



Wing Tips



February 2017

The Newsletter of the Mid-Hudson Modelmasters

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2017 Club Officers

President: Brad Quick

Secretary: Larry Kunz

Sgt. at Arms: Flavio Ambrosini

Vice President: Lloyd Quick

Treasurer: Tom Eng

Junior VP: George Amenta

Club Calendar

Coming Up:

- **CLUB MEETING , Friday, February 10:** James L. Taylor Mfg. Co., 130 Salt Point Turnpike, Poughkeepsie, NY 12603. Highland Middle School has an event the same night and is unavailable.
- **AMA Expo East formerly the WRAM Show:** February 24 – 27, 2017, Meadowlands Exposition Center Secaucus, New Jersey. Advance ticket sales through Wed. Feb. 22 at reduced price, @ <http://amaexpo.com/ama-expo-east/tickets-east/>
- **March Wing Tips articles & photo submissions due, Thurs., Mar. 2:** Send your submissions to wingtips@modelmasters.us Due date is first Thursday of each month.

Other Events:

- **INDOOR FLYING AT Schenectady Armory** - Wednesdays, 1:00 to 4:00 & Sundays, 9:00 to 12:00. Scheduled sessions may be canceled for a variety of reasons. Check the EPA club website <http://sites.google.com/site/epamodelers/> for cancelation notices before you come. (Provided by Jesse Aronstein)
- **MONTHLY MEETINGS:** Indoor meetings for the winter will be at the Highland Middle School Gym, 71 Main St., Highland, NY 12528, on the following dates, Mar 10 (at 130 Salt Point Turnpike), Apr 4 (Tuesday), May 12. Please note March meeting location and the April meeting is not on a Friday. Indoor flying begins at 6:30pm, meeting will begin at 7:30pm or 8pm. *Note: Please limit flying to indoor types – fly the larger, more aggressive models outdoors or at larger indoor sites. Sneakers or other gym floor type footwear should be worn.*
- **OUTDOOR FLYING SESSIONS AT WEST ROAD FIELD** – Every Saturday Morning, weather permitting. It is also possible to find some members at the field on Sunday mornings. Even during the winter months as long as the driveway is not snow covered.

Fiberglass - What I've Learned So Far - Part 2 - The Mould

In last month's article, I described how I make a plug for a mould. This month's article will focus on building a mould. I'll be illustrating my methods using the plug from last month's article which is a stabilizer and elevator for my 80" Extra 300.

The first step in making the mould involves mounting the plug to a flat surface. In the past, I have laid the plug on pieces of plastic drop-cloth, but these tend to wrinkle and allow resin to seep underneath the plug. For this mould, I glued the plug pieces to



The plugs attached to "For Sale" signs, coated with primer/sealer

some plastic "For Sale" signs that I got at Home Depot using 3M 77 spray adhesive. Since my stabilizer and elevator plugs each consisted of two separate pieces of styrofoam, I took care to line them up so that they each created a straight edge where the stabilizer meets the elevator. After mounting the foam, I filled any gaps and rebuilt some broken off corners with sparkle, sanded, then coated with a few layers of sealer/primer as I described in last month's article. Applying the sealer/primer after it's mounted helps to keep the resin from seeping underneath too.

I have made moulds using two methods. The original method I used involved building a dam around the part (using styrofoam) then pouring in Ultracal to cover the plug. Ultracal is a plaster-like material. The Ultracal method works fairly well but it has a few drawbacks. It requires an additional material (the Ultracal) and an additional set of skills to work with. The moulds tend to be heavy and can crack if they aren't handled properly. They are also less durable in the long run and will begin to chip after pulling a few parts from the mould. So for this article, I'm not going to discuss Ultracal moulds in detail.

The more standard way to make a mould for fiberglass uses fiberglass for the mould material. Before applying the fiberglass, it is important to prepare the plug so the fiberglass doesn't bond permanently to the plug. This is done by adding a layer of wax and a layer of mould release. I've found that I only need a single layer of wax and a single layer of mould release, now that I'm using the proper materials (see below). I use a foam brush to brush on a thin layer of wax. I also wax the plastic sheet to make sure the fiberglass doesn't stick to it as well. Usually you let the wax dry and then buff it to make a really smooth surface, but since my plug is foam, buffing only creates grooves in the plug, so I try to apply as smooth a coat of wax as I can. Once the wax is dry, I use another foam brush to brush on a layer of PVA mould release, again keeping it as even and smooth as possible.

I've learned that using the proper wax is very important. I was previously using car wax on my moulds, but when I applied the PVA mould release, it would tend to bead up and leave a textured surface. I eventually used google to educate myself. I found out that it's important to use a wax created specifically for this purpose. After switching to Partall Mould Release Wax, the PVA went on smooth. I've been using cheap PVA mould release that I've gotten from various places on Ebay with good results.

Once the PVA is dry, it's time to lay up the fiberglass. For anyone who hasn't worked with fiberglass, there's a little bit of a learning curve, but the process is straight forward. You start by mixing the amount of resin that you think you will need with hardener. How much to mix is tricky because if you mix too much, it's wasted. I mix it in a plastic drinking cup from the dollar store using a tongue depressor. I use a postage scale to get the right ratio of resin to hardener by weight. Once it's thoroughly mixed, I use another foam brush (I use a lot of these) to brush a layer onto the entire plug and onto the plastic sheet creating around a 1/2" perimeter around the plug. When I'm making a mould, I slop on lots of resin because weight isn't an issue. Any time I'm working with resin, I'm wearing a respirator and rubber gloves. I understand that some people become allergic to epoxy after extended contact.

After the resin is applied, I apply the first layer of fiberglass cloth. I like to use thin cloth for the first layer so that it forms well to the plug and its tight weave helps to reduce pinholes where the resin doesn't fill the spaces in the cloth. I was using .5 oz cloth as my thin cloth, but I've recently switched to 2.3 oz cloth. I'll lay the cloth over the plug and



use my gloved hands to work the cloth through the resin, gently maneuvering it to remove wrinkles. I start in the middle and work toward the edges. Before wrapping the cloth around the edges, I'll use a razor blade to cut the cloth at each corner, otherwise the cloth will bunch up at the corners. I'll make sure the cloth wraps tightly around the edge and down onto the plastic sheet. When this layer is done, I'll then brush the entire surface with more resin and add a layer of thicker cloth. For the moulds



After fiberglass layup

shown, I used about five layers of 4 oz cloth. I've also used 6 oz cloth in the past and have some 10 oz on order. It's important to get lots of thick layers in the mould because you want the mould to maintain its shape. I made an entire wing mould that I had to throw away because I didn't make it thick enough and the mould ended up with a wavy surface. The layup process takes a long time, so make sure you



Gluing scrap foam to the bottom of the mould

have at least an hour to burn

before you start mixing resin.

I then put my hot box over the entire project to speed up the curing process. Without the hot box, it can take days for the resin to cure in my cold basement. My hot box is just a box made by gluing



Using a hot wire to create an even base

insulation foam (I used the polyurethane stuff with the silver backing) together using Great Stuff expanding foam. I lay the



Flipped over with the plastic removed

box over my mould with a 60 watt light bulb inside for heat.



The mould with the plug removed

Using the hot box, it's usually cured by the next day. Before I flip it over and remove the plug, I use gorilla glue to glue strips of foam to what will be the bottom of the mould. I then use two pieces of wood as guides and run a hot wire across the foam to create a flat and stable base for the mould. Now, I flip it over and pull out the plug. If the wax and PVA worked well, the plug might come out in one piece, otherwise, it comes out in pieces, but hopefully we won't need the plug again assuming we've made a good mould.

Next month, I'll describe how I prepare the mould for making parts!

MEETING MINUTES – Highland Middle School Dec. 9, 2016

Open Flying: 6:30 till 7:30

(Vapors, UMX P17s, Skywalkers, Ultralight 34" 3D, AS3Extra, quads, etc)

Business Meeting called to order at 7:30

- Minutes of previous meeting in Wingtips. Accepted.

Note: Next meeting is Friday Feb 10.

Dinner prior to meeting: Three met at Gateway Diner at 5:30 this time - More next month ?

- Treasurer's report: by Tom Eng

\$1635.57 (\$117.21 of which is the mowing fund)

plus \$500 in escrow to Highland Middle School.

(It was suggested that we remind HMS that they have our money in escrow, since no documentation has passed hands in several years)

- Membership:

+ We now have **59 members**

+ A link to the 2017 Membership application is at the bottom of the home page of our website.

(modelmasters.us) ... application also included in this newsletter?

Please be sure your AMA membership is current, and **send in your Membership application !**

- Party Prep: The party is this Friday Jan 20 ! (was - by the time you read this)

Preparation is ongoing. Payments are coming in. Dom is preparing for the auction.

Bill is tallying the MM dollars.

- Seeking 10 minute presentations:

Anyone with an interesting idea on building, flying, etc. – Please share it with the club ! (Even if you just

open a subject and moderate the discussion)

+ Barry will do a presentation next month on Longitudinal stability.

+ Dillon will discuss FPV flying and equipment.

- 10 minute presentation, ... Improving flying skills - Aerobatics by John Knight

John suggested that it might be beneficial for us to acquire more discipline in out flying, and presented much information on officially defined aerobatic maneuvers

For more information, look up International Miniature Aerobatic Club (IMAC) and and ARESTI symbols. Also check out the “Black Dirt Squadron” in Goshen, NY

(blackdirtsquadron.org)

- Show & tell / presentation:

+ Bob showed the wing for the BS109 model he is building from a Retro RC kit.

- Timed Flight competition:

Roll the dice, multiply by 10, and fly exactly that number of minutes without a timing device.

1st Larry M. 2nd, Tom, 3rd Flavio (13th, Larry K.)

Open Flying: till 9:30

2017 Modelmaster Dinner and Auction

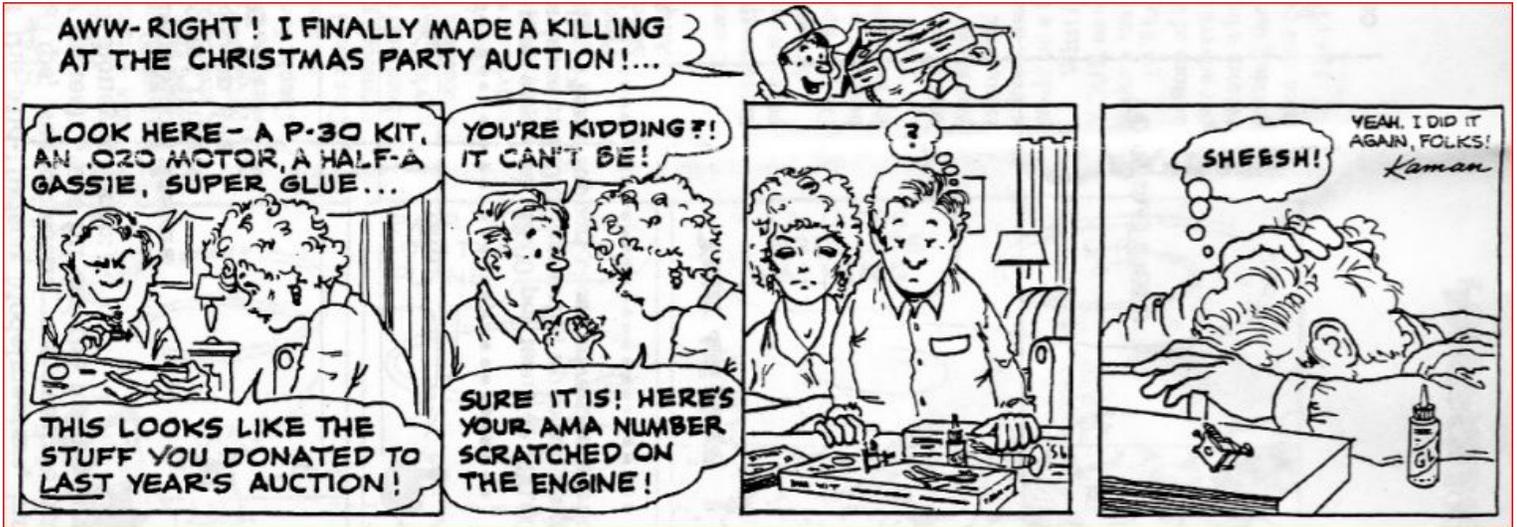
A total of 73,885 Modelmaster dollars (MMD) were earned o/in 2016 by members. 50,140 MMD were spent at this year's auction. The highest price paid for an item was a 100A ESC for 5,520 MMD bought by Brad. The lowest were 2-800maH batteries for 200 MMD bought by Dillon, and balsa wood blocks, 200 MMD bought by Flavio. The average price of all the items sold at auction was \$1728 MMD.

Bill, our banker did a remarkable job on minting the Modelmaster currency this year. They were pieces of art.





Auctioneer: Dom Fusca, Auction Assistant: Tom Eng



Foam Repair Using Expanding Foam by Rich Kleinhenz

In October my Timber had an unfortunate encounter with the ground and lost a bit of wing.

The surfaces are all curved (the top surface in 2 directions), and I couldn't think of a good way to splice in a piece of something and reconstruct that corner. A friend suggested I take a look at expanding foam, available at Home Depot. It is used for insulation, comes in a spray can with an applicator tube. The brand I got is

called 'Great Stuff' and is made by Dow.

Since the bottom surface had only 1 curvature I taped on a retaining surface there. I used a piece of thin cardboard stiffened with a popsicle stick. A couple of toothpicks stuck in the wing foam were supposed to improve stiffness and help anchor the new piece.



I sprayed the foam and let it cure 24 hours. After slicing off the excess and a bit of work with a sanding block the wing shape was more or less restored. However, it was rather flexible. The outside of the cured sprayed foam looked relatively dense, but the inside was rather porous.



I used some light spackle to fill in the surface, and then stiffened the corner with some 3/4 oz fiberglass cloth and epoxy. The end result is very service-



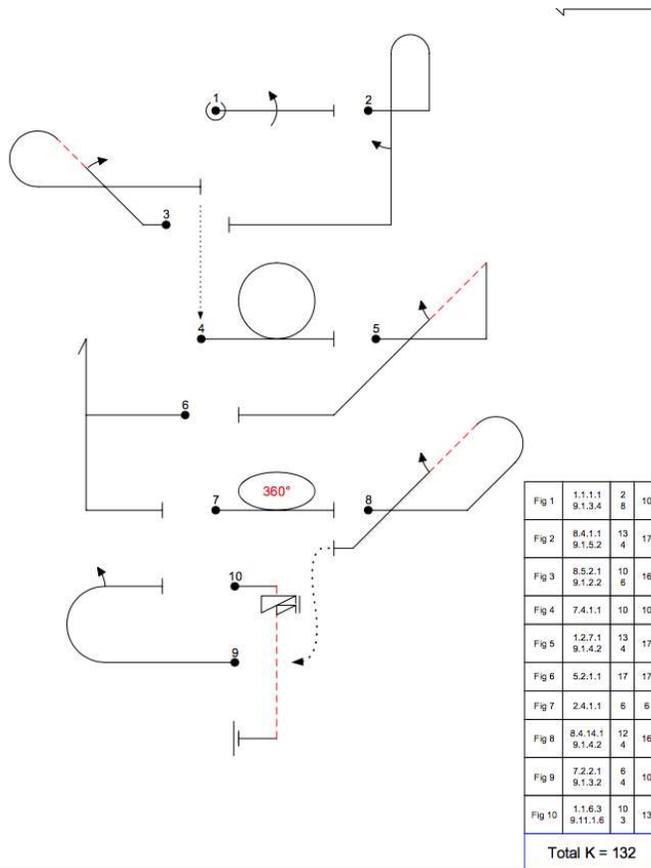
able and I flew it a few days ago at Stringham on one of the warm days.

I could paint it I suppose ?

Next time I have to do something like this I may use polyurethane glue (Gorilla glue) mixed with a drop of 2 of water. That mix expands also and ends up a little stiffer. I would try first how it sands, though.

Aerobatic Flying Presentation Follow Up by John Knight

At the last Model Masters club meeting on January 13, 2017, I gave a 10 minute talk about aerobatic flying. At the conclusion of the presentation several questions were asked which I did not feel that I adequately answered. I will attempt to answer them now.



Q. Each Aerobatic Figure had a series of numbers associated with it. What do those numbers mean?

Answer:

Column 1-The figure # listed corresponds to the figure on the Aresti diagram.

Column 2 is the Aresti Catalog number for each element within each figure.

Column 3 is the K (level of difficulty) for the each element of the flown figure.

Column 4 is the total K for each figure.

What is not shown is that each figure is scored from 0-10 in .5 point increments.

Each score is then multiplied by the K factor. The Flight Score is the sum of each K factored score.

Q. Is there a time limit?

Answer: The contestant has two (2) minutes to start his/her engine and become airborne. If after two (2) minutes the contestant is unable to start the engine, they will move to the end of the round rotation. If the contestant fails to start a second time, they shall receive zero for the round.

The contestant has one (1) minute from the time the wheels leave the ground during takeoff to enter the aerobatic airspace.

There shall be no time limit while in the aerobatic airspace.

The contestant has two (2) minutes between leaving the aerobatic airspace and touchdown for landing, unless required to hold upon command from the appropriate official.

Do you score higher if your changes in direction (flying level and then transitioning to straight up) are as close as possible to 90 degrees vs. a more rounded change in direction?

Answer: No. The judges are looking for a smooth change of direction with a constant radius. An abrupt 90 degree change of direction would result in a downgraded score.

Q.When the diagram shows a curved line indicating a roll, what direction should you roll?

Answer: The direction of the roll is at the pilot's discretion.

Q. Are there any local aerobatic competitions?

Answer: The Regional Finals are usually held during the 3rd or 4th weekend in September. The date has not yet been set. This event has usually been hosted by the Black Dirt Squadron, located in Monroe in Orange County, NY. (www.blackdirtsquadron.org). However, it does not appear as if their website has been updated in several years. The imac website will have more information.

Additional Information can be found at: www.mini-iac.com (Miniature International Aerobatic Club)

<https://nsrca.us> (National Society of Radio Controlled Aerobatics) arestisystem.com (Aresti System) This is the place to go if you want to purchase the books with the Aresti catalog numbers.

maasa.co.za (Aresti Made Simple) This is a very clear and concise explanation of the various Aresti Figures.

Interesting Stuff, Contributions from Members

Dillon Losee

- To my fellow model masters "hears your sign":
https://youtu.be/t_wd2w1wuEo
- Durafly EFXTRA - HobbyKing Announcement Daily:
<https://youtu.be/PMtzMUvQiU8>



Dillon's Club Awards

Richard Kleinhenz - New Taranis Radio: I have been using a Frsky Taranis radio for the last few years, and love it. Now Frsky just announced a new radio, the QX7. It's got nearly everything the Taranis has, and only costs about half the price. The things it is lacking are features I could definitely live without. Anyone looking for a new radio should check it out. The QX7 does take the same JR-type modules that the Taranis uses, so you can run other protocols like Spektrum DM2 and DMx. I also have modules for Tactic and Flysky. And, it supports Frsky telemetry and has (practically) unlimited model memory. I don't sell these and have no commercial interest in them, just happen to think this is a really nice new radio!