Radio Controlled
Soaring Digest
October 2017
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CONTENTS

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Front cover: A Stribog makes a vertical bank turn at the IX Asturias International Open F3F event. Fernando Alonso Rojas' Photo Album of the event begins on page 59 of this issue. For more information on the Stribog, see the RTG Model web site <http://www.rtgmodel.sk/stribog.html> and the January 2017 issue of *RCSD*, archived on the web site. Nikon D7200, ISO 200, 1/1600 sec., f5, 180mm

Back cover: A cartoon by Ariel Creciente, a full size glider pilot living in Argentina. Ariel belongs to Club de Planeadores Rosario and creates cartoons for the club web site. <http://www.planeadoresrosario.com.ar/>

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In the Air

There is a rapid evolution in RC soaring, and it is subtly highlighted in the TALES materials presented beginning on page 91 of this issue. Here are some of the driving forces:

Miniaturized electronics All of the airborne electronic components have become smaller. Receivers and servos have come to the point where their size and weight minimums are dictated by the necessary connecting plugs. There is the use of the 2.4GHz band which effectively eliminates radio interference. Additionally, there is the introduction of telemetry devices.

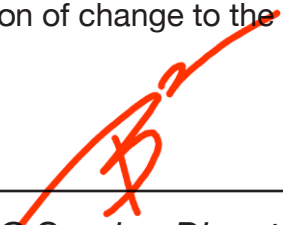
Light weight airframes The advent of composite technologies to RC sailplanes has had a dramatic effect on airframe weight and strength. Carbon fiber is used for "winch proof" spars and what used to be called wing rods. Kevlar is being used for fuselage structures without the detrimental effects of 2.4GHz antenna shielding.

Electric motor technology The driving force for most of the changes we're seeing in the competitive RC soaring venues is electric motor technology. A small powerful motor in the nose is rapidly replacing the winch.

Batteries NiCad, NiMH, and now the various lithium-based batteries have had a direct influence on all of the above as they have became more readily available at lower costs.

TALES takes advantage of all of these advancements and is an excellent example of adaptation to and adoption of change to the benefit of those involved in RC soaring.

Time to build another sailplane!



Stingray Rocking Rhossili!

This astounding photo comes to *RCSD* courtesy of James Clark.

James mounted a video camera to the wing of his Stingray HS and then went out and did some slope soaring.

James says, "A week at the UKs best slope with westerly winds ranging from 15knts to 30knts. One of the lighter days 15-20knts, strong lift, warm sunny, slope heaven. Empty ballast.

"Enjoy!"

Video from the slope:
https://vimeo.com/229456561

Onboard video:
https://vimeo.com/231206933

100 DAYS AT TORREY PINES PART 2

Will Bushnell, will.bushnell@gmail.com

At the close of part one I was facing a dilemma as January ended. I needed 39 soaring days to make it to 100 “qualified flights,” but was scheduled to leave San Diego in three months, the end of April — what I needed was one more month.

I had to make a pitch to my boss to stay to the end of May. What I had going for me was an assigned project that was very high priority to the company which extended well into the Fall. So, if I could make my case...

Turns out, luck was with me, my boss was fine with me staying an extra month, and hope lives - I still had a chance!

The first two weeks of February were as bad as January, but Torrey Pines started to deliver by the end of the month!

Trip to the beach

I showed up at Torrey Pines one evening to what looked like some solid conditions, enough to make me decide to put some ballast in the Pike ET. What I didn’t realize was that the conditions were getting lighter and turning North.

Very quickly, the Pike got below the cliff level and I ended up scratching. At some point, I realized the wind was too cross and knew I was going to the beach.

This way to the Torrey Pines Gliderport!

It is an unusual sensation to fly a plane so far below you but the tide was out and I had lots of room to land. I used my plane's shadow to judge my altitude. Fortunately, it was a cool day and there were very few people on the "clothing optional" beach below.

OK, half flaps and make passes over the sand till the Pike landed.

Now for the hard part.

George Clark, a former Navy Seal and fearless RC flyer, was there and talked me through my beach landing. I had never taken the stairs, which are to the South of the Gliderport, 400 feet down to the beach. George said to take the North path as it was closer to my plane.

"It's a little steep but lots of people do it," he said. I drove to the path, got my glider bag and Allen wrench and headed down the path.

I kept remembering George's reassurance, "a little steep but lots of people do it," as I went down this steep sliding board path with my smooth soled work shoes thinking "great, I'm gonna die retrieving a model airplane!"

I would throw the glider bag ahead of me, slide down to it, and then repeat the process. I finally got to my plane and looked up at launch and there was George making sure I made it.

Coming back up wasn't as scary as going down.

Will's Pike on the beach. Note the wing repair which is in progress.

Etiquette

The rules for flying at Torrey Pines are well known but not every situation is covered, sometimes your judgement has to come into play.

It was a very nice day and I was flying with my friend Ian Cummings. One of the many tandem paraglider flights which are a mainstay of the Gliderport had crash landed just below the cliff edge.

The Surf Rescue crew had climbed down to help them. We weren't sure what we should do.

Our conversation went something like this:

“Do you think we should land?”

“Well, I don’t know, we wouldn’t be any help.”

“It’s not like we’re in the way.”

“The other paragliders (PGs) aren’t landing.”

And so it went.

We finally concluded that the most reasonable and respectful thing was to keep flying but refrain from aerobatics over the crash site.

March Goes Boom

The nice end to February turned out to be a prelude to what March would become, remarkably consistent west winds day after day. I flew 16 days at Torrey Pines that month, even with one week away on a trip to Maui with my wife. Did I take a plane to Maui? No, that’s a threesome I wasn’t going to bring up!

Scale Guys

If you’ve been to an aerotow, and experienced all that eye candy, many will agree the most exciting part is when a skillful and daring pilot does a screaming fly-by while setting up for landing, or some low-level, high speed aerobatics. When the scale Guys are at TP, you can multiply that feeling into solid hours of screaming fly-bys and close-up aerobatics.

Mike Lance’s Salto.

A beautiful ASK 18.

Above: Dan Troxell's DG 600.

Above: A Doppelraab IV, a silk and dope work of art.

Below: A Grunau Baby IV with a highly visible color scheme.

Below: George Clark.

Dan Troxell's Schweizer 2-33.

Steffen Peters is one pilot flying scale sailplanes that I had the honor to fly with quite often. Steffen is an Olympic medalist in dressage and a US Team Member, and brings that high level of talent to flying RC scale gliders. He has a smooth sweeping style of flying that is a pleasure to watch. Like many of the very skillful pilots a TP he has the ability to know where all the air traffic is at a given moment. I tried spotting for him a few times. "Hang glider high from the South," I would say. I had the feeling Steffen knew it was there before I did but he is so polite he always said "Thank you".

The gliders that he flew were models of very high aspect ratio sailplanes, usually with a solid amount of ballast. He also wins the prize for the most luxurious glider carrier - a Mercedes Sprinter tricked out, as far as I could tell, solely for transporting sailplanes.

The other scale Guys that I saw at TP almost as much as Steffen were Mike Lance, Dan Troxell and Mark Foster. They brought a seemingly endless variety of scale planes from built-up models from the golden era to fully molded state of the art machines.

One of my favorite memories was watching Mike Lance, who has a background in competitive IMAC, flying a 1/3 scale Salto and executing a perfect 8-point roll at cliff level! To see a sailplane that big doing aerobatics so close to the ground was amazing.

The other memory burned in my mind was watching these guys doing diving speed runs right by launch. The sight and sound a thrill to watch, and close and fast enough to make sure you had a place to run! Of course their skill level is the very highest, so nothing to worry about. I would like to give a shout out to Mike's wife, Beth, whose presence would always brighten up the place.

These guys have learned that they can't trust people who are not familiar with large scale gliders to help them launch, so

Above: The scale guys and a few of their models with a paraglider launching in the background.

Right: These photos were taken at one of the Schweizer Fly In events, this one on April 19, 2015.

Above and across top of opposite page: *Ray Pili launching for Steffen Peters. Watch Shelby!*

Left: Mike Lance flying. His 8-point roll was way closer.

Left: Steffen Peters puts in another graceful flight. Note the red hang glider (HG) at the far left of the photo.

they've devised the following technique: An assigned helper would stand near the cliff edge to hold their transmitter far enough away to clear the wing tip. The pilot would run and throw the glider of the cliff. The helper would quickly hand over the transmitter and off they go.

I have an example of why this is a good idea. I was launching for Steffen once and, as I started to run, he yelled "launching." Only I didn't immediately understand what he said, so slowed down almost to a stop before I realized, "Oh, he said 'launching'" - I starting running again and threw the glider off the cliff. It was funny and turned out OK, but could have gone badly.

Come on lefty

Flying at Torrey Pines gives one lots of exposure to some superb aerobatic pilots and enough air time to increase one's own skill level. The amount of air time you can get at Torrey Pines, especially when you are trying to get to 100 days in one year, allowed me to expand my aerobatic horizon. Some may say my horizon was very narrow, and I wouldn't argue, but we all need to have goals. I had seen some pilots doing 4-point rolls with TD ships at the TPGulls thermal field and decided that was something I wanted to be able to do.

I quickly realized that although my right thumb had been flying for a long time, the training of my left thumb had been neglected.

"Here we go lefty"… "now?"… "not yet"… "OK, now lefty"… "oops"… "oh boy, let's try again lefty" - climb and repeat. "Lefty" finally got it together, at least half the time, the other half was bad enough not to be recognizable as a 4-point roll.

April Flowered

The weather continued to deliver in April with a similar productive run of flying days at Torrey Pines. I had a wonderful stretch of five days in a row at one point. I had another week away from Torrey Pines in April to enjoy a California Coastal drive, where I flew the Firebird in a nice 15mph wind in a very bright afternoon sun at Sunset Beach, and made the Sunday of Weasel Fest at Elwood.

A word about flying in the afternoon sun. On a clear day, at a west-facing coastal slope-site, the lowering sun can be brutal. Not only is the sun relentless, but the reflection off the ocean is just as bad. Since the glider "window" is to the North at Torrey Pines, you end up flying north of launch to avoid the sun.

At that angle you can feel the sun baking the left side of your face. Of course you can make the "jump across the sun," quickly check the air traffic to the south - hold your transmitter to block the sun and head south - can't see - can't see – can't see - there it is! Then you can even out your tan and repeat the process.

At San Diego Airport (Lindberg Field): A Tribute to the Ball Clevis.

At Last x 2

March and April delivered so nicely I went into May with 96 soaring days at Torrey Pines. Being on the downhill slide to 100 I chose my last few days carefully.

One fine Friday evening I pulled into the RC parking to a smooth West wind. Couldn't believe I was lucky enough to be on the verge of achieving my goal. Put my Pike together, walked over to sign in. Ray Pili and Craig Hansen were flying that day, as I remember. Very nice to have those guys there who I flew with so often. Preflight and then - nothing left to do but launch into that sweet air!

100 soaring days within one year, never would have thought it would really happen. Even writing about it now it is still hard to believe.

All the great pilots I flew with, the terrific people I met at Torrey Pines, and all the memorable hours spent on that spectacular cliff over the Pacific!

Epilogue

The rest of May was spent packing up to move back East. I would be moving to a new home in Maryland. I did get five more days at Torrey Pines before I left.

Back East, two weeks later, my colleague from work called me and said he had resigned and they wanted me to come back to San Diego for the rest of the year.

Waiting with Shelby.

So back I went, living in Del Mar this time, but equally close to Torrey Pines.

I took a more relaxed approach to flying this time - flew less but enjoyed it more.

Sincere thanks to my friends who reviewed Part 2 and gave valuable comments: Ian Cummings, Hani Zaki and Terry Lisansky.

english open f3f

19 - 20 august 2017

Michael Shellim, m.shellim@gmail.com

The English Open is now firmly established as a major event in the UK F3F calendar. This year's entry consisted of 26 pilots, including Erik Heijne of Holland who was our first overseas competitor. It also saw the return of Mark Passingham after a long layoff from F3F, as well as one or two newer and very welcome faces.

The comp took place on the main SW bowl of Whitesheet Hill. Unfortunately the wind on Saturday was more W than SW, resulting in some vicious turbulence especially during the early rounds. This led to a wide variation in times and at least two prangs, one involving the Drops of eventual winner John Phillips. Undeterred, John wheeled out his Pike Precision, notching up 43.14 in round 7 which was to remain the fastest time of the competition.

Conditions were more consistent on Sunday. Five rounds were flown before the competition was cut short in the face of an advancing storm.

With a total of 12 rounds flown, John Phillips was the well deserved winner flying his Drops and Pike Precision. Tony Livingstone was runner up with a Jedi Lift, and Mark Treble third with his Toxic.

Although the comp was not blessed with the greatest conditions, it was still a lot of fun. Several pilots attended the evening meal and a raffle at the George Inn. Huge thanks to Stu Wallace, all helpers, CDs, and to chief sponsor Peter Payne of Southcoast Sailplanes who made the journey to award the trophies and raffle prizes.

F3F Rocks! Roll on 2018!

Above right: Day 2: Rather nicer weather, and smoother air.

Right: Pete Burgess beside his Baudis Pitbull.

Stu Wallace launches for son Sam. Sam came 16th to win the Junior Trophy.

Above: Erik Heijne (right) with his Dad.
Upper right: Comfy corner.
Right: Mike Evans gives it the heave.

Above: Heijne senior launching.

Upper right: Nigel Witchalls in full launch mode.

Right: Ian Falconer launches Chris Lamming's 'Willow'

Good launch!

Mike Evan's Shinto traverses the bowl.

Above left: No flies on Martin Drewett's Jedi Lift!

Above: A little bit of anxiety before launch.

Left: Happy combo: the author's Needle 115 and Taranis X9D.

Above: Jason Bioletti with lovely green Jeti transmitter.
Above right: Dave Rumble and Graeme Mahoney.
Right: Stu Wallace and Jerry Lunt.

Helper Dave Rumble waits to launch.

Ian Falconer with Vladimir Models Shinto.

Phil Taylor

Day One: Paul Stubley shelters from a shower.

Stu and Sam Wallace looking over Pete Burgess' Ahi.

Preparing for the presentation.

Trophy time! .

Graeme collects the raffled amber nectar.

The raffle was in support of Bloodwise and Histo UK.

Top left: Mark Treble collects third place trophy from sponsor Peter Payne of Southcoast Sailplanes.

Middle left: Tony Livingstone collects runner up trophy.

Bottom left: John Phillips collects the winner's trophy.

Top right: And the team prize goes to Tea Swillers - John Phillips, Mark Passingham and Erik Heijne.

Right: Sam Wallace took the Junior Trophy

Results

1	J Phillips	10267.05	1000.00
2	T Livingstone	9788.54	953.39
3	M Treble	9692.48	944.03
4	M Evans	9668.40	941.69
5	P Stubley	9575.30	932.62
6	M Drewett	9452.11	920.62
7	K Wood	9411.64	916.68
8	M Shellim	9317.94	907.55
9	J Treble	9246.42	900.59
10	E Heijne	9156.94	891.87
11	S Wallace	9130.36	889.28
12	D Rumble	9120.46	888.32
13	I Falconer	9101.74	886.50
14	M Passingham	8972.84	873.94
15	P Burgess	8897.17	866.57
16	S Wallace	8735.74	850.85
17	G Mahoney	8650.63	842.56
18	J Bioletti	8643.78	841.89
19	P Taylor	8596.65	837.30
20	N Witchalls	8236.56	802.23
21	N Rogers	8147.70	793.57
22	C Lamming	7979.74	777.21
23	M Burr	7537.21	734.11
24	J Nicholls	6281.31	611.79
25	A Elliott	5329.97	519.13
26	J Lunt	4795.33	467.06

Fastest time: 43.14 by John Phillips in round 7

RC Bald Eagle

Tony Johnson, Synergy Composites, toomanyplanes@yahoo.com

As long term members of TWITT, we are near fanatics when it comes to reading the monthly TWITT Newsletter. The July 2017 edition carried a piece by Bob Hoey along with a letter he had received from Tony Johnson regarding Tony's multi-year-long Bald Eagle project.

We contacted Tony directly and were provided with photos, and links to the RCGroups thread and his V1VrV2 blog.

These sources serve as the foundation for this article.

28 May 2011

It's been awhile since I built anything like this and there are enough advancements with radio gear, materials, and control technology to make this project work.

The goal will be to make a full scale Bald Eagle from composites utilizing the build experiences of myself and others to make this thing look as real as it can get.

My only fear is that where I fly there are LOTS of real Bald Eagles (Skagit River, Washington) and what will they do when encountering this thing? The talons of a Bald Eagle are 6 inches from front to back. When they close, they are like a pitbull's jaws. Good luck dislodging them... Only one way to find out I guess...

Started on the drawings for the prototype. Gave Compufoil a good workout yesterday. Sure beats hand drawing all those airfoils!

Ordered some true scale Bald Eagle eyes from a taxidermy shop that are correct for the bird. Woodcarvers use them and it's a good thing they did the research on the eyes. They are not yellow. They are off white and have a dark band around the outside. I figure the face has to be accurate. I don't want this thing coming out looking like a chinese parrot-like knockoff.

The last Bald Eagle I built was years ago when I was still in high school. It was about the same size as this one but had a rudder. Bob Hoey has blazed a trail for RC birds since then and also a Japanese gentleman has done a great deal of research on how real birds fly. This build is based on my work, and these folks' work as well.

Eyes came from a taxidermy shop. Although they appear to be yellow, they are actually off white with a dark band around the outside.

This particular eagle I am working on will have four channels. The controls are complex but it should fly like any other sailplane once set up properly.

The wings of the prototype were a built up structure and the outer wing panels will detach for transport. If the eagle flies well, I may make a more accurate mold for the wings as well but we'll see how

Bottom view of the balsa rib prototype.

Left front quarter view of balsa rib prototype.

the test flights go first. The body will be epoxy fiberglass and hand painted. The feet will be molded into the fuselage. The feet will be made lightweight from a mix of micro-balloons and epoxy to save weight.

Still a work in progress.

01-29-2012

Laminated the pine boards and got the carving started on the body plug. As I progress on the body it is becoming a dynamic build process. The head and feet will need to be the most detailed items on the prototype.

2-20-2012

OK. Got the body basically done. Now working on the wingtip molds for the feathers. Got to say that when working on a project of this type you need to decide between absolute scale and what will fly. Nature is a B?*%&$ to copy!

Gave up on the totally realistic feet (3D version) and went for the “looks good from 10 feet” version. Sculpted the feet very nicely from clay and there’s just NO WAY to make 100% scale feet from silicone molds EASILY. They would have looked fantastic, but totally too much work and delicate for a flying model. The carving of the face and head from the pine plug went better than expected and looks damn nice. I think I’ll leave that alone.

Back to the wingtip feathers. I have the shape plattens made for each feather and will be laminating them with shaped balsa contours this week. They will then be primed and sanded to prep them for mold making. They will be made to attach to the wing assemblies with nylon bolts for easy replacement in case of too much ground/ hangar damage.

My top priority is LIGHT. A bird has VERY light wings. After all, they are just feathers. We don't want to induce Dutch rolling anymore than necessary from heavy wings.

7-09-2012

Started working on the mold plugs again.

The wingtip feathers have been finished and are ready for molding.

The body was detailed with feather outlines, and lots of photos were used to carve all the facial details like the beak, mouth, nostrils and eye sockets. All that was done and a coat of PPG Z3 primer (older stuff but perfect for this...) was sprayed on. Any surface defects were then spot puttied with white automotive compound.

Started to sand that layer down with dry sanding only as water would swell any exposed wood. Very slow going. Another coat of primer will be applied next week and then the arrangement of the parting lines will be ironed out. After that, molds will be made and hopefully the first set of parts will be pulled.

I took a video of a Bald Eagle overflying its nest a few days ago just to observe how it positions its wings while soaring. It's a lot more complex than I first thought. I saw the bird definitely twisting its wings to stabilize itself, sometimes to the point where its tip feathers curve downwards instead of up. To fly faster they pull their wings in and effectively shorten their wingspan.

12/05/2015

After trying to fly the first prototype on the slope on an extremely windy day in 2012 I could NOT get the model to fly stable in the pitch axis. It would pitch up on launch and the elevator could not correct the pitch excursion fast enough to avoid a stall.

I did add more ballast to bring the CG forward but the model did not fly well at all as it's sink rate was too high. The airfoil I was using (tried doing a cheater reflex version of the MH32) was not working well at all.

The model was also too heavy because of all the nose ballast needed to balance out at the proper CG (and who knows where that was going to end up).

I got to the realization that this thing needed a major re-think and design change to get it to fly right so I put it away and started to do more research on bird gliders and came to the realization that this needs to be thought of as a pure flying wing, not a conventional airplane.

I read everything I could find on bird gliders, especially from Bob Hoey, a retired Air Force Flight Test Engineer who has done A LOT of mathematical and practical flight testing of bird flight, most specifically on how birds manage to fly without a vertical tail.

Long story short, he says that birds have about 10% of the yaw stability of a normal airplane but what allows the bird to fly straight ahead is a combination of lightweight wings (feathers!) wing sweep and dihedral.

He also did testing of wingtip ailerons and optimized the tip feather incidence angles for low drag and control manipulation using a water tunnel test at NASA Dryden.

Reading his papers I found out wingtip vortices are important thing to design into a project like this one. Birds take advantage of the wingtip vortices by actually gaining a small amount of forward thrust from their tip feathers. Their feathers are not all at the same incidence angle to the wing and this allows the tip feathers to keep the wingtip out of a stalled condition and break up the energy of the tip vortex and convert it to a small amount of lift and forward thrust.

Have you ever wondered why the tip feathers of soaring birds are curved sharply upward when they fly? Or, ever wonder how real sailplanes and airliners are now using tip extensions to increase fuel economy or L/D ratio?

I also did some research on airfoils. I wanted to use a REAL reflexed airfoil that was optimized for stability. Bird models of the past have all used some sort of reflexed airfoil.

Styrofoam wing without tip feathers to check CG.

CG varied by moving square tube along “fuselage” nose.

Either they were reflexed as designed by the airfoil (curved) or simply had the trailing edge elevons tweaked upwards to accomplish this task.

I tried the latter approach and it was not very good at all.

There are also two types of flying wings and both use different ways of flying without a horizontal stabilizer.

Planks are simple and easy to build while swept wing gliders use what’s called “aerodynamic washout” in their designs.

There are lots of informational write-ups on the internet on both designs so I won’t get into detail here about that.

The Eagle is a plank. It has no sweep (except some forward sweep as a real Eagle has) and requires a plank airfoil for optimal flight to be achieved. I wanted to use an optimized airfoil for the slope and came across a German airfoil on the internet that was used on DS (Dynamic Soaring) planks and was quite popular.

The airfoils used on DS airplanes requires only just enough reflex to stabilize the wing over a wide speed range. I am not going to DS the Eagle but I did want an efficient airfoil so I had to pick something.

I chose the HS-130 for the task because of this. It is designed for lower aspect ratio plank wings like the Eagle and has been proven on the slope. Yes, there are other airfoils but I used this one because of the data available on it at the time.

I plugged the coordinates into Compufoil and started tweaking the airfoil to the required planform of the Eagle wing and printed out a complete set of hot wire templates for the wing. The wing was cut

from standard Home Depot polystyrene insulation foam and the sections were glued together with Gorilla Glue so I could build a wing to test for the actual CG location given the airfoil and chosen planform.

I found out from the first prototype it is vastly better to get the CG location BEFORE you build the entire model to save all that work from being smashed into the ground those first few times it is flown.

When I tested the new wing it was like the owl on those Tootsie Pop commercials (how many licks to the center of the Tootsie Pop?) and it took three tries to get the EXACT calm wind CG location. That made it sooooo easy! I now KNOW where to start the CG location before the Eagle is actually built.

BTW, the wing flew very far once the CG was located. I was surprised by just how good it flew, rock stable in pitch as well.

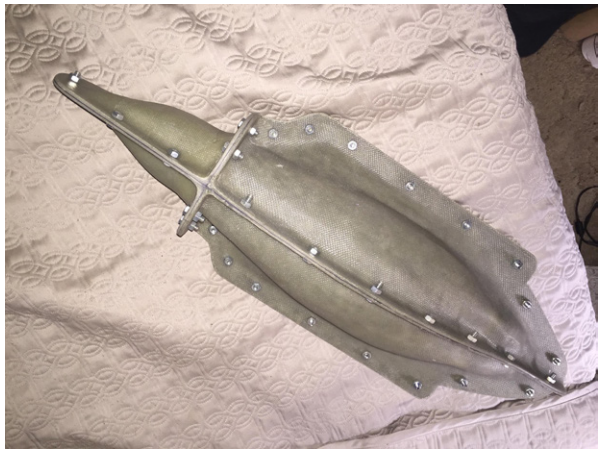
I have a lot of experience building foam core wings especially from building the Superhawk (see *RCSD* April 2015, pp. 58-59). I decided to utilize the same build technique to build the Eagle wing that had been used in the Superhawk wing in order to get a wing that was similar to a real Eagle wing.

A real Eagle has a curved wing. It is not straight like an airplane wing. It has dihedral towards the main body and flattens out toward the wingtips in a nice curved shape. This gives a wing with a lot of root dihedral and no dihedral at the tips in soaring flight at normal speeds.

In the video I took of the Bald Eagle soaring it can be seen these birds do not keep one shape or dihedral while soaring. As they speed up their wings come down for less dihedral and if they really want to go faster they pull their wings inward (shortening their wingspan).

My Bald Eagle is going to be a lazy cruiser and not a speed demon so I am going to go with a slow speed configuration on my first try. Later on the dihedral angles can be made lower or higher on other sets of wings so it can be varied if needed.

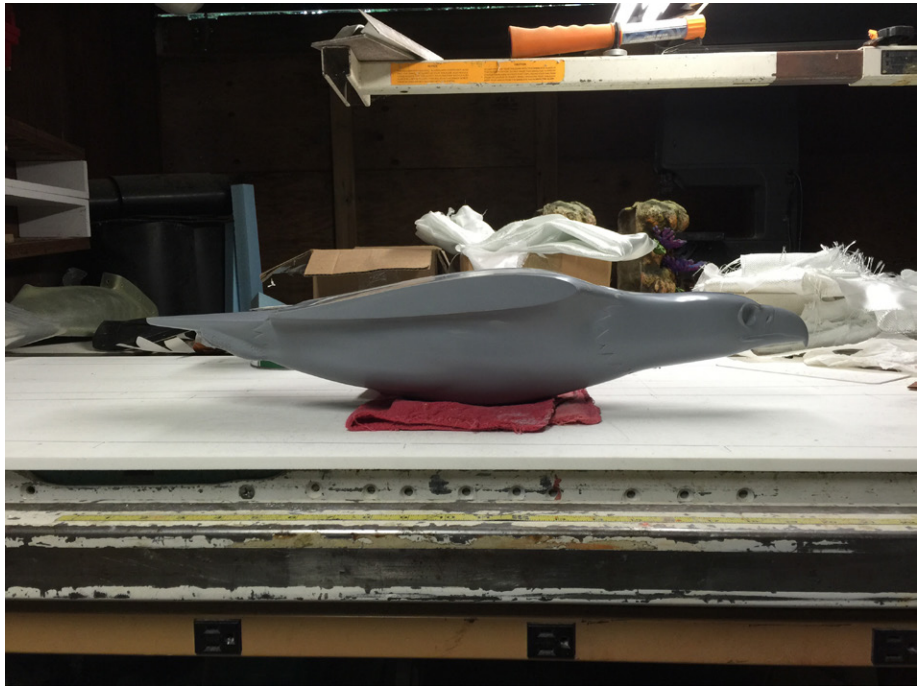
At this point all the molds are done for the new Eagle. I just built the first fuselage from the molds. (Took a whopping four hours to make it from the 6-piece mold set.) I have a starting CG location to shoot for as well.



Right top: Five parts of the 6-part body mold. Access hatch is located on the body back.

Right middle: Lower parts of the body mold, a complex fixture.

Right bottom: The molded body with sprayed on primer. The eye socket is especially noteworthy.



Molded body on the workbench.

Molds for the tip feathers. Each feather is at a different angle.

I now need to build the wings.

That is going to be a very complex task as the servos will be wing mounted and I have to figure out the control hinging on a curved wing. The tail will be Coroplast as it is light, strong, and has translucency to light from above just like the white feathers of the real Eagle.

From past experience I will not place any controls or fins on the tail. Any weight back there requires an extraordinary amount of ballast in the nose to counter it and I also found out when landing on the rounded body the tail whips up and down sometimes resulting in tail structure damage. The Coroplast will be simply taped to the body. If it pops off on landing, simply stick it back on.

OK guys, I plan to get this bird flying in the next month or two (weather permitting) and I will make periodic updates to this blog for those interested.

This is not a commercial project for me and I really don't know if I would sell any. Its way too early to consider that as it has not even flown yet. If it flies well there are other things I would like to experiment with, mainly a Seagull of some sort (curved wing, get it!).

I ordered some MGS 285 resin today from Aircraft Spruce for use on the tip feathers. I made an initial set from my West System Epoxy and they were OK but I had the epiphany that the color sprayed onto the fiberglass would be black and that would get hot in the spring and summer sun. West System is NOT good for getting up to elevated temperatures at all and the tip feathers are very thin (like real feathers) and have Carbon Fiber reinforcing. Storing the wings while not in use presents a

Top row: Bottom and top views of the completed model showing servo locations, control surfaces, attached wing tips, and color scheme to match a real bird.

Left and above: The completed model from left and head-on. Note the differing angles of attack of the wing tip feathers and the double-curve wing dihedral.

About Bob Hoey:

Bob Hoey worked for 32 years as a Flight Test Engineer and Supervisory Engineer at the Air Force Flight Test Center at Edwards AFB, CA. He participated in the AF testing of the century-series fighters as well as many research airplanes including the X-15, Lifting Bodies, X-29, Space Shuttle Orbiter and others. He retired from Civil Service in 1987 and has been working as a part-time consultant involved in Flight Readiness Reviews of new aircraft and computer math-modelling for training simulators. His spare time is spent designing and flying radio-controlled model airplanes. He also flies a four-place BD-4 homebuilt airplane which he completed in 1979. He earned a Diamond Soaring Badge in 1970 for flights performed in his homebuilt BG-12B sailplane.

problem as well as you don't want the feathers getting warped while stored. I am going to have to put some thought into this later on.

MGS is a German manufactured product and is hard to beat for its max Tg (temperature) deflection. I won't use it for the body as it's not necessary and it costs roughly double what West System costs due to the hazmat charges for shipping.

UPDATE June 16, 2017

The day has come! (insert holy grail music here...)

The Eagle has flown and flown well. I wrote Bob Hoey this letter today to describe the success.

Enjoy!

> Bob,
>
> I have been working on getting the Bald Eagle flying and today I had a 45 minute flight on a Westerly slope at Ebey's Landing West Gunnery Site. (I could have stayed up for HOURS as the wind was perfect! It was blowing up the slope at 18-20 Kts.) This is the first successful flight of this plane after working on it for 5 years with many trial and error corrections along the way.
>
> A big problem was I wanted to have a very positive sense of control of the "bird" without it Dutch rolling around at slower landing speed. I hate that and it can cause a real challenge landing in the rotor wash of a slope site such as Ebey. I used 4 control surfaces on the trailing edge of the wing, each on separate channels for programmable mixing. The outers are aileron only and the inners mixed with outers are mixed elevator. I wanted no weight on the tail if possible such as conventional elevator control. The horizontal stab is 2mm white coroplast and is extremely durable and lightweight. I tried 2 separate, toed out "tiplets" on each wing made from polycarbonate to counter the adverse yaw of the ailerons and it did work, but the effect was mediocre at mid range speed and nil at low speed. On a previous test flight I launched the Eagle and it was initially nose heavy so it was going faster than a normal cruise speed and I was able to turn it but it was very slow. Once I got the pitch trimmed for cruise flight, it slowed and I had full right aileron input and it just flew straight ahead! YIPE! I got it to turn left back to the slope and it landed in a big bush and was relatively unharmed.

Fast forward, I decided to use a center line fin/rudder. I dumped the “tiplets” and decided to go after the adverse yaw by making the fin a full flying rudder. I built an RC bald eagle in high school years ago and it flew right off the building board. I used a crude Clark Y airfoil and simply extended a Balsa trailing edge flat behind it and that acted as a reflexed airfoil. Just a kid with dumb luck because it worked flawlessly. I had made a very simple fin/rudder from music wire and saran wrap and tape. Yes, it was crude BUT it was light and it worked! I decided to use this same method for my current project and used flying wires made from Spectra composite and a Carbon fiber “kingpost” to keep it all light. Looks like it belonged on a kite more than an RC glider!

I got that made and just finished it this morning and the wind came up perfect at the slope. I had to go try again to get this thing in the air. I launched it at 5PM and landed at 5:45PM. It got so high it was a speck. Bad idea! Bald Eagles are Black and they shadow real bad. I tumbled out of the sky until it got low enough to see what it was doing. I learned to keep it lower. Problem number two came within the first 7 minutes. Not a problem with the Eagle as it was flying awesome. We have a surplus of eagles here and since it was such a nice day to fly they came by and wanted (no, NEEDED) to check this bird out. I was attacked on sight! I built this thing to look real. However, it has no paint on the fuselage yet and no glass eyes. It didn’t matter! Eagles HATE this thing! Well about 1 in 3 launched a full on attack. I definitely could not outspeed an attack but there was one sure fire defence that worked...pull a loop and they just cannot deal with that! They dive at it at high speed, wings tucked and built tremendous momentum for the “kill.” Pull a loop and the model flips over BEHIND them and that absolutely freaks them out and they usually just go away. This happened at least 12 times in 45 minutes.

The eagle is a fast flying glider. It uses an Hs-130 plank airfoil designed for DS soaring and is VERY fast for that purpose. The wing starts at 12% thick at the root and ends with about 7% at the tip area. The feather array was designed from your research. I built in a cascaded angle for each feather and this obviously produces low drag as this is one fast flying plane. I was flying with real eagles that had their wings partially tucked just to keep up with it. That was priceless to see as these are very fast birds. No ballast was added to the eagle either. I was impressed. My feathers are built from fiberglass and carbon fiber and are extremely flexible and lightweight. They are bolted to the wingtip with nylon bolts for easy replacement if damaged. Each feather has an airfoil shape and a carbon spine for strength.

The wings are foam cored, and made in halves, They are vacuum bagged with MGS structural resin and biased fiberglass skins in curved anhedral molds to give them the shape of a real eagle’s wing.

I have no doubt this design could fly with wingtip ailerons. Real eagles twist their wings down in the direction of their desired turn and it works great.

I have sent some pictures of the successful design for you to see. You deserve that as YOU designed the tip feathers!

Too much to include here so bye for now,

Take care,

Tony Johnson
Synergy composites
La Conner, Washington USA

Video camera shot of Tony's RC Bald Eagle flying of a Whidbey Island Washington slope. Note the transparent vertical fin.

The RC Bald Eagle can be easily mistaken for a living bird by the resident Bald Eagles.

RESOURCES:

The TWITT (The Wing Is The Thing) organization has been in existence since June 1986 when Bob Fronius invited a number of enthusiasts to his San Diego area hangar. TWITT is dedicated to the design and construction of tailless and all-wing aircraft and publishes a monthly newsletter which includes descriptions and photos of member projects, technical papers, and other items of interest to tailless aircraft enthusiasts. For membership information contact Andy Kecskes at <twitt@pobox.com>,
or visit <http://www.twitt.org>.

Tony Johnson's Bald Eagle RCGroups threads:
<http://tinyurl.com/y9lhakjf> and
<http://tinyurl.com/y8wcweve>

Bob Hoey's Turkey Vulture on the TWITT website:
<http://www.twitt.org/1partdrib.html>

Bob Hoey's Seagull on the TWITT website:
<http://www.twitt.org/2partdrib.html>

Bob Hoey's Pelican on the TWITT website:
<http://www.twitt.org/3partdrib.html>

Hoey, Robert G., Research on the Stability and Control of Soaring Birds, American Institute of Aeronautics and Astronautics, Inc., 1992. <http://tinyurl.com/ycv97raf> or <http://tinyurl.com/yder7bhm>

Hoey, Robert G., Research on the Stability and Control of Soaring Birds Using Radio Controlled Gliders, self published, 2001. <http://tinyurl.com/yah3a4q9>

Tucker, Vance A., Gliding Birds: Reduction of Induced Drag by Wing Tip Slots Between the Primary Feathers, J. exp. Biol. 180, 285-310 (1993) 285.
<http://tinyurl.com/y7t8lmm2>

eWindsong

Jim Riggle, jimriggle@bctonline.com

Repurposing/modernizing my Windsong

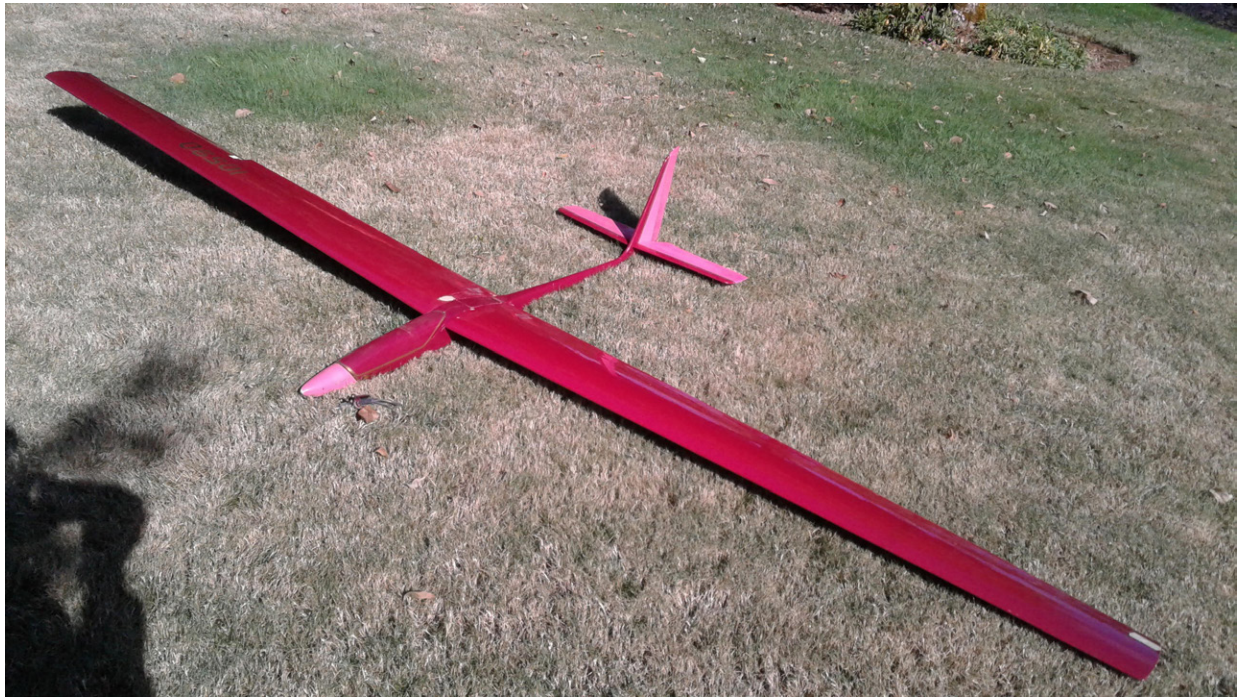
As prized as these Dodson airplanes are, the only way I'm going to get to fly mine is to "modernize" it. What follows is the story of that modernization:

I got back from Cape Blanco all excited about being able to "base launch" a glider, after my flights with a HP Quest motor glider.

Exciting to think you could go to the base of a hill and launch, instead of on top? So many times, the top has some restriction on it, or a house or something, while the bottom is free of obstructions.

Other thing is, there are places you might like to fly where it's unwise to throw your glider off when you're not sure if you can get it back without power?

The Quest is a fine glider! Actually, an especially fine glider for the $200 they used to cost before Hobby People went under.



My RTF Bob Dodgson Windsong before the conversion to e-power.

On the way home, remembered I had a Bob Dodgson Windsong in storage that was RTF, one I'd picked up at a swap meet for but a few dollars years ago. Very nice airplane, with the inherent problem that you've got to set up a winch to fly it off the flat field.

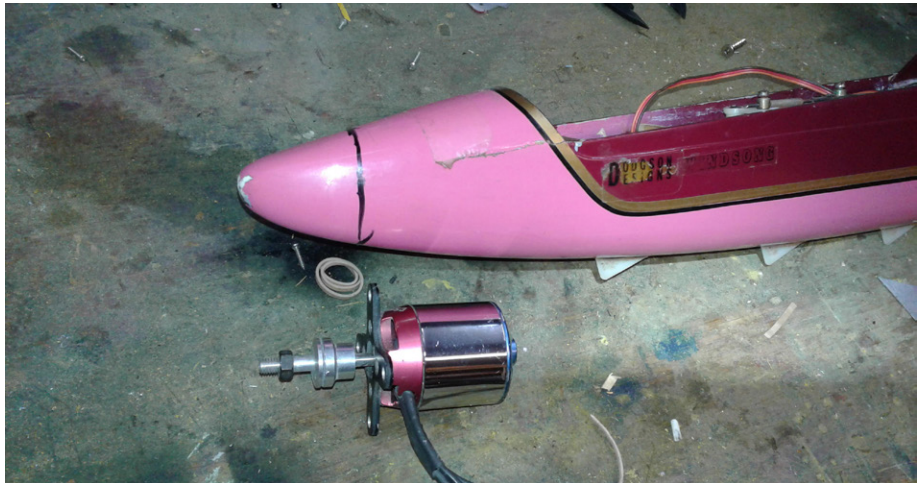
But a big airplane that would be visually great if you base launched it and were flying it way up above where you were standing? All it would need is a motor?

When I got home I went right to the shop and took a look at it. Still RTF, and after putting other airplanes away, laid it out on the bench and said to myself, "this is really a great vintage glider, do I really want to cut it all up?" To which my better sense said, "Really shouldn't, someone put a lot of work into building such a fine airplane." And then the other side of me said, "This will really be a fun airplane to fly with a motor on it, just cut the nose off, find some sort of motor and go from there."

I listened to the "glider butcher" part of my brain, grabbed the Dremel tool with a saw on it, and cut about an inch off the nose.

Started looking around the shop for a motor that would work? Didn't figure it would take all that powerful a motor, after all, the airplane is quite light and aerodynamically clean, it shouldn't take much thrust to get it up for flat field flying and, if launching at the base of a hill, you'd need even less thrust?

Looks like this motor out of an eFlite Carbon Cub will fit.



Marked the cutting line to take off the nose.

I had a motor laying around out of an eFlite Carbon Cub. Figured it was about the right size. Only problem with it was that it was an outrunner, and would be a tight fit, perhaps forcing separating the motor from the fuselage. Then along came a note from my friend Bob Mitchell, who's building a motorized Sagitta XC, along with a picture of what his fuselage looked like with an HK Gliderdrive motor in it! Hurried over to the HK site and read about it.

Two main characteristics are that the motor's in a can, the outside doesn't spin like a usual outrunner motor so, even if the fuse would be a tight fit, wasn't going to be an issue. Second thing was that it "is a .46 size motor, when you compare the thrust to a nitro engine" and, as much as I get confused by motor sizes, I do understand what sorts of airplanes can be successfully powered with engines, and knew a .46 nitro would fly a Windsong just fine. Motor, no slime!

SK-3 Gliderdrive and 60-amp speed controller came via UPS in but a few days, and I was out installing them.

As I hacked off the nose, I wondered if by changing the moment arm I'd mess up the flight characteristics. Also thought, "What I should do is to take those messy linkages out of the fuselage and replace them with four servos in the wings and put a rudder servo in the fuse."

But then the impatient, and in this case prudent, part of my brain took over and said, "Those old pushrod systems were

Fitting the eFlite Carbon Cub motor.

Bob Mitchell's Sagitta XC with the HK Gliderdrive.

very simple and worked quite well before the digital age, concentrate on getting the motor in, and worry about those things later."

I got lucky and found a motor mount at my local hobby shop and that really made the installation easy. If you have a Dodgson airplane, you know that he used a hardwood block on the top of the nose. The issue was that it needed to be hollowed out to get the motor in. I did that with several different farm implements I had, and when done it was a little too thin to be structurally sound any longer.

So I wrapped the nose in some ¾ oz. 'glass and, while doing that, wrapped it around the front of the fuse and onto the motor mount to give it a little more/better contact surface with the fuselage. (I'm sure that without that detail, it would have been just fine, but a hard landing could have broken it loose otherwise.)

I used the recommended prop from the HK site and it's a 12xXX (prop doesn't say on it what the pitch is), with a spinner that's about 1/8th of an inch too big, just what I had on hand. Less than a perfect fit, but figured that for a test flight, the air molecules wouldn't care all that much, and the camera wasn't going to get all that close, so you'd never notice the difference.

Now that I know it all works, will order a spinner that fits and looks better.

The project was a complete success. Took it down to my favorite "test field" school yard adjacent to a hundred acres of grass on a calm morning yesterday.

The HK Gliderdrive undergoing installation.

Motor mounted and nose wrapped witn ¾ oz. 'glass.

In my old age, the weight of the airplane is actually an issue when launching. The eWindsong is light enough,and I was able to handle it easily. Took it up to about ½ throttle, wondering if I had the motor positioned correctly and gave it a gentle push into a slight breeze.

Flew just like it knew what it was doing. Didn't climb much at first so, rather than give it up elevator, increased the throttle to about ⅔ and up it went. Cruised around at ½ throttle while I continued up. On a subsequent test flight will take off at ⅔ throttle and see what some up elevator will do. I just wanted to confirm that it would be a stable flyable airplane, and it was!

I do need to put an amp meter in the circuit to confirm just how much juice it's drawing though, as I don't want to burn it up climbing out.

As an aside, took it out and flew it yesterday, September 14, for the 5th time and it simply couldn't have flown any better.

IT'S TRULY AN AMAZING AIRPLANE!

"In the day", I didn't have any Dodson airplanes. I was distracted by less worthy ships like the Airtronics Sagittas so, until this experience, never really realized just what great airplanes they are. Half throttle will take the airplane up at 60 degrees or so and 90% throttle will take it vertical! Haven't had it to 100% yet and probably won't. Final trim is to mix in some down elevator with increase in throttle.

My other comment would be that, if you're going to make the conversion, don't replace all the old clunky mechanical linkages for the flaps and ailerons. They're simply a great connection to the past.

Dynaflite *Bird of Time*

Frank Skilbeck, fskilbeck@hotmail.com

My start into RC flying was with a 2-channel Cambria Capstan back in the early 80s, followed by a slightly larger Multiplex Alpha-H. Although only rudder elevator control, they taught me a lot about flying and were both great models to fly.

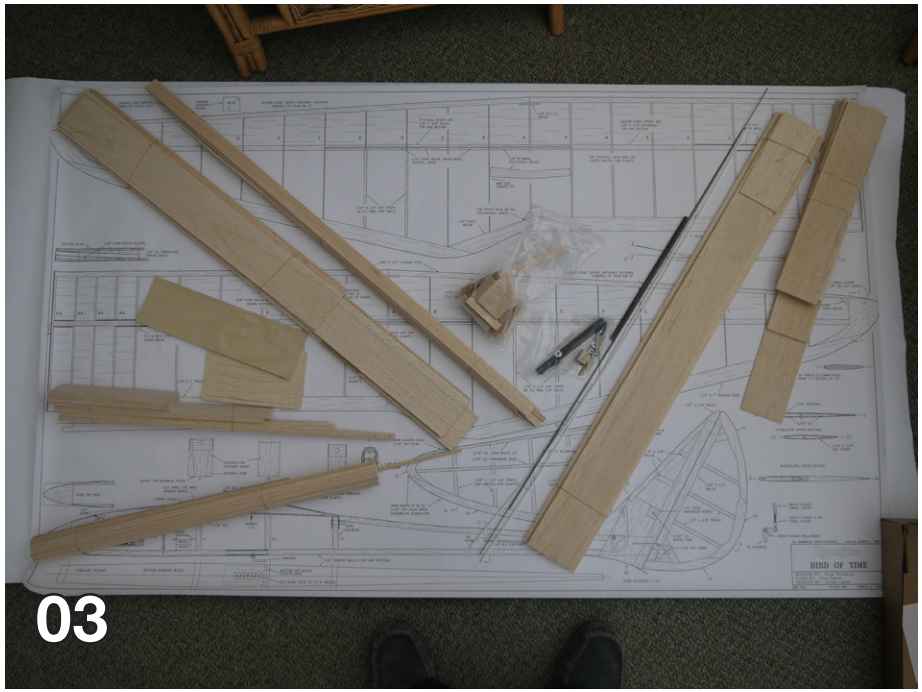
I guess if I had been in the US the standard entry sailplane would have been a Bird of Time, designed back in the 1970s by glider guru Dave Thornburg for F3B competitions, showing if nothing else how technology has progressed, and while not competitive today it does make a relaxing thermal sniffer, perfect for those calm sunny afternoons on the flat or slope in light lift conditions.

Available as an ARTF model with a fibreglass fuselage or as reviewed here a kit, with a built up balsa fuselage, spanning 3m (118 inches) and with a wing loading of 17 g/dm^2 (5.5 oz/ft^2).

I decided the model would be a good one to build in our clubroom building sessions we have twice a week over the winter and enrolled a fellow club member (thanks, Dave) to help with the build.

(01) Bird of Time is supplied in plain cardboard box, with label providing model details.

(02) Box contains all wood parts banded together with rolled plan, instruction leaflet and parts list.



(03) Proper builders model, plan is very detailed and clear.

(04) Shaped parts are die cut and push out easily.

Old School

The kit is provided well packed in the usual cardboard box which has a colourful label with details of the model and the safety disclaimers reminding you that this is from the US!

The kit itself is quite old school in its construction, with all the reshaped parts appearing to be very well die cut, with a full size plan and an instruction leaflet. No laser cut interlocking ply construction here or step by step photo manual, and for those looking to move onto plans in the future this is no bad thing, making this is an ideal model to learn some good old fashioned building skills on.

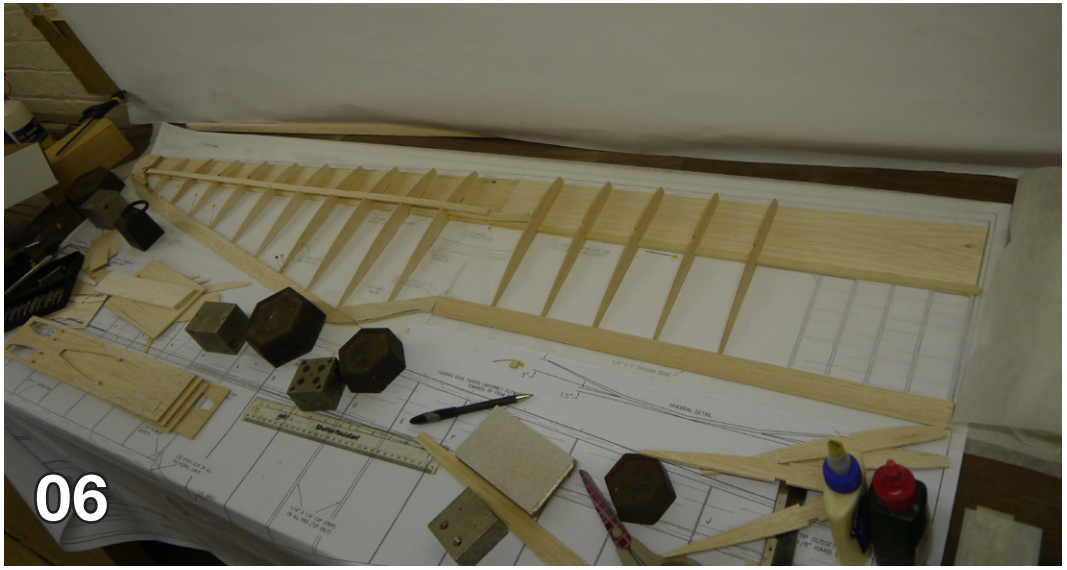
Wing

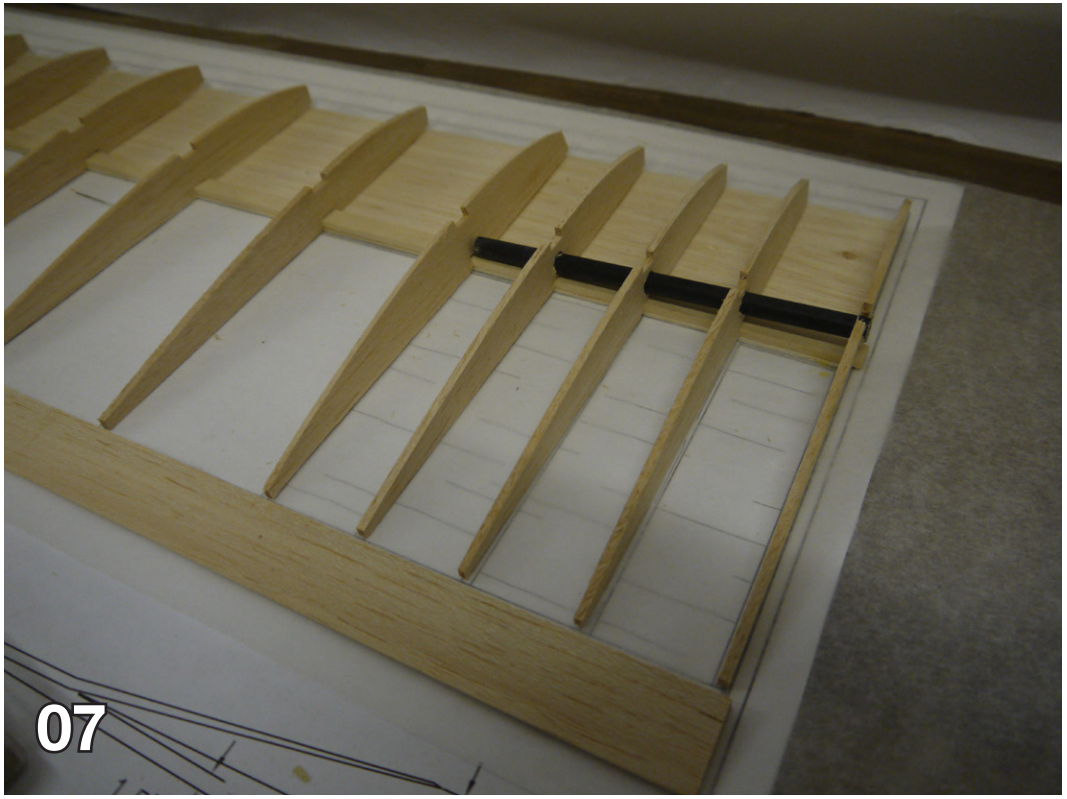
We started with the wing construction, the wing being a two piece poly dihedral with a steel joiner rod in the middle to make for easy transportation.

Construction starts with the wing tips, which have that distinctive Bird of Time vintage glider shape, the wing section being flat bottomed making it easy to build a true wing.

The wing is conventional in that it is standard two spar design with a sheeted leading edge. For lightness the wing ribs are a reduced section at the front so no cap strips are required behind the sheeting.

A ply dihedral brace joins the wing tip to the inner wing panel, with the two panels being joined before the upper leading edge sheeting is applied. The two halves are joined together with a simple steel rod joiner running in a plastic (carbon?) tube which has to be set in the inner ribs to give the correct dihedral.

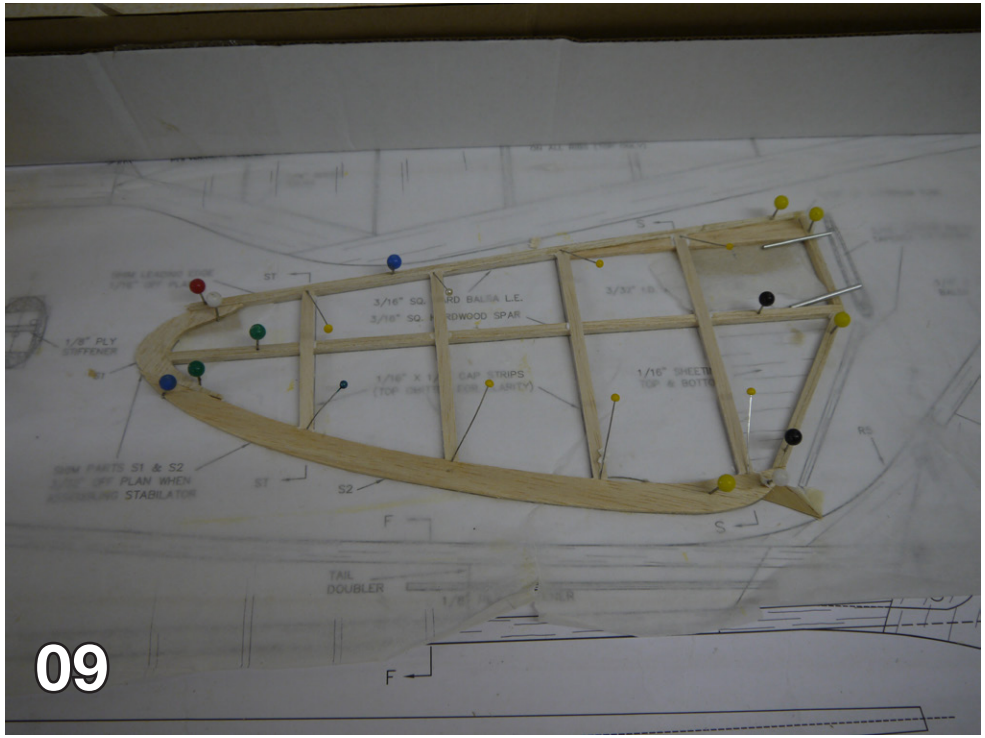




(05) Outer wing panel being built over plan, note grease proof paper to protect plan.

(06) Outer and inner wing panels are built together and then joined to provide correct angle between outer and inner panels.

(07) Plastic tube is set into the inner wing ribs for steel rod wing joiner.



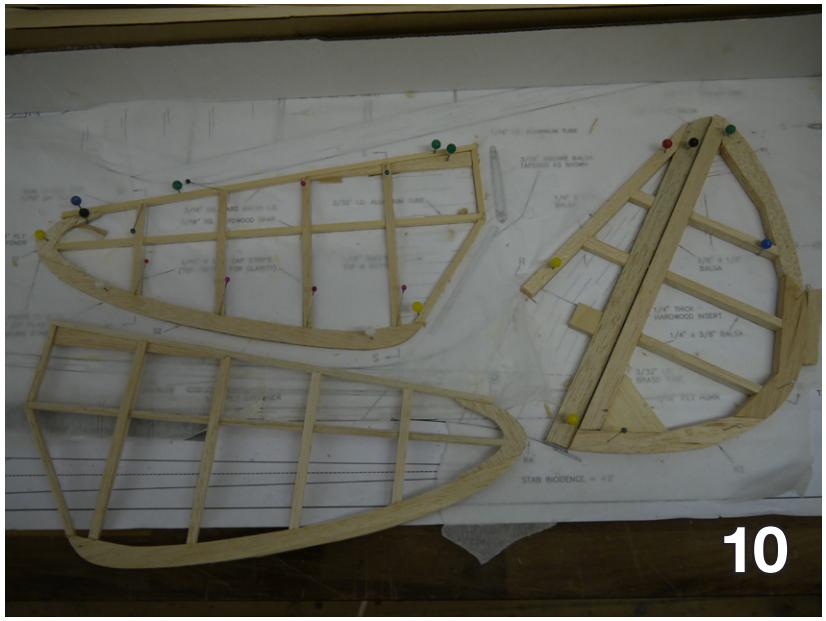
Note the wing ribs and other parts are not individually numbered, but sheets containing the parts are and these are all detailed on a parts list. The plan and written instructions are quite good and providing you follow these and double check all the parts before gluing there should be no trouble.

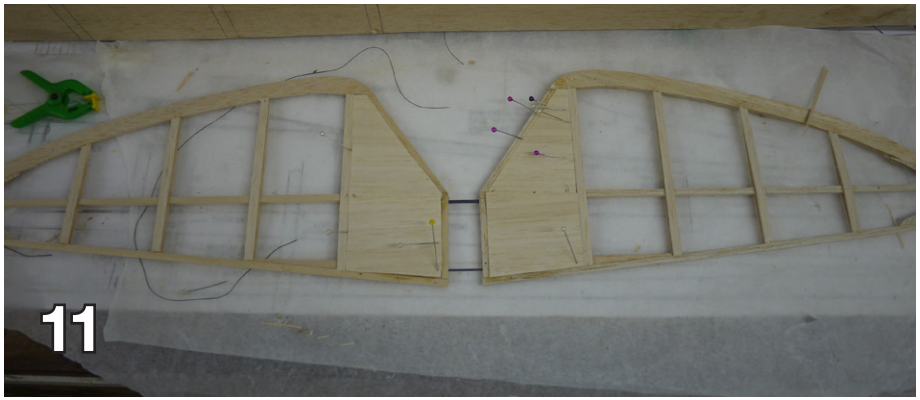
A final shaping and sanding of the leading and trailing edges and the wings are ready for covering.

(08) Wingtip is made up from laminated pieces and sanded to shape.

(09) All moving tailplane halves are built over the plan, wing tip and trailing edge pieces are preshaped.

(10a/b) All moving taiplane and rudder are similar built up construction.





(11) Sheeting is added to inner bays of all moving tailplane, note this best done with the joining rods in place to ensure they are correctly aligned with each other.

(12) Fuselage halves are built as left and right sides.

Horizontal Stabiliser

The all moving tailplane is built similarly to the main wings.

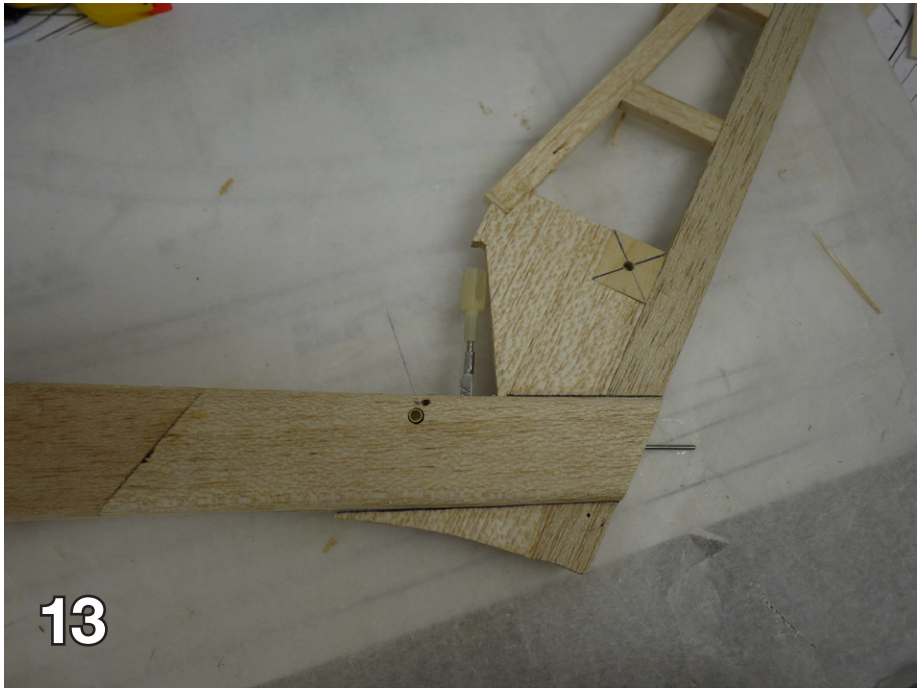
It's a good idea to build the two halves at the same time and check the alignment of the wing joiner tubes before these are epoxied in place, ensuring the tailplane halves sit true when hooked to the all-moving tail plane mechanism.

Fuselage

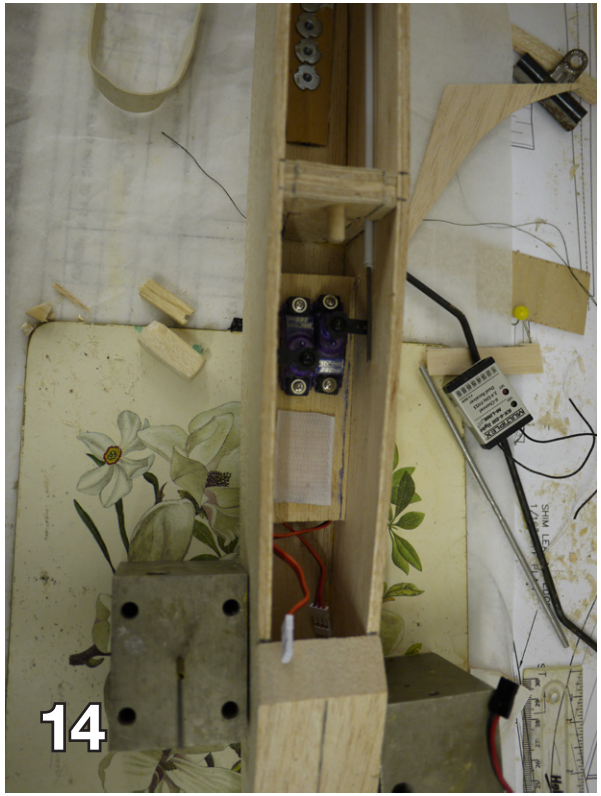
The fuselage construction starts with the sides which are each in two pieces and join together with a doubler near the tailplane and a further ply doubler from the wing seat to the nose for strength.

Make sure you build these as left and right assemblies!

These are joined together with the formers to make the basic fuselage shape. The formers need to be drilled before assembly for the control wire runs to the all-moving tailplane and rudder and the wing band retaining dowels glued in along with the ply doublers.



(13) Rudder and all moving tailplane bell crank are fitted to fuselage prior to upper and lower sheeting. The tailplane fit should checked at this point to adjust link length to ensure bellcrank and tailplane are correctly aligned.



(14) - Rudder and Elevator servos and receiver tray is under canopy for easy access, leave room to ensure your chosen battery can be slid down the nose.

(15) Once satisfied with the bellcrank alignment the vertical stabliser can be sheeted in.

(16) Fuselage is shaped using razor plane before final sanding, note we marked centre and outline shape lines for guidance.

The vertical stabiliser is partially built separately and then fitted to the fuselage with the stern post which glues in at the rear end.

The bottom sheeting can then be fitted along with the multi-position tow hook fixing, which allows the tow line position to be moved forward and aft to take account of varying wind strengths.

The control wire tubes need to be fitted before the top sheeting is added and the all moving tailplane bellcrank installed and hooked up to the elevator control wire as this is no longer accessible once the top sheeting is in place.

At this point before finishing sheeting the vertical stabliser, it's best to fit the all moving tailplane and adjust the length of the link arm from the bellcrank to ensure the bellcrank and tailplane are level. If not

(17) Main parts ready for covering, except rudder which has already been covered.

it will be difficult to obtain a balanced up and down movement in response to the elevator servo movement.

Once satisfied the vertical stabiliser can be finally sheeted and the slot for the elevator actuator rod cut out. The rudder is built over the plan with similar construction to the all moving tailplane, except after covering this is hinged conventionally to the vertical stabiliser.

The nose cone is a solid block and this is glued in place along with the canopy section which is only glued at the front and the rear. Then it's time to get busy with a razor plane and sand paper to fashion the fuselage and nose cone into the sleek aerodynamic shape/ Once done the canopy area can be cut free with a razor saw and the rear cut away for the wing band to go over the forward retaining dowel.

The instructions show the canopy being held in place with a rubber band between a hook on the canopy and one in the fuselage floor. We deviated from the design here and fitted a cross member with a magnet and another magnet in the canopy to hold the canopy in place. This has worked well in practise.

Once all the parts had been given a final sanding the model was covered in regular Solarfilm. We used a white and red scheme, with red wing tips for added visibility for when we specked out in one of those summer thermals.

Radio fit out is very simple with just two 9 gram servos for rudder and elevator, with the receiver in front of the servos and the 4-cell AA battery pack as far forward under the nose cover as possible.

We made a tray for the servos and receiver, but the servos could be supported on simple cross members and the receiver wrapped in foam. The plan shows an FM receiver indicating the age of the design.

Once the control throws had been dialled in and some nose weight added to achieve the correct balance, it was good to go.

(18) All moving tailplane and rudder are similar built-up construction.

(19) Bird of Time is a very handy size, easy to transport and rig up and big enough to be seen at height.

(20) Model can be finished in your chosen colour scheme, make sure it's visible at height; we used a red and white scheme with red on the outer wing panels.

(21) Trial hand launch to check out centre of gravity and trims.

And Relax

Assembly of the model at the field is very easy, the all moving tailplane halves just slot into place and the main wing is joined together and then banded to the fuselage, the retaining bands holding the two wing halved together.

For streamlining the Bird of Time has only one forward and one rearward dowel running along the fuselage center line, and the wing bands are hooked up over these, keeping them out of the airflow and reducing drag.

Once happy that all was correct, we did a few hand launch test glides to get the trim right. This showed that the Bird had a very flat glide and from a hand launch would easily glide for over 50 meters.

We then hooked up to our bungee (hi-start) with approximately 30m of surgical tubing and 90m of nylon line with the tow hook in the second position from the front of the four options. A light stretch saw the Bird soar away with hardly any input from the pilot.

On subsequent launches we were able to pull a bit more tension in the line and also tease the elevator to gain a bit more height.

Off the line it flew serenely around and, although only rudder/elevator, was easy to position for landing. Just bear in mind that the Bird has a very flat glide and no spoilers or flaps to dump lift or provide drag.

We flew several flights on the first day, but a lack of thermal activity meant that this was limited to a launch and glide back down.

Subsequently we have managed to catch some thermals off the bungee resulting in a 20 minute plus flight, flown off the slope in a 12-15mph breeze which is about the comfortable limit, and also done some slermalling off the slope when there was no slope lift.

The Bird of Time responded well to thermals and proved easy to circle and gained height in the lightest of lift.

While the Bird of Time can be flown quite slowly to hold a thermal, a couple of clicks of down trim and it scoots along away enabling a lot of sky to be covered with little loss of height. This is useful

(22) Bird of Time gets away well on a bungee (hi-start) launch.

(23) Floating back in for a landing after the first bungee launch.

(24) Although only rudder/elevator control, tight turns are no problem.

for getting back after chasing a thermal downwind.

Aerobatics are limited to loops and wing overs, but if that's your thing then really this is the wrong model; relaxed thermal sniffing is where it's at with just the occasional input from the pilot.

Very Enjoyable

In today's age of high performance foamies, ARTFs and laser cut interlocking ply kits, it's refreshing to see that there is still space for a traditional kit that only needs a simple radio to fly — no need for multiple flight modes here.

Although on some forums there has been criticism of the wood quality, with several commenting that the supplied balsa was too heavy, the quality of the wood and die cutting in the supplied kit was very good, and identifying the parts was often the hardest part of the build.

The accompanying instructions do need re-reading a couple of times at some points, but having a detailed full sized plan is a big help here.

The finished model flies really well and is easy to bungee launch and responds well to thermals, making the Bird of Time a good introduction to the art of thermal sniffing, and only having two controls you can't compensate for flying skills with radio programming.

There are more modern high performance moulded models with carbon fuselages, ailerons and flaps which can be programmed to adjust the airfoil section for different conditions which will easily outperform the Bird of Time. But these are much more expensive and don't enhance your enjoyment of catching a thermal and soaring away any more than that achieved with the Bird of Time.

So while the Bird of Time is also available as an ARTF with a fibreglass fuselage, the kit version builds up into a lovely model and makes a good introduction into building for somebody who has aspirations to build from plans, with flying characteristics that make thermal hunting very enjoyable and relaxing.

(25) The slim line profile needs a visible colour scheme!

(26) Distinctive shape always elicits complementary comments.

KIT INFORMATION

Name:	Bird of Time
Manufacturer:	Dynaflite
Model Type:	Thermal soarer
Construction:	Balsa/Ply

R/C functions:

1 Rudder
2 Elevator
3 Spoilers (optional)

Specifictions:

Wing span:	3,000mm (118in)
Length:	1245mm (49in)
Weight:	1160g (41oz)

Critique:

Dislikes

Parts numbering could be clearer

Likes

Relaxed flying characteristics
Good quality parts
Detailed plan
Quick assembly at the field

Price: US$90 to US$125, depending on source

IX ASTURIAS INTERNATIONAL OPEN F3F PHOTO ALBUM

Fernando Alonso Rojas, fernandoalonsorojas@gmail.com

On September 1st, 2nd and 3rd, the “Club Planeador” organized the IX International Open F3F of Asturias in the towns of Gijon and Candas in the north of Spain. This was an International FAI Championship and Contest Eurotur and it was attended by 30 participants from seven nations: Spain (14), Germany (7), United Kingdom (3), France (2), Austria (2), Venezuela (1) and Denmark (1).

The first day we flew five rounds on the west slope of “Campa Torres” in Gijon. The second day we flew two rounds on the northeast slope of Candas and then we moved to the eastern slope to perform another 5 rounds. Finally on the third day we could not fly anything, so the classification was closed with 12 rounds completed.


STRIBOG


26


18
8


enterprise
rent-a-car


27


30


1

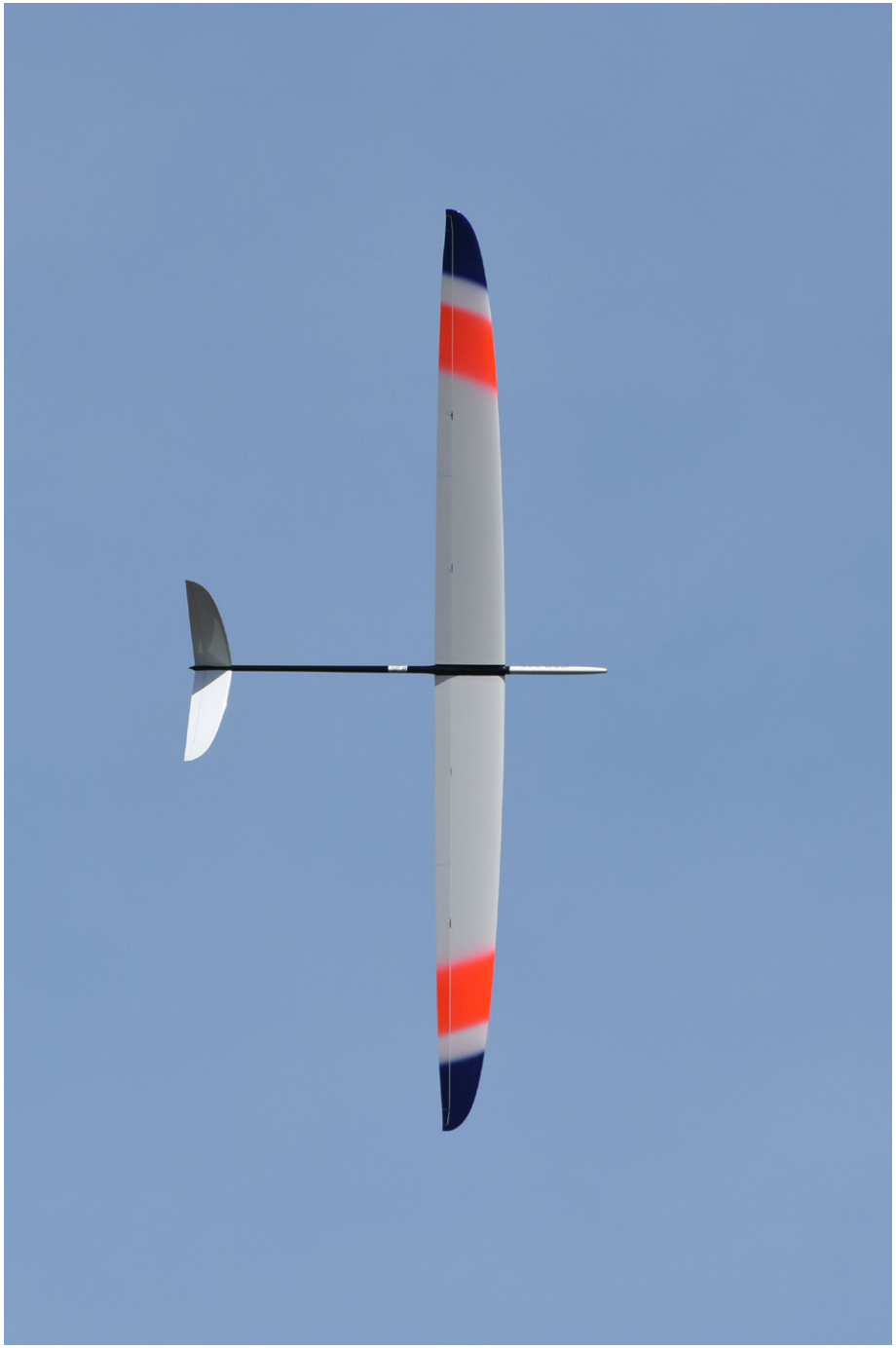

STRIBOG


20


1


30


9




2


8


8


26


26


4

West Slope Campa Torres:
<https://goo.gl/maps/rsyjS5CucCz>

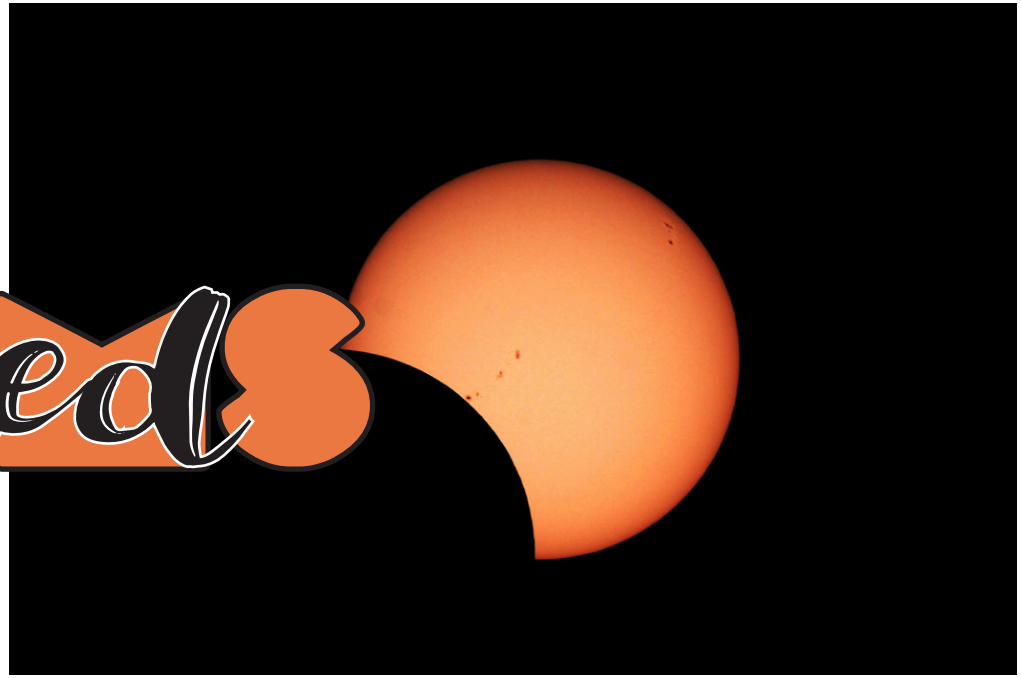
Northeast Slope Candas:
<https://goo.gl/maps/9Hw2Fq1fUt72>

East Slope Candas:
<https://goo.gl/maps/LHqr4bxhx3v>

Results:
<http://tinyurl.com/y7lbnmrw>

Philip Randolph, amphioxus.philip@gmail.com

Eclipsed



Another CEWAMS adventure!

Warning: Contains one inexcusably bad pun, two broken planes, one shameless appeal to anyone who finds a plane lost on another trip, an eclipse totality, CMEs, and tasteless potty humor (did I just put the word “taste” in the same sentence as “potty?” Gawrd. Bad Philip).

I leave the West Seattle beach cottage I’ve rented for thirty-two years at 6:30 PM, Friday, three days before totality.

I’m headed for a saddle immediately to the west of Bald Mountain, off Dooley Pass, twenty miles south of Baker City, Oregon.

Baker City?

Back when I briefly taught skiing up in the Elkhorn Mountains, just to the east, it was just called Baker, but I suppose they are celebrating it not getting much bigger.

Now, it’s only a six-hour drive to Bald. But it’s 3:00 AM when I arrive. That’s because I stopped for gas in Yakima, Pendleton, and Baker City – gas-up overkill. Partly that’s because every time I stop for gas I get a large decaf coffee. So I have to stop for gas again after a while. Getting old does that.

Also, the media has hyped fear into everyone about impending gas shortages when the impending eclipse hoards descend out of the Russian steppes into Oregon waving their plastic light sabers and bonking into each other because they can’t see out of their eclipse glasses.

Well, and I miss a turn when a drunk tries to occupy my lane. Plus there was a phone call from a sister.

Bald is about a third of the way down Oregon’s east side, about twenty miles from Idaho. And it’s very close to the center of the eclipse path. That’s half of why intrepid Slope Explorer Chris Erikson has picked it.

Looking toward Bald Mountain. We flew up around the corner Sunday and Monday. All those rigs are us.

It also has great slope lift, when it does. Just ask the burgeoning Baker City Slope Soarers Association.[1]

I'm only about a third of the way there when a sister calls. I pull over. I suppose I could communicate with my family in advance. She tells another sister. It turns into an impromptu confluence. Three nephews, two sisters, and one bro-in-law join us Sunday.

By then the saddle is already stuffed with two big trailers and thirty folks, all somehow connected, of which three of us are toy airplane guys. Chris Erikson, Steven Allmaras, me.

Slope flying destruction: Chris had arrived Thursday. Friday morning he flew his 2.6 meter electric Phoenix Evolution from a knoll to the east of the saddle.

Quote:

"I was talking and not paying too much attention, and then the Phoenix was specked out. I had to point the nose straight down to get it to come down. It started acting funny. Probably a control surface had ripped off. It nosed in. Ailerons and elevator were dangling. The motor is toast."

He shows it to me Saturday. The motor scrapes as it turns. I say, "It looks like the spinner just got shoved back till it's rubbing on the firewall bolts."

By Sunday he has it all back together and flying great.

Solar astronomy:

Chris's friend Catherine's dad is Gene. He's brought a fancy 6" refractor with a solar filter. Through it we watch the sun spots.

Chris has a solar scope. It has a hydrogen-alpha filter that makes the magnetic flux lines that drive sunspots

1 Are there any slopers out here? Great country for it. Limited botanical infestations.

Chris and Steve launch Evos Sunday, from near the top. To the right are Chris' kid Jake and my nephews Galen and Peregrin.

Steve and Chris with their Evos.

and coronal mass ejections (CMEs) visible. Way cool.

Saturday afternoon I try flying my 1-meter Art Hobby Colibri, and then a vee-tail with a 60" DLG wing, from the Saddle.

The winds are howling and flat. Mostly it doesn't work.

After strapping 2 oz. of ballast on the Colibri, I get some good flights. But not as good as I would have gotten with the Colibri I lost last Spring at Saddle Mountain.

It had a 44" carbon and Kevlar wing I got at a swap meet. And I hung a little carbon fin below its vee-tail for added yaw stability. Distinctive. If found it may meander into RC circles. If anyone sees it, let me know.

Catherine and her relatives have the big campers. She makes a delicious chicken, beef, and sausage stew.

On Sunday, Steve, Chris and his kid Jake, two of my nephews, and I hike up the road to near the top of Bald.

It's more of a ridge than a cone, pleasant slope on the front side, steep on the back. The lift is good, though not huge.

Chris and Steve both fly their Costzon Phoenix Evolutions. These things come equipped with flaps, motors, servos, and speed controllers for $110 from Amazon. Crazy cheap. They fly quite well. Chris has bought a few, one destroyed on an earlier trip.

But now it's my turn. I lose control of the Coibri in a close fast pass. Its nose busts

Colibri 1m, RedVee, Encore.

off. I'll fix it at home. I fly the Red Vee and the Encore, with a bit of extra weight.

Good times.

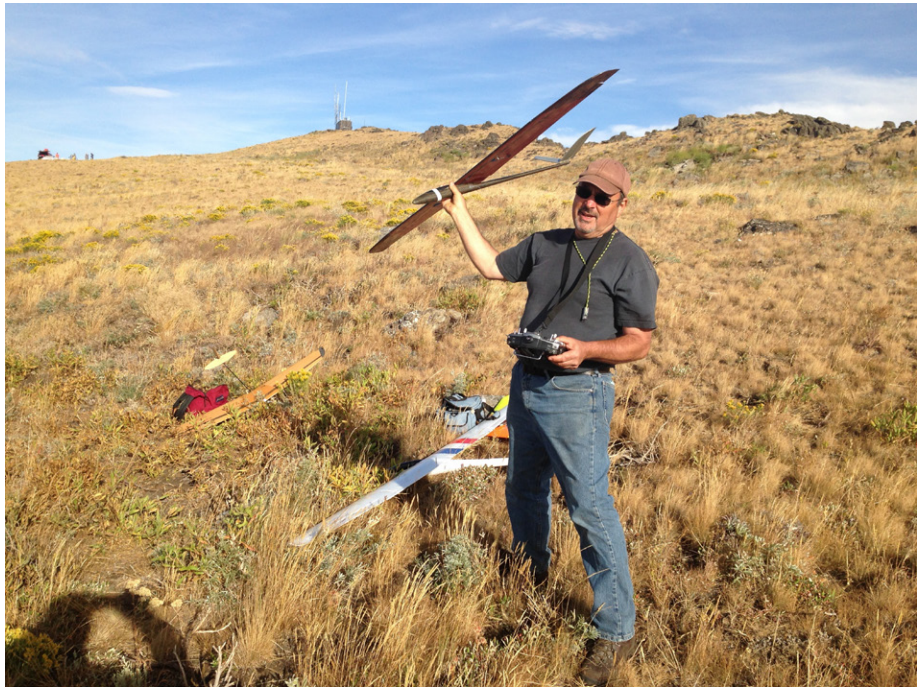
Back at camp everyone is excited about the totality the next morning. I'm happy part of my family could join us. The wind is excited also. It's howling across the saddle at 20 mph.

I pile my planes behind my CR-V and place a coronal device over them to make sure they don't blow away. Please note that its legs are adjustable to conform to slopes.

Now here is how a commode brought along to make camping more

The author's lost Colibri with 44" wing and fin below the vee. It was lost last spring. If found and it turns up in RC circles, I'd buy it back.

Steve assembling his Evo while using the multi-purpose CME device as a plane stand.



Philip with his RedVee 60". It's actually a DLG wing on an ancient Monarch II fuselage.

I used this CME device to stop my planes from blowing away in the night. Note that its legs are adjustable to conform to slopes.

comfortable is related to slope flying. Note that its legs are adjustable to insure level flying on the slope. Level flight requires thrust. The device gains thrust from contact with the earth, in the same way a kite, another sort of flying device, is dragged along by the surface of the earth. At these latitudes the surface of the earth is moving along at about 700 mph. This kind of thing must really get cooking at the equator. Whee!

After dark, Chris, Catherine, Steve, my nephew Peregrin, and I huddle in the lee of one of the big campers, watching stars. The milky way is a huge stripe.

Chris is explaining coronal mass ejections, CMEs. "If a strong one were ever to blast straight at the earth with all its charged particles it would wipe out all the satellites and all the power grids. It builds huge voltage gradients. Every long wire, even fences, will act as an antenna and will develop great voltage pressures. A moderate CME took out Quebec's power grid in 1989. And a powerful CME actually did hit in recorded history. It's known as the Carrington event. Back in 1859 British astronomers Richard Carrington and Richard Hodgson were watching the sun and made the first observation of a solar flare. They let others know what they saw by telegraph. Seventeen hours later telegraph operators were shocked by sparks jumping from wires, and telegraph shacks were started on fire by arcing from the telegraph lines to ground."

Now here is how a commode brought along to make camping more

Above: Philip./author. Photo by Steven Allmaras.

Right: Philip capturing very light lift with his old Encore. Photo by Steven Allmaras.

comfortable is related to the eclipse: We are here to see the corona during totality. A commode is a throne, which implies a crown, a corona. See? No, it will get much worse, I promise...

It's the next morning. A gaggle have gathered around the sun scopes, waiting for the eclipse to start. I have lugged the corona device back to camp. I announce, "It was instrumental in a mass colonal ejection. But it didn't start any fires."

They all gang up on me and beat me to a bloody pulp. Sometime later someone asserts that an MRI of my brain would show only a small tape recorder filled with bad puns.

The eclipse:

Chris stays in the saddle with the sun scopes, taking pictures. Steve, my family, and I walk up to the knoll. We watch the Elkhorn mountains grow dark. Eclipse glasses show the moon taking its chunk out of the sun as it moves east between the sun and earth, and as we move east underneath it, as its umbra overtakes us from the west. Steve passes me binoculars.

The last sliver of brilliant yellow photosphere is so bright as to make the corona invisible. But then it winks out. Eclipse glasses off, eyes adjust as a brilliant silver-blue-white halo with long flare lines streaming out surrounds the moon blackness.

Looking down Bald Mountain's steep ridge toward the saddle we camped in, Tuesday, after all but Philip and Steve had left. Quotes: "This would make a great DS site." –Steve Allmaras. "Except for the rocks." –Philip. We flew to the right, in northerly winds.

Steve and his Evo Monday afternoon, headed for the mostly vacated saddle after flights with left thumb lift.

Small points on the moon's perimeter shine brighter, flares or the moon's irregular surface.

Minutes.

And then a pinprick of impossibly bright yellow, and it's gone.

Before we're over the impact, a few cars from the next saddle are already leaving. Strange. We'll watch until the sun is unbit.

But we go down to the sun scopes. A few more looks, as the sun is slowly uncovered.

Chris and Steve have conspired. It's a fairly calm day. Steve cranks up his Phoenix electric and attempts to fly it across the face of the still partially eclipsed sun. Chris has his camera attached to his sun scope, taking video. "Got one," says Chris.

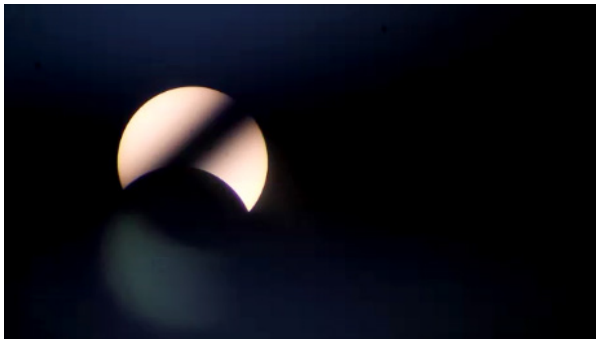
Philip: "Did you get flashed?"

Steve: "Yeah I did."

Philip: "You should have flown it with your eclipse glasses."

Over the next hours everyone leaves except Steve and me.

Steve's sisters text, "Eight miles in five hours." That's leaving Madras Oregon for Portland, with a similar story in Montana. Chris texts that he's fighting traffic backed up along the Columbia River.



The wing of Steve's plane passing in front of the eclipse. A single frame from video through solar scope by Chris Erikson.

We're also here to fly, so we'll wait until Tuesday morning and hope the traffic jams are history.

I try flying the Encore in the Saddle. Nope.

Late in the afternoon we hike up Bald. Not much breeze. Steve's Phoenix powers up, sinks slowly, powers up again. I try the Encore. I toss it, sink slowly, walk fifty feet down the slope to retrieve. Five times. Steve lands.

It's a bit hard to tell just where the ambient wind is coming from, versus thermals dragging it here and there. But I decide it's from the NNE, off the point of the ridge. I say, "I'm going to try over here." I give my old Encore about 3/16" of flaperon. And yep, there is lift, though barely enough to keep it up. I go down a few times, but not far. Good light air toy.

Encore in flight.

A quick walk up to the summit and its ham repeater station. Gorgeous country.

And that gives us a view down the ridge toward our two SUVs. The backside is very steep, steeper than the photo shows. Steve says, "This is a DS ridge. I say, "Except for the rocks." But heck, DS guys spend planes like dimes. Maybe there's someone in the Burgeoning Baker City Slope Soaring Association who will take advantage. So the photo on the previous page.

Tuesday morning, packing up, convoy to Seattle, 70+ traffic nearly all the way.

Title page photo: Post totality sunspots. Photo by Chris Erikson.

TALES

Task Altitude Limited Electric Soaring

We took notice of a post by Gordy Stahl on the RC Soaring Exchange email list. Gordy's post generated a response from Jack "Papa Smurf" Iafret regarding a successful event put on by The Greater Detroit Soaring and Hiking Society. With the increasing interest in what has come to be called F3-RES, we're now intrigued by TALES. We're including both posts here.

From Gordy Stahl, gordysoar@aol.com via RCSE:

Hi Guys

F5J is different than ALES, while it does use a nose motor, it doesn't use an Altitude Limiting Switch.

F5J is "Altitude Penalized" ALES is "Altitude Limited."

In F5J you start losing points as soon as you let go of the model. The attached CIAM Flyer June 2016 <http://tinyurl.com/ydyoykmu> explains the details.

In ALES you can over fly the Task Time with only the amount of seconds over counted against you. F5J you lose your landing points, which is also explained in the attached.

Unlike ALES and TD, F5J is an FAI event, governed by their rules.

The Official F5J FAI rules do not allow any kind of programmability to be possible in the Altitude Recording device... Zero. It is a Motor Shut Off Altitude recording device which also shuts off the motor at 30 seconds. FAI F5J rules do NOT allow the motor to be restarted in case of an emergency... Never. USA has elected to ignore that rule, because models are too expensive to be lost, and safety. The safety of the model and the safety of the flying site outweigh any competitive argument that might be imagined.

While there is an FAI approved listing of Altitude Recording/Reporting Devices, the USA has elected to be flexible on this so as to allow all currently available devices to be used.

The ALTUS is the pinnacle of technology, and so can be loaded with FAI Firmware or ALES firmware (allows restart).

The new Cam F5J with restart is in beta testing and likely will quickly become super popular because of its simplicity for use in F5J (not ALES).

The Altitude Permit does indeed record the model's altitude 10 seconds after motor shut off as the FAI rules demand.

FlySky has not applied for FAI acceptance.

Older ALES CAM units are allowed since they are pre-set to 100m, 150m, or 200m.

More than you wanted to know?

Too bad ;-)

From Jack "Papa Smurf" Iafret, jiafret@gmail.com, via RCSE:

OK Gordie, another one for you to try and master next summer, or sooner if you can get a group to try it in your area.

I did post some of this on RCG and got a little positive feedback but it needs more publicity and Gordie is the guy to do it and that is the reason for the above challenge.

Our club, The Greater Detroit Soaring and Hiking Society invented this event last fall and has run four club contest this year with great success so I want to spread the word and get other clubs to try it next season with the expressed direction to develop it into an AMA rule book event. I am that excited about it and feel it is a good AMA type event that includes a lot of potential for both clubs and national competition. It is meant to be a truly a competition event and not a fun fly but allow all club level contestants to enjoy it as well as any other club event, we sure have and hope you also join in the fun.

Now for an explanation of the event:

It takes something from F3K, F5J, and ALES and makes an event that as exciting as DLG with multiple tasks in each round, then adds in the F5J factor of providing bonus points for lower launches and the level playing field of ALES maximum launch height. It goes something like this:

It is an electric launch event with programmer type altitude switches.

It is a MOM contest with typical MOM scoring (scoring program is available at www.tailwindgliders.com and was developed by Curtis Suter).

You fly “kinda like” DLG tasks in a window, the window is defined by the task at hand for the round so not all rounds are the same window. It is nice to have and audio system for this but not necessary. We have an audio system and may make our files available.

I have kept the number of tasks per round to three maximum as each task requires a launch so you should not have to change batteries in the middle of a round and take seconds out of your flight time. Some of the tasks allow four launches but do not demand it so a four launch battery is advisable.

The plane limitations are simple, two meter or less. This was done to allow plane development over time and also allow clubs to define there own limits like a Radian Only or Electron Only or Wood Only or anything else under 2M. I personally go for plane development (no limits) for the big picture as a big DLG plane seems to be perfect for the event at this time but our club events have miraculously been on very low wind days so the Electrons have ruled all four of our contests so far.

You launch to 100 Meters or 60 Meters, the 60 Meter launch gets you additional points or a bonus if you like.

So you see the flavor of being able to fly DLG without throwing, launch to a fixed altitude like ALES and gain points for brass by launching low. What else could you want?

How it happened is people who know Papa Smurf can guess he can not throw a DLG, but loves the event, so kept bugging the good guys to throw for him, this is fine for PS but a drain on the thrower so Mike Wiz (great DLG pilot) ask why we don’t have a motorized DLG event with an altitude limiter so they would not have to throw for the old and lame. I got the rules making assignment (being the beneficiary of this idea) so went to work and of course expanded it a little as any builder would and this is what we came up with.

Our four contest have been a blast and the DLG guys like it, the ALES guys like it and the few of us that have flown F5J like it so give it shot.

As I did with the Nostalgia rules when I developed them I will volunteer to be the “Keeper” until they are stable and able to be submitted to AMA as a new event. I will institute a voting process as I did with Nostalgia as it seemed to work well with a few exceptions (all open forums have their “experts”). The only difference is this time I will accept votes from clubs, not individuals and those clubs will have had to have an event testing the modification so know from experience what they want.

Gad, I am tired of typing so here ya go for the rules: http://gdshs.org/tales-event-rules.htm

Note that the last contest we tested several “clarifications” and a couple of “changes” and I will be adding the “clarifications” to

be used for the 2018 season from 01JA18 to 30AU18 and we will vote on “changes” on 01SE18. The plan if fluid from there.

Spread the word and let me know how you like it and try it out this year if you can...

Rules <http://gdshs.org/tales-event-rules.htm> :

2017 TALES RULES FORMULATED BY THE GREATER DETROIT SOARING AND HIKING SOCIETY

1. Objective:

   To fly an event that involves accomplishing a maximum combined score while flying multiple tasks in a single round using electric powered sailplanes limited to a set launch altitude. (Think a mashup of DLG and ALES with 2 Meter electric powered sailplanes)

2. Contest Format:

   2.1. The contest will be run on a MOM (Man-on-Man) format where each competitor in a group will be scored against only the pilots within his group. The scores will be normalized to 1000 within each group and each round normalized score will be added to get the final score.

   2.2. The launch altitude will be 100 M maximum for all rounds.

   2.2.1. See section 6 for an option to the 100M launch height with bonus points.

   2.3. Maximum motor run time will be 30 sec

   2.4. Each round will be timed within a round window; the round window will be determined by the number of tasks for that round and calculated thusly:

   2.4.1. The base or initial time for the window will be the addition of required times for each task for that round (Ex. A round with 6, 4, and 2 minutes tasks will have a base time of 12 minutes)

   2.4.2. Added to that will be one (1) minute for each task over the first task as in the case above two (2) minutes will be added for a total round window of fourteen (14) minutes.

   2.4.2.1. Exception to 2.4.2: In rounds where multiple launches are permitted within a timed task to achieve a goal, only the task will account for the added minute, not each launch. (Multiple or unlimited launches to achieve a 10 minute goal within a fixed window of say 12 min)

   2.5. All pilots will launch at their own discretion based upon their assessment of round strategy and time remaining within a round.

   2.6. Recording the timing of tasks will have a maximum time defined by the task and the timer will record only the minutes if the task time has been met, or minutes and seconds up to the designated time. For example if the task time is two (2) minutes and a pilot flies two minutes and twelve seconds, only the two minute time is recorded and the seconds are truncated. Conversely if the pilot flies 1 minute and 15 seconds in that two minute round, both the minutes and seconds are recorded. There is no penalty for exceeding the task time other than the end of a round and the 30 second maximum landing time requirement comes into play (see section 2.12)

   2.7. Landings will not be judged or awarded points other than the penalties described below in Section 3.

   2.8. The AMA shed parts rule applies to in flight only as there can be no penalty on landings due to landings having no positive value. Thein-flight shed part rule for TALES will mean a zero for the particular task within the round.

2.9. It is not permitted to catch a plane for a landing, all flights must conclude with a ground landing. This includes the landings between tasks as well as the final round landing.

2.10. Motor restarts within a flight after the initial climb are prohibited, a restart will result in a zero for the task within a given round.

2.11. A ready time of 5 minutes will be used between each group of flyers as well as between rounds.

2.12. There will be a 30 second count down window after the completion of the final task of a round and if a contestant has not landed within the 30 second window, he will receive a zero for the round.

2.13. Three completed rounds are the minimum required to make a contest. Tasks may be selected from those in Section 5 of this rules set.

3. Field Layout and Safety Measures:

3.1. All AMA safety rules are in effect for this contest. It is the pilot's responsibility to know and follow these rules and guidelines.

3.2. Each pilot-timer team will have an area that he or she can move around in but not go out of while the plane is airborne. This area is defined by a 5M tape (An ALES Landing Tape is a handy medium) pinned at the center making a 10M diameter circle that is the individual "Pilot's Area".

3.3. At the end of each task the plane must land either inside the pilots own "Pilot's Area" or outside all of the occupied "Pilot's Areas", a 100 point penalty will be awarded for landing within another "Pilot's Area". If another "Pilot's Area" is vacant due to scheduling and a plane lands within that vacant "Pilot's Area", no penalty will be given.

3.4. The CD will announce the direction of launch for each round and all pilots must launch in that direction until the plane is clear of all other launching planes. At that time the pilot may deviate from the launch direction with the stipulations explained in 3.4.1.

3.4.1. A collision or other significant disturbance to another launching plane due to a pilot re-directing his flight path will result in 0 points for the offending pilot for that round.

3.5. Landings must be in the direction of the launch direction on the downwind side of the "Pilot's Area". Landings interfering with a launching pilot will encounter a 100 point penalty. If a pilot overflies his "Pilot's Area" on landing and lands on the upwind side of the circle, no penalty will be given as long as it did not interfere with a launching pilots attempt to launch.

3.6. Plane retrieval out of the "Pilot's Area" is permitted but if adjacent pilots are on landing approach, the downed plane's retriever must wait until the retrieval lane is clear of incoming aircraft. It is the pilot's timer's responsibility to warn any retrieving person of a plane on landing approach.

4. Aircraft Specifications:

4.1. Sailplanes with a maximum wingspan of 80 inches are permitted.

4.2. Any number of control functions is permitted.

4.3. If available, on board stabilization systems must be set to zero gain.

4.4. Varios are permitted (same as in all TD events in AMA)

4.5. Aircraft "Vital Safety" data may be downloaded to the transmitter or other devise for a pilots warning if

a system failure is eminent. (Battery Voltage, Motor current, ESC temp etc.)

5. Tasks Selection:
   - 5.1. 2, 4 and 6 minutes maximum flights in any order with three launches within a14 minute window. Partial times count for scoring.
   - 5.2. Two 6 minute maximum flights with two launches within a 13 minute window. Partial times count for scoring.
   - 5.3. 2, 4 and 6 minutes maximum flights in order with three launches within a 14 minute window. Partial times count for scoring.
   - 5.4. Last Flight Round
     - 5.4.1. Three Launches maximum within a 12 minute window
     - 5.4.2. Last flight counts
     - 5.4.3. Max flight is limited to 10 minutes.
     - 5.4.4. It is not necessary for the pilot to announce the target time prior to launch.
   - 5.5. Three four (4) minute flights in a 14 minute window with a maximum of four launches. Partial times count for scoring and the three highest scores will be recorded.
   - 5.6. Poker
     - 5.6.1. Four (4) flights in a 10 minute window
     - 5.6.2. Each competitor has four flights to achieve or exceed up to three target times. Before the first launch of a new target, each competitor announces a target time to the official timekeeper.
     - 5.6.3. He can then perform only one launch to reach or exceed, this time. If the target is reached or exceeded, then the target time is credited and the competitor can announce the next target time, which may be lower, equal to or higher, before he launches the model sailplane for the next flight.
     - 5.6.4. If the target time is not reached, the announced target flight time cannot be changed or scored. The competitor may try to reach the announced target flight time until the end of the working time with the remaining of his four launches, if any are available. Towards the end of the working time, and if the previous time has been accomplished, the competitor must still announce a real time specified in minutes and/or seconds. Calling only “until the end of the working time” is not permitted.
     - 5.6.5. The achieved target times are added together to make the round score.
   - 5.7. All up Last Down with no Round Window
     - 5.7.1. There will be three separate tasks that must be flow in unison with all competitors meaning all competitors must launch within a 3 second window of the organizer’s acoustic signal. After each task is complete the pilot will have 30 seconds to land or receive a zero for that task. Launching after the 3 second window will also zero that task.
     - 5.7.2. The time for each task will be four (4) minutes.
     - 5.7.3. The timer starts the watch at launch not the acoustic signal.
     - 5.7.4. The prep time for the next task after the 30 second landing window is 60 seconds.

5.7.5. The score is the accumulation of the score for each of the three tasks minus penalties plus bonus points.

6. Optional Scoring Option:

6.1. Low Altitude Shut-off Bonus

6.1.1. There are two different launch altitudes available for each round, one being 100 M and the other being 60M.

6.1.2. The pilot selects one of the two shut-off altitudes prior to the round start and tells his timer to record the BONUS if he chooses the 60M height. The pilot cannot change the launch selection during the round. It will be assumed the launch height will be 100M unless the pilot declares the BONUS round prior to the first launch of the round.

6.1.3. The assigned tasks are then flown using the lower or higher launch height.

6.1.4. The high altitude shut-off score will be scored as normal without additions.

6.1.5. The low altitude shut-off selection will award 20 additional points per task to the round score. For example if there are three tasks for the round the additional bonus will be 60 points, if there are two tasks the bonus will be 40 points. (This function will add strategic value and excitement to the contest and replace the ability to have bonus points for landings like an AMA TD contest.)

7. Optional Group Selection: Seeded MOM

7.1. The initial round will have the groups selected using normal distribution methods and scored as detailed in 2.1 or 6.1.

7.2. The group assignments after the first round will be done based on the accumulated score of the previous round(s) and not by random distribution. The highest scoring groups will be flown last and the lowest scoring groups will be flown first.

8. Bonus and Penalty Assessments Example:

8.1. Any penalty points incurred will be subtracted from the pilot's round score

8.2. Example:

8.2.1.	Piot's flight Score	= 530
8.2.2.	Pilots Bonus Points	= 040
8.2.3.	Pilots Adjusted Score	= 570
8.2.4.	Pilot's Penalties	= 100
8.2.5.	Pilot's Final Round Score	= 470

9. Appendix: Scoring Program and Rules:

9.1. Note: A scoring program for this event is available on www.tailwindgliders.com by Curtis Suter and it has been tested in several contests and performs very well. The program does not support Seeded MOM so you will have to roll your own if you choose to score this way.

9.2. The rules for this event will be housed on www.gdshs.org under the "Contest Information" section in the navigation bar.

9.3. It is my plan to be the "Keeper of the TALES Rules" and as I did when I authored the Nostalgia rules will, after a time of trial in the field by as many clubs as possible, initiate a voting process that will take place to either accept the rules as is or modify them to satisfy the competitors. The initial trial should last at least a year so clubs can schedule events,

competitors can build or buy planes to compete in several of these club contests so legitimate contest information can be formulated and tested. As soon as possible after the trial period an AMA Rules Change Proposal will be made to include this event into the AMA Rule Book.

9.4. It is not the intent to limit the tasks shown above in Section 5 for the contest so the Contest Director can invent other tasks if so desired. It is possible to enter new tasks into the scoring program in the Tasks sheet but it is advised to keep the number of launches to four or less. This is done so that motor batteries do not have to be swapped during a round.

PSS Candidate

Dassault Aviation Mirage F1

The Dassault Mirage F1 began development in the 1960s as a successor to the Mirage III family, eventually taking precedence over the larger F2 which was being devloped at the same time. The F1 entered service with the French Air Force in late 1974 as an all-weather interceptor. It continued in service until the arrival of the Mirage 2000.

The F1 has been exported to more than 12 nations and has been involved in a number of armed conflicts.

Interestingly, the Mirage F1 is of about the same size as the Dassault Aviation Mirage III and Mirage 5, both delta-winged aircraft. However, the F1 has a shorter take-off run and its approach speed is roughly 25% less than the Mirage III. The F1 wing is fitted with both double-slotted trailing edge flaps and full-span leading edge slats, the latter being automatically operated to reduce the aircraft's turn radius during combat.

The Mirage F1C was produced in a large number of variants including the F1B, a two-seat version, which added about 12" to the length of the fuselage. The F1C shown on the plans included here, is one of several export versions of the aircraft. These aircraft were sold to Spain, Greece, Morooco, Jordon, Kuwait, and South Africa. This should provide modellers with a large variety of color schemes and national emblems. Additionally, Air Force Magazine has just published an article describing the procurement of a large number of F1s by Textron.

Textron Procures World's Largest Privately-Owned Supersonic Fleet

9/19/2017 Amy McCullough *Air Force Magazine*

Textron Airborne Solutions has acquired 63 Mirage F1 aircraft formerly owned by the French Air Force, making it the "world's largest private supersonic air force," said Jeffrey Parker, chief executive officer of the Airborne Tactical Advantage Company (ATAC), which was bought by Textron last year in anticipation of a rapidly-growing contracted Red Air market.

Of the 63 aircraft, the company plans to fly between 45 and 50 aircraft for Red Air. The remaining aircraft will most likely be used for spare parts or as reserves if the company needs to bring additional aircraft online.

As the Air Force looks to solve a growing pilot shortage, the service is looking to hire out nearly 40,000 hours of Red Air. The multi-award contract is expected in January 2019. It will cover 27,234 sorties per year at 11 bases, including 11,250 hours, or 7,500 sorties per year, at Nellis AFB, home of the U.S. Air Force Weapons School.

In order to keep Red Air an organic USAF capability, Air Combat Command boss Gen. Mike Holmes told reporters at ASC17 he'd have to trade an operational fighter squadron for an aggressor squadron and that's not something he's willing to do. He said eventually he would like to see that capability brought back into the service, but that's a long way off.

ATAC, which has flown nearly 50,000 hours of contracted adversary air — mostly for the U.S. Navy — since the late 1990s, is hoping its most recent procurement will give it a leg up in that competition. "Industry is going to be working really hard to address the full requirement for the Air Force because it's a massive requirement and it requires a whole lot of airplanes. I think the calculations we ran were about 140 to 150 aircraft will be required to satisfy the Air Force requirement. And aircraft are a limiting factor when standing up and responding to these requirements because there is a finite number of them available and supportable in the world," Parker told *Air Force Magazine*.

Though the third-generation Mirage fleet was built in the 1980s, Parker said the aircraft have "a lot of life left and are highly upgradable, which is key."

The company plans to overhaul the aircraft's avionics and do other modifications that are specifically catered to USAF requirements, which are still being finalized.

Holmes said the service is currently working to take advantage of the work the Navy has already done on contracted aggressor air and intends to finalize its own requirements this fall.

Overall, the Textron package included 63 jets, 151 spare engines, and six million spare parts and equipment. Company officials said they are still looking to procure additional aircraft, though any future fleets likely would be smaller. "It's a massive package and we intend to maximize these aircraft for the emerging requirements," said Parker.

Work will be conducted in Europe and the U.S., though company officials could not give specifics on the U.S. locations because negotiations are still underway.

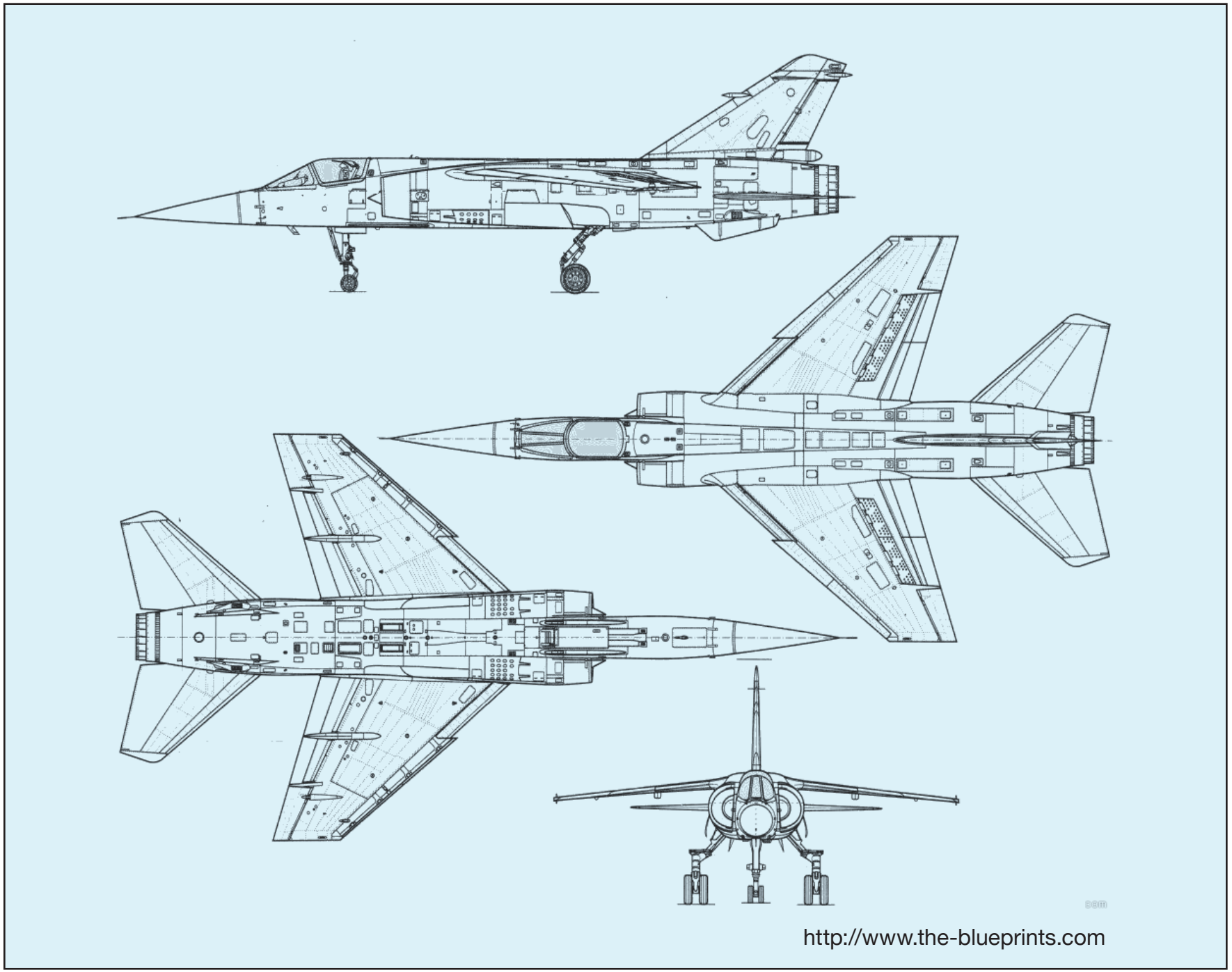
It's not clear exactly how much the Air Force plans to spend on the aggressor contracts, but it will be several billion dollars, said Parker. Even that is significantly cheaper than keeping the capability in house. "Historically, we've been anywhere from half to one-third the cost of the aircraft we are flying against," said Parker.

Parker acknowledged that others in industry were attempting to procure the French fleet. Though he didn't specify any specific competitors, Draken International recently announced it had closed a deal with the Spanish Air Force for 20 Mirage F1 fighters, which will complement its existing fleet currently flying on contract at Nellis, supporting the Air Warfare Center.

General characteristics

Crew:	1
Length:	15.30 m (50 ft 2½ in)
Wingspan:	8.40 m (27 ft 6¾ in)
Height:	4.50 m (14 ft 9 in)
Wing area:	25.00 m^2 (269.1 ft^2)

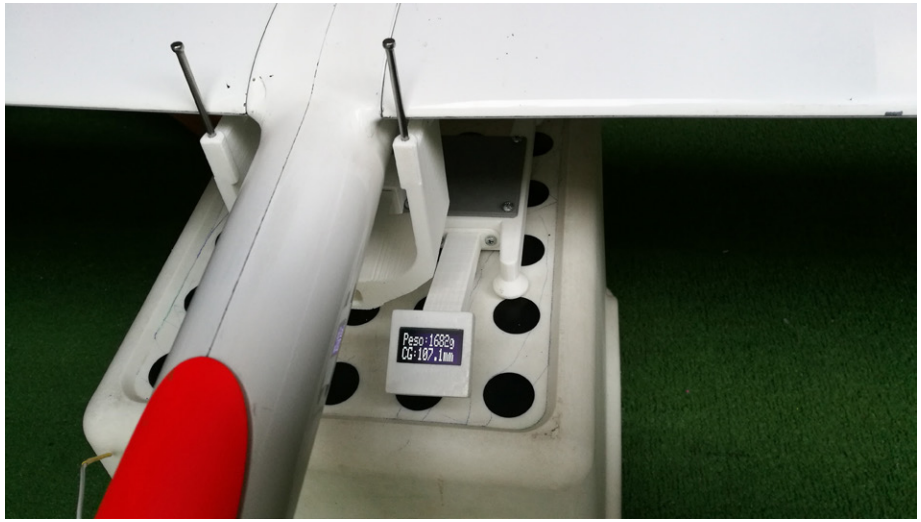
Maximum speed: Mach 2.2 (2,338 km/h,[110] 1,262 knots, 1,453 mph) at 11,000 m (36,090 ft)



http://www.the-blueprints.com

GliderCG

Marco, glidercg.info@gmail.com



GliderCG is the essential tool that every RC soaring enthusiast would like to have in his workshop. It replaces all those tedious pivotal center of gravity balances that turn the plane centering into a veritable torture.

Unlike the existing center of gravity balances, based on the balancing of the sailplane on a fulcrum, GliderCG uses the barycenter formula to obtain the precise calculation of the CG without having to balance your sailplanes with the risks to the integrity of them.

Overview:

Based on the original design and development of Olav Kalhovd, GliderCG is a Center of Gravity digital balance device for F5j, F3F, F3J and F3K gliders of up to 5Kg /11 lbs. It is able to provide the exact information of where the CoG is located on your glider through a screen that also provides information of the glider total weight.

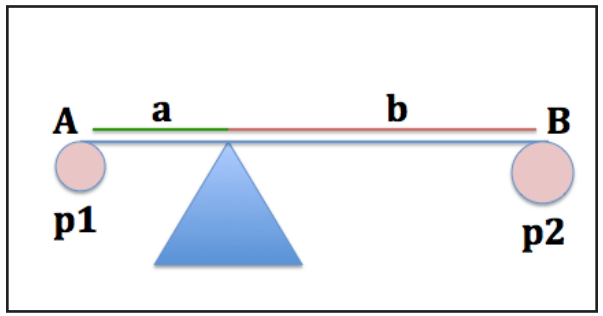
Concept:

The concept is based on the barycentre theorem, where the position of the CoG is calculated by solving the equations:

$$a \times p1 = b \times p2 \text{ and}$$
$$a + b = K \text{ constant}$$

(K is known for the manufacture of the scale).

Simply place the glider on the GliderCG unit and know your CG, without having to make balances or mark the wings for supporting them in precarious structures.



Once the glider is placed in the device, we can vary the center of gravity by moving the battery for example and GliderCG will automatically inform you of the new center of gravity.

Easy and simple.

Price:

GliderCG Price is 150€ + Shipping. GliderCG is located in Spain, so the estimated shipping cost inside Euro is below 20€. The shipping cost for Australia is about 28€. The shipping cost for Taiwan is 28€.

GliderCG details:
https://www.facebook.com/glidercg
https://glidercg.wordpress.com

Available soon, a bigger GliderCG device (as shown in the photo at upper right and far right) called GliderCG Plus for F5G and bigger gliders up to 15-20Kg/33-44 lbs. and fuselages up to 160mm wide and 140mm high.

Specifications:

Power supply: 9v DC, 6LR61.
Approximate consumption: 60mAh.
Recommended maximum weight 5Kg.

Maximum fuselage size allowed:
54mm W x 69mm H

Device Dimensions:
150mm H x 150mm W x 235mm D

All mechanical parts have been manufactured in PLA through a 3D printing process.


Ariel Creciente 2013