Radio Controlled Soaring Digest

February 2011

Vol. 28, No. 2

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Front cover: Emmanuel Minaire, ready to launch Jerôme Bobin's Toons, a 11 Kg homemade aerobatic monster on a slope near Grenoble in the French Alps. Photo by Pierre Rondel Canon EOS 10D, ISO 400, 1/1500 sec., f8.0, 100mm

Back Cover: Jerôme Bobin flying the Toons depicted on the front cover. Talk about majestic! Nothing like close-in flying with large model. Photo by Pierre Rondel Canon EOS 10D, ISO 400, 1/1000 sec., f6.7, 80mm

R/C Soaring Digest

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R/C Soaring Digest *(RCSD)* is a reader-written monthly publication for the R/C sailplane enthusiast and has been published since January 1984. It is dedicated to sharing technical and educational information. All material contributed must be original and not infringe upon the copyrights of others. It is the policy of *RCSD* to provide accurate information. Please let us know of any error that significantly affects the meaning of a story. Because we encourage new ideas, the content of each article is the opinion of the author and may not necessarily reflect those of *RCSD*. We encourage anyone who wishes to obtain additional information to contact the author.

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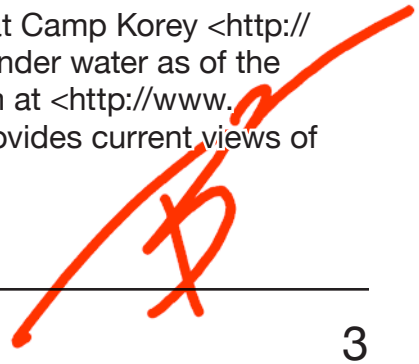
In the Air

Those of us who have been in the hobby for a long time well remember *Model Builder* magazine, published by Bill Northrop, and many *RCSD* readers retain their collection and are always on the lookout for issues they may be missing. We recently received a message from Roland Friestad of "Full Size Plans" notifying us that he had finally completed scanning the entire *Model Builder* archive (255 issues) and has made these scans (300 dpi) available on DVDs (2) at a cost of $75. For those concerned about copyright issues, there is an information folder on each disk. To order or for further information, contact Roland Friestad, 1640 N Kellogg Street, Galesburg, IL 61401; 309-342-7474, <cardinal.eng@grics.net>.

Bill Northrop still sells full size plans for all of the various projects published in *Model Builder*. A printed catalog listing the 1500+ plans available is just $5. Send your check to Bill Northrop's Plan Service, 2019 Doral Court, Henderson, NV 89014-1075; 702-896-2162 Mon-Fri 10am - 4pm Pacific Time. Bill does take Visa/Mastercard for plans orders of $10 and more.

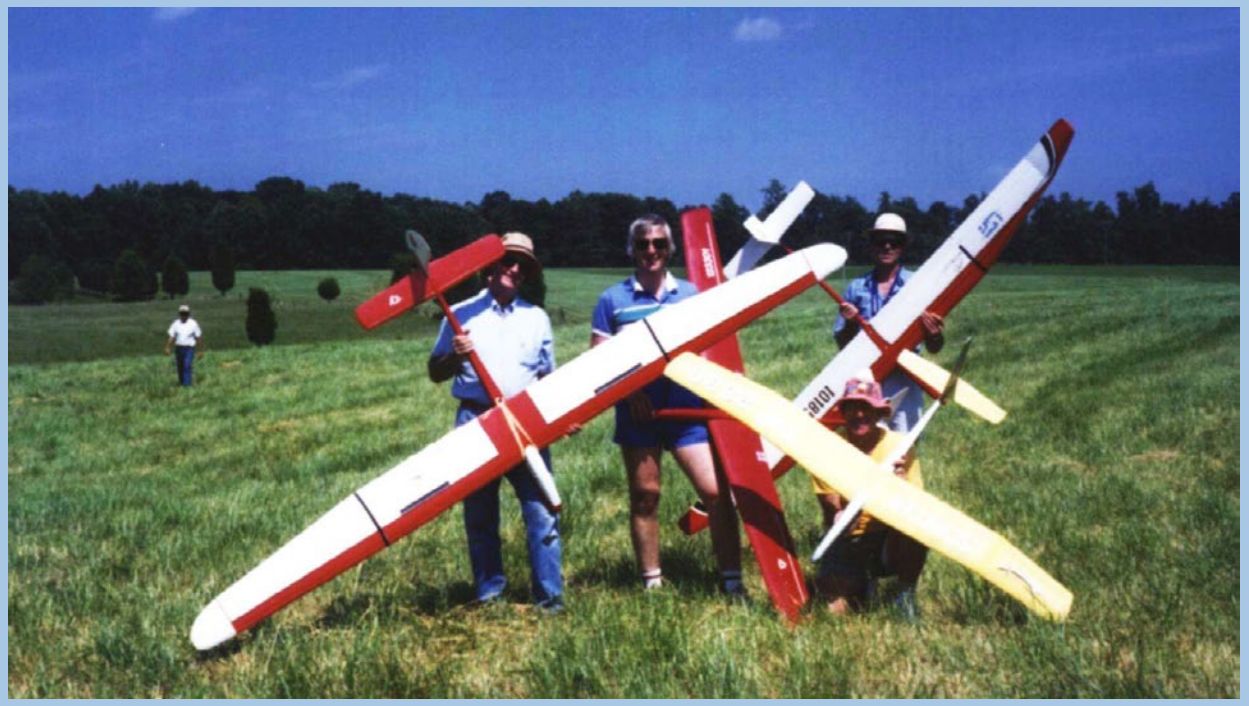
Here in the Pacific Northwet we have received an abundance of rain and snow over the last few months. The Seattle Area Soaring Society's flying field at Camp Korey <http://www.campkorey.org> was nearly under water as of the 18th of January; the Carnation Cam at <http://www.seattleareasoaringsociety.com> provides current views of the field.

Time to build another sailplane!



a design philosophy

Bruce Abell, bruce_abell@bigpond.com.au



United Nations Group in Virginia, 1990. L to R - Herk Stokely, USA; Colin Britcher, England; Bob Botha, South Africa; Bruce Abell, Australia, with “Scimitar” glider.

When I became interested in obtaining maximum performance from my gliders, I began a series of experiments to find the best layout and wing sections for better performance and soon decided on the two meter size.

The main reason for this were that it took less time and material to build the various models as the design evolved, and I locked in on a built-up balsa structure for similar reasons, as building all the necessary plugs, moulds and foam cutting items for an all-GRE model was too involved and expensive.

The first variation on the conventional model with a straight taper wing planform was to try a wing with the leading edge swept back as far as the polyhedral break and then swept forward from there to the tip, all the while conserving the original chords of the conventional

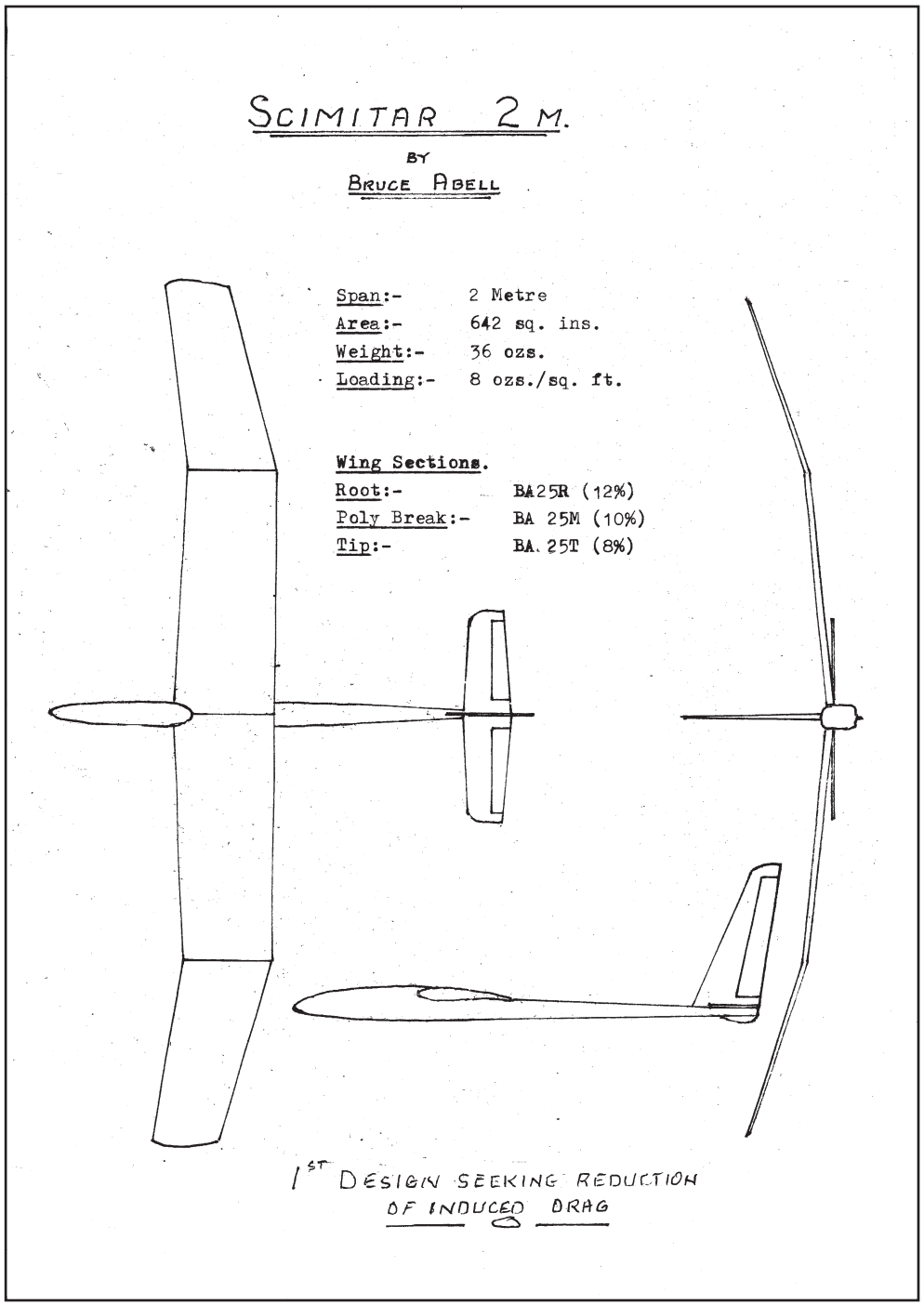
straight taper planform. This I called the "Scimitar."

First off, though, I flew the model with the straight taper wing and trimmed it out to fly straight and level hands off. Then I replaced the starboard (right) wing panel with the "Scimitar" panel of the same area and launched it on the winch.

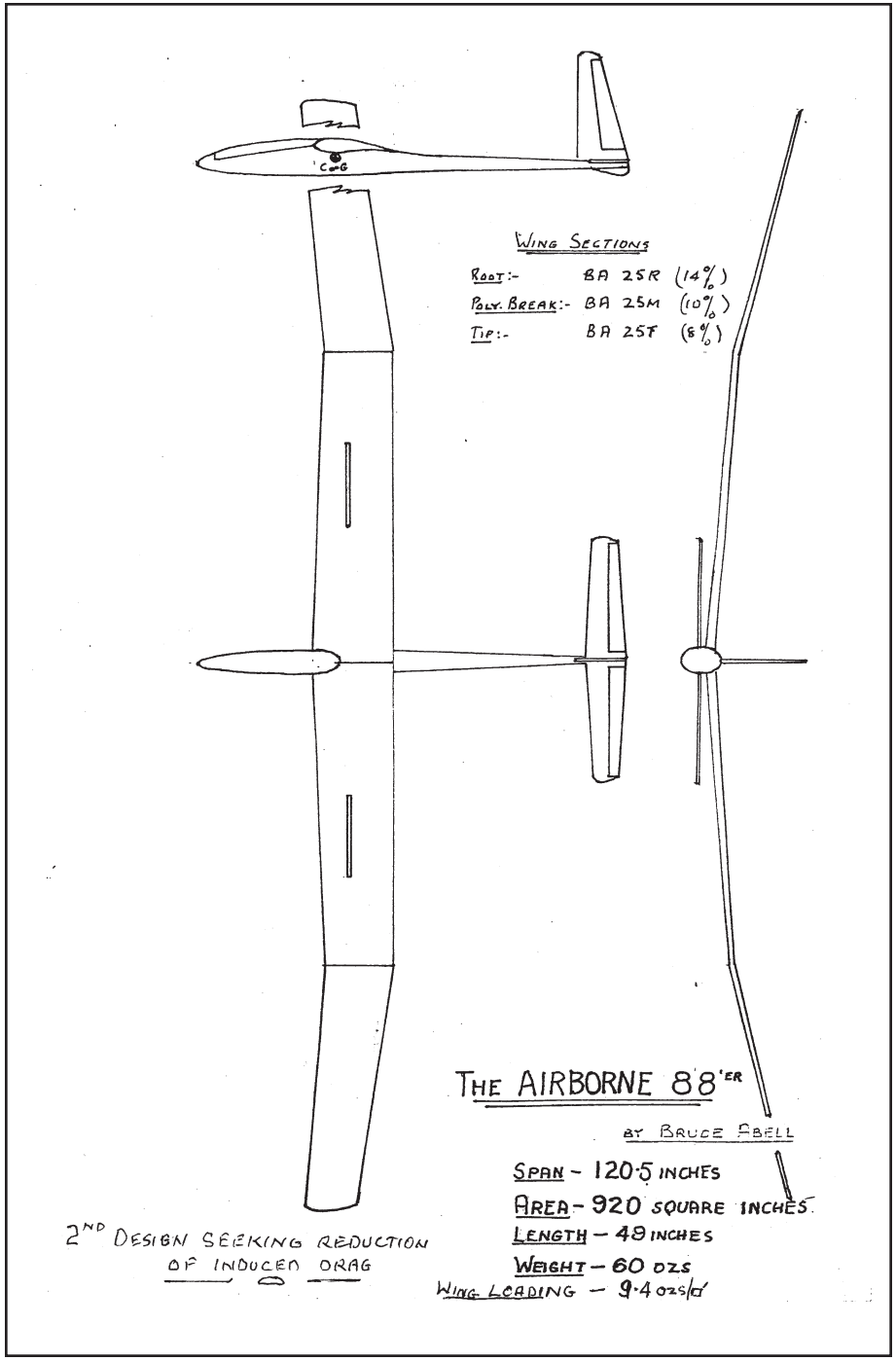
The result was a very pronounced swing to port (left) and I was convinced that the "Scimitar" shape of the starboard wing panel was generating more lift or producing significantly less drag, resulting in a better Lift/Drag ratio. Further testing with the full "Scimitar" wing convinced me that the performance was better than with the conventional straight taper wing.

The thinking behind the "Scimitar" planform was that the swept forward tip panel might cause the airflow to sweep in and concentrate around the polyhedral break, thereby eliminating (or at least greatly reducing) the tip vortex and subsequent drag. If this was the case, then the efficiency of both the tip and inner panels would be increased.

To further test this "new" wing planform, a 120 inch span glider was built and this model took second place at a major glider competition on its first competitive outing against some of the best models and pilots around, so I was further convinced that I was on the right track.



Two Meter Dragonfly and Airborne 88er.

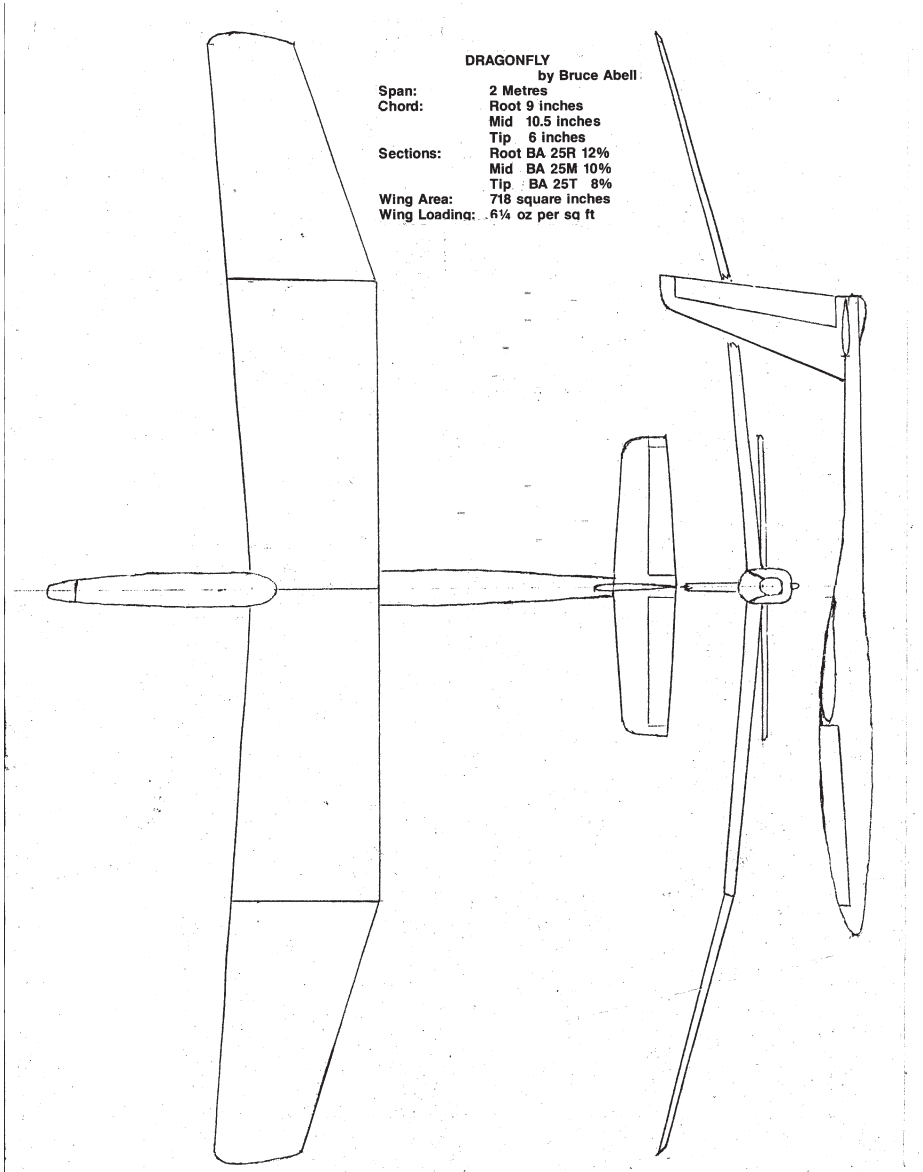


I then sent a 3-view of the model to my friend, Dr. Ferdinando Galè, in Italy, for his thoughts on the design, and he sent back to me a sketch showing the leading edge as a straight line from the root to the tip, giving the wing a distinct forward sweep but with the trailing edge of the inner panel left as it was, while the tip panel trailing edge had a distinct forward sweep. He also added a comment to the effect that forward sweep of the wing was long ago abandoned for “reasons other than lift.” I then realized that this planform could have several advantages over the straight taper wing but would require further investigation as to the disadvantages. After all, there’s no such thing as a free lunch.

One of the advantages I could see with this planform was an increase in Reynolds Number at the polyhedral break due to the larger chord, so this would be another contributing factor in my search for increased performance, so a new two meter wing was drawn up and then built. The name for this subsequent model came about through my covering the wing and tail with a chiffon material that was basically white with strands of various coloured metallic threads through it, giving it a distinctive shimmering coloured appearance. This, coupled with the forward sweep, gave it the appearance of the wing of a “Dragonfly” and the name has stuck.

DRAGONFLY
by Bruce Abell

Span:	2 Metres
Chord:	Root 9 inches
	Mid 10.5 inches
	Tip 6 inches
Sections:	Root BA 25R 12%
	Mid BA 25M 10%
	Tip BA 25T 8%
Wing Area:	718 square inches
Wing Loading:	6¼ oz per sq ft



3RD DESIGN SEEKING REDUCTION OF INDUCED DRAG

I've subsequently built and flown several of these two meter models with great success and they won or placed in most of the competitions that I flew them in over several years and often out- flew the all-GRE models on days where the conditions were favourable for it.

The main disadvantage in Open Competition was trying to land on the spot as, if the model was pushed off line or dropped a wing on the landing approach by a gust of wind, the model had to be brought back on line with the application of rudder, so I realized that I needed both rudder and aileron to best control the landing approach. Once again I had to put pencil to paper and design a new model for Open Class competition.

I opted for 120 inch span, so the "Dragonfly 120" was born.

The 120" wing worked out to have an area of around 1200 square inches and I opted to fit ailerons and spoilers instead of flaps. The wing was to be polyhedral with the main directional control to be rudder with the ailerons coupled into the rudder and able to be switched on or off. In the event I found that the model performed best with the controls left coupled all the time but with only a minimal amount of aileron input to assist the landing approach. This model took out 2nd place in a major competition after only three or four trimming flights, but suffered major damage after an

argument with a tree before I could develop the design further.

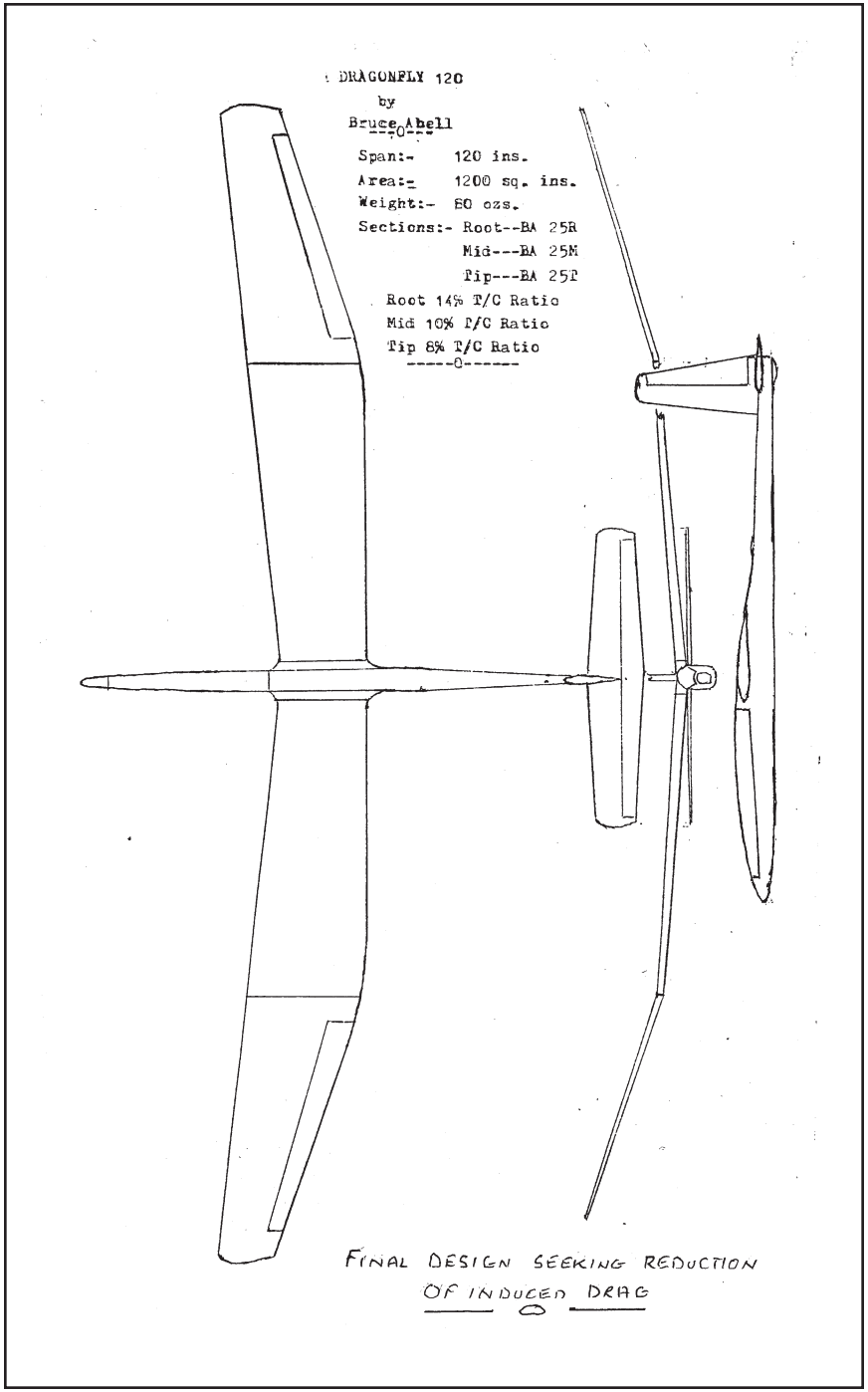
The wing sections are ones that I've developed myself based on experiences with lots of other "conventional" sections.

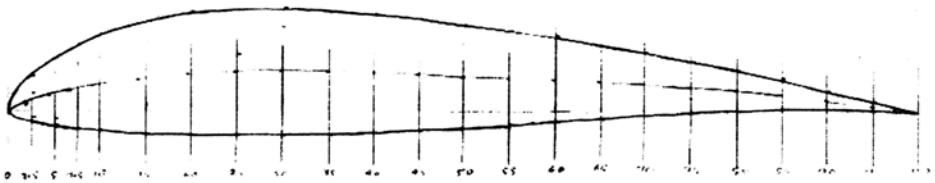
First I wanted a good lifting section for thermaling, but this had to be commensurate with reasonable penetration to allow the model to search reasonably large areas for that elusive lift, so a section with only a small "undercamber" was drawn up.

As the wing in a turn has a varying velocity from the root to tip, I thought that varying the lift and drag characteristics of the sections might be beneficial, so I opted for a 12% thickness/chord ratio section at the root; a 10% thickness section at the polyhedral break and an 8% section at the tip. Further to this, the tip section had a flat undersurface so the tip panel gradually changed from a 10% "undercambered" section at the polyhedral break to an 8% flat undersurface section at the tip.

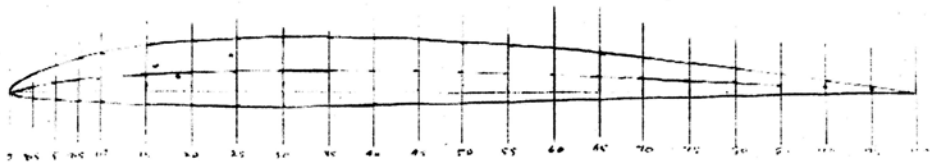
A final alteration to the sections was to have the maximum thickness of the sections change from 25% of the chord at the root to 30% at the polyhedral break and 33% at the tip.

All these changes in section were meant to assist in making the model commence a turn more quickly, as the faster moving outboard tip would have a low drag

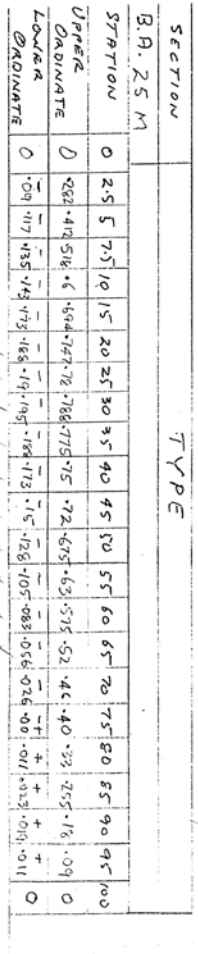




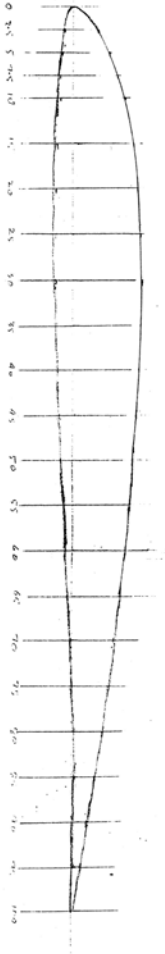
SECTION	TYPE																						
B.A. 25 R (14%)	THERMAL GLIDER ROOT SECTION 14%																						
STATION	0	2.5	5	7.5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
UPPER ORDINATE	0	3.69	5.09	7.36	8.53	10.11	11.06	11.27	11.27	10.93	10.76	10.25	9.69	8.95	8.45	7.98	6.58	5.57	4.63	3.68	2.31	1.16	0
LOWER ORDINATE	± 0	− 1.26	− 1.67	− 1.89	− 2.0	− 2.02	− 2.03	− 2.04	− 2.02	− 2.02	− 2.01	− 1.79	− 1.67	− 1.46	− 0.78	− 0.36	+− 0	+ 0.24	+ 0.52	+ 0.27	+ 0.15	± 0	



SECTION	TYPE																						
B.A. 25 T	THERMAL GLIDER TIP SECTION 8%																						
STATION	0	2.5	5	7.5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
UPPER ORDINATE	0	2.06	3.05	3.69	4.52	5.2	5.6	5.92	6.05	6.16	6.0	5.92	5.6	5.2	4.68	4.32	3.60	3.28	2.58	2.0	1.28	0.64	0
LOWER ORDINATE	I − 0.72	− 0.98	− 1.06	− 1.14	− 1.4	− 1.5	− 1.52	− 1.56	− 1.5	− 1.38	− 1.2	− 1.05	STRAIGHT LINE FROM 45% TO 100% STATION										0



SECTION	TYPE																						
B.A. 25 M																							
STATION	0	2.5	5	7.5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
UPPER ORDINATE	0	.282	.412	.518	.6	.694	.747	.778	.788	.775	.75	.72	.675	.623	.575	.52	.46	.40	.332	.255	.176	.09	0
LOWER ORDINATE	0	−.09	−.117	−.135	−.145	−.155	−.168	−.191	−.195	−.168	−.173	−.175	−.128	−.105	−.083	−.056	−.026	−.00	+.001	+.023	+.019	+.11	0



BA25R. 10% T/C

STATION	UPPER	LOWER	DEPTH
0.000	0.0000	0.0000	0.0000
0.250	0.2780	-0.0900	0.3680
0.500	0.4200	-0.1167	0.5367
0.750	0.5250	-0.1350	0.6600
1.000	0.6090	-0.1430	0.7520
1.500	0.7220	-0.1730	0.8950
2.000	0.7890	-0.1880	0.9770
2.500	0.8050	-0.1900	0.9950
3.000	0.8050	-0.1950	1.0000
3.500	0.7820	-0.1880	0.9700
4.000	0.7670	-0.1730	0.9400
4.500	0.7330	-0.1500	0.8830
5.000	0.6920	-0.1280	0.8200
5.500	0.6470	-0.1050	0.7520
6.000	0.6020	-0.0830	0.6850
6.500	0.5340	-0.0560	0.5900
7.000	0.4700	-0.0260	0.4960
7.500	0.3980	0.0000	0.3980
8.000	0.3310	0.0110	0.3200
8.500	0.2480	0.0230	0.2250
9.000	0.1650	0.0190	0.1460
9.500	0.0830	0.0110	0.0720
10.000	0.0000	0.0000	0.0000

BA25R. 12% T/C

UPPER	LOWER	DEPTH
0.0000	0.0000	0.0000
0.3336	-0.1080	0.4416
0.5040	-0.1400	0.6440
0.6300	-0.1620	0.7920
0.7308	-0.1716	0.9024
0.8664	-0.2076	1.0740
0.9468	-0.2256	1.1724
0.9660	-0.2280	1.1940
0.9660	-0.2340	1.2000
0.9384	-0.2256	1.1640
0.9204	-0.2076	1.1280
0.8796	-0.1800	1.0596
0.8304	-0.1536	0.9840
0.7764	-0.1260	0.9024
0.7224	-0.0996	0.8220
0.6408	-0.0672	0.7080
0.5640	-0.0312	0.5952
0.4776	0.0000	0.4776
0.3972	0.0132	0.3840
0.2976	0.0276	0.2700
0.1980	0.0228	0.1752
0.0996	0.0132	0.0864
0.0000	0.0000	0.0000

BA25M 10% T/C

STATION	UPPER	LOWER	DEPTH
0.000	0.0000	0.0000	0.0000
0.250	0.2820	-0.0900	0.3720
0.500	0.4120	-0.1167	0.5287
0.750	0.5180	-0.1350	0.6530
1.000	0.6000	-0.1430	0.7430
1.500	0.6940	-0.1730	0.8670
2.000	0.7470	-0.1880	0.9350
2.500	0.7800	-0.1900	0.9700
3.000	0.7888	-0.1950	0.9838
3.500	0.7750	-0.1880	0.9630
4.000	0.7500	-0.1730	0.9230
4.500	0.7200	-0.1500	0.8700
5.000	0.6750	-0.1280	0.8030
5.500	0.6300	-0.1050	0.7350
6.000	0.5750	-0.0830	0.6580
6.500	0.5200	-0.0560	0.5760
7.000	0.4600	-0.0260	0.4860
7.500	0.4000	0.0000	0.4000
8.000	0.3300	0.0110	0.3190
8.500	0.2550	0.0230	0.2320
9.000	0.1800	0.0190	0.1610
9.500	0.0900	0.0110	0.0790
10.000	0.0000	0.0000	0.0000

component and the inboard tip would have a fairly low lift.

Turns on rudder only create a problem, insofar as the forward moving wing panel on a swept forward wing increases in projected area, whereas the backward moving one effectively reduces in projected area, so inducing a turn requires a larger than normal rudder input, hence the tall fin and rudder.

Whether these sections do all I want them to do I cannot be sure, but the resultant models have proven to be very easy to fly and respond to control inputs readily and lock into thermals without needing continuous control inputs. A bit of rudder and elevator trim adjustment is all that's needed to allow the model to work the thermal hands off once the turn has started.

I've now moved on to other challenges, among which is an electric powered version that also performs very well. However, I had only entered competitions in order to prove to myself that my design ideas were practical and my predominant interest was to see if I could improve on my original "normal" design, the "Windsong."

One more experiment I'm conducting is with a wing with no sweep but an increase in chord at the polyhedral break to increase the Reynolds Number there and consequently the efficiency. I've also covered the upper surface with a textured material to create turbulence

	BA25T 10% T/C			BA25T 8% T/C		
STATION	UPPER	LOWER	DEPTH	UPPER	LOWER	DEPTH
0.000	0.0000	0.0000	0.0000	0.0000	0.000	0.0000
0.250	0.2600	-0.0676	0.3276	0.2080	-0.054	0.2621
0.500	0.3800	-0.1050	0.4850	0.3040	-0.084	0.3880
0.750	0.4800	-0.1350	0.6150	0.3840	-0.108	0.4920
1.000	0.5591	-0.1516	0.7107	0.4473	-0.121	0.5686
1.500	0.6500	-0.1730	0.8230	0.5200	-0.138	0.6584
2.000	0.7000	-0.1880	0.8880	0.5600	-0.150	0.7104
2.500	0.7400	-0.1900	0.9300	0.5920	-0.152	0.7440
3.000	0.7600	-0.1950	0.9550	0.6080	-0.156	0.7640
3.500	0.7700	-0.1880	0.9580	0.6160	-0.150	0.7664
4.000	0.7658	-0.1730	0.9388	0.6126	-0.138	0.7510
4.500	0.7400	-0.1500	0.8900	0.5920	-0.120	0.7120
5.000	0.7000	-0.1364	0.8364	0.5600	-0.109	0.6691
5.500	0.6550	-0.1227	0.7777	0.5240	-0.098	0.6222
6.000	0.6100	-0.1091	0.7191	0.4880	-0.087	0.5753
6.500	0.5450	-0.0955	0.6405	0.4360	-0.076	0.5124
7.000	0.4800	-0.0818	0.5618	0.3840	-0.065	0.4494
7.500	0.4100	-0.0682	0.4782	0.3280	-0.055	0.3826
8.000	0.3336	-0.0545	0.3881	0.2669	-0.044	0.3105
8.500	0.2500	-0.0409	0.2909	0.2000	-0.033	0.2327
9.000	0.1600	-0.0273	0.1873	0.1280	-0.022	0.1498
9.500	0.0800	-0.0136	0.0936	0.0640	-0.011	0.0749
10.000	0.0000	0.0000	0.0000	0.0000	0.000	0.0000

while the undersurface is covered with a clear, glossy mylar film to give a smooth airflow and thus, hopefully, create a larger pressure differential. Flight tests have so far indicated that this wing is performing well but it is not possible to say whether the performance is better, as good as, or worse than the “Dragonfly” planform model but I suspect it to be a bit less, although better than a “standard” wing.

This design concept could probably be developed a bit further – e.g. increase of the sweep angle for a start, but what is the optimum? - but I feel any further increase in performance would probably be slight and not really worth the effort. Also, increasing the forward sweep would necessitate increasing the length of the fuselage nose or adding more lead to achieve the correct C. of G. position and the longer nose would make the model more vulnerable to damage. A larger tailplane with a lifting section could help to allow the C. of G. to be moved further back and thus allow an increase in forward sweep but this could create a problem with longitudinal control sensitivity. A further development of the wing sections to give better penetration under conditions of strong winds, etc, could result in a model better suited to marginal conditions and this could mean having two models.

Electric Dragonfly

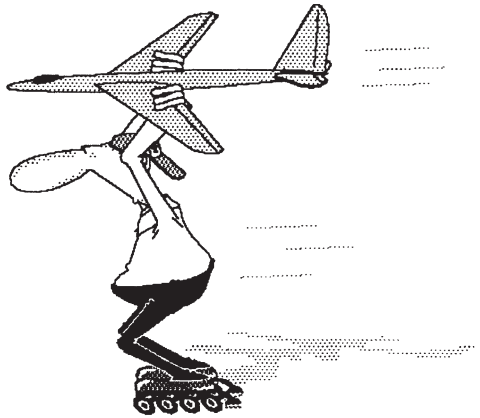
Experimental glider wing, lower and upper surface

These modifications would have to be incorporated with caution over a series of new models and would possibly not give any marked improvement but would be an interesting challenge to find the ultimate “Dragonfly.”

I only hope this description of my efforts might inspire someone else to try their hand at developing their own ideas of design and get as much pleasure and satisfaction from the effort as I have.

Gordy's travels...

Is Balance a Fix for Pitch Sensitivity in Contest 'Ships?



Recently a friend posted a question to me about the effect of balance (CG) on pitch sensitivity, as his competition sailplane "seemed" to be very pitch sensitive.

He knows that I'm kind of fanatic about how unimportant balance is to making time and landings.

Often in my soaring travels I get questions like this one, that lead off to a place that isn't constructive to the actual situation. Here's an example of what I mean:

My 11 year old neighbor came over and asked, "Do you have some Super Glue?" Do you see what I mean? Does he really care if I actually "have" super glue or does he have something that needs to be fixed? As it turned out, he didn't need any kind of glue, but he did need the spring fixed in his plastic gun. T

Take this trip with me and maybe you'll find that while balance does affect pitch, that knowledge wasn't the fix!

My friend's question:

Oh, master of the balance... I have a question for you!

I've resurrected my E-Allegro Lite and have been enjoying some soccer field flying lately. However, I've noticed a troubling tendency of this ship that I'm trying to figure out. It is VERY, VERY pitch sensitive. It has a full flying stab, and I have the throws set to Drela's recommendation, but this thing is way too sensitive on the elevator. I lose all kinds of altitude up high if I don't watch myself, and last week I had a pretty hard landing in windy conditions due to a very sudden change in pitch.

Again, I've checked all of the throws, and everything is spot on. The servos aren't stripped, and the linkages are tighter than any other ship I have. I haven't gone so far as reducing the throws, but that could be a next step. I am not using any expo, but I am trying to be subtle on the thumbs.

So I was wondering if this could be a balance issue that I haven't figured out. I have it balanced to the rear of Drela's CoG specs, and on the glide test she behaves very nicely – flat even glide landing right on its belly like it should. She doesn't fly tail or nose heavy, so it appears everything is OK. I don't want to put lead in the nose because this thing is already fast enough, and you've taught me to fly a glider that is light to the touch.

Any suggestions? How does balance impact pitch? Should I just keep

reducing the throw until it gets comfortable?

Answer:

Okay, you check for surface slop, remember that tipper-type full flying stabs have to have no deflection when you gently press on the TE of the stab. Its very critical that there is no flex or slop!

The pitch sensitivity in your model can be related to a slow servo or sticky pushrod, causing the stab to jump from one spot to another... under flight loads.

Using a digital servo is important on this surface only, but not as a fix for a sticky or stiff moving pushrod.

Thinking of the elevator as a crow bar to move the nose is a good way to think about the effect of CG on pitch sensitivity. More lead in the nose than is needed to keep the model falling forward causes the elevator to need either more airspeed or more deflection in order to get that nose to hold attitude and more to get it to move up.

CG set properly "for TD task work" is not set at the neutral point (the point where the model will fall equally forward or backward). It is set so that there is a minimum of up incidence in the stab in order to reduce the affect of airspeed changes on the model. We want the model to indicate lift and sink, not airspeed changes. A balance point set closer to the neutral point will kill you in the landing zone because the model will indicate every fart of turbulence on the approach. A perfectly set unlimited ship will fly almost hands off inverted with the trailing edge in reflex.

The above applies only to pilots who have upper level skill and a few hundreds of hours of contest flight time and experience.
The reason? Because (and this may be what you are experiencing at the moment) without all that flight task soaring thumb time on sticks, pilots are not used to leaving the model alone. With that amount of task soaring stick time you learn that if the model is being moved by the pilot, the model will not have time to communicate air conditions. Balancing the model or adjusting controls for "comfort" is the single biggest reason that pilots don't progress up the score board. You have to learn things before they can become "comfortable" to you. Most lower to mid-level contest pilots balance their contest ships to some sort of "feel." They like it "a little nose heavy"…etc. Instead of being the pilot and taking responsibility for everything their model does, they try to tune their model to do the flying for them. Its their model, they can balance anyway they want – its not a matter of right-way or wrong-way, its about having a model that tells them the truth about lift and sink. It's a lot easier to make your time when you have good communication from your model!

However, I think more likely you have figured it out on your own! If the idea is to stay out of the way of the model's work, then the first step would be to withdraw slowly... Yep use your dual rates! DO NOT use expo settings, this is a huge mistake. The reason being that you are cheating yourself as a pilot by substituting some radio gimmick. It allows pilots to fly that particular model only, if handed someone else's model without the gimmick (expo), you won't be able to control it properly. Expo is usually set to cause lesser surface reaction around the stick's center. Top pilots use it to avoid causing unwanted mixing of two controls, such as getting some aileron movement when pulling up elevator because of a stiff thumb. That's not the same as softening the response of elevator movement to stick input.

Often when I give my transmitter to lesser experienced pilots, they have a hard time keeping the model level. They constantly are stalling it. And my throws are very low. Remember every time you throw a surface you are inducing drag which causes the model to lose altitude. So the goal has to be to move them less and less often.

The first thing to do is to find your models preferred flying SPEED (full flying stab sailplanes only!) Put it up, trimmed to fly hands off flat and level. As its cruising across the sky, begin pushing in clicks of down trim one at a time.

When you finally notice that the model is nosing down, put two clicks of up back in. Remember we only WANT enough up incidence to keep the model flying level, anything more will cause it to lie to us about lift and sink, instead it will indicate airspeed changes by pitching up with increased speed and nose down with a drop in airspeed. Once you learn its optimum speed, you will find that you will actively use your elevator trim during flights! A little more up in big thermals and a little more down when its time to come home into the wind! (The new transmitters all offer flight modes so that these settings can be pre-set and re-used.)

Set your elevator dual rates so that high is switch up and low is switch down. Leave the high were it is, and set the low at half of that. Then fly it using full first, then try it with half. Low rates should not cause a loop. We aren't judged on aerobatics in a TD contest, only on time and landing, so elevator is used only for glide path control.

The most important thing to admit is that your piloting skills and stick time aren't up to the level of capability of your current aircraft. So while balance does affect pitch, your model is balanced, and its surfaces are working perfectly. It's your thumbs that need some tuning! Be patient, have faith that as your stick time increases that pitch sensitivity will be appreciated, not something to be "fixed."

Summary:

Too often I have seen guys buy the newest, highest performance sailplane then set it up and balance it so that it "feels" just like the ship they were losing with, then wonder why their scores haven't changed instead of becoming a pilot equal to the performance of the new ship. There are simple reasons why the top guys seem to always make their times and hit their landings. There are good reasons why to use the functions in our transmitter and when not to. The LSF Task program helps pilots learn things about the hobby in their right order. Pilots find that they begin to build their knowledge and skills on top of things they have learned during previous tasks. They begin to get "it."

That pilot in the story thought for sure there was some aerodynamic reason or fault causing his model to be "pitch sensitive." Don't get me wrong, setting limits on control surface throws will make a wild sailplane flyable, but in 99 out of 100 cases, pilots would fix this pitch sensitive plane by throwing more lead in the nose! Imagine, we spend a lot of money to get the highest performance, light airframe model yet think nothing of stuffing performance deadening lead weight in their noses!

Hope you enjoyed this trip and maybe learned something as I have! If you have questions or comments you can contact me at GordySoar@aol.com.

Gordy receives his LSF 5 Task Sheet from Ed Wilson

The MGASA Postal Thermal Contest

Revised for 2011

Issued 02 January 2011

Introduction

The Postals competition is a typical "thermal duration" competition, which includes a restricted launch, defined flight task and scored landing. The Postals competition attempts to place everyone on an equal footing, but permits "home ground" advantage. This competition is considered the ideal development and promotion tool of the Model Gliding Association (MGA) Special Interest Group.

Climbing the Postals ladder is part of the fun, sliding down the ladder is a definite indication that you aren't doing enough flying.

Dates

1. The contest consists of four rounds, flown any day in February, May, August and November, the four scores giving the total for the year.
2. Each pilot may make only two attempts to record a score during each round. These may be on any day of the month but, once started (stopwatch running on first flight), the pilot is committed to completing that day's score for one of the two submissions. Note that only one attempt per day is permitted.
3. The highest score of the two attempts will be entered as the score for that round.
4. The club score does not have to be recorded by pilots on the same day but must be scored from the same venue.

Flights

1. Each entrant is entitled to FIVE (5) flights, which must be flown consecutively (allowing for legitimate reflights, or test flights which have to be nominated before launch)
2. All FIVE (5) flights, count towards the pilot's round score.
3. Timing must always be performed by someone other than the pilot.

Launch

4. Launching may be by one of the following mechanisms:
   - electric winch (max available line from turnabout to 'chute 200 m)
   - bungee (200 m maximum stretched length)
   - 200 m hand tow, and two towmen
   - **electric powered** (the motor may only be used once for launching in a window of 30 seconds maximum and limited to a launch height of 200m - an onboard altitude limiting device should be used to achieve this)

Relaunch

5. A re-launch may be called for if the line breaks, or the model pop's off and "re-launch" is called before the parachute touches the ground. The flyer must then land and re-

launch as quickly as possible – if the parachute touches the ground before re-launch is called, then the flight will count.

6. A re-launch may be called by the pilot if the electric motor malfunctioned during the 30 seconds launch window.
7. Once re-launch is called by the pilot, the flight is immediately cancelled even if the model continues to be flown.
8. If any part comes off a model during launch or in flight, then the pilot may request a re-launch.

Models

9. There is no restriction on the number of models an entrant may use in the course of the contest.
10. The models will be classified into one of the following classes:

    2M = Model with a projected wingspan not exceeding 2000 mm and any number of controls

    RES = Model with any wingspan but controls are limited to Rudder, Elevator and Spoiler

    Open = Any other Model

Scoring

11. Scoring is as for Task A in the (old) F3B rules, i.e. to a precise six minutes and a landing bonus of 100 if the model's nose is within one meter of the spot
12. The flight time is taken from the moment the model leaves the line/electric motor cuts out, until it comes to rest
13. The landing bonus is measured after the model has come to rest and is reduced from 100 by 5 points for each meter beyond the spot (e.g. 95 points if the distance to the spot is from 1 meter to before 2 meters) down to 30 points or within 15 meters.
14. The maximum score per flight is 460 points and 2300 points per round.
15. A single table of results will be produced quarterly and will include details of the model class and pilot class.
16. The club score shall consist of the top four individual scores posted for the club per round. Each pilot can only enter one score towards the club total per round.

Submission of Scores

17. Scores are to be sent to the Postals Coordinator & must include:
    - Club
    - Pilot name
    - Pilot Class (**Senior**, Junior, Rooky)
    - Model Class (2m, RES, **Open**, Electric)
    - Total score (only, no round by round times, etc.)
    - Model
    - Span
    - Launch method
18. Please submit only the final scores of each round to the Postal Coordinator, Gert Nieuwoudt — by e-mail to **gnieuwoudt@telkomsa.net**
19. These scores should be in the last day of the designated month, or you will receive a zero score!
20. Scores not specifying pilot class will assume "Senior", and similarly scores not specifying model class will assume "Open" – there will be no retrospective changes permitted
21. Scores not specifying the model, wingspan & launch method will be withheld from the table