

the

MONITOR

November

The MRCS Officers

2016

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Newsletter Editor: Ken Myers	Next Meeting: Date: Wednesday, November 2 Time: 7 pm video, 7:30 Meeting, EAA Building	

What's In This Issue:
 Upcoming Swap Shop Info - Building Airframes with Dollar Tree Foam Board - Skymasters' Indoor Season Starts at the Ultimate Soccer Arenas - The October Meeting - Upcoming Events

Midwest RC Society

28th Annual

R/C Swap Meet

Sunday, November 6, 2016

9 a.m. to 12 p.m

location

Northville Senior Community Center
303 West Main Street
Northville, Michigan

admission charge

\$5.00 per person

(active duty military, kids under 12, and women are admitted FREE)

vendor table cost

\$20 - \$25 per table - depending on location

The vendor table costs include one admission.

Advance table reservations are highly recommended, last year all tables were sold in advance!

Vendor Set Up time is 8 a.m.

For Information

Call Rudi Reinhard at 248-631-8205 or email: therudi@icloud.com

directions

Take the 8 Mile Road exit off of I-275
Go west 2.5 miles to Center Street
Go south on Center Street 0.5 miles to Main Street

Go west on Main Street

The Northville Senior Community Center is located at 303 Main Street in downtown Northville

There is free parking in the back of the building off of Cady Street.

THIS IS THE BEST AND LARGEST SWAP MEET IN SOUTHEASTERN MICHIGAN!

Building Airframes with Dollar Tree Foam Board (DTFB)

By Ken Myers

There are a lot of different 'foams' used in the construction, or partial

Helicopter Frequencies

21, 27, 29, 39, 41

Sailplane Frequencies

11, 12

construction, of RC airframes.

Some History

Building and Flying Electric Sport Scale

Transcript of Keith Shaw's presentation to the 1992 Electric Model Fliers of Southern Ontario General Membership Meeting, March 1992 Transcribed by Martin Irvine, Kingston, Ont.

<http://theampeer.org/shaw/ShawConstructionNotes.pdf>

Keith noted several uses for 3/16" foam board (foamboard) in his beautiful scale planes.

Edited by Ken Myers, Oct. 2016

There is a wonderful material called foamboard. It can be purchased at art stores. It's basically 3/16" foam with index card bonded to both sides. It has no apparent grain. Therefore, great big holes can be cut out of it.

It weighs about the same as 3/32" balsa. It's a little thicker. Virtually every single airplane I fly has bulkheads made of foamboard. The only drawback is that you MUST use RC56 glue. I haven't cut a balsa bulkhead in many, many years. I just don't know how to cut balsa bulkheads without grain fractures.

Weldbond sticks to the foamboard. If you use epoxy, or typical white glues, it makes a very hard joint, causing a delamination failure. Weldbond All Purpose Adhesive, (identical to RC56), can be purchased from a hardware store. It's a milky white liquid that smells a little like vinyl. It's actually a polymer. You can use that to glue the foamboard to the balsa.

The bulkheads can be cut on a band saw. Just treat it like balsa. On great big airplanes, I've used it for ribs - I mean 14 foot wingspan.

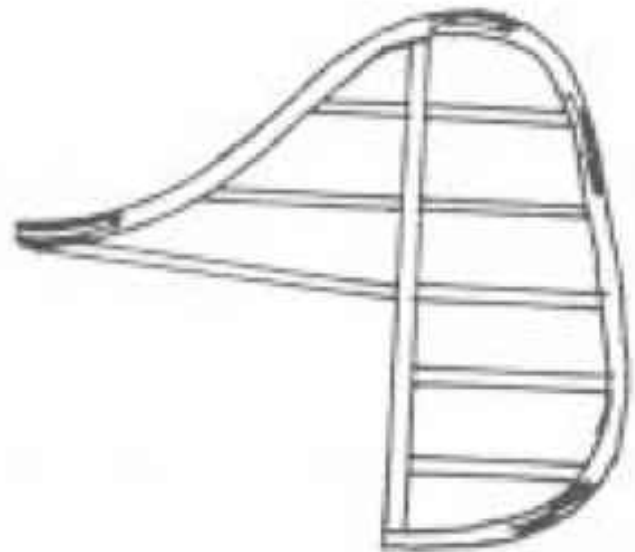
In the forward fuselage there are usually enough stringers for strength. Use some sort of balsa block for the nose with another bulkhead just aft.

With foamboard half shell fuselages, on every bulkhead, somewhere in the middle, like with the crutch, set up a place where there is going to be a pair of lengthwise 1/8" x 3/8" pieces of spruce. All of the outer structure is going along for the ride. It is just there to make the model look like a real airplane. The inner structure is carrying the load. Since the

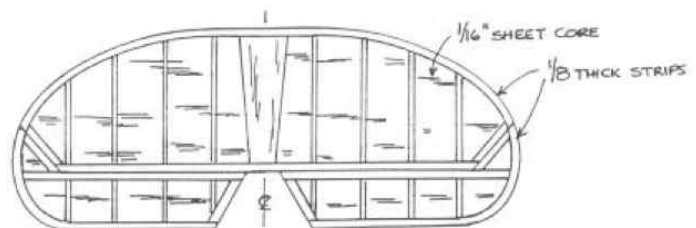
bulkheads are load bearing, face small areas of the bulkheads with 1/64" ply to help carry the load. The load goes from the strips to the 1/64" ply and is transmitted across a larger surface of the foam board, tying them together, distributing the load.

Tail Surfaces:

To make a curved tail outline with straight pieces is a pain. Making a laminated tail is easier. Use a piece of foamboard and undercut the outside dimensions by about 1/4". Cut strips of 1/16" X 1/4" balsa and stack it up with white glue between the laminations, wrap it around the foamboard and tape it in place. Let it dry, take the tape off, pin it down and fill in inner structures. You can use 1/32" strip for the really small airplanes. It is very strong, like eggs and circles. It weighs virtually nothing.



If you don't want to do all that, you can use the "core" method, leaving the foam board inside.



Turn it over and repeat on the other side. Then sand it to section.



My History

In 2009 I built a foam board airframe based on Carlos Reyes' Modfly.

<http://theampeer.org/ampeer/ampaug09/ampaug09.htm#MM>



It used a KfM1, bottom-stepped, flat-plate type airfoil. The hardest part of building it was removing the 'card stock' to just use the foam. The parts had to be soaked in my bathtub to remove the 'card stock'. The 'card stock' on Dollar Tree Foam Board peels off easily. Some might say, too easily. The plane flew okay, but not great.

Why Foam Board Now?

In December of 2015 I started a project where I was learning more about LiPo batteries. I'd purchased a lot of 3S 1000mAh batteries, but had no plane to fly them in. I wanted something really simple to build.

I remembered that EFO vice-president Richard Utkan and EFO member Owen Morgan had brought Dollar Tree Foam Board (DTFB) planes to EFO meetings.



In January of 2015, Richard shared his Flitetest Old Speedster.

<http://store.flitetest.com/ft-old-speedster-speed-build-kit/>



The previous March, Owen Morgan shared his Flitetest Spitfire.

<http://flitetest.com/articles/ft-spitfire-build>

Their successful planes, constructed of this, new to me, building material, intrigued me.

I started searching and researching Flitetest.

What I Learned About Dollar Tree Foam Board (DTFB)

DTFB is a bit less than 3/16" thick light foam covered with craft paper-like card stock. It costs \$1.00 per sheet at Dollar Tree stores.

Its proper name is, "Readi-Board, FOAM BOARD, ADAMS, R.L. ADAMS Plastics, Inc., Wyoming, Michigan 49519". www.goadams.com

It is said to be 30 inches by 20 inches, but it is **NOT!** For 12 example pieces, the supposed 30" length was never 30". It averaged 29-13/16", give or take a little each way. The 20" width never measured 20". It ranged from 19-15/16" to 20-5/32". Those

dimensions are really only important for scratch designers and builders when they are laying out parts. It is approximately 0.177" (4.5mm) thick.

It weighs, with the craft 'card stock' on it, about 0.19 grams (0.0067 ounces) per square inch or 26.9 grams (0.95 ounces) per square foot. The average weight for the average 599 square inch sheet was 113.3g (4 ounces).

The typical, 0.215" (5.5mm) thick, foam board sold at Meijer, Walmart and craft stores weighs about 219.5g (7.75 oz.) per sheet or 52.85g (1.86 oz.) per square foot.

The Old Fogies



Three DTFB enlarged FT Old Fogies.

Norm Peters' is the yellow one in front. Ken's prototype (white) and final version (red & yellow) in the rear.

I decided that the simple looking Flitetest Old Fogey, enlarged 1.22 times for my 3S 1000mAh packs, would make a good learning project. Since I quickly learned that I could not use my wife's hot melt glue gun and glue, it was the wrong type gun and glue, FOAM-TAC, basically a type of contact adhesive, was used throughout the construction, and many, many reconstructions of the prototype. The reconstructions were caused by the Old Fogey being and almost unflyable design!

<http://theampeer.org/oldfogey-videos.html>

DTFB allows modifications to be made easily, quickly and cheaply. There were a lot of

modifications needed to my Old Fogey!

Once the prototype was flying reasonably well, a completely new second version was created. The second version included all of the modifications I found necessary, and it was covered with TopFlite EconoKote, which worked very well.

Video of the final prototype Old Fogey 1.22x flying.

<https://www.youtube.com/watch?v=z5FvM65zuos>

Continuing DTFB Research Yielded More Info

During the time I was working on the Old Fogies, I was learning more about DTFB.

Besides FliteTest, I found several sources of information on RC Groups and the Internet with DTFB tips, tricks, and plans for airframes.

On RC Groups, in the Foamies (Scratchbuilt) section there is a sticky named Foamboard Scratchbuild University.

<http://www.rcgroups.com/forums/showthread.php?t=1587275>

There are also a lot of threads in that forum with the words Dollar Tree Foam, FliteTest or FT and DTFB in the title. A search of the forum using those and similar words will bring them up.

Why the Stik?

Later in the year, I decided I would like to have a flying discharger for the left over charged LiPo batteries from training sessions where I did not use all the batteries that I had charged.

I looked at several possibilities. Something with an "Armin Wing"?



<https://youtu.be/karr67ZYho4>

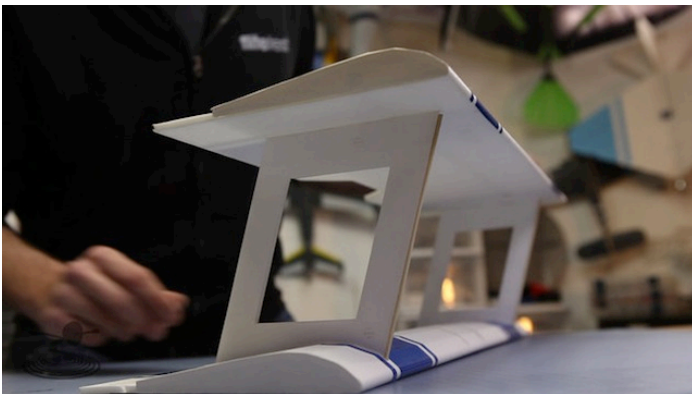
No, I didn't really want a flat bottom wing, and I really did not like the construction.

The FliteTest (FT) Racer, Slinger version



<http://flitetest.com/articles/ft-slinger>

No, I didn't care for the wing construction.

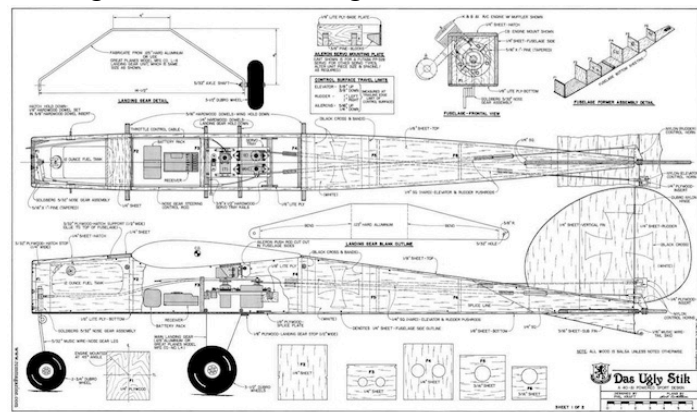


While watching the video for the FT Baby Blender v2 build, I saw a construction technique more to my liking. Wing construction starts at about 19 minutes into the video.

<https://youtu.be/pL7kXnHQvfl>

While the airfoil was not what I was looking for, part of the technique seemed like it should work and would be able to make a symmetrical or semi-symmetrical airfoil.

I decided to try to create an Ugly Stik based on the original Phil Kraft design.



The original version of my Stik used the identical proportions of the Phil Kraft design. A Clark-Y airfoil was chosen, although not used on the original.

Once the wing was 'designed' in CAD, a span shortened full-size prototype model was made. (show prototype) The original design was later modified, but proved that I could make a Clark-Y airfoil using DTFB.

The whole design went through several changes, including a completely new, longer fuselage, 3/16" plywood firewall and new vertical fin and rudder. The final change was modifying the angle of incidence, by decreasing it, right on the second fuselage, so that they plane would not climb too much at full power. Again, the modification was fairly easy right on the previously finished and the now flying fuselage.

The airframe was covered with TopFlite EconoKote. I measured the weight of the airframe before applying the covering and again after. The EconoKote covering added 44.5g (1.57 oz.) to the overall weight of the airframe. The wing area is approximately 340 sq.in. or 2.36 sq.ft. The covering added about 0.66 oz./sq.ft. I'm pretty sure using colored packaging tape, an often used technique for DTFB covering, would have added that much, or maybe more, weight.



Video of the Stik Looping

<https://www.youtube.com/watch?v=iYZ9MyQqwVA>

Video of the Stik Landing

<https://www.youtube.com/watch?v=IWdqIw8N94g>

Some Tips and Tricks I've Learned

Adhesives I've Used

Original Titebond (wing construction, fuselage construction)

FOAM-TAC (wing construction, fuselage construction)

Slow cure epoxy (firewall, vertical stab, horizontal stab)

Spray Adhesive (attach paper templates to the foam board)

Elmer's Disappearing Purple School Glue (attach templates to the foam board where no spray adhesive residue was desirable)

Other Construction Materials Used Besides DTFB

1/32" plywood (used on front and back of DTFB to create a firewall - bad idea - it compresses too much)

3/16" plywood (firewall material - thick enough to hold blind nuts for motor mounting - 1/8" plywood isn't thick enough to hold the blind nuts)

clear packing tape (dihedral joints on Old Fogies & center joint on Stik)

Construction Tools

3 ft. and 4 ft. metal straight edges

Carpenter's square - DTFB is not square right triangles, metal and plastic

single edge razor blades

X-acto #11 blades

Dremel table saw

Dremel jig saw

masking tape, both painters and regular

Phillips head screw driver

scissors

covering iron (Coverite iron)

sanding block and 'fine' sandpaper

electric drill with appropriate size bits

Dremel Moto-Tool w/various bits

Hints and Tips

Be careful where parts are laid if spray adhesive is used to affix templates to the foam board. It will pick up bits of 'stuff' after the template is removed.

Adding pull strips to the paper templates, that have no spray adhesive on them, makes the templates easier to remove.

Use Great Planes control horns. They use Phillips screws instead of straight slots.

Oh Geez, It Happened Again!!!

On Tuesday, October 4, I remembered that I had forgotten a reference that I'd run across. It was for Nic Lechner AKA nerdnic. I watched his video about the design of what he calls his 'nnSpeedwing'.

<https://youtu.be/DGYTvf8UEvA?t=1722>

I believe the wife heard the forehead slap upstairs. The technique was basically the same as mine. Duh.

There are some technique differences between our two methods. Instead of using a few 50% cut lines in front of the spar on both the top and bottom inside the wing area, I removed the paper/'card stock' between the front of the spar and leading edge on both the top and bottom and gently encouraged the foam to bend in the direction I wanted before actually gluing the top of the wing panel in place. I also built a capture 'spar' to align with the rear of the top spar to help in alignment. My leading edge was created using a Phillips head screwdriver. I put my servos on the outside of the wing. He used a hot melt glue gun and I used Titebond, pins and bricks. For the type of wing on the Stik, I used 'actual' built on wing tips.

I really like most of the techniques in his method, and I plan on using them in my next build, as the plane I have in mind has the same 'shape', but it will have landing gear in the wing.

Note: I did find out why I didn't run across Nic's video when doing earlier research. It was not posted until September 26, 2016.

During Ken's question and answer session, **Norm Peters** shared some DTFB construction ideas for his latest project. They included a wing structure with ribs, how to 'strengthen' certain areas, like leading edges and control surface facing areas, using bass wood and balsa and how to 'form' DTFB in shapes for cowlings, turtle decks, etc.

Thank you Norm!

Skymasters' Indoor Season Starts at the Ultimate Soccer Arenas

From Fred Engelman via email

I know fall has some of the best outdoor weather, but it won't be long and things will be a changing. Indoor Flying will be starting up sooner than you think.

This will be our 8th year at Ultimate Soccer Arenas – what a fantastic place for flying and fellowship through the dull winter months.

Skymasters would like to make it our best year yet. Again this year we are offering 3 hour flying sessions from 10am-1pm. **Our first indoor session is on Tuesday, October 25th.**

Winter Season Pass is \$110 for the 25 sessions. It's our Best Deal.

5 – Session Punch Card \$35

Single Flying Session \$10, only available at the door

On-line registration is open now for the Season Pass and Punch Cards. You must have a current AMA to register. Here is a link:

<http://www.skymasters.org/index.php?page=events&id=8490>

Just scroll down the page and click on *Online Registration Open*.

Now is the time to start looking over your indoor aircraft to see if it may be in need of repairs. Maybe its time to buy that new model, build that new foamy or at least invest in some new batteries.

Here is a news flash - Flight Line Hobby is moving to a new location in the shopping center at Baldwin and Walden Road. The 25% larger location is at 3039 Baldwin Road, Lake Orion, MI.

Looking forward to seeing everyone again soon.
Fred E.

The October Meeting

The meeting started with the showing of Nic Lechner's video on construction of his nnSpeedWing.

It was followed by Ken Myers presentation on Building Airframes with Dollar Tree Foam Board.

Arthur Deane called on our club secretary, **Lynn Morgan**, who noted that we have 59 members this year, of which 51 are paid members. That is up from last year at this time.

Dave Stacer, club treasurer, reported that expenses for the field this year have been running about the same as last year. He also noted that our **Friends of the Field donations** are down by about \$650.

Arthur stated that we need about \$9000 a year of income. We generate approximately \$2400 from the swap shop and the remainder comes in as dues and Friends of the Field donations. That \$9000 figure does not include any unusual expenses.

We no longer have the use of Old Yeller or George Harm's tractor.

Rich Sievert, safety officer, noted that no safety issues have been brought to his attention.

Rudi Reinhard, Swap Shop Chairman, said that we will need folks for the set up (7 a.m.) and tear down (noon). We also need a coffee and donuts crew, and a crew to take care of the 'front door' admissions.

We thanked Rudi for chairing our swap meet for the past 15 years. It's a HUGE and IMPORTANT job!

He noted that Sunday, Nov. 6 is right after the time change, so you really aren't losing that much sleep being there at 7 a.m. He also noted that 2/3 of the tables have been sold, so we are at the break even point now.

Arthur suggested that the vendor check in be done by going down the line that forms early and that we might use wrist bands to make identification easier. He also suggested using the southwest door for vendor entry between 8 and 8:30 to help vendor flow.

Nominations for 2017 officers were opened.

Both Roger Wilfong and Denny Sumner were nominated, but declined. No one accepted the nomination for president.

Ken Myers, Dave Stacer, Lynn Morgan and Rich Sievert all said they'd continue in their current positions.

Arthur said he might be persuaded to continue as president if...

1. He could get someone to be in charge of opening up the EAA building and closing it.
2. He could get someone to provide an aviation related video to be shown at 7.
3. He could get someone to be in charge of getting 6 guest speakers or tech talk leaders.
4. If we could get someone to be in charge of a group to see that all the small, detail field work gets done.

There was some general discussion about the future of the club by the members present at the meeting.

It was noted that we really need to have our members fulfill the commitments that they sign up for. The conversation went in various directions, but the bottom line was, if you commit, you should fulfill that commitment

If the Midwest RC Society is going to continue to exist, we need more fliers in our membership. Our membership average age is quite high. We need younger flying members. We will most likely see a decline in membership of some of our most senior members.

If membership does decrease significantly, then fees/dues may need to be increased, which also loses membership and prevents new members from joining.

It is becoming more and more apparent, that in the not to distant future that we must seriously consider consolidation and/or assimilation with other clubs.

The only segment of our hobby that is growing, in an organized fashion, with younger people, is FPV for drone racing and, more recently, flying wing racing. We may need to see how these activities can be incorporated with what we do. That could possibly bring us some new, younger members.

These were just topics that were discussed by the general membership during the meeting, and no decisions have been made.

Final nominations and the election of officers takes place at the November meeting. Please plan on attending this very important meeting.

Also, final planning for the Swap Shop will be completed. The Swap Shop is on the Sunday following the November meeting.

To change your email address contact Ken Myers at kmyersefo@mac.com

The 2016 membership application is available at the club Web site,
<http://www.midwestrcsociety.org>,
for downloading with the link on the homepage.

Upcoming Events:

October 25, Tuesday, Indoor Flying starts at the Ultimate Soccer Arenas in Pontiac (Info in this issue)

Nov. 2, Wednesday, MRCS meeting, video 7 p.m., meeting 7:30 p.m., Upcoming Swap Shop volunteers requested and more

Nov. 6, Sunday, Midwest RC Swap Shop (details in this issue)



The Midwest RC Society

Midwest RC Monitor
Editor: Ken Myers
1911 Bradshaw Ct.
Commerce Twp., MI 48390

The Next Meeting:

Date: Wednesday, November 2, 2016

Time: 7 p.m. Video, 7:30 p.m. Meeting

Place: EAA Building, Mettetal Airport