free flight

Issue 5/78

Sept./Oct. 1978

free flight

Issue 5/78 Sept./Oct. 1978

Official Publication of
Soaring Association of Canada
L'Association Canadienne de Vol a Voile,
Box 1173, Station B,
Ottawa, Ontario, Canada K1P 5A0

Editor: **Robert F. Nancarrow**
Associate Editors:
John Bachynski
Lloyd Bungey
Mark Perry
Peter Masak

All material for future issues should be submitted to the editor at:
43 Sealcove Drive,
Etobicoke, Ontario M9C 2C7

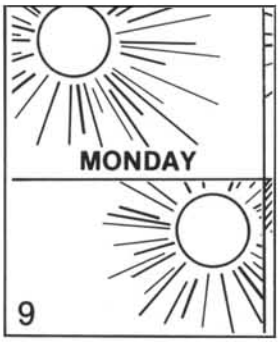
Deadlines for future issues:
Deadline for November/December issue is October 13, 1978
Deadline for January/February issue is December 11, 1978
Deadline for March/April issue is February 11, 1979

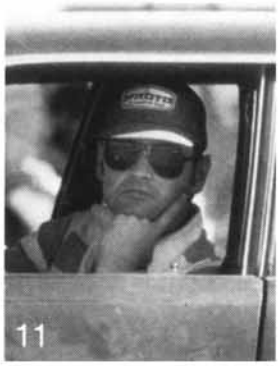
Address changes should be sent to:
Mrs. Terry Tucker
786 Chapman Blvd., Ottawa, Ontario
K1G 1T9

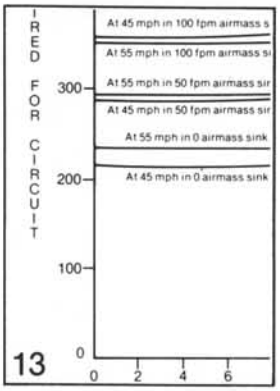
Magazine Design by:
Roger E. Murray,
Graphic Design Centre, Toronto

Printed in Canada by the
National Sport and Recreation Centre, Ottawa. Imprimé par le Centre national du sport et de la récréation, Ottawa.

Cover Photo by Bert Small







Keep your 'chute in the shade

by Christine Firth

Talking to the parachute rigger who was packing 'chutes at the beginning of this flying season I was reminded that repacking is only the first step in providing a reliable life-support system for the pilot; the care of the packed 'chute must continue throughout the year.

Obviously one should try to keep it dry. While fresh water will not injure nylon, to quote **The Parachute Manual (1977);** 'Wet nylon has less strength but it is fully regained once the nylon dries. The percentage of strength reduction is as follows:

Canopy Fabric: about 22%
Webbing: about 15%
Line: about 21% .

The water will also reduce the permeability of the fabric and cause a harder opening. This coupled with a reduction in the strength of the nylon could lead to canopy damage! Should a parachute get rain-soaked, hang it from a high place to dry. Do not wring it out. Dry hardware with a rag. DO NOT HANG IT IN SUNLIGHT.

If the 'chute is left in a wet or damp condition, mildew and fungus will grow rapidly in our summer temperatures. These 'plants' will EAT silk, but will not damage nylon. However, nobody likes to be confined in a cockpit for a couple of hours along with the strong musty odour of mildew. 'Areas affected by mildew' usually on top of the packed 'chute, 'should be washed with a mild soap, rinsed, dried and retested.' ... 'napthalene flake may be used to prevent formation of the fungi' when conditions are very humid.

Pilots using motorcycle batteries for their power supply should take great care that the acid never comes in contact with the 'chute. Acid can damage the lines so that they break when under tension and causes the canopy fabric to 'powder up and fall apart easily when rubbed with the fingernail.' Affected areas have to be cut out and repaired which could be time-consuming and expensive, so don't trailer the ship without securing the acid source and the 'chute in separate areas.

Now, 'chutes which get rain-soaked or come in contact with battery acid are possibilities at Kars, but the number one enemy of parachute nylon which poses an ever present danger is the **SUN** and unfortunately the likelihood of sun damage increases with the age of the 'chute. The parachute rigger was saying how angry some of his customers became with him, when he poked holes through their expensive canopies with his fingers during routine fabric testing!! To quote **The Parachute Manual** once again;

'The ultra violet rays of the sun will damage nylon and will ruin a parachute in short time. The angle of the sun's rays, the position of the material in relation to the sun, the time of the year and the time of day, screening factors of glass, etc. all determine the extent of the damage. Glass absorbs some of the ultra violet rays, but it does not screen them out entirely. Fluorescent lights work on nylon only half as fast when in close proximity, which is bad enough.'

Let this chart put the fear of the bright light into you:

TYPE 1 FABRIC

OUTDOORS, SUMMER SUN

1 week 52%
2 weeks 71%
3 weeks 94%

PERCENT BREAKING STRENGTH IN lbs. LOST

OUTDOORS, SUMMER SUN BEHIND GLASS

1 week 40%
2 weeks 61%
3 weeks 85%

'The parachute's exposure to the sun must be kept to a minimum'; and, the rigger added, 'the heavy cover and webbing attachments do very little to shield the canopy fabric - the sun penetrates the lot, eventually.'

So, each club member should be responsible for seeing that a 'chute left in the cockpit between flights is out of direct sunlight or underneath a reflective cover - such as a white sheet etc.

When travelling, put the 'chute in its bag inside the trunk of the car - not on the back seat. When not in use keep the 'chute in a shady corner of a clean room with adequate ventilation and make sure that the car trunk or the room will not get hotter than 305 degrees F. Never use the 'chute as a weight to hold the wing tip down.

THE LIFE YOU SAVE MY BE YOUR OWN.

HOW TO LAND OFF AN AIRPORT

From the Rideau Valley Soaring School Newsletter

"What happens if the engine stops?" is a question from non-flying friends which single engine pilots have gotten sick of answering. Aircraft engines never quit. Well, practically never.

Nevertheless, engines can quit (most frequent reason: they run out of gas) so it's a subject that the single engine pilot cannot ignore.

Glider pilots who fly cross country have learned the visual clues which help them pick out the best field while still at 1,000 or 2,000 feet. Last summer, while participating in the Canadian National Soaring Championships, we found ourselves explaining off-field landing techniques to a vacationing Air Canada captain who had kindly volunteered to drive our crew car. Upon reflection, it occurred to us that glider pilots have developed some off-field techniques which could prove valuable to power pilots.

We do know that the 40 or 50 off-field landings we've made in gliders have given us confidence that we can make an emergency landing in a single engine aircraft (if it's daytime) and walk away from it.

So for whatever it's worth, here are some tips and ideas on how to pick out a landing field when you are looking at it for the first time and have just a few seconds to make up your mind:

(1) Always keep possible fields in mind. At 2,000 feet glider pilots have a reachable area picked out and at 1,000 feet have selected a specific field. It's good practice for a power pilot to know where the nearest airfield is, and when there are no reachable airfields, he should have made a judgement as to where the most landable terrain is. ("Most landable" covers a wide variety of surfaces; it may mean a lake.)

(2) The very best (after regular airfields, of course) are farmer's own landing strips. Best way to spot a grass strip is to spot a parked airplane. If you see a parked airplane, land there. It may be short, but it will be superior to any other farmer's field.

(3) Best fields are cultivated fields with low crops, or harvested crops. Cultivated fields are smoothest. If the field is contoured, look elsewhere, it may be too hilly.

(4) Next best are hayfields. Hayfields are rougher than plowed fields, and may be hilly. Remember high grass will hide rocks-avoid unmowed fields. Pick one that has been mowed, and the bales have been removed.

(5) Last choice are pastures. These have rocks, stumps, and cows. A herd of curious cows will walk all over a glider wing - we've seen it happen - so avoid pastures containing livestock.

(6) It's best to assume that *all* roads have utility poles and wires. You can't see poles at 1,000 feet. Don't land on roads.

(7) Golf courses and playgrounds have people who can't hear an approaching glider (or power plane with engine out). Avoid them.

(8) Land parallel to the rows. Try to pick a field with rows parallel to the wind direction. When rows are perpendicular to the wind, you have a difficult decision to make.

(9) Learn how to read the grade. What looks flat at 1,000 feet can look pretty hilly on short final. Streams, drainage ditches, erosion marks are all good clues to grade.

If you must pick a field with a grade, *always* land uphill even if this means a downwind landing. You can't estimate grade accurately at 1,000 feet, and, particularly in a glider, it's possible to float the whole length of a downhill field in ground effect, coming to a crunching halt at the fence row at the end of the field.

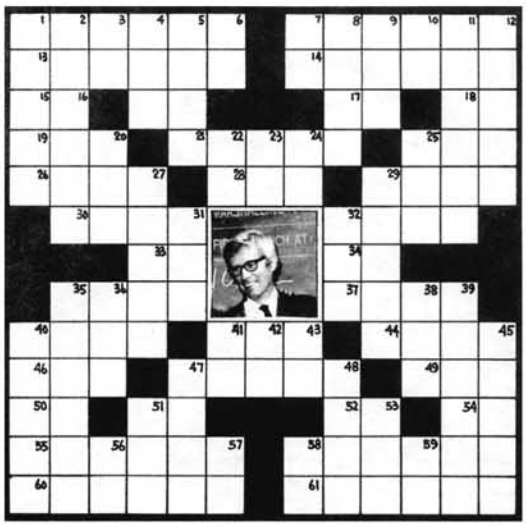
(10) If there are plenty of good choices, select a field near a house or highway so that help will be availale.

(11) Without power, you must not be short, and there will be no go-arounds. Come in a little high (not too high, you can't go around) and then put out flaps, and, if necessary, slip to lose altitude after you have the "runway" made.

(12) Don't change your mind on short final. Land on the field you picked out originally.

(13) If your plane has a shoulder harness, use it, and use it all the time. There may not be time to rig it on short notice.

Crossword



Across

1,7 Pictured Great
13 Small lobe
14 Girl's name
15 Young pilot's league
16 You (latin)
17 Lithium (Chem. symbol)
18 Upon
19 Look
21 Receives (for labor or merit)
25 Chopping tool
26 Describes Operational Slowdown (colloq.)
28 Shooter, marble
29 State of agitation
30 Son of Aphrodite
32 Arm bone
33 Blood factor (abbr.)
34 Short for thanks
35 Not difficult
37 On
40 Destiny
41 Also
44 Large number (slang)
46 Word ending
47 Undertakings
49 Members at Oshkosh (abbr.)
50 Prefix - making two
51 Tellurium (Chem. symbol)
52 Soaring cloud (abbr.)
54 Initials of HP-16 designer
55 A deduction
58 Laister's latest
60 Tunnel to Hades (mythology)
61 To stick fast

Down

1 Short name for new breed
2 Rock (Cenozoic era - Geol.)
3 Short for obstetrics
4 Muddy track
5 Stick together
6 A noun-forming suffix
7 C.M.A. member (abbr.)
8 Lubricates
9 Records kept by Russ Flint (abbr.)
10 Footnote (abbr.)
11 Lack of oxygen
12 Principle, Doctrine
20 Hearing aid
22 In, near
23 Sun god
24 Compass direction
25 U.K. Glider pilot/ authoress Welch
27 Evergreen Shrub, Furze
29 Strikes with palm
31 Timid
32 Finnish Sailplane
35 Less difficulty
36 Consumed
38 Spanish cheer
39 Closer
40 Natural or synthetic filament
41 Tantalum (Chem. symbol)
42 Bone (Latin)
43 Short for okay
45 Squander
47 Doug --- Gatineau's C.F.I.
48 Driven by the wind
51 Used for trimming
53 Sound expressing disgust
56 Exist
57 A suffix, pluralizing some nouns
58 Sodium (Chem. symbol)
59 Germanium (Chem. symbol)

Club Supplies

ITEM NO.	DESCRIPTION	PRICE (ADD POSTAGE)
1.	F.A.I. Soaring Badges, "A" & "B"	
	a) Button - Screw back	$ 7.50
	b) Pin - Safety Catch	7.50
2.	F.A.I. Gliding Certificates & Badges:	
	a) Application Forms for Certificates & Badges Claims are available from Club C.F.I.	N/C
	b) Gliding Certificates - S.A.C. Member	5.00
	- Non-Member	18.00
	c) Badge - "C" (button or pin)	8.00
	d) Badge - Silver "C"	$13.00
	e) Badge - Gold "C" (SAC now holds a small stock to minimize the high price)	45.00
	f) Diamonds - SAC issues a letter of authority for the applicant to order directly from the manufacturer.	
3.	F.A.I. Soaring Awards & Rules Booklet	5/1.00 or 25¢ ea.
4.	F.A.I. Sporting Code (English or French)	1.50
5.	S.A.C. Instruction Manuals:	
	a) Part I - Instructor's Guide	.75
	b) Part II - Air Instruction Notes	1.00
	c) Part III - Students Notes	1.00
	d) Air Cards - set of 11 plastic cards (8 x 5)	3.00
6.	Air Exercise Check List	.25 ea.
7.	S.A.C. Tephigram & Weather Briefing Booklet	5/1.00 or 25¢ ea.
8.	Weather Briefing Form N-052 (8 1/2 x 11 sht.)	N/C
9.	Application for Official Observer	N/C
10.	S.A.C. Blazer Crest (navy blue)	9.00
11.	S.A.C. Decal	.25
12.	S.A.C. Cap (red, green or blue with white crest)	4.50
13.	S.A.C. Glider Pilot Log Book	2.50
14.	F.A.I. Cloth Badges - 3" diameter	
	a) "C"	.75
	b) Silver or Gold	1.50
15.	Take-off and Landing checklist instrument panel stickers	1.00/ set of 2

NOTES:

1. Available from Box 1173, Station B, Ottawa, Ont. K1P 5A0 or Mrs. T. Tucker, 786 Chapman Blvd., Ottawa, Ont. K1G 1T9.
2. All cheques payable to S.A.C.
3. NON MEMBER CLUBS: add 25% plus postage

Answers to our last crossword puzzle

THE COLONEL'S

by John Bachynski

Dr. John Bachynski of the Edmonton Soaring Club holds the rank of Colonel in the U.A.F. (Ukrainian Air Force). Other members of this organization have similarly unpronouncable or difficult to spell surnames and reside in or around the Edmonton area.

Looking out of my office window toward the northeast, cu began forming on Wednesday, May 3rd, at 10:45 a.m. The wind was a brisk 18 knots from the west and beautiful cloud streets stretched across the horizon. That was the day for a 300 km. run to North Battleford, Saskatchewan for sure. The next day, the cu started to form at 11:30 a.m. and streeted in half an hour. The Met. Man at the Industrial Airport was contacted and he predicted that vertical convection would begin earlier on Saturday. I called Ralph McNabb in the Photography Dept. and he was eager to crew for me as the last time we had teamed up, I made my Silver "C".

The "big day", Saturday, May 6th, arrived and the closer we drove to Chipman, the more the cu's formed around us and the more my anticipation grew. On arrival at the field, the winds were out of the southwest and cloud streets were developing. The idea of declaring North Battleford was still paramount in my mind and yet the winds and cloud formation said another story. After a half hour of debating the situation, Dan Pandur and I decided that southern goal was the proper choice. The route to Stettler was always frowned

upon by more experienced pilots in previous years as there were few landing sites south of Driedmeat Lake and the Battle River. This fact became very obvious when I arrived at the region later on.

When the time came to sign the declaration form, I was nervous as hell. True, I did receive some ridge soaring training a month ago in a 2-33 just north of the Mexican border in southern California, but it had been seven months since I sat in the cockpit of the 1-35 at Cowley. My takeoff was less than spectacular when I slipped the flap lever from minus eight degrees past the neutral to plus four. After correcting the ballooning effect I started to settle down and Kerry Bissell just couldn't keep us out of the lift on the tow. After releasing from a 2,800 ft. launch north of the field, and diving for 200 ft. to notch the barograph, I returned to the last thermal we had towed through. This thermal topped off at 6,900 ft. (all altitudes mentioned as ASL) and I radioed to Ralph to get on his way with the trailer. Just south of Hwy. No. 15, I took the second thermal to 8,500 ft. but still couldn't get to cloud base. Reaching Hwy. No. 16 nine miles later cost 2,000 ft. of altitude. However I found the granddaddy of all thermals which pegged both the electric Cambridge and the mechanical varios. It only required three complete circuits to climb 3,000 ft. Now I was in heaven.

The cloud streets were from the southwest and therefore I took a course towards Deville. After dolphining approximately 20 miles, I was still over 10,000 ft. Now was the time to cross from one street to the next but the gap was at least ten miles. Angling to the southeast and the town of Kingman, I put the nose of the 1-35 down and blasted at 100 knots

FIRST DIAMOND

with four degrees of negative flaps. Before I realized it, Demay Lake was on my left wing and I could see my Crewman kicking up dust on the gravel road below.

This was the first "big blue hole" that I had ever crossed successfully. My first try was in the club's 1-23 on my first cross country flight in June of '75. I got shot down on that flight and landed at Mundare. Since then I have always gone around the holes and stayed in lift.

With my confidence uplifted to a new high, it was time to moisten my mouth with water and start my lunch of a Granolla bar. Radio contact with Ralph was loud and clear, and my spirits rose again when the varios pegged and I achieved cloud base at 10,200 ft.

On reaching Edberg, there was only one cloud in sight between myself and Stettler. The distance to the turnpoint was approximately 25 miles and for miles in every direction was the topography that other soaring pilots had warned me about. Just mile after mile of potholes without any cultivation or roads. I had never really pushed myself or the 1-35 except for the flight last year over the Arizona desert. On that hairy flight, penetrating a 20 mile squall front forced me to redline speeds,

breaking out at only circuit altitude and damaging the sailplane on landing. I didn't want to do that again. My alternative was to go around this immense blue hole which would take at least two hours. Looking back, over-development was already occurring, and I made the decision to go directly toward my turnpoint with the possibility of landing at the Stettler airport. I radioed Ralph to wait on Driedmeat Hill and that if everything went well, I could be back in an hour and a half. From his vantage point radio contact could be maintained to the Stettler airport.

Wouldn't you know it, as soon as I left the last cloud on the edge of that immense blue hole, the varios registered 9 knots of sink. I dove to redline speed and kept it there. That single cloud ahead was slowly dissipating as I approached it but on arrival it put out a respectable 3 knots of lift. My turnpoint was only 10 miles away and now with the altimeter at 8,400 ft. the nose was again lowered in immense sink.

It cost 3,000 ft. to make it to the turnpoint, but remembering Jim Strong's formula, I passed the airfield and gave myself ample distance to make a total of 8 turnpoint photographs. (I couldn't remember whether the airport or the town was the turnpoint). Now I was down to just over 5,000 ft. (2,314 AGL) so I flew over the town looking at all the familiar landmarks I had learned while deer hunting over the last ten years and expecting to get ready for a landing circuit at the airfield just to the west.

To my surprise the varios finally returned to the green air position but was weak. Feeling rather reluctant to carry the task any further, I played with the idea of trying to centre "the perfect thermal", even though I didn't expect to leave the

area. I had been lucky with the lift that was encountered up to Stettler as it was extremely strong and wide. Now it was my turn to see if I could really perform. There is no need to go any further with this incident, as the harder I tried to centre the lift (and a bank angle of almost 60 degrees was required) the stronger the lift became.

Topping out at 10,100 ft. in this dry thermal, I called my crewman and said that the turnpoint photos had been made. The distance to Stettler took two and a half hours using ten thermals. Now I was determined to blast thirty miles north without any lift and at least land north of the Battle River. Ralph would be only a couple miles away on Driedmeat Hill and after derigging, we could arrive in Chipman in two hours.

Well that little cloud north of Stettler was still there when I returned and it pushed me back to 10,000 ft. I was home-free as only ten miles ahead were beautiful cloud streets. The ecstasy of barreling at 110 knots in clear sky which was as smooth as silk can't be explained until experienced. Fifty miles later and over Tofield, rain and zero visibility blocked my straight in track. Now my heart was in my stomach as the

route on the west side of Beaverhill Lake was closed and I lost all faith that I could land at Chipman. I had been warned by persons such as Chester Zwarych that flying over large lakes encountered tremendous loss of altitude due to the cooling effect of the air and subsequent sink. I headed east toward Ryley, and just over Shonts, climbed to 9,200 ft. in my last thermal. Studying the computer, the figures claimed I could do 90 knots all the way back to Chipman if the sink was zero. The decision was made to fly directly over Beaverhill Lake and take my chances. I called Ralph and asked him to go on the east side of the lake in case I had to land. To my surprise, there was no sink over the lake and as I approached the north end of it, I pushed the speed to redline and arrived over Chipman with 2,000 ft. to spare.

The temperature in the sailplane had been between 26 and 28 degrees fahrenheit for the entire trip, and my legs were completely numb with cold. I had to make a cautious landing and again lady luck was with me.

To my surprise, my wife Gail, had placed a magnum of Mumm's champagne in the car cooler and it wasn't until I had the first sip of that nectar that I realized I was back at my destination. Fortunately many club members including Vice Air Marshal Pidruchney were present at the field to partake in the revelry.

For those of you who are statisticians, the entire task required thermalling 16 times and took four hours and eleven minutes. The average speed was 76.5 km/hr and it was my second try in two years at the goal. On the first attempt, I accomplished the Rhinestone Distance of 31 miles.

Overseas News

edited by Lloyd Bungey

Great Britain

The 1978 British Nationals were held at Lasham from May 20th to May 29th. There were three classes; Open, 15 metre and Standard and tasks ranged from 148 km to 313 km. Open and 15 metre classes flew on 8 days, Standard Class on seven. The top three places in each class were:

Open Class		
1. B. Fitchett	ASW 17	6938
2. C. Garton	Nimbus 2	6706
3. D. G. Lee	ASW 17	6647
15 metre Class		
1. A. J. Davis	Nimbus 15	6515
2. S. A. White	ASW 20	6434
3. Spreckley	Mosquito	6325
Standard Class		
1. J. Delafield	ASW 19	5820
2. L. S. Hood	Cirrus 75	5356
3. A. D. Piggott	Astir	4617

U.S.A.

The U.S. 15 metre Championships were held at Ephrata, Washington from June 20 to June 29. Because of the proximity of the contest site to B.C. and Alberta six Canadian residents had applied to enter as foreign entrants; however due to the large number of U.S. entrants, only the top seeded Canadian (Bob Gairns) could be accepted.

Eight contest days were flown with tasks up to 500 km being set. There was one rest day and one the last day no task was set due to the marginal weather. The leading pilots were:

1. George Moffat	ASW 20	7843
2. Brian Uttley	ASW 20	7399
3. Roger Frank	Mosquito	7330
4. Woodson Woods	Mosquito	7200
5. Ken Sorensen	LS3	7179
6. Rudi Allemann	H301 Libelle	7183

Bob Gairns finished in 61st place with 4498 points in his H301 Libelle.

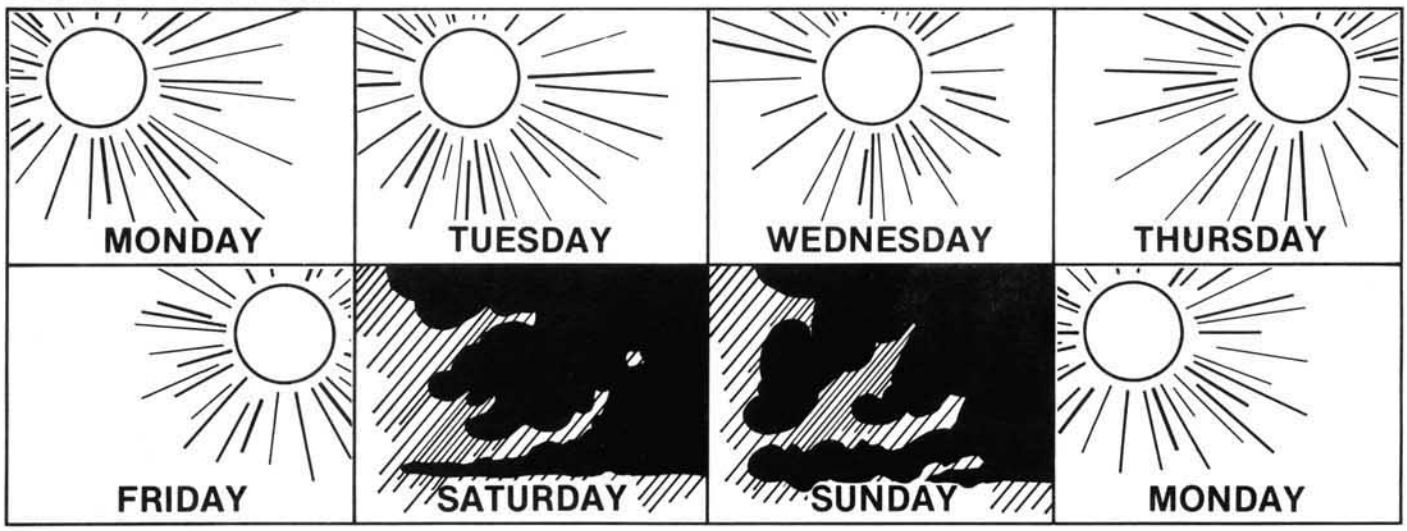
Australia

The Australian Gliding movement continued to grow in 1977. Over $750,000 worth of assets were added by the Australian clubs out of over $2,000,000 worth of assets added to the whole movement. 130 gliders were added to the register in 1977 to bring the total to over 700. There was a total of 4467 members registered with the Gliding Federation of Australia.

CFI Seminar 1978

Not Shown: Oscar Boesch, Walter Morris, Max Harris

A Glider Pilots Week



MAY MEET '78

1978 May Meet
Sponsored by the Alberta Soaring Council
Innisfail Airport, Alberta

(Combined Classes)

Day 1 ... May 20, 1978

Daily task is - Triangle
Turnpoints are: Innisfail; Ponoka A/P; Stettler A/P;
Daily derating factor = 1

Task distance = 230.75 km

Name	Glider	Speed kph	Distance km	Daily points	Daily stndg.	Total pts.	Total stndg.
Konig/Pentek	1-23 ZDN		202.0	892	1	892	1
Mamini, Dick	ASW-12 ASW	65.6		860	2	860	2
Bachynski, John	1-35 WTI		193.5	696	3	696	3
Bungey, Lloyd	PIK 20B DLB		192.0	662	4	662	4
Matthews, Rick	ASW-19 GGRM		179.5	638	5	638	5
Krug, Willi	KW-45 SNZ		180.5	630	6	630	6
Apps, Mike	HP-14 ALT		167.5	589	7	589	7
Hea, Bruce	Libelle QJS		139.5	482	8	482	8
Sorensen, Cec	1-23 ZCJ		96.5	360	9	360	9
McBryan, Mike	1-23 ZDO		92.0	338	10	338	10
Parkinson/Dunbar	Dart OAK		97.5	317	11	317	11
Sorensen, Ted	2-33 FDR		0.0	0	12	0	12

Day 2 ... May 21, 1978

Daily task is - Triangle
Turnpoints are: Innisfail; Stettler A/P; Ponoka A/P;
Daily derating factor = 1

Task distance = 230.75 km

Name	Glider	Speed kph	Distance km	Daily points	Daily stndg.	Total pts.	Total stndg.
Mamini, Dick	ASW-12 ASW	104.2		860	1	1720	1
Bungey, Lloyd	PIK 20B DLB	86.6		805	2	1467	2
Bachynski, John	1-35 WTI	69.5		682	4	1378	3
Matthews, Rick	ASW-19 GGRM	69.2		679	6	1317	4
Krug, Willi	KW-45 SNZ	70.8		680	5	1310	5
Apps, Mike	HP-14 ALT	66.6		656	7	1245	6
Konig/Pentek	1-23 ZDN		128.5	321	10	1213	7
Parkinson/Dunbar	Dart OAK	74.9		775	3	1092	8
Hea, Bruce	Libelle QJS		194.0	438	8	920	9
Sorensen, Cec	1-23 ZCJ		156.5	408	9	768	10
McBryan, Mike	1-23 ZDO		DNC	0	12	338	11
Sorensen, Ted	2-33 FDR		91.0	231	11	231	12

Day 3 ... May 22, 1978

Daily task is - Goal and Return
Turnpoints are: Innisfail; Lacombe A/P;
Daily derating factor = 1

Task distance = 100.63 km

Name	Glider	Speed kph	Distance km	Daily points	Daily stndg.	Total pts.	Total stndg.
Mamini, Dick	ASW-12 ASW	94.8		860	2	2580	1
Bungey, Lloyd	PIK 20B DLB	74.6		821	4	2288	2
Krug, Willi	KW-45 SNZ	77.5		858	3	2168	3
Apps, Mike	HP-14 ALT	81.3		903	1	2148	4
Bachynski, John	1-35 WTI	55.8		720	5	2098	5
Matthews, Rick	ASW-19 GGRM		48.0	200	9	1517	6
Konig/Pentek	1-23 ZDN		48.0	245	8	1458	7
Parkinson/Dunbar	Dart OAK		64.5	365	7	1457	8
Sorensen, Cec	1-23 ZCJ		79.5	579	6	1347	9
Hea, Bruce	Libelle QJS		DNC	0	10	920	10
McBryan, Mike	1-23 ZDO		0.0	0	10	338	11
Sorensen, Ted	2-33 FDR		9.0	0	10	231	12

by Kevin Churchill and
John Bachynski

The May Meet traditionally is a friendly, annual, "mini-regional" sponsored by The Alberta Soaring Council and administered by the Cu-Nim Gliding Club. The Victoria day weekend is usually blessed with at least two days and rarely, as this year, three days of good soaring.

It was a pleasure to see some new faces arrive at Innisfail from the Vancouver Soaring Association including Toni and Monty Williams, Lloyd Bungey (photo 1) and some students who came to train in thermals. Monty didn't compete but took advantage of the excellent cross country conditions, attempted and apparently completed a 500 km diamond distance.

From Alberta there were 11 ships competing, ranging from a 2-33 to an ASW 12. Scoring was on a handicap basis and tasks were chosen in an attempt to have 50-70% of the field finish.

DAY 1: "THE BLUEBIRD DAY"

Conditions were forecast to be blue thermals with possible cloud late in the day with bases at 11,000 asl and lift at 5-6 knots. As usual, the "Weather Man's" prediction was 50% correct (which is better than average in Alberta) and all of Southern Alberta had clear skies all day with lift averaging at best 4 knots. Finding thermals was a hit-and-miss situation and together with the 15 knot southerly winds, turned out to be a "Two steps foreward ... one step backward" progression from areas of lift, especially on the last leg. This prevented all but one ship from finishing although many made distances over 180 km. The finisher was Dick Mamini, but the daily winner was Kans Konig who made 193.5 km. Third was the redoubtable and always colorful (yellow; ship, shirt, pants, hat) Colonel John Bachynski of the notorious Ukrainian Air Force (photo 2). Lloyd Bungey and Rick Matthews flew their distances very quickly but got too low on the final leg to keep in lift. Willie Krug elected to land at a nearby airport on the final glide which was off the track, rather than land on a cultivated field. He and Colonel Bachynski were in the last thermal of the day together when he made his decision. The distance spread between the top six of the day was only 23 km. (10% of the total task) indicating a very close competion.

DAY 2: "THE DAY OF BLUE HOLES AND CLOUD STREETS"

Forecast; stronger lift up to 8 knots, cloud bases around 10,000 asl, relatively minor winds -- 100% correct!

The Contest Director (photo 3), over some objections, called the same task as the previous but in reverse. Most pilots reported no trouble and 7 of 10 starters finished the course.

The psychological stress of the task was the first leg which started out with beautiful Cu marking the course and then suddenly ending in an immense blue hole for approximately 40% of the task. This crisp, cool air included the first turnpoint and was over some of the most formidable country to land in that would cause even some "Easterners" to reappraise their concepts of the "prairies".

Vancouverite Bungey and Calgarian Parkinson obviously were not psyched-out and made very good times only to be outdone by the pace setter Mamini. John Bachynski squeaked into fourth position and the score spread from fourth to sixth was only 3 points (0.43%). Even the 2-33 managed to score 91 km. to the first turnpoint which Ted Sorenson should be complimented upon.

DAY 3: "THE DAY OF HASTE AND APPREHENSION"

A low pressure cold airmass was forecast to intrude on the soaring area and large build ups were apparent by noon. Pilots who started before 1:30 made it back but those who delayed going through the starting gate did not. This was the day that separated the speed pilots (who had to take chances in order to finish quickly) and those who wanted just to complete the task, regardless of sailplane performance. A loss of one good thermal made the difference and the finish gate was a scene of apprehension as the sailplanes returned. The day's winner was Mike Apps in his HP-14 (Photo 4) (originally built by Dick Mamini) who beat the '12 by 43 points on handicap. Dick's performance could only be matched by his crew (photo 5) and both were anxious to attend the Western Regionals at Chipman in July.

Overall it was an enjoyable weekend and Cu-Nim cordially extends an invitation to come to Innisfail next year on the Victoria Day weekend for the May Meet.

CHATEAUR

Standard Class

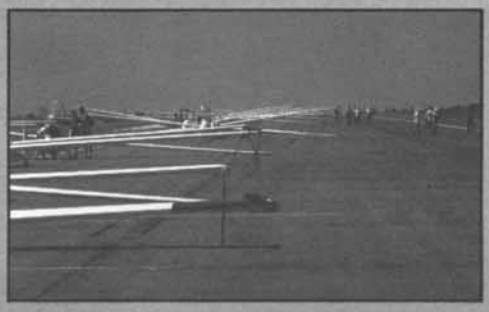
No	Pilot	Nat	Glider	1	2	3	4	5	6	7	8	9	10	11	Total
SB	Selen Bae.	NL	ASW 19	13	3	4	1	1	1	1	1	1	1	1	10681
OK	Brigliadori	I	Cirrus Std.	10	5	5	6	4	3	4	3	3	3	2	10321
MM	Recule Mic.	F	Cirrus 78	8	8	7	4	2	2	2	2	2	2	3	10185
AA	Riera Jor.	RA	Cirrus Std.	3	2	2	2	5	4	3	4	4	4	4	10001
HM	Maelum Haa.	N	LS1 F	5	1	1	3	3	5	5	5	5	5	5	9884
CD	**Carpenter Jam.**	**CDN**	**Cirrus Std.**	**16**	**6**	**10**	**8**	**8**	**9**	**8**	**7**	**6**	**6**	**6**	**9869**
VB	Nietlispach Han.	CH	Hornet Std.	12	7	6	10	9	8	9	6	7	7	7	9812
US	Mozer Her.	USA	ASW 19	1	15	15	13	10	10	10	9	9	8	8	9790
RR	Mercier Mic.	F	Cirrus 78	2	10	9	7	6	6	6	8	8	9	9	9474
AR	Rizzi Rob.	RA	Cirrus Std.	20	16	16	14	13	12	11	11	10	10	10	9329
CN	**Firth Joh.**	**CDN**	**Cirrus Std.**	**15**	**9**	**8**	**9**	**14**	**13**	**13**	**13**	**12**	**11**	**11**	**9311**
IS	Costa Joe.	BRA	LS1 F	4	4	3	5	7	7	7	12	11	12	12	9149
VI	Pettersson Ake.	S	ASW 19	7	17	17	20	19	16	14	14	13	13	13	9094
LB	Andersson Gor.	S	Jantar Std. 2	9	14	13	19	18	15	15	15	14	14	14	8739
SG	Stoegner Gre.	A	ASW 19	11	12	12	12	11	11	12	10	15	15	15	8716
LI	Lund Kar.	DK	Cirrus Std.	17	13	11	15	12	14	16	16	16	16	16	8692
MH	Bradley Ric.	ZA	Cirrus Std.	19	20	20	17	15	17	17	17	17	17	17	8326
LZ	Junqueira	BRA	ASW 19	18	19	19	18	17	18	18	18	18	18	18	8270
CV	Perotti	I	Cirrus Std.	6	18	18	16	20	20	19	19	19	19	19	6606
JD	Delafield Joh.	GB	ASW 19	14	11	14	11	16	19	20	20	20	20	20	3607
EE	Martinez Ric.	E	Libelle	23	21	21	21	21	21	22	22	21	21	21	2073
DI	Hood	IR	DG 100	22	23	23	23	22	23	21	21	22	22	22	1279
RP	Zanitzer Ren.	L	Jantar Std.	21	22	22	22	23	22	23	23	23	23	23	1029

World Gliding C

Open Chateauro

No	Pilot	Nat	Glider
02	Lee Geo.	GB	ASW 17
10	Gantenbrink Bru.	D	Nimbus 2
19	Henry Fra.	F	Nimbus 2
40	Fitchett Ber.	GB	ASW 17
13	Mueller Erw.	D	ASW 17
04	Johnson Ric.	USA	Jantar 2B
20	Finlayson Ian.	NZ	ASW 17
18	Rantet Jac.	F	Nimbus 2
31	Jinks Mal.	AUS	Nimbus 2
44	Zegels Ber.	B	Jantar 2A
05	Tabart Ton.	AUS	Nimbus 2
07	Butler Ric.	USA	Glasfl 604
11	De Orleans-Borbon	E	ASW 17
16	Evans Iva.	NZ	Nimbus 2
06	Schubert Alf.	A	Nimbus 2
45	Urbancic Lui.	RA	Nimbus 2
21	Hansen Mog.	DK	Nimbus 2
14	Gavazzi Mar.	I	Nimbus 2B
26	De Dorlodot Lou.	B	ASW 17
50	Oswald Mar.	CH	Nimbus 2
47	Serra San.	I	Nimbus 2
01	Fahrafellner Olm.	A	Nimbus 2
49	Mouat-Biggs Edw.	ZA	Nimbus 2
15	Goudriaan Kla.	ZA	ASW 17

ROUX 1978



hampionships
Class
x - France

1	2	3	4	5	6	7	8	9	10	11	Total
17	8	1	3	1	1	1	1	1	1	1	10163
10	4	2	2	3	2	2	2	2	2	2	10018
13	2	3	1	2	3	4	3	3	3	3	9919
1	5	6	5	5	5	3	5	5	4	4	9623
9	7	10	9	7	6	6	4	4	5	5	9534
6	15	13	6	6	7	7	7	6	6	6	9340
5	17	12	11	9	8	8	8	8	7	7	9256
2	11	4	4	4	4	5	6	7	8	8	9238
12	12	11	20	19	14	14	10	11	9	9	8947
22	22	22	15	15	13	12	11	10	10	10	8802
11	14	19	13	13	10	11	9	9	11	11	8786
4	10	9	19	17	11	9	12	12	12	12	8704
24	24	23	23	22	18	15	16	16	14	13	8612
8	13	15	12	12	9	10	13	14	13	14	8493
20	3	7	21	20	16	18	18	18	18	15	8412
19	19	17	14	16	15	17	14	13	16	16	8377
7	6	8	10	11	12	13	15	15	15	17	8371
15	18	14	7	10	17	16	17	17	17	18	8369
14	20	20	16	14	21	19	19	19	20	19	8230
16	16	18	17	18	20	20	21	20	19	20	8221
21	21	16	22	21	22	21	20	21	21	21	8149
18	9	21	18	23	23	22	22	22	22	22	6524
23	23	24	24	24	24	24	23	23	23	23	4558
3		5	8	8	19	23	24	24	24	24	4165

15 M Class

No	Pilot	Nat	Glider	1	2	3	4	5	6	7	8	9	10	11	Total
66	Reichmann Hel.	D	SB 11	1	1	1	1	1	1	1	1	1	1	1	10544
97	Striedieck Kar.	USA	ASW 20	2	3	2	2	2	2	2	2	2	2	2	10500
71	Ax Gor.	S	ASW 20	11	10	12	7	3	3	3	3	3	3	3	10142
60	Widmer Joa.	BRA	ASW 20	6	5	6	5	6	4	5	5	4	4	4	10119
73	Musters Kee.	NL	LS3	3	11	8	4	4	5	4	4	5	5	5	10082
61	Peter Ern.	D	ASW 20	26	18	14	14	11	10	8	6	6	6	6	10026
76	Bluekens Mic.	B	ASW 20	4	2	5	11	9	9	9	7	7	7	7	9934
82	Gordon Wal.	NZ	LS3 A	14	8	4	3	5	8	7	8	8	10	8	9658
99	Teunisse Pet.	NL	Mini-Nimbus	16	12	10	9	8	7	10	9	11	11	9	9654
74	Pare Daa.	NL	Mini-Nimbus	7	15	13	10	10	11	11	10	9	8	10	9589
65	White Ste.	GB	ASW 20	12	9	11	12	12	12	13	12	12	12	11	9582
91	Karlsson Gun.	S	Mini-Nimbus	9	16	17	15	13	13	12	11	10	9	12	9577
63	Haemmerle And.	A	Mini-Nimbus	8	6	7	8	14	14	14	13	13	13	13	9516
81	Renner Ing.	AUS	LS3 A	13	20	20	21	18	16	15	14	14	14	14	9285
70	Roennestad Ein.	N	LS3	29	24	23	23	20	17	17	15	15	15	15	9257
58	Schulthess Alf.	CH	Mini-Nimbus	5	4	3	6	7	6	6	17	17	16	16	9105
69	Sorensen Ove.	DK	Mosquito	21	17	19	18	15	15	16	16	16	17	17	9070
87	Buchanan Joh.	AUS	LS3 A	19	26	24	24	23	20	22	20	19	19	18	8884
78	Stouffs Hen.	B	LS3	22	21	18	19	16	22	20	19	20	20	19	8705
93	**Webb Dav.**	**CDN**	**Mosquito**	**18**	**14**	**16**	**17**	**22**	**19**	**18**	**22**	**22**	**21**	**20**	**8673**
94	**Werneburg Hel.**	**CDN**	**Mini-Nimbus**	**10**	**7**	**9**	**13**	**19**	**18**	**19**	**18**	**18**	**18**	**21**	**8618**
84	Clifford Rob.	ZA	LS3	25	19	21	20	17	21	21	21	21	22	22	8285
96	Innes Dav.	G	Mosquito	17	13	15	16	21	23	23	23	23	23	23	7998
62	Baumgartner Kr.	CH	LS3 A	27	22	22	22	24	24	24	25	24	25	24	7262
59	Fowler Bru.	NZ	ASW 20	23	29	27	26	25	25	25	24	25	24	25	7117
72	Bulukin Bir.	N	PIK 20 B	31	27	26	25	26	26	26	26	26	26	26	6857
67	Bryson	IR	PIL 20 D	30	30	28	28	28	28	27	27	27	27	27	5548
68	Seistrup Nie.	DK	PIK 20 D	28	31	30	27	27	27	28	28	28	28	28	5517
89	Von Schaaffhausen	BRA	LS3 A	15	23	25	29	29	29	29	29	29	29	29	4800
80	Radic Srd.	RCH	Mini-Nimbus	20	25	29	30	30	30	30	30	30	30	30	4321
90	Urbina Rei.	RCH	Mosquito	24	28	31	31	31	31	31	31	31	31	31	4160
64	Nagore	E	Mini-Nimbus	32	32	32	32	32	32	32	32	32	32	32	2189

CHATEAUROUX 1978

The Canadian pilots and some crew members arrived in Frankfurt on July 2. Four Opel Record cars with tow hooks were ready just as promised, and we set out for Kirchheim, a two hour drive. Two Cirrus 75's and a brand new Mini-Nimbus awaited us at the Schempp-Firth Factory, and a shiny new Mosquito at Glasflugel. Familiarisation flights were made at the Hahnweide, and last minute adjustments completed with the generous help of Schempp-Hirth and Glasflugel staff. On July 5 we set out for Chateauroux and arrived safely in time for the start of the official training week. The first day in Chateauroux was hectic, and there were some difficulties with the accommodations. However, by the start of the first flying day most of the nagging details had been settled. The weather, up to then mostly poor, cleared as if on command. The Canadian Team became quite well known during the first three training days when one glider hit a runway light, another hit (and almost killed) a French TV cameraman and the shiny new Mosquito was damaged during an off-field landing. After that, pilots and crews settled down to practice their contest routines.

The official opening ceremonies were timed for exactly noon (sun-time) and we spent almost two hours under the blazing sun on acres of concrete while the officials ran through their speeches. The only relief was provided by a French air force band which played "Jingle Bells" during one of the musical interludes. July 16, the first contest day looked reasonably well. Blue thermals were forecast to a max. of 3500' with lift to 350'/min and a high of 26°. That encouraged the task setters to 336 km Open, 309 km 15.m and 272 km Standard class tasks. As a result, half the 15m class landed out, Dave Webb among them, but Hal Werneburg came home 10th out of 32. In the Standard Class John Firth came home 15th, Jim Carpenter 16th. Some excitement was provided by a mid-air collision at the finish line, but fortunately no real damage was done.

Day Two was another hazy, blue thermal day topping out at 3000 feet, but with a high temperature of 31°. This called for a task of 238 km Open, 202 km 15m Class and 178 km Standard Class. Most pilots never got above 2500 feet. Half the 15 m class made it home with Dave Webb 7th and Hal Werneburg 14th. Half the Standard Class came home, with Jim Carpenter 6th and John Firth 11th. Only five of the Open Class returned to base. A good day for Canada. On July 18 the weather deteriorated to showers and no task was set. On July 19 the forecast called for cu to 3000 feet, 15 to 20 kt wind and thermal strength up to 400 feet/min. This caused the task setters to go wild with enthusiasm and call for 343 km Open, 311 km 15m and 279 km in the Standard Class. To no one's surprise the fields between the second turnpoint and home filled with fiberglass in the early evening. By some miracle George Lee brought his ASW 17 back to Chateauroux at 8:15 p.m., the only one of 83 to complete a task. There was some mumbling in the ranks about optimistic task setting.

July 21, the 4th contest day, brought cooler weather and considerable overcast, but the met man promised cu to 3200 feet, only moderate winds and 6/8 overcast during the afternoon. This inspired the task setters to 333 km Open, 287 km 15 m and 260 km in Standard Class. It's a tribute to the pilots that most of them completed the task, but both Dave Webb and Hal Werneburg had to land out after 400 km and lost valuable points. Jim Carpenter completed the task for 12th place, and John Firth landed out. Tough day for Canada.

July 23, 6th contest day. Weather almost the same as yesterday, and that called for 505 km Open, 446 km 15m and 402 km Standard Class tasks. 22 out of 32 15m class pilots completed, with Werneburg 16th and Webb 19th. In the Standard Class 15 out of 22 completed, with Carpenter 12th and Firth 14th.

July 24th, 7th contest day. Warm air moving in, cloudbase down to 3000 feet, lift to 350 feet/min. That called for a "smaller" task, 469 km Open, 430 15m and 395 Standard Class. This time the weather improved during the afternoon, and almost everyone completed. Webb came in 14th and Werneburg 25th, but in the Standard Class Jim Carpenter, came 2nd and John Firth 4th. Terrific! Jim had made it away from a 300 ft. low point.

July 25th, 8th contest day. A front has gone through and left various disturbed air masses behind. Cu to 4500 feet and lift strength to 500 feet/min. was forecast, with high cirrus for late afternoon. This called for a 503 km Open, 458 km 15m and 407 km Standard Class task. Sure enough the high cirrus had an effect on the number of out landings. But Carpenter came 8th, Firth 15th in the Standard Class, and Werneburg 10th, Webb 22nd in the 15m Class. By now, a battle for the lead in the 15m class had developed as Striedieck gained on Reichmann, and in the Open Class, Gantenbrink gained on Lee.

The 26th of July brought rain and a much need rest for pilots and crews.

July 27, 9th contest day. Cold front has gone through, but weatherman appears overly optimistic. His predictions of 5000 feet cloudbase, and thermal activity to 8 p.m. does not come true. Cu went to 3000 feet and then disappeared leaving blue sky and tasks of 536 km, 448 km and 457 km respectively. Startgate opened at 13:30. To make a long story short, not a single competitor made it home. A number of gliders were damaged, but all but one could be repaired over night.

July 28th, 10th contest Day. Cu to 4500 feet, thermal strength to 400 feet/min., but after yesterday's disaster the task setters have become cautious. Only 332 km Open, 304 15m and 273 km Standard. For the first time during the contest, every pilot completes the task. Dave Webb is 16th, Werneburg 19th in the 15m class, Carpenter is 3rd and Firth 4th in the Standard Class. Carpenter seems to have a firm hold on 6th position overall. The day is marred by the death of a British team member who lost control of a power plane while doing aerobatics over the field.

July 29, 11th contest day. Weather not so good, possibility of thunderstorms and strong wind. But rates of climb might go to 500 ft./min. Open Class 329 km, 15m 292 km and Standard Class 268 km. Almost everyone completes the tasks. Firth is 6th and Carpenter 10th in the Standard Class, Webb 13th and Werneburg 26th in the 15m class. It's all over!

In the final standings, George Lee of Great Britian is still Open Class Champion, Helmut Reichman of Germany is 15m Class Champion, and 23 year-old Baer Selen of the Netherlands is Standard Class Champion. Jim Carpenter has the best Canadian position as 6th in the Standard Class. It's been a tough competition. It shows that Canadians can do well, but that we must learn to be more consistent.

There is a big, all night closing party where everyone blows out the accumulated tension. Old friendships were renewed, new ones are made and there is a great deal of trading souvenirs. Next day the masses scatter to return home with the firm conviction that it was worthwhile, and that Canada will be there again in 1981.

World Contest Fund

The World Contest in Chateauroux France is over now and our Canadian World Contest Team performed better than any other previous Canadian World Contest Team (see article this issue for more information). We are still short of our fund goal of $40,000 and this is our final appeal for individual donations.

We haven't received the results of the Fly For Canada efforts at this time so if you haven't flown your money raising flight yet nobody will complain if you do it this month or next month. If some of you haven't received your sponsor sheet contact your club president.

It appears that the team might have spent more than they expected this year so we would very much like to at least hit our target figure.

To my knowledge, fund raising efforts for the Canadian team have never reached their expected figures and our team members have always had to dig very deep into their own pockets. Since our team has done very well this year it would be nice to raise another $12,000 and reach our goal.

If all you folks who haven't donated yet were to send us a cheque for $10.00 or more we could reach that goal plus you will receive an official Team Canada T-shirt. All the people who have donated $10.00 or more will be receiving their T-shirts soon (please state size). We are hoping to publish a list of donators in a future issure of Free Flight.

Here is an approximate breakdown of Fund sources to date, (July, 1978:)

$ 2,500 carry over from previous fund
2,500 Ontario Place special preview of Dawn Flight
15,000 Government Grant
1,000 MSC donation
1,000 SOSA donation
1,000 99'ers donation
2,000 individual donations
3,000 special issue of Free Flight

$28,000 Total

We will let you know in a future issue how we made out. Thanks for your support.

Paul J. Thompson
World Contest Committee Chairman

Committee Members - John Brennan
- Jack Knowles

The Day It Rained Diamonds

by Eric Newsome

July 2, 1978 will live long as a day to be remembered in the annals of MSC, and indeed in Canadian soaring generally. Nine gliders set out on Diamond Goal Tasks - eight to Cedar Airport, Merrickville and return, and one lone individualist to St. André Airport and return. Eight got back and seven completed the task.

The aircraft and pilots were: Hans Baeggli, Nimbus; Gunther Geyer-Doersch, DG-200; Bernard Palfreeman, PIK-20; Dick Kirschner, LS-1; Bill Roach, LS-1; Peter Trent, Standard Cirrus; Eric Newsome, Astir-CS; Kurt Kovacs, PIK-20 and Gerry Nye, HP-14. A fair range of sailplane potential and soaring skill and experience.

The first leg was fast and easy with good thermals marked by cumulus clouds and circling gliders. On the second leg at about Loch Garry the clouds died out and, although lift remained good, it was rather more difficult to find. Anyone getting left behind had a hard time getting to the Merrickville turnpoint and out again and the final leg as things quietened down was hard and slow going.

It was not the best day we have ever had in terms of conditions but we achieved more than ever before, which is probably a good indication that we should go more often. It says a good deal for the soaring scheme and its encouragement of cross-country flying that so many should have gone at the same time. Particularly pleasing is the fact that two of the ships were club owned.

From Montreal Soaring Council
"Downwind"

The following article is an extract from the newly revised Instruction Manual, Part III, Student's Notes. Those of you who remember your student days (daze) will see that Thermalling and Collision Avoidance are new sections. Part II of the manual, Air Instruction Notes, has also been revised. Current instructors should make a point of obtaining copies as soon as possible from Terry Tucker.

STAGE VI TURNS AND

Stage VI - Medium Turns and Thermalling

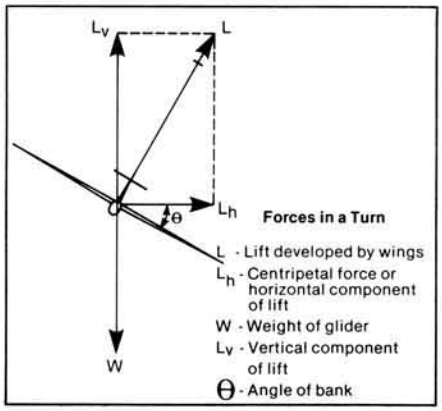
a) Definition of an Accurate Turn

An accurate turn is a change in direction at a constant rate while maintaining a constant angle of bank, and with no slip or skid.

b) Forces Involved in a Turn

In order to turn an aircraft it is necessary to provide a force acting upon it in the intended direction of turn.

This is done by banking the aircraft so that the lift which acts normal to the aircraft's wings will now also be inclined such that part of this lift will provide the necessary turning force:



In this figure the vertical component of lift Lv will equal the glider's weight W, while the horizontal component of lift Lh, or centripetal force, will provide the necessary force to accelerate the glider towards the centre of the circle it is making.

The greater the inward force Lh, the smaller will be the radius of turn. Hence, if it is desired to turn sharply, the angle of bank must be greater than when turning gently.

Since the Lift L must be sufficient both to support the aircraft and to provide the inward Centripetal Force Lh, it must be greater than that in straight flight.

This increase in lift can only be achieved by increasing the airspeed or by some increase in the angle of attack, or both. Unless the airspeed is increased by the pilot, the angle of attack may approach that of the stall. However, this effect is not very pronounced in medium and gentle turns, but becomes more important in steep turns.

c) Functions of Controls During a Turn

It is best to think of each control as having a definite function during a turn:

1) the Ailerons control the angle of bank.
2) the Elevator controls the angle of attack of the wings, hence the glider's pitch attitude in the turn, and thence the airspeed.
3) the Rudder prevents any adverse yaw that is encountered during the entry to the turn. During the turn it is then used to correct any small amount of slip or skid that occurs.

Once the turn has started, the faster moving outer wind produces more lift than the inner wing. This means that you will have to prevent the over-banking caused by this extra lift of one wing. For small angles of bank and in well designed gliders this effect is however, small.

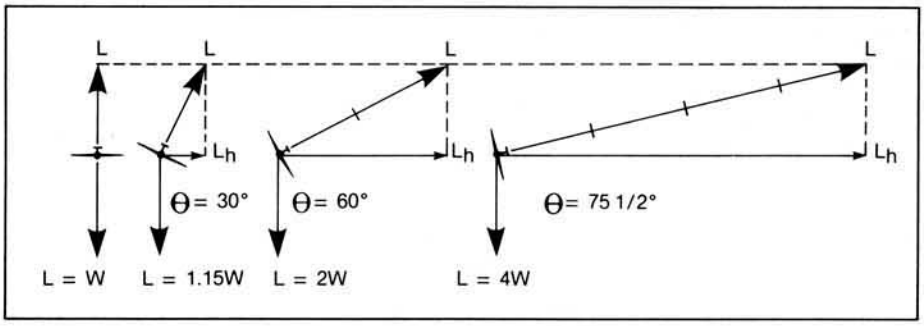
The outer wing also has more drag than the inner wing and this means that a small amount of rudder is required to counteract this effect. "Bottom" rudder, or rudder in the direction of the turn is needed. As explained before, remember that the rudder is used only to prevent slip or skid once the turn has been established.

The elevator is used during the turn to keep the nose sweeping in a level path around the horizon, thus keeping the airspeed constant.

d) Method of Making a Good Medium Turn

In making an accurate turn a fully-trained pilot so coordinates the movements of the three controls that he can smoothly go into the turn, stay in, and come out again. It is difficult to do this well although accuracy is the basis of efficient thermalling. You too should aim for this perfection, and with practice it is soon achieved.

Of far more importance however is



THERMALLING

keeping a good lookout as the consequences of a collision are more drastic than a bit of sloppy flying. Look both ways before turning, and always keep a good lookout particularly along the horizon and in the direction of the turn; the instructor in the back seat often has his view restricted by wings and by your head and shoulders, so keeping a good lookout is vital.

e) Air Exercise (Medium Turns)

1) Going In

Before you start have a good look for other aircraft. Then make sure the glider is flying in a level attitude and at a steady safe speed, remembering that the stall speed goes up slightly in a turn.

Roll into the turn with firm control inputs to an angle of about 30°, using the rudder as required to prevent adverse yaw. When you reach the required angle of bank, "hold" it there with ailerons - remember that when you centre the stick also centre the rudder as there is then no aileron drag.

2) Staying In

Make small check movements of the ailerons to prevent the bank from becoming too steep. A small amount of rudder may be found necessary in the direction of the turn to keep the yaw string straight (or ball centred). As discussed in b) above, you will find that to keep the speed constant and therefore to maintain the attitude of the glider constant a small amount of back pressure will be needed on the stick. In some gliders you should be able to trim out this pressure, as discussed in Stage II.

To help in keeping your angle of bank constant, keep looking at the horizon ahead and try to judge the angle that say, the instrument panel makes with it. And keep looking around for other aircraft as much as possible.

3) Coming Out

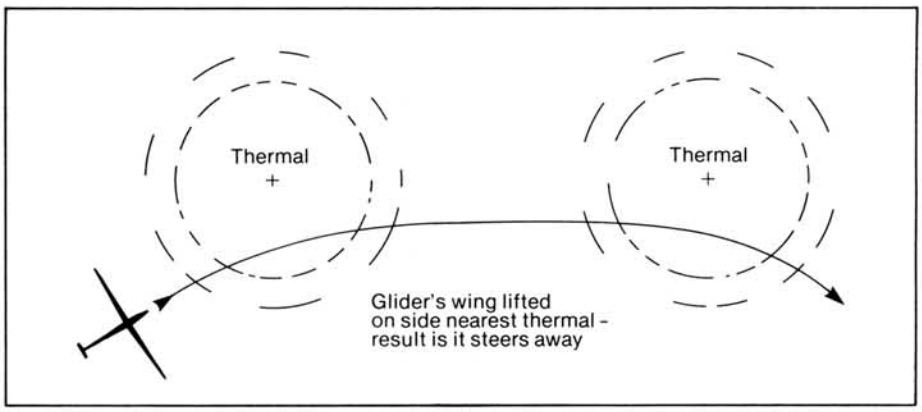
Look around for other aircraft.

To level the wings roll out of the turn, simultaneously using the rudder to prevent adverse yaw. A slight forward movement of the stick will be needed to prevent the nose from rising, and when the wings are again level you should retrim the glider.

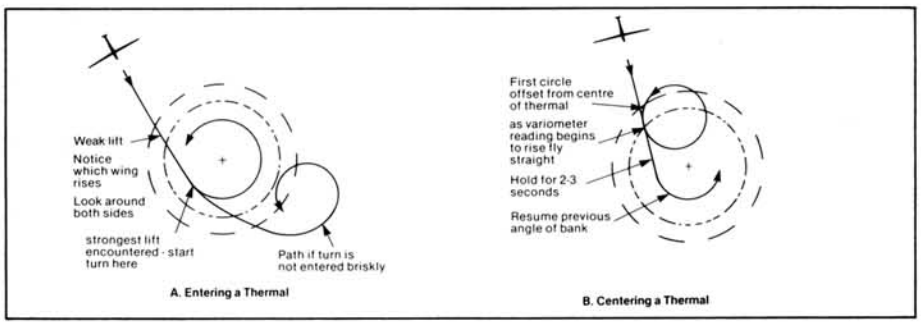
f) Thermalling - Entering and Centering Techniques

Imagine you are flying straight on a thermal day, looking for a thermal. If you do nothing, the aircraft will neatly steer between the thermals, because one wing will usually be lifted first, tilting the glider away from the stronger lift.

To steer into the thermal therefore, carefully evaluate which wing tends to rise more as you encounter a thermal, look around both sides for other aircraft, and only then initiate a turn towards the rising wing. This is shown in diagram A below. Note that the turn is initiated as you encounter the strongest lift, but due to instrument lag (your variometer might take several seconds to fully respond) the turn should be initiated ahead of the maximum reading. Roll briskly into the turn, or your path will take you out of the thermal again.



If your first circle is offset from the centre of the thermal, diagram B, you will notice a high variometer reading on one side of your circle and a lower reading diametrally opposite. One method of centering a thermal is shown in this diagram. As you continue to circle wait until the variometer reading begins to rise, and then level the wings to fly straight



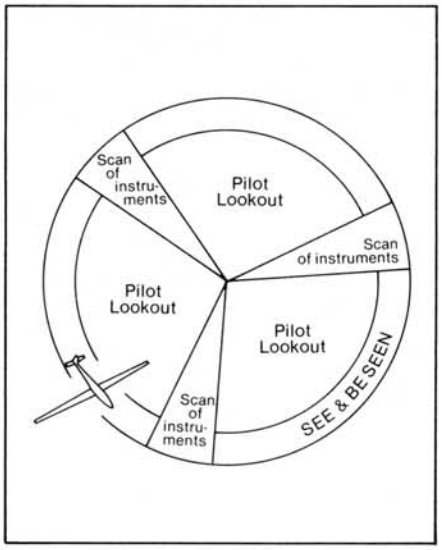
STAGE VI - TURNS AND THERMALLING

into the area of stronger lift. Hold your straight course for about 2 to 3 seconds (though with experience you will be able to judge better how long to wait) before resuming your previous angle of bank. It is easy to draw the diagram, much less easy to "see" the thermal when flying. Constant looking out at ground references will help you to visualize where the strong lift is, and to choose the direction to fly in.

g) Collision Avoidance While Thermalling

The importance of maintaining an adequate lookout while thermalling cannot be overstressed. Let's imagine our circle divided into three segments as in the diagram below, and divide the time of each segment into a short period for scanning the instruments, and a longer period for looking out.

A typical circle at medium angles of



bank will take about 30 seconds to complete. An instrument scan will use 2-3 seconds, leaving 7 to 8 seconds for each lookout. This should be your aim for a minimum lookout period. This system lets you locate the strongest lift in the circle, and allows an adequate search of potential blind spots.

If there is one other aircraft in your thermal try to keep it on the opposite side of the thermal, in line with your wing tip. Should more aircraft join you, position yourself so that you can be easily seen by the other pilots. Leave the thermal immediately if you lose sight of a nearby glider and believe it is close behind. Never assume that the other pilot has seen you or that he will take the avoiding action. Never deliberately fly closely under or over another glider, the pilot may not see you, and turbulence could quickly reduce any vertical separation.

SEE and BE SEEN at all times.

USE OF THE METRIC SYSTEM

by Terry Beasley

GENERAL

Everyone is becoming increasingly aware of the decision that Canada is eventually going to become a full member of the metric community. Many books and leaflets are now being distributed and regretably, some are of dubious value. The two reference documents are authoritive; ref. (a) is a comprehensive document which should be reviewed by all persons interested in metrication, while ref. (b) is a useful introduction to the subject.

SPELLING

Until recently there has been no 'correct' spelling for metric units in Canada, both European and U.S. practices being used. Ref. (b) states that the spelling to be used in Canada is as used in the Weights and Measures Act; the significant cases being metre, **not** meter; gram **not** gramme; and litre **not** liter. The metric tonne is 1000 kg and care must be take in the interpretation when the work occurs in French text of Canadian origin where the implication may be the 'short ton' of 2000 lb. With the exception of Celsius units, names when written out in full do not have the name written with an initial upper case letter except when at the commencement of a sentence. In text, symbols should not be used to start a sentence.

SYMBOLS

Correct S.I. symbols are shown in Ref. (a). The following should be noted: —

(a) A space must **always** be left between the numerals and the symbol.

(b) The symbol remains the same in the plural; 10 km **not** 10 kms.

(c) The symbols are **never** followed by a period except at the end of a sentence.

(d) The S.I. symbol for litre is l, however where there is possibility that confusion could result, the word should be written in full or script ℓ should be used.

(e) A double solidus (/) should not be used. e.g. m/s^2 not m/s/s.

(f) It has become careless practice to use, incorrectly, upper case K as the prefix for kilo, particularly Km and Kg. It is important to use the correct units, prefixes, names and symbols as shown in Ref. (a). In certain cases serious errors can be introduced through the use of wrong prefixes, e.g. M = 10^6 while m = 10^{-3}.

(g) Particular care must be taken when using a unit symbol which is also used as a multiplier prefix. For example, mN is the correct symbol for the millinewton, a newton metre should be represented by N.m.

(h) It is recommended that only one prefix should be used in forming multipliers of a derived unit. This prefix should be attached to a unit in the numerator except where the base unit kilogram appears in the denominator. (It should be noted that the kilogram is the only SI base unit which, for traditional reasons, contains a prefix.)

Examples: N.m **not** mN.mm

m^2/m **not** -2/km

and J/kg, showing the exception.

NUMERALS

It is usual European practice to use a comma rather than a period as a decimal marker, while the practice in North America and the U.K. has been to use a comma as a 'thousands' marker. To avoid confusion the practice of using the comma as a thousands marker is not to be used in technical data. The period will continue to be used as a decimal marker. The following additional points should be noted: —

(a) For numerical values less than one a zero should precede the decimal point, e.g. 0.9 **not .9**.

(b) A blank space of equal length to one digit shall be used to divide a large number of digits on either side of the decimal marker into groups of three digits. This practice need not be followed where there are only four digits, e.g. 1428; however the space wil be left in four digit numbers where they are in columns with other numbers containing more than four digits.

E.g. 1 428
35 124
4 629 513

(c) A dot shall not be used as the multiplication symbol in conjuction with numerals.

PREFERRED UNITS

It is usually recommended that the prefix (decimal multiplier or sub-multiplier) of an SI unit is governed by convenience, the multiple chosen usually being the one which will lead to numerical values in the range of 0.1 and 1000.

References:

(a) International Standard ISO-1000, SI units and recommendations for the use of their multiples, available from the Canadian Standards Association.

(b) Canadian Standards Association Special Paper, June 1973, 'The International System of Units, (SI). An Outline of Canadian Usage'.

Speed is Altitude as well as Safety

A comment on circuit procedures

by Lloyd Bungey

A pilot involved in a landing accident stated recently (F.F. Mar./April '78) that he did not increase his speed from his 45 mph cruising speed as he entered circuit since he couldn't afford more "because of altitude". In actuality, he couldn't afford not to, but, apparently, was not aware of the fact that, most of the time, speed in the circuit will actually save you precious altitude. Unfortunately, most of the text books don't point this out and it is, therefore, often missed during training.

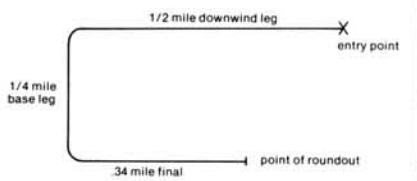
"What!", you say. "Speed will save me height. How come?" "I was always taught that as the glider's speed goes up so does its rate of sink."

"Sure" I say, "But weren't you also taught that you fly faster in sink to get out of it sooner." "Well, in the circuit you also have sink plus winds to contend with. Let's examine the total picture and see what speed really does for you."

Let us consider the case of a glider with a fairly modest performance, say a sink rate of 150 ft/min at 45 mph in still air and 200 ft/min at 55 mph. Now let us consider it making a circuit at those two speeds; this circuit to consist of a down wind leg of 1/2 mile, a base leg of 1/4 mile and a final of .34 miles.

Figure 1

Circuit considered "Typical" for comparing effects of speed on altitude needed to complet circuit.



For simplicity's sake we shall ignore the slightly higher sink rate in the turns and also consider the circuit of three straight legs with "square turns" onto base & final. Also, we shall not consider the 26.5' of height needed to speed up from 45 mph to 55 mph as part of the circuit height needed since this may be regained by a pullup from 55 mph to 45 mph, it is therefore height stored as speed and still available to clear that final obstacle.

We shall calculate the total time taken to fly the circuit by treating the downwind, crosswind (base) & final legs of the circuit separately and summing the times to get the total time. Each leg is flown at constant airspeed (either 45 or 55 mph) but the groundspeed will vary according to the wind. As the wind strengthens, the time to fly the downwind leg decreases but the time for base & final legs increases.

The expression used to calculate this time is: -

$$t = \frac{3600\,d}{V + \Delta V}$$

where t is the time in seconds
d is the distance in miles
V is the airspeed in mph
ΔV is the tailwind component in mph (this is a negative quantity for a headwind).

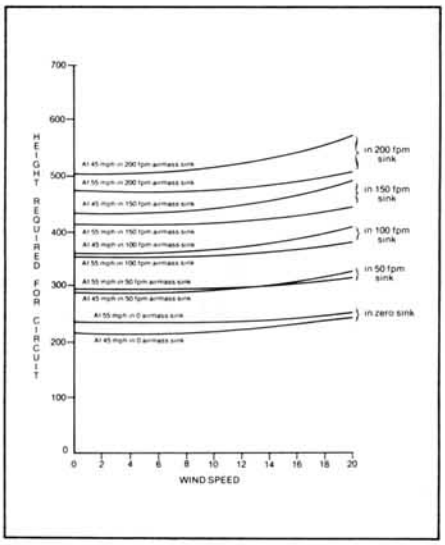


Figure 2

Plot of altitude required to complete & circuit against windspeed for various airmass sink rates.
(glider assumed to have a sink rate of 150 fpm at 45 mph & 200 fpm at 55 mph)

Tables 1 & 2 give these times for airspeeds of 45 & 55 mph respectively in winds of 0 to 20 mph with the circuit flown for a directly into wind landing.

	Time (in seconds) to fly			
Windspeed in mph	1/2 mile downwind	1/4 mile crosswind (base)	.34 mile into wind (final)	Whole circuit
0	40.0	20.0	27.2	87.2
2	38.3	20.1	28.4	86.8
4	36.7	20.3	29.8	86.8
6	35.3	20.5	31.4	87.2
8	34.0	20.7	33.1	87.8
10	32.7	20.9	35.0	88.6
12	31.6	21.1	37.1	89.9
14	30.5	21.3	39.5	91.3
16	29.5	21.5	42.2	93.3
18	28.5	21.7	45.3	95.5
20	27.6	21.9	49.0	98.5

Table of time required to fly downwind, base & final legs of circuit at 45 mph and time for the whole circuit in windspeeds from 0 to 20 mph with landing directly into wind.

	Time (in seconds) to fly			
Windspeed in mph	& 1/2 mile downwind	1/4 mile crosswind (base)	.34 mile into wind (final)	Whole circuit
0	32.7	16.3	22.2	71.2
2	31.6	16.4	23.1	71.1
4	30.5	16.5	24.0	71.0
6	29.5	16.6	24.9	71.0
8	28.5	16.7	26.0	71.2
10	27.6	16.8	27.2	71.6
12	26.8	16.9	28.4	72.1
14	26.1	17.0	29.8	72.9
16	25.3	17.1	31.4	73.8
18	24.6	17.2	33.1	74.9
20	24.0	17.3	35.0	76.0

Table of time required to fly downwind, base & final legs of circuit at 55 mph and time for the whole circuit in windspeeds from 0 to 20 mph with landing directly into wind.

Now that we have the times needed to fly the circuit we can calculate the height loss by multiplying these times by the sink rate. Since this will vary I have calculated these for airmass sink rates from 0 to 250 fpm, to which we must add the glider's normal sink rate at the chosen speed to get the actual sink rate.The height losses are tabulated in tables 3 (for 45 mph) & 4 (for 55 mph). They are also presented graphically in figure 2.

From figure 2 we may now clearly see that by flying at 55 mph rather than 45 mph we will actually use less height for our circuit if the sink rate is greater than about 50 fpm and that even in zero sink the 55 mph circuit will only require about 20 extra feet while giving a greater margin of safety from stall.

An interesting observation also to be made from figure 2 is that up to about 14 mph the wind has virtually no effect on the height loss, the faster ground speed on downwind compensating for the slower groundspeed on final.

Hopefully, you now have the message; if caught low don't reduce your chances further by flying slowly it doesn't really save your height, it just prolongs your agony.

Windspeed in mph	Time (in secs) for circuit	Height lost in circuit in an airmass sinking at					
		0 fpm	50 fpm	100 fpm	150 fpm	200 fpm	250 fpm
0	87.2	218'	290'	363'	436'	508'	581'
2	86.8	217'	289'	362'	434'	506'	578'
4	86.8	217'	289'	362'	434'	506'	578'
6	87.2	218'	290'	363'	436'	508'	581'
8	87.8	219'	292'	366'	439'	512'	585'
10	88.6	221'	295'	369'	443'	517'	591'
12	89.9	225'	300'	374'	449'	524'	599'
16	93.3	233'	310'	388'	466'	544'	621'
18	95.5	238'	318'	398'	477'	557'	637'
20	98.5	246'	328'	410'	495'	574'	656'

Table of height required for completing a 1.09 mile circuit at an airspeed of 45 mph in a glider having a sink rate of 150 fpm at that speed. The heights are shown for wind of 0-20 mph with the landing directly into wind and airmass sink of 0-250 fpm.

Windspeed in mph	Time (in secs) for circuit	Height lost in circuit in an airmass sinking at					
		0 fpm	50 fpm	100 fpm	150 fpm	200 fpm	250 fpm
0	71.2	238'	296'	356'	415'	474'	534'
2	71.1	237'	296'	356'	415'	474'	533'
4	71.0	237'	296'	355'	414'	473'	532'
6	71.0	237'	296'	355'	414'	473'	537'
8	71.2	238'	296'	356'	415'	474'	534'
10	71.6	239'	298'	358'	418'	477'	537'
12	72.1	240'	300'	361'	420'	480'	540'
14	72.9	242'	303'	365'	425'	486'	546'
16	73.9	246'	308'	370'	431'	493'	554'
18	75.0	250'	312'	375'	437'	500'	562'
20	76.0	253'	316'	380'	443'	507'	570'

Table of height required for completing a 1.09 mile circuit at an airspeed of 55 mph in a glider having a sink rate of 200 fpm at winds of 0-20 mph with the landing directly into wind and airmass sink rates of 0-250 fpm.

Hangar Flying

BEFORE YOU ORDER A SAILPLANE ...

Many glider pilots who contemplate the purchase of their dream ship do not ensure, in advance, that their dream is not shattered by red tape.

Anyone intending to import a glider not yet type approved in Canada should understand that the process of obtaining type approval and even temporary flight permits has become much more difficult. You are advised to write to SAC, giving the **exact** model and type of your intended purchase. SAC will advise you if there is type approval, and what may be required if there is no type approval. If there is no Canadian type approval, delays of approx. 6 months should be expected.

Gliders designed, manufactured **and** type certificated in the U.S.A. are excepted, but gliders operating under an FAA Experimental license may not be eligible for a Canadian C of A even though they have Canadian type approval.

Again, be advised that it is in your own interest to check the exact model and type with the SAC **before** you commit any money to a purchase.

PILATUS SELLS LICENSE OF B-4 AEROBATIC GLIDER TO JAPAN

Stans/Tokyo. - 19 June 1978. - Pilatus Aircraft Ltd., Stans/Switzerland, has sold a complete license package of the all-metal, aerobatic glider B-4 to "NIPPI" - Japan Aircraft Manufacturing Company. The license agreement foresees the transfer of all manufacturing rights and hardware (jigs and tools) to NIPPI, and includes also worldwide marketing rights for the sailplane.

Sales of the B-4 all-metal glider boosted to 78 units in 1977, and over 320 units are in operation in more than 25 countries to date.

Main reason for the sale of the B-4 license to Japan is the capacity shortage at the Pilatus factory in Stans, caused by production of the PC-7 Turbo Trainer.

First B-4 sailplanes from the new production line at NIPPI are expected to be available by April 1979. Pilatus will initially assist NIPPI in the marketing of the B-4, by informing customers on waiting list of the new procurement source and by conveying all new requests of offer to NIPPI.

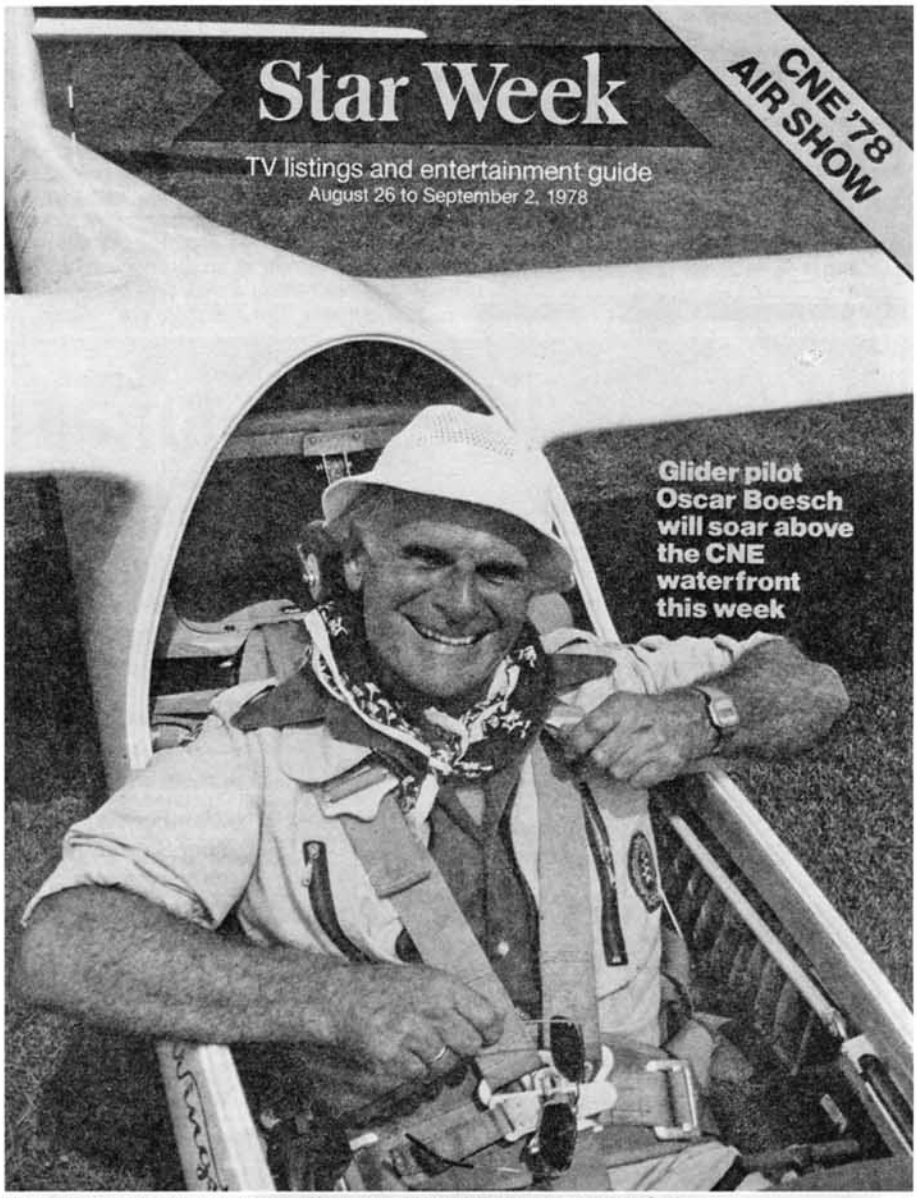
Full product support of the Swiss manufactured B-4 sailplanes will continue to be handled by Pilatus in Stans, where a large stock of spare parts has been installed for this purpose.

TORONTO GROUND SCHOOL

The North York Board of Education is once again presenting the Glider Pilot Ground School Course at Bathurst Heights Collegiate. The 12 week course starts Wednesday, January 10, 1979 and will once again be under the direction of Fred Mueller of York Soaring Association. The course is designed for pre-solo and new solo pilots and prepares them for the MoT Glider Pilot examination. The cost of the course is $12 and students should obtain a copy of Air Regs and the book "From the ground up". For further information and registration contact the North York B of E.

IT'S NEVER TOO LATE!

A late report advises that Alex Fulton of the Gatineau Gliding Club has just earned his Silver C at the age of 67. Has Alex set a new record?



Oscar Boesch's air show popularity continues to publicize gliding.

Class Ads

FOR SALE

Schweizer 2-33, serial number 385, excellent condition; also 1-26D, serial number 476, well maintained.

Lloyd Browning,
(416) 826-1068

FOR SALE

Libelle 201B, SN 564 (1976), less than 50 hours, never damaged, completed sealed and vented, factory dolley, tapered Stiegelmeier trailer, all instruments including Radair 360 radio, combination Cambridge electric vario system, oxygen (A8A). Reduced to well below replacement value. Serious inquiries only.

(604) 734-1926 and (604) 228-9869

FOR SALE

Pik 20B and factory trailer. Glass spar, tinted canopy, water ballast, ASI, compass, 2 Cambridge varios with audio, altimeter, Braunschweig tube, Radair 10 radio - 10 channels, tail dolly. Low time ship. Price $22,800.

A. Heinemann,
R.R. 1, Gormley, Ont. L0H 1G0
(416) 727-9566

FOR SALE

Nimbus II with enclosed factory trailer. In excellent condition never damaged. Max L/D 46. Basic instruments available. Best offer over $25,000 U.S. or $27,300 Can. Call Jim Henry (514) 627-3363 evenings or write to 3151 St. Rose Blvd., Laval West, Quebec.

Directors & Officers 1978

President
Mr. A. O. Schreiter,
3298 Lone Feather Crescent,
Mississauga, Ont .L4Y 3H5
(416) 625-0400 H
(416) 239-8171 B

Vice-President
Dr. K. H. Doetsch,
1610 Apeldoorn Avenue,
Ottawa, Ontario K2C 1V5
(613) 224-1470 H
(613) 993-2110 B

Director - Maritime Zone
Mr. J. J. Williams,
57 Boyle St.,
St. Johns, Nfld. A1E 2H5
(709) 368-0548 H

Director - Quebec Zone
Mr. T. R. Beasley,
173 Leslie Street,
Dollard des Ormeaux, P.Q. H9A 1X2
(514) 684-7145 H
(514) 744-1411 B ext. 754

Director - Ontario Zone
Mr. A. O. Schreiter

Director - Prairie Zone
Dr. J. F. Tinkler,
816 Wicklow Street,
Winnipeg, Manitoba R3T 0H7
(204) 284-2870 H
(204) 474-9250 B

Director - Alberta Zone
Mr. J. R. Matthews,
3 Westwood Drive S.W.,
Calgary, Alberta T3C 2V6
(403) 242-4726 H
(403) 263-7670 B

Director - Pacific Zone
Mrs. C. Timm,
1461 Terrace Avenue,
North Vancouver, B.C. V7R 1B5
(604) 980-5313 H
(604) 731-4631 B

Director-At-Large
Dr. K. H. Doetsch

Director-At-Large
Dr. R. W. Flint,
96 Harvard Avenue,
Winnipeg, Manitoba R3M 0K4
(204) 284-5941 H

Secretary-Treasurer
Mrs. T. Tucker,
786 Chapman Boulevard,
Ottawa, Ontario K1G 1T9
(613) 733-2165 H
(613) 733-2165 B

F.A.I. Awards
Mr. A. W. Burton,
209 - 860 Blackthorne Avenue,
Ottawa, Ontario K1K 3Y7
(613) 749-7618 H
(613) 993-2200 B ext. 2200

F.A.I. Records
Dr. & Mrs. R. W. Flint,
96 Harvard Avenue,
Winnipeg, Manitoba R3M 0K4
(204) 284-5941 H

Free Flight Editor
Mr. R. F. Nancarrow,
43 Sealcove Drive,
Etobicoke, Ontario M9C 2C7
(416) 621-2276 H
(416) 252-4656 B

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.
Red Deer Soaring Association, Box 873, Red Deer, Alta.
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

High performance, all metal, single and two seat sailplanes and two seat motorgliders

from Roumania

Single Seat Sailplanes

Lark I.S. 29D2 - 15 m L/D 38:1 - Standard
Lark I.S. 29D4 - 15 m L/D 38:1 - Open Class, water ballast
Lark I.S. 33 - 15 m L/D 41.5:1 - Racing, water ballast, interconnecting flaps
Lark I.S. 29E3 - 20 m L/D 48:1 - Unlimited

Two-Seaters for training and advanced soaring

Lark I.S. 28B2 - 17 m L/D 36:1
Lark I.S. 30 - 18 m L/D 36:1
Lark I.S. 32 - 20 m L/D 46:1 Supership

Motorgliders

Lark I.S. M2 - 17 m L/D 30:1
Lark I.S. M1 - 18 m L/D 32:1

Reserve your delivery position for 1978 for the All Metal, Robust, Reliable and Durable Lark.

AVIA-IMPEX LTÉE. LTD.

EXCLUSIVE CANADIAN DISTRIBUTOR FOR THE LARK

5050 Place Giroux, Quebec, Quebec G1H 4L1 Tel: (418) 628-7886