

THE TOWHOOK

An informal and semi-official newsblurb of the Inland Empire Soaring Society

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FOCUS ON FAN FOLD FOAM

Have you ever asked: Why doesn't anyone build an RC model of a (fill in the blank)? For me it's always been, "Why doesn't anyone build a model of a Cessna 195?" Well, Bucky, now you can be a model designer and build the model that no one else is building. "But wait," you say, "I don't know anything about designing flying models." With fan fold foam, you don't have to.

Fan fold foam is 1/4" insulation foam that is typically used under vinyl siding. It comes in many different varieties, but the best for our purposes is Dow BluCore. It's cheap, easy to work with, cheap, moderately resilient, cheap, and it can release the model aircraft designer hidden inside you. How cheap? How about 200 square feet for about \$50? A typical model will require no more than \$2 in material.

You have probably heard of airfoils being created by tracing the outline of a shoe. Designing with FFF is a lot like that. It's called TLAR design, or That Looks About Right. The nice thing about FFF is that it is so easy to work with and so cheap, you can afford both the time and the expense to experiment with any and all ideas.

Even if creating your own design isn't your dream, you can still take advantage of the ease of construction to build established designs quickly. Because FFF is so easy to use and build with, a lot of model designers simply post their designs on the internet for you to copy. The variety of designs is mind boggling.



You want a flying pizza box? How about an F-22 Raptor? Maybe a Beech Staggerwing is more your speed? These and more are readily available on the internet. The big deal lately is 3D models. FFF lends itself beautifully to quick and easy "floppy flyers."

All that is needed to build with FFF is a sharp hobby knife or break-off utility knife. Cut the pieces to shape and glue them together. My first FFF model was a complicated affair called the X-Bow (Crossbow). In all it required cutting about seven pieces of foam. The fuse and wing were each made up primarily of one large piece that was folded to shape. My latest design is my dream Cessna 195. I built the whole thing in about 8 hours.

For adhesives you use foam safe CyA, polyurethane (Gorilla Glue), or epoxy.

For motive power, many designs use the ubiquitous GWS A drive, or speed 400 motors, but brushless setups are quite common for the power mad among us.

The primary disadvantage of FFF is that it is difficult to create an airfoil that matches published airfoils. Many models use a flat plate wing section, and they fly just fine. If you want an airfoil, it is typically created by folding a single piece of foam in half. The crease becomes the leading edge. The shape of the airfoil is determined by the size and location of spars

Continued on page 3



The DFS Weihe ("Harrier" in English) from 1938 became the standard high performance sailplane in most European countries. As the Se 103 Kranich, this sailplane was designed by Hans Jacobs at DFS (Deutsches Forschungsanstalt für Segelflug (German Research Institute for Soaring Flight)). The Weihe set a lot of world records in the post-war years. After the war, a slightly modified variant was manufactured by Focke-Wulf.

The Weihe got the designation Se 104 in the Air Force. The 19 Weihe purchased were manufactured by AB Flygindustri (AFI) at Halmstad. 17 of them (Air Force numbers 8301-8317) were delivered in 1943. Two years later, further two Se 104 were bought from the same company (8318- 8319).

The Weihe was built from wood and fabric. Instead of the gull-wing used by other contemporary popular designs, a straight wing was chosen to give a cheaper aircraft. The wing used a thin aerofoil section. The relatively long fuselage had a narrow cross section to improve the flying performance, but made the cockpit rather uncomfortable. Like the Se 103 Kranich, the glider used a jettisonable double wheel to take off and landed on a skid landing gear. The aircraft was easy to dismount after landing at remote places.

Behind the pilot, there was a luggage space where a 40 litres ballast tank and oxygen bottles for flying at high altitudes could be stowed.

In 1964 all wooden sailplanes in Sweden - including the Weihe - were grounded as the glued joints of the aircraft began to get unsafe.

Length: 8,0 m. Span: 18,00 m. MTOW: 365 kg. Max. speed: 215 km/h. Lift/drag ratio 29:1 at 70 km/h.

Meet the Pilot



Enthusiasm. That's what first struck me about Kelly Johnson at the Labor Day contest a few years ago. This guy was everywhere. Fixing winches. Fixing planes. And teaching the new guy (me) how to keep time. All of this while putting up some impressive scores too. Kelly has been a long familiar face on the NWSS circuit. He goes to as many as 18 flying events during the season. Twice, he has been on the Canadian team for the F3J World Championships.

Kelly and his wife Paula, live in Spokane. He now works as a Mechanical Engineer at Purcell Systems. This company provides backup power supplies for many of the local cellphone towers.

Originally a builder of model power boats, Kelly first heard about flying gliders from a friend at work. They went up to the slope and watched Gary Brokaw fly. That's when he was first exposed to and infected with soaring extensivus. Every aspect of the sport gives joy to Kelly. He once told me "it's ALL fun". And this is the guy who once entered a combat wing at a 2M thermal duration contest, and beat everybody.

When I asked him "what's the thrill", I expected to hear something about the beauty of flight, or wonders of nature. But Kelly's answer was simple, and more touching. He loves to fly well. And he really appreciates the friendships made, and time spent with the soaring community.

FFF takes off..

and tweaking the mating surfaces at the trailing edge. You can't make a Clark Y or 7037 accurate to the original data points, but you can create any class of airfoil from undercambered to flat bottom to symmetrical.

Also, I have not seen FFF used for anything larger than about a 40 inch wing span. I suspect that with a real spar it could be used for larger spans, and I'd like to try it some time as a sailplane just for fun.

One of the best sources that I have found for information on building with FFF is the web site "foamfly.com." The proprietor has a half dozen proven designs that he will sell for \$15. Included with each purchase is a comprehensive instruction manual on how to work with FFF. With some models he includes plans for a wing airfoil molding jig. The purpose of the jig is to force a flat plate of foam into a shape of a single surface airfoil. The jig and foam are then popped in the oven at 210 degrees for 20 minutes. The heat causes the foam to take on the airfoil shape which is retained when it cools.

I used the jig to create the wing of my very own Cessna 195 (profile) model. It came out at 8.5 ounces and flies great on a GWS A Drive. The model has proven to be extremely durable having survived multiple crashes at the hands of inexperienced middle schoolers.

My 195 is an example of the beauty of FFF for model design. The first version needed adjustment to the decal age and thrust angle to fly properly. If I had built the thing out of balsa, I would have been really discouraged with the wasted time and effort. As it was, I just pulled out the radio gear and cut some more foam. I had no idea what angles I should use for these critical aspects of the

design, but I guessed and hit it about right in the second version. I would never consider being so cavalier in my design if I had used balsa.

I believe that fan fold foam has created a new class of model airplane. These models are fun, whimsical, inexpensive, and easy to build. If you are the type of person who likes to build things just to experience the creative process, FFF will let your spread your wings.

Dave Moore

Chuck Up #1 Report

The first Chuck-up was held on the 17th. A grand total of two pilots showed up. Because of this the CD (me) made an official proclamation that any size or type of plane was legit. This ruling allowed Lynn P. and I to enter our 2 meter poly planes into the competition. Alan H. had his DLG while Al L. was flying an xterminator. Weather was perfect (in between rounds), and during the flying, consisted mostly of cool, consistent sink. That's what it had to be. I was flying a new plane with a new radio and still could not find any lift.

Al Lies did not seem to have any such problems, and took 1st. Followed by Lynn Pilant. Alan Haidle was 3rd, and Shaun Hawley last. The most interesting part for me, was the yo-yo task. Lynn and I were hi-starting our 2M planes and then trying to bleed off the speed and bring it in for an immediate hand catch. Then you RUN for the bungee, RUN back to stretch it, and launch again. If you came in too high you ended up running under the forever flying plane to try and catch it. I lost a minute of time while laughing at Lynn, and then chased my plane while he laughed. We all were sore the next day, and we all had fun. Hope to see you there at the next one.

LEARN 2 LANDINGS

The L3 Clinic is on for Saturday May 22 at 11:00. Post Falls Field.

Instruction will be about 30 minutes and then plenty of time will be dedicated to questions and practice. Bring a stopwatch. The L3 clinic will focus on several areas of landing technique. For the L3 task, you will need to be able to make quarter turns without big changes in pitch or speed. Practice this on the slope or at the field by flying away from yourself and **managing a QUARTER turn by entering it level and exiting it level.** Then count five seconds and manage another quarter turn and practice a rectangle in the air with five second sides. Do this all up wind until you are comfortable and then try it with the model downwind. Focus on a smooth quarter turn and you are halfway to Learning to Love Landings.

In the Shop,

When the phone rang, Gary Brokaw was fixing his Dragonfly park flyer. He had added some batteries to the pack for more power, and blew the motor. His all time top 4 tips are:

1. Get a cordless craftsman rotary tool. You can use it for all kinds of things. It also turns slower than the Dremels so you can be more precise when you use it.
2. Use West System epoxy. It is fresh and reliable. Make sure to use the pumps they sell for this epoxy in order to get the right mix ratio.
3. If your work is not good enough, do it over. Things look bumpy and crooked? That plane is going to fly bumpy and crooked. If it flies.
4. Don't give up. When you get too frustrated, put the project aside, and walk away. When you feel better you will do better. End every time you do something, you get better. Just don't give up. Thanks Gary !

Sites To See

Intense soaring from the Czech Republic
<http://www.lomcovak.cz/eindex.html>
High energy. Hi Tech. High entertainment.

Inland Empire Soaring Society

2004

CHUCK - UP

SERIES

Handlaunch Glider Contest

April May June July August

3rd Saturday each month at the I.E.S.S. Field in Post Falls ID.

\$2.00 per plane flown.

Registration: 9:30 AM. Pilots Meeting 9:45. Flying starts at 10:00. No more entries accepted after 10:00 AM. Proof of AMA membership required. 4 rounds of flight, each one with a different task. Tasks will be announced at the pilots meeting. Glider wingspan must be 60" or under. No other plane restrictions. Launch method is pilots choice. Hand Launch, DLG, HI-start, heck use a winch if you want. Rules? Yeah there are rules for those that need em. Go to the web site and see.



Field Notes

Post Falls field: The owners of the land have put up a barricade across the entrance in order to deter 4 wheelers and motorcycles. We are welcome to move the barricade and use the field, but please - please replace it when you leave. If you see anybody tearing up the field or trespassing please get their license number, and time and date of the occurrence. This is for the club to forward to the owners in case of any problems. Don't antagonize the turf wreckers, they will just come back later and really mess things up. Do tell them (politely) that it is private property and that we have special permission to be there.

Arbor Crest slope: NO SMOKING ! This means you. Or your friends or relatives, or anybody else you see. One careless butt and that whole area could burn. We would certainly lose access to this site. So - NO SMOKING. Please pick up after yourself, and if you see other folks trash, pick it up too. If you see newbies or visitors, explain to them how precious this slope is to us and how we all have to be careful to not mess it up. And use courtesy towards others when launching and landing. Be safe.

Upcoming Events

Thursday May 6

IESS Club Meeting, 7:00 PM

Meeting at Shari's restaurant, 320 N. Sullivan in Spokane Valley. Meet for dinner and hanger flying at 6:30. Or skip the meal and just come to discuss the major issues and minor quibbles of flying gliders and electrics. Bring your projects for show and tell. Bring your questions for "Ask the Experts."

Friday May 7

Indoor Rubber Powered Flying, 7:00 - 9:30 PM

Garry Middle School gymnasium, 725 E. Joseph (6 blocks south of Francis at Nevada). Rubber indoor flying alternates with electric indoor flying.

Monday May 10

Indoor Electric Powered Flying, 7:00 - 9:30 PM

Saturday May 15

Chuck Up HLG Contest at the Post Falls field. 9:30 am.

Saturday and Sunday, May 15-16

Tri-Slope Six Pack. Richland WA. Contact MCSS for details.

Saturday May 22

Learn to Love Landings Clinic. Post Falls Field. 11:00 AM. Our own Guy Russo will share his secrets on how to get down.

Monday May 24

Indoor Electric Powered Flying, 7:00 - 9:30 PM

Saturday & Sunday May 29 & 30

Ed Huffman Memorial Classic

The annual Memorial Day thermal duration contest to be held at Farragut State Park. Sponsored by IESS. For more information contact Robin Kirkpatrick at 489-5841

The Inland Empire Soaring Society is an organization dedicated to promoting the sport of flying radio control sailplanes and electric airplanes. We offer people the opportunity to get together and share their interests in this fascinating hobby.

Based in Spokane, Washington, our membership is spread out all over the Inland Northwest. Membership dues for new members are \$10; renewals are \$25 per calendar year. Please contact one of the club officers if you desire more information or to inquire about membership.

Meeting Minutes

IESS

Minutes of April meeting

The meeting was called to order by Mike Cole @ 7:00 PM 4/1/04

Tres. Report: Dave reported that the balance after all expencses was \$738.19

Equipment:Al Lies, On the last 2 week-ends of this month , we will pull things from the trailer,inspect them, repair them, and get all of it up to speed for the coming year..

Minutes of last meeting: read by Lynn P, and they were aproved.
Old Business: Kiona Butte combat fly, was awsome, Karl was the target of choice..and Frank found the flyers at Kiona... The club sucked in combat, but Kelly got even with his Monster..

New business: Shawn expressed willingness to CD the anual CHUCK-UP event that he started last year,(a great fun event) and it will start on the 17th of this month and countinue through the summer. start time of 9:30 AM

Meeting Ended @ 7:25

Topic Of The Month: WEATHER

After the meeting there was an exceptional presentation by Don ..

Also Doug showed very small Robart hinges.

President: Mike Cole (208) 773-6963

Vice President: Lynn Pilant (509) 534-6999

Treasurer: Dave Moore (509) 292-2690

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Visit our Web Site at:

<http://www.inlandempiresoaring.org/>