

# Skywriter

official digital newsletter of

AMA Charter Club #970

[www.skymasters.org](http://www.skymasters.org)

24 year Gold Leader Club



## Skymasters Radio Control Club of Michigan

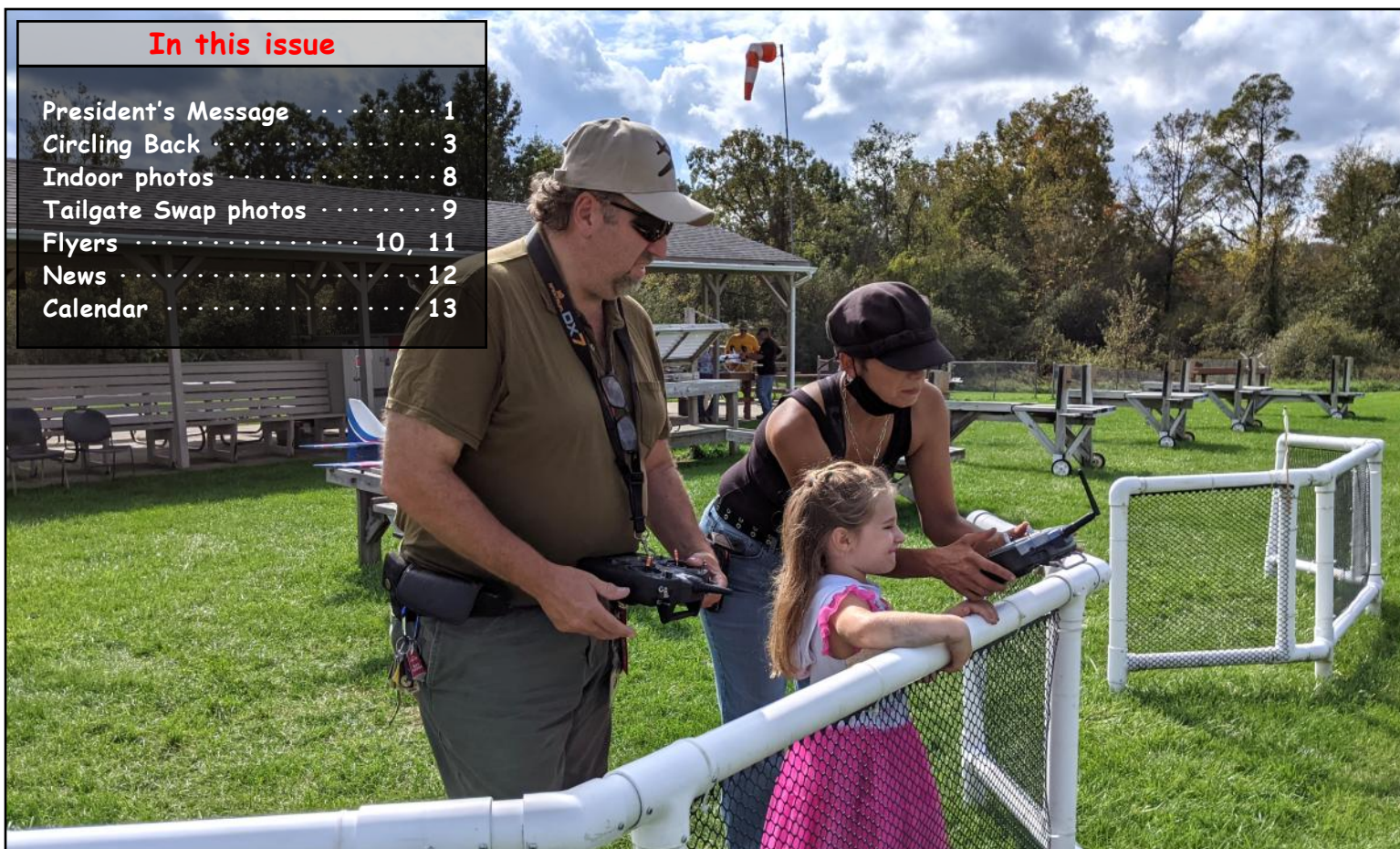
*it's another beautiful day at Skymasters...*

### November, 2021



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**Happy November!**

**INDOOR FLYING HAS STARTED!** Join us each week at United Wholesale Mortgage Sports Center (formerly Ultimate Soccer) from 10AM to 1PM every **Wednesday** (except Christmas week). We had a pretty good turnout for the first two sessions (30 and 32 pilots). I hope to get up to the 40+ average attendance we have had in the past. Fred Engleman and crew have registration working very smoothly even with the addition of the liability waiver required by UWMSC. Check the website at <http://www.skymasters.org/index.php?page=events&type=detail&event=indoor> for all the info you need.

I just saw on Facebook that John Hoover at Flightline Hobby just cut a batch of his amazing F106A kits (<https://www.facebook.com/flightlinehobby>)! Ask newsletter editor Paul Goelz how well they fly indoors and out (yup, they fly great!).

Looking at the weather prediction for next Wednesday (high of 42 brrrr), we have probably had our last student night of the season. We had a very successful season this year signing off quite a few students after only a few last summer due to Covid. I'd like to thank Ivan Dulskij for all his help shopping, grilling, etc. I'd also like to thank Chief

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Flight Instructor Ken Gutelius and all the instructors for always being there to keep our students safely in the air.

The tailgate swap meet and night fly on the 16<sup>th</sup> were "OK". We had 6-7 people selling and an equal number of buyers on a pretty windy chilly evening that made the bonfire feel really welcome. Watch your email for another night fly and bonfire after we have a good mosquito killing frost!

Finally, it's that time of year for elections for new club officers. Please shoot me an email at [president@skymasters.org](mailto:president@skymasters.org) if you are interested in joining the Executive Operating Committee.

Stay Safe!

**Pete Foss, President**

**Skymasters RC**

[president@skymasters.org](mailto:president@skymasters.org)



A great idea from Kurt Kettler.... For those of us with larger fleets (or smaller memories), place a sticker inside each plane with the required battery, capacity and nominal flight time.

#### Front Cover

Steve and Mary Seltzman at a Wednesday Student Night late this summer

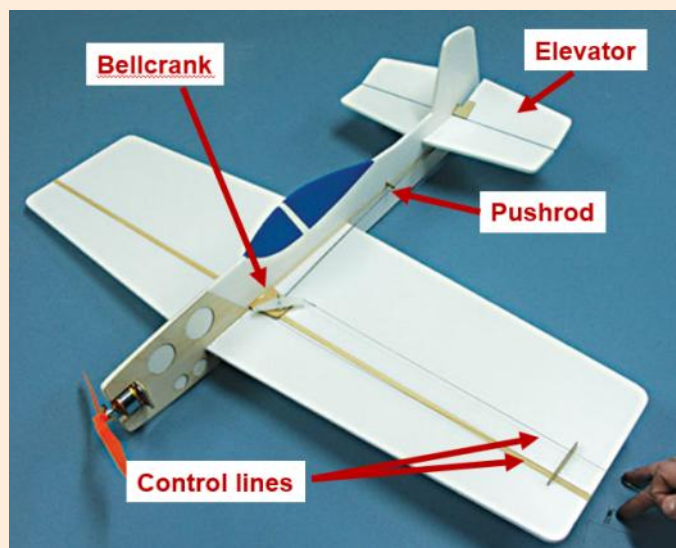
*Paul Goelz photo*



This month I will cover the basics of electric control line (C/L) while providing a brief overview of the sport as well.

### What is control line flying?

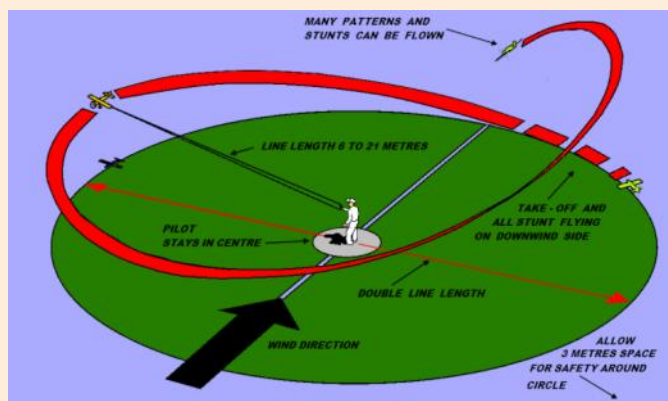
Some of you may have noticed that on Wednesday evenings there is group of us flying control line (C/L) models on the adjacent field. C/L flying is a form of tethered flight in which the model follows a circular path around the pilot. Control is provided by a handle which is connected to the model through a pair of wires (not strings!). Within the model the wires attach to a bellcrank which controls the movement of the elevator through a pushrod:



Control is achieved by tipping the handle in one direction or another; this causes the bellcrank to pivot and move the elevator. Being able to control the elevator allows the pilot to perform climbs, dives, loops and even fly inverted. The pilot normally has no control over the engine so the model will fly at a constant speed until the fuel is exhausted. Landings are always performed deadstick. In

competition, particularly if you fly stunt, being able to time your engine runs precisely is critical. Most fueling is done using a syringe so that fuel can be measured precisely.

From a bird's eye view (or drone), flying C/L looks something like this:



More complex models couple the flaps to the elevator to allow for tighter loops and corners. Throttle control can be achieved by adding a 3<sup>rd</sup> line or through the addition of an inexpensive R/C system. It is not unusual to see C/L models in which secondary functions are controlled by R/C.

C/L offers a variety of flying styles which can be enjoyed: sport, precision aerobatics, combat, team racing, speed, scale and Navy carrier. Many, many, years ago the Navy used to host the NATs and as a result Navy carrier is a uniquely American form of C/L flying. Within our small group we either fly sport or precision aerobatics (a.k.a. stunt).

As the name implies flying for sport might include throwing in the occasional loop, flying inverted, lazy eights or any other maneuver that the pilot feels comfortable in performing.

In precision aerobatics the pilot is required to fly a set sequence of maneuvers while maintaining a base altitude of 5ft over the ground. Maneuvers include regular loops, inside and outside, square loops, figure 8's, the hourglass 8 and the 4 leaf clover. Some of the maneuvers, such as the square outside loops, are flown starting from a 45° elevation and applying down elevator to start the maneuver. Keeping the 5ft base height while flying at 50mph with the nose pointed at the ground is not that easy...

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### Getting started

There are a few ARF's available but the choices are rather limited; most get their start by either building their own model, getting a hand me down or purchasing a used plane. Since the C/L market is considerably smaller than the R/C market most of the suppliers are small operations with one exception: Brodak ([www.brodak.com](http://www.brodak.com)). If you are interested in trying the sport I would suggest talking to one of us or browsing through Brodak's website. Their website generally includes a list of the items needed to complete a model so you should be off to a good start. John at Flightline is also familiar with C/L flying and should be able to provide you with what you need.

For a first model I would recommend something which is easy to build as well as inexpensive such as a Ringmaster, Flite Streak or even a SIG Akromaster.

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Unlike R/C crashes are common; they are part of the learning process. In C/L there are no dual controls so your first flight is also your first solo!



I would also suggest starting out using glow power as engines are quite durable and unlikely to suffer damage in the event of a crash since we fly off grass. The Ringmaster and Flite Streak can be powered by either a .25 or .40 sized engine while the Akromaster should use a .15 sized engine.

Dizziness can be a problem at first; fortunately, for most of us, this is only a temporary condition. As with anything else you build your tolerance over time. Focusing on the model and not the background while in flight also helps. Those of us with experience can help you make the process easier so do not be afraid to ask for help. There are a few online forums dedicated to C/L and they are valuable source of information; my favorites include:

[www.stunthanger.com](http://www.stunthanger.com)

[www.rcgroups.com](http://www.rcgroups.com)

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### **Power system choices**

Electric power has made significant inroads in C/L as it has in R/C; I would venture to guess that about 1/3 of the top fliers have gone electric.

In its heyday C/L flying was probably the most popular form of aeromodelling but it now represents a small segment of the hobby. Traditional engine manufacturers noticed the trend and have left the segment, fortunately several small manufacturers continue to produce C/L engines.

Brodak offers a line of glow engines ranging in displacement from .049cu to 0.61cu; their engines represent a sensible compromise between price and performance. Those seeking the ultimate in performance regardless of cost might consider a PA, Stalker or Fora engine.

### **Electric powered control line**

I am an avid electric R/C flyer; I made the transition back in 2005. After my interest in C/L flying was rekindled it only seemed natural that I would use electric power. After two years of playing with it I can say with confidence that deciding what motor, prop, ESC and battery to use is not as straight forward as I thought it would be. There are several reasons for this:

**Size:** Control line models are smaller than their R/C counterparts; trying to fit all the components requires some planning.

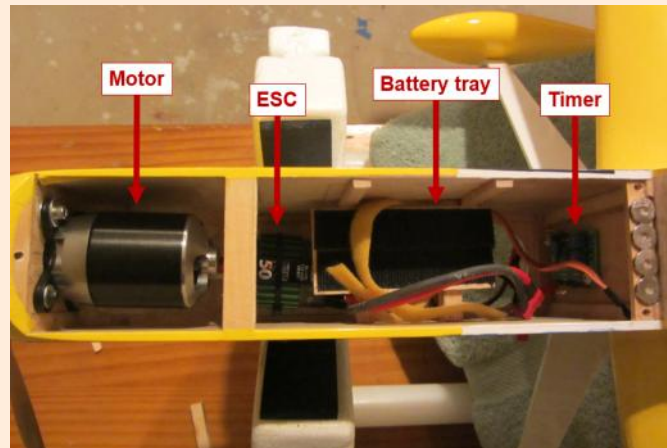
**Weight:** C/L models benefit from low wing loadings to be maneuverable; 15 oz/sqft is considered the upper limit for stunt. In R/C a wing loading below the 20 oz/sqft is considered light. Given that C/L engines are lighter, that there is no receiver battery to remove nor throttle servo, a converted C/L model will always be heavier than its glow powered counterpart. Light models perform better so learning how to build light is important.

**Power requirements:** This one caught me by surprise once I stopped to think about it. While in flight a stunt model should be capable of performing a loop or vertical eight without the benefit of using a throttle to increase power. Consequently C/L models fly at very high constant power settings, averaging 120-160 watts per pound (W/lb). The power system needs to be able to deliver this constantly for about 5:15 minutes. In contrast my Vanquish has up to 190 W/lb available. The advanced sequence requires an average of 1000W of power to fly (power varies between 2100W to 0W while in flight). On a 10.5 lb model this translates to an average of 95 W/lb; a much more modest power setting.

**Battery requirements:** The need for lightness and the small size of the models places additional constraints on the choice of battery. The intent is to use the smallest possible battery which can deliver the needed power for 5:15 minutes. Considering that only 80% of the battery's nominal capacity can be used this translates into a target discharge rate of about 6.5C (6.5 x the capacity of the battery in amps). Most modern batteries are rated at 30C or higher so in principle delivering a 6.5C discharge rate should be trivial. My experience indicates otherwise which leads me to believe that advertised C ratings are highly inflated (big surprise right?). Maybe this will become the subject of a future column.

**The hardware:** There are two ways in which a C/L model can be electrified; in both cases you will need a motor, an ESC and a battery; how the motor is controlled is what differentiates them.

**Traditional approach:** Set the motor RPM to the desired level and use a timer to control run time. This set-up replicates the flight profile of a glow powered model. This is the approach I use; the image below shows how the components are arranged.



Depending the set-up, the timer can be used to control the motor RPM through the throttle signal it sends to the ESC. This is probably the simplest set-up but has the disadvantage that the RPM will drop while in flight as the battery voltage drops. Some timers have built in compensation but there will always be some variation in RPM.

Alternatively, if the ESC has a governor setting (as used in helicopters), the desired RPM can be programmed into the ESC. Running the ESC in governor mode allows it to hold the RPM constant throughout the flight regardless of battery voltage sag. Additionally when the motor is loaded (as in a climb) the ESC will react by increasing

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the power while trying to maintain RPM. It is not unusual to see a 200W variation in power as the model climbs or dives. In this instance the timer's throttle signal is simply used to start and stop the motor and nothing else. This is how my models are currently set-up and it works well; however, there is a bit of a learning curve.

Using a timer does have one major shortcoming; its inability to shut off the motor in the event of a crash. Although the ESC will shut off if its current limit is exceeded; it will also re-start as soon as the current drops. This means that in a crash the motor might pulse on and off until something is either damaged (i.e. ESC) or the timer been shut off. If you are interested in learning how to fly using electric power I would recommend the hybrid approach.

Hybrid approach: Rather than using a timer to control the motor, a small R/C receiver is added to the model. This allows the pilot to control the throttle much in the same way as you would in a R/C model. This allows you to vary the power while in flight. It also has the added advantage of allowing the pilot to shut off the motor in the event of a crash.

I realize that I have just skimmed the surface of what is to be known about C/L flying; I intend to revisit the subject in future articles.

#### How to: Keeping your cool

I finally got a chance to fly my new C/L Legacy only to discover that the motor was running hot. C/L models have narrow fuselages which make it difficult to get proper airflow over the motor, ESC and battery. Of the three, the ESC is the most important item to keep cool followed by the motor and finally the battery.

In my case the motor was not getting adequate airflow so I opted to add a "spoon scoop". As the name implies the air scoop is made by cutting the tip off a plastic spoon as

To allow air into the motor bay I had to cut an opening on the motor hatch which roughly followed the profile of the spoon.



I had some paint left over from when the model was built so painted the scoop before attaching it in place.



Thinking that the problem had been solved off I went to get a few flights. I was rather disappointed to discover that the motor was still running a little hot. Now it was time to get the saw out for the second fix; the model was going to get a nose job. To create additional airflow is simply cut-off the spinner's tip. The spinners I use have an aluminum back plate. To save weight, the back plates have large holes already cut into them. Once the tip has been cutoff these holes allow the air to pass through directly onto the motor. I have done this in the past and it works. This is what the model currently looks like



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The motor still runs a little warmer than I would like so I might add a small baffle under the scoop to direct more air onto the motor but for now the situation is much improved.

**Teo Terry**



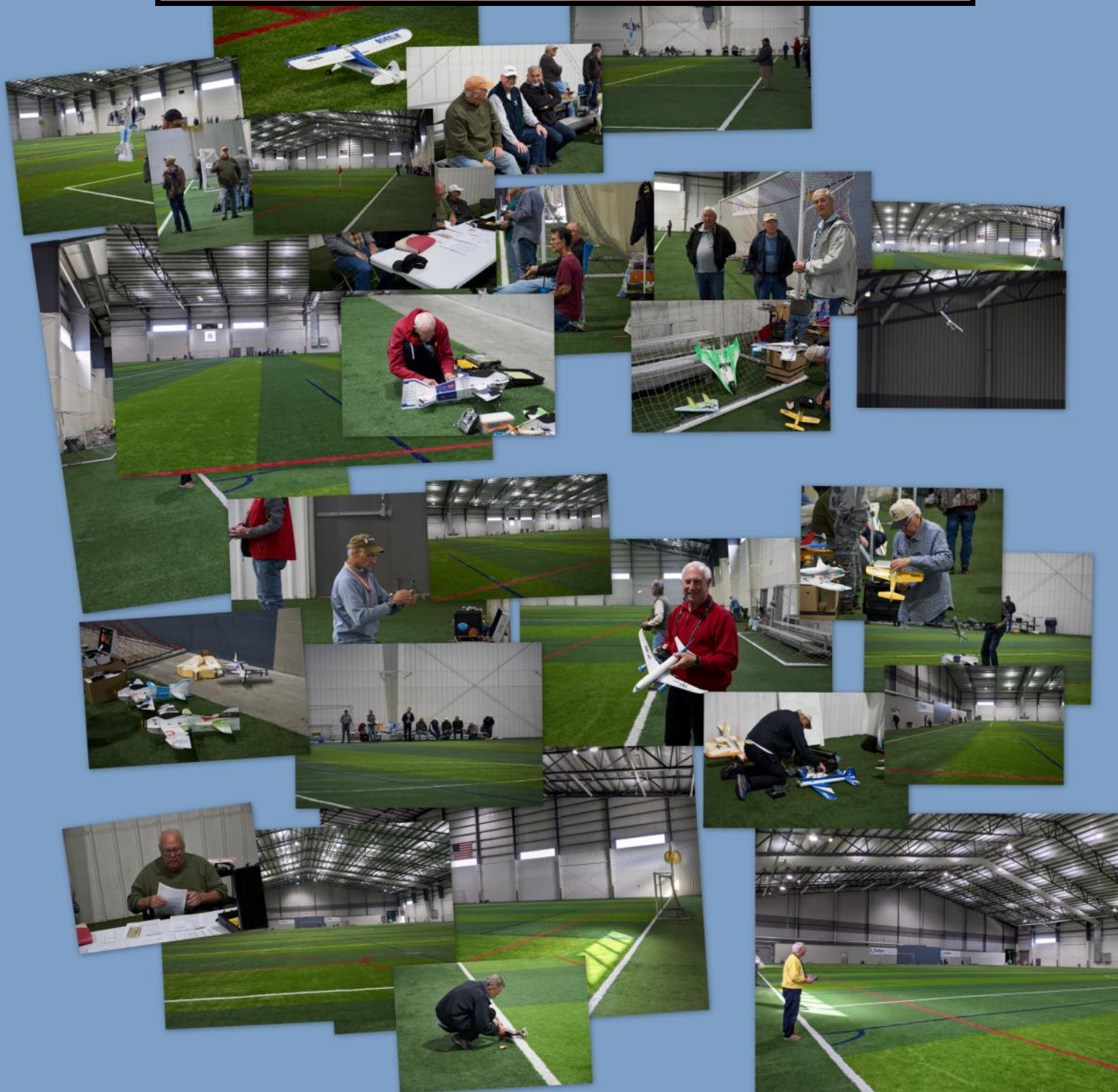
Lets all welcome one of our newest pilots, **Wolfgng Kaden!** Wolfgang flew in Germany about 50 years ago and after a VERY long hiatus, decided he wanted to get back into the hobby. We put him on a buddy box (after figuring out how to handle his preference for mode 1) and he made very rapid progress even though his Timber isn't exactly a trainer. One day I decided he was ready to solo but Brad Muzzy pointed out that he was already flying well enough to get signed off so after a well executed checkflight, Brad and I signed him off on his Timber X. He's working hard on continuing to improve his technique.

Paul Goelz



# Indoor flying resumes at UWM (formerly Ultimate Soccer)

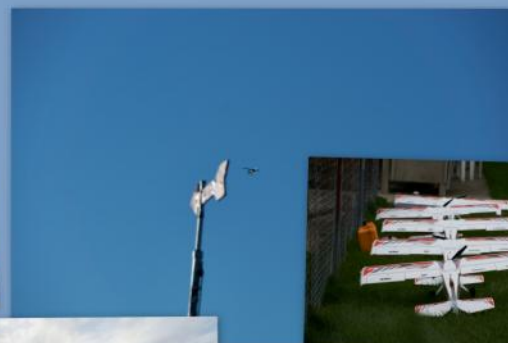
*Click anywhere in the collage to view the entire photo album on  
the Skymasters web site*





# Skymasters Tailgate Swap and Night Fly

*Click anywhere in the collage to view the entire photo album on the Skymasters web site*



# ***Skymasters***

## ***Indoor Flying/Driving*** \*



**Join us Wednesday's \*\***

**from 10:AM-1:PM**

**On Field #4 at the**

**UWM Sports Complex**



***Located on 867 South Blvd., Pontiac, MI 48341***

***Oct. 20<sup>th</sup> thru Apr. 13<sup>th</sup>\*\****

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

**All Pilots/Drivers must have proof of current AMA Membership  
A Special 3 Month Trial AMA Membership Application is Available**

**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](http://www.Skymasters.org)**

**\*\* Dates or Times Subject to Change with out notice.  
UWMSC closed Wed. Dec. 29<sup>th</sup>.**

**All Pilots can Register Online now at:  
[www.Skymasters.org](http://www.Skymasters.org)**



# ***"SKYMASTERS" INDOOR FLYING***

## **At UWM Sports Complex Field #4**

*For the 2020-2021 Winter Season\**

### **OCTOBER:**

Wed. 20<sup>th</sup>

Wed. 27<sup>th</sup>

Flying sessions start at 10 am and end at 1: PM \*

**Please Bring Proper Change For Payment.**

### **NOVEMBER:**

Wed. 3<sup>rd</sup>

Wed. 10<sup>th</sup>

Wed. 17<sup>st</sup>

Wed. 24<sup>th</sup>

### **FEBRUARY:**

Wed. 2<sup>nd</sup>

Wed. 9<sup>th</sup>

Wed. 16<sup>th</sup>

Wed. 23<sup>th</sup>

### **DECEMBER:**

Wed. 1<sup>st</sup>

Wed. 8<sup>th</sup>

Wed. 15<sup>th</sup>

Wed. 22<sup>nd</sup>

Wed. 29<sup>th</sup> CLOSED

### **MARCH:**

Wed. 2<sup>nd</sup>

Wed. 9<sup>th</sup>

Wed. 16<sup>th</sup>

Wed. 23<sup>th</sup>

Wed. 30<sup>th</sup>

### **JANUARY:**

Wed. 5<sup>th</sup>

Wed. 12<sup>th</sup>

Wed. 19<sup>th</sup>

Wed. 26<sup>th</sup>

### **APRIL**

Wed. 6<sup>th</sup>

Wed. 13<sup>th</sup>

**\* *Dates & Times Subject to Change or Cancellation 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](http://www.Skymasters.org)**

**You can contact the Event Director at: [Indoorfly@Skymasters.org](mailto:Indoorfly@Skymasters.org)**

# ON THE WING

## The Retirees and Wannabes Breakfast At Leo's (new location)

9AM, 1st and 3rd Mondays

193 S. Livernois  
Rochester Hills

## Skymasters Breakfast At Iris Café

8:30AM every Saturday morning

3667 Baldwin Rd  
Orion Charter Township

## Indoor Flying Returns

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

Every Wednesday (note new day)  
10AM — 1PM

UWM Sports Complex (field #4, in the rear of the complex)

867 S Blvd E, Pontiac, MI 48341

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



## Other local area indoor flying

### Premiere Sports Center

14901 23 mile, Shelby Twp, MI

(northwest corner of 23 mile and Hayes)

Every Thursday, 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/>

### 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



# November 2021

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1 Skymasters Breakfast 9AM Leo's	2	3 Indoor Flying 10AM UWM Sports Complex (formerly Ultimate Soccer)	4 Indoor Flying 9AM—3PM Premiere Sports Shelby Twp	5	6 Breakfast 8:30AM Iris Café
7 Midwest RC Swap 8:15AM Northville	8	9	10 Indoor Flying 10AM UWM Sports Complex (formerly Ultimate Soccer)	11 Indoor Flying 9AM—3PM Premiere Sports Shelby Twp	12	13 Breakfast 8:30AM Iris Café
14	15 Skymasters Breakfast 9AM Leo's	16	17 Indoor Flying 10AM UWM Sports Complex (formerly Ultimate Soccer)	18 Indoor Flying 9AM—3PM Premiere Sports Shelby Twp	19	20 Breakfast 8:30AM Iris Café
21	22	23	24 Indoor Flying 10AM UWM Sports Complex (formerly Ultimate Soccer)	25 Indoor Flying 9AM—3PM Premiere Sports Shelby Twp	26	27 Breakfast 8:30AM Iris Café
28	29	30				

# 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 (non-alcoholic) 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](mailto: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:	Pete Foss	Oxford	<a href="mailto:president@skymasters.org">president@skymasters.org</a>
Vice Pres.:	John Billinger	Troy	<a href="mailto:vicepresident@skymasters.org">vicepresident@skymasters.org</a>
Secretary:	Phil Saunders	Rochester Hills	<a href="mailto:secretary@skymasters.org">secretary@skymasters.org</a>
Treasurer:	Jim Satawa	Lake Orion	<a href="mailto:treasurer@skymasters.org">treasurer@skymasters.org</a>
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EOC at large	Dave Stanley	Lake Orion	<a href="mailto:at.large2@skymasters.org">at.large2@skymasters.org</a>
EOC at large	Steve Kretschmer	Oakland	<a href="mailto:at.large1@skymasters.org">at.large1@skymasters.org</a>
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## Newsletter Submissions

Please send all articles, photos and announcements to the Skywriter editor at:

[newsletter@skymasters.org](mailto: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](http://www.skymasters.org)