Radio Controlled
Soaring Digest
November 2009 Vol. 26, No. 11

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November 2009
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Back cover: Steve Adams' Stork in the skies over Pasco Washington during the 2009 Northwest Soaring Society Tournament, September 19-20.
Photo courtesy of Dave Beardsley.
Nikon D700, ISO 200, 1/500 sec., f5.6, 400mm

R/C Soaring Digest

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In the Air

Brian Keefe's review of the Radio Carbon Art *Soaring Master Class 1* DVD in the October issue lacked contact information for RCA. Paul Naton has a wide selection of DVDs available on the RCA web site <http://www.radiocarbonart.com>. The Radio Carbon Art 'phone number is 888-834-2261. Our sincere apologies for any inconvenience caused by the omission.

Richard T. Whitcomb, designer of what became known as the "Whitcomb winglet" passed away on the 13th of October. Winglets reduce wingtip vortices and the induced drag such vortices create, improving the aerodynamic efficiency of the wing. Winglets are now seen frequently on modern airliners, in which they reduce fuel consumption, and in sailplanes in which they improve the glide ratio. Whitcomb also proposed transonic area rule and was responsible for the development of supercritical airfoils.

We made it down to Visalia for the Fall Soaring Festival and had a wonderful time, as usual. Dave Beardsley flew the R-2 (featured on the back cover of the October issue) in Woody Class, as planned. Dave's technique was to get the R-2 into a thermal and then stay with it for the entire flight time, often going 'way downwind. During the 10 minute flight on Saturday, Dave had the R-2 so far away that some observers thought it had flown out of range and was in free flight. Dave and the R-2 placed 17th out of 34 entries and would have placed substantially higher had it not been for the off-field landing in the last round where just two feet of additional altitude would have made the difference. Yeah, we're already working on an entry for next year.

Time to build another sailplane!

Red Bull JART

Johann Lochner, SA JARTs blog

Posted 8:30AM, Friday, October 16, 2009

I know, I know... just another Red Bull plane that ”gives you wings”!

So what. I enjoyed building it and the stickers were lying around. The process also taught me the art of spraying and masking! I must have sprayed the three colors six times and taken it down as many.

The plane weighs in at 1150 grams fully loaded and is perfectly balanced. I have given Alain my old one as it has had a tough life. It’s been crashed and flown hard and still flies beautifully!

We are just waiting for a strong southwesterly! I must just ensure this one lasts so that we can take it along to Hermanus in November!

As Daron would say, “You have to have one of these in your quiver”!

Posted 12:13PM, Monday, October 19, 2009

Friday arrived with a moderate southwesterly wind at about 20 km/h. We decided to toss her anyway and managed to trim her up in flight.

The aileron throws need to be readjusted as the roll rate was nowhere near the old JART. Wind strength did not help much either...

The main thing is she flew, and we’ll put her through her paces soon!

Opposite page: Sean and Vic giggling uncontrollably!

Right: The JART in her new party dress.

The Red Bull JART in all her glory.

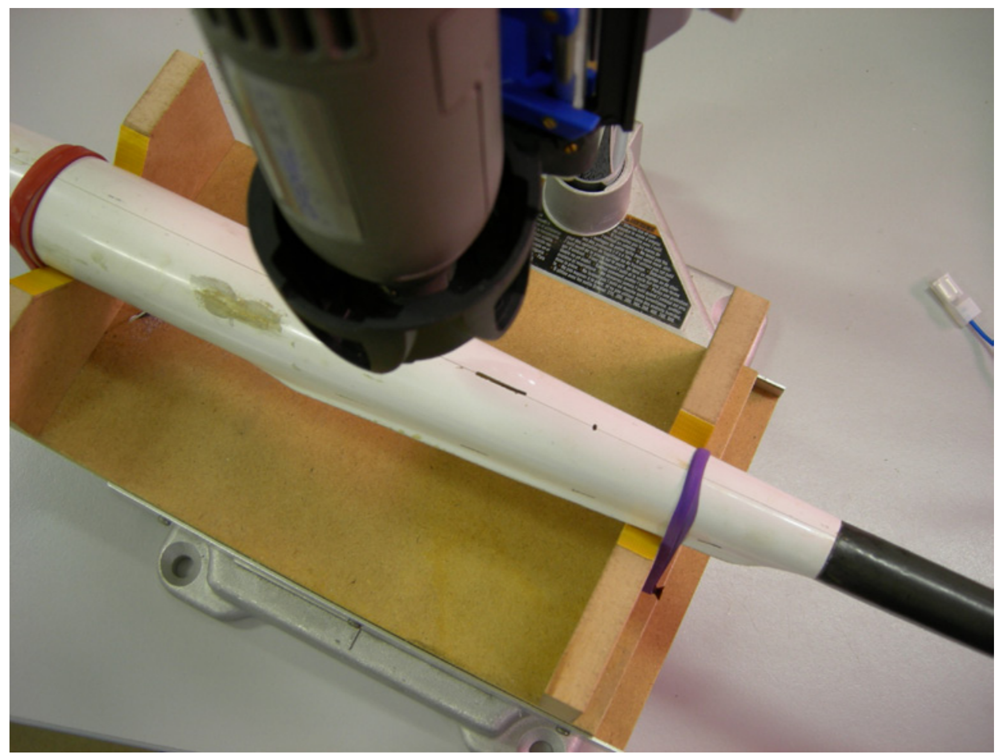
The Tool Room

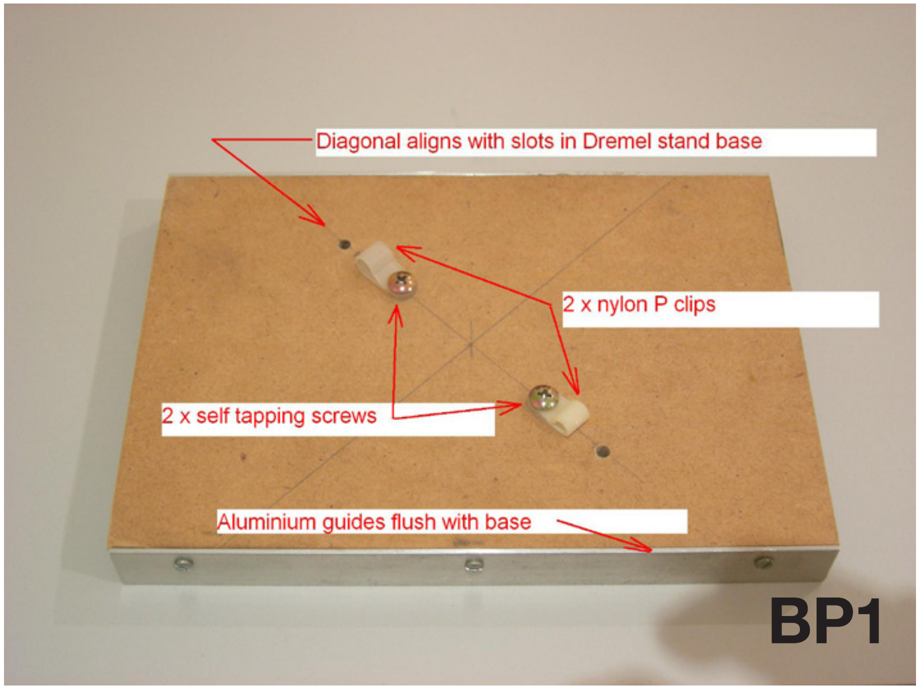
by Lothar Thole, lothar.thole@gmail.com

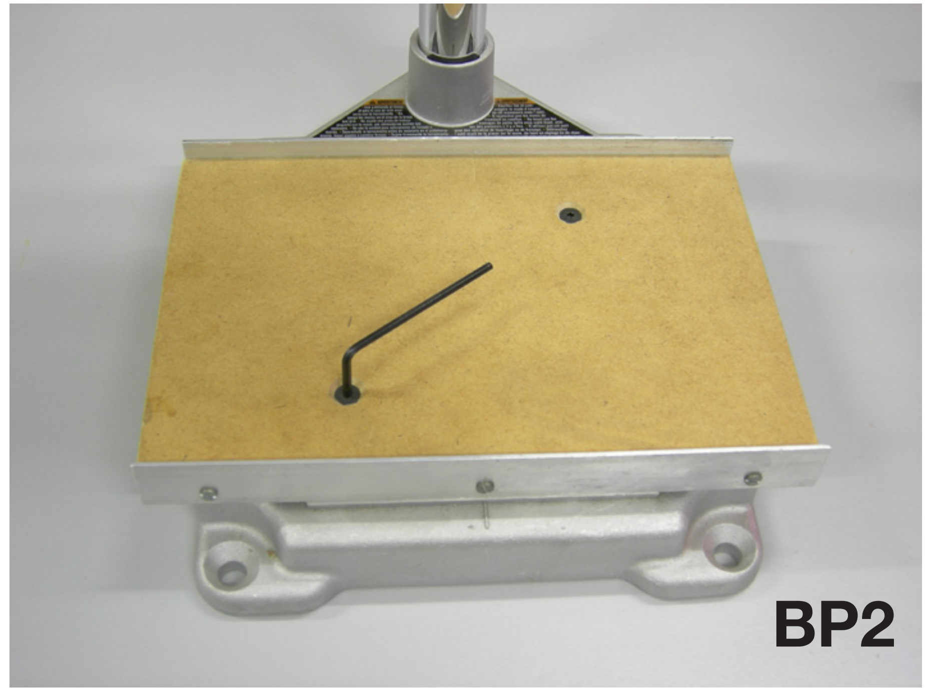
A Simple Milling Attachment for your Dremel™ Drill Stand

When building my first Discus Launch Glider, I was faced with the need to cut very narrow exit slots in the beautiful molded fuselage for the small diameter stainless and Teflon pushrods. I soon learned that a rotary high speed cutting bit in a hand-held Dremel tool will wander off track very easily due to the pull of the cutting edges as the bit rotates.

I recently purchased my third DLG kit, a Blaster II from Vladimir's Models. This is even more beautiful than my first, with a high gloss mirror finish. To avoid the mistakes made previously, I decided to make a rudimentary milling attachment for my Dremel drill stand, which will ensure perfectly straight and even slots in the fuselage.







The attachment consists of a base plate fixed to the base of the drill stand, which has aluminium guides along two sides. A second carrier plate fits between these guides, upon which various guide blocks can be mounted. This assembly, holding the work piece, can then be slid back and forth in only one axis, after the cutting bit has been lowered into position, resulting in a perfectly straight slot.

Preparation

a) Cut some 13mm MDF into a strip 140mm wide by at least 600mm long. The exact dimension is not critical, but it must be of even width (i.e. use a table saw).

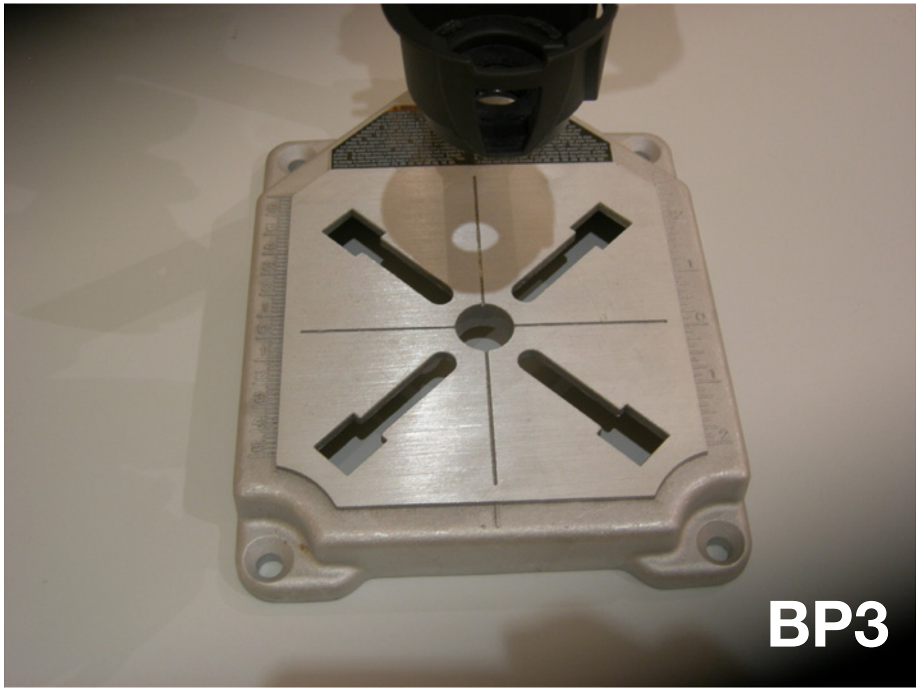
b) Cut the 140mm wide piece into lengths of 200, 240 and 3 x 50mm. This will ensure that all pieces are exactly the same width.

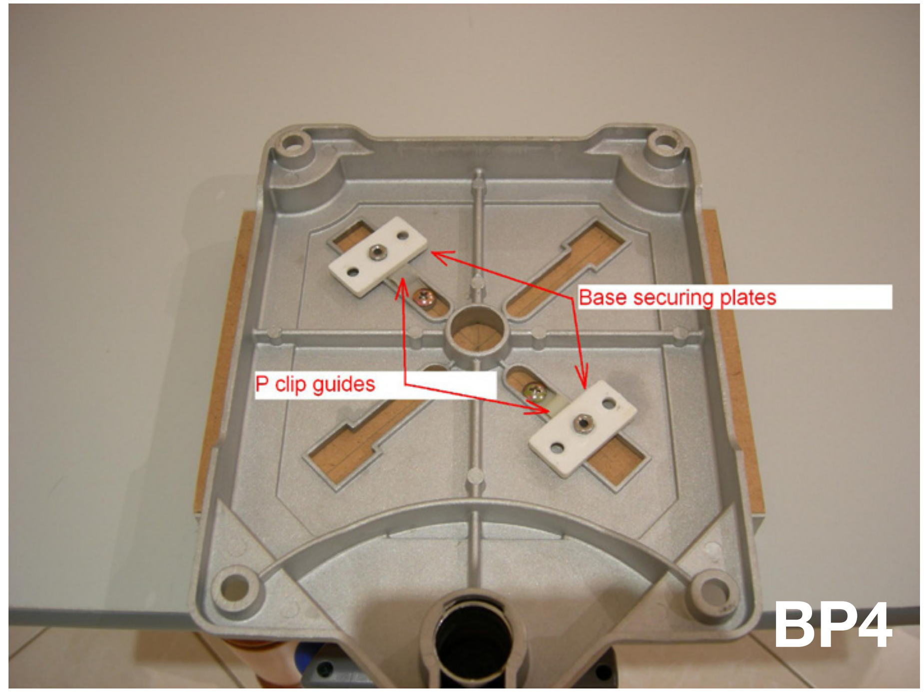
Base Plate Assembly

c) The 200mm length of MDF is used for the base plate.

d) Mark the bottom centre of the plate and draw 45 degree diagonal lines through the centre.

e) Drill two 4mm holes at 50mm from the centre along one diagonal. Countersink these two holes from the top side so that the countersunk heads of the M4 x 25mm machine screws sit below the surface of the base plate. Refer to photos BP1 and BP2 for details.





f) Next, cut two 200mm lengths of 20 x 1.5mm aluminium bar. These bars will be attached to the base plate so they sit flush with the bottom of the plate.

g) Drill 3 x 3mm holes through each Al bar such that the 2.8 x 10mm mounting screws will be centered vertically and evenly spaced along the sides of the MDF base plate.

h) Attach the Al bars to the base plate, ensuring that they sit flush with the bottom of the plate. Refer to photo BP2.

i) File the two P clips to width so that they can just slide along in the diagonal slots in the Dremel drill stand.

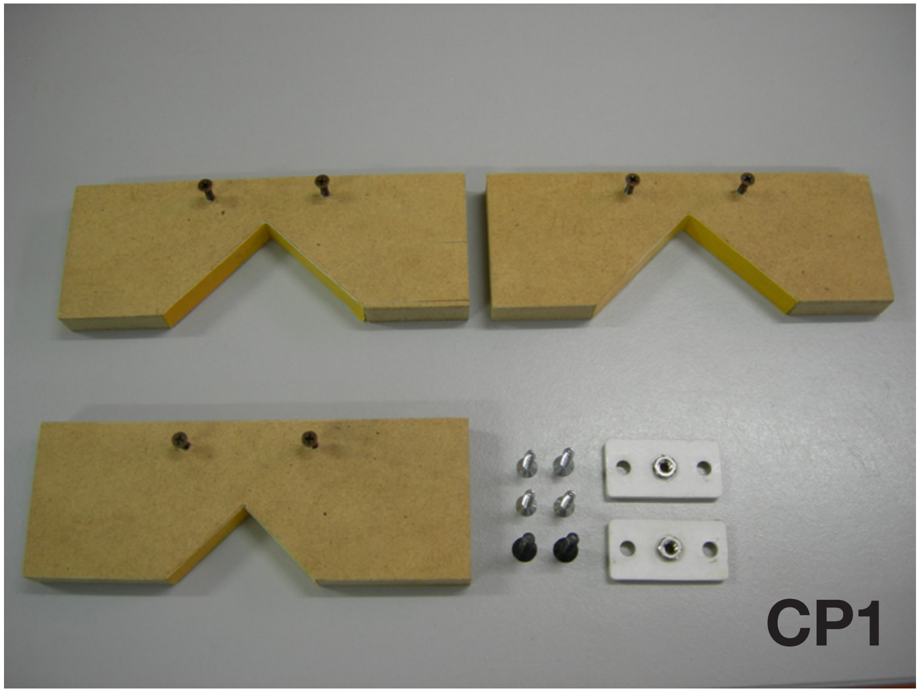
j) Attach the two P clips to the bottom of the base plate 40mm from the centre along the same diagonal. Refer to photo BP1 for details.

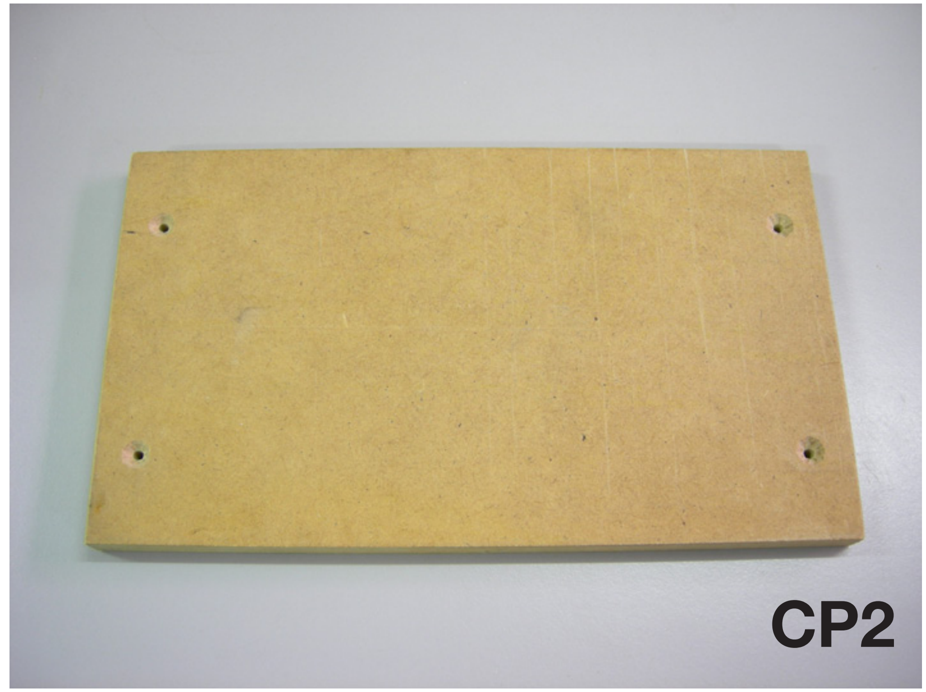
k) Place the base plate assembly onto the base of the drill stand, so that the nylon P clips engage the diagonal slots. Attach the base plate to the stand using the two M4 x 25mm machine screws, the two base fastener plates and two M4 nuts. (I salvaged these plastic plates from old curtain mounting hardware.) Refer to photos BP1, BP3 and BP4.

Carrier Plate Assembly

l) The 240mm length of MDF is used for the carrier plate.

m) Cut V slots into the centres of the 140 x 50mm MDF guide blocks. On two of my supports the bottom of the V is 15mm from the bottom of the support, and the other is 25mm. (The 25mm and 15mm combination suits my Blaster II fuselage, while two similar supports will suit round tubes and the like.) Attach cloth tape to the faces of the V slots fo scratch protection. Refer to photo CP1 for details.





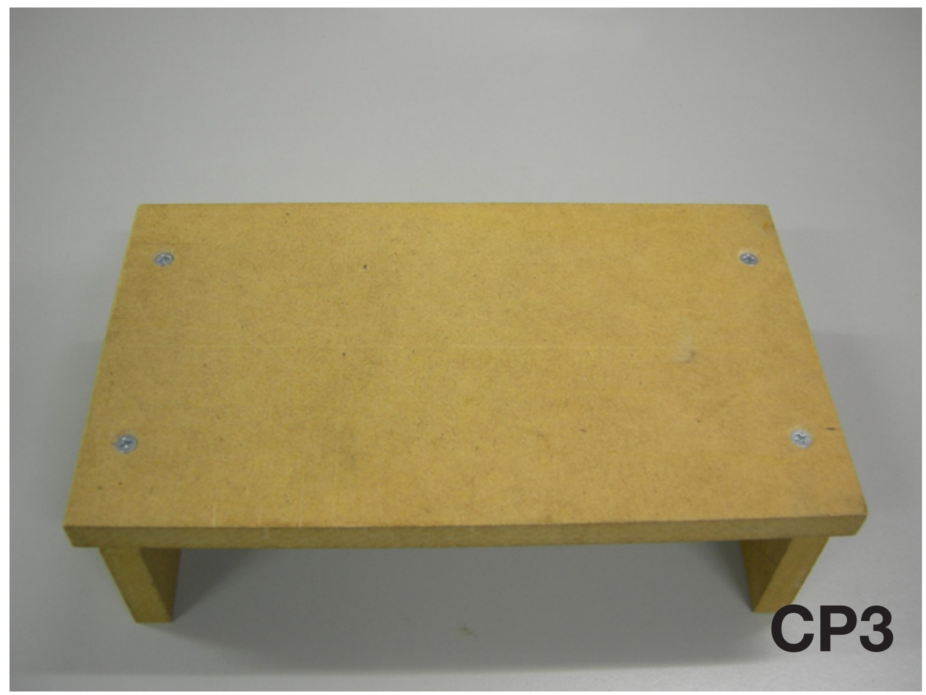
n) Attach some small screws below the V slots as rubber band attachment points for holding down the workpiece.

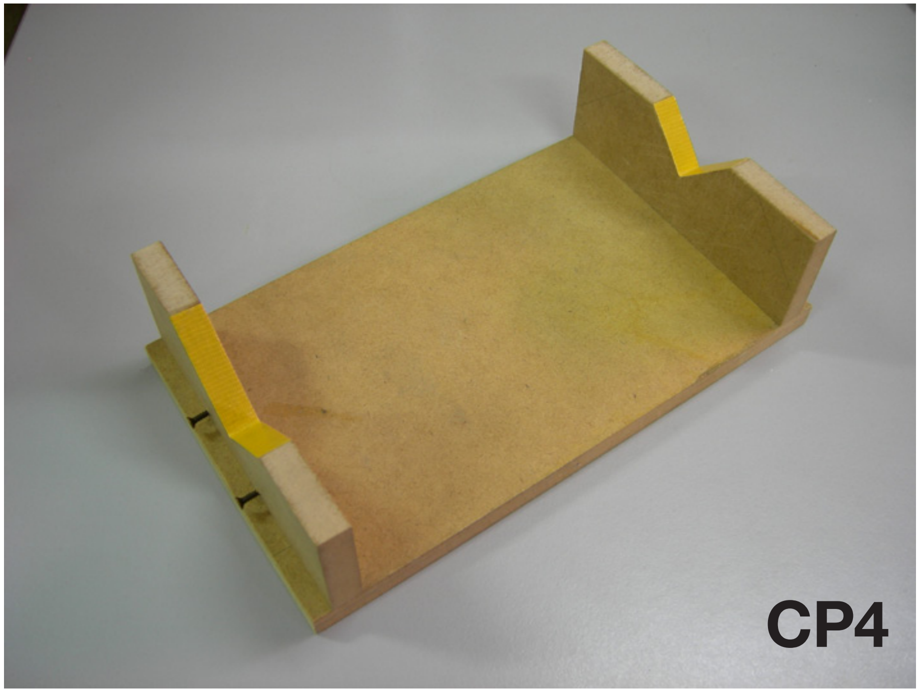
o) Using a scrap metal strip as a drilling guide, drill two evenly spaced pilot holes into the underneath of the guide blocks.

p) Using the same scrap metal strip as a drilling guide, drill two matching holes near each end of the carrier plate. Enlarge the 4 holes to 4mm diameter. Refer to photo CP2.

q) Attach the selected two guide blocks to the carrier plate using the 5 x 25mm self tapping screws. Refer to photo CP3.

r) This assembly should fit closely between the base rails, but not so tight as to bind. The edge may require slight sanding to achieve this.





Use of the Milling Jig

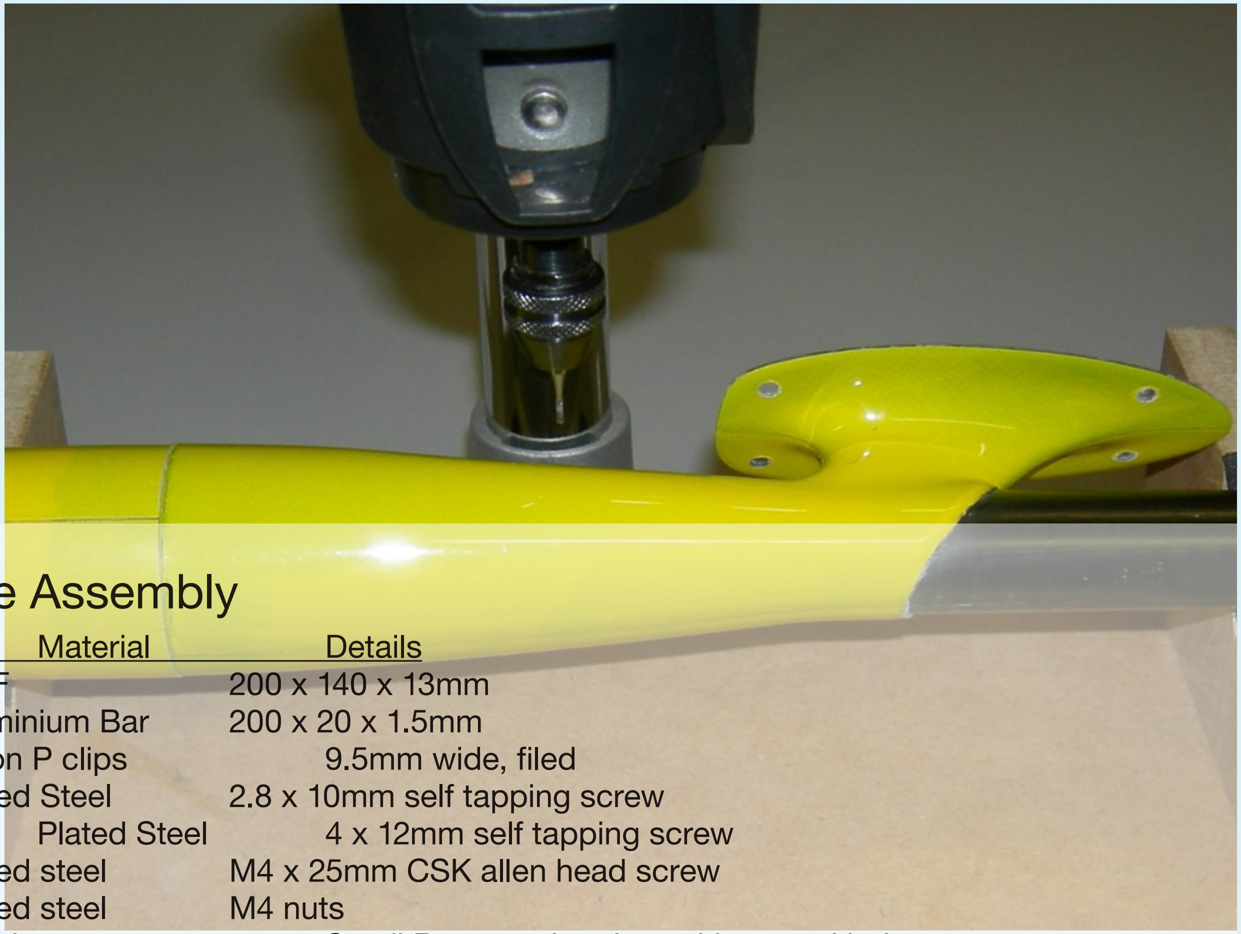
s) Ensure base plate is centralized on the Dremel base plate. The diagonal lines drawn on the base plate make this easy.

t) Place Carrier Plate onto the base plate, and ensure that it can slide back and forth with no slop.

u) Attach the workpiece (an old DLG fuselage in my case), and secure with rubber bands. The workpiece must be secured firmly. I initially used neoprene foam strips as cushion material in the V slots, but found that this allowed too much movement, with poor results.

v) I use a Dremel engraving bit with parallel cutting edges as a router bit. The Dremel tool must be restrained in the drill stand with a piece of hard packing foam and Velcro strap to minimize any movement. Refer to photo MILL1.

w) Lower the tool by pulling down on the drill stand lever until you have drilled a hole in the workpiece. With the cutting bit inserted a few millimeters, slowly move the workpiece in the horizontal direction by sliding the Carrier Plate along its guides.



Bill of Materials – Base Plate Assembly

Item	Qty	Material	Details
Base Plate	1	MDF	200 x 140 x 13mm
Slider Rails	2	Aluminium Bar	200 x 20 x 1.5mm
Guide Blocks	2	Nylon P clips	9.5mm wide, filed
Rail Fasteners	2	Plated Steel	2.8 x 10mm self tapping screw
Guide Fasteners	2	Plated Steel	4 x 12mm self tapping screw
Base Fastener Screws	2	Plated steel	M4 x 25mm CSK allen head screw
Base Fastener Screws	2	Plated steel	M4 nuts
Base Fastener Plates	2	Plastic	Small Rectangular plate with central holes

Bill of Materials – Carrier Plate Assembly

Item	Qty	Material	Details
Carrier Plate	1	MDF	240 x 140 x 13mm
Guide Blocks	3	MDF	140 x 50 x 13mm with V cut outs
Guide Block Cushions	3	Neoprene Foam	13 x 4 cut to length
UHU fix adhesive	1		For attaching foam to MDF
Guide Block Mounting Screws	4	Plated steel	5 x 25mm self tapping screw
Guide Block Hooks	6	Plated steel	3 x 15mm CSK self tapping screws, for hooking rubber bands over

…and so flew our grandparents

Vincenzo Pedrielli, vincenzopedrielli@gmail.com

An A60 Fauconnet, the French version of the German Spatz

Two teams of several individuals on the bungee cord and ready to pull another glider into the air.

It is not new for the Swiss to organize a Bungee Cord Launch. They did it few times already in the past. Last month, September, they planned a bungee cord vintage glider meeting on the slope near the small village of Mauborget, overlooking Neuchatel Lake. I could not miss this extraordinary event and with the advice of my friend Will Schwarzenbach I caught a train in Milano and after four hours I got to Yverdon, where Willi was there to meet me.

We drove to Mauborget slope, where the sailplanes were already rigged and ready to take off. It was about lunch time so a quick meal of sandwiches was timely prepared for all attendants, guests included.

At about 1 o'clock the first sailplane was placed on a track about 15 meters long and wide enough to contain the skid of the sailplane, to provide straight direction.

This track was staked out on the ground, together with a device which transmits the force of the cord only when the cord itself is completely stretched.

Willy Fahrny, the leader the event, started the security procedure by checking all glider commands and in the meantime, two groups of nine persons each, arranged in "V" lines, started descending the slope holding the cord and waiting the instructions from Willy Farny.

At first Willy shouted: "PULL" and he repeated this order a second time. Then he yelled the next order, "RUN," and everybody started running down hill until the cord reached the

maximum tension. At this point, Willy pulled the latch which allowed the force of the bungee cord to be applied to the sailplane which was slung off the slope.

I assumed that with such a launch the sailplane would have shortly landed again, but I was totally wrong. The sailplane started slowly climbing and soon after disappeared to our eyes.

The landing happened about two hours later in a grass field downhill, which was arranged for the purpose. One after the other all sailplanes took the air with the same procedure and one after the other landed in the same field.

Some returned with the trailer to the slope for a second run on the same day, others remained on the ground.

Besides the vintage sailplanes, which were about a dozen, a ULF (Ultra Light Flugzeug), named Flädy 1 (which mean Bat), took part in the meeting.

It was built by the grandfather of Silvio Polla, the youngest pilot who joined this meet. It weighted only 50 kg and it was launched with a special bungee cord pulled by only two persons instead of 18, as in the case of the vintage sailplanes.

Once in the air, it was just floating and smoothly climbing.

While it was flying with the other sailplanes, the air space was shared with hang gliders and paragliders, all enjoying the lift provided by the slope.

It was quite an experience for me, which brought me back 60-70 years, when this method of taking off was actually the only one used by our grandparents.

Opposite page: A Nord 1300 is pulled into the air

This page: Upper - a Moswey III
Lower - a Grunau Baby II

The Moswey III is readied for launch

Above: The Flädy 1 is carried across the landing field. at just over 100 lbs. (50Kg) it takes just a few people to handle it effectively.

Left: The Flädy 1 trailer on the landing field. Ultra light, just like the Flädy 1.

The Flädy 1 is launched with a special lightweight bungee pulled by two people.

Landing is on a field at the base of the hill.

Flädy 1 in free flight.

The lightweight structure gets some scrutiny on the landing field.

Opposite page: Close-up views of the Flädy 1 cockpit. *Above: An overview of the Flädy 1 showing spoiler position.*

FAI has received the following
Class F (Model Aircraft)
World record claim:

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Claim number : 15650

Sub-class: F3 Open (Radio Control Flight)

Category: Glider

Type of record: 161: Speed in a closed circuit

Course/location: to be advised

Performance: 133.2 km/h, 82.7 mi/h

Pilot: Alexander VASILIUK (Russia)

Date: 18.10.2009

Current record: 129.70 km/h
(23.06.1997 - Zufar VAKKASOV, Russia)

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The details shown above are provisional.

When all the evidence required has been received and checked, the exact figures will be established and the record ratified (if appropriate).

LASS presents

2nd Annual Susquehanna Soaring

Date:

Saturday, April 24th, and Sunday, April 25th, 2010
Pilots meeting 9:00am
Flying starts at 9:30am
Only electric power will be permitted - no gas/glow power

Landing Fee: $15 for one day; $25 for 2 days; AMA required

We welcome:

Any electric tow plane
Any glider with or without electric motor
(Scale, Performance, DLG/HLG, TD, Hotliner/Warmliner, etc.)
Electric tugs for aerotowing up to 25lbs gliders will be available
If your glider is heavier than 25lbs please contact us
as there may be a tug available
Winch will be available, please no Hi-Starts
Porta Potty and 110V outlets on site!

Location: LASS Field near Manheim, PA – huge grass area
http://www.lassrc.org/dir.htm
GPS coordinates: N 40.12308 W -76.37893

Spectators, friends, and RC enthusiasts welcome! Raffle prices: Senior Telemaster, Multiplex Blizzard, Hitec Servos, etc.

Event Coordinator: Alex & Dave
albtz@comcast.net soarntz@gmail.com http://iflytailies.jimdo.com/

solar SAILAIRE

By Pete Carr WW3O, <wb3bqo@yahoo.com>

In a previous article, *RCSD*, June 2008, I wrote about adding solar panels to an Olympic II sailplane. At the time, I was only interested in maintaining the battery charge level over the period of a days flying. The panel would supply about 70 milliamperes of current at about 6 volts to the onboard NiCd pack. This charge would happen at all times if the ship was out in the sun.

The cost of these solar panels has come down to about three dollars each so a pair offers 6 volts at 70 ma for about six bucks. I began thinking about how many cells it would take to completely power a sailplane. The question was, how much current does a sailplane use when all the servos are running.

The finished Sailaire is basking in the sun.

The voltmeter and ammeter are connected to the radio. They indicate the battery voltage of about 5 volts with a current draw of about 25 ma. The servos are at rest so total current draw is low.

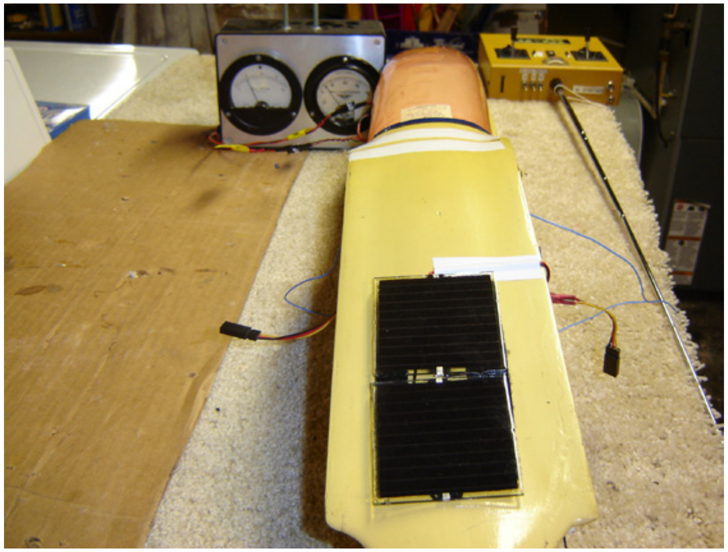
The two servos in the fuselage are moving and the total current shows about 175 ma. The stabs are not plugged into the cross tail so only the bellcrank, the rudder and the two pushrods offer resistance to the servos.

Now, the following figures are only an estimate since air loads in flight would increase the current draw. This is especially true if the sailplane had the spoilers deployed and was in a shallow dive on the way to a landing or leaving killer lift. Still, the numbers are a good starting point.

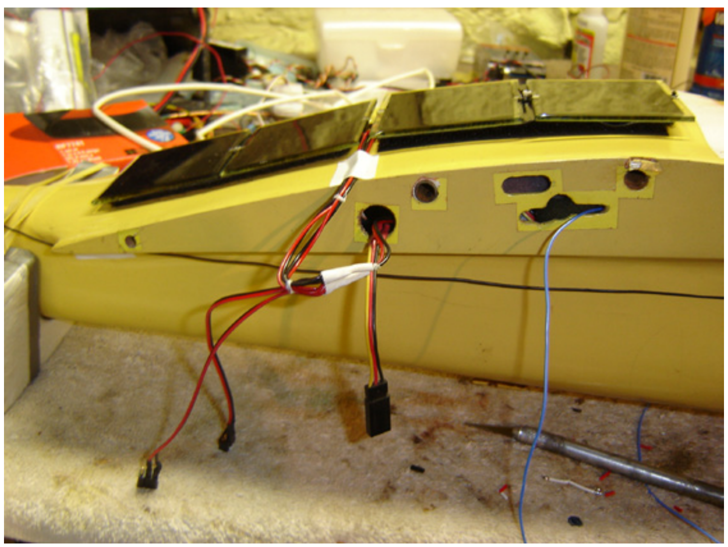
Based on the draw of four servos in a ship the size of a Sailaire, the total current could reach a peak of 750 ma. That's a lot of current, especially when servos like the spoilers are a long way from the receiver and battery.

The estimated current draw is not the only variable in the equation. I've watched the voltmeter attached to the solar array go from an open-circuit voltage of about 6 volts to nearly 10 volts as varying amounts of clouds pass in front of the Sun. In addition, The acute Sun angle striking the cells decreases the amount of energy converted to watts of power. Then there is the action of the sailplane as it turns and banks in the lift. At times the cells are totally blanked so the battery must take the entire load. The load of the radio system varies the battery drain while the solar cells also have varying charge current feeding the battery

The eight solar cells in this experiment are wired in series/parallel to produce about 6 volts at 280 ma at maximum illumination. The results of this configuration are sent to the battery pack



The first pair of solar cells are mounted to the fuselage. Red and black servo wire is used to run power forward to the radio room.



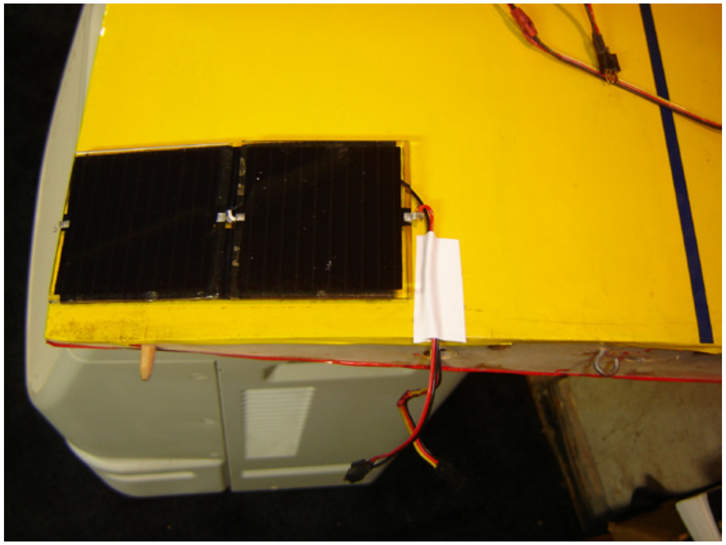
This is the side view of the fuselage. Two Deans jacks dangle near the two Futaba connectors that power the spoiler servos. One Deans jack will be passed through the fuselage to hook up with the wing solar cells plug of the opposite side. The single blue wire is the Thermal Sniffler antenna.

at all times. This means that, when sitting in the grass, with the receiver switched off, the battery pack is still being charged by the solar cells.

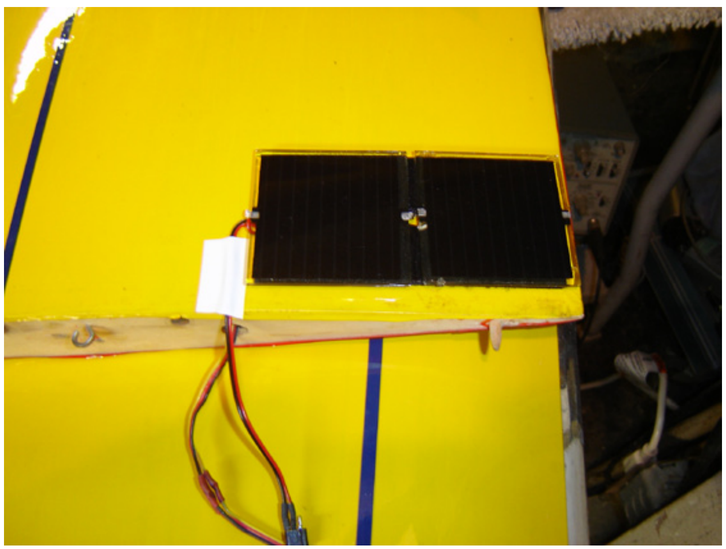
I was concerned about over charging and found some information on the internet. There are charge regulators available for use with home solar energy systems. The information I found indicated that if the solar array charges the battery at less than 1C, or the ampere/hour rating of the battery, then no regulator is needed. This is for lead-acid batteries so I'm not sure if NiCds are different.

The NiCad battery in the Sailaire is wrapped in foam for vibration dampening. This insulates and holds whatever heat is generated by charging. This is added to the ambient temperature of the air inside the fuselage which, on a hot and sunny day, can get quite toasty. These conditions may also shorten the life of the pack.

The C-size NiCds in the Sailaire have about 1800 ma rating and test out at 368 minutes of discharge on an Ace DigiPace. I plan to obtain long term data on the varied charge-vs-drain conditions by discharging the NiCd after each flying session to determine how much charge remains. If the pack has about 360 minutes left after the session then I can safely assume that the solar cells supplied the entire average flight power load leaving the battery fully charged.



This is the port side (left, for all you people who weren't Navy or Air Force) wing root. The two cells are situated so that their wiring is just above the spoiler servo wire. The two wires will be inserted into the fuselage as the wing slides onto the two wing rods for assembly.



This is the starboard wing root and cells. The thickness of the Velcro strips offers a small benefit. Air passes easily over and under the cells cooling them. There also may be a small decrease in drag.

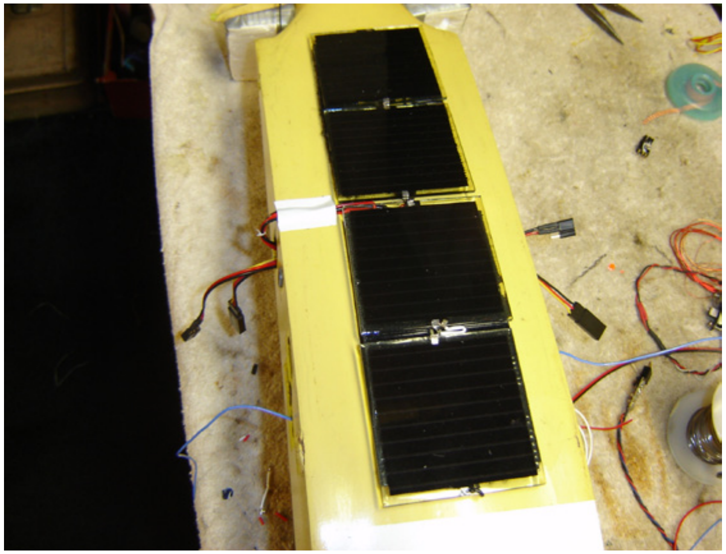
While testing in the shop I use an analog volt meter which is wired across the pack to monitor the voltage. Current is measured by inserting an ammeter in series with the battery and the load. These meters have really big dials so they are easy to read accurately from a distance.

I installed the two meters in a Radio Shack plastic enclosure and wired them to Deans plugs and jacks so they could be connected between the battery and the on-off switch. This allows me to look at the total load drawn from the power source by the receiver and servos.

When the radio is switched on the volt meter indicates the voltage going to the receiver and servo electronics. This should vary depending on the power being generated by the solar panel.

In the shop bench picture it indicates only the NiCd pack voltage since the shop lights don't power the solar cells. The ammeter reads about 25 ma. This is the current draw of the receiver and the two servos at rest. It should be noted that the wings with their two spoiler servos were not connected. This would add another 15 to 25 ma to the resting total current draw.

Now this is where the story gets interesting...



I wanted to see what the current draw of the two analog servos would be as they deflected toward full travel.

First I used the transmitter to send the elevator to full up, then full down, and read a peak current draw of about 170 ma. As mentioned before, the air load of flight would make this figure somewhat higher.

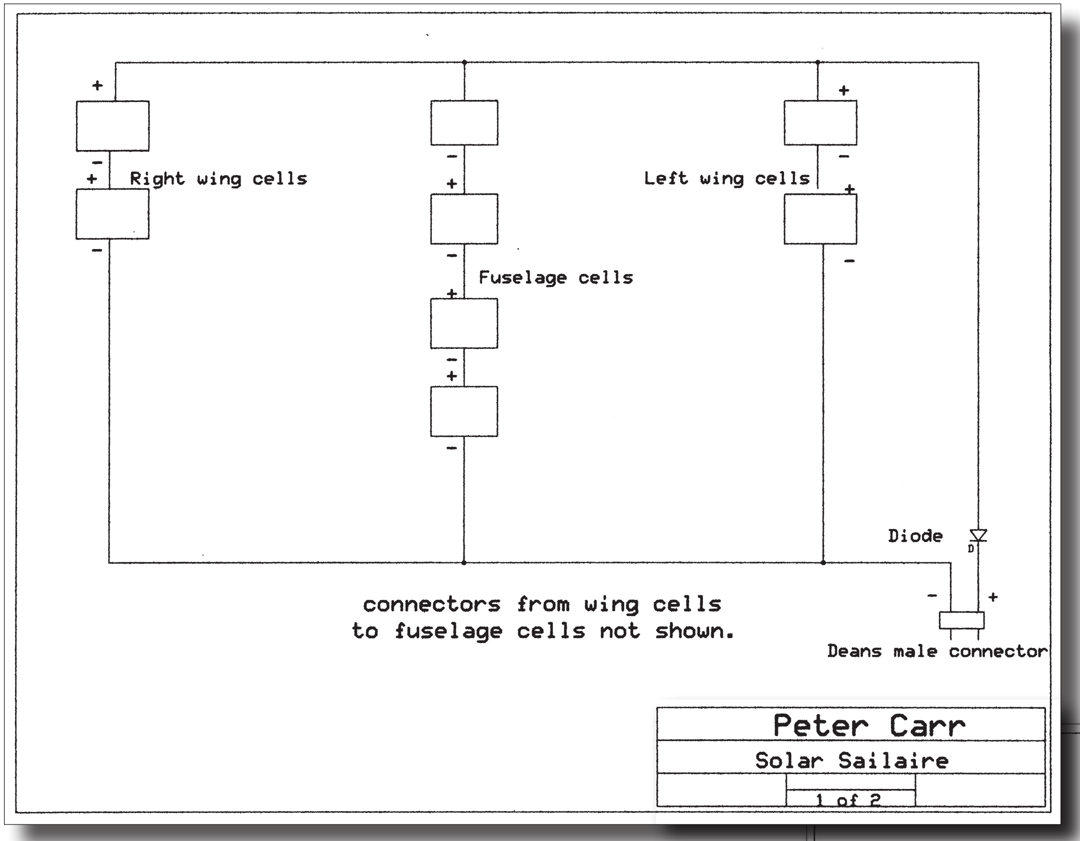
Then I did the same test with the rudder. The current draw went well over 200 ma and the meter needle response was not smooth as with the elevator.

The wiring is finished. There is a Futaba spoiler servo connector and a Deans jack exiting each side of the fuselage. As the wings slide onto the wing rods the wires and connectors a pushed into the holes along the side. The wings are secured to the fuselage by a pass-through rubber band and cup hooks and then taped along the wing seams.

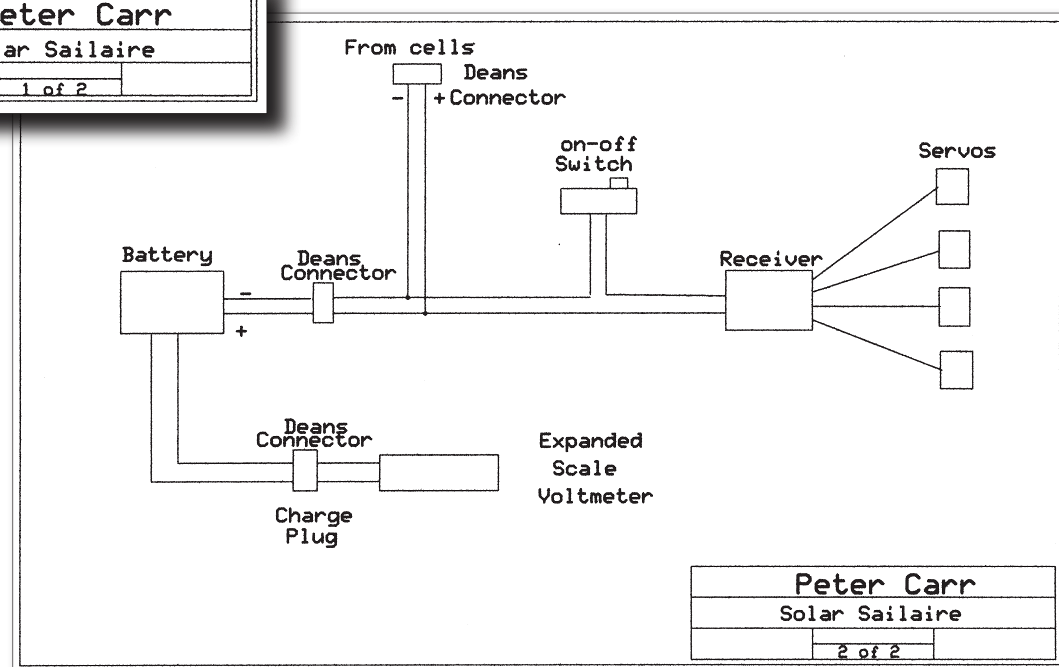
The Sailaire is assembled and under Sun test. It was amazing to see the effects of passing clouds on the solar output. The angle of the sunlight striking the cells was another variable.

I unhooked the rudder pushrod from the servo arm and repeated the test. The meter needle was not much smoother. I did check the pushrod for smooth travel. The trouble was in the servo so I changed it out and repeated the test. The current draw now was only slightly higher than the elevator.

I later opened up the servo and found a bad gear with several plastic teeth bent over. The motor was forcing these teeth to mesh with their counterparts and drawing more current with the extra effort. This was a failure waiting to happen and would have gone undetected if not for the ammeter test.



Right wing cells
Fuselage cells
Left wing cells
Diode
connectors from wing cells
to fuselage cells not shown.
Deans male connector
Peter Carr
Solar Sailaire
1 of 2



From cells
Deans
Connector
on-off
Switch
Servos
Battery
Deans
Connector
Receiver
Deans
Connector
Expanded
Scale
Voltmeter
Charge
Plug
Peter Carr
Solar Sailaire
2 of 2

The top of the Sailaire fuselage is wide enough to accept two pairs of two cells along the space between the wings. The other two sets are mounted on the wing roots close to the fuselage. There would be minimum wind drag or disruption of lift with this arrangement and wiring is easily routed through the holes used to connect the spoiler servo wiring. Heavy duty Velcro is used to mount the cells.

The goal is to power the Sailaire in such a way that the duration of flight is not a problem. For LSF tasks such as the 10K goal and return or the dreaded 8-hour slope flight this is an ideal arrangement.

Recent developments in solar cell efficiency have led us to this point.
It may not be too long before further improvements would allow the average modeler to fly electric motor powered planes run completely by solar power.
An electric power pod atop the Sailaire would make an interesting additional experiment.

From this view it's easy to see the placement of the solar cells on the ship. Since there is already considerable turbulence around the wing roots and fuselage the extra drag penalty is very small.

Sources:

Electronic Goldmine
<http://www.goldmine-elec.com>
P/N G16394 solar cell, $2.99 each

Scotch Fasteners (Velcro)
P/N RF7741
1" by 48" strips, $4.99 per box

Manta Ray

Giuseppe Ghisleri, ghisl@tin.it

The time was August 2001, the place Mount Subasio, Central Italy, an almost spherical top mountain ruling the valley of Assisi, which lies on its foot.

The Gruppo Aeromodellistico Perugino gave its annual Slope Meeting, weather was windy and this was common, but the temperature was around 15-16 C degrees, very cold and unusual for the season.

Nevertheless a lot of aeromodellers were there enjoying the flying.

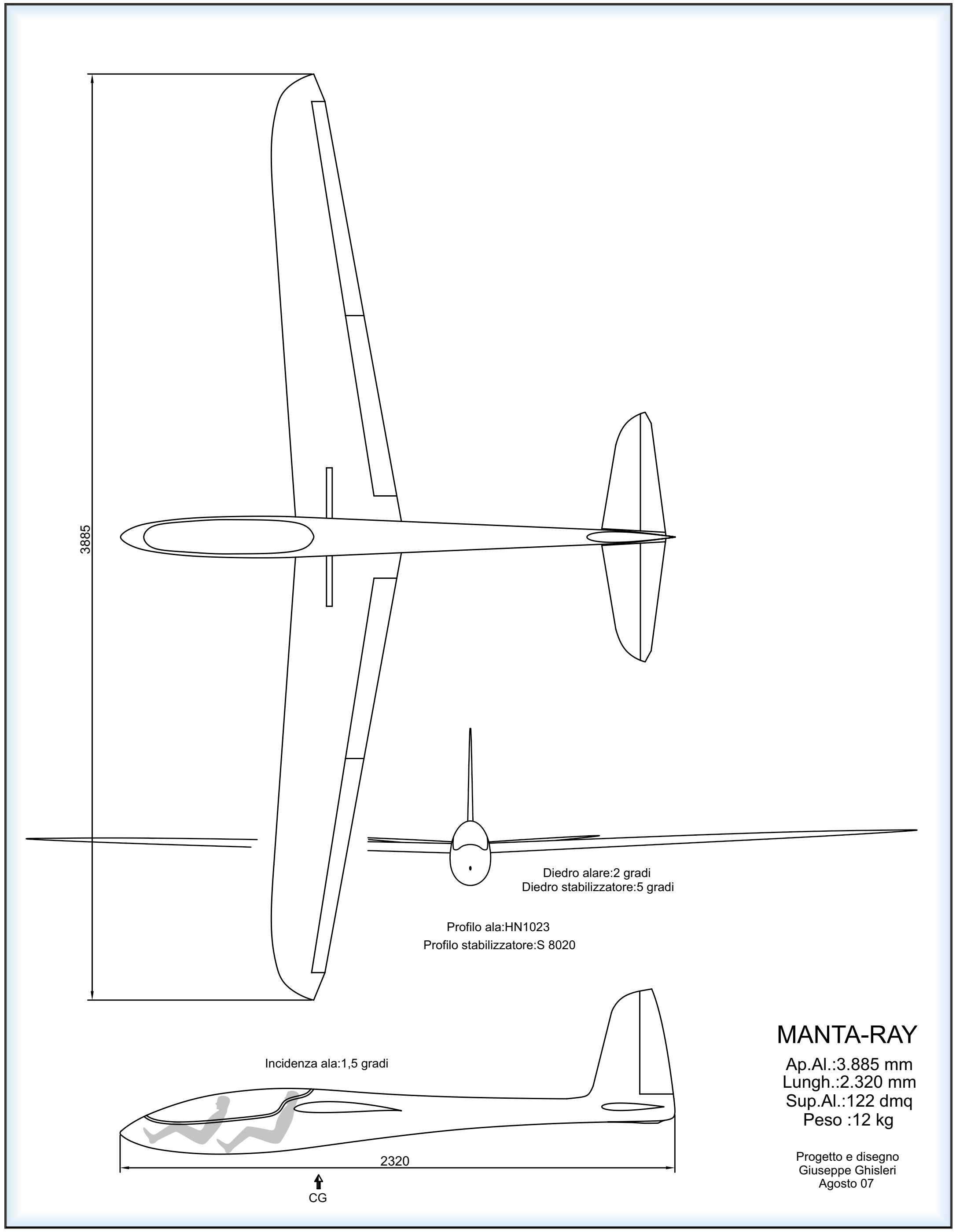
A friend of mine had a new model: a 1:4 scale of the Blanik L13 AC, the full acro short wing version of the more common L13 all metal sailplane built by LET in the Czech Republic.

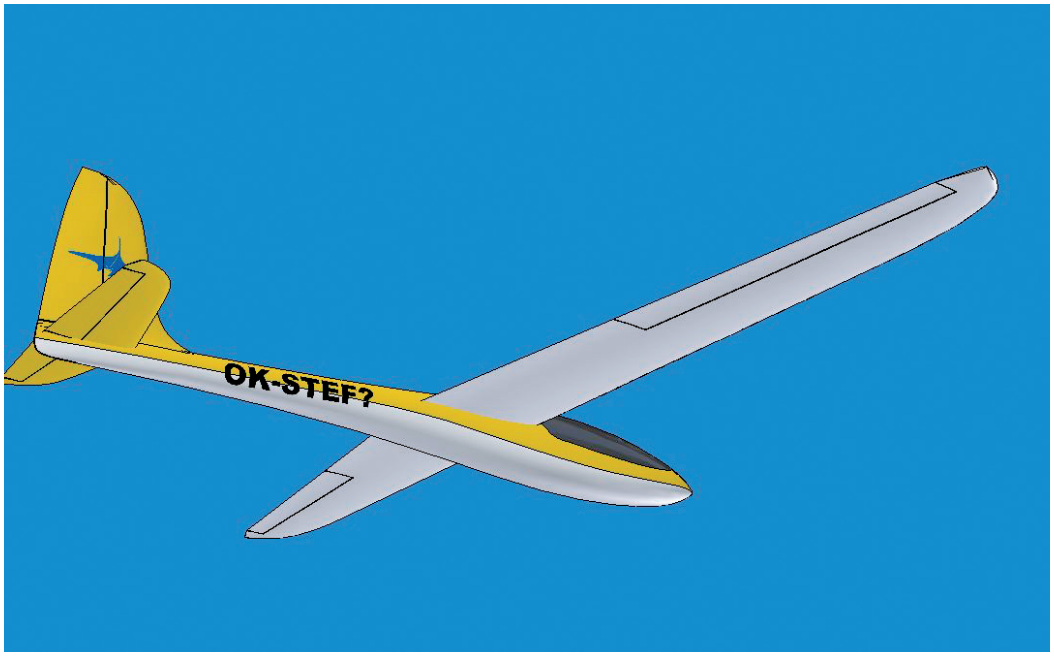
The model was heavy by then usual standards and mastered the strong wind with ease, impressing me.

When my friend asked me to fly his model I took the transmitter without hesitation, even if I rarely fly other people's models.

I got permission to try something special. I started a dive to gain speed and entered a Top Hat that was performed with great ease and precision. There was only a distinctive "crack" as I gave almost full elevator for the first square in the maneuver, but nothing strange went on.

I liked that model very much for its ability to fly at almost constant speed, to roll easily, to allow aerobatics even in medium weather, and for the huge amount of satisfaction it provided, but never went on to build one.

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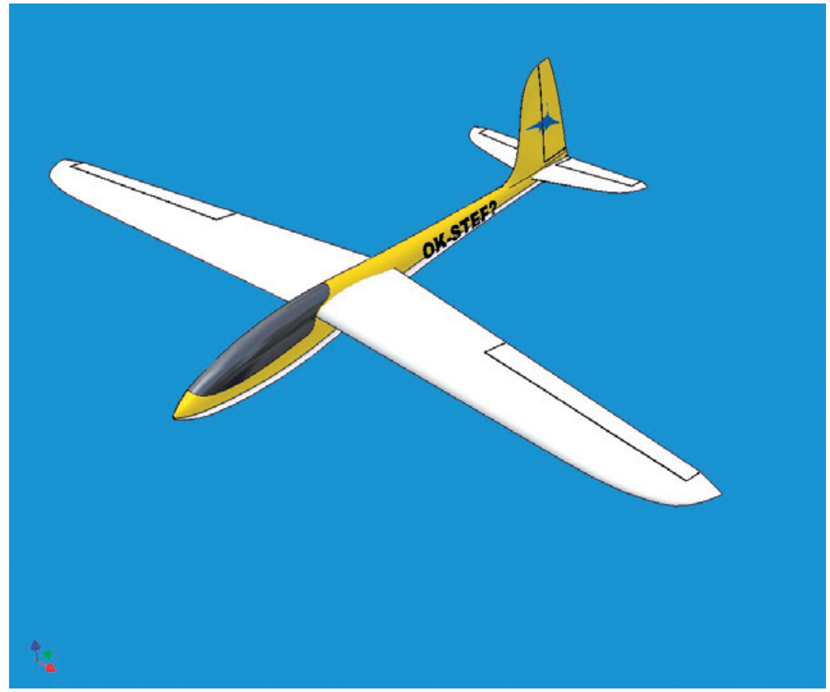
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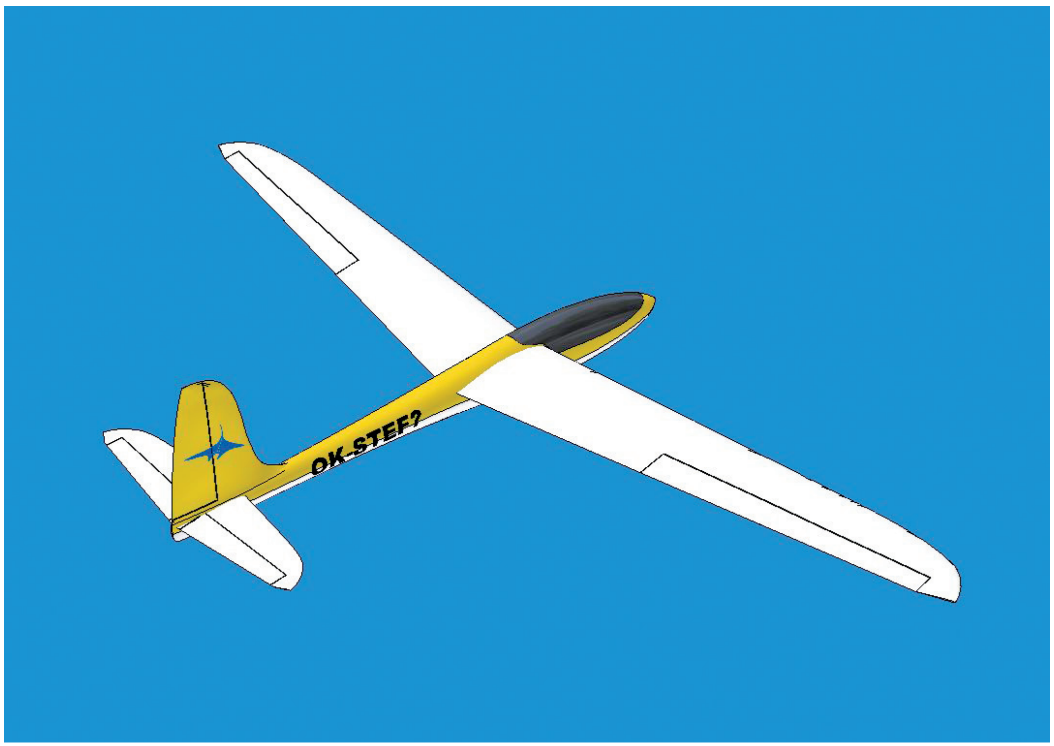
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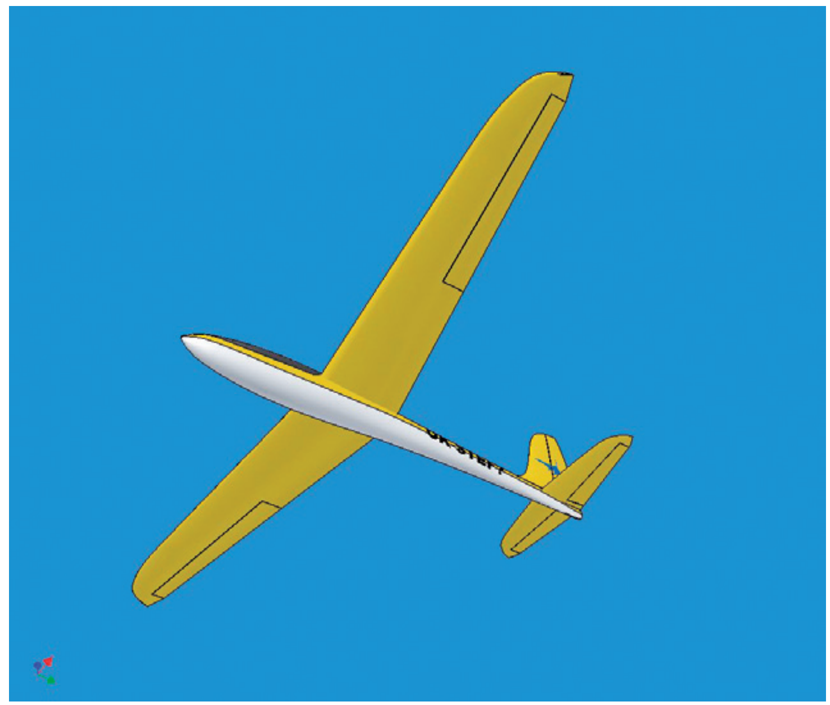


Three years ago, the time was still August, but the site was completely different, Folgaria in the Alps, near Trento, I saw that particular model again.

This time it had a new owner, Stefano, and he, too, is a good friend of mine.

The model showed the abuse of time and my friend was busy getting ready to fly a project of mine called StingRay, which was published on *RCSD* November 2007 issue, so he gave me permission to get L13 AC back in flying condition.

So I flew it once more, enjoying the flying even more.

Speaking with Stefano while drinking some beer in the evening, we agreed that the Blanik lines were not so good as the present “state of the art” could do.

The L13 is an all metal airplane and, to make construction simple and economic, double curvature surfaces are held to a minimum.

Modern construction methods - moulded glass and carbon - would allow, at the same cost, curved and more fashioned lines.

So we started thinking that I could design a new Blanik and send the drawings to LET, the Czech manufacturer, so they could build a new aerobatic sailplane and we would have a “scale” sailplane no others would have.

The wing planform retained its characteristic forward sweep, the tail moment arm was the same, and the fuselage was to have a longer nose so that pilots (!) would sit in a more reclined position, thus giving a more slender nose.

The wing position was lowered in order to have an improved roll rate compared to that of the old Blanik .

Someone said that forward sweep helps an airplane entering an aerobatic figure.

I can’t understand what exactly this means and wonder why so many two-place sailplane are built with forward wing sweep.

A two-place is usually used for school work and I think that a sailplane that has this function should have a stability margin superior to that of a competition model.

So I think that forward sweep is actually used to bring the MAC (Mean Aerodynamic Chord) of the wing into a position that doesn’t require an elongated tail over a determined amount to compensate for a longer than needed nose.

The main fuselage former, the one where the wings are attached, can be placed just rearward of the second pilot and has no need to be complicated, thus being as light as can be.

Another feature of the old Blanik is the tailplane dihedral.

This too, I think, has no aerodynamic reason, being built instead to prevent the tailplane from inadvertently touching the ground.

This feature was incorporated into the new model.

The “scale” figure was set to 1:3.6, giving a wing span of 3.9 meters and a massive fuselage length of 2.3 meters.

Weight ready to fly was hoped to be 12 kg, thus giving a 100 gr/sqdm wing loading, heavy by alpine standards, but I had great confidence in improved efficiency due to the large wing chords.

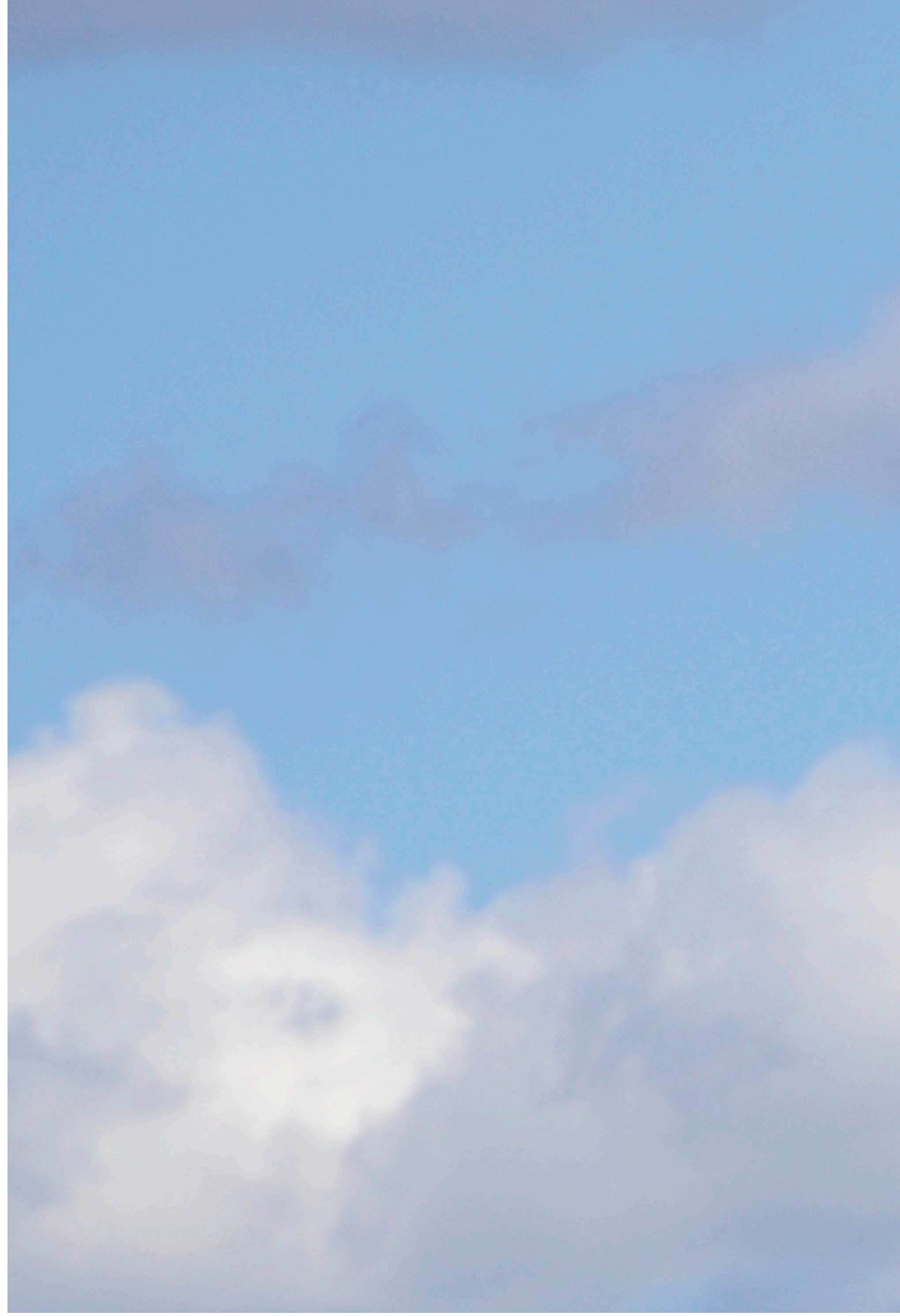
The original Blanik had an HQ 2.5/10 wing section and had no flaps; my new model was to have an HN1023 and flaps.

HN 1023 is a section chosen with the help of Profili2 <http://www.profili2.com>, has 2.38% camber and 10.2 % thickness, pretty much the same as the HQ section.

It has a lot of camber for an aerobatic model, but my goal was to fly aerobatic where I wouldn’t bring my StingRay, an aerobatic Formula 1, due to less than ideal conditions at the slope.

With so much camber you have to forget some inverted maneuvers and expect that inverted flight costs you some more energy than desired, but, nevertheless, inverted loops and Schneider turns can be accomplished with ease.


MANTA
RAY



Besides, you can thermal and go up with the lighter planes even in less than good conditions.

I told about the wing section and Profili2, but how can you use the program to choose a profile for your model?

First you have to set what you want most from your model: speed, efficiency, easiness to climb.

Sorry to say, but you can't get the best of all, so you have to choose your cake.

I wanted my model to be efficient in most of the flying environment, losing somewhat in climb and speed.

You have to know what the cruising speed is, so you can calculate the Reynolds number (Re) for your MAC and evaluate the coefficient of lift (Cl) value needed to hold height at that speed.

GPS and other systems have done much to help the modeler obtain better estimated values.

On the slope, my models cruise at 60-70 Km/h, that is 17-20 m/s.

Putting these values into the following formula

$$Re = 69000*V*L$$

where V is the speed in meter/second and L is the MAC in meters lets you compute Re at cruising speed.

Given weight and wing area you can also determine the Cl value for different flying speeds.

Landing speed is normally around 40-50 km/h and diving speed is faster than 200 km/h.

That is 11-14 m/s and 55 m/s.

Using the following formula

$$Cl = 2*W /(A*ro*V^2)$$

where W is the model weight in Kg,

A is the wing area in sq meters, and

Ro is air density = 0.125,

it is possible to calculate the Re for the different flying conditions.

For the MantaRay :

Re = 270,000 and Cl = 1.13 for landing

Re = 500,000 and Cl = 0.37 for cruising

Re = 1,340,000 and Cl = 0.05 for diving

With these parameters you can compare two or more wing sections using Profili2.

There are two ways for doing this:

1) let the program calculate polars for each Re chosen

2) let the program calculate polars that allow you to compare section efficiency in a single diagram for the entire flying envelope.

The second choice, while less known, allows a faster and clearer comparison.

You have to click on tag "Polars" of the main menu, then on tag "Xfoil settings."

In the next window set "processing type" to type 2.

Then go back to the main menu and click again on tag "Polars."

Click on "drawing polars-free criteria-advanced (type 4)."

A new window will open and the only thing you don't know is the Re to set for the new calculation.

The value derives from the following equation:

$$68{,}000*L*sqroot (2*W/(ro*A))$$

and is not really a Reynolds number but a constant that will be assigned to the expression:

For MantaRay and the values already given in this article, you'll find that the constant value is = 300,000

Once all of the other choices are made, Profili2 will draw a diagram where it is possible to see how the profile chosen will behave along the entire flying envelope developing an overall lift equal to the model weight.

If you look at Figure 1, you will see that there are two polars traced.

The blue one refers to HQ2.5-10 and the green one to HN-1023.

The polars have an intersection for Cl = 0.6.

For the Cl below that value, the green curve is at the left of the blue one.

This means that HN-1023 is more efficient when the Cl needed to hold height is below 0.6.

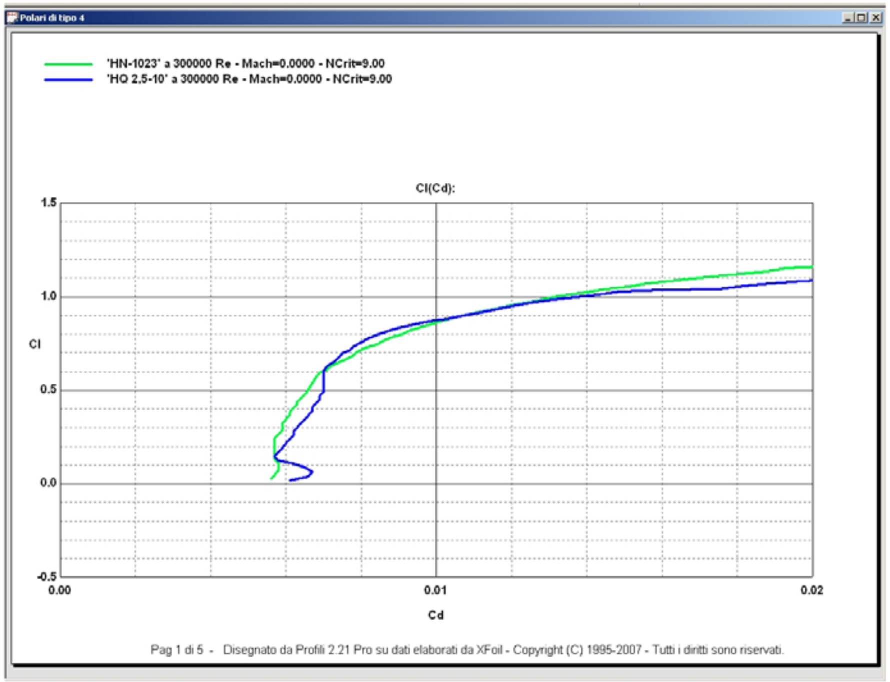


Figure 1

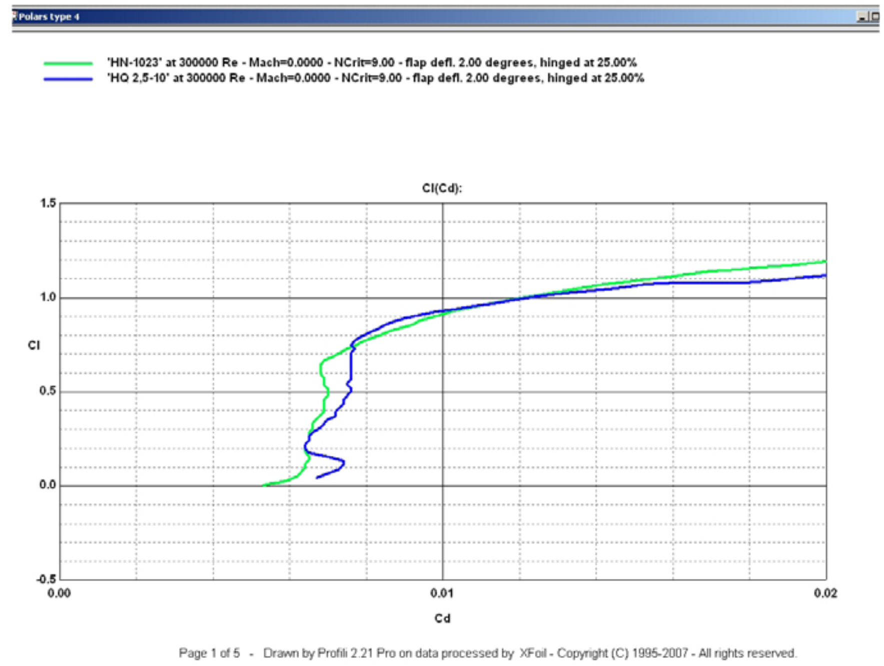


Figure 2

If you remember, we have seen that cruising speed required a Cl = 0, 37.

So HN-1023 is more efficient for most of the flying envelope than the HQ2.5-10.

You need a higher Cl when thermalling at low speed.

In this condition HQ will climb more efficiently, but…

Since I first flew a model with flap and ailerons I have always set my models to use Snap-Flap and am very happy with this option.

Snap-Flap is a mixer that couples together elevator and flap-aileron so as to increase the profile camber when elevator input is fed in.

It works both ways, i.e. increases camber when pitching up, decreases camber when pitching down.

This increases the wing Cl for a given incidence angle and helps climbing and peforming aerobatic maneuvers.

In Figure 2 you can see polars for both wing sections calculated with two degrees positive flap with the flap being 25% of the wing chord.

It can be easily seen that HN1023 polar is always to the left of the other with the exception of a little field between Cl = 0.75 -0.92.

In this condition, too, the HN section is more efficient than the HQ.

The model was tested on my home slope, Grone, and I have to say that

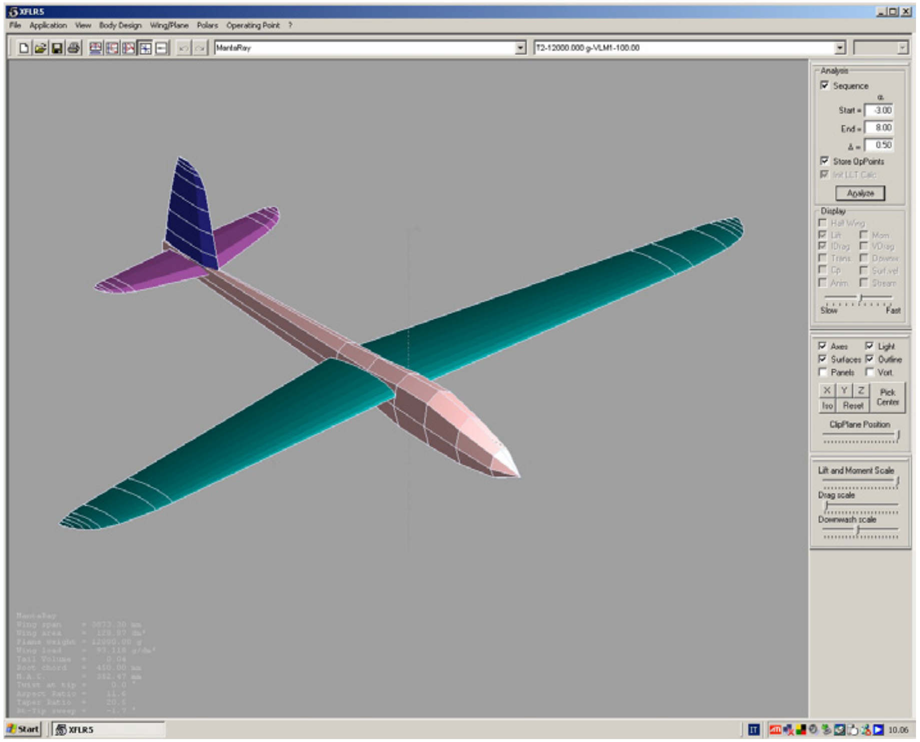


Figure 3

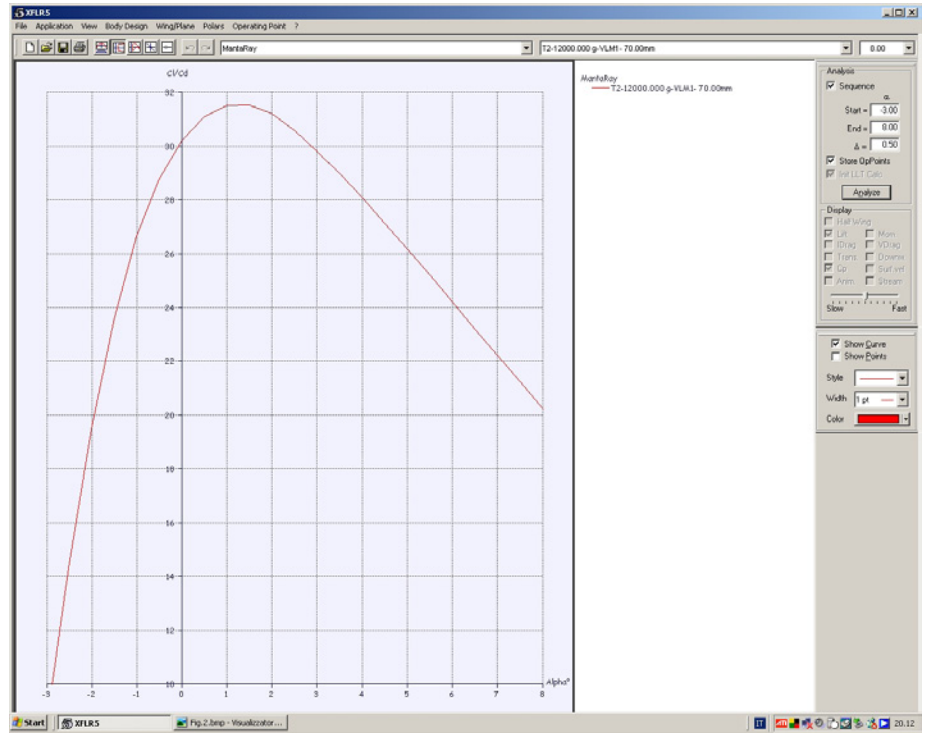


Figure 4

my desires were completely fullfilled: almost constant speed while cruising for thermals, easy to climb and maintain the path while circling, good speed after a dive, but not too much, great energy retention (four consecutive rolls completed with a never ending pull-up and a stall turn is a common maneuver after a shallow 70-80 meters dive), easy to roll even at low speed, and easy to land with butterfly.

The final weight was within 50 grams of the 12,000 gram goal, not bad, eh?

I downloaded from http://xflr5.sourceforge.net a freeware by Mark Drela and others named: XFLR5.

This is a software, still based on XFoil, that enables you to evaluate your model flying characteristics.

Wing, tailplane, fin and rudder can be designed into a file and you can get a lot of different diagrams showing almost whatever you'd want to know.

The latest version allows you to model the fuselage, too (see Figure 3), but I had improbable values.

Anyway, the polar of the model computed (Figure 4) shows how the best Cl/Cd ratio, maximum efficiency, coincide with the incidence angle set on the MantaRay, 1.5 degrees.

Another diagram of Total Moment Coefficient versus incidence angle (Figure 5) shows that the coefficient value is zero for an angle of 1.2-1.3 degrees.

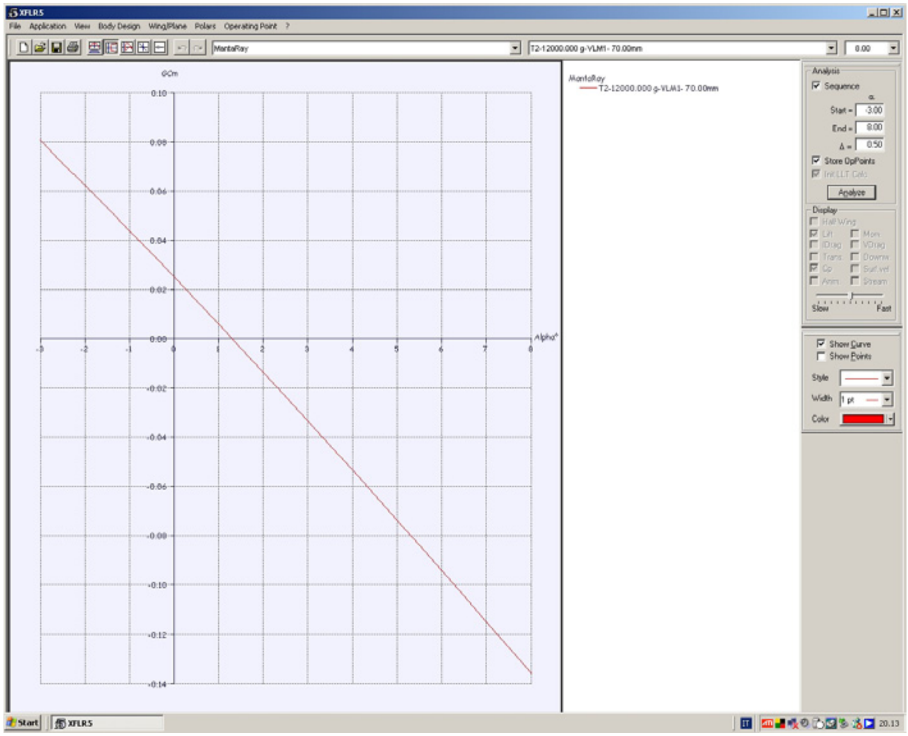


Figure 5

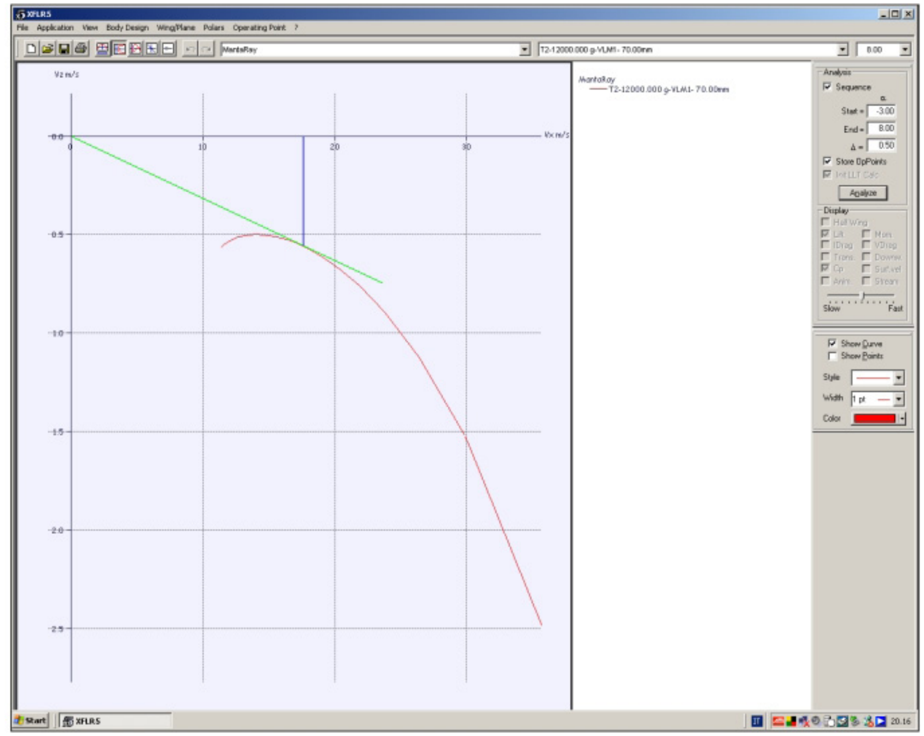


Figure 6

This means that the static equilibrium condition coincides with that of maximum efficiency.

The curve is banking to the right and this means that the configuration is stable.

One more graph shows the classic polar where vertical speed is plotted against horizontal speed.

Tracing a line from the axis origin tangent to the curve it is possible to determine the best gliding speed (maximum efficiency).

As you can see in Figure 6 the tangent point gives a horizontal speed of 17-18 m/s and this is pretty good, similar to the cruising speed we talked about pages ago.

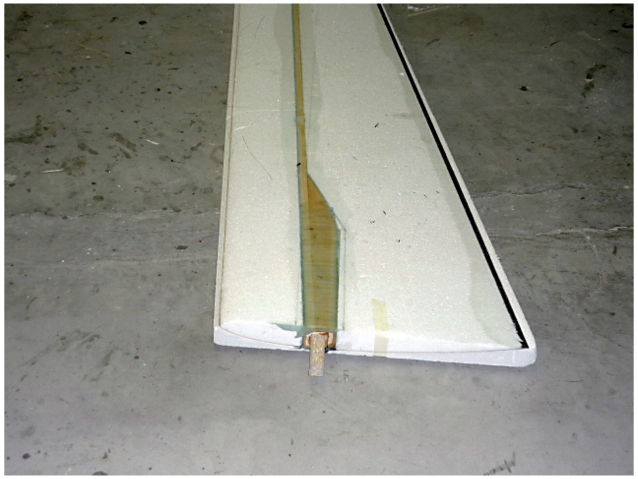
All of these graphs are calculated by the program once you have set some parameters like flying weight and CG position and wing incidence in relation to tailplane incidence.

The value set for the graphs shown in this article are those set on the model that actually flies with no tailplane trim.

Too good to be true, isn't it?

Yes, but I didn't want to have true numbers from XFLR5. What really counts, in my opinion, is the possibility to match different settings and verify which one is the best before starting the building of the model.

This I'll do with confidence in the future.



Above: Wings and tailplane cores were cut with CNC machine from white foam (30 kg/cubic meter) by Elio Fornaciari and sent to Trento to Alberto Tarter, son of Renato Tarter, for the building.

Opposite page: After MantaRay was designed, drawings were mailed to Renato Tarter, in Trento, who was to build the wooden master of the fuselage. As you can see from the accompanying picture there was a lot of wood to cut, carve and shape. The mould was due to my good friend Elio Fornaciari.


60/11

Some notes on the construction.

After MantaRay was designed, drawings were mailed to Renato Tarter, in Trento, who was to build the wooden master of the fuselage.

As you can see from the accompanying picture there was a lot of wood to cut, carve and shape.

The mould was due to my good friend Elio Fornaciari, best known as “il Maestro di Fabbrico,” erroneously translated in English in my previous article on StingRay, as “the master of fabrication.”

Actually Fabbrico is the name of the town where Elio lives.

Here we still have a good time calling him that way.

Wings and tailplane cores were cut with CNC machine from white foam (30 kg/cubic meter) by Elio and sent to Trento to Alberto Tarter, son of Renato, for the building.

Wing sweep requires a somewhat different from usual wing-rod box.You can see a picture showing the box and full wingspan longeron. They are bound with kevlar roving.

The longeron is capped with 3cm wide carbon uni-directional tissue, and 160 gr/sqm carbon tissue covers the entire wing. This is doubled to half span, and tripled with a triangular shape over the rod box.

Wing cores are finally sheeted with 1 mm thick obeche.

Each half wing completed with two HS645MG servos weighs 2,750 grams.

The wing rod itself is something new in my experience.

A friend suggested to use a glass pultruded rod that is substantially lighter than a steel rod of comparable resistance.

The one used has a diameter of 24 mm and works beautifully with no sign to flex even in square maneuvers.

Left and opposite page: 12Kg of aerobatic sailplane takes to the air. Once in its element, the MantaRay is a joy to fly.

Below: The last minute check before the MantaRay is thrown over the edge and into the abyss.

Tailplanes are mounted into the fuselage with the aid of two carbon 8 mm diameter rods, doubled internally with 6 mm rods glued with cyanoacrylate.

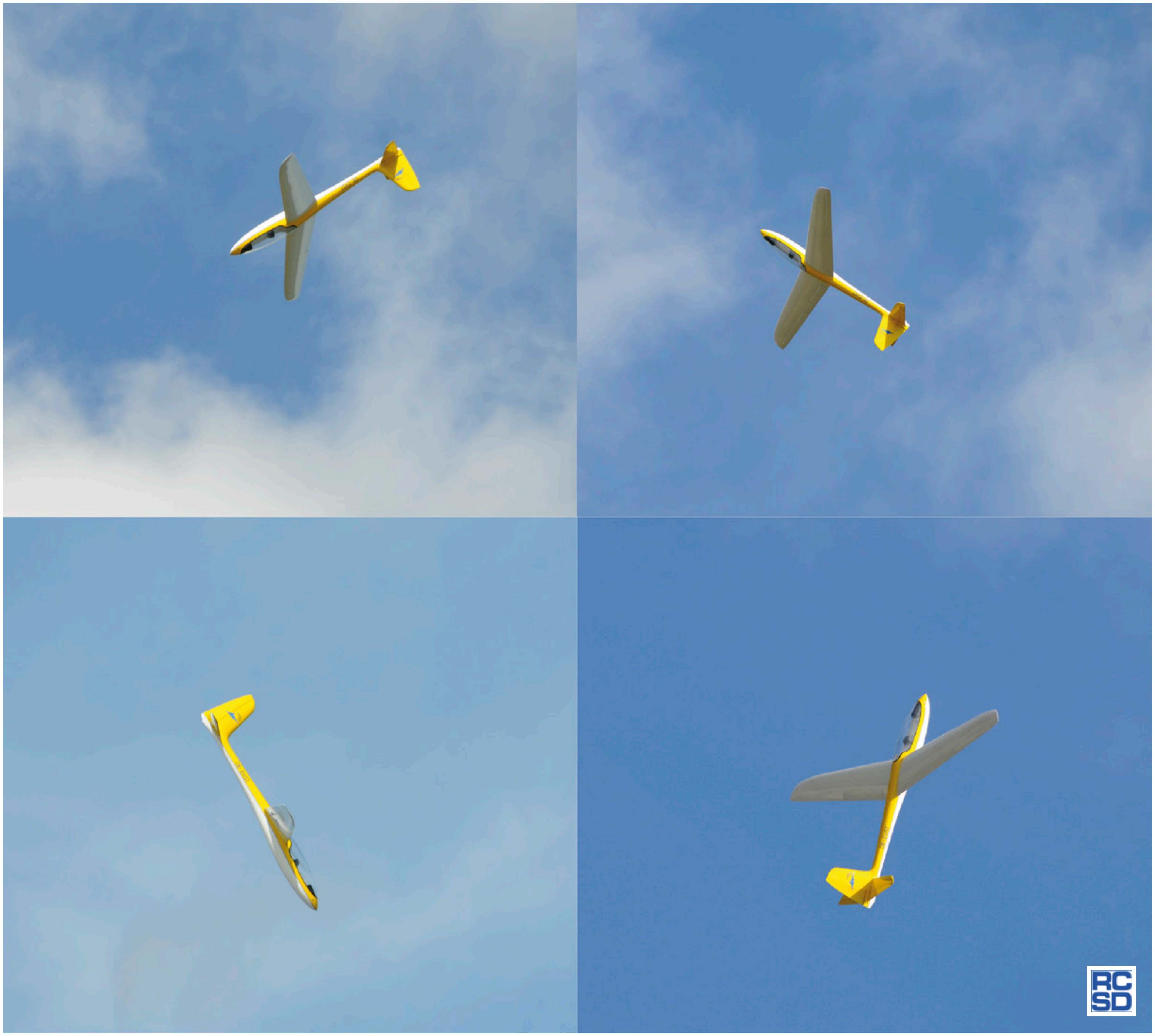
Elevator servos are buried into each tailplane. I used HS-82 MG.

All in all I have achieved a model that flies better than the old Blanik and that has a modern look.

I only have to convince LET to build it 1:1!

RCSD thanks Cesare de Robertis, Editor of the Italian model aviation magazine *Modellismo,* for his cooperation in making the publication of this article possible.


OK-EHST



Gordy's travels...

An adventure of Istanbul, a Rainbow, and a Constellation!

Gordy Stahl, gordysoar@aol.com

It's been a while since I contributed but I haven't stopped soaring around the world! Recently I had the fortune to fly with Phillip Kolb of Germany, but now living and working in Istanbul Turkey.

We did some slope soaring and I got to do some landing practice challenges with the Turkish F3J team pilots (they even let me win a few!). A fantastic group of guys who enjoy soaring and life in general!

Top team pilots Mustafa Koch, his daughter Esra (F3J Junior) and Murat Esibatir were very gracious hosts and their flying field is a huge open grass area with a very tall tree ridge on one side and end. It's second to none I have been lucky enough to fly on.

The field is located in Riva, Turkey, and just a few miles away is a really nice beach area to go for a swim. The field has log cabin style building with a large deck surrounding and some picnic tables on it so that you can enjoy lunch or a cool drink while watching the action on the field.

Phillip Kolb is easily one of those pilots at the top of the RC soaring skill levels and, unlike many, willing to share ideas and

Phillilp Kolb and Gordy - Riva, Turkey Club Field

Above: A view from the Riva, Turkey, clubhouse deck. Above right: Turkish F3J Pilot Mustafa Koch and F3J team Junior Esar Koch. Right: Phillip Kolb explaining laminar flow dynamics to the local kids at the slope in Turkey

tips on the topics of RC soaring competition and sailplane design. Phillip has been a coach for the Turkish F3J team for a few years now. As you can see in one of the photos, he's great with kids when it comes to talking RC soaring.

My sailplane of choice lately is the HKM High End, a 141" full house molded beauty, with a two piece plug-in wing, easily one of the most beautiful RC sailplanes since the Sharon. My other favorites are the Supra Pro 130" full house pod and boom thermal contest tool and the Super Ava Pro, 143" RES ship (Rudder, Elevator, Spoiler) which weighs in at a whopping 46 oz.! (You can find a video on my YouTube site of me hand tossing it to a sky-out by typing "GordySoar" in the YouTube search bar.)

Gordy and his HKM-USA High End

Gordy and his Flying Rainbow, a Dr. Walter Panknin design.

I recently got distracted with some unusual oldies! An amazing thermal flying wing from the 1990's designed by Dr. Walter Panknin, The Flying Rainbow 126" span, serious thermal machine, and since I am on the quest to complete my LSF5 journey with only the 10K Goal and Return flight, I have also been working with another oldie from the 1990's, the QualityComposites Constellation, 156" 8 lb., Rudder, Elevator, Flap poly-monster designed by Bob Sealy. Both ships were built by my friend in Appleton Wisconsin, and a excellent builder and contest pilot, Lee Murray.

Lee Murray and the Constellation

I had always had a yearning for the Flying Rainbow since I first heard about it in *RCSD* a lot of years back. I think only 26 or so were built. It was not a kit, they had to be scratch built! Obechi over foam, it's a huge sailplane that thermals as well as a current molded contest ship. I'd contacted Lee because I knew he had one, and that he'd switched to full size sailplanes as a hobby. I contacted him and convinced him that it would have a good safe home in my hands and I would get it in the air again... me being sort of his surrogate thumbs.

Getting it to Louisville where I live from Appleton was not going to be easy! The two wing panels are too big and wide to ship, and it was going to take some creative MacGyvering to get it from there to here. It turned out that my wife suddenly decided to visit relatives in Milwaukee in the next coming weeks... and her sister lives in Oshkosh, an hour or so from Lee's home... and she would be driving down to Milwaukee to visit my wife while there. A plan was coming together... totally unreal because we hadn't been planning on returning to Milwaukee for a year or so! Lee delivered the Rainbow to my sister-in-law's home, she brought it to Milwaukee, and my wife got it home. Phew!!!

As you can see from the photo it is gorgeous!

Okay so it arrives, and I decide to call Lee to let him know it got here safely. As we were talking I mentioned that I needed my 10k Goal and Return to finish up my LSF5 tasks. He then says, "Hey I have a Sealy Constellation cross country ship I'll sell you, its big and should work great for that 10K." Of course the wing panels are 78" long and the fuselage is also about that so again, no chance of shipping and my wife's ship from Milwaukee had sailed!!!!

Fate stepped in again. Turns out that in nearby Shelbyville Kentucky, just a couple of weekends away from that day, Bruce Davidson was hosting the first ever "The Bruce" DLG contest and two young hot pilots from Appleton were going to head down! I contacted Steve Meyer of Racine to see if he would be coming south for a contest and possibly he could be part of a shuttle for the Constellation? He got in contact with Scott and Ryan up in Appleton, they contacted Lee, who brought the model over to see if it would fit in their car, and a couple of weeks later, she was in my grubby little hands!

I intend to do a more detailed report on both the Flying Rainbow and the Constellation, so I'll stop here for now. Just wanted to say hello and thanks to all the pilots who contributed while I took a break from writing.

You can contact me at GordySoar@aol.com.

See you on my next trip!

Credits:

Supra Pro, Super Ava Pro
http://www.kennedycomposites.com/

Gordy, now the proud owner of the Constellation.

Bovec, Slovenia

an F3J pilot's dream

Sydney Lenssen, sydney.lenssen@virgin.net

Do you ever dream of the perfect thermal soaring field in Paradise? Dream no longer. Go to Bovec in Slovenia. Next chance is for the Eurotour next September. If you have never flown in their mountain bowl, and certainly if you hope to fly in the 2011 European championships, you must go beforehand and fly your model against the trees and clouds!

Larry Jolly calls it “Sound of Music” land and expects Julie Andrews to come to him singing over the meadows. Marin Kordic reckons stringing Kevlar cables across the mountain tops, cover with a Mylar roof and you’d be flying F3J indoors!

When I got to Bovec for the first time with my wife two weeks ago, my immediate reaction was that you couldn’t fly an F3J competition there, never mind the Eurochamps in two years’ time. The mountains are too close.

How wrong I was! You are hemmed in, with mountains all round in every direction, but to fly from Bovec’s airstrip to the trees on the steep slopes means travelling two or more kilometres away. If you do hit the trees, then forget your model. “I never really liked that one anyway.”

When you turn up early morning with the cloud base low and gently wafting down the valley, you don’t see the mountain tops. You might not see blue sky either. But the clouds are high enough to allow you to fly and explore the weakest of light airs. It is testing. It is simply lovely. It can also be cruel at times when even the highest launch won’t give you six minutes.

Bovec itself is an attractive tourist village, a sporting centre with walkers, canoeists and white water rafters indulging in the fast flowing River Soca in summer and snow sports enthusiasts in winter. It has a few smart hotels and lots of apartments which can be rented. There are camp sites all round, but unfortunately no camping on the airfield. If you come to fly, then plan on adding a few days for a holiday, too.

Travelling from UK is easy with low cost airlines flying into Klagenfurt in Austria, Ljubljana, Slovenia’s capital and Trieste in Italy, all within easy driving distance of Bovec if you like hairpin bends by the score. And your hosts are among the most hospitable in the world with fiendish local brews!

Bovec photos on the following pages...

Bovec weather:
<http://www.wunderground.com/global/stations/14005.html>

3-D map of Bovec and surrounding area:
<http://www.maplandia.com/slovenia/bovec/bovec/bovec-google-earth.html>

Views from the Bovec flight line

Above: Looking North

You can see Bovec from the airstrip, nestling in the foothills about one kilometre away from the flying field. When you are two kilometres away you reach 1200 metres above the field and the peaks reach up to 2,400 metres, 1,800 metres above the field. Early pilots explored the housing for lift but it was not working most of the time.

Right: Looking East

Top five in the Alpine Cup, Slovenia. From the left, Arijan Hucaljuk from Croatia, Tobias Lammlein, Germany, Philip Kolb, Germany, Marco Salvigni, Italy amd Martin Rajsner from the Czech Republic. To get to the 700 metre level in the mountains behind - the flying field is at about 500 metres - you need to fly about 2 kilometres, but at 3 kilometres the mountains are up to 1700 metres and the peaks behind are up to 2,350 metres.

Above: Looking South

You need to travel out two kilometres to reach the trees at 200 metres above the field in this direction, but at three kilometres the mountains are up to 1,800 metres high, 1,300 metres above the field. This direction gave me the hardest problem spotting even a white model against the hazy trees, but many pilots spent the whole ten minutes trawling along the hillside.

Above: Looking West

The gap between the mountains is about three kilometres away from the field, where the valley turns abruptly left through 110 degrees, which effectively blocks out any prevailing winds from travelling along the valley. During the competition winds rarely reached eight kph, (five mph). The peaks in the background reach 1,600 metres.

UNCLE SYDNEY'S GOSSIP COLUMN

New rules for old!

Lots of discussion over the past month about changing the F3J rules, not as I expected about penalties for flying into the safety (launching) corridor, but about how to organise reflights, whether to always allow four helpers for the pilot so that the second spotter does not need to be the team manager, and should pilots in the flyoff carry forward their preliminary scores?

Tomas Bartovsky is also suggesting that there is no need these days to limit the number of flight attempts allowed to two. If you need more than two, then you're a loser anyway. He wants to see a 30 point penalty if a pilot launches early, but in return the pilot will not be required to relaunch. That rule if introduced will need clever wording to prevent pilots launching 44 seconds early, if I've got my maths correct!

The real problem with early launches is spotting them. I do not believe that anybody launches early deliberately, but the launcher can lose his grip and/or foothold with today's massive line tensions and then needs to let go.

After the US team trials, many pilots seem to be upset that pilots get a second chance to improve their scores if they are randomly drawn to make up the minumum of four pilots for a reflight. They suggest waiting for a period at the contest director's discretion until enough pilots with the right to refly can be fitted into a slot, not necessarily in that particular round. If there is a need to draw lots to make up numbers, then these lucky extra pilots should not be allowed to take their highest score but should fly only to spoil the scores of the reflyers.

For the past three years in the UK we have followed the FAI rules and allowed the randomly picked pilots to score either their orginal or their reflight score. (It was at Red Deer in 2004 that Tomas Bartovsky spelled out what was intended by the rules, even if they did not actually say it!) For a couple of years before the UK practiced what is now being advocated: if you are picked to fly again, you try to reduce the scores for the reflyers. Snag is that this method does not give the lucky second chancers much of an incentive, and in many cases we found that pilots chose not to fly when drawn out of the hat.

Incidentallly, here's my recommendation for the random draw, new this year.

Many contest organisers scramble to cut up pieces of paper or whatever to pick numbers out of a hat to select extra pilots, a time-consuming fraught job which is nearly always forgotten until needed. The best way I have found to pick random numbers is to start and stop a stopwatch with hundreths of a second. Then take the fraction of a second as your lucky number. If you have only 50 competitors and your watch shows .57, then you start and stop the clock again. It's quick and easy.

On the question of number of helpers for each pilot, I believe that the easiest way to solve the team manager's acting as helper and "second pair of eyes" is to return to the three helper rule and restrict team managers to remaining in the preparation area during the ten or fifteen minute working time. The pilot's spotter - or coach - is often the key to success, sometimes more important than two strong towmen. Having an extra pair of eyes is an added benefit, but it is not the intention of F3J's orginal rules.

Should the scores from preliminary rounds be carried over into the flyoff? In the complicated words of Joe Wurts: "The inherent issue with the F3J format is that scores have a high standard deviation, so to get the best measure of a pilot, one should look at the largest set of scores as is practical. This would suggest that the preliminary scores should be carried over so as to better determine the best pilot of the competition, at least at WC level."

In F3J contests at present, we have in effect two competitions. I believe it makes good sense to bridge the two. They are both part of the contest, and as often as not the second contest - the flyoff - is held in the best weather of the whole event, when 15 minute slots are no more difficult or testing that the 10 minute preliminaries.

Consider the last competition, Bovec, what would have happened? The top five places for the last Eurotour of 2009 went to Arijan Hucaljuk with 2,000 for the two rounds; then Tobias Lammlein with 1997.9, Philip Kolb with 1997.8, Marco Salvigni with 1996.7 and Martin Rajsner with 1996.3, not very wide differences. If the preliminary scores had been counted then the winner would have been Sebastian Feigl, European champion in 2007, with 6994.6, followed by his brother and current world champion Benedikt with 6993.5, then Marco Salvigni would have placed third rather than fourth with 6992.4, then Philip Kolb would have moved from third to fourth place with 6992.3, and finally Arijan Hucaljuk, who actually won, would sink to fifth place with 6991.7. The margins are again small.

Not every competition is blessed with such good weather and closely run scores, but if I had a vote at CIAM in Lausanne next March, then I would go for combining preliminary and flyoff scores.

Another potential rule change which has been touched in discussion is whether reflights should be allowed at all. One suggestion is that after the first 30 seconds, no reflights should be granted for mid-air collisions because pilots should have the skill and good sense not to fly too closely together, and if they do, then they risk their scores. Allowing another attempt in the first 30 seconds would safeguard the pilot who has the misfortune to have his line cut or his model damaged by collision during the launch. Incidentally such a 30 second rule would bring F3J back closer to the original BARCS (British Association of Radio Control Soarers) rules which still allow a pilot to abort his flight providing he announces his intention to relaunch with the first 30 seconds. But he doesn't get a reflight in another slot, he has to fly in the same 10 minute slot.

Not many F3J pilots know that Tomas Bartovsky is personally in favour of abolishing reflights altogether, full stop! So he will be following the discussions carefully. Watching the flyoffs in Bovec brought me closer to agreeing with Tomas.

Two rounds were flown, one of which was reflown due to a timekeeper's error in not recording the time. All 12 pilots were launching in as short a time as they could manage, between one and three seconds. This was not too risky because all of them could see pretty precisely where the current thermal was being generated. The effect was that all of the gliders flew into one small patch of low level lift and it was a miracle that no midair occured, perhaps not a miracle since they were all highly skilled pilots. But the dancing and dodging lasted nearly two minutes before they'd all gained enough height to separate safely. In such circumstances, if the whole line has been asked to fly again because of a midair, it would have been grossly unfair.

Extra news for France 2010

News on more qualifiers for next year's F3J world championships in Dole-Tavaux. The French team will be Lionel Fournier who is determined not to let his flyoff place slip next year, Jean Bernard Verrier who will pilot rather than be team manager as this year in Poland, and Bertrand Wilmot who was a pilot in Croatia and Slovakia. Juniors will be the experienced Robin Galeazzi who flew in Turkey and Poland, plus two newcomers Remy Cutivet and Jean Baptiste Demay. We all await to see if the "home ground" gives any advantage.

From New Zealand comes the news that we more than half expected in that the three seniors will be Joe Wurts in his new home F3J colours for the first time, Sven Zaalberg who but for a 95 landing came so close to winning in Turkey, and Scott Chisholme, all qualifying in Timaru on South Island, September 12/13.

Team New Zealand, all at attention and ready for France 2010, from left Scott Chisholme, Zven Zaalberg and Joe Wurts. Rumours that they have all registered for French lessons might not be true.

A slight correction to last month's preview to next year's world championships for which I thank Ian Roach from Australia. Their qualification contest was not part of an F3B event. The contest is flown to Australian Thermal Rules and is very similar the F3B Task A with a few changes to suit local conditions. No speed or distance tasks were flown. I got next year's team right anyway: Carl Strautins, Jim Houdalakis and David Hobby.

Speaking of whom, many "gossipers" will be pleased to hear that David Hobby is not practicing F3J but is busy in Antarctica for six weeks, in temperatures of -50°C. He did take an electric model, a Vapor, which he has flown. When he takes it outside, it's about 20 seconds before the cold gets to the systems and it all goes wrong!

— Sydney Lenssen, sydney.lenssen@virgin.net

If Bovec flyoffs are anything to go by, the graduated landing tape is not making any difference to the aesthetics of landing techniques.

Above: Arriving at the McMurdo base in Antarctica where David Hobby is avoiding F3J practice by spending six weeks flying his electric Vapor and the odd spot of work for Aerosonde.

Above right: Spot the Vapor and a well-wrapped David. He tells me that Mount Discovery in the background is 50 km away but you can see it clearly most days in the clean air. Some contrast with Bovec, which is where this gossip column started.

Right: Just two seconds before this photo was taken, spotter and Pike master Jaroslav Vostrel warned Jo Grini that a pilot had lost control and he should move slightly to the side, which he did, and then heard a thud. DON'T HAVE A MATRIX WITH PILOTS REQUIRED TO CHANGE FREQUENCIES!!!

Slingsby Kirby Gull I, N41829

On my recent trip to the 2009 International Vintage Sailplane Meet (IVSM) held at Harris Hill and the National Soaring Museum in Elmira, New York, I had the opportunity to see Slingsby Kirby Gull I N41829 proudly on display in the National Soaring Museum facilities.

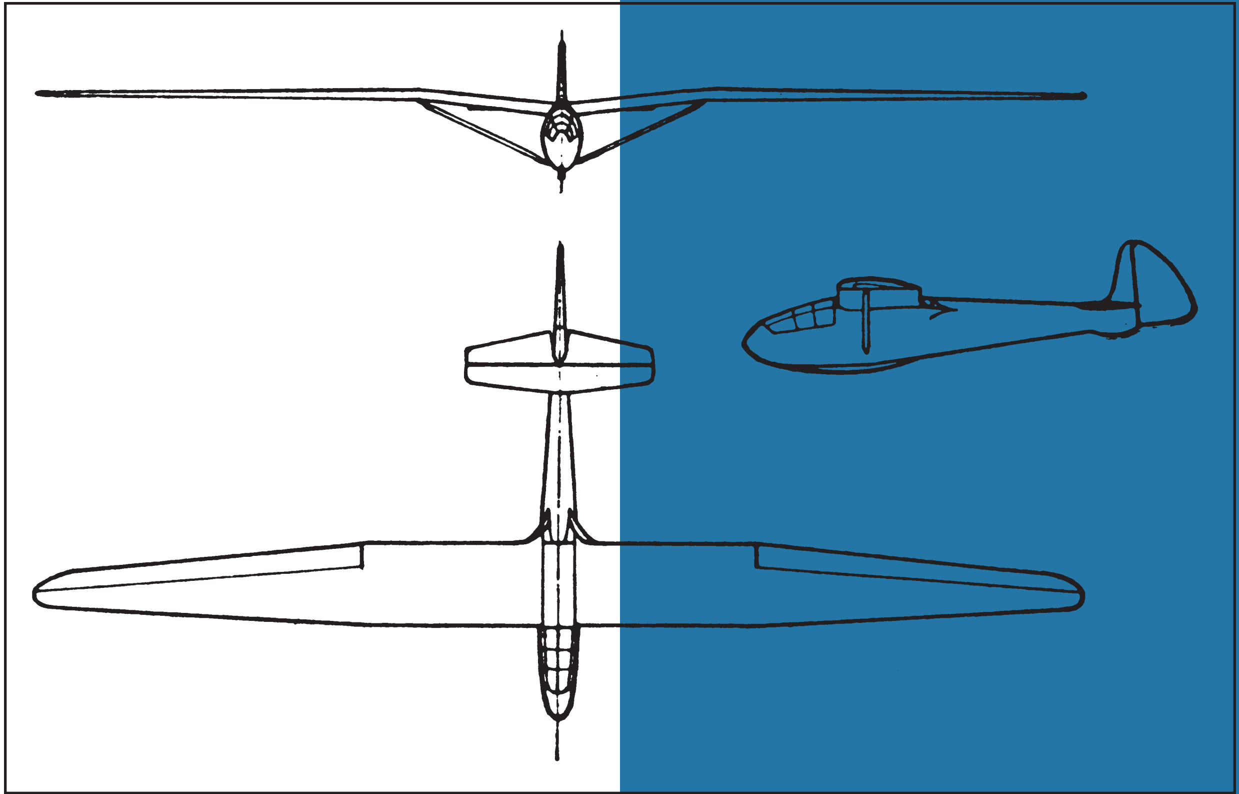
Having seen the bare wings and weathered fuselage at the Wabash Valley Soaring Association's (WVSA) hangars over the past few years of visiting the Vintage/Classic Sailplane Meet that the club hosts each year, I was truly impressed by the thorough restoration that the WVSA team had achieved with this beautiful sailplane.

The accompanying photos will attest to the quality of their workmanship.

A bit of history on this particular airframe is in order. N41829 was originally built from plans by Herman Kursawe of Long Island, New York, during World War II and was completed in August, 1946.

Internationally known as "The American Gull," it was flown at the 1948 Nationals and continued to fly in private hands until the Tom Smith family donated the Gull to the National Soaring Museum in the late '80s.

At the 2005 International Vintage Sailplane Meet, held at Harris Hill, WVSA member Bud Brown agreed to take on the restoration of the Gull and the airframe was moved to the restoration hangar at Lawrenceville, Illinois.



The above 3-view and the data on the following page are from The World's Sailplanes, *published by Organisation Scientifique et Technique Internationale du Vol a Voile (OSTIV), June 1958, p. 121.*

Bud was unable to complete the restoration, but a number of the club's members, notably Dave Schuur who took the lead on the project, continued the project and saw it through until its completion. The restoration was done to airworthy standards though there are no plans at this time to fly this rare gem - this is possibly the only airworthy Gull in the world!

The project was completed and delivered to the National Soaring Museum in time to be on display for the 2009 IVSM.

My thanks to Dave Schuur and the WVSA team for providing the early photos of the Gull along with the photos taken during the restoration. These photos really help describe the Gull's structure and the effort that went into the restoration.

N41829 (left) at Harris Hill in the 1950s.

N41829 at Harris Hill circa 1970(?).

Slingsby Sailplanes Ltd. Kirby Gull I

Span	15.3 m
Area	14.86 m^2
Wing root chord	1.20 m - NACA 4416
Wing tip chord	0.55 m - RAF 34 (Mod)
Aero twist root/tip	3.5°
Area horizontal stab and elevator	1.76 m^2
Area vertical fin and rudder	1.03 m^2
Length	6.61 m
Fuselage maximum width	0.60 m
Upper surface spoilers	2 x 0.60 m x 0.143 m
Weight	172.5 kg
Maximum load	111 kg
Wing loading	19.1 kg/m^2
Maximum load factor	4.9 g
Placard airspeed	129 km/h
V for minimum sink	59 km/h
V for maximum L/D	67 km/h
Maximum L/D	24


N41829


shop-vac
EX ERIMENTAL

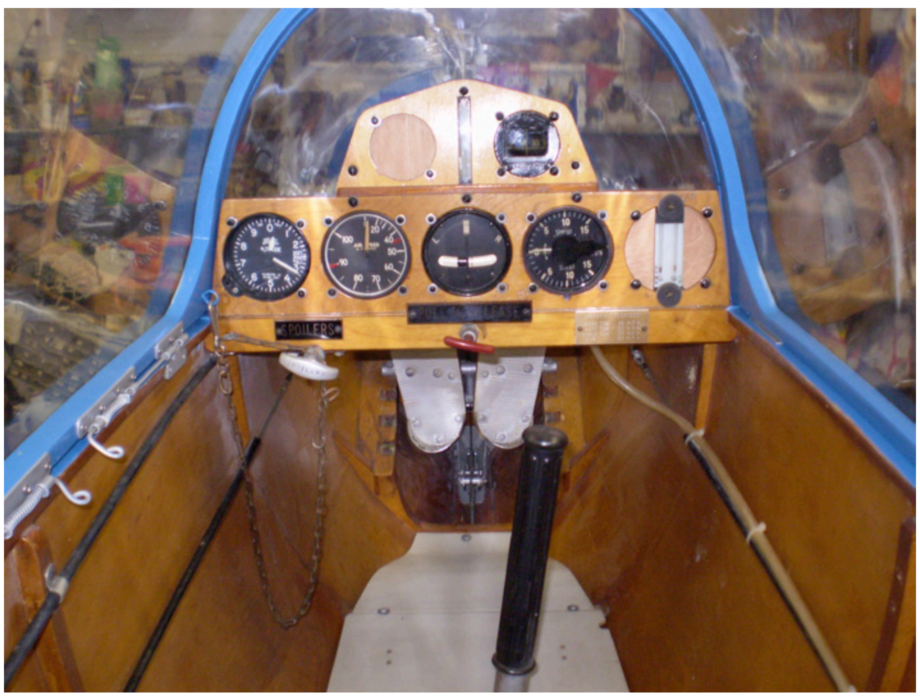

N418
56"
8.5"
12"


29
56"
36½ TO TAIL


shop-vac


N41829


WABASH VALLEY SOARING


SPOILERS


97
N41829

N41829

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N41829
97


NATIONAL SOARING MUSEUM
NSM

97
CONCEPT 70


N260E
C70
97
N41829
V7


N41829
97
RC
SD