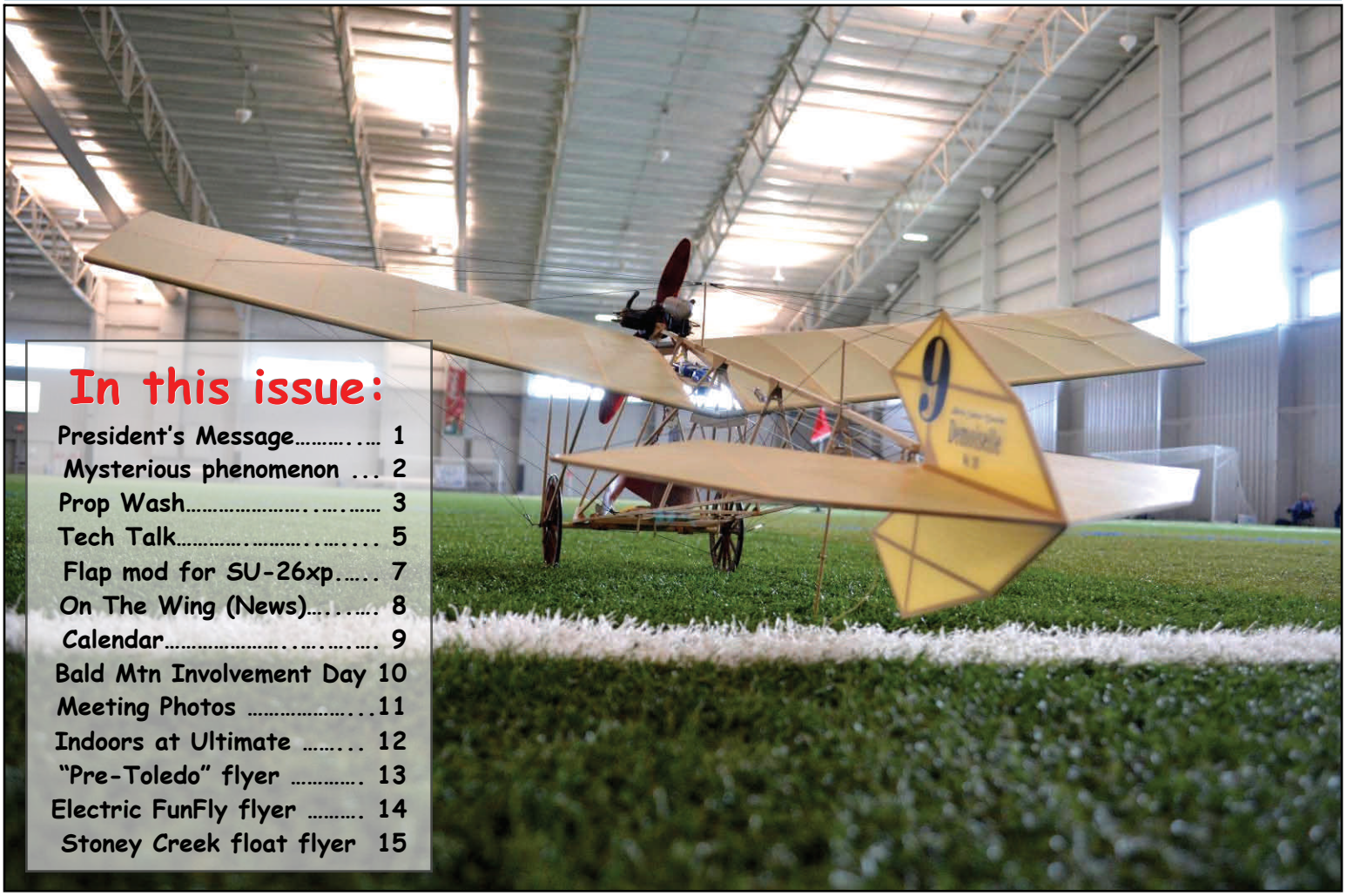
April

Skywriter

2013

SKYMASTERS RADIO CONTROL CLUB
OF MICHIGAN
AMA Chartered Club #970
16 Year Gold Leader Club
www.skymasters.org



In this issue:

From the President...

We're getting near the flying season now. Indoor is wrapping up and we're getting our big iron ready for the skies. I was out flying last weekend and I can tell you that, as is typical for late winter and early spring, the runway is rough. Even with the tundra tires on the giant scale, the rattling was audible even at taxi speeds as the frozen tufts of grass beat up the landing gear. Andy Sutter showed up with his P51 as I was leaving. I was feeling the chill by that time so I didn't stick around to see how he fared. Hopefully his machine stood up to the punishment.

But the rough condition of the field also reminds me of the work that is done to keep everything in good condition. Last year the field was rolled to smooth it out. Our efforts here will be ongoing, including potentially trying to control the ants that contribute so richly to the "texture" of the runway.

Dave Lange and Gary Wells will be leading some field improvement and maintenance work in early May. May 1 will be the field opening and May 4 will be the day to follow up and finish any work that still needs to get done. Much of Gary's projects will get done on the 4th. I would ask that everyone offer as much support to Dave

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(Continued from page 1)

and Gary as possible. In addition to the typical maintenance and clean up items, we are planning for new signs, an information center and of course the new heli field.

We're still waiting for the updated lease for the heli field but I believe at this point that it's going to happen. This is an exciting development. The separation of heli and fixed wing operations should improve the quality of everyone's flying experience and broaden the appeal of an already great club. Everyone should benefit from this, fixed wing and heli pilots alike. But it will take some work to get it set up. I'm hoping and expecting that we will have a good group of volunteers to step up and get this project done.

Thanks to everyone who has helped and continue to help to keep the club running and improving. I believe we have something really special in Skymasters but let's always be looking for ways to make it better.

Ken Gutelius

President, Skymasters

kennanc@msn.com

Editor's note….

With the April issue of ***The Skywriter***, Skymasters will be discontinuing the publication of the printed / mailed version of the newsletter. When you add up the costs of printing, assembling and mailing the newsletter, as well as the limitations to the format and length imposed by having to maintain two versions of the newsletter, it was decided that the ongoing costs and limitations of printing the newsletter were no longer justified.

Anyone who wants a printed copy can always view the newsletter online and print it from there.

This change will also allow us to include longer articles that can be continued past page 10…. something that was not possible when we were publishing a simultaneous printed version.

We will soon be creating a flyer with pertinent club information that will be printed and distributed to local shops in lieu of the newsletter.

Remember, the newsletter has always been available free for all, on the Skymasters web site:

http://www.skymasters.org/index.php/new-newsletters

Paul Goelz

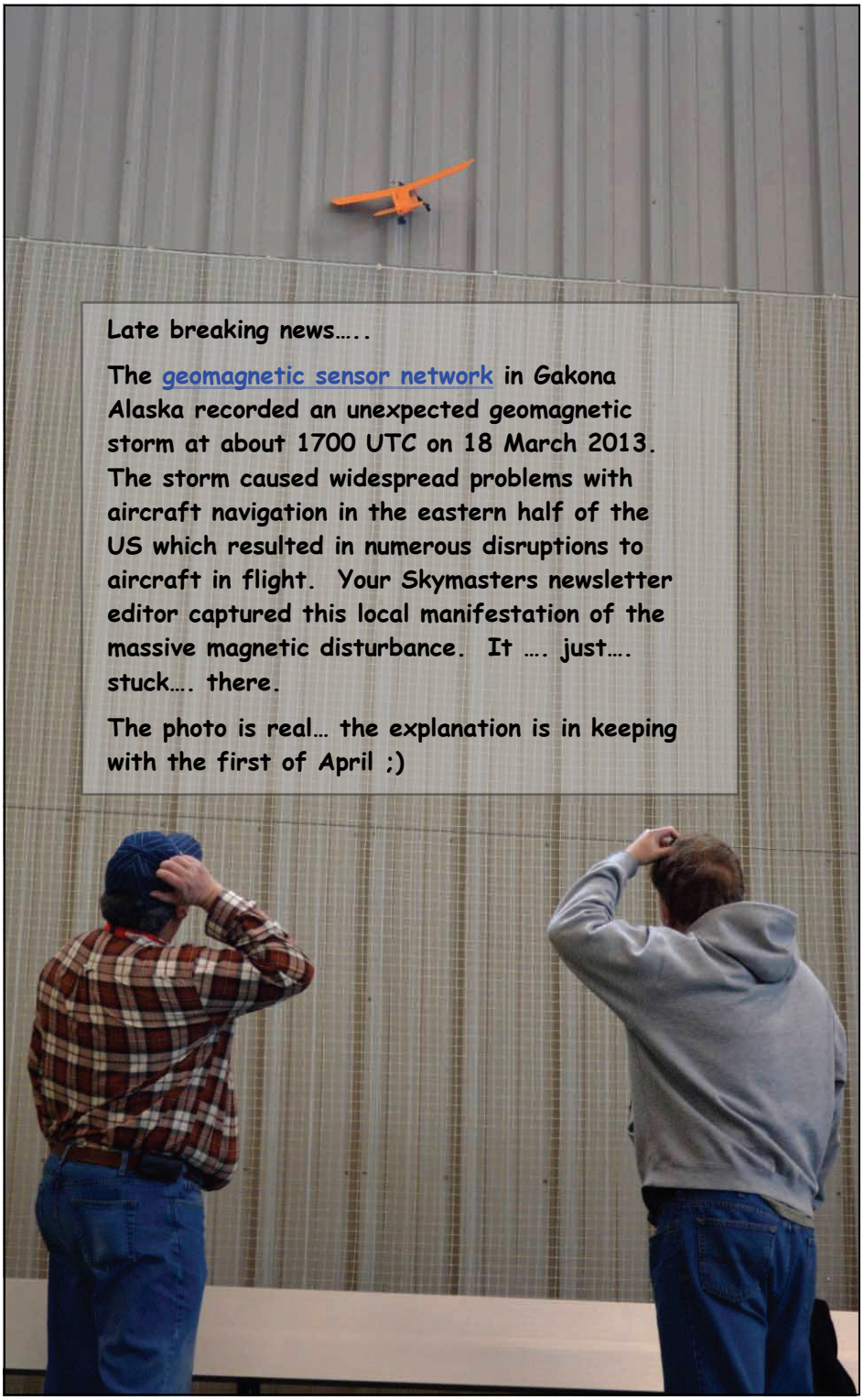
Newsletter Editor

Front Cover:

A beautiful demoiselle owned and flown (very slowly) by Bill Brown Sr. at the last indoor session of the year.

You can almost smell the exhaust and feel the prop wash….

Paul Goelz photo



Late breaking news…..

The geomagnetic sensor network in Gakona Alaska recorded an unexpected geomagnetic storm at about 1700 UTC on 18 March 2013. The storm caused widespread problems with aircraft navigation in the eastern half of the US which resulted in numerous disruptions to aircraft in flight. Your Skymasters newsletter editor captured this local manifestation of the massive magnetic disturbance. It …. just…. stuck…. there.

The photo is real… the explanation is in keeping with the first of April ;)

Propwash

By

Joe Finkelstine

April, 2013

Hi All

Well, for a small change, I will not talk about a technical issue in this month's column, but rather focus on a topic that always fascinates me each year in this hobby. The swap shop.

I have also written on this before, but I have seen so many changes in recent years, along with some buyer/seller behaviors that seem to never change.

For those of you somewhat new to this hobby and/or the Skymasters club, swap shops have gone through some major changes over the years. When I first started in this hobby, swap shops were a major event, with several of them being packed with sellers and buyers. I clearly remember being shoulder to shoulder at the old Chesaning meet and often being unable to move for a few minutes in some isles

The swap meet at the Toledo show used to warrant an entire day by itself when I first started. A gang of us (interestingly the same gang that gathers at G's now), would spend most of Friday at the swap meet, spend the night in the Toledo area, and then visit the main floor on Saturday.

Back in those days, I saw great workmanship on scratch built planes in multiple tables - it was a great time when building was king.

It wasn't all glory obviously, the electronics were frankly quite poor, and there was still loads of junk for sale as well. Nor am I just going to reminisce here, as the way things used to be is not the focus of my ramble here.

Some things have changed drastically in swap shops and some things have remained fairly constant. Both fascinate me and I always watch besides trying to sell my junk.

Let me talk with what I think has remained the same.

Number one, alive and well is the disparity I see between what some buyers value their stuff vs. what the market values it at. I continue to see many buyers pricing their used stuff at prices that are at or above new equipment which is higher in capability besides being brand new with a warranty. I see this in several areas. for example, I see guys with 2-3 generation old radios trying to get $300-$400 when a new one from Spectrum costs less with more channels, functions, etc.

Our collection of stuff in our hobby is worth what the market will bear, it has nothing to do with what it cost. Perhaps I should pause a moment and let that sink in.

There continue to be many sellers who don't understand this and wind up taking their stuff home.

The most fascinating of these are the guys who go to multiple swap shops with the same overpriced stuff and never quite make the connection that just because he paid $400 for that gadget/plane 5 years ago, that his "need" to get $350 for it just can't be communicated to the pool of buyers. Surely there must be someone out there that sees this value. Finding none that do, he goes on to the next swap meet until flying season comes along and he puts the stuff back in the corner, where it becomes even less valuable next year. Ultimately, this stuff gets finally sold for next to nothing when he leaves the hobby or worse yet, his widow sells it at an estate sale - I continue to see this at every swap meet and ours was no exception.

Buyers don't escape my wrath either here. Of course it is normal behavior of all of us to want to minimize what we spend on anything - this is not something I would complain about. I do however continue to see some individuals who honestly believe everything at a swap meet has near zero value. This goes beyond just trying to haggle a bit - I have come to the conclusion that these individuals honestly believe that used equipment has minimal value and unless the item is priced below $20 or so, they immediately dismiss it. Now, this may appear to be in contrast to the above paragraph, but it is not the same. Both of these behaviors are based on incorrect assumptions.

Will it ever change? - of course not, and this is one of the reasons I love going to swap shops - watching this buyer/ seller behavior (and participating as both buyer and seller)

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is way too much fun, and there is always that eternal hope that some wonderful plane/engine/thingamabob will present itself to me and present me with the opportunity to haggle with the owner who paid $300 for it 9 years ago

Now on to what has changed.

It is no secret that ARFs, ready to fly, and similar are dominating the new product market. What this has lead to in our hobby is a quickly shrinking base of RC'ers who actually build. One of the primary ways to get equipment, plans, building kits, etc. used to be the swap meet, and much of this activity is disappearing before my very eyes. I started noticing it at the Toledo RC show, and confirmed it at Chesaning and our swap meets. We all want Arfs and planes we can get into the air with minimal effort on our part and I think many see used equipment as a project or we see it as less desirable than new - The actual kits I see being purchased have been almost exclusively by people who have obviously been in the hobby a long time and remember that this too was an enjoyable part beside flying.

While this change in our hobby is not directly a swap shop cause, it certainly shows up at a swap shop (a quick perusal through any hobby shop will also confirm this). It just gets more visible each year now.

I have also noticed a significant decrease in swap shop attendees. I noticed this for the first time several years ago when the Toledo RC swap meet forbid buyers from selling stuff that was also on sale on the main floor below. The next year's swap meet at Toledo had a major reduction in sellers (many tables at Toledo are dealers) and it frankly has never recovered in attendance from both sellers and buyers.

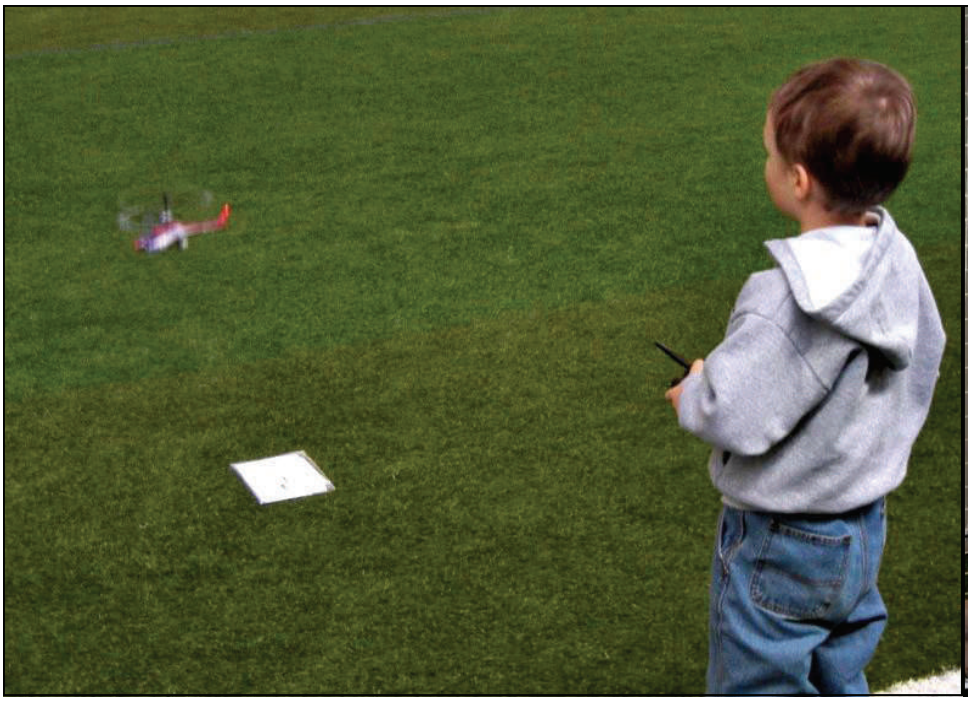
Indeed, when I go down to Toledo now, I spend at most 1-1.5 hours in the swap meet, and that is realistically only to kill time before they open the doors at the main floor - I really have no expectations of buying anything at Toledo swap anymore - that is a big change from when I started this hobby, and not exactly a welcome one for me, but it is how it has evolved.

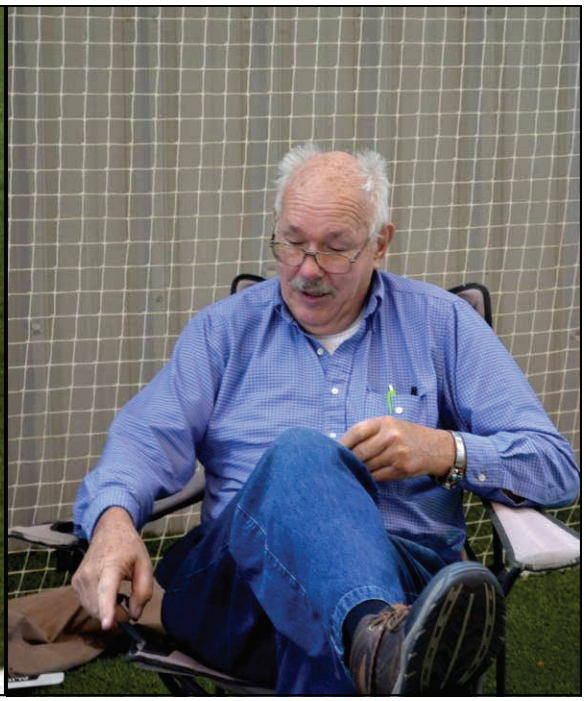
What I now look for in swap shops has changed over the years as well. Rather than focus on scoring a new plane or heli, I focus on stuff that interests me and is not available generally anywhere else. An example of this would be aviation books long out of print, or specific building materials I know are very difficult to get - I have learned to look underneath the table of each seller, as they often bring more than the table will hold and sometimes the treasure is buried quite deep -

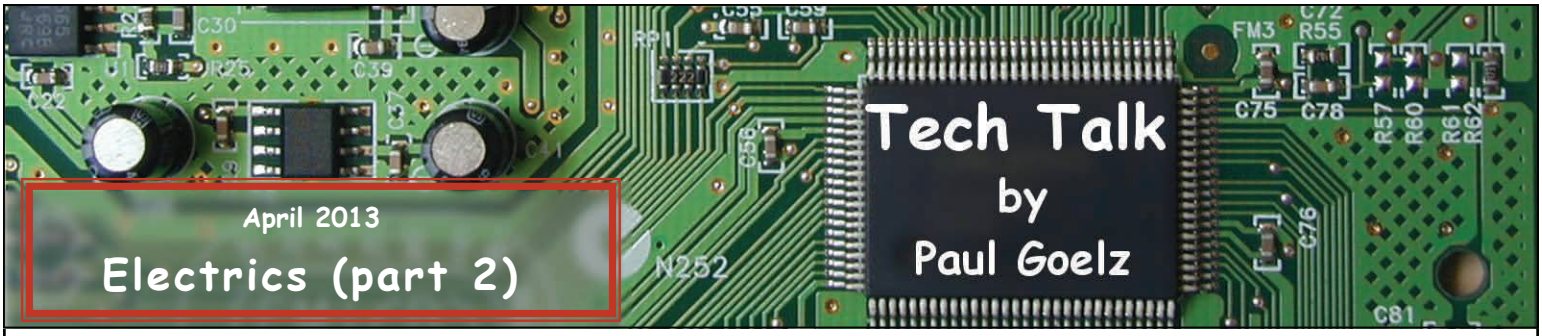
I will continue to go to a few swap meets each year, but I have certainly cut down from the number I originally went to when I first started the hobby. I see no reason to stop enjoying the thrill of the hunt!

See you at the field soon I hope!

Joe Finkelstine







Guest column: A sensible approach to flying electric powered RC aircraft

By Teo Terry (continued from the March issue)

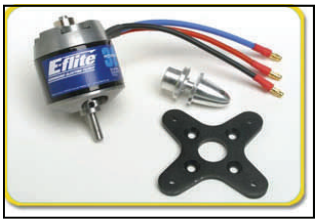
Selecting the motor

Unlike glow or gas engines, electric motors are variable power devices. The power they generate is a function of voltage, current and load. Change any one and the motor will behave differently. This is what makes electric motors so versatile and at times, confusing to deal with…
Electric motors are categorized by the manner in which the current is commutated; they can be either brushed or brushless.
In a brushed motor, the current is commutated mechanically as the rotor and windings spin around. Examples of these motors include the ubiquitous Speed 400 and the more sophisticated Astro Cobalts of yesteryear.
Brushed motors are not as popular today as they used to be; however, they are still useful motors.
In a brushless motor, the current is commutated electronically by the controller. In this instance, the windings and stator remain stationary while the magnets spin. There are two types of brushless motors:

1. Inrunner: The windings are attached to the motor housing while the magnets are attached to the motor shaft. Only the shaft spins:
   - Can have very high efficiencies.
   - Low torque motor (not always). Best used with a gearbox.

Mega 22/30/xx series brushless inrunner motor. Note the absence of an end bell and the fact that three wires exit the motor.

2. Outrunner. The magnets are attached to the motor housing causing it to spin as well as the shaft. Also known as "rotating case" motors:
   - Not as efficient as inrunners.
   - High torque motors. Meant to be used without a gearbox.



Eflite Power 32 outrunner motor.

Since outrunners do not need a gearbox, they offer a level of simplicity which cannot be achieved by inrunners and as a result they have become the motor of choice for most sport flyers.
Motor selection can be approached in several ways:

1. You can consult a catalog or a manufacturer's website.
2. You can use a motor simulation program such as Motocalc, Electricalc or P-Calc.
3. You can seek advise from an experienced electric flyer.

I use all three, although I rely on the simulation programs the most. The reason for this is that Motocalc and Electricalc also provide estimates of the model's performance such as stall speed, rate of climb, cruise speed, etc.
In order to understand how electric motors work, a little bit of math is required. Electric motors can be described by three parameters, and although I use computer programs to calculate the numbers, it is useful to understand what these parameters mean. Many times, you can do your initial motor selection by simply looking their values:

Kv: This parameter relates motor speed (in the unloaded state) to the applied voltage; typically given in RPM per volt. For example, a motor with a Kv of 500 RPM/v will want to spin at 5000 RPM when 10 volts are applied.

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Rm: Winding resistance; normally measured in milliohms. A high Rm value can indicate an inefficient motor.

Io: The no load current. This parameter used to calculate the iron losses for the motor.

In order to understand what these parameter mean, we also need to understand how voltage, current, resistance and power are related:

Power = volts x amps or ohms x amps^2

P = V x I or R x I^2

Voltage = amps x ohms

V = I x R

Electric motors are not 100% efficient. Power is lost in two ways; first through inefficiencies in creating the magnetic fields (iron or Fe losses) and secondly through the resistance of the windings (copper or Cu losses). These can be calculated using the motor parameters:

Fe losses: Io x V

Cu losses: Rm x I^2

At this point, you are probably wondering if all of this information is relevant or not. An example will show you that it is.

Example: I have a project which needs a 400 watt power system. Being cheap, I would like to use some of the equipment I have sitting around:

Motor: AXI 2826/12

Battery: 10 cell, GP 2200 NiMH

I am interested in finding out whether I can generate 400 watts efficiently using these components.

First, I looked up the motor parameter listed at the Model Motors website:

Kv : 760 RPM/v

Io : 1.3 amps

Rm : 62 mohm or 0.062 ohms

Under load, a good NiMH cell will hold 1.1 volt, therefore, the 10 cell pack would have a working voltage of 11 volts. We can now estimate the current needed to generate 400 watts:

I = P/V or 400/11 = 36.4 amps

Knowing the current and voltage we can calculate the iron and copper losses:

Fe losses: V x Io or 11 x 1.3 = 14.3 W

Cu losses: Rm x I^2 or 0.062 x 36.4^2 = 82.1 W

In this case, the motor experiences a loss of 96.4 W while drawing 400 W from the battery. Idle thought; the wasted energy gets turned into heat; ever try holding a 100 W light bulb? The motor is operating at 75.9% efficiency. Not bad, but not great either. Could we improve its efficiency?

From the Cu losses it is apparent that reducing the current would improve efficiency. This can be done by increasing the pack's voltage. Let's try using a 12 cell (13.2v) pack instead:

I = P/V or 400/13.2 = 30.3 amps

The losses now become:

Fe Losses: VxIo or 13.2 x 1.3 = 17.2 W

Cu losses : Rm x I2 or 0.062 x 30.32 = 56.9 W

The losses now amount to 74.1 W, which gives us an efficiency of 81.4%, an improvement of 4.5%. Since the peak current was also reduced, I should expect somewhat longer flight times as well.

Lesson: Generating power by using a high voltage/low current combination can be more efficient than using a low voltage/high current approach.

In both instances, the last step in developing the power system is selecting an appropriate prop. This can be done by experimenting with different props while taking wattmeter readings, or by using one of the simulation programs.

For those of you who would prefer a "math free" approach, I have developed a table which allows you to select the motor, battery and prop based on the motor Kv and model size.

Motor Selection Table:

	Motor Kv	# LiPO cells	Min batt. Capacity (mah)	Prop APC-E	Glow equivalent
Park flyer	940	3	1300 2100	9x6 10x5	.049 Glow
	1100	3	2100	9x6	.074 Glow
Small sport	900	3	2500	11x7	.30 Glow
	740	3	2500	13x8 13x10	.30 Glow
Large sport	740	4	3300	12x6 12x8	.40 Glow
	515	5	3300	14x10 14x12	.46 Glow
	360	5	3300	16x10 16x12	Saito 72
	360	6	3300	15x10	Saito 72

When using the table above, please keep in mind that:

1. The table is meant to be used in conjunction with the manufacturer's recommendations.
2. The table is not perfect and some trial and error will be needed to find the right prop. Please make sure

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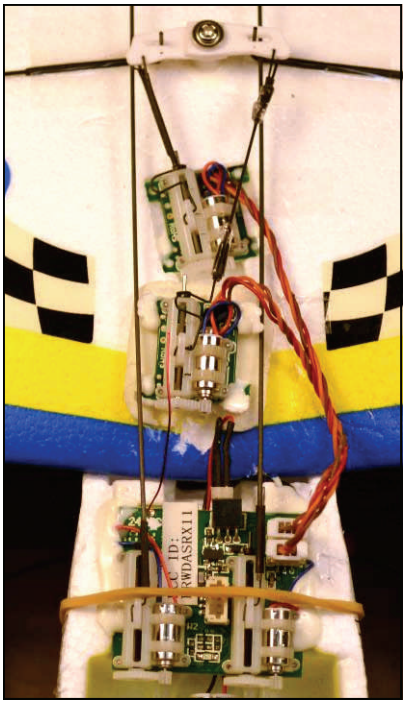
Flap modification for Sukhoi SU-26xp

By Paul Goelz

I've owned the original (white) ParkZone Sukhoi micro flyer for several years and have found it to be a really fine little airplane. It is at home indoors as well as outdoors. With a GWS 5.0X4.3 prop it really came alive and has unlimited vertical along with nearly ten minute flights (really) indoors on Glacier 160mAH cells.

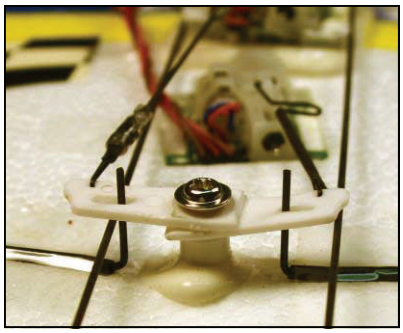
Through coincidence, I ended up buying two Sukhoi SU-26xp (the yellow/blue upgraded version of my original white SU-26). One was crashed and one was the remains after the motor and brick were scavenged for another project. I ended up with complete functional electronics from the crashed plane and an airframe in good condition plus an aileron servo from the other. Total investment = $30. I had originally planned on stripping the electronics out of the crashed plane to make something else, but when the second SU-26xp came my way (thanks Joe), I had a better idea.

When flying my original SU-26 indoors, and especially in limited space, I find it is just a bit fast for really comfortable slow flying. I have long wished it had flaps so it could slow down a bit more, and as I looked at the insides I realized... now's my chance! How hard could it be?

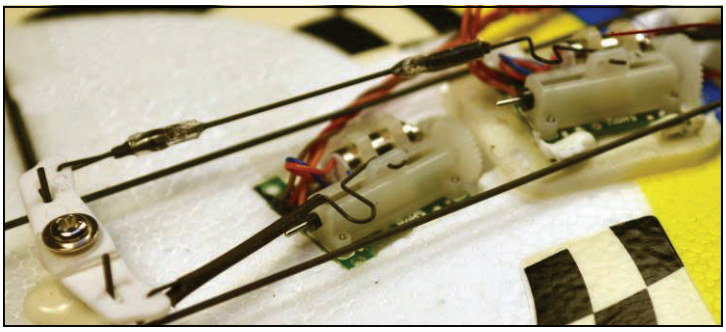


Turns out that the conversion was ridiculously simple. I added a second aileron servo ahead of the existing servo. It is just held in place with a square of double sided foam tape between it and the wing. I would have preferred to mount it behind the bellcrank, but the servo lead was not long enough to reach the brick.

I then took the two bellcranks I had (remember, I was working with parts of two planes), cut one side off of each and removed most of the lip on the bottom side where it fits over the stud. I then flipped one over and stacked them on the stud to give me a split bellcrank with each half controlled by its own aileron servo.



After lengthening the pushrod from the second aileron servo, I had two servos operating their own ailerons, through the existing bellcrank setup. The second servo



just plugs into the extra socket on the brick, which is channel six (it is actually a six channel receiver). Program flaperons in my DX8 and reverse channel six and voila… I have flaps!

Side note… aileron slop can be drastically reduced by removing the tape that secures the guide tubes for the linkages and carefully gluing the tubes to the wing with a TINY bit of Gorilla Glue.

Flying the SU-26xp with flaps

After getting used to the ***drastically*** increased control responsiveness of the xp version vs. the original version and tweeking the CG, I tried some flap settings.

With flaps extended about equal to the TE thickness, the stall speed is reduced to the point that there is no sudden stall during a normal landing flare like there is without flaps. I can actually leave the flaps extended like this for normal (slower) indoor flying and the only effect is the slightly reduced stall speed.

With flaps "fully" extended (about double the TE thickness), I can fly a little slower and the landing approach can be steeper. However, it is slightly pitchy in normal high speed flight and I don't use "full flaps" for normal flying.

Interestingly, neither flap setting requires any elevator mix… the plane flies level at any flap setting.

Paul Goelz paul@pgoelz.com

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

Skymasters Meeting...

Thursday, April 25th

6:45pm to 8:45pm

(Regular Skymasters Meeting)

at the Orion Center
1335 Joslyn Road
(just south of Clarkston Road)
Lake Orion, MI

Other local indoor flying sessions

Thursdays, 9AM to 3PM (6 hours)
51379 Quadrate, Macomb MI
(north off 23 mile, east of Hayes)
Small electric planes and helis (safe separate heli space)
AMA not required
$10/session
Flying will continue into the spring until people stop showing up!
For information, call Steve Durecki 586-246-4203

April 2013

SUN	MON	TUE	WED	THU	FRI	SAT
	1 Skymasters Breakfast 9AM Red Olive	2	3 Pre Toledo with Horizon Hobby 7pm to 9pm Ultimate Soccer	4 Indoor Rubber Power 1PM to 3PM Ultimate Soccer	5 Toledo Show	6 Toledo Show
7 Toledo Show	8	9	10	11 Indoor Rubber Power 1PM to 3PM Ultimate Soccer Instructor's Meeting 6:45pm Orion Center	12	13
14	15 Skymasters Breakfast 9AM Red Olive	16	17	18 Indoor Rubber Power 1PM to 3PM Ultimate Soccer	19	20 Bald Mountain Involvement Day See page 10
21	22	23	24	25 Indoor Rubber Power 1PM to 3PM Ultimate Soccer Skymasters Meeting 6:45PM Orion Center	26	27
28	29	30				

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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to use a whattmeter when evaluating props; we do not want to fry the motor or controller. Always test the smallest prop first!

3. There is some overlap in the Kv, so make sure that you pick an appropriately sized motor for the application. A 16 oz. parkflyer probably does not need a 6 oz motor!
4. The Kv for a geared motor is given by the motor Kv divided by the gear ratio.
5. The combinations were selected with the intent of keeping the current below 40 amps. For models other than parkflyers, I would recommend using at least a 45 amp controller. For parkflyers, I would recommend a 25 or 35 amp controller.
6. The suggested batteries assume a discharge capability of 15C or greater.
7. Do not push a motor beyond its voltage, current, RPM and power limits. Doing so is akin to trying to get more power from your glow engine by running it lean: it does not work for long!

I realize that this is probably more than you ever cared to know about electric motors: Look at it on the bright side; you now know how to select the motor for your next electric project.

Teo Terry ***Teo's artice will continue in the May issue of the Skywriter with "Speed Controller Selection"***

TechTalk misc…. For those of you flying the Eflite mQX quad or any other aircraft using the red JST connector set, consider replacing the JST with a better connector set such as the micro Deans. I have recently found that my mQX flies WAY better (much more "solid") after I replaced my JST connectors. I learned this lesson back in the later part of the last century when we had to deal with them in the Piccolo heli. At 2A (less than the mQX draws) they got noticeably warm and many of us replaced them and saw better efficiency.
Paul Goelz

March Skymasters Meeting

"In The Bones"


March indoors at Ultimate
See you next fall !!

Join Skymasters R/C Club of Michigan

for an evening with HORIZON HOBBY!

THE " PRE-TOLEDO" VISIT BY

HORIZON HOBBY

WEDNESDAY, APRIL 3RD 2013 - 7PM-9PM

ULTIMATE SOCCER ARENAS

867 SOUTH BLVD., PONTIAC, MI

SEE THE LATEST FROM HORIZON, TALK TO THEIR REPRESENTATIVES UP CLOSE AND PERSONAL.

EVERYONE WELCOME – NO CHARGE

FOOD AVAILABLE ON SITE:
DINE AT SALVATORE SCALLOPINI
BEVERAGES AT KICKERZ CAFÉ AND UPPER 90 PUB

SUPPORT THE ORGANIZATIONS WHO SUPPORT AEROMODELERS!

SKYMASTERS RC MICHIGAN

For more info contact: Joe Hass
(248) 321-7934 or joehass@gmail.com
Visit our website at: www.skymasters.org

SKYMASTERS RC
MICHIGAN

Flying open to AMA members.

ELECTRICS' OVER LAKE ORION

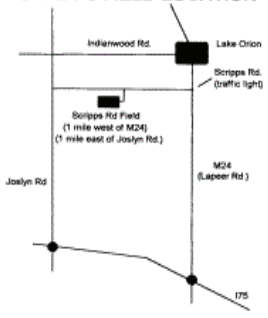
e/LO=FUN

Saturday June 15, 2013
Skymasters Field

Event Flying starts at 10AM and goes until ???

Potluck dinner at the field, bonfire and NIGHT FLYING!
Get a plane ready with lights!!!
Camp overnight at the field. Open flying on Sunday.

SCRIPPS FIELD LOCATION



- Lots of Parking — No Landing Fee!
- Refreshments available at event — Pilots Prizes!
- 94 dBa 10AM-8PM Night fliers must be extra quiet.

Flying field is located within the Bald Mountain Recreation Area, about 5 miles north of the Palace of Auburn Hills on Scripps Road between Lapeer Rd (M24) and Joslyn Rd.
All vehicles require a Recreation Passport available from Secretary of State or DNR.

For more information email petefoss@skymasters.org
Visit our website at www.skymasters.org

ROMEO R/C CLUB
SKYHAWKS
www.romeoskyhawks.org

STONY CREEK FLOAT FLYING

SPONSORED BY THE ROMEO R/C CLUB
AND THE
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www.flyfraser.net

Every Wednesday, May thru September

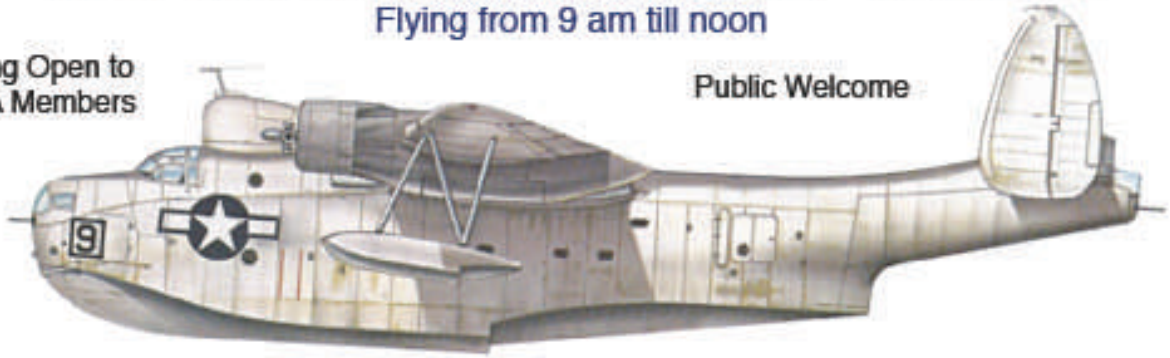
On June 19th and August 21st we will be flying at Addison Oaks Park, Buhl Lake

Stony Creek Metropark at Winter Cove
4300 Main Park Road, Shelby Township

Flying from 9 am till noon

Flying Open to AMA Members

Public Welcome



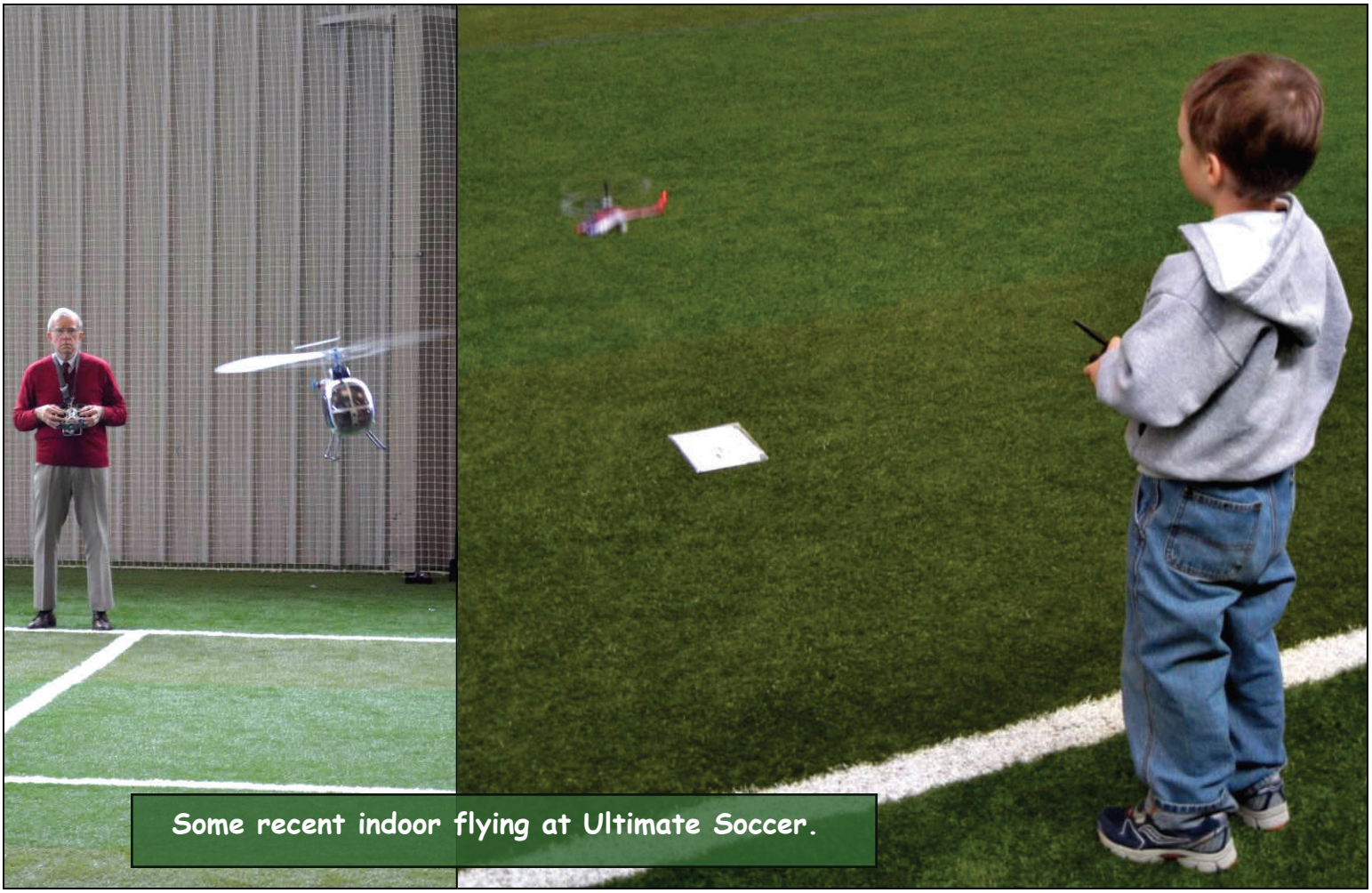
* $5 per Day Retrieval Fee or $30 Season Pass
* Plenty of Free Parking
* Great Chance to See This Exciting Hobby
* Main Park Entrance on Shelby Road at 26 Mile Road
* Follow Park Road to Winter Cove
* Plane Retrieval Boat Provided
* All Cars Need Annual/Daily Metropark Sticker - Available at Entrance
* No R/C Boats During Flying Times
* Weekly Email Notification of Flying Status

METROPARKS

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

Edited by Jim Held

Created by Douglas Norris



Some recent indoor flying at Ultimate Soccer.

Skymasters Information…

The Skymasters field is located in Lake Orion, within Bald Mountain State Park on Scripps Road (see map). A state park Permit is required and can be obtained from the Park Headquarters located on Greenshield Road or at club events. Flying is permitted from 10 AM to 8 PM. The noise limit is 94 dBa at 10 feet. This noise rule is strictly 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 Wednesday of the month at 8 PM . A great chance to fly and socialize. **Winter meetings** (September through May) are usually 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 with donuts and listen to the speaker of the evening.

The Skywriter newsletter is sent to members, local hobby shops, and other R/C clubs in the area and around the country. 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 copy of this newsletter or a copy of an AMA magazine. It may spark their interest!