

free flight • vol libre

6/01
Dec/Jan



PRIORITIES

Richard Longhurst

FALL TURNS TO WINTER, the clocks get turned back, the days get shorter, and we, like most clubs, look to packing the aircraft away in safe storage until next season. While my diligent club members were busy-ing themselves with the latest maintenance project, I sneaked off for a week of golf at Myrtle Beach. I was astonished by the lack of activity at the restaurants and airport. It is clearly apparent that our neighbours to the south have substantially limited travel arrangements since 11 September. I was fortunate to return on 11 November, as the following day there was another air disaster in New York, and the lineups at US airports for the security checks were lengthened as a result.

While this is the time of year to think of planning trips to the Ridge or Florida, Dale Kramer, our 2001 Standard Class champion, is in South Africa preparing to compete in the World Championships. We send him our wishes for a safe and successful contest.

As the year-end approaches the SAC office is extremely busy sending out membership receipts, preparing for the AGM to be hosted by GGC in the Ottawa area, and getting the accounts prepared for the auditor. The Fall Board meeting was held over the weekend of 30 September. David McAsey announced he would not be standing for re-election. The Board would like to thank him for his contribution over the past four years, and we are looking for nominations to fill the position of Alberta Zone director. As well as a number of housekeeping matters, the Board is actively considering strategies to further our relations with the Air Cadet League and ways to offer further flying scholarships by raising sponsorships.

At meeting time, the "hot potato" was the publication in the Gazette of a proposal to amend section 602.12 of CARs with a view to regulation of off-airport landings and low flying outside what are presently defined as populated areas. A number of our members had expressed concern (along with COPA and others) that the proposal had the potential to be used in a way which might limit certain club operations. The Board submitted a response to the proposal, as did some 200 other individuals and organizations. The latest word is that implementation of the proposal has been delayed to allow for further study and presumably it will be amended.

This is also the time of year that Grant Robinson, our insurance broker at Jones Brown, sends out quotation packages to prospective insurance companies. Claims for the 2001 season were thankfully down compared to earlier years, and I am hopeful that several quotes will be obtained. The cost of insurance for the coming year will to some extent be affected by the market for aviation insurance generally, which of course had a disastrous year. Several questions I am frequently posed relate to deferred premium payments and deductibles. I had asked for deferral of premium payments when the insurance year-end was moved to December, but this was not granted. I will try again for the next renewal. Deductibles are considered each year when the overall policy pricing is considered. Another factor which is used to evaluate deductible levels is the volume of minor claims being processed.

In a follow-up from the last issue, I'm pleased to report that Pierre Pepin successfully underwent surgery and is now recovering comfortably at home.



Le conseil d'administration se penche sur la proposition de Transport Canada d'amender la section 602.12 des CAR. Ceci aurait pour effet de restreindre les atterrissages hors aérodromes. Compte tenu de l'impact potentiel sur nos opérations, le conseil d'administration a exprimé officiellement sa position aux autorités.

C'est à cette époque de l'année que nous recevons les quotations pour les primes d'assurances pour la prochaine année. Les événements du 11 septembre ont eu des impacts majeurs sur cette industrie. Heureusement, notre performance quant aux réclamations s'est améliorée en comparaison des années précédentes. Nous allons revenir à la charge et demander la possibilité de pouvoir étaler le paiement des primes ainsi de modifier les déductibles.

free flight • vol libre

6/01 – Dec/Jan

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

ISSN 0827 – 2557

- | | | |
|-----------------------------------------------------|----|-------------------------------------------------------------------|
| gliding club characteristics | 4 | a comparison ♦ <i>Dan Dawson</i> |
| Grand Prix is not the answer | 5 | opinion on a scoring system ♦ <i>Jörg Stieber</i> |
| summer odyssey | 6 | the great PW-6 demo tour ♦ <i>Charles & Kris Yeates</i> |
| dynamic soaring
and sailplane energetics | 8 | how to gain energy from sinking air ♦ <i>Taras Kiceniuk Jr.</i> |
| the Zephyr lives! | 12 | a restoration at Red Deer ♦ <i>Rob & Laura Van der Velden</i> |
| the OLC | 14 | Invermere comes 3rd in world club XC ♦ <i>Ernst Schneider</i> |



Cover

It really flies! – smiles from John Mulder after landing at Innisfail, AB. The “first” flight of a unique restored glider. See the *Zephyr* story in this issue.

photo by Carol Gould

DEPARTMENTS

- | | |
|----|----------------------------------------------------------------------------------------------------|
| 16 | Club news — Winnipeg, zip zip zoom, SAC AGM, membership by club for 2001 |
| 20 | FAI Badges & Records — current badge achievements and record claims, badge flying hints |

Gliding club characteristics – a comparison

Dan Dawson, Bluenose

FOR SEVERAL WEEKS THIS FLYING SEASON, I had the pleasure of accompanying Charles Yeates on his epic PW-6 demonstration tour through Canada and the USA east of the Rocky Mountains. Along the way, we spoke to two or three hundred soaring enthusiasts. We chatted with many more than once as we met them at different soaring sites, picking up the threads of earlier conversations.

While all soaring clubs have remarkably similar goals, they reach them using different policy and operating paths. We tried focussing on the many issues common to all clubs and discovered that some are doing very well, while others seem to be sliding down the slippery slope leading to extinction. Here are things that we learned from our colleagues:

Characteristics of thriving clubs:

- They run using accepted principles of small business. They have by-laws and have a mission statement. Bookkeeping is kept current, using standard accounting practices.
- The club executive is “new to the job”. They have been in a position of leadership for less than three years. They are enthusiastic and open to operating the club differently if change could improve the club’s lot. They are not limited by “tradition”.
- Each club member in a position of authority — the executive, the Safety Officer, the CFI, the OO — is encouraged to find and groom a successor. They are encouraged to think, “Who will take this responsibility after me and how can I prepare them for it?”
- The club executive committee is viewed as the highest club authority. These leaders are encouraged by the members to provide advice and direction consistent with the expressed club goals.
- The club has a development plan that evolves over several years, so that the club is always moving ahead. It is clear that the plan has been revised to reflect unexpected circumstances or changing club goals. Hence, the club appears to be well prepared for the circumstances of the day.
- The club development plan includes a schedule of capital expenditures. Money is set aside regularly to fund the plan. Capital purchases are made which are appropriate to the club’s circumstances and goals.
- The club carefully maintains its launch equipment. Any required repairs are promptly carried out. Sufficient funds are set aside and accumulated to finance periodic major maintenance and replacement.
- The club recognizes that the most beneficial use of club equipment is the flying of paying passengers. The club holds at least one open house each year as a revenue generating event, introducing people to the sport of soaring. A secondary benefit of this event is the identification and recruitment of potential club members.
- The club has found a balance between the membership fees and flying fees. It recognizes that membership fees have to be low enough to encourage more people to join the club but high enough to pay operating expenses. The most quoted number was between US\$200 and \$300 for membership fees. The club also recognizes that these membership fees can fluctuate to reflect changing circumstances in the economy, club requirements and membership levels.
- The club has a published list of standard operating procedures, and members are encouraged to know and use these procedures. The club operation uses these SOPs as written and makes written changes to them as appropriate. Members are ➔ p19



The SOARING ASSOCIATION of CANADA

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

free flight is the official journal of SAC.

Material published in *free flight* is contributed by individuals or clubs for the enjoyment of Canadian soaring enthusiasts. The accuracy of the material is the responsibility of the contributor. No payment is offered for submitted material. All individuals and clubs are invited to contribute articles, reports, club activities, and photos of soaring interest. An e-mail in any common word processing format is welcome (preferably as a text file), or send a fax. All material is subject to editing to the space requirements and the quality standards of the magazine.

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

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

Material from *free flight* may be reprinted without prior permission, but SAC requests that both the magazine and the author be given acknowledgement.

For change of address and subscriptions for non-SAC members (\$26/\$47/\$65 for 1/2/3 years, US\$26/\$47/\$65 in USA & overseas), contact the SAC office at the address below.

President	Richard Longhurst
Vice President	Howard Loewen
Executive Director	Jim McCollum
Treasurer	Jim McCollum
Legal Counsel	Robert Wappel
Secretary	vacant

SAC office: 107 - 1025 Richmond Road
Ottawa, ON K2B 8G8

tel: (613) 829-0536 fax: 829-9497

e-mail: sac@sac.ca

website: www.sac.ca

Deadline for contributions:

5th January, March
May, July
September, November

L'ASSOCIATION CANADIENNE DE VOL À VOILE

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

vol libre est le journal officiel de l'ACVV.

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

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

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

Les articles de *vol libre* peuvent être reproduits librement, mais le nom du magazine et celui de l'auteur doivent être mentionnés.

Pour signaler un changement d'adresse ou s'abonner, contacter le bureau national à l'adresse à la gauche. Les tarifs au Canada sont de 26\$, 47\$ ou 65\$ pour 1, 2 ou 3 ans, et de 26\$US, 47\$US ou 65\$US à l'extérieur.

EDITOR

Tony Burton
Box 1916 Claresholm, AB T0L 0T0
tel & fax (403) 625-4563
e-mail free-flt@agt.net

Any service of Canada Post to above address. Any commercial courier service to 335 - 50 Ave W

COMMERCIAL ADVERTISING

SAC office (613) 829-0536
e-mail sac@sac.ca

Date limite:

5 janvier, mars
mai, juillet
septembre, novembre

Grand Prix is not the answer

Jörg Stieber, SOSA

IN HIS ARTICLE, "LET'S CHANGE OUR COMPETITIONS" (*free flight 4/01*), my friend Jim Carpenter makes an eloquent argument against the traditional 1000 point scoring system. He says the 1000 point system is inadequate and dangerous because it tends to reward gaggle flying while penalizing pilots who select the much safer alternative of flying on their own. Jim refers to Bruno Gantenbrink's open letter to the IGC (*see free flight 2/2000*) in which Bruno proves this point with his *Lone Wolf vs. Clever Sportsman* example. I strongly recommend you re-read Bruno's letter for a better understanding of the traditional scoring systems, their shortcomings and the required strategies to win under these rules.

While I fully agree with Jim's assessment of the shortcomings of traditional scoring, I have to strongly disagree with his conclusion that Grand Prix scoring is the answer. Please refer to Jim's article for an in-depth explanation of Grand Prix rules and its place scoring system. While it is true that the Grand Prix addresses some of the shortcomings of 1000 point scoring, it has some significant problems of its own. These became quite obvious during a test of this system at the 2001 Ontario Provincials:

Non-proportional scoring

Grand Prix scoring is based on placing instead of true speed. Let's assume a hypothetical case where competitor A beats competitor B by one tenth of one second on day one but the next day B comes first and A second, ten minutes behind B. The Grand Prix score shows them in a tie even though B has clearly delivered the better performance.

Sometimes it just isn't a race

If you don't see another competitor ahead or one behind you may as well take all the time in the world because it doesn't matter. This is not really my idea of a race. After two days of the contest it was clear I would place second in my group of three, no matter what I did on the last day. The most brilliant flight could not have gotten me to first place, even if my competitors would have stayed home. Conversely, I could have stayed home myself — it wouldn't have made a difference. Again, this is not my idea of a race.

Handicapping is not possible with a non-proportional scoring system

In Canada it is very difficult to get enough similar performance sailplanes together for a meaningful Grand Prix contest.

Common start time makes gaggles inevitable

With every member of the group starting exactly at the same time a gaggle, although small, is the inevitable consequence, particularly in weak weather. The common start time deprives the contestants of the tactical choice of selecting the optimum start time. Furthermore, it can be a real problem for the last pilot off the ground if he is unable to find a good thermal right away. It is possible that he is still low when the rest of the group starts and his day is ruined before the race gets underway. Early launches in the group provide a definite advantage.

Finish line safety

The large penalty for being half a glider length or less behind may lead to unsafe flying as pilots try everything to beat the other guy to the finish line. During the Provincials we had at least one finish where the GPS resolution was insufficient to determine who was first.

Classic task-setting problems persist

It is the task committee's responsibility to set a task that makes full use of the day but gives every contestant a realistic chance to finish. In setting an Assigned Speed Task (AST), the task committee has to estimate what speeds will be attained. Based on this ⇒ p18

summer odyssey

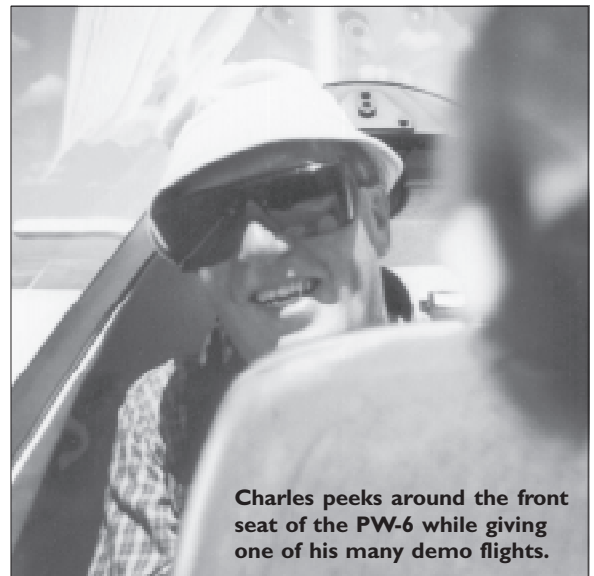
Charles & Kris Yeates, Bluenose

A SOARING SEASON WITH A NEW SAILPLANE has just ended. It was difficult to accept that it must be bedded down for the winter but what a grand season it was — a dream turned into reality. Arrangements had been made to market sailplanes from PZL-Swidnik and at the end of April a PW-6 arrived. Gordon Waugh, Dan Dawson, Kris and I raced to a Dartmouth transfer depot to claim the new bird. Lots of excitement turned to shock when we saw the large trailer filling the dark container, looking very much like a sleeping dragon. However our dragon proved quite tractable. Days later, Dan and I began a 3-1/2 month demonstration tour through North America east of the Rockies. During this “Fly Before You Buy Tour”, 137 pilots logged 114 hours on this new World Class trainer while its trailer tamely followed our Honda Accord for 25,800 kilometres. A remarkable variety of pilots, clubs and soaring sites were visited.

MSC and SOSA were our first stops. Then we dipped into Pennsylvania for visits to Ridge Soaring, the Regionals at Mifflin, and the Philadelphia Gliding Council. Friendliness, curiosity, surprise and pleasure were general reactions met everywhere. Next we travelled to Cordele, GA, where almost fifty gliders were entered in a mix of Regional and World Class competitions plus a cross-country training camp. Cordele doesn't have a gliding club or an FBO (fixed base operator) but this was the thirty-seventh year that competitions have been hosted in this gentle area.

We stayed two weeks and I borrowed a PW-5 to enter the US World Class Nationals. Eleven PW-5 pilots competed and it was encouraging that three were in their twenties. One of them, Danny Sorenson, won the World Class competition, François Pin was second and I came in third. Generally, cu bases were 3–5000 feet. Thermals were never over 4 knots and thunderstorms were frequent. The contest site is close enough to the Florida border that turnpoints south of the field often required crossing under low cumulus into an area of weak thermals limited by sea air. One shifted gears and tip-toed or landed out. Getting home from that area once required using a phenomenon that had been described during an evening swap of stories. It was claimed that late in a day, vehicles moving at speed on Interstate 75 stir up pockets of hot air and create a line of weak thermals parallel to the highway. It proved true and I flew the last twenty miles home at 1200 to 1800 feet. It's amazing how the mind focusses during weak soaring struggles.

Dean Carswell, a seasoned instructor from Texas, was running the Cordele cross-country training camp using a Grob Twin and an ASK-21. He flew the PW-6 and was impressed enough that he wrote an unsolicited letter extolling its virtues for publication in SOARING magazine. Then Dan reluctantly returned home to his work with the Coast Guard and I trundled away toward Starkville, MI, where George Bennett and Tony Fabiszak were reviving a glider club. It is based at



Charles peeks around the front seat of the PW-6 while giving one of his many demo flights.

the Raspet Flight Research Laboratory hangar belonging to the Mississippi State University. They had considered many available types of new and secondhand gliders during the previous year but after flying the PW-6, their decision was made. They ordered a PW-6 / -5 package that has since been delivered.

The soaring weather steadily improved as the tour trailed westward. Dallas is a familiar area after many visits to my sister and her family. The glider was moved south of the city to the TSA field near Midlothian where one of the largest US clubs operates (imagine having reserve investments that total between 600 and 700 thousand dollars). The airconditioned club house is a welcome oasis when not flying. A newly-added asphalt runway helps smooth operations. Thus it was a great surprise to learn that flying takes place only on weekends and holidays unless special arrangements are made. Members including Dick Johnson were refurbishing a Schweizer 2-32 with eighty flying hours that had been in storage for twenty years — a gift. Meantime, Kris had arrived in Dallas. We enjoyed an evening with Alice and Dick Johnson. Dick and I reminisced about our competing together in at least four ancient World Gliding Championships — Poland, Argentina, England and Poland. After flying the PW-6, Dick enthusiastically backed his Mississippi alma mater's purchases.

Marfa in west Texas was our next destination. After Dallas faded in our mirrors, populated areas were small and far apart. Cows, oil well pumps and scrub bushes dotted the landscape for hundreds of kilometres. Cows were gradually replaced by sand, gravel and antelopes. Burt Compton and his wife Kathy (they were married while flying their L-23 at Marfa one Friday) met us at the airfield beside the hangar used by John Byrd. John was mentoring visiting pilots who wanted to improve their cross-country skills. The airfield is in a broad shallow desert valley with Mount Livermore to the northwest and the Big Bend hill country to the south between us and Mexico. The monsoon airflow moving north from the Gulf of Mexico ensured rain showers over the hills almost before cu appeared in the valley but thermals were strong and large. Burt had flown his Cessna 172 towplane out from Florida for the camp. It was adequate but had a hard time on hot days — watching the desert

go by for a long time a couple of hundred feet below made a nerve-wracking start to some flights.

The weather enticed a half dozen pilots to try for records. Kris and I flew a 200 kilometre triangle one day and just turned the first corner in the face of a building storm. Accelerating down the second leg, we had a few minutes of concern as the storm front was definitely moving in behind us faster than the wind speed would lead one to expect. That flight along the southern hills demanded attention because the only landable sites were miles north back in the valley. It was a good orientation to the geography and the weather patterns. The last day before leaving for Hobbs, NM, we tried a 100 kilometre triangle and got it just right. From the first turn there was a cloudstreet just twenty degrees off course to the second turn. A run plus a rapid climb to 13,500 (10,700 agl) enabled a fast break away to the turn and a final glide that produced a modest Canadian two-seater record of 102.8 km/h. Okay in a glider classed as a trainer, eh?

Hobbs is the site of the SSA office and an airfield that was used to train B17 crews for WWII. The concrete ramp is large enough to handle any glider operation and it was there that a Regional competition was underway as we arrived. Charlie Spratt had brought his sense of humour and task-setting skills. All enjoyed six consecutive days of deliciously strong thermals with the cloudbase never under 10,000 agl. Apparently the Gulf of Mexico monsoon flow sustained instability even in southeastern New Mexico.

Between Hobbs and Moriarty there are sand dunes that evidence a prehistoric ocean that had the Rockies as its shoreline. Somewhat more up to date is a strip of the original Route 66 parallel to the Interstate at the turnoff toward the Moriarty airfield. A large truckstop plaza is the first thing you see. Then not a kilometre further there is a clapboard building that houses an old style restaurant with wooden booths, dingy walls and a clientele mainly of truckers and Good Ol' Boys. Kris and I stopped there two mornings for breakfast and finally asked the waitress about the building's history. She said it is just over fifty years old, first serving as a car/truck sales and maintenance site, then as a restaurant, then it turned into a fast food operation and then converted into a warehouse before turning into today's facility. One could say that truckers had been serviced there for over fifty years.

Moriarty has typically strong western soaring conditions, a gliding FBO, a large club, the Appleby repair and maintenance shops plus his interesting Western Soaring Museum and the new Enchantment Aero Services of Tom Brenza. Kris and I counted more than 52 glider trailers on the field. The club is large but a member said it has trouble with its weekend scheduling of managers and instructors — so much so that it fines an individual \$75 if he/she does not turn up for a duty assignment. Pilots come in from as far away as Santa Fe, Los Alamos and Albuquerque. We could all enjoy living there.

Captain Joey Medlin of the 34th FSTS of the US Air Force Academy at Colorado Springs arranged an invitation so that the PW-6 could be demonstrated from its airfield. At 6500 asl in the lee of Pikes Peak, it has a spectacular setting. Dan came down from Halifax for the event. We assembled and were given a spot in their football field sized hangar that houses all their gliders. They train cadets from dawn to

dusk daily in three shifts, using twelve 2-33s towed by six new 180 hp Cubs. Glider training is preceded by flights in powered 2-32s for control handling and circuit experience. They state that they solo 2-33 students after six to ten flights — twelve would be an outside figure. This sounds surprising until one remembers the powered glider introductions. Also, the high starting altitude makes each tow so long that it benefits the student. Only officers were allowed to fly the PW-6, and tows to 13,000 asl for aerobatics took an hour. We learned a lot and were given 34th FSTS Instructor shoulder patches as souvenirs.

A few of the most proficient Academy glider pilots are chosen for soaring, aerobatics and cross-country training in ASK-21s. Then eight are chosen to be on the Academy competition team that visits Regionals within a few hundred miles. Three 1-26s and a Stemme 10 with lots of ground support are utilized. Parachutists and power pilots train at the same time — the airfield area is busy!

Boulder airfield has Mile High Gliding plus two other gliding clubs operating off one airstrip while fleets of powered aircraft use a separate parallel runway and circuit in the opposite direction. Most interesting was the first flight of a roaring wartime *Lodestar* after several rebuilding years by volunteers. Everyone at the field seemed to get along with little friction obvious.

Eagle Canyon is a gliding club in northern Colorado near the Wyoming border. Frank Whitley kindly invited us to visit during a club flying week. Winch launches as well as aerotows were demonstrated. One instructor commented that he thought the PW-6 was too easy to fly! Hangar space was supplied and the best eating spots in nearby historic Fort Collins were pointed out. There's not much nicer on a warm summer evening than a good single malt scotch with supper on an outdoor patio in sight of sculptures, blooming flower beds, and strolling families with the Rockies for a backdrop.

Trailing north 1100 km to get to the Cowley Summer Camp was special. Rolling ranchland, long views, a glimpse of the Little Big Horn; all were places we had never seen before. Rainstorm cells could be watched as they developed and moved from horizon to horizon, outlined by shafts of contrasting sunlight. It was the stuff of poetry.

We left the PW-6 at Cowley and drove into BC to visit Kris' brother and wife for three days. The flying at Cowley was interesting because good soaring existed every day we were there. Two days of light wave allowed us to wander about the basin to Pincher Creek, west to the Frank Slide and a little way north before returning to base. Tooling around above 11,000 feet several flights a day was satisfying. But now it was August and we were still five days from home. Enough — we drove through, only stopping for a couple of days in Ottawa to see how youngest son Mark and his wife were faring as they waited for both a baby and completion of a new house project. We learned that both projects had the same ETA.

Several readers of this chronicle had an opportunity during the road show to see and even test fly the PW-6 so I have not droned on about it. Rather, this has been a review of memories, enjoying again eventful times which soaring and travel always provide. From Marfa, ⇨ p17

Dynamic soaring and sailplane energetics

Taras Kiceniuk, Jr.
from *Sailplane Builder magazine*

DID YOU KNOW that a high performance sailplane can stay up on a day with no lift, but only pockets of strong sink? Most sailplane pilots regard sinking air as an enemy and of no value, but there is just as much energy in downward moving air as in upward moving air, it's just more difficult to use. There is a lot of energy in large scale air turbulence and often we can extract this energy with a sailplane. A sailplane can get energy from the moving air. Using up and down gusts in opposition to each other is particularly effective. Only on days when the air is smooth and calm is there no way to stay up without a motor.

**sailplanes
get their flight
energy by pushing
against the air. This
is possible no matter
what direction the
air is moving**

How are we going to stay up on "sink" anyway? Perhaps a parallel to basketball players will prove illuminating. The players want to get the ball up and through the hoop. There are two ways to do this; they can throw (lift) the ball up into the air so that it goes up and through the hoop. Or (if they are tricky) they can push the ball down so that it bounces off the floor then goes up and through the hoop. In the second case there is no "lift" involved, rather a downward push plus a bounce.

How can we do this in a sailplane? Assuming that we are flying fairly fast in an approximately wings level attitude and hit an area of strong sink, we can push the stick forward and go into negative "g" so that the downward moving air pushes us downward. Then as we come out of the sink hole we "bounce" off the surrounding stationary air by pulling back on the stick and zooming upwards (at more than one "g").

Obviously this can only work if the "sink hole" is fairly small, because we can spend just a short period of time in negative "g" before building up excessive speed (so there's a catch after all!). But the situation is not as far-fetched as all that; often there is strong sink on the edges of thermals where we can get a bit of a downwards push and get right back into lift. The downward push can come from a bank angle of greater than 90 degrees rather than negative "g" and "bouncing" back off upward moving air is much more energizing than bouncing off still air. This is a dramatic and practical example of dynamic soaring. The bad news is that dynamic soaring can result in a rough ride and vigorous maneuvering, as its name would lead one to believe.

Let's take a general look at sailplane energetics. An understanding of vectors and vector math can be very helpful when working in this area, but we'll try to keep things simple.

First of all, how does a glider get energy from the air? A glider (or any other object) gets energy by being pushed *in the same direction that it is moving*. The opposite is also true; an object loses energy by being pushed (or pulled) in a direction opposite to its direction of motion. As examples: a glider loses energy via drag which pulls it backwards (opposite to its motion); a glider in a thermal gets energy from the upward lift force on the wing as it climbs (both the force and the motion are upward).

The rate that energy is gained or lost is called power; it can be positive or negative. When the glider is getting more energy, call that positive power and when its losing energy, call it negative power or loss. To calculate power we multiply the force in the direction of motion by the speed. The units can be a bit messy here, but if we take the speed in miles per hour, multiply by the force in pounds and divide by 377, we get horsepower. Example: an 800 lb glider with a 40:1 L/D has 20 lbs of drag, if we multiply by 60 mph and divide by 377 we find that it is losing energy at a rate of about 3.2 hp. The same glider being pushed upwards in a thermal at a vertical speed of 1000 feet/minute (about 11 mph) is getting energy at a rate of $(800 \times 11) / 377$, or about 24 hp.

(In vector math terms the power going into the glider is the "dot" product of the velocity vector and the force vector. A dot product is a measure of how much two vectors point in the same direction; if they point in opposite directions the dot product is negative, if the vectors are perpendicular the dot product is zero.)

Now back to soaring. To get the most power from the atmosphere we want the air to push our glider in the same direction that the glider is moving as much as possible. The way that we normally do this is by spending as much time as we can in upward moving air, where the air is pushing the wing upward and the glider is moving upward. The faster we are moving upward the greater the power of energy transfer. The upward force of the air on the wing averages out to be the weight of the glider.

We can also look at the challenge of getting energy in another way. The conservation of energy law tells us that instead of concentrating on how much energy the glider is getting, we can look at how much energy the atmosphere is *losing*. The two are equal (when we consider the glider's drag losses), and the second way of looking at the situation can be easier when understanding dynamic soaring. How do we make the atmosphere lose energy? *By pushing on the air in a direction opposite to its motion!* But first let's clarify our terminology — the energy we are talking about is large scale kinetic energy due to air motion, which is the kind of energy a sailplane can use.

Heat energy and micro-turbulence are of little use (that's where the sailplane loses energy via drag).

Once again, to make the atmosphere lose energy we push on the air *opposite to its direction of motion*. As the atmosphere loses energy the sailplane gains it! In what direction can a sailplane push on air? Well, in any direction. The wing of a sailplane is designed to push on air in a direction perpendicular to the wing surface and towards the landing gear. The wing can also push in the negative "g" direction (away from the landing gear), but the airfoil is less efficient when used that way. By banking and maneuvering the glider we can orient the wing to push air in any direction: up, down or sideways.

What about gravity? The wing has another job besides extracting energy from the air and that's holding the glider up, opposing the force of gravity. This limits our energy manipulations a bit, but we can work around it. In fact, it is this dual job of the wing that makes upward moving air such a good source of energy. To hold the glider up the wing needs to push air down. Upward moving air loses its energy when pushed down. This is very convenient; the glider can gain the energy lost by the upward moving air and hold itself up at the same time!

So getting energy from upward moving air is relatively easy for a glider, it just needs to stay in the lift. What about getting energy from sideways and downward moving air; what are the opportunities and what are the limits? Because of the above mentioned dual duty of the wing (holding the glider up as well as extracting energy from the air), it is more difficult to get energy from sideways moving air and especially from downward moving air, yet it is still possible. In some circumstances it may prove very useful.

To make use of the energy in upward moving air we can use the downward force of gravity to help us push on the air. To push on air that is moving in other directions, we can make use of the glider's inertia. Inertia is the property of mass that causes a body at rest to remain at rest and a body in motion to remain in motion. When a massive body's motion (velocity) changes, a push (force, im-

pulse) is exchanged between the body and its surroundings. When a body's inertia carries an impulse over a distance it is in the form of momentum. In the case of a glider there are three kinds of forces in action:

- **gravitational**, acts between the glider and the earth,
- **aerodynamic**, acts between the glider and the surrounding air, and
- **inertial**, which appears when the glider changes speed or direction.

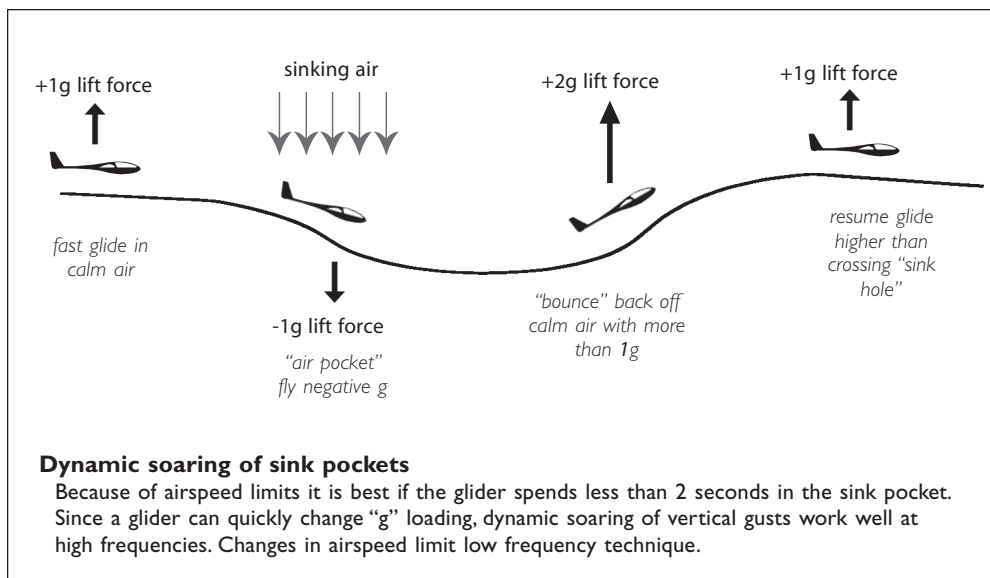
The gravity force is constant and acts to pull the glider downward with a force equal to the glider's weight. The aerodynamic force is more complex and depends on air speed, angle of attack, and air density. Inertial forces can be measured by "g" meters (accelerometers) and vary with the glider's motion.

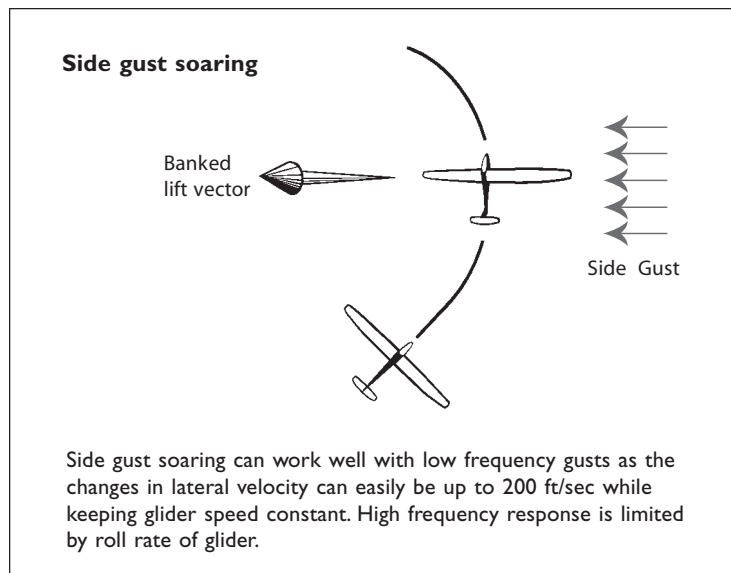
The aerodynamic and inertial forces are the ones we play around with in dynamic soaring. By pulling back on the stick we can increase the aerodynamic force; by pushing the stick forward we can reduce or reverse the force. By banking the glider we can tilt the aerodynamic force sideways. As we maneuver, the inertial forces vary in magnitude and direction so as to remain opposite to the glider's acceleration. Centrifugal force is a good example of an inertial force. The total (vector) sum of the three types of forces is always equal to zero. That is to say, the three types of forces continually cancel each other out.

More about inertia ... by using the glider's inertia we can push on air in any direction at least for a short length of time. When we use glider inertia as a basis for pushing air, the glider accelerates in a direction opposite to the push. This is in accordance with Newton's famous law $F = ma$ (force equals mass times acceleration). Acceleration is a change in velocity. An acceleration of one "g" corresponds to a change in velocity of 32 feet per second each second (or a change of 22 mph per second). So if we want to limit our velocity change to 88 mph we could use our inertia as a basis for pushing at one "g" for 4 seconds in a particular sideways direction. If we wanted to use our inertia to push upward on downward moving air with the same force, we would be limited to two seconds because then both the aerodynamic force on the wing *and* gravity would be accelerating the glider downward.

Note that a *velocity* change of 88 mph does not mean a *speed* change of 88 mph. When we make a 180 degree turn at a constant speed of 50 mph we experience a velocity change of 100 mph, (50 mph to 50 mph in the opposite direction). When we talk about velocity, the *direction* of motion is important.

How much energy (or power) is available from moving air and how efficiently can a wing extract the power? To answer this question we first must clarify what we mean by "moving". Motion is relative; and in





momentum) between fast moving air and air that is at rest, or air that is moving more slowly, or (best of all) air moving in the opposite direction.

The albatross is famous for soaring the wind gradient over the open ocean in this way. How can we do it in a glider? First we connect with the fast moving air and push on it opposite to its motion. We do this by banking the glider belly into the wind and pulling back on the stick; this extracts energy from the moving air and gives the glider extra momentum in the direction of the wind. We then maneuver into the air that is not moving (often at a different altitude) and we bank to push on this air in a direction opposite to the initial push. This transfers the glider's extra momentum into the still air. Some energy may be lost in this second push (if the air is not at rest), but overall we can gain energy in the cycle. We then turn back to the fast moving air and repeat the process.

order to get energy we must be able to access both parts that are moving relative to each other. For example, we could be inside a train speeding along at 100 mph and yet not be able to get any energy from the enclosed air, unless we could somehow connect a force to the outside stationary world. This is similar to drifting along in a glider on a stable windy day; there's lots of energy in the sideways motion of the air, but we can't make use of it. A kite, on the other hand, can do fine, because the string provides a force connection between the ground and the air, which are in relative motion.

Gravity provides a sort of downward pulling string that enables us to get energy from upward moving air. Inertia and momentum can provide a sort of temporary dynamic "string" that allows us to get energy from the relative motion of air masses in any direction, so long as the distances involved are not too great. How do we figure what distances will work and what is too far? That depends on how clean our sailplane is. A high performance ship can use its inertia to carry momentum over longer distances (for the same energy loss) compared to a draggy ship. Lift to drag ratio and the relation of stored kinetic energy to the energy dissipation rate are both measures of momentum carrying ability. Faster ships are relatively less effected by the constant 32 ft/sec² acceleration of gravity and can carry momentum more effectively over vertical distances.

The distance that a particular sailplane (at a particular speed) can effectively carry momentum before the drag losses eat up any potential dynamic soaring gains defines an area of operation which can be specified in terms of distance or in terms of a time interval. If one is circling, distance may prove most significant; when flying in a more or less straight line, time may prove to be a better parameter. The (possibly weighted) average motion of the air inside the dynamic soaring operations area defines a *local inertial reference frame*.

Let's consider dynamic soaring with horizontal wind shear and see how it is done. When we do this we are using our sailplane as a sort of dynamic windmill. A windmill is fixed to the ground on a tower and uses the Earth as a basis for pushing against the moving air. A dynamic soaring glider transfers push (force, impulse,

The energy gained is equal to three factors multiplied together: the force of the initial push opposite to the air movement, the duration of the push, and the difference in velocity between the two blocks (or layers) of air.

For example, say we bank the glider and can get a sideways push of 800 lbs for 3 seconds and the velocity difference between the two air masses is 20 mph. $(800 \times 20 \times 3) / 377$ equals 127 hp-seconds, which is the energy extracted (we need that 377 constant factor for these pound and hp units). If one whole cycle takes 15 seconds we have an average power of about 8.5 hp, which could be a reasonable amount of power to sustain a maneuvering sailplane. This example is presented for illustration purposes only. Messing around with radical maneuvers near the ground (especially in high winds) is very hazardous and is — how do you say? — "for the birds." There are many instances of wind shear at altitude however, and these may prove to be a terrific source of energy for the sailplane pilots of the future.

Let's look for a moment at the sailplane's energy losses; the energy we can extract from the air by dynamic soaring is of no benefit unless it is greater than the additional losses (negative power) caused by the extra maneuvering required. Sailplane energy losses can be divided into three categories:

- **friction** drag (also called parasite drag),
- **induced** drag (drag due to lift), and
- **control** drag (a combination of extra friction and induced drag due to control surface deflection, etc.)

Drag times true airspeed equals power loss. The negative power (or loss) due to friction is equal to a constant times the glider's airspeed cubed. The negative power due to induced drag equals a constant times the lift force on the wing squared divided by the glider's speed. Control drag losses can be measured experimentally by wiggling the stick and observing the increase in sink rate (there's no simple formula for that one).

We've seen how the dynamic power extracted from the atmosphere is equal to the velocity of the air (in a local inertial reference frame) multiplied by how hard we can push against it with the wing. Or similarly, how the power

of energy flow that the glider gets from the air is equal to how hard the air is pushing on the glider in its direction of motion times the glider's speed in the local inertial frame. In the future there will be instruments designed specifically for dynamic soaring, but let's look at some soaring techniques that we can use now with standard instruments. Standard instrumentation in this case consists of a total energy vario, an airspeed indicator, a yaw string, and a sensitive ("g" force sensing) "seat of the pants".

First, let's look at vertical gust soaring. Thermals are often bumpy; how do we make the bumps work for us? As explained above, the general rule in dynamic soaring is to push on the air opposite to its motion. The faster the air is moving the harder we should push. This leads us to the first principle of dynamic soaring: *increase the "g" force in lift, decrease or reverse it in sink.*

When we feel a bump of extra powerful lift we should pull back on the stick and increase the "g" force. Vice versa, when the lift suddenly poops out we should reduce the aerodynamic force on the wing by pushing forward on the stick. One of the difficult aspects of this technique is figuring out what part of the "g" force is from the air's motion and what part is due to our control stick movements; experience helps a lot with this!

Working the bumps in this way can increase the power extracted from the air and thus increase our rate of climb or running speed. The technique produces a sort of roller coaster ride and probably will not be popular with passengers. Also extra care is needed if there is other traffic. How vigorously do we work the bumps in this way? If we are not careful we can overdo it and waste more energy than the extra we're getting; this is because the average induced drag increases when the lift force on the wing is not constant. So some experimentation is necessary to see what works under various conditions. All things considered, it's best to err on the gentle side.

As we fly faster induced drag is a smaller percentage of the total drag; this is one reason to fly faster in bumpy lift. If we are running a cloudstreet and flying fast we can work the bumps more vigorously without so much concern about increasing induced drag.

A situation where dynamic technique can be particularly effective is when we fall out of the side of a thermal. In this case we are suddenly in sink and know pretty much where the lift is (behind us). We want to get back into the lift quickly and lose a minimum of energy to the sinking air. We could lose a lot of energy in a hurry by pushing downward on downward moving air. So the first thing to do after entering the sink is to reduce the aerodynamic force on the wing by pushing forward on the stick, in an extreme situation perhaps even to somewhat negative "g".

Next we can bank up to 90 degrees or so and perform a maneuver similar to the second half of a wing over (the low "g" state can enhance roll rate). Once banked up we can increase the "g" force since we don't lose any extra energy by pushing *sideways* on *downward* moving air. This gets us moving back towards the lift. Our speed will increase substantially and hopefully we'll be back in the lift just as we start our pullout. As we pullout (at more

than one "g", back in the lift) we'll be getting more energy than usual and may actually be higher after zooming up than we would have been if we'd stayed in the lift in the first place. Obviously this maneuver is no good if there is other traffic below!

Now let's look at dynamic soaring with side gusts. This may or may not prove practical, but if we find ourselves in a situation where the yaw string keeps blowing off to one side or the other (and it's not due to uncoordinated flying) we may be able to work the side gusts. If the string blows to the left, that indicates a gust from the right and that we should bank left to extract the energy. One way to do this is to use the stick alone (no rudder) to initiate the bank, because that will also straighten out the string and restore the (low drag) nose into relative wind attitude.

This is the second principle of dynamic soaring: *bank away from side gusts.* As in the vertical gust case there is an energy cost to maneuvering, so the amount of bank must be tailored to the strength of the gust. In the ideal case, the gusts will oscillate side to side and we can make a series of "S" turns and get energy. In another case there may be a wind shear with altitude where we can create our own side gusts by diving and zooming in conjunction with "S" turns or a racetrack oval course.

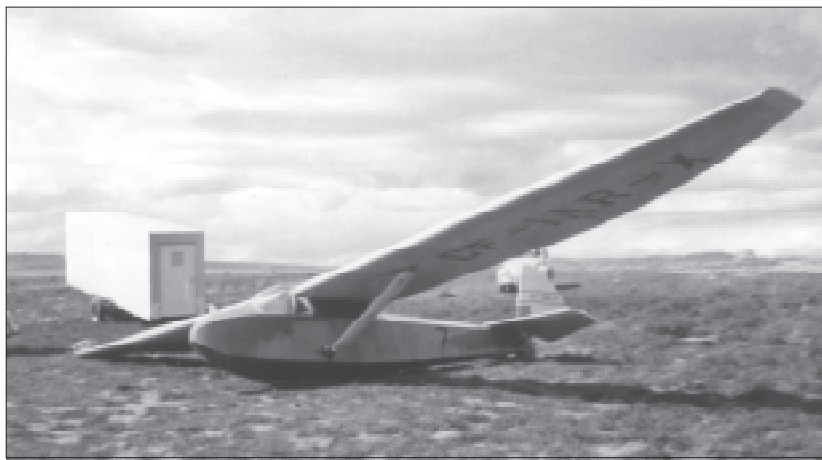
Another very interesting form of dynamic soaring is flying in a thermal vortex ring. A vortex ring is like a smoke ring without the smoke, and in the case of a thermal it is moving upward. This is an unusually smooth form of dynamic soaring and we may not even know that we're doing it.

On the bottom side of a thermal vortex ring there is an inward flow of air; on the top side the flow is outward from the core. If we are spiralling on the lower side our bank angle will cause us to be pushing outward on inward moving air which, as we recall, is in accordance with the general dynamic soaring rule: *Push the air opposite to its motion!* The extra energy will show up in the form of forward impulse and we'll find ourselves gaining extra speed or spiralling with a more nose high attitude than is usual. This may be what's going on when we core a thermal bubble and find that a steep bank angle works better than steady-state upward-lift theory would predict. Another place to find inward moving air is near the base of a thermal. This leads to a third principle of dynamic soaring: *Seek out inward moving air to spiral in.*

In summary, there are many situations where dynamic soaring technique can provide an extra source of energy for the glider pilot. The general rule for getting energy from the atmosphere is: *push on the air opposite to its direction of motion*, and remember — faster moving air yields proportionally more energy for the same amount of push. I hope that the ideas presented here will advance the state of soaring art, producing longer, faster, and funner flights. Techniques for getting energy from the velocity fluctuations in the atmosphere may open a whole new era in motorless flight. For more ideas and information on dynamic soaring, see my web site <www.icasusengineering.com/start.html> ❖

the *Zephyr* lives!

Rob & Laura Van der Velden, CAGC
from *ASCent* magazine



Kerry Bissell - 1958

ON 16 JUNE 2001, *Romeo Bravo Sierra* officially joined the roster of club aircraft owned by the Central Alberta Gliding Club of Innisfail when CFI John Mulder took her aloft for the first time in eight years.

A one-off sailplane design, named Zephyr, serial #01, first came to life as a homebuilt glider, a modification of the Grunau Baby. The Zephyr was originally built by Norman Bruce of Calgary around 1954. It appears from letters written during construction of the aircraft that Norman consulted regularly with the famous aerodynamicist Dr. August Raspet who, at that time, was with the Mississippi State College Aerophysics Department. Built entirely from fabric covered wood, the Zephyr was originally registered as CF-IAR-X, but on 28 April 1960, it was registered as an ultralight aircraft, CF-RBS.

By modern standards, RBS is unusual. It features an all wood, fabric covered, strut-braced wing with a span of 43'-1". The struts are unusual in that the streamlined fairings that surround the strut can be rotated approximately 70 degrees about the strut to act as a spoiler. The highly cambered wings are also unusual in that they have a large amount of washout at the tips, giving the ailerons so much twist that they appear deformed. This washout probably contributes significantly to the aircraft's benign stall characteristics.

The Zephyr was first flown (very briefly, its first flight lasting only a few seconds) by Norman on 4 May 1958 at Airdrie. Later, on 1 June, RBS was flown from Pincher Creek. On that day, Bill Thudium made two wave flights, lasting 1.5 hours and 2 hours respectively. A third flight was made at Pincher Creek on 24 June, lasting one hour and forty five minutes. Many flights took place after this time. They involved numerous pilots and were done in numerous locations: all over Alberta, Windermere BC, and Regina.

Fairly extensive repairs were made after the aircraft broke loose from its tiedowns in high wind and flipped over at Pincher Creek on 9 July 1960. When returned to flying status on 27 April 1963, the Zephyr had flown

just over 38 hours. On 31 August 1965, Norman Bruce sold the Zephyr to Frank Holman and Dirk Zutter. On Thanksgiving day, 1966, she crashed. Flown by Frank Holman when, "The (tow) cable caught on a light standard on takeoff. Aborted flight with too much back pressure on stick, resulting in 7/8ths of a loop (falling off to the left due to crosswind condition) resulting in crash landing." Her wood-framed, fabric-covered fuselage was destroyed and her port wing was damaged. Fortunately, Frank was not injured.

In 1967 a new fuselage was completed, crafted primarily from balsa wood and fibreglass using the same technique employed in building wood-and-canvas canoes. Most of the work was done by Frank Holman and Dirk Zutter, assisted by Kerry Bissell during early stages of construction. This must have been among the first amateur-built composite aircraft. At this time the aircraft was based in the Red Deer area. From available photos taken during this time, it appears that RBS was auto-towed quite extensively, though log entries at this time are somewhat vague.

On 29 May 1990, the Zephyr was registered to Kerry Bissell and Frank Holman. Apparently, its last flights took place during the early 1990s and then languished in its trailer. Then, on 26 August 1998, Kerry and Frank donated RBS to the CAGC, along with a generous gift of money, the remaining bank balance of the former Red Deer Gliding Club.

Aided by a generous cash donation from the Central Alberta Chapter of the Recreational Aircraft Association, restoration work commenced in the fall of 1990. Several RAA members, as well as CAGC regulars, devoted almost every Wednesday evening during the fall and winter months to work in the hangar, provided for us by Jerry Mulder and Gerry Leinweber at no cost. This beautiful facility — heated, well lighted and equipped — provided the incentive for many enjoyable and productive evenings for our little group (and some not so productive but still enjoyable bull sessions)!

The wings and tail surfaces were the first to receive

attention. After stripping off all the old fabric, we found many small repairs necessary on the all-wood structures. When the aircraft was crashed, the main spar of the port wing had been broken. Our inspection proved the spar repair to be satisfactory, but on closer investigation, we found a number of ribs in the D-tube leading edge had been broken and had gone unnoticed. New access holes had to be cut into the plywood leading edge skins to gain access to those ribs that needed repair. Also numerous plywood gussets needed to be replaced — some had simply been torn off when the old fabric was removed. After a coat of epoxy varnish was applied, the wings and tail surfaces were then recovered using the PolyFiber (Stits) process.

Next came the fuselage. Once stripped of its interior parts, instruments and control system, the interior was thoroughly cleaned and the exterior surfaces stripped of all old paint. Many hours were then spent applying a light-weight filler (microballoons mixed with epoxy resin) to even the exterior surfaces. Then sand, sand, sand. Then fill more low spots and sand some more.

Some delamination of fibreglass plies were uncovered inside the fuselage and this material had to be ground out with a disk grinder. A delightful job! Visualize your body jackknifed into that black hole, totally engulfed in a cloud of fibreglass dust! Then, new layups of glass cloth and epoxy resin were applied. Reinforcing material was also added in several strategic locations.

Meanwhile, a new steel framed canopy, wrapped with 1/16" Lexan and a new aluminum instrument panel and glare shield were constructed. The instruments were overhauled. A new control system was fabricated, using some of the original components but using nylon bearings to reduce system friction. A new interior including a seat and floor boards was installed. A couple of coats of gray Zolatone paint was sprayed into the interior for a nice finished look. Finally all the exterior surfaces were sprayed with white polyurethane paint. With the exterior trim and lettering applied, a few marathon evenings were spent during late spring 2001 to iron out the final details and assemble the aircraft for the first time.

The last couple years we had quit for the season by now, flying being more important! Saturday morning, 16 June dawned clear and bright. With an hour or so of I's to dot and T's to cross, we were finally ready. A quick call to the Red Deer FSS and we towed a beautifully restored Zephyr out to the active runway. Would it fly as good as it looked? A quick incantation to the aviation gods and John Mulder strapped in. With the long Red Deer runway in front of him it would be easy to abort if something didn't feel just right. Towpilot Liam O'Connell poured the coals to the Scout, a little pitch bobble and they were off! Handshakes and big high-fives all around; we just couldn't stop smiling, just like a bunch of proud parents!

Everyone jumped into their vehicles and headed for Innisfail. We expected to find John on the ground waiting there for us — no way! He was happily circling the field at about 7500, totally enjoying the experience. The final consensus ... we had us a sweet flying sailplane with no apparent vices. No adjustments were needed, just a few minor snags, easily corrected. John declared her air-worthy and immediately released her to any members of the club cleared to fly the 2-22. Some have already flown her and all agree, CF-RBS is a terrific addition to the club!

Postscript

At this time I feel it would be fitting to recognize the people who made all this possible. First and foremost, we owe a debt of gratitude to Kerry Bissell and Frank Holman for their generous gift. To Gerry Leinweber and Jerry Mulder for making their great workshop facility available to us. A restoration of this size just would not have been possible without their support, and their generosity in allowing us to freely use their tools and supplies.

Ultimately it fell to the Wednesday night gang; the guys who gave their time and energy week after week, to put it all together: Don Bais, Shane Cockriell, Rob Van der Velden, Drew Hammond, Brian Davies, Jerry Mulder, and Bert Loughheed. Others contributing their time were Ray Cavin, Adam Hunt, Brian Koole, John Mulder, Ruth Menkis, and Rob Shaw. Apologies to anyone I may have missed; we appreciate the work done by all of you. ❖

DG-303 Elan Club/Standard	1:41.5/43, acro +7, -5g
DG-800S 15/18	1:46/51.5
DG-808B 15/18 SOLO 53hp	1:46/51.5
DG-505 ORION 17/18/20	1:acro/40/44
DG-505 MB 20/22 SOLO 64hp	1:44/47
DG-1000 18/20	1:acro/43/46.5



High Performance Sailplanes Limited

planeurs à grande finesse

willem langelaan willem@langelaan.com
 905.278.6988 www.langelaan.com/sailplanes

insert DG800 sailplane graphic

the OLC – a worldwide on-line soaring competition

Ernst Schneider, Canadian Rockies Soaring

IT'S 2001 — computers have conquered all but the most technology-resistant homes and the internet has become part of our everyday life. At the same time soaring is suffering a decline in membership and the average age of the glider pilots is growing steadily. Why? Is soaring less appealing, less exciting than it was years ago. I don't think so. It must have been as wonderful to soar above the Canadian Rockies and anywhere else twenty years ago as it is today. However, I do think that if we want to challenge the younger crowd to enter our great sport then we need to use today's technologies to compete with the other "temptations" of life. The same is true for keeping the existing pilots motivated. I guess we all know that, but sometimes it is just hard to find the right temptation to compete with all the many other great things to do.

There is a competitive streak in all of us. Even if we fly only for ourselves, at the end of the day we compare what we achieved compared to the others. Contests can be lots of fun but it is a small crowd that is willing to undergo all the travelling and other hassles to compete in a regional, national or international competition.

High tech entered the glider cockpit some time ago. Final glide computers have helped stretch flights for some time now. But what has changed gliding most dramatically in the last few years is the advent of GPS flight recorders (FRs). "Flying without an FR is like suffering a partial memory loss after every flight". Recorders help learning about your flying style, about the area and more. You can replay a flight as often as you want until you finally understand it (you wouldn't believe how many times I look at a log where it is clear that the pilot may be able to turn to the left, but is not able to *climb* to the left). In my opinion the FR is the most important instrument in performance soaring.

Soaring hadn't really taken advantage of the internet much until the recent advent of the OLC (On-line Contest) — a new worldwide soaring competition with daily scores run by *aerokurier* magazine. It allows pilots to compete both locally and internationally, and to see the results of their cross-country efforts the same evening on the web site.

Competition flying can be a lot of fun. A major aspect is being able to compare your performance directly with that of other pilots, something that until recently was only possible with centrally organized competitions. But the technology of the internet is now changing that. The On-line Contest creates a world-wide overview of the cross-country soaring scene. For example, Klaus Ohlmann's incredible record breaking flights in Argentina

were immediately available on the web site (www.segelflugszene.de). Anyone could download the FR data file from the 2453 kilometre world record flight to their computer and reconstruct the task using flight planning software (*StrePla*, *SeeYou*). Since the OLC was introduced last year the response has been terrific. The concept of combining FR data, undeclared flights, no OO, and the internet has found many supporters. It's very easy to take part, there's no red tape, and anyone who hates filling in the usual paperwork will find it a refreshingly easy way to add their kilometres to the competition database, and compare their achievements with those of other pilots. There are two main categories of task:

**Invermere pilots earn
a great placing in their
first turn at bat.**

1. Flights using three turnpoints (start and landing points need not be the same) score 1.5 point per km.
2. Triangular tasks up to 500 km that fulfill the 28% rule, and for triangles over 500 km that fulfill at least the 24/45% rule, are worth 2 points per km. Triangles that do not fit either rule score 1.75 points per km.

The differences in glider performance are balanced by applying the German Aero Club's glider handicap list. The flights are scored daily, so there are daily winners! Separate scoring is done on a national basis as well so pilots from the same country can compare their performances directly. The pilot with the highest total score on any six flights becomes the On-line Contest champion.

The 2002 competition began on 16 October 2001 and closes 15 October 2002. Optimize your OLC tasks on your computer. The flight-planning and analysis software producers have already adapted their products to work with the On-line Contest. They offer functions that allow a task to be optimized for the new contest format. The task submission form is automatically created by most programs and is then simply uploaded with the FR file to the OLC website.

Let me tell you what happened at the Canadian Rockies Soaring Club this year once we entered the OLC in July (well into the Oct to Oct competition time period). I was surfing the net and by chance came onto the On-Line Contest. Of course I got stuck for hours browsing through all those FR files. Flights from my old flying site in Germany, from the places I had been flying in Australia, in southern France, Italy, Austria, but no flights from Canada. Now, I am one of these guys who are convinced that the Canadian Rockies are *the* prime spot for soaring worldwide. Not because I am operating the Invermere Soaring Centre together with Trevor Florence but simply because I haven't flown in more consistent weather, better thermal conditions, and in a more scenic soaring site. So part of my motivation was to get Inver-

mere on the international soaring map with a few good flights. I didn't have any idea on what would follow.

It wasn't too difficult to motivate the pilots who flew regular cross-country here as much as they could. First participants were club members Al Spurgeon and Hans Binder, shortly followed by Mike Glatiotis after he got an FR. Along with them, Trevor and I submitted the flights for the CRSC. We soon recognized that we were scoring well and moved up in the international club ranking into the top fifty — not bad, we thought. The more we submitted our daily flights to the OLC the more there was a crowd around the computer in the evening to study the flights and find out how many "points" the club flew today. Another thing happened at the same time. The participating pilots got more focussed on what flights they wanted to do. They started planning and analyzing their flights "professionally", trying flights other pilots had flown, sitting together to discuss which flights would suit specific weather conditions, etc. Lots of information exchange and a lot more socializing at the same time as there was more to talk about.

We were steadily moving up the international ranking. August saw new club pilots participating; Jack Welch got his FR and started scoring, Norman Marsh contributed a 300 and two 500 km flights to the club scoring. Steward Midwinter ran the 1-23 around 700 km in three consecutive flights and impressively showed that the OLC handicapped scoring system was working good and fair. And Al Spurgeon, Hans Binder, and Mike Glatiotis were getting even more inventive in their selection of good scoring flights with every flight.

I had made the mistake of offering a 50 litre keg of beer if we were able to pass my old club in Germany who was ranked around 20th internationally at that time. There was a long way to go, more than 10,000 kilometres. I didn't count on my fellow club pilots' enthusiasm, and they started to mobilize all their previously buried cross-country skills — what a mean (or thirsty?) crowd.

Heinz Portmann, Evelyne Craig, Mel Blackburn and our president Don Miller joined the scoring pilots and soon I knew I would not only have to buy the beer but we would also have to revise our goal. It was pretty obvious by mid-August that we would be able to make the top ten worldwide, so we set a very eager goal to make the top five in the club scoring list. Our student and now licenced pilots, Evelyne Craig who flew some 50 to 100 km flights in the 1-26 and the PW-5 and Mel Blackburn who flew his PW-5 around some nice 100+ km flights enjoyed participating as much as did more experienced pilots on the hunt for the 750+ km.

We were moving up place by place as every single XC day was utilized. Another fact soon became obvious; there were many days where the only flights worldwide were made in Invermere. Later in the season XC flying in Europe declined so we kept catching up. The finale? — we managed to finish **third** in the international club scoring submitting almost 40,000 kilometres in 150 flights and with 13 pilots. Considering our late July start we are very proud of the result and look forward to improving next year.

The individual scoring list showed Hans Binder finishing 17th and Al Spurgeon and Mike Glatiotis placing in the top 100 out of 500 pilots. Beside the honour achieved there

were some really nice side effects with our participation. Pilots learned a lot about their flying and the area from their own flights and by studying the flights of other pilots. Although some members contributed more points than did others, it was truly a club effort and achievement and the fun we had was tremendous. Visiting pilots in Invermere were introduced to the OLC and it looked like they liked it also. It is a pity that Tim Woods' great flights in June didn't make it in this year's scoring. He would have been a top contender for the Canadian scoring. But he's got another shot at it next year, which I'm sure he will use. Visiting pilots from Winnipeg, Vancouver, Saskatoon, Edmonton got their first flight on and I am confident they will be interested in being part of it again in the 2002 season.

I proposed a test run of an *OLC Canada* with the goal to make it THE decentralized Canadian competition. It used the same rules, the only requirement being that at least one turnpoint of the flown task needs to be on Canadian territory. An OLC Canada would have sub-scoring by province and scoring for western and eastern Canada in addition to the national list. This would be easy to establish, allow daily scoring, make for a very exciting competition and motivate lots of existing and new pilots to do what's most fun in soaring — go places.

I think CAS did a great job on establishing a decentralized Canadian competition, but I think the OLC offers so much more that there is absolutely no reason not to use it as the national soaring ladder. I would therefore strongly encourage the SAC Sporting committee and CAS to pick up the opportunity and use it to the advantage of our sport. I think the OLC is the best thing to happen in soaring for a long time and I hope we are able to use this free promotional tool for our sport.

What we like best about the OLC is:

- the daily online scoring
- how easy it is to participate
- the handicapped scoring seems to work excellently
- that every flyable day is usable as a competition day
- the grin on the face of the pilots when they come home delivering the points for the club
- submitting 40,000 km to the OLC and then starting the BBQ and opening the beer.

So what is our club at Invermere looking forward to for the new 2001/2002 OLC season? We'd like to motivate even more club members to participate in the OLC, we'd like to finish in the top five again in the international scoring — and we'd like to win the OLC Canada club and individual scoring against a hopefully very strong national competition.

Some 2001 OLC stats: 500 pilots and 250 clubs competed in the OLC International, 1300 pilots and 350 clubs competed in the OLC Germany (the winning club, Bad Homberg, submitted 109,000 XC km with 46 pilots and in 413 flights!). Thirty pilots and seven clubs entered the OLC Canada test run this year submitting 231 flights during 97 scoring days and flying more than 50,000 kilometres.

I collected some voices around the country on the OLC:

Ulli Werneburg — Gatineau Gliding Club

"The OLC is the easiest way to run local, regional, ⇒ p17

Club news

Winnipeg Gliding Club

Another season has come and gone and with it a time for reflection on what has been happening.

We had a very successful promotional event in our Open House held in early February. With a few well-placed ads in the newspaper we attracted several dozen folks out for a free evening of videos, information and discussions on our sport. The following week several showed up for our first night of ground school and most at least came out in the spring to sign up for our 10 flight *Introduction to Gliding* package.

As usual, there were a few dropouts by mid-season, most I think as a result of the continuing wet field conditions. However for those that continued on there was fairly consistent flying toward the end of the season.

The Winnipeg Gliding Club played host to the Soaring Association of Canada and their AGM. The event was staged at a historic bank building near the famous corner of Portage and Main. Two gliders, a DG-600M and a Jantar, were shoehorned onto the main floor and showed up very well against the ageless marble and slate and soaring 30 foot domed ceiling. There was extensive media coverage, both for television and radio, and on the Saturday the general public was invited to come down and take a peek. We even had a wedding party show up unannounced and with some coaxing we managed to get the bride into the cockpit of the Jantar. I wonder how that one turned out!

The above mentioned DG-600M was bought privately from the USA and after many days of inspections, phone calls, paperwork, more phone calls and finally the dreaded visit from Transport Canada in late June, the glider was assigned a Certificate of Airworthiness. The new owner, Howard Loewen, has had several flights, and is pleased with the results.

A rather unfortunate accident at the field resulted in one of our towplanes being written off. We have since replaced it with a Pawnee 235, and have transitioned most of our Citabria pilots into the more powerful (and single seat) towplane. It sure is a pleasure to finally fly, and to fly behind something that will get you a few hundred feet of altitude at the end of the runway rather than wondering if you are going to make it over at all.

A soaring safari of sorts was organized this year which saw several club members making the almost two day trek to Invermere. Our two-seat Lark was trailered out, and a private Jantar, an ASW-20, and a pair of Cirrus'

were also moved out for the week. All in all we had several great days (by our standards), and made many new friends. If anyone is contemplating making the trip, take it from us, it is worth the trip.

Thanks to Trevor and Ernst and the rest of the crew at ISC for the great service.

Mike Maskell

Zip Zip Zoom!

Zip Zip Zoom! is the flying that was done at CAS's Cross-Country Clinic held at SOSA this year. The weather provided conditions that allowed students to experience the high speeds and distances that can be achieved in cross-country soaring. During the week, Tracie Wark was able to set a new feminine speed record over a 300 km triangle.

For those unaware of this clinic, it is a forum where glider pilots can improve their cross-country flying skills. Whether you are a beginner that wants to learn how to go cross-country or an experienced pilot that wants to go faster and further, the clinic will provide you with the theoretical and practical experience to obtain your goals.

The instructors that teach the course are Canada's best pilots. These are the individuals that are competing at the national and world levels in glider racing. Such pilots as Jim Carpenter (2001 World Grand Prix Champion), Walter Weir (2001 Canadian 15m Champion), and Ed Hollestelle (five-time Canadian Champ) are some of the instructors and their credentials. These high calibre pilots articulate how to optimize your flying to enable you to fly faster and further. Then after the talking is done, they demonstrate it! The instructors take the students out on tasks and show them the tricks of the trade. While flying with an instructor, you can learn more in two hours than many years of trial and error by yourself.

This clinic generates a lot of excitement for the students. For beginners, there is nothing more exciting than leaving the safety of the airfield to embark on a journey. For the experienced, there is nothing more exciting than flying that journey at 90-100 km/h. Whatever your level, the clinic will improve your skill and you'll have an amazing time doing it.

Other people involved making clinic work were Andy Gough, Jim Fryett and Dugal Stewart (shepards), Doug O'Connell and Tom Coulson (towpilots), and Tony Rywak (logistics). All these people gave up their free time so we could learn the art of cross-country flying. On behalf of the students, thanks to everyone that was involved in making the clinic a success.

Andrew Corrigan

SAC AGM

Ottawa, 9 Mar 2002

Chimo Inn

1-800-387-9779

www.chimohotel.com

contact National Office
for questions/details

- morning -
business meeting
presentation

awards luncheon
with speaker

- afternoon -
workshops

SAC membership 2001

Club	Membership		% avg
	90-00 avg	2001 total	
ASTRA	10	9	94
Air Cumulus	-	5	-
Air Sailing	25	15	60
Alberni	13	20	154
Base Borden	13	14	108
Beaver Valley	12	9	75
Bluenose	36	24	67
Bonnechere	9	5	56
Central Alberta	10	10	100
Champlain	62	66	106
Cold Lake	22	15	68
COSA	38	28	74
Cu Nim	62	61	98
Edmonton	61	58	95
Edm. Gliding (cadets)	2	1	50
Erin	31	20	65
Gatineau	89	97	109
Grande Prairie	10	4	40
Great Lakes	10	21	200
Guelph	29	23	79
London	39	28	72
Montréal	101	105	105
Mont Valin	4	3	75
Outardes	27	23	115
Pemberton	10	9	90
Prince Albert	11	15	136
Québec	42	52	124
Regina	30	23	77
Rideau Valley	35	33	94
Rockies	15	20	135
Saskatoon	15	17	113
Silver Star	10	11	102
SOSA	138	189	137
Swan Valley	6	2	33
Toronto	20	23	117
Vancouver	92	94	102
Winnipeg	67	58	87
York	90	126	140
Non-club	16	27	169
<i>totals</i>	<i>1312</i>	<i>1363</i>	<i>104</i>

summer odyssey

from page 7

through Hobbs and Moriarty into Colorado and north beyond Wyoming and Montana into Alberta was all new, spectacular foothills country to Kris and I. Soar the American west — this long trip was a delightful adventure.

... words from the crew ...

Hospitality, history, hysteria and happiness. As a registered member of SCUM (Soaring Crew Union Member), it is my duty to report on those 25,800 kilometres from the ground crew perspective. My duty tour started in Dallas, 9 June. First order of the day was basic training on mantling and dismantling the PW-6 while learning the ins and outs of the trailer. It was a bit scary at first since pilots are very touchy about their toys. Luckily, because glider pilots are always interested and keen to check out new equipment, I was able to play Vania while eager volunteers assisted Charles. As the tour continued, we learned

that it was possible for the two of us, using a wing dolly, to do the job alone and without much effort — practice makes perfect.

“Everything’s Big in Texas,” especially the hospitality. What a treat to be “mammed”, hats (cowboy, of course) tipped and doors opened — I felt like a lady. Just could not get over how welcoming and friendly folks were. It made one stop and wonder how we treat tourists on home base. All through Texas, New Mexico and Colorado I was surprised by the rich history of the Spanish explorers and the many native tribes who were there long before these new states joined the Union.

When not involved with the soaring bit of the trip, there were art galleries, museums and yes, even shops. It always amazes me how pilots are expert at arriving in any given upmarket shopping area (like Santa Fe) five minutes before closing time. How do you do it!? I did mention hysteria and it had nothing to do

with missed shopping opportunities. Rather it was the result of HEAT. This Bluenoser is not equipped for temps over 75°F, so this trip, like most trips involving soaring, was a test of my fragile temperature gauge. Shall we just say I survived and so did Charles and, by the end of the trip, I could contain my cool in sizzling temps, well for as long as it took to put a PW-6 together or apart.

When Charles and I are having one of our many “discussions” about holidays, he states, “but you always enjoy yourself on gliding trips”. Darn it all, he’s right. I never had any interest in seeing the western USA and now am keen to return. Learned to see the beauty in deserts and cactus, pardon me, *cacti*. Not only that, there was the opportunity to see more of my own country — Cowley and the summer camp. There’s no doubt about it, gliding opens the door to new places, meeting and making new friends and especially reuniting with old pals. ❖

the OLC

from page 15

and national decentralized cross-country competitions. Pilots have registered themselves, all they have to do is submit their flight as an IGC file to the OLC server and, “presto”, their flight will be assessed with the maximum possible points and displayed on the OLC web site. I think that this is so trouble-free and easy that it makes other ladders and cross-country flying record keeping unnecessary.

There are also flight analysis programs around now which will automatically optimize flights and submit them to OLC with the push of a couple of buttons. With OLC available, there are no more excuses for not having fun cross-country competitions within and between clubs as well as having decentralized contests.”

Mark Roeder – Great Lakes Soaring

The most important factor for me was that with entering the OLC I forced myself to get away from home and put some miles under my wings. Getting away can be a big problem for lots of us. The other point is that it is very easy to enter your flights into the OLC. If flights could be entered as easy in the decentralized contest I would have entered my flights there as well.

Mike Glatiotis – Rockies

In the past ten years, pretty much every attempt I’ve made at badge flights has been thwarted by either my camera, barograph, or indifference to the task and the paperwork involved. My acquisition of a Colibri Datalogger this spring changed all of that. That, and flying with a group of keen (or more appropriately, rabid) cross-country pilots at

Invermere. The end result was a change in the way I fly. Cross-country became a goal not only for myself, but also for my club, as flights would be registered on the International On-Line Contest each day. No more pooching around, each flight became a task, each task became an opportunity to improve on the declaration, and each failed task leaving the door open for an alternate attempt to put more kilometres under my belt.

This summer my FR lead me to about 7000 kilometres in 20 flights, and I couldn’t be happier about it. It has opened a whole new world of soaring exploration, and for the first time, I am eagerly looking forward to some significantly more ambitious declarations than I thought I would ever even attempt. So, bring on the spring. Just about a month till those days start getting longer again! ❖

Great club and cross-country ship
Type approved in Canada
Outlasts fibreglass
Great value

L33 Solo
Easy to fly

For all-metal quality, nothing beats a Blanik!
contact BLANIK AMERICA for a competitive quote

Tel (509) 884-8305 • www.nwi.net/~blanikam/ba/home.htm
Box 1124, Wenatchee, WA, USA 98807-1124

**L23
Super Blanik**

Type approved
Superb cockpit visibility
Proven all weather durability
Over 50 L23s flying in North America!

and a guess on the number of soaring hours available after the gate opening, the task committee comes up with a task distance for the day. There are a number of things that can go wrong in this process:

- Speeds are higher than expected, first finishers return after two hours, the day is considered wasted — everybody is mad.
- Speeds are lower than expected, all contestants land out — everybody is mad.
- Day shuts down earlier than expected, all contestants land out — everybody is mad.
- One turnpoint cannot be reached due to weather while the weather is great everywhere else. Everybody either lands out or returns to the field.

I believe the Grand Prix is not the answer in the quest for a better, fairer and safer scoring system. Particularly in Canada with chronically low numbers of competitors and sailplanes with a wide range in performance the Grand Prix is simply not suitable.

The Time Distance Task (TDT)

The TDT, first introduced in Canada at the Nationals 2001, was received favourably by most competitors. It is a distance task with a set time limit that can be flown over an assigned course or as a pilot selected task.

Hybrids, where the first part of the task is assigned and the tail end is open, have proven to be quite popular. The score is on distance only, however speed is implied since distance achieved within a set time is a function of speed. The start gate is conventional, the contestants choose their start time. A 10% distance bonus is given for landing at the contest site (see *free flight 4/01* for more details on TDT).

Historically, soaring competitions were scored on distance achieved. Whoever flew the fur-

thest won the day — very simple. However, as the performance of sailplanes improved the retrieves became unmanageable. After all, the only way to prove distance was to land out. In order to minimize landouts and shorten retrieves, the speed task around set turnpoints was introduced.

With the AST task came a dilemma; the finishers were scored on speed, non-finishers on distance. Every scoring system since the introduction of the speed task has been an attempt to combine the two scoring dimensions speed and distance in one score. It has always been and will always be an arbitrary combination. Since contest scores accumulate over multiple days, each day's results had to be normalized to 1000 points in order to combine the scores of different days. Finally, day factors had to be introduced to derate abnormal or miscalled days.

This is how we ended up with scoring systems that require banks of computers and hours of hard work to come up with a score. Fortunately, technology in the form of GPS data recorders has provided us with an escape and a means to go back to basics. With the ability to determine the exact position of every contestant when his TDT time limit expires we can return to pure distance scoring.

The advantages of the TDT

Safety The gaggle advantage is eliminated since the score is not biased towards the majority of contestants. Furthermore the landout penalty late in the flight is small since only the distance counts. There are no speed points to be lost when landing out.

Fairness The pilot's score depends exclusively on his distance achieved and is not influenced by the scores of other pilots.

Simple scoring Since the score is based on distance every contestant knows where s/he stands as soon as the distance is totaled up.

Suitable for AST as well as PST tasking

Obviously an Assigned Task must be open-ended so competitors don't run out of task before their time is up. Such a task could be set as a triangle that brings the competitors back to the contest site after about 80% of the estimated achievable distance. A smaller triangle (approx. 40% of achievable distance) can be added with multiple laps to ensure even a very fast competitor will not run out of task. In practice, most contestants will "time-out" near the competition site. The slower ones will be on the last leg of the first triangle, while fast pilots will be somewhere in the smaller triangle.

Classic task-setting problems eliminated

The margins for error are significantly greater since the major decision is on the task time (ie. 2,3,4 hours) and distance is only secondary. Even if the task committee gets it somewhat wrong it may still be a great day.

Ideal for handicapping The traditional AST task is problematic when handicaps vary widely. In such a scenario it is quite possible that high performance ships burn around the course in less than two hours, derating the day, while lower performance ships cannot complete the course. Since the best handicap factor cannot compensate for the loss of speed points, the low performance ships have no chance. An assigned TDT can be set in such a way that everybody has a good chance to make it home, and even a pilot landing out still gets a reasonable score.

Problems and concerns There was one problem with the TDT that became evident during the Nationals; the optimum finish is to time-out close to the contest site with just enough energy left to make it home and collect the 10% home bonus. This resulted in gliders wobbling low into the field from all directions. A possible fix would be to reduce the home bonus to 5% and add another 5% for arriving above 500 feet at the field. We could also experiment with giving a credit for unused height at time-out.

Possibilities During the 2001 Nationals we normalized the TDT score to 1000 points to keep it compatible with other task forms. If we chose to fly exclusively TDT we could do away with points altogether and the cumulative score in the contest would be just kilometres. The winner is simply the pilot with the highest accumulated kilometres at the end of the contest. A score in kilometres has a lot more relevance to reality than a point score. It's much easier to visualize making up 20 kilometres rather than 70 points.

I believe a kilometre based score would eliminate the need for day factors because the achieved distances will be low if only a short task is called or the conditions are weak. The best way to gain more experience with this form of task is to try exclusive TDT in low level contests such as the SOSA "Mudbowl" or a Provincials. ❖

Come and soar with the bald eagles! PEMBERTON SOARING CENTRE

Operating daily April to October in Pemberton, BC

- excellent mountain scenery with thermals to 12,500 ft
- camp at the airport, B&B, or stay in Whistler
- area offers a wide variety of summer activities

Glider rentals: DG-202, L-13 & Super Blanik, L-33 Solo, Vivat motorglider

Instruction: glider pilot courses or book a number of lessons,
X-C training/off-field landing practice, checkouts in side-by-side Vivat

ph (604) 894-5727, fax (604) 894-5776

e-mail: pemsoar@direct.ca webpage: www.mountain-inter.net/soaring/



... club characteristics from page 4

promptly made aware of changes to any standard operating procedures.

- Pilot training is a dynamic process, carried out to the standards of the national soaring authority. Training is provided by enthusiastic and dedicated instructors. The students are not used as club revenue-generating items and the club does not have unrealistic expectations of instructors. The number of students accepted as club members has a direct relationship to the numbers of available instructors and training aircraft. Alternately, some clubs have left training to be done by commercial gliding establishments.
- There is a mentoring program for solo students and new pilots. There is a clear path of skills progression. These new pilots know exactly what is expected of them and what they can expect from the club.
- All club members are encouraged to take responsibility for the club's safety culture. Each club leader has a well-earned reputation for being safety conscious. Incidents and accidents are rare and are handled in a thorough but nonconfrontational manner.
- All members are promptly and appropriately recognized for their flying achievements.
- There is an active club social life away from the airfield.

These are the characteristics of clubs which are doing very well, as people have described them to us. Not all thriving clubs had every feature but they had a majority of them. We also learned there were several features that seemed most likely to bring about a club's demise.

Characteristics of declining clubs:

- A lack of effective leadership. Leaders are weak or have held their respective offices for more than three years. Several years of poor leadership puts a club at risk.
- Launch equipment failures. Nothing appears to kill a club quicker than carelessness with launch equipment. Being careless means having no equipment replacement plan, insufficient allocation of funds for maintenance and replacement or having no back-up equipment.
- Paying lip service to safety. The CFI or

Safety Officer has an authoritarian leadership style. Club SOPs are not followed. Members are put at risk because they are not given limits or are encouraged to fly in circumstances that exceed their skill levels. The club culture does not have safety as one of its guiding precepts.

In conclusion

It has been fascinating to see into the workings of some soaring clubs in North America. It was uncanny, it didn't matter who spoke about their thriving club, all the features were the same. The same is true for those clubs at risk of extinction. These clubs, too, had remarkably similar characteristics.

A hearty thanks to all those who took the time to talk with us and answer club related questions — it has been a real eye opener. I hope that these comments will spark further discussion that may help some clubs pull themselves back from the brink. ❖

Solaire Canada

Ed Hollestelle
(519) 461-1464 ph/fx
solairecanada@sprint.ca

LX-100 Electronic audio vario with averager and 2 response settings \$495

ATR57 A new 2-1/4" panel-mounted 760 channel radio ready to install. \$1395

ATR720A 760 chan VHF with mounting tray and wiring harness. \$1695

ATR720C Same as above with LCD display and 10 channel memory. \$1995

SHM1010 Boom mike and wiring (as installed by most glider manufacturers). \$175

Colibri FAI approved recorder (the size of a small package of cigarettes) with navigation and data screen. \$1395

LX-5000 The ultimate GPS/final glide computer system with large graphic display, FAI flight recorder, and moving map with airspace and task displays. \$5995

DX 50 The newest GPS flight data computer/recorder, only 2 LCDs.
(special purchase) \$2995

FSG71M Dittel radio, fits 2-1/4" hole. \$2795

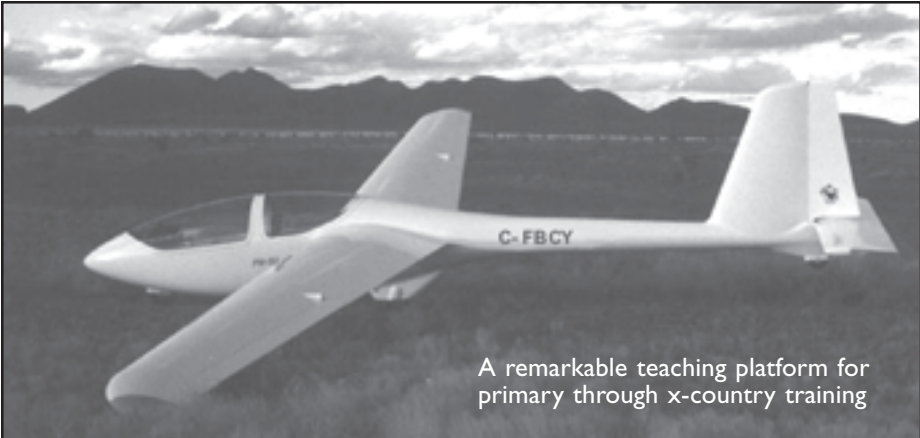
XU Aviation Ltd.

major and minor repair and inspection in

- steel tube, and wood and fabric
- stressed skin aluminum • composites

Chris Eaves, XU Aviation Ltd.
2450 Aviation Lane, London, ON N5V 3Z9

ph (519) 452-7999, fax (519) 452-0075
e-mail: mail@xu-aviation.com web site: www.xu-aviation.com
TC Approved Maintenance Organization 24-88



A remarkable teaching platform for primary through x-country training

3-PW-9

Today's technology at an affordable price.

- Excellent visibility and comfort for instructors
- Easy to rig, easy to fly, easy to maintain
- Superb handling qualities in air and on ground
- Imron finish is durable and flexible

Specs, options, prices at www.3.ns.sympatico.ca/yeatesc/world

Charles Yeates, 105 Dunbrack St, Apt 110, Halifax, NS, B3M 3G7
e-mail: yeatesc@ns.sympatico.ca Ph/fax: (902) 443-0094

FAI badges

Walter Weir

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

The following badge legs were recorded in the Canadian Soaring Register during the period 8 September to 6 November.

DIAMOND BADGE

96 Allan Spurgeon Rockies World no. 6585

SILVER BADGE

940 Kathryn Burany SOSA
941 Ray Ochitwa Vancouver

DIAMOND GOAL (300 km goal flight)

Chris Gough SOSA 302.4 km LS-8 Rockton, ON
Donald Miller Rockies 301.7 km Libelle 201B Invermere, BC

DIAMOND ALTITUDE (5000 m gain)

Allan Spurgeon Rockies 5160 m PW-5 Cowley, AB
Ron Cattaruzza Edmonton 5390 m ASW-15 Cowley, AB

GOLD DISTANCE (300 km flight)

Chris Gough SOSA 302.4 km LS-8 Rockton, ON
Donald Miller Rockies 301.7 km Libelle 201B Invermere, BC

GOLD ALTITUDE (3000 m gain)

Donald Miller Rockies 3072 m Libelle 201B Invermere, BC
Dennis Pizzardi Erin 3140 m Pilatus B-4 Sugarbush, VT

SILVER DISTANCE (50 km flight)

John Bond York 62.1 km 1-23 Arthur East, ON
Ross Taylor Prince Albert 51.8 km K-7 Birch Hills, SK
Ray Ochitwa Vancouver 51.6 km Jantar Invermere, BC

SILVER DURATION (5 hour flight)

Ray Ochitwa Vancouver 7:05 h Twin Astir Invermere, BC
Wayne Eaves York 5:15 h 1-23 Arthur East, ON

SILVER ALTITUDE (1000 m gain)

John Bond York 1280 m 1-23 Arthur East, ON
Kathryn Burany SOSA 1630 m CS-77 Rockton, ON
Ray Ochitwa Vancouver 1085 m Jantar Invermere, BC
Richard Snow Vancouver 1520 m Blanik L-33 Hope, BC
Dennis Pizzardi Erin 3140 m Pilatus B-4 Sugarbush, VT

C BADGE (1 hour flight – 30 min if winch launch)

2680 John Bond York see Silver distance Arthur East, ON
2681 Donald Miller Rockies 4:45 h Libelle 201 Invermere, BC
2682 Ray Ochitwa Vancouver 2:06 h Blanik L-13 Hope, BC
2683 Sean Sarabin Prince Albert 0:38 h K-7 Birch Hills, SK
2684 Ed Wight Vancouver 1:34 h Blanik L-23 Hope, BC
2685 Erich Zimm York 2:22 h 1-26 Arthur East, ON
2686 David Mulders Toronto 1:14 h 2-33A Conn, ON

BADGE FLYING HINTS

Remember to declare your flight BEFORE takeoff. Have several tasks prepared so you can pick the one that best suits the weather just before takeoff.

I have written a Windows computer program to help aspiring badge earners plan tasks. If you already have *Strepla*, *SeeYou*, or *Contraci* you probably don't need it – but it's free. You can download it from the resources section of the CAS website at: <<http://www.sac.ca/cas/resources/resources.html>>. The program displays a map of the commonly used turnpoints in your area and allows you to quickly calculate distances for potential tasks and save the ones that look good. If you are using a flight re- ➔ **next page**

SAC records

Roger Hildesheim

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

The following record claim has been received:

Pilot **Tracie Wark**
Date/Place 14 Aug 2001, Rockton, ON
Record type 300 km triangle speed, Feminine, territorial
FAI category DFG, 3.1.4h
Sailplane type ASW-20, C-GLTW
Speed claimed 99.1 km/h
Task completed Rockton / Mount Forest / Alymer / return
Previous records 55.6 km/h, Ursula Wiese, 1983

The following claims (though superceded) have been approved to complete the historical record:

Pilot **Tony Burton**
Date/place 25 May 2000, Invermere, BC
Record type Free 3TP distance, Open & Club, territorial
FAI category DOG 3.1.4c
Sailplane type RS-15, C-GPUB
Distance claimed 607.3 km (since superceded)
Task completed Nicholson bridge/Bull R. dam/Parson bridge/return
Previous records Open: 559.7 km, Bonnière/Werneburg, 1998
Club: 527.3 km, Tony Burton, 1999

Pilot **Tony Burton**
Date/Place 23 May 2001, Invermere, BC
Record type Free 3TP distance, Open, territorial
FAI category DOG 3.1.4c
Sailplane type RS-15, C-GPUB
Distance claimed 740.1 km (since superceded)
Task completed Invermere/Blaeberry forestry bridge/Elko RR xing/
Nicholson bridge/return
Previous record 680 km, Trevor Florence, 2000

SeeYou[®] Flight Analysis Software

SeeYou is the most featured and fastest glider pilot's software available today.

- Main Features**
- Free high resolution vector maps
 - Comprehensive statistics report
 - Multiple flights animation
 - Fast, reliable flight optimization
 - Task planning

Check it out at < www.seeyou.ws >
download a complete 2 week trial version

Exclusive North American supplier:

MZ SUPPLIES

5671 Ferdinand St, Osgoode ON K0A 2W0
(613) 826-6606, fax (613) 826-6607
e-mail: wernebmz@magma.ca
Ulli Werneburg

badge flying hints

from page 20

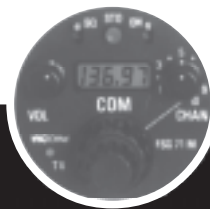
order, you don't need a visual ground reference – you require only the latitude and longitude. My program allows you to create such turnpoints by clicking the mouse. This is especially useful if you have created a 299 kilometre task and just want to shift one point a bit. You can save all your similar tasks in one file for quick selection on the big day. There are simple "help" pages with operating instructions and instructions for downloading a turnpoint file for your area.

I'm an amateur programmer and did this for fun. I would like to hear from you regarding any suggestions or comments you may have, especially if it crashes or does not display properly. E-mail waltweir@inforamp.net.

insert calendar
ad graphic

the SSA wall calendar
Now in stock at SAC office: \$18 + \$6 p&h

LASTING FOR MORE THAN 20 YEARS REMEMBER YOU GET WHAT YOU PAY FOR



VHF COM FSG 71 M

- Suitable for airborne, portable, mobile and fixed base applications
- 2.25"/ 57 mm panel mount
- 6 Watt transmitter output
- 760 channels / in 25 kHz steps
- 10 memory channels
- Only 25 mA standby current drain 9.7 ... 15.2 V.DC



WITH A DITTEL HELP...

WALTER DITTEL GMBH

ERPFTINGER STR. 36 • D-86899 LANDSBERG AM LECH
TEL.: +49 (0) 81 91 33 51-0 • FAX: +49 (0) 81 91 33 51-49
FIRMA@DITTEL.COM • WWW.DITTEL.COM

Solaire Canada solairecanada@sprint.ca

4 Monteith Ave, Thorndale, Ontario N0M 2P0
ph/fax: (519) 461-1464 or ph: (519) 293-1132

SAC SUPPLIES FOR CERTIFICATES AND BADGES

1	FAI 'A' badge, silver plate pin	\$ 6.00
2	FAI 'B' badge, silver plate pin	\$ 3.00
3	SAC BRONZE badge pin (<i>available from your club</i>)	\$ 3.00
4	FAI 'C' badge, cloth, 3" dia.	\$ 6.00
5	FAI SILVER badge, cloth 3" dia.	\$12.00
6	FAI GOLD badge, cloth 3" dia.	\$12.00
7	FAI 'C' badge, silver plate pin	\$ 5.00
8	FAI SILVER badge, pin	\$45.00
9	FAI GOLD badge, gold plate pin	\$45.00
	<i>Items 7–12 ordered through FAI awards chairman – see Committees list</i>	
	<i>Items 10, 11 not stocked – external purchase approval given</i>	
10	FAI GOLD badge 10k or 14k pin	
11	FAI DIAMOND badge, 10k or 14k pin and diamonds	
12	FAI Gliding Certificate (personal record of badge achievements)	\$10.00
	Processing fee for each FAI application form submitted	\$15.00
13	FAI badge application (<i>download from SAC web site forms page</i>)	n/c
14	Official Observer application (<i>download from SAC web site forms page</i>)	n/c
15	SAC Flight Trophies application (<i>download from SAC web site forms page</i>)	n/c
16	FAI Records application (<i>download from SAC web site forms page</i>)	n/c
17	Flight Declaration (<i>download from SAC web site forms page</i>)	n/c

Please enclose payment with order; price includes postage. GST not required. Ontario residents, add 8% sales tax. Items 1–6 and 13–17 available from SAC office. Check with your club first if you are looking for forms.

ARTICLES ACVV POUR CERTIFICATS ET INSIGNES

Insigne FAI 'A', plaqué argent	
Insigne FAI 'B', plaqué argent	
Insigne ACVV BRONZE (<i>disponible au club</i>)	
Insigne FAI 'C', écusson en tissu, 3" dia.	
Insigne FAI ARGENT, écusson en tissu, 3" dia.	
Insigne FAI OR, écusson en tissu, 3" dia.	
Insigne FAI 'C', plaqué argent	
Insigne FAI ARGENT	
Insigne FAI OR, plaqué or	
<i>Les articles 7–12 sont disponibles au président des prix de la FAI</i>	
<i>Les articles 10, 11 ne sont pas en stock – permis d'achat externe</i>	
Insigne FAI OR, 10k ou 14k	
Insigne FAI DIAMAND, 10k ou 14k et diamands	
Certificat FAI de vol à voile (reçu des insignes)	
Frais de services pour chaque formulaire de demande soumis	
Formulaire de demande pour insignes	
Formulaire de demande pour observateur officiel	
Formulaire de demande pour trophées de vol de l'ACVV	
Formulaire de demande pour records FAI	
Formulaire de déclaration de vol par feuille	

Votre paiement devrait accompagner la commande. La livraison est incluse dans le prix. TPS n'est pas requise. Les résidents de l'Ontario sont priés d'ajouter la taxe de 8%. Les articles 1–6 et 13–17 sont disponibles au bureau de l'ACVV.

Please **DO NOT** mail claims to the National Office – they are to be sent directly to the Badge chairman.

SAC Clubs

Atlantic Zone

BLUENOSE SOARING CLUB
Pat Tye (902) 864-7736
club (902) 632-2088
www.chebucto.ns.ca/Recreation/BSC/

Quebec Zone

AERO CLUB DES OUTARDES
Gérard Savey (450) 676-7985

AVV CHAMPLAIN
Sylvain Bourque (450) 771-0500
www.avvc.qc.ca

CVV MONT VALIN
Martin Beaulieu (418) 693-7963
<martinbz@videotron.ca>

CVW QUEBEC
Bruno Bégin (418) 337-4905
www.cvvq.net

MONTREAL SOARING COUNCIL
Peter Trent (514) 739-6182
airfield (613) 632-5438
www.flymsc.org

Ontario Zone

AIR SAILING CLUB
Oscar Boesch (416) 769-4000

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

BASE BORDEN SOARING
Ray Leiska (705) 424-2432 H
(705) 424-1200 x 2479 B

BEAVER VALLEY SOARING
Doug Munro (416) 466-1046
http://www.interlog.com/~kwthrow/
beaver.html

BONNECHERE SOARING
Iver Theilmann (613) 687-6836

CENTRAL ONTARIO SOARING ASSN
Bob Leger (905) 668-5111 H
(416) 973-8534 B

ERIN SOARING SOCIETY
www.erinsoaring.com

GATINEAU GLIDING CLUB
Andrew Robinson (613) 226-7616
www.gatineauglidingclub.ca

GREAT LAKES GLIDING
Richard (416) 385-9293 (H)
Longhurst (416) 540-3132 (cell)
www.greatlakesgliding.com

GUELPH GLIDING & SOARING ASSN
Paul Nelson (519) 821-0153 (H)
www.thinkage.on.ca/~GG&SA/

LONDON SOARING SOCIETY
Sue & Chris Eaves (519) 268-8973
www.lonet.ca/res/mkeast/soar.htm

RIDEAU VALLEY SOARING
club phone (613) 489-2691
www.cyberus.ca/~rvss/

SOSA GLIDING CLUB
Pat O'Donnell (519) 753-9136
www.sosaglidingclub.com

TORONTO SOARING CLUB
Alex Foster (905) 773-4147
www.home.istar.ca/~boblepp/

YORK SOARING ASSOCIATION
(519) 848-3621 airfield
(416) 250-6871 info
www.YorkSoaring.com

Prairie Zone

PRINCE ALBERT GLIDING & SOARING
Keith Andrews (306) 249-1859 H
www.soar.sk.ca/pagsc/

REGINA GLIDING & SOARING CLUB
Jim Thompson (306) 789-1535 H
(306) 791-2534 W
www.soar.regina.sk.ca

SASKATOON SOARING CLUB
Brian Galka (306) 652-7966 H
(306) 956-7200 B
www.ssc.soar.sk.ca

WINNIPEG GLIDING CLUB
Susan & Mike Maskell (204) 831-8746
www.wgc.mb.ca

SWAN VALLEY SOARING ASSOCIATION
Brian Tigg (204) 734-5771

Alberta Zone

ALBERTA SOARING COUNCIL
Tony Burton (403) 625-4563
www.soaring.ab.ca

CENTRAL ALBERTA SOARING CLUB
Brian Davies (403) 318-4577 H
ve6ckc@ccinet.ab.ca

COLD LAKE SOARING CLUB
Box 5108, Stn Forces
Cold Lake, AB T9M 2C3
(780) 594-SOAR
www.jetnet.ab.ca/clsc

CU NIM GLIDING CLUB
Al Hoar (403) 288-7205 H
(403) 569-4311 B
www.soaring.ab.ca/free-flt/cunim

EDMONTON GLIDING CENTRE
(Air Cadets) Jason Acker
1203 - 11307 99 Avenue
Edmonton, AB T5K 0H2

EDMONTON SOARING CLUB
John Broomhall (780) 438-3268
www.freenet.edmonton.ab.ca/soar/

GRANDE PRAIRIE SOARING SOCIETY
Terry Hatfield (780) 356-3870
www.soaring.ab.ca/free-flt/gppss/home

Pacific Zone

ALBERNI VALLEY SOARING ASSN
Doug Moore (250) 723-9385

ASTRA
Harry Peters (604) 856-5456
petersh@uniserve.com

BULKLEY VALLEY SOARING
Norbert Klassen (250) 847-4710

CANADIAN ROCKIES SOARING CLUB
Don Miller (250) 342-3201
Ernst Schneider (250) 342-7662
ews@soartherockies.com

PEMBERTON SOARING
Rudy Rozsypalek (604) 894-5727
www.mountain-inter.net/soaring/

SILVER STAR SOARING ASSN
Malcolm Rhodes (250) 547-9507
www.members.home.net/soar/

VANCOUVER SOARING ASSN
David Clair (604) 739-4265 H
www.vsa.ca

Canadian Advanced Soaring

Dave Springford (613) 634-2050
springford-d@rmc.ca
www.sac.ca/cas

Directors & Officers

President/Ontario

Richard Longhurst
23 Lesmill Road, Suite 100
Toronto, ON M3B 3P6
(416) 385-9298 (H)
(416) 540-3132 (cell)
(416) 385-1580 (F)
rlonghurst@look.ca

Quebec/Atlantic

Jo Lanoë
2511 Chemin Royal
Ile d'Orléans, QC GOA 3W0
(418) 829-0342 (H), 682-6627 (B)
jlanoë@qc.aibn.com

Prairie & VP

Howard Loewen
233 Lamont Boulevard
Winnipeg, MB R3P 0E8
(204) 489-1148 (H)
holoewen@home.com

Legal Counsel

Robert Wappel

Alberta

David McAsey
47 - 2300 Oakmoor Drive SW
Calgary, AB T2V 4N7
(403) 281-7962 (H)
(403) 281-0589 (B&F)
mprsoar@shaw.ca

Pacific

Martin Vanstone
19 English Bluff Road
Delta, BC V4M 2M4
(604) 948-1059 (H)
(604) 948-2036 (F)
mvanstone@itinc.net

Exec Director & Treas

Jim McCollum
6507 Bunker Road
Manotick, ON K4M 1B3
(613) 692-2227 (H), 829-0536 (B)
sac@sac.ca

Committees

Air Cadets

Stuart Gregory
78 Kimbourne Avenue
Toronto, ON M4J 4J4
(416) 466-7274 (H)

Airspace

Ian Grant
2954 Otterson Drive
Ottawa, ON K1V 8Z7
(613) 737-9407 (H), 995-2031 (B)
grant.i@atomcon.gc.ca
members:

Roger Harris
rharris@petrillobujold.ca
Scott McMaster
scott@mcmil.cis.mcmaster.ca

FAI Awards

Walter Weir
3 Sumac Court, Burketon
RR 2, Blackstock, ON LOB 1B0
(905) 263-4374 (H)
waltweir@inforamp.net

FAI Records

Roger Hildesheim
Box 1351, Richmond ON KOA 2Z0
(613) 838-4470
lucile@istar.ca

Flight Training & Safety

Ian Oldaker
"Willow Spinney"
RR1, Limehouse, ON LOP 1H0
(905) 873-6081 (H)
oldaker@aztec-net.com
members:

Dan Cook dt.cook@sympatico.ca
Tom Coulson tcoulson@istar.ca
Joe Gegenbauer gegb@home.com
Fred Kisil fksil@ms.umanitoba.ca
Marc Lussier
Terry Southwood

Free Flight

Tony Burton, Box 1916
Claresholm, AB TOL 0T0
(403) 625-4563 (H&F) free-flt@agt.net

Historian

vacant

Insurance

Richard Longhurst
23 Lesmill Road, Suite 100
Toronto, ON M3B 3P6
(416) 385-9293 (H), 540-3132 (cell)
rlonghurst@look.ca
members:

Doug Eaton
Keith Hay keith.hay@attglobal.net

Medical

Dr. Peter Perry
64 Blair Road, Cambridge, ON N1S 2J1
(519) 623-1092 (H), 740-6547 (B)
member: Dr. WL Delaney

Sporting

Jörg Stieber
Box 25, Plattsville, ON N0J 1S0
(519) 684-7372 (H), 662-2840 (B)
joerg@odg.com
members:

Colin Bantin ccbantin@sympatico.ca
Walter Weir waltweir@inforamp.net
contest ltrs: Al Schreiter alschre@ican.net

Technical

Paul Fortier
RR2, Mountain, ON KOE 1S0
(613) 989-1634 (H)
pfortier@ottawa.com
members:
Chris Eaves xu-aviation@sympatico.ca
Herb Lach
Glenn Lockhard glockhard@aol.com

Trophy Claims

David McAsey
47 - 2300 Oakmoor Dr SW
Calgary, AB T2V 4N7
(403) 281-7962 (H), 281-0589 (B&F)
mprsoar@home.com

Video Library

Ted Froelich
2552 Cleroux Crescent
Gloucester, ON K1W 1B5
(613) 824-6503 (H)
102375.1616@compuserve.com

Web Site

Chairman: vacant
members:
S. Kennedy
H. Loewen holoewen@home.com
R. MacPherson rmacpher@nash.pubnix.net
M. Morgulis mike.morgulis@sympatico.ca

Trading Post

Personal ads are a free service to SAC members (please give me the name of your club).

\$10 per insertion for nonmembers.

Send ad to editor, not to SAC office.
(Address at bottom of page 5 masthead)

Ad will run 3 times unless you renew.
Please tell me if your item has been sold sooner. Maximum ad length is 6 lines and subject to some editing as necessary.

single seat

Tern, CF-BWA, 195h, basic instruments, enclosed trailer. \$5000 obo. Walter Mueller (780) 539-6991.

Ka6CR, C-FRWO, Schleicher built 1964, 1900h, refinished Dec/89. Std panel with Delcom radio & boom mike, elec vario, Volkslogger, encl. trailer. Very nice Ka6 with red & white paint scheme. US\$8000. At SOSA. Call Les, (416) 693-0921 <phredfly@comnet.ca>

Ka6E, 1474h. Std panel, encl. metal trailer. Wings and fuselage recently refinished. Chute and fresh annual included in price. \$11,800. Based at Invermere Soaring Centre, BC. Call Ernst or Trevor (250) 342-7662 or 1688. <info@soartherockies.com>
Photos under <www.soartherockies.com/classifieds>

L-33 Solo, 1997, zero hours, basic inst, Becker radio, excl cond, located in BC. US\$23,500 obo. (604) 894-5727, eves (604) 894-5707, <pemsoar@direct.ca>

MZ SUPPLIES

5671 Ferdinand St, Osgoode ON K0A 2W0
(613) 826-6606, fax (613) 826-6607
e-mail: wernebmz@magma.ca
Ulli Werneburg

Exclusive Canadian dealer for the following outstanding aviation products:

CAMBRIDGE Aero Instruments
Top of the line L-NAV and S-NAV flight computers, GPS Flight Recorders and Variometers incl. the new Palm NAV

SAGE Variometers
Simply the best
mechanical variometers in the world.

SCHLEICHER Sailplanes
Manufacturers of the
ASW-27, ASW-24, ASH-26, ASH-25,
ASW-22, ASK-21, ASK-23
and the new ASW-28 Std class sailplane.

RUSSIA Sailplanes
AC-4c, 35:1 with a 12.6m wing!
AC-5M motorglider

Std Jantar 1a, C-GXTS, 540h, all ADs done, no damage, basic instruments, ATR 720A transcvr, boom mike, two total energy variors with audio, trailer and ground handling gear, wing & canopy covers, solar charger, camera, chute. \$28,000 obo. Al Sunley (780) 464-7948, <alsunley@freenet.edmonton.ab.ca>

HP14T, C-FAXH, 1450 h, good cond, elec vario, Delcom radio, chute, A8A O2 with 2 bottles, Scott mask with microphone, hydraulic disc brake, very complete package, easy towing trailer with new tires, construction drawings, excel value for this easy flying X-C sailplane, best built HP-14 in Canada. \$16,500 obo, Mike Thompson (604) 534-8863, e-mail <thompson_foundry@telus.net> Check these links:
<www.soaridaho.com/Schreder/Construction/HP-14T_Hydraulic_Flap_System>
<www.soaridaho.com/Schreder/HP-14/HP-14_Construction_Index.html>
<www.soaridaho.com/Schreder/HP-14/C-FAXH>
<www.soaridaho.com/Schreder/HP-14/hp-14>

RS-15, C-GPUB, 2100h. Honest almost-Cirrus performance, Hollestelle winglets add large climb improvement. Cambridge & Filser variors, O2, encl trailer, misc RS-15 plans & odds & ends. \$16,000 obo. Tony Burton (403) 625-4563, <free-flt@agt.net>. For fine photo, go to <www.soaridaho.com/Schreder/>

ASW-20B, 1985, 1450h, excel gel coat and general cond, never damaged, Dittel FSG60M, Sage vario, Winter ASI, and 2 π vario, Cambridge L-NAV, relief system, wing covers, tow-out gear, Komet trailer, outstanding performer. \$59,000 (US38K). Ulli Werneburg, (613) 826-6606 or <wernebmz@magma.ca>

ASW 20, newly refinished with Simtec Prestec, flip-up instrument panel like a 20B, new water ballast bags, Dittel ATR 720 radio, Filser LX4000 glide computer, Filser LX20 recorder, Komet trailer. \$57,000 firm. Chris Eaves: <mail@xu-aviation.com> or (519) 452-7999 days, (519) 268-8973 evenings.

ASW-20B, C-GGWW, full Cambridge system including L-Nav and GPS, Dittel radio, Cobra trailer, ELT, tow-out gear. A proven winner. Available 2 April after delivery of new ASW-27. \$45,000 obo. Walter Weir (905) 263-4374 or <waltweir@inforamp.net>

Ventus B, 1000h, NDH. Ball vario, llec SB8, LX400 GPS flight computer, ASR/GPS, flap position lights, Dittel 760 radio, Security chute, Masak winglets, O2, Cobra trailer. US\$37,000/Cdn\$56,000. Can deliver. Ian Sutcliffe. View at <www.IanSutcliffe.com>, details (416) 817-1787, <iands@attglobal.net>

Strojnik S2A, C-FGBY, homebuilt motorglider, by master craftsman, excellent work. Basic instruments, ICOM IC-A3 handheld radio, Security 150 chute. Kawasaki 340 engine. Encl. homebuilt trailer. More info at <<http://lark.gawd.mb.ca/~sps/s2a>> \$16,500. Contact <s2aforsale@lark.gawd.mb.ca> or Bruce at (204) 783-4983.

Wanted, motorglider I'm looking for something older and cheaper. Contact Rob at (306) 764-7381, e-mail <ka7@sk.sympatico.ca>

Dale Kramer is the Canadian team at the World Gliding Championships, Mafikeng, South Africa, 18-31 Dec.
His contest reports site is
www.sailplanes.info

Polo shirts with the Canadian team logo on sale for \$45 with all proceeds going to support Dale.
Order from Dave Springford,
(905) 847-7798, <springford-d@rmc.ca>

L-13 SL Vivat motorglider, 930 h, MTV-1 electric adjustable prop, Becker radio, basic instruments, turn and bank, strobe/nav lights, beautiful in and out, US\$41,000. Pemberton, BC. pemsoar@direct.ca (604) 894-5727, evenings (604) 894-5707.

misc

Monerai, unfinished kit / glider wanted. Call Gregory at (905) 568-1280 or <o_sachs@sympatico.ca>

A14 regulators, diluter demand O2 regulator – serviced and pickled. Four avail. \$200 ea. Dave Fowlow, (403) 974-7541.

Winch, 350 cu in Chrysler V8, on one axle with trailer hitch. Will launch all two-seaters. Call Kurt at (519) 948-8227 evenings, (519) 966-7300 days.

suppliers

Canadian Soaring Supplies Borgelt instruments and soaring software. Svein Hubinette, 343-150 rue Berlioz, Ile des Seours, QC H3E 1K3, (514) 765-9951 <svein@videotron.ca>

MZ Supplies Dealer for Schleicher sailplanes and parts, Russia sailplanes, Becker radios, most German instruments, SeeYou flight software. Ulli Werneburg, 5671 Ferdinand St, Osgoode, ON K0A 2W0 ph (613) 826-6606, fax 826-6607 <wernebmz@magma.ca>

XU Aviation Glider repairs in all materials. Chris Eaves <xu-aviation@sympatico.ca>. (519) 452-7999, fax (519) 452-0075.

Flying High Parachute sales, repairs, repacking, custom containers. Al MacDonald (403) 687-2225 <www.flyinghigh.net>

Invermere Soaring Centre
Schempp-Hirth sailplanes, PW-5. Glider import and brokerage, glider rental, mountain flying instruction. Ernst Schneider / Trevor Florence, Box 2862, Invermere BC, V0A 1K0, ph/fax (250) 342-1688, cell (250) 342-7662, web site: <www.soartherockies.com>
e-mail: <info@soartherockies.com>

magazines

SOARING — the monthly journal of the Soaring Society of America. Subscriptions, US \$43 price includes postage. Credit cards accepted. Box E, Hobbs, NM 88241-2100. <info@ssa.org>. (505) 392-1177, fax (505) 392-8154.

NEW ZEALAND GLIDING KIWI — the monthly journal of the New Zealand Gliding Association. US\$33/year (seamail). Private Bag, Tauranga, NZ. <gk@roake.gen.nz>

SAILPLANE & GLIDING — the only authoritative British magazine devoted entirely to gliding. Bimonthly. British Gliding Association, Kimberley House, Vaughan Way, Leicester, LE1 4SE, UK. US\$43 per year airmail, US\$33 surface. <beverley@gliding.co.uk>

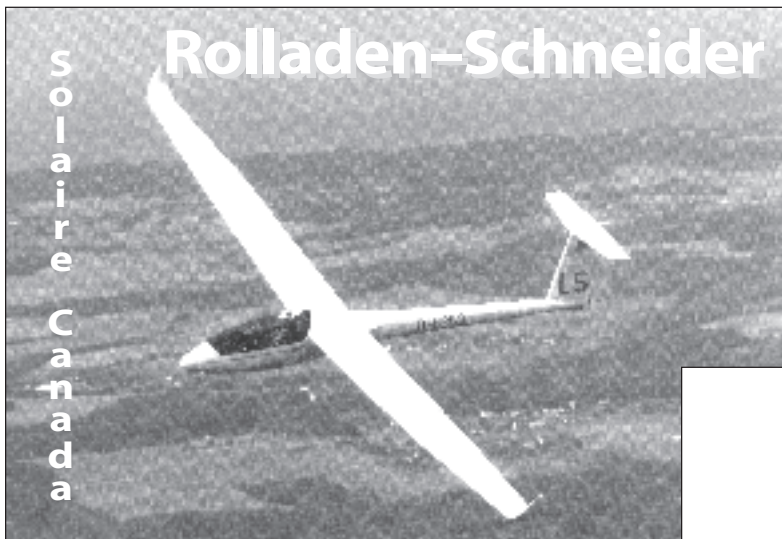
AUSTRALIAN GLIDING / SKYSAILOR — monthly journal of the Gliding and the Hang Gliding Federations of Australia. \$A94.80 airmail. Pay by Bankcard, Visa, MC. Gliding Federation of Australia, 130 Wirraway Road, Essendon Airport, Victoria 3041, SA. fax: (03) 9379-5519. <AdminOfficer@gfa.org.au>

MOTORGLIDING INTERNATIONAL — bimonthly jointly published by the Soaring Society of America and the British Gliding Association. US\$34 per annum, (505) 392-8154. <info@ssa.org>

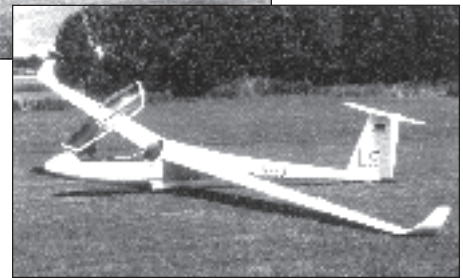
VOL À VOILE — une publication bimestrielle éditée par Aviasport. 300 F les 6 numéros. Tel 01 49 29 44 22 <info@volavoile.com>

return address:
Soaring Association of Canada
Suite 107 – 1025 Richmond Road
Ottawa, Ontario K2B 8G8

CANADA		POSTES
POST		CANADA
Publication mail 1653563		
Contract number 02442256		



We are pleased to announce **Solaire Canada** as the Canadian representative for our line of competitive racing and club gliders.



- **LS6** The LS6-c can be ordered with many wing configurations: 15 Metre, and now 18 Metre class with full 1156 lb wingloading, both with or without winglets, etc.
- **LS8** The LS8 is not only a winner in the Standard Class, it can now be ordered with the 18m extension tips with about a 48:1 glide ratio at a very affordable price.
- **LS9** The LS9 self-launching 18m glider has reached production status and will satisfy the self-launch crowd with unequalled performance and flight qualities.
- **LS10** We anticipate the new LS10 as the new 15 Metre racer, also available in 18m wingspan in the spring of 2001, and are confident that it will meet or exceed your expectations.
- **LS4** The well-known LS4 is still in production and more than 1000 are built now. The newest version LS4-b now has automatic control system connectors. This glider with its high performance, beautiful and easy handling qualities, together with a very affordable price, makes it the ideal glider for the private owner or clubs alike.

For more information, prices, options, and delivery positions, please contact Ed Hollestelle at:

Solaire Canada

4 Monteith Avenue
Thorndale, Ontario N0M 2P0
ph/fax: 519-461-1464 or ph: 519-293-1132
solairecanada@sprint.ca