free flight

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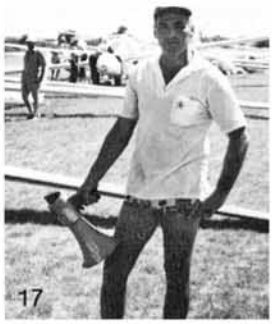

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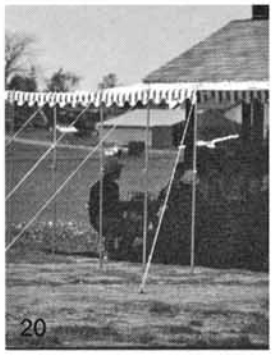

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winnipeg loves the lark

by Mark Perry

This year the Winnipeg Gliding Club took a big step in purchasing a Lark IS28B2 two-place high-performance sailplane for advanced and cross-country training.

The Club took delivery of the big T-tailed machine from Avia-Impex of Quebec in June and shortly had it flying under a flight permit pending type certification. Other clubs with IS28B2's waiting certification are SOSA and SAGA. At the same time WGC's CFI Ian Oldaker bought a Lark IS29D2, the first of the type in Canada.

The all metal Romanian sailplane has been busy ever since arrival and many instructors at the club have been checked out and are in turn checking out other advanced solo pilots in it.

It has not been on a cross-country trip yet pending construction of a trailer (by modifying the Club's 2-33 trailer) but has had one outlanding when a recently soloed pilot was caught out by strong winds on a marginal day. He landed in a very muddy field just across the highway north of the field.

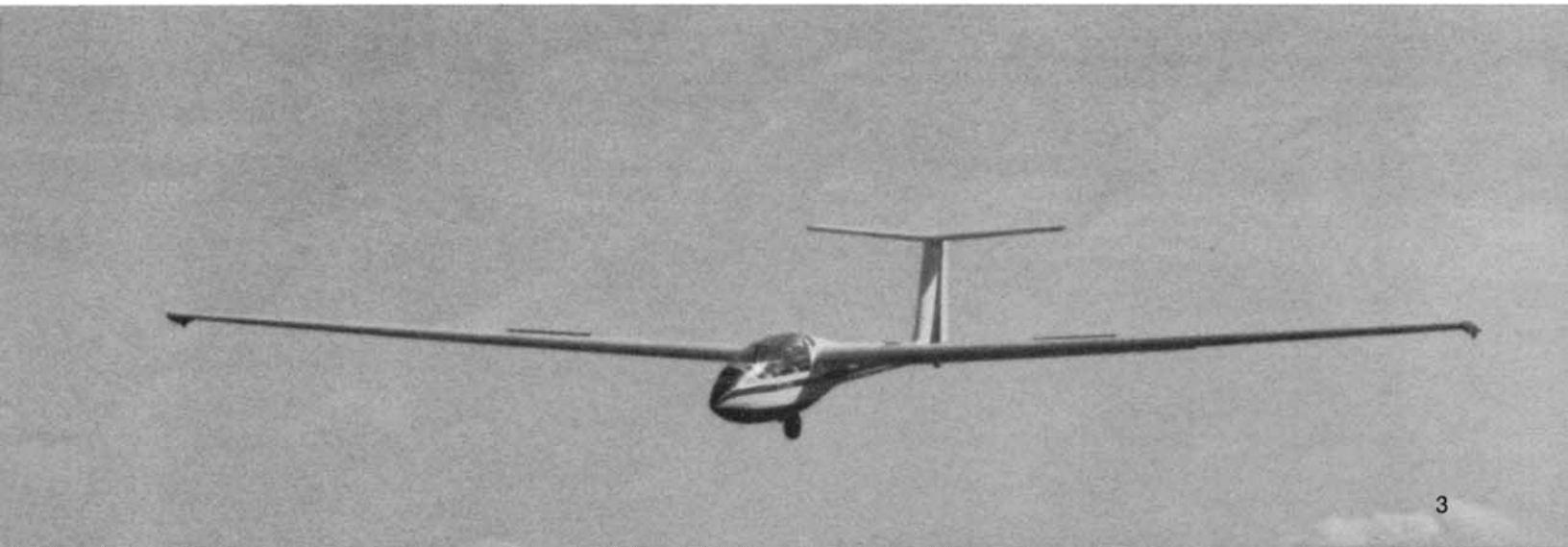
The glider has been used in a lot of local soaring, even with a relatively poor season for the region. Pilots are eager to fly the glamorous performance machine, their first taste of flaps and retractable wheel, and not a few wonder when do they get a chance to fly it; it's popular. The consensus of those who have been flying it and becoming very spoiled by it is; "the more they fly it, the more they like it."

It's big - everything about it is! That big vertical stabilizer produces what amounts to one deficiency; it does not go easily into or stay in a steep slip. Also the top-surface dive brakes are felt to be less powerful than they should be, and these two factors necessitate careful circuit planning.

Otherwise it is stable, safe, with good stall characteristics, with a slight tendency to drop a wing. The 17-meter wings have a good roll rate because of the large ailerons. Pitch control is crisp. The elevator is trimmed by two tabs. All control surfaces are fabric covered; the rest of the aircraft stressed skin construction, flush-rivetted, filled and finished in bright red, white and black. Maximum speed is 122 knots, in aerotow 81 knots. Maximum with flaps 70 and rough air redline is 89.

Performance is given as best L/D of 34:1 at 50 knots solo with sink rate of 1.5 fps. The wing is a laminar section.

The flaps, controlled by a thumblock



Lark with Ka-7 for comparison.

Jeff Hemsley and CFI, Ian Oldaker prepare for flight.

Ian Oldaker and Mirth Rosser checking cockpit.

Ian and Mirth ready for take-off.

Tail view of Lark.

President's Notes

Another soaring season has almost come to pass, but it's been an exciting summer. The Canadian Team did quite well in Chateauroux, especially Jim Carpenter with his sixth place in the Standard Class. None of our pilots earned less than 80% of the points of the winner in each class. That is the best indicator of the tough competition in the world class, and the increased competence of our pilots. Our thanks to them, and to all the other Team members.

Fund raising activity for the team has been unsatisfactory in some areas. The "Fly for Canada" campaign has been a complete flop. Donations from the general membership and fund raising activity by the general membership have been very disappointing. Fortunately the efforts and the generosity of a few have been very helpful. For instance, both Montreal Soaring Council and SOSA clubs have donated $1000 each. Members of the Team have donated $350 each.

A few other members have made donations, and we are grateful for their support. But what about the other 40 clubs and 2500 members? If your conscience is bothering you, send a donation now to the Team Fund treasurer (J.A. Knowles, 543 Cayley Dr., London, Ontario N6H 3G5).

Our accident record so far has been reasonable. We had 12 claims for approx. $40,000 against the insurance plan, and the year is not yet over. However, if there is no great increase in this total we should be able to negotiate a slight rate decrease for next year. Stay alert and may all your landings be smooth and uneventful.

SAC has been successful in averting the classification of member clubs as "commercial operations" by the Canadian Transport Commission. After more than a year of negotiations common sense has prevailed over red tape. I hope the same can be said when our negotiations with Revenue Canada regarding the federal sales tax on gliders are completed. And last but not least we are trying to avert a complete and potentially expensive change in the type approval procedure proposed by Transport Canada. So far negotiations have been difficult and slow. We still have hope that common sense will prevail. In the meantime be sure to check requirements and procedures with the SAC Technical Committee **before** you place an order for a non type approved glider. If you rush out and import a non type approved sailplane on your own don't expect the SAC to work miracles for you.

This year the number of licensed Canadian glider pilots has exceeded 3000 for the first time. Several new clubs have started operations this year. It's good to see our numbers grow. Take a friend for a ride, he or she may become enthusiastic!

winnipeg loves the lark

handle on the left of the roomy cockpit have four positions, neutral, negative 5 degrees and plus 5 and 10. The gear handle is the same type on the right side. Dive brakes and trim are on the left.

The Lark appears to be paying itself off in the benefits of pilot training, building skill and confidence in pilots graduating from the 1-26 and 2-33's. With better soaring weather and full preparation it will prove itself as a cross-country trainer as well.

Despite the marginal weather this season there have been some good days providing for flights of Silver C duration and cross-country flights by the higher-performance sailplanes, more of which have come to the Club in the last couple of years.

The Club is still growing as the increasing number of ships at the field indicates, however, despite the erosion by the Assiniboine River at the dogleg, and the lake effect sometimes suffered by the presence of Lake Manitoba to the northwest, the decision to remain at Pigeon Lake for the future has been made. Now that the Lark has been bought, next year's plans may include greater investment in Club facilities, probably a clubhouse. The Club also hopes to upgrade other features of the site, including grading the rough spots on the field, more electrical service and toilet facilities. Major policies for '79 will be decided at the AGM in December.

The towplanes manned by able and willing towpilots still hang in there: the Stinson L-5 got a new engine last year, and the Citabria is doing fine despite occasional mag problems, due to the rapidly accrued hours from the many tows put in. Club fleet is now two 2-33's, a 1-26, the Lark IS28B2, and the two towplanes. A former Club 2-22 now owned by a member is available for occasional use by the Club.

One other major field improvement done in the past year was interrment of the hydro lines at the north end of the field, along the highway. They might have been a good "VASI" system, but were also a potential hazard. However pilots must now judge their approaches carefully to avoid passing too low over the highway and the end of the field, and to this end a minimum touchdown point is clearly marked on the field.

Club membership stands at about 140, and there is always a contingent of eager members who ensure things keep running smoothly for everybody on and off the flight line.

Visitors are always welcome to Pigeon Lake during the season. Even if it's a no flying day the "Black Sheep Squadron" will no doubt keep you entertained.

Postcript: When Ian's Lark and the Club Lark are together on the flight line, jokes about the 'Romanian Air Force' are definitely frowned upon.

Hangar Flying

Slide Presentation

All regional offices of Transport Canada now have a slide presentation of recent gliding accidents. The presentation is available through the Regional Aviation Safety Officer in your area.

How about adding this to one of your winter sessions, or set up an evening and invite your RASO along to give the presentation? Accidents can happen to all of us but the best way to avoid them is to know the pitfalls and be prepared. Give your RASO a call now!

Paul Tissandier Award to Australian

J.R. (Bob) Muller, 55, a public relations consultant of Seacliff Park, South Australia, was told recently that he had been awarded the Paul Tissandier Diploma. The award is made to aviation in general for outstanding contributions to aviation, not in the sporting sense but in the administrative sense. The award was first presented in the 1950's and is given only when merit warrants it.

A spell in the RAAF during World War II could have led Mr. Muller into the gliding world. "I always liked flying and although I was a navigator during the war, I did a bit of unofficial flying." he said. "I just liked being up in the air."

Aeroplanes are marvellous things to get from one place to another in a short time. But if you just want to be up in the air and really know what the air is doing and feel all of its moods, you want to get into a glider. Gliding is really flying...aeroplanes are just transport."

Mr. Muller who recently returned from Chateauroux where he managed the Australian team was the founder of the Australian National Gliding School back in the 1950's. He helped organize Australia's first participation in World's Championships in 1952 and has served as President of the Gliding Federation of Australia.

1979 AGM

The next Annual General Meeting of SAC will be held in Toronto at the Constellation Hotel, March 17, 1979. York Soaring Association will be the host club and further details about the AGM will appear in the next issue of FREE FLIGHT.

Canadian National Gliding Championships 1979

Announcement was made at the Directors' meeting in October that York Soaring Association at Arthur, Ontario would be the site of the 1979 Nationals contest. A firm date has not yet been set but the contest will likely take place in July but will be scheduled so as not to conflict with any of the other major contests.

Initial plans are for Open, Standard, 15 metre and Sports Classes to compete but if less than six Open Class entries are received then the Open Class ships will compete with the 15 metre on a handicap basis. All clubs and established competition pilots will be contacted before the end of 1978 and additional information will be published in FREE FLIGHT in subsequent issues.

Soaring as an Olympic Sport?

The Soaring Society of America have established a committee to investigate the possibility of including soaring as an Olympic event at the 1984 Olympics scheduled for Los Angeles.

A gliding competition was held at Rangsdorf, south of Berlin at the time of the 1936 Olympics and a glider aerobatic display was part of the opening ceremonies over the Olympic Stadium in Berlin. There was a glider design competition won by Hans Jacobs with his "Meise" design which was later renamed "Olympia". All of this was preliminary to having soaring events as part of the 1940 Olympics originally scheduled for London but interrupted by the war.

After the war the World Gliding Championships went their own way when the Olympic Committees were less than enthusiastic about soaring competitions. Perhaps this new interest by SSA in the United States will move soaring into the Olympic movement.

Toronto Ground School

The annual ground school for glider pilots and student pilots starts in Toronto on Wednesday, January 17th, 1979. The twelve week course will be held each Wednesday evening at Bathurst Heights Collegiate, 640 Lawrence Avenue West.

The ground school is under the direction of the North York Board of Education and is being conducted again this year by York Soaring's Fred Mueller. The fee is $12 and for additional information and registration, call 787-4291 during office hours or between 19:30 and 21:30.

Were gliders used in pilot training programs in Canada in World War II?

The Canadian Warplane Heritage, is an organization dedicated to the preservation of Canada's military aviation heritage. The principle aim is to preserve and maintain in flying condition as many of the aircraft as were used in WW II as possible.

Since most of these aircraft have been literally put out to pasture for 30 years or more, it is becoming increasingly difficult to locate aircraft which can be returned to flying condition. Each aircraft obtained is dismantled and painstakingly returned to its original new condition, a process which can take years of weekend work for groups of dedicated volunteers.

The situation regarding training gliders is not as hopeless as for some aircraft, such as assault gliders of which there are no known survivors. The main question regarding training gliders is establishing whether they were in fact used in the pilot training program. The records of the RCAF squadrons make no mention of their use. Are there any members who were perhaps involved in such a training program, or whose parents may have been? I would appreciate receiving any information on such activities.

The traditional gliders used by the Americans in their training programs, Pratt-Read, TG 2 and 3 and the L K have, until recent years been in active use with the clubs and are thus in more readily refurbishable condition.

If it is established that these aircraft were indeed utilized by the Canadian Forces the Heritage will no doubt be actively seeking refurbishable examples for display in the museum located at the Hamilton Municipal Airport, Hamilton, Ontario. Any clubs that have examples languishing in the back of their hangers, or outside, should contact the writer if they have no further plans for their use.

The Canadian Warplane Heritage has the following aircraft currently in flying condition at Hamilton: D H Tiger Moth, D H Chipmunk, Harvard, Avenger, Mitchell and Corsair. Also at Hamilton, and in the immediate process of being placed into flying condition are Anson Mk V (flying in 79), Cessna Crane (79) and a Yale (79). A longer term plan is indicated for the following, also at Hamilton: Westland Lysander, Cornell (2 examples), Vampire III.

Not at Hamilton but being stored or rebuilt elsewhere are a Lancaster (hopefully 79), Fairy Firefly (78 or early 79) and the Seafire (79?).

In addition there are aircraft which are owned and operated by members of Canadian Warplane Heritage and appear at airshows under the Heritage name, these include the P 51 Mustang, the "Goldilocks" Harvards and some primary training aircraft. The hangers are open as a museum on Saturdays and Sundays from 9 am to 5 pm. (closed at the moment, until year-end, for renovations and painting.) There is no charge for admission and you are invited to ask questions.

If any members can pinpoint any examples of World War II aircraft or equipment, or from the period immediately following, which may be lying on airfields or in dumps across the country we would appreciate receiving any information on its location or ownership.

Members should contact Deryck Brown at 11 Norbury Crescent, Scarborough Ontario, M1P 3J7 or phone (416) 759-7503.

Club News

C.O.S.A. "Central Ontario Soaring Association."

To start off the year in style, and with the help of a Wintario Grant (they pay half) we purchased a brand new Super-Cub towplane which is performing very well for us.

Last fall we purchased an M-100S and have been flying it this year for the first time. (It's great!) This year we have soloed two Air Cadets, Werner Frei and John Bottomly, and three other students and at this writing we still have 7 or 8 students yet to earn their wings.

Our membership total this year is 49. Total number of flights to date 800. We finished last year with over 1100, but we were about one month late starting this year due to a very wet spring. With any kind of luck we should still do over a thousand.

C.O.S.A. now owns in addition to the towplane, a 2-22, 2-33, 1-26 and the M-100S. Privately owned Libelle, RS 15, LK 10 and a Cherokee.

We have had a good year in terms of duration flights and Walter Weir flew his Libelle for Gold Distance and Diamond Goal.

That's C.O.S.A. in 1978!

Bert Small
President
C.O.S.A.

Chris Purcell, with Bluenose Soaring's Ka-7 at cloudbase over Stanley, Nova Scotia. Photo by Peter Myers.

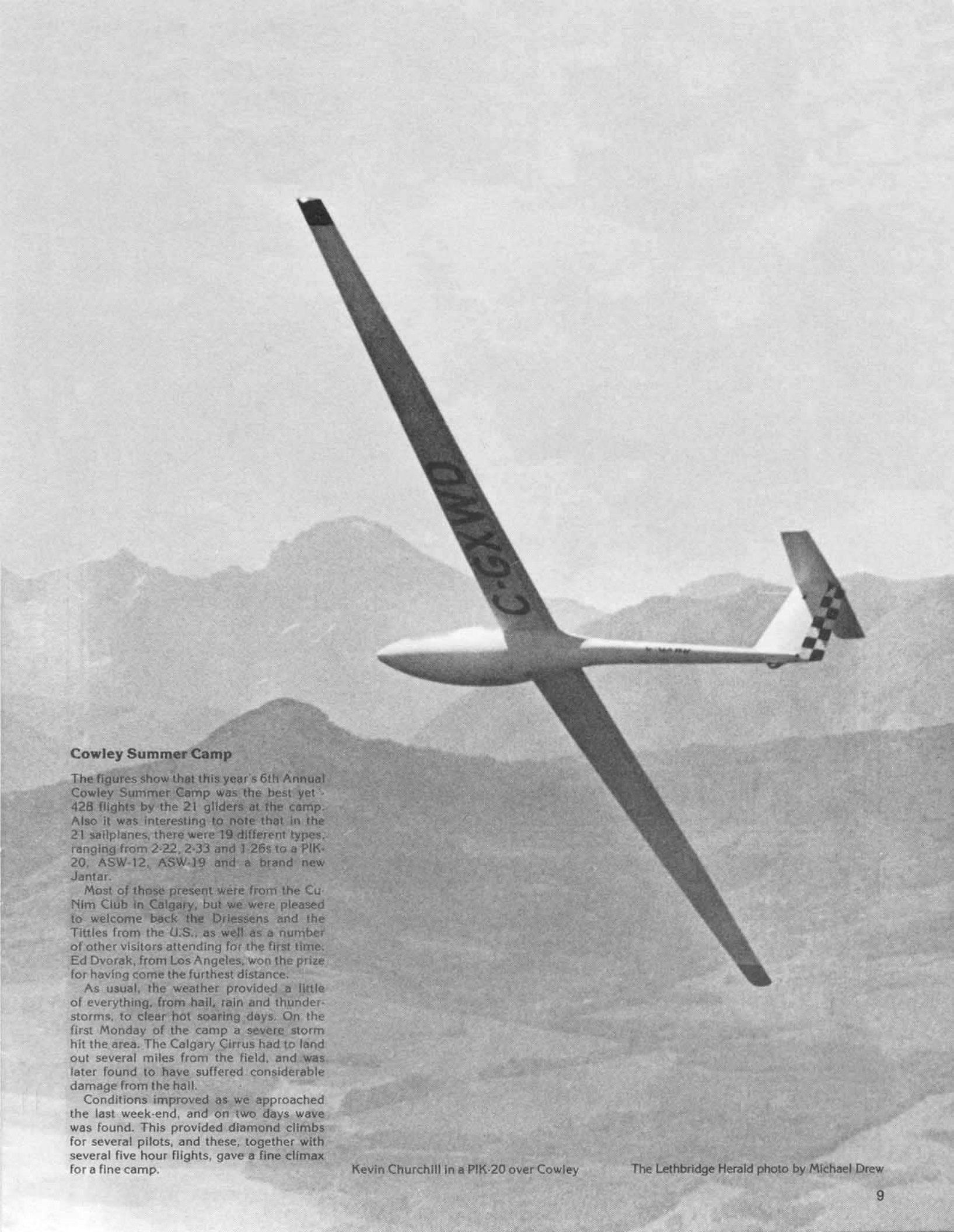
Bluenose Soaring Club

Bluenose Soaring got off to a slow start in '78. Delay in getting the materials on time resulted in the Ka-7 wing recover taking three weeks longer than planned. We replaced the Ford 302 in the winch with a 351, and it now has adequate power; Ford's automatic is not the smoothest however, a GM 454 engine with GM's Turbo-hydramatic would be a far better combination. The Geherlin design drum proved to be woefully inadequate, so BSC member Tom Foote designed a beauty. It is this writer's opinion that the Geherlin winch is in serious need of re-design.

We regret to report an accident in which our leased Blanik suffered damage as a result of heavy landing following a power failure in the winch.

Following a quiet June, the skies got busy and produced the best heights so far; on three separate days climbs to 7500' ASL were made, with Ralph Olive claiming the club record at 7590'. Our flying week saw Pat Redgrave going solo and others are waiting in the wings, or is it "on the wings." So far we have flown 360 flights and should reach our Treasurer's objective of 600. We have made real improvements in flight turnaround time and we hope to do better with the purchase of an old half-ton for hauling cable and a flat-bed truck to make the winch mobile. The sea breeze front at Stanley has been working well the last few months. Generally it moves inland of us in late July and early August leaving us with a late developing day for a period of a few weeks. But Saturday, August 12th, there it was, right over the airport allowing "climbing straight ahead" from 3,000 to 6,000 at 400 fpm at 60 kts.

It seems a sin to open the brakes on the Ka-7 at 7000' just because "it's time gentlemen, please", particularly when the winter work so improved the penetration; so we are in the market for another machine. Also if anyone has any information on where to obtain good winch cable, we would appreciate it.



Cowley Summer Camp

The figures show that this year's 6th Annual Cowley Summer Camp was the best yet - 428 flights by the 21 gliders at the camp. Also it was interesting to note that in the 21 sailplanes, there were 19 different types, ranging from 2-22, 2-33 and 1-26s to a PIK-20, ASW-12, ASW-19 and a brand new Jantar.

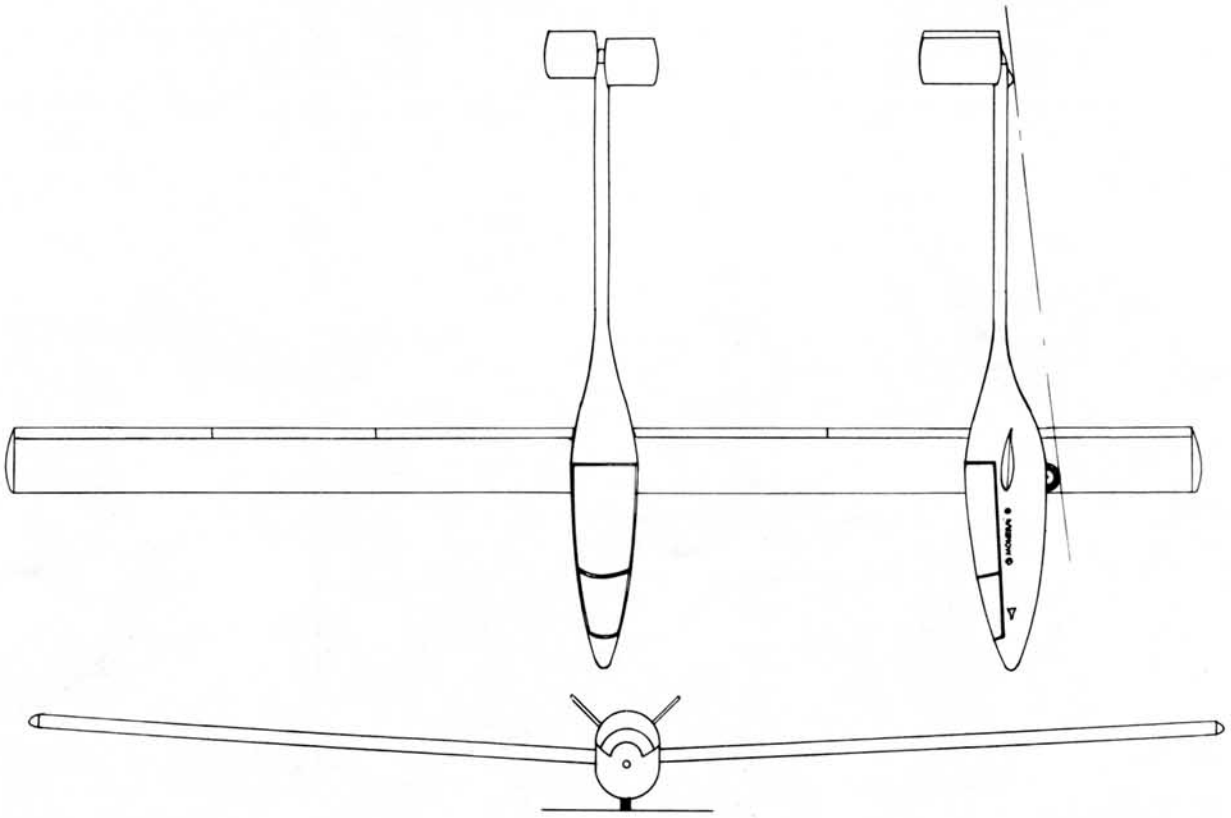
Most of those present were from the Cu-Nim Club in Calgary, but we were pleased to welcome back the Driessens and the Tittles from the U.S., as well as a number of other visitors attending for the first time. Ed Dvorak, from Los Angeles, won the prize for having come the furthest distance.

As usual, the weather provided a little of everything, from hail, rain and thunderstorms, to clear hot soaring days. On the first Monday of the camp a severe storm hit the area. The Calgary Cirrus had to land out several miles from the field, and was later found to have suffered considerable damage from the hail.

Conditions improved as we approached the last week-end, and on two days wave was found. This provided diamond climbs for several pilots, and these, together with several five hour flights, gave a fine climax for a fine camp.

Kevin Churchill in a PIK-20 over Cowley — The Lethbridge Herald photo by Michael Drew

John Monnett's MONERAI



SPECIFICATIONS AND PERFORMANCE

Length	19' 7"	**Aspect Ratio**	16.6/1	**Stall Speed**	38 mph.
Height	35"/52"	**Airfoil**	FX61192 mod.	**Sink**	2.8 ft./min./55
Area	78 sq. ft.	**Empty Weight**	220 lbs.	**L/D**	28/1 at 60
Span	36'	**Gross Weight**	450 lbs.	**Never Exceed Speed**	120 mph.
Chord	26"	**Wing Loading (gross weight)**	5.76 lb./ sq. ft.	**Flap Operation Speed**	90 mph.
Cockpit Height	27"	**Structural Limits, (gross weight)**	+ or -6	**Average Building Time**	300 hrs.
Cockpit Width	24"				
Frontal Area	3.5 ft. sq.				
Landing Gear	Single Wheel fixed				

This summer I visited the mecca of the homebuilder; Oshkosh, Wisconsin, to look over the homebuilt powered sailplanes featured at the 26th Convention of the Experimental Aircraft Association.

Two models were on display, John Monnett's Monerai and the American Eaglet. In addition there were many powered hang glider designs although, in some cases, this is something of a misnomer as the 'hang' has given way to seats and tricycle gear!

Forums (open lecture/discussions) were presented on both the Monerai and the Eaglet.

Design

The Monerai is a modern looking design with a span of 34'-8". The model on display was the prototype, the production kits have a span of 36'-0".

The wing spar is an unusual design in that it is a modified "I" beam aluminum extrusion which is 5" high and 3" wide at the root, tapering to 5" by 3/8" at the tip. The machining is carried out in the factory and the spar is shipped ready for use. The spar comes complete with extruded and milled fittings which require only minimal filing to fit.

Wing Construction

The wing is a constant chord with ailerons and flaps secured to the preformed trailing spar. The ribs are all identical and are shipped preformed ready to pop rivet onto the spars.

The wing skins consist of a single sheet of aluminum which wraps from rear spar to rear spar. No rivets are used, the skin is epoxy bonded to the ribs.

The ailerons and flaps are shipped preformed and are mounted on the rear spar.

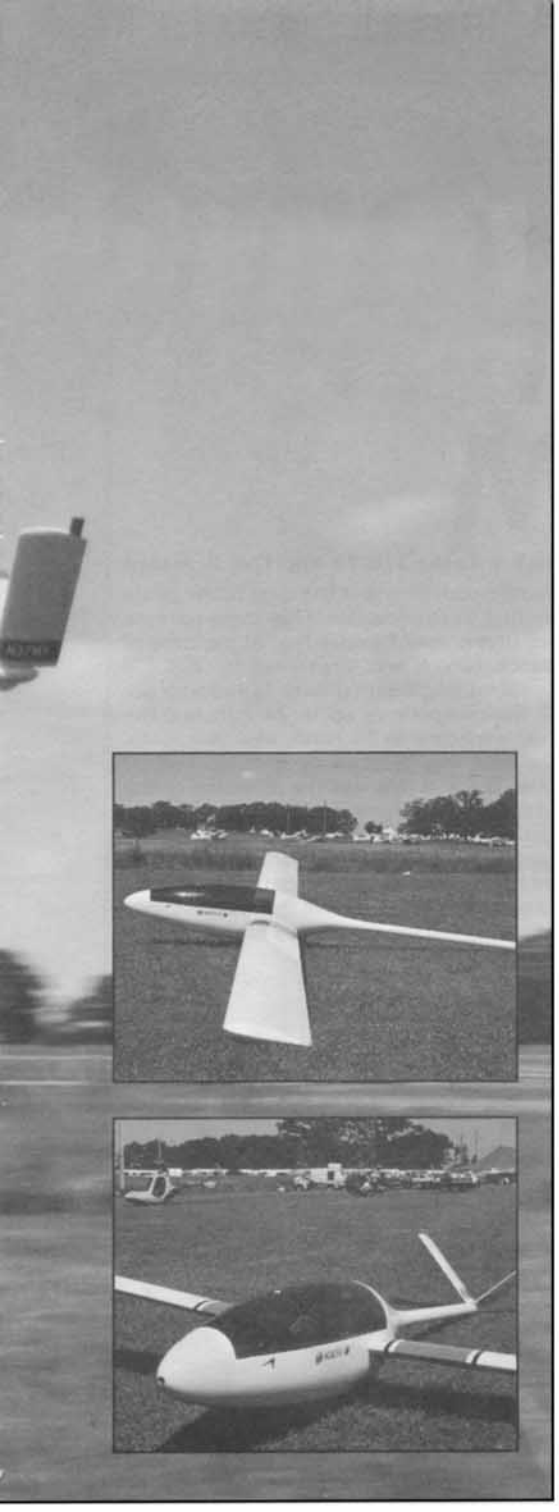
The wing tips are supplied ready moulded. John Monnet claims that a wing can be constructed in 20 hours. Weight of the complete wing is only 52 pounds.

Tailplane Construction

The tailplane is of butterfly design and is of similar easy construction as the wings using tubular spars, preformed ribs and moulded tips.

Fuselage Construction

The forward fuselage is a formed fibreglass



moulding and it is not structural. The pod is shipped ready moulded and all that has to be done is to insert the welded steel structure into the canopy/windshield opening and bond it to the fibreglass pod.

The kit includes the steel tube material to make up the steel tube structure. However if you do not know how to weld, or would prefer not to have to trust your own welding, John Monnett is willing to ship the structure already welded. (Additional Dollar amount not stated.) Whether this will comply with the 51% requirement is up to the MoT and potential purchasers would be wise to check before ordering this option. The steel structure has built into it an overturn protection consisting of a single large diameter steel tube, this is the mounting for the "plug-in" engine pod. The rear fuselage consists of an extruded aluminum tube which clamps into the steel tube cockpit structure with the special fittings supplied in the kit.

The cockpit is a side stick layout and will accomodate pilots from 5'-0" tall to 6'-2". The flap system is of reflex design. (Negative for cruise). All controls are push-rod operated, flaps connect automatically on assembly, ailerons are single pin connection.

The canopy/windshield is supplied pre-moulded and is available in either green or bronze tint only.

Engine Pod

The production self launching engine unit will be available shortly. The unit consists of a pylon mounted air cooled engine package. John Monnett is experimenting with two engines, both of which are at present being widely used by the hang gliding fraternity. The fuel tank is contained within the engine pod and it holds sufficient fuel for about 45 minutes use. The unit shown at Oshkosh was unfaired but tests are being carried out with various streamlined pods to arrive at the design with the least drag. The production unit will be supplied with a fixed pitch non-folding propellor but experiments are continuing in an effort to arrive at an economical drag-reducing combination.

The engine pod is mounted on a short pylon which slides into the overturn structure and secures with a single pin. The throttle, ignition control and starter cord are installed in the cockpit and run back to the pod mounting where they are interconnected with the controls in the pod. Time to mount and connect the engine unit is only a couple of minutes. The cost of the engine unit will be approximately US$700. A rate of climb of 450 f.p.m. at full gross was quoted as the performance. Sailplane performance "engine off", was not available.

Availability of Kits

The first batch of 50 kits was almost completely sold out (48) before the opening of the Oshkosh show, the second batch of 50 kits was scheduled for the first week of October 1978.

The kit can truly be described as complete, it lacks only paint, filler, sandpaper, lead for ballast and instruments. A line of basic instruments may be made available if demand warrants but individual tastes vary and many companies are able to supply the builders' complete needs.

Monnett stated that the kit is designed for the first time builder and low time sailplane pilot. Completion of the kit is claimed to be possible within 300 hours.

Flight Demonstration

Only the prototype was at Oshkosh and, not unreasonably since it was being used in the development program for the engine, it was not available for flying. The prototype was demonstrated by John Monnett (using Air Sailing's towplane) and its performance appeared to be superior to a 1-26, although this is difficult to assess from the ground. Its approach was reminiscent of the 1-35 but its flying characteristics are designed for the low time 1-26 pilot.

Performance

The performance claimed is an L/D of 28:1 at 60 mph and a min. sink of 2.8 fps at 55 mph. Stall is at 38 mph. These characteristics coupled with the ease of construction and assembly should ensure that we see more of this aircraft. The kit cost is US$2,900.

Future Developments

Several questions were asked at the Monerai Forum regarding future modifications: The wheel is fixed for simplicity, there are no plans to offer a retractable option. The wing construction is designed for flaps, a change to spoilers would complicate the structure tremendously. Most modern designs utilize flaps and there are no plans to redesign the wings to provide a spoiler option.

A question regarding a future two seat version did not receive an answer. I do not believe it was deliberately ignored, it was lost in the flurry of questions and comments. The question of a trailer design was raised, a drawing is available, there are no plans to produce a kit. It is ultrasimple and the base consists of two angle irons with a sheet of plywood bolted between. For simplicity the plywood is used in the full 4ft width. The trailer covering consists of Sears aluminum siding screwed to hoops bent from 10 ft lengths of aluminum conduit bolted to the angles on the base. The brackets used to secure the wings and fuselage in the trailer are also used in the rigging of the sailplane.

Many customers construct the trailer and drive to Elgin, Illinois, 40 miles west of Chicago, to pick up their kits.

Out and About around Oshkosh

American Eaglet

Unfortunately the American Eaglet was not flying as it had burned out a propellor bearing just prior to the convention. The performance claims for this aircraft are similar to the Monerai but the kit is a little less expensive. The powered configuration is cleaner than the Monerai and the design may prove to be a better compromise, if the claimed figures for each design are accurate. Due to the many things to see and do at Oshkosh I missed the Forum on the American Eaglet, thus I am unable to comment on the construction features.

HP 18

Dick Schreder was present at the Convention with his HP 18 with the winglets fitted. During a Forum on Self launching Sailplanes he presented his solution to the self launching problem. Dick is working on a tip jet propellor engine which he is convinced is a better solution than the internal combustion engine. Apparently NASA has carried out a vast amount of research on this use and the findings are available for development. He certainly made it sound interesting but the problems of storing and handling liquid oxygen and hydrogen peroxide are intimidating. Apparently liquid oxygen is readily available in most large cities and Dick claims the handling problems are not a drawback. I can hardly wait for next year's exciting installment.

Will MOT require a check ride in a Saturn 5?

Report by Deryck Brown
Photos by Wally Norris

BY John Bachynski & Wayne Huk

Western

The 1978 Western Regionals were held at Chipman, Alberta, from July 2nd to 8th and was hosted by the Edmonton Soaring Club. Since the weatherman cooperated fully and a lot of effort was expended to make this a top notch competition, the organizers were disappointed that only 11 entrants competed. Six of seven days were "contest days" with some pilots expressing regrets that day five was cancelled - even though the sun did not break through until 3 p.m. These pilots came to fly!

After much debate, letters, and long distance phone calls, John Firth's suggested rules and handicapping systems were used. Tabulation proved to be painless with the help of Clarke Campbell and the Imperial Oil computer. As expected, there was some controversy over the handicapping system and the rules on team entrants, but this is expected to be clarified at the next A.G.M.

The Chipman Soaring Field's turf was manicured and a new well was dug for the "ballast boys". The cold water came in very handy to those who camped out at the field in temperatures that rose several days into the 30's.

The Ukrainian Air Force was out in full regalia with a flag raising ceremony each morning after the pilots meeting. During these occasions, a different song was played through a loud speaker system each day in recognition of the various ethnic backrounds of the competitors; e.g. German-Spike Jones' "Der Führers Face", Ukrainian - "The Volga Boatman", American - "We Are The Champions", etc.

DAY 1 Task; 316.79 km. Out & return

Weather conditions at the time of the pilots briefing were uncertain. One thing for sure was that it would sweltering. At the time of launch (which was organized by E.S.C.'s President Reg Adam (Photo 1) and who got all the competitors up in 24 minutes) the skies were clear to the north, west, and south. The east was blocked by a storm cell 30 miles out and this was the direction of the turnpoint! Six competitors able to skirt this barrier on the way out made it around the turnpoint. The weaker lift on the way back did not provide an escape path. There were no completions, therefore the ground crews were busy 'till the dark hours of the evening retrieving.

New Requirements for Instructor Classifications

Following the C.F.I.s' Seminar in Toronto last May when the standards for instructors were discussed, the Instructors' Committee have recently agreed that the following requirements will govern future classifications:

1. The requirements for each class will remain basically unchanged; for new class III ratings a bit more supporting information is required - see 4 below.

2. A C.F.I. alone will be able to recommend any upgrading if he does not have another instructor who can also evaluate and recommend according to the present S.A.C. procedures.

3. In 1979 only instructors who are **current** and active will be issued with their S.A.C. classifications, now shown on their membership cards; these will be retained in future as follows;

- Class III ratings will lapse 3 calendar years after M.O.T. endorsement, unless a C.F.I. in the meantime updates the rating,
- Class II and I ratings will lapse 2 seasons after a C.F.I. last updated the club list of current instructors with the instructors' committee chairman.

Lists of current instructors will be required by the end of January 1979 for your club's instructors ratings to be shown for the 1979 season.

4. An initial class III rating will be issued by S.A.C.on receipt of a copy of a C.F.I.'s letter of recommendation to Transport Canada for an instructing endorsement, together with a statement that the candidate is fully competent to perform and to teach all manoeuvres in the S.A.C. manual including full spin entries and correct recoveries.

If you are affected by these changes and wish to retain your present rating now is the time to see your C.F.I.! If you are not now current, a renewal may require some check flights, together with a thorough review of the revised instruction manual - there have been some important changes with which all instructors should be familiar.

Lists of club instructors, recommendations for upgradings (and initial ratings) or any questions on the above should be addressed to the Chairman of the Instructors' Committee, 30 Prescott Cresc. Pinawa, Man., ROE 1LO.

Ian Oldaker
Chairman, Instructors' Committee

Regionals '78

DAY 2 Task; 272 km. triangle

The most spirited pilot of the day was Lloyd Bungey (photo 2) who, after landing 11 km. from the start gate, returned to the field at 4:30 for a re-light. Within forty minutes he was off for a second try, but fifteen minutes later he was back on the ground - "I just felt flat after all that work" said the transplanted Aussie. Jim Strong had felt a bit under the weather and let his partner, Garnet Thomas, fly the day's task. Garnet had only a handful of flights in the Jantar, but accomplished a commendable 253 km. Peter Timm really picked up his pants from being ninth on the first day, and came in second.

DAY 3 Task; 266 km. triangle

A tail wind component gave the pilots a fast third leg with 7 of 9 completing the task. First arrival, Dan Pandur (of the U.A.F.) was greeted by the local media. Dan gave the photographers his usual low, fast finish (photo 3) and was rewarded with pictures in the local papers and a couple of minutes on television. Speed pilot, Mike Apps, of the May Meet Contest, was the most disappointed competitor of the day landing only 6 km. from the finish gate.

DAY 4 Task; 214 km. triangle

A change in the weather, but still very warm, called for a shorter task. This was also a blessing for those crews who followed their sailplanes and could pause at Vegreville at the centre of the triangle; sitting in the shade of Vegreville's giant Easter Egg and drinking cold beer was the ground crews high of the day. The four pilots who finished were able to squeeze home just as high cirrus moved in from the north to stop convection. Dan Pandur was still in his glory from the previous day and swept in first place. Four of five non-finishers were stopped one town short of Chipman - all within 14 km. of each other.

DAY 5 No Contest

Dick Mamini, leader for the first four days, left the contest site in pouring rain. Dick had to join the Canadian Team for the World Contest in France. Now everyone was hoping the next two days would be excellent soaring weather so that they could catch up to his score or even pass it.

DAY 6 Task; 117 km. Out & Return

The task committee postponed the pilots briefing several times until 2:30 when the aircraft were marshalled. Looking at grey skies, some asked "For what?" The task committee, in it's wisdom(?), felt lucky. Sure enough, just as the launch began the sun came through. The only finisher was "I always was a good scratcher" Helmut Gebenus. Although Pandur returned closest to the field, the "Firth system" placed Peter Timm in second.

DAY 7 Task; 313 km. Triangle

The lift was good, but cloud base was low on the final day. Before leaving, Jim Strong was heard to say - "I just want to finish". This proved to be good strategy! Lloyd Bungey reconciled himself and blasted in first for the day while most pilots fell down under what appeared from the ground crews to be fantastic cloud streets. Although the Strong/Thomas team did not win a single day, they won the contest. The pair were especially pleased since they are barely familiar with their newly acquired standard Jantar.

The E.S.C. has organized many Provincial, Regional, and National contests, however this was the first one at the home field and Wayne Huk and his committees are to be complimented on an extremely well run contest.

DAY 1

DAILY TASK IS — GOAL AND RETURN.
TURNPOINTS ARE: CHIPMAN; KITSCOTY;

TASK DISTANCE — 316.7998 KM.

NAME	GLIDER	SPEED KPH	DISTANCE KM.	DAILY POINTS	DAILY STNDG	TOTAL PTS.	TOTAL STNDG
Gebenus, H	ASW 19 GJXG		259.5	1000	1	1000	1
Krug, Willi	KW-45 SNZ		259.5	990	2	990	2
Mamini, Dick	ASW-12 ASW		282.5	979	3	979	3
Strong/Thomas	JANTAR XTS		251.0	977	4	977	4
Apps/Maskell	HP-14 A		251.0	957	5	957	5
Bungey, Lloyd	PIK20B DLB		255.0	933	6	933	6
Pandur, D	1-35 WTI		60.5	226	7	226	7
Sorensen, Cec	1-34 XZW		44.0	185	8	185	8
Timm, P	CIRRUS GXJD		32.5	127	9	127	9

DAY 2

DAILY TASK IS — TRIANGLE
TURNPOINTS ARE: CHIPMAN; MANVILLE; ST. PAUL;

TASK DISTANCE — 272.0398 KM

NAME	GLIDER	SPEED KPH	DISTANCE KM.	DAILY POINTS	DAILY STNDG	TOTAL PTS.	TOTAL STNDG
Mamini, Dick	ASW-12 ASW	84.1		970	1	1949	1
Krug, Willi	KW-45 SNZ	67.4		922	3	1912	2
Strong/Thomas	JANTAR XTS		253.0	620	6	1597	3
Apps/Maskell	HP-14 A		206.0	495	7	1452	4
Gebenus, H	ASW 19 GJXG		106.0	257	8	1257	5
Pandur, D	1-35 WTI	65.8		896	4	1122	6
Timm, P	CIRRUS GXJD	71.3		968	2	1095	7
Bungey, Lloyd	PIK20B DLB		11.0	25	9	958	8
Sorensen, Cec	1-34 XZW		235.0	622	5	807	9

DAY 3

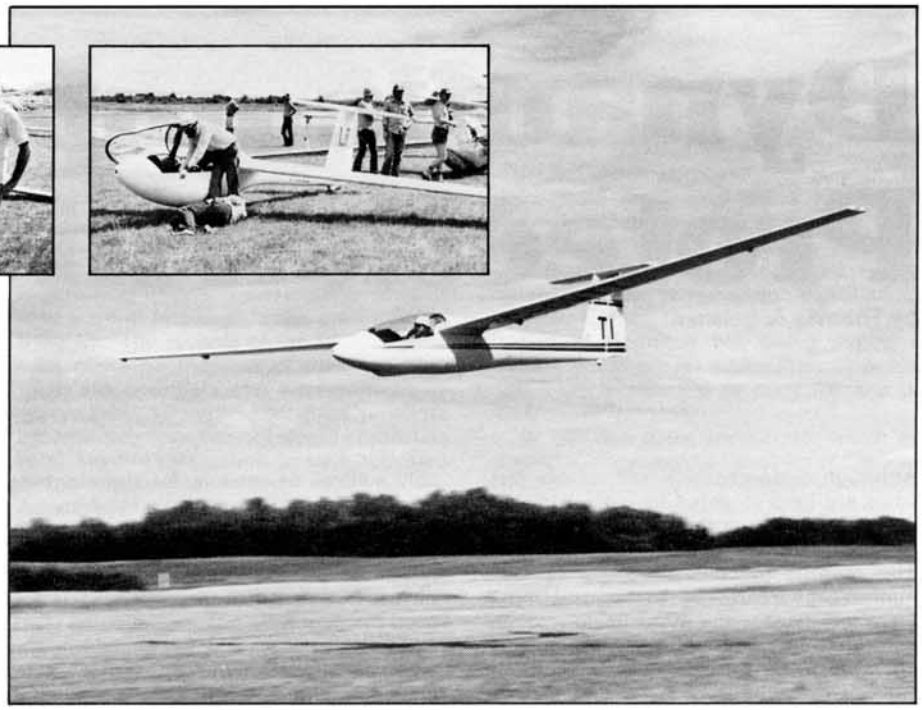
DAILY TASK IS — TRIANGLE
TURNPOINTS ARE: CHIPMAN; MANVILLE; ROUND HILL;

TASK DISTANCE — 266.5098 KM.

NAME	GLIDER	SPEED KPH	DISTANCE KM.	DAILY POINTS	DAILY STNDG	TOTAL PTS.	TOTAL STNDG
Mamini, Dick	ASW-12 ASW	86.9		1000	1	2949	1
Krug, Willi	KW-45 SNZ	75.1		944	4	2856	2
Strong/Thomas	JANTAR XTS	75.4		971	2	2568	3
Gebenus, H	ASW 19 GJXG	68.6		858	5	2115	4
Pandur, D	1-35 WTI	78.0		963	3	2085	5
Apps/Maskell	HP-14 A		260.5	399	7	1851	6
Bungey, Lloyd	PIK20B DLB	63.2		729	6	1687	7
Sorensen, Cec	1-34 XZW		187.0	316	8	1123	8
Timm, P	CIRRUS GXJD	69.5		0	9	1095	9

Reg Adam and his megaphone got everyone marshalled including Cec Sorensen (immediate background) and his family's 1-34.

Lloyd Bungey continually fretted around his PIK20-B to the amusement of several onlookers.



On final glides like this finish by Dan Pandur, spectators were extremely impressed.

DAY 4

DAILY TASK IS — TRIANGLE
TURNPOINTS ARE: CHIPMAN; VIKING; TWO HILLS;

TASK DISTANCE — 216.61 KM.

NAME	GLIDER	SPEED KPH	DISTANCE KM.	DAILY POINTS	DAILY STNDG	TOTAL PTS.	TOTAL STNDG
Mamini, Dick	ASW-12 ASW	85.5		900	2	3849	1
Krug, Willi	KW-45 SNZ	59.6		761	4	3616	2
Strong/Thomas	JANTAR XTS		198.0	609	6	3177	3
Pandur, D	1-35 WTI	71.0		930	1	3015	4
Gebenus, H	ASW 19 GJXG		191.0	582	7	2697	5
Apps/Maskell	HP-14 A		205.0	618	5	2469	6
Bungey, Lloyd	PIK20B DLB		191.0	553	8	2240	7
Timm, P	CIRRUS GXJD	58.5		821	3	1916	8
Sorensen, Cec	1-34 XZW		152.5	507	9	1630	9

DAY 6

DAILY TASK IS — GOAL AND RETURN
TURNPOINTS ARE: CHIPMAN; TWO HILLS;

TASK DISTANCE — 117.2 KM.

NAME	GLIDER	SPEED KPH	DISTANCE KM.	DAILY POINTS	DAILY STNDG	TOTAL PTS.	TOTAL STNDG
Krug, Willi	KW-45 SNZ		52.5	402	7	4018	1
Strong/Thomas	JANTAR XTS		94.0	735	4	3912	2
Mamini, Dick	ASW-12 ASW		0.0	0	9	3849	3
Pandur, D	1-35 WTI		105.5	792	3	3807	4
Gebenus, H	ASW 19 GJXG	43.9		1000	1	3697	5
Apps/Maskell	HP-14 A		84.0	644	6	3113	6
Bungey, Lloyd	PIK20B DLB		93.5	687	5	2927	7
Timm, P	CIRRUS GXJD		102.5	802	2	2718	8
Sorensen, Cec	1-34 XZW		40.0	338	8	1968	9

DAY 7

DAILY TASK IS — TRIANGLE
TURNPOINTS ARE: CHIPMAN; KINSILLA; ST. PAUL;

TASK DISTANCE — 313.0798 KM.

NAME	GLIDER	SPEED KPH	DISTANCE KM.	DAILY POINTS	DAILY STNDG	TOTAL PTS.	TOTAL STNDG
Strong/Thomas	JANTAR XTS	55.1		992	2	4904	1
Gebenus, H	ASW 19 GJXG	53.8		975	3	4672	2
Krug, Willi	KW-45 SNZ		119.5	273	4	4291	3
Pandur, D	1-35 WTI		101.0	232	5	4039	4
Bungey, Lloyd	PIK20B DLB	59.6		1000	1	3927	5
Mamini, Dick	ASW-12 ASW		0.0	0	9	3849	6
Apps/Maskell	HP-14 A		95.5	224	6	3337	7
Timm, P	CIRRUS GXJD		70.0	168	8	2886	8
Sorensen, Cec	1-34 XZW		86.5	224	6	2192	9

Dynamic Impact Protection in Gliders

by Thomas A. Reisner

Although comprehensive and reliable statistics are hard to come by, spinal injuries probably rank near the very top of the list of ills suffered by glider accident victims. The reasons for the frequency of such injuries (which can range in intensity from a mere sore back to the excruciatingly painful and paralyzing condition of complex vertebral fractures and dislocations requiring extended hospitalization) are not hard to divine. Most glider accidents of the non-fatal variety are the outcome of low- or medium-speed collisions with fixed objects near ground level. The cross-country pilot who overshoots his intended touch-down point and hits a tree or fence post; the novice who, because of inexperience or misjudgment, flares too high and lands hard; the more expert flier who in setting up an off-field landing overlooks an irrigation ditch in the path of his rolling glider -- all these are likely candidates to sustain some form of back injury. The frequency with which the possibility of considerable impact on landing presents itself in gliding (theoretically at least, at the end of every flight), combined with the inherent frailty of the human frame and the design characteristics of sailplanes in general, probably suffices to account for the alarming number of spinal injuries among pilots.

Thanks to the great interest of the subject to automobile and aircraft manufacturers[1] and safety engineers, the question of just how frail the human frame **is** has been thoroughly investigated over the years. According to a recent report by the Highway Safety Research Institute of the University of Michigan,[2] "human tolerance is a function of maximum level of acceleration, duration of acceleration, and rate of onset of acceleration." Although substantial variation exists between individual levels of impact tolerance, in practical terms investigators have found that "levels of acceleration severity greater than 20 G peak, 100 msec. total duration, and 300 G/sec. rate of onset will lead to injury of the spine."[3] Despite the seemingly high limits of tolerance suggested by these values, in fact the maximum "safe impact" parameters are very easy indeed to exceed. In a typical snowmobile drop test from a height of 4 feet, conducted by the University of Michigan experimenters, the anthropometric test dummy sustained a peak vertical acceleration of 34 G for a duration of 79 milliseconds, at a rate of onset of 1200 G per second.[4] With what is known of the shock-resistance capabilities of the average person, there can be no doubt that in all test drops but one from a height of 3 feet or more, a human occupant of any of the 13 snowmobile types tested would have suffered more or less severe spinal injury.

The results of the snowmobile experiments apply, if anything with greater force, to gliders as well. Essential considerations of weight economy in sailplane construction practically prohibit the incorporation of any but the most primitive vertical shock-absorption devices. Apart from the slight damping effect derived from the pneumatic tire of the main wheel, few sailplanes (especially of the fixed-gear type) boast any structural feature designed to reduce acceleration loads on the pilot on impact. The conventional position of the main wheel, near the centre of gravity, with the seat installed directly above it and fixed to the same rigid structure as the wheel bearings, virtually guarantees the uninhibited transmission of forces; while the proximity of the main wheel to the seat serves to minimize any shock absorption that might be due to structural bending. Finally, the natural tendency of the unsprung main wheel to rebound on impact and to pitch the glider upward (the well-known "rabbit-hop" effect of a rough landing) only aggravates further the G-loads already imposed on the unfortunate pilot. Altogether, the configuration of the average glider is thus, structually almost ideal to inflict grievous bodily harm on its occupant.

Although the problem is a serious one, it is, fortunately, far from insoluble. Thanks to the massive research and development programme inspired by the Snowmobile Occupant Protection Subcommittee of the All Terrain Vehicle Committee of the SAE, an effective and inexpensive solution is now within every glider pilot's reach -- a solution possessing the further advantage of being adaptable to practically any sailplane, new or old, without structural alteration and therefore without the trouble and outlay of engineers' fees and M.O.T. approvals.

In 1970-1971, in response to a call by the ATV Committee of the SAE,[5] Dow Chemical undertook a year-long testing and development programme culminating in the production of a closed-cell expanded polyethylene foam marketed, since late 1971, under the trademark ETHAFOAM. Manufactured in various densities to with-

stand various degrees to compressive stress,[6] as well as in different sizes and thicknesses,[7] ETHAFOAM is a dynamic cushioning material almost universally used in the manufacture of snowmobile seats today. The characteristics of the product are quite outstanding: a semi-rigid foam, it has low "compressive creep" (or tendency to lose thickness under long-contiued loads), a high degree of resilience and set-recovery (i.e., capacity to resume original thickness once the load is removed), and only little loss of cushioning effectiveness even after repeated violent impacts.[8] It is extremely light, resistant to water, chemical solvents and sunlight, and only slightly affected as to its cushioning properties by temperature variations in the normal (0°-120° F) range. EHTAFOAM is clean, dust-free and non-abrasive; easily cut and shaped with hand tools; readily bonded to itself and to other materials by the use of commercially available adhesives or the Hot - Melt method. Its one disadvantage -- combustibility in the presence of open flame, with the emission of dense smoke -- is unlikely to make ETHAFOAM unacceptable, given the usually high standards of fire safety observed by the majority of experienced pilots.

Above all, however, it is in its shock-absorbing capabilities that the polyethylene foam excels. As experimental data gathered by Dow Chemical scientists has shown with reference to snowmobile seats,[9] the installation of 3 to 5-inch ETHAFOAM lining on drop-test vehicles is enough to reduce cripplingly intense G-loadings on occupants (80 G and more) to acceptable levels (20 G or less). Although at the normal static load of 1 G the polyethylene foam seat feels hard and uncomfortable, its compressibility under high dynamic stress is exceptional. As for the subjective impression of hardness, it is easily overcome by the addition of layers of more yielding polyurethane foam on the top and bottom of the ETHAFOAM core.[10] The use of such "foam sandwich modules" has in fact become practically universal in the snowmobile industry since 1972.

Materials for making gliding a little safer, in the form of compressible polyethylene foams, have been on the market now for almost a decade; yet, to my knowledge, no use has been made of them by sailplane manufacturers, owners or pilots. It would be distressing to think that we, devotees of a sport that combines, as no other does, safety-mindedness with a spirit

continued on page 22

ERRATA

In Dr. Slater's article "To Soar Like An Albatross" published in the July/August 1978 issue of FREE FLIGHT there was an error which destroyed the sense of the explanation of the technique of albatross soaring flight.

If you will refer to page 10, column 2, lines 7 and 8, it should read: "the bird keeps up by alternately rising against the wind and then descending with the wind behind it".

In the article "Chateauroux 1978" a credit for the photos was omitted. They were taken by Team Manager Al Schreiter.

Member Clubs

Maritime Zone
Bluenose Soaring Club, c/o 622 - 200 Willett St., Halifax, N.S. B3M 3C5
Lahr Gliding Club, c/o M/Cpl. W. H. Barnes, Box 2227, CFPO 5000, Belleville, Ont. K0K 3R0
New Brunswick Soaring Association, 521 Blythwood Ave., Riverview, N.B. E1B 2H3
Newfoundland Soaring Society, c/o Mr. J. Williams, 57 Boyle St., St. John's, Nfld. A1E 2H5

Quebec Zone
Appalachien Soaring Club, Box 271, Sherbrooke, P.Q. J1H 5J1
Ariadne Soaring Inc., 735 Riviere aux Pins, Boucherville, P.Q. J4B 3A8
Buckingham Gliding Club, c/o 365 St. Joseph Blvd., No. 8, Buckingham, P.Q.
Champlain Soaring Association, 192 Highfield, Mt. St. Hilaire, P.Q. J3H 3W5
Club de Vol a Voile Asbestos, 379 Castonguay, Asbestos, P.Q. J1T 2X3
Montreal Soaring Council, Box 1082, Montreal, P.Q. H4L 4W6
Mississquoi Soaring Association, Box 189, Mansonville, P.Q. J0E 1X0
Quebec Soaring Club, Box 9276, Ste. Foy, P.Q. G1K 9Z9

Ontario Zone
Air Cadet League (Ont.), Mr. H. Bruhlman, 561 Lacroix St., Chatham, Ont. N7M 2X1
Air Sailing Club, Box 2, Etobicoke, Ont. M9C 4V2
Base Borden Soaring Group, Box 247, Borden, Ont. L0M 1C0
Bonnechere Soaring Inc., Box 1081, Deep River, Ont. K0J 1P0
Central Ontario Soaring Association, Box 762, Peterborough, Ont. K9J 6Z8
Chatham Air Cadet Gliding Club, 561 Lacroix St., Chatham, Ont. N7M 2X1
Erin Soaring Society, Box 523, Erin, Ont. N0B 1T0
Gatineau Gliding Club, Box 883, Station B, Ottawa, Ont. K1P 5P9
Huronia Soaring Association, M. Badior, 435 Hugel Ave., Midland, Ont. L4R 1V4
Kawartha Soaring Club Inc., P.O. Box 168, Omemee, Ont. K0L 2W0
Lakehead Gliding Club, Box 161, Station F, Thunder Bay, Ont.
London Soaring Society, Box 773, Station B, London, Ont. N6A 4Y8
Rideau Gliding Club, H. Janzen, 172 College St., Kingston, Ont. K7L 4L8
Rideau Valley Soaring School, Box 93, R. R. 1, Kars, Ont. K0A 2E0
SOSA Gliding Club, Box 654, Station Q, Toronto, Ont. M4T 2N5
Toronto Soaring Club, E. Meikle, 201 - 1700 Victoria Pk. Ave., Scarborough, Ont. M1R 1R3
Windsor Gliding Club, 62 Lancefield Pl., Chatham, Ont. N7L 2M3
York Soaring Association, Box 660, Station Q, Toronto, Ont. M4V 2N5

Prairie Zone
Air Cadet League (Man.), Box 1011, GPO, Winnipeg, Man. R3C 2W2
Alsask Soaring Club, CFS Alsask, Alsask, Sask. S0L 0A0
Saskatoon Soaring Club, Box 379, Univ. of Sask., Saskatoon, Sask. S7N 0W0
Winnipeg Gliding Club, Box 1255, Winnipeg, Man. R3C 2Y4

Alberta Zone
Cold Lake Soaring Club, Box 1714, Medley, Alta. T0A 2M0
Cu-Nim Gliding Club, Box 2275, MPO, Calgary, Alta. T2P 2M6
Edmonton Soaring Club, Box 472, Edmonton, Alta. T5J 2K1
Grande Prairie Flying Club, Box 446, Grande Prairie, Alta.
Namao Soaring Club, c/o Capt. K.A. Peters, CFB Edmonton, Lancaster Park, Alta. T0A 2H0
Regina Gliding & Soaring Club, 27 Jacobs Bay, Regina, Sask. S4R 6B7
Southern Alberta Gliding Association, Box 394, Station J, Calgary, Alta. T2A 4X7

Pacific Zone
Alberni Valley Soaring Association, Box 201, Port Alberni, B.C. V9Y 7M7
Bulkley Valley Soaring Club, Box 474, Smithers, B.C. V0J 2N0
North Okanagan Soaring Club, Mrs. L. Woodford, R.R. 1, West Salmon Arm Rd., Enderby, B.C. V0E 1V0
Vancouver Soaring Association, Box 3651, Vancouver, B.C. V6B 3Y8
Wide Sky Flying Club, Box 6931, Fort St. John, B.C. V1J 4J3
Advanced Soaring Training & Research Assoc., c/o Mr. L.M. Bungey, General Delivery, Port Mellon, B.C. V0N 2S0

but...you can't see the sky!

by Bert Small

While the relentless sun burned an inferno of flame outside, we sat in cool comfort under the shaded rectangle of the colorful, striped awning, attached to the control hut, beside the runway at our gliderport. At that moment, we all felt, that everything was perfect and right with the world.

The day was muggy and very hot, casting that curious yellow glow all around, touching and warming everything in sight.

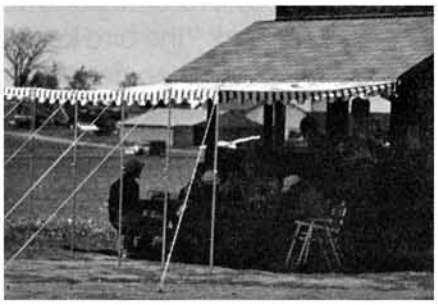
We sat in comfort and were content. We talked and laughed and ate our food, sipped on cold drinks while waiting for our turn to fly.

He looked at us then, but didn't intrude. His gaze shifted slowly from us back to the sky.

The gliders were taking off at regular intervals and someone would leave the group to assist, then quickly return to the welcome shade. The rectangle of semi-darkness was a cool oasis in an otherwide parched environment.

Then he came out of the sun and said it! At first he just looked at us, then shifting his eyes upwards, all he could see were the faded stripes above our heads. He felt the sudden coolness too, but ignored it and said quietly, almost apologetically.

"You know, this awning is a great idea",...a fleeting moment of pride, and he continued, "but...you can't see the sky!"



Of course he was right. We sat in coolness and comfort, but couldn't see the sky. Only the green and white stripes above.

He said, "You must study the sky, or you won't know anything about to-day, and you won't learn anything for to-morrow. The sky is continually changing and you must keep in tune with it."

It wasn't a lecture...he didn't intrude...his soft voice rang true and his words hit home. Of course he was right...we sat in ignorant comfort, but...couldn't see the sky. The day was ever changing, but we didn't see.

He studied the clouds. He saw them from their first moments of labour, being born, growing, ever growing, living through the strength of youth and middle age and finally staggering, struggling, becoming scruffy, scattered and thin, eventually to die.

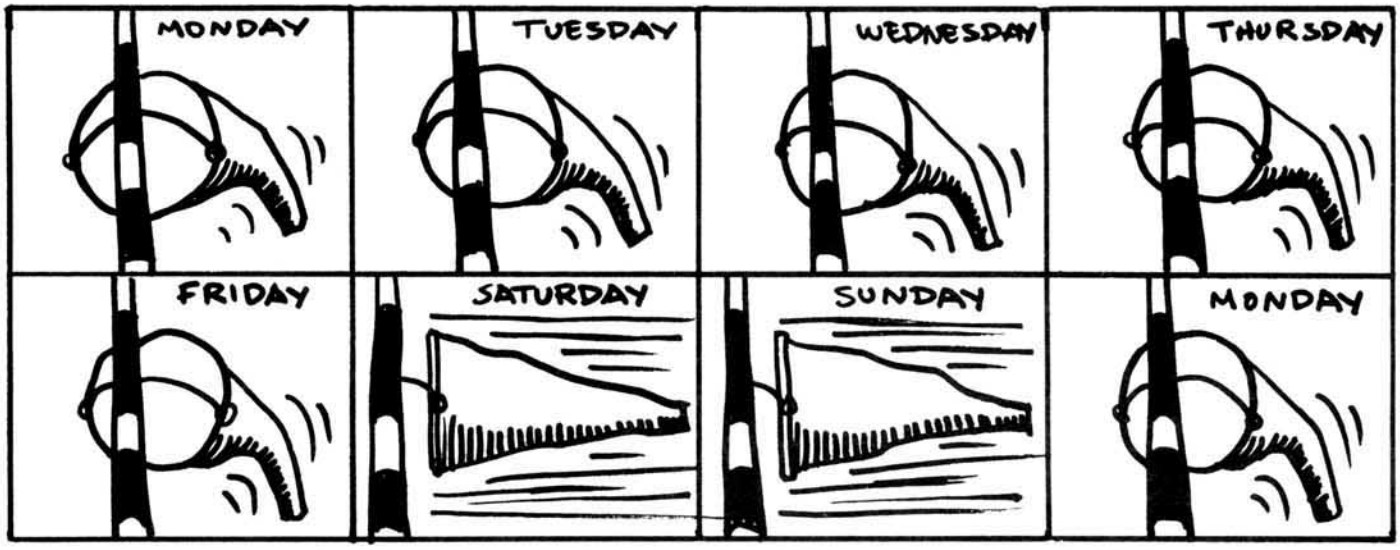
There wasn't a cloud in the sky that escaped his piercing eyes...he saw them all. As one was born in the eastern sky, he saw one die its death to the south, and then a tempestuous youth churned and boiled in the west.

To look at him lying motionless on the ground, you would think he was asleep...but he saw it all. He could judge the pattern and the course of nature. He didn't just look...he saw.

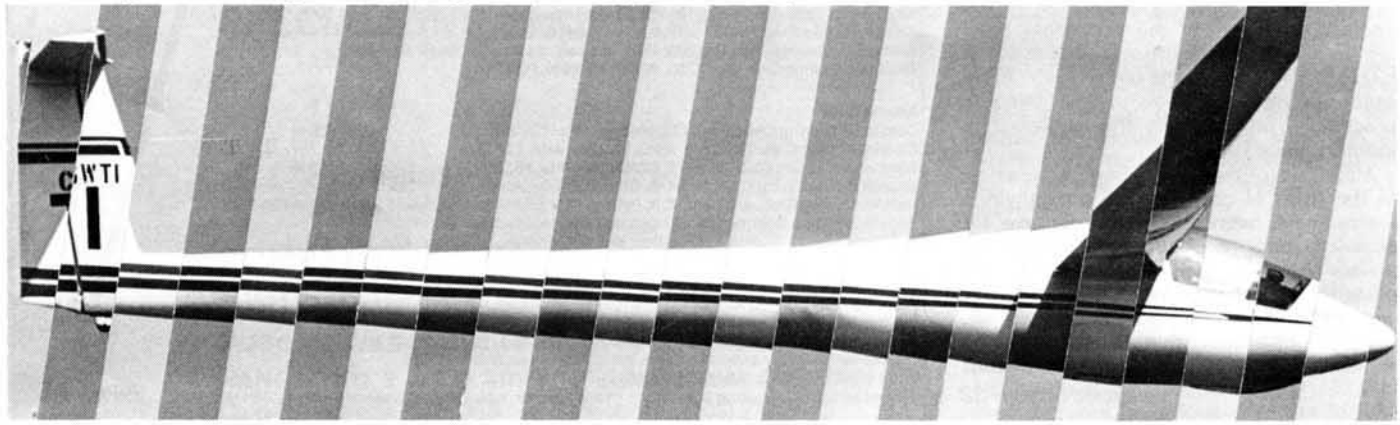
He knew the truth and the value of his observations and he only wanted us to see it too. So he entered the cool rectangle and said,

"You know, this awning is a great idea... but...you can't see the sky!"

A GLIDER PILOTS WEEK



...Perhaps sanding and filling would improve the performance!



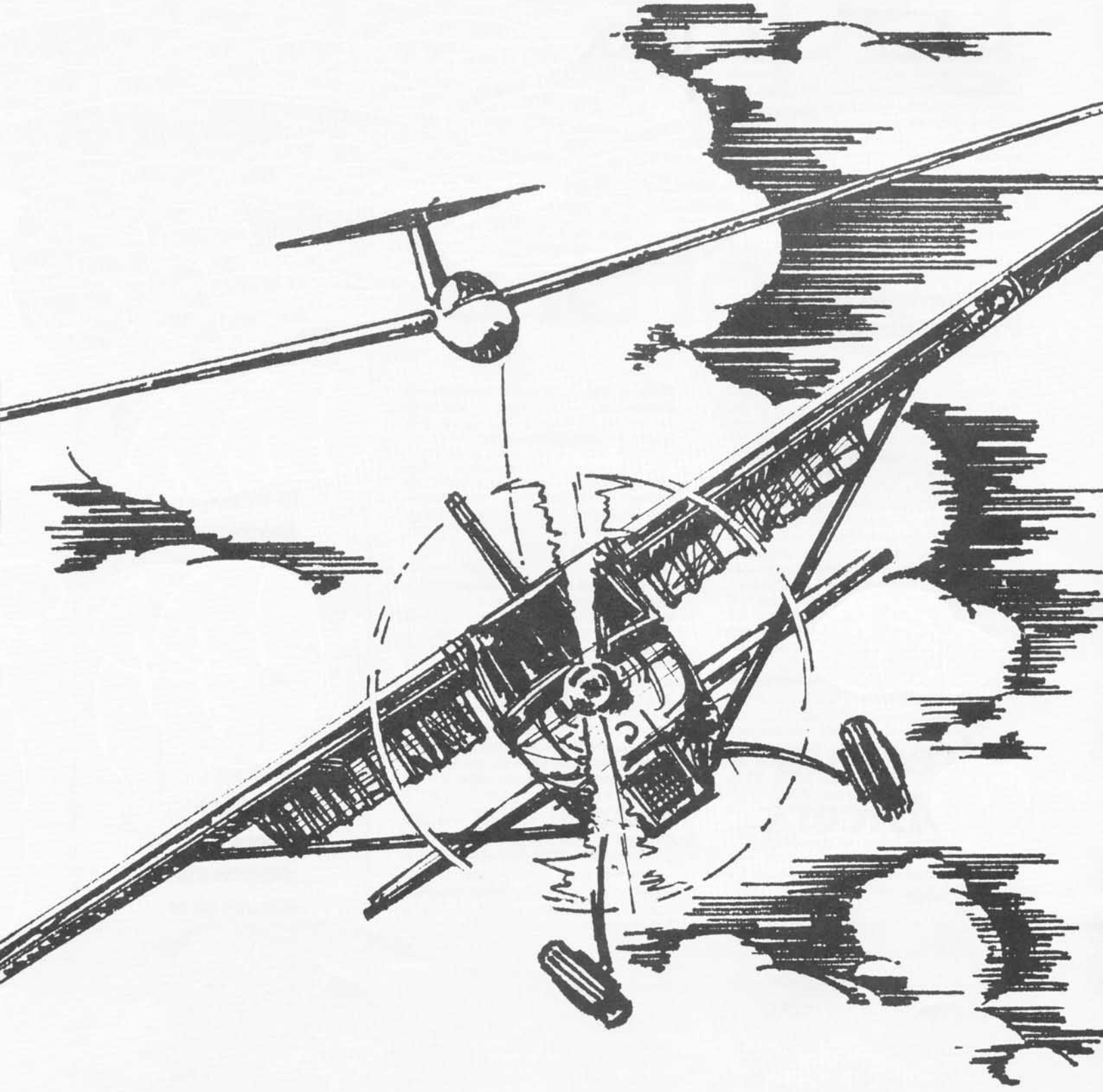


Illustration by Branko Glavas from Montreal Soaring Council's "Downwind"

Letter

Dear Bob,
I just didn't happen to get around to express my appreciation to you and your assistants for the fine May/June issue. Not only the cover attracted the eyes, but also the various articles about the early contests. How good to know that Canadian glider pilots have always been represented in international championships, although this sport seems to enjoy only for the past few years recognition from the public.

It was a pleasure to read - thank you.
Ursula Wiesse

Answer to our Crossword

G	E	O	R	G	E	■	M	O	F	F	A	T		
L	O	B	U	L	E	■	D	I	A	N	N	E		
A	C	■	T	U	■	■	■	L	I	■	O	N		
S	E	E	■	E	A	R	N	S	■	A	X	E		
S	N	A	G	■	T	A	W	■	S	N	I	T		
■	E	R	O	S				U	L	N	A	■		
■	■	■	R	H				T	A	■	■	■		
■	E	A	S	Y	■	■	■	U	P	O	N	■		
F	A	T	E	■	T	O	O	■	S	L	E	W		
I	S	E	■	T	A	S	K	S	■	E	A	A		
B	I	■	T	E	■	■	■	C	U	■	R	S		
R	E	B	A	T	E	■	N	U	G	G	E	T		
E	R	E	B	U	S	■	A	D	H	E	R	E		

Dynamic Impact Protection in Gliders

continued from page 19

of technical innovation, experiment and adventure, might be risking injury to our passengers and ourselves through ignorance or disregard to technological progress.

To the more cautious members of the gliding community, my parting words, then, are: why wear a $600 parachute on your back "just in case", and neglect to spend a few dollars on (pardon my pun) more fundamental protection? And, as for those who enjoy soaring flight in all its simplicity and despise such precautions, remember: it is fun to fly by the seat on your pants -- just as long as you don't land on it hard.

NOTE: The author acknowledges with thanks the help and technical information provided him by Mr. Ronald J. Hayes, Product Specialist with Dow Chemical of Canada, Limited.

1 Much of the research on acceleration/deceleration related injuries has been carried out by firms designing ejection seats for high-speed aircraft.

2 Verne L. Roberts, Ph.D. and Robert P. Hubbard, Ph.D., **Biomechanics of Snowmobile Spine Injuries,** H.S.R.I., Biosciences Division (University of Michigan, Ann Arbor, 1971). Page 10.

3 See R.G. Snyder, **Human Impact Tolerance,** Society of Automotive Engineers Paper No. 700398, 1970 International Automobile Safety Conference Compendium.

4 Cf., "Table 1. Snowmobile Drop Test Results", in Roberts and Hubbard, p.11.

5 Minimum Performance Criteria for Snowmobile Seat Cushions are specified in SAE document, reference XJ89.

6 ETHAFOAM 220, 400, 600 and 900 have nominal densities of 2.2, 4, 6 and 9 pounds per cubic foot respectively.

7 ETHAFOAM 220, the most common human crash padding material comes in 2, 3, 4 and 5 inch thick planks.

8 For deceleration performance data, see Dow Form No. 172-221-75.

9 J.J. McDonough and L.R. Schanhals, **Dow Impact Test Method for Measuring Cushioning Properties of Snowmobile Seats,** The Dow Chemical Company (Midland, Mich., June 1, 1971).

10 L.R. Schanhals, **Notes on Snowmobile Seat Dynamic Cushioning Properties** (September 21, 1971) and **Dow Concept for Improved Snowmobile Seat** (August 12, 1971).

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	- Non-Member	18.00
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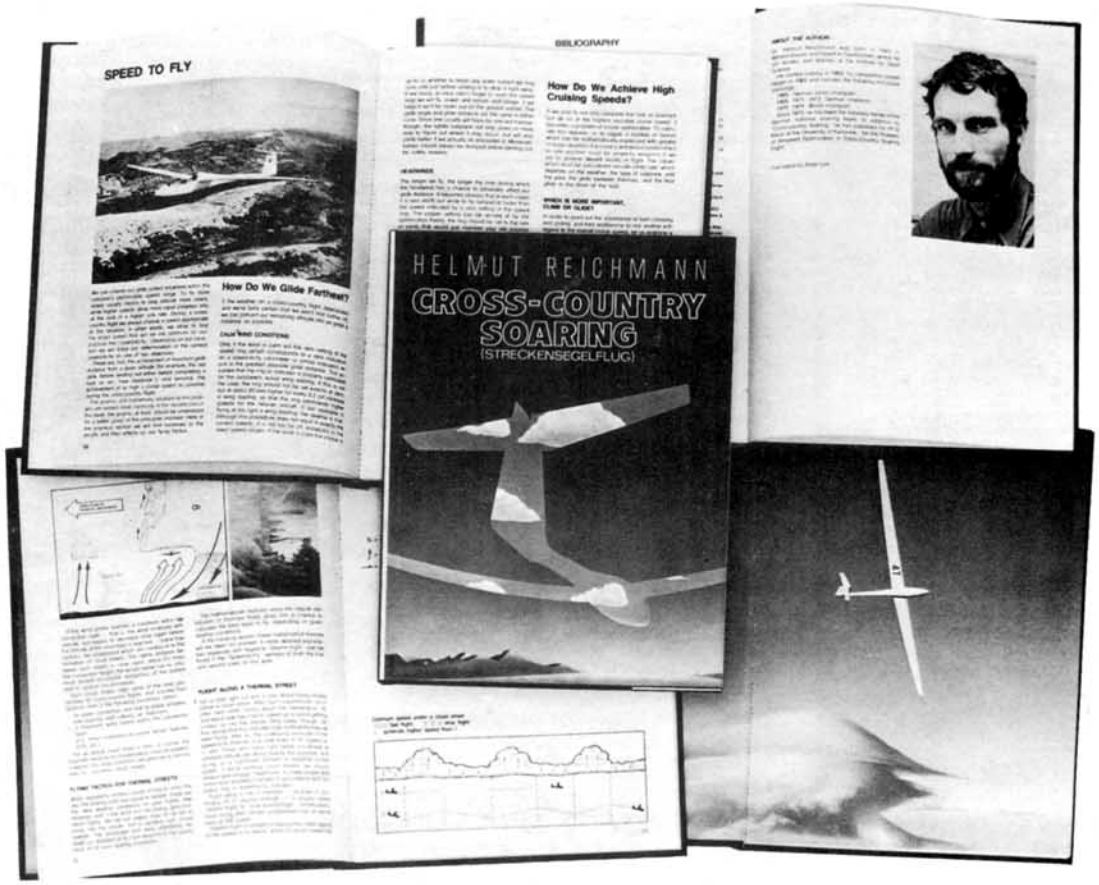

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