





Happy April!

Whew the weather for March sure was interesting! We spent a lot of the month visiting Marquette in the Upper Peninsula and the temperature varied from -10 to 50 degrees!

We are currently planning to host the last club meeting for the spring on April 21 at the Oxford Township Community Center at Seymour Lake Park. Be ready to bring in your winter projects as we hold our annual In The Bones meeting! And no before you ask, it doesn't have to be an uncovered wooden airplane. Any new projects are welcome!

(Continued on page 2)

(Continued from page 1)

Finally, we have extended the indoor flying two extra sessions on April 20 and 27<sup>th</sup>. Note all pilots will pay the \$10/ session price since season passes are NOT valid for those extra dates. The relationship with UWM and Reimagine Recreation is very solid and we are already planning for next season of indoor flying.

Fly Safe!

Pete

Pete Foss, President

Skymasters RC

president@skymasters.org



Front Cover

One of four busy flight lines Wednesday morning at UWM Sports Arena *Paul Goelz photo* 



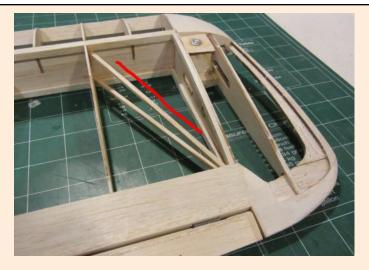
#### It was bound to happen, just not this soon...

I used to visit Flightline twice a month; mostly to get the knick knacks I needed to keep a project going or simply to pick up a magazine; I was partial to Flying Scale Models. After John announced that he would be closing I made several trips to stock up on the basics, nuts and bolts, glue, balsa, covering material, etc. Although I never bothered to make a list, I felt that I had done a decent job of covering my building needs. Well, as it turns out, I had only managed to fool myself into thinking that I had. Barely a month later I realized that I did not have enough self-adhesive Velcro to prep a couple of new batteries. How rennoying as little miss Molly would say. I know that I can get what I need elsewhere but I will always miss the convenience of the shop as well as the experience.

#### On the bench

The Shark is almost done; the model is now fully assembled, covered and ready for paint. Despite my best effort I was only partially successful in turning a simple build into an overly complicated one; from start to finish it only took a couple of months. In terms of effort and complexity it is roughly comparable to putting together a SIG 4 Star, a popular R/C model.

Once the wing was fully assembled, I noticed that it was not as stiff in torsion as I though it should be. This is a common issue with an open bay structure and it stems from a lack of leading edge sheeting. The problem is easily noticed when you hold the wing by the tips and apply a little twist. To alleviate this a pair of small diagonal braces were added as shown below:



The braces tie the trailing edge to the spar and stiffen the structure for very little additional weight. These structures also gain stiffness from the covering material.

Now that the major components are done it is time to assemble the model. Aside from the time and effort spent building a straight wing this step is the one which will determine how well it flies: It is important to make sure that the wing and tail feathers are properly aligned with respect to the fuselage.

For me the first step in the assembly process is to set the alignment of the wing relative to the fuselage. In this instance alignment has two meanings; the first refers to the squareness of the wing relative to the fuselage and the other to its incidence relative to the datum.

Most of our models use symmetrical airfoils which in cannot generate lift if the angle of attack (i.e., incidence) relative to the wind is zero. As a result, it is not unusual for the wings in our models to use a small amount of positive incidence (leading edge up) of about  $\pm \frac{1}{2}$  degrees; the stab is generally set at 0 degrees. Both measurements are made relative to the datum. Most plans show this reference line.

For reasons which I do not understand, in C/L it is common to set the wing at 0 degrees of incidence and the stab at  $+\frac{1}{4}$  degrees. In essence you are building a slight amount of down trim into the model. I have tried it and it works but it is contrary to what I learned when setting up a model for R/C. C/L models have large control surfaces and groove better with a forward C.G.; maybe this is another way of improving stability.

#### Using incidence meters

To make these small measurements an incidence meter or inclinometer is needed. I like the one made by Robart;

(Continued on page 4)

(Continued from page 3)

it is mechanical (i.e., a pendulum) and very reliable.

A few years ago, I purchased a Hangar 9 digital incidence meter and found it to be unreliable; it was not the upgrade I was hoping for. The only short coming of the Robart meter is that its accuracy is limited to measurements within  $\frac{1}{2}$  a degree.

If you opt to use a digital meter you will want to check if it can measure angles consistently:

- Place the meter on a flat surface and note the reading.
- Rotate the meter so that it is facing away from you and note the reading once again.

The numeric values should be the same, one positive and the other negative. If the values do not match you can still use it but you need to be mindful that it does not measure absolute angles correctly.

In my case I found that the meter could measure the angular difference between two surfaces correctly; however, the overall values were off. For example, if one surface was set at +2 degrees and the other at +4 degrees the meter would correctly indicate a difference of +2 degrees. The actual measurements might have been +1.8 and +3.8 degrees but the difference of +2 degrees was correct. If this is the case the meter is still a useful tool.

The trick is to have the meter always facing in the same direction: out of habit I have the meter facing towards the left wing tip even if I am measuring the stab or right wing panel.

The image below shows the meter being used to measure the incidence of the wing so that I can set-up the stab relative to it. The faint red line that you see if the laser line as a reference.



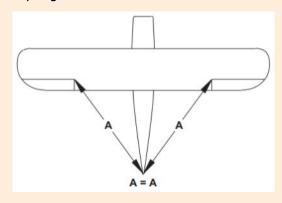
On a profile model it is difficult to change the incidence of the wing without enlarging the opening significantly, so I opted to set the stab relative to the wing. I used the incidence meter determine a datum for the wing and then set the stab relative to it. As you can see from the image below, I had to shim the stab to achieve the proper angle.



If you look carefully, you will notice that I use pins to hold the parts in place so that they do not shift around.

Once the correct incidence is achieved the wing and stab must be set square against the fuselage before gluing them in place. This is a two step process as you need to make sure that everything is square when viewed from above as well as from behind.

To square up the wing or stab when viewed from above I use a string pinned to the centerline of either the tail post (for wing alignment) or firewall (for stab alignment). The string is used to measure the distance from the reference point to the tip of the surface being aligned. As a rule of thumb, the longer the distance between the two points the more accurate the alignment will be as it minimizes measurement error. Once the left and right measurements are identical the panel is properly aligned:



(Continued on page 5)

(Continued from page 4)

Setting the wing and tailplanes to be aligned with the fuselage in the vertical direction when viewed from behind is a little more difficult. For many years I simply eyeballed the alignment, but this is not the best approach. If you can afford it, I would suggest acquiring a laser level; it is also extremely useful around the house. The one I use is made by Bosh and it projects a vertical as well as a horizontal line.

#### Using a laser level:

I usually align the wing and stab to the fuselage at the same time. This can be a little tricky as the stab generally sits a little higher than the wing when viewed from behind. The opposite is true if building a high wing model such as a Piper Cub. As a work around I hang a pair of sticks off the stab so that the laser line projects onto them as well as onto the wing's trailing edge as shown below.



Once the components are aligned, I tack glue them in place using a drop of CA here and there and then recheck everything to make sure that nothing shifted. Once satisfied I epoxy the components in place. You can save a little weight by adding micro balloons to the epoxy. Doing this has the added benefit of making the epoxy a little easier to sand. I always allow the epoxy to set overnight; I just want to be sure that it is fully hardened before I handle the model once again.

At this stage of the build this is what the model looks like fully assembled:



#### Making CF pushrods:

I have been using CF tubes to make pushrods for some time; they are reasonably light and a lot stiffer than piano wire or wood dowels.

For the Shark I opted to use 2/56" hardware. For larger models you could use 4/40" hardware.

I always keep a small supply of CF tubes of different size on hand for this purpose. Unfortunately, I do not recall what size tube I used in this case. I never really paid attention to the tube's dimensions as I would simply go to the hobby shop and select what would work.

The first step in the process is to slide a small balsa plug into the end of the CF tube. This will keep the epoxy from running down the inside of the tube.



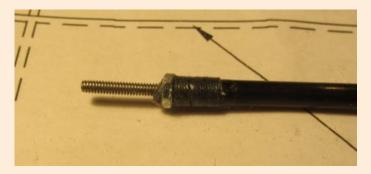
To set the depth of the plug I use the threaded adapter to push the plug in. The adapter is made from a length of threaded rod with a nut set roughly in the middle. I use CA to hold the nut in place.

(Continued on page 6)

#### (Continued from page 5)



The next step is to glue the adapter in place. I have had good luck using 30 minute epoxy although some prefer to use JB weld.



After the epoxy sets I wrap the end of the CF tube with strong sewing thread and coat it with CA. The thread wrap is intended to keep the end of the of the CF tube from splitting open under load.

To complete the pushrod you repeat the process at the other end. Adding the second adapter closes off the tube which traps the air within. When adding the second adapter make sure to tape it in place while the epoxy sets; if not, the trapped air will try to push out.

Finally, it is always a good idea to dry fit the adapters, CF tube and clevises to make sure that the pushrod is of the right length. If you are off slightly it is easy to shorten an adapter or make a new one if a little extra length is needed.

#### Teo Terry



The Skywriter, April 2022, page 7



The Cloudbusters & The Balsa-Bugs Present

The 2022





Entry Fees: \$40.°°

Junior Entrants Entry Fee!

Spectators - FREE!

Pre Entries Send Check or Money order to

Mike Welshans Cloudbuster's MAC 976 Pearson. Ferndale, MI 48220 An AMA Sanctioned Class AA Contest
AMA Category III Ceiling Saturday, April 30, 2022 ReImagine Recreation

867 South Blvd E. Pontiac MI

Flying

9:00AM- 5:00PM\*

Flying Floor split in half.
South End for FAC a North End for AMA\*

#### AMA EVENTS

Standard Cat Glider 218 219 Unlimited Cat Glider Hand Launched Glider 212 Limited Penny Plane 208 Penny Plane 207 F1L Easy B 217 Mini Stick 220 Inter Stick 202 F1D (no rounds) 203 All Events Flown to Current AMA Rulebook

#### Phantom Flash kits

And other Model Airplane Goodies

Available at

Prop Shop Hobbies, Inc. - "Your Complete Model Shop" 23326 Van Dyke Ave. Warren, MI 48089 586-757-7160 propshorhobbies.com

Carbon Hobbies - "We make hobbies affordable." 8194 Cooley Lake Road White Lake, MI 48386 248-360-4910 carltorhobbieshop.com

Retro RC - Vintage & Retro Model Aeroplane Kits PO Box 198 Keego Harbor, MI 48320 248-212-9666 - retrorcus.com

> Volare Products 269-339-9795 volumproducts.com

Contest Director Mike Welshans 248-545-7601 Mbwelshans@aol.com Event Managers FAC- Ron Joyal 586-727-3012

grjoval1@vahoo.com

AMA - Paul Crowley 586-294-1236 usa 2298@comcast.net

#### FAC EVENTS

- FAC Peanut Scale
- FAC Scale
- FAC Golden Age Monoplane
- FAC Dime Scale
- FAC NoCal
- FAC Phantom Flash
- FAC Embryo FAC WW-II ML

Comet 5¢ Scale

no 20 sec minimum (Kanone)

Comet 20" Dimers (Kanone)

WW-II NoCal ML (Kanone)

GA Racer NoCal ML(Kanone)

All FAC Events flown to Current FAC Rules No Cal ML Events - 6.2 gram min. Prop 7" max.

See Registration



### Toledo Swap and indoor fun fly

#### April 1st and 2nd

Last year, the first annual Toledo R/C Swap Meet & EXPO took place at the SeaGate Centre in Toledo, OH. This was organized by a small group of hobbyists from the surrounding areas. Well...it turned out pretty darn good! THERE WERE OVER 350 TABLES SOLD and over 1300 IN ATTENDANCE! We would love for you to consider attending this well-known, two-day experience, which takes place on Friday, April 1st (9 AM - 5 PM) and Saturday, April 2nd, 2022 (9 AM - 3 PM). We are looking for both those who want to purchase a table(s) and sell and those who want to stop by, shop a bit, and enjoy the great food and conversation! Commercial manufacturers, businesses, and vendors are welcome also! There will be 50/50 and R/C related merchandise raffles on both Friday and Saturday. Concessions will be offered by the Seagate Convention Centre, and there is an ATM located on site.

The following is a list of businesses and organizations that have already purchased premium booths and will be in attendance: HobbyKing, Buddy's RC, OMP Hobby, SunnySky USA, MPI, Ritch's Brew, Willy Nillies, TGK Connectors, WIND Catcher R/C, EZ Build (formerly Lazer Toys), Innov8tive Designs, Warbird Pilots, Rabid Models, HyperBond, Sky Bench Aerotech, The T-Shirt Guy, National Balsa, Micro Fasteners, RCBearings.com, B & B Specialties, Carolina Custom Kits, Zap (distributed by Robart), Team KNK Hardware, Metal Aviation, Hank's Hobby Hangar, Hobby Liquidators, Venture Out, MECA (Model Aircraft Collectors Association), Maumee Valley Scale Boat Club, NASA (National Association of Scale Aeromodelers) and the AMA. I will send an email with an updated list the last week in April.

If you want to pick up some Ritch's Brew fuel, please pre-order by calling 713-661-5458. This will help them determine what to bring.

Highlights this year include a 2-Day Indoor Fun-Fly (starting at 11 AM Friday and Saturday), the AMA Flight Simulator Trailer, and of course the Auction (starting at 3 PM on Saturday)

Once again, we have engaged in a marketing and media blitz that includes emails being sent to all AMA clubs located within 200 miles of Toledo and moderating multiple digital threads and forums on R/C Groups, Flying Giants and Facebook. You will find featured articles on R/C Groups and Flying Giants, and we have purchased large digital ad banners on those same sites. Finally, we have purchased a full page ad in this month's issue of Model Aviation.

We have worked with the Renaissance Toledo Downtown Hotel and are happy to announce that they will be offering a block of rooms at a discounted price! These rooms need to be booked by March 15, 2022. Click the following link which will assist in your reservation: Book your group rate for Toledo R/C Swap Meeting Room Block [marriott.com]

For Registration forms as well as additional vendor information, click this link.

We would love to see you there!

Henry "Hank" Rauhaus

# Skymasters Indoor Flying/Driving\*





## Join us <u>Wednesday's</u> from 10:AM-1:PM On Field #4 at the **UWM Sports Complex**



Located on 867 South Blvd., Pontiac, MI 48341

Oct. 20th thru Apr. 13th\*\*

Single Session \$10 pay at the door Session Season Pass - \$150

All Pilots/Drivers must have proof of current AMA M A Special 3 Month Trial AMA Membershin

1M has agreed to extend the flying season through April

Season passes are good through April 13th.

April 20th and 27th are \$10 per session, paid at the door UWMSC closed Wed. Dec. 29th.

All Pilots can Register Online now at: www.Skymasters.org

## "SKYMASTERS" INDOOR FLYING

## At UWM Sports Complex Field #4

For the 2020-2021 Winter Season\*

#### OCTOBER:

Flying sessions start at 10 am and end at 1: PM \* Wed. 20th

Please Bring Proper Change For Payment.

Wed. 27th

#### NOVEMBER:

FEBRUARY:

Wed. 3rd Wed. 2nd

Word Off Wed. 10th

Wed. 17st

SPECIAL NOTE .....

UWM has agreed to extend the flying season through April

Season passes are good through April 13th. April 20th and 27th are \$10 per session, paid at the door

Wed, 29th CLOSED Wed. 30th

#### JANUARY:

APRIL

Wed, 5th Wed. 6th

Wed. 13th Wed. 12th

Wed. 19th

Wed. 26th

#### \* Dates & Times Subject to Change or Cancelation Without Notice

All pilots/drivers and spectators must sign a Responsibility and Release Agreement Waiver, AMA Youth must be have a parent or legal guardian sign the form.

Schedule, Rules, and Waiver available on line at www.Skymasters.org

You can contact the Event Director at: Indoorfly@Skymasters.org



# FLINT'S R/C SWAP MEET

SPONSORED BY The Flying Aces R/C Club Swartz Creek, MI

OVER 120 Tables Available

DEALERS WELCOME

SUNDAY April 3, 2022 Public Admitted At 9 AM until 12 PM

#### LAKE FENTON HIGH SCHOOL

4070 Lahring Rd, Linden, MI 48451 42° 51' 32"N 83° 45' 5" W

SEE MAP BELOW AND CHECK OUT OUR WEB SITE

#### WWW.RCFLYINGACES.COM

FOR DETAILED DIRECTIONS

#### CONCESSION UNAVAILABLE BECAUSE of COVID

► Airplanes

50/50 Drawings

Helicopters ◀

▶ Kits

**Door Prizes** 

Gliders ◀

▶ Boats

Supplies

Cars ◀

#### COFFEE WILL BE AVAILABLE

ADVANCE TABLE REGISTRATION \$20.00, INCLUDES ONE ADMISSION. (IF RECEIVED BY MAR. 30, 2022). EACH ADDITIONAL TABLE IS \$12.00.
TABLES AT THE DOOR \$22.00

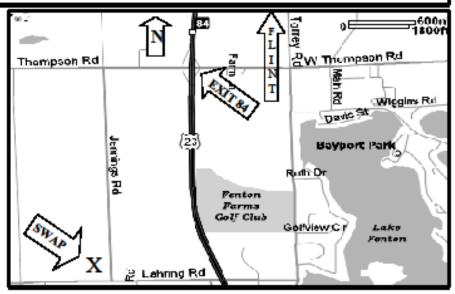
ADMISSION FOR EACH ADULT \$5.00; 17 AND UNDER \$1.00.

ACTIVE MILITARY ID and LADIES ADMITTED FREE.



Advanced Table Registration

Make Checks Payable To:
The Flying Aces R/C Club Inc.
Mail to:
Flying Aces R/C Club Inc.
6184 King Arthur Dr.
Swartz Creek, MI 48473
For Info. & Table reservations:
Call Bill Gerald Cell 810-845-3007
Set-up 8:00 AM Reserved tables will be held until 9:00 AM. Then released to be issued as unreserved
General Information ONLY:
Steve Polen 810-730-3533



# ON THE WING

The Retirees and Wannabes Breakfast At Ram's Horn (new location)

9AM, 1st and 3rd Mondays

1990 Rochester Road,

Rochester Hills

Skymasters Breakfast At the Orion Grill

(new name, same place)

3667 Baldwin Rd Orion Charter Township

# Indoor Flying at UWM Sports Complex (formerly Ultimate Soccer)

(AMA required - See flyer in this issue for more info)

Every Wednesday (note new day) through April 27th

10AM - 1PM

UWM Sports Complex field #1, in the rear of the complex Park and enter in the back

867 South Blvd E, Pontiac, MI 48341

(North off of Auburn, west of Opdyke. Click this link for a map)



### Other local area indoor flying

#### Legacy Center

9299 Goble Dr.

Brighton, MI 48139

(Off of Winans Lake Road, between Rickett Rd. and M23)

Wednesdays 12:30PM—2:33PM November through March

\$10/session

Sponsored by the Hamburg Flyers RC club

#### Premiere Sports Center

14901 23 mile, Shelby Twp, MI

(northwest corner of 23 mile and Hayes)

Every Thursday through April, 9AM to 3PM

Electric planes and helis (separate heli space) \$10/session, AMA required

Info: Steve Durecki 586-246-4203 (text or voice)

http://www.stevesindoorflying.com/

# April 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
Juli	mon		W64	7.114	1 Toledo Swap and FunFly Seagate Center	2 Toledo Swap and FunFly Seagate Center  Breakfast 8:30AM Orion Grill (Formerly the Iris Café)
3	4 Skymasters Breakfast 9AM Ram's Horn	5	6 Indoor Flying 10AM UWM Sports Complex (formerly Ulti- mate Soccer)	7 Indoor Flying 9AM—3PM Premiere Sports Shelby Twp	8	9 Breakfast 8:30AM Orion Grill (Formerly the Iris Café)
10	11	12	13 Indoor Flying 10AM UWM Sports Complex (formerly Ulti- mate Soccer)	14 Indoor Flying 9AM—3PM Premiere Sports Shelby Twp	15	16 Breakfast 8:30AM Orion Grill (Formerly the Iris Café)
17	18 Skymasters Breakfast 9AM Ram's Horn	19	20 Indoor Flying 10AM UWM Sports Complex (formerly Ulti- mate Soccer)	21 Indoor Flying 9AM—3PM Premiere Sports Shelby Twp	22	23 Breakfast 8:30AM Orion Grill (Formerly the Iris Café)
24	25	26	27 Indoor Flying 10AM UWM Sports Complex (formerly Ulti- mate Soccer)	28 Indoor Flying 9AM—3PM Premiere Sports Shelby Twp	29	30 Breakfast 8:30AM Orion Grill (Formerly the Iris Café)  Cloudbusters Indoor Fling 9AM—5PM UWM Sports Complex (formerly Ultimate Soccer)

#### Skymasters Information.

The Skymasters field is located in Lake Orion, within the Bald Mountain Recreational Area on Scripps Road, between M24 and Joslyn (see map). A recreation passport or sticker is required and can be obtained from the Park Headquarters located on Greenshield Road or you can check the box on your tab renewal for a "Recreational Passport".

#### Flying hours:

QUIET ELECTRICS ONLY from 8AM to 10AM and 8PM to 10PM. The noise limit is 80dBa at ten feet. Regular flying is permitted between 10 AM to 8 PM. The noise limit is 94 dBa at 10 feet. These noise limits are enforced.

Student Night & Pot Luck Every Wednesday, May through September. Flying any time but we eat at 6:00 p.m. - rain or shine, literally!

For those participating we ask that

you bring something for the grill enough to feed (at least) you and your guests -OR- bring a dish to pass -OR- bring your own (nonalcoholic) beverage. Something for the grill: The obvious choices are burgers, sausages/brats and hotdogs - but other alternatives are welcome. If you bring it we will cook it! We've cooked pork tenderloin and chops, salmon, venison burgers, steaks and more. Don't forget the buns.

We start cooking about 5:30 p.m. having grill items by then helps us get everything ready on time.

Potluck dish to pass: Don't know what to bring, working late? Each week we'll let you know what is needed for the next week from plates to condiments, charcoal, etc. Pick one of the needed items to bring instead! Not one to cook? A quick stop at local supermarket deli for a side salad, or bakery for dessert always works!

From June through August, club meetings are held at the field, on the second and fourth Wednesday of the month at 8 PM. A great chance to fly and socialize. Winter meetings (September through May) are held at the Orion Center, 1335 Joslyn, in Lake Orion. Bring a model for Show and Tell, enjoy coffee and donuts and listen to the speaker of the evening.

The Skywriter newsletter is available online at the Skymasters web site and is free to all. It may also be printed from the web site if desired. All contributions are welcome. Please send photos and articles to newsletter@skymasters.org If you know of anyone who may be interested in R/C Aviation, please give them a link to this newsletter or give them a copy of an AMA magazine. It may spark their interest!



#### 2020 Club Officers Appointees.

President: Vice Pres.: Secretary: Treasurer: EOC at large EOC at large EOC at large Membership: Editor: CFI CSO

Pete Foss John Billinger Phil Saunders Kurt Kettler Paul Goelz Joe Rubenstien Steve Kretschmer Joe Rubenstein Paul Goelz Ken Gutelius Greg Brausa

Oxford Troy Rochester Hills Lake Orion Rochester Hills Oxford Oakland Oxford Rochester Hills Lake Orion Metamora

president@skymasters.org vicepresident@skymasters.org secretary@skymasters.org treasurer@skymasters.org at.large3@skymasters.org at.large2@skymasters.org at.large1@skymasters.org membership@skymasters.org newsletter@skymasters.org cfi@skymasters.org cso@skymasters.org

writer editor at:

newsletter@skymasters.org Deadline is the 20th of each month.

The Skywriter newsletter is published bi-monthly by the Skymasters Radio Control Club of Michigan

www.skymasters.org