Radio Controlled Soaring Digest

May 2016

Vol. 33, No. 5

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Front cover: Fred Marie flying his own design 33% Ka8b at Mt. Leinster in Ireland. Ralph McCarthy spotting.
<islandmodels.ie/index.php/scale-gliders/1-3-scale-ka8b-detail>
Photo by Sverrir Gunnlaugsson
Canon EOS 70D, ISO 800, 1/2500 sec., f8, 35mm

Back cover: A few mates enjoy sloping at Helgafell in Iceland.
Photo by Sverrir Gunnlaugsson
Apple iPhone 6, ISO 32, 1/1400 sec., f2.2

R/C Soaring Digest

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

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In the Air

Thanks to everyone who helped make this edition of *RCSD* possible. Our appeal on FaceBook received a rapid and nearly overwhelming response.

As can be imagined, we are always appreciative of materials arriving well before the 15th of the month deadline because we are then not so rushed at the last minute. Additionally, we are nearly always in need of photos for use on the front and back covers, as well as "fill-in" images when we need to balance a page or spread.

Some submissions may be considered too short or too long by their authors, but this is not an editorial consideration. There is no submission which is too short or too long for publication in *RCSD*.

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The 2016 Plenary Meeting of the FAI Aeromodelling Commission (CIAM) was held from 08 – 09 April 2016 in Lausanne, Switzerland. The meeting took place in the Hotel Mövenpick in Ouchy.

The following is a list World Championship awards:

FAI World Championship events 2017

2017 FAI F3B World Championship for Model Gliders
F3B Senior, F3B Juniors; Jesenik (CZE) 06 – 13 August 2017

2017 FAI F3K World Championship for Model Gliders
F3K Seniors, F3K Juniors; Lviv (UKR) 24 – 30 July. 2017

FAI World Championship events 2018

2018 FAI F3J World Championship for Model Gliders
F3J Seniors, F3J Juniors; Buzau (ROU) July or August 2018

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Time to build another sailplane!

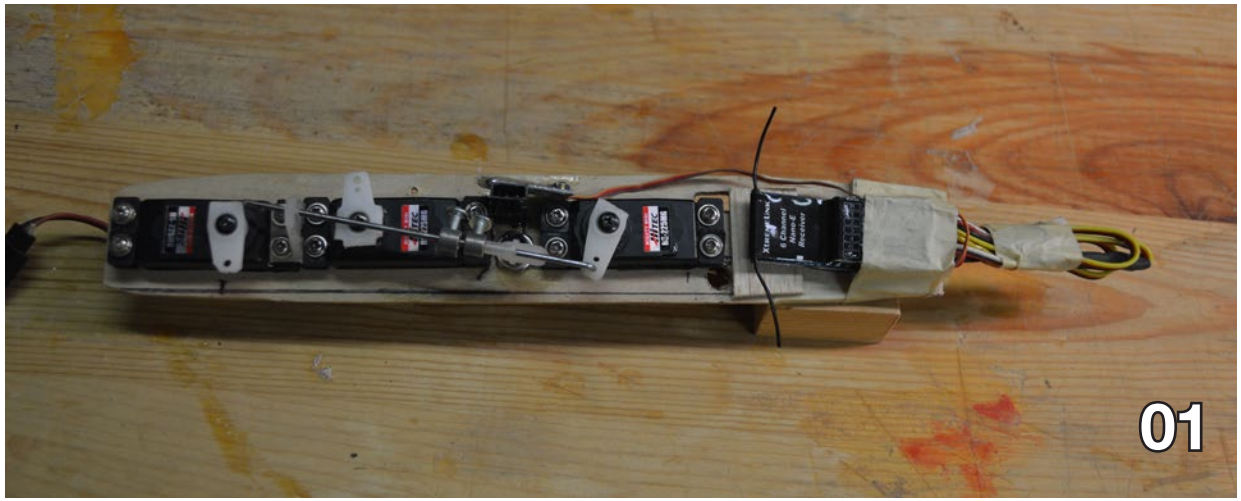
LilAn Omega Part 4

Chuck Anderson, chucka12@outlook.com

LilAn Omega Fuselage

The primary function of a model sailplane fuselage is to contain the radios and servos with minimum drag while supporting the tail surfaces in the correct location relative to the wing. The rest is styling. All LilAn II to date have been built on a fuselage laid up in a temporary mold. When I acquired a CLM-Pro fuselage, I decided to build a new version around a modern fuselage with pylon mounted wing.

The biggest problem was installing servos in the Pro fuselage through the very small hatch. Some builders mount small servos in the tail but I am not willing to compromise handling qualities by mounting even very light servos so far from the center of gravity.



Therefore I fell back on a removable servo tray installed as far forward as possible. I mounted the XPS Nano receiver on the back of the servo tray and let servo leads extend back inside the fuselage making a removable servo and receiver package that can be worked on and tested on the work bench (Photo 01).

I had intended to use Hitec 85 servos but when I found that I would have to mount them in line to get the servo tray through the fuselage hatch, I realized that I could use Hitec 225mg servos I already had for my LilAn and wouldn't need to buy more servos.
I can no longer drive long distances to contests and don't need a backup sailplane so I decided to use the wing of my LilAn No. 8 instead of building a new wing.

That wing used pull strings to actuate the spoilers so I had the choice of cutting open the wing to install servos or finding a way to mount a third spoiler servo in the pod.

There was plenty of room for another servo behind the rudder and stab servos, so I built a longer servo tray and worked out a way of routing the pull strings.

Even with three Hitec 225 servos mounted on the tray, it would still fit through the pod hatch (Photo 2).

The servo tray is mounted on rails epoxied to the pod high enough to provide room under the servos for the servo leads (Photo 3).

Taping the servo wires to the bottom of the servos make installing and removing the tray easier.

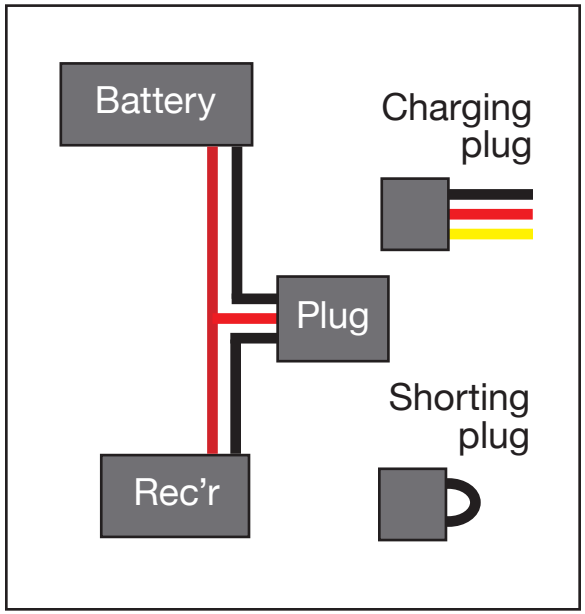
Mounting the servo tray on rails allows the servos to be slid back far enough to install and remove the battery by removing two screws and disconnecting the pushrods (Photos 4 and 5). Not very convenient but I seldom have to replace the battery.

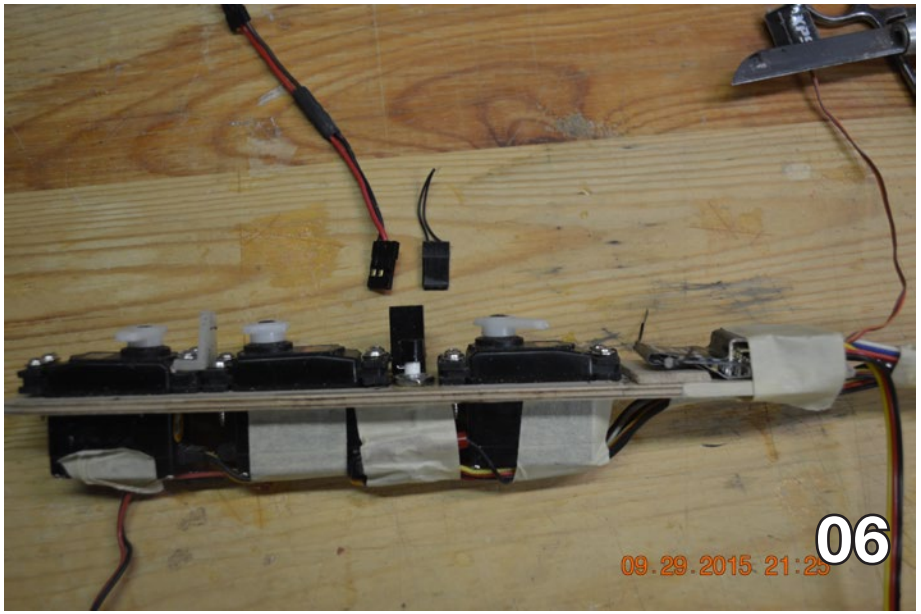
If I had built a new wing for Omega, I would have put spoiler servos in the wing and mounted the receiver in a more accessible position behind the rudder servo.

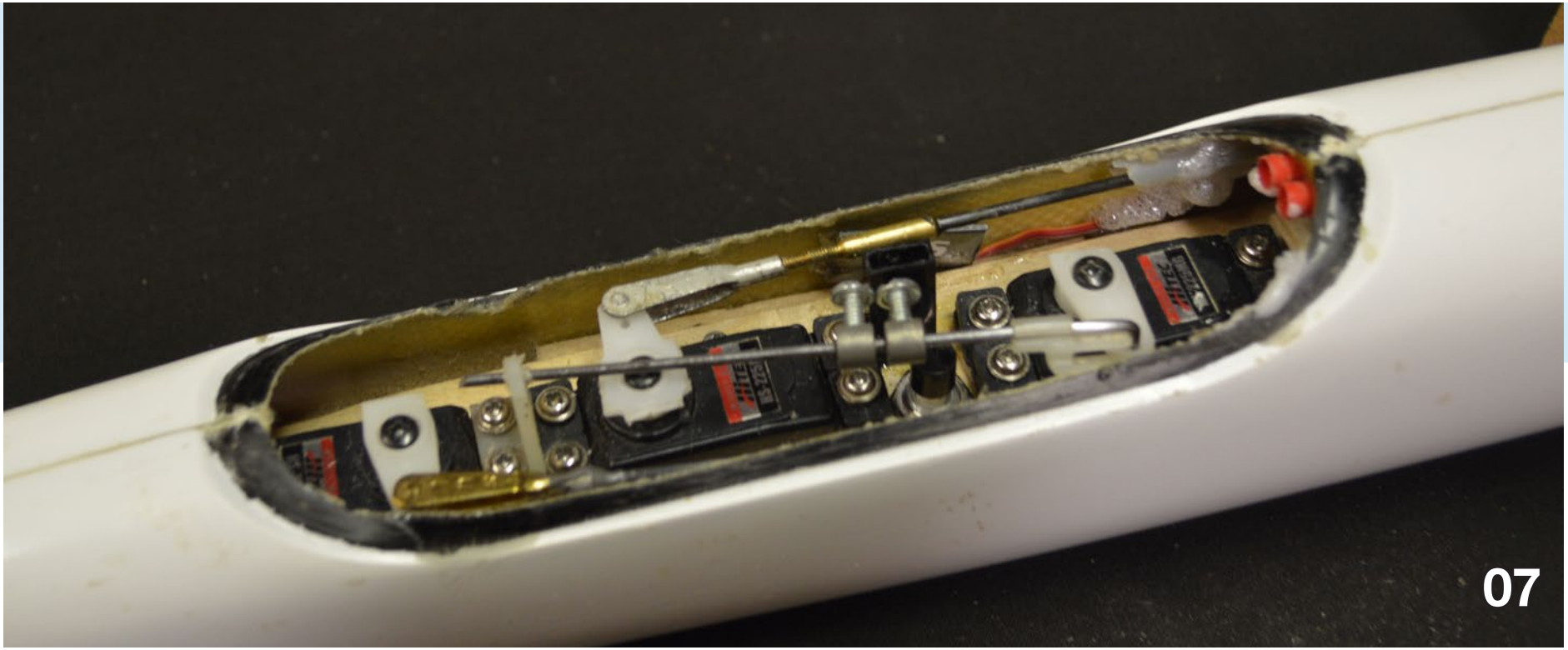
The most unreliable component of radios has always been the power switch, so the modern solution to the switch problem has been to plug and unplug the battery.

My solution to the switch problem is to go back to a shorting plug in the battery lead as we did 50 years ago.

Splicing a female servo connector in the negative power lead let me use a shorting plug in the socket to connect the battery. I also use the center pin in the socket to charge the battery through an adapter made by splicing two servo leads salvaged from deceased servos to connect the charger. See the wiring diagram at right and Photo 6.







Since the receiver is not accessible for inserting the binding plug, I use a remote bind button. “Two Useful Gadgets” in the March 2015 issue of *RC Soaring Digest* shows how I did it.

The shorting plug socket and bind button are mounted on the servo tray between the rudder and spoiler servo.

A TattleTale voltage monitor is mounted on the back of the shorting plug socket with double sided carpet tape.

The spoilers are actuated by pull strings hooked to screws clamping wheel collars to the spoiler pushrod. The forward end of the spoiler pushrod slides through a nylon guide bolted to the servo tray with the stab servo rear mounting screws (Photo 7).

Wing Mount

If I were building a new wing for the CLM-Pro pod, the front wing bolt would be located just ahead of the spar and bolt to a T-nut in the tow hook mounting pad.

Since I was using an existing wing, I installed a 10-32 T-nut as far forward as possible in the pylon.

I cut a small access hole in the top of the pylon. The T-nut was epoxied to a ½ inch wide strip of plywood. The front of the tab was sanded back to the T-nut.

Forceps were used to insert the T-nut plywood tab inside the pylon to determine how far forward the T-nut can be mounted.

The tab and pylon were marked at the most forward position of the tab.

Place the tab on the top of the pylon and line up the marks to locate the most forward position for the wing bolt. Mark

the location of the bolt and drill a hole for the T-nut just aft of the mark.

Drill a vertical hole for the wing bolt through a 3/4 inch thick block. Cut the head off a two inch long bolt and thread it into the T-nut.

The inside of the pylon is not smooth and may not be parallel to the top surface so apply a generous amount of filled slow curing epoxy on the top of the plywood holding the T-nut.

Use forceps to insert the bolt through the hold in the pylon. Thread the bolt through the pine block and use the washer and nut to clamp the T-nut to the pylon until the epoxy cures.

The block holds the bolt vertical while the epoxy is curing (Photos 8 and 9).

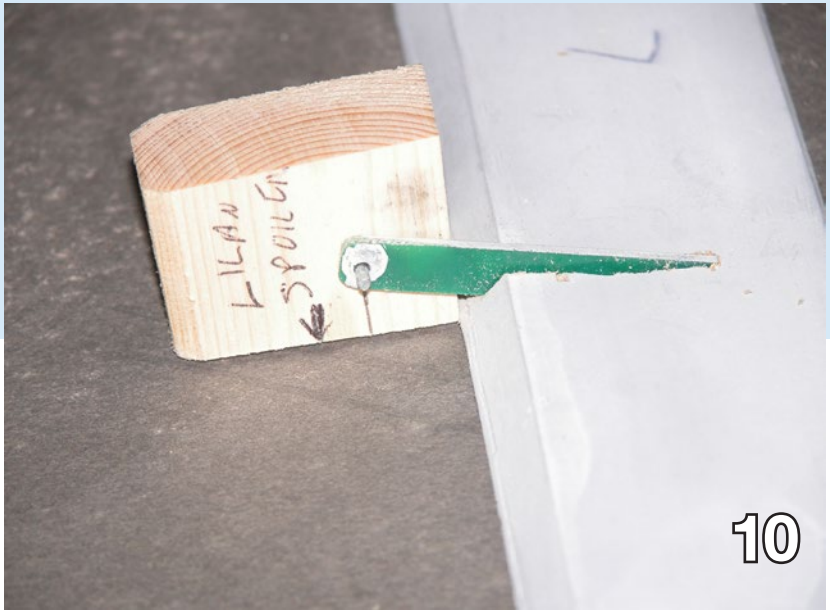
Make a T-nut tab for the rear wing bolt and locate the most aft possible location for the T-nut.

Measured the distance from the forward wing bolt to the aft location and transferred that dimension to the wing. Drill a 1/8 inch pilot hole through the bolt rib 1/2 in. forward of the mark.

The rear wing bolt T-nut is installed after the tail boom is installed and the wing is aligned with the tail surfaces.

The adjustable tow hook is mounted on a 1/8 inch plywood mounting pad contoured to match the interior of the pod.

The nominal position of the tow hook is positioned just ahead of 30% MAC for the first launch. After initial adjustments of the CG and control throws are made, move the tow hook aft until the desired launch is achieved.



Spoiler String Connection

I don't recommend using pull strings to actuate spoilers for the CLM-Pro fuselage, but since the wing already had pull strings, I decided to keep them.

Spoilers are 2 in. wide by 12.75 in. long cut from balsa aileron stock. Since both spoilers are actuated with the same servo, a jig is used to locate the spoiler horns at identical locations relative to the hinge while epoxying them to the spoilers (Photo 10).

The pull string is pinned to the spoiler horn with a toothpick (Photo 11).

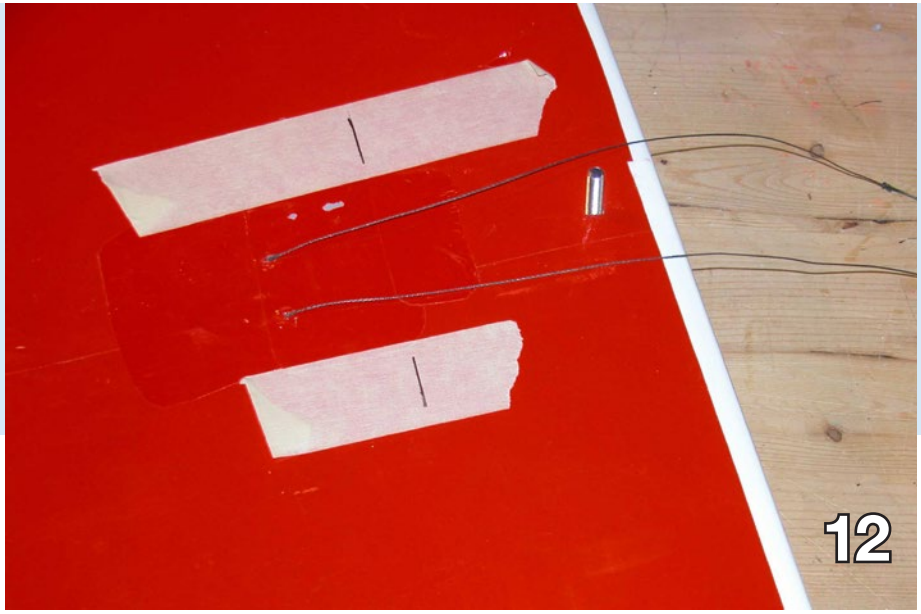
Stren fishing line makes good spoiler strings and the magnet is half of the smallest cabinet bar magnet I could find at Lowes.

The spoiler hinge tape provides enough force to close the spoiler and the magnet holds the spoiler closed.

The spoiler should open smoothly and close with a snap as the magnet contacts the knife blade used for an anchor. Flexible pull strings or too strong magnets can cause problems in getting smooth operation.

The pull string guide tubes exited the bottom of the center wing panel inside the original fuselage (Photo 12). The spoiler string exited the wing in the top of the CLM-Pro pylon so it was only necessary to accurately locate the pylon spoiler string guide tubes.

The outer sheath from a nylon push rod was used as a string guide tubes from the pylon to the servo tray (Photos 13 and 14). The guide tube exits the pylon top at the shallowest possible angle to give a smooth entrance for the pull string.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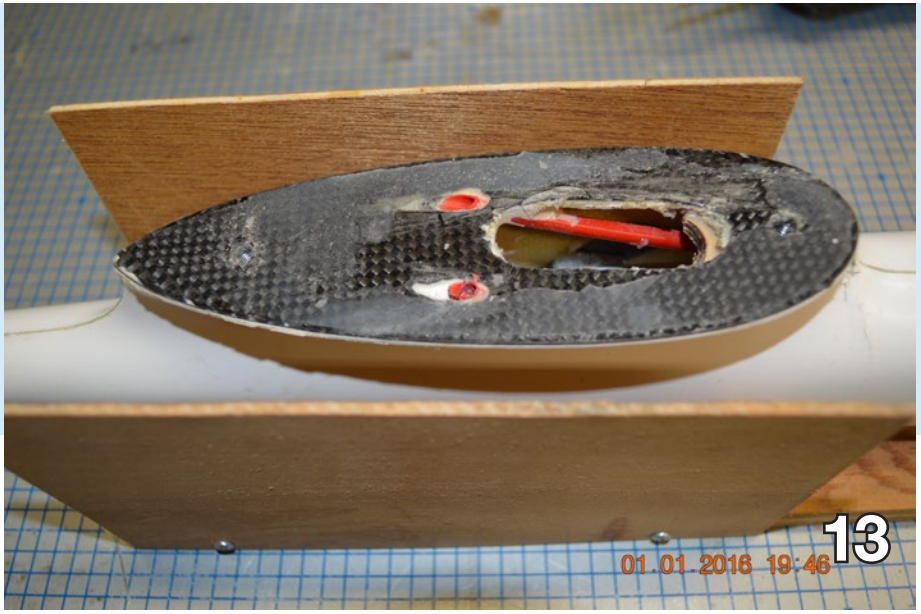
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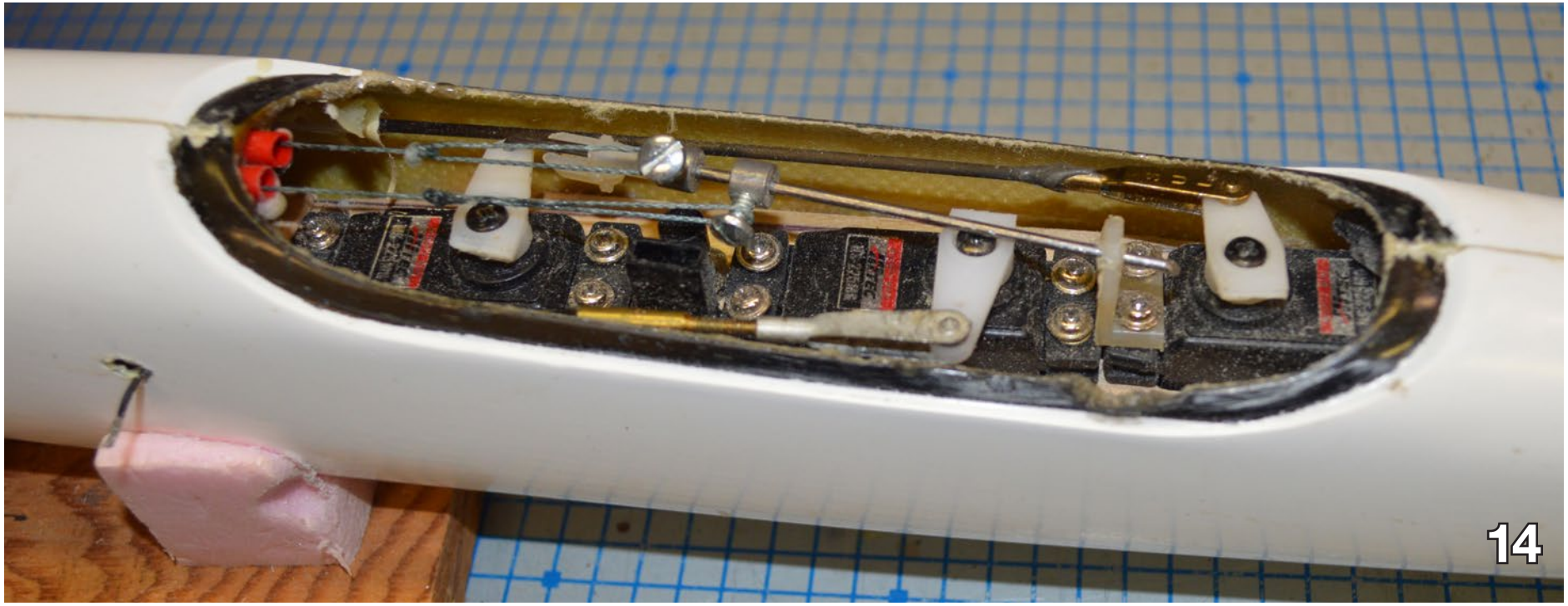
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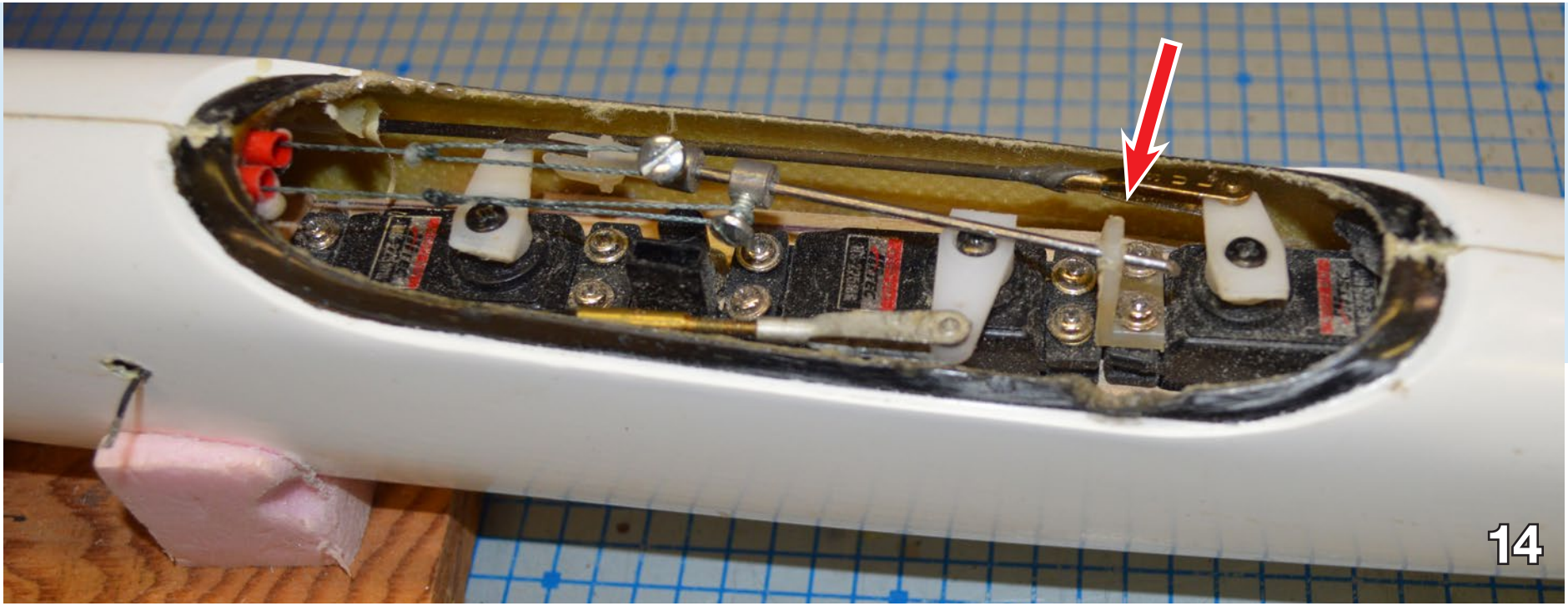


The guide tube is glued to the inside of the pylon and at the aft edge of the hatch with filled epoxy.

The spoiler strings are hooked to ¼ inch long 4-40 screws that clamp wheel collars to the spoiler servo pushrod.

The front of the spoiler servo pushrod slides through a nylon tab bolted to the servo tray with the stab servo mounting screws (Photo 14. For convenience, duplicated above with nylon tab identified by a red arrow).

Adjust the wheel collars until the spoilers start to open at the same time.

Small differences in spoiler angle when fully open have little effect on drag or roll. (I documented this in a wind tunnel test over 40 years ago.)

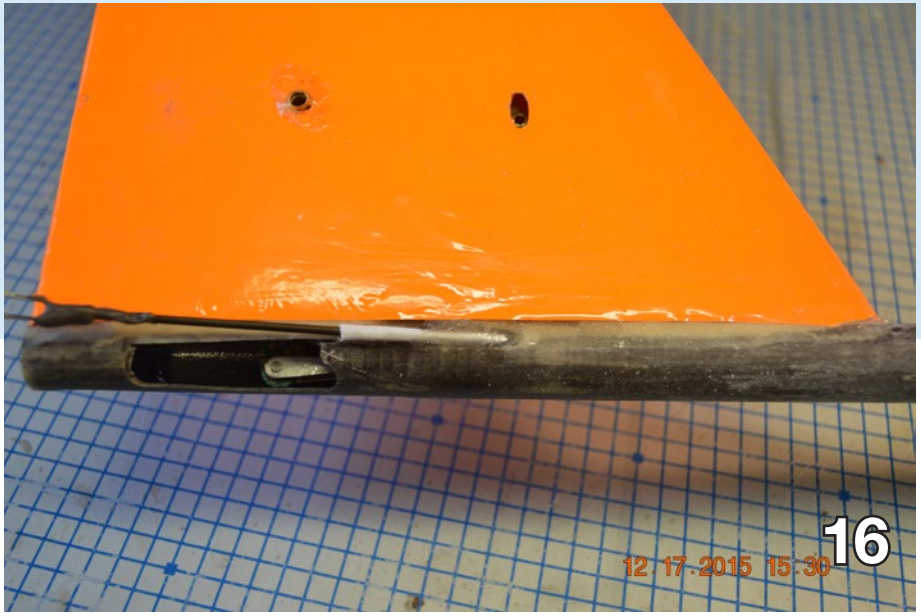
I prefer to use pull strings for several reasons.

- I like the ease of independent mechanical adjustment of each spoiler made possible by using wheel collars on the spoiler servo pushrod to connect the pull strings.
- Sailplanes always need more nose weight and mounting servos in the wing far from the center of gravity hurts handling qualities.
- Installing servos aft of the wing spar is also bad for wing flutter.

LilAn Alpha had spoilers in the outboard panels to reduce the effects of spoiler wake on pitch when deployed so there was no feasible way of using pull strings.

Moving the spoilers to the center wing let me use strings and required more stab-spoiler mixing.

LilAn II does require mixing but not nearly as much as the Super Ava.



Fin Installation.

The Omega fin is located the same distance aft of the CG as the previous LilAn II and glued to the boom while laying on the work bench.

It is necessary to get the centerline of the fin lined up with the centerline of the boom.

Cut the boom length to 31.5 inches and cut a slot for the stab horn (Photo 15).

Sand the base of the fin until the pushrod hole in the stab horn is on the centerline of the boom.

The boom is 1 inch in diameter at the front and smaller than the fin thickness at the end.

The fin is 5/8 inches thick so locate and mark the location where the boom diameter is 5/8 inches.

Shim the boom at the mark half the difference (3/16 inch) to make the centerline of the boom parallel to the work bench.

The side of the fin is flat aft of the stab pivot so shimming the fin 3/16 inch above the workbench will place the centerline of the fin on the boom centerline while epoxying the fin to the boom. Rotate the boom until the stab horn is in the center of the boom before the epoxy sets up.

After the epoxy has set up, cut a hatch in the side of the boom large enough to remove the stab horn (Photo 16).

Reinforce the joint with 2 oz glass cloth. The glass should extend up the fin to just above the stab wires. The stab horn hatch is covered with tape to keep dirt and grass out while flying.

Carbon fiber pushrods were purchased from CST.

The pushrod sheaths are held against the side of the boom by a foam bulkhead near the front of the fin.

The rudder pushrod is on the right horizontal centerline on the side of the rudder horn and the stab pushrod on the left side.

The pushrod sheaths are glued to the inside of the boom with White Gorilla glue far enough aft of the front to allow the boom to slide on the pod.

The pushrod sheaths are glued to the pod with White Gorilla glue after the pushrods are connected to the servos.

Trammeling is aligning the parts of an airplane and was more important in the wood and fabric era where even fuselage frames may have had turnbuckles for adjustment.

For model sailplanes, trammeling means aligning the tail surfaces to the wing. Spending a little extra time aligning everything pays off with easier trimming that minimizes trim change with airspeed.

The first step is to align the fin and boom with the pod. The CLM-Pro pod and boom were built in precision molds and only needed to align the fin vertical with the wing.

Earlier LilAn fuselages were laid up in temporary molds and the pod needed to be aligned with the boom as well as aligning the fin vertical to the wing.

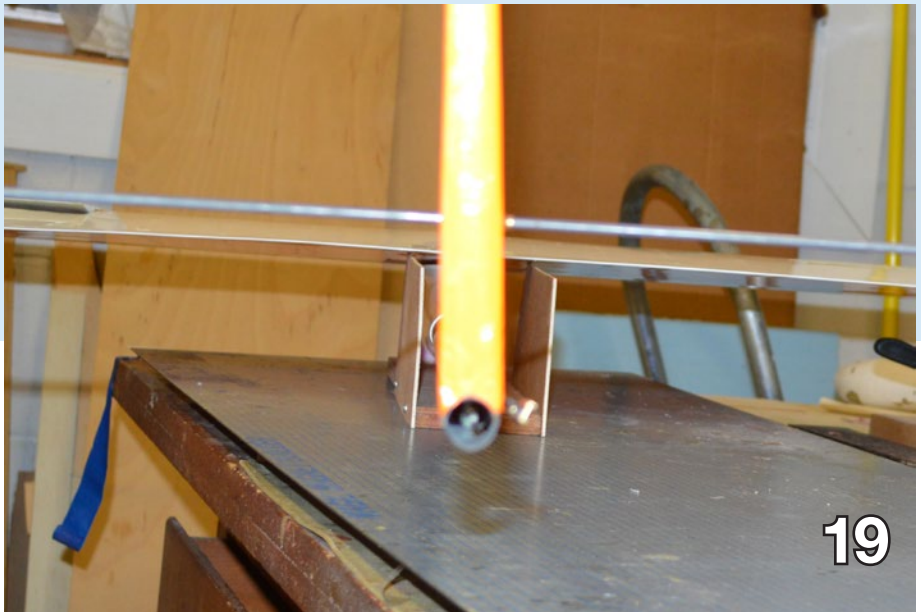
Glue a 48 inch string to the top of the boom at the fin leading edge. Pull the string tight over the forward wing bolt and shift the boom until the string lines up with the centerline of the boom.

Bolt the wing to the pod with the forward bolt and level in roll with a bubble on the wing spar.

Coat the joint on the pod with slow curing epoxy and slide the tail boom in place. Rotate the boom until the fin is vertical.

Use the string to align the boom with the pod centerline.

When the pod and boom are aligned, check that the centerline of the fin is vertical. A carpenter speed square is handy for this (Photo 17). When satisfied with the pod and boom alignment, let the epoxy completely cure before moving.



Square the fin to the wing and mark the rear wing bolt by drilling through the rear bolt pilot hole.

The wing is squared with the fin by setting each end of center wing panel trailing edge equal distance from the fin leading edge.

The string used to align the pod and boom or a ruler can be used to align the wing (Photo 18).

Drill though the aft wing bolt pilot hole with a 1/8 inch drill to mark the location of the aft wing bolt T-nut. Install the T-nut for the rear wing bolt the same way as the front wing bolt T-nut.

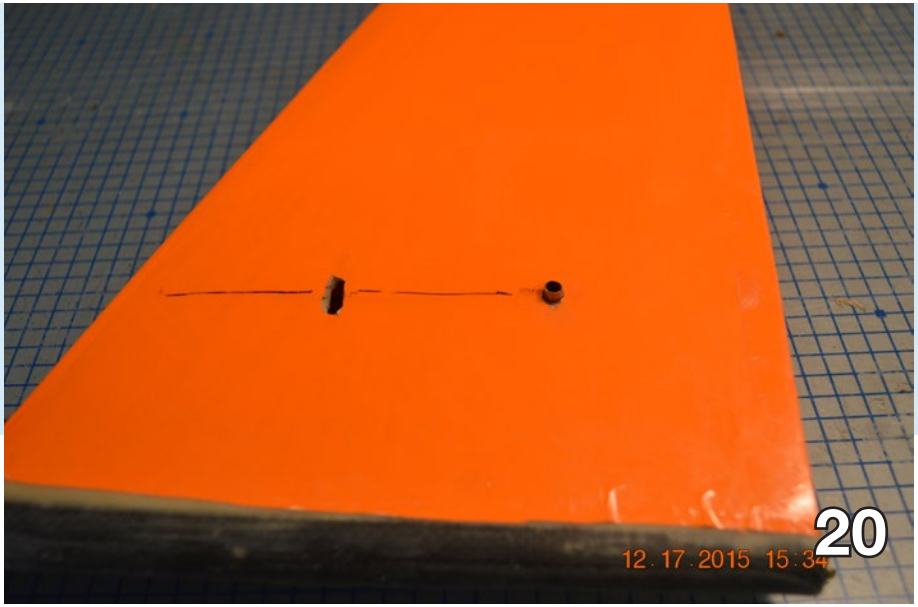
In free flight days, we adjusted glide circle with stab tilt. Stab tilt influence on glide trim changes with airspeed so be sure that the stab is parallel with the wing.

Set the stab tilt by inserting a long 1/8 inch music wire in the fin stab pivot bearing and setting it parallel to the center wing trailing edge. If necessary to adjust the tilt, enlarge the stab bearing hole in one side of the fin.

Check that the wire is square to the fin with a square or triangle. When satisfied that the stab wire is square to the fin and parallel to the wing, glue the stab bearing to the fin with epoxy (Photo 19).

Do not use CA because it may seep into the stab horn and lock it to the bearing.

After the epoxy cures, check that the stab horn moves freely on the bearing.



The stab pivot bearing is 5/32 inch brass tubing and should extend about 1/16 inch outside the fin to proved a gluing surface (Photo 20). Add a 1/8 inch soft balsa rib to the stab root with a 5/32 hole for the stab bearing and sand to match the fin contour.

The stab reference line is parallel to the lower surface of the wing and is located by clamping a square aluminum tube to the bottom of the wing and draw a line parallel to the aluminum tube through the stab pivot bearing.

The reference line is used to set the stab for the first launch. After the model is trimmed for normal thermaling, replace the reference with a new reference line to provide a quick reference for checking stab trim before the first launch each day.

First Flight

First Flight in May 2014 *RC Soaring Digest* covers my way of setting up and completing the first few flights on new models.

Initial setup involves setting control throws and CG.

Rudder can be set to zero deflection by eyeballing it parallel to the fin. Setting all moving stab zero is a little more difficult and I set it parallel to the bottom of the wing for the first flight. I set low rate control throws to the recommended deflections and high rate at 50% more and make the first launch in low rate.

For sailplanes, I set the CG to 30% mean aerodynamic chord for the first flight. Nose heavy is safe as long as there is enough up elevator power to flare for landing while a tail heavy untrimmed model may not survive for a second flight.

For sailplanes, the tow hook should be at the forward edge of the recommended location. Tow hook too far forward results in a poor launch while too far aft can produce a pop off and crash.

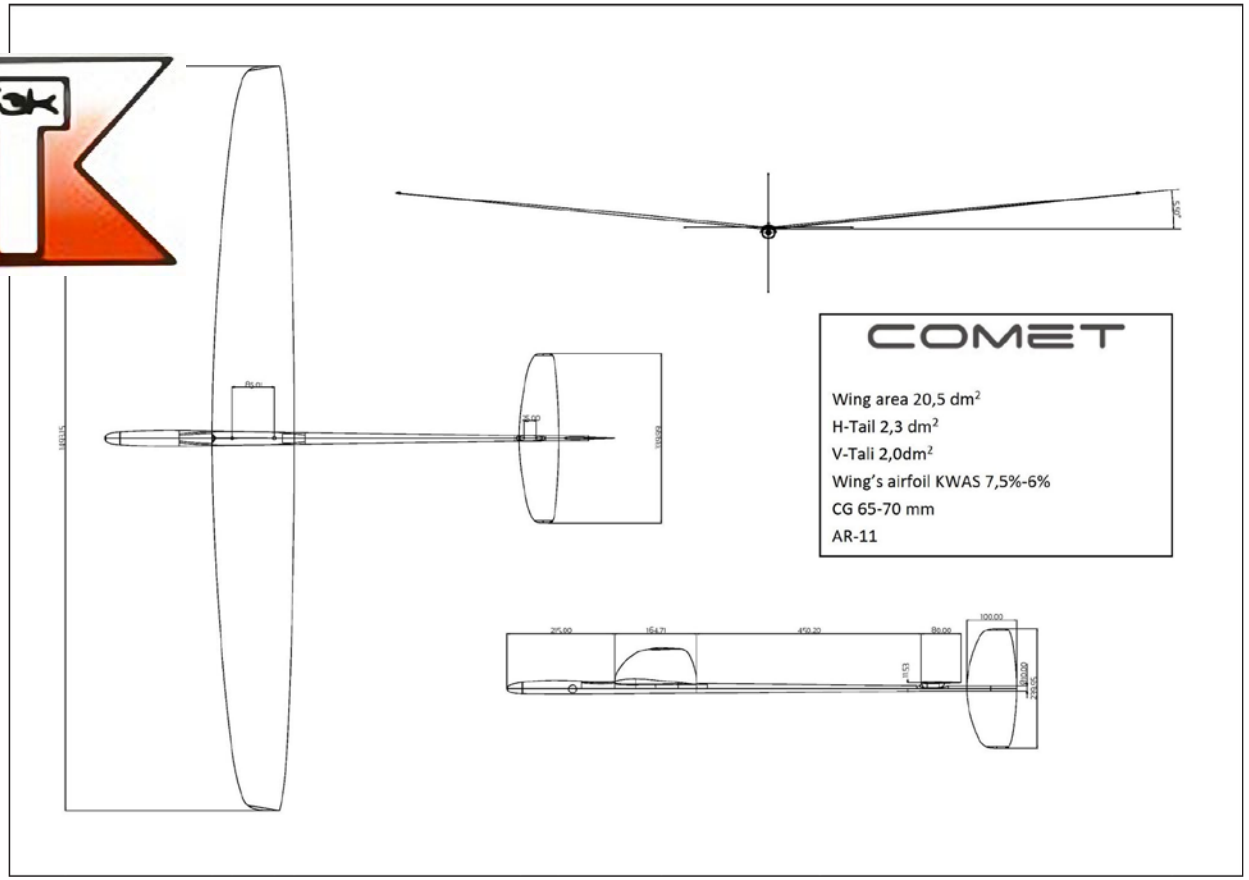
A hand glide will usually tell if the stab is close enough for the first flight.

Initial setup I use is taken from LilAn 4, the model I fly most often. Ballast was added to the nose until the model balanced 3.31 inches aft of the leading edge (30% MAC). Tow hook for the initial launch is set at the MAC. Elevator throw is plus and minus ½ inch at the trailing edge in high rate and rudder throw is plus and minus 2 inches at the trailing edge in high rate.

LilAn is two 5000 year old words from Sumer. “Lil” means Sky while “An” is God so LilAn means Sky God. “Omega” means last and this is my last winch launched sailplane. Any future sailplanes I design will have electric motors.

My thermal soaring sailplanes have come full circle. My first RC sailplane design was the Tern, a power pod thermal model published in the May 1966 issue of *RC Modeler*. In fifty years I have progressed from a Cox Baby Bee 02 engine with a 5 inch plastic prop to an electric motor with a 12 inch folding prop. They accomplish the same thing. They get my sailplane high enough to search for a thermal.

Chuck's daughter, Leigh, holding LilAn Omega in front of Chuck's 1957 Corvette (restored in 1994).



Piece	Weight
Fuselage	33 – 36 g
Wing	115 – 122 g
Tail parts	12 – 13 g

COMET is the newest RC model produced by Polish company - EKSPERT by Adam Siama. Project involved usage of actual F3K DLG trends and technologies. Calculation was made by Kamil Wijatkowski, technological part was prepared by company owner - Adam Siama (multiple Champion of Poland and III place in general classification of F3K World Cup 2013).

In November 2014 the prototype has been developed, which after many flights and comparison to the theoretical assumptions was put into production.

Wing

Aerofoil was prepared specially for COMET, with thickness from 7,5% (8 cm) to 6% on wingtips. Purpose of such characteristics was to achieve thicker wing in part where servos are mounted to allow usage size of up to 11,5 mm (for example Futaba 3154, Sanwa 94803 etc.).

Such solution helps to reduce costs of model's equipment by using less expensive servos.

COMET's wing was constructed based on traditional "sandwich" building type, which allows to achieve very smooth surface that helps to precisely imitate the aerofoil.

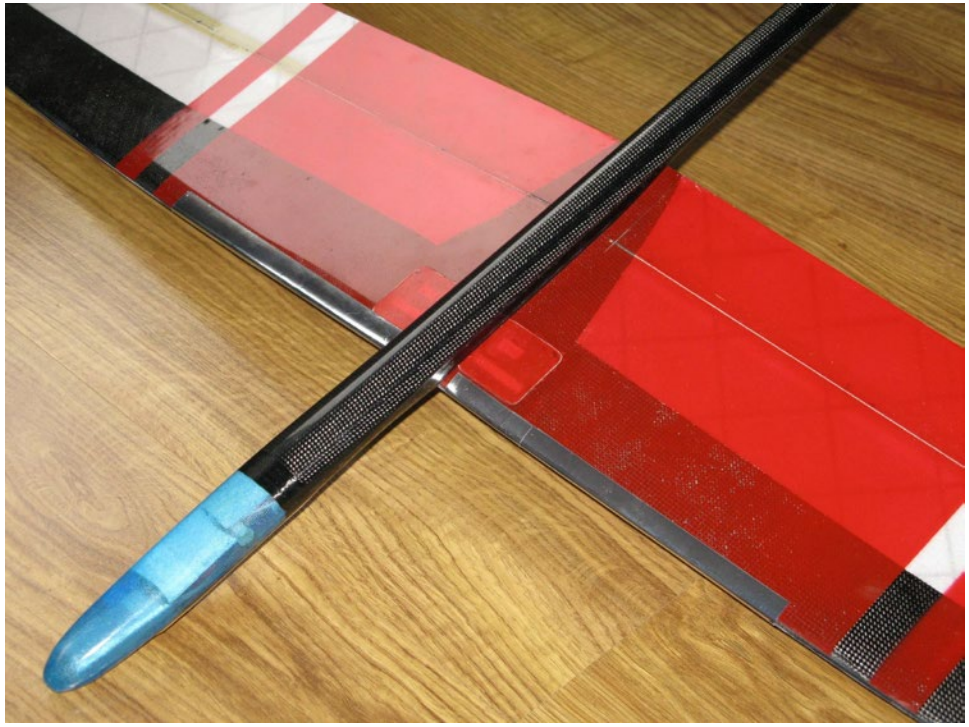
As encapsulant material has been used 1 mm Rohacell in IFG 31 or IGF 51 - variants according to chosen version

of model. The unique design of wing guarantees high rigidity while maintaining a low weight.

Fuselage

According to trends and conclusions taken from prototype tests, fuselage was shortened in back and front part, to lower its weight without any compromises in terms of stiffness.

Front part was designed to fit in horizontally servos in size of HS 45HB, receiver R617, two 520 mAh accumulators, regulator and the ballast.

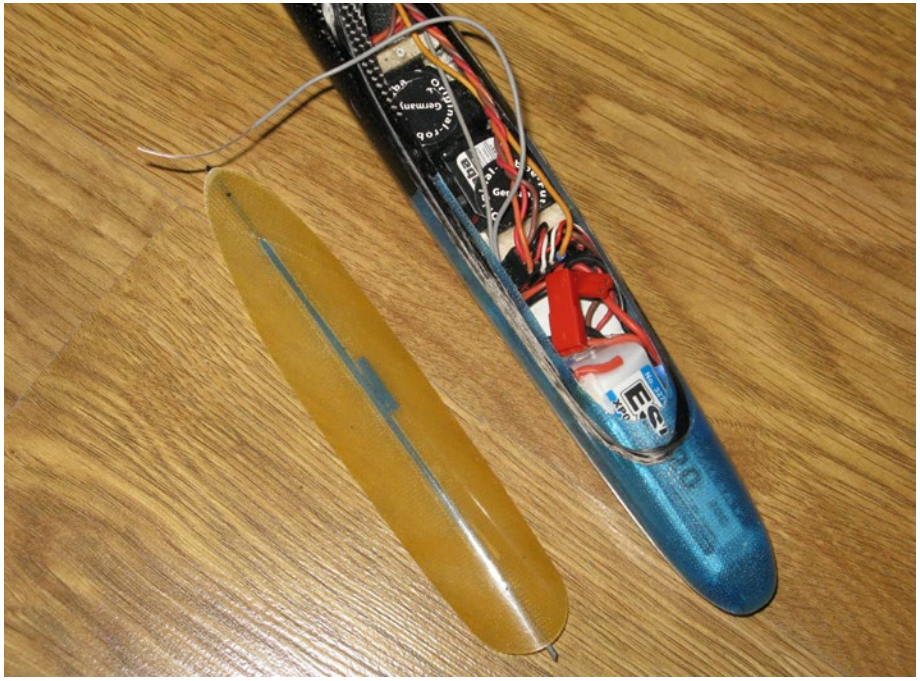


Tail parts

Core of rudder and elevator was made from Rohacell IGF 31 and fiberglass 17g/m2.

In horizontal during laminating process are drilled holes, which guarantees precise attachment to the fuse.

Vertical was also designed to ease the assembly process - by using reinforcement tube along the elevator.



Additionally, rudder is symmetrical along the fuse axis to help proper assembly to pilots throwing both with left and right hand.

More informations alongside with the instruction will be posted soon on <http://www.sklepekspert.pl>.

COMET will be priced around 520 Euros.

Web site: <http://www.sklepekspert.pl/en/>

On FaceBook: <https://www.facebook.com/COMET-F3K-DLG-419428401564729/>

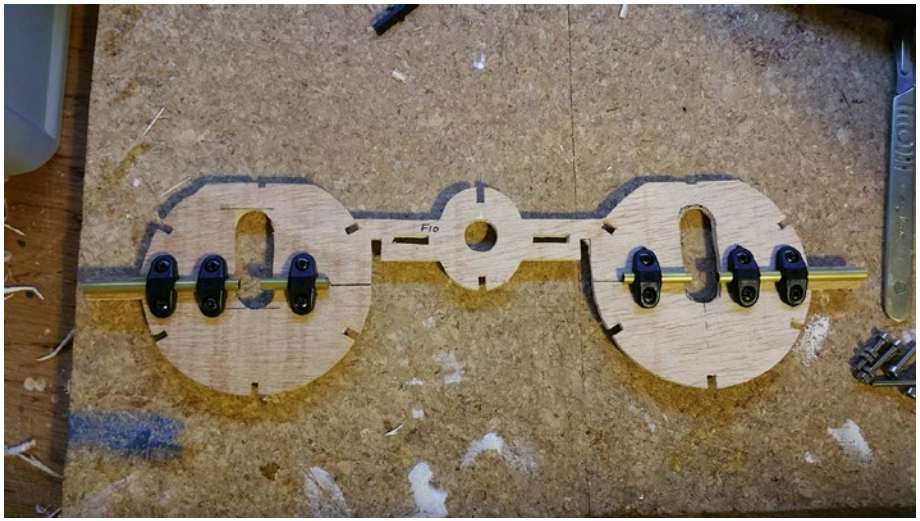
SU-27 Flanker PSS

Andy Meade, http://slopenomad.blogspot.co.uk/

Andy had already begun construction of his SU-27 when he started up his blogspot.co.uk page, so we're picking up the build in progress. Although, as you can see from the photo at right, the Flanker is completed, it has not been flown. But the maiden should be spectacular if looks are any indication.

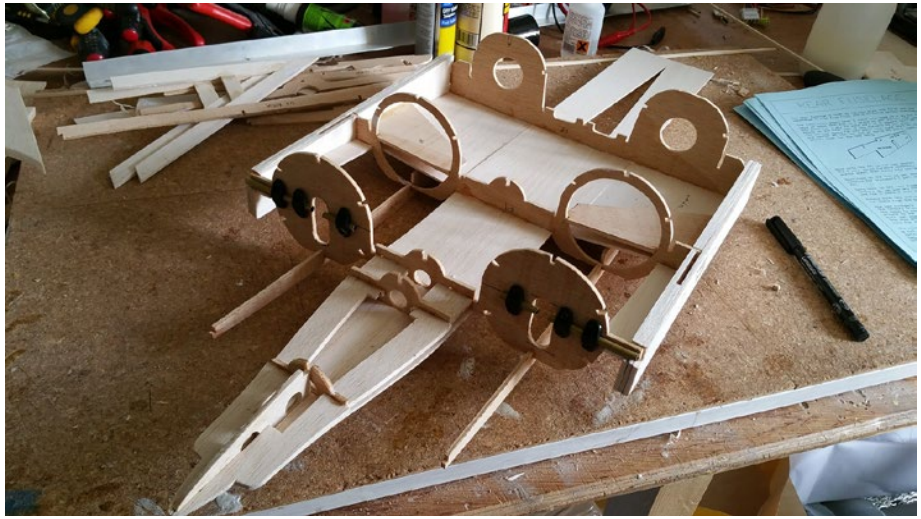
1. A bit more done now - right hand wing panel completed and joined to the left hand assembly.

2. And, as can be seen in the background, the nose section was started last night, and it got this far.
It's all coming together nicely, but I'm sure progress will slow once the planking starts!



3. The construction of the rear fuselage continues, here you can see tailplane mechanism going into the rearmost liteply former.

The brass tube has a 4.05mm ID, which is ideal for the 4mm carbon tube the tailplane halves will sit on. The gap in the centre is to accommodate the movement of the bell-cranks, in this case a nose-leg steering arm, shortened to its innermost hole. This means, of course, that each tailplane will be driven by its own servo - in this case a digital, metal-geared Corona high-voltage item. A push-rod of M2 flavour will be sheathed in a carbon tube for stiffness to drive the bellcranks, all of which needs to be finished before the sheeting and stringers can looked at.



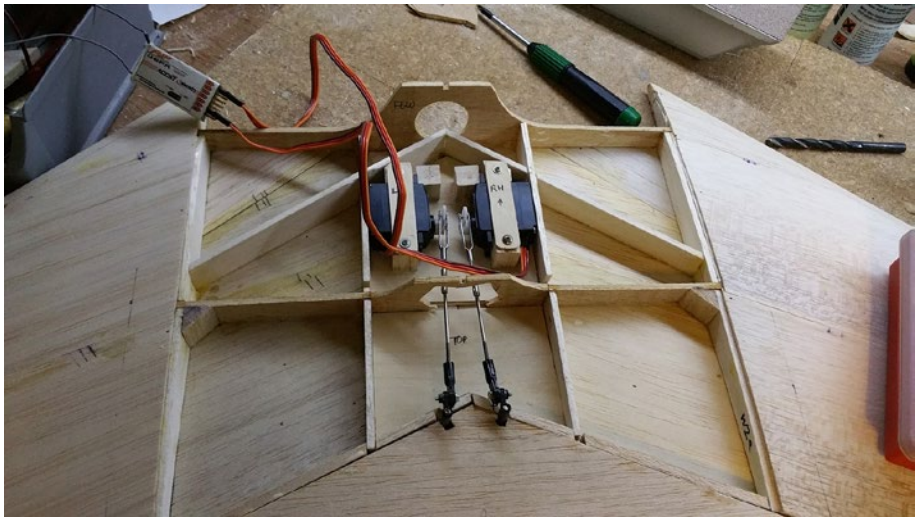
4. As promised, a picture of the rear fuselage section so far.

5. And here is the wing, now top-skinned, and leading edges drying. Ready for carving tonight.

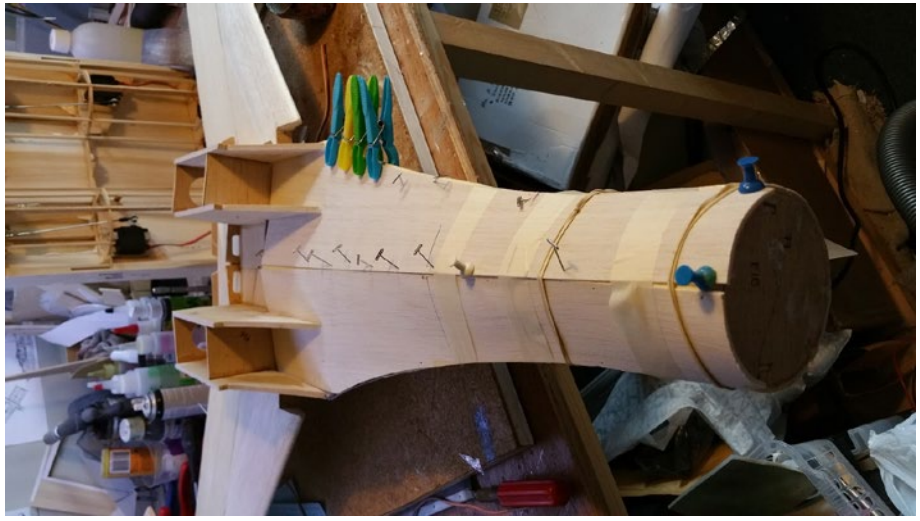
6. Here is a picture of the separate all-flying-tail servos installed in the underside of the tail section of the Su27.

I was going to stiffen the M2 rods with a carbon sleeve, but they are so short, I can't see the point, so have omitted them.

I can now move on to finalizing the sheeting on the top of the tail section, before marrying it up to the wing.



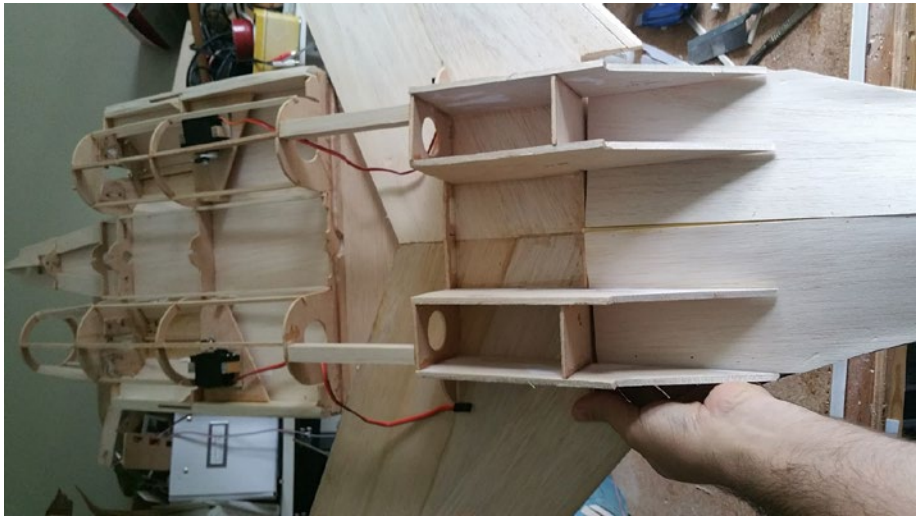
7. The Su-27 now has both tail and aileron servos installed and linkages set-up. Time to start joining these big lumps together!



8. Some shaping has started on the engine tops now too. Heavy duty carving, then splattered with lightweight filler, as usual.

9. I thought I had more pictures than this! Anyway, the nose section is firmly attached, and underside planking has started. I have actually aligned and joined the tail section now too, but as it was my birthday yesterday (40, booo!), I have managed to miss taking the photos. Ah well, I'm sure I'll get some at lunch as I give it another tickle. Coming along really nicely, I just want to get all the balsa bits on so I can get filling / carving / sanding.

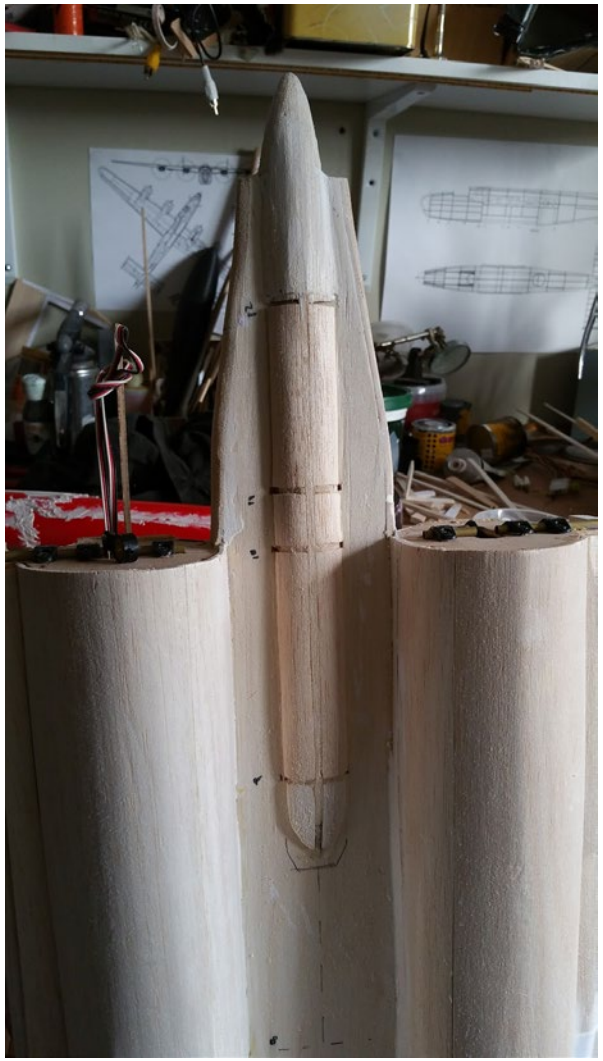
10. Here she is, now joined together. Just finishing up a few gaps in the planking and the odd balsa in-fill, then on with the major sheeting.



11. It's certainly longer than the Fulcrum!

12. The Flanker now has top and bottom planking complete, the only extras needed are the..bulging..cheek...things under the roots of the wings. These will be carved from pink foam.

13. On the underside, you can see two large black marks that denote where the hatch will be for the batteries (one for RC, one for afterburners), plus of course any ballast that needs to be chucked in the nose.



14. (Left) The build progresses nicely - lots of filler splattered here and there, a few filling blocks of pink foam squeezed in, and the sanding has started in ernest. It's all going quite well at the moment, so may even see some glass fibre applied before the year is out, which will be nice. It's all going quite well at the moment, so may even see some glass fibre applied before the year is out, which will be nice.

15. (Middle) It's all going quite well at the moment, so may even see some glass fibre applied before the year is out, which will be nice.

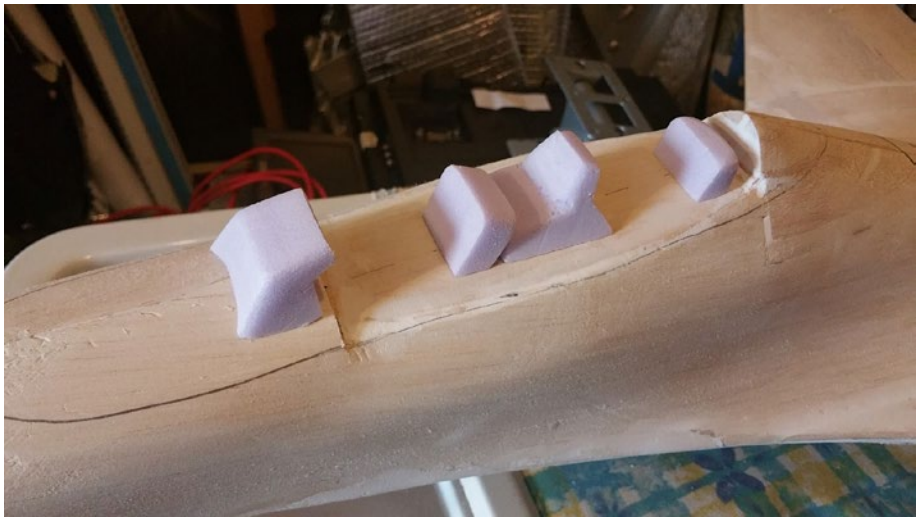
16. I have blocked out and carved the underside of the bee-sting now too. Oh, it's been filled and sanded smooth all over since then!

17. (Top above) The nose section I was quite worried about - it needed packing to obtain the correct angle but I still wasn't all that sure until the epoxy set. Anyway, I am happy with the way it turned out, and so I filled the join with car body filler. I have a bit more to do there to blend it, but it's coming along.

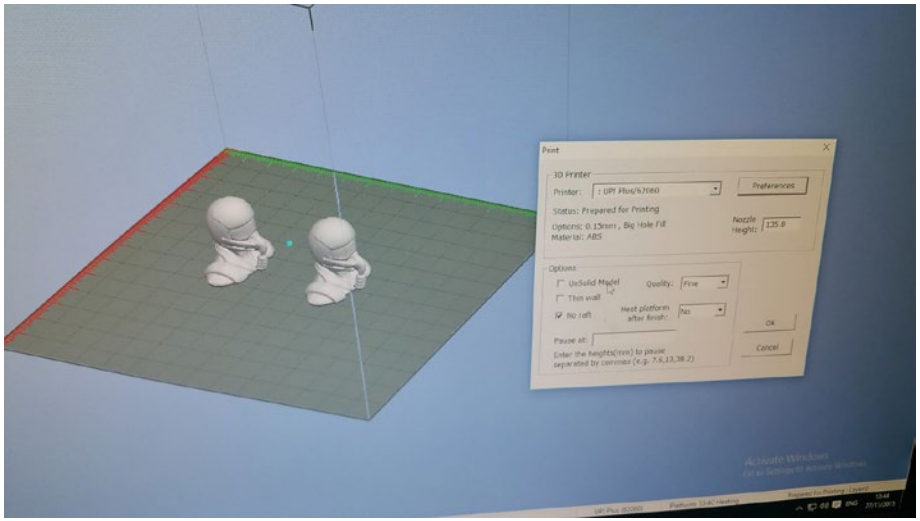
18. (Upper right) Now a general overview of the pink foam bulges under the wing roots. One side is sanded fairly well, the other yet to be filled or carved.

19. (Above) And now the other plastic bits - the exhaust nozzles.

20. (Right) A view from the rear - nice shape!



21. Well, in between waiting for filler to dry, I have been working on the cockpit. I carved this up from my favourite pink foam last night.



22. And I fired up the 3D printer at lunch time, after downloading these guys from Thingiverse.

23. Here are the ailerons taped-on, with the tailset mounted too. All the wiggly bits had a final sanding last night, and hinge points added ready for when the primer is on.

24. The wing tips have had the 1/16th inch ply end plates added to stiffen things up, and also hold the removable missile rails.

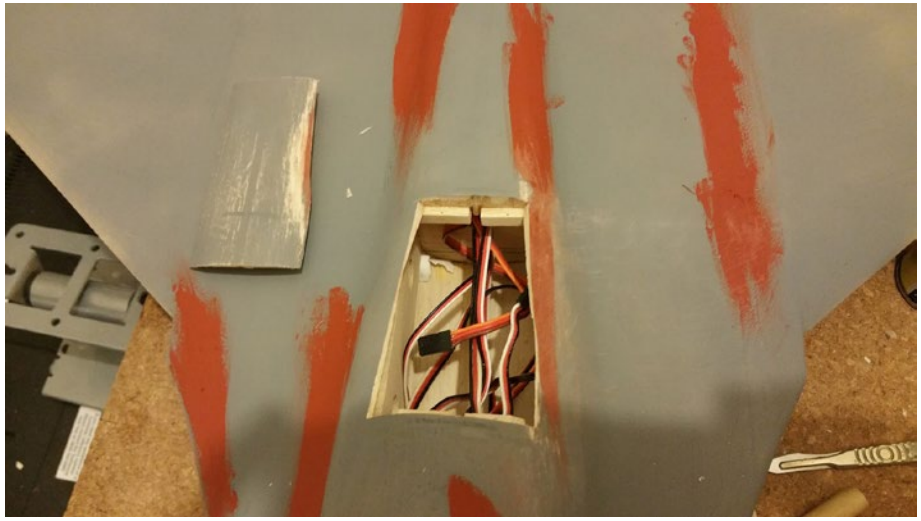
25. I did the intake blanks last night, so that's it - nothing more to cut. I started this on the 18th of October, so not too bad - 6 weeks of building to get to the glassing stage. Now... Ronseal (aka PolyC) or epoxy?

26. Well, it's hard to see here, but that's the underside of the airframe all glassed. I'm using Ronseal diamond-hard WBPC varnish, and some fairly light (no idea on weight) cloth. I really like glassing - it's so quick!

27. I braved the cold this evening and cracked on with a first guide coat of primer on the Flanker. The fins, sub fins, ailerons and elevators are now drying out with their first layer of glass too. All coming along!

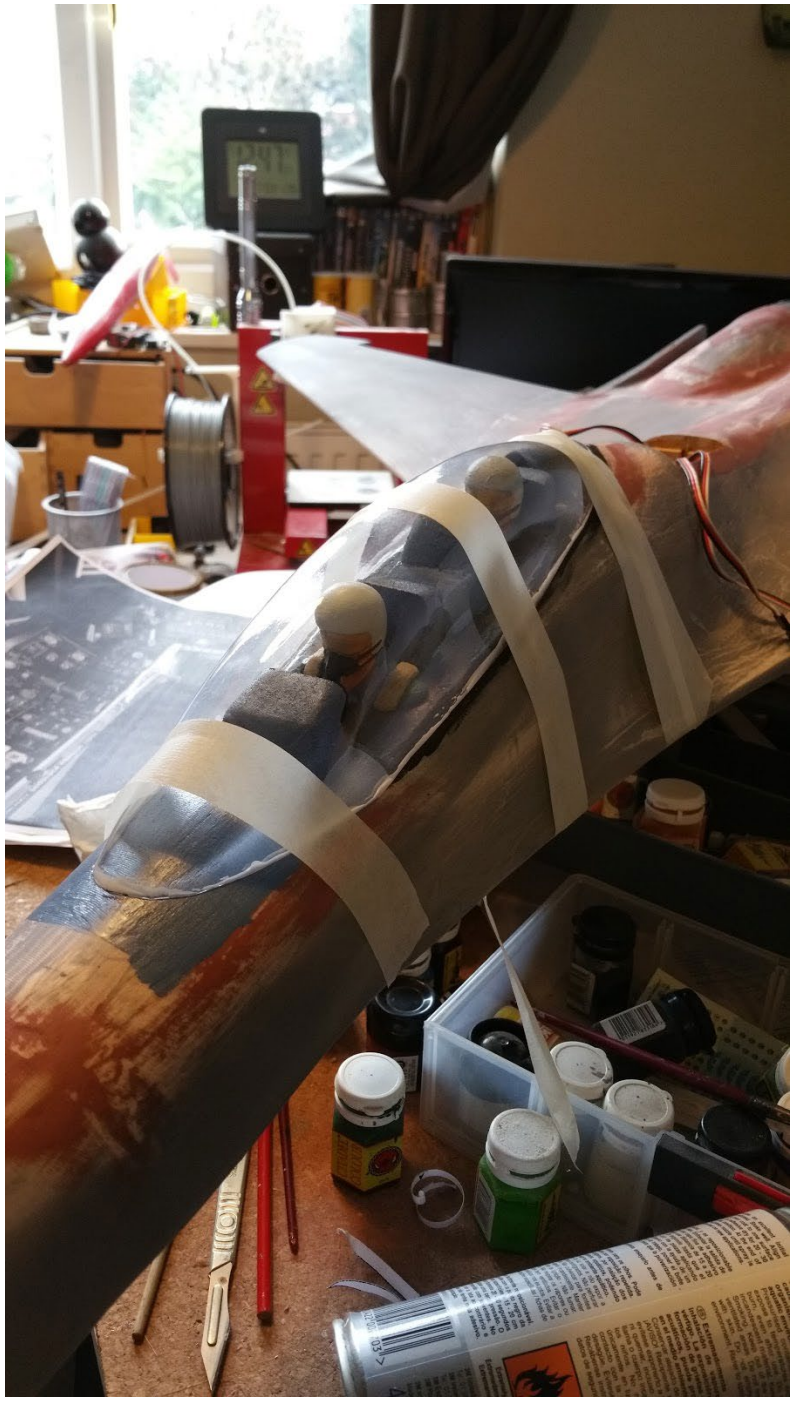
28. Not too bad I guess. I left that in front of the heater to help set the paint, then brought it inside when it was dry to the touch and the stink of the paint had lessened. So, roll her onto her back, and pick up on the black lines I'd drawn around the battery box. Spot-on for location, which is nice!

29. I then reinforced the underside of the hatch with some 1/64th" ply, added some mounting blocks inside the fus, then re-attached the hatch with servo screws. I rolled her back over, and went at it with a strong light and the red stopper / glazing putty.



30. No real surprises - pretty much where I thought all the problem areas were, I found and filled. Onto the next hatch - this time the receiver one.

A slightly wobbly line on the right hand side there! I was distracted by a dog unfortunately, and my ruler slipped a touch. Not a problem - it'll be hard to see once the camouflage is applied. Again, spot on for location - there's all my servo and power wires - great. A switch / charging jack will live in here next to the receiver. I added some blocks for support around the inside of the fuselage, but haven't decided on retaining method yet. I think it'll be a hatch-catch in the hatch, with carbon dowels at the front.



31. I managed to get a bit of spare time at lunch, so I cleaned up the cockpit area, polished the inside of the plastic, then glued and taped the cockpit on.

It should be dry by the time I get back, so with a bit of luck I will be able to do the fine line of filler around the join at some point today.

32. Flanker now fully primed, last little blobs taken care of, maybe even first top coats this weekend?

33. The first top surface coat is going on now, a light grey that will provide a basis for the two tones of blue, too.

34 & 35. As I was on my own all weekend, I took the opportunity to finished off the Flanker. A bit of spraying / panel lines / decals / lacquer, and here she is.

I'm quite happy with that, although I had / have two problems. The dark blue is too dark, and my 3M vinyl masking tape is too wide to make the more complex curves found on the full size "Blue 69." But, it's only a paint job and those can always be changed if it annoys me too much.

I had what was probably my most successful hinging session on this Flanker too. Lot of preparation never goes amiss, and always dry fit things a few times to make sure you know where to push and by how much.

Right, she's balanced now, and I only have a couple of small jobs to kill off before next weekend's PSSA meet!

_____

Ed. note:

Unfortunately, the model was damaged in transit and did not fly at the event as planned. Hopefully repairs will be made and she will eventually make it into the air.

Reversing a Brushless Motor with a 1200-pound Lathe, and Milling a Motor Mount from the Cap of an Overly Ornate Martini Shaker with a 1700-pound milling machine

Philip Randolph, amphioxus.philip@gmail.com

Tools needed:

1 - seven-foot high numerically controlled milling machine weighing approximately 1700 lbs.
1 – six-foot long numerically controlled lathe, 1200 lbs.
1 -1.5mm hex wrench, 0.37g.

Introduction:

So, two machines that each weigh as much as a Holstein milk cow. All for repairing a bothersomely crude and milk-colored hunk of foamy EasyGlider? (Moo.)

Well, there should be a moral here, as in, “Don’t.”

But ignore that.

I did.

Obviously.

This all reminds me of when a fellow CEWAMS (Chris Erikson’s Wild Arsed Mountain Slopers) spent a whole slope trip field-salvaging a foamy that had spent year up a tree, had fallen out sometime in the winter, and had been partially eaten by field mice. I’m not even attached to the EasyGlider which was the subject of repairs here.

Back when I was evangelically trying to draft four persons into the sport I got a pile of EasyGliders from local club members either cheap or free. The longest lasting of my converts was about two flights. The others’ interest was illusory.

So I had these.

And a compulsion to fix it, which was supposed to be easy.

The actual easy method of replacing a bad EasyGlider motor is to order another from Multiplex.

Then it fits.

No milling machines.

Shaft reversal for EFX Racer:

And that other project which made no sense, because I could have just looked for a motor with the shaft poking out the right end, especially since motors are almost free and the actual value of milling time was worth more than a new plane.

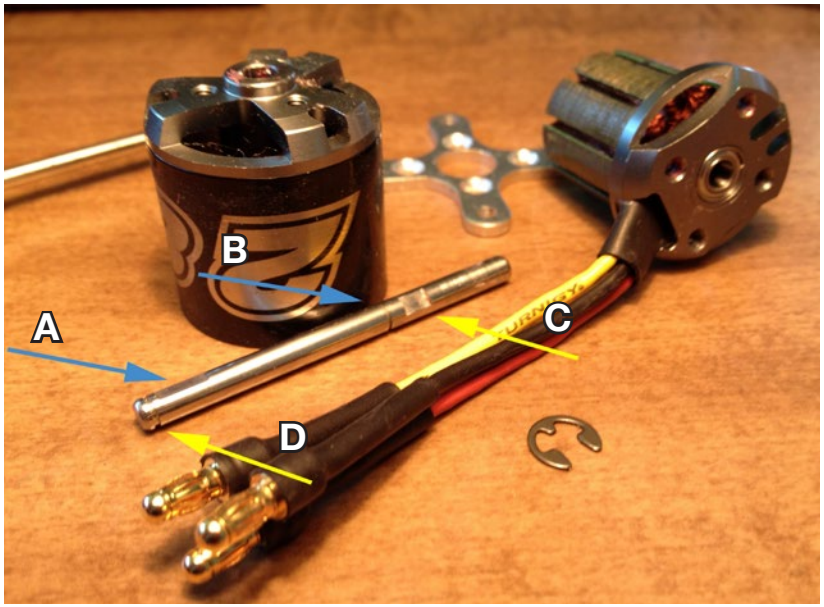
This was all to power a Durafly EFX Racer that I got motorless at a swap meet. But I wanted to fly it slower, with a folding prop, as a sloper for days when the wind was elsewhere.

So I got a lower kv motor.

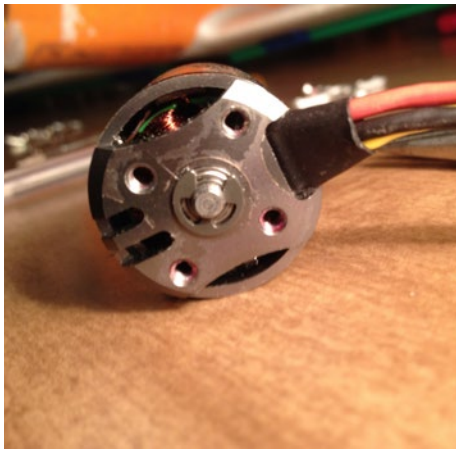
YouTube vids of shaft reversal mostly show grinding a new flat spot with a Dremel tool, and using a sleeve-collet-and-grub-screw rather than a new groove and e-clip. But with a lathe and a 0.020 bit a new groove is more elegant and leaves a longer shaft at the other end.

But those YouTube guys tawdrily assume you won't have access to an NC lathe and a .0020 bit with which to cut a new groove in the shaft for the spring clip, so ignore them.

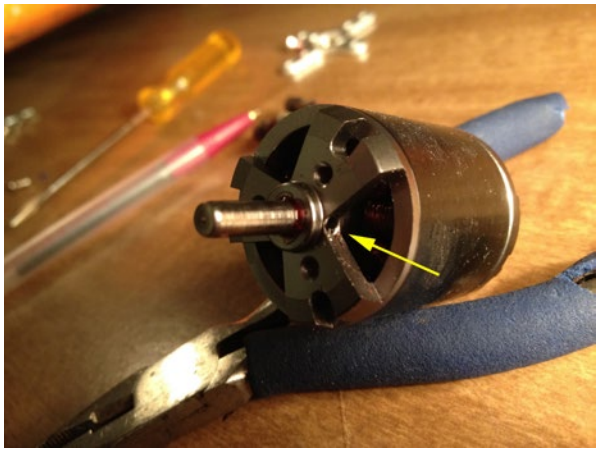
Note: A grub screw is called a set screw outside of the bloody British Commonwealth in all locales where the primary language is English, meaning the US, only.



1. The 2836 1800kv outrunner disassembled. The shaft shows the old (A) and new (C) machined flat spot and the old (B) and new (D) machined groove for the e-clip.



2. The E-clip in the new groove.



3. Grub screw (set screw in U.S.). It is over the newly milled flat spot. The Loctite was strong enough so it wasn't coming apart again, so put on your X-ray glasses.

4. Destination: A Durafly EFX Racer I picked up at a swap meet. Durafly models have a hard skin over their foam, a step up from packing tape for strength and smoothness.

Martini-mixer cap motor mount for EasyGlider:

After making a withdrawal of cash from an ATM I purchased the aforesaid titular overly ornate martini mixer from a Goodwill, which is a thrift store, for $2.99.

I got it for the cap.

I had plans of burying the cap in the nose of a Multiplex EasyGlider Electric. It had come equipped with sealed in-runner with gearbox and flew okay until a dork in a grassy field made the gearbox sound like a blender full of champagne flutes.

I figured I could mount the motor inside the cap with the shaft poking through and glue the assembly inside the nose of the Easy. The cap would protect the spinning sides of the motor from rubbing against foam and wires and would give plenty of surface area for mounting to foam.

It was all because occasionally when CEWAMS are out on some ridge the lift dies. Then it's good to have something to fly that won't care too much if it finds a rocky landing zone.

Having a buddy with a herd of cows...

Wait.

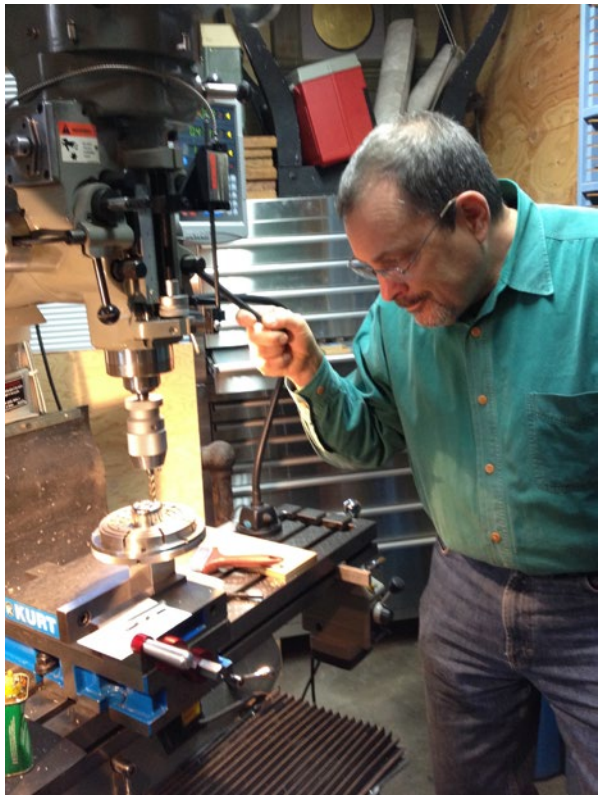
That's wrong.

Having a buddy with machines that weigh as much as a herd of cows (better), I got him to help with a bit of milling.

5: A martini shaker from Goodwill. $2.99.

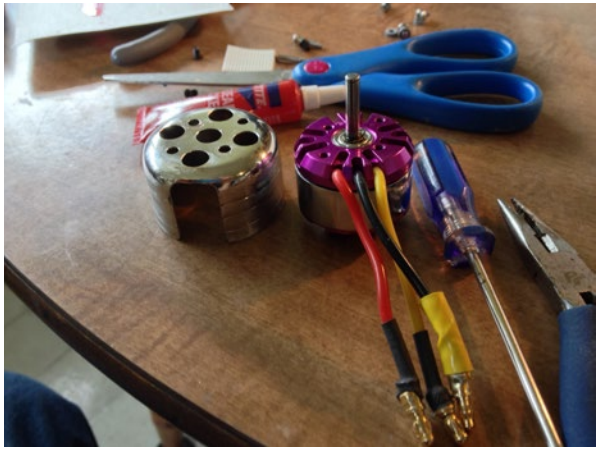
Results on the cap are pictured on the next page.

He also milled a new flat spot and a new groove for an e-clip, which is about the same thing as a c-clip, on the motor shaft.



6: Philip pretending to operate the NC milling machine. Milling and several photographs are by R. H.

7: The cap in a fuzzy concentric chuck. The fuzziness of the photo makes a softer surface for holding the cap.



8: Milled cap & motor. I salvaged this motor from a 3D plane I shouldn't have got at an RC swap meet which came with a bad speed controller. The groove at the end of the shaft shows its shaft had been reversed.

9: Martini cap and motor installed in EasyGlider Electric.

On the economics of salvaging old milk-colored foamy airplanes:

Unless you are salvaging a very special plane, or are under the illusion you are playing, don't bother.

If your time is worth anything it may be cheaper to throw the whole airplane away and buy another.

Modeling has changed from the days when any modeler would spend a hundred hours with balsa ribs.

Later, for a lot of slopers, it was packing tape on wire-cut foam.

Now stuff that may fly better is disposable.

The economics of reversing shafts:

Motors are generally so inexpensive that you should be able to find what you want inexpensively.

So a moral for the story?

As previously noted: Don't.

Joe Wurts
at the
F3J International Milang, South Australia March 12-13th 2016

Photos by Adam Fisher, adamfisher63@gmail.com

RESULTS:

1st Place - Joe Wurts - New Zealand
Maxa, JR

2nd Place - Mike O'Reilly - South Australia, Australia
Pike Perfection, Spektrum

3rd Place - Theo Arvanitakis - Victoria, Australia
Pike Perfection, Spektrum


Maxa
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AUSSIE SAILPLANE DAY

APRIL 9TH 2016, VARMS GLIDER FIELD, WANTIRNA SOUTH

Andy Smith, andysmit@netspace.net.au

The Aussie Sailplane Day was conceived to showcase models that have been built to represent Australian full size examples.

There were 21 models displayed on the day.

Owners and their models came from various locations central to the Melbourne area in Victoria.

The display was run in conjunction with V.A.R.M.S monthly aerotow meet.

Another 20-25 scale model sailplanes were active on the day.

The event was organised by Geoff Hearn.

All photographs by Andy Smith.

A group shot of the Aussie Sailplane Day participants.

Above: George Buzuleac and his ES60 Boomerang in 1/4 scale.

Right: George holds is 1/5th scale Grunau Baby IV VH- GHK.

Close-up of the cockpit area of George Buzuleac's 1/5th scale Grunau Baby IV VH-GHK.

Close up view of Colin Collyer's 1/3 scale Golden Eagle.

Foka 5 model of VH-GEF 1/4 scale by Colin Collyer.

Another of the Foka 5 models at the event.

Martin Hopper and his Grunau IV built from Airborne plans. Five models appeared at the meet, four full size aircraft were built.

Hard working tug

Martin Hopper's Grunau IV

SZD Pirat 1/4 scale Of VH-GXL. model owned by Geoff Hearn.

Schweizer 1-26 in foreground, behind EON Olympia VH-GHR, scratch built model by Andy Smith and Shane Williams,

Close-up of the Grunau Baby IV VH-GDV, a 1/5th scale model by Colin Collyer.

8354 General view of some of the models presented on the day. Pik20, VH-GAX. ASW24 VH-ZAE. Foka 5 VH-GEF, ESK6 VH-GNO. GB IV in two different colour schemes VH-GDV together with VH-GHK& VH-GLX of the same type.

Schweizer 1-26 in foreground, ES56 in background.

Duster BJ-1b of Peter Raphael VH-HDT. (awarded the most attractive Wood & Fabric model, Vintage or Homebuilt).

Peter Raphael's Duster with award.

Honoured guest Alan Patching 92 years old and the most recent past owner of the Golden Eagle Sailplane which he just recently donated to the Australian Gliding Museum with Colin Collyer president Of V.A.R.M.S., the host model club. Colin displayed his 1/3 scale example on the day.

Schweizer 1-26 model of VH-GQB. Model built and flown by Andrew Allen.

MOBA 2 (My Own Bloody Aircraft), an Australian home built, a 1/4 scale model by Colin Collyer.

TG-2s at Twenty Nine Palms February 25, 1942. Photo courtesy of Mark Nankivil.


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Wingspan	900mm (35.4 in)
Wing Area	23.42 dm² (363 in²)
Weight	312-395 gm (11.5-14 oz)
Wing Loading	13.3-16.9 gm/dm² (4.6-5.6 oz/ft²)
Controls	2 Channels (elevons)
Skill Level	EVERYONE!
Assembly	Under an hour
Flight Style	Slope thruster
Wind Speed	3-12 m/s (7-25 mph)

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Thanks to Marco Ter Beest!
https://www.facebook.com/terbeest.marco

The Weasel TREK will be available some time in May 2016. Please check <http://www.dream-flight.com> for availability.

Tom's Tips

Sanding mops

Tom Broeski, T&G Innovations LLC, tom@adesigner.com

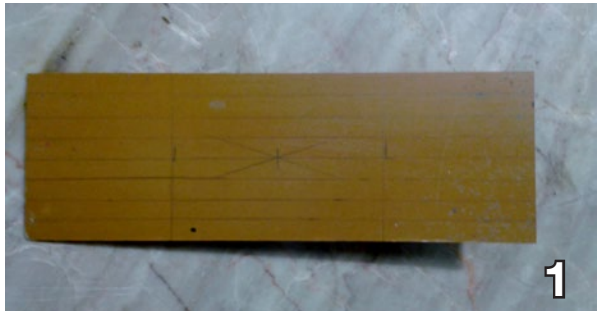
Over the years I've bought sanding mops from various places. My favorite is Klingspor's Woodworking shop. Nice info and video here: <http://www.woodworkingshop.com/product/fs36320/>

However, when I don't have time to wait, or I need a specific grit, I make my own cut sandpaper. Normally, I cut 2" x 6" cloth pieces.

Takes about 25 minutes to make and mount 48 sheets. Normal cost would be around $30 + shipping.

I made a simple template from some scrap phenolic sheet I had. Marked (Photo 1) and cut the slots and drilled a hole for the center (Photo 2).

By reorienting the template, I get eight pieces from a 9" x 12" sheet.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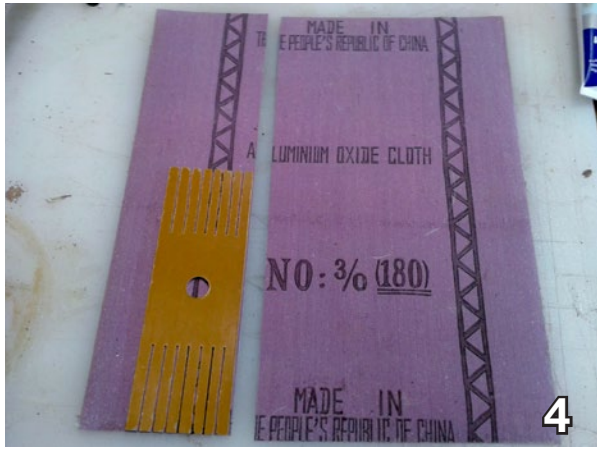
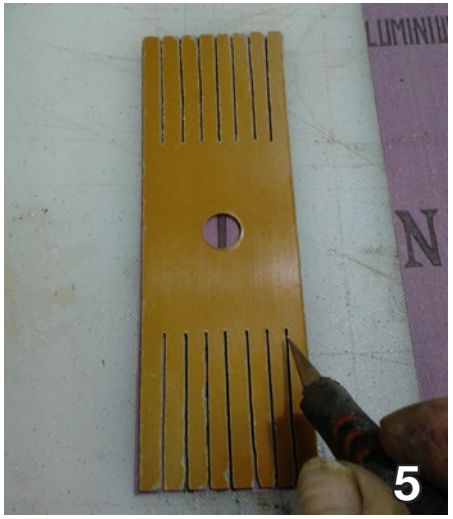


4

Slit the cloth (Photo 5).

I have a bunch of slightly used blades from cutting covering material — I change blades often when cutting covering material. I get about eight pieces before I toss the blade. You can also make a couple passes on a diamond hone, but blades are pretty cheap, so I don't do that much anymore.

Use a punch for the center hole (Photo 6).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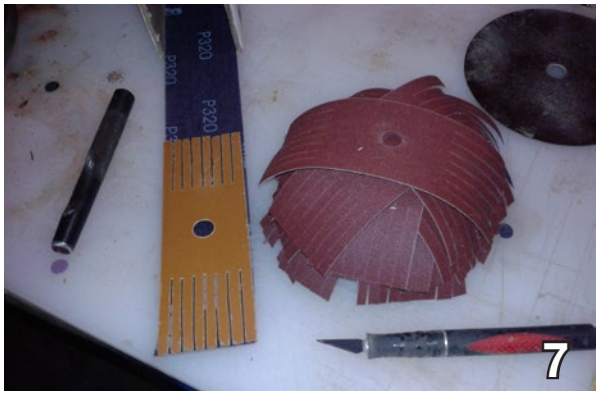
6

I also use 2" roll cloth. This goes a bit faster. (Photo 7)

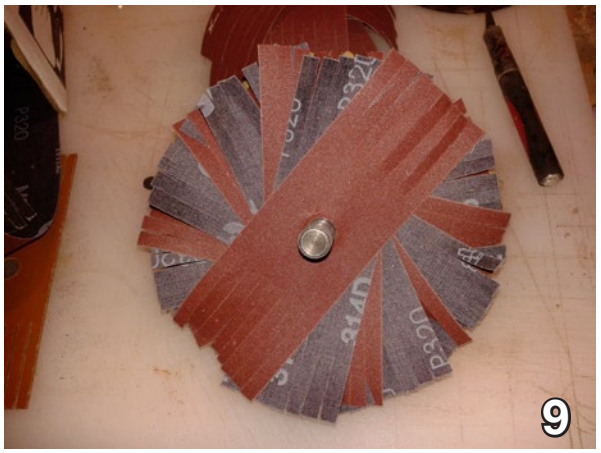
The Mandrel can be as simple as a bolt, couple of washers and a nut. (Photo 8)


7


8

Alternate face up and face down with a half overlap (Photo 9).

You can use on a drill... (Photo 10) or a drill press.


9

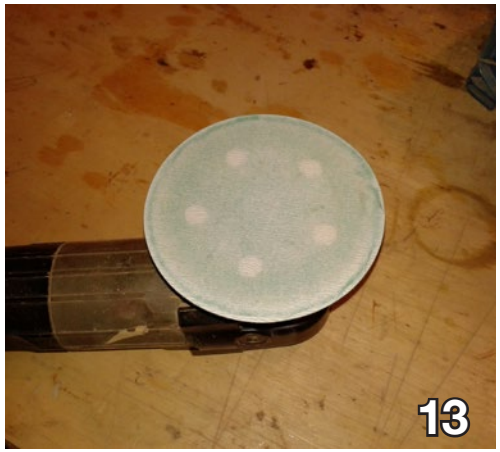

10

I often use several different grits on my long mandrel (Photo 11).

I use the sheet scrap on my Dremel (Photo 12).

I also have a simple sander/buffer made from worn out hook and loop discs (Photo 13). (I don't like throwing much of anything away.)

I cut a round template from phenolic (you can use plastic, wood or whatever you have around for templates). (Photo 14 & 15)



I also mount these alternating face up and face down (Photo 16). I use this without buffing compound mostly for fine finish on wood, and a regular buffing wheel with compound when doing metal.

Slope Soaring

A Midwest Mountain of Possibility

Robert W. Wendel, kf0xb@ImOnMail.com

A mountain of possibility is hardly the case when a slope soaring enthusiast is looking for a place to fly, especially in the Midwest. But, nestled in the middle of the nation, in an often forgotten state, even a forgotten city, is just that possibility.

The place is Cedar Rapids, Iowa. Iowa, a state only faintly remembered, every four years, as the first state in the Union to begin a long and often bitter series of presidential primary battles.

For a slope soaring enthusiast, finding a flying sight is almost as daunting as selecting our next president. Especially, in the mid-west, slope soaring sites are notoriously difficult to find. Not that there aren't any hills or slopes, but sadly, most every possibility is covered with trees or buildings.

Our hopeful candidate, for slope soaring, is nestled in the unlikely, urban, downtown of Cedar Rapids, Iowa.

The author, Robert W. Wendel, and his Zagi atop Mt. Trashmore

"Oh really" you say!

"Yes!" I say, in the middle of a city, with restaurants, entertainment, lodging, museums, parks, camping, even a Federally stocked tout stream along with all the other many comforts of life.

"And how can this be so great? How can't be true!" You may retort.

"Garbage! Garbage I say, and lots of it." Is my response.

In the middle of the city of Cedar Rapids is a recently closed landfill that towers 200 feet tall, above the surrounding cityscape. We locals lovingly call this familiar feature of the downtown, "Mount Trashmore." Yes, a veritable mountain of garbage! And for years locals have speculated on how to turn this environmental conundrum into something useful. Ski slopes, methane gas recovery, bike trails and walkways, water parks and more have all been contemplated, and now slope soaring.

Trashmore is a 365 days a year possibility to be had for the slope soaring enthusiast. Since "the pile" is conical, like most piles, it can be flown from any point of the compass on any given day.

Downtown Cedar Rapids looking NW from Mt. Trashmore.

Bob Wendel and his Zagi (THL) venturing way out for convective lift over the compost piles below. Curt Harman photo

The top of the pile. Curt Harman photo

Don Harker and the moment of truth. Curt Harman photo

So to paraphrase an old saying in Iowa, “If you don’t like the direction the wind blows -- wait a minute.” In other words, one could expect to be able to fly virtually any day of the year, given enough wind, from whatever direction.

“Nonsense,” you reply.

“Not so much,” is my response.

The “Rockwell Collins Model Aviators” hosted two successful slope soaring events from the top of old “Trashmore” in 2015. So we know it is quite flyable, and a good time can be had by all.

This year, thanks to the “Linn County Solid Waste Agency” the RCMA club will be hosting three “Sailplane Fun Fly” events this season. The cost is free to any AMA member.

Study our informational flier <http://rockwellcollinsclubs.com/clubs-ia/model-aviators/docs/finaldraftrockwellfunfly.pdf>. Make sure you enter the coordinates into Google Earth (41°57'39.77"N 91°38'57.96"W) as any good slope soaring enthusiast might do, in searching for a flying site. Our events are environmentally friendly.

So come and experience the beauty, wonder and magic of silent, motor-less flight. Who knows, you may even soar amongst an eagle or two. I have! See you there!

Robert W. Wendel, kf0xb@ImOnMail.com
Rockwell Collins Model Aviators
Contest Director, AMA #6179

The Soaring Scene #03 March 2016

Rex Ashwell, rex.ashwell@xtra.co.nz

Here we go with another Soaring Scene reporting on all the action in the top of the South - well, all the action I know about anyway. Most of the focus has been on either electric gliders or aero-towing over the last few weeks, NDC events being a bit light, probably due to the build up to the Nationals over Easter. The weather has been high summer here, everything is dry and brown and we have had some beautiful calm days, mostly during the week, to the chagrin of those with jobs to go to.

The big news on the club scene is that the Ara vineyard has been sold, so at this stage we wait to see what effect that will have on our continued use of the flying field, which the Blenheim Model Aero Club has occupied for a good many years. The new owners are locally based wine producers Indevin and the vineyard now goes under the Bankhouse Estate label. They are mighty busy at the moment as the harvest has just started but once the dust has settled I have no doubt that the new committee will be having discussions about the club's continuing use of the flying field with Indevin's representatives.

Aero-towing

Peter Deacon has done some great work in securing the use of Quaildale on the third Saturday of each month until June. Since the January aero-tow we have held a couple of "Soaring Saturdays" there and, while we haven't had big attendance, we have had a lot of fun. February saw half a dozen stalwarts turn up to enjoy a beautiful calm day, perfect for flying, while just down the road at Bankhouse (Ara) the wind was strong enough to deter most from flying.

One notable attendee was Phil Jordan from Nelson who turned up with several small gliders, one of which was FPV equipped. After a quick tow to make sure everything was working okay he donned the head gear and was duly towed up under FPV control. The result was a release at an altitude where most of us were struggling to actually see the model, not that Phil was bothered as he could see the ground, although he did get a bit lost for a while on a later flight. The model actually wasn't far away and some frantic scanning of the sky soon located it, but it does show the value of having an observer for FPV flying. We are wondering if this is the first time this has been done in New Zealand, anyone know? There's video of Phil's flight here: Soaring Saturday FPV - YouTube <https://www.youtube.com/watch?v=Wn2is3GkAa4>.

Phil Jordan checking his gear before an FPV tow.

A month later we did it again with a couple more pilots in attendance including Phil Jordan and Sam Laidlaw from Nelson. Again the weather was perfect and we had some very good flying. Peter Deacon and Carl McMillan did sterling work with their tow planes while the rest of us enjoyed the smooth air. I had a few flights with a recently acquired Top Models Discus 2c, at 4.5 metres by far the biggest model I've flown. Forgetting to lower the undercarriage on the last flight resulted in a stripped rudder servo, which curtailed activity with that model, but my confidence is now a lot higher than it was previously - just gotta remember the bloody gear in future!

Everyone else flew a lot and it was good to see Peter Graham have a goodly number of trouble-free flights as things have not always gone well for him in past events. He had a quick lesson about trim at one stage when the towline parted company with the towplane and Pete was left flying with the line hanging off the front of the glider. To everyone's surprise it flew much better and simply did not want to come down. Something to do with the C of G perhaps Mr Graham.

The second round in the South Island aero-tow circuit was held at "The Willows" just out of Christchurch on the 12th and 13th of March. As these things go the field was quite small with about eight pilots fronting up each day. Saturday was overcast and calm until we were almost ready to fly, then the wind started - not sure what the official figure was but I'd say around 25 to 30 km/h, which caused a degree of carnage amongst the scale gliders but was okay for those of us flying competition type models. Not the best of days unfortunately.

I had picked up my new (to me) glider from it's previous owner and spent a few hours on Friday working out how to put it together and which servo went where on my receiver. Incidentally it's an interesting exercise rigging a 4.5 metre model in a motel room, or perhaps I should say two motel rooms. Eventually everything seemed to work okay and

Peter Graham's Seagull Ka8-B heads skywards on yet another flight.

In about a millisecond Alex Hewson will settle the ex-Neal Blackie 5 metre ASW on the deck for a precision landing.

with control throws at factory settings I was looking forward nervously to flying the beast. As it turned out I had to stay nervous a bit longer as it was a bit windy for test flying on Saturday. Sunday though was a different story - the wind was absent! Scott Chisholm did the test flight honours, taking the tow behind Andrew Palmer's Pawnee and handing over to me to fly a bit before taking control again to demonstrate a landing. Scott talked me through the next flight and having done his bit admirably, left me to do my own thing. The Discus is a pussy cat to fly but I had a bit of a perspective problem with a model which is so much bigger than I'm used to when it came to landing - short and off the far side of the runway when I thought it was in the middle.

This was a meeting with a small field who had to contend with mixed weather conditions but nonetheless exhibited all the camaraderie that seems to be the norm amongst soaring pilots. There was some seriously good flying done as well with Alex, Scott and Andrew to the fore. I never expected to see the Palmer Blanik demonstrate a rolling circle but somehow Andrew fitted that in amongst a bewildering array of extreme aerobatics. Paul Chisholm also did a lot of flying, in fact everyone did, and I was impressed by Jeremy McLean's electric tow plane, a big Cub which he flew with considerable abandonment when he wasn't towing. A good weekend despite the wind on Saturday. You can find more photos, especially of the tugs, on this link: Flickr <https://m.flickr.com/#/photos/stuart_brown/sets/72157665324426210/>.

Peter Deacon brings the Morrisey Bravo smoothly back to earth after a tow at Quaildale.

Electric Gliders

As usual there is a lot of activity in this area with electric gliders. Almost everyone in the BMAC has some form of electric glider and the standard 2 metre foamies get flown a lot, although it is difficult to cajole most into having a go at an ALES event. One relative novice who leapt in boots and all with his Phoenix was Paul Barrett. Sadly the RNZAF have transferred him to Auckland so we farewell Paul and wish him the best with his newfound hobby in more northern climes.

Our hard core NDC people have flown ALES 200 and ALES Radian during the last month with the following results:

Event #175 ALES 200

Allan Baker MFNZ #4943
Flight 1 - 8 min 27 Points - 507 Landing - 40 Total - 547
Flight 2 - 0 min 00 Points - 000 Landing - 00 Total - 000 (Had to restart motor)
Flight 3 - 8 min 17 Points - 497 Landing - 40 Total - 537
Final Score - 1084

Rex Ashwell MFNZ #10746
Flight 1 - 5 min 42 Points - 342 Landing - 45 Total - 387
Flight 2 - 6 min 01 Points - 361 Landing - 25 Total - 386
Flight 3 - 7 min 15 Points - 435 Landing - 40 Total - 475
Final Score - 1248

Phil Elvy MFNZ #11020
Flight 1 - 4 min 40 Points - 280 Landing - 00 Total - 280
Flight 2 - 4 min 51 Points - 291 Landing - 30 Total - 321
Flight 3 - 7 min 52 Points - 472 Landing - 50 Total - 522
Final Score - 1123

Peter Deacon MFNZ #10441
Flight 1 - 7 min 16 Points - 436 Landing - 40 Total - 476
Flight 2 - 3 min 33 Points - 213 Landing - 45 Total - 258
Flight 3 - 4 min 25 Points - 265 Landing - 45 Total - 310
Final Score - 1044

Ken McMillan MFNZ #10988
Flight 1 - 7 min 20 Points - 440 Landing - 20 Total - 460
Flight 2 - 9 min 59 Points - 599 Landing - 40 Total - 639
Flight 3 - 5 min 21 Points - 346 Landing - 25 Total - 371
Final Score - 1470

Ken McMillan took high score for ALES 200 although Allan Baker handled the difficult conditions better than anyone else and really should have come out on top but for a spot of bother near the end of his second flight. An inadvertent tip stall at low level almost resulted in disaster and Allan had to bang the throttle open to prevent his model from crashing heavily - of course that meant zero points. Bummer!

Event #176 ALES Radian

Rex Ashwell MFNZ #10746
Flight 1 - 6 min 42 Points - 402 Landing - 50 Total - 452
Flight 2 - 7 min 01 Points - 419 Landing - 25 Total - 444
Flight 3 - 7 min 02 Points - 418 Landing - 00 Total - 418
Final Score - 1314

Phil Elvy MFNZ #11020
Flight 1 - 3 min 26 Points - 206 Landing - 50 Total - 256
Flight 2 - 3 min 09 Points - 189 Landing - 50 Total - 239
Flight 3 - 3 min 02 Points - 182 Landing - 00 Total - 182
Final Score - 677

Radian was held on a fairly crappy day with only Phil and I flying. There were no easy points available with the conditions that we had, but my Radian had a significant advantage over Phil's Phoenix which just wouldn't stay up. We really need to see some more participation fellas, only two is not good enough when there must be a dozen suitable models in the club.

There are some very attractive small electric gliders on the market these days and Sam Laidlaw showed up at Quaildale with a good example. Clearly a favourite model (he just kept flying it) this is an ideal model for anyone wanting to dip a toe into the scale glider scene and seems to be a pretty competent model. It's a 2.6 metre ASW 28 with a foam wing and moulded plastic fuselage, made by Lanyu-Volantex (they also make the Phoenix) and bought from Hobby King, currently listed at $109.40 and on backorder but available from other sources as well, for instance: Volantex ASW28 2.6m Plastic Unibody Scale Glider Brushless PNP(759-1) [VLX7591P] - USD $111.72:

Sam launching his ASW 28 at Quaildale - great little model.

Austars-Model.com <http://www.austars-model.com/volantex-asw28-26m-plastic-unibody-scale-glider-brushless-pnp7591_g14819.html>. It looks good, climbs well, soars well, doesn't cost the earth and makes the kind of sound when gliding fast that we normally only hear from larger moulded models. I liked it.

Discus Launch

The local DLG enthusiasts are frequently to be seen thermal seeking and although our numbers are static our models are not. One of the great things about these models is the satisfaction gained from flying them. No two flights are the same and every one is a challenge. We flew an NDC event at Easter on a cool, overcast day when the air was heavy and patches of lift were few and far between. With only two of us available It was a bit of a testing competition with generally poor scores, but better than last time so I suppose I can take some comfort from that.

Event #174 F3K

Peter Deacon MFNZ #10441
Task B - 1 min 50, 2 min 03 Total - 233
Task D - 30, 45, 1.00, 1.15, 1.30, 1.45, 2.00 Total - 525
Task G - 1.56, 2.00, 2.00, 2.00, 1.32 Total - 568
Task H - 1.00, 1.35, 3.00, 3.55 Total - 570
Final Score - 1896

Rex Ashwell MFNZ #10746
Task B - 2 min 00, 1 min 58 Total - 238
Task D - 30, 45, 1.00, 1.15, 1.30 Total - 300
Task G - 1.17, 1.36, 2.00, 2.00, 1.48 Total - 521
Task H - 1.00, 2.00, 3.00, 3.17 Total - 557
Final Score - 1616

The Asian Pacific Open

Here is a report on this recent DLG Championship event from Peter Williams - Kiwis to the fore again in DLG.

Joe Wurts and Kevin Botherway (Rowdy) mentioned that the APO F3K (Asia Pacific Open) discus launched glider competition was on in Melbourne out at Longwood in March 2016 and told the gliding fraternity that they should attend.

Joe had gone to China for the same contest in 2014 and said he had a great time and with both these guys pushing it along we soon had 8 pilots and 3 partners making the kiwi contingent a group of 11.

Tickets were booked models packed and we met up as a group after flying in from Wellington and Auckland on different flights at Melbourne on the Wednesday morning before the contest that was due to start on Friday.

Joe, Len Drabble and Rowdy had arranged a car and a van to transport the team and their boxes and bags and so with a little bit of help from Jon Day (one of the Aussie Organization team) we were off like a pork chop in the sun to Longwood about an hour north of Melbourne. Of course we were all keen to get to the flying field and get some flying in and see what the days ahead had in store.

The kiwi team were using almost exclusively the Snipe from Vladimir's Models and of course this was designed by Joe Wurts and has featured heavily in the last two world champs campaigns and in most local contests.

Other models we saw were the Vibe from ArmSoar composites, the Stream NXT, and some others that I didn't have time to look at.

We spent Wednesday afternoon flying and getting used to the Aussie 36 degree heat and catching up with other fliers many who are old friends.

Thursday saw the arrival of most of the other teams and we continued practicing and fine tuning the model setups. This was a chance for the more experienced fliers to help the newer guys fine tune their settings and pass on some hints before the contests started.

The Friday was to be the RCGA Open a separate one day contest used as a shakedown and a separate contest in it's own right.

The day started out calm and the wind slowly built to around half the FAI limit which provided some score separation, and then dropped off later in the day. We flew seven rounds. The conditions were hot, a little dusty and this meant large strong thermals and later in the day big lift sink cycles.

The flying was tough with previous and current world champions all flying there were almost no easy rounds and there was some blood shed on the score sheets.

First was Alex Hewson then Joe Wurts, Peter Williams (Peewee) Kevin Botherway (Rowdy) with Steve Warner in 14th Neal Moss in 17th Rod Hale (Nanna) in 23rd and Len Drabble (Dribble)in 25th.

It was a great first day for the Kiwis and the possibility for better results in the coming main contest to be held on Saturday and Sunday.

The main contest started on Saturday there was light wind at the start of the first round and an overnight storm had dampened the field and blown out most of the shade tents.

Looking at the scores it was hard for most to achive the required flight times. The thermals started kicking in after this and we finished the day half way through round 7. The Kiwis were looking OK after the first day with Joe then Rod Hale Peter Williams and Alex Hewson rounding out the top four with Kevvie in 7th, Neal Moss in 12th and Steve and Len in 22nd and 23rd, however the scores were tight at the top of the board so it now became a game of no mistakes.

Sunday was very calm and warm and we started on completing round 7. We were pretty keen to try and get Neal into the top ten and not let anyone slip down the pecking order for the last 3 rounds.

The thermals and wind picked up more slowly on Sunday and Rods last three rounds were very tough and pushed him just out of the top ten

We finished the 10 rounds with Joe in 1st followed by Kevvie in 2nd and Peewee 6th Alex in 8th Neal in 9th, Nanna in 13th Dribble in 22nd and Steve who had also suffered in the last three rounds in 27th.

Now it was onto the fly-offs with the top ten pilots discarding their scores and starting with six rounds with the tasks drawn from a hat.

The fly-off conditions were fairly variable, it started windy with big lift and sink cycles and slowly the wind backed off towards the end of the six rounds. Most pilots started with ballast and removed it as the rounds progressed. With the APO title on the line fliers made some big calls and some landed out with a resulting zero score. This really mixed up the scores and played into the hands of the more cautious pilots who made conservative calls and concentrated on getting scores on the board. My impression was that there was bloodshed all over the score sheet and it was going to be a washing machine type outcome.

In the end Alex was 1st with Kevvie 2nd and Peewee 3rd Neal 4th Joe 6th

Joe was very unlucky to finish in 6th his sublime skills for once letting him down after dominating both contests and never looking in doubt for a podium finish.

With the contest results in it was almost a given that the Kiwis would secure the team title and so it was.

Team results: 1. New Zealand 2. Australia, 3. Singapore, 4. China, 5. Taiwan, 6. Thailand 7. Hongkong.

The APO was a great contest, the organization was superb with sunshades, chairs, water, BEER and lunch all provided and social events every night arranged by Shona Guest, Jon

Day and their team. They had arranged accommodation for the teams and buses for transport, airport pickups and had the entire community behind them, the Local Mayor attended for both days of the APO and presented the trophies. Len wanted to take her home but was not allowed.

Tim Lennon was a great Contest Director and with Jerry Carter assisting things ran smoothly.

The Aussies kept up with Kiwi bashing even with the overwhelming result to team Kiwi.

Roll on the APO for 2018.

Slope Soaring

A small group has continued to fly at Meadowbank on Wednesday evenings although that has now ceased as a regular activity with the end of Daylight Saving on April 3rd. Flying on the slope has been relaxing recently with generally fairly light winds limiting us to lighter weight models. It's still fun and if you are there for an hour at least 50 minutes will be spent in the air. The other nice thing at this time of year is that the temperature has been quite acceptable, on occasions it's been tee shirt weather.

There are more exciting forms of slope soaring of course and there was mention of one type, dynamic soaring, in the last newsletter with news of a new DS speed record at 513 mph. If you have wondered since how on Earth a model glider can achieve this kind of speed check out this site for an explanation: What's DS Page <http://www.rcspeeds.com/dynamicsoaring.aspx>. You soon get the idea that DS pilots require a good degree of skill to perform this discipline. I have always envisaged that only one model would be able to fly at a time but that's not nearly exciting enough for some people: furball.mov - YouTube <https://www.youtube.com/watch?v=fff8gesKvqA>.

Occasionally when trolling the net one comes across something totally new. This trick has probably been done before but to catch it on film……..The ultimate slope soaring glider trick with A SAS Wildthing - YouTube NDC <https://www.youtube.com/watch?v=V052pQgK6u0>.

Here is our progress chart to date in the local NDC Competition. As previously explained, scores are calculated using each competitor's score as a percentage of the maximum possible for each event.

	F3K	RADIAN	ALES 123	HLG	CLG	TEXACO	X5J	ALES 200	RADIAN	F3K	TOTAL
R Ashwell	59.68	79.14	64.18				85.00	64.00	93.19	73.28	518.47
A Baker				37.50	46.66	65.53	87.52	55.58			292.79
P Elvy			48.93				91.05	57.58	48.01		245.57
P Deacon	72.48		70.14				89.15	53.53		85.98	371.28
K McMillan	60.27						84.17	75.38			219.82
P Barrett			55.88				80.97				136.85
P Graham		76.09									76.09

It's fairly obvious that the more events you fly in the higher your score is likely to be, so get out there and compete.

This month we have just ALES Radian and Thermal J in the soaring category. ALES Radian is very familiar so lets see a good turnout for that. Thermal J is a return to winch launching, something that we haven't done for some time. We'll schedule this event for Soaring Saturday (April 16) at Quaildale. I'll be in touch with interested parties.

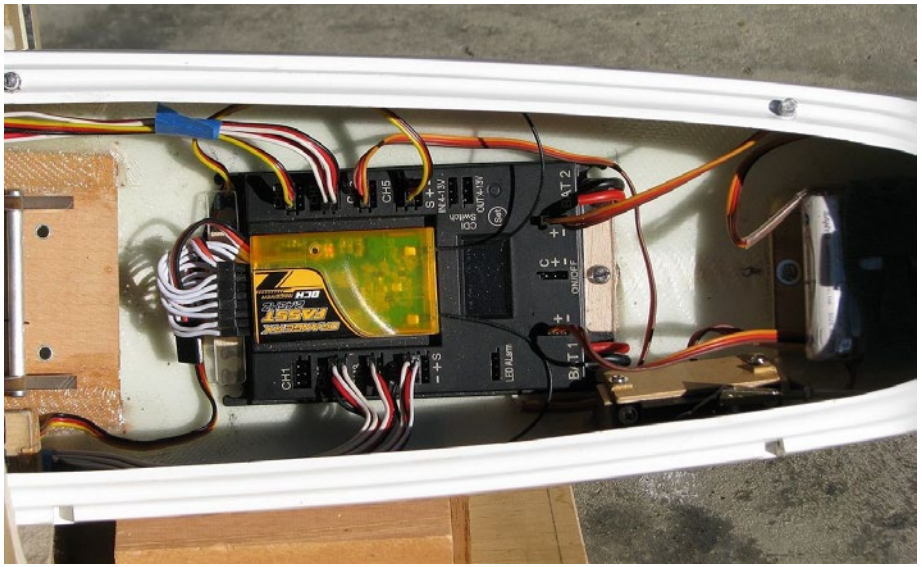
Other Stuff

Most of you will have had the experience of trying to cram a servo lead into every available socket in a 7 or 8 channel receiver. The result is not always pretty and when I collected the aforementioned TM Discus I was a bit taken aback to find a rat's nest of wiring which wouldn't have looked out of place on one of those Hobby King foamies with retracts, flaps, lights and goodness knows what else. High on the list of jobs to do was to sort out the wiring - everything was there and it all worked fine, it just didn't look that great. The model had two battery packs but as they both fed into a Y lead there wasn't really any redundancy as, if one battery failed the other would just expend it's energy into the failure.

I looked at Paul Chisholm's Ventus at the Willows, which is a great example of how wiring should be done, and he uses a Power Box Gemini to accept power from two batteries of any common type and regulate the output to the receiver, which looked like a good idea to me. While researching I came across the concept of an "expander" RCCSKJ POWER BOX X4105 [X4105-GL] - USD $89.00: Austars-Model.com <http://www.austars-model.com/rccskj-power-box-x4105_g5613.html> and eventually decided that seemed like an even better idea. Hobby King list these things but apparently they have been on back order forever and I didn't want to wait quite that long so I went to Austar who delivered a unit about a week later.

The idea is that the Power Box plugs into the receiver, which mounts on top (mine's velcroed in place), then all your servos plug into the appropriate channels around the perimeter, up to two servos per channel which is quite handy with dual aileron wings. The receiver is supplied with a steady 5 volts and on this version the output to the servos is adjustable anywhere between 4.8 and 9.7 volts, so high voltage servos can be used if that's your preference. There is an on/off switch, a low voltage alarm, an LCD information and setup screen, and for those who want an installation in their tug, a CDI ignition output with an opto switch. Best of all, it all works as advertised, and although it has a fair sized footprint, there is plenty of room in the Discus. As the photo shows it makes for a simple and very tidy installation - in fact I'd say it now looks more like a cockpit and less like an armpit.

The installation above uses NiMh batteries but it is quite happy with any type of battery including the ubiquitous Lipo. There is a huge amount of information around about the pros and cons of Lipos, a lot of it is crap of course but there is no doubt that



The RCCSKJ Power Box fitted with wiring almost complete.

there is a risk factor with Lipos especially if you abuse them. I subscribe to a newsletter out of the USA produced by Ken Myers who has been involved with electric flight pretty much since it started. Ken is a retired school teacher who takes a scientific approach to his writings and recently he decided to gather together as much credible information on Lipos as he could find. If there is something you want to know look here: Learning About LiPo Batteries <http://www.theampeer.org/Learning-LiPo/Learning-LiPo.html> and if you think you know it all look here: Learning About LiPo Batteries <http://www.theampeer.org/Learning-LiPo/Learning-LiPo.html>.

I've started to think about making a pilot the correct scale (1/4) for the newly acquired Discus as the existing one is clearly too small. There are plenty on the market, some probably cost as much as the model so diy looks likely. Scanning the internet I found this: Selecting The Right Pilot For Scale Sailplanes – slide show feature! | RCAeroTowing.com <http://www.rcaerotowing.com/2674-pilot-options-for-your-sailplanes..html>. Check out the slide show at the end of the article.

While thinking about pilots, did you ever feel that some of our models are getting rather big: a3887717-60-Jordy_wants_to_takeoff.jpg 1,024.768 pixels <http://static.rcgroups.net/forums/attachments/1/5/3/4/7/a3887717-60-Jordy_wants_to_takeoff.jpg>.

Having got that out of my system let's wind up with this beautiful clip of famed paraglider pilot Jean-Baptiste Chandelier doing his thing: Urban paragliding. [VIDEO] <http://www.wimp.com/urban-paragliding/>.

That's it from me folks - I hope you found something to interest you. Keep on soaring.

— Rex

L/D and Sink rate LUA script for OpenTx

Fabien Gagné, fabien.gagne@saintremi.ca

I hereby present sailf1.lua for sailplanes.

I branched from Isaac Davis' script <http://www.rcgroups.com/forums/showthread.php?t=2544781> to create one that calculates and speaks out the Sink Rate in meters/second with two decimal places and the L/D ratio, averaged to a configurable number of seconds (defaults=4 sec). The values can also be displayed on the Telemetry screen but without the decimal places.

The script can be used with a GPS and altimeter (best results) or with just a GPS.

The script should be useful to tune the elevator setting for best L/D at various reflex and/or ballast configuration, and the minimum sink rate.

Limitations/future work: I think the FrSky altimeter lags by 4-6 seconds, hence may not be in sync with the altimeter readings. It's a hypothesis that I have not yet verified. If true, the script could be modified to resync the readings.

INPUTS

AvgDelay: number of seconds (1-20) on which to average the readings (L/D, speed, vspeed) The default is 4 seconds. Longer provides more stable readings but then your tests must be on longer legs.

PlaySpd: If set to one, the horizontal speed (in m/s) will be played before L/D or vspeed

PlaySwitch: Configurable to any 3-position switch. User selectable: up=off, mid=play the L/D, low=play the vertical speed

PlayRep: Repeat playing every this many seconds

Loggin: Set to "1" to create a detailed log file in the /LOGS directory

Simulate: Set to "1" to simulate/debug

OUTPUTS

GSpd : Ground speed (m/s)

VSpd: Vertical speed (cm/s). cm/s is used in outputs only to provide enough significant digits. Nonetheless, the VSpd is spoken in m/s with two decimal places.

LD: L/D ratio (unit-less) This is the ratio of the horizontal distance over the vertical distance travelled. (French: finesse)

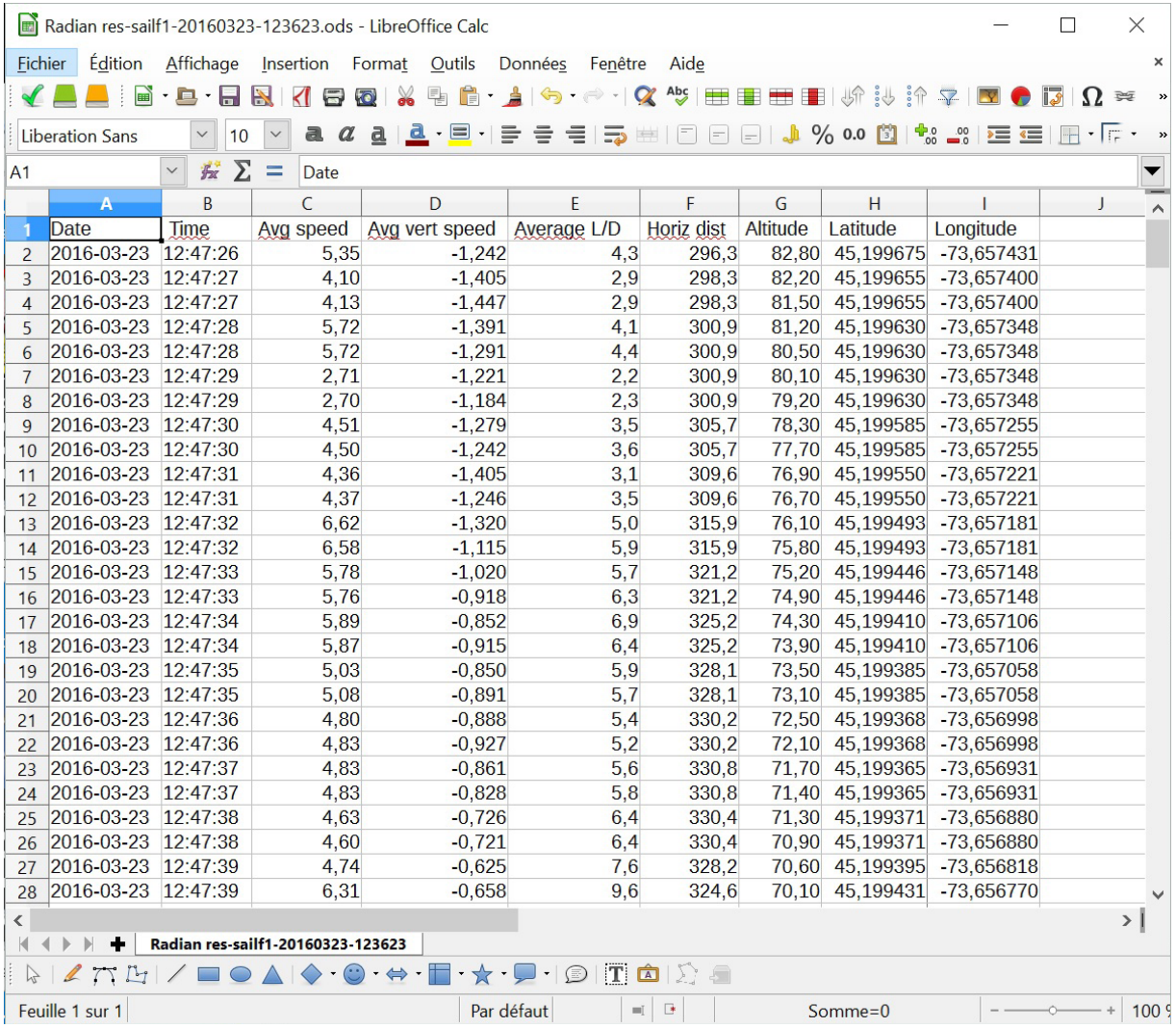
Hz: Horizontal distance from the pilot (m)

tick: Just a number that changes quickly, showing that the script runs

How to install:

1. Your radio must be configured to run lua scripts

2. Copy the sailf1.lua script to the /SCRIPTS/MIXES subdirectory on your SD card



	A	B	C	D	E	F	G	H	I
1	Date	Time	Avg speed	Avg vert speed	Average L/D	Horiz dist	Altitude	Latitude	Longitude
2	2016-03-23	12:47:26	5,35	-1,242	4,3	296,3	82,80	45,199675	-73,657431
3	2016-03-23	12:47:27	4,10	-1,405	2,9	298,3	82,20	45,199655	-73,657400
4	2016-03-23	12:47:27	4,13	-1,447	2,9	298,3	81,50	45,199655	-73,657400
5	2016-03-23	12:47:28	5,72	-1,391	4,1	300,9	81,20	45,199630	-73,657348
6	2016-03-23	12:47:28	5,72	-1,291	4,4	300,9	80,50	45,199630	-73,657348
7	2016-03-23	12:47:29	2,71	-1,221	2,2	300,9	80,10	45,199630	-73,657348
8	2016-03-23	12:47:29	2,70	-1,184	2,3	300,9	79,20	45,199630	-73,657348
9	2016-03-23	12:47:30	4,51	-1,279	3,5	305,7	78,30	45,199585	-73,657255
10	2016-03-23	12:47:30	4,50	-1,242	3,6	305,7	77,70	45,199585	-73,657255
11	2016-03-23	12:47:31	4,36	-1,405	3,1	309,6	76,90	45,199550	-73,657221
12	2016-03-23	12:47:31	4,37	-1,246	3,5	309,6	76,70	45,199550	-73,657221
13	2016-03-23	12:47:32	6,62	-1,320	5,0	315,9	76,10	45,199493	-73,657181
14	2016-03-23	12:47:32	6,58	-1,115	5,9	315,9	75,80	45,199493	-73,657181
15	2016-03-23	12:47:33	5,78	-1,020	5,7	321,2	75,20	45,199446	-73,657148
16	2016-03-23	12:47:33	5,76	-0,918	6,3	321,2	74,90	45,199446	-73,657148
17	2016-03-23	12:47:34	5,89	-0,852	6,9	325,2	74,30	45,199410	-73,657106
18	2016-03-23	12:47:34	5,87	-0,915	6,4	325,2	73,90	45,199410	-73,657106
19	2016-03-23	12:47:35	5,03	-0,850	5,9	328,1	73,50	45,199385	-73,657058
20	2016-03-23	12:47:35	5,08	-0,891	5,7	328,1	73,10	45,199385	-73,657058
21	2016-03-23	12:47:36	4,80	-0,888	5,4	330,2	72,50	45,199368	-73,656998
22	2016-03-23	12:47:36	4,83	-0,927	5,2	330,2	72,10	45,199368	-73,656998
23	2016-03-23	12:47:37	4,83	-0,861	5,6	330,8	71,70	45,199365	-73,656931
24	2016-03-23	12:47:37	4,83	-0,828	5,8	330,8	71,40	45,199365	-73,656931
25	2016-03-23	12:47:38	4,63	-0,726	6,4	330,4	71,30	45,199371	-73,656880
26	2016-03-23	12:47:38	4,60	-0,721	6,4	330,4	70,90	45,199371	-73,656880
27	2016-03-23	12:47:39	4,74	-0,625	7,6	328,2	70,60	45,199395	-73,656818
28	2016-03-23	12:47:39	6,31	-0,658	9,6	324,6	70,10	45,199431	-73,656770

This is an example from a log file of my Radian going upwind in low wind. I've only formatted the csv in LibreOffice for clarity.

3. On your radio (not in Companion), go to the CUSTOM SCRIPTS menu and add the sailf1 script.

4. Select the script to set its input parameters. The PlaySwitch must be configured to get rid of the annoyance "0" that plays continuously.

5. Optionally, you can add the outputs to the Telemetry screen or Special Functions.

LIMITATIONS

- The script does not compute the airspeed, it uses the GPS-speed, so take the L/D for what it is: an approximation.
- Hz is good until 32 km then rolls over into negative numbers.
- Values are reported in international units. Not tested for imperial.

This LUA script for OpenTx may be downloaded from <http://www.rcsoaringdigest.com/Supplements/Gagne_LUA_script/sailf1.zip> (5.2KB).

An amateur glider from Poland, 1925

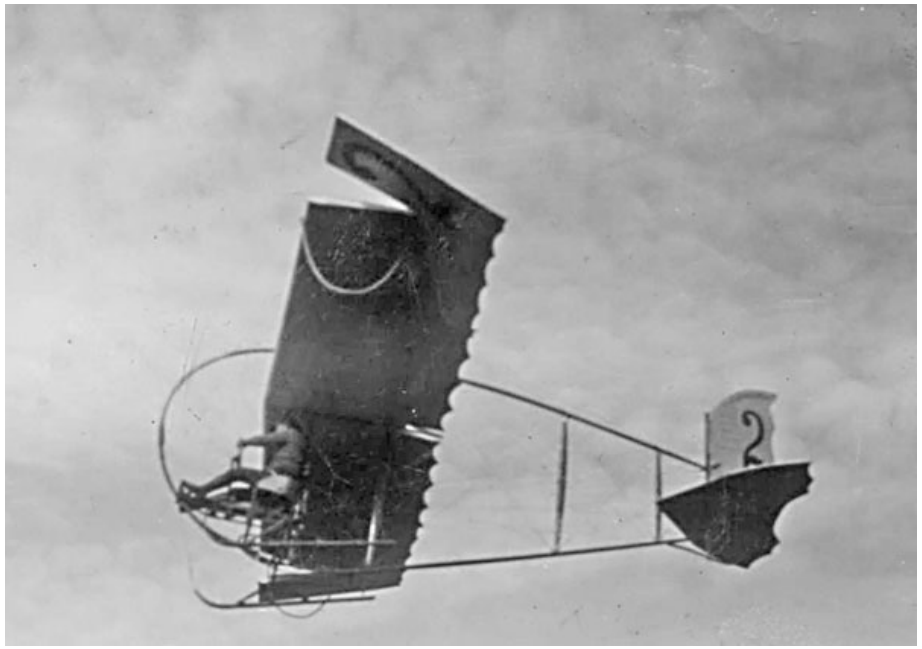
Działowski glider "Bydgoszczanka"

Thanks to "KayFranz" at <http://www.konradus.com/forum/read.php?f=1&i=246029&t=246029>, with additional information and photos from <http://www.piotrp.de/SZYBOWCE/pbydgosz.htm> and <http://www.samolotypolskie.pl/samoloty/842/126/Dzialowski-Bydgoszczanka2>

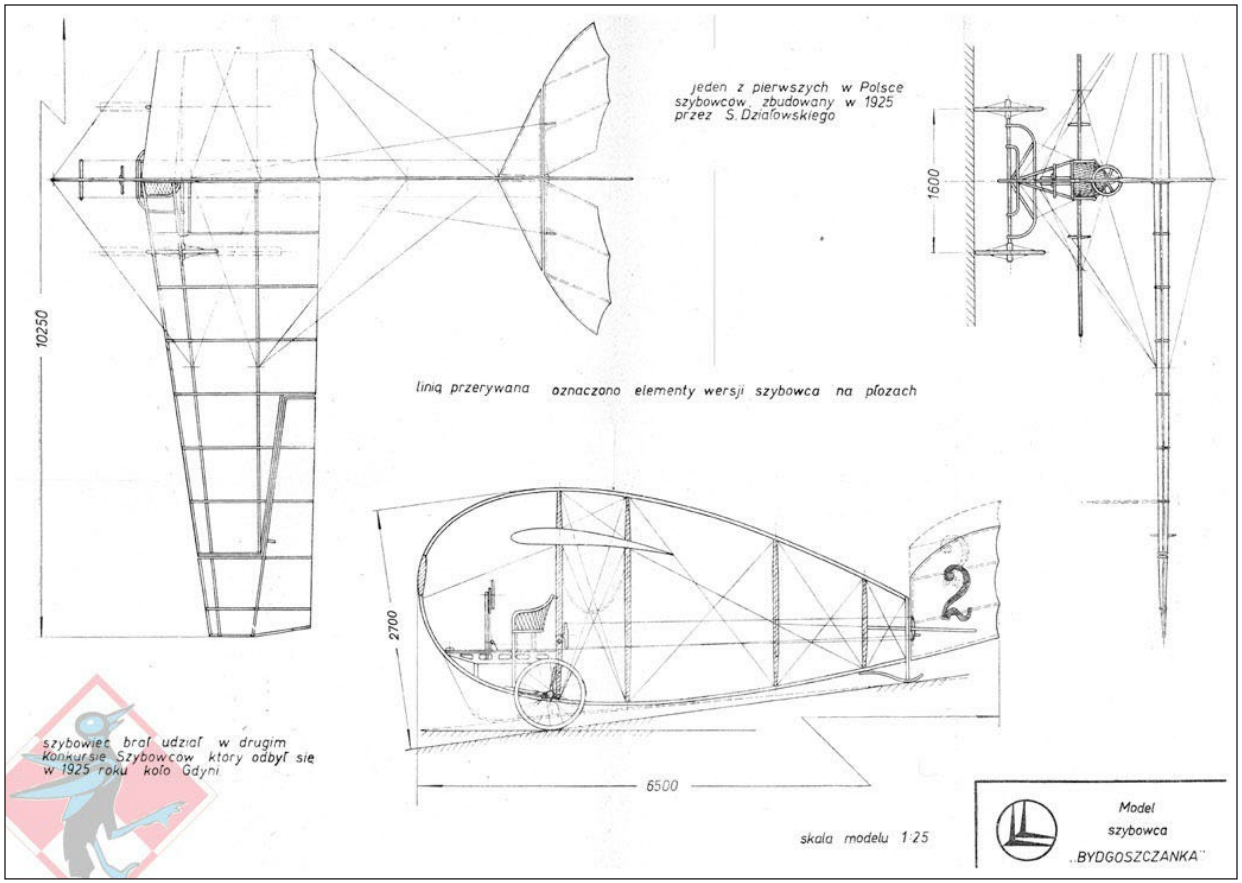
Stanislaw and Mieczyslaw Działowski were relatively prolific aircraft designers and builders during the period between the World Wars. Their first project, "Bydgoszczanka," was a glider started in 1924 and built in the workshops of the school in Bydgoszcz, where designers were employed-, hence the name.

The "Bydgoszczanka" incorporated several features not often found in other gliding aircraft of the time. These features included landing skids (later exchanged for wheels), a wheeled control system, semi-balanced ailerons, and a plywood D-tube wing structure. This was all encapsulated within a very simple planform.

Dimensions		
Span	10.24 m /	33.6 ft
Length	6.5 m /	21.3 ft
Height	2.6 m /	8.5 ft
Wing area	15 m^2 /	161.5 ft^2
Weight	78 kg /	172 lbs
Useful load	70 kg /	154 lbs
Total weight	148 kg /	326 lbs



http://www.piotrp.de/SZYBOWCE/gbydgos8.jpg



Translation of plans notes:

jeden z pierwszych w Polsce szybowcow zbudowany w 1925 przez S.Dziafowskiego

one of the first gliders in Poland built in 1925, by S.Działowski

liniq przerywana oznaczono elementy wersji szybowca na pfozach

dashed line indicated elements version of the glider skid

szybowiec braf udziaf w drugim konkursie Sybowcow ktory odbyf sie w 1925 roku kofo Gydni

glider took part in the second competition Sailplane which took place in 1925 at Gydnia

Model szybowca bydgoszczanka

Model glider bydgoszczanka

3-view courtesy of and thanks to K. Rauchfleischa for the original and "KayFranz" on the <http://www.konradus.com> forum for making it available to the public.

Structurally, the Bydgoszczanka was a high wing single seat design which consisted of a flat oval skeleton fuselage with vertical members and wires to hold the shape. Wires also were used to support the trapezoidal wing.

As mentioned previously, the wing incorporated a plywood D-tube which covered the leading edge and terminated at the main spar. The remaining portion of the wing was covered with fabric, as were the tail surfaces.

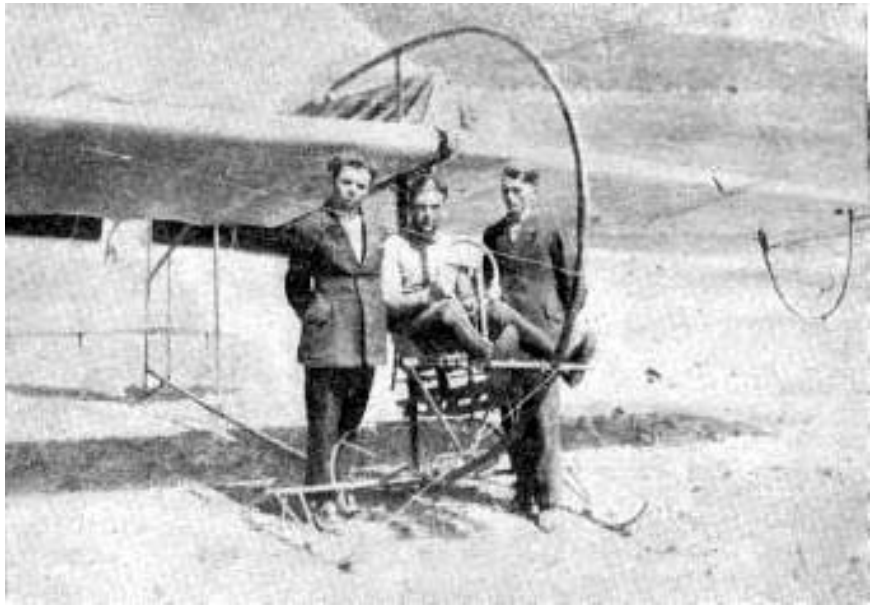
The Bydgoszczanka flew in the Second Polish Glider Contest held in Oksywiu, Gdynia, northern Poland, 17 May to 15 June 1925.

Its first flight was one of 15 seconds on 18 May. The aircraft flew eight times during the event with a best time of one minute 12 seconds while covering roughly 500m. The glider was broken at the end of the event and repairs included moving the vertical tail structure and the addition of a wheeled landing gear.

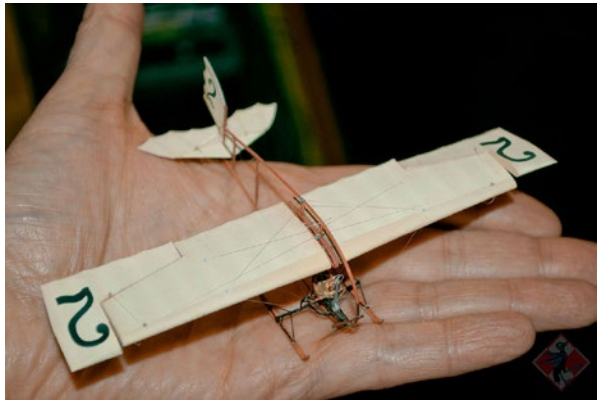
http://www.piotrp.de/SZYBOWCE/gbydgos9.jpg

http://img.audiovis.nac.gov.pl/PIC/PIC_1-G-1720-1.jpg

http://www.piotrp.de/SZYBOWCE/gbydgos10.jpg



http://www.piotrp.de/SZYBOWCE/gbydgos4.jpg



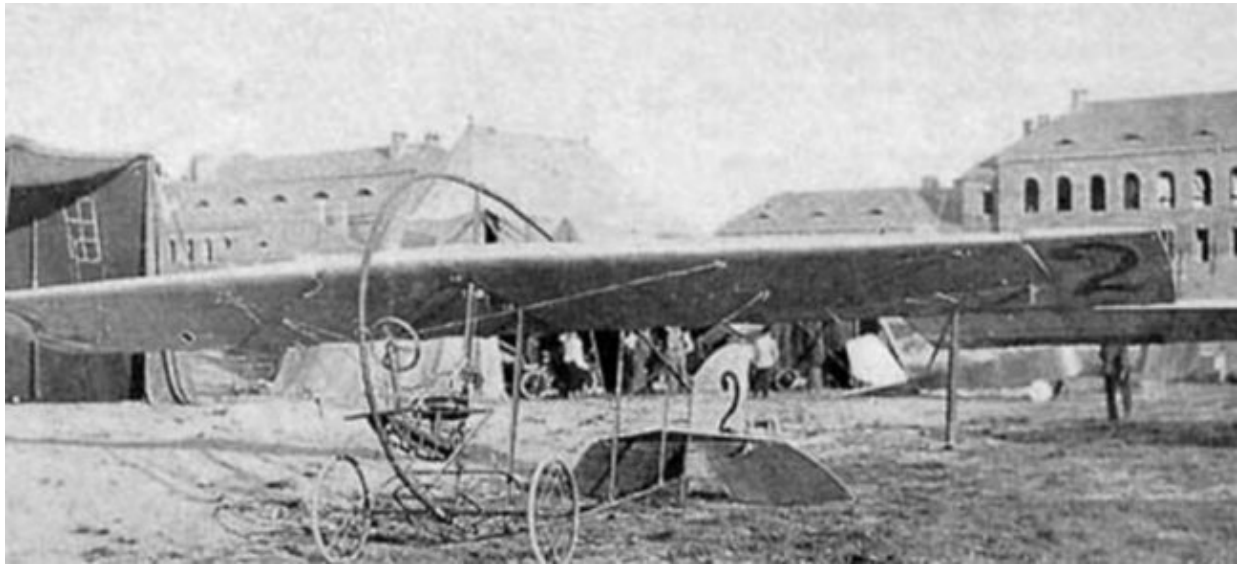
http://images65.fotosik.pl/171/98f553fcd7a2ad08.jpg

http://images62.fotosik.pl/136/7f4cbbe7aa4dea61.jpg

Above: KayFranz' 1:72 scale model of the "Bydgoszczanka" resting on the palm of his hand. The model spans 5.6 inches.

Above right: A good view of KayFranz' model in roughly the same perspective as in the photo to the right.

KayFranz' model includes the skid undercarriage, while the photo at right shows the aircraft with wheels.



http://www.piotrp.de/SZYBOWCE/gbydgos3.jpg

Stanislaw Działowski went on to design and build four more aircraft, including another glider (built in nine weeks) and a multi-passenger powered model. Given conditions in Poland at the time, this was quite an accomplishment.