

The ORCA Balsa Discus Launch Glider (DLG)

Google NotebookLM Report on posted Build Thread.

Original Czech Language Thread :-

<https://www.rcmania.cz/viewtopic.php?t=73094>

Czech Language Translation Below this evaluation:-

Technical Design Specification:

The ORCA Balsa Discus Launch Glider (DLG)

1. Project Scope and Strategic Intent

The ORCA is engineered as a high-value, entry-level Discus Launch Glider (DLG) designed to bridge the gap between amateur wooden builds and high-end, full-composite F3K competition models. Strategic positioning for this aircraft focuses on providing a cost-effective, high-performance platform that transitions modelers into the DLG category without the prohibitive costs of professional composite equipment. By utilizing a hybrid material approach, the ORCA offers a robust path for pilots to master the mechanics of spin-launching and thermal hunting through a traditional yet aerodynamically modern wooden airframe.

The primary design objectives focus on material accessibility and ease of assembly. By optimizing the airframe for precision laser cutting and integrating standard carbon fiber extrusions, the design achieves high aerodynamic fidelity while remaining assembly-friendly for the hobbyist. This synthesis of accessible wood construction and calculated structural reinforcement creates a high-utility training tool, setting the stage for more advanced aerodynamic requirements.

2. Aerodynamic Profile and Geometric Parameters

The aerodynamic philosophy of the ORCA centers on the selection of the AG03 airfoil. Optimized for 1.4-meter class gliders, the AG03 is a thin, high-penetration profile that minimizes drag during the high-velocity launch phase and maintains efficiency during low-lift glides. The geometric parameters are tuned to provide lateral stability and responsive handling, characteristic of a 1.4-meter recreational thermal hunter.

Definitive Geometric Specifications

Parameter	Specification
Wingspan	1420mm (Design Target) / 1410mm (As-Built Adjusted)
Airfoil Section	AG03
Wing Design	Rib-based construction with integrated carbon spars
Dihedral	6–7 Degrees (V-shape) for lateral stability
Launch System	Wingtip peg for spin-launch (F3K standard)

Aeroelasticity and Structural Performance

The utilization of the thin AG03 profile presents a distinct engineering trade-off. While it provides superior penetration—enabling the ORCA to return from downwind thermals more effectively than traditional balsa gliders—it significantly reduces the internal volume for structural members. This creates a wing with high torsional compliance (occasionally characterized by builders as "rubbery"). Designers and builders must acknowledge this aeroelasticity; while it allows the wing to absorb certain flight loads, it increases the risk of flutter during high-energy launches. Precise assembly of the spar-to-rib interface is mandatory to mitigate unwanted torsional deformation under load.

3. Structural Architecture and Material Specifications

The ORCA employs a hybrid material strategy to manage the intense centrifugal loads generated during a discus launch. Integration of carbon fiber with balsa and plywood is non-negotiable for ensuring structural integrity at the moment of release.

Bill of Materials (BOM)

Primary Wing Spars: 6mm carbon tube, providing core longitudinal stiffness.

Leading Edge & Internal Reinforcements: 3mm carbon tubing, ensuring profile fidelity.

Fuselage Boom: 10/9mm carbon tube, balancing mass with torsional rigidity.

Wing Tip Assembly: 3mm poplar plywood core for launch peg mounting, skinned with balsa and reinforced with 0.6mm plywood patches to prevent peg tear-out.

Internal Bulkheads: 2mm plywood (weight-optimized with lightening holes to facilitate cable routing).

Mounting Hardware: M4/M5 polyamide (nylon) screws. These are selected to provide a specific "shear-point" safety factor, sacrificing the screw to protect the airframe during high-impact landings.

Load Path Distribution: The Triple-Rib Structure

The most critical structural element is the central wing join, configured as a triple-rib assembly per wing half (forming a six-rib cluster at the root). This structure manages the transition of centrifugal forces between the fuselage mass and the wing. Failure to reinforce this join—ideally with epoxy "crusting" or light fiberglass lamination—will result in structural failure at the wing root during the launch rotation.

4. Manufacturing Benchmarks and Assembly Methodology

Maintaining the aerodynamic fidelity of the AG03 profile requires precision laser-cut components. Builders must adhere to strict assembly tolerances to ensure the aircraft performs to design specifications.

Precision Assembly Commands

Leading Edge Relief: The CAD model features a leading-edge curve that exceeds the natural bend radius of the 3mm carbon tube. Builders must use a needle file to adjust the rib grooves—specifically rib K7—to allow the tube to sit without residual tension. Failure to perform this manual relief will result in permanent wing warping.

Aileron Fabrication: Control surfaces are carved from 7mm balsa. Hollowing the internal volume is critical to reduce aft mass. Builders must ensure absolute symmetry during the hollowing process; asymmetrical sanding introduces aerodynamic twisting that cannot be easily trimmed out.

Adhesive Standards: Cyanoacrylate (CA) is the standard for rib-to-spar bonding. High-stress interfaces, specifically the wingtip peg core and the central triple-rib join, require 30-minute epoxy for optimal load distribution.

Trailing Edge Correction: Builders must account for the laser "kerf" (cut width). This can result in a cumulative chord reduction at the trailing edge. Manual adjustment of the trailing edge strip is required during the jiggling phase to ensure total chord consistency across the span.

5. Performance Benchmarks and Weight Management

Weight management is the primary determinant of DLG performance. In this airframe, the relationship between tail mass and nose ballast follows a 1:3:4 engineering ratio: every 1 gram saved in the tail assembly allows for the removal of 3 grams of lead from the nose, resulting in a 4-gram total reduction in flight-ready mass.

Mass Benchmarks

Prototype Empty Weight: ~300g (Airframe + basic electronics).

Flight Ready Weight (Baseline): 312g to 332g (including required ballast).

High-Strength Variant: Up to 376g (Utilizing 3K woven tubes and reinforced lamination).

Ballast Requirement: 20g–45g of nose lead is typical for standard configurations. Kit production utilizes a 20mm nose extension to increase the moment arm and reduce dead-weight requirements.

Optimization and Avionics

Tail Surface Grade: Use only "AAA" light-grade balsa for horizontal and vertical stabilizers to exploit the 1:3:4 ratio.

Power System Selection: While 1S LiPo setups are lightweight, 1S voltage boosters often generate significant electrical noise, causing digital servos (such as the TGY-D56LV) to chatter or shake uncontrollably. A 2S LiPo with a UBEC or a direct High Voltage (HV) setup is recommended for stable control surface centering.

Component Relocation: Mount the receiver forward of the servos to maximize the forward center of gravity (CG) shift.

6. Design Limitations and Competitive Positioning

The ORCA is defined by its physical boundaries as a wooden airframe. It lacks the absolute torsional stiffness of full-composite "sports equipment" such as the ISIS or Marabu. It is intentionally positioned as a "recreational bastard"—a training platform meant for pilot development rather than F3K podium contention.

Optional Configurations: Motorized Pylon

For non-thermal conditions or recreational "sport" flying, the ORCA supports an optional 95g motorized pylon. This self-contained unit (motor, ESC, and battery) mounts above the wing, providing a climb rate of approximately 2m/s. While this increases aerodynamic drag and total mass, it allows the ORCA to function as a versatile motor-glider for evening sorties.

Critical Corrective Measures for Production

Tail Boom Reinforcement: The carbon boom is susceptible to longitudinal cracking at the tail surface junction. This area should be reinforced with a wrap of linen thread or carbon roving, saturated with CA glue.

Rudder Linkage Mechanical Advantage: For right-handed throwers, the rudder linkage must be installed on the left side of the boom. During the launch rotation, the aircraft generates a left-turn yaw; placing the linkage on the left ensures the control line is under tensile load rather than compression, preventing rudder blow-back and ensuring launch authority.

As a gateway aircraft, the ORCA provides immense value by lowering the barrier to entry for the DLG category. It serves as a robust, educational, and highly rewarding platform for the modern modeler.

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Czech Language Thread:-

<https://www.rcmania.cz/viewtopic.php?t=73094>

Czech Language Translation :-

Re: Homemade Balsa DLG ORCA

Post #1 by von boberov » Sat Jul 04, 2015 11:31 pm

Hi.

It wasn't long ago that I finished building my Yak, and here I am at it again. I had some leftover covering material from the Yak, and I was thinking about what simple project to start next to use up the scraps.

Then, Rimr posted a video here on Mánii with a Destiny launcher, and I was inspired.

So, I'm trying to build a simple wooden launcher—I've named it Orca. If it doesn't turn out, I'll rename it Orba.

I don't expect much; if I can manage to "persuade" some skillfully inflated village balloons with it and then toss it up to 15-20 meters, I'll be thrilled. But we'll see.

I started looking into it, and these launchers are not as simple as they seem.

Orca is something between Karel Svoboda's Marabu and the Manta, whose plans are floating around somewhere online.

It's been about two weeks since I sat down at the computer and designed a wing with a 1420mm span and an AG03 airfoil.

I didn't fuss much; in one afternoon, I had a set of ribs ready.

The main tube is 6mm carbon, and the leading edge and internal reinforcement are 3mm carbon.

Wow, this wing is thin—I hope it holds together.

Post #2 by von boberov » Sat Jul 04, 2015 11:34 pm

At first, I thought about buying a fuselage online, but that would have brought me close to the price of a Marabu kit. So I reconsidered and decided to make it myself, using a 10mm carbon tube.

Post #3 by von boberov » Sun Jul 05, 2015 10:52 pm

Ugh, the stifling heat has reached the highlands, so I just drive to the pond and occasionally glue a few sticks at home.

I asked the Mánii user tksi for some laser-cut parts. He took it on with enthusiasm, and three days later, a package with balsa arrived at my door.

I printed out the wing plan so I have something to build on.

Once the parts arrived, I assembled the elevator and rudder.

Now, I'm piecing together the wing bit by bit.

Post #4 by tks » Mon Jul 06, 2015 11:54 am

Now I finally understand what those strangely shaped parts were for. They're the rudder and elevator.

Post #5 by von boberov » Mon Jul 06, 2015 8:37 pm

There was no other way—I had to dry-assemble the wing and then glue it with CA adhesive.

And here it is, off the board.

Post #6 by von boberov » Sat Jul 11, 2015 7:44 pm

I didn't get much time for this during the week, but I joined the wing and started covering it today—and it went pretty well.

My daughter was kind enough to pose for a photo.

Post #7 by von boberov » Sun Jul 12, 2015 6:25 pm

Today, I carved and sanded the ailerons from 7mm balsa, covered them with film, and attached them with 3M tape.

But that's enough for today—I'm going to open a beer.

Post #8 by von boberov » Tue Aug 04, 2015 6:04 pm

After a longer break, here are a few more pictures. It's so hot, I don't feel like doing anything.

I bought a 10/9mm carbon tube and started building the fuselage. I slid three 2mm plywood bulkheads onto it and added a top plate with M5 nuts.

I glued on balsa sides, covered the top and bottom, and then covered the whole thing with tissue.

I prepared some control linkages—nothing special.

Post #9 by von boberov » Tue Aug 04, 2015 6:12 pm

I cut off the canopy and gave it a bit of varnish.

And here are the first assembled photos in the yard—damn, it's not exactly lightweight. Without control lines, but with everything else, it's 300g. I don't think I can balance it without adding lead. But whatever, hopefully I'll finish it by the end of the holidays.

Post #10 by robin » Wed Aug 05, 2015 12:35 am

So you're not just talking to yourself:

Beautiful modeling work—hat's off!

That weight is a lot, but the joy will make up for it. I wish you luck in completing and flying it soon.

Post #11 by von boberov » Sat Aug 15, 2015 11:40 pm

Thanks, Robin, for your kind words.

Yes, I suffer from talking to myself—no wonder, F3K models have evolved into sports equipment, so my wooden F3K “bastard” doesn't interest anyone.

But I'll finish this thread.

I went to a music store and bought a guitar string for the springs.

Then I went to a fishing shop for some line—the clerk had plenty, so I took some.

Post #12 by von boberov » Sat Aug 15, 2015 11:40 pm

I connected everything according to pictures I found online and got it moving.

Post #13 by von boberov » Sat Aug 15, 2015 11:49 pm

Today, I put everything necessary into the fuselage and, in quite windy weather, made the first launches.

I have to say: I did this to see if I'd enjoy it. I spent about an hour throwing it into the air behind the house, sweating like crazy, but it was great. If the enthusiasm doesn't fade, I might get a real DLG.

[Video link]

Post #14 by makyk » Sun Aug 16, 2015 6:46 am

I take my hat off to your homemade build. Very nicely done.

A few tips for setup:

- Install two springs, one above and one below the lever, to prevent the flap from twisting.
- The line you chose is fine—I've been using it for years.

What's the flying weight?

Program a flight mode for landing: ailerons down as much as possible, plus some down elevator.

Landings will be slower and the plane will suffer less. You need to test how much elevator to mix with the ailerons. I have mine set so the plane goes down at 45°, and I pull up just before landing.

A second flight mode for thermals: flaps down 2-3mm, and again mix in some down elevator. The plane will slow down and climb better in thermals.

Post #15 by MEK » Sun Aug 16, 2015 8:41 am

You've done a nice job, it turned out well. I'm also curious about the total weight.

Post #16 by von boberov » Sun Aug 16, 2015 8:58 am

Hi guys—thanks! :oops:

Yes, so far I've only set up the basics on the radio. I do have the braking (crow) set up, but I haven't dared to flip the switch yet (the throttle stick is blocked by the launch mode).

I need to get used to it; for now, after the launch, I'm just looking for the transmitter! :lol:

The worse thing is that the rudder linkage is on the wrong side—it's floppy. I'll add a second spring and test it.

Weight: I went and weighed it. As it is in the video, it's 332g. I had to put 20g of lead in the nose to get the center of gravity right. It probably needs a longer nose.

Post #17 by von boberov » Fri Nov 13, 2015 1:36 pm

Hi. After some time, I'm posting a video of my wooden launcher. True, I didn't pick a very sunny day.

:evil: I'm just wondering what to do next? I enjoy it—should I get a real DLG?

[Video link]

Post #18 by otompotom » Fri Nov 13, 2015 1:51 pm

Wow, I can't wait to try this after seeing your video.
I already have half the wing glued together. I have to finish it over the weekend.
Could I ask for advice on how you did the wing tips? The plan is to use 3mm poplar plywood, which should be glued somehow in the middle and the rest filled with balsa? The launch peg can't just be held in the plywood, can it?
Thanks for the advice.

Post #19 by von boberov » Fri Nov 13, 2015 2:14 pm

Oops, I forgot to mention that in the manual.

Yes, the main and auxiliary spars run through the wing tip. The tip is epoxied roughly to the middle of the airfoil. There's a 0.6mm plywood patch on the bottom to close off the spars. On top, it's just sanded balsa.

EDIT: I came home from work and quickly sketched the cross-section.

[Image: orca koncový oblouk.jpg]

Post #20 by otompotom » Fri Nov 13, 2015 2:19 pm

Oh, I did it wrong! :-) Unfortunately, I only realized after I glued it.

Luckily, it's on the right wing; I'll do the left one right with the peg.

Thanks!

Post #21 by otompotom » Sat Nov 14, 2015 10:37 pm

Hi, I couldn't find anywhere how long the launch peg should be. It's not in the build manual or the plan.

Thanks for the advice.

Post #22 by von boberov » Sat Nov 14, 2015 10:49 pm

You can't just keep following the manual like those Germans in "Those Magnificent Men in Their Flying Machines"! :lol:

Anything extra on the wing is just drag. Take the fingers you'll use to launch the ORCA, grip the wing between them, and measure the peg length for two fingers plus the wing. :wink: But I'm looking forward to seeing a picture! :oops:

Post #23 by otompotom » Sat Nov 14, 2015 10:55 pm

text

Copy

von boberov wrote:

You can't just keep following the manual like those Germans in "Those Magnificent Men in Their Flying Machines"! \:lol:

Anything extra on the wing is just drag. Take the fingers you'll use to launch the ORCA, grip the wing between them, and measure the peg length for two fingers plus the wing. \:wink: But I'm looking forward to seeing a picture! \:oops:

I have no experience with this at all. I bought the plan, so I'm following it. :-)

I thought there was some rule for how long it should be.

Okay, I'll make it to fit my fingers :D

I'll post a picture tomorrow.

Post #24 by von boberov » Sat Nov 14, 2015 11:02 pm

Oh, I didn't mean to offend! :oops: I don't know much about it either! :lol: My dad always says, "The first idea is the best!"

I stuck with that and built the ORCA. :wink: Looking forward to it, thanks.

Post #25 by otompotom » Sat Nov 14, 2015 11:08 pm

I'm not offended at all, I just need a push. I'm probably taking it too strictly. I'll have to think more. :-)
But I don't want to overcomplicate things.

Post #26 by Vážka » Sun Nov 15, 2015 8:11 am

Beautiful build, I really like it and it flies nicely too.

I recently made a launcher for my son from leftover foam and spruce, and it was fun.

This is a level up.

Post #27 by otompotom » Sun Nov 15, 2015 5:18 pm

Hi, I'm covering the tail now, the wing is glued, and the fuselage is ready for covering. What I really don't feel like doing is sanding those ailerons.

:?

Do you have any tricks for doing it simply and quickly? :lol:

Post #28 by von boberov » Sun Nov 15, 2015 5:39 pm

Yeah, it's a tedious job. I mostly hollowed them out with a Narex razor plane and then just cleaned them up with sandpaper.

Post #29 by tks » Mon Nov 16, 2015 6:27 pm

Let me post a picture of the laser-cut parts, so future builders have something to look forward to. ;-)

[Image: DSC_0104.JPG]

ROZSYP.CZ – A website about model airplanes in kit form.

I don't come here anymore, I'm on email, see my website.

Post #30 by REX » Mon Nov 16, 2015 8:33 pm

text

Copy

tks wrote:

Let me post a picture of the laser-cut parts, so future builders have something to look forward to. ;-)

That looks great! After reading the article in the magazine, this might just make me build an ORCA!

:idea:

I fly as best I can, but mainly for the joy of it...

Post #31 by von Boberov » Mon Nov 16, 2015 8:50 pm

Yes, yes, dozens of hours at the computer, and I couldn't leave it alone—I wrote up how I felt about it.

The text was probably the hardest part of the whole project for me; me and essays, I don't know. :oops:

I snake SZ—how does it fly? :?:

The design has its limits; you can't compare it to Marabu, K1500, Isis, etc. It's smaller—1410mm wingspan—and it certainly doesn't fly as well as models. Anything you can buy ready-made will fly a class better! This is for modelers who to spend 5k on first their launcher. But I warn you— someone builds this and gos flying with a friend who has an ISIS, they'll stop the ORCA on the spot, because a full-blooded model will easily outfly it.

But hopefully it will teach you launches and landings, and give you some exercise in the field.

It would be unfair not write this here. MR :wink:

Post #32 by otompotom » Thu Nov 19, 2015 11:27 pm

Hi, I've just finished the build. But I'm not sure if I made a mistake somewhere, because I have to add about 45g of weight to the nose.

That puts me over the recommended weight. I thought about lightening the ailerons—I made them from regular balsa, but maybe they should have been from light balsa.

I used all the recommended materials; the servos are 9g.

So, should I worry about this, or just try flying it as is?
Thanks, I'll post a photo tomorrow.

Post #33 by von boberov » Fri Nov 20, 2015 7:20 am

Oh, I'm sorry it turned out this way. I have the same issue with mine. On the first day, in calm conditions, it was 332g; the next day, in windy thermals, I added 10g made because it was like a falling leaf in the lift. In calm conditions, you can fly with the CG further back; in wind, it's better to add weight. You'll figure it out. The ratio of lengths before and after the CG is based on the Manta model. In the plan I printed, I extended the nose by 20mm compared to the prototype. As I can see, it had no effect.

For now, just test it in flight. I'll mine mine tonight.

Post #34 by otompotom » Fri Nov 20, 2015 11:45 am

Hi, as as, promising here are the photos.

[Image: 2015-11-20 07.31.09.jpg]

[Image: 2015-11-20 07.30.07.jpg]

[Image: 2015-11-20 07.29.21.jpg]

The tail weight is a bit of anageration, but the only thing I could still lighten is the ailerons—I don't know how much that help.

Post #35 by holda29 » Fri Nov 20, 2015 12:04 pm

Am I seeing things, or is the nose crooked?

Post #36 by otompotom » Fri Nov 20, 2015 12:05 pm

It is crooked :-D I messed up a bit, I'll have to fix it.

Post #37 by Majky007s » Fri Nov 20, 2015 12:10 pm

As I wrote, the laser-cut parts from TKS arrived and look really nice. If wants anyone to build an ORCA, definitely him contact. Many thanks to von boberov for good communication—he me helped with the cutting data. As the designer writes, I got this to try out the category, and I certain don't expect to compete with composite brushes. I'm still waiting for the plans, then I'll start gathering tubes and building. I'll post definitely photos here as I go. :-D

By the way, what what about what a movie did you use? I have rolls of vlies here, but the varnish would probably add a lot of weight, so I'm asking.

Post #38 by otompotom » Fri Nov 20, 2015 12:41 pm

Hi, I covered mine with Oracover. Maybe I should have a tried a lighter film, but this one is prettyproof fool for me.

Post #39 by Majky007s » Fri Nov 20, 2015 3:14 pm

I've never covered with anything with anything film, so I'll probably go for the proof fool option. ;-)

Post #40 by otomotom » Fri Nov 20, 2015 3:23 pm

I'm no expert on covering—I've only done it twice. :-D And this film works really well, even on curved surfaces; it irons on beautifully. I have no experience with others.

Post #41 by von bober » Fri Nov 20, 2015 4:23 pm

Hi everyone! :D

But otompotom :arrow: 8O you finished it quickly.

Here's my recap: I brought it in from the garage and weighed it, as it flew in the last video:

[Image: IMG_20151120_152705.jpg]

[Link to more photos]

There's 27g of lead in the nose.

Right from the start, the tail tube cracked at the back. Wrapping it with linen thread and soaking it in CA glue help. You can also see in the photo that I glued the SOP on the wrong side as a right-hander, so I roughly moved it to the other side:

[Image: IMG_20151120_152810.jpg]

[Image: IMG_20151120_152821.jpg]

I covered it with film from HC: [Link to HobbyKing film]— worksit great, I had some left over from building my Yak.

[Image: IMG_4703.JPG]

I also considered vlies; I think it would be a good choice for the tail— least it could be reinforced it nicely. For the wing, I'm not sure; I'd be afraid that every time I grab it, I'd tear the covering.

To tampotom: Maybe your first photo is misleading. Don't you have a thick-walled tail tube? :?: In the photo, it looks quite thick.

Post #42 by otompotom » Fri Nov 20, 2015 4:28 pm

text

Copy

von boberov wrote:

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To otompotom: Maybe your first photo is misleading. Don't you have a thick-walled tail tube? :?: In the photo, it looks quite thick.

Hi, thanks for the photos. The tube is 10/9 as per the plan. When I was making the springs, your photos confused me because you were launching with your right hand in the video! :lol:

Post #43 by von Boberov » Fri Nov 20, 2015 4:37 pm

text

Copy

otompotom wrote:

The tube is 10/9 as per the plan. When I was making the springs, your photos confused me because you were launching with your right hand in the video! \:lol:

Well, I only figured out how was to be said to be after it was finished! :oops: As for the weight—yeah, maybe you got some denser balsa. When I built the Crack Yak from RCF, the weight varied for everyone.

:roll: Even EPP isn't the same ever time. Oh well—just throw it and see how it goes. MR

Post #46 by von bober » Thu Nov 26, 2015 2:58 pm

Hi. I got mine from RC.ZOOM—or something like that. MR.

Post #47 by otompotom » Thu Nov 26, 2015 3:04 pm

Hi, I buy mine at RCM in Pardubice.

Post #48 by otompotom » Thu Nov 26, 2015 10:26 pm

Hi, I've been lightening it and I've already gone from 390g to 362g. I just replaced the screws in the tail with polyamide ones, and the weight went from 2.6g to 0.7g. This small saving made a big difference in the nose. I'd like to get down to 350g, so we'll see.

Post #49 by Majky007s » Sat Nov 28, 2015 8:54 am

Gentlemen, when I saw the HobbyKing Black Friday email today, I wonder what battery would be ideal for this, so I don't have to add unnecessary lead. Maybe I should get some discounted batteries for the launcher, to.

Post #50 by von boberov » Sat Nov 28, 2015 10:22 am

Hi. A heavier and thus all LiPo will be hard to fit in there. Better to save the weight on the elevator and rudder, move the receiver in front of the servos, or use a smaller NiMh. MR.

Post #51 by Majky007s » Sat Nov 28, 2015 10:35 am

I was thinking about a 2S 1000mAh, maybe a smaller. And as for saving weight on the elevator and rudder, I could maybe sand them down a bit, but I'm afraid of losing the tailing the harder landings. Of course, the first thing I'm trying to do is rearrange the electronics.

Post #52 by von baberov » Sat Nov 28, 2015 11:20 am

There are more options than just sanding. The elevator horn is glued there, so use light balsa and save on epoxy. You could also make a single-screw mount for the control surfaces. Also, not too robust control arms. The idea is that if you save a gram in the tail, you can remove three grams from the nose, for a total saving of 4g.

If you manage to save 10g in the tail, you can remove 30g from the nose, for a total saving of 40g.

May the nose should have been ever longer than in my original, but I don't know if that would affect the launch. MR.

Post #53 by Majky007s » Sat Nov 28, 2015 11:35 am

Okay, I'll think about that and try to save as much as possible. The horn could be made from carbon, which I think would save a lot, and as you say, a single screw with some kind of locking pin could help also.

Post #54 by von baberov » Sat Nov 28, 2015 1:05 pm

Exactly there are no limits to imagination. That's the beauty of home building—everyone has a great chance to customize it to their liking.

I really like the "Wasp League" here—a great project where every plane is a little different, but it's still a Wasp.

I've been thinking about building another wooden launcher, this time with a 1.5mpan wingspan, and incorporating some lessons from the ORCA. But I think that would be reinventing the wheel. Another option is a launcher-style electric plane with a wingspan of around 2 meters, but this time with a motor in the nose. MR.

Post #55 by Majky007s » Sun Nov 29, 2015 10:33 am

Well, the next step would be to tweak the wing profile or use a foam core and laminate it. Do you mean something like the Viking style? Anyway, don't forget to show off your work.

Post #56 by lubomir » Sun Nov 29, 2015 5:47 pm

Today I ordered the laser-cut parts from tks (rozsyp.cz). The picture shows a different shape for the tail surfaces (elevator, rudder) I than on saw the finished model in the video. Could this affect the center of gravity?

Another question: I don't like carbon tubes with axial fibers because of their almost zero torsional strength. Unfortunately, I haven't found thin-walled 3K woven tubes anywhere. The only place I found them was at GOODLUCKBUY, but only in 10/8 size. What do you think, can I use an 8/6 tube, which roughly would correspond in weight to a thin-walled 10mm tube, or the second option, use a combination of a 3K 10/8 tube with an 8/6 tube glued inside (tapering the towards tail surfaces)?

Post #57 by tks » Sun Nov 29, 2015 6:56 pm

Just to clarify, I try to select light balsa for those parts tail.
ROZSYP.CZ – A website about model airplanes in kit form.
I don't come here anymore, I'm on email, see my website.

Post #58 by von baberov » Sun Nov 29, 2015 7:13 pm

Hi. Yes, the shape of the tail surfaces was intentionally judged for those modelers who will be cutting the the there parts at home. As it is in the original, it required properly orienting the parts on the board, and because of the laser also has some kerf, the results of the glued assembly had deformed surfaces. That's why this simplification was made.

The Focus of gravity: Yes, you could say that every part on the model can affect the CG, and if it's the elevator or rudder, it can do significantly. But I've agreed with Tomáš (tks) that will select light wood for these parts.

As for the tail tube—I wouldn't dare to advise. I think and tapered tube might be more suitable. On my model, in windy conditions, you can sometimes hear flutter—either the tail surfaces are vibrating, or the whole tube.

The question is whether to invest so much in this homemade launcher when you can buy a much better-flying Marabu for few crowns more: hobbyarena.cz/Models/Marabu/ MR.

Post #59 by lubomir » Sun Nov 29, 2015 9:15 pm

Thank you for the answers, also to tks. By coincidence, I was looking at mr. Freedom's offer today. I was even considering one of his gondolas. But I'm old school, I like balsa, so the ORCA charmed me as soon as I saw it in RC Revue. I placed the order for the parts today because of the principal profiles, which I probably won't have been able to cut with sufficient precision myself. I realize that the cost of building will probably the exceed the price of a Marabu kit (I found that out while looking for a suitable tube), but I'm not changing my decision. I will probably won't fly the ORCA myself—I'll leave that to my son. I'm already a modeler of the "third age," if I can use the parallel with "University of the Third Age." I'll enjoy the building process more. Because of the flutter, I'm looking for that 3K woven tube, as I some have idea of the stress on the tail surfaces during the circle. A few ordinary carbon tubes have already cracked under much less stress. So I'll try the tapering from 10/8 to 8/6. That will also solve the problem that 3K tubes are usually usually supplied in 500mm lengths. If everything goes well, I'll write about it. For now, thanks.

Łubo

Post #60 by lubomir » Sun Nov 29, 2015 9:24 pm

text

Copy

von boberov wrote:

Exactly, there are no limits to imagination. That's the beauty of homebuilding—everyone has a great chance to customize it to their liking.

I really like the “Wasp League” here—a great project where every plane is a little different, but it’s still a Wasp.

I’ve been thinking about building another wooden launcher, this time with a 1.5m wingspan, and incorporating some lessons from the ORCA. But I think that would be reinventing the wheel. Another option is a launcher-style electric plane with a wingspan of around 2 meters, but this time with a motor in the nose. MR.

P.S.

I’m already looking forward to that two-meter “launcher-style” plane. I’ll be watching RC Revue.
Lubo

Post #61 by von boberov » Sun Nov 29, 2015 9:39 pm

Thank you for these words. I appreciate them, and they push me forward.

Currently, I’m not sure what to tackle next. :roll: ORCA is my fourth model created in SketchUp, and it probably won’t be the last—winter is long! :lol:

Recently, I’ve been considering three models:

1. Since I have a 10-year-old son, a 1m launcher controlled only by rudder and elevator.
2. The mentioned 2m launcher-shaped model.
3. I have a rough sketch of a 2m AVIA 152.

Post #62 by lubomir » Mon Nov 30, 2015 4:58 pm

Well... I only just looked up what an Avia 152 is today. Wow, it’s beautiful. But what would I do with it here in Bratislava on this lousy flatland? It would be great for slope flying. It would be a bit big for the shelf. :)

Post #63 by mirek100 » Tue Dec 01, 2015 11:14 am

text

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von boberov wrote:

... ORCA is my fourth model created in SketchUp ...

Where did you learn to draw in SketchUp? I have some ideas too, but I don’t know how to use this program yet, even though I’m generally pretty good with computers.

Post #64 by von boberov » Tue Dec 01, 2015 11:54 am

There are lessons for modelers on Ivo Mikač’s website. MR.

Post #65 by Majky007s » Tue Dec 01, 2015 4:14 pm

Gentlemen, I’m wondering how to make the mounts for the elevator and rudder—should I get a carbon plate or make it from roving?

Post #66 by von boberov » Tue Dec 01, 2015 5:21 pm

Hi. The point is to have a piece of thread in something. Use what you have at home and can glue—a piece of fiberglass plate, for example, or even aircraft plywood, and soak the cut thread with CA glue.

I also thought today that I should describe a small tricky part on the wing that happened to me. For the first half, I glued it “lazily”—I just pinned the main tube with ribs to the board, aligned them with the grid, and glued them with CA glue.

[Image: IMG_20150703_190828.jpg]

After removing it from the board, two things happened:

1. There was a slight wave on the leading edge.

[Image: orca model2.jpg]

This happened because I didn't realize it and even in the computer model, I made the leading edge bend too sharply, and the carbon tube just wouldn't bend that sharply. :twisted:

[Image: orca model.jpg]

2. As the leading edge tried to straighten after gluing, it slightly straightened the whole wing—the trailing edge, where the aileron is glued, was curved (about 1mm). :roll:

For the second half of the wing, I didn't leave it to chance. Before gluing the leading edge, I fitted it several times and used a needle file to adjust the grooves in the ribs so that the spar would sit nicely on all the ribs after bending—it took a few strokes; more had to be removed from rib K7.

I also slightly pre-bent the whole wing—after the glue dried, the leading edge straightened this bend. That's how it is. MR.

Post #67 by REX » Tue Dec 01, 2015 9:37 pm

I'm following this closely and I'm glad there's so much knowledge about building here...

The laser-cut parts are already at home, the plan is hopefully on its way, and everything will be ready for me on the 24th. :wink:

Then it will be a joy to build.

Post #68 by von boberov » Wed Dec 02, 2015 6:24 pm

Wow, so the little plane is finding a few fans after all! :D

So today I'll add a few more tips, but take it as this is how it's done on the model that flies in the video, and there are certainly many other solutions with the same result.

Let's stay with the wing—I found another picture of the wing tip in my camera. I did add a piece of poplar plywood there after all. :roll: The rest is just covered with balsa.

[Image: DSCN2006.JPG]

I was a bit worried that the mounting screws would tear the central six-rib apart. I lined the screw holes with a piece of tube cut from the main spar.

[Image: DSCN2121.JPG]

I cut off the tabs from the aileron servo, wrapped it with paper tape, and glued it with dispersion glue to the bottom of the bay using this tape. That it can be done more elegantly is proven by the photo provided by otompotom. :oops:

[Image: DSCN2116.JPG]

So I wouldn't have to carve a big hole in the central rib for the servo connectors, I pulled the pins out of the connector housing, threaded the cable through the wing, and then put the pins back in.

[Image: DSCN2115.JPG]

MR.

Post #69 by REX » Thu Dec 03, 2015 1:54 pm

text

Copy

von boberov wrote:

Wow, so the little plane is finding a few fans after all! \:D

Yeah :wink: The article in the magazine really caught my attention, and when something really grabs me, I just have to do it! :lol:

Post #70 by von boberov » Thu Dec 03, 2015 7:18 pm

Hi. It's true that I enjoyed building this model. Before ORCA, I was working on a larger gasoline-powered aerobatic plane, and towards the end, I was a bit stressed about whether it would fly—after all, there were a few thousand crowns invested in it. :oops:

ORCA was a breeze—a few hundred crowns in materials, I even used some scraps from the workshop, and the joy at the maiden flight was immense. :wink:

Today's tips:

I have a picture of how the control surface hinges are made. It's standard; I bought the tape at HobbyKing, and the gap between the control surfaces is the thickness of a pin.

[Image: Orca vop.jpg]

The standard connectors didn't fit under the wing, so I removed the housing, and then they fit. I also put a piece of spruce strip around the push-in nuts, and the central rib is tightened onto them. :arrow:

[Image: DSCN2123.JPG]

I haven't mentioned control surface deflections yet. Well, it's kind of an individual thing—some like it hot, others don't, and it also depends on the transmitter.

I turned on the camera and recorded a video with the settings I flew with this year. But it can only be viewed after 8 PM. :(

[Video link]

So for now, I'll let my Orca rest. If anyone doesn't mind sharing a photo, I'd be very happy. Then I might put them together in a collage—it could be interesting! :! :? :

[Image: F3K Orca.jpg]

So for now, and I wish you a wonderful pre-Christmas time. MR.

Post #71 by otopotom » Thu Dec 03, 2015 7:31 pm

Hi, great. I set the deflections according to some other F3K. I have a Taranis, so I got inspired HERE.

Post #72 by Majky007s » Thu Dec 03, 2015 8:28 pm

Tomorrow, the tubes will arrive, and the plan will come after Sunday, so I'll start getting into it slowly. I'm already looking forward to it; I'm just curious about the wing, specifically bending the leading edge tube. I'll definitely try it according to the father of the plane—I'll try to bend the trailing edge strip slightly towards the ailerons when gluing, so the tube straightens the wing. :-)

Post #73 by otopotom » Fri Dec 04, 2015 9:26 am

I made exactly this mistake. I didn't check it, glued the leading edge tube, and then realized I had a curve where the aileron mount should be. So I left it like that and sanded the aileron to fit the curve.

Post #74 by von boberov » Fri Dec 04, 2015 9:54 am

I have it like that too. But the aileron hinge is rubber, and the wing is a bit rubbery, so it evens out even with the large deflection of the brakes. MR.

Post #75 by lubomir » Sat Dec 05, 2015 3:06 pm

Well... yesterday my son brought me the ORCA plan, and the laser-cut parts from tks are at the post office—I found out too late, so I have to wait until Monday. But I have carbon tubes promised for Monday, so I could get started in full swing. However, I ran into a problem. The description says to power it from 1S, and I haven't found any info on what booster you use to increase the voltage to 5V. Some FrSky receivers work from 3.0 (or 3.5)V, but the recommended servo starts at 4.8V. I have some 1A boosters, but I don't know if they could handle 4 digital servos. Today I'm going to measure what currents I can expect under extreme conditions. A more elegant solution would be to use a 2S battery and UBEC, but in that case, I'd probably have to widen the fuselage at the front. I don't want to ruin a nice plane right at the start. Please share your tips on how you solved the power issue.

Post #76 by Majky007s » Sat Dec 05, 2015 3:31 pm

I definitely plan to use a 2S battery because Hitec receivers support it, and you definitely don't need to widen the nose—there's plenty of space.

Post #77 by REX » Sat Dec 05, 2015 4:30 pm

text

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Majky007s wrote:

I definitely plan to use a 2S battery because Hitec receivers support it, and you definitely don't need to widen the nose—there's plenty of space.

Do the small six-channel receivers also support 2S? If so, that's great—I use those... What servos?

Maybe these? [[link to Horejsi.cz](http://link.to/Horejsi.cz)]

Post #78 by von boberov » Sat Dec 05, 2015 4:50 pm

Hi. Yes, probably the simplest and most ideal solution in terms of voltage is to use 4x NiMh. I fly with 1x LiPo, even though the servos are rated from 4.8V. :oops: I don't have anything else in the plane except this:

[Image: DSCN2030.JPG]

I just soldered a power branch to the servo extension that leads to the aileron. I turn it on by connecting/disconnecting this connector to the battery. After about an hour of flying, the transmitter shows the RX voltage at 3.77V. When it drops to around 3.68V, I put it on the charger.

But as Majky says, there's room in the fuselage for a 2S LiXX + BEC.

I don't know about the servos. The ones I have don't always center perfectly. When the last movement is from the right, it stays slightly to the right of center; when from the left, it stays slightly to the left.

Maybe it's because of the low voltage.

Our colleague otopotom was kind enough to send photos of how he built it—he cut the parts by hand. :arrow: I added them to the album: [[link to PicasaWeb album](http://link.to/PicasaWeb/album)] MR.

Post #79 by Majky007s » Sat Dec 05, 2015 5:24 pm

Well, it wasn't long ago that I looked at those lightweight servos, and it said they can be powered by 1S or 2S. I'll probably use Dymond servos.

Post #80 by jio » Sat Dec 05, 2015 5:38 pm

text

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von boberov wrote:

I don't have a very good feeling about them. :(Since the summer, I've flown quite a bit with them, and so far, they move, but when I was mounting the lever screw on the rudder servo, I easily skipped a gear tooth without resistance. I think they have unnecessary backlash in the gears.

I'm asking because I have 2 of them, and I've already replaced the gears on both. :-(

Post #81 by von boberov » Sat Dec 05, 2015 5:47 pm

Well, I don't have a very good feeling about them either. :(Since the summer, I've flown quite a bit with them, and so far, they move, but when I was mounting the lever screw on the rudder servo, I easily skipped a gear tooth without resistance. I think they have unnecessary backlash in the gears.

Perhaps this would work well in a launcher: (RiMr used them for a while in Destiny) [[link to Kostka Model Centrum](http://link.to/Kostka/Model/Centrum)] and place them in front of the main wing spar for better balance. MR.

Post #82 by Majky007s » Sat Dec 05, 2015 5:51 pm

They look pretty good. :) Hey, that doesn't seem so bad, does it? With the 8g DI, I think that's a nice weight, right?

Post #83 by otopotom » Sat Dec 05, 2015 5:54 pm

Hi, I did it low-budget, so I used HXT500.

Post #84 by jio » Sat Dec 05, 2015 6:04 pm

text

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von boberov wrote:

Well, I don't have a very good feeling about them either. :(Since the summer, I've flown quite a bit with them, and so far, they move, but when I was mounting the lever screw on the rudder servo, I easily skipped a gear tooth without resistance. I think they have unnecessary backlash in the gears.

With one, I ripped the gears when I was gently straightening the aileron by hand, and with the other, the same gear failed during flight. I bought them because I liked their size and the torque of 1.3-1.6 kg/cm.

I wish you more success than I had.

Post #85 by von boberov » Sat Dec 05, 2015 6:05 pm

text

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Majky007s wrote:

They look pretty good. :) Hey, that doesn't seem so bad, does it? With the 8g DI, I think that's a nice weight, right?

Yes, it's just one variation of what could be done well. There's a 27mm gap behind the auxiliary spar, so it should fit. There's also more profile height, and it should be possible to hide the wing pushrod and place the aileron lever on top. That would make it a bit cleaner. MR.

Post #86 by von boberov » Sat Dec 05, 2015 6:11 pm

text

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otompotom wrote:

Hi, I did it low-budget.

Yes, I see it more as building it in this spirit and saving the high-end stuff for a DLG. :wink: MR.

Post #87 by Majky007s » Sat Dec 05, 2015 6:16 pm

Well, I think I'll use them for a DLG because, as I know myself, I wouldn't want to let it go after that. :-D But on the other hand, it's a hassle to take them out, so I'll think about it some more. Those HS55s look like an interesting alternative, but honestly, I didn't check if they would fit.

Post #88 by lubomir » Sat Dec 05, 2015 6:40 pm

Well, I did some testing. Surprisingly, the DS65HD didn't draw more than 200-220mA even when almost stalled. That means the 1A booster can easily handle the 4 servos. When I loaded the booster with four digital servos (larger than DS65—I don't have four DS65HD at home, or they're built into other planes), even with partial braking of all four (drawing about 0.85A), the voltage didn't drop below 4.86V. I went further and found that my cheap Corona receiver worked reliably even at around 3.65V. But I still need to test the range at the airfield. So I'm going with 1S + a 5V booster. Incidentally, I found a 2A booster in my supplies—yet to be tested—sometimes you don't even know what you have at home. :lol: I'll order the battery and servos from the EU (by the time I finish the ORCA, they'll be here), so I'm still considering whether to order something with metal gears—like these [[link to HobbyKing](#)]
—my son has been flying with them in his Libelle since the summer, and they're fine. The ORCA is about 12mm at its narrowest. A 2S 350mAh battery is at least 15mm+, so it would be too far back in the unmodified fuselage, and I'm afraid I'd have problems with the center of gravity. I don't want to add lead to the ORCA.

Post #89 by Majky007s » Sat Dec 05, 2015 7:33 pm

Aren't you worried about that? The current seems quite tight to me. Consider that when the servo is under load, it draws more than 200mA. I'm not sure if I understand correctly that you measured it without load.

Post #90 by lubomir » Sat Dec 05, 2015 8:20 pm

I spent some time looking for what I used to measure it—unfortunately, HobbyKing no longer has it in stock. It's a meter that I connect in the circuit with the servo, and it measures instantaneous current, voltage, and also keeps track of the maximum current and minimum voltage until reset. At the end, you can see the time course of the current load. I had it connected in the circuit between the 1S battery, the 5V booster, and the servo tester, to which I had connected 4 digital servos. I changed the deflection of all servos at once with the servo tester, and I also had arms on the servos, which I braked by hand. I know it's a pretty crude combination, but it gave me a good idea of how the booster would be loaded in practical operation. I needed to test it quickly to decide what to order if I wanted to get it before Christmas. The pre-Christmas madness has already begun. :)

P.S.

It would have to be a big coincidence for all four servos to be fully loaded at the same time. The value I mentioned was the maximum. The average current draw of one servo (moderately loaded) was about 0-170mA.

#91 Post by lubomir » Wed Dec 09, 2015 14:20

I already have everything (except the servos—they are somewhere on their way from the Netherlands and will arrive in Bratislava by Friday) at home, so I started putting this "puzzle" together. So far, so good. I only encountered a minor issue I hadn't expected. Even a laser doesn't have a zero-width cut, which affected the narrower parts of the cutouts. For example, on the trailing edge of the profile, making the profile seem shorter. I'll somehow correct this on this wing panel and will account for it from the start on the second panel. The leading edge also fit well (after sanding with K7). I glued the wing with BOLT CA glue (yellow—for balsa) and left it to harden overnight with the wing fixed to a board, so surprisingly, there was no warping on the trailing edge. So far, I'm satisfied.

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#92 Post by von boberov » Wed Dec 09, 2015 15:23

That's good news. Which servos did you end up choosing? MR.

lubomir

Posts: 24

Registered: Sun Nov 29, 2015 17:25

#93 Post by lubomir » Wed Dec 09, 2015 18:37

I chose these servos: Turnigy TGY-D56LV—mainly because of the metal gears. My son has been flying with them in a DLG Libelle since the beginning of summer and told me he had no problems with them. And most importantly, they were available in HobbyKing's European warehouse, so delivery was faster than from a local shop :(.

P.S.

I'll power them with 5V from a booster.

lubomir

Posts: 24

Registered: Sun Nov 29, 2015 17:25

#94 Post by lubomir » Thu Dec 10, 2015 11:02

To: MR

Someone infringed on your trademark rights:

HobbyKing link

:lol:

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#95 Post by von boberov » Thu Dec 10, 2015 11:08

:lol: :lol: Or maybe I did it myself :oops: :mrgreen: There's more, even some kind of self-launching glider: Flywood link MR.

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#96 Post by Majky007s » Mon Dec 14, 2015 00:51

Gentlemen, I have a question for you: How much space is there in the fuselage for the battery? I'm dealing with a bit of a vicious circle here. The servos I'm considering, HS-45HB, are only for 1S, but most of the batteries my dealer has are 2S. So, is there anywhere to get a 1S1P around 1Ah, or should I use different servos and fit a 2S battery?

lubomir

Posts: 24

Registered: Sun Nov 29, 2015 17:25

#97 Post by lubomir » Mon Dec 14, 2015 23:52

I was dealing with the servo and power issue just yesterday. Originally, I wanted to power them from a 1S battery and increase the voltage to 5V using a booster. On Friday, I received 1S 1000mAh batteries from HobbyKing's European warehouse: link.

Since the servos I plan to use in the ORCA arrived in the same shipment: link,

I immediately connected them via the booster and a servo tester to the battery. I was unpleasantly surprised—the servos were shaking uncontrollably. At first, I blamed the servos, but when connected directly to the battery, they behaved perfectly. This led me to conclude that the booster was the culprit, likely producing a lot of noise along with the voltage increase, which couldn't be eliminated even by adding a larger filter capacitor. So, I'll use a 2S battery and reduce the voltage to 5V using a UBEC. I tested it right away, and it worked fine. Since the battery needs to be placed as far forward as possible and the ORCA's fuselage is only 12mm wide at the tip, I came up with a solution. I received two 1S batteries, each with a diameter of 12mm, so I'll make a 2S battery by connecting them in series and adding a service cable for balance charging. The author and another modeler mentioned having to add 10 to 20g of weight during the maiden flight, so I hope that by moving this assembly, I'll be able to maintain the center of gravity (one battery weighs about 20g). But I've written a lot :)—it's the result of two days of investigation. I'll see what I can achieve. The wings are glued, so I'm quickly moving on to the fuselage.

P.S.

I ordered the batteries and servos from the EU warehouse on Sunday evening; on Tuesday, my order was processed in the Netherlands, and on Friday morning, it was in Bratislava, delivered to my home by courier before noon.

User avatar
otompotom
Posts: 290
Registered: Tue Sep 23, 2008 00:00
Location: Moravany u Holic
Contact user: Contact user otompotom

#98 Post by otompotom » Tue Dec 15, 2015 08:16

Hey, I didn't worry about this at all. I have HXT900 servos + a 1S "pencil" battery from HK + FrSky X4R + FrSky vario, and it works. I waggled it for 10 minutes and recharged about 250 mAh. I haven't thrown it yet, but I assume it will work :-D

Majky007s
Posts: 343
Registered: Thu Mar 05, 2015 12:59
Location: Jedlová u Poličky

#99 Post by Majky007s » Tue Dec 15, 2015 12:17

I don't want to add unnecessary BEC, etc. I'm looking at a receiver that handles both 1S and 2S directly, so I'll choose the voltage based on the cells and, most importantly, the servos. Lubomir, do the servos hold center? Do they buzz? Etc.? Maybe I'll get them too, since I'll probably have to order a battery anyway.

lubomir
Posts: 24
Registered: Sun Nov 29, 2015 17:25

#100 Post by lubomir » Tue Dec 15, 2015 14:18

I was afraid they wouldn't hold center, especially after the first test with the booster, when I saw the restless movement. But when connected directly to the battery, there was no problem holding center. I haven't installed them yet and only tested them on the table. My son has been flying with them in a DLG Libelle since the beginning of summer and praises them. When I tested them on the table, I didn't notice any difference in returning from the right or left to the center, only a visible slowdown as they approached the center. But almost all servos I've handled do that. Otherwise, I want to warn you about one thing so you're not surprised—the servo doesn't have a fully metal gear train. The first two stages are plastic. But I've seen this solution in many other servos. The servo you mentioned also has a ball bearing on the output, which of course affects the price. I'm not aiming for any super performance; I'm doing this more for the joy of building and entertainment in my free time.

von boberov
Posts: 1096
Registered: Fri Jul 30, 2010 00:00
Location: Villager in the ZR district

#101 Post by von boberov » Tue Dec 15, 2015 17:32

Hi. Regarding the servos: RC maniac Robin, who knows the DLG category very well, mentions on this forum that even for an adult "K" model, this HV servo is usable: Horejši HV Servo MR.

REX

Posts: 1555

Registered: Mon Aug 15, 2011 21:54

Location: Náchod—nearby

#102 Post by REX » Tue Dec 15, 2015 19:28

Wow 8) I'm pleased; I've had these exact servos ready at home since Saturday for the ORCA.... I haven't tested them yet, but they look very good :wink:

I fly as best as I can, but mainly for the joy of what I do...

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#103 Post by Majky007s » Tue Dec 15, 2015 19:31

Guys, I like these both for the price and the option to power with 1 or 2 cells. Otherwise, gentlemen, I started building today. So far, I've glued the spar, ribs, and nose blocks. I'll let it dry thoroughly. I used CA glue, but to prevent warping, I'll add the leading edge tomorrow. [img]<http://images.tapatalk-cdn.com/15/12/15/dce60201a9ced76f2b455a68d08222ed.jpg>[/img] But I still have a question: According to the instructions, a stand should be added to the trailing edge. Should it go behind the strip?

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#104 Post by von boberov » Tue Dec 15, 2015 19:51

Yes, the stand goes behind the spruce strip. By the way, I looked at your photo—a small thing: I would first glue the central triple rib on a flat surface and then start assembling the wing. It's a rigid thing that immediately holds the geometry of the other ribs.

Majky's photo: [link to photo]

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#105 Post by Majky007s » Tue Dec 15, 2015 19:53

Yeah, I thought I'd glue it and then reinforce it with dispersion glue.

#106 Post by von boberov » Tue Dec 15, 2015 20:10

Yes, there are probably several ways. But when you think about it, that central six-rib structure carries the entire, say, 200g fuselage, and I wouldn't dare estimate how much the fuselage weighs during the launch. That's why I was worried that the rib might tear sideways during the throw. :?

But it's a nice photo, and I'm keeping my fingers crossed for you and wish you lots of success! :wink:

MR.

lubomir

Posts: 24

Registered: Sun Nov 29, 2015 17:25

#107 Post by lubomir » Tue Dec 15, 2015 22:33

I also wanted to ask about the central ribs. In one picture of a finished wing (MR), it seemed to me that the central ribs were laminated, probably with fiberglass. I plan to do that, and after joining the wings with metal connectors (M5 + 2x2mm) glued with epoxy, I want to laminate the center with fiberglass.

lubomir

Posts: 24

Registered: Sun Nov 29, 2015 17:25

#108 Post by lubomir » Tue Dec 15, 2015 22:47

By the way, the servos I'm going to use (D56LV) have an HV sibling: link, which looks almost identical to the Horejši HD 47MG, including the specs. I wonder which one is which :lol:. Even the appearance is the same (except for the label—everyone puts their own on). The only difference is probably the final quality control at the manufacturer.

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#109 Post by Majky007s » Wed Dec 16, 2015 05:19

Lubomir, I couldn't sleep last night, had nightmares :-D, so I was thinking that I'd cover the center with fiberglass, about 30g, or with carbon roving. Anyway, I want to laminate the servo and wing mount attachments. Those servos are suspiciously similar :-D

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#110 Post by von boberov » Wed Dec 16, 2015 06:23

Hi. I didn't laminate; in the photo, it's just epoxy 1200 spread with a finger over the ribs—it makes a kind of crust. But however you do it, it's up to you. MR.

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#111 Post by von boberov » Sun Dec 27, 2015 23:34

Hi everyone.

The December weather is unbelievable—:roll:. I took the ORCA to the meadow again and tried to get rid of some Christmas candy from my belly. It was quite calm outside, so I just practiced launching and landing. I had a SJ4000 camera on my cap: [link]—I'm still testing it and trying to set it up to get decent video. MR.

[youtube]<https://www.youtube.com/watch?v=IBFibllqh0s/>[/youtube]

lubomir

Posts: 24

Registered: Sun Nov 29, 2015 17:25

#112 Post by lubomir » Mon Dec 28, 2015 15:56

Unbelievable, the weather is so nice in your Žďár region. Here in Bratislava, we've had fog like milk for a week. It's almost windless, but visibility is only 30m—so nothing for flying. At most, maybe with some copter.

I just got back from the post office—the 3K carbon tubes from Goodluckbuy arrived, so I can finish the fuselage. The ailerons are sanded, so I just need to glue the wing panels and can start covering.

Yesterday, after the Christmas lethargy, I finally got moving and continued working on the ORCA. I'm curious how I'll manage the center of gravity and the overall weight.

Happy flying!

Ľubo

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#113 Post by Majky007s » Mon Dec 28, 2015 16:32

The weather has been really nice here; last week, I flew the most, even on Christmas Day :-).

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#114 Post by Majky007s » Mon Dec 28, 2015 22:52

Guys, I'm starting to consider covering it with tissue instead of Oracover. What do you think? I know it's a bit lighter than film (I don't know by how much; the internet didn't want to tell me during a quick search). You just shouldn't overdo it with the varnish, and before that, coat the wing frame with adhesive varnish diluted with acetone, then varnish twice with lightly diluted tensioning varnish. After the first varnish, sand it to make the paper nice and smooth.

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#115 Post by von boberov » Tue Dec 29, 2015 19:19

In my opinion, tissue will help more than harm. I've been thinking of making new tail surfaces covered with tissue, but since it flies, I haven't gotten around to it yet :oops: MR.

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#116 Post by Majky007s » Tue Dec 29, 2015 19:38

I'm worried it might get too heavy with the varnish.

REX

Posts: 1555

Registered: Mon Aug 15, 2011 21:54

Location: Náchod—nearby

#117 Post by REX » Tue Dec 29, 2015 20:49

The last flying video is very nice... :wink:

Today, I brought home all the carbon tubes and I'm looking forward to building, but I think I'll start sometime in January :?

What also bothers me is the covering... The only film I'd like for the ORCA is this:

Horejši Solarfilm

They say it's 20g/m², which I like, but I don't like the price... I don't know if they'll sell me the exact meterage I want, or if I have to buy a whole roll. Does anyone have experience?

Otherwise, I've also been thinking about tissue. Maybe try covering a piece with tissue, varnishing it, and weighing it before and after... and see how it turns out weight-wise.

I fly as best as I can, but mainly for the joy of what I do...

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#118 Post by Majky007s » Tue Dec 29, 2015 20:55

I'd gladly try it, but I have a bad leg and can't get to the workshop. When it's better, I'll definitely try it.

lubomir

Posts: 24

Registered: Sun Nov 29, 2015 17:25

#119 Post by lubomir » Tue Dec 29, 2015 23:29

To: REX

I don't know how it is at Horejši, but for example, Oracover at Peck's—when I buy it, the salesman cuts any length that's a multiple of 0.5m, and I think it's the same at Horejši. At most, it's a multiple of 1m.

The problem is if you want it sent by mail. Some sellers refuse, or there's a surcharge for special packaging, which can cost as much as the product itself. Another thing is that I don't know what Solarfilm is. Is it something like Oracover? Recently, I've been using a Chinese Oracover equivalent.

Since I have an unopened roll (5m), I weighed it—223.9g. 5m, at a width of 64cm, is 3.2m², so the specific weight is 69g/m². But that includes the backing film, which, in my estimate, makes up about 2/3 of the weight for transparent film, so the actual film weight is similar to what Horejši states for Solarfilm.

The film I'm talking about is this: HobbyKing film. I think MR used something similar, which is why he had so much left after covering the Yak :) HobbyKing only sells the full 5m roll, and from the EU warehouse (GLS shipping to Slovakia is \$11.27—up to 50kg), it still comes out to about \$4/m if you order just one roll and nothing else. So, at the current dollar exchange rate, that's about 3.65€ or 99.50 CZK/m.

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#120 Post by von boberov » Wed Dec 30, 2015 22:34

I don't know how I'll get to the PC tomorrow :oops:. Guys: [link to image]—all the best for 2016! MR.
or2015.jpg

#121 Post by Majky007s » Wed Dec 30, 2015 23:43

Same to you! Hope you fly as much as possible in the coming year! ;-)

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#122 Post by Majky007s » Mon Jan 04, 2016 16:10

Today, I glued the leading edges. I fixed the wing at the aileron area with a spruce strip and placed balsa spacers between the ribs to prevent warping. [Image] Both wings are straight (from the ailerons), and in the meantime, I did an experiment with tissue. I took a 12mm thick balsa board, made a 10x10 cm square, and cut out an 8x8 cm hole inside. I covered it according to the process: first, I varnished the frame twice with diluted adhesive varnish, then glued the tissue with acetone and dried it with a hairdryer, and finally varnished the paper three times with diluted tensioning varnish. Here are the photos showing how the weight increased: the first photo is just the frame, then the varnished frame, then with the tissue glued on, and finally the whole thing. [Image][Image][Image][Image]

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#123 Post by von boberov » Mon Jan 04, 2016 17:18

80 Good experiment! That would mean approximately 60g/1m² for varnished tissue?? Am I calculating correctly? :?: MR.

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#124 Post by Majky007s » Mon Jan 04, 2016 17:24

Yeah, I want to try if the paper would hold with just one layer of varnish, which would reduce the weight further. But three layers on the paper are probably necessary because after two layers, it's still quite porous. Otherwise, the best way to varnish both the frame and the paper is with a dish sponge clamped in a clothespin—it makes a nice, even layer. I tried a brush, but after two strokes, I threw it away—either there's too much varnish or too little.

REX

Posts: 1555

Registered: Mon Aug 15, 2011 21:54

Location: Náchod—nearby

#125 Post by REX » Mon Jan 04, 2016 17:35

If it really comes out to 60g/m², then this isn't the way to go! At least not if you want to build it light...
The film I mentioned from Horejši weighs a third of that!
I fly as best as I can, but mainly for the joy of what I do...

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#126 Post by von boberov » Mon Jan 04, 2016 19:01

text

Copy

Majky007s wrote:

I want to try if the paper would hold with just one layer of varnish

Then test it. I made a DLG with tissue without varnishing the frame; I glued it with Balsaloc. But it's true that some parts of the frame didn't show through the covering, and I wasn't counting every gram on that DLG. MR.

[Image: snimek 004.jpg]

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#127 Post by Majky007s » Mon Jan 04, 2016 19:13

So, I varnished the paper once more with diluted varnish and then with thick varnish, and the result is a bit different again. Before I started, I sanded the layer from the first attempt again, and the weight was 5.5g. [Image][Image] The result was somewhere between 5.8-5.9g, but I photographed it at 5.9g.

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#128 Post by Majky007s » Mon Jan 04, 2016 19:14

I think 30-40g/m² isn't that bad, especially since the strength will be completely different from that Solarfilm.

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#129 Post by von boberov » Mon Jan 04, 2016 19:19

Wait, if the first attempt weighed 5.6g including the frame, and not 56g as I thought, then 1m² of varnished tissue would weigh 6g, not 60g! !: :?:

MR.

Edit: I'm being silly. 1m² is 100dm², so the weight would be about 60g of covering per 1m².

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#130 Post by Majky007s » Mon Jan 04, 2016 19:28

The frame weighed 5g, and the 10x10 cm tissue weighed 0.2g.

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#131 Post by von boberov » Mon Jan 04, 2016 19:43

Oh, so that's how it is. 1dm^2 of tissue with varnish is $0.6\text{g} \times 100 = 60\text{g}/1\text{m}^2$ of tissue. MR.

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#132 Post by Majky007s » Mon Jan 04, 2016 19:45

As I wrote in the second attempt, you can get it down to 30-40g/m².

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#133 Post by Majky007s » Wed Jan 06, 2016 20:07

Gentlemen, a small question: When I join the two wing halves, a gap forms between the outer triple ribs. Did you shim with balsa or sand the triple ribs so they fit together?

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#134 Post by von boberov » Wed Jan 06, 2016 20:19

Sand them. I usually prop up one wing half in the dihedral position and sand the dividing plane with a block with sandpaper glued to it—I move the block along the workbench, and the sandpaper is on the side. MR.

[Image: DSCN1899.JPG]

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#135 Post by Majky007s » Wed Jan 06, 2016 20:30

Got it! Thanks, it's coming together nicely. Tomorrow, I'll plane the end arcs. Today, I glued in the balsa, and the epoxy for the wing mount with the tube is already hardening. I think I'll start with the tissue.

#136 Post by Majky007s » Mon Jan 11, 2016 14:12

Hello, gentlemen, I have a question. I'm preparing to glue the vertical stabilizer mount, and looking at the plans, something caught my attention. I might not fully understand F3K ideology, but since I'm right-handed, I'll be throwing with my right hand (viewed from behind the plane), so the vertical stabilizer should be on the left side of the fuselage. However, in the plan, it's on the right. Here's my reasoning: as a right-handed thrower, the centrifugal force will cause the vertical stabilizer to deflect to the left, so it will depend on the spring whether it bends or not. But if it were on the left, it would pull on the servo cable, which would be better, right? Are my thoughts correct?

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#137 Post by von boberov » Mon Jan 11, 2016 15:41

To put it simply: The cable that pulls the rudder must be on the exact opposite side of the launch peg. It's not about centrifugal force, but rather: I, as a right-handed thrower, launch the plane into a left turn. After the launch, the airflow deflects the rudder into a left turn, and the cable must prevent this by being pulled, not pushed. MR.

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#138 Post by Majky007s » Mon Jan 11, 2016 18:06

Okay, I get it. Thanks :-)

REX

Posts: 1555

Registered: Mon Aug 15, 2011 21:54

Location: Náchod—nearby

#139 Post by REX » Mon Jan 25, 2016 21:40

I finally started building yesterday, too! 8) It's coming together nicely so far.

I just lightened the internal fuselage bulkheads with a few holes. It seemed overly dimensioned and unnecessarily heavy to me. Plus, it makes routing the cables to the ailerons easier.

[Image: P1253663.JPG]

I fly as best as I can, but mainly for the joy of what I do...

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#140 Post by von boberov » Tue Jan 26, 2016 12:19

Great! Yes, some holes should have been prepared there. My mistake. Thanks for the observations. MR.

Majky007s
Posts: 343
Registered: Thu Mar 05, 2015 12:59
Location: Jedlová u Poličky

#141 Post by Majky007s » Tue Jan 26, 2016 13:27

It could definitely be lighter. I plan to build a lightened version later, so we'll see. Otherwise, I'm almost done, just need to cover it, and I'll be using tissue for that.

REX
Posts: 1555
Registered: Mon Aug 15, 2011 21:54
Location: Náchod—nearby

#142 Post by REX » Tue Jan 26, 2016 15:25

There's definitely room for lightening, but on the other hand, everyone can finish or modify it according to their abilities and preferences... For example, the sides could be made from thinner balsa or lightened with holes that the covering will hide anyway. For the tail, I plan to enlarge the hole diameters.

I fly as best as I can, but mainly for the joy of what I do...

von boberov
Posts: 1096
Registered: Fri Jul 30, 2010 00:00
Location: Villager in the ZR district

#143 Post by von boberov » Tue Jan 26, 2016 15:53

As REX wrote, it's up to each person how they build it.

I built it with an economical and simple approach, test-flew it, put it on paper, weighed it, took photos, and recorded several videos. I don't think I hid anything, so what more can I do? :?: :oops:

I would definitely do some things differently based on what I've learned. I also think that with significant lightening, it would be necessary to significantly reduce aerodynamic drag. You won't throw a light and "fluffy" thing very far. This would imply going with a stiff wing covering and thinning the fuselage cross-section or using a laminate semi-finished product.

But then, the price would reach the value of the first popcorn models, and you wouldn't surpass them in flight. That's how I see it. MR.

Majky007s
Posts: 343
Registered: Thu Mar 05, 2015 12:59
Location: Jedlová u Poličky

#144 Post by Majky007s » Tue Jan 26, 2016 17:00

I didn't mean that as any kind of tasteless criticism. I built it as it is to learn and so it can handle harder landings :-)

Majky007s
Posts: 343
Registered: Thu Mar 05, 2015 12:59
Location: Jedlová u Poličky

#145 Post by Majky007s » Wed Jan 27, 2016 18:36

Here's a picture. This is how it looks at my place. The only thing holding me back is the iron, which Pelikan still doesn't have in stock, and I still need to carve out the ailerons, which could weigh around 30-40g together. I have light balsa ready for that, so we'll see how the weight turns out. The picture shows it with the receiver, servos, and 2x 1S 1000mAh batteries. When I weighed it today, I started worrying about the covering again... I'm afraid I'll end up with 60g for the covering.

[Image]

User avatar

otompotom

Posts: 290

Registered: Tue Sep 23, 2008 00:00

Location: Moravany u Holic

Contact user: Contact user otompotom

#146 Post by otompotom » Wed Jan 27, 2016 18:39

Hi, those CNC-cut parts are awesome! I think I'll order them and build another one :-)

To Majky007s: Did you use the printed mount or did it not work out?

Also, I see the leading edge is made from some thicker tubing, or does it just look that way? I think it's 3/2mm.

SIG Piper Clipped Wing - RIP Z-37A under construction, Meridian 10cc, E-Flite Timber, Prcek F3K, Orca F3K

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#147 Post by Majky007s » Wed Jan 27, 2016 19:00

Yeah, those cut parts are great! :-)

Yes, the one with the threads you sent me is already glued in. Today, I sanded it down so it's perfectly level, and it's super. Thanks a lot for them! :-)

Yes, it's 3/2, and I also covered the central rib with 30g fabric :-)

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#148 Post by Majky007s » Wed Jan 27, 2016 21:03

Gentlemen, do you think it will be a problem if I use 0.4mm string for the control springs? A friend had a string break on his BASE, and when I found out I could use it, he gave me all of them. The thinnest one is 0.4mm.

User avatar

otompotom

Posts: 290

Registered: Tue Sep 23, 2008 00:00

Location: Moravany u Holic

Contact user: Contact user otompotom

#149 Post by otompotom » Wed Jan 27, 2016 21:09

I think I have 0.4mm as well, and it works fine.

SIG Piper Clipped Wing - RIP Z-37A under construction, Meridian 10cc, E-Flite Timber, Prcek F3K, Orca F3K

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#150 Post by Majky007s » Wed Jan 27, 2016 21:11

Okay :-)

#151 Post by lubomir » Thu Jan 28, 2016 11:06

I tried this steel wire for the springs: 0.5mm steel wire. It was too hard. In my opinion, 0.4mm is borderline. I ended up using 0.3mm: 0.3mm steel wire.

I want to point out a mistake I made with the ailerons. Without thinking, I beveled the bottom of the ailerons, not realizing that this would prevent me from achieving a 45-degree downward deflection. Of course, I only realized this after ironing on the Oracover and gluing the hinges with epoxy. It meant stripping the covering, "digging out" the hinges (which didn't happen without tearing out some balsa), filling, and re-covering—this time with non-transparent CN Oracover so the filling wouldn't show. But I was pleasantly surprised: both ailerons, covered and with glued hinges, weighed only 24.5g. I must have been lucky with exceptionally light balsa.

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#152 Post by Majky007s » Thu Jan 28, 2016 13:38

Regarding the weight of the ailerons, I figured that the entire sheet of light balsa weighs 60g, so I estimated that the ailerons would be about 2/3 of that weight from the sheet. We'll see how it goes. Maybe I'll make them today and let you know how much they weigh.

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#153 Post by von boberov » Thu Jan 28, 2016 18:07

text

Copy

otompotom wrote:

:-)

TO: Majky007s Did you use the printed mount or did it not work out?

I was still wondering what that part was! :idea: It's a mount! :wink:

[Image: kozlik.jpg]

I also have something for Taranis users. I was playing with BMP images for the transmitter and created an ORCA. I'm attaching it for download (RAR). Place it on the SD card in the BMP folder. MR.

Attachments:

[BMP.rar]

(2.53 KiB) Downloaded 58 times

[taranis BMP.jpg]

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#154 Post by Majky007s » Thu Jan 28, 2016 18:53

Yes, it's the mount, and thanks to me, otompotom weighed it and it's 1g lighter than the balsa version.

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#155 Post by Majky007s » Sun Jan 31, 2016 15:31

Today, I carved out the ailerons. I hollowed them out completely, and when the shape was okay, I sanded them. If I had to sand the whole thing, I would have choked on the dust! [Image][Image] I think the weight is great :-). The total weight should be 276g.

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#156 Post by Majky007s » Tue Feb 09, 2016 12:50

Gentlemen, I have a question. Yesterday, I got some 0.17mm Kevlar thread, and looking at it, I wonder if it will cut into the plastic servo arm. Does anyone have experience with this?

REX

Posts: 1555

Registered: Mon Aug 15, 2011 21:54

Location: Náchod—nearby

#157 Post by REX » Sat Feb 13, 2016 11:47

I'll add my creation too! :mrgreen:

I'll still tweak the tail surfaces a bit, make landing surfaces for them, and I'm ready for covering...

Otherwise, I managed to get a very nice weight for the ailerons, and I didn't even specially select the balsa—I used what I had at home, prepared for another project I didn't end up doing.

[Image: P2133708.JPG]

I fly as best as I can, but mainly for the joy of what I do...

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#158 Post by von boberov » Sat Feb 13, 2016 12:43

Great, and the canopy is cut a bit differently too. I look forward to these kinds of creations and am curious about how they can be modified. What colors will you use? MR.

REX

Posts: 1555

Registered: Mon Aug 15, 2011 21:54

Location: Náchod—nearby

#159 Post by REX » Sat Feb 13, 2016 13:22

text

Copy

von boberov wrote:

Great, and the canopy is cut a bit differently too. I look forward to these kinds of creations and am curious about how they can be modified. What colors will you use? MR.

I only use the plan for important structural things; otherwise, I do everything according to my own sense. That's why the differently cut canopy—just to have the best possible access, at least as I see it. As for colors, I don't know yet. It depends on what I can find. I have some ideas, but I'll see what I like when I go to the store on Tuesday. Anyway, a combination of two basic colors, maybe something extra. We'll see.

I fly as best as I can, but mainly for the joy of what I do...

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#160 Post by Majky007s » Sat Feb 13, 2016 13:54

Great! I'm a bit envious of that weight. My ailerons with covering weigh 27g.

REX

Posts: 1555

Registered: Mon Aug 15, 2011 21:54

Location: Náchod—nearby

#161 Post by REX » Sat Feb 13, 2016 22:49

text

Copy

Majky007s wrote:

Great! I'm a bit envious of that weight. My ailerons with covering weigh 27g.

I'm curious how much mine will weigh after covering.

I didn't get as much done today as I'd hoped. The nice weather drew me outside to fly in the afternoon, but just for fun, I played around and lightened the elevator (both fixed and movable parts) by enlarging all the holes by about 5mm in diameter, and the weight dropped by 1.5g... Maybe unnecessarily, we'll see when balancing how it turns out, but for the feeling... :mrgreen:

I fly as best as I can, but mainly for the joy of what I do...

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#162 Post by Majky007s » Mon Feb 15, 2016 22:26

I finally made progress! I covered the wings and already have the bottom varnished.

[Image][Image][Image] The cleanly covered wing weighs 125g, with the covering about 12-15g—I forgot to weigh it, and I can't find the wing weight anywhere. Otherwise, I have the tail and fuselage ready, so as soon as the varnish dries, I'll start assembling everything. I have everything prepared. I have to admit I made a pretty big mistake: I was supposed to glue the tissue only around the edges and then shrink it, but due to some brain short-circuit, I varnished the ribs right away, so it's not as taut as I imagined. But I think it's still quite acceptable. I know better for next time.

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#163 Post by Majky007s » Tue Feb 16, 2016 15:18

Gentlemen, does anyone have experience with aileron hinges made from paper or tissue? A colleague at the airfield advised me to do this, but I'm not entirely sure about the functionality.

holda29

Posts: 1390

Registered: Wed Jul 19, 2006 00:00

Location: Kladno

Contact user: Contact user holda29

#164 Post by holda29 » Tue Feb 16, 2016 16:52

I have it like this on Růžovka and on a WW I biplane, and it works without problems. A strip on the top and bottom, and a "flap" of tissue perpendicular to the longer axis of the wing so it doesn't tend to tear.

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#165 Post by Majky007s » Tue Feb 16, 2016 17:00

That's what I thought, perpendicular to the longer axis of the wing, but I would only put it on the bottom to maximize downward deflection for the brakes.

#166 Post by REX » Tue Feb 16, 2016 20:29

I wouldn't be afraid of using tissue for hinges... And today I decided on the colors—orange with blue...

The blue will be in the minority. Once I produce something, I'll post a photo. 8)

I fly as best as I can, but mainly for the joy of what I do...

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#167 Post by Majky007s » Tue Feb 16, 2016 22:25

:D I like the orange too, and the top will be pure tissue—it looks really nice. I'm looking forward to the photos.

REX

Posts: 1555

Registered: Mon Aug 15, 2011 21:54

Location: Náchod—nearby

#168 Post by REX » Wed Feb 17, 2016 22:21

A few more photos before covering... Especially the complete DLG frame, which I don't often see photographed in other planes. :roll:

I also weighed it to see where I stand. The complete frame before covering, with servos in the wing, is 195g. I think that's a pretty good weight.

And I also beveled the ailerons, and that's another gram off. :mrgreen:

[Image: P2173732.JPG]

[Image: P2173745.JPG]

[Image: P2173746.JPG]

I fly as best as I can, but mainly for the joy of what I do...

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#169 Post by Majky007s » Thu Feb 18, 2016 10:08

Great! It looks really nice, and the weight is also super. I see you chose polyamide screws even for the wing and fuselage connection. Are you sure about their strength? I have metal ones there, but I used smaller ones, M4 and M3, though I considered polyamide. In the end, I didn't use them. I see you have quite a lot of sanded lightening in the horizontal and vertical stabilizers. Doesn't it warp too much? Personally, I have holes as big as in the plan, and since it's made of light balsa, it already warps quite a bit. I was afraid it wouldn't control properly and that the control surfaces would bend. And one more thing: won't you add balsa to the wing tip arcs to level the profile height? I think it covers better that way, and the covering holds nicely there.

REX

Posts: 1555

Registered: Mon Aug 15, 2011 21:54

Location: Náchod—nearby

#170 Post by REX » Thu Feb 18, 2016 12:10

text

Copy

Majky007s wrote:

Great! It looks really nice, and the weight is also super. I see you chose polyamide screws even for the wing and fuselage connection. Are you sure about their strength? I have metal ones there, but I used smaller ones, M4 and M3, though I considered polyamide. In the end, I didn't use them. I see you have quite a lot of sanded lightening in the horizontal and vertical stabilizers. Doesn't it warp too much? Personally, I have holes as big as in the plan, and since it's made of light balsa, it already warps quite a bit. I was afraid it wouldn't control properly and that the control surfaces would bend. And one more thing: won't you add balsa to the wing tip arcs to level the profile height? I think it covers better that way, and the covering holds nicely there.

Thanks for the praise... :wink:

Polyamide screws seem suitable to me, but whether they'll hold up, we'll see. :wink: It just seems overkill to me to use metal screws on a 300g DLG, but they might be stressed mainly during the launch. Well, we'll see. :lol:

I thoroughly lightened the horizontal and vertical stabilizers because I bought the cutouts, and the balsa used didn't seem particularly light to me, but it was strong. So I took the risk. I don't think it will cause problems, though.

There is balsa on the tip arc, not across the entire width, but just a 5-7mm strip, sanded to the correct height. Around the pin, it's more reinforced with balsa, of course.

I fly as best as I can, but mainly for the joy of what I do...

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#171 Post by von boberov » Thu Feb 18, 2016 12:16

REX: You really have it beautifully done. I'm looking forward to the final version. I wouldn't be afraid of plastic screws; you can't throw it "to the max" anyway. :oops: MR.

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#172 Post by Majky007s » Thu Feb 18, 2016 12:29

If it's strong, there's nothing to worry about. It depends on what kind of sheet it is. ;-) I'm curious what you'll use for covering. Will you go with Solarfilm? Yesterday, I found out that tissue with one layer of varnish isn't very strong. When I was sanding the bottom of the wing yesterday, I placed the wing so unluckily that I had a rib right next to the edge of the baseboard I glue on, and when I pressed a bit, the tissue cut on the rib. At first, I wanted to patch it, but in the end, I decided to replace the whole panel. So I'm going to fix it. The worst thing is that before I noticed, I ruined the covering on both wing halves this way. So I have to do it again and better. At least I know what to watch out for next time.

REX

Posts: 1555

Registered: Mon Aug 15, 2011 21:54

Location: Náchod—nearby

#173 Post by REX » Thu Feb 18, 2016 22:23

My creation—so far just the rudder. There will be very little blue overall, but here you can see the contrast nicely... I'm satisfied. 8)

Weight-wise... The fully covered rudder, as seen in the photo, weighs 5.5 grams. Others can compare...

1 dm² of film = 0.4 grams, which surprised me. I thought it would be less. :? (By the way, Oracover chrome 1dm² = 0.3 g!!!)

But overall, I'm satisfied so far. I like it, and that's more important to me than the final weight.

:mrgreen:

[Image: P2193747.JPG]

I fly as best as I can, but mainly for the joy of what I do...

Vacc

Posts: 284

Registered: Sat Aug 22, 2015 09:34

Location: Ostrava/Vsetín/Brno

#174 Post by Vaccc » Thu Feb 18, 2016 22:28

I still haven't decided to say, "Yes, I'll build this," so I'm just quietly following the thread. But I can't help it.

Those colors are awesome.

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#175 Post by Majky007s » Fri Feb 19, 2016 10:26

Hmm, another crack appeared on the top of the wing. I don't know how it's possible. Before I applied the second layer of varnish, I checked it. I just sanded the whole wing, and there are two more cracks. :-

(Do you know how this can happen? Maybe I should have just covered it with Oracover. [Image:

<http://uploads.tapatalk-cdn.com/20160219/e5219d8e4a5d676cb738af9ac35efb7e.jpg>]

User avatar

otompotom

Posts: 290

Registered: Tue Sep 23, 2008 00:00

Location: Moravany u Holic

Contact user: Contact user otompotom

#176 Post by otompotom » Fri Feb 19, 2016 10:30

text

Copy

Majky007s wrote:

Hmm, another crack appeared on the top of the wing. I don't know how it's possible. Before I applied the second layer of varnish, I checked it. I just sanded the whole wing, and there are two more cracks. :-

(Do you know how this can happen? Maybe I should have just covered it with Oracover. [Image:

<http://uploads.tapatalk-cdn.com/20160219/e5219d8e4a5d676cb738af9ac35efb7e.jpg>]

Hi, do you have the fibers parallel or perpendicular to the wing? I would expect this if the fibers are perpendicular to the wing, i.e., parallel to the ribs.

SIG Piper Clipped Wing - RIP Z-37A under construction, Meridian 10cc, E-Flite Timber, Prcek F3K, Orca F3K

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#177 Post by Majky007s » Fri Feb 19, 2016 10:39

Hey, the fibers are along the length of the wing, i.e., perpendicular. That's what's confusing me the most. When I cut the tissue perpendicularly, i.e., across the fibers, it's almost impossible to cut, even with a scalpel. I cut it with medical scissors, and it's still tough. And here it just cracks. :-{

User avatar

tk

Posts: 3525

Registered: Thu Jun 07, 2007 00:00

Location: Frenštát p.R.

Contact user: Contact user tk

#178 Post by tk » Fri Feb 19, 2016 13:23

I gave up on tissue because, after varnishing, it seemed terribly brittle to me. Maybe I was making some technological mistake, because otherwise, I can't imagine why everyone praises its strength. Sure, it's stronger than Modelspan, but compared to film, it's just brittle (film can be dented and then blown back out). But as I said, it might just be my hands. Veka would probably have a different opinion. :-)

ROZSYP.CZ - A website about model airplane kits

I don't come here anymore; I'm on email, see my website.

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#179 Post by Majky007s » Fri Feb 19, 2016 13:31

In that case, we both have strange hands. I really don't know how it's possible. Maybe we'll agree on cutouts for the second wing, and I'll build another one and cover it with film.

User avatar

robin

Posts: 215

Registered: Tue Mar 09, 2010 00:00

Location: Gbelany near Žilina

Contact user: Contact user robin

#180 Post by robin » Fri Feb 19, 2016 20:11

A few notes on polyamide screws:

Basically, there's no problem—if they were at least 4mm in diameter, they could hold it. But I would recommend putting a metal screw at the front and a polyamide one at the back. This has the advantage that, in case of an accident or a hard landing, the polyamide screw will snap and protect the wing from greater damage. Tested! :-)

#181 Post by lubomir » Sat Feb 20, 2016 09:26

I'm also a supporter of polyamide screws. I've switched to them for almost all my models, for the reasons Robin mentioned. Especially for structural models. In case of an accidental hard landing or crash, the screws snap, and the resulting damage is minimal. However, if I were to build the ORCA again, I would choose M4 screws. I couldn't find polyamide M5 screws with a cross head, and the day before yesterday, what I had expected from the beginning happened. During careless wing disassembly, the screwdriver slipped out of the groove, and now I have a "ventilation" hole in the wing :D. Additionally, the M5 screws from MPJet had such poorly formed threads that they were more like M5.1. And anyone who has ever tried to cut threads into polyamide knows what I'm talking about—it's a nightmare.

lubomir

Posts: 24

Registered: Sun Nov 29, 2015 17:25

#182 Post by lubomir » Sat Feb 20, 2016 12:36

P.S.

I should have known this earlier. I clicked on the Horejši Models ad and found this: [link](#).

I should have known this earlier. I'll check how shipping to Slovakia works and place an order.

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#183 Post by von boberov » Sat Feb 20, 2016 13:01

Hi. You can find quite a lot on eBay: [eBay link](#). MR.

REX

Posts: 1555

Registered: Mon Aug 15, 2011 21:54

Location: Náchod—nearby

#184 Post by REX » Tue Feb 23, 2016 22:08

I'm slowly covering it; only the wing is left now...

The weight of both covered ailerons is 21.6 grams.

When I'm done, I'll post a photo here. :wink:

I fly as best as I can, but mainly for the joy of what I do...

REX

Posts: 1555

Registered: Mon Aug 15, 2011 21:54

Location: Náchod—nearby

#185 Post by REX » Sat Feb 27, 2016 17:38

I finally covered the entire DLG, and today I got to the screwing together. :wink:

The result is in the photos, and after a preliminary weighing, I found that I will reach the flight weight specified in the plan with a small reserve. If I didn't have to add ballast, I would be under 300g! But I still need to connect all the servos to the control surfaces, so the final result will be seen later...

And maybe I'll manage the maiden flight on the 29th. :mrgreen: :mrgreen: :mrgreen:

[Image: P2273762.JPG]

[Image: P2273763.JPG]

[Image: P2273764.JPG]

I fly as best as I can, but mainly for the joy of what I do...

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#186 Post by von boberov » Sat Feb 27, 2016 18:07

I've been waiting for this all week! 80 Great job, REX! I'll keep my fingers crossed for the maiden flight.

Maybe I could describe my feelings during the maiden flight, the feelings of someone who had never done that spin throw before.

At first, I was hesitant to throw it by the wing, always imagining a boomerang spinning out of control. So, for about an hour, I threw it like a javelin and got a feel for the plane's reactions. But I did it for this, to try throwing it by the wing. :oops:

And so, the first throws were very cautious for several days. Gradually, the intensity increased on its own, but at the same time, my poor throwing technique started to show. Everyone is differently skilled, but I had and still have a problem releasing it at the right time.

During the first throws, I had my thumb on the launch peg as a kind of safety against slipping, :oops: but as I started to put more effort into it, that safety didn't want to disengage in time. :lol:

Today, I throw it hanging by two fingers, but even then, it doesn't always go perfectly. MR.

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#187 Post by Majky007s » Sat Feb 27, 2016 20:02

It looks really nice, I'm impressed. I didn't want to post it here yet, but I'm also done. [Image][Image]
The flight weight with the battery, as I have it prepared, is 320g. One battery weighs 20g, and I haven't balanced it yet, so the final weight will be decided there—whether it will be 300g or 320g. Otherwise, I envy your beautiful colors. The bottom, as it's varnished with colored varnish, has some mottling—some places absorbed more color, some less. Otherwise, I have tissue covering and 3 layers of varnish.

REX

Posts: 1555

Registered: Mon Aug 15, 2011 21:54

Location: Náchod—nearby

#188 Post by REX » Sun Feb 28, 2016 10:41

Regarding the throwing... I also think that first I'll "test fly" it just by throwing it like a javelin... a few times, we'll see. 8)

But I do have some experience with the spin throw. Although it's with a powered glider, MiniTornado II, a structural build, it doesn't have a peg in the wing, but since I was afraid to throw it by the fuselage (motor and propeller at the back), I just grabbed it by the stiff covering at the end of the left wing and throw it with half throttle into the air from the spin. :mrgreen:

I fly as best as I can, but mainly for the joy of what I do...

REX

Posts: 1555

Registered: Mon Aug 15, 2011 21:54

Location: Náchod—nearby

#189 Post by REX » Sun Feb 28, 2016 10:42

I also wanted to ask, do you address lateral balance? Of course, the side with the peg is a bit heavier...

I fly as best as I can, but mainly for the joy of what I do...

User avatar

robin

Posts: 215

Registered: Tue Mar 09, 2010 00:00

Location: Gbelany near Žilina
Contact user: Contact user robin

#190 Post by robin » Mon Feb 29, 2016 19:15

We don't address it. 8)

The wing twist has a greater influence on flight stability than the slight difference in weight between the two wing halves.

User avatar
Becker
Posts: 192
Registered: Sat Dec 04, 2004 00:00
Location: Třebechovice pod Orebem
Contact user: Contact user Becker

#191 Post by Becker » Mon Feb 29, 2016 21:44

I do address it. :D But only after the maiden flight.

User avatar
robin
Posts: 215
Registered: Tue Mar 09, 2010 00:00
Location: Gbelany near Žilina
Contact user: Contact user robin

#192 Post by robin » Tue Mar 01, 2016 08:40

Agreed. :wink:

REX
Posts: 1555
Registered: Mon Aug 15, 2011 21:54
Location: Náchod—nearby

#193 Post by REX » Tue Mar 01, 2016 19:16

I'm glad for similar answers; I'll address it when it flies, then if necessary. :wink:

Today, I couldn't resist. I took the DLG and radio to work, beeped it there after lunch, and went to the meadow to throw it. :mrgreen: The weather was quite perfect for a maiden flight: :lol: overcast, light snow, occasionally mild wind, and 0°C... Well, I felt a bit like a madman, but I left satisfied. 8)

First, a familiarization throw straight ahead like a javelin. It flew nicely straight and quite far. I didn't fiddle much with the controls and let it land. Then I took it by the wing and whipped it! A great flight right on the first throw, and then many more followed. I was there for 20 minutes, throwing and throwing. The last few flights even ended with hand catches. It brakes nicely on the flaps and can be caught well, and the way it kind of humps up, as someone wrote, is also great. :mrgreen: :mrgreen: :mrgreen:

So I left satisfied, but with a torn fuselage like a female :lol: that orange nose came off, and landing on the frozen snow layer didn't help. The color connection didn't work, and it tore off, and during the throw and flight, it tore even more, up to half the fuselage. :mrgreen: :mrgreen: :mrgreen: I'll have to repair it and apply Balsalock under the film. The Solarfilm itself doesn't stick to balsa very well, but only in stressed areas; otherwise, it's fine...

So, just fix a few bugs, and it will be OK.

I fly as best as I can, but mainly for the joy of what I do...

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#194 Post by von boberov » Tue Mar 01, 2016 19:56

I'm really glad to read these lines. Congratulations and many happy moments while flying. It's really fun, and you get some exercise too.

Do you have it summed up what happened to you in this case? MR.

User avatar

otompotom

Posts: 290

Registered: Tue Sep 23, 2008 00:00

Location: Moravany u Holic

Contact user: Contact user otompotom

#195 Post by otompotom » Tue Mar 01, 2016 20:41

Wow, envy! I've had the ORCA ready for a long time, but I'm too lazy to go maiden it. :-D I'll have to finally get my act together after reading this. Congratulations on the maiden flight.

SIG Piper Clipped Wing - RIP Z-37A under construction, Meridian 10cc, E-Flite Timber, Prcek F3K, Orca F3K

#196 Post by lubomir » Tue Mar 01, 2016 21:40

Congratulations on the maiden flight, REX—you managed to do it before the end of February :)! Could you please tell me what the final flight weight was after adding weights to the servos and any necessary ballast? From the pictures, I see that you took quite a few measures to reduce weight (lightening holes in the tail, aileron servos in front of the center of gravity). If I were to build the ORCA again, I would choose M4 screws. I couldn't find polyamide M5 screws with a cross head, and the day before yesterday, what I had expected from the beginning happened. During careless wing disassembly, the screwdriver slipped out of the groove, and now I have a "ventilation" hole in the wing :D.

Additionally, the M5 screws from MPJet had such poorly formed threads that they were more like M5.1. And anyone who has ever tried to cut threads into polyamide knows what I'm talking about—it's a nightmare. I, on the other hand, went the route of increasing strength (just the thick-walled 3K twill tube added almost 8g behind the center of gravity). I won't even admit how much my heavyweight weighs after balancing :)!

REX

Posts: 1555

Registered: Mon Aug 15, 2011 21:54

Location: Náchod—nearby

#197 Post by REX » Tue Mar 01, 2016 22:09

Thank you all for the congratulations; I appreciate it and am glad it flies so nicely. I really enjoyed it today! :P

The maiden flight took place today, so I didn't make it in February. It's March 1st now. On one hand, I'm sorry to miss February 29th, but if I had thrown it into the air yesterday, I might never have found it again, or it would have been in many pieces due to the wind here. :lol:

So, some data: After completing and connecting all the control rods, etc., I was exactly at 300 grams and slightly behind the center of gravity. I added 14g to the nose, so today's flight weight was 314 grams. But I have some reservations; it seems too heavy at the front, so I'll see what happens... Additionally, I'll shorten some servo cables inside the fuselage, and that will save another gram or two. It's necessary to save weight wherever possible and not make a tank out of it; it's only a 300-gram DLG after all.

Also, regarding the screw mounting of the wing, I have M4 polyamide!!! And it holds even with a fairly strong throw. For the tail, M2 polyamide would probably suffice. I don't know about others, but for mounting the tail, I cut threads into 2mm plywood and used polyamide screws from Humpolec that I had at home. :wink:

During flight and landing on hard ground (today, frozen snow), the bottom of the rudder suffered a lot. The covering cracked on one side in the lower lightening hole of the fixed part, and during the next throw, I heard a strange sound as the cracked covering flapped. I only identified it later at home. The tip is holding up quite well, and if the covering hadn't come off, I wouldn't be dealing with it. But since the covering is off, I'll laminate it from below and the front. I have 20g fabric at home, so I'll cover it with that. I also reinforced the central six ribs of the wing in the same way. Since I know there's weight in the tip and I saw a few harder landings on the tip today, I'll feel more at ease. :8) And before covering everything at the front, I'll properly coat it with Balsalock; there's no need to save there.

[Image: P3013790.JPG]

I fly as best as I can, but mainly for the joy of what I do...

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#198 Post by Majky007s » Thu Mar 03, 2016 16:02

So, I finally finished the ORCA 100%. It's ready for flight and set up in the radio. [Image] The total weight [Image]—I used the batteries someone here mentioned, Turnigy 1000, and put two in series for the servos. The covering is, as I said, tissue with 3 layers of varnish. I'm happy with the weight; it's my first structural aircraft. The center of gravity is 5mm further back, but I'll see if that's a problem during the maiden flight.

REX

Posts: 1555

Registered: Mon Aug 15, 2011 21:54

Location: Náchod—nearby

#199 Post by REX » Thu Mar 03, 2016 19:10

...Now you just need to get up the courage and throw it! :wink: Today around noon, the weather was quite nice again. :mrgreen:

Otherwise, the weight seems very good to me, and regarding the center of gravity: I balanced it exactly to the specified position, but it seems heavy on the nose to me, so I would almost say that 5mm further back might be just right... Then let me know if you had to add any more weight, and when I cover and maiden it again, I'll see if we agree. :mrgreen:

I fly as best as I can, but mainly for the joy of what I do...

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#200 Post by Majky007s » Thu Mar 03, 2016 19:16

Well, I was thinking about whether to go in the afternoon around 3. The weather was quite nice here too, but I haven't gotten up the courage yet. But to start, I'll begin with the javelin method slowly.

User avatar

robin

Posts: 215

Registered: Tue Mar 09, 2010 00:00

Location: Gbelany near Žilina

Contact user: Contact user robin

#201 Post by robin » Thu Mar 03, 2016 19:39

Listen, guys. Don't be afraid of the spin throw. :roll:

Sure, the first 1-2 times you should throw it by hand to see if it flies straight, but then from the spin. Feel free to do it more gently, with feeling—but even then, you'll get it to a greater height, and the flights will be safer than if you keep scraping it along the ground or snow. Not to mention saving your shoulder and gaining skills.

And the center of gravity on the DLG is adjusted precisely based on how it behaves after the throw. If it climbs into a loop, move the center of gravity back. Ideally, it should climb slightly upward.

Also, during the throw, you can tell if the wing is twisted or if the rudder is glued crookedly. Just be careful not to try to throw it upward—that's how you ask for a ground scrape. The spin should be done basically in a plane, and the plane will naturally generate lift for upward flight. It can also happen that you'll stall it—but you'll get a feel for that over time.

So, I wish you lots of courage and go for it! :)

REX

Posts: 1555

Registered: Mon Aug 15, 2011 21:54

Location: Náchod—nearby

#202 Post by REX » Thu Mar 03, 2016 20:54

Exactly, don't be afraid of it. I also threw it straight ahead by the fuselage once, and the second throw was already from the spin by the peg, and it was great. :8) But I haven't gotten anywhere near tuning the center of gravity as Robin writes. After all, I'm still a beginner in this category. :wink: And every piece of advice is valuable to me...

I fly as best as I can, but mainly for the joy of what I do...

REX

Posts: 1555

Registered: Mon Aug 15, 2011 21:54

Location: Náchod—nearby

#203 Post by REX » Sun Mar 06, 2016 21:31

Anyone have something new? Has Majky007s thrown it yet?

After repairing the front covering and making minor adjustments to the electrical installation in the fuselage, I was there around 5 PM today, and the weather was great for a flight again... I had a nice flight, although briefly—I had some other obligations, so it was only half an hour. :lol:

Otherwise, after redoing the covering and shortening the wires in the fuselage, my flight weight dropped to 312 grams. :8)

And here it is on RCAIbum: ORCA on RCAIbum

I fly as best as I can, but mainly for the joy of what I do...

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#204 Post by Majky007s » Sun Mar 06, 2016 21:35

I didn't go to throw. I was flying on Friday and today, but I haven't flown much over the winter, so it was more like practice for me. :-D I have the whole weekend night shifts, so there wasn't much time in the afternoon either. Who knows how much. I definitely have tomorrow off, so if the weather is at least similar to today, I'll go throw it.

jjrivfr

Posts: 10

Registered: Thu Nov 12, 2015 12:55

#205 Post by jjrivfr » Fri Mar 11, 2016 20:46

So, I've become another proud owner of ORCA laser-cut parts. With this, I thank von boberov and tks for their willingness and helpfulness. It's great; the parts look awesome. Now I just need a bit of time to build it.

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#206 Post by von boberov » Fri Mar 11, 2016 20:53

Great. I wish you much success in building and hope you'll show off your progress later. :80 MR.

lubomir

Posts: 24

Registered: Sun Nov 29, 2015 17:25

#207 Post by lubomir » Sat Mar 12, 2016 10:20

So, on Wednesday, my ORCA was finally in the air. I took advantage of the exceptionally favorable weather for testing. No wind, +4°C, and overcast. I only tried gliding on a flat surface, and when this turned out to be extremely successful, I caught my son, who was returning from the technical inspection near the airfield. The first spin throw ended with a recovery from a stall due to loss of speed (my son hadn't been at the airfield since autumn), but the second throw already gave about a 50-second flight. After another start, my son had to leave for work (to earn money for my pension :)). Simply put... I am extremely satisfied. Despite the fact that the flight weight after balancing came out to 376g, I am extremely satisfied with the flight performance. After all, I don't intend to compete, and nothing is more suitable for relaxation. Occasionally, I'll describe why the weight turned out higher, or maybe post some photos. Simply put—I went more for higher mechanical strength.

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#208 Post by von boberov » Sat Mar 12, 2016 11:01

Congratulations on the successful build! :wink: True, the weight is a bit higher, but thank you for not hiding it and writing that it still flies somehow. Happy landings. MR.

lubomir

Posts: 24

Registered: Sun Nov 29, 2015 17:25

#209 Post by lubomir » Sat Mar 12, 2016 12:15

text

Copy

von boberov wrote:

Congratulations on the successful build! \:wink: True, the weight is a bit higher, but thank you for not hiding it and writing that it still flies somehow. Happy landings. MR.

Not "somehow"—it flies beautifully. As someone raised on F1A, I was thrilled. For some reason, models that have to fly constantly "under power" never really appealed to me. Now that I've grown a belly to rest my RC transmitter on, I'll at most allow an RC electric glider, since there's hardly any place left where I could (and would be allowed to) fly a free-flight model. So, even at that flight weight, it's still closer to the wing loading of F1A.

REX

Posts: 1555

Registered: Mon Aug 15, 2011 21:54

Location: Náchod—nearby

#210 Post by REX » Thu Mar 17, 2016 18:53

How about the others? Are you flying, building?

I went flying again today after a longer break. About a week ago, I picked out a slope and waited for the wind to blow in the right direction. :lol: But it hardly blew even at 3 PM, which is quite unusual for us.

But I went, and it was blowing mildly on the hill, so I threw it... It flew great, held up well in the air, and I even found a spot where it climbed nicely and managed a few multi-minute flights. :mrgreen: So, my first experience with slope flying was excellent, though I'm a bit afraid when it blows harder. :?

Otherwise, I also had a moment of confusion when I lost orientation at a greater distance. I thought the DLG was turning right, but it was turning left. :evil: Good thing I had enough altitude!

I also timed my last flight with the transmitter and got almost 5 minutes without a few seconds. :P I'm satisfied and looking forward to when it starts lifting even more and when I get the DLG even more under control.

I fly as best as I can, but mainly for the joy of what I do...

#211 Post by Majky007s » Fri Mar 18, 2016 07:17

Well, I have to admit, I went to maiden it yesterday. A few javelin throws, and a buddy who flies DLGs threw it for me. After the throw, the battery probably disconnected from the receiver, and it ended up nose-first about 5 cm into the ground. I couldn't even pull it out. So, I'll glue it back together and throw it myself next time. :-D [Image][Image]

lubomir

Posts: 24

Registered: Sun Nov 29, 2015 17:25

#212 Post by lubomir » Fri Mar 18, 2016 10:52

Ouch! So, I see that I made a good choice by prioritizing strength over weight. I have the nose preventatively laminated with light fiberglass. And what about the tube? Did it hold up? Yesterday, I took advantage of the beautiful weather in Bratislava, and the ORCA was in the air for the second time. I relied on my son's experience, and it turned out extremely well. Absolute calm, no wind, no thermals (before dark). I haven't checked the height from the recording yet, but I estimate it was mostly around 25-30 meters, and flight times were 30-40 seconds. My son liked it so much that I might lose the ORCA to him :lol:. But let him (and the ORCA) enjoy it. I envy REX's slope. My ORCA would really enjoy a slope. But what can I do? There's nothing nearby where I could go. I could handle it on a slope too.

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#213 Post by Majky007s » Fri Mar 18, 2016 11:42

The cause wasn't that I shaved off weight or anything like that, but after the throw, the canopy tore off and the battery disconnected from the receiver, so all I could do was sadly watch it dive straight down. It was really a solid hit, and I was quite surprised it survived like that. So, an hour of gluing, and it's flight-ready again. The only thing I'll laminate is the little nose that holds the canopy in the front because it broke off. The only thing that didn't survive was the aileron servo, but I have a spare. ;-) I have tomorrow off, so hopefully, the weather holds, and I'll manage to fix it today so I can go with the ORCA tomorrow.

REX

Posts: 1555

Registered: Mon Aug 15, 2011 21:54

Location: Náchod—nearby

#214 Post by REX » Fri Mar 18, 2016 12:23

Oh, Majky, I would be pretty upset, and you probably aren't jumping for joy either... When I was redoing the front covering, I also laminated the entire front and especially the tip with 20g fabric. The covering isn't perfectly smooth and nice anymore, but it's reinforced, and I feel more at ease... somewhat :lol:

Lubomir: You have a typo there; those times should be in seconds :mrgreen:, but those in the know will understand. When I fly in calm conditions without external influences, I get similar times. I do have a slope, but I have to drive 2.5 km to the hill, and the wind blows in the right direction only rarely. When the sun shines, it's directly in my eyes :?. Otherwise, those crosswinds were actually two yesterday: once I lost orientation, and once I threw it directly into the sun and couldn't see anything. I just waited to see where the DLG would appear, and sure enough, it was to the right, and it ended well :P.

Today, the weather is tempting me again. It's a bit gloomy, like a haze, and the weather is supposed to change, but I probably won't have time. After all, I have other responsibilities besides models and flying. :8)

I fly as best as I can, but mainly for the joy of what I do...

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#215 Post by Majky007s » Fri Mar 18, 2016 12:35

No, I'm not thrilled about it, but what can I do? Grab it by the wing and smash it? Well, I'll fix it, and I know what to watch out for next time. Maybe I'll cover it too; we'll see. The weather is really tempting, but I'm at work until 6 today, and I don't have much time in the afternoon either. I definitely have tomorrow off, so if the weather is at least similar to today, I'll go throw it.

lubomir

Posts: 24

Registered: Sun Nov 29, 2015 17:25

#216 Post by lubomir » Fri Mar 18, 2016 13:11

:lol: :lol:. That was quite a typo. Thanks, REX. We would have been flying until morning :lol:. Even the battery wouldn't have lasted, although I was pleasantly surprised yesterday. I didn't use the originally planned 1000mAh batteries and have 2S 350mAh instead. After about 1.5 hours of flying yesterday, my charger wouldn't take it for STORAGE; I had to discharge it a bit through a light bulb, although I took it to the airfield as it came from HK (about 3.95V/cell, so in storage condition).

P.S.

I have the canopy secured with a polyamide M4 screw.

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#217 Post by Majky007s » Thu Mar 23, 2016 16:50

I've fixed everything nicely now. I covered the nose with 33g glass; the flight weight is 329.4g. Hopefully, the weather will be nice over the weekend, and I'll maiden it. Good luck with the flight!

REX

Posts: 1555

Registered: Mon Aug 15, 2011 21:54

Location: Náchod—nearby

#218 Post by REX » Thu Mar 24, 2016 18:32

text

Copy

Majky007s wrote:

I've fixed everything nicely now. I covered the nose with 33g glass; the flight weight is 329.4g. Hopefully, the weather will be nice over the weekend, and I'll maiden it. Good luck with the flight!

Then report back! :mrgreen:

I fly as best as I can, but mainly for the joy of what I do...

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#219 Post by Majky007s » Sun Mar 27, 2016 20:09

Okay, I went flying today. It was quite windy, so I flew my BETA around six o'clock when the wind calmed down. Then I took out the ORCA, and it was absolutely great. I didn't dare to do a spin throw yet, but I did a good maiden flight. It will take some practice, but I'm completely satisfied :-)

User avatar
otompotom
Posts: 290
Registered: Tue Sep 23, 2008 00:00
Location: Moravany u Holic
Contact user: Contact user otompotom

#220 Post by otompotom » Thu Mar 31, 2016 18:36

Hi, I finally got up the courage and went to throw it today. First, like a javelin, but it veered a lot to the left. So I trimmed it. By the second throw, I smashed the nose [emoji1], but not so badly that it couldn't continue.

Then it was time for the spin throw. So, 3 throws, two bad ones—I put too much into it. The third one was good. But after landing, the rudder broke off. So that was the end of it.

This is how it all ended up.

LIKE THIS

and

LIKE THIS

But it's great. I'll fix it and keep going.

Majky007s
Posts: 343
Registered: Thu Mar 05, 2015 12:59
Location: Jedlová u Poličky

#221 Post by Majky007s » Thu Mar 31, 2016 19:14

Great, another one! :-) You need to learn how to handle it. I know the feeling; if you have fabric, laminate it :-D. It's really better. When I was last with the DLG, some landings were scary, but the nose is fine.

User avatar
otompotom
Posts: 290
Registered: Tue Sep 23, 2008 00:00
Location: Moravany u Holic
Contact user: Contact user otompotom

#222 Post by otompotom » Fri Apr 01, 2016 21:10

Hi,

So, last night I fixed it and laminated it.

And today, it was great—17 meters high and about 30 seconds in the air :-D.

I still need to learn how to land it towards myself or better yet, into my hand, so I don't have to walk so much :-D.

It doesn't have a flaw!!!

Well, a small one—after the throw, it veers a lot to the left. After correcting, it flies straight. Do you know what could be causing this?

Majky007s
Posts: 343
Registered: Thu Mar 05, 2015 12:59
Location: Jedlová u Poličky

#223 Post by Majky007s » Sat Apr 02, 2016 04:05

Could you have a weak servo on the rudder? That would explain it, or maybe the rudder could be bent?

User avatar

otompotom

Posts: 290

Registered: Tue Sep 23, 2008 00:00

Location: Moravany u Holic

Contact user: Contact user otompotom

#224 Post by otompotom » Sun Apr 03, 2016 20:15

Today, a light test after the repair.

Today, just to be sure, the tube cracked when I hit the rudder on a furrow.

It's cracked about 40mm. So, I'm thinking about how to fix it without significantly increasing the tail weight.

It still veers a lot to the left after the throw, but it looks like I'm stalling it.

And I also found out that my rudder servo might be skipping. So, I'll try some metal ones.

Otherwise, it's great.

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#225 Post by von boberov » Sun Apr 03, 2016 20:30

Hi. Currently, I'm also changing all the servos—well, I'm waiting for them to arrive from China. I also repaired a tube by pulling a single strand from fiberglass fabric, lightly coating the tube with epoxy (chs 1200) with my finger, wrapping it with the strand, and then wrapping it with electrician's tape. After it hardened, the tape came off, and it was a fairly smooth repair. MR.

[Image: IMG_20160403_202839.jpg]

#226 Post by Majky007s » Mon Apr 04, 2016 20:41

So, gentlemen, today I tried the spin throw, and it's an absolutely amazing thing—it glides really well. I even experimented a bit with the brakes, elevator control, etc., and it's quite well set up now. The rudder got a bit loose on the screws—my clumsy landings are to blame—and I managed to break the horizontal stabilizer along with the rudder. So, I'll probably reinforce it with a carbon strip. The only feeling I have from this is that I've found a new addiction.

pavel1tu

Posts: 198

Registered: Fri Aug 21, 2015 16:22

Location: Trutnov

#227 Post by pavel1tu » Mon Apr 04, 2016 21:28

Hello, nice toy :-).

Do you cut everything yourself, or can you get it as a partial kit?

Thanks,

Trutnov, X9D+

EasyPeasy, RELAX II, Vektor XXL, 4ptéra 250ka
Šohaj (building)

Majky007s
Posts: 343
Registered: Thu Mar 05, 2015 12:59
Location: Jedlová u Poličky

#228 Post by Majky007s » Mon Apr 04, 2016 21:36
TKS laser-cut them for me. He had the data from the designer, so you can try writing to him. All the balsa and plywood parts were included, and the plan is available in RC Revue, I think.

User avatar
Imra
Posts: 18
Registered: Mon Feb 27, 2012 22:00
Location: Žabčice

#229 Post by Imra » Tue Apr 05, 2016 07:19
Hello.
I couldn't resist either. The laser-cut parts from TKS are already at home (great work), the plan from RC Revue has also arrived, and today I ordered some carbon and small parts. Now I just need to find the time and get to work. Imra

User avatar
pheek
Posts: 725
Registered: Sat Jan 04, 2014 21:54
Location: Přeřov, Czech Republic
Contact user: Contact user pheek

#230 Post by pheek » Tue Apr 05, 2016 07:52
When can we see some video of how it flies for you? :-)
LOGO 550 SX - Brain // SAB Goblin 380 - Brain // HELI-X V6

Majky007s
Posts: 343
Registered: Thu Mar 05, 2015 12:59
Location: Jedlová u Poličky

#231 Post by Majky007s » Sun May 08, 2016 11:08
Hello, gentlemen. The servos in my wing have died again. They are these: HobbyKing servos. They are really great, but a few hard landings are enough, and they stop holding center. So, I was thinking of putting quality servos in there. I could either go with Dymond D60s or I was looking at these: Kostka Model Centrum servos. What do you think? What servos are you using?

Majky007s
Posts: 343
Registered: Thu Mar 05, 2015 12:59
Location: Jedlová u Poličky

#232 Post by Majky007s » Wed May 11, 2016 06:44

Video Here is some video of how it flies. I know it's not very good, so I welcome any advice. Otherwise, I chose Dymond D60s for the wings, so hopefully, if time allows, I'll install them today and maybe even test them. I might also need to replace the servos on the horizontal and vertical stabilizers, but I'll leave that for now. I want to try making the horizontal and vertical stabilizers laminated with Depron, so we'll see how good that turns out.

REX

Posts: 1555

Registered: Mon Aug 15, 2011 21:54

Location: Náchod—nearby

#233 Post by REX » Wed May 11, 2016 12:23

I have these in my DLG and am satisfied with them, powered by 2S:

Horejši servos

I fly as best as I can, but mainly for the joy of what I do...

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#234 Post by Majky007s » Wed May 11, 2016 13:00

Hmm, I don't know. I had them too, and three of them died in no time.

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#235 Post by von boberov » Sun May 22, 2016 08:54

Hi. Yesterday, I managed to record a few throws with the help of thermals on my camera (SJ4000 on my cap). I selected some clips from about an hour of footage. Since I don't throw it very high, I catch such small thermal bubbles :lol:. But it still brings joy. MR.

[youtube]https://www.youtube.com/watch?v=BIGH_nLxGkc[/youtube]

User avatar

ellet

Posts: 2401

Registered: Fri Feb 12, 2016 11:37

Location: Vysočina, Czech Republic

#236 Post by ellet » Sun May 22, 2016 09:20

text

Copy

von boberov wrote:

Hi. Yesterday, I managed to record a few throws with the help of thermals on my camera...

Really nice. I don't have anything like that, but I wouldn't have expected this yesterday either (I was nearby). So (:D thanks to hidden alcoholism :D) we have a nice video.

User avatar

Staifus

Posts: 531

Registered: Wed Dec 07, 2011 15:03

Location: Plzeň

Contact user: Contact user Staifus

#237 Post by Staifus » Fri Jun 03, 2016 16:22

You've really got me hooked... I already have the plan from RC Revue at home, and I arranged for the laser-cut parts today. Now my first build in life will begin :-).

User avatar

Staifus

Posts: 531

Registered: Wed Dec 07, 2011 15:03

Location: Plzeň

Contact user: Contact user Staifus

#238 Post by Staifus » Thu Jun 09, 2016 11:41

Hi, I want to start working on it today. I have the plan and the divine laser-cut parts (thanks!) at home. I'm studying everything, and the only thing I don't know is how to handle the wing and dihedral. Whether to bend the connecting wires into the tubes for the dihedral and build it straight or make two halves and then (how?) join them. Thanks for the advice and any photos on how to do it. I'm leaning towards building each half calmly on a flat surface and then joining them. Are the connecting wires also inserted into the tubes?

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#239 Post by Majky007s » Thu Jun 09, 2016 14:23

Yes, build the halves and insert the wires into the tubes. Bending is a bit of a hassle, but it's manageable ;-).

User avatar

Staifus

Posts: 531

Registered: Wed Dec 07, 2011 15:03

Location: Plzeň

Contact user: Contact user Staifus

#240 Post by Staifus » Mon Jun 13, 2016 09:11

Thanks, the laser-cut parts made it easier. I'm curious to see what I've done wrong as I go along :-).

Attachments:

[Image: 13410341_10206395254108929_2140966219_o.jpg]

[Image: 13445904_10206395253828922_1319336088_o.jpg]

#241 Post by PeePoTN » Tue Jun 14, 2016 09:03

By the way, Majky007s, don't you have some big play in the rudder since it behaves so strangely during the throw, as seen in the video? I have the same issue with one of my DLGs, and it's because there's play in the servo, and it doesn't hold the rudder straight. The rudder gets slightly deflected by the forces during the spin, and the DLG doesn't fly straight and can't be thrown properly. What servo do you have there?

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#242 Post by Majky007s » Tue Jun 14, 2016 09:12

Well, the servo I have there is a 5g one, but it's more likely that when I was filming those videos, the horizontal stabilizer fell off afterward. I glued it with laminating epoxy, so there might have been some play, but otherwise, I should probably put in a 9g servo, but for now, I don't care about that :-D.

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#243 Post by Majky007s » Tue Jun 14, 2016 09:18

Otherwise, Staifus, personally, I would place the launch peg closer to the end of the wing. I have a bit of a problem with how deep it is, and if I don't carefully ensure I'm holding it properly, it slips out of my hand during the throw. Last time, I threw my ORCA into the ground, and the nose was in several pieces.

User avatar

PeePoTN

Posts: 481

Registered: Wed Dec 05, 2007 00:00

Location: Trenčín

Contact user: Contact user PeePoTN

#244 Post by PeePoTN » Tue Jun 14, 2016 11:21

I just got a servo for the rudder for my JJEde. The old servo, some small Hitec, had a lot of play.

Attachments:

[Image: IMAG0983.jpg]

User avatar

otompotom

Posts: 290

Registered: Tue Sep 23, 2008 00:00

Location: Moravany u Holic

Contact user: Contact user otompotom

#245 Post by otompotom » Tue Jun 14, 2016 11:26

text

Copy

PeePoTN wrote:

I just got a servo for the rudder for my JJEde. The old servo, some small Hitec, had a lot of play.

Hi, I also have a JEdge with a non-original wing and a fixed rudder. Did you modify it, or does it already come with a movable rudder from the factory? If you modified it, could you describe how?

Thanks.

Sent from my LG-D802 and I'll remove the signature.

SIG Piper Clipped Wing - RIP Z-37A under construction, Meridian 10cc, E-Flite Timber, Prcek F3K, Orca F3K

User avatar

PeePoTN

Posts: 481

Registered: Wed Dec 05, 2007 00:00

Location: Trenčín

Contact user: Contact user PeePoTN

#246 Post by PeePoTN » Tue Jun 14, 2016 12:02

That probably isn't the original rudder I have on it, and if you have the original non-controllable one, you can't modify it to be controllable. There's probably fabric missing that serves as a hinge. I don't know, maybe you have it, and you just need to cut a groove.

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#247 Post by Majky007s » Tue Jun 14, 2016 17:42

Well, what if you split it, sand a cutout so it can move, and then glue it back together with tape?

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#248 Post by von boberov » Sun Nov 13, 2016 09:24

Hi. Maybe it's a silly idea, but he who plays doesn't misbehave. In the coming weeks, I'll attempt to make a pylon for the ORCA :oops:.

I don't want to use it extensively, as that would defeat the purpose of a DLG :{.

I don't want to interfere with the ORCA's equipment and setup, and since it has a 4K receiver, the pylon will have its own motor, battery, ESC, and even its own receiver :?:

Well, I'll see how it affects the flight characteristics :wink:.

For now, a few PC images, just a rough idea :arrow:.

[Image: pylon Orca2.jpg]

[Image: pylon Orca.jpg]

[Image: pylon Orca3.jpg]

MR.

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#249 Post by von boberov » Tue Nov 15, 2016 18:30

Hi. I'm continuing with the idea :wink:.

The parts are cut out:

[Image: IMG_20161115_100027.jpg]

I glued it together and varnished it:

[Image: IMG_20161115_172849.jpg]

[Image: IMG_20161115_172903.jpg]

I'll install it tomorrow. The motor will be a 16g Hextronik:

[Image: IMG_20161115_172946.jpg]

MR.

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#250 Post by von boberov » Wed Nov 16, 2016 19:56

Hi. Well, it's installed and powered up. Although the motor isn't intended for this :oops:, it's running on a 3S LiPo 450mAh. The propeller is smaller, about 5x3. This setup has been tested by RiMr on his Fling model. It's quite a decent fan :lol:, I'll go test it tomorrow :) Unfortunately, it's raining and foggy in the highlands, or whatever it is :cry:. Oh, the whole thing weighs 95g.

[Image: IMG_20161116_194259.jpg]

[Image: IMG_20161116_194241.jpg]

MR.

[youtube][https://www.youtube.com/watch?v=CrbozrmQEHk\[/youtube\]](https://www.youtube.com/watch?v=CrbozrmQEHk[/youtube])

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#251 Post by von boberov » Thu Nov 17, 2016 18:36

Hi. Unfortunately, it's foggy today :cry:, but I couldn't resist and tested a ground-level flight :lol:. Of course, the extra 100g is noticeable, but you can still mess around with it a bit differently. Whether it still glides, I don't know :oops:, it was foggy, and I didn't have the motor brake activated :roll:.

For potential followers, a PDF with a sketch and a bit of video. Happy flying. MR. :arrow:

[pylon Orca2016-2.pdf]

(103.08 KiB) Downloaded 266 times

[youtube][https://www.youtube.com/watch?v=WK3VejnOZ_s\[/youtube\]](https://www.youtube.com/watch?v=WK3VejnOZ_s[/youtube])

REX

Posts: 1555

Registered: Mon Aug 15, 2011 21:54

Location: Náchod—nearby

#252 Post by REX » Sun Nov 20, 2016 21:36

I was waiting for someone to come up with this, but I didn't expect such a clean solution that allows the ORCA to be easily used as a DLG again. I like that.

Honestly, I also thought about motorizing it, but I wanted to put a small electric motor in the nose. I would have to cut the tip to have somewhere to screw the motor, and that would be an irreversible modification. On the other hand, I have space for a small ESC in the fuselage, and I power the onboard system with a 2S LiPo 400mAh, which would be enough for propulsion, so no further modifications or

problems. The ballast would also roughly work out, or I would have to move about 6g of lead from the nose to the back, so the increase in flight weight would be up to 20 grams in my case...
But currently, I'm hardly flying or building; I'm experiencing a modeler's burnout :(.
I fly as best as I can, but mainly for the joy of what I do...

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#253 Post by von boberov » Sat Nov 26, 2016 20:22

Hi. I'll chime in again :wink:.

To REX, I have a similar burnout syndrome like you :oops:. I have to force myself into everything, and that's why only the pylon was created, not the entire fuselage as originally planned :cry:.

Your solution would definitely be more flyable, but on the other hand, this pylon can be used on most DLGs with minor modifications.

I didn't want to cut off the tip of the model myself because, knowing me, if I knew there was a motor there, I would stop being a thermal bubble hunter.

I've flown it a few times in recent days. I tested 5x3 and 5x4.3 propellers, the latter created by cutting down an 8x4.3 GWS. The cut-down one is clearly better. It gives it a climb rate of about 2m/s. With my battery, about 5 minutes of motorized flight are available, roughly 6 times I can climb to 100m+.

The model is loaded, it penetrates even in fresher wind, and it still glides reasonably well, but of course, that lump above the fuselage does brake it.

Rather than chasing thermals with it, I find it more suitable to fly it in the evening in calm conditions.

You can do rolls :roll:, spins, and inverted flight. Once it gets going, it whistles solidly. I'm adding a picture of the times on the transmitter after the last flight. One time is motor runtime, the other is flight time. If I come across suitable weather again, there will be a video. So, for now. MR.

[Image: IMG_20161122_092908.jpg]

[Image: IMG_20161122_092811.jpg]

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#254 Post by von boberov » Sat Dec 03, 2016 19:19

The promised video.

Today was beautiful, so my son and I had a great time on the meadow behind the house :lol:. It was fun :wink:.

[youtube]https://www.youtube.com/watch?v=ame_HwmewFU[/youtube]

User avatar

robin

Posts: 215

Registered: Tue Mar 09, 2010 00:00

Location: Gbelany near Žilina

Contact user: Contact user robin

#255 Post by robin » Mon Dec 12, 2016 22:50

Listen—while I admit that if someone wants to tinker, something like the ORCA with a pylon and motor can result from it.

Frankly, without the motor, you probably won't get much out of the ORCA.
I'm just afraid that it has little in common with DLG anymore. :roll:

#256 Post by rošťá » Wed Dec 14, 2016 21:39

Hi Robo,

But isn't this model-making, or have you already forgotten???????????

Rošťa

User avatar

robin

Posts: 215

Registered: Tue Mar 09, 2010 00:00

Location: Gbelany near Žilina

Contact user: Contact user robin

#257 Post by robin » Thu Dec 15, 2016 16:12

It is model-making, and great model-making at that—after all, that's what I wrote.

It's just that the throwing part is worse.

This category is quite ungrateful to everyone who wants to build a DLG themselves.

I know what I'm talking about—those models with structural wings don't have the necessary properties (weight, strength, stiffness...) to even come close to flying with modern DLGs. First and foremost, they can't be thrown properly—and then what? Well, then it's only compensated by slope flying or adding a motor, which moves the whole thing somewhere else.

Unfortunately.

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#258 Post by von boberov » Thu Dec 15, 2016 17:28

Yes, it's as robin says :oops:. About two years before I built the contraption called ORCA, I visited an F3K competition in Přebyslav. That's why I know that real DLGs fly differently. That's also why I wrote the magazine article to make it clear that this is in no way a competition machine or something for flying among people :lol:.

ORCA actually came about like this: I wanted to do something without investing too much. I had already built an aerobatic model, a large glider, and a recreational motor glider, so I thought I'd try a DLG. And that was it.

The same goes for the pylon—I wanted to doodle something on the PC so I wouldn't forget it, but not a whole airplane, because there are already enough of those at home. So that's how it is. Happy holidays to all of us who are celebrating. :D MR. :wink:

Attachments:

[Orca text 2016.rar]

(965.33 KiB) Downloaded 456 times

REX

Posts: 1555

Registered: Mon Aug 15, 2011 21:54

Location: Náchod—nearby

#259 Post by REX » Thu Dec 15, 2016 21:10

For me... I built the ORCA because I liked the article in the magazine and thought, "I like this, I'll try it." It was uncharted territory because I had never needed so much carbon for my own build before :lol:, and I didn't really know how to handle and fly a DLG :wink:.

And the result in my case? I think I had a great time building it, I had a blast flying and especially throwing it, I learned something new again, and I'm satisfied!!! That it has poor flight performance? So what?! The main thing is that I built it myself, it flies well enough for my taste, and it didn't cost a fortune like top-of-the-line models... Everyone has to set their own standards and priorities and stick to them.

I fly as best as I can, but mainly for the joy of what I do...

User avatar

montykh

Posts: 253

Registered: Fri Feb 19, 2016 11:22

Location: Kutná Hora

Contact user: Contact user montykh

#260 Post by montykh » Sat Feb 18, 2017 19:00

Gentlemen, do you know who has the laser-cut parts for this? I'd like to build one...

LionE, 5" Mefisto, 3" Meffie, Taranis T9, X7

Vaccc

Posts: 284

Registered: Sat Aug 22, 2015 09:34

Location: Ostrava/Vsetín/Brno

#261 Post by Vaccc » Sat Feb 18, 2017 20:13

Tomáš Kupčák: Rozsyp.cz

User avatar

montykh

Posts: 253

Registered: Fri Feb 19, 2016 11:22

Location: Kutná Hora

Contact user: Contact user montykh

#262 Post by montykh » Sun Feb 19, 2017 14:37

Thanks a lot. I've already written to him.

LionE, 5" Mefisto, 3" Meffie, Taranis T9, X7

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#263 Post by von boberov » Tue Mar 14, 2017 11:44

Hi. The first video of this year with the ORCA :arrow:

[youtube]<https://www.youtube.com/watch?v=zNkcn6pHnbc>[/youtube]

User avatar
montykh
Posts: 253
Registered: Fri Feb 19, 2016 11:22
Location: Kutná Hora
Contact user: Contact user montykh

#264 Post by montykh » Sat Apr 15, 2017 17:16
Guys, what should I use to attach the flaps to the control surfaces?
What commonly available tapes do you use for this?
LionE, 5" Mefisto, 3" Meffie, Taranis T9, X7

User avatar
matyaso
Posts: 35
Registered: Tue Jan 13, 2015 17:51
Location: Pyšely
Contact user: Contact user matyaso

#265 Post by matyaso » Sat Apr 15, 2017 20:12
text
Copy
montykh wrote:
Guys, what should I use to attach the flaps to the control surfaces?

What commonly available tapes do you use for this?
I recommend 3M Scotch Crystal adhesive tape.
matyaso.cz

REX
Posts: 1555
Registered: Mon Aug 15, 2011 21:54
Location: Náchod—nearby

#266 Post by REX » Sat Apr 15, 2017 20:58
text
Copy
montykh wrote:
Guys, what should I use to attach the flaps to the control surfaces?

What commonly available tapes do you use for this?
Well, I opened a drawer in the kitchen at home and found some ordinary transparent tape, so I used that. I didn't look for any science in it, and it works :lol:
I fly as best as I can, but mainly for the joy of what I do...

User avatar
dodoph
Posts: 122
Registered: Thu Feb 10, 2011 00:00
Location: Královice u Slaného

Contact user: Contact user dodoph

#267 Post by dodoph » Thu Jan 11, 2018 17:54

Hi, I got an unbuilt ORCA, but I don't know where the center of gravity is... Can anyone advise?
FrSky TARANIS X9D Plus / Flysky FS-GT3C
SWIFT IIASW28Defender Truggy-Axial SCX10Boat Carina*

Majky007s

Posts: 343

Registered: Thu Mar 05, 2015 12:59

Location: Jedlová u Poličky

#268 Post by Majky007s » Fri Jan 12, 2018 16:39

Hi, I found the plan here :-)

[Image: IMG_3608.JPG]

[Image: IMG_3609.JPG]

Majko 2002

Posts: 10

Registered: Mon Aug 14, 2017 12:58

Location: Bratislava - Podunajské Biskupice

#269 Post by Majko 2002 » Sun Jan 21, 2018 19:05

Can I ask something about this F3K DLG, please?

How much did the materials and electronics cost in euros or CZK?

Because I would like to make a DLG like this too.

Thank you.

Majko 2002

Posts: 10

Registered: Mon Aug 14, 2017 12:58

Location: Bratislava - Podunajské Biskupice

#270 Post by Majko 2002 » Sun Jan 21, 2018 20:10

Where and how should I get the ORCA kit, and how much does it cost, please?

Thanks.

#271 Post by Majky007s » Sun Jan 21, 2018 21:18

Read the entire thread from the beginning. That way, you'll find out what equipment people are using, and you can calculate how much the equipment will cost you. You'll also find out who makes the laser-cut parts here and where you can buy the plan, and I think you'll even find the prices for the laser-cut parts and the plan :-).

I read the whole thread when it was 15 pages long.

Majko 2002

Posts: 10

Registered: Mon Aug 14, 2017 12:58

Location: Bratislava - Podunajské Biskupice

#272 Post by Majko 2002 » Sun Jan 21, 2018 21:22

Okay. I'll read it.

Thanks for the advice.

ppt

Posts: 1

Registered: Sun Sep 02, 2018 10:22

#273 Post by ppt » Sun Sep 02, 2018 10:30

Hello :-)

After some time, I decided to try assembling an ORCA myself. I have the plan at home, and some parts are already prepared... However, I came across a question: how to join the two wing halves together. Since the wing has a dihedral in the shape of a V, the left and right triple ribs cannot touch each other with their entire surface (or did I make a mistake somewhere? :-). It seems to me that a gap will form in the lower part between the triple ribs. How did you solve this gap? Did you fill it with Epoxy 1200?

User avatar

otompotom

Posts: 290

Registered: Tue Sep 23, 2008 00:00

Location: Moravany u Holic

Contact user: Contact user otompotom

#274 Post by otompotom » Sun Sep 02, 2018 12:02

Hi, I vaguely remember that I had the small ribs cut diagonally according to the dihedral.

Then there was a minimal gap. I'll check the description to see if it's written there.

REX

Posts: 1555

Registered: Mon Aug 15, 2011 21:54

Location: Náchod—nearby

#275 Post by REX » Sun Sep 02, 2018 13:48

Is it a problem to sand the ribs in the middle before gluing so they touch the entire surface at an angle?

I think if you build the whole model, this shouldn't be a big problem to do...

I fly as best as I can, but mainly for the joy of what I do...

REX

Posts: 1555

Registered: Mon Aug 15, 2011 21:54

Location: Náchod—nearby

#276 Post by REX » Sun Sep 09, 2018 15:56

Today, my ORCA got a nose job... After the throw, it didn't respond to controls and at about a 40° angle, it nosedived into the ground until it got stuck! The fuselage under the canopy and the servo plate took the hit...

It's repairable, and the cause was probably the transmitter, which will go in for service...

Attachments:

[Image: IMG_20180909_153352.jpg]

[Image: IMG_20180909_153343.jpg]

I fly as best as I can, but mainly for the joy of what I do...

User avatar

Pavel Benda

Posts: 25

Registered: Fri Aug 15, 2008 00:00

Location: Ostrava

#277 Post by Pavel Benda » Fri Apr 26, 2019 11:40

I will buy the ORCA plan. Even if it's heavily taped, wrinkled, varnished, and punctured with pins. Ideally Ostrava and surroundings :-). Thanks.

Bought.

Thanks.

REX

Posts: 1555

Registered: Mon Aug 15, 2011 21:54

Location: Náchod—nearby

#278 Post by REX » Wed May 15, 2019 09:42

I have one like this...

Attachments:

[Image: IMG_20190515_093650.jpg]

[Image: IMG_20190515_093705.jpg]

I fly as best as I can, but mainly for the joy of what I do...

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#279 Post by von boberov » Sat Oct 26, 2019 20:12

Hi, hi. Today, I took advantage of the beautiful day to revive my thread :oops:. I must say that I haven't managed to break it until today :lol:.

With the passage of time, I conclude that it's not really great for flying, but you can get a really good workout with it :roll: :lol: :lol:.

[youtube]https://www.youtube.com/watch?v=Wz_x55Rs-HY[/youtube]

tomas_chrudim

Posts: 6

Registered: Mon Sep 23, 2019 23:18

#280 Post by tomas_chrudim » Mon Oct 28, 2019 19:36

It's great that the thread is alive and the videos are back on YouTube. The ORCA deserves it. I'm just finishing the build and will add some photos of how I handled it.

REX

Posts: 1555

Registered: Mon Aug 15, 2011 21:54

Location: Náchod—nearby

#281 Post by REX » Mon Oct 28, 2019 20:58

I still have the ORCA and occasionally take it out, but honestly, not much—it mostly just gathers dust... For me, it's not really great for flying on flat ground, but for throwing and a bit of exercise, it's perfect for having fun :).

This summer, I took it to a mild slope about a little over 1 km from my house. It was noon, the sun was shining nicely on the slope, and there was an occasional mild breeze against the slope. I threw it a few times without much success, and I was about to go home, but somehow I couldn't bring myself to leave...

I threw it and caught a beautiful thermal. I'm not good at it, but it lifted nicely in one spot. The ORCA kept getting smaller, and I got scared and aimed the nose at the ground so I wouldn't lose it ;). I don't know how long I was in the air, but it flew nicely, and if I had more time and steady nerves, it might have flown for an hour. The conditions were right for it :).

I fly as best as I can, but mainly for the joy of what I do...

tomas_chrudim

Posts: 6

Registered: Mon Sep 23, 2019 23:18

#282 Post by tomas_chrudim » Thu Oct 31, 2019 16:17

I'm done. Although a few DLGs have passed through my hands, I always got them ready-made. This time, I wanted to "do some model-making" and make one myself. Well, of course, I bought the laser-cut parts—I can't imagine cutting each rib, which are all different. The flight weight came out to 315 g, but I'll probably need to add a bit of ballast. For the tail, I used Corona digital DS633BP servos, for the ailerons, JX PDI-HV0903MG servos, the receiver is a FrSky G-RX6, and the battery is made up of four Ni-Mh 1.2/350 KAN 2/3AAA accumulators. I made the control rods from fishing line, and there are small carabiners made from steel wire on the tail. I raised the first servo in the fuselage by three millimeters so the lines wouldn't rub against each other, and at the exit from the fuselage, I glued pieces of bowden tube so the line wouldn't rub against the carbon tube. The covering is Covering Film - Transparent Yellow from HobbyKing (it's harder to work with than Oracover, but it's manageable for the price...). Now, I just need to head to the airfield...

Attachments:

[Image: DSC_0008.JPG]

[Image: DSC_0007.JPG]

[Image: DSC_0006.JPG]

[Image: DSC_0005.JPG]

[Image: DSC_0004.JPG]

[Image: DSC_0003.jpg]

[Image: DSC_0002.JPG]

[Image: DSC_0001.JPG]

tomas_chrudim

Posts: 6

Registered: Mon Sep 23, 2019 23:18

#283 Post by tomas_chrudim » Thu Oct 31, 2019 16:21

A few more photos.

Attachments:

[Image: DSC_0016.JPG]

[Image: DSC_0014.JPG]

[Image: DSC_0013.JPG]

[Image: DSC_0012.JPG]

[Image: DSC_0011.JPG]

[Image: DSC_0010.JPG]

[Image: DSC_0009.JPG]

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#284 Post by von boberov » Thu Oct 31, 2019 16:49

Great, but if you throw with your right hand, you should also modify the horizontal stabilizer linkage to the other side. It won't work like this; I had it wrong just like that :(.
Attachment:

[Image: sop.jpg] (not available)

tomas_chrudim

Posts: 6

Registered: Mon Sep 23, 2019 23:18

#285 Post by tomas_chrudim » Sun Nov 24, 2019 13:31

text

Copy

von boberov wrote:

Great, but if you throw with your right hand, you should also modify the horizontal stabilizer linkage to the other side. It won't work like this; I had it wrong just like that :(.
The attachment sop.jpg is not available.

I finally fixed it.

Attachments:

[Image: IMG_1607.jpg]

#286 Post by foulard » Tue Feb 23, 2021 16:37

Hi guys, I want to try F3K and I've chosen the ORCA. After ordering the laser-cut parts, carbon, and other materials, I realized I should have bought something ready-made, but it's too late now. So, I'll finish it, and the only thing missing is the plan. Honestly, I want to cut costs, so I don't want to order from RC Revue. Does anyone have it in a drawer? I'd pay something for it, even if it's slightly damaged. If you do, please message me. Thanks.

von boberov

Posts: 1096

Registered: Fri Jul 30, 2010 00:00

Location: Villager in the ZR district

#287 Post by von boberov » Tue Feb 23, 2021 19:08

:arrow: RC Revue Plans

foulard

Posts: 4

Registered: Thu Jan 28, 2021 11:12

#288 Post by foulard » Tue Feb 23, 2021 19:32

Great, thanks! :D
I didn't expect such a quick response.

User avatar
ellet
Posts: 2401
Registered: Fri Feb 12, 2016 11:37
Location: Vysočina, Czech Republic

#289 Post by ellet » Tue Feb 23, 2021 19:53

text

Copy

foulard wrote:

Great, thanks! \:D

I didn't expect such a quick response.

The author is a good guy! :)

foulard
Posts: 4
Registered: Thu Jan 28, 2021 11:12

#290 Post by foulard » Tue Apr 27, 2021 19:10

I finally got started on it :)

Attachments:

[Image: IMG_20210422_171536.jpg]

[Image: IMG_20210422_171526.jpg]

[Image: IMG_20210413_182437.jpg]

daniel1984
Posts: 2
Registered: Fri Dec 07, 2018 15:58

#291 Post by daniel1984 » Thu Sep 04, 2025 18:24

Another one is in the world.

Attachments:

[Image: IMG_20250904_171449.jpg]

User avatar
DAF
Posts: 9723
Registered: Tue Jan 09, 2007 00:00
Location: Prague 8
Contact user: Contact user DAF

#292 Post by DAF » Fri Sep 05, 2025 12:31

text

Copy

ellet wrote: Tue Feb 23, 2021 19:53

The author is a good guy! :)

He is, but... they (the editorial team) do it for us and need to make a living too. If the plan wasn't available, there would be no problem sending a copy. I myself have received and sent many plans that are no longer available.

foulard, where did you get the laser-cut parts for this model? Could you please send (maybe via PM) a link or contact? Thanks. I'm looking for something like this for a kid from our club.

Hitec Aurora 9X

User avatar

DAF

Posts: 9723

Registered: Tue Jan 09, 2007 00:00

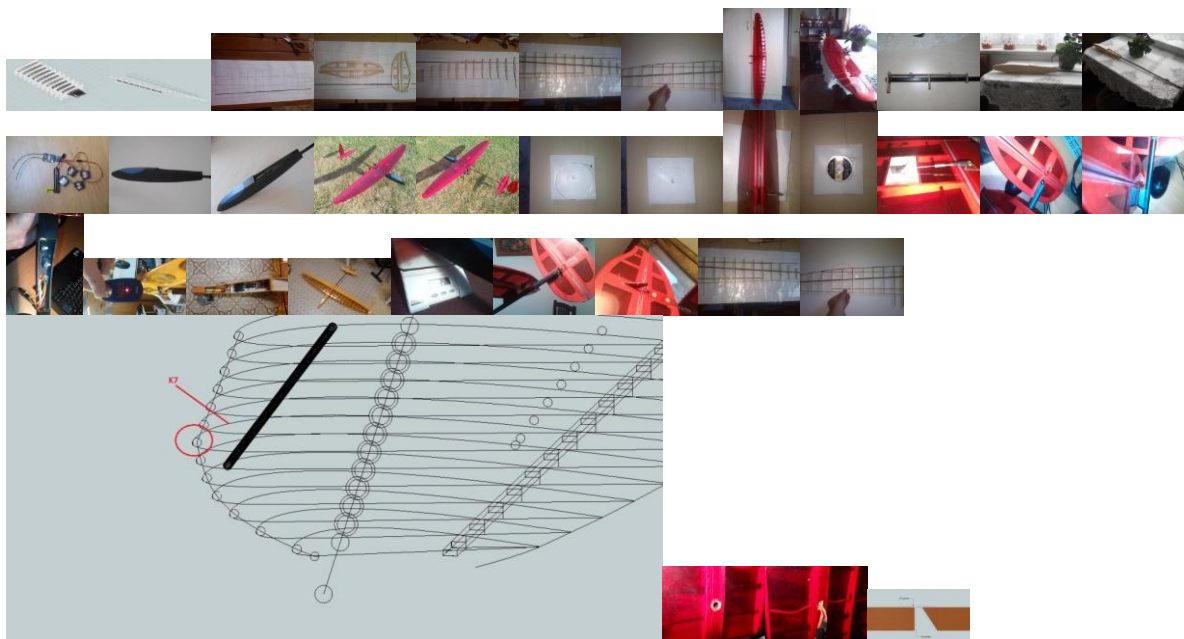
Location: Prague 8

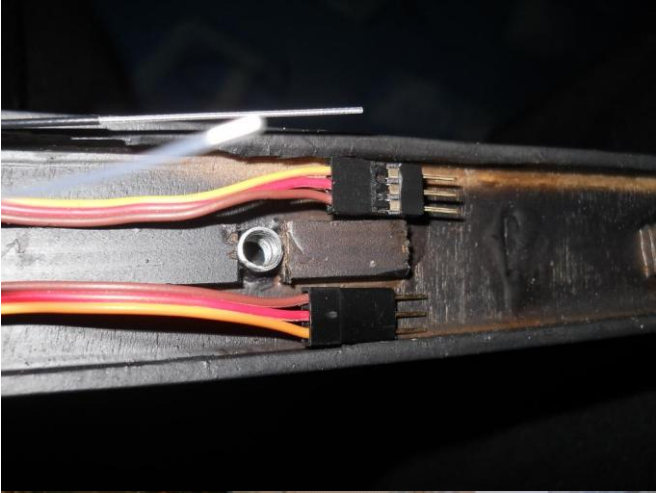
Contact user: Contact user DAF

#293 Post by DAF » Fri Sep 12, 2025 07:52

Gentlemen, thanks for the links via PM. I wrote to the manufacturer, Sticky Wood Classic Planes, and they are able and willing to supply the parts. Peter, sorry, apparently DLG is more suitable.

Hitec Aurora 9X

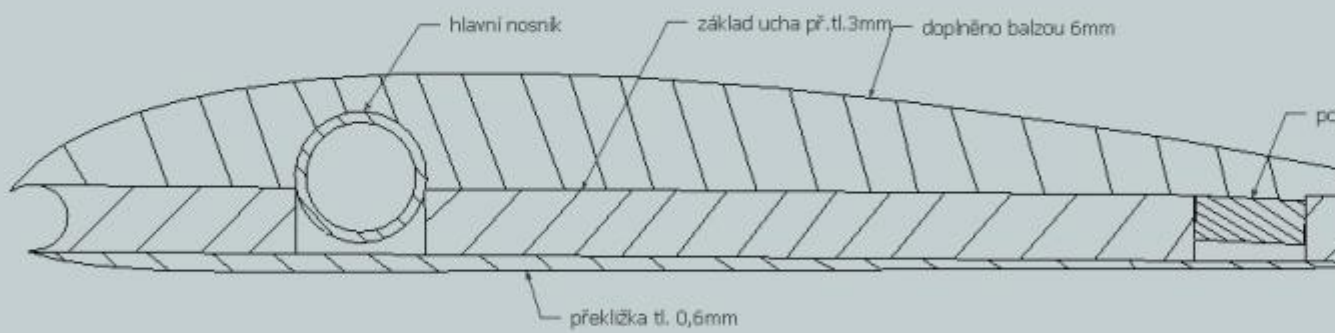


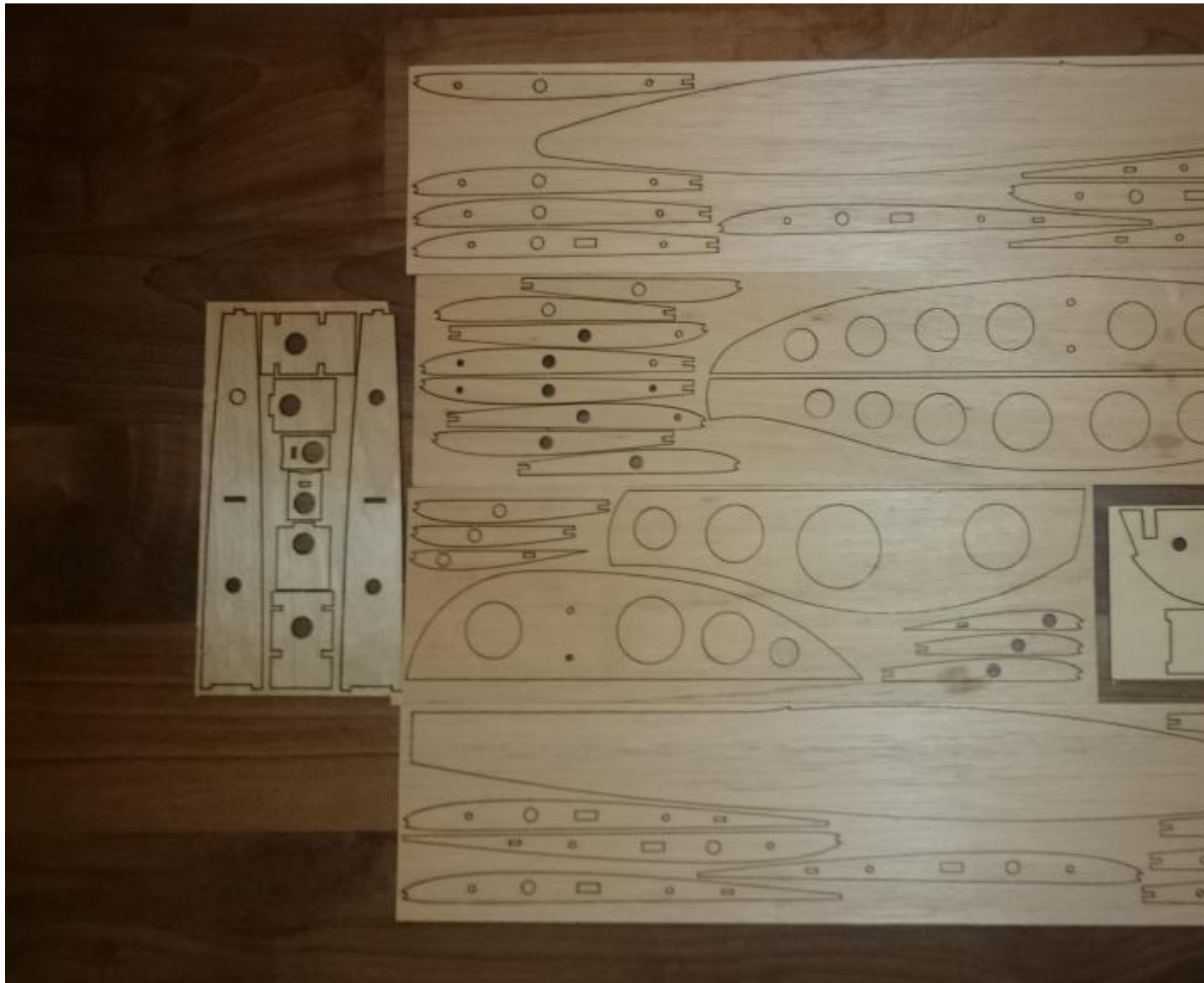


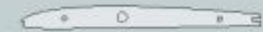
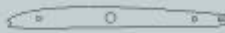
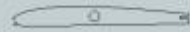
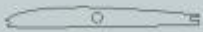
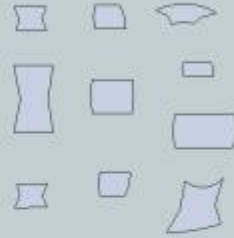




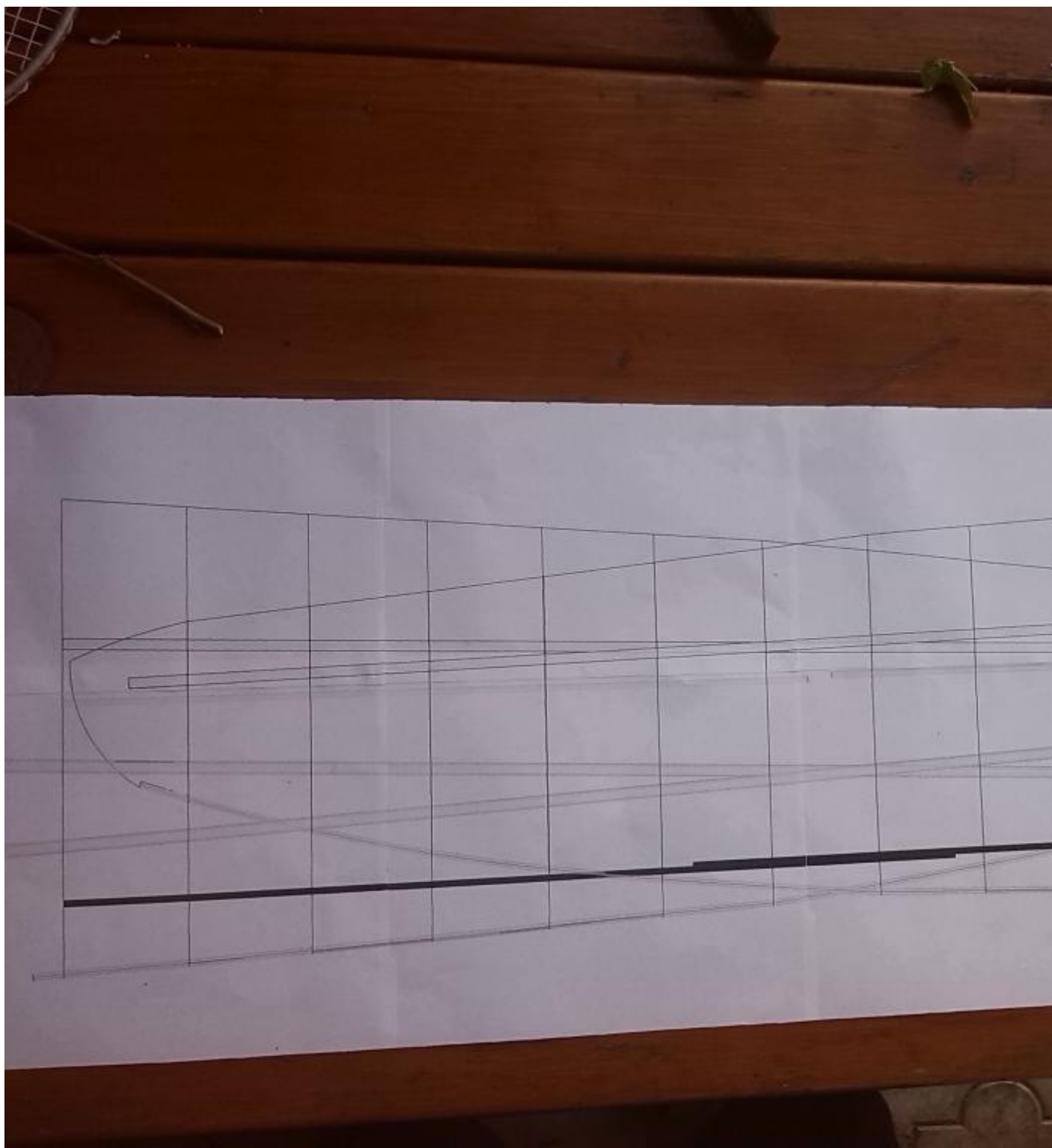


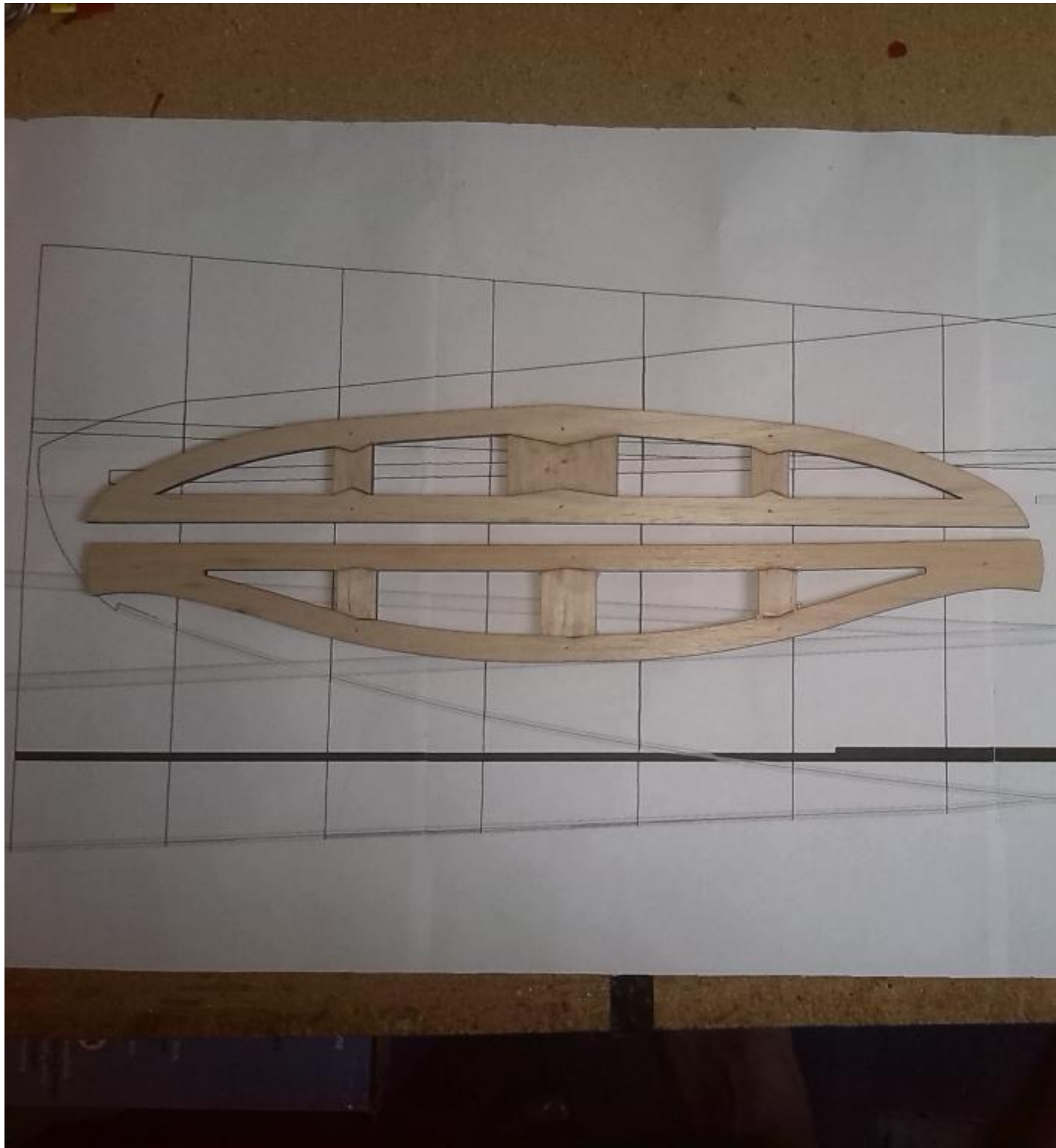


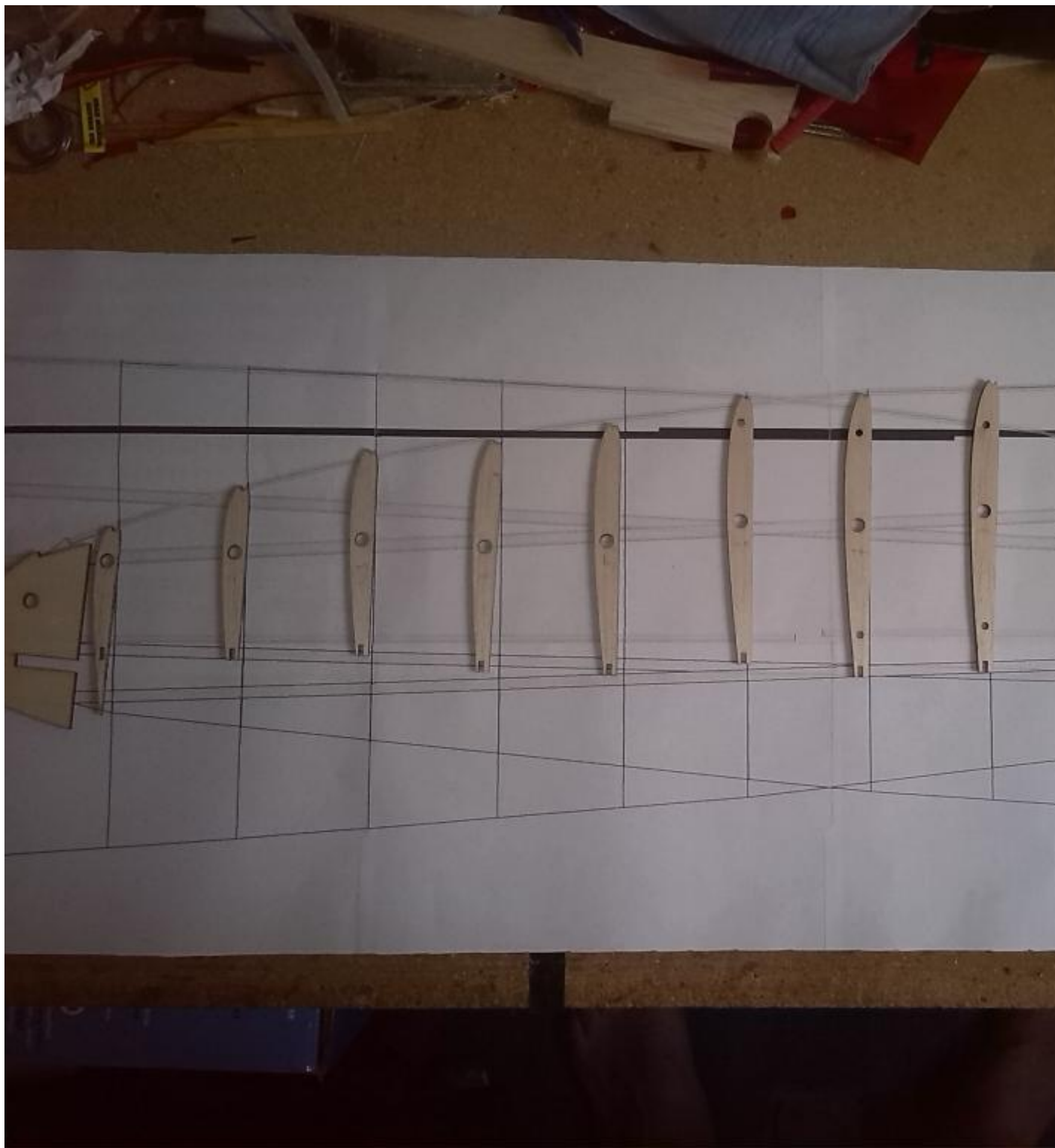


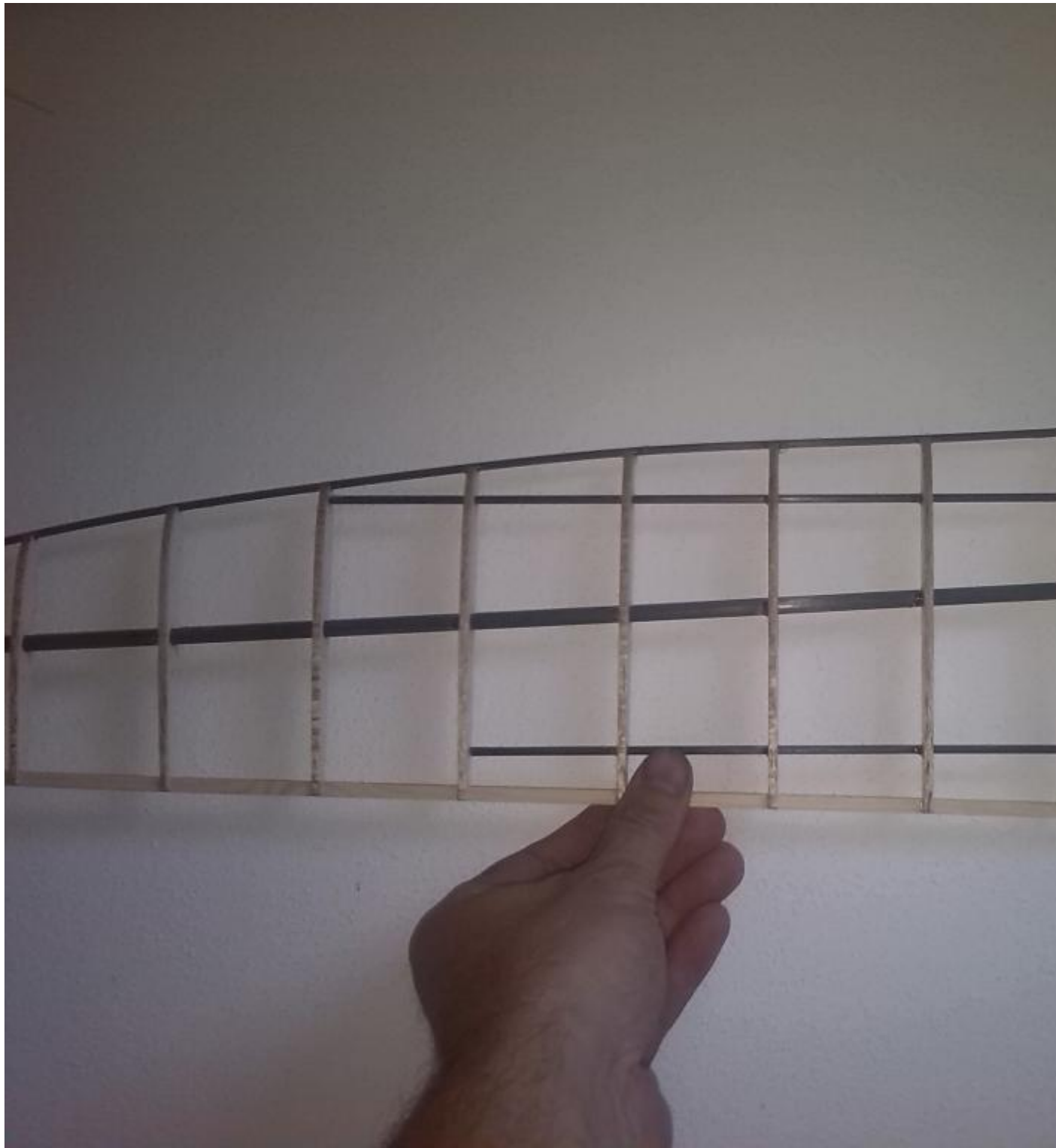








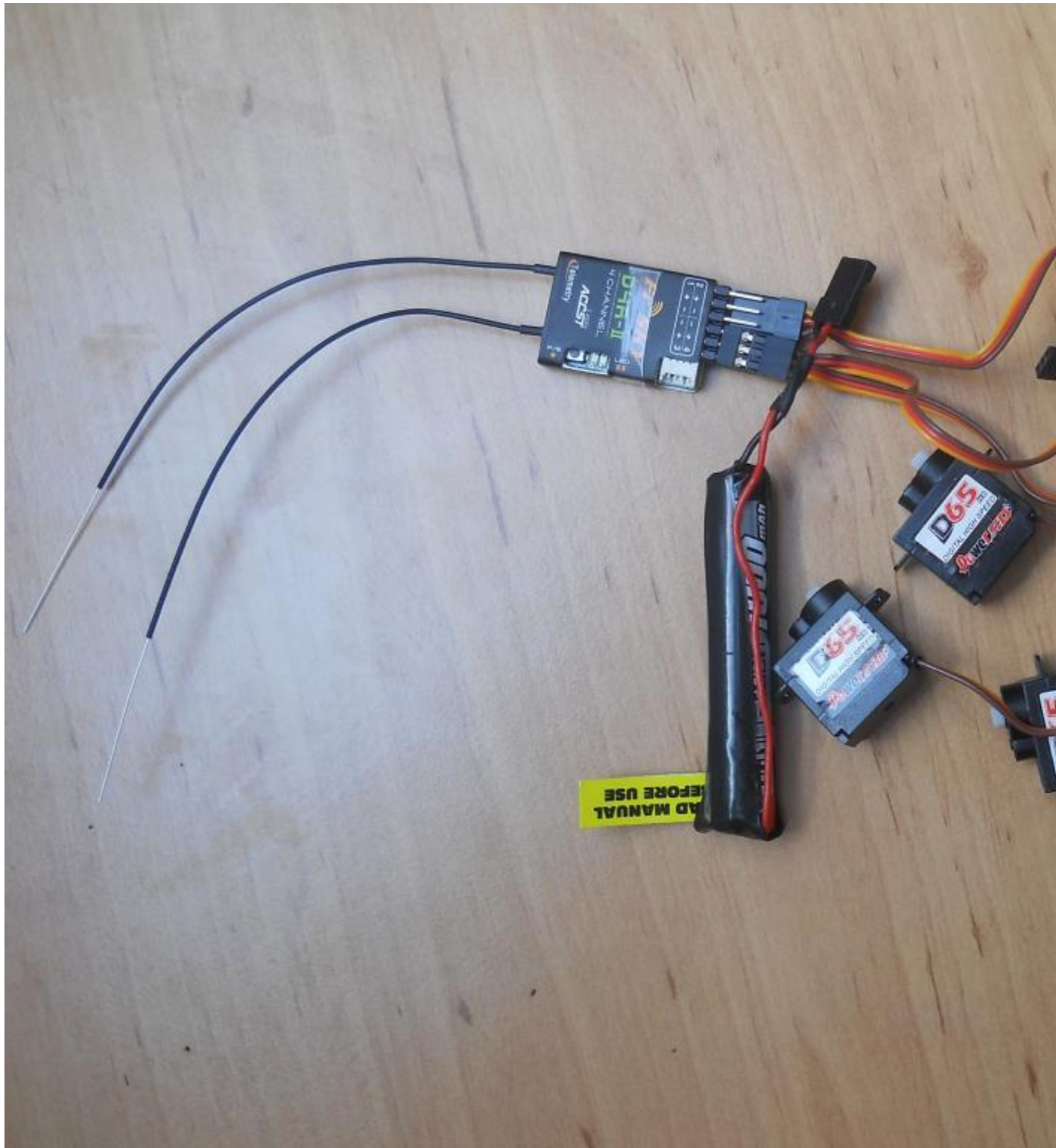






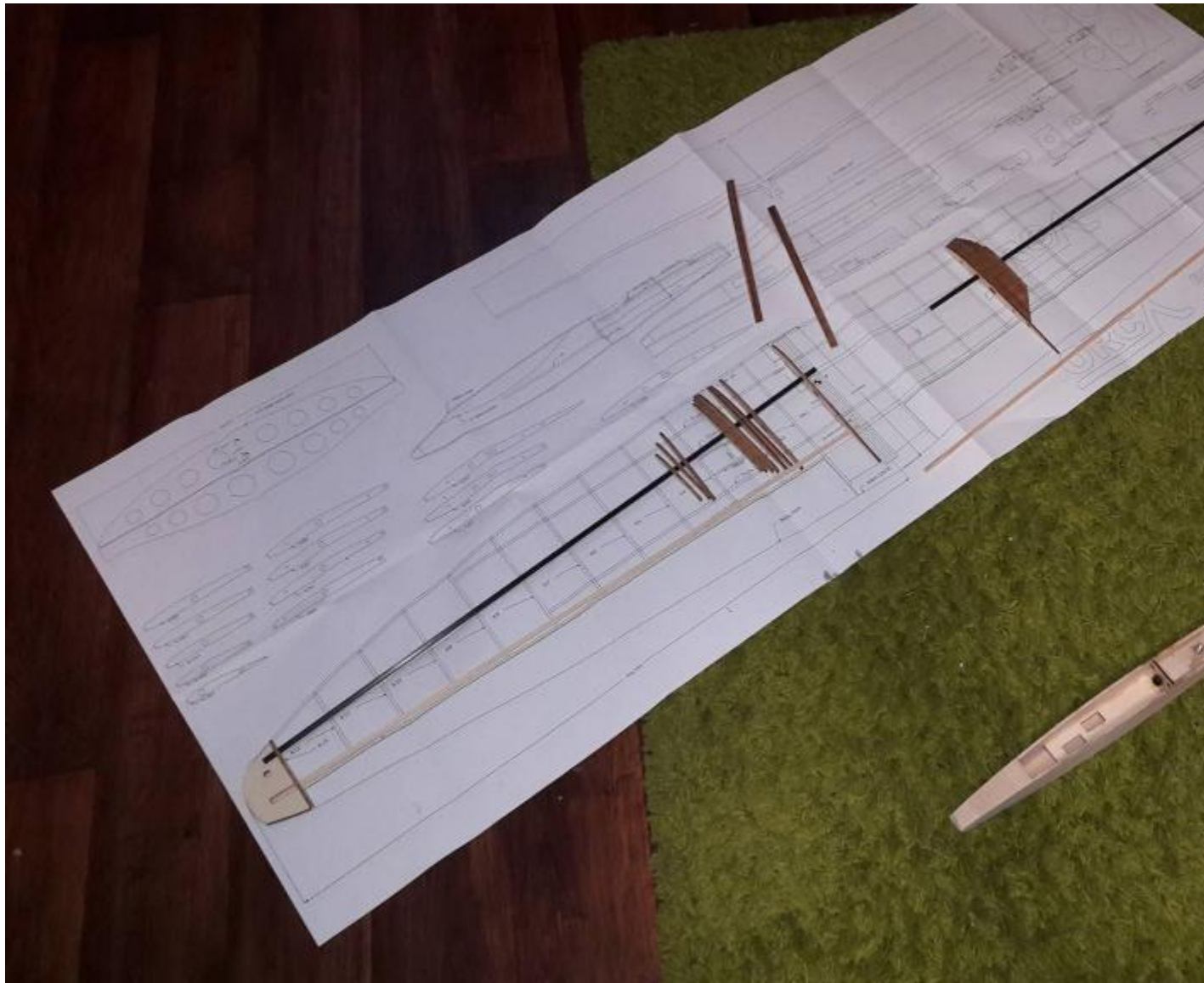








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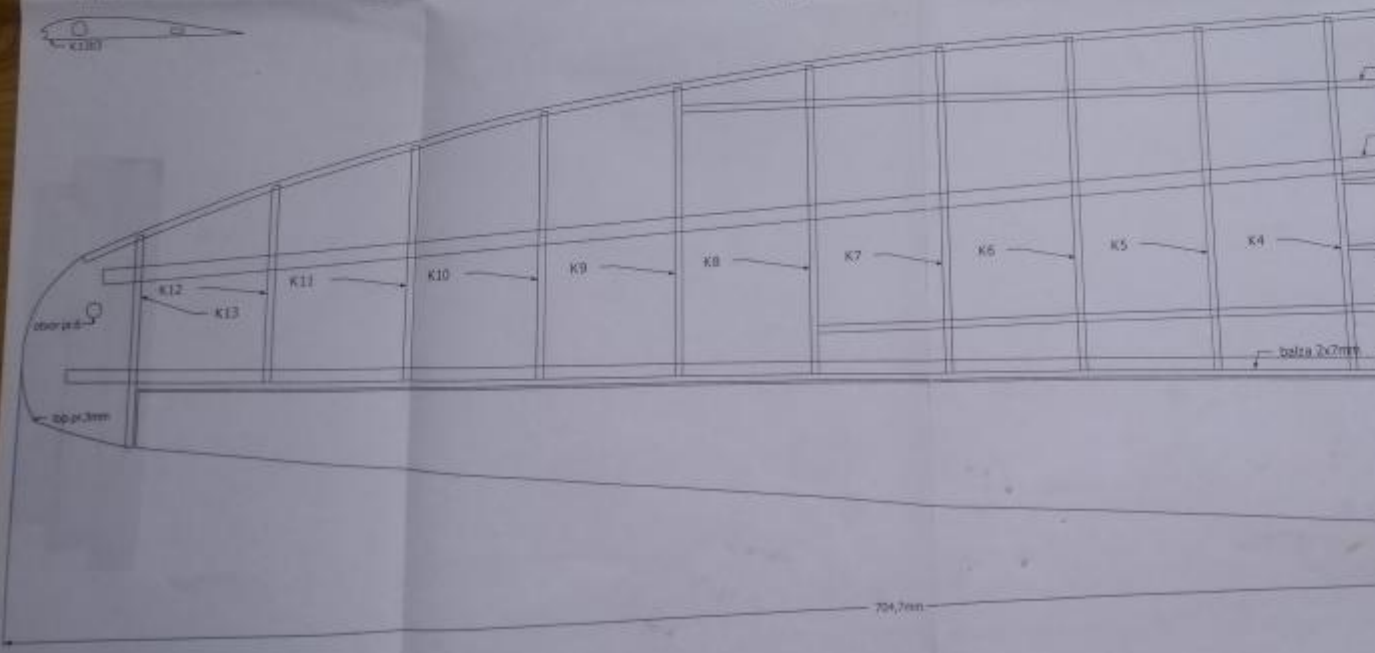
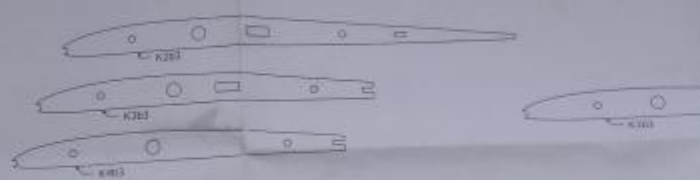
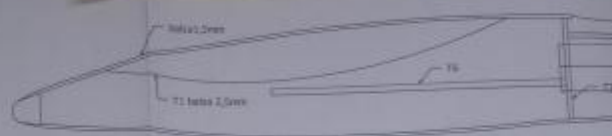


RC HÁZEDLO ORCA

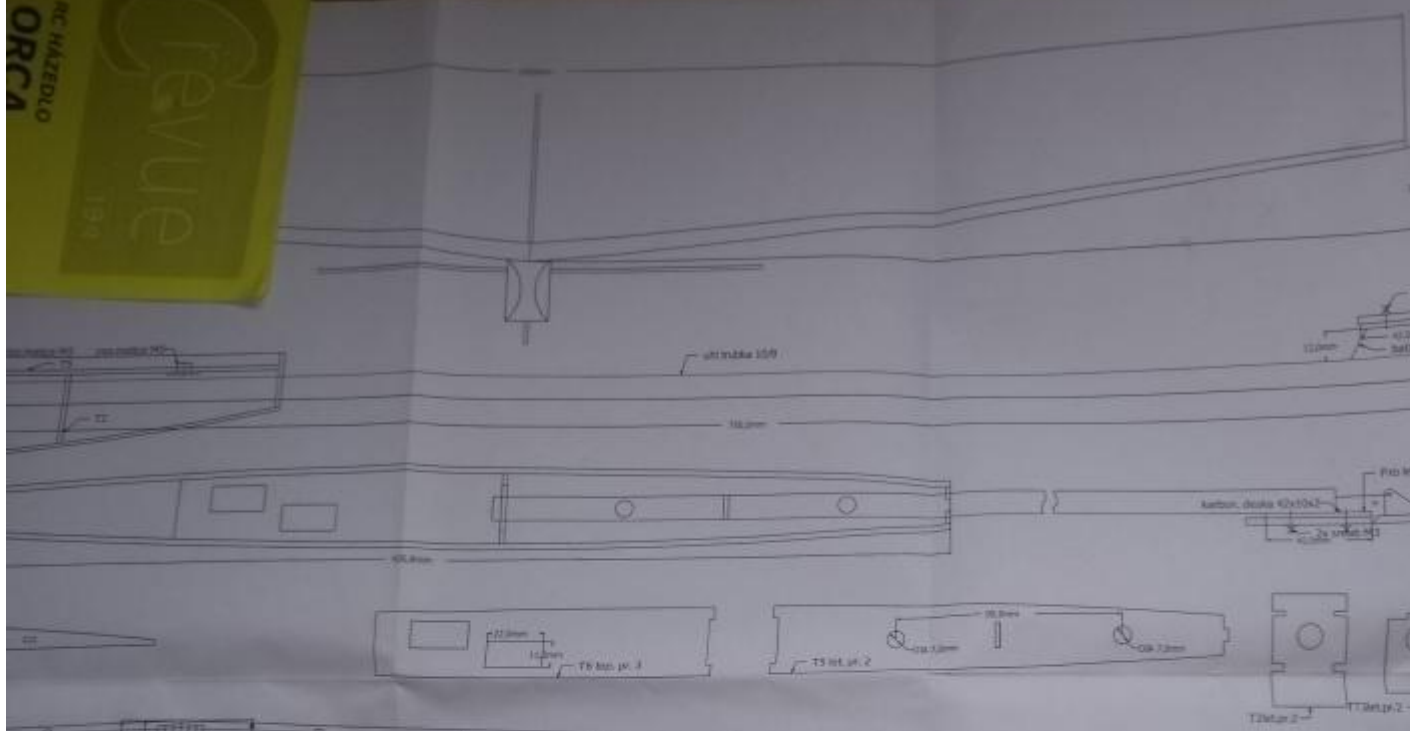


Konstrukce: Milan Roháček
Rozpětí: 1430 mm
Délka: 1470 mm
Hmotnost: 210 g
První let: 2003

modelářské papíry



RC HAZEDLO
ORCA
1987
Crevue



ORCA

RC H
Konstrukce

