

the

Ampeer

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No Mailed Ampeer Subscriptions	The Next EFO Flying Meeting: Sat., May 1, 10 a.m. Midwest 7 Mi. Rd. Flying Field		

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What Is Going On With Hyperion?
<https://hyperion-world.com/en/>
 By Ken Myers

Many of us who been in the hobby. for more than a few years now, are familiar with the Hyperion brand.

They supplied motors (really good ones), speed controls, chargers, some really nice ARF airframes and my favorite accessory product of all time, the Hyperion Emeter and the Emeter II!

I poked around their Website for awhile and noted that many of their branded items are no longer available.

I did find that some of their chargers and the Emeter II are still available.

Much of their offerings are now clearly from other sources and they've seemed to have changed into a distributor, much like Horizon Hobby.

If anyone actually knows what is going on with Hyperion, I'd love to know.

A123 Flight Report
 From Jim Young via email

During the March EFO Zoom meeting, **Jim Young** noted that many of his LiPo

Batteries have reached the place where they need to be replaced.

He asked the members for some advice about stitching to "A123", LiFePO₄ cells.

The notes from that meeting are in the April 2021 *Ampeer*.

<http://theampeer.org/ampeer/ampapr21/ampapr21.htm#MARCH>

On March 20, 2021, I received the following email from Jim.

A123 Flight Report

Hi Keith & Ken,

I picked up some A123 cells this week and was able to put one 4S 2.6Ah pack together. My pack came in at 11.7 oz, and the 3S 3300mAh pack I've been using weighs 8.9 oz. So I picked up a little less than 3 oz. My 45" Waco originally had a wing loading of 13 oz./sq.ft. and now it should be 13.8 oz/sq.ft.

I reprogrammed the CC ESC in my Waco for an 8V cutoff (2V/cell) and headed for the field.

Power on the ground felt better than the 3S 3300mAh LiPo I've been using. Takeoff roll was similar and plenty of power to

climb out.

I double checked the C.G. with a dive test and ended up moving the pack back a little on later flights.



Jim's Waco at the 2011 Mid-Am

I had set the timer for 4 minutes, and after a mildly aerobatic flight, I set up for the landing after the timer went off, and taxied back to the pits. It took 1000mAh to top off the pack.

I reset the timer for 7 minutes for the second and 3rd flights and needed less than 2000mAh to top off the pack each time.

The power was very consistent all through the flights, including vertical, right up to the timer sounding.



Jim's Waco landing at the 2012 Mid-Am

I definitely noticed lower throttle settings throughout the flights. The pack was barely warm to the touch after each flight.

The dive test now shows neutral stability, and power off full up will not stall (just mushes along). I don't think the extra weight bothers it.

I bought enough cells to make four 4S 2.6Ah packs and 2 4S 1100mAh packs for my smaller planes.



Jim's Turner Special and Monocoupe 90A at the 2017 Mid-Am

Next up will be converting my Model 44, Turner Special, and Monocoupe. These used 3S 4500mAh LiPo packs which weigh 12.7 oz., so the A123 packs will be a bit lighter. Each pack will end up costing me about \$25. The LiPo packs I've been using cost \$33 to \$42 and the last 4.5Ah pack barely lasted 2 seasons.

Thanks for the help,
Jim

Powering a Goldberg Jr. Falcon Question

From Andy Davie via email

Hi,

My name Andrew.

I would like to convert my very old Jr. Falcon to electric power. I would like good performance. I do not know how to pick the correct outrunner motor for my project. Would you send me any suggestions? Thank you.

Followed up by:

Hello,

I actually have two Junior Falcons. One was built in 1970 and was two channel control.

It started out with a Baby Bee 049. The power was horrible, so I put a TD 049 in it. That was very good.

It's been sitting in my shop since 1970.

I decided to try electric so I'm in the process of recovering it and I want to put an outrunner electric on it. I just don't know what size, but I do know that if the motor has similar power to a Baby Bee 049 that just will not work for me.

The other one is completely built, but it has never had a radio or engine put in it, so I'm waiting to see what happens with the first.

Might you know where I might be able to get a nose strut or steerable nose gear for this model thank you.

Andy

My Reply to Andy

Hi Andrew,

I have a new, in the box, Jr. Falcon. I am planning on building soon.

I plan on powering it with two items from Willy Nillies.

Motor Mount That Looks Like a Cox Motor:

<https://willynillies.com/online-store/ols/products/cox-golden-bee-brushless-motor-mount>

And

Basic power package:

<https://willynillies.com/online-store/ols/products/1-slash-2-a-baby-bee-049-deluxe-completion-package-everything-you-need-except-tx-and-rx-1-2-a-bby>

The power package is very similar to what I'd planned on a few years ago. Now I can get it with the cool mount that looks like a Golden Bee, I am planning on getting all the parts from Willy Nillies. He also has mounts that look like the Baby Bee and Black Widow.

Hope this helps,

Ken

Getting Ready to Build My Goldberg Jr. Falcon

By Ken Myers

Andy's email reminded me that it is time to build that new Goldberg Jr. Falcon kit that I've had for at least four or five decades. Jim Young's email reminded me that I wanted to look more closely at the possibility of using a 2S "A123" 1100mAh pack.

Back in March of 2017, I posted "Selecting Electric Power System Including Conversions from Glow Planes" on the EFO Website. The article includes a link to a spreadsheet/workbook for the calculations and simple inputs required by the user to select an electric power system.

<http://theampeer.org/Select-Pwr2017/Select-Pwr2017.htm>

It should be noted that the name/brand A123 Systems cells no longer exists. The same cells are

now branded as LithiumWerks and sold by Storetronics in Livonia, MI.

<https://a123batteries.com/online-store/>
ANR26650M1-B, LithiumWerks Nanophosphate®
3.3V 2.5Ah Lithium Iron Phosphate Battery

These have a stated capacity of 2.5Ah/2500mAh and stated weight of 76g/2.68 oz.

<https://a123batteries.com/anr26650m1-b-lithiumwerks-nanophosphate-3-3v-2-5ah-lithium-iron-phosphate-battery/>

and

APR18650M1-B LithiumWerks Lithium Ion
Cylindrical Cell

These have a stated capacity of 1.1Ah/1100mAh and stated weight of 39.5g/1.39 oz.

<https://a123batteries.com/apr18650m1-b-lithiumwerks-lithium-ion-cylindrical-cell/>

The first thing I noticed when I pulled up the spreadsheet/workbook, that I had created, was that I had not included a tab for using 1100mAh "A123" cells.

While the cells have changed their name, I will still be calling them "A123" cells.

I now had two problems.

The first was that some of the links noted in the article had either moved or no longer existed, as well as on the spreadsheet/workbook.

The article needed updating and the spreadsheet/workbook needed the 1100mAh tab added as well as some corrections that I needed to make on the spreadsheet/workbook.

The second was that the original plans for my Jr. Falcon kit were nowhere to be found. The only plans I had for the Jr. Falcon were on an 8.5" x 11" sheet of printer paper. I wasn't too worried about that, as I found that I do have two original Goldberg plans for the Jr. Skylark.

When I opened the article to edit it, I found that I had edited and updated it a year ago, in April of 2020.

It took a full day to edit the article, make the edits and fixes on the spreadsheet/workbook and upload the new files to the server.

While I was editing I realized why I'd not included the "A123" 1100mAh cells. I had not allowed for using them on planes between 1 lb. and 3 lb.

The revised article, along with the updated spreadsheet/workbook is located here:
<http://www.theampeer.org/Select-Pwr2017/Select-Pwr2017.htm>

I really wanted to try and do this Jr. Falcon using a pair of “A123” 1100mAh cells just because I’d never used only two “A123” cells before.

Once the spreadsheet/workbook was completed I discovered that I could not use just two “A123” 1100mAh cells, as there was no outrunner available with a high enough K_v value to turn a 6x4E prop.

On the (A123 1100mAh) spreadsheet I used the following **inputs**;

- Name of Plane: Jr. Falcon
- Recommended Largest 2-stroke: 0.074
- Recommended Largest 4-stroke: 0.00
- Mfg. Max. Weight: 1 lb.
- Mfg. Wing Area: 250
- Desired watts in per pound: 100

Largest Dia. Prop: 6

Prop pitch: 4

A 6” x 3” prop is noted on the plans, and that is really the largest diameter to consider as it only allows for about 1-1/16” of ground clearance with the recommended wheel sizes.

Results

Target Volts In: 6.6

Number of “A123” cells: 2

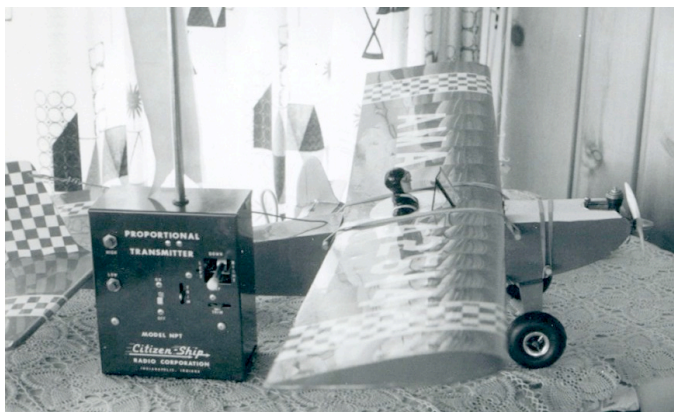
Target K_v : 3055

K_v High - +10%: 3395

Motor Weight Range: 33g to 50g

I could not find an outrunner motor in the weight range with K_v s that high.

Of course I could have considered an inner-runner, but I really wanted to use an outrunner.



In 1970 I built a conventional landing gear Jr. Falcon, so I experimented with larger prop diameters on the “A123” 1100mAh spreadsheet.

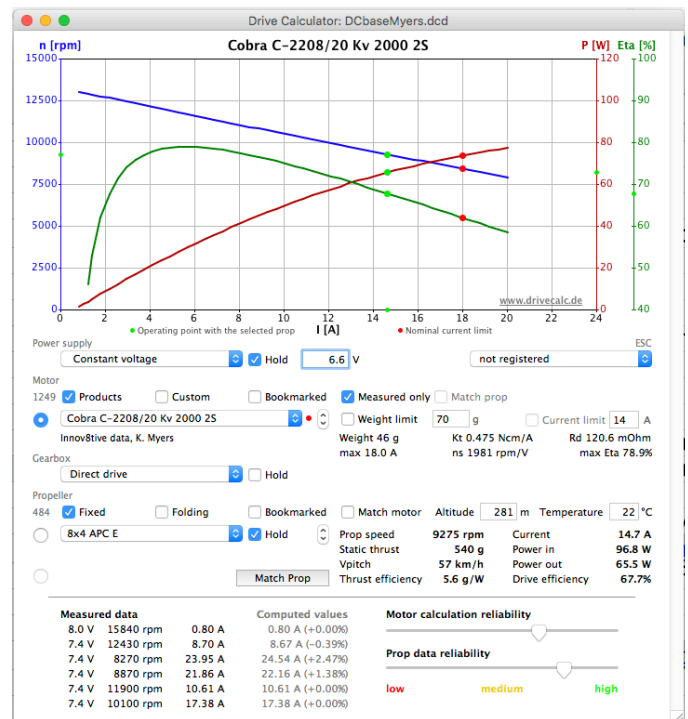
My 1970 version was red with a white hatch and some checker boarding on the wing and horizontal and vertical stabilizers. I also still had the original aluminum landing gear used on that version.

I tried a 7x5 prop on the spreadsheet with no luck, but an 8x4 noted a K_v range of 2082 to 2313. The Cobra motor that had a K_v close to that and that was between 33g and 50g was the Cobra C-2208/20 Brushless Motor, $K_v=2000$.

<https://innov8tivedesigns.com/cobra-c-2208-20-brushless-motor-kv-2000.html>

It has a stated weight of 46.5g and maximum continuous current rating of 18 amps.

I tested that motor and battery combination using Drive Calculator.



The data demonstrated that it should be possible to use this motor with an APC 8x4E prop and 2 “A123” 1100mAh cells.

I still liked the idea that I’d given to Andy, as it would allow for the trike-gear of the original version and the model would be a bit more “historically correct” in regards to the original.

I checked the Willy Nillies’ Website and found that the power package for the “Baby Bee” uses a

2S 500mAh LiPo, a 12A ESC and the motor is a Racerstar 1806 - 2280kv brushless motor.

The Racestar motor data is found here:

<https://www.racerstar.com/racerstar-racing-edition-1806-br1806-2280kv-1-3s-brushless-motor-cw-or-ccw-for-250-260-for-rc-drone-fpv-racing-p-6.html>

Weight: 20g

Maximum Amps: Not stated

I selected a similar motor, the Cobra C-2203/34 Brushless Motor, Kv=2300 with a weight of 18g and Kv of 2300.

<https://innov8tivedesigns.com/cobra-c-2203-34-brushless-motor-kv-2300.html>

The results in Drive Calculator at 7.4 volts with an APC 6x4E prop showed; 64.0 watts in at with an 8.6 amp draw and 12,566 RPM. On the Innov8tive Design's data page for for this motor is showed; 67.9 watts in at with an 9.18 amp draw and 12,260 RPM.

https://innov8tivedesigns.com/images/specs/Cobra_2203-34_Specs.htm

Actually, that amount of power should be quite fine for the Jr. Falcon, but it was a bit short on the power in that **I had targeted**.

Willy Nillies also has a power package noted as the "1/2 A TD .049" - Basic Power Package.

<https://willynillies.com/buy-here/ols/products/1-slash-2-a-td-049-deluxe-completion-package-everything-you-need-except-tx-and-rx-1-2-a-td>

It uses the same motor and 12A ESC but a 3S 500mAh LiPo.

When I changed the voltage to 11.1V in Drive Calculator, data output for the little Cobra 2203-34 did not show any data. Everything was out of range.

I found a "larger" 2300Kv motor and it showed an amp draw of over 25A and over 280 watts in. Ouch!

Using my spreadsheet/workbook, with the tab labeled LiPo, I found that the Cobra C-2208/26 Brushless Motor, Kv=1550 could be a good match with a 3S 600mAh LiPo.

<https://innov8tivedesigns.com/cobra-c-2208-26-brushless-motor-kv-1550.html>

The Innov8tive Designs' data page showed, while using an APC 6x4E prop; 94.5 watts in, at an amp draw of 8.51 and an RPM of 14,210.

https://innov8tivedesigns.com/images/specs/Cobra_2208-26_Specs.htm

Drive Calculator noted 88.7 watts in, at an amp draw of 8.0 and an RPM of 14,330.

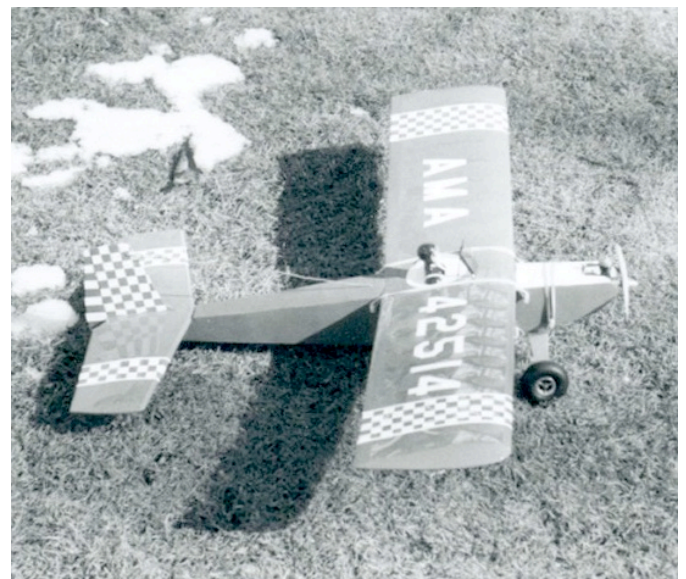
It was decision time!



1. Should I go with the historically correct stock Jr. Falcon using the Willy Nillies' motor mount and Baby Bee power system to give it that Cox Baby Bee look? Really cool and nostalgic that way for sure!



2. Should I go with the historically correct stock Jr. Falcon using the trike gear with the more powerful Cobra system that I calculated? Plenty of power for sure!



3. Should I go with my 1970 conventional gear version? It would also be nostalgic in it's own right. It would also allow me to try out a 2S "A123" 1100mAh power system.

If you are interested, the spreadsheet/workbook with my data for the Jr. Falcon is located here:

<http://theampeer.org/ampeer/ampmay21/Select-Power-JrFalcon-2017NP.xls>

The link will download the spreadsheet/workbook to your computer.

A Couple of "Interesting Finds" While Doing the Research

Even though I still have the original Dural landing gear and wheels used on my 1970 Jr. Falcon version, they are currently on my 1963 Minnie Mambo restoration and recreation.

I checked online to see if I could pick up another set of Dural gear like that. I was disappointed to find out that they are no longer available anywhere!!! I only found one place where larger sizes are available and in stock. Dave Thacker carries them at Radical RC.

<https://www.radicalrc.com/>

Search for "landing gear".

After running my calculations, I also decide to look through RC Groups to see how others were powering their Jr. Falcons.

The first thread that I found was "Junior Falcon 2019".

<https://www.rcgroups.com/forums/showthread.php?3363975-Junior-Falcon-2019>

It was posted by Mr. "Sky Knight" himself, Jim Zare.

In his post #11, Jim notes that, "I first scanned and created a CAD file of the Junior Falcon in 1999. This model used a Speed 400 and Nicads."

I had loaned Jim my canopy so that he could make a plug for that model. He was kind enough to send me back a plug as well.

While he talks about using a Park 340 motor in much of that thread, I was pleased to note in post #17 that, "The power on this model is a Cobra 2208-26 1550 kv motor and Cobra ESC by Innov8tive designs with a 3s 1100 mah 70 c Lipo. Using an APC 6x 5.5 prop. I am getting 125 watts @ 11 amps. The model is way over powered!".

This showed me on was on the right track with my motor selection if I choose to use LiPos.

Keith Shaws' "Toledo Project", the Stingray

From Keith Shaw via email

As we all know too well, there will be no more Toledo RC Expo sponsored by the Weak Signals. Old habits die hard, so Keith has shared some info on is "Toledo Project" for this year. There were some photos and previous information in the April Ampeer. It was shared during the March EFO Zoom meeting. KM

<http://theampeer.org/ampeer/ampapr21/ampapr21.htm#MARCH>



I thought I would post some photos of the winter project. It is finished, except for covering, so these are the bare bones photos.

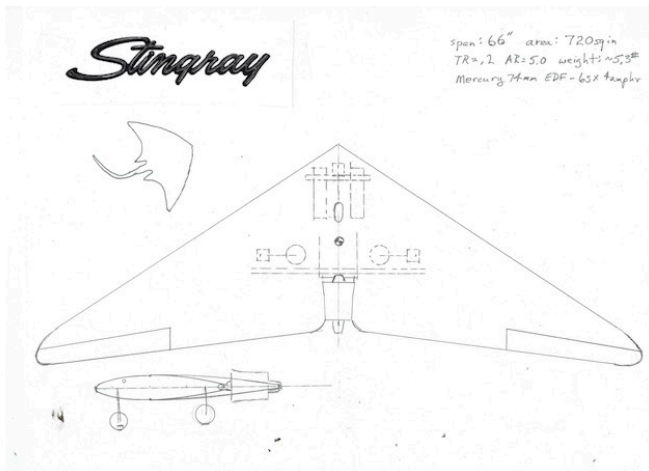




Being a pure flying wing, there is not much to see, but a lot of work went into this, mostly trying to figure out how to cram EVERYTHING (fan, batteries, retracts, controller, radio) into the thin 12% profile.

When it is completely finished I will post the Virtual Toledo shots along with the crowded interior.

This may be the first time in history that I will come out under my weight estimate! It might even end up a shade under 5 lb., as the entire airframe and all the equipment weighs 69 oz. The only thing left is the covering and some nose-weight, according to my calculations, about 4-5 oz.



I've included the layout sketch and the airframe photos.

You can see the master 1/2" carbon tube spar just ahead of the EDF spinner and a 1/4" carbon tube just ahead of the battery packs. The carbon tube system worked out very well (and light!), so I



am encouraged to redesign the Katy with a similar set of tubes.

Time to clean the house in preparation for covering.

Keith

Weird Arming ESC on Tower Hobbies P-51s (model discontinued)

From Gary Gullikson via email

I have the "Miss America" version, but they all used the same yellow no-name speed controls. I couldn't get it to arm and run the motor. Tower sent me a replacement ESC, same yellow version. I accidentally got the first one to work. It requires setting throttle stick to full position, listen for some beeps, lower it to full off position, now it will arm and run motor. Have to do this each time for each flight. Your story of the Tactic TX problem reminded me of the above. It would be nice if all ESCs had the same safety and arming procedures.

I am starting the long delayed build of my Tritle/Brodak/Dare DC-3, bought kit and all the trimmings in 2016. Have Cobra motors, ESCs, 3-blade scale props, etc., plus Callie Graphics for "Flagship Detroit" livery. I'm debating whether to build retractable landing gear copying Troy McMillan's gear shown on You Tube. I turned 82 recently so need to get'er done. 😊

Keep up the good work!

Gary Gullikson, Garden Grove, CA
E-Challenged on RCG

Upcoming Skymasters RC Club Night Fly and Bonfire

From Pete Foss via email

Saturday, June 26, 2021 Night Fly with Bonfire
Event Flying starts at 6PM

Bring you own refreshments for the bonfire after flying

NO FOOD OR DRINKS WILL BE AVAILABLE.
MASKS REQUIRED UNLESS 6 FOOT SEPARATION.

Flying open to AMA members.

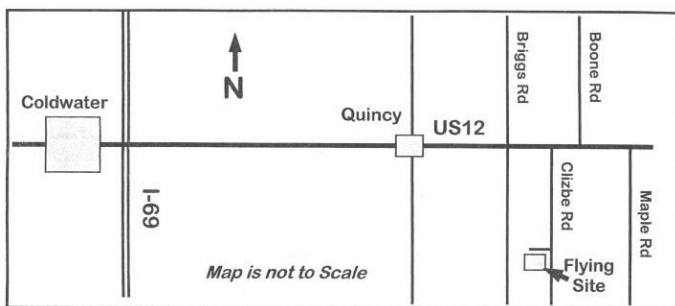
94dBa at 10 feet enforced

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 at

<http://www.skymasters.org/index.php?page=events&pdflyer=data/flyers/>



2021/2021nightfly.pdf

The Upcoming Keith Shaw Birthday Party Electric Fly-in 2021

The Balsa Butchers are hosting the "Keith Shaw Birthday Party Electric Fly-In", for the 19th year, at their field near Coldwater, MI. The event takes place on Saturday, **May 29, 2021**. It is a one day event again this year.

The event consists of Open Electric Flying with a "Special Guest of Honor Theme", Happy Birthday Keith Shaw [June 6].

Enjoy a day with the "Pioneering Master of Electric R/C Flight". 8 a.m. - 4 p.m., Saturday. NO LANDING FEE! Donations for field maintenance and lunch appreciated.

For additional information contact;

Contest Director: Dave Grife - E-mail:
grifed@yahoo.com or Phone: 517-279-8445
Please e-mail or call with any questions.

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

37th Annual Mid-America Electric Flies 2021

AMA Sanctioned Event (Proof of AMA/MAAC membership required to fly)

Saturday, July 10 & Sunday, July 11, 2021

Hosted by the:

Ann Arbor Falcons and Electric Flyers Only
The 7 Mile Rd. Flying Site, Salem Twp., MI, is
Provided by the:

Midwest R/C Society

Contest Directors are:

Ken Myers phone (248) 669-8124 or email
kmyersefo@mac.org – <http://www.theampeer.org>
for updates & info

Keith Shaw (734) 973-6309

Flying both days is at the Midwest R/C Society
Flying Field - 7 Mile Rd., Salem Twp., MI

Registration: 9 A.M. **Saturday**

Event Flying from 10 A.M. to 4 P.M. Saturday

Open Flying 10 A.M. Until You Leave Sunday

(Open Flying Saturday after the Event & All Day Sunday)

No Pilot Landing Fee

No Parking Donation Will Be Requested from Spectators

Awards on Saturday Only!

Best Scale

Most Beautiful

Best Mini-Electric

Best Multi-motor

Best Sport Plane

Foam Flurry for NCM aircraft

CDs' Choice

Planes Must Fly To Be Considered for Any Award
Plaques for winner in each category

The Field is Open for Open Flying All Day Friday
Night Flying Possible, Weather Permitting, Friday
& Saturday Nights

POSSIBLE Field Lunch (hot dogs, chips, water or pop) Available on Saturday - depends on COVID protocols

POSSIBLE Burgers, Brats and Potluck on Saturday evening for Pilots & Their Guests - depends on COVID protocols

Come and join us for two days of fun and relaxed electric flying.

The NCM (Not Conventional Materials) Event

Traditionally, model aircraft airframes have been mostly constructed from balsa wood, plywood, spruce, and fiberglass. For the purposes of this meet, NCM airframes are mostly constructed from not conventional materials i.e.; sheet foam, foam board, cardboard, block foam, foam insulation material, etc.

Foam Flurry for NCM aircraft: This is a true event. It is based upon the all up/last down event of early electric meets. Any NCM aircraft may be used (no ARF types). Power systems are limited to a maximum of 3S (no paralleling) LiPo batteries or 4S maximum, no paralleling, for A123 packs. All



planes qualifying for this event will launch at the same time, and the last one to land will be declared the winner.

VERY IMPORTANT REMINDER FOR 2021 - THE FLYING FIELD ENTRANCE TO THE MIDWEST FLYING FIELD CHANGED TWO YEARS AGO!



The old entrance to the Midwest RC Society flying field is **permanently closed!!! DO NOT ATTEMPT TO USE IT!!!**

To locate the Midwest R/C Society 7 Mile Rd. flying field, site of the Mid-America Electric Flies, look near top left corner of the map, where the star marks the spot, near Seven Mile Road and Currie Rd.

The field entrance is on the north side of Seven Mile Road about 1.5 Miles west of Currie Rd. entrance is on the north side of Seven Mile Road about 1.6 Miles west of Currie Rd.

The address is 7621 Seven Mile Road, Northville, MI 48167. The entrance is through a private residence drive and out past the barn.

Directions from Google Maps to the flying field

<https://www.google.com/maps/place/MIDWEST+R%2FC+SOCIETY/@42.422025,-83.6170775,805m/data=!3m1!1e3!4m13!1m7!3m6!1s0x8823559bdf962b57:0xd100df97d9dceb112s7419+7+Mile+Rd,+Northville,+MI+48167!3b1!8m2!3d42.4187058!4d-83.6190072!3m4!1s0x882355a2c9e29cb5:0xaaaf592068692b984!8m2!3d42.422025!4d-83.6148888?hl=en>

Because of their convenient location and the easy drive to the flying field, the Comfort Suites and Holiday Inn Express in Wixom, MI have been added to the hotels' listing. They are only 10 miles northeast of the field and located near I-96 and Wixom Road. See the map-hotel .pdf for more details.

<http://www.theampeer.org/map-hotels.pdf>

Upcoming E-vents

Ultimate Soccer Arenas, Pontiac, MI, Indoor RC Flying

Tuesdays starting Oct. 27 thru the end of April, 2021

Hours: 10 a.m. - 1 p.m.

\$10 for a single session, discounted 5 session & season passes are available. Dates and Times are subject to Change!

Ultimate Soccer Arenas, Pontiac, MI, Indoor Free Flight Flying

Thursdays at field 3 of the Ultimate Soccer Arenas starting at 10 a.m.

Premier Sports Center, Indoor RC Flying

14901 23 Mile Rd, Shelby Charter Twp, MI 48315

Indoor RC Flying has begun at Premier Sports Center, 23 Mile and Hayes, every **Thursday** from 9 AM to 3 PM.

May 1, Saturday, EFO Flying Meeting, 10:00 a.m. at the Midwest RC Society 7 Mile Road Flying Field.

May 29, 2021, Saturday, Keith Shaw Birthday Party Electric Fly-in 2021 (details in this issue)

June 26, Saturday - 6 p.m., Skymasters RC Club Night Fly and Bonfire (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, May 1, 10:00 a.m.

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