

March

Skywriter

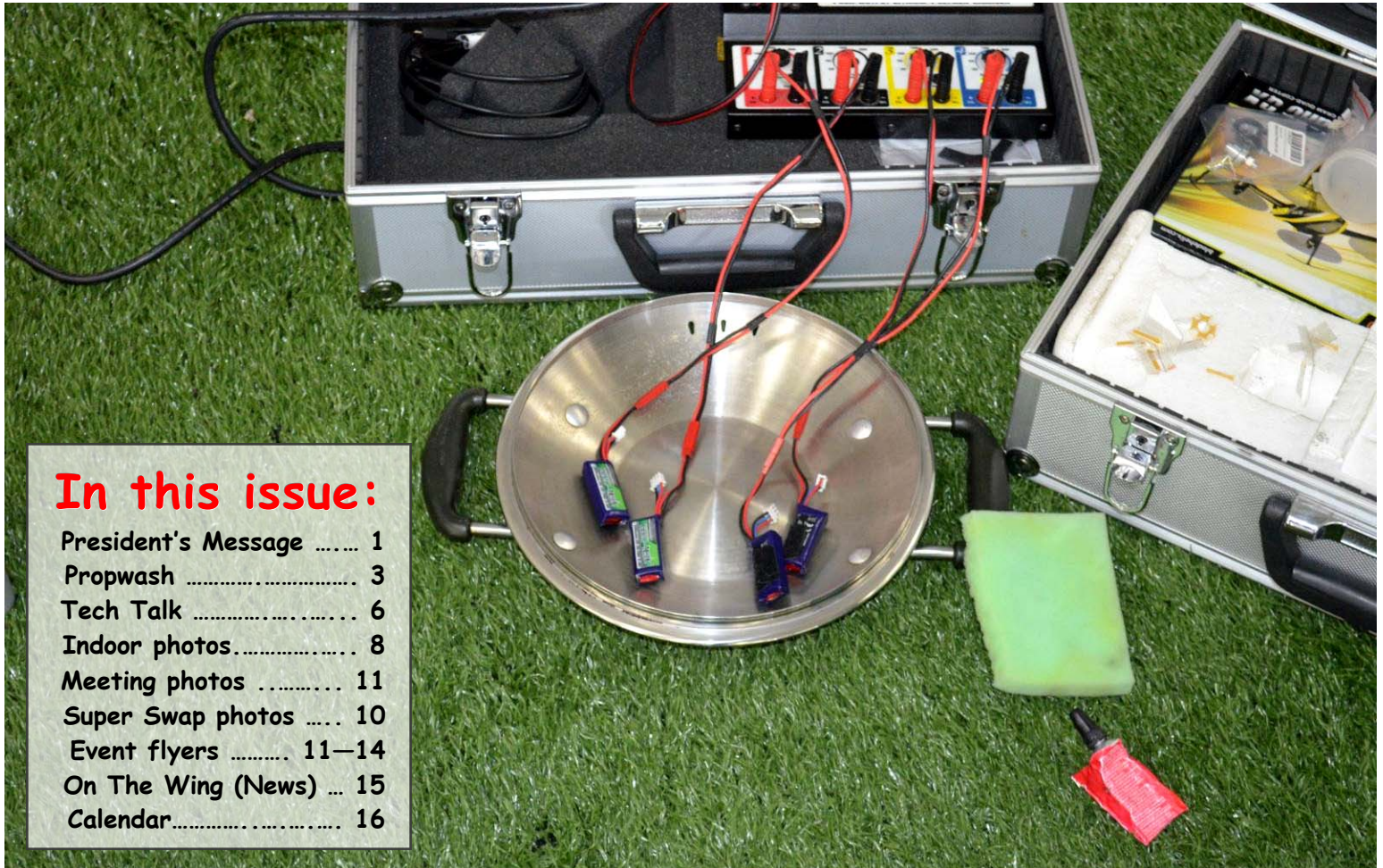
2014



SKYMASTERS RADIO CONTROL CLUB
OF MICHIGAN

AMA Chartered Club #970
16 Year Gold Leader Club

www.skymasters.org



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From the President...



As I write this we are still within the deep freeze that has enveloped us for the last 3 months. Although I have always liked each season in its turn and generally speaking like to see snow in the winter, I can tell you that I've had more

than enough for this year.

Unfortunately, this year's record breaking winter has suppressed the hardy souls who in previous winters have braved the snow to come out and fly at least once in a while. I've been out there a few times but it's been a struggle to get anything in the air. Whether it's the struggle to get the car up to the parking lot, the

struggle to tramp through the snow to the flight line, or the struggle against precipitation or bad light conditions, there's no doubt it's been a lousy winter for flying.

On the bright side, the weather didn't hit us too badly on Swap Shop day. It wasn't particularly warm but it was sunny and not terribly windy. The turnout was great, more than 400 people, and everyone seemed to enjoy themselves. I once again want to thank everyone who participated both as helpers and as buyer/sellers. Your efforts made for a great event. I especially want to thank Bob Chapdelaine for putting on such a great show.

Although the forecast is not showing any signs of spring yet, I have vague hopes that it may eventually warm up.

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I'm looking forward to seeing everyone at the field. We don't have any major changes planned this year but we may polish up some of our events to try to make them even more appealing to pilots and to the public. If anyone has suggestions for improvements, I'm happy to hear them. I'm even happier if you're willing to help implement your suggestions.

Things will be a bit slow event-wise until we get to Bald Mountain involvement day. We do have the SIG Fazer challenge to look forward to on March 22. It will be

interesting to see what everyone's been working on. Once we hit June, though, we're back up to full speed. I hope everyone will take advantage of all the club has to offer this summer.

Happy Landings,

Ken

Ken Gutelius

President, Skymasters



Front Cover:

Safety first, guys! Here's a creative, fireproof and free solution.

Paul Goelz photo

Propwash

By

Joe Finkelstine

January 2014



Slip sliding away...

Hi all,

As I promised in my last column, I wanted to continue with the topic of cross wind landings, as I did not complete it last month.

As you may recall, I left off with our fine ship on base getting ready to make a turn to final. Let's do a brief review of how we got it there from last time though. The biggest issue we had to keep in mind was that the wind (from due north in the example) has significant effect on our ground track and being the smart pilot we all now we are, we corrected our flight path to get our craft to the right spot at the right height and the right airspeed. We had to adjust where we pointed the nose, and not be fooled with unneeded power corrections when we had a direct head and tail winds.

So here we find our plane. We have just completed the turn to base (in this case, we are making a landing from right to left at our field, so the plane is east of us and hopefully not in the power lines!)

Hopefully by now we will have also planned how we are going to finish the approach – There are several ways we can do it

One way, if the wind correction is minimal and/or our plane is small, is to fly in diagonally. This entails flying the base leg until we can turn towards the field at the southern edge of the field – I.E. from the pilot's station, we would see the plane almost directly to our right. From this ground position we make a diagonal flight path (heading in slightly northwest, instead of due west). We have basically reduce the "live" flight path corrections needed here and reduced the cross wind down to an issue of maintaining airspeed and sufficient power. I have seen this approach many times and I have seen it **not** work as often as I have seen it work. One thing to remember is that we still need to maintain the correct glide path down, and that is primarily a power setting issue. Once again, it is not a good idea here to chop the throttle and glide in from the corner- Maintain power to bring the ship in as the headwind will have a portion that will want to keep you away from the field – Remember the landing mantra – power controls glide path and elevator controls approach speed – this is opposite to our intuition from driving a car. In general, I do not recommend this be your "go to" way of landing primarily because it only works in a limited set of circumstances. First is that if the cross wind is significant, this approach will not work, and will often wind up with you behind the flight line.

The second method I am aware of and use sometimes myself is what is known as the "crab" – If you have been paying attention, you should have noticed we were already "crabbing" on the approach, particularly on the downwind leg – we pointed our nose into the wind, and our ground track was due east, but our nose was not pointing due east. We pointed the nose into the wind to make our ground track due east – We were maintaining an angle with due east into the wind and this angle is called the crab angle.

Well, this same thing works on final approach with a modification at the very end. To employ this approach, we turn final over the center line and point our nose into the wind once again. How much you point it into the wind is a guess, but you will usually have time during the approach to make corrections. So now we are flying down the glide path, nose pointed slightly north and a happy camper we are until we are a few feet above the ground. If we leave the nose pointed

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somewhat north, we will touch down with our landing gear pointed askew and begin an almost certain cartwheel and howls from the peanut gallery.

As we get near the ground it is time to wake up our left hand and use the rudder to point the nose back to due west so we land with our gear pointed the same direction as our ground track. If we point the nose due west too soon, we may drift too far towards the flight line before we touch down. If we rudder it straight too late, well you know...

The last part of this approach is a timing maneuver – We have to time when to straighten out the nose and this depends on many factors. How effective is the rudder? Have we managed airspeed properly so the rudder can work? How much coffee we have in our veins? etc.

This approach is a great one to practice in a couple of ways. One is way up in the air (couple of mistakes high) and simply fly the approach up high, including the rudder movement – try to make the approach speed and descent match what you will do down low and get comfortable with the timing and how much rudder you have to add.

You never bring the ship below two mistakes high just in case you go way overboard with the rudder and get a snap roll, or some other crazy roll. The other way to practice this approach is the simulator – A bit more difficult, as simulators are not the best landing environment, but this is a good time to use one.

The crab approach is a very effective one and the one I most recommend to new and intermediate pilots

The next approach style is one I also employ with my pattern ships and any other craft that is a high performance plane and that is called the slip. There are two fundamental types of slips, one is called the side slip and one is called the forward slip. From an aerodynamics point of view, both of these slips are nearly identical, but each one is used for a different reason entirely. The side slip is best utilized for cross wind landings and the forward slip is often used to steepen an approach without gaining airspeed. They also look much different, as the side slip maintains the nose pointed along the flight path, and the forward slip does not.

Let's examine the side slip first.

So, imagine we are in the same scenario, landing to the west and a cross wind to the north. If I were to roll my plane slightly into the wind (I.E. roll the upwind wing down), that would help offset the cross wind, but leave us with a mounting problem of the plane would want to continue to turn in the direction we rolled. To stop this roll, I then apply **opposite** rudder – In this case I roll to the right (planes right) and then give left rudder. If I didn't apply any opposite rudder, the plane would begin a gradual turn to the north and be completely out of whack for a landing. If I applied rudder in the same direction as the roll, the plane would turn away even faster. If I turn against the roll, I can force the nose to stay aligned with the runway centerline. So once I have the side slipp working, the plane glides down the centerline, without drifting towards the flight line and the nose is aligned properly for landing. Indeed, if I were to keep the side slip all the way to touchdown, the upwind gear would touch, then the downwind gear.

The biggest challenge with the side slip is that the side slip inputs (opposite rudder to aileron) are also the exact same inputs (although lesser in magnitude) to make the plane snap roll. If we fail to maintain correct airspeed, the side slip can be lead to a snap roll with no room to recover. Power (and total energy) management is even more vital. The side slip can also be utilized at the end of a crab approach, and this is the way I most often land – I start with a crab (no cross controls) for most of the landing approach, then change to a mild side slip for the last 10 feet or so, so I don't need to add much opposite control input. This approach is going to feel awkward at first and you absolutely need to practice it way up in the air many times until you can notice when a snap is imminent.

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I would recommend you learn this method along with the crab and you will be able to land almost everything in your arsenal. Notice I said almost back there, as I have not discussed the forward slip.

The best example I can give of the forward slip is ask you to scan your memory at the field this last summer. Club member, Tom Wheeler, who flies a big 42% gasser, utilizes a forward slip almost every time I see him land, regardless of the wind conditions, including no wind at all. The problem Tom is faced with is his large gasser is quite efficient and he must manage his airspeed and altitude within a small window in order to land at our field. Since the plane is so big and moves at a good clip, a “normal” approach would almost certainly carry him over the big power wires – not a good thing (don’t ask me how I know this). So, if he flies an approach that keeps him above the trees and turns much before the power lines, he is faced with too much altitude to even glide power off for a landing - he would touch down so fast, he would almost certainly roll off the field and have to endure all the worn out clichés the peanut gallery would lob his way. So how does he get the plane to lose altitude quickly, without gaining large amounts of speed? – He uses a forward slip

The forward slip also utilizes opposite rudder and aileron (hence it’s identical nature the side slip from an aerodynamic standpoint) but has a big difference in where the nose points. In a forward slip the nose is pointed away from the center line. The benefit is that depending on the degree of how much the nose is pointed away, a large amount of drag is produced by the now semi sideways fuselage. This additional drag is the key to allowing Tom’s big ship to lose altitude without gaining appreciable airspeed. If you watch closely, Tom will often start his final approach at tree top or slightly above and forward slip about half way down altitude wise, then come out of the forward slip into a crab, side slip, or non-corrected approach, depending on the wind conditions. In full scale, the forward slip is utilized when a pilot needs to clear an obstacle at the runway end, so a conventional glide path won’t work – the full scale pilot stays abnormally high to clear the obstacle, then forward slips back down to proper glide path and continues the approach to landing.

In general, most of us not need to utilize the forward slip, although I think it looks very cool. One of the reasons I want to get a good size Cub is to take the slip to its extreme and approach the field with a knife edge slip – wings vertical and a big fast drop right over the edge of the field and then correct in time to land – as you might imagine, If I were to be a bit late on the correction, I will have a lawn dart on my hands. If you have a plane that requires a forward slip, you almost certainly know all of this stuff already anyways

So, now that I have discussed the approaches, I do have some final thoughts

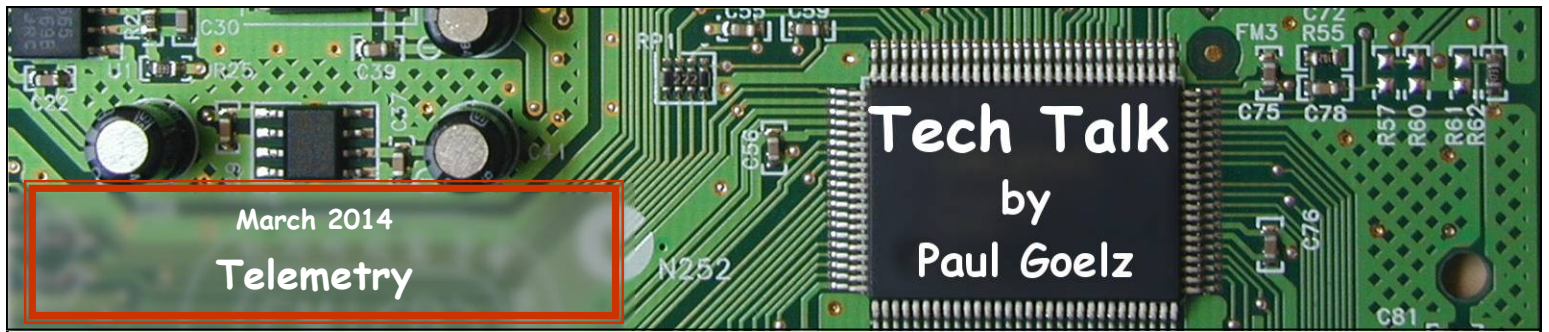
First is a lesson from the full scale world of planes. All certified full scale planes have a value called the maximum cross wind component. This is a maximum value of the cross wind perpendicular to the runway the plane was tested to be able to safely control on take-off or landing. This test is also done with an expert pilot at the controls as well. The full scale planes have a limit on cross wind based on magnitude and direction and I would suggest you also make a mental note of how much cross wind you will fly with. Many of you make that value near zero though, and this article is trying to get you to set your limits higher

Also, as many of you at the field have noticed, our cross winds are often ephemeral. The key to variable, gusting, and fleeting winds are to remember that the corrections at the top of the approach may not work at the bottom and as long as the prop can turn under power, you can go around.

Finally, if you really hate cross winds completely, then I would recommend you take up RC helicopter flying, no cross wind landings or takeoffs required!

Hope the thaw is near when you read this

Joe Finkelstine



Hi gang,

Ever since I started flying LiPos in my electric planes, I have worried about over-discharging them. Back in the NiCd days, flying until the motor stopped was not a bad thing. But LiPos are very unforgiving of just about anything, and over-discharging is especially hard on them. Without going into the internal chemistry of a LiPo cell, suffice it to say that if the output voltage falls below around 3V at any time, for any reason, under any condition including under load, the cell will be permanently degraded. And anecdotal evidence suggests that even 3V is too low to prevent cell degradation. Unfortunately, many ESCs (especially in bind and fly planes) have a cutoff voltage right at 3V, so the common practice of flying until the ESC signals low battery will degrade the battery every time you fly.

The more sensible approach many use these days is to time your flights. Set the timer so that you consistently land with about 20-25% charge remaining and you are reasonably sure that you are not abusing your packs.

Or are you?

Trouble is that you have no way to know the actual cell voltage during the flight. Measuring the pack voltage after you land and estimating remaining charge from that voltage.... or even measuring the recharge capacity..... does not tell the whole story. The actual cell voltage under load will be lower than the unloaded resting voltage. And the loaded cell voltage is important if you want your packs to last as long as possible. This is even more of an issue in 3D helis, since the difference between peak and average motor current can be extreme.

So what to do?

The \$50 answer is.... telemetry. In the RC world, telemetry means you can monitor conditions in your aircraft on your transmitter display. You add a telemetry module to your

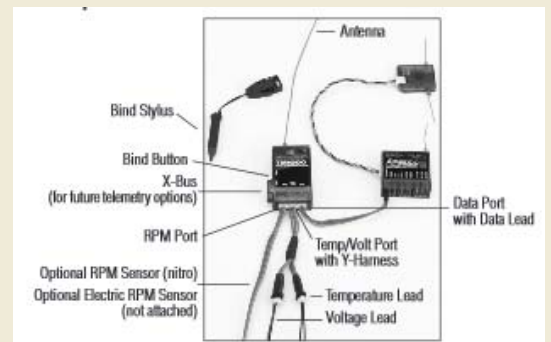
aircraft that transmits data back to your transmitter. Telemetry-capable transmitters such as the Spektrum DX7S and above contain a receiver and will display the data on the screen. They also will let you set alarms so you are alerted if any of the data values fall outside preset limits. The alarm can be either audible or tactile (vibration) or both.

With a telemetry setup, you can monitor the actual pack voltage in real time at your transmitter. Better still, you can set an alarm on your transmitter that will alert you immediately if the pack voltage falls below a preset threshold for any reason. Simply reduce the throttle to stop the alarm and continue flying at reduced throttle or line up for a landing. I use a Spektrum DX8, so that is what I will describe here. But telemetry is available on Futaba and Hitec as well.

I have installed a Spektrum TM1000 telemetry module in both my Eflite Super Cub 25e and my Feiseler Storch. Both models use larger (ie., more expensive) packs and motor currents vary widely depending on flight conditions. Therefore, it is not easy to determine when I might be overstressing the battery at some point in a flight.



Installation is fairly easy. The telemetry module is about the size of a receiver, and connects to the receiver with a standard servo cable. This connection



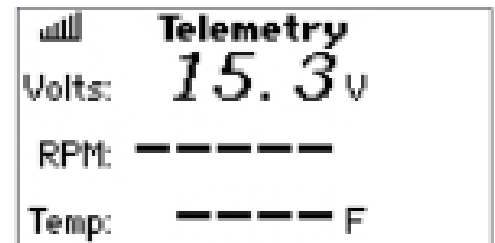
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powers it as well as (with a compatible receiver) allowing the transmitter to monitor the quality of the radio connection between the transmitter and the receiver as well as the receiver power. The only difficult part in the installation is tapping into the flight pack battery wires so the module can measure the actual flight pack voltage.

Once installed and wired, the module and the receiver are bound to the transmitter. There is a bind button on the telemetry module that puts the module and the receiver into bind mode at the same time. Once bound, the transmitter (DX7S and up) can display data quality, receiver voltage and pack voltage. Additional sensors are available for temperature and RPM as well, if desired.

My DX8 can be set to alarm at any battery voltage I choose. I use 3.5V/cell (10.5V for three cell packs and 14V for four cell packs). I have my transmitter set to vibrate if the pack voltage falls below the threshold. In flight, I just fly until the transmitter vibrates. When that happens, I reduce throttle until it stops vibrating and I know I have not overstressed my pack. I also use a timer set for an average 75% discharge in an average flight so I know where I am during the flight. Typically, on the Super Cub 25e with Nanotech 4S 3300mAh packs I can fly the whole six minutes without the transmitter alarming. But using Zippy 4S 3300mAh packs, it will alarm during full throttle aerobatics at the 3-5 minute point. But importantly, if I ignore the alarm and continue to use full throttle in aerobatics, I would land with about 20% remaining and never know that I had stressed the pack in flight.



And there is another benefit..... I have twice so far taken off with a discharged pack installed by accident, once in the Cub and once in the Storch. My transmitter alerted me soon after liftoff and I throttled back and landed without damaging the pack. Without telemetry, I would have flown until the ESC quit and certainly damaged the pack or even possibly lost the plane.

The larger and more expensive your models and packs are, the more telemetry makes sense. It takes the last bit of guesswork out of electric flying!

That's it for this month. Take care of those batteries, guys!

Paul



Indoor flying at Ultimate Soccer



February meetings



2014 Skymasters SuperSwap





Skymasters R/C Club

In conjunction with the Radio Control Club of Detroit



Indoor Electric Flying

at **Ultimate Soccer Arenas**
867 South Blvd., Pontiac, MI

2 miles south of the Pontiac Silverdome

Tuesdays from 11 AM to 1 PM
November 5, 2013 thru March 25, 2014
Holiday Sessions and Special Events



Single 2 Hour Session \$10.00

Five 2 Hour Sessions \$35.00

Season Gold Card \$120 – 52 hrs of Flying Fun

Additional Charges for Special Events & Holiday Sessions

All Pilots must have proof of current AMA Membership



Sport, 3D, Micro, and Helicopters flying concurrently in different areas of the arena. See rules for size and weight limits.

Support your local hobby shops:



For more information call Jim Wynn 248-236-9983
Visit Skymasters web site at www.skymasters.org
AMA web site at www.modelaircraft.org



Rev 4

FIGHT LINE HOBBY

Mark Your Calendars !!!

*The Fazer Build Bash judging will be held at the Orion Center on Saturday
March 22nd, 6PM to 9PM*

John and Tracy Hover of Flight Line Hobby (1-877-891-8359), our host for the Fazer Build Bash, has locked in Saturday March 22nd from 6:00 pm till 9:00 pm at the Orion Center. This is the same room where we hold our club meetings, and there will be prizes/ gift certificates for the winners.

I'm proud to say that the build factor of this hobby is not dead after all and many people have taken a lot pride in kit building the Fazer. They are very excited to show their work to their peers and compete in this event so please give them all your support on a job well done.

I encourage everyone to attend, whether you built a Fazer or not, this event should be a lot of fun for all.

Support your local hobby shop, they are important to the community.



Skymasters R/C Club of Michigan

“We’ll Teach You To Fly”

Chet Brady Memorial Float Fly

Saturday, May 10th 2014

Flying Starts at 9:00AM – 2:00PM

At Trout Lake, Bald Mountain Recreation Area, Lake Orion



Join Us For A
Spring
Float Flying Classic

- Flying is open to current members of the AMA.
- All motor vehicles require a State Recreational Passport available at the Secretary of State or DNR
- Public Welcomed
- Plenty of parking
- Restrooms on site



For more information contact: Greg Brausa – cgbrausa@gmail.com
Or visit our website for location & map at: www.skymasters.org





ADDISON OAKS FLOAT FLYING 2014



www.romeoskyhawks.org

www.flyfraser.net

SPONSORED BY THE ROMEO R/C CLUB AND THE FRASER FLYING CLUB
AMA INSURANCE CERTIFICATE PROVIDED TO ADDISON OAKS PARK

Every Wednesday, May thru September

Addison Oaks Oakland County Park at Buhl Lake
1480 W Romeo Road, Leonard, MI 48367

Main Park Entrance on W. Romeo Rd (32mile) West of Rochester Road
Past the Toll Booth then follow the signs to the Boat Rental
www.destinationoakland.com

Flying from 9 am till noon, boat provided by Addison Park
Flying open to AMA Members - Public Welcome

Only 2.4 GHz radio systems are allowed



- All Cars Need Daily/Annual Oakland County Park Sticker
- Daily Car Pass is \$4.00 Senior or \$5.00 Oakland Resident
- Annual Car Pass is \$22.00 Senior or \$30.00 Resident

- Plenty of Free Parking. Unload and then Park

- No R/C Boats During Flying Times

- Weekly Email Notification on Tuesday of Weather Forecast and Wednesday of Flying Status or Cancellation



For more information call Jim Held at (H) 248-641-9724 or (C) 248-835-4491
jimwheld@wowway.com

Photo's by Jim Held

Created by Douglas Norris

ON THE WING

Skymasters Breakfast

First and Third Monday of
each month through May

9AM

Everyone welcome

Red Olive restaurant
In the strip mall on Walton
across from Crittenton Hospital

Indoor Flying

Every Tuesday
through March

11AM to 1PM

At Ultimate Soccer,
Opdyke and South Blvd
Pontiac, MI



Next Skymasters Meeting...

March 13th 6:45PM

March 27th 6:45PM

at the Orion Center

1335 Joslyn Road

(on the east side of Joslyn,
just south of Clarkston Road)

Lake Orion, MI

Other local area indoor flying sessions

Premiere Training Center

51379 Quadrate, Macomb MI

(north of 23 mile and east of Hayes)

Thursdays, 9AM to 3PM (yes, that's 6 hours)

Small electric planes and helis (separate heli space)

\$10/session, AMA not required

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

stevedurecki@comcast.net

Legacy Center

9299 Goble Dr.

Hamburg, MI 48139

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

Thursdays

Check the club for times

In partnership with the Hamburg Flyers

March 2014

SUN	MON	TUE	WED	THU	FRI	SAT
						1
2	3 Skymasters Breakfast 9AM Red Olive Rochester	4 Indoor flying 11AM-1PM Ultimate Soccer	5	6 Indoor flying 9AM-3PM Premiere Training Center, Macomb	7	8
9	10	11 Indoor flying 11AM-1PM Ultimate Soccer	12	13 Indoor flying 9AM-3PM Premiere Training Center, Macomb Skymasters Meeting 6:45PM Orion Center	14	15
16	17 Skymasters Breakfast 9AM Red Olive Rochester	18 Indoor flying 11AM-1PM Ultimate Soccer	19	20 Indoor flying 9AM-3PM Premiere Training Center, Macomb	21	22 Fazer Build Bash Judging 6PM Orion Center
23	24	25 Indoor flying 11AM-1PM Ultimate Soccer	26	27 Indoor flying 9AM-3PM Premiere Training Center, Macomb Skymasters Meeting 6:45PM Orion Center	28	29
30	31					

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 state park permit 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 is permitted from 10 AM to 8 PM. The noise limit is 94 dBA at 10 feet. This noise rule is enforced.

Wednesday evening (through August) is Family Night with flying and a pot luck buffet. Bring something for the grill & a dish to

pass.

Wednesday 5PM to 8PM is also Student Night (through August) but there are usually instructors around all day. Meet the instructors and arrange for more instruction time together on other days. Our Chief Flight Instructor is Greg Brausa, 248-373-8949 cgbrausa@gmail.com

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. Check the calendar here or on the [web site](#) for specifics. 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!



Newsletter Submissions
Please send all articles, photos and announcements to the Skywriter editor at: newsletter@skymasters.org
Deadline is the 20th of each month.
The Skywriter newsletter is published monthly by the Skymasters Radio Control Club of Michigan
www.skymasters.org

2013 Club Officers & Appointees...

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