

the

reaper

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| August | | The EFO Officers | 2021 |
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| No Mailed Ampeer Subscriptions | The Next EFO Flying Meeting: Sat., Aug. 7, 2021 Time: 10 a.m., Place: Midwest 7 Mile Rd. flying field | | |

What's In This Issue:
 A Follow Up To: A Safety Warning You've Heard MANY TIMES BEFORE! - Keith Shaw's Stingray Flying Wing Updates - LiPo Battery Resistance Question Regarding When is a Battery "DEAD"? - Upcoming Skymasters RC Club Night Fly, Bonfire and Open Air Swap Meet - The 37th Annual Mid-Am - Addison Oaks Float Flying 2021 - Upcoming C.A.R.D.S. 11th Annual Electric Fly In - Upcoming Events

**A Follow Up To: A Safety Warning
 You've Heard MANY TIMES
 BEFORE!**

From Vic Madison via email

Ken,

I read your report from the guy who cut his arm with a prop. I use a **Taranis** Transmitter that has a few features with voice announcements that can be programmed to minimize that type of accident.

Here are few features I employ:

I set up a kill switch on one of the two-position switches on the transmitter. In position one, the throttle is disabled and is voice announced every five seconds ("Throttle Disabled"). When the switch is placed in position two, the throttle is active and voice announced once ("Throttle Active").

The transmitter has a feature that you setup the default switch positions for each model. If the switches are not in the correct positions when you turn on the transmitter, the transmitter announces "Switch Warning". The model will not activate to allow you to bind to the receiver until the switches are in the

correct position. The throttle kill switch is set to the "Throttle Disabled" position for startup.

The throttle stick must be in the full off position when you turn on the transmitter to bind with any receiver. If not, the transmitter announces "Throttle Warning".

So, these three features (kill switch, default switch positions and throttle stick position) essentially disable the transmitter until the safe conditions are satisfied to bind with the receiver.

Vic

**Keith Shaw's Stingray Flying Wing
 Updates**

From Keith Shaw via email

June 9, 2021

In true KRC tradition, I got a test hop on the Stingray the day before packing it up for its first airshow. I did the test flight with the small stub fins in place, and will leave them on for this weekend. They assure yaw stability while I sort out the CG and handling. It was close enough to allow me to take it to the JetJam this weekend

down by Louisville Kentucky. Eventually they will be removed, as the Stingray is designed to be a pure flying wing.

The 4 minute flight explored medium and slow speed flight and handling, a stall test and a couple of full power passes. It feels solid and groovy, maybe just a bit nose heavy. After the flight the six cells all read 3.92+/- .01 volt. It seems really efficient, with decent speed on 1/2 throttle. But it does scoot at full bore. Motor, ESC and batteries were still at ambient.

Time to go through my airshow packing list to be sure I have everything. Still have to do laundry tonight. :-)

Keith

June 13, 2021

From Pete Foss via email when he was at the JetJam.

She flew great yesterday!

Pete

June 22, 2021

Stingray Success!!! (and a little failure) from Keith

Just came back from the field and am relaxing with a cup of coffee. The weather and windspeed/direction had been really iffy of late, and today looked like the only viable day for the next two weeks. A little breezy, but at least the wind was mostly down the runway.

I don't remember if I sent out a note about ten days ago announcing that the Stingray had successfully flown with the two smallish "trainer fins". On pure flying wings I use these on the first few flights to let me get the CG, control throws and handling sorted out with guaranteed yaw stability. The results were good enough that the second flight was down at the big Jet Jam meet near Louisville Kentucky (still with the fins on).

The first flight today was with even smaller fins (see photo) to gently approach the pure wing state. Handling was fine, good roll and pitch control, soft stall and no sign of yaw divergence.

While the batteries were recharging, I took a deep breath and removed the smaller fins. It was time for the definitive test flight as the pure flying

wing it was designed to be. I must admit to some nerves while waiting for the cells to top off.



The takeoff was arrow straight, with a good climb out. Gentle turns showed NO slip/skid. There was perfect stall recovery. The dive test was good showing just slight positive pitch stability. The flight showed good axial rolls, good loops (inside and outside), and inverted flight with just the smallest touch of down elevator.

I then proceeded to do hard rolls, hard pylon turns, and everything was as solid as I could have hoped for.

All this was at 1/2-2/3 throttle with an estimated speed of 90-100 mph, which is about what I saw at full throttle with the bigger fins at JetJam. Very low drag!

I wanted to do one full throttle pass before setting up for a landing. I went to the far end of the field and set up a long straight pass, and once I was satisfied with the altitude and heading, I opened it up. It was still accelerating as it went by me and seemed to be about as fast as the "Gold" CzechMate. Wow.

Then suddenly there was a 100' long smoke trail looking like I had lit off a solid rocket booster. :-O

I quickly shut it down, called a MayDay, and traded airspeed for altitude. It must have gone up 500' in just a few seconds, as I had to circle the field three times in order to set up for an uneventful dead-stick landing.

As I approached the plane there were still wisps of smoke coming out of the fan tailpipe, with the smell of burnt paint, but not the burnt electrical smell from a fried speed control. The rotor still

turns by hand, but the wires on the windings are black. Toast.

So it seems like in true Reno Gold fashion, I blew the engine going across the finish line. Sad, as it will delay further testing until I can get it repaired, but I am ecstatic about the Stingray itself.

I count today a big success, even with a small failure footnote.

Keith



LiPo Battery Resistance Question Regarding When is a Battery “DEAD”?

Via email

Here is his theory from the email sender:

“LiPo Internal Resistance - When checking LiPo batteries for internal resistance, the ratio of the cell with highest IR divided by the cell with the lowest IR should be below 3. A LiPo battery with a ratio higher than 3 is suspect. It is the ratio between the highest IR and lowest IR that matters.”

My Reply

Here are some links for more reading:

Lithium Polymer Battery Technology: An Introduction

By Frank Siegert

<http://theampeer.org/lipo-intro/lipo-intro.html>

Learning About LiPo Batteries (A 4 Part Series)

By Ken Myers

<http://theampeer.org/Learning-LiPo/Learning-LiPo.html>

When to Retire LiPo Battery? Check Internal Resistance

By Oscar Lang

<https://oscarliang.com/when-retire-lipo-battery/>

The problem with IR numbers themselves is that **they are variables, not absolute numbers.** A cell’s resistance cannot be directly checked using an instrument that directly measures it. The instruments that we use to ascertain IR values uses an indirect method involving several measurements and then mathematically calculates a value. How the instrument is programmed to produce that value determines the value displayed. That displayed value varies by the instrument used to create the value.

In **Oscar Lang’s** article, he notes:

“When measuring internal resistance, you should try to keep all conditions constant, because several factors can affect your IR readings, such as:”

(Please note: I added the comments in italics.)

Capacity of the battery (*The less the stated capacity, the higher the IR value will be per cell. KM*)

Quality of the cells (Somewhat subjective KM)

Chemical properties

Age (number of discharge cycles - Oscar’s comment)

Temperature (*Critical KM*)

Measuring equipment (*An extreme variable KM*)

Voltage of the LiPo (*State of Charge KM*)

Discharge rating (*See my note. KM*)”

I found, while doing a lot of testing several years ago, that the heavier the LiPo battery for the stated capacity of the cells, the lower the IR will be on any measuring device and, in general, the longer they will last under the same discharge conditions. This statement is quite subjective, but it has held up over the years for ME.

For example, when I started my research into LiPo batteries in 2016, I purchased eight various “brands” of 3S 1000mAh LiPo batteries, with various “C ratings” and from various vendors. They were all flown in the same plane over the years. There are four packs still left in service in June of 2021. The four serviceable packs are the four heaviest 3S 1000mAh packs.

Oscar also stated, “If one of the cells has noticeably higher IR than the rest (e.g. 100% higher), it’s probably not safe to use and should be thrown out, as that cell will supply less current and heat up more than it should.”

I am not sure about the “safe” statement, but that sentence uses a ratio of 2:1 not 3:1, and the change in performance will definitely be noted during operation.

Further reading on this topic can be found in the *Ampeer* electric flight newsletter.

Can A Battery's IR Be Used to Know When a LiPo Pack Should Be Retired?

<http://theampeer.org/ampeer/ampjan21/ampjan21.htm#IR>

Pack Test and Comparative IR Using Three IR Meters

By Ken Myers

<http://theampeer.org/ampeer/ampjan19/ampjan19.htm#IR>

Battery IR Calculated Using Telemetry Data

By Burkhard Erdlenbruch

<http://theampeer.org/ampeer/ampjan18/ampjan18.htm#TELE>

Measuring a Battery Pack's Internal Resistance Part 2

By Ken Myers

<http://theampeer.org/ampeer/ampoct17/ampoct17.htm#IR>

Measuring a Battery Pack's Internal Resistance (Ir)

By Ken Myers with Input by Dave Stacer

<http://theampeer.org/ampeer/ampsep17/ampsep17.htm#IR>

Addendum:

The June 2021 issue of *Model Aviation* has an excellent article titled “BATTERY MAINTENANCE” by **Greg Gimlick**. It starts on page 30.

This is an **excellent article** and will answer most of your questions regarding getting the most usage out of large, expensive LiPo batteries.

Upcoming Skymasters RC Club Night Fly, Bonfire and Open Air Tailgate Swap Meet

From Pete Foss via email

Rescheduled to Saturday, July 24, 2021 Night Fly, Bonfire and FREE Open Air Tailgate Swap Meet
Quiet Electric Night Flyers Only
Event Flying starts at 6 PM

Bring your own refreshments for the bonfire after flying
NO FOOD OR DRINKS WILL BE AVAILABLE.

Flying open to AMA members.

94dBa at 10 feet enforced

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.

For more information email
president@skymasters.org

Event Flyer with map at

<http://www.skymasters.org/index.php?page=events&id=13944>

The 37th Annual Mid-America Electric Flies: A Report

By Ken Myers

I arrived at the Midwest RC Society Flying Field about noon on Friday, July 9, 2021. Midwest's mowing crew, consisting of **Jim Latham, Norm Peters** and **Ted Flack**, were just finishing up cutting the flying field. They had had a HUGE job to do that morning.

It had been hot, very hot, humid and had rained almost every day for the previous two weeks here in southeastern Michigan.

They did an excellent job of getting the flying field in usable condition and I cannot thank them enough for their extremely hard work! Thank you gentlemen so very much!!!

By now the weather was almost perfect, the temperature was in the 70s and there were light winds.

Denny Sumner and **Roger Wilfong** came out to help with the set up for the meet.

Keith Shaw arrived about 2ish with his large sunshade with **C.J. Wysocki** arriving shortly after that. All hands pitched in to help erect Keith's big sunshade.

Dave Grife, of Coldwater, MI, was the first guest to arrive, followed by **Don Belfort** of West Chester, OH, then **Jim Ryan**, from Cincinnati, OH

was quickly followed by **Mark Wolf** from Brownsburg, IN, and **John Kauk** from Topeka, KS.

The weather provided a perfect afternoon for flying, and everyone at the flying field had a great time until well into the early evening.

After the much smaller event last year, due to the pandemic, it was great and very exciting to spend time and fly with all of our old friends!

Saturday, July 10, 2021

The 37th Annual Mid-America Electric Flies, AKA the Mid-Am, were held on July 10 and 11, 2021.

The Weather for Saturday

For two weeks preceding the Mid-Am, southeastern Michigan was caught in an extreme heat and rain cycle.

A cool front passed through on the Thursday evening before the Mid-Am and brought some much needed and relatively cooler temperatures with NO RAIN. Even with the sun shining brightly most of the day, the midday high on Saturday was “only” in the mid-70 degree F range with low humidity. The winds were relatively low and down the runway from the east.

It was actually the most perfect day for this event in years.



Keith Shaw and Ken Myers during the pilots' meeting
Rick Sawicki photo

Once the pilots registered for the event, they started flying. A pilot meeting was held at 10 a.m.

Keith and Ken went over the field rules and special notifications as to “where not to land”.



Jim Ryan drew a big crowd to learn about the DuraFly Auto-Gyro he was flying. It was the DuraFly™ Auto-G2 Gyrocopter w/Auto-Start System 821mm (PNF).

https://hobbyking.com/en_us/duraflytm-auto-g2-gyrocopter-w-auto-start-system-821mm-pnf.html



There was a lot of flying during the day, but a real crowd pleaser was **Dave Grife's** beautiful sounding, beautiful flying jet.

There were two very special things that happened at the Mid-Am this year.



We had four AMA Hall of Fame members present. They were, left to right, **Keith Shaw** (<https://www.modelaircraft.org/sites/default/files/files/ShawKeith.pdf>), **Pete Waters** (<https://www.modelaircraft.org/sites/default/files/files/WatersPeter.pdf>), **Ken Myers** (<https://www.modelaircraft.org/sites/default/files/files/MyersKennethKen.pdf>), and **Mark Freland** (<https://www.modelaircraft.org/sites/default/files/FrelandMark.pdf>).



EFO and Midwest RC Society member, **Bill Brown, Sr.** had turned 100 years young in June. **Joe Hass** provided Mr. Brown another cake and we all got to celebrate this remarkable event one more

time. Congratulations Bill and Happy, Happy Birthday!!!



Ken Myers helps Mr. Brown with his registration.



Left to right: Denny Sumner, Dave Stacer, Bill Brown and Joe Hass
Rick Sawicki photo

At noon we broke from flying for a field lunch of hot dogs, chips, drinks, and of course, birthday cake. We also got to sing happy birthday to Bill. Again, thanks for the cake Mr. Joe Hass!

A HUGE thanks goes to **Denny Sumner** and **Dave Stacer**. They not only handled the lunch crowd, but took on the extra duty of fixing the evening meal. Thanks so very much guys!

The Foam Flurry, all up, last down event for non-conventional materials aircraft was flown during the lunch break.

There were five pilots and planes that participated in this year's event. The planes were; **Pete Foss**' Snoopy, **Bob Blau**'s eagle, **Tim Young**'s big FT Spitfire, **Ken Myers**' RUA 2-4-10 and **Roger Wilfong**'s Ken's CAD Lazy Cub.

After that event, everyone took turns flying at their leisure. It was a very, very relaxed flying day!

Saturday's Awards



The **Best Scale Award** was presented to **Don Belfort** of West Chester, OH. His Luscombe is a big, beautiful and an impressive flier.



The **Most Beautiful Award** went to **Denny Sumner**, of Canton, MI, for his Mooney Mite. What a beauty it is.



The **Best Mini-Electric Award** went to **Joe Hass** of Rochester Hills, MI. This conversion of a rubber powered Right Flyer model was quite unique and a pretty decent flier.



Archival Photo from the 2017 Mid-AM

The **Best Multi-Motor Award** was presented to **Jim Ryan** from Cincinnati, OH. This venerable model, first flown in the early 90s is on its third set of Speed 400 motors. Yes, brushed Speed 400 motors!

The **Best Sport Plane Award** was presented to **Steve Labuta** of White Lake, MI. Ironically, he

calls this self-designed model “Sport Plane”. He notes that it has been influenced by several different sport planes with a big influence from Sig’s 4-Star Forty.



Steve’s “Sport Plane” is the one at the back right.

Spitfire. It presented very nicely in the air, looked like a Spitfire and Tim flew it very well.



Archival photo from the 2019 Mid-Am

Winner of the Foam Flurry, all up, last down was, once AGAIN, **Roger Wilfong** with his Ken’s CAD Lazy Cub.

The **CD’s Choice Award** went to **Tim Young** from Brighton, MI for his FliteTest Master Build

Very nice work guys!

After the awards were presented, the pilot’s raffle completed.

There were many great donations this year from; Nankin Hobby of Farmington, MI and Joe Hass, Mark Wolf, Ray Foley, Roger Wilfong, Retro RC (Mark Freeland) and Ken Myers.

Immediately following the raffle, Denny and Dave went back to work at the grill to prepare the cheese burgers and brats. There were more chips and to complete the meal, Don Belfort brought “Mid-Am” cookies. Thanks so much Don!!!



After dinner folks continued to fly and have a great time.

This report will be continued in the September 2021 issue of the *Ampeer*.

If you just can't wait, here is **Rick Sawicki's** photo link with many more photos of the event.

<https://photos.google.com/share/AF1QipPKKH6RrOdO6vZhl2wqkGbmWW63KPDdBuMQ0yXY8zQiVApKBq9odWiGngqcm-LB-w?key=YzJI0U5pX21SX0cwbWxjUVhGV2ZrNndYLUVIWDRB>

Addison Oaks Float Flying 2021

Sponsored by the Romeo Skyhawks RC Club

Every Wednesday, June 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.oakgov.com/parks/parksandtrails/addison-oaks

Flying from 9 am till noon, retrieval boat on site
Flying open to AMA Members -
Spectators welcome

Only 2.4 GHz radio systems are allowed
\$5.00 One Time Pilot Registration Fee

All Cars Need Daily/Annual Oakland County Park Sticker

Plenty of Free Parking

No R/C Boats During Flying Times

Weekly Email Notifications

For more information call Joe Hass at (248)

321-7934 joe_hass@gmail.com

The Upcoming C.A.R.D.S. of Lansing 11th Annual Electric Fly In from Marv Thompson

Friday August 27 1:00 p.m. to 9:00 p.m. and

Saturday August 28 from 9:00 a.m. to 9:00 p.m.

Pilot and Aircraft Requirements:

Current AMA — Open to All RC Electric planes,
helicopters, and multi-copters.

Social Distancing and Other Michigan Covid
Requirements Current to the Event Will Be
Followed.

Email or Text CD For any Updates

Pizza Lunch for Pilots on Saturday (Will be served
if necessary)

Water and Pop will be available

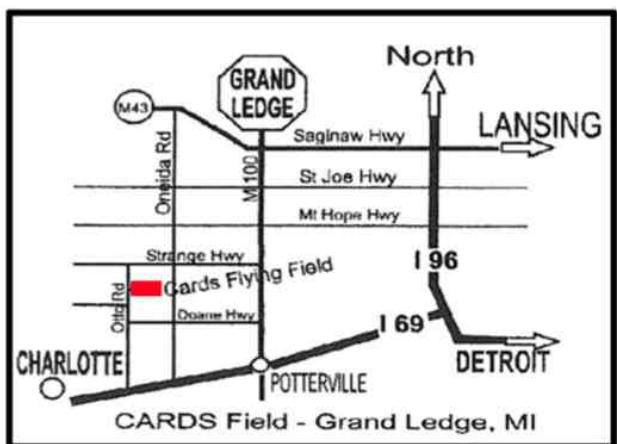
Landing Fees: \$15

Marv Thomson/CD 517 802 7675



mthomson@wowway.com

Website: www.cardsrc.com

8328 Otto Rd, Grand Ledge, MI 48837



GRAND LEDGE
CHAMBER OF COMMERCE

Spectators Welcome

Pop and Water Concessions
Pizza delivered on Saturday

Spectators Welcome

The field will be open for guests to fly on
Sunday as well.

Upcoming E-vents

Addison Oaks Float Flying 2021

Sponsored by the Romeo Skyhawks RC Club
Every Wednesday, June thru September
Addison Oaks Oakland County Park

July 24, Saturday 2021 Night Fly, Bonfire and FREE
Open Air Swap Meet (details in this issue)

MRCA Fun Fly Event

Sail Planes, Scale planes, Warbirds, Drones,
Helicopter

Open flying for all types of Radio Controlled Aircraft
Saturday July 31st 2021 at 10:00 a.m.

The Fun Fly is free.

No food will be provided so we are encouraging
everyone to bring your own food/Lunch. Tail-gate
style is perfect!

**Invite your friends who fly at other clubs, family,
guests, beginners.**

AMA Membership is always required.

Contact information: Robert Throne
rbthrone@comcast.net

Also Visit and contact thru our Facebook Page <https://www.facebook.com/mrcaclub>

The MRCA field is located on Begole rd. just west of Platt
rd. York Township. Between Saline and Milan Mi.
300w Begole Rd.
GPS 42.133145,-83.707066

August 7, Saturday, EFO Flying Meeting, 10 a.m.,
Midwest RC Society 7 Mile Rd. Flying Field

August 27, Friday 1:00 p.m. to 9:00 p.m. and

Saturday August 28 from 9:00 a.m. to 9:00 p.m.

C.A.R.D.S. of Lansing 11th Annual Electric Fly In
(details in this issue)



The Ampeer/Ken Myers
1911 Bradshaw Ct.
Commerce Twp., MI 48390
<http://www.theampeer.org>

The Next Monthly Flying Meeting:

Date: Saturday, Aug. 7, Time: 10:00 a.m.

Place: Midwest RC Society 7 Mi. R. Flying Field