

TASK



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FALL will be a little early this year...

..But the flying is easy. Fish are jumping and the corn is high.....

Well we have had a busy season of flying, the weather has been a little unpredictable – for the weather forecasters – but there have been days when the flying was excellent.

This years F5J Speed 400 contest – did run whether permitting - was a lot of fun when we flew, and techniques improved as time went on. Heed the gypsy's (Miklos Tomaso) warning “Build it light, build it tight, gain the height” if you wish to be competitive in this type of event.

What is wrong with Wednesdays? Used to be, lots of people showed up on Wednesdays to fly. This year you could count them on the thumbs of one hand.

Sailplanes make very little noise, electrics make a little more, but poorly meshed gearboxes can make lots of noise, neighbors that are upset by noise can create problems that we don't need, so please be aware of the dB levels on your electric glider when it is under power and minimize any complaints from nearby residents.

Please note that there is a speed restriction in effect when driving through the equipment yard at the Green's Road field – this is to minimize dust generation, and to show that we have a great deal of consideration for our hosts.

Westover Hill – have you tried it yet? What is the best wind direction, how are the landings?

Is the Hi-start going the way of the Dodo? It seems that more people are showing up with electrics this year. Where are all those Olly II's, Gentle Ladies and Windfrees and the flurry of fetch, stretch and launch, three minute flying and landing exercises so important to honing the skills of a glider pilot.



Stan and Bud model the latest in style for Fall flying

This year, for me, has seen a considerable increase in the number of flights – and, as a result, more repairs required because of air-to ground anomalies. Some of these incidents are easily explained – low battery, downwind turn on landing, high gusty winds – but a couple of incidents remain a mystery – slow death spiral, snap rolls at ten feet of altitude – is it a glitch or a radio problem? Luckily all planes were repaired quickly and easily and are flying again but the mystery remains.

Winter Meetings;

Sunday 17th October will see the start of the winter meetings. There will be a Survey form to set agenda for the next flying year. Please help by filling in the form and let the world know where you would like it to go!

A fun part of these meetings is the Show and Tell – the highs and the lows, the new and the old, so bring along the latest projects or even your best questions – someone is bound to have an opinion (or even an answer)

The next best thing to flying is talking about it – shoot the breeze, practice your spot landings, sandbagging techniques, and spin recovery procedures. All in the warmth and comfort of the Rockton Library Hall.

Single design proposals – sailplane or electric – What is it to be?

Flying late in the season

Bundle up – hat and gloves recommended

Check batteries more carefully

Carry a snow shovel

Projects for the really keen member:

Study on colours and visibility for sail planes – sun flashes, transparency, blue funk etc



The importance of incidence to stability of RC sailplanes

Paul Clark, SKY PILOT ONE, from Osaka, Japan commented in Digest #488 on the importance of incidence to stability of RC sailplanes. Relative incidence of the wing and tail; and CG location are complimentary attributes which together control pitch stability. They have a chicken-egg relationship which cannot be broken.

First some definitions:

Incidence refers to the angle between a flight surface and a somewhat arbitrary reference plane, typically called the "fuselage reference plane". This horizontal plane is usually set up so that it is level on the drafting board (or computer screen) in side view, and the fuselage is drawn over it. A boat analog is the water line. A positive incidence angle is always leading edge up.

Incidence angle may be specified in two ways. It is typical for modelers to specify what I call "geometric" incidence. This uses the chord line of the airfoil as the section reference line. The chord line connects the trailing and leading edges (line of maximum length). Alternatively, there is what I call "aerodynamic" incidence which uses the "zero lift line" as a section reference. When the angle between the zero lift line and the freestream air is zero (angle of attack = zero) there is zero lift. The zero lift line is above the chord line for positively cambered airfoils. A pretty good rule of thumb is that this angle is about one degree per percent camber. Thus the geometric angle of attack of a 3% camber airfoil at zero lift is about minus 3 degrees. The importance of this concept is that the effective incidence of different wings can be compared even if they have different airfoils.

Notice that I have slipped in half a definition of angle of attack. This is the angle between the section reference line and the flight path (in the case of wings) or between the section reference line and the local flow in the case of tails.

Again, there are "geometric" and "aerodynamic" angles of attack. What is nice about aerodynamic angle of attack is that all wings (of similar aspect ratio) will make about the same lift coefficient at the same aerodynamic angle of attack. A pretty good rule of thumb is that the wing will make 0.1 Cl per degree of aerodynamic angle of attack.

The incidence of the wing controls only the angle of the fuselage in flight. The "deck angle" (there's that boat thing again) is the angle of the fuselage reference plane relative to the direction of flight. If a wing mounted at five degrees of aero incidence is trimmed to fly at a Cl of 0.5, then the deck angle will be about zero. If the aero incidence is zero, then the fuselage will be nose up with an angle of plus five degrees, and so on. Typically, wing incidence is set to give the lowest drag at the speed of interest.

Stabilizer incidence is set to trim (balance) the moments (torques) about the CG. These moments arise mostly from the wing pitching moment and the CG location compared to the wing aerodynamic center (typically taken as the quarter chord of the mean aerodynamic chord). What counts in setting tail incidence is the angle of the tail relative to the local airflow which is a function of wing angle of attack. So what really matters is the angle between the wing and tail, not the incidence of either one independently. This relative angle is called "**decalage**". For instance, a given setup might require that the tail be set at four degrees less incidence than the wing (four degrees of decalage). If the wing is set at four degrees, then the tail is set at zero. This plane will have a deck angle of about plus one degree at a Cl of 0.5. The same plane could be modified so that the wing has an incidence of 10 degrees in which case the tail would have to have an incidence of six degrees and the deck angle would be minus. It is worth pointing out that moments generated by the wing and stabilizer both increase as the speed squared, but the moment generated by the center of gravity is constant (straight and level flight assumed).

A detailed discussion of CG location is beyond the scope of this note, but suffice it to say that there is a CG location, called the "Neutral Point", at which the aircraft is astable in straight and level flight. As the CG moves forward, pitch stability increases. The degree of stability is often specified by the distance of the CG is in front of the neutral point, in mean aerodynamic chords. This is called "static margin". A static margin of 0.2 Cmac is typical, although I'm sure many fly with less.

As the center of gravity moves forward with increasing stability, the download on the tail increases (or lift diminishes) so that it must have a greater negative angle of attack and less incidence.

So, perhaps it is clear (after all this) that increased pitch stability requires increased decalage to trim the forward CG. But it can be looked at from the opposite point of view as well: Increased decalage provides more stability, but it requires a forward CG to trim the airplane!

Decalage can be adjusted in several ways. The wing can be shimmed to adjust its incidence. The tail can be shimmed or adjusted as a whole to adjust incidence. Lastly, all the fixed surfaces can be left alone and the elevator can simply be re-trimmed.

Perhaps this discussion also provides a better picture of pitch stability. If you imagine the tail balancing the nose weight you can see that at high speeds the tail wins and the plane pitches up. At low speeds the nose-weight wins and the plane pitches down. As the CG moves aft and decalage is reduced this effect is diminished. When the CG reaches the neutral point, this effect is extinguished and the plane is astable.

Also, if decalage is reduced in flight, the plane must speed up until the tail can again balance the nose-weight (down elevator trim increases speed). Conversely, increased decalage slows the plane down until stab down force again balances nose-weight (up elevator trim decreases speed).

Ref: <http://kohlin.com/air/soar-faq.htm>

#4 Speed 400 Electric August 21st 2004

No report available at time of going to press

**CD Werner Klebert Big Bird Bash September 5th 2004
Results Only**

Standard RES Name	Round 1			Round 2			Round 3			Round 4			Grand Total	Rank				
	Time min	Ldg	Total sec															
Werner Klebert	9	52	0	592	6	14	0	374	2	34	0	154	3	11	0	191	1311	#1
Kevin Intini	4	25	0	265	10	4	0	596	1	43	0	103	2	38	0	158,	1122	#2
Jeff Coles	3	24	0	204	4	19	50	309	6	6	0	366	2	56	0	176	1055	#3
Bill Woodward	3	16	0	196	6	29	50	439	1	53	0	113	2	48	0	168	916	#4
Rob Nelson	3	21	0	201	2	51	0	171	2	31	0	151	3	13	0	193	716	#5
Steve Jankowski	1	36	0	96	2	11	0	131	0	0	0	0	0	0	0	0	227	#6
Cliff English	1	54	0	114	0	31	50	81	0	0	0	0	0	0	0	0	195	#7
Open F3.1																		
Joe Baltaza	9	50	50	640	9	56	50	646	6	12	0	372	4	45	0	285	1943	#1
Bob Sherliker	6	42	50	452	9	59	50	649	2	54	0	174	9	56	50	646	1921	#2
Helmut Berger	4	40	50	330	10	9	50	641	3	9	50	239	10	1	0	599	1809	#3
Jozef Banial	0	51	0	51	10	12	50	638	3	17	0	197	10	4	0	596	1482	#4
Mike Kucera	7	31	0	451	5	14	50	364	3	42	0	222	4	16	50	306	1343	#5
Bob Hammett	4	41	50	331	2	24	50	194	3	47	0	227	2	44	50	214,	966	#6
Otakar Koprnicky	3	2	0	182	3	28	0	208	1	34	0	94	2	43	0	163	647	#7

The main difference for the history of the world if I had been shot rather than Kennedy is that Onassis probably wouldn't have married Mrs. Khrushchev.

[- Nikita Khrushchev](#)

Two qualities are indispensable: first, an intellect that, even in the darkest hour, retains some glimmerings of the inner light which leads to truth; and second, the courage to follow this faint light wherever it may lead.

[- Carl von Clausewitz](#)

"I am" is reportedly the shortest sentence in the English language.

Could it be that "I do" is the longest sentence?

[- George Carlin](#)

Mine is the first generation able to contemplate the possibility that we may live our entire lives without going to war or sending our children to war.

[- Tony Blair](#)

The Supreme Court has ruled that they cannot have a nativity scene in Washington, D.C. This wasn't for any religious reasons. They couldn't find three wise men and a virgin.

[- Jay Leno](#)

The Doctor called Mrs. Cohen saying "Mrs. Cohen, your check came back." Mrs. Cohen answered "So did my arthritis!"

[- Henny Youngman](#)

For Sale: Want Ads: Personals

For Sale:

Two meter Spirit, ARF glider flown about 5 times. Last person to trim it and to fly it was Stanley Shaw. It comes complete with a small 3 channel Hobbico Narrow Band TX, Hobbico Super Narrow Band RX and two Hobbico CS-61 servos installed in the fuselage. To fly you need batteries, 8 AA cells in the TX and 4 AA cells for the RX.

Asking \$180 or BO.

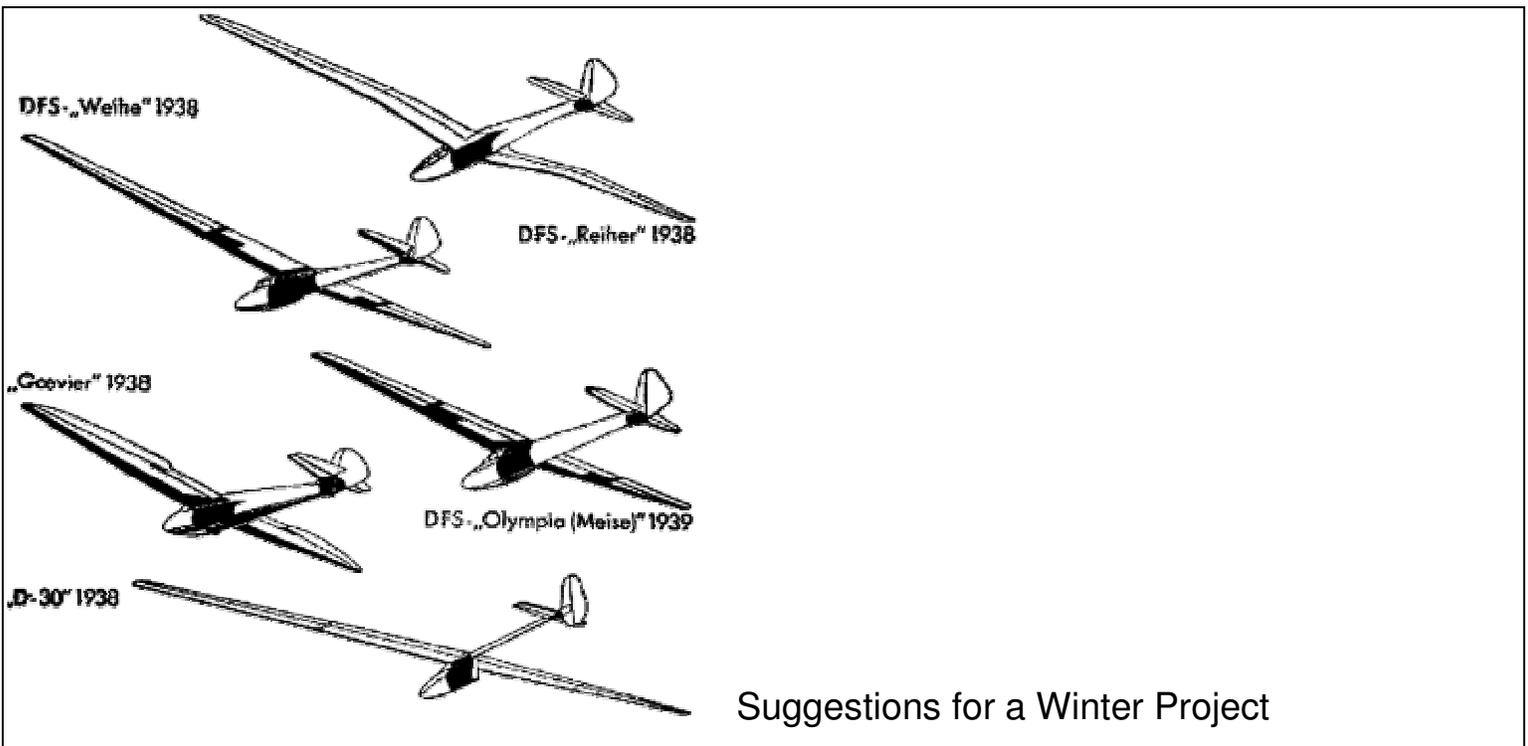
Contact Juri at 905-279-9549 or jvosu@sympatico.ca

This could be your add here!

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Deadline for December Issue of Task: November 22nd 2004

2004/2005 Calendar of Events

DATE

- **October 17th** Members meeting Rockton Library 2.00pm
- **November 14th** Members meeting Rockton Library 2.00pm
- **December 5th** Members meeting Rockton Library 2.00pm
- **2005**
- **January 9th** Members meeting Rockton Library 2.00pm
- **February 13th** Members meeting Rockton Library 2.00pm
- **March 13th** Members meeting Rockton Library 2.00pm
- **April 10th** Members meeting Rockton Library 2.00pm
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