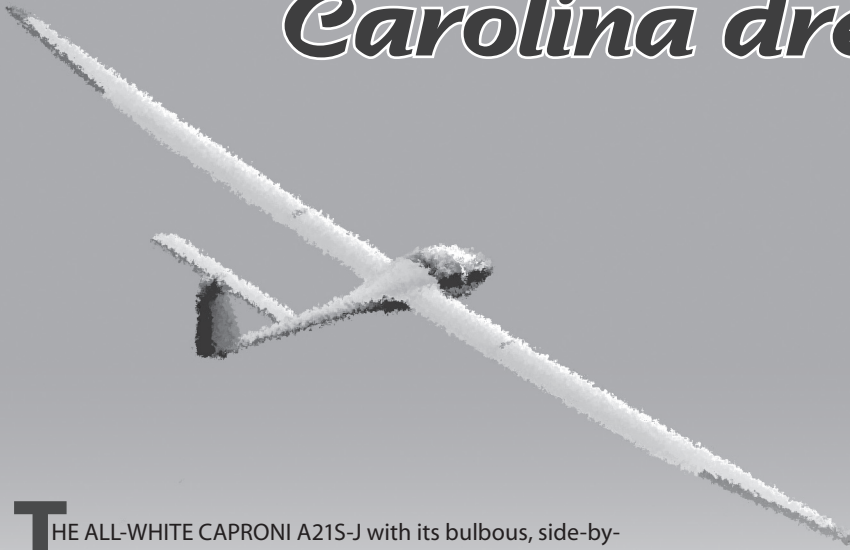
I love Dan's words, "pilots should not attempt to use airbrakes (spoilers) unless they have established an overshoot situation on approach". I have been preaching this at my club, and I am getting into hot water with my fellow instructors who advocate dive brake use on base leg and even on the final turn. For me, checking the dive brake operation before arriving at the downwind leg is mandatory (SWAFTS), and can be used to position oneself in the circuit to be at the right altitude alongside the Reference Point, but after that, the brakes should be used for glide path control only on the final. If you have to use the drive brakes on the base leg, your circuit plan was defective. Admittedly, there are conditions when one gets to be at 7-800 feet beside the Reference Point, and then ➔ **p26**

Date limite:

**10** mars, juin  
septembre, decembre

# Carolina dreaming

Maurice J Aubut



**T**HE ALL-WHITE CAPRONI A21S-J with its bulbous, side-by-side cockpit, seemed to flex its 20.4m wings at the end of the runway. The wing tips quivered at the slightest gust, ready to be hurled into the sustainable air. Steadily gaining speed, wings biting aggressively into a cold northwest wind, the ship rose from the asphalt runway with the shrill whistle of its jet engine, a prescient powerplant for this sailplane's 1970s design.

Hans Spiegel and Sue-Ellen Bates were attempting to fly the Caproni from an airport on the outskirts of Ottawa to Rock Hill, South Carolina. They had planned to use the initial burn to gain 15,000 feet. From that altitude and some thermalling they could almost reach the northernmost Alleghenies in New York where they would start to soar the ridges. They had a fuel reserve for two more burns, each giving 7000 feet when needed, and that would be all. Still, they would need some luck to make a continuous flight of 1500 kilometres.

Flying ridge lift along the intended course of the Allegheny Mountains would conserve precious fuel and time. Otherwise they would have to land and refuel. But that would be an aborted record flight. It was the beginning of September with shorter daylight hours. At best they would have about eight hours of sunshine. That meant there would be weak thermal activity by early afternoon. The consolation for the lack of strong thermals was strong ridge lift this time of year. If they accomplished the long flight it would be a magnificent flight for a two-seat, powered sailplane over some of the remotest regions of the Appalachians.

Just the thought of the adventure made it appealing and a challenge. They were both accomplished glider pilots and both had flown the ridges of the Allegheny Mountains.

Sue-Ellen was a petite, blond southerner. She had lived all her life in Rock Hill, South Carolina with the exception of the last two years where she lived in Montreal with Hans. They had met five years earlier when he was flying a single seat sailplane in her home state. Going home for Sue-Ellen was a welcomed vacation from the coming Canadian winter.

"Two seconds," Sue-Ellen said, checking the fuel gauge

and observing the altimeter needle winding up crazily with their rate of climb.

"Okay," he replied.

"Cut ... now," she said and shut off the engine switch.

Hans flicked off an ignition switch on his side of the cockpit also. For safety, he had designed and installed a second kill switch into the electronic start sequence. With only one ignition switch and the key on, it was possible to accidentally hit the switch if working in the cockpit on the ground. The additional switch prevented the jet engine from starting up unless both were on.

The engine spooled down immediately and it was quiet in the cockpit. The aircraft was back to being a true sailplane. The twin wheels had been retracted immediately after take-off. Hans leveled the sailplane and adjusted the speed-to-fly computer with its digital readout.

"08:45, twenty-five miles out on course at 15,400 feet."

"Okay, got it. Good take-off," he said, through the mask.

"It was a good climb. Cross your fingers, and pray that we're lucky all the way."

"Your guardian angel will take care of us."

"I left him back in Ottawa," she said.

"That's good. He won't give me a hard time then."

They were silent for the moment, appreciating the spectacular view from 15,000 feet. An early morning fog hung on the horizon at the south end of Lake Ontario. It would burn off before they reached the area.

"How does it feel to be going home for the first time in two years?" he asked.

"We're not there yet", she replied, glancing his way.

"Still pessimistic, huh."

Despite the mask which partially covered her face, he knew she was smiling by that characteristic glint in her eyes.



Ottawa Tower – Sierra Uniform Echo – 15,000 –  
leaving your area.  
Sierra Uniform Echo – Ottawa Tower – all clear –  
contact Buffalo – have a good flight.  
Thanks – Sierra Uniform Echo out.

Ottawa Tower knew the sailplane's call letters from the many practice flights they had taken in the Caproni. At first the tower was confused by a power-assisted sailplane that climbed to 15,000 feet and glided back to earth only to be repeated several times on the last three weekends.

"Good-bye frozen land," Sue-Ellen said and laughed.  
"You'll be sorry and want to come back when you're sweltering in the heat."  
"Can't wait for sunshine and warm weather," she said.  
"Let's check our ground speed at Ogdensburg," Hans said.  
"Right," she replied. "There's a strong westerly at this height."

After they crossed Lake Ontario, Hans said, "That's Ogdensburg dead ahead."  
"09:05," she said, jotting down the name of the town and the exact time on the clipboard on her lap. She glanced in Hans' direction and saw him blow her a kiss, even though his mask partly concealed it.

"We could've stayed in bed longer," she said.  
"We'll make up for it on this holiday."  
"That's what you think, mister."  
"Holidays are for relaxation," he replied.  
"That's not what you have in mind ..."  
"I can't help it."  
"Come, come now,"  
"Ahh, we're so close and can't do anything about it."

... Hans and Sue-Ellen both liked participating in sports – for flights like this they needed to be in good shape. They had worked out all summer and had cross-country bikes they rode at least three times a week. Sue-Ellen had taken up skiing in the Laurentians and had picked-up on the techniques quickly. But it was the cold she couldn't stand. Their favourite sport was flying sailplanes. They were both emotionally motivated in the thrill and beauty of silent flight and all its challenging moods.

Sue-Ellen is an unusual name in this century, but it had been popular in the deep South. She spoke with a rich drawl, although some of it had mellowed. Hans, growing up in Canada, was no southerner. He had graduated with honors in architecture at McGill. But, after some years, his architectural practice had become an administrative burden rather than functional design work. He had always enjoyed designing contemporary furniture and his architectural training served him well. He became a well-known furniture designer in Canada and the States ...

"Williamsport is coming up," Hans said.  
"We'll have 1500 feet to spare," Sue-Ellen replied.  
"The winds have shifted in our favour, after all."  
"So you didn't leave your guardian angel at home."  
"He wouldn't stay put with you around," she replied.  
"Smart angel," he replied and chuckled. "In a few minutes I'll check to see if Ridge Soaring is operational – if I can reach them at this distance."

They had removed their masks at 10,000 feet. There was still plenty of oxygen in each of their tanks. They planned to use wave lift wherever they could on their flight path. If that were the case they would use up more oxygen.

Ridge Soaring – this is Caproni 21.

There was a long silence. No answer. "They must be operating at this time of day. I'll try again."

Ridge Soaring – this is S-U-E.  
This is Ridge Soaring – what's your position –  
where are you coming from?  
This is Hans from Montreal, Pam – is the ridge  
working beyond Bedford Gap?  
Hi, Hans, ridge is good all along – five gliders out  
on 500 attempts. Where you headed anyway?  
South Carolina – Rock Hill.  
South Carolina!  
That's affirmative.  
You've got to be kidding – good luck.  
Thanks, we'll need it.

"The ridge is working all the way," he said, looking at Sue-Ellen.  
"I gathered as much. Want me to take over?"  
"Yeah," he said.  
"Got it," she said, passing the clipboard to Hans.  
"Strap down tight," he said, "we'll have to make up for lost time on that long lazy glide. Did we lose much time?"  
"Only half an hour," she replied.  
"This is where we can make it up."  
"I wouldn't have minded staying at State College tonight with Pam."  
"The ridge might not be working tomorrow," he said.  
"We might not be able to continue our flight for a week."  
"It was just a passing thought. We've always had a good time at State College."  
"I'll get a check over the Dachile Gap, at Milesburg," he said, changing the subject.  
"What do you want to do after that?"  
"That'll be our second checkpoint on the ridge."  
"Where's the third one?" she asked.  
"Eagle Field ... this is going to be a rough ride. The ridge is working with strong updrafts."

At State College they saw the long, undulating Bald Eagle Ridge curve gently southwestward. The valley below was dotted with small villages surrounded by a patchwork of cornfields. Sue-Ellen lowered the nose and flew close to tree tops. The speed of the sailplane increased substantially. The airspeed indicator registered 90 knots. They felt the punishing effect of thermodynamics surging upwards on the seat-of-the-pants. It was a good indication there would be even stronger turbulent air ahead. The ridge wasn't going to be a pleasure ride.

The strong winds churned themselves inside out as they crossed over ploughed farmland and twisted into valleys. The wind collected heat from the surfaces of the ground on its wayward path. When all this energy reached the Bald Eagle Mountain, all hell broke loose from suppressed energy. The wind increased in velocity as it was compressed into a thin layer against the hillside, like a linen sheet in the wind. The vast amount of warm air, underlying its mysterious carrier, shot tempestuously

upwards. Dust particles and pieces of dry grass, unintentionally carried in the cockpit, flew haphazardly inside the cockpit whenever they encountered protracted strong up-currents. Every loose object had to be secured.

"There's Ridge Soaring," Sue-Ellen said, "dead ahead."

"Look out for gliders," Hans said. "We should fly slower and higher to avoid local glider traffic to be on the safe side."

"Good idea, chief," she replied.

Pamela's voice then crackled over the radio,

This is Ridge Soaring ...

Hi y'all, Ridge Soaring – this is Sue-Ellen.

When did you get the big bird, Sue? You look pretty good up there.

Thank ya. We'll see y'all next spring.

Have a good and safe flight.

When they were a few miles past Ridge Soaring Sue-Ellen said, "I'm putting the nose down for another rough ride. If I wasn't afraid of losing the wings I'd take her down even closer to the ridge."

"That's what happens when you accept a cheap ride with a strange pilot," he teased.

"I'll never learn – never again," she smiled.

It seemed the Caproni was designed for ridge soaring. She was easy to handle and took the full blast of rough air in stride. Sue-Ellen had to porpoise the big ship to keep the speed below red line. Sometimes she had to keep the air-speed above stall speed of 35 knots by quickly lowering the nose when strong lift moderated suddenly, getting negative g's. At times the wings wanted to roll. She had to hit rudder and ailerons to level the wings. There was no time for sight-seeing. It required their full attention unless they wanted to land in the trees close below or a cornfield a 1000 feet below the ridge summit. After being battered around for some time, Sue-Ellen asked Hans to take over.

They crossed a small gap near the town of Tyrone, along route number 220. Next appeared the Altoona Gap, one of the first appreciable gaps in the northeast section of the Allegheny ridges. It was a five mile clear break without ridge lift. The ridge was still less than a thousand feet high; if the lift suddenly gave out, there was hardly any time to prepare for an outlanding. Speeding along in the ridge lift, they were averaging over 100 km/h. When they neared a small gap in a ridge, they would slow to gain as much altitude as possible then glide safely over the gap at minimum sink. If they were lucky at large gaps, they would gain altitude in thermal activity halfway across.

At Altoona, Hans gently pulled back on the stick and reduced airspeed. The sailplane's kinetic energy as well as the energy of the deflected air mass over the ridge caused the ship to gain 800 feet above the ridge, more than they needed to cross the gap with the Caproni's performance. They arrived on the other side with altitude to spare.

Hans asked Sue-Ellen to take over the controls. She pushed the nose forward and the sailplane picked up speed. Past the gap, the awesome wind-thermal energy continued to beat at the sailplane. It lifted their bodies hard against the shoul-

der harnesses, then compressed them unmercifully on the thinly cushioned seats.

The Bedford Gap was the next long break in the ridge and it was well known by many glider pilots who had crossed it, but weren't able to get back. To cross the ten mile gap a pilot had to find a strong thermal halfway across or two mediocre ones. Hans and Sue-Ellen saw a cu forming in the middle of the gap over the Penna Turnpike. Sue-Ellen headed straight at it and started circling in the strong lift until it petered out at 5000 feet. She got to the other side of the gap with barely enough height above the elms on the ridge. There were deep sighs of relief when the audio started a welcome *beep-beep*.

At Cumberland, Maryland, everything suddenly flattened into rolling hills covered with a mixture of evergreen and deciduous trees. It was the largest and most dangerous of all gaps. The gap was breached by soaring in several thermals that Sue-Ellen found. Sometimes she had to fly off course to find a thermal under telltale cumulus cloud.

Beyond Cumberland there were a series of small broken ridges called Link Mountains. Hans, who now had control, was flying cautiously over the low ridges. They crossed one tiny gap after another in quick succession – it seemed that it would go on forever. It was nerve-racking for both of them. The impressive rocky area around Seneca appeared off their port side. The whole ridge section and vicinity was renowned for notorious outlandings and broken gliders. They both knew this and searched the landscape for a tilled field. There was nothing in sight where they could put the Caproni down safely. An attempted landing on the highway along the ridge could turn into a nightmare. The strong wind gradients and curl-overs created by the lay of the hills on each side of the road was unpredictable. The area was well known for blowing semis off the road in high winds. A sailplane would be affected by the wind velocity at various levels below a thousand feet. Sue-Ellen took the same safety precautions: slow and high was the order of the flight.

The marvelous lift continued to keep the sailplane above the broken hills. The lenticulars at Cumberland weren't particularly impressive looking from the cockpit. Working the ridge, she continued to fly farther west instead of hopping over to another ridge in a southerly direction as previously planned.

From Blue Grass to Mountain Grove the ridges were even more broken and the lift unpredictable. At Covington, the ridge became steeply high and reached up to touch the bottom of fluffy cu passing by on their way south-east. The mountain ridge was a continuous 4000 foot peak and she increased speed again. The grueling punishment began to unseat the occupants once more. But to them, that was better than the lower ridges when your heart was in your mouth every second.

Hans mentally calculated they would not have been able to start the jet engine if ridge lift had suddenly quit during the flight on the lower ridges they had just crossed. They were too close to the valley floor. By the



time it would have taken to relight the engine, the sailplane would have been down in a farmer's field or in the trees.

"We'll make a move south at Tazewall," Hans said, looking over the aeronautical chart on his knees.

"Thank goodness," she replied, "I've just about had it."

"Are you all right?"

"A little nauseated."

"You've never had that problem before."

"I'll be all right."

"You can't be pregnant, can you?"

"Don't be silly," she replied, "of course not."

"Let me fly awhile," he said, "Just relax. We still have a lot of flying to do."

She didn't say anything as he rolled the sailplane into a tight bank. The air in the wave lifted the sailplane to five thousand feet, then six.

"Hey," Hans said, "we're in wave!"

He began to crab the ship back and forth over a five mile ridge line. "How high is this lift going to take us?"

"... I'm going to be sick."

"Use the barf bag. You *must* be pregnant."

"Shut up and take me home."

Just as she finished the sentence, there were a series of choking noises. He leveled the ship immediately and flew beyond the ridge dwarfed below. The sailplane raced along with a strong northwesterly quartering wind. There was nerve-racking rotor on the lee side of the wave. One instant the sailplane was in a stall attitude or was uncontrollably rolling its wings. It was exasperating work. Just as suddenly as the turbulent air had started, it stopped. The air was silky smooth. Sue-Ellen was sick again, but now the sailplane seemed to hang motionless at 7000 feet agl.

"Feel better?" he asked.

"A little – damn cheap ride."

"Let's have a coffee, it's going to be smooth for a while."

"I've never been sick from flying before," she commented.

"I think you're pregnant."

"Would you like to wear your coffee?"

"It could happen, though."

"What's wrong with that?" she asked.

"Nothing. Throw that barf bag out the window."

"It might hit someone."

"We're over mountains. There's nobody down there."

They were always preoccupied with what was happening to the weather and the next leg of the flight. This region of the Appalachians was not known to them nor what this particular section of the landscape would entail to safely cross it. They continued to observe the changing weather and made decisions by what was going on outside the cockpit. Sometimes they took wild guesses as to what the unstable airmass was going to do in the next half hour. It was critical to remain alert to changing conditions and the topography below.

With mixed feelings and anticipation they observed a thin layer of altocirrus clouds in the northwest slowly creeping eastwards. They hoped they would be far along their southward leg before that bit of bad news arrived. It was unlikely that the system would reach the Smokies before them, but in

that case they would be forced to abort the flight before attempting to cross the Old Smokey Mountains and land at a handy airport until the system passed. As for their present condition, they would have to use half the remaining fuel to cross the Blue Mountains.

They could see the undefined ridge-backs of the Smokies in the far-off distance. They were uneven jagged lines on the southeast horizon. The air was less turbulent over the smaller ridges, kicking off a combination of ridge and thermal activity even at three in the afternoon. But there were also vicious sinkholes in the area which caused the vario's needle to plunge. There were no familiar landmarks like the Bald Eagle Ridge they knew well. Hans continued to drive the aircraft unperturbed towards the ground. The Caproni performed well on the long glide and covered a good distance over the Virginian soil.

Johnson City in Tennessee appeared 4000 feet below. Hans decided to fly towards a high elongated mountain interspersed among others that were less impressive. The mountain was directly on track for the still unattainable Mt. Mitchell. It was an eight mile long ridge with weak lift. The top of the mountain was flat as a pancake the entire length. Amazingly enough, the ridge lay directly on the Tennessee-North Carolina border straight on their flight path.

They were near the village of Erwin, over another ridge which they had just crossed and found they had flown themselves into a box canyon. Altocirrus was now spreading long tentacles across the west region of North Carolina. Swiftly all ground convection subsided and the winds also decreased, giving only weak ridge lift. They looked around and found they couldn't fly over the mountain. Sue-Ellen maneuvered the large sailplane back and forth across the uninviting rock façade a thousand feet below the ridge top. They were in trouble – it was time to light up the jet and climb out of there immediately.

"I was hoping to save the remaining fuel for Mt. Mitchell if we got low there," Hans said. "We have only 12–14,000 feet of fuel left. It'll take all of it to get the height we need to reach Mt. Mitchell from here."

"There's not much lift here for a climb."

"Would you like me to take the controls," he said, "I'm going to have to climb out with the engine."

"Okay," she replied.

"I have the controls," he said and took over.

"They're yours."

"Seat and shoulder straps tight," he said, "here goes."

He flicked on the switch at the same time as Sue-Ellen did on her side of the cockpit. They waited for the sound of the turbine winding up. Nothing. He closed the switch and tried again. Nothing. They looked at each other in silence.

"What happened?" she asked.

"Nothing happened," he replied.

"What can we do?"

"I don't know," he replied.

"We're caught in this canyon," she said. "This is it, isn't it."

"Not yet," he said, "take the controls."  
 "I'm three months pregnant, ya know," she said, "so ya better think of something in a hurry to get us out of here."  
 "Now you tell me! I wouldn't have attempted this trip if I had known that."  
 "That's why I didn't tell you," she replied, "I wanted to make this flight, too."  
 "Take the controls," he said.  
 "What're we going to do?"  
 "Try to override the start safety system. It might work."  
 "That's insane," she said. "Ya'll blow us right out of the sky."  
 "Any other suggestions?"  
 "Land and fix the problem," she said.  
 "Land where," he replied, "there's nowhere to land. We can't make it out at the end of the canyon to a safe field."

The situation was deteriorating steadily. They lost altitude with each pass along the ridge. They were 1500 feet above the broken boulders that had fallen from the mountain and lay on its sloped side. If they were unable to start the engine, the ship would end up splintered at the canyon bottom. Relighting the engine also had its risk as the cause of the relight problem wasn't certain.

"We'll blow up," she said, "if there's a broken fuel line."  
 "I don't smell fumes," he said. "What difference does it make – up here or down there."

Hans pulled hard on the fibreglass cover of the modified ignition panel, then hollered in pain, shaking his hand in the air. He had rolled back his fingernail. It was already starting to turn purple.

"What happened?" she asked.  
 "Bent my damn fingernail," he replied. "Look in the pouch for a screwdriver or a metal key."  
 "One thing at a time."  
 "Hurry ..."  
 "Here," she said, handing him a small metal key.

Hans broke the panel cover off. It shattered in pieces. He quickly scanned the small circuit board. After he had located the override circuit, he disconnected the wires. Another ten minutes and there would be no air between them and the rocks below. Hans' thumb was throbbing but it was more bearable when he concentrated on the emergency at hand. Sue-Ellen was concentrating on keeping the sailplane close to the side of the cliff in what little reduced sink was available. It took longer to make rational decisions under pressure. The long flight was taking its toll on both of them, physically and mentally. He felt an unrelenting ache all over his body and his brain didn't want to concentrate.

"I have the controls," he said.  
 "All yours," she said, doubtful about what he was going to do.  
 "This could be rough. Ready?" Then there was a roar and the sailplane pitched upwards. The next moment they were heading straight for the face of the granite cliff.

Sue-Ellen screamed, "*Hans, the mountain!*"  
 "Jeez!", he exclaimed and took evasive measures to miss the cliff face on Sue-Ellen's side of the cockpit. It took all the speed he could muster to roll the sailplane and stabilize it,

knowing the wing tip must've come awfully close to touching the rocks. The brief distraction of starting the jet was almost fatal. The ship was hard to handle, it kept veering from one side to the other from the unpredictable wind shear and turbulence. They held their breath. It was a constant struggle with the controls but the Caproni was climbing out of their trap like a topsy-turvy kite in a stiff breeze. Then they were above the 5000 foot ridge, the top rapidly dwindling below them.

"Oxygen," he said, "put on your mask."  
 "We still won't make it unless we get wave over Mitchell."  
 "We only have about three more minutes to shut down."

The engine abruptly quit at 12,000 feet. They were short on altitude and there was no fuel left. They turned off both engine switches. From Sue-Ellen's calculations, they would have to find wave lift at Mt. Mitchell to make it all the way. After the thrashing in the canyon and the climb-out, the flight was surreally silent.

During the best speed-to-fly glide toward Mt. Mitchell, Sue-Ellen kept a close tab on their progress. They knew that a few miles beyond the Old Grandfather Mountains lay the town of Marion and Shiflet airport in North Carolina. She had flown this wave before to 30,000 feet during a February wave camp at Shiflet. She recognized highway 40 that appeared on the southern horizon. It was a long thoroughfare on top of the mountain that stretched from eastern to western horizons through thousands of acres of replanted pine forest.

"Mt. Mitchell straight ahead," she said. "We've got to find wave here or abort."  
 "How much height do we need to gain to reach Chester airport?" Hans asked.  
 "15,000," she responded, looking at the clipboard. They had calculated the height before take-off. They were on schedule but both were busy with little time for small talk.  
 "That means we'll have to climb about 7000 feet at Mitchell, and we don't even know if there's wave."  
 "We can land at Shiflet and refuel if we have to."  
 "If we can, I'd like to make it all the way – talk to your angel."  
 "He's all through with miracles for the day."

Sue-Ellen's angel wasn't through with them though; lenticulars began appearing over Mt. Mitchell ...

Later, descending through 11,000 feet, they removed their oxygen masks just as they passed King's Mountain. It was a small, lonely escarpment, seemingly sitting in the middle of nowhere and completely detached from the Appalachian Mountain Range. Castonia and the town of York lay directly ahead in the State of South Carolina. Their final destination at Chester was within safe gliding distance as the large, red sun set the Carolinian soil on fire. Scrawny jack pines, darkly silhouetted, pierced the dark blue horizon. The countryside cooled into long dark shadows. Perched turkey buzzards had ended their soaring flights hours before.

It had been a memorable day. The real world hardly existed over the broken ridges, while embracing mountains and having a day of flirting with eagles and angels. ❖



# e-mails home from “The Land of the Long White Cloud”

Ray Woods, SOSA

**H**i, just a quick e-mail to let you know that we arrived uneventfully in New Zealand. When I was planning this part of the trip, I was certain that learning to fly in the mountains in NZ was going to be the exciting part. Arrived Thursday afternoon in Christchurch and learning to drive on the left, in rush hour traffic, near an international airport was *more* than a little exciting! We live to tell the tale. After checking in at the Holiday Inn, we had a nice evening on the town; Christchurch is a beautiful and relaxing large town. While eating dinner at an Irish pub, “The Bogg”, we met some crazy Canucks who were in town for the buskerfest – lots of fun.

*Friday* – quiet drive to Omarama, the picture postcard countryside makes driving quickly impossible, too much to take in and drive fast, most people seem to drive at the speed limit or slightly under. Got to “Glide Omarama”, picked up the visiting pilot guide and met some of the regulars and visitors from many parts of the world.

*Saturday* – went to the terminal for the daily 10am weather and pre-flight briefing. Met the rest of crew along with Bo, my instructor/mentor for the coming adventures. Afternoon was poor for soaring so Bo suggested a tour of area airports, landout fields and a local geography lesson in his widened Super Cub. The terrain is a little intimidating and indescribably beautiful, flying will be as distracted as driving. With lots of easy-to-identify features, navigating should be easy, so at least I shouldn't get lost.

*Sunday* – slightly better today, managed to launch in Bo's Duo Discus, flew for two hours, we didn't get far, but it was enough for Bo to sign me out solo. It was an early day, so we went to Wanaka for dinner, a great resort town, very busy by NZ standards (they roll up the sidewalks at 7 pm most places and no Sunday shopping) with lots of good restaurants.

*Monday* – much better weather, I was introduced to SL, a single seat Discus, my ride for the week. Got settled into the cockpit, did an instrument instruction with Matt (a wonderful young English pilot, assigned to me, to help me with

whatever I needed to get me flying). After a leisurely launch I went off for a tour around the basin, looking at the landout fields again and getting a feel for where lift was generated, ventured up a couple of the valleys a few kilometres and out over the higher ground where the good stuff is. Finished the first lap in 3+ hours by flying over Benmore Peak at 7000 feet, did a shorter victory lap of the rim of the basin in 85 minutes and pulled spoilers to descend 3000 down to circuit altitude. We discovered the Kahu Cafe, it has become the place of choice for lunch and dinner. It's a good thing Dagmar keeps the portions reasonable and we're doing lots of walking, or waistlines would be spreading.

*Tuesday* – today's flight was good starting off, got to 6000, hung around trying to climb higher to acquire the wave that was teasing me. The thermals disappeared and I got into the downwash of the wave; at 4500 I realized I may need a relight so it would be prudent to make my way back to the airport if this possibility became a necessity. While dumping the water ballast, I watched as the runway rapidly disappeared from view behind the tail of the Buscot, humm. Once again in my flying career I realized that “You can't get there from here”.

Time to drop the landing gear, a landout could be in the near future, the rest of the trip to the ground passed in seconds to land 6 km north of the airfield in a nice freshly-worked field, still pouring water ballast. Nobody found usable wave today.

⇒ p29





# Caveat Emptor

**Bob Fieldhouse**, Silver Star

a lesson for glider buyers



Bernadette Fieldhouse

**I**T WAS A PROUD MOMENT for me on 3 August 2007 as I opened the rear of the trailer and with the watchful eyes and help of the other club members, I rolled out my new-to-me Pilatus B4 glider. A lifelong goal to own my own aircraft wasn't diminished in the least by the fact that it had no engine. If it flew and if I could fly it and I owned it – that's all that mattered. Silver Star Soaring had a new ship in its fold and in a few hours it would be on its first flight in its new home in Vernon, BC. At the controls; an experienced pilot and owner of the other Pilatus in the club, Brent Redding. He was particularly interested in how ZMI would fly. How would the two ships compare? Anticipation was in the air and this newest acquisition to the field had the club buzzing!

However, within minutes of having rigged things started looking less than bright. The first sign of a problem was with the spoiler control handle which would not remain in the upright position. Closer examination found a male rod-end bearing had a broken shaft at the point it had been drilled and pinned. The forward half of the control handle was rotating around the 5–6 remaining threads. Separation at the wrong time could have allowed the spoilers to deploy with no way of closing them, not an inspiring thought!

Brent was now justifiably concerned about what else might be wrong, "I thought you said this just had an annual." I showed him the logs and signature and notes indicating a 2007 annual inspection. Still not satisfied, we started looking and weren't amused. One item after another got added to a list of problems:

- the rear tire tube valve stem was partially separated from the tube, thus holding no air. Only the stiffness of the tire made it look inflated.
- The compass card showed a date of '06, not '07. (The log referred specifically to the tire pressures being checked and the compass being serviced.)
- Bare microphone wires where they exited at the base of the control column were ready to short.
- Excess play in the stick warranted a closer look ...

At this point we knew the Pilatus wasn't going to fly this day. In fact it didn't fly for another ten weeks until a proper inspection and subsequent repairs to the tune of close to \$2000 had been

spent. In total, 25 snags were found and corrected to make ZMI airworthy and to satisfy the annual inspection criteria as outlined by Pilatus.

Why was an aircraft with a fresh annual grounded? How could this have happened? Simply put, I trusted an AME whom I did not know who was unprofessional and dishonest. Despite his assurances, and being told by the former owner's wife that she had paid the AME to do the inspection, it was clear that I had been suckered.

... on becoming aware of the Pilatus being for sale, I had been in contact numerous times with the AME who was selling it on behalf of the widow of the previous owner. I requested pictures – it was what was expected of a 30-year old ship – certainly not pristine but nonetheless acceptable, and with the verbal assurance from the AME that all was in order I decided to drive to Saskatchewan to see it. My trip was contingent on all documentation being in place, I was abundantly clear on this point: "Airworthy and ready to fly?" "Yes, it had 2007 annual inspection signed-off in the logs." He even complimented me for my thoroughness in asking all the right questions. How ironic that would prove to be.

Our local AMO, Skytech Aviation Services at the Vernon airport, found four bearings on the control column and three on the rudder that were worn beyond acceptable limits, or corroded. It also turned out that the four inspection panels on the wings hadn't been removed in years as the screw heads were stripped and so badly rusted they were impossible to remove conventionally. Upon removal, a sizable mouse nest fell out of one of the accesses. The altimeter, ASI, and pitot-static system were due for recalibration for this inspection period also – none of which was done – and so it went ...

On discovering these issues I immediately contacted the AME and pointedly asked him what the heck was going on. This time he admitted he had not actually performed an "inspection" because the glider had not flown ➔ **p28**

# Hudson River

Myles Hynde

## a lesson for power pilots?

**T**he scene for this story is set at the Front Royal Airport in Warren County, Virginia. It is 7 February, just 23 days after Chesley Sullenberger successfully brought his US Airways passenger jet down safely in the Hudson River, saving the lives of all on board. It is the Skyline Soaring Club's annual safety meeting and their guest speaker is André Gerner, a former Commandant of the USAF Test Pilot School at Edwards Air Force Base.

It was obvious to all who planned to attend that the Hudson River episode would be the major topic of conversation, and so it was. The question was, "Did powerless flight skills honed at small general aviation airports such as the one here in Warren County, help Sullenberger bring his aircraft down safely in the Hudson?"

The meeting's host, Airport Manager Reggie Cassagnol, was first to express an opinion firmly believing Sullenberger's gliding experience was a major contributing factor in his ability to make a safe "off-field" landing within two minutes of losing all engine power, just after takeoff from LaGuardia airport. While a career-long focus on airline safety procedures was noted, Sullenberger's experience as a glider pilot was singled out as a crucial part of the skill set utilized that day to save an untold number of lives in the midst of the heavily populated midtown Manhattan.

The primary reason is a glider pilot's constant focus on what to do if the thermal lift upon which gliders are dependent is lost. After his sudden loss of power following a collision with a flock of birds he was in essentially the same position glider pilots regularly find themselves in – improvising a landing site. Cassagnol pointed out that when gliders are forced to land short of a return to their point of departure, it is not termed an accident or even an incident, but rather simply an "off-field landing". And land off-field is essentially what pilot Sullenberger accomplished.

Cassagnol, an FAA-certified safety instructor, told the audience he recommends that his flight students take at least a couple of glider instructional flights "to illustrate the point that when the engine stops it's not over, which highlights the need to improve their general flying skills."

André Gerner, the guest speaker, commenced his address by expressing his views on the combination of gliding and commercial aviation. "When you're flying a powered aircraft, one of the things you are always asked,

especially when you're a student, is 'Okay, if the engine fails now, where would you go?' And it is something Sullenberger had rehearsed many times, because in a glider every landing is an emergency landing – they are all engine 'out'. So you've got to make it count. You can't go around and do it again. In terms of developing pure stick and rudder skills, and getting out into the air and finding lift, and there are different forms of lift – glider flying, I believe, makes you keenly aware of what's going on around you."

Gerner calls himself an avid proponent of glider flight as an instructional tool for powered flight. It is a position, he noted, that has been held by, among others, legendary test pilot Chuck Yeager and astronaut "Buzz" Aldrin.

Gerner went on to say, "The four 'tier-one' military schools in the western world are the Air Force Test Pilot School (Edwards), the Naval Test Pilot School at "Pax" River, the Empire Test Pilot School in England, and Epner, the French Test Pilot School – all four schools use gliders in their curriculum because it's considered important to expose students to that unique portion of the envelope."

"I would require every student to come in and get a commercial glider licence. I'm just a big fan of that. I think it's very effective training. It's pure flying, flying in its purest sense – stick and rudder – you've got to move everything and you're more in tune with what's going on," said Gerner about a glider pilot's relationship to his flight environment.

Another glider pilot and safety expert at the meeting was Steve Wallace whose credentials in the aviation community include being a part of the team that officially reviewed the Columbia space shuttle disaster, and he pointed to the entire set of flight skills Sullenberger brought to the table to accomplish what he called a 'first in the age of jet flight'. "Nobody's ever ditched an airliner full of passengers in the jet era without loss of life. I personally am not surprised that he was able to set that airplane down in the river intact. I am surprised everybody got off it alive. In my view that is the more incredible aspect of this story."

"I would say (glider flight) is part of Sullenberger's background which is tremendous. He was a military pilot as well. And he was also well known in the aviation community for participating in various safety issues, the pilot's union, national investigations and other things ➡ p27

# A low cost total energy probe

## a do-it-yourself project

**Richard Johnson**  
from *SOARING*, 2005

**A**BOUT 65 YEARS ago a clever American glider pilot realized that soaring in sailplanes would be much more precise if his variometer would respond only to the vertical airmass motions and less to his elevator control dive and climb motions. As best I can determine, it was NACA physicist Arthur Kantrowitz who first proposed such vario compensation in 1940 (ref. A – on p28). He calculated what could be achieved if the variometer sensed not only altitude changes, but also changes in the sailplane's airspeed.

The basic operation of a variometer is to sense the amount of air entering or exiting an insulated flask as the sailplane changes altitude. In those days the static side of variometers was usually vented to either the cockpit or to the sailplane's airspeed static pressure system. Both worked fairly well as long as the sailplane's airspeed remained relatively constant. However, variometers thus configured gave unwanted and confusingly large (but true) up and down vario indications when the sailplane changed airspeeds, as in turbulence or a dive or climb. That made locating and centring thermals much more difficult.

To solve that problem he calculated that the static port of the variometer needed to be connected to the suction of an air-driven venturi mounted on the sailplane fuselage or tail fin. To fully compensate for airspeed changes, the suction from the venturi needed to be equal in magnitude to the airspeed pitot pressure, but opposite in sign. That worked well, and indeed the early total energy (TE) installations used an external venturi to compensate their varios.

These early venturis were a bit expensive to make, and they were subject to suction pressure errors caused by dirt, rain, and insect debris collecting in their throats. Later, Oran Nicks and Paul Fuhrmeister showed that the same desired suction pressures could be achieved simply by drilling a small vent hole on the aft side of a small cylindrical tube that protruded above the fuselage (ref. B). They were mounted about midway on the sailplane's tail boom, or mounted on the fuselage nose, ahead of the instrument panel. Those worked just as well as the earlier venturi designs, and almost anyone could make one inexpensively at home.

**Later refinements** The Nicks TE tube design required a 20-degree forward bend near the top of the

probe, which was needed to reduce its sensitivity to angle-of-attack errors. In an effort to further simplify both the TE tube design, and to provide easier and more practical sailplane installations, the author experimented with an unbent probe tube mounted vertically on the fuselage exterior surface above the aft portion of a PW-5 wing (ref. C). That is a convenient and out-of-the-way place to permanently mount a TE tube, and airflow angle of attack variations there are very small. This newer unbent probe design worked well, and the author's flight-testing indicated that its performance was just as satisfactory as a tail fin mounted, factory-built TE probe on a Ventus A sailplane vertical tail fin.

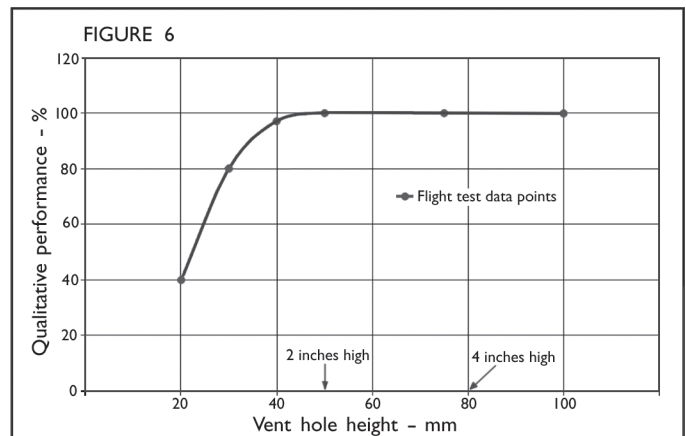
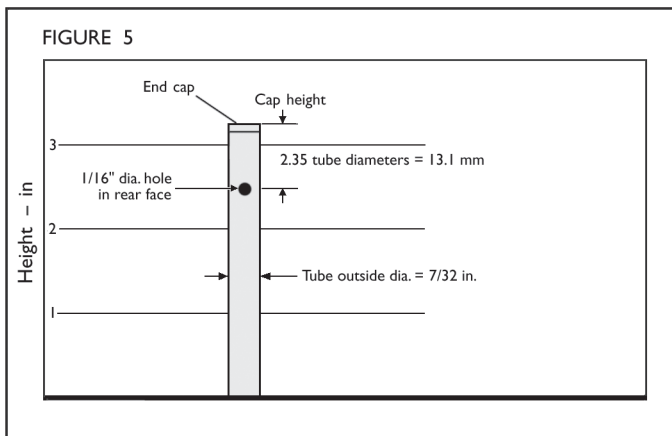
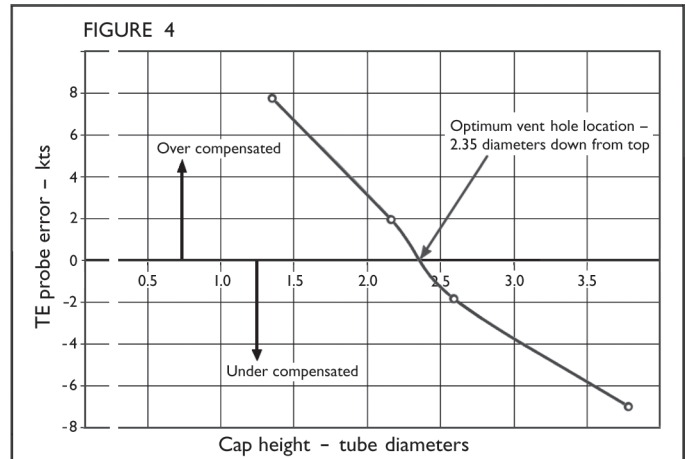
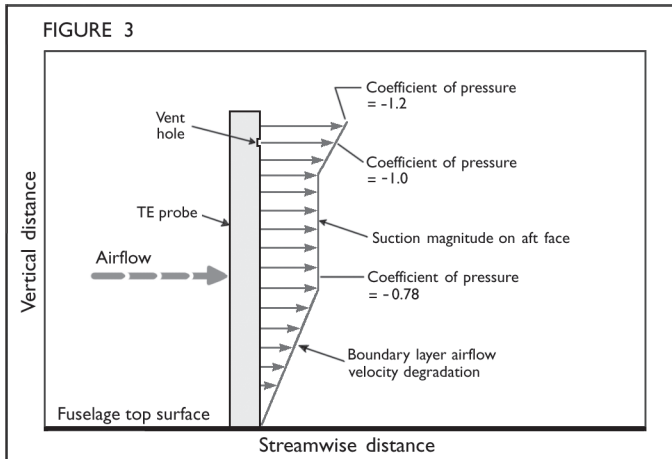
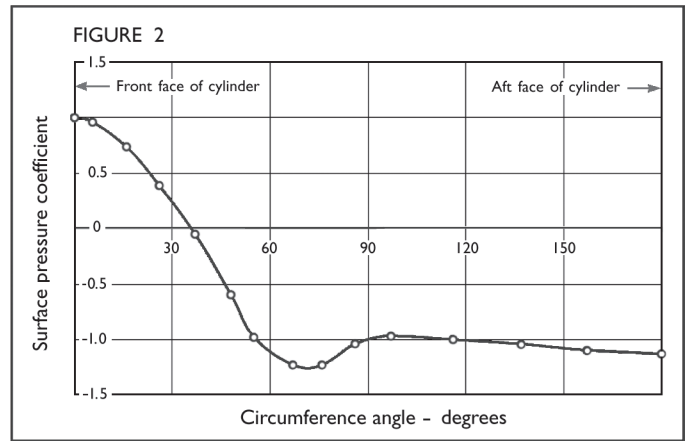
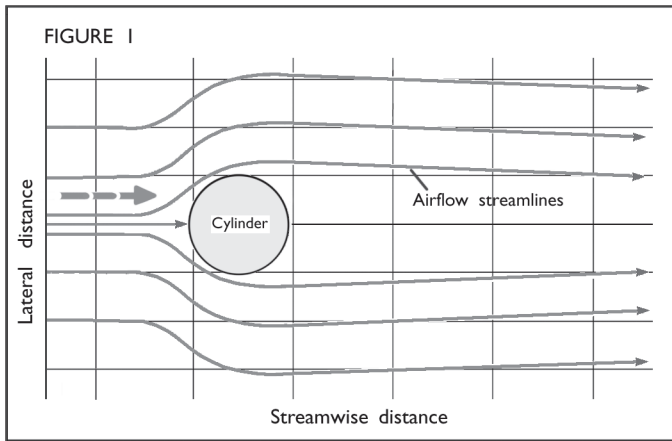
**How does it work?** Figure 1 shows how two-dimensional airflow streamlines pass around a long small diameter cylindrical tube mounted perpendicularly to the airstream. A small amount of air impacts the tube's forward centreline, but the rest flows around the sides of the tube. The air impact pressure at the tube's forward centreline is equal to an airspeed system's pitot pressure; therefore it is academically defined as having a pressure coefficient of +1.0.

Figure 2 shows how the air pressure varies around the circumference of the long cylinder. The pressure units are in coefficient form, which simply means they are proportional to the impact pressure at the tube's front centreline. Note that as the air flows around the tube, its surface pressures drop rather rapidly, becoming a suction of about -1.2 at the 90 degree radial points of the cylinder circumference, and diminishing to about -1.13 at its far aft surface.

Figure 3 is a side view of a straight finite length TE tube mounted on the topline of a sailplane fuselage. Also shown are the approximate aft edge surface suction pressure coefficients along its length. Note that because of the three dimensional effects of the finite tube length, the pressures are not quite the same as they were for the two-dimensional conditions described above. The biggest change is that the air now flows in a three-dimensional manner around the upper end of the tube. That causes considerably higher suction magnitudes there than those indicated for the two-dimensional case.

Since we want a suction pressure coefficient of -1.0 for our TE tube, we need to choose a vent hole location that will give us the desired -1.0 pressure coefficient. That is





done by locating the air pressure vent hole part way down from the upper end of the TE tube. How close to the end should the vent hole be? PW-5 flight test data for that are shown in Figure 4. There, the vent hole location was varied from 1.35 to 3.78 tube diameters from the top end of the tube. An interpolation of the test data indicates that the vent hole should be located about 2.35 tube diameters below the top of the tube. The suction pressure at that location appeared to be very close to the desired -1.0 pressure coefficient.

Figure 5 shows a rear view of the probe that the author has developed, mounted on the top of a Ventus A fuselage, just aft of its wing drag spar bulkhead. I used a 7/32" (5.56 mm) outside diameter, thin-walled brass tube, available at hobby stores for about \$1/ft. A short 3/16 inch diameter aluminum plug was bonded into the top end to seal out the unwanted tube end pressures. ➡ p28

Figure 1 Airflow streamlines around a vertical TE tube cylinder.

Figure 2 Pressure coefficients around circumference of long cylinder perpendicular to airflow at TE probe Reynolds numbers.

Figure 3 Approx. aft face suction magnitudes on round TE tube.

Figure 4 Effect of cap height on TE probe vent hole error at 60 kts. (PW-5 flight tests of Ref. 3)

Figure 5 Rear view of TE tube head.

Figure 6 Effect of vent hole height on TE probe performance (probe mounted on Ventus fuselage top centreline).

# Having a Lark

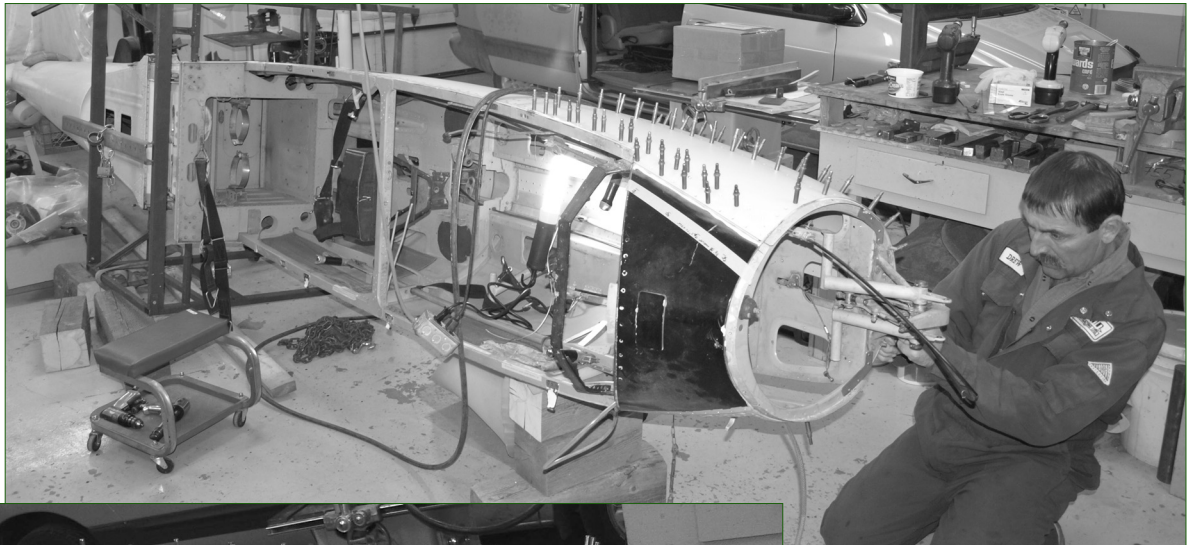
John Mulder, Central Alberta

Here's another installment of "A glider project for the CAGC." We have been involved in a 2-22 overhaul, a Bergfalke III overhaul, a Zephyr overhaul, rebuilds of a winch or two, a strip and paint of an L-19 and now – the Lark. This project has been many years on and off the back burner but it is on the front burner now and this time its conclusion actually looks imminent.

The project was found while one of our members was looking at another aircraft. He alerted the club and a road trip to Calgary was planned. On 9 April 2002, sev-

eral key members of our club looked at the salvage of the glider as it was on its way from Washington State to Global Aircraft in Edmonton. After some evaluation, head-scratching and tongue-wagging, it was decided to purchase the glider with the intent to repair the damage and get it flying again.

The glider was damaged in an accident 14 August 2001 at Wenatchee, WA. If you are interested, the NTSB report is SEA01LA150. My brief understanding was that a student was taking his FAA glider pilot check ride. The FAA inspector thought the student was too high on the approach and took control to perform a button-hook turn to land in the opposite direction. During the low and slow turn (sound familiar?) the glider stalled and ground looped, breaking one wing spar, significantly damaging the fuselage nose area and the vertical stabilizer spar.

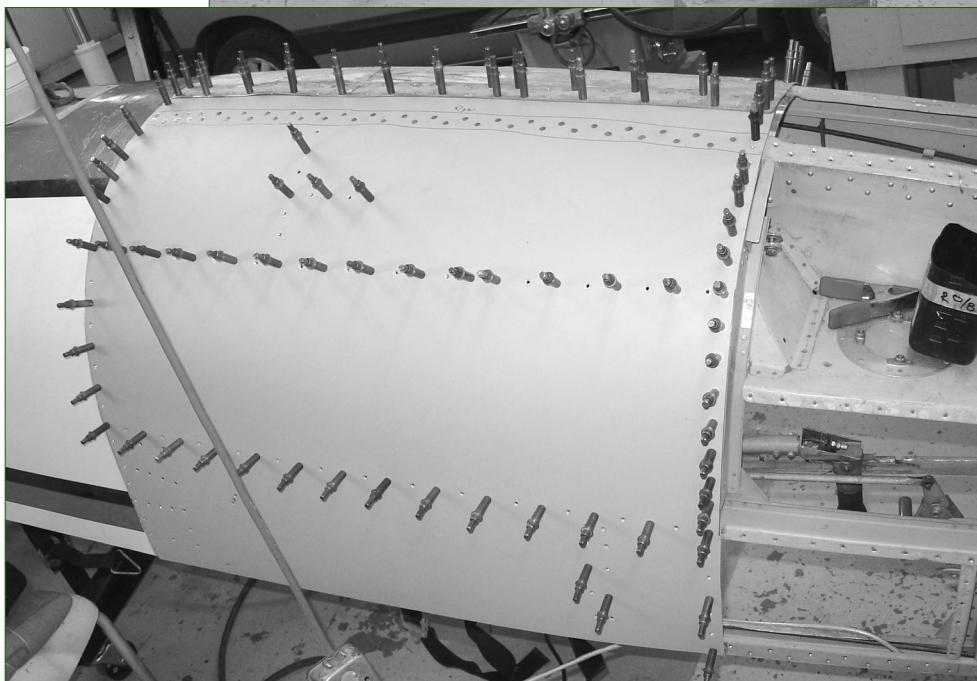


Above, CAGC president Drew Hammond closely inspects the progress on the structural repairs. It appears as if he may actually be doing some work also!

Left, it can probably fly with the Clecos holding the skin in place, but the performance degradation may not be acceptable –

– let's put in the rivets ...

Right, fuselage finally done, painted, and looking good.



We loaded the aircraft onto our Bergfalke trailer and moved it to Red Deer on 11 April. Some of the pieces that could not easily be trailered that afternoon went into the SAAB 340 I was flying and taxied across the Calgary airport for transport to Red Deer another day. The broken wing was moved to a hangar in Calgary where I was working. My wife Carol was working in an engineering role for a Canadian airline and had access to the drawings and info we needed to draft the repairs. She even convinced a co-worker in the structures department to make up some of the material needed for the repairs.

We started evaluating what parts are required and how much they would cost. Fortunately the aircraft came with all the maintenance, structural repair, and parts manuals. We started stripping off the damaged skins and began making the long list of required parts we would need from the manufacturer because they would be too complicated and thus costly to manufacture locally. Since several of the members were involved in aviation in one form or another, it seemed like it should be a simple process to order the parts and have them shipped to us in Canada. That was our first big stall in the project.

Some e-mail exchanges with the factory initially made the process appear straightforward. After many faxes and e-mails, money transfers, power of attorney documents, customs brokers, one Royal Dutch Airline, one trucking company and months and months of frustration, the needed parts arrived. The first message for a quote was sent on 21 April 2001 and the parts were finally delivered 23 March 2004. That will get your average volunteer workforce discouraged! Now that we have the parts – let's get back to work, but gliding season has arrived so everything goes back into storage with plans for the following winter. A few other family emergencies, a change of the club's priorities and the project sat dormant for a few more years.

At our club annual meeting in 2007 it was decided we either needed to get this aircraft flying or part it out, sell it, burn it – something – but this project needs to move along or move out. We explored having a commercial repair company complete the work with some grants and funding to cover the cost, but the costs were too high and the funding available not nearly adequate. Back to volunteers but, like every club, they can be difficult to

find and motivate year after year and we really needed a few dedicated individuals to take the initiative on the project. Two skilled participants volunteered to get this project going again. Both had almost finished their own aircraft projects and were willing to give the club a quote for the repairs. The idea was that they would spearhead the project while allowing other club members to participate, thereby reducing their labour and the cost to the club. This was an acceptable plan, and the other options were not very appealing since so much effort had already been invested.

December 2008, and once again under the guidance and efforts of Jerry Mulder and Don Bais, repair work began after modifications to the garage to make enough space to work on the fuselage. The sheet metal repairs were completed on the fuselage nose section and tail, some new instrument panels built, an oleo overhauled, flight controls stripped of fabric for recovering, painting, cleaning, greasing, and after several months the fuselage was airworthy once again.

We are now working on recovering the flight controls and the wing repair to the spar and a new skin to be applied. Then some more cleaning, painting and greasing and the aircraft will be ready for the importation paperwork, Canadian registration and a CofA. We hoped to fly the Lark this season, but we are too busy flying again to enjoy fixing, so it may be one more winter to get the job done right. Look for Part 2 this time next year with some pictures of its first take-off in Canada.

Everyone likes to hear about the costs of these projects, but we are always reluctant to analyze them closely or we may never try something like this again, and since this is the fifth major rebuild project for our club, I'm sure another one will come along again after this one is finished, but maybe a few years rest may be in order.

Salvage – \$5000  
Parts and shipping from Romania – \$3000  
Additional materials and labour – \$10,000  
Having a glider valued at \$30,000 when the project finishes, and all the hours of hangar flying and discussions – PRICELESS!

Almost forgot ... Cups of coffee ... too many to count. ❖





# Concentration and Relaxation

## *in the gliding environment*



**Bernard Eckey**

from  
*Advanced  
Soaring  
Made Easy*

**T**HE VERY SAFETY OF A FLIGHT largely depends on the ability of the pilot to concentrate until the aircraft is back on the ground or, better still, back in the hangar. On some flights, we can't relax for a single minute, while on others we can afford to sit back and admire the view. The need to concentrate fully also depends on whether we fly competitively or whether we fly locally or just for the fun of it. This statement doesn't imply disrespect for pilots conducting local soaring, but it requires nowhere near as much concentration as a cross-country flight.

The level of concentration necessary also depends very much on the various stages of the flight. Apart from take-off and landing, our utmost concentration is required while low and in need of a thermal. Maintaining such a high level is hardly possible over a long period. For this reason, it becomes important to regulate concentration and arousal levels especially during long distance flights.

Most of us have little trouble concentrating while the task on hand is progressing as expected. We run on 'cruise control' so to speak. Our mind is clear to focus on the broader issues and we feel relaxed in the knowledge that we have the situation nicely under control. Psychologists call this the 'Ideal Performance State' (IPS). In other words, as long as everything is running smoothly, humans are in a frame of mind which ensures that an appropriate level of concentration is maintained. This occurs without any great input on the part of the individual.

Things can change rapidly when we get distracted or stressed. External distractions (from other people, the environment, equipment problems, incomplete preparation, etc.) are just as detrimental as internal distractions from our own mind such as emotions, mental baggage and the like. As soon as our arousal level changes (or we get very nervous or feel particularly anxious) we move away from our IPS. Things get even worse when stress – our greatest enemy – takes over. Understanding what causes stress is vital when it comes to coping with it and successfully managing it. Stress occurs in two stages.

### **Stage 1 – Trigger**

The trigger to stress is our reaction to something happening in our environment. The examples in gliding are plentiful. If, for example, we experience very strong sink and get alarmingly close to an outlanding (perhaps even over difficult terrain), the next stage will be triggered automatically.

### **Stage 2 – Arousal**

Our body reacts instantly by releasing a complex combination of stress hormones. These ensure that all available blood is directed towards our muscles and our body gets ready for an inherent 'fight or flight' response. Little blood is left for the brain which means that our mental capacity and our concentration levels become mismatched to the task on hand. We become overloaded and as a result we usually experience a highly significant drop in performance.

Everyone has their own concentration styles or characteristic ways of focussing on the job at hand. For example, some pilots function well under pressure while others don't handle high situational demands very well and become easily confused or overloaded. Overload situations occur when too many things are going on at the same time and pilots are unsure what their priorities should be. For an inexperienced pilot, task prioritization can easily become too complex and it is common for old, bad habits to creep back in or for mistakes to occur. However, experienced pilots are less likely to suffer from overload situations. They can ignore irrelevant information and block out distractions while executing proven solutions learned during similar situations in the past.

Some exceptional pilots have acquired the ability to switch to a narrow type of concentration and focus on nothing but the answer to a specific predicament. Analytical thinking and the ability to come up with alternative solutions is a very important skill in gliding and comes in handy in situations where our attention needs to be directed towards critical operational demands. After a particular crisis has been satisfactorily resolved these pilots can switch back to a broader type of focus again. Needless to say, people possessing the technique to adapt their concentration levels as required greatly increase their chances of a superior performance.

#### **Adjusting concentration to specific in-flight situations**

Peak concentration at all times is neither possible nor required. After a good climb back to a comfortable altitude, or when conditions ahead give no reason for concern, we can and should relax a little. In situations like these we can reaffirm to ourselves that we have the situation nicely under control. After re-trimming the glider we can eat an apple, take a bite from a sandwich, have a drink, or simply find time for a position report.

The situation is fundamentally different when we are in any form of tricky in-flight situation. Because high levels of concentration are required in these circumstances, we must employ thought control techniques and arousal control skills as discussed below.

#### **Relaxation**

What can we do to avoid excessive tension build-up and how can we relax or remain relaxed during critical in-flight situations? One of the first things to happen to our body in a stressful situation is a tensioning of muscles in preparation for a 'fight or flight' response. At the same time there is a release of adrenalin and an increase in the rate of breathing to meet the extra demand for oxygen. Although these are automatic body responses we must direct our attention towards these functions. Two proven methods are described below.

#### **Controlling our breathing**

This is of great value in relaxation. People at ease with themselves and the world breathe slowly, deeply and rhythmically. Fortunately we can control our breathing and therefore we can, at least for a short time, override this normally automatic function and take conscious control of it by inhaling deeply and slowly through the nose. We concentrate on the movement of our chest and inhale very deeply indeed, unforced and unhurried. Whilst slowly breathing in, we count to four or five and when the inhalation is complete we pause for about two seconds. As we exhale very slowly through the nose we count to four or five again. Exhalation should take at least as long as inhalation.

Of course, we need to repeat the exercise a few times and when we feel the first positive results it is helpful to say to ourselves that our breathing has become calm, deep and regular. Intrusive thoughts might periodically come into our mind to interrupt the smooth flow of this technique. This is quite normal. We just refocus on our slow breathing (and counting) as we resume the exercise and carry on where we left off. After a short period of time we will find that we markedly unwind and significantly reduce our level of tension.

#### **Progressive muscle relaxation**

Again, the objective is to relax on cue, but this method is less suitable for use in an aircraft as it takes longer and could therefore become a safety issue. For this reason it should only be undertaken before a flight or in a two-seater. The technique requires a deliberate tensioning of muscle groups for as long as it takes to feel the tension generated. After about 6–8 seconds we clearly notice how that feels. Now we relax this particular muscle group while paying attention to the contrasting feeling. Repeating the exercise several times and doing the same thing to other parts of the body (especially tense shoulder or neck muscles) is bound to lead to mental relaxation which in turn allows us to regulate concentration and arousal levels.

As for any other skill, these techniques need to be practised and rehearsed. Without prior practising on the ground, pilots will find it hard to implement these suggestions properly when the going gets tough and might not get the desired results. However, I want to assure you that the results will be worth the effort for the patient and committed glider pilot.

Successful gliding is all about information gathering, drawing the correct conclusions and implementing appropriate decisions. A pilot who is able to concentrate in a focussed way while blocking out distractions is well prepared for success and safety. ❖

## Things the committee are working on this year

- Safety Management Program (SMP) integration of SAC policy documentation into single source document, which reflects organizational nature of association, has been completed and awaiting Board approval. Translation will follow.
- Training drafts have been produced in various stages. Currently developing training packages in on-line formats. (Human Factors for instructors, spin refresher training, instructor refresher training).
- Instructor on-line course (*ATutor*) is being developed as prerequisite completion requirement before registering for instructor courses.
- Preparatory ground briefings for instructor course to be put on video and examples of the (ten) instructor flight lessons also on video. Instructor course focus should shift slightly to developing instructor candidate's ability for analysis and development of student performance along with safety. Currently, most of the course effort is directed towards delivery of instructor pattern and the ability to fly demonstrations.
- Completing detailed accident reporting/analysis on some of our more serious accidents using Integrated Safety Management Investigation Methodology – ISIM.
- Simulator project is developing a trainer that can be used for instructor training/refresher training/advanced cross-country training/soaring promotion. The system will be transportable in a passenger vehicle and fielded in early March 2009.
- Club level SMP documentation is now single source document on the SAC documents page. FT&SC is working to request clubs to complete/submit annual safety reports and their safety program manuals. The key function is annual hazard identification–risk analysis–risk mitigation process at club level.
- FT&SC is preparing recurrent training scenarios based on past SAC safety reports and accident data. These scenarios will be combined with OSTIV data later next year to be field evaluated/validated for simulator use or flight training exercises.
- FT&SC safety/training seminars are being planned with the demonstration of flight training simulation. Focus will be on recurrent training assistance for experienced pilots.
- Evaluating France's training manuals as resource for francophone glider pilot training.

### A stranger in a strange land

– David Donaldson –

*Pull the release! PULL THE RELEASE!*, comes the urgent call over the radio.

I didn't respond – my right hand was busy flying the plane and my left hand was holding the release open after pulling it repeatedly (note to self, need to install a push-to-talk switch and boom mic). I was about 1200 feet, tethered to the ground by a winch cable that decided it wanted to come along for the ride.

Every safety seminar I have ever delivered always includes the Swiss cheese model to accident prevention, so what caused this hang up?... what was the chain of events?

Last year the season began normally enough and with great promise as always. At Great Lakes we had a new tow pilot who was planning to camp out for the summer to build hours and be available for towing seven days a week. Unfortunately a misjudged landing put our tow plane out of action for the season. The usual generous offers from other

clubs flowed in and we moved to Toronto Soaring for weekend operations and York for the weekdays. A grand thank you to the soaring community for all the offers.

So, we moved our two Krosnos (Krosni?) to TSC and continued the flying season. A week before the Provincials, both gliders suffered minor ground handling damage. The incidents were minor, both AC were flyable the following weekend, but how could both ships sustain damage on the same day? I've always prided myself in the club I have chosen for its safety record and, as Safety officer, I'm an integral part of that. So what gives? How could such silly mistakes be made and if the pyramid principle holds true, we are well on our way to something major. I called a mandatory briefing. Since we are occasional flyers, I delivered this briefing five times that weekend before getting to everyone, and my faith was restored by the response with all those involved.

Taking a look at the progress of the season and what had happened, I came to the conclusion that, while moving the airplanes to TSC and started flying, we had not really re-

set ourselves to operating out of a strange field. We had not set up our tiedowns properly, not really worked out where and how we would move our long-winged birds around, etc. In effect, we were strangers in a strange land, and acting like weekend guests, not residents.

All this was playing out as the Provincials started. My first briefing was on the practice day. Day 1 of the contest ended with no score, the fleet landing out, and two broken gliders. On the good side, one was repaired using a credit card though nothing was charged on it and most importantly, no one was injured. I volunteered to deliver the safety briefing the next morning. All of my briefings have a theme, this one was the same for the contest as it was for our club:

"We are operating in a new environment. Most of us do not regularly fly contests and even if this is your home field you are pushing the limits more than you would on a 'normal' day soaring. Everyone else has that *and* being at a foreign field."

The challenges the contest pilots faced paralleled the challenges GLGC faced operating out of that field for the summer. We all need to take a moment and add a little diligence. Again the briefing was well received.

So, how does all of this lead to a winch hang-up. Well, the weather gods did not smile on the contest, we scrubbed the Saturday and pulled out the winch. Being newly signed-off on the winch I was eager to get *Rosebud* up for a flight but the long line of visiting pilots precluded that. Part way through the day we lost a ring to a cable break and cut the ring off a nearby tow rope to get operations back under way. The day ended with a fried roller on the cable guide. A spare was located and after dinner the winch was again ready. I volunteered for a "test" flight. We planned for an early morning launch.

The next morning we set up for winching, I strapped into *Rosebud* and prepared for my first winch launch in my own glider. For Schweizers we use the large ring, for TOST, the small. I looked at the rings, "please check the ring, it doesn't look large enough", "It's okay". We hooked up and launched. The ring was *not* large enough and it wedged onto the swing arm of the Schweizer release. The tow rope that we had got the ring from was a GLGC tow rope, not a TSC rope – they were different rings. The TSC ropes use large and small rings that work for both the TOST and Schweizer style hooks, at GLGC we use a shortie for the lone Schweizer on the field.



... a few very long moments later, the winch cable did let go and we completed our flight without further incident. In all the collective years of winching experience, no one had seen a hang up.

So this chain of events started with the Pawnee incident and GLGC moving to TSC for the summer. That precipitated the towrope with the non-standard rings being on hand when we lost the rings due to a cable break. The moral of the story: when you are a stranger in a strange land, use extra diligence, take time, and double-check every detail. And when you are sitting in your cockpit, eager to fly, and you sense something is not right, *stop* and take proper time to check things out.

#### Dan Cook comments

The student manual, *SOAR*, has this to say about a cable not releasing:

*Though a cable hang-up should never occur and is in any case an extremely rare occurrence, you should know what to do. First, the winch has a guillotine to cut the cable for this type of event, so that when the winch operator suspects a problem with the glider's release, he or she will cut the cable at the winch end.*

*If the cable will not release, the glider pilot(s) will start a spiralling descent centred on the winch. They will do this at higher speed than normal, as the extra weight of the cable and the banking of the glider will increase its stall speed. When the winch driver cuts the cable, the glider would be flown downwind more, to leave adequate room to land into wind. It must be flown at sufficient speed to allow for the possibility of the cable catching on the ground (the weak link should break), and to allow for the extra weight and drag of the cable if the pilots have to land with the cable still attached.*

### Pre-flying your passenger

The Canadian Aviation Regulations (CARs) detail the requirement for a pre-flight briefing for passengers. However, our care and best wishes for our passengers should motivate us to go beyond the basics to ensure safety and pleasure during a glider flight. Given the capabilities of gliders and motor-glid-ers, flights are safer than other general aviation aircraft. Nonetheless, soaring/glid-ing flights can on rare occasions encounter problems and passengers must be briefed for this eventuality. This guide covers most of the potential aspects that might be met on a flight. Clubs could copy the indented text below, adding any club-specific conditions, to give to passengers to provide flight insights.

Soaring flights are thrilling for many reasons. The exceptional visibility out of the large canopy allows an unrestricted view of the scenery as we fly along in near silence. Even more, the feeling of freedom, soaring like a bird, and the ability to look down and see what things really look like from a hawk's perspective is enlightening and enthralling.

Because soaring is associated with atmospheric lift, pilots look for several sorts of indicators that provide this lift and there is often some associated turbulence. However, this is no issue for the glider because the flexible wings act as a shock absorber and while the bumps might feel unusual, take comfort that this is not dangerous but actually useful to your pilot.

Take your camera – a soaring flight is often a once-in-a-lifetime opportunity for a scenic perspective that is superior to flying in an airliner or driving by in a car.

It might be 20°C on take-off, but up high on a good day of soaring it might be freezing outside. Because of the large canopy, sitting in the glider is like being in a greenhouse on a cold day, so the temperature inside will still be comfortable. You will be advised if the flight requires extra clothing. Consider the sun exposure and apply sunscreen before the flight and wear a hat.

Prior to the flight the pilot, or perhaps other club members, should brief the passenger on the numerous safety aspects of the aircraft, location of safety/emergency gear, responses to emergency procedures, parachute use, and other specific aspects of the glider.

Take some water along if the flight is expected to be long. Brief the passenger to visit the lavatory just prior to the flight, and if the passenger suffers from some form of urinary dysfunction it should be discussed before flight and accounted for.

On entering the cockpit, a brief introduction to the controls and other items is prudent. Point out instruments such as the ASI and variometer to allow riders to appreciate the glider's performance and progress. In tandem seating, the passenger should be told what not to touch. If a headset is used, the volume control(s) should be identified and the functioning of the headset confirmed to let the individual feel confident they can communicate in this foreign environment (identify the radio transmit button as off-limits). You may consider indicating to the passenger to remain silent if you are about to make a trans-



mission or are listening to one. If the pilot is flying from a rear cockpit – a tap on the shoulder might be an appropriate alternate gesture not to talk.

All loose obstacles should be stowed and a camera held/stowed any time a photo isn't being taken so it doesn't loft about in any turbulence. While it is unlikely that a sick sack will be necessary, one should be readily available – for the benefit of all occupants. Talking with a nervous passenger calms them and usually precludes a later cockpit cleanup.

Four eyes are better than two and passengers should be briefed to point out aircraft or obstacles that could be a threat to our aircraft. We should never assume we see everything ourselves. If one anticipates flying in a thermal with other gliders or flying close to mountains in ridge lift, the passenger should be told so as not to create anxiety – a briefed passenger is a relaxed passenger.

For flights that are more than the usual trip in the vicinity of the airfield, a brief discussion regarding activities in the unlikely event of an emergency should be given. If a flight will require the use of oxygen, ensure the system is charged, flowing properly and the passenger briefed on the system use and symptoms of hypoxia.

Now, for the passenger who may have been made nervous with all this discussion, it's important to put a briefing into perspective. Unlike boaters or car drivers, we are mandated by regulation to give an informational briefing. Consider that you are much more likely to be injured in your car enroute to or from the airport than in a glider. As a final note to pilots, we must always remain vigilant regarding the safety of our passengers to ensure their comfort and pleasure for the soaring experience. Let's keep ourselves and our efforts well above those of boaters and drivers.

**Kenneth Armstrong**

## "Eerily quiet"

Cu Nim saw FLTY, its shiny new ASK-21 appear on the airfield on the last weekend of May, and members were told to stop drooling on the canopy. (This is the glider mentioned in *ff 1/09 p4* by Peter Musters as having hand-controls for handicapped pilot training.) Yesterday (5 June) the new bird took flight with Peter Neary at the controls. With five evening flights, he reported, "There was one diversion on flare to avoid a deer wanting to cross the runway, otherwise a good start to checking out our new glider. For those of you wondering, it handles very nicely. The inside is eerily quiet..."

That comment prompted Paul Chalifour to send this e-mail to all members:

"Quiet" is a characteristic of new glass ships that is a serious pitfall for pilots transitioning from our mostly noisy club ships. Speed changes will have little sound change – most of us depend on sound as a speed control cue more than we realize. This lack of audible warning when the K21 gets slow or when it picks up a few knots requires more frequent use of the ASI to briefly check airspeed. Places where this may catch one of us are when thermalling in gaggles, the K21 might be benign in its stall/spin but it would be easy to inadvertently mush through a thermal with gliders below. To thermal this ship effectively probably requires more speed than we are accustomed to in our Blaniks.

With "eerie quiet" it is easy to get slow on approach and set up a hard landing. This is a clean ship, it will pick up 10 knots with little warning; energy control on approach is important when transitioning to clean glass even when it has powerful spoilers. I once saw a pilot PIO his new glass ship to its destruction in three spectacular bounces. Too much speed, no audible warning.

Flying close to terrain – in the Rocks or along ridges (we do get there sometimes) – is also a good way to get caught if not used to a really quiet cockpit. Close to terrain also means another speed cue is unreliable ... the horizon is above, and as flat-landers we rely on the horizon for speed indication, so there is a subconscious tendency to raise the nose to what feels like "the right attitude". I know of two examples of recently transitioned pilots who ended up in trees in new quiet gliders while flying on ridges. The three crashes above all occurred in the same club over a 4-year period; that club is at least as safety conscious as we are and even before these crashes had a lot more experience training in glass two-seaters than we do.



Sandy Stevenson

In moments of high stress or distraction we revert to original habits and developing the habit of not using sound as a high/low speed cue requires vigilance while getting used to the new ship (and after). The K21 is not a difficult ship to fly safely and we can enjoy it for a long time. We will all have to include more frequent reference to the ASI for safe, accurate speed control.

## Something just broke!

I saw an article in a flying magazine once that considered scenarios in which a control surface on your aircraft had failed. So, "What flying techniques or combination of stick deflections would still allow for controlled flight?" You would be making use of the "secondary effects" of controls that you are normally barely aware of. As an exercise in pilotage, that might be worth an experiment or two – you could learn something about your sailplane you didn't know before.

- No elevator control (you do not move the position of the elevator). Assuming you have an aerodynamic trim, could you keep the airspeed within reasonable limits using just that? Could you even do it by moving your body (loosening your shoulder straps or pulling your legs backwards).
- No rudder control. With the rudder centred, could you maintain some directional control just with the ailerons?
- No aileron control (you keep the stick in the middle). Could you establish a controlled turn just using the rudder? Would a change of airspeed have any effect?

In all these scenarios, what is the reaction time involved to get the glider to do what you want?

**Tony Burton**

## Russian soaring in a shambles

In the former USSR, all air sports were organized through the organization called DOSAFF under the patronage of the military. After the demise of the USSR this organization got a change of name to ROSTO but retained the same staff and operation, and continued under military support and assistance.

But, ROSTO started to be more independent, seeking special regulations and benefits for its members. As a result, aviation in Russia is now divided into separate military and civilian administrative bodies. Each has its own aircraft register and regulations for pilot licences. Subsequently, ROSTO had to decide how it wanted to continue – under civil regulations or military. They decided to fly under civil rules because few pilots could meet the military licence standards.

But, all the ROSTO aircraft are on the military register and the military has forbidden ROSTO to use them.

As a result, ROSTO pilots have no aircraft to fly and no valid licence to fly other civil aircraft as the civil aviation authority will not accept their special (military?) licences.

The Russian delegates at the recent IGC meeting aired their grave concerns for the future of soaring in Russia. Soaring is now only possible by pilots with a valid military licence using military sailplanes. Pilots with a civil licence must fly the very, very few civilian registered sailplanes.

*... and you thought Transport Canada was bureaucratic ...*

*from Gliding International*

## The price of a gliding certificate

*In the last issue of free flight, I saw that the price for FAI Gliding Certificates was listed as \$10 each or 10 for \$39 to clubs. The price difference was remarkable so I asked Jim McCollum if the individual price was correct? He answered, and if you read further you will probably learn more about this than you really wanted to know ... Tony*

The prices are correct and this has been the situation for several years. I should remark that I've never had anyone order an individual certificate from the SAC office, rather individual certificates are ordered from Walter Weir as part of an initial badge claim.

Here is the story. If you go back several years, the certificates were only available from Walter and were associated with a badge claim. The \$10 price goes back many years. Several things disrupted this stable and happy state of affairs, including:

- SAC ran out of the old FAI certificates and had to get some new ones made,
- the price for reproducing the old type certificates defied understanding – the quote from the place where *free flight* is printed was \$24.50 plus taxes,
- A & B badges ceased being FAI badges and SAC introduced the Bronze badge.

In a fit of irresponsibility, complete disregard for protocol, tradition, bumpf, etc, I did the following:

- lowered the prices of the A, B and Bronze badges (those that could be awarded at the club level) from \$6 to \$3,
- scoured the countryside for better prices for the certificates, specifying a cover stock similar to that of the Canadian passport and,
- in a hopeless effort to prod clubs into encouraging people to get started on badge flying, reduced the club price to 10 for \$39. I also sent an example copy of the new certificate to clubs (more than once) along with an A, B and Bronze badge.
- Finally, I sold several hundred of the certificates to the Air Cadet League.

The idea was that if SAC made it very inexpensive and fairly easy to get started on the badge system, not only would it encourage cross-country flying, it would help clubs retain members. Very few clubs (2 or 3) have taken advantage of this. In short, the idea was a flop. On the other hand, as far as I am aware, no one but myself has advertised this.

*Consider it advertised again – get at it, clubs!*

## IGC Plenary meeting 2009

*Here are some excerpts from an extensive report that Ross Macintyre sent to me. Tony*

The IGC annual meeting seems to always be in a hurry, there is usually so much to be discussed that time just rushes by.

**FAI notes** The FAI has 100 members now. A new commission has been created on Navigation and Airspace. Gliding is well represented with Ian Strachan and Bernald Smith as IGC representatives on this commission. FAI has sanctioned the Red Bull Air races, although as an exceptional special case, as they do not use FAI rules. Doping tests are a fact of life with a new code from January this year. The FAI web site has the data. Gliding has been given an exemption for the use of oxygen which is normally banned but could be life threatening above 10,000 feet.

**OSTIV** Loek Boermans presented the OSTIV report which noted many awards made at the congress in Lüsse. It has been very active and discussion of training using simulators was one of their many subjects. The guest speaker, Ian Oldaker, chairman of the OSTIV Training and Safety Panel, gave an address on their current work. This twenty page report was most perceptive and informative with recommendations for immediate and long term safety initiatives. In one safety example, he noted that for one accident involving injury, there will be 10 minor accidents, 30 instances of equipment damage, but 600 incidents which could have been injury accidents. Consider the implications of this.

### Committees

Reports from standing committees and specialists were tabled and questions could be asked of the representatives of the group involved. Most of them made some comment on their activities. Bernald Smith, renowned for his use of acronyms in his report on Air Traffic, Navigation, Display systems, mentioned the widespread use of some 10,000 FLARM units, mostly in Europe, but he pointed out that for real safety, not only would all aircraft have to be fitted with a FLARM unit, but they are not getting official acceptance as they use non-aviation frequencies. ADS-B may be better in future as an officially sponsored system.

Bob Henderson looked at the Grand Prix Action Plan which was a headache. They now have to look again at the plan in the light of

the world economy. Sponsorship can be forgotten but we still have the advantage of being seen as a "green" sport so all is not lost.

Tor Johannessen, now leading the History committee, noted that he had been visiting the RAF museum to get a look at some archives, but later at a dinner met Wally Khan who has a huge pile of gliding magazines going back to the early post-war days. These will be of much use for research.

**Barron Hilton Soaring Cup** Barron Hilton has decided to make this year the last. A vote of thanks was to be sent from IGC to Barron Hilton for all he has done and donated to the gliding movement.

Tor Johannessen is our representative on CASI, the Commission covering all the Air Sport Commissions. A massive (1000 pages of proposals) work needed to comment and push a gliding view into the consultations for EASA regulation is now finished, the new regulations will be the next step. Roland Stuck has been the president of the European Gliding Union since it began; the meeting congratulated him on his retirement.

The Membership report from John Roake had comment on the greater accuracy now available, and it was noted its data is commonly used when negotiating with aviation authorities. In some of the international meetings attended by Bernald Smith he is the only person present representing the voice of general aviation and gliding, and he gets listened to more attentively when he notes that he represents 1,000,000 pilots!

**The On-Line Contest** Germany and USA were the leaders in last year's OLC, and Diplomas were presented where applicable. The organizers were looking for a winner's trophy small enough to be sent around the world when necessary.

**World competition** A majority decision was in favour of Uvalde, Texas for the flapped classes in 2012. Argentina was the only bid for the unflapped classes.

**Sporting Code** The Sporting Code committee presented their new edition of SC3 (Sporting Code, Section 3). Sweden proposed an amendment to retain start and finish lines, which had been deleted in the new edition to reduce complexity in the Code. The amendment was accepted so the complexity will return. The new edition was accepted with acclamation and thanks to the committee who had spent three years in producing it, with many consultations with delegates and a "beta" group of interested pilots



around the world. The amendments will now be re-incorporated in the new edition which will come into use on 1 October this year.

The Competition (Sporting Code, Annex A) committee had three proposals. The first, about handicaps, was withdrawn and handed over to a new Handicap committee. The second set out a selection process to be used in the case of class oversubscription (over 50 entrants). There was much discussion, with the claim that the ranking list works against non-Europeans. (Read Jörg's letter to the IGC on this subject in free flight 2008/3 p30 on this subject. Tony)

**Honours** New Zealand was honoured by the award of the *Pirat Gehriger Diploma* to Max Stevens, GNZ Administration Officer for services to international gliding, especially in the Grand Prix final. The prestigious *Lilienthal Medal*, IGC's top award, went to Roland Stuck (France) who recently retired as President of the European Gliding Union. He has been a very active member of the IGC bureau for many years. There is only one Award specifically for women, the *Pelagia Majewska Medal*. Doris Grove from USA was awarded this medal by acclamation.

### MayFly

Bill Cole, MX

Driving back from MayFly at the Pendleton airfield, I was a happy lad. I had just participated in my second soaring event away from my home field of Toronto Soaring. Like most contests it was a mixed bag. We did fly three out of the four days with the last day being stellar (over 6000 feet agl, 4-6 peaking 10 kt thermals). We don't get many days like this in Ontario. Finally – a flight that usually only occurred in my dreams. Needless to say I had a great time.

From the moment I arrived I felt at home. The first member I met was Ron Smith, who was working on his 1-26 trailer through a fog of black flies. I had planned on tenting but Ron suggested the cots in the back of the paint

shop and promptly handed me some keys. Meeting new people who soon felt like old friends repeated itself all weekend. The next morning after the pilot meeting Ron Walker and Ulli Werneburg helped me rig my classic Scheibe SF-27A. Ulli came and got me when I landed out and helped me get to the grid on time (many thanks). As it turned out I was the only non-GGC member at MayFly. I was ready to come last year but at the last minute the weather was looking like it might be better in southern Ontario so I bailed out. That was a mistake – I decided then I was coming this year regardless, even if the weather threatens and your crew and club-mates deserted you.

MayFly was conceived by a few GGC members as a result of the realization that "normal" competitions can be very disappointing and unmotivating for new cross-country pilots. It uses close-in turnpoints and tasks of modest size (45–110 km). With the double handicap of glider performance and pilot experience, anybody can take the day.

**Day 1** The club ships reported back good lift so we launched with a small task and high cirrus moving in. I was rushed getting ready and my yaw string was stuck under the canopy but after a couple of thermals, off to the first turnpoint – arriving low. I picked a field then just worked at centring a thermal. Touched the turnpoint then off to TP2 (Fournier). Things were going well but that sky was getting darker. Looking down in a decent thermal I saw Jean-Marc landing in a nice field so decided to edge back towards Pendleton. Hitting a good thermal within gliding distance to my new home, I climbed away. Things were still working so I headed for TP3 (Lemieux), hooked it and ran home and still had time. I worked towards Plantagenet and then finished back at Pendleton. The task completed, it was clubhouse time (movies, food, beverages and talk soaring).

**Day 2** The advancing cold front gave us rain. We used this time at the pilot meeting to talk weather, contest rules and flight safety. I

managed to get my canopy cleaned, added some air to my tire, and Karl helped getting tasks and turnpoints uploaded to my Volkslogger (I was using it as a black box on Day 1, relying on my PDA). Saturday night we had the MayFly BBQ with great food, great company, and a classic flying movie.

**Day 3** It's windy so they added a shortened task for the mid 30:1 sailplanes. We gridded in the grass threshold of runway 26. I was in the air before the pavement and got a decent thermal off tow. After deciding I could stay up and could make some headway upwind (25 kts at altitude), I headed for Plantagenet. The lift appeared to be working in streets. I hopped north a bit to TP1, then was considering just heading back home but after moving back to where the lift was, I figured I could do the small quad, and with the drift I was getting closer to Fournier anyway.

Having trouble connecting, I noticed how much wetter the fields looked today. I picked a couple fields and carried on but found nothing but zero. I tried the edge of the bog and some peat mining but couldn't find anything (the bog was supposed to be good), so returned to my field. Had a good look on up- and crosswind, kept my base close and landed in a nice grass field. The farmer drove out to see if I was okay, I showed him my glider and tried to explain how I ended up here. Shortly after, Ulli and Graham Brown came to help and in an hour we were back in the clubhouse toasting the day's events.

Nick Bonnière showed us that it could be done even with the wind. He flew the large triangle in his LAK-17 (I want one). Two other gliders landed out and soon we were recruited to help rig the SZD-50-3.

**Day 4** Here we go; the wind has dropped, and the forecast looks good. The task was set at 3.5 hours – we could have flown more. It's blue, but the thermals are strong and we were getting over 6000 asl before the start. I decided to do the small quad first then try something bigger. At the second turnpoint

Pilot	ID	Glider	DAY 1			DAY 3			DAY 4			Total	
			Dist.	Pts	Pos.	Dist.	Pts	Pos.	Dist.	Pts	Pos.	Pts	Rank
Bonnière, Nick	ST	LAK-17a	154.6	74	1	205.4	99	1	279.3	134	5	307	1
Cole, Bill	MX	SF-27A	58.2	63	3	19.7	19	5	175.5	190	2	272	2
Hildesheim, Roger	AT	SZD-55-1	103.0	53	4	107.9	56	2	256.7	133	6	242	3
Boutin, Karl	SI	ASW-20	84.5	67	2	29.6	21	4	202.7	153	4	241	4
Team M7	M7	ASW-24	0.0	0	6	54.7	45	3	241.7	190	2	235	5
Forbes, Tim	CB	LS-1	0.0	0	6	0.0	0	6	227.7	204	1	204	6
Snell, Robert	GY	PIK-20D	0.0	0	6	0.0	0	6	159.3	102	7	102	7
Gagnon, Jean-Marc	ER	L33 Solo	28.7	29	5	0.0	0	6	0.0	0	8	29	8

Scoring = 1 point/km with both sailplane and pilot experience handicaps applied.

and over 5000 feet, I figured I had enough to fly back to Pendleton without turning. I had to force myself not to turn until back close to the airport in an area that was working well before we started. Heading out on the medium triangle, I found a couple of good ones on the way to Maxville. Topped up there, and two thermals later and I was back at Pendleton. Down low and floating east of Pendleton I still had 30 minutes to go so I climbed back up and ripped around the small quad once more. And that was it for the contest.

MayFly was great fun. I learned a lot and made new friends. It was definitely worth the drive. Thanks to TSC's FMO (Flight Motivational Officer) for helping this final glide-floater and instructor to go for it.

Thanks to the organizers Roger Hildesheim and Ron Walker, registration Jesse Rougeau, CD and weather Ulli Werneburg, contest ground Christine Futter, grid Emma Walker, Ron & Ulli, scoring Sonia Hildesheim, BBQ potluck Alex Walker, and all the other GGC members that made for such a fun event.

### SAC Youth Bursary Program (20 bursaries) for 2009

The following applications have been received from SAC clubs

The SAC Youth Bursary Program is up and soaring as of 7 June 2009. Ten clubs (with 12 candidates) have all been approved for at least one bursary pending confirmation of the candidates membership at their respective club and SAC:

Alberni Valley/Vancouver Island Soaring Centre (Darren Long), VSA (Daniel Eyerund &

Raffles Koh), Silver Star (Kassia Vinci), Canadian Rockies (Justin Conroy), Edmonton (Selena Phillip Boyle), Saskatoon (Megan Schatkoske), Regina (David Morin), York (Christopher J. Kok), SOSA (Neil Wilson & Max Juergensen), and Champlain (Simon-Pierre Dupont). VSA and SOSA each have a third candidate holding on the tarmac should there be any openings left as of 1 August 2009 when a third round will commence.

As a reminder, the SAC Youth Bursary Program had two goals that SAC is promoting. The first is to help clubs attract more youth into the sport of soaring and the second is to enable clubs to raise awareness within their communities through any (free) news media articles about the club involvement and the good will it can generate.

A good example of getting the word out in the surrounding community using the (free) news media is my home club, Silver Star Soaring Association, which has seen its membership grow from 17 at the start of the season to 27 and counting.

Does your club want to grow and if so are you taking advantage of promoting the club via articles in the local newspapers? Examples of articles: Club involvement with the Fathers Day Air Show, 2008 Fund Raiser for the World Soaring Team, Freedom's Wings (disabled persons program), SAC Youth Bursary Program, etc.

The Board of Directors would like to thank the above clubs for getting involved with this program and wish each candidate success in our sport of soaring.

**David A Collard,**  
SAC Pacific Zone Dir. / SAC Tres.

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### Western Provincial competition, North Battleford, SK

Here are the basic results squeezed into *free flight* just before going to the printer. More information and stories will appear in the next issue. This "pre-Nationals" was a further test of the airport facilities, and was a great success with a large turnout and two of four days soarable. The first day had excellent conditions with a 7000 foot agl cloudbase, the second had a lot of heavy cirrus bands that hampered many pilots. At noon on the third day the great forecast rain began, depositing 54 mm on the area to the great relief of farmers that were about to write off their crops due to the serious spring drought. That evening's banquet saw the awards-giving and a notice that Day 4 would also be cancelled due to the forecast and muddy fields, so everyone got an early start home the next morning.

Congratulations to Club class winner Ryszard Gatkiewicz (Prince Albert), to Novice class winner Carol Mulder (Central Alberta), to principal organizer Phil Stade (Cu Nim) – and thanks to all the others who shared the work.

**Tony Burton**

Total		Day 1		Day 2	
Pts	Pilot	Pos	Pts	Pos	Pts
1 1720	Gatkiewicz, Ryszard	LS-8	3 917	2 803	
2 1669	Toles, John	L-33 Solo	2 998	5 671	
3 1649	Oke, Jim	ASW-20	5 849	3 800	
4 1511	Mulder, John	Genesis II	13 697	1 814	
5 1470	Stade, Phil	IS-32 Lark	7 803	6 667	
6 1404	Burton, Tony	Russia AC-4C	1 1000	7 404	
7 1378	Eichendorf, Roy	Open Cirrus	12 702	4 676	
8 1176	Blood, Guy	H-201 Libelle	6 844	9 332	
9 1054	Mulder, Carol	Std. Jantar	10 725	10 329	
10 1044	Gruber, John/Hoar, Al	Std. Cirrus	14 695	8 349	
11 912	Cwikla, Frank	ASW-15	4 854	14 58	
12 901	Dowdeswell/Westphal	DG-400	11 706	12 195	
13 891	Wyatt, Henry	Ka-6E	16 684	11 207	
14 798	Blackburn, Mel	Discus 2B	8 798	15 0	
15 788	Kaastra, Ibeling	SZD-55-I	9 788	15 0	
16 760	Cattaruzza, Ron	SZD-59 Acro	17 668	13 92	
17 687	Hees, Hank	Apis MCs	15 687	15 0	
18 665	Deschamps/Radder	Dart	18 665	15 0	
19 662	Stoesser, Mike	Apis M-15	19 662	15 0	

there is big lift, but one quickly gets through that at the calculated circuit speed. So there should not be a need for glide path control along the base leg. I have to admit, sometimes one has to – then see above.

The last turn to final should be decisive, well banked, clean. Don't add dive brakes here, that just adds complications to the flight position already the most critical in landing. If the pilot is in a turn, the glider's sinking speed is already increased, so how does he see the additional sink from the dive brakes if they are used? I have read that the glider will not stall in a very steep turn, and I repeated it. Wow, our local aeronautical experts took strips of hide from my back! "Any plane will stall at any attitude and at any speed – you know about high-speed stalls!" I've heard that theory too. Perhaps I should have said that the glider is less likely to stall in a steep turn because to get into a steep turn one needs speed. Then the experts will show you the chart of how much the stall speed increases with respect to the bank angle. My response to this is, "would you rather see your student make a slow, shallow turn to final, or a steep and fast turn?" The Law of Primacy must also be considered when teaching the circuit. The steep turn is more likely to result in a slip into the turn that results in increasing speed. We all know what happens in a shallow, skidding turn – which would you prefer to see as a mistake on final? Nothing is ever perfect, so think about which imperfection is preferable.

Dan Cook mentioned the dive brake effectiveness on the L-33. I can see a direct correlation of the dive brake effectiveness with the thinness of its wing, and its 40 knot stalling speed, a speed most other gliders happily soar at. I often wondered when the higher stalling speed would bite someone.

The SAC Insurance report is another welcome article. I believe this information should have a permanent location on the SAC web page. Some time ago I had to search to find out the amount of coverage for club two-seaters, and I believe this should also be an up-front information. Now I know, it is a minimum of \$2,000,000, but I still don't know what the maximum amount of coverage available is. If two people became quadriplegics due to a very unfortunate accident, the courts could award more than the \$2M, and officers of the club could expect to lose everything they own to make up the difference. Don't think it is not possible. So, before you decide on the insurance coverage needed, think about the possible consequences. ♦

The persons in the following examples are entirely fictional, and if you see any resemblance to yourself or any other person, then you are letting your imagination run too far. Instead, channel your imagination into applying the planning principles to yourself.

**Example #1** Harry joined the gliding club two years ago, and three months ago, he achieved the status of a "solo" pilot. He has been converted to fly the club single seater, and goes to the gliding field at least twice a month. Harry enjoys the challenge of taking off behind the tug, and has been doing very good circuits and smooth two point landings. The instructors have been quite complimentary about that. He has been taking high tows to prolong his flights. He has averaged over thirty minutes a flight, but notices that others seem to be able to get much longer flights, even though they only take standard tows to 2000 feet. His friend Bill stayed up for over two hours last weekend, and raved about flying out over the forest west of the airfield to the lakes and cleared land beyond the forest edge. Harry realizes that his main problem is that he seems to be unlucky in finding thermals, and loses the thermals when he tries to centre them. Harry prepares a plan:

Harry's objective: To have the skills to stay up for a long time in thermals. Harry quantifies the objective by saying he wants to stay up for five hours. He realizes that this is unrealistic in the short term, so he sets some intermediate objectives of one hour, two hours, and three hour flights.

What skills does Harry need to get? Harry has identified that the skills he needs are how to find thermals and how to centre them.

Thinking back through his gliding experience, Harry has only had one flight over two hours, and that was as a passenger in the club Duo-Discus at the club camp last summer. Looking through his log book, he notes that there were ten flights near one hour duration in his pre-solo training, all of them with either George or Rick. He resolves to talk to George and Rick about thermalling and how to stay up longer. Next weekend, Rick is the duty instructor. He advises Harry to do some more dual flying, with either himself or especially with George, the club coach. Later that day, Rick takes Harry up for a flight and talks him through finding several thermals and centring them. They stay up for an hour and a half. Early in the flight, there are cu marking the thermals. Later they disappear, and Harry is surprised that there are still

thermals. He wonders why, and resolves to have one flight with either George or Rick at least once a month, and to practise thermalling solo in the single seater in between. Rick directs Harry to several good books about gliding that explain where to find thermals and how to centre them.

**Example #2** Mary joined the club four years ago in order to be with her boyfriend, John, who was hooked on the sport. Mary has a very competitive nature, and was determined to catch up to John in gliding skills, and now she is hooked too. They bought a second hand Discus, and both are cleared to fly it cross-country. However, Mary finds that many of her flights end up with an outlanding, and far too often John has to come and retrieve her. She has made several attempts to complete a 300 triangle, but her longest flight is just 185 kilometres.

On the field Mary discusses her outlanding problems with the club coach, George. He asks how long since she had a dual flight with a coach. She says she usually goes dual with John. George suggests he takes a dual flight in the Duo-Discus with her. During the flight, they talk about cloud reading, thermal sources and streeting. George notes that Mary is only using about 30° of bank when thermalling and that her thermalling speed is usually about 55 knots, varying between 50 and 65. He demonstrates a 45° bank and flying slower at a more consistent attitude so that the circles are small and the glider can stay in the core, and so that you can get more feel of what the air is doing. He also gets Mary to notice the feel of the thermal rather than relying on the vario. After the flight George tells Mary that she should prepare a plan aimed at improving her thermalling skills and at getting as much cross-country practice in during the season as she can.

**Example #3** Ron has his own glider, a competitive ASW-28 that he bought three years ago. He has been competing in state and national championships for the last eight years. So far, his best individual day result has been sixth, and his best overall result was eighteenth at last year's Club class Nationals. He is very keen to be selected to the international team. Ron attends his club at least twice a month, and practises in his own glider, staying up typically for three or four hours. He realizes that just puttering around the home field or even going cross-country is not enough. He needs to be flying competitively against other pilots trying to go fast.

Ron seeks help from the club coach, who refers him on to the State Coach. Between them they devise the following plan:



- Attend a cross-country course.
- Take part in as many competition events as possible. This includes going to Queens-land for the competitions in October, when it's still not soarable in Victoria.
- Find a compatible gliding partner at the club, and go off together on cross-country flying instead of just puttering around the airfield. Set achievable but demanding tasks each flying day.
- Download and analyze the trace from each flight and determine where time was lost. Try to maximize the average thermal strength for each flight. Compare your trace with your partner's.
- Have fun.

All three plans have one thing in common. It doesn't matter what achievement level you have reached, you will always improve with better thermalling!

Remember: *A failure to plan is a plan to fail*, so start planning! ❖

### That's an unsettling thought!

*The glider that is the hardest to see is the one that is on a collision course with you.*

So, keep looking out; if you are in a great thermal, always assume someone is about to join you.

## Hudson River

from page 13

like that. He is the type of person, who in his head, would be inclined to constantly think in terms of what would I do if this happens and turn over those what-if scenarios. That scenario was beyond anything tried in a simulator. That was him – what's my best option? I'm going to put the plane down there."

Skyline Soaring club member and Sullenberger's fellow US Airways commercial pilot Curtis Wheeler told us, "Because of the increasing automation that you find on airliners, there's fewer and fewer opportunities for manually flying the airplane – stick and rudder time – because a lot of our philosophies and procedures and practices now are based on using automation. There's a lot of benefit to that, but also it causes a loss of skill in just hand-flying the airplane. So in an operation like our club, we have the opportunity to fly airplanes that don't have any automation at all, and that gives us a better understanding of just the process of doing that."

"In the landing in the Hudson right down the middle of a big city, that's a place where an airliner never goes. I don't know how current Captain Sullenberger was in flying gliders, but he had enough exposure to that circumstance and environment, and he had familiarity with what to expect."

As for commercial pilot training for flight emergencies, Wheeler added, "We have a lot of mandatory training events that we have to cover in our simulators. But we can't cover every possible contingency in a simulator because we have a finite amount of time in there. US Airways has already acknowledged

that a simulated ditching isn't done. We study it. We read about it. We mentally prepare for it. But it's considered a remote possibility and the training emphasizes the more likely things that could happen, like engine failures – not that they're that likely, but they are much more so than ditching," said Wheeler explaining industry-wide training priorities.

"There's not a good understanding in the USA today about what general aviation is doing for people, and we'd like to try and promote that," Wheeler said of his gliding club and its host facility. "We need a lot of help keeping an airport like Front Royal open and operational because it brings economic value to the community. In our soaring club here, we come out to Front Royal, and we patronize local businesses. It gives the community access to medivac flights. All kinds of utility comes from having a general aviation airport – not to mention the stick and rudder skills that can be honed in a relaxed and recreational environment for both amateur and professional pilots – and that was a big pay-off that day in New York City."

Returning to guest speaker Gerner, he ended his address with the following comment, "Of particular interest in the current economic climate, other than improving basic flying skills, I must highlight a side benefit of glider flights to jet pilot training – cost. That calculates out at \$60 to \$70, including towplane expenses per glider flight, to what I estimate is now between \$5000 to somewhere under \$10,000 per hour of powered jet flight, even for the low-cost T-38 trainer. "And when you get into an F-15 or F-16, the number gets even bigger. Jet training is a huge cost. Compare that to the glider." ❖

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**How tall must the probe be?**

The shorter the probe, the less drag it will create, and the less likely it will be to get accidentally damaged. For those reasons the final portion of my Ventus flight-testing involved varying the height of the probe and comparing its performance qualitatively to that of my standard tail fin mounted Braunschweig TE probe that was connected to a second variometer. Varying the new probe height between flights was easily accomplished by sliding the probe tube up or down as needed in the 7/32 inch diameter mounting hole that I had drilled at the fuselage top centreline.

I made moderate dives and climbs between about 40 and 80 knots to compare the two variometer response in relatively smooth winter air. I started with the probe vent hole located 100 mm (about 4") above the fuselage top, and found the variometer correlations to be excellent. I shortened the height to 75 mm for another flight, then to 50 mm (2").

However, when the vent hole is located too close to the fuselage surface, the boundary layer slows the air velocity too much to achieve the reliable suction needed for the correct variometer compensation. As expected, the compensation began to degrade quickly below 40 mm (1.6"). Figure 6 shows my qualitative TE performance evaluation versus probe vent hole height that was described above. I have now fixed the vent hole height on my Ventus at 52 mm (2.05"), and it continues to perform well at that height. Now I do not have to remove my TE probe while trailering, and it is permanently mounted in an out-of-the-way location, behind the aft end of my canopy cover. Similar probes were recently installed on two of our club's Puchacz trainers, and those probes appear to perform the TE function well.

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Straight TE tube permanently mounted on the Ventus fuselage top near wing drag spar bulkhead. It stands about 3 inches high, and performs well at that reduced height.

Photo: Richard Johnson

since its 2006 annual. Naturally this caused additional concerns as I couldn't help but wonder how all these deficiencies could have materialized within a year if the glider hadn't flown. My natural assumption was that there hadn't been a 2006 inspection either.

It turned out that the glider had been imported from the USA and photos that came with the paperwork clearly showed that even after supposedly being re-registered and certified in Canada by the same AME, the spoiler handle was not in the upright position at that time either. For four years this glider flew in this condition (at least in Canada, anyway). So much for this AME's thoroughness and expertise despite having all the service bulletins, parts manual and pilot's operating manual at his disposal.

Right after confirming that I had likely been sold a glider with falsified paperwork, I contacted Transport Canada Enforcement. They agreed I probably had a valid complaint but encouraged me to first try to resolve the concerns privately. In response to my letter to the AME outlining my position I received a "you bought it as-is". I then contacted TC once more and filed a formal complaint. The bottom line: Transport Canada Enforcement did a year-long investigation and my claim was validated. Within the 211 page report, the AME is on record admitting he did not perform a 2007 inspection despite his signature indicating otherwise. They assessed him a fine in association with a charge under CAR 571.10. At the time of this writing, I also have a complaint into the RCMP Commercial Crime unit in Regina to perhaps recover costs, but am not holding my breath.

ZMI is fine now! I spent the winter completely refurbishing the cockpit, the hull has fresh paint and the wings are about to receive the same. Most of the bearings within the ship have been replaced and the controls are once again tight and precise. She flies beautifully, straight and true, and is a pleasure to fly. I am now confident that having been inspected and certified by honest professionals, I will have many years of enjoyable and safe soaring. She is a good example of the Pilatus B4 and I'm proud to be her owner.

What have I learned throughout all this?

- Signatures in Technical and Journey logs don't mean a thing if the AME who signed them is less than professional, reputable and honest. I hope my situation is rare, otherwise we are in harm's way every time we fly.
- The AME who signed the 2007 annual was not the person who represented the glider at the time of sale, it was his son, also an AME. One can only ask how far from the tree the seed fell. Both are still in the AME business – it makes you wonder.

For those looking at a used aircraft, I have some advice. If the aircraft you are interested in is truly the one you believe you want and it looks like it might be a good purchase, get an independent inspection by a known, reputable AME (especially if it is imported). It will be money well spent. Don't rely on the word of the owner or an AME who is selling it – and don't trust what is written in the logs. Try to get several references on the AME who has been responsible for the aircraft, and try to find out if the relationship between the owner and AME is strictly arm's length.

Anyone wanting more information on any of all this can contact me privately <bnb\_efs@telus.net> and I'll be happy to supply specific details.

*Wednesday* – sat in on an advanced wave lecture and got some insight into what had caused my landout. Soaring conditions didn't look good at noon. I was offered a trip into the mountains with Gavin Wills but it never happened, as conditions didn't improve enough. As we finished off the dinner wine, Dagmar herded everyone out to watch the sun setting behind the developing long white cloud.

*Thursday* – gloomy, some showers. Spent the day in class with "G" Dale as instructor again, more info on the weather systems of an island. We think an east wind off Lake Ontario is a problem! It reminded me of being at a CAS clinic at home. The day was finished with big BBQ at the Kahu and "G" entertaining us on the piano.

*Friday* – called off flying as predicted in yesterday's briefing, so we went to Queenstown, adrenalin capital of NZ, the home of bungee jumping, various jet boat rides, para-sailing and a host of tamer activities, even hiking here can be considered an extreme sport. Checked out the para-sailing – they wanted \$199 for a ten-minute flight. Intros at SOSA look underpriced on this scale!

*Saturday* – I flew with Bo again, there was a possibility of wave working, with my lack of experience with wave I opted for some further instruction. As the day developed, there was wave around but the east wind brought in moist air deep inland creating an impenetrable layer of cloud and eventually rain. Well, I've flown in rain before but never climbed a glider significantly in steady rain. Another day that didn't go as planned, but a look at more new territory and new experiences.

*Sunday* – the weather report for the day is cautiously optimistic, I grid last to give everyone else an opportunity to find a thermal to mark for me. Many high tows are taken and reports of struggles to climb on the radio. Maybe it's not as good as reported? Many of the early launches climb enough to move onto the higher ground, better generating ridges, and away from the lift killing east wind in the basin.

I struggle to get altitude on Mount Horrible, things improve slowly over the Ewe Range (moving west). Over the Lindis Range things are definitely getting better. I make my way over to a peak on the opposite side of the Ahuriri River valley from Magic Mountain where a hang-gliding group is trying to have a competition. As I lazily climb above 7000 feet, I watch as the frustrated hang glider pilots launch into the lower air deadened by the easterly sea breezes and descend to the valley floor. Conditions up the ridge look good so I cautiously continue on. Listening to the radio, not everyone is having fun as calls for aero-tow retrieves are relayed to base. Conditions ahead look too good to pass up, so I press on at my fastest pace so far. With strong lift coming off the ridgetops I easily climb to 9700 feet – Cool! – I've never been this high in a glider before.

Over Mt. Huxley I'm recalling retrieve calls and my own need of a ground retrieve a few days ago and so I start to make my way back to the gliderport. Crossing the ridge lines to Lake Ohau, I backtrack onto the Maitland Ridge for an unneeded climb just because there was lift there and I didn't have a deadline other than sunset. With an excess of altitude I cruised across the basin, down the Benmore Range to the airfield (*top photo p11*), still way above circuit height. I headed out across the basin, one last time to burn off altitude and as it turned out this was to be my last flight at Omarama, as the weather in the time remaining was better suited to hiking near Mt. Cook rather than gliding over it, which is exactly what we did.

## FAI badges

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(905) 263-4374, <waltweir@ca.inter.net>

The following Badges and Badge legs were recorded in the Canadian Soaring Register during the period 9 Dec 2008 to 26 Jun 2009.

### GOLD BADGE

325	John Mulder	Central Alberta
326	Carol Mulder	Central Alberta

### SILVER BADGE

1033	Jean Egan	York
1034	Dale Armstrong	Edmonton
1035	Jeff Runciman	Central Alberta

### DIAMOND DISTANCE (500 km flight)

John Mulder	Cent. Alberta	534.5	Genesis 2	Innisfail, AB
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### DIAMOND GOAL/GOLD DISTANCE (300 km flight)

Jeff Runciman	Cent. Alberta	326.2	Genesis 2	Innisfail, AB
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### GOLD DISTANCE (300 km flight)

John Mulder	Cent. Alberta	321.0	Genesis 2	Innisfail, AB
Carol Mulder	Cent. Alberta	334.5	Std Jantar	Innisfail, AB
Tim Radder	Cent. Alberta	321.0	Dart	Innisfail, AB

### GOLD ALTITUDE (3000 m gain)

Leo Deschamps	Cent. Alberta	3140	Dart	Cowley, AB
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### SILVER DISTANCE (50 km flight)

Jean Egan	York	61.0	Grob 103	Arthur E, ON
Douglas Ward	London	59.4	Astir CS	Embro, ON
Dale Armstrong	Edmonton	87.4	ASW-15	Chipman, AB

### SILVER DURATION (5 hour flight)

Dale Armstrong	Edmonton	5:29	PW-5	Chipman, AB
Jeff Runciman	Cent. Alberta	5:33	Genesis 2	Innisfail, AB

### SILVER ALTITUDE (1000 m gain)

Dale Armstrong	Edmonton	1860	ASW-15	Chipman, AB
Michel Desbiens	Quebec	1380	L-13	St. Raymond, QC

### C BADGE (1 hour flight)

2901	Guy Lapierre	Quebec	1:18	Ka-6CR	St. Raymond, QC
2902	Douglas Ward	London	see Silver dist.		Embro, ON
2903	Dale Armstrong	Edmonton	see Silver dist.		Chipman, AB
2904	Simon Paquet	Quebec	1:27	L-13	S. Raymond, QC

## magazines

**SOARING AUSTRALIA** — monthly joint journal of the Gliding Federation of Australia and the Hang Gliding Federation of Australia. <[www.soaring.com.au](http://www.soaring.com.au)>.

**SOARING** — the monthly journal of the Soaring Society of America. Subscriptions, US\$46. Credit cards accepted. Box 2100, Hobbs, NM 88241-2100. <[feedback@ssa.org](mailto:feedback@ssa.org)>. (505) 392-1177.

**SOARING NZ** — Editor, Jill McCaw. NZ\$122. Personal cheques or credit cards accepted. McCaw Media Ltd., 430 Halswell Rd, Christchurch, NZ. <[j.mccaw@xtra.co.nz](mailto:j.mccaw@xtra.co.nz)>.

**SAILPLANE & GLIDING** — the bimonthly journal of the BGA. £39/yr airmail, £22.75 surface. <[www.gliding.co.uk/sailplaneandgliding/subscriptions.htm](http://www.gliding.co.uk/sailplaneandgliding/subscriptions.htm)>.

The long white cloud has eluded me. Trevor Florence is one of the instructors in Omarama, effectively avoiding Canadian winters. He invited me to visit our Invermere site for some more mountain flying in the future and maybe the pursuit of the long white cloud will continue there – but then Lake Placid is even closer and another home of the wave.

So many places to fly, so little time.





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**Invermere Soaring Centre** Mountain soaring, camping, glider rentals. Mountain flying instruction in Lark or Duo Discus. Trevor Florence, Box 2862, Invermere BC, V0A 1K0, cell (250) 342-1688, ph/fx (250) 342-7228. Web site: <[www.soartherockies.com](http://www.soartherockies.com)> e-mail: <[info@soartherockies.com](mailto:info@soartherockies.com)>.

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