

Radio Controlled Soaring Digest

January 2006 — Vol. 23, No. 1





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The Leading Edge Gliders P-40 *Warhawk* is designed for sport flying, is legal in foamie warbird racing classes run by California's Inland Slope Rebels, and the Wings Over Wilson slope flying club in Kansas. **Text and photos by Dave Garwood, with additional photos by Greg Smith**

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The sound of the Vodacom banners flapping in the breeze, the loudhailer siren, the occasional call of "coming through from the left!" and the whoops and laughter from the foamy line. Yes, it MUST be Atlantic Flying Club Hermanus Slope Fly 2005. **By Sandy Sutherland & Pieter van der Westhuizen, with additional photos by John Godwin**

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The first is a series of articles devoted to the aerodynamics and design of "planks," tailless aircraft which are easy to build and can really perform on the slope and over flat land as well. **By Peter Wick**

Front Cover — Jojo Grini flying his *Pike Superior* on a farmer's field in Norway, three minutes from home. The camera shutter was released by means of the transmitter using a triggering device from Hexpert Systems <<http://www.hexpertsystems.com/>>. Nikon D50, 18mm, ISO 400, 1/400 sec., f10.0. **Photo by Jo Grini**

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The model makers at NASA built a 12-foot wing span model of the NASA blended wing body (BWB) for free flight in the Langley Full-Scale Tunnel. Not quite RC, but remote control nonetheless. **From NASA News**

2005 Seattle Area Soaring Society Multi-Task "Masters of Soaring" Event 34

A full report on the first year of a rather unique event created by members of the Seattle Area Soaring Society to improve members' flying skills, provide new flying experiences, and increase member participation in club activities. **Photos by Bill Kuhlman and Dave Beardsley**

Back cover: Jojo Grini's uncle, Per Arne Nilsen, enjoying some DSing in the Jotunheimen National Park area in Norway. Olympus C730UZ, 10.3mm, ISO 64, 1/800 sec., f3.5. Per Arne Nilsen passed away November 25, 2005. **Photo by Jojo Grini**

R/C Soaring Digest

Managing Editors, Publishers

B² Kuhlman

Columnists

Jay Decker
Lee Murray
Tom Nagel
Mark Nankivil
Steve Richman
Dave Register
Jerry Slates
Gordy Stahl
Peter Wick

Contributors

Dave Garwood
Don Bailey
Mark Drela
Philip Randolph
Kyle Saltzman
Gregory Vasgersdian

Photographers

Dave Garwood
Dave Beardsley
Mark Nankivil

Contact

rcsdigest@themacisp.net
<<http://www.rcsoaringdigest.com>>
Yahoo! group: RCSoaringDigest

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In the Air!

This issue marks the start of the 23rd year for *RC Soaring Digest*. This landmark would not have been attainable without the continuous inflow of ideas, articles, and photographs from *RCSD* readers. Our sincere thanks to everyone for your contributions, past, present, and future.

Peter Wick's series on planks begins in this issue. Our sincere gratitude goes to the publishers of *Aufwind* magazine for allowing us to present these articles, translated from the original German, within the pages of *RCSD*.

This issue includes a complete report on the Atlantic Flying Club Hermanus, South Africa, slope event. This annual fun-fly sees pilots from all over South Africa get together to fly their models from a site close to Cape Town with a fantastic view of Walker Bay. For more information, be sure to check out the Atlantic Flying Club web site <<http://www.atlanticfc.org.za/>>.

Gary Fogel has been hard at work establishing FAI aeromodeling records. He now has records for electric flight with non-rechargeable source of power (F5-P) and for pure gliders (F3B). Another F5-P record flight is pending ratification. In addition, Giorgio Azzalin set a F5 record for distance in a straight line in April of 2005. Having these records established by US pilots is very exciting.

The background photo on the Contents page is one of a series of cloud photos taken by A. Lee Bennett of *About This Particular Macintosh* <<http://www.ATPM.com>>.

Time to build another sailplane!

Leading Edge Gliders

P-40 *Warhawk*

by Dave Garwood, <DGarwood@nycap.rr.com>
Photos by Dave Garwood and Greg Smith

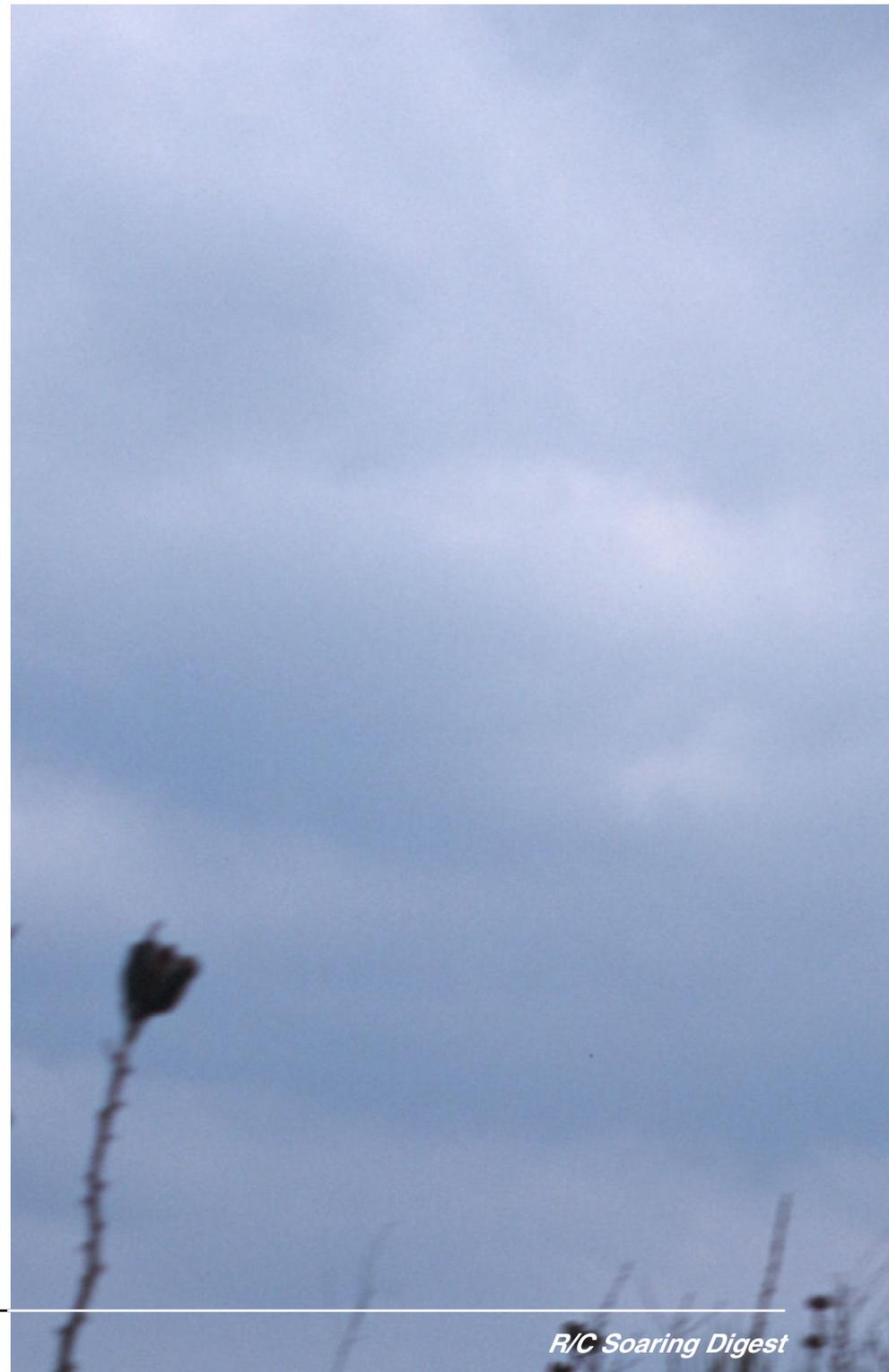
Built of durable EPP foam, this Leading Edge Gliders kit is a model of the Curtiss P-40 Warhawk, designed for sport flying but also legal in foamie warbird racing classes run by California's Inland Slope Rebels, and the Wings over Wilson slope flying club in Kansas.

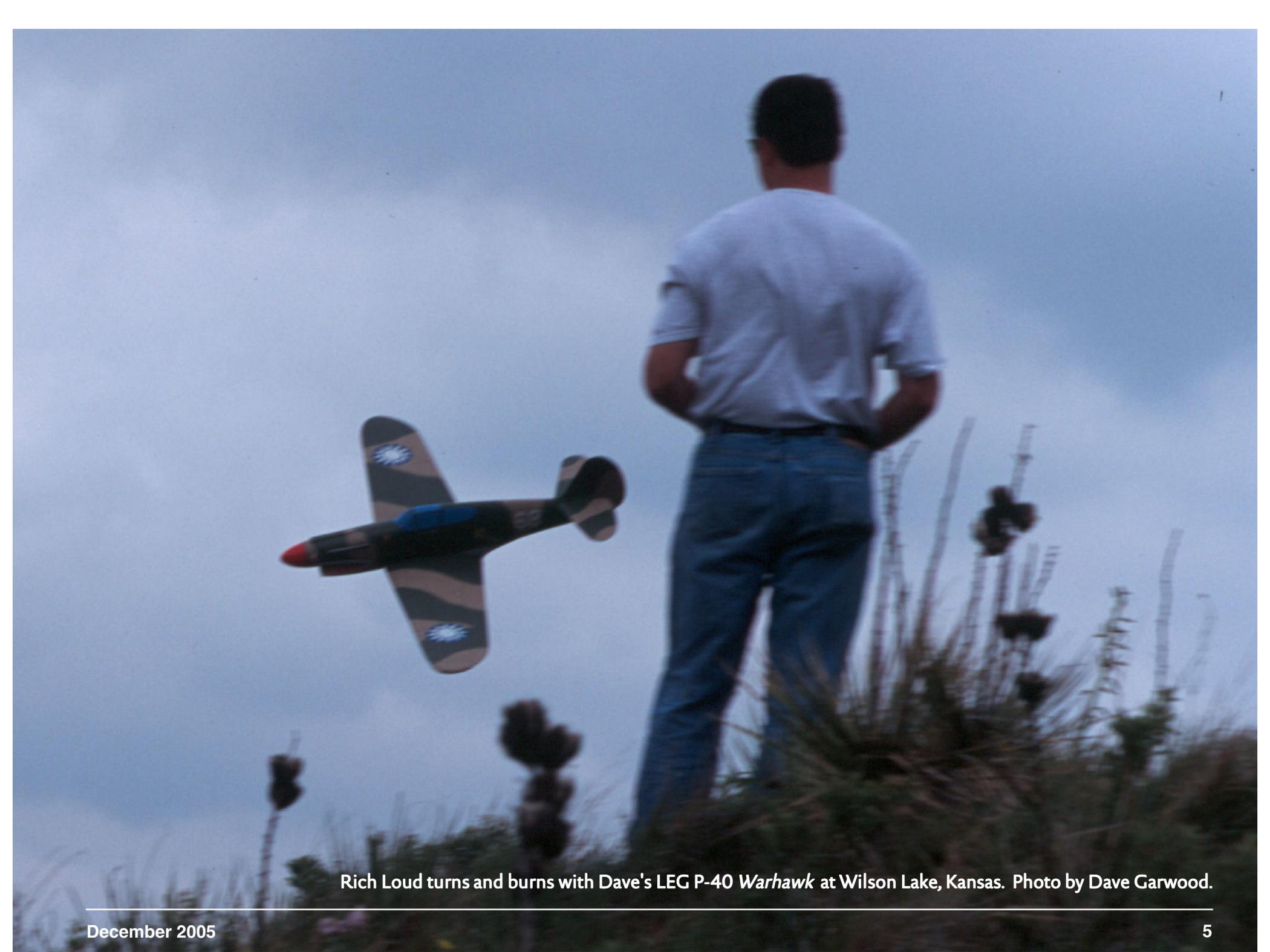
Jack Cooper's design incorporates advances in EPP-foam design to enhance the scale appearance, increase strength, and to smooth the construction tasks. This 60-inch span *Warhawk* presents an impressive presence on the slope and delivers superb flight performance.

Kit Contents The EPP foam components of the kit include the massive fuselage, which is split down the longitudinal

centerline to make installation of the internal components easier; the wing halves, which are shipped in their saddles, and small pieces for wing fillets and the intake at the front upper side of the fuselage. At the time I got my kit, the canopy area was carved by the builder but more recently LEG has been including molded clear canopies.

The balsa components include wing trailing edge stock, and pre-cut vertical stabilizer, horizontal stabilizer, and elevators. Also supplied are spruce spars, with the dihedral angle already set in the wing joiner part at the factory, spruce sub trailing edges and a plywood plate to harden the lower center wing for bolts to hold the removable wing in place. Carbon fiber tubes are





Rich Loud turns and burns with Dave's LEG P-40 *Warhawk* at Wilson Lake, Kansas. Photo by Dave Garwood.

included, to be buried in the fuselage to add stiffness and strength.

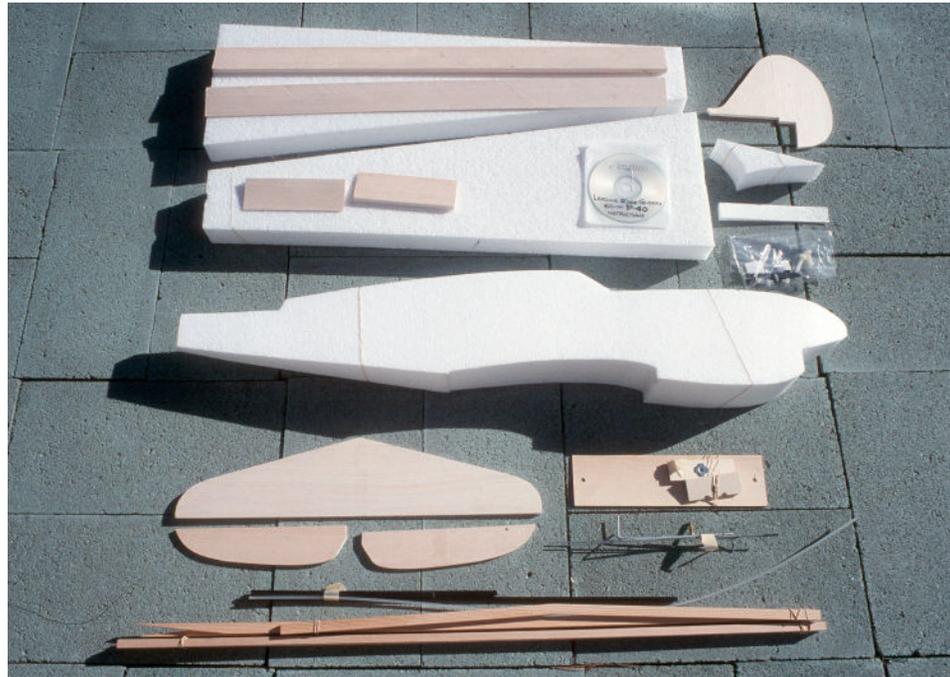
Finally, a complete small hardware kit is included, and two instruction manuals are supplied on a CD-ROM disk. The manuals generally apply to LEG 48-inch and 60-inch span warbird gliders. They are uneven, with abundant detail in some parts, and vague or missing information in others. It is possible that my copy had some missing pages. This is not a big deal for anyone who has built one or more EPP foam planes previously.

The only part I added was molded exhaust stacks made by Jeff Fukushima at Vortech Models.

Radio Selection and Construction I

have a new favorite radio, the Airtronics VG6000, a computer radio without menus - everything shows all the time on the large LCD screen. A computer radio may seem like overkill on a two-channel slope plane, but I like having dual rates, and the exponential feature helps me fly more smoothly. The transmitter also has delta mixing for flying-wing configuration slope planes.

I started on the wing halves. Briefly, the steps are: remove the hot-wire hair, sand the dihedral angle, and set the spars and tip spacers in the pre-cut grooves. I used Elmer's Pro-Bond urethane glue because it expands to grab onto wood pores and foam nooks and crannies. I believe it's lighter than epoxy for this application. Caution:



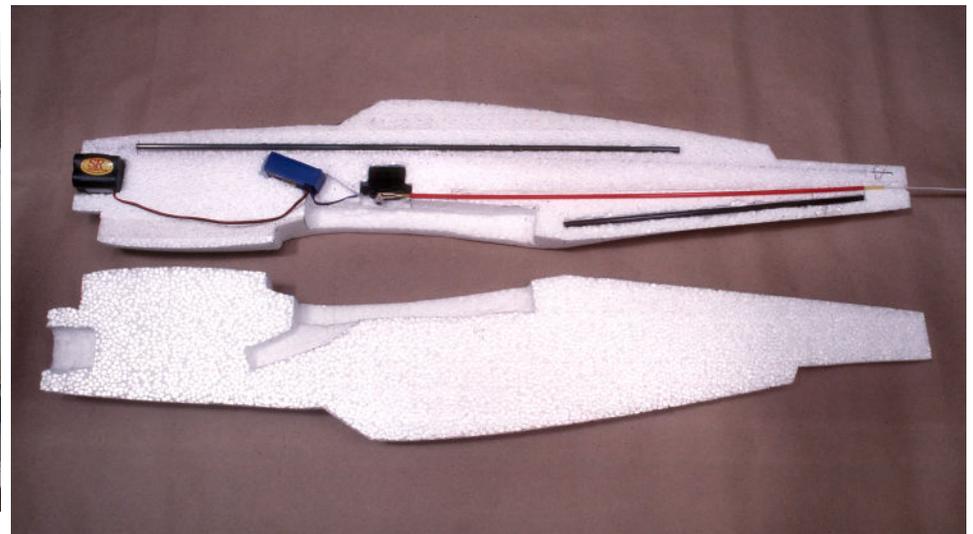
LEG 60-inch span P-40 *Warhawk* kit contents, which include a pair of EPP-foam wing core halves, shipped in their saddles, and the EPP-foam fuselage. Balsa parts supplied include aileron stock, vertical stabilizer, horizontal stabilizer and elevator halves. Hardwood parts include wing spars and wing joiner, and plywood plate for wing mount hard points. Carbon fiber tubes for stiffening the fuselage, an antenna tube, and a complete hardware package are also included. The instruction manual is supplied on a CD-ROM.



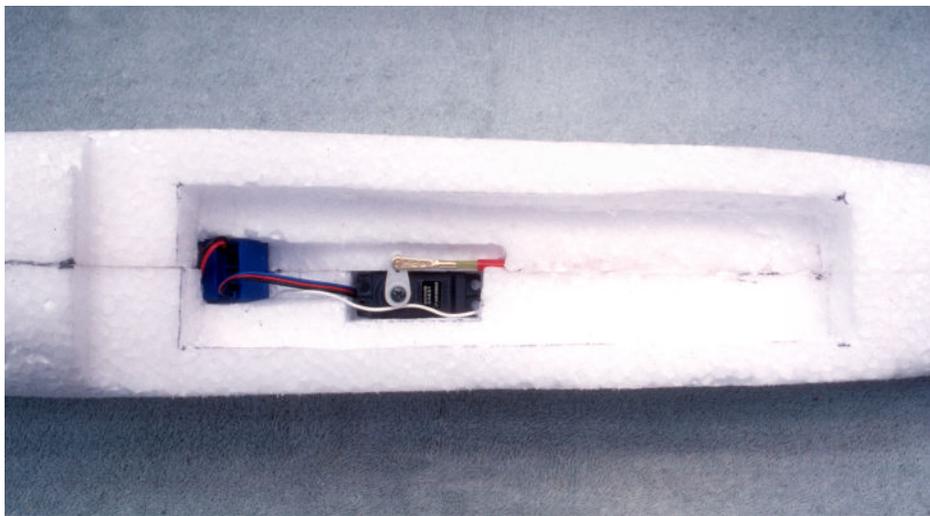
The on-board radio gear installed includes three Airtronics 94831 ball bearing standard size servos (one for elevator, two for ailerons), an Airtronics 92777 dual conversion, narrow band FM receiver, an on/off switch with charge pigtail, and a 1200 mAh SR Batteries receiver battery pack. Photos by Dave Garwood.



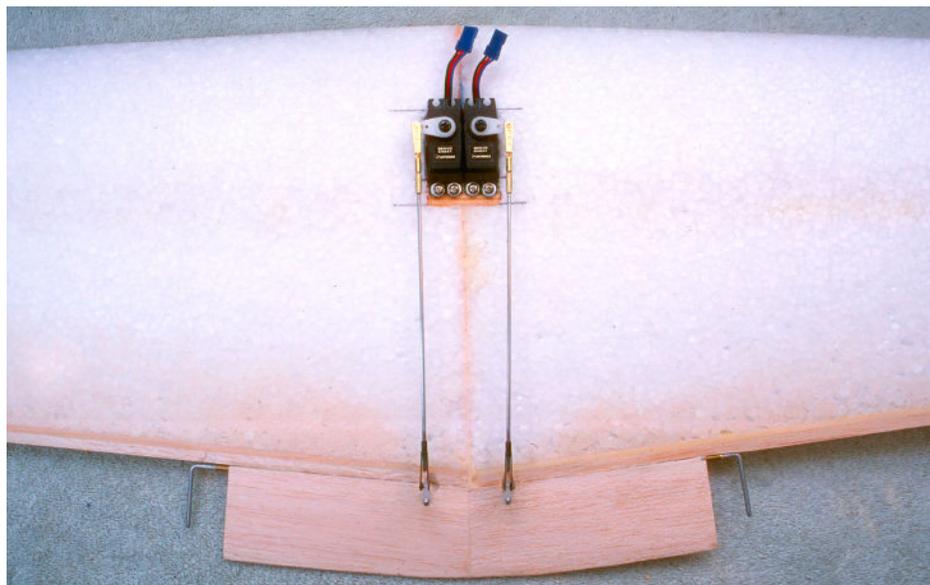
Left: The *Warhawk* fuselage blank, as formed at the factory, now ready for carving to shape. This part splits easily vertically down its centerline to make installation of internal parts easier. Right: The *Warhawk* fuselage partially carved to shape using templates supplied on a sheet shipped with the kit. Dave removed the spinner, in order to carve it separately, seeking ultimate roundness. Photos by Dave Garwood



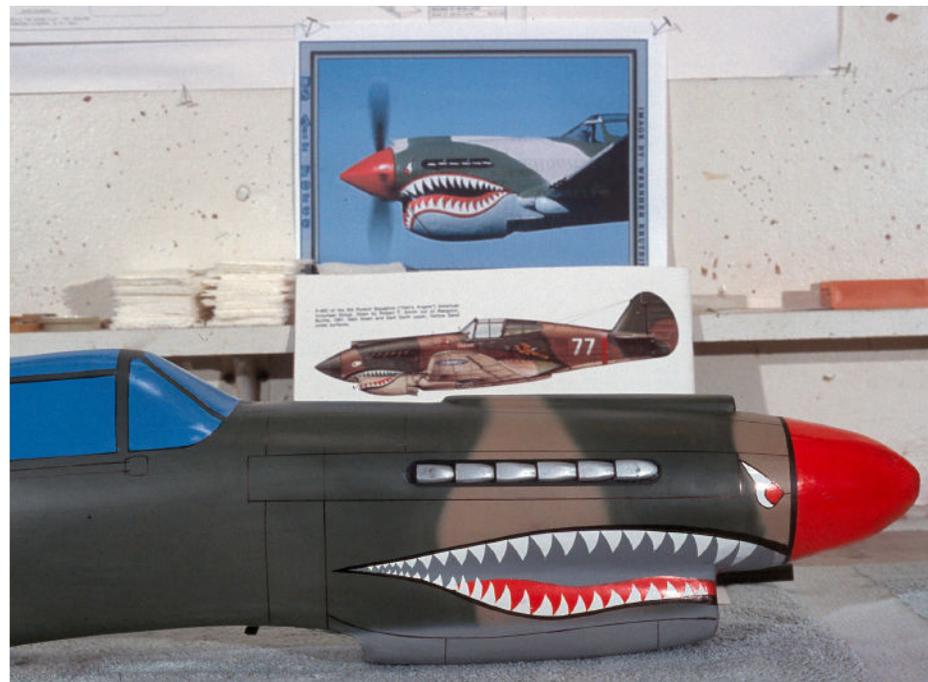
Left: The *Warhawk* fuselage, now fully carved and sanded, with the spinner glued back on and the tail parts trial fitted. Right: Fuselage halves carved out to hold the battery pack, the receiver, the elevator servo, and an area cleared to accommodate the aileron servo and control linkage when the wing is fitted. The black tubes are carbon fiber fuselage stiffeners. The red and yellow tubes are the Sullivan elevator control pushrod. Just barely visible is the receiver antenna tube, in the same channel as the control pushrod. Photos by Dave Garwood.



Elevator servo location with the fuselage halves mated up. Note that a channel is carved so that the receiver is removable when the airframe is completed. The receiver antenna lays across the servo, away from the servo arm, and enters the receiver antenna tube.



Aileron servos and linkages installed in customary position on the upper side of the wing. A pair were installed to provide plenty of muscle to control the long ailerons, although this proved unnecessary in practice, and they were later replaced with a single servo.



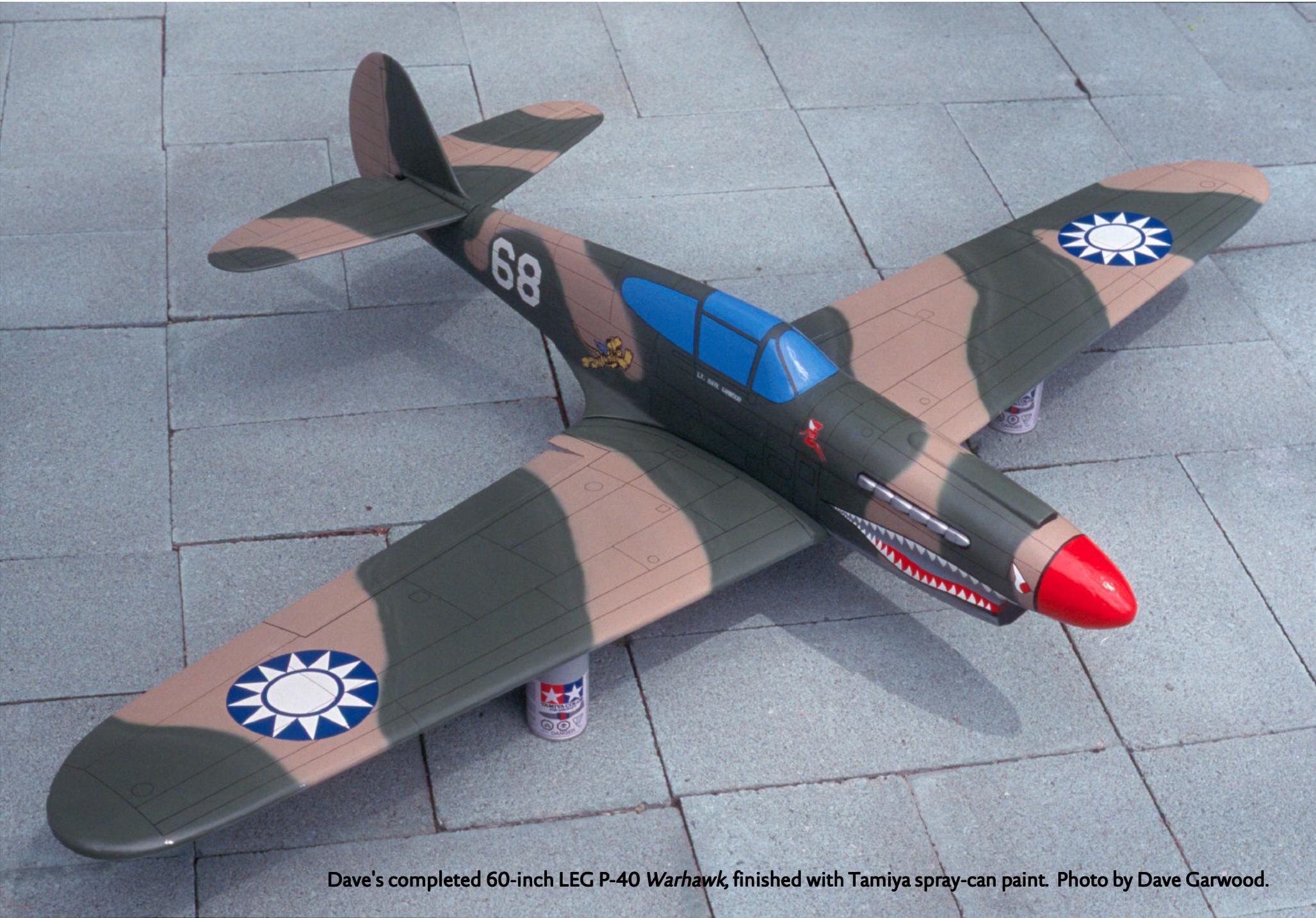
Paint and markings for the “Warhawks Over Wilson” planes was Tamiya rattle-can spray paint in their new aircraft colors series. Details of the scheme came from photos found on the Internet and the Squadron/Signal book “Curtiss P-40 Warhawk in Action.” The shark’s teeth and eye detail were masked with artist’s frisket. Dave’s exhaust stacks were molded by Jeff Fukushima at Vortech Models. Photos by Dave Garwood.

The spars are inserted from the lower side; I was used to spars dropping in from the top.

After the glue has cured on the spars, add the spruce sub-trailing edges, and let that cure. Grind and sand off the excess glue and smooth the wood parts set into the wing foam cores. Set in the aileron control torque rods, sand flush

and join the wing halves. Finally, fit the ailerons and shape the wing tips. I spent a total of eight hours over five nights on the wing.

Careful shaping of the fuselage really goes a long way to improve the scale looks of the model. LEG provides templates to help with the shaping. It’s time consuming



Dave's completed 60-inch LEG P-40 *Warhawk*, finished with Tamiya spray-can paint. Photo by Dave Garwood.

to use this method, but the results are really impressive. I did most of my shaping with a long razor knife, and final shaping with 60-grit and 100-grit sanding blocks. After you've got the fuselage shape to your liking, open the pre-split fuselage and dig out the appropriate channels and pockets for the elevator servo and control linkage components.

Finally, shape, smooth and trial-fit the tail parts. When the aileron servo is installed, the airframe is complete and ready for taping and covering. I taped with filament packing tape according to the diagram in the instructions and covered the airframe with Solartex, an iron-on fabric which we like because of its toughness. I applied two coats of light spackle, sanding after each, and used plenty of 3M 77 spray adhesive to get the tape and covering to stick firmly to the foam. The workbench time to get my model ready for paint totaled about 30 hours.

WoW - Warhawks over Wilson One cool thing about going to the events is flying with old friends, especially



The “Warhawks over Wilson” builders, left to right: Leading Edge Gliders designer and owner Jack Cooper, Lucas Kansas; Dave Garwood, Glenville New York; Rich Loud, Ballston Spa New York; and Joe Chovan, Syracuse New York. Photo by Greg Smith.

those who have similar flying styles and similar taste in sailplanes. It doesn't take long to cook up a little scheme like, “Hey, why don't we all build the same airplane and paint 'em like squadron mates?” Six guys took up the challenge, and we selected the paint scheme of the American

Volunteer Group, the “Flying Tigers,” Americans who fought with our Chinese allies just prior to the outbreak of WWII.

Four of us had *Warhawks* ready by MWSC-2004. The players were Joe Chovan (fuse number 10), Rich Loud (number 13), myself (68) and

prolific builder Jack Cooper fielded three of them: 48-inch, 60-inch, and 72-inch span *Warhawks* (all with fuse number 17). It was so much fun, that we plan to do it again for MWSC-2006. Any and all interested are invited to participate. Watch *RCSD* for

an announcement of what kit has been selected for 2006.

Finishing a Solartex Finish with Paint We've long used paint to finish fiberglass fuselages and sheeted wings, but painting a foamie is relatively new. Generally they are covered with heat shrink 'cote, but nothing looks as good on a camouflage warbird scheme as paint, especially for the feathered edge between the main camo colors.

Generally we start with several coats of primer paint, wet sanding between coats to fill the fabric weave on the Solartex, then apply the national markings, either masked paint, stickers, or water-slide decals. I applied the same process on my *Warhawk*, as I'd done many times previously on 'glass planes, using Krylon spray and Tamiya "rattle can" paints. Tamiya has a new line of flat-finish aircraft colors, which spray on smoothly and look great. I also used Tamiya glossy-finish paint for the spinner and shark mouth markings. The shark mouth and teeth were masked with artist's frisket and sprayed from the cans.

The AVG Flying Tiger and Hell's Angel decals were custom made especially for the WoWzer Group by Randy Linderman. Chinese National markings were made by Major Decals. Finally, I applied panel lines with a Sanford Sharpie ultra fine marker. The paint, markings and panel lines took me another 20 hours of workbench time.

The paint and markings went on fine, but I experienced some cracking and peeling of paint in areas that were compressed by collision with the ground on landing. Doing some further testing with the materials, I found the Krylon spray paint to be the biggest contributor to paint cracking where the fabric was flexed, and if I were to do it again, I'd skip the primer paint; just use the Tamiya color paint, and let the fabric weave show a little. Another method would be to select a single-color scheme that does not require painting, and rely on colored Solartex.

Flight Performance The first flight of my *Warhawk* was at Wilson Lake. We had the wind for lift and the light for photography and at the end of



Joe Chovan's 60-inch LEG P-40 *Warhawk* on the wing at Wilson Lake, Kansas. Photo by Dave Garwood.



an event day four WoWzers launched their P-40s. I was torn between flying the maiden flight and working behind the camera to record the event, and decided to hand the sticks to OFB Joe Hosey. I launched for Joe, and the model took easily to the air. After a couple of passes Joe said, "This plane is perfectly balanced." It was flying just

fine. I was relieved and started taking pictures.

Over the next couple flying days I found the *Warhawk* to be a joy to fly. It's smooth and predictable in straight-and-level flight, has a quick roll rate, pulls inside loops effortlessly, and will even perform an outside loop if the maneuver is set up correctly. The durability of the EPP-foam removed all worries

during close formation flying with other *Warhawks*, and gave confidence in flying stall turns together, the classic "Slope Scale Party."

We had honkin' winds for the Foam Warbird race in 2004 and I was happy to fly a larger and heavier racer. The *Warhawk* did everything I asked of it during four racing heats, including a couple of very close laps and turns with

New York Slope Dog Joe Chovan. It is a fine racer, well suited for this purpose.

In conclusion, this is a most excellent scale sailplane. It's reasonable in cost, pushes the envelope in foam scale appearance, and delivers satisfying performance on the slope.

Three *Warhawks* in flight. Photo by Greg Smith.



An update on the LEG P-40 *Warhawk* kit...

The changes I have made since Dave received his kit include the clear canopy that goes with the completely remodeled fuselage to be closer to scale, and a fiberglass reinforced center section for the removable wing. Also, I have started offering preshaped fuselages instead of shaping templates.

I'm meeting with Jeff Charlot to write new updated instructions that include all the changes we have made over the last three years. I will be releasing a three or four DVD foamy build video set soon after the new year that walks you through all of my tricks, tips, and techniques that I use when building a kit.

Jack Cooper



SUPPLIER INFORMATION:

For more information on the *Warhawk* and others of Jack Cooper's planes, see <www.leadingedgegliders.com> or call (785) 525-6263.

For more information on the wonderful Airtronics VG6000 radio, see <www.airtronics.net/VG6000.htm>.

Information on Tamiya paints and supplies can be found at <www.tamiyausa.com>. See paint color charts at <www.tamiyausa.com/articles/feature.php?article-id=72>.

Solartex is available from Bay Hobby <www.bayhobby.com>.

The Balsa USA web site is <www.balsausa.com>.

Find Sussex Model Centre at

<www.sussex-model-centre.co.uk>.

National insignia markings are made by Major Decals. Their web site is at <www.majordecals.com> and their products are sold at hobby shops and on line suppliers.

Molded exhaust stacks available from Vortech Models <geocities.com/vortechmodels>.

The American Volunteer Group "Flying Tigers" official web site is at <www.flyingtigersavg.com>.



Hermanus 2005 Slope Report

by Sandy Sutherland & Pieter van der Westhuizen

The sound of the Vodacom banners flapping in the breeze, the loudhailer siren, the occasional call of “coming through from the left!,” the sound of an electric Opus ripping up the sky, and the whoops and laughter from the foamy line. Yes, it MUST be Atlantic Flying Club Hermanus Slope Fly 2005. The Cape, and probably South Africa’s premier annual slope event has come and gone, and it’s time for pilots to sit back and reminisce on another fantastic flying weekend on the Cape South coast.

Days before the weekend of the 26th of November, regular (almost hourly) checks in the weather pages showed forecasts of light rain and north-westerly winds. Hearts sank, bad moods and apprehension set in. For a while it looked to some people like the whole thing was going to be a miserable failure. The on-line registrations on the AFC website slowed, and one got the distinct impression that some pilots were taking a “well, lets wait and see” approach. By the Thursday, the forecast changed to “light south-west on the Saturday, and moderate southerly on the Sunday.” So the Sunday would probably be okay after all, but what about the Saturday? Oh well, we probably would be able to fly the bowl on the far right of the radio mast if the wind is strong enough, so all systems go!

We arrived in Hermanus on the Friday afternoon, and were greeted by a moderate northwesterly wind. No flying was possible and we decided to check in to the B&B first rather than head up to the slope, much to the disgust of the pilots, and the delight of the wives. A quick call to the “slopers anonymous network,” and it was confirmed that some flying had indeed taken place on the west bowl to the far right of the mast earlier that day. Apparently the wind was westerly for the mid-morning, and Anton Benning had been having a ball with his VERY light *Impala*, and the TOSS chaps also had some early fun with their *Bees/Zagis*. They were even treated to fly-pasts of the full size aircraft from a nearby airshow.

Reluctantly we called it a day, and headed off in search of something to eat. I think that you would have been greeted by familiar faces at almost any restaurant in Hermanus that evening — we selected one, and sure enough, as we walked in the entire TOSS delegation greeted us with a hearty cheer.

They had obviously been there a while already!

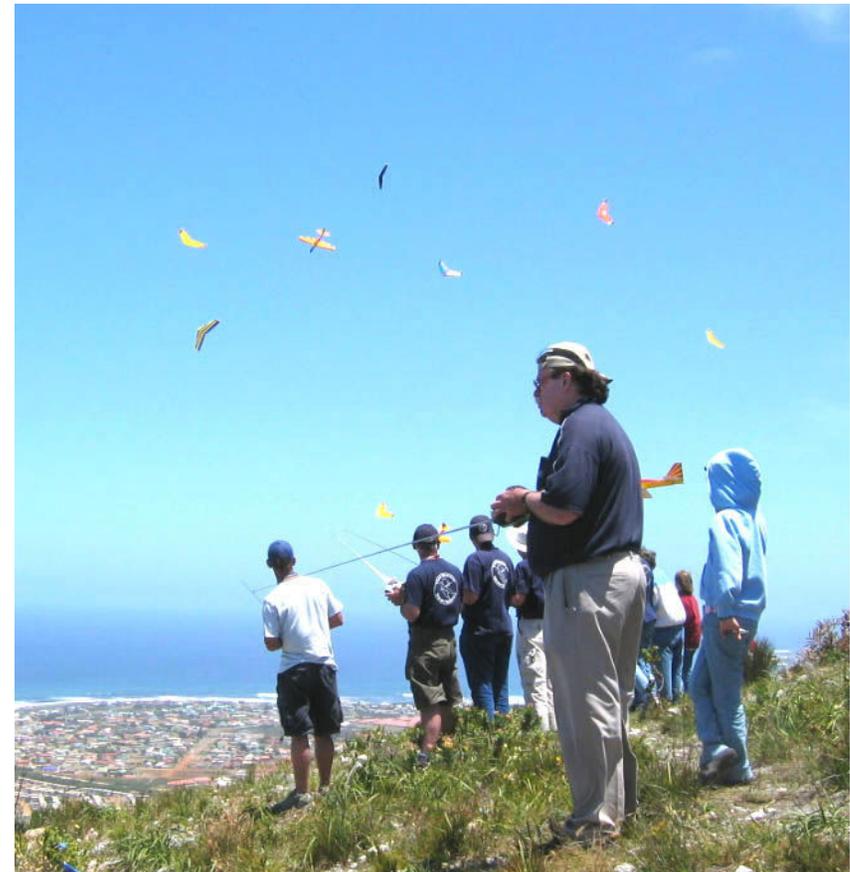
— Saturday —

The morning started out as pretty much a non-starter. Early morning rain had fallen, and a very slight easterly (yes you read it right) wind was blowing, so we took our time getting to the slope, and even though we arrived later on in the morning, we found that there was not a large turnout — only a few foamies in the air and they were struggling to find any lift. A little later a very nice electrified *Opus* joined in, having an absolute ball despite the lack of real lift and ample airspace due to the absence of most of the other pilots, who could do nothing but “Slope-BS” and watch the show. Hmmmmm — suddenly found myself rather interested in electric flying, even though looking down my nose at it before.

After a little while the wind picked up a bit and turned more southerly. We joined a few of the more adventurous folk and threw out *Bees* and such like. It was quite flyable, but not too great. After a few minutes of sagging around the

sky with his *Bee*, Sandy found himself off to the left of the combat flight line with little or no control at all, almost like hitting a bad patch of rotor on the FRONT of the hill — down it went, with Sandy scampering to the left of the

flight line. We lost sight of the *Bee* over the hump of the hill in the middle, and deduced that it had gone in somewhere near or in a gully that runs down the hill, between the designated crunchie/mouldie lines and the combat line.



Hermanus combat.



Ed Fox, winner of the Most Flying award.



Neil de Beer receiving Best Youngster award.

Other award winners: Best Crash — Wessie van der Westhuizen; Combat King — Brian Duckitt; Farthest Retrieval — Sandy Sutherland; Hardest Worker — Tim Matthee; Spot Landing — Anton Benning; Development — Hartmut Berger

Sandy tore off down the hill, which turned out to be rather steeper and bushier than it looked. Needless to say half an hour later he literally crawled his way to the top of the hill to give back the peg to allow someone else to use the frequency. We gathered some troops — in the form of Wessie, André, Jason and Neil, and we again slid our way down into the gully for another half-hour of bush-wacking “fun.” To cut this story short, if anyone happens to come across a nice *Bee*, with red vinyl tape on the bottom and yellow with red stripes on the top, down the hill near the towers on the Hermanus slope, I would really appreciate a call. Oh, and one other thing — PUT LMAs in ALL your models!! A warning to model pilots... If you happen to park a model down the hill there, take your pitons and ropes along when you go down, and a good pair of gardening gloves, I am still picking the thorns out of my hands from dragging myself up a “scar” on the hillside.

After trying to gather some energy back for the afternoon, we had a look around to see what everyone else was up to.

The wind had picked up by this time, and had swung a little more southerly, and there were quite a few more planes in the air.

The combat section was going great guns, and was busy the whole weekend, with everyone having a great time. The majority of planes were wings, but there were a couple of *Piranhas* doing some half pipes, which were then picked on by the rest of the gang.

We did notice the beautiful new *Sting* of Andro de Beer, doing some close-to-the-slope manoeuvres, including his trademark speed runs over the slope, with a radical turn at the back and another speed run back to the front — always very entertaining, even if it did make the Air Boss a bit unhappy, but amazing to me how he gets away without smashing the *Sting* to pieces.

Tim Mathee maiden his nice new *Opus* — looked like he was having fun, and managed to get it safely back in his hands. The *Opuses* recently seem to have hit a bad patch, with several being damaged, so I was glad to see Tim’s nice and safe. It is always rather nerve



Ross “The Boss” Leighton launches his P-51.



Detailed pilot in the cockpit of Ross "The Boss" Leighton's six meter ASH-26.

wracking maidenings such a nice plane!

If there was a prize for "Best Scale model," I think Ross would have clinched that one on both days. Once the wind picked up a bit, he set off with his *Mustang*, and it looked like he was having a blast.

Charlie Blakemore had one too, but unfortunately we did not see that one fly. Must have been bust with something else.

One of the two *Sabres* seemed to be having difficulties of a technical nature, and could have won the prize for "most launches."

Marc Wolffe had an absolute blast with the *Mini Ventus*, doing low passes over the landing area. (What — no pilot??? JL) We also saw a *Voltij* flown by one of the lads from Ballistic RC flying for a while. This was also flown again on the Sunday afternoon with some great skill — very impressive this model, first time I have seen one, and once again, not having paid much attention to it before, I had the usual, "HMMMMM, what could I sell to raise the bucks to buy one?"

These lads also flew a moulded *Limit Ex* for a while — our first view of these small rocket ships in the air! (We're still building our all-balsa versions).

Tim and Bobby also took time out from their "Air Bossing" duties to have a spin with a very nice *Hawk* which is being produced as a kit. If you twist his arm, and cross his palm with enough silver, maybe Bobby can finish it for you, to the incredibly beautiful finish he gets. "HMMMMM" once again, I need something to replace my Bee...!

Having lost my *Bee* I was somewhat nervous of the conditions, and only after having watched everyone else having a great time, and realizing that the end of the day was not long off, did I venture into the air, first with my *Prodig*, and then later on with the *Whisper*. Both flights were rather conservative, lots of height, and nothing radical.

The big interest of the Saturday afternoon was Wessie flying his *Mini Ventus* around the slope with an onboard camera — it had an RF link to a recorder on the ground, and it was

amazing to watch the slope from above, as it were — we had a look at the footage, and it is quite amazing to feel and see the slope from the air. (Regrettably, the picture quality was not suitable for printing. JL) There was quite a lot of nervousness before this event as Paul, the owner of the camera equipment was understandably unsure of hurling his expensive gear into the blue, in a glider, with an unknown pilot, and was rather relieved when everything went more or less as planned. He in fact made some adjustments to the onboard aerial and repeated the whole thing — well done to Wessie, some nice flying which made for some very interesting footage.

At around lunch time we realized that we were pretty much starving, so we sampled the goods on offer at the food caravan. Everyone agreed that the food was MUCH better than previous years, and value for money, too. The cool drinks were cold, and the “Bratwursts” huge, and there was no skimping on the onions, either.



Anton Benning's *Impala* climbs for altitude.

André de Beer in the meantime had repaired his *Opus* which he had previously parked on the Hill at Signals at very high speed while doing a speed run, including a nice paint job on the fuselage which, unknown to him, had made it badly tail

heavy. He flew it early in the afternoon, and had a huge problem on his hands as it was extremely sensitive on elevator, and was like trying to fly a roller coaster. He managed to land it successfully, and then spent some time rebalancing

it. The next flight went extremely well, in fact he then had a huge smile on his face and announced that it was now flying better than ever before. He had brought along a new *Manta* kit which he had been hoping to have flying before



Stills from John Godwin's Hermanus 2005 video:

1. Mark Williams and Ross Leighton admire Steve Hammer's *Fox*. **2.** Ross Leighton's *Fox* waits patiently in the pits. **3.** Mark Williams and Peter Nettekville focus on some flying object. **4.** Ready for flight. **5.** The two Steves, Steve Carlson flying. **6.** Darren, Glyn and Brian from Port Elizabeth. **7.** Stefan v Aswegen about to launch. **8.** The combat zone. **9.** A bit of conversation before flying. **10.** Chris Adrian's F86, complete with retracts. **11.** Anton Benning's 3m *Hawk*. **12.** Ready to launch! The arrow points out a wind-swept banner.

John's two minute thirty nine second Hermanus 2005 video can be downloaded in QuickTime, Windows Media Player, or DivX formats from <http://www.sungun.co.za/video/>. A version for cell phones only is also available. from the same links page.

Hermanus, but has been so busy at work, that he had not had the time, and was still sitting on the Sunday morning, trying to install radio gear, but wisely decided to stop, as this rushing tends to be a sure-fire recipe for disaster, so it did not fly at Hermanus. This kit he is finishing to an amazing standard, and has glassed the wings and elevator, and had a stunning paint job done on it. This is going to be a nice plane, and judging by the flying André got up to with his previous one, this one is going to rock. Watch out all you Opuses, here comes a *Manta* to give you a run for your money!

Late that afternoon we erected some pylons on the combat line, and tried “limbo” for a while. Pilots took turns trying to pass under a streamer tied between the pylons, but after a while it seemed more fun just trying to knock the poles down. One pilot managed to pick up a length of the streamer, and was almost instantly dubbed “rabbit,” and everyone set off after him. The *Piranhas* put up a very good show of formation flying to the delight of the visitors. Unfortunately

they were picked on quite badly the following day, once again to the further delight of the onlookers.

Peter Netterville, the Events Manager, had just undergone major back surgery, and after checking that everyone was having the appropriate amount of fun decided to hold the planned events over until next time.

Late that evening we retreated to the B&B where we stayed. We had little ones with us, so we could not make it to the club house where the evening’s festivities were about to begin. At around 7pm the pilots began to gather, Tim “the braaimaster” had the fires on the go, the grids ready, and the tongs on hand. The meat, from Valmary Slaghuis, was by all reports excellent.

The crowd included the AFC regulars, the PE boys, Trevor Trow, Brian and the gang, and more. The locals flew some electric gliders on the field, and the East Coast boys showed that you can even learn to fly 3D shockfliers in the windiest city. The rest of the evening was spent trying to deplete the bar, reminiscing about the

day’s flying, and generally enjoying the company of the fellow pilots who make this such a great hobby.

— Sunday —

Sunday morning dawned with much better conditions than the day before, with a south-westerly to southerly wind blowing fairly strongly all day, providing some nice lift.

We got to the slope earlier to find quite a few more pilots there already. Having gone big the day before with three tents, we decided to put up only one, and took stock. After the safety briefing, flying started in earnest. Both the built-up and the combat lines were rather busy all day, especially when Sandy decided to have a go with the *Whisper*. Suddenly the air was full of whistling *Blades*, *Bananas* and kitchen sinks, so he felt safe at altitude. The landing zone was rather busy, and he found himself overrunning the allotted 30 minute time slot. Before he could land he found that the lift over the landing area was too good, and also sitting on a downward slope, so he opted to join the majority and headed over the road to land. After a

couple of circuits, he landed fairly easily, and returned the peg to the board.

The highlight of Sunday was the flights of the two 6 meter wingspan ASHs of “Mr. Zippo” Bernard, and Ross “The Boss” Leighton.

These are both stunningly detailed scale models, with lots of features, including pop-up spoilers, water ballast tanks, retracts and more. I must say I would be more than a little reluctant to toss something of this calibre off a hill, but they did, and were rewarded with some stunning flights, including some really nice scale-like flybys and some impressive wing wagging, as they pulled some high-G turns and loops.

Both Piglet and Action Man with the cool shades and floppy hat survived, and must have really enjoyed themselves!

After the big flights, I took stock of “the stock” in the pits, and saw a nice big *Hawk* belonging to Anton Benning, finished in a good camouflage paint job, so we eased up to Anton to see if he was going to



A *Scorpio* makes a low pass over the landing area.

fly it. Unfortunately he had not been able to finish it completely, and the radio gear was not yet fully installed and he was on the lookout for a good battery and receiver. There were also a couple of rather nice looking Foxes sitting on the hill, which I didn't see fly.

Then we saw a nice *Blade* doing some fast flying,

whistling around, demonstrating nice energy retention, and a couple of *Opuses* also took to the air, including Tim's baby! There is just something special about the haunting sound those planes make when they pass by overhead in formation. Alex Selkirk's 35 inch *Puffin* came out — this is a nice kit sold by Southern Hobbies, similar to

the *Limit Ex* and *Mini Falcon* — seems that the small slopies are becoming ever more popular... small and easy to carry around. They also fly so well, even if they do keep you on your toes, as they are fast and disappear very quickly!

Later on Wessie decided to give a show with his *Mini Falcon*, and found that after launch he was having

problems — he struggled to fly it, and after a few minutes he decided to try and bring it in to land. On the downward leg he found that he could not use elevator to turn back into wind, and had rather a heavy nose first landing, which once again showed the remarkable strength of these small all-moulded planes. He got away with a couple of cracks on the fuselage, which can be easily repaired with some FG cloth and epoxy. The problem turned out to be that the gears had stripped on the elevator servo, giving him extremely limited travel!

After the *Mini Falcon*, Wessie decided to do some spot landing practice with his *Arkanj*. He had flown it the day before and found it rather tail-heavy because of the rebalancing needed after a superb new paint job. He had added some nose weight, and found it to be flying a whole lot better. He then started to walk back to the flight line but tripped over a rock, stumbled and fell down, banging his transmitter on his chest. This caused the transmitter battery to fall out (in the rush to fly, the battery cover was not properly

clipped on), and lost all control of the *Arkanj*, which gracefully arced over into a dive, straight into the ground a little way down the hill. This of course did not do the plane any good at all, and it took all of our combined efforts to persuade Wessie not to throw everything in the bin, but to put it back in the trailer for

another look another day, to see what could be salvaged.

Not a very good day for Wessie, but that did not stop him, and was seen flying a few of the many planes in his arsenal later the day, even venting his frustrations on the foamy combat line.



Launching “Mr. Zippo” Bernard’s six meter ASH-26.

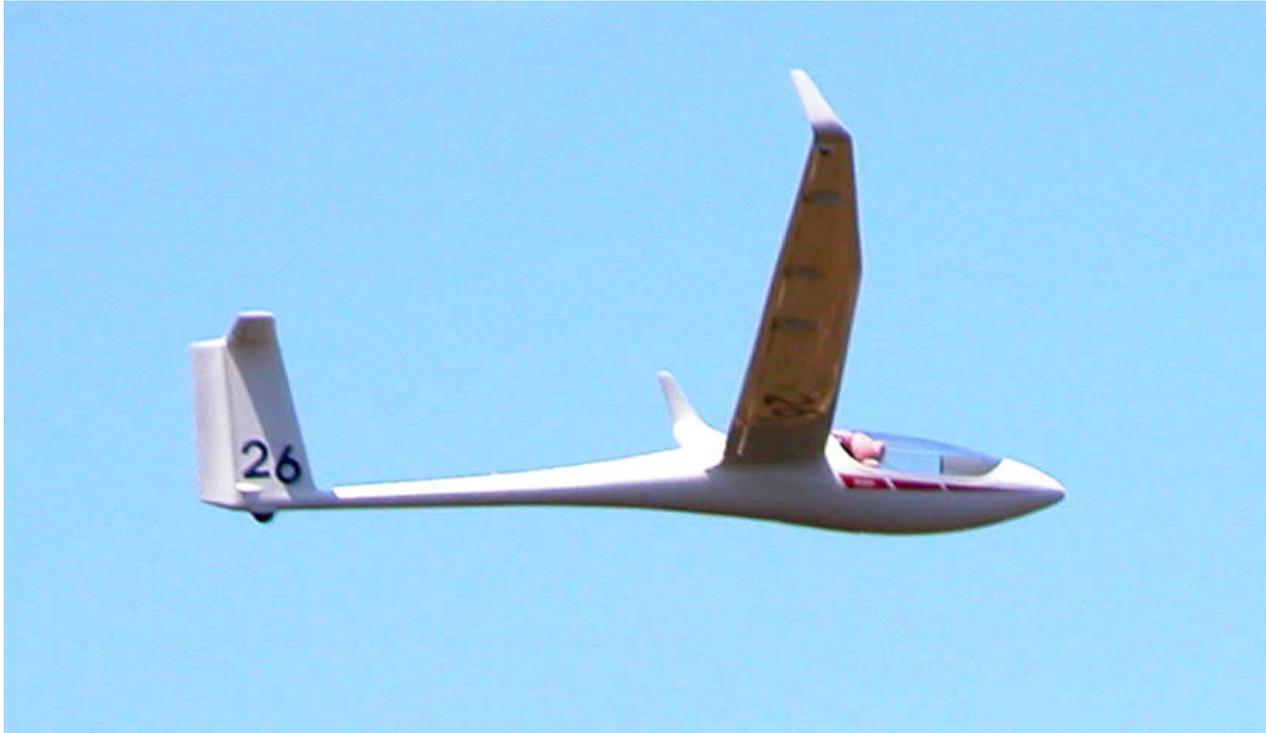
We missed getting details on the tailless correx homebuilts that were seen near the combat line. We hope to report on these in coming issues, so I hope the owners of those planes are reading this, and will send us more info and pictures.

Later on in the afternoon we watched a pair of *Limit Exs* being flown, they were really enjoying the conditions. On high rates they were reminiscent of a drill, with such a fast axial roll rate — something similar to our *Mini Falcons*. This of course gave me (Sandy) a push, and I went and fetched my *Mini Falcon*, I hurled it out with some trepidation, as because of the small size and high speed of these planes, you cannot sit in a safe area of the sky away from the concentration. Anyway, it turned out that I had not been paying attention, and had not checked that the aerial, which comes out the back of the fuselage, was free — so I launched with it wound up around the V-tail — giving me a rather exciting flight, trying to keep it close so as not to lose range, and also dealing with the glitching of the R610M

receiver which did not like the shortened aerial one bit! After around 15 minutes, I was exhausted from flying a constantly glitching rocket, so I decided to land. A rather rushed landing later I got it down in one piece.

At 3pm on the Sunday afternoon it was time for the usual prize giving, and as you might have guessed, Wessie and myself cleaned up in the ignominious stakes, with me taking “The Farthest Retrieval” for my double climb of the hill, and Wessie taking “The Best Crash,” for the sad demise of his *Arkanj*.

The conclusion of the prize giving brought the realization that it is almost time to pack up, and after some final flights we began to pack up the tent — again — trying to pull some of the thorns out of hands, gently rubbing the sunburn, and thinking — “Hmmmmm, will we come back next year? TRY AND STOP US!” but this time with batteries epoxied in place, or something like that, and LMAs in everything that flies, and all servo gears with all teeth intact!!



“Mr. Zippo” Bernard’s magnificent six meter span ASH-26 flies by the camera.

We would like to commend and thank the Atlantic Flying Club for yet another successful and hugely enjoyable event, and extend a heartfelt “Thank you” to all the great sponsors — we really hope to see you all again next year. And oh, yes, someone said that there were some other “models” on the slope, which I did not see, (I was down the @#\$%& hill looking for my *&@%\$ Bee!) — The Red Bull Girls... Damn — missed that! Where was I? How come no-one told me???

Anyway, that is it for this year’s AFC Hermanus Report. We hope that you enjoyed the different, personal, perspective of the event.

We have already decided that next year we will go to Hermanus a day earlier, to get our flying done, so we can focus on the reporting business of taking more names and pictures on the actual event days.

See you there next year!

Wessie and Sandy (very satisfied) Slope Addicts

Text, photos and captions from
<<http://www.southernsoaringclub.org.za/a-Herm-2005.html>> and
<<http://www.atlanticfc.org.za/>>.

For those who miss the actual stats, facts and figures, here are some:

61 pilots pre-registered for the event;

51 showed up and 24 pilots entered late, or registered on the slope;

75 pilots were on the hill — 46 paying plus 29 Club members;

209 models on the slope, average 2.8 models per pilot, excluding Red Bull Babes.

The Atlantic Flying Club will be donating R1250 of the proceeds to the Botanical Society.

This years sponsors were:

Vodacom
Southern Hobbies
Hobby Warehouse
Cape Sailplanes
Clowns Hobbies
Capital Zippo
Red Bull

“Thank you” to all of you!

Peter Wick on Planks

Peter Wick, <and-wi-pep@parknet.dk>

My articles about the design of flying planks build on many years of practical experiences with flying wings of all sorts, many of them together with my friends from the Logo Team. But in the year 2000, I moved to Denmark — love, you know — and the slopes changed quite dramatically and so did my planes: from quite big and very building extensive planes to rather small ones with exceptional handling qualities. Easy to build and exciting to fly... planks!

But why a series of articles about it? Isn't everything clear and understood? Basically almost everyone who is working professionally at real scale aerodynamics would answer yes. But the aerodynamics of model airplanes is different, mainly because the Reynolds numbers are much lower, and therefore a lot of the aerodynamic laws for full size planes will not be accurate for the understanding of the aerodynamics of flying planks.



Part 1: The general aerodynamics of flying planks

In these articles¹ I will use a definition of a flying plank which understands flying planks as flying wings with very low sweep — not more than +/- 5 degrees. Fins are allowed. They look for example as the one in the photo on the previous page.

1. This article, one of a series, originally appeared in the German language magazine *Aufwind* 6- 2003. *RC Soaring Digest* thanks the publishers of *Aufwind* for giving permission to publish this series of articles in English. Information concerning establishing a subscription to *Aufwind* may be found at <www.aufwind-magazin.de> or by sending e-mail to <bestellung@aufwind-magazine.de>

For the understanding of planks I will use an example plank with the following outlines:

Span: 200 cm / 78.8"
Chord: 20cm / 7.9"
Weight: 1.2kg / 42.32oz
Aspect ratio: 10

As you can see in Figure 2, a real plank. The airfoil and the control surfaces are not of interest at the moment.

When you ask your friends about how it is possible to fly something like this, the typical answer will be, "It will fly stable only if you use a stable airfoil or an airfoil which has a moment coefficient of zero."

But is this the only condition which is necessary? What does it actually mean to have an airfoil with a moment coefficient of zero?

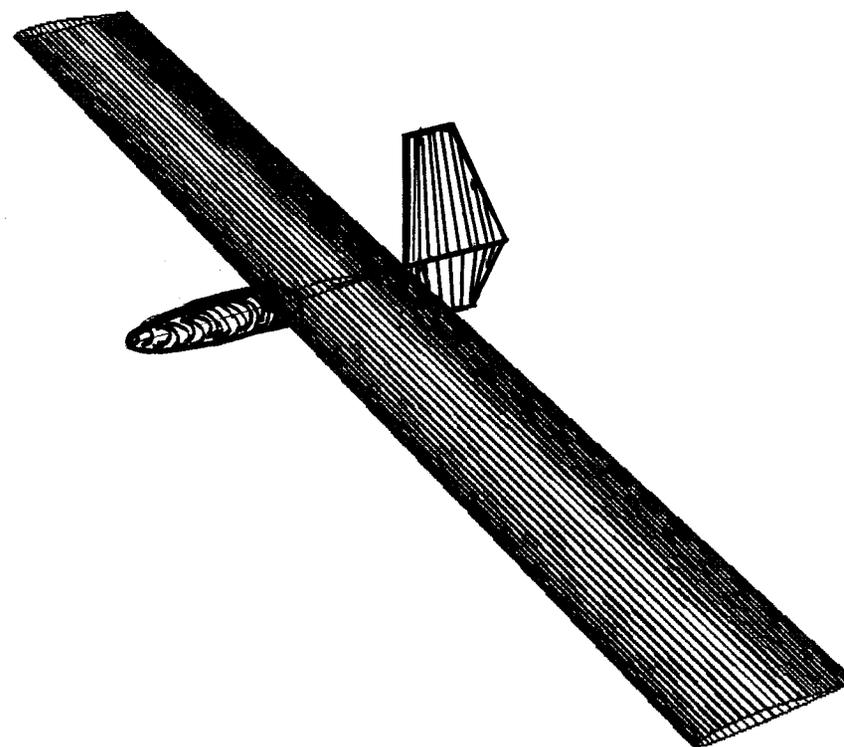


Figure 2: Our example plank

I will now outline the basic aerodynamics of planks and talk about the consequences for plank designs.

“Moment coefficient of zero” means that the center of pressure does not shift, it’s fixed. The center of pressure is where the force of lift is considered to be generated, if

you could collect all the lift forces together in one point. This point is normally not fixed, it’s running along the chord line as the airplane is changing its angle of attack. This movement can be calculated with the following formula:

$$X_D = 0.25 - cm_0 / c_l$$

X_D means the point on the chord line of the airfoil where the center of pressure is placed. 0.25 is the point at a quarter (25%) of the chord line, and cm_0 is the moment coefficient of the airfoil at this point and will be explained later.

C_l is the lift coefficient the airfoil is producing.

Airfoils for flying planks do not show this kind of movement of the center of pressure, meaning the lift force is at the same place all the time.

If there is no shift, cm_0 has to be zero in the formula and the point where the center of pressure is located is at 25% of the chord. The moment coefficient cm_0 is therefore related to this point.

The aerodynamicist also calls this point the aerodynamic center or neutral point. This point was chosen by aerodynamicists because they found out that the pitching moment of an airfoil is almost constant at this point (see also Figure 3). For a plank with an airfoil with no pitching moment, the neutral point and center of pressure fall together.

But what happens if we use an RG 15 airfoil for our example model, because it is a very good one? The Eppler computer program is calculating a moment coefficient of -0.0688 for the RG15. If we put that into the formula, we get the following results for some different flying situations:

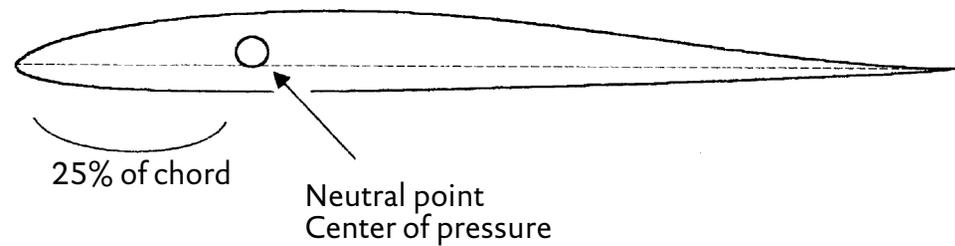


Figure3: Theoretically stable airfoil, the E182

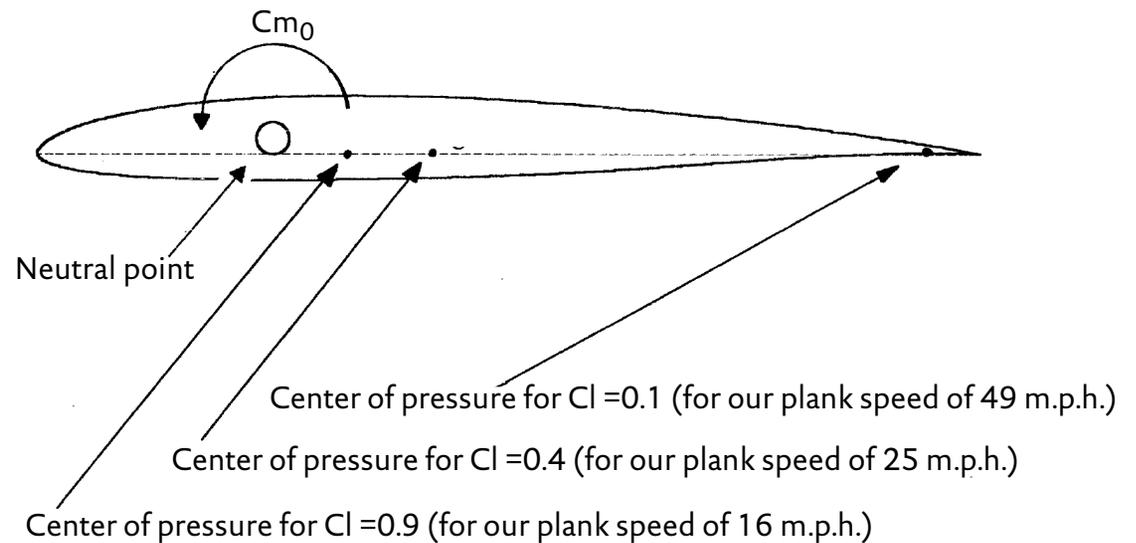


Figure 4: Different locations of the center of pressure for different flying situations on the RG 15 airfoil

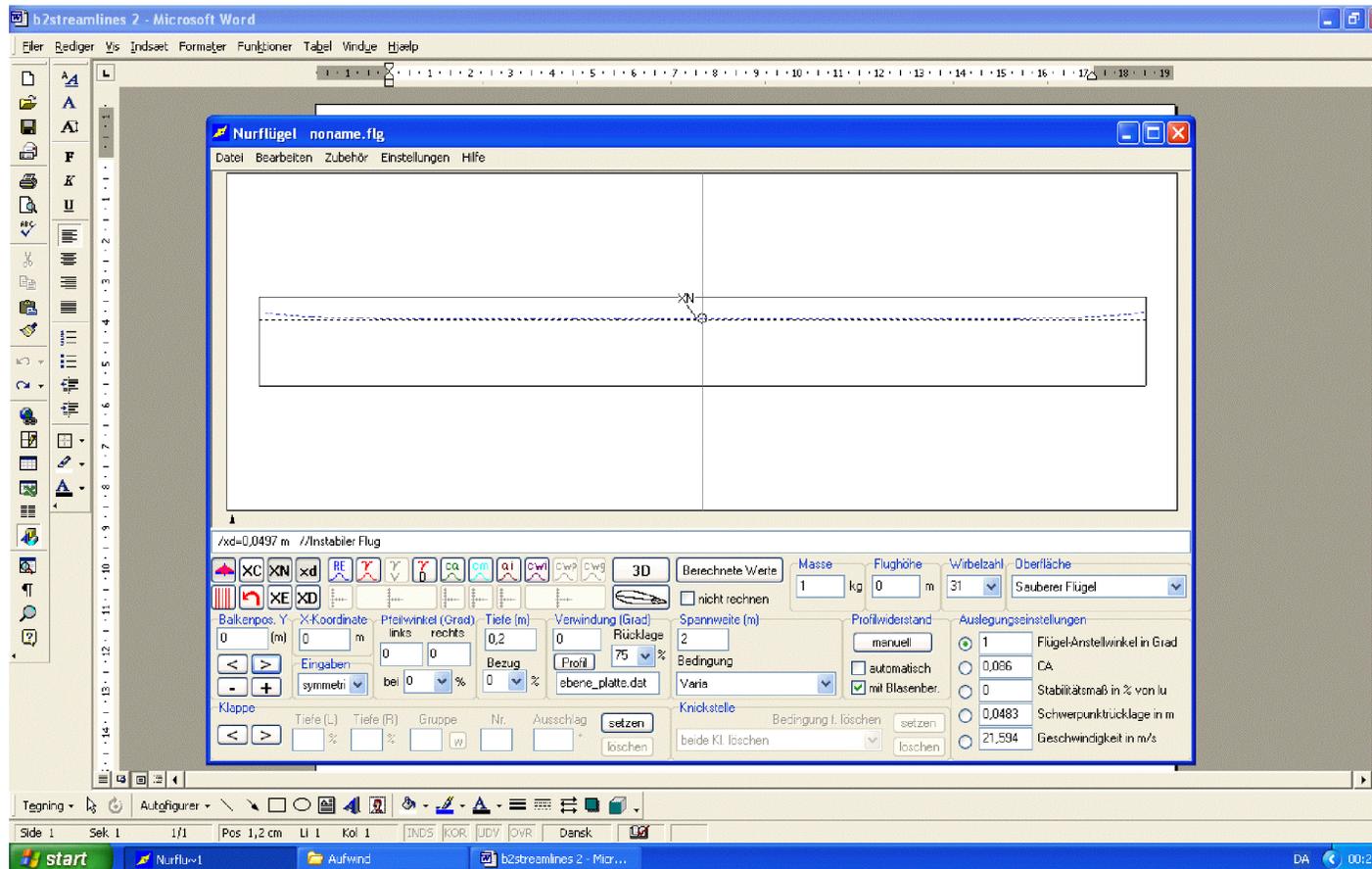


Figure 5: The blue line shows the location of the center of pressure for our model plank. The calculation is made from the Ranis Program <<http://mitglied.lycos.de/frankranis/>>.

For a C_1 of 0.1, which is rather fast, the center of pressure lies at 94% of the chord line (look also at Figure 4). For a C_1 of 0.4, which is a rather flat, fast glide, it lies around 42%, and for a C_1 of 0.9, which means thermalling, the point lies at 33% of the chord line.

To get some flying stability around the lateral axes, the center of gravity (CG) should always be placed in front of the neutral point. But where should we put the CG on our plank with a RG 15?

Even if we put it at 33%, thermalling, it will still be behind the neutral point and therefore there will be no stability. This is a

direct consequence of the negative pitching moment of the RG 15.

So if you want to have a stable flying plank, you have to use an airfoil with a positive cm_0 .

I have to state here that it is very important to notice that I am talking about the neutral point on a single airfoil and not

about the neutral point of a whole airframe.

An airframe consists basically of lots of airfoils, all with their neutral point along the span. By calculating all these points you are able to find the neutral point of the whole airframe. Our example does not have taper, and it has no sweep, so the neutral point is lying very close to 25% of the chord. Not exactly, because the flow over the wing is three dimensional and thereby changing some of the neutral points along the span, but not by so much.

You can use for example the program “Nurflügel” by Frank Ranis,

<<http://mitglied.lycos.de/frankranis/>>,

to calculate the neutral point of the whole airframe. The program can even give you a picture of the distribution of the neutral points along the span (see Figure 5).

Back to the CG: As everybody knows, the CG is the point on our aircraft where we put our fingers under, and the plane isn't tipping in any direction. So it has to be the point where the mass force is acting.

As I said before, the CG has to be in front of the neutral point to get a stable flying airplane. The distance between the neutral point and the CG is therefore called the static margin. It's normally given in percentage in relation to the mean aerodynamic chord:

$$STM = (x_N - x_{CG}) / c$$

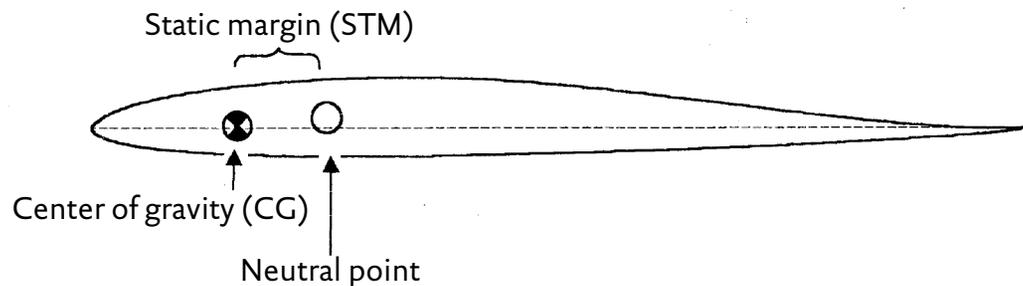


Figure 6: Static margin is the distance between the center of gravity and the neutral point

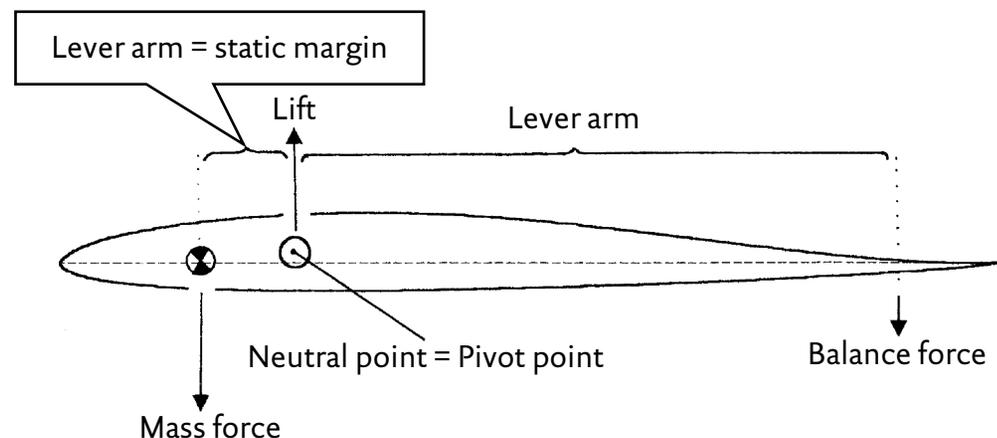


Figure 7: The “balance force” counteracts the lift force with different lever arms

where STM is the static margin in percent, x_N is the distance to the neutral point, x_{CG} is the distance to the CG and c is the mean aerodynamic chord.

For a first approximation we can also use the mean chord. In our example, a static margin of 10% will be the resultant of a neutral point at 50mm / 1.97" and a CG at 30mm / 1.18" and a mean chord of 200mm / 7.9".

With these figures we had set up our airplane and have created the following situation (see Figures 6 and 7), here with the Eppler E184 airfoil.

With this static margin we have created a moment, and we have to counteract it by another force which we can call "balance force." We like to keep this force as small as possible because it's directed downwards (see Figure 7) and costs lift.

Because our plank has no long fuselage and also almost no sweep, the lever arm is actually very small, only a part of the chord.

OK, so far probably nothing new and most of it can be read in all books about

aerodynamics. Therefore, let's go into practice.

We do build our example model and use the Eppler E 184 airfoil because the Eppler program shows a moment coefficient of $cm_0 = +0.031$. We also build a serious fuselage and some fin area, set the control surfaces into their neutral position, put the CG at a point to get 10% static margin, and throw it over the cliff.

Wow, it flies... Wow, maybe a little bit too fast and downwards, but with the help of some elevator up trim... it works... and gives all people who are very critical about flying wings a lot of good arguments. The performance is simply catastrophic.

What is happening and why? See *Part 2: Understanding what is happening*, and draw some conclusions.

FAI has ratified the following Class F (Model Aircraft) records:

Claim number: 11328
Sub-class F5-P (Aeroplane, electric motor (non-rechargeable sources of current))
F5: Radio Controlled Flight Category
Type of record: N° 181: Distance to goal and return
Course/location: California Valley, CA (USA)
Performance: 2.25 km
Aeromodellers: Gary B. FOGEL (USA) & Christopher SILVA (USA)
Date: 15.04.2005
Previous record: new

Claim number: 11329
Sub-class F5-P (Aeroplane, electric motor (non-rechargeable sources of current))
F5: Radio Controlled Flight Category
Type of record: N° 181: Distance to goal and return
Course/location: California Valley, CA (USA)
Performance: 6.0 km
Aeromodellers: Gary B. FOGEL (USA) & Christopher SILVA (USA)
Date: 16.04.2005
Previous record: 2.25 km (15.04.2005 - Gary B. FOGEL, USA)

Claim number: 11600
Sub-class F5-P (Aeroplane, electric motor (non-rechargeable sources of current))
F5: Radio Controlled Flight Category
Type of record: N° 181: Distance to goal and return
Course/location: Cuddeback Dry Lake, CA (USA)
Performance: 11.21 km
Aeromodeller: Gary B. FOGEL (USA)
Date: 21.05.2005
Previous record: 6.0 km (16.04.2005 - Gary B. FOGEL, USA)

(Continued on page 39.)

On the 'Wing...

Bill & Bunny Kuhlman, <bsquared@themacisp.net>

Redwing, Addendum to Part 3

We've been spending the last few weeks finishing off the internal structure of our two meter *Redwing*, and the basic airframe is now ready for fiberglass and Monokote.

A few minor items have been added to the main structure:

The pushrods exit the wing trailing edge directly through the trailing edge webbing. As there must also be clearance for the control horn, ball link, and other hardware, the exit hole is rather large and of an odd outline. We were concerned about some loss of strength in this area, so added 1/32" plywood doublers to the inside of the upper and lower skins.

We decided on a push-pull control system for the rudder. Small diameter tubing was placed into the fuselage from the rudder servo location back to an exit on the upper surface of the fuselage next to the fin.

Small diameter soda straws were spliced together end to end and inserted into drilled holes in the forward portion of the wing ribs and extending from the wing root out to the tip. This serves to hold the receiver antenna.

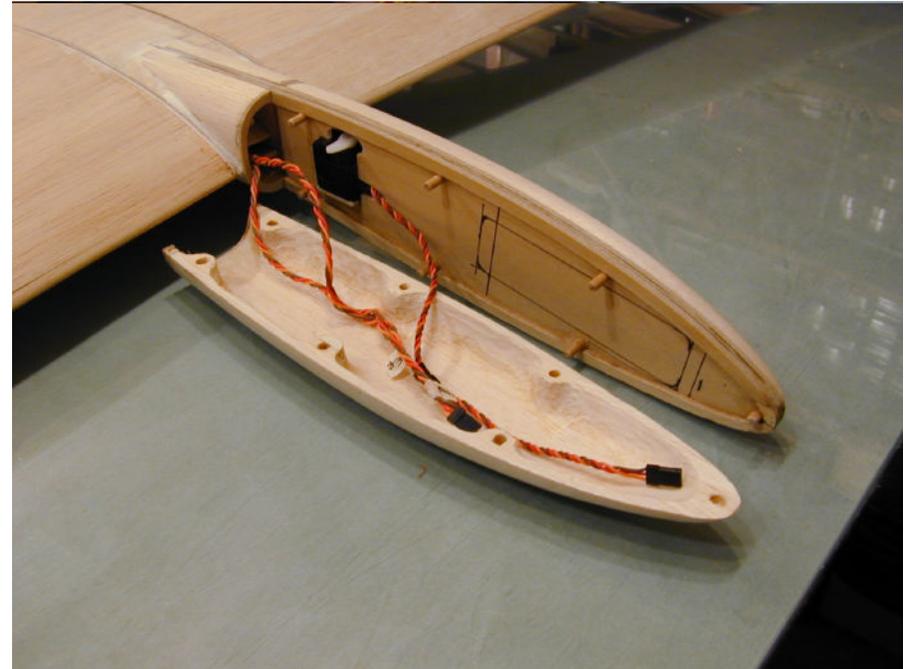
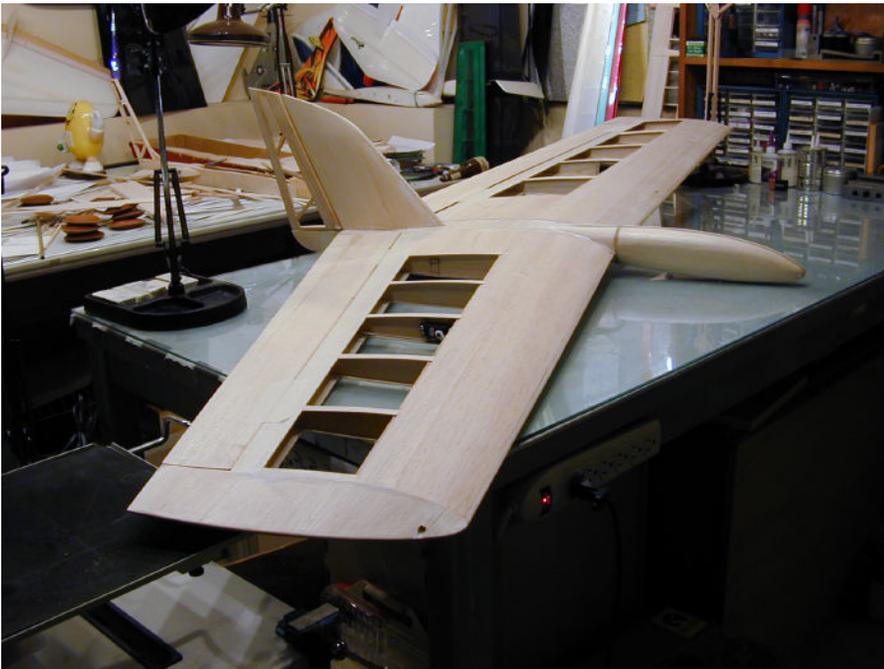
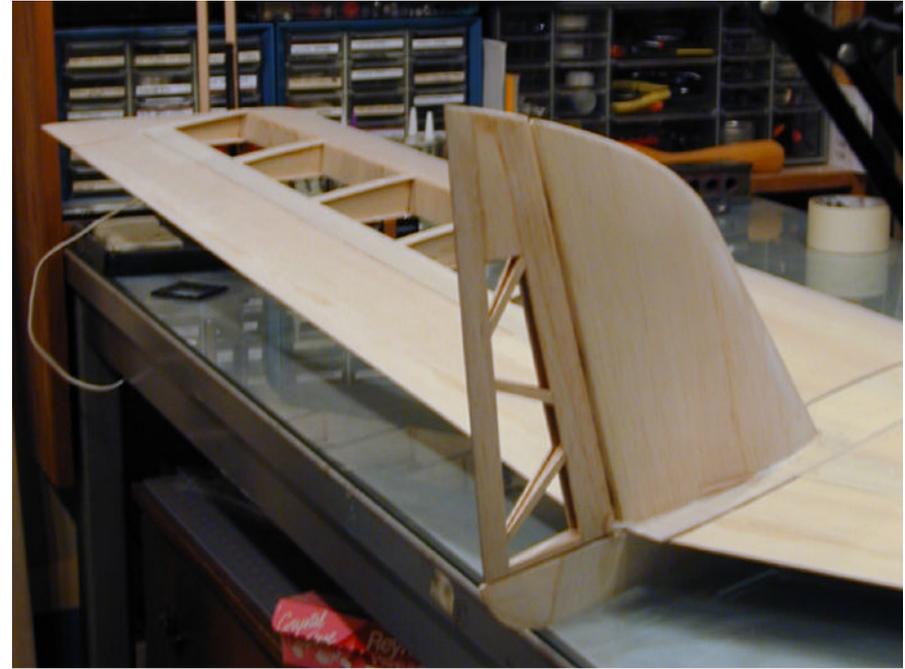
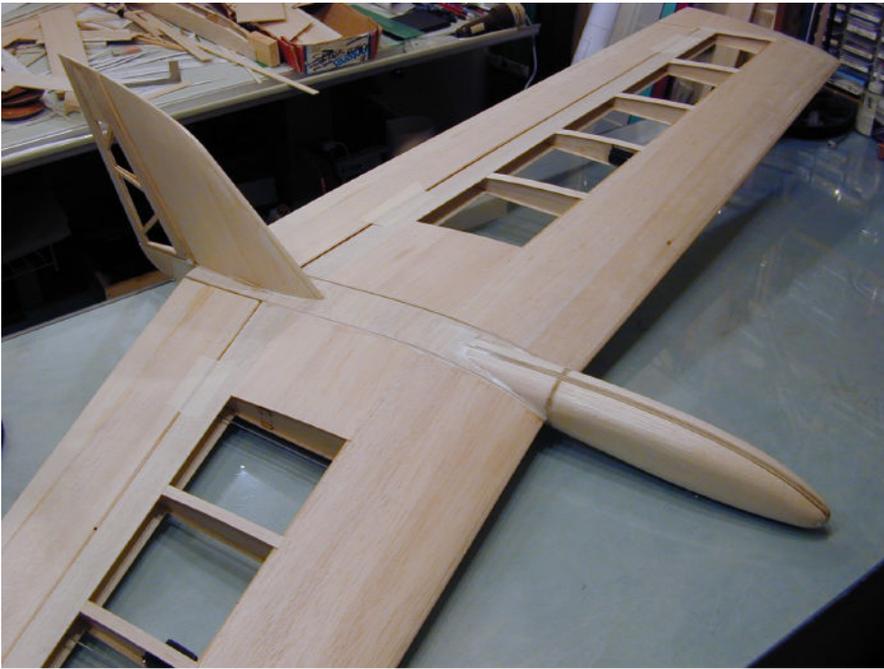
(At the field, a yellow inner Nyrod is pushed into this tube from the wing tip, the end of the antenna is then fed into the Nyrod some distance, and the Nyrod is then withdrawn. This drags the antenna from the fuselage and extends it out the wing inside the soda straw tube.)

After the external fuselage shaping was completed, the inside of the forward fuselage blocks was hollowed out. Finally, cutouts for the rudder servo, receiver, and battery pack were created.

Part 4 will conclude this series with an overview of covering, hinging the control surfaces, and test flying.



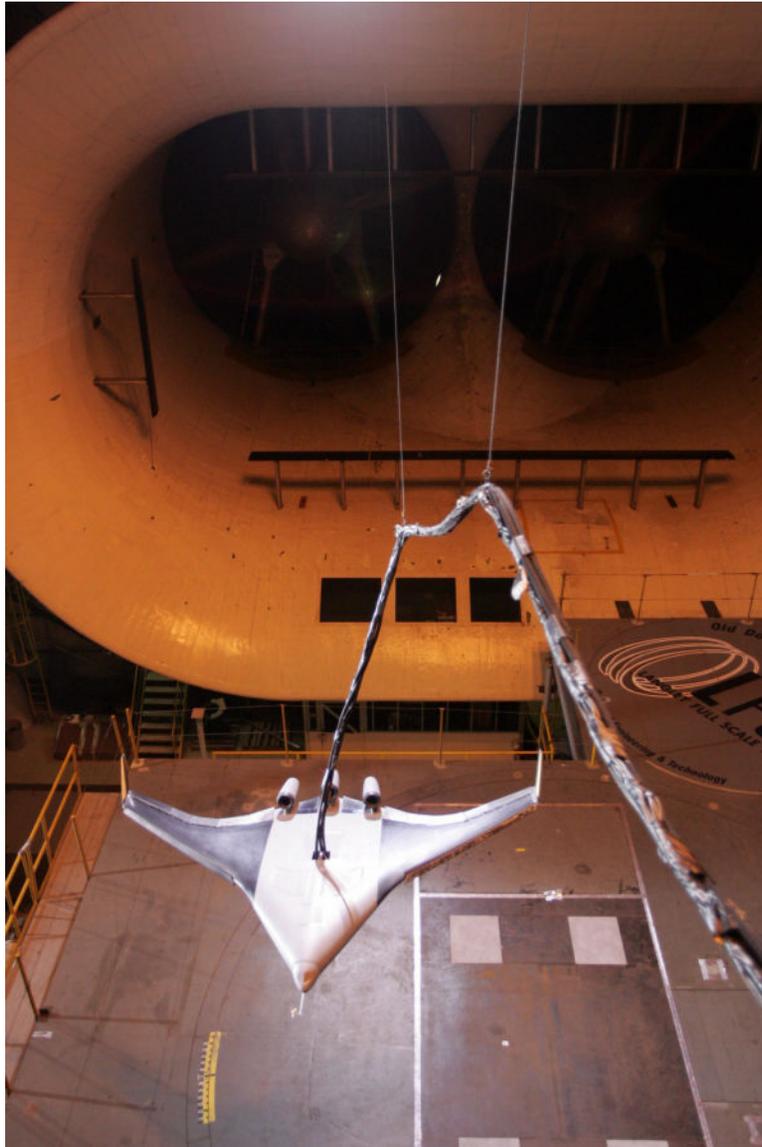
Granddaughter Alyssa shows off the framework of the *Redwing 2M*. Weight at this point, ready to 'glass and cover, with all servos installed, is 50 ounces.



A few shots of the completed Redwing 2M airframe on the building board. This has been a great building project!

NASA's Blended Wing Body Flies Free

From NASA News, <<http://www.nasa.gov>>



A 12-foot wing span model of the NASA blended wing body (BWB) flies in the Langley Full-Scale Tunnel, owned by NASA Langley and operated by Old Dominion University in Norfolk, Virginia.

“We have a lot of experience with conventional what we call tube and wing airplanes,” said Dan Vicroy, senior research engineer at NASA Langley. “We know how to predict how they're going to fly. But with this type of a flying wing type design we really have very limited experience. When you get rid of the tail you have to come up with different ways to control it and that's part of what we're trying to test.”

The cable supplies power for the 18 control surfaces along the trailing edge of the wing and high pressure air for the “engines,” and the aircraft is actually free flying in the “open throat” 30-by-60 foot tunnel test section.

It takes three pilots to fly the model: one pilot controls yaw and roll, another controls pitch, while the third handles thrust. One of the challenges to controlling a flying wing, according to engineers, is determining how to blend the control surfaces to make the vehicle turn correctly or to pitch up and climb. NASA engineers say the BWB model flew quite easily, which may bode well for its future as a new aircraft design.

NASA is working with Boeing Phantom Works, Long Beach, California, on this advanced airplane concept. Researchers say a blended wing body could be useful as a multi-role aircraft for the military, including functioning as a tanker, cargo or transport plane.

http://www.nasa.gov/vision/earth/improvingflight/blended_wing.html
http://www.nasa.gov/images/content/137810main_blended_wing_hires.jpg

2005 Seattle Area Soaring Society Multi-Task “Masters of Soaring” Event

Around mid-June of 2005, Dave Brombaugh, Dave Beardsley, and Bill Kuhlman got together at a local Redmond restaurant. The initial topic of conversation, now forgotten, evolved into a discussion of our individual involvement in contests.

Dave Beardsley started out flying aerobatics, and went on to fly in numerous aerobatic events before moving into RC soaring. Dave is now active in both RC soaring and in RC pylon racing, so his contest experience is extensive. Dave Brombaugh is relatively new to RC soaring, and his involvement in contests is still somewhat limited. Bill was fairly active in RC soaring contests in the early 1980's, but his competitive involvement since then has been rather sporadic, with long intervals between events.

Reasons for and against the desire to fly in contests were tossed out and discussed. For example, contests are a very quick way to acquire skills and become a more disciplined pilot, and serve as means of comparing your own skills with those of others. On the other hand, landing points are heavily weighted in comparison to soaring skills in thermal duration events, and there are some who can barely stand to leave a ten minute thermal to make a five minute task.

While we all agreed we'd like to see more participation in Seattle Area Soaring Society events, we all admitted the current AMA contest tasks, which provide for a specific timed task in conjunction with a specific landing task, does not suit a large number of SASS members.

SASS itself sets aside Wednesdays during daylight saving time as soaring fun-fly days at 60 Acres, the club's flying field. While some members set time or landing tasks for themselves in preparation for contests, most of the Wednesday flying involves “sport” flying, flight instruction, and laid back socialization.

Bill wanted a contest-like environment which involved more than just timed flying tasks and landing points, and mentioned F3B, where a distance task and a speed task are added to the thermal duration task. The one big drawback to this type of event is that it is manpower intensive.

Both Daves wanted tasks other than TD as well, and Dave Beardsley talked about some of the things his power club used

to do regarding unique events. Nearly all of these events turned out to be better suited to powered aircraft, but one of the events took place over an extended period of time. It was the latter concept, an event over an extended period of time, to which we all were immediately attracted.

Over the next few minutes, we decided to co-CD a long term event involving separate thermal duration, landing, distance, and speed tasks.

We were looking to formulate an environment where individual pilots could hone their own specific skills, like landing performance, yet have a means of comparing their own performance against that of other club members. Like any contest, there would be a winner of each event, but we didn't want that fact to dissuade beginning soaring

pilots who might not feel competent to fly in a “real” contest with all of the pressure and anxiety involved.

Additionally, we wanted to include tasks which would offer a challenge not seen in the standard AMA events as well as those which could be used to advance within the League of Silent Flight (LSF) program.

We quickly established a brief outline of the four tasks and Dave Brombaugh volunteered to write up the initial rules, subject to modification as the event progressed. See pages 37-38 and 40.

With those initial rules in hand, and with approval from the appropriate SASS Board members, the 2005 Multi-Task Event officially began.

Over the next few months, a number of changes were made to that initial set of rules. While some changes were made in an effort to increase participation, one major change was made to address safety concerns.

- The event duration was eventually extended to end at

the termination of Daylight Saving Time.

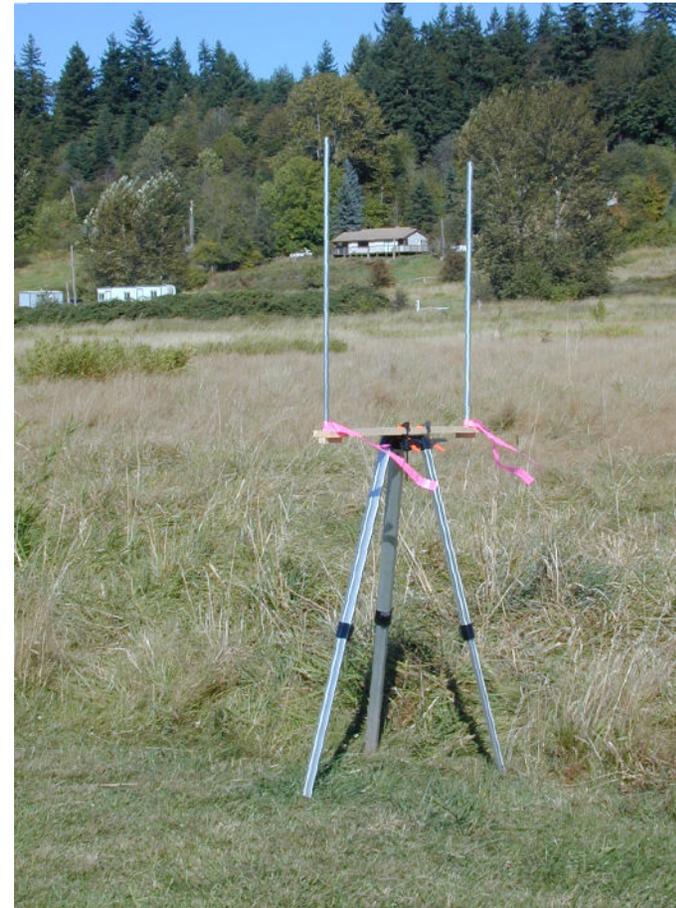
- Toward the end of the event, it was decided that contest flight times and landings could be counted as Multi-Task scores. This change was not taken advantage of to any great extent, and will not be incorporated next year.

- Because of the early speed task results, it was decided to register tenths of a second.

- The major change involved rotating the course used for distance and speed by 90 degrees and moving it completely off the more heavily used portion of the field.

- The course was aligned with the winch line after that rotation. Launches were made from a point adjacent to Base A, while the turnaround was adjacent to Base B. The landmarks defined in the rules were cancelled, and Base A and Base B were redefined using sighting devices. After this change was made, speed tasks were still configured to start at Base A, but distance tasks were started at Base B.

-- Concluded on page 41 --



The Base A sighting device.

The tripod is set up on an established spot, then the two vertical rods are aligned with a predetermined item on the hillside. The device projects a vertical plane across the course, in this case, Base A.

A similar instrument is used to define Base B, the turning point for the speed task and the entry gate and subsequent turn point for the distance task.



Dave Brombaugh guides his *Thermal Dancer* in for a landing after completing his one hour duration flight.

Overall rules for

Seattle Area Soaring Society Multi-Task “Masters of Soaring” Event:

Task Categories are:

Duration, Distance, Speed, Landing

The flight window is open any day and any time from Friday, July 11, 2005 to Wednesday, September 14, 2005. All entries must have their tasks dated no later than September 14, 2005, and be turned in by September 28, 2005.

Entry fee is \$20.

Each pilot will be given an individual scorecard upon which his results are kept.

Pilots may join the Event at any time, however all tasks must be completed AFTER the pilot has joined the event.

At sign-up, pilots will be entered in the class of their current SASS contest standings. If the pilot is unrated, he will be classified as either a Novice or Sportsman at the discretion of the CD's.

All launches for this event must occur from a winch or a hi-start.

There is no hand-launch equivalent for this event this year.

Each task requires witness/sign off (and date!) by another SASS member.

Flights made in a contest may not count toward the Multi-Task Event results.

Example: Pilot A decides to fly a precision 3-minute flights for the Multi-Task Event at a fun fly, or outside of a designated SASS (or other) contest. Pilot A may still fly 3-minute precision flights during a contest, but cannot count his results toward the Multi-Task Event.

“Contest-like flights” are flights that would otherwise be flown as a specific task at a contest:

Precision flights are scored at one point per second of the task, minus ten points for each second off of the task

Example: three minute precision flight = 180 points

Your time: 2:54 (6-seconds off 3:00)

Your score: $180 - (6 * 10) = 120$ points

NOTE: You can get a zero (0) score, and still complete the task!

“Contest-like flights” are scored at one point per second of the task, minus one point for each second off of the task

Example: 10 minute contest-like flight = 600 points

Your time: 10:13

Your score: $600 - 13 = 587$ points

Note: You can get a zero (0) score, and still complete the task!

Generally accepted contest rules apply:

- You cannot shed parts during the flight or landing
- You must land somewhere within the cut-grass portion of the field for the flight to count
- The aircraft must be flyable at the end of the task in order for the current flight/attempt to count.

You do not have to count each and every flight/landing/etc. toward your Multi-Task Event status.

Example: You fly two 3-minute flights on one night, at times of 2:51 and 3:02 respectively. On other separate nights, you had a total of six more 3-minute flights, with varying times from 2:46 ^ 3:28. Your four best are 2:54, 2:57, 3:01, 3:02. You have 8 recorded flights, however only the four best will be recorded toward your Event standings.

There will be an overall winner (Master) per skill level for each task category. All pilots may attain the different levels in each category and awarded as follows:

All Tasks Complete = GOLD

2/3 Tasks Complete = SILVER

Example: Pilot A wants to try to score in every event, and participates in each area.

He completes all tasks for each of the four areas.

Rating: Gold in each of Duration, Speed, Distance, Landings

Example: Pilot B only wants to work on his Thermal Duration flights. In the course of practicing them, he also obtains 80% of the landing requirements.

Rating: Gold in duration, Silver in Landings

Example: Pilot C is successful in each category, but is unable to complete one lap on his third distance attempt.

Rating: Gold in each of Duration, Speed, Landings. Silver in Distance

Some events (Speed/Distance) may require either multiple people, or some extra assistance. We will assist to make this happen during some of the Wednesday Fun Flies. Pilots may arrange these events at any other time with other pilots, as needed.

For Speed/Distance, the “course” will run East-West. The eastern marker is the line designated by the front of the port-a-potties.

The western marker is the electric marker on the south side of the field, and the farthest-east, most-southward post of the new parking lot on the north edge of the field (it's confusing, ask any of us for specifics if it is not clear). Two poles may be placed at the edges of the cut grass for easier marking. Regardless, if there are no poles, the above markers designate the distance between the “poles”.

One “lap” is defined as: Flying from the eastern edge of the designated area to the western edge of the designated flight area.

The sailplane *must* cross the boundaries to count as meeting the distance. It is recommended that someone act as a spotter to ensure that the sailplane crosses the boundaries.

NOTE: a round trip is TWO laps.

“Club nights / fun fly days” will be used to stage / complete complex tasks like speed and distance.

Awards will be given at the year end meeting to all who reach award level status, plus additional awards for the wizards in each category.

Task Categories are: Duration, Distance, Speed, and Landing

Duration Tasks:

There are 15 total flights. To achieve Silver status, you must attain 10 of the 15 flights.

The flight requirements are as follows:

Four (4) 3-minute precision flights (180 max. points each)

Three (3) 5 minute “contest-like” flights (300 max. points each) [LSF I]

Two (2) 10 minute “contest-like” flights (600 max. points each)

Three (3) 15 minute flights (each for 900 points, all or none) [LSF II]

Two (2) 30 minute flights (each for 1800 points, all or none) [LSF III]

One (1) 60 minute flight (3600 points, all or none) [LSF IV]

NOTE: For the LSF flights, you must do each of the 5, 15, and 30 minute flights *on different days* to count toward your LSF status.

Example. [LSF Aspirant] Pilot has a 17:44 flight, a 5:43 flight, and a 5:01 flight on one day. He may record all three toward the Multi Task Event, however he may only record the 5:43 OR the 5:01 flight toward his LSF status. Another 5+ minute flight must be flown on a separate day in order to submit the application for [LSF I].

The person in each skill level with the highest score in this category will be deemed as the Thermal Duration Master

Maximum Total: 12720 points

Opposite page: Left; Bill Kuhlman launches his foam core *Blackbird 90* for pilot Brendon Beardsley. Middle; Brendon guides the *Blackbird 90* through a diving 180 degree turn to enter the SASS Multi-Task course. Upper right; The *Blackbird 90* comes across the course boundary for a landing. Lower right; Brendon takes the *Blackbird 90* back to the winch for another run. Brendon’s three best times with this airplane were very consistent: 13.4, 13.3, and 13.5 seconds from consecutive flights.



Distance Tasks:

There are three scored attempts. To achieve Silver status, you must participate in two of the three attempts.

The most laps in a ten minute working window will be counted.

Each lap is one point.

One (and only one) of the three attempts may be an optional 1 km “Goal and Return” course, laid out per LSF rules. This is a requirement for [LSF III]. 116th and 124th streets are the likely markers for this task (and/or 60-Acres South and Willows Rd.). It's likely that this event will require multiple helpers; please coordinate with others to assist with this task. The score for this is: one more than the highest number of laps obtained by any other participant in the Event.

Example: Pilot A runs 15 laps in a ten minute window, this is the most of any other pilot. Pilot B successfully achieves the “Goal and Return” task, which would land him a score of 16 for this attempt.

The person in each skill level with the highest score over three attempts will be deemed the Distance Master.

Speed Tasks:

There are three scored attempts. To achieve Silver status, you must participate in two of the three attempts.

The speed task will be flown on the 60 acres distance course in accordance with the overall rules, above.

This is to be considered a “contest-like” flight; all appropriate rules apply.

The task is to fly two (2) complete laps (back and forth) in as short a time as possible within a three (3) minute working window.

Multiple helpers will be required to assist with this attempt. Please arrange

The smallest measurement recorded will be a second (no tenths or hundredths of a second)

Example: Pilot A launches, and has three minutes to make his speed attempt. At two minutes, he begins his run. He obtains two laps in 15 seconds. His score for this task is 15.

The person in each skill level with the lowest score in this category (all three attempts must be made) will be deemed the Speed Master.

Landing Tasks

Thirty (30) landings are required for this event. To achieve Silver status, you must record 20 of 30 landings.

The flight prior to a landing must be at least one minute in duration.

Each landing shall be recorded via the “number” on the appropriate landing tape.

Ten (10) landings must be less than three meters (9.84 feet)

[LSF I]

Fifteen (15) landings must be at less than 1.5 meters (4.92 feet)

[LSF II]

Five (5) landings must be a “95” or better, scored via the landing tapes.

Each landing should be recorded, the best 30 (5, 10, 15, depending on the task) should be submitted.

The person in each skill level with the highest score is deemed as the Landing Master.

Maximum Total: 3000 points

There were a number of highlights to this event.

Duration: Paul Measel, on one Saturday afternoon, completed his one hour flight, two 30 minute flights, and two 15 minute flights in nearly ideal conditions. Paul went on to complete all of the Duration tasks before the event window closed at the end of Daylight Saving Time.

Dave Brombaugh, co-CD for the Multi-Task event, turned in a truly beautiful one hour flight. Dave was so relaxed during the flight he actually sat in the grass for a good portion of the time. The flight ended with a picture perfect landing.

Speed: Brendon Beardsley really got into the Speed task, as evidenced by the photos on page 39.

Brendon's father, Dave, nearly fluttered his *Sharon* to destruction while trying to better a previous time. Once on the ground, it was fairly obvious the flaps weren't moving properly. After a bit of investigative work, the control horns were found to have been severely bent out of shape and in desperate need of replacement. Repairs were

completed just in time for the 2005 Visalia Fall Festival.

Tor Burkhardt and Rick Helgeson flew their maiden speed tasks and were immediately hooked.

Distance: Paul Measel made three distance task attempts in one day, performing as many as 18 laps during the 10 minute task window. Paul stood near the middle of the course boundary, and marshals at each sighting device alternated shouting out "Turn!" It was an impressive spectacle.

Landing: A large number of SASS members filled out the landing task during practice for Visalia. This not only had them participating in the Multi-Task event, it also gave them quantitative feedback about their landing skills, helping them improve. It was cool to see three landing tapes being used simultaneously.

The 2005 Seattle Area Soaring Society Multi-Task "Masters of Soaring" Event drew quite a large number of participants during the open window, and as this summary is written, the statistics are still being tabulated and awards have not yet been handed out.

FAI has ratified the following Class F (Model Aircraft) records:

Claim number: 11330

Sub-class F3B (Glider)

F3: Radio controlled flight Category

Type of record: N°158: Distance to goal and return

Course/location: California Valley, CA (USA)

Performance: 39.1 km

Aeromodellers: Gary B. FOGEL (USA) & David L. HALL (USA)

Date: 16.04.2005

Previous record: 25.7 km (23.10.2004 - Gary B. FOGEL, USA)

Claim number: 11487

Sub-class F5-COMB (Aeroplane, electric motor (all sources of current))

F5: Radio Controlled Flight Category

Type of record: N°193: Distance in a straight line

Course/location: Jacksonville, FL (USA)

Performance: 226.61 km

Aeromodeller: Giorgio AZZALIN (USA)

Date: 24.04.2005

Previous record: 109 km (19.06.1991 - Gian Maria AGHEM, Italy)

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

Claim number: 12371

Sub-class F5-P (Aeroplane, electric motor (non-rechargeable sources of current))

F5: Radio Controlled Flight Category

Type of record: N°181: Distance to goal and return

Course/location: Lucerne Valley, CA (USA)

Performance: 30.44 km

Pilot: Gary B. FOGEL (USA)

Date: 17.12.2005

Current record: 11.21 km (21.05.2005 - Gary B. FOGEL, USA)

File under review: 19.92 km (19.07.2005 - Jüri LAIDNA, Ukraine)

Awaiting file: 25 km (07.10.2005 - Gary B. FOGEL, USA)

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).

