TASK

Inside This Issue:

BIRD OF TIME
SINGLE DESIGN
CONTEST

SOUTHERN
ONTARIO
GLIDER
CLUB 2000
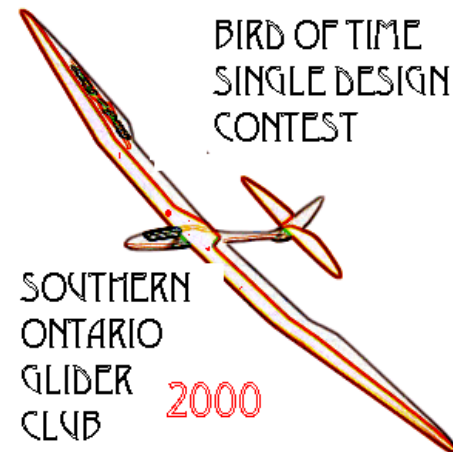
IF YOU BUILD IT……..

The bog days of winter are with us again – sorry, but I think my new spell checker is dyslexic – and under that thick blanket of white snow the earth sleeps.

This evening of January 20th – St. Agnes Eve, as pen doodles over paper I am reminded of the words of John Keats, Poet and Glider pilot

> St. Agnes' Eve – Ah, bitter chill it was!
> The owl, for all his feathers, was a-cold;
> The hare limp'd trembling though the frozen grass,
> And silent was the flock in woolly fold.

Yet there stirs beneath the icy crust – or is it shakes not stirred – the first scratchings and rumblings from the intrepid birdmen of summer. Cluttered workbenches are cleared and made ready with a single swipe. Eyeglasses are cleaned and polished. Lost hobby pins are located by trolling the carpet with stockinged feet, glue bottles are sniffed just to see if they still able to fix things and perhaps, the most important task of all – the ceremonial first rolling out of the plans for the Bird of Time takes place. (Arrgh Jim Lad! Can't you just smell the old monocote a' shrinkin').

Whiarton Willie says you have just six weeks to complete your version of the Big Bird – so recheck the kit, review the wise counsel of the pundits and build the sucker like you were going to anyway.

In this months edition of the newsletter we have included a couple of things that sometimes we overlook or take for granted – like how to tie a barrel knot – my old granny would not be much help in fixing broken winch lines. Old fishermen and younger glider pilots may well be well versed in the technique but I must confess that I neither fish or sail so I need the guidance. The other item is a very interesting article on how to calculate the EDA (Equivalent Dihedral Angle) for a wing – it sounds a little more complicated than it really is but the graph and the worked examples make it fairly straightforward reading. Now we will be able to compare the different performance results obtained from our Bird of Time population and see if it really works!

At the December meeting the members agreed by unanimous decicion and acclamation that a Lifetime Honorary Membership be conferred on Peter Ashton. Although Peter has had relinquish flying we certainly hope that he will feel free to visit he flying field and kibitz with the rest of the gallery – or even be an Honorary C.D.

Santa Claus bin berry berry good to me! Wedged in one of my old socks this year was a Scanner (no, not for listening to the police and firemen) for my computer with which I am able to transpose photographs to computer images

and hence into the newsletter. Not only can it do this but also I am able to scan typewritten text (such as Fred's – Why Build Scale Series) and it is converted in to a word processor format so that the text can be manipulated *and* spell checked etc. - yes, there are sum fun tymes ahed. And better *pics.*

MINUTES OF SOGGI MEETING DECEMBER 12 1999

The meeting was called to order by Bud Wallace at 2.05 PM. There were 16 members present. Minutes of the November 14 meeting were read by all. Motion the minutes be accepted by Stew Watson Seconded by Fred Freeman

Business Arising from Reading of the Minutes:

Keith Armstrong brought up the topic of the Flying Aces having flying privileges as Associate Members. It was shown that Associate Members do not have any voting rights. It does not say anything about flying privileges in the club constitution dated December 18 1992

Derek Hartwell said he purchased a gift certificate at The Old School a restaurant in Paris for Ben Schouten. Derek stated he would see that Ben receives this gift before Christmas.

TREASURER'S REPORT:

Derek stated that there was balance of $1,780.00 plus $700.00 in checks for dues. Derek said that the clubs books should be audited. Keith Armstrong offered to do the audit. Motion for Keith to audit the books by Bud Wallace Seconded by Werner Klebert

ONE DESIGN CONTEST:

Fred Freeman wrote an excellent article about avoiding some of the pitfalls when building The Bird of Time. This article should be on top of your plans as a helpful guide.
1: Elevator pivot tube should be reinforced
2: Extend the wing saddle 3/8 on the outside of the fuselage.
3: Install spoilers (All agreed this is a must for this plane).
   It was suggested that blade type spoilers be used.
4: Werner Kelbert discussed a plug in wing instead of rubber bands.
5: Use spruce instead of basswood for the spars.
6: Use basswood instead of balsa for the wing tips.
7: Stiffen the base of the fin.
8: Add 1/4-inch washout in each wing tip.

CONTEST DATES:

The Millennium **Postal** Contest for the Bird of Time organised by Stan Shaw and the ORCC. This contest will take place on any day in June 2000. Bob Thayer distributed a copy of the rules for this contest. It was decided to move the clubs October 15 2000 Bird Of Time contest to June 18 2000 (Rain date June 25 2000). This way we can combine the first 3 flights of our contest with the Postal Contest. The Postal Contest is optional. The entry fee is four (4) .46 cent stamps.

NEW BUSINESS:

Peter Ashton a long time member of SOGGI has offered to give the club a new battery for the winch. Fred Freeman offered to pick up the battery.

As Peter has health problems he can no longer fly. It was decided to give Peter a lifetime membership and refund his year 2000 dues. A check was given to Fred Freeman who will deliver it to Peter.

ELECTION OF OFFICERS:

A motion that the Executive be returned to office for another year was tabled by Werner Hildesheim. As there were no objections. Motion seconded by Stew Watson. All in favour.

SHOW AND TELL:

Werner Kelbert brought in his newly built and designed Fugeita (Brown Eyed Susan) Werner gave a detailed description of how he designed printed out the plans for this glider. He stated that the day before he had three flights. The plane flew up to Werner's expectations.

Meeting Closed at 4:00 PM
Motion to adjourn Bill Woodward
Seconded Bud Wallace.

MINUTES OF SOGGI MEETING JANUARY 9th 2000

The meeting was called to order by Bud Wallace at 2.15 PM
There were 9 members present.
Minutes of the December 12 meeting were read by all.
Because there were only nine members present a quorum could not be formed.
Therefore no official business pertaining to club activities could be passed.

ONE DESIGN CONTEST:

Several topics about the Bird of Time were discussed.

1: Bob Thayer stated that spoilers could be purchased from Rosie's for about $19.00.
2: Fred Freeman made a mock up of a spoiler for the Bird of Time.
3: Put the spoilers in front of the spars.
4: Use a clear tape for the hinge.
5: Spoilers should take up at least 2 bays.
6: Use magnets or weights to bring the spoilers down.
7: When building the stabilizer build a right and a left side.

SHOW AND TELL:
Jack Linghorne brought in some wings, a fuselage, a Sagitta Glider and some books.
Which he offered to give to the members.

Meeting Closed at 3.30 PM.

Is there anybody out there? – Who has an article inside just bursting to get out
- **We publish for free!**

Calculation of the Equivalent Dihedral Angle

Blaine K. Beron-Rawdon
San Pedro, California, USA
evdesign@home.com

Introduction
Wing dihedral refers to the angle of wing panels as seen in the front view. The arrangement and amount of these angles determines in part the roll moment generated by the wing as a function of yaw angle. The dihedral of different wings can be quantified by a single value. Aerodynamicists quantify dihedral with the coefficient ClB (Pronounced "see el beta"). Translated, this is the coefficient of roll moment due to yaw angle. Equivalent dihedral angle, EDA, is a similar measure that is more easily visualized. It is the dihedral angle of a V-dihedral wing with equivalent roll moment. Aerodynamicists do not use this term, although they may understand it. It is a simplification to say the EDA is constant for a given wing in all flight conditions, but it is a reasonable simplification.

EDA is a major factor in roll response, roll rate and spiral stability. For a rudder and elevator model at a given airspeed and yaw angle, the steady-state roll rate will be proportional to EDA. EDA is also one of three key factors in spiral stability (Reference 1).

This note describes how to calculate EDA for an unswept wing, the planform of which is reasonably elliptic.

Different Dihedral Schemes
Model airplanes use a variety of dihedral schemes. The most basic is V-dihedral. The dihedral angle of a V-dihedral wing is measured from the horizon to the wing, where both wings are at the same angle to the horizon.

"Polyhedral" wings break the wing up into two or more panels per semi-span. The dihedral angle for each panel is again measured to the horizon.
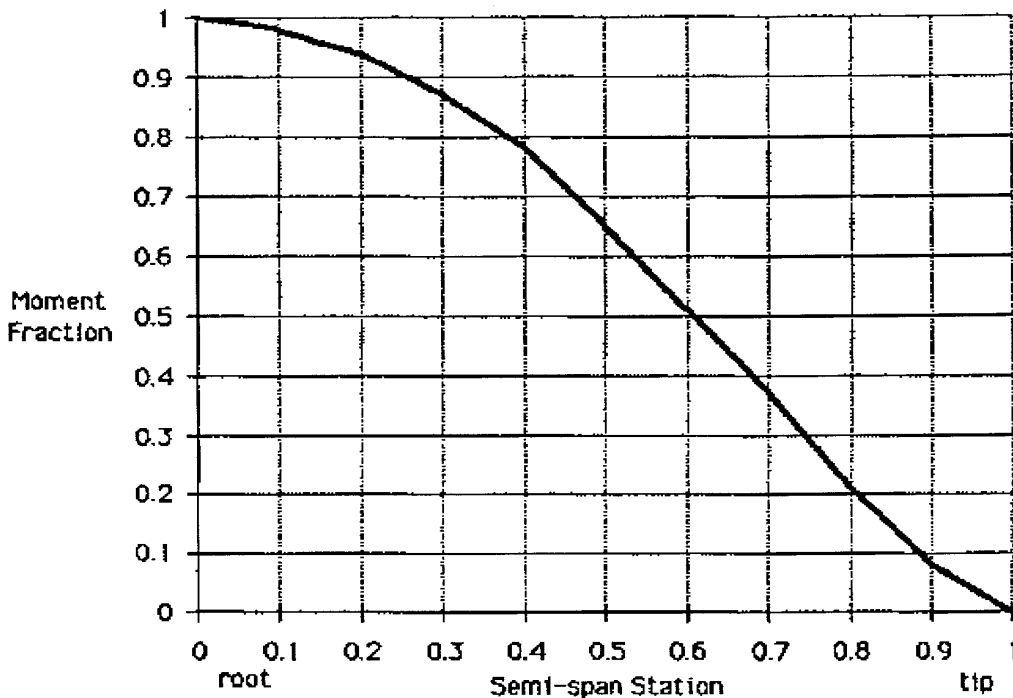
The figure above shows a curve relating the relative rolling moment of the wing as a function of the semi-span station. The basis is the moment at the root, or semi-span station zero. Thus, the relative rolling moment at station 0 is 1 .0. This means that at the root the wing generates the full rolling moment.

Halfway out the wing at station 0.5, the wing generates 0.65 of the rolling moment. Even though less than half the wing area is outboard of station 0.5, it has a longer lever arm, so it generates nearly two-thirds of the rolling moment.

At station 0.8, the rolling moment is down to 0.2. Despite the long moment arm here, the much smaller area of the assumed elliptic planform tip cuts into the rolling moment. Planforms that are broader in the tip would have slightly more moment generated outboard.

Calculation of EDA

Calculation of EDA is straightforward. First locate the semi-span station of each dihedral break. Second, measure the dihedral of each panel. Then calculate the EDA of each panel alone as if it is the only panel with dihedral. Then add up all the panels to get the total EDA. By the way, do this only for one side of the airplane - the other side is assumed to be symmetrical!

This may be easiest to explain by example:
A wing with a dihedral break at 0.5 semi-span, with a flat center panel and tips bent up 15°:

The EDA of the inner panel is:
$$0°(1-0.65) =0°$$
The EDA of the outer panel is:
$$15°(0.65-0) = 9.75°$$
The total EDA of the wing is:
$$0° + 9.75° = 9.75°$$
A wing with a dihedral break at 0.5 and 0.8 semi-span, with dihedral angles from inboard to outboard of 5°, 10° and 15°:
The EDA of the inner panel is:
$$5°(1-0.65) = 1.75°$$
The EDA of the middle panel is:
$$10°(0.65-0.20) = 4.50°$$
The EDA of the tip panel is:
$$15°(0.20-0) = 3.00°$$
The total EDA of the wing is:
$$1.75° + 4.50° + 3.00° = 9.25°$$
Perhaps it is clear by now that a wing with any number of panels can be calculated. Note also that the calculation of a V-dihedral wing EDA is trivial.

Conclusion:

A wing can be quantified as being equivalent in dihedral effect to a V-dihedral wing dihedral angle, or Equivalent Dihedral Angle. This angle is easy to calculate approximately. This angle influences roll behavior and spiral stability.

References
1. Beron-Rawdon, B. `Spiral Stability Augmentation with a Piezo-Electric Rate
   Gyroscope" in Michael Shellim's R/C Soaring web site, rc-soar.com, January 2000

For Sale: Want Ads: Personals

| For Sale:	
Gentle Lady Wing – Some Tree Damage, good for Spare Ribs (Includes instruction manual, Sears Catalogue, and BBQ Sauce THREE Rolls of Decorator Duct-Tape)	$ 9.99
For more Information Call: Harry 'Nails' Kneelson (360)-779-1234	

Barrel Knot

The barrel knot will not slip if properly tied. If, when you inspect your finished knot, both tag ends stick out the same side, the knot is not properly tied and may break. When tied correctly, the tag ends should emerge from the knot at a 180-degree angle to each other.
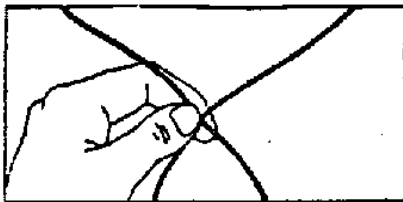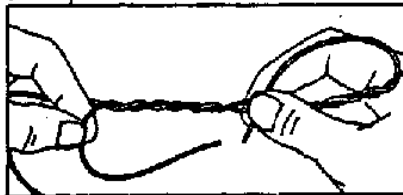

Barrel knot: Cross both pieces of material in an "X," leaving plenty of overlap.
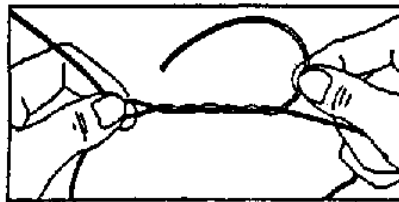
Wind one end around the standing part of the other piece three or four times.
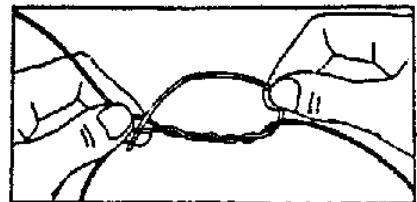
Pass this end back through the loop formed by the intersection of the two pieces.

Pinching the first half of the knot to keep the end from slipping back through, wind the free end around the standing piece in the opposite direction three or four times.
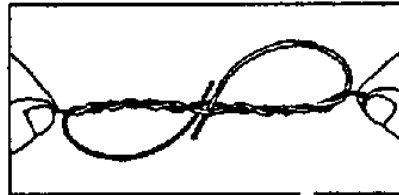
Pass this end through the same loop as the first end. The ends must enter the loop from opposite directions.
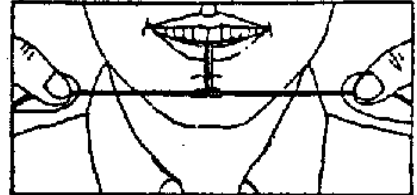
Hold both ends together while pulling on the standing parts to tighten. The easiest way to keep them from slipping through is to hold them in your teeth. Don't put any pressure on the short ends when tightening.
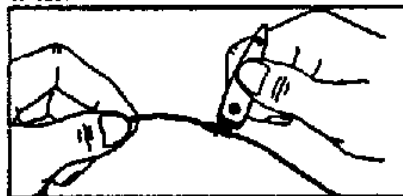
Trim the tag ends as closely as possible.

1999 SOGGI Executive

President:	Bud Wallace	905-274-3177
	1060, Eastmount Avenue	
	Mississauga, Ont. L5E 1Z3	
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	39, Isaac Brock Drive	
	Stoney Creek, Ont. L8J 2P1	
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	24, Blackwood Crescent	
	Hamilton, Ont. L8S 3H5	
Editor:	Dick Colley	905-689-7761
	101, Braeheid Avenue	
	Waterdown, Ont. L0R 2H5	

Deadline for April Issue of Task: March 22nd 2000

2000 Calendar of Events

- Feb 13th   SOGGI General Meeting   Rockton Library, 2.00pm
- Mar 12th SOGGI General Meeting   Rockton Library, 2.00pm
- Apr 9th   SOGGI General Meeting   Rockton Library, 2.00pm
- May 14   One Design Phase 1   CD   BudWallace/Cliff English
- June 4   Otto Bandman Club Day   CD   BudWallace
- June 4   Optional Triathalon   CD   Cliff English
- June 11   Golden Oldies   CD   BudWallace
- June 18   One Design Phase 2   CD   BudWallace/Cliff English
- July 9   One Design Phase 3   CD   BudWallace/Cliff English
- Aug l3   One Design Phase 4   CD   BudWallace/Cliff English
- Aug 27   Novathon   CD   Fred Freeman
- Sept 3   Big Bird Bash   CD   K. Armstrong
- Sept l7   One Design Phase 5   CD   BudWallace/Cliff English
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TASK

MEMBERSHIP LIST

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Keith    Armstrong   219, Governors Road        DUNDAS        Ont   L9H 3J7   905-627-4011
Peter    Ashton      200, Edwin Street          Kitchener     Ont   N2H 4P2   519-576-6750
Roy      Auwaerter   9, Jamieson Drive          DUNDAS        Ont   L9H 5A1   905-627-8496
Joseph   Baltaza     19, Gaitwin Street         Brantford     Ont   N3P 1A9   519-751-3698
Robert   Batt        612, Blue Forrest Hill     Burlington    Ont   L7L 4H3   905-632-8790
Rob      Campbell    34, Hopkins Court          DUNDAS        Ont   L9H 5M5   905-627-9435
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Cliff    English     24, Blackwood Crescent     HAMILTON      Ont   L8S 3H5   905-522-4561
Fred     Freeman     511-120 Strathcona Ave N   HAMILTON      Ont   L8R 3J5   905-525-6509
Albert   Fund        73, Beech Street           CAMBRIDGE     Ont   N3C 1X6   519-658-9495
Arnold   Gardner     202, San Pedro Drive       HAMILTON      Ont   L9C 2E1   905-383-4418
Don      Guthrie     RR4                        Belwood       Ont   N0B 1J0   519-843-4537
Bob      Hammett     183, Uplands Drive         KITCHENER     Ont   N2M 4X3   519-576-7636
Derek    Hartwell    39, Isaac Brock Drive      Stoney Creek  Ont   L8J 2P1   905-578-7991
Werner   Hildesheim  4, Foster Crescent         CAMBRIDGE     Ont   N1R 4R1   519-623-2663
Herb     Jenkins     238, Lloyninn Ave.,        ANCASTER      Ont   L9G 1J1   905-648-6123
Werner   Klebert     59, Byron Avenue           STONEY CREEK  Ont   L8J 2T1   905-578-9431
Otakar   Koprnicky   75, Hazelwood Crescent     CAMBRIDGE     Ont   N1R 8A4   519-740-9504
Herb     Lentfer     23, Walsh Court            BRANTFORD     Ont   N3T 5Y1   519-753-2856
Jack     Linghorne   55, Angelsey Boulevard     ISLINGTON     Ont   M9A 3B8   416-233-0230
Ken      Lockwood    29, Cross Creek Blvd.,     Guelph        Ont   N1H 6J2   519-821-9947
Tom      McCann      2206, Townline Crescent    OAKVILLE      Ont   L6H 5H4   905-257-2101
Mike     Penney      388, Massey Drive          ANCASTER      Ont   L9G 3J9   905-648-5843
Paul     Penney      388. Massey Drive          ANCASTER      Ont   L9G 3J9   905-648-5843
Bryn     Rennie      22/1255 Upper Gage Avenue  HAMILTON      Ont   L8W 3C7   905-385-3365
Zivko    Rizoniko    479, Fendalton Street      MISSISSAUGA   Ont   L5B 2L8   905-275-0597
Ann      Tekatch     19, Pheasant Place         Hamilton      Ont   L9A 4Y4   905-575-5433
Bob      Thayer      4108, Millcroft Park       BURLINGTON    Ont   L7M 3V9   905-336-3290
Mike     Thomas      61, Alhart Drive           ETOBICOKE     Ont   M9V 2N1   416-748-2833
Walter   Tremmel     56-600 Silvercreek Blvd    MISSISSAUGA   Ont   L5A 2B4   905-270-5959
Juri     Vosu        3291, Candela Drive        MISSISSAUGA   Ont   L5A 2V1   905-279-9549
Bud      Wallace     1060, Eastmount Avenue     MISSISSAUGA   Ont   L5E 1Z3   905-274-3177
Stewart  Watson      26, Juanita Drive          HAMILTON      Ont   L9C 2G3   905-385-8214
Doug     Wilkins     8448, Twenty Road          HAMILTON      Ont   L9B 1H7   905-679-4973
Bill     Woodward    520, Pine Street           Cambridge     Ont   N3H 2S6   519-653-4251
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Correction Notice:

        NAME:
        ADDRESS:
        CITY/TOWN:
        POSTAL CODE:
        PHONE:
        e-mail:
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