

the

Ampeer

May		The EFO Officers		2023	
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No Mailed Ampeer Subscriptions		Next EFO Flying Meeting: Saturday, May 6, 2023 Time: 11 a.m., Place: Midwest RC Society flying field			

**What's In This Issue:**  
 A Luton Minor Ready - Dreamer Takes Flight - New Version Rises From An Old AT-6 Kit - Motor Mounting - Innov8tive Designs: You've Gotta Check 'em Out! - Comment on Hanging Wings with Coat Hangers - Using DeWalt 20V Power Packs to Charge Small LiPo Battery Packs - An Old 1/6-scale Cub - Find the Specs on an Unknown Motor - Upcoming Keith Shaw Birthday Fly-in - Upcoming 39th Annual Mid-Am - Upcoming Events



**A Luton Minor Ready for the Air**  
 From Denny Sumner via email

50 year old kit.

Best Regards,  
 Dennis Sumner

Keith and Ken,

Here are some pictures of my Luton Minor.

It has an all up weight of 10.6 ounces. It is powered by a Cobra C2204/40 outrunner and a 2S 800mAh LiPo battery.

The pilot and engine are 3D printed. The covering is Ultracote Parklight.

It was fun to go back in time to build a



## The Dreamer Takes Flight

From Keith Shaw via e-mail

We have had an unusually calm and sunny (but cold) Spring, so I have been able to get out with a number of my planes to get my "thumbs up to speed" for the season.

Yesterday, (*April 10, 2023 KM*), I took the Dreamer out for a test hop, and am glad to report it went well.

It flew like I expected, sort of a souped-up Pitts Special.

Minor control throw and trim changes were done at the field before a second hop.

The only exception to the fun was that it sounded like it had a turbo-prop on it due to a bad bearing in the motor. It was disconcerting to be flying a cute little biplane, but with the shrieking sound of an Irish banshee. :-)

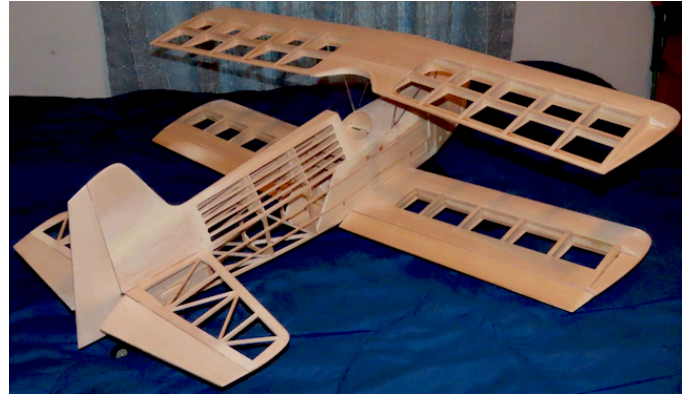
The bearings have been replaced with NON-Chinese units.

I am hoping to get out today or tomorrow for a few more flights to explore the aerobatic envelope. This time I will take my camera.

Keith

*The following photos are from earlier Ampeer's this year, 2023.*

*Enjoy - Ken*



## A New Version Rises From An Old AT-6 Kit

From Steve Labuta via email



### AT-6 Texan Build

**A complete redo of the JEMCO North American AT-6. Now lighter and for electric power.**

Hi Ken,

Wednesday nights are bad for me, so I can not attend your meeting, but I thought I should share my latest project with you.

If you remember 2 years ago I won a JEMCO AT-6 Texan kit at the MidAm event. *(That was a brand-new in the box kit that I'd donated for a Mid-Am raffle prize that year. KM)*

I finally started digging into it this winter and discovered that a few critical parts were missing and are not entirely shown on the plans. *(Oh dear, I never had it out of the box from the time I got it. KM)*

Also, the design looked rather heavy and over-engineered for electric power.

I decided to redesign an AT-6 myself.

Parkflyer Plastics sells a canopy for the JEMCO AT-6 and a fake engine of all sizes, so I decided it would be the same size as the JEMCO.

I designed the plane using WingHelper, devFus, and devCad like I did my Mach-1 and other designs.

It has a 55-inch wing span and I'm starting with a 760 Kv Tempest motor from Innov8tive Designs and a 4S LiPo for power.

The shaped parts were cut on my CNC machine.

I am getting close to completing the wood-building stage.

It seems that I have over-engineered my design as well.

All components, including a 4000mAh battery, but less covering weigh about 4 lb. already.

I've posted pictures of the build on my Flickr account. See the link below. I'll keep updating the pictures as I make more progress.

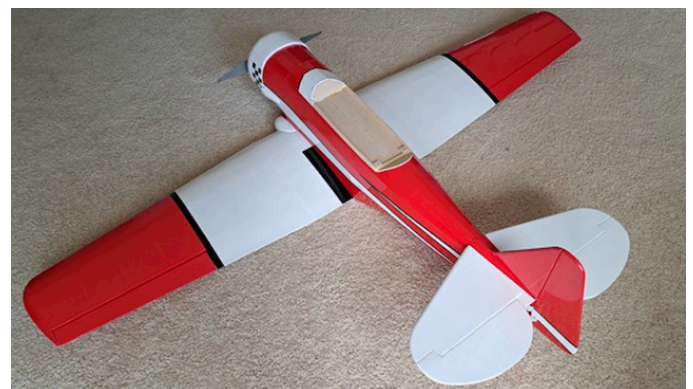
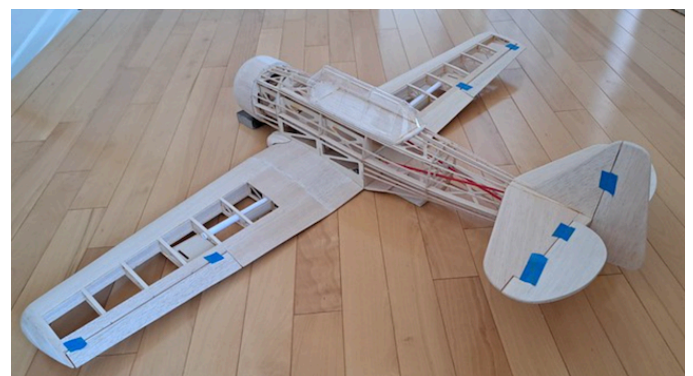
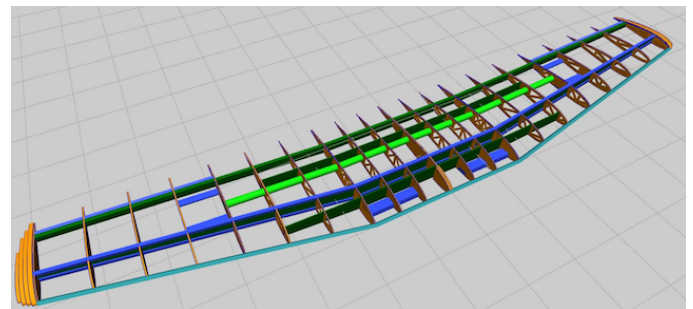
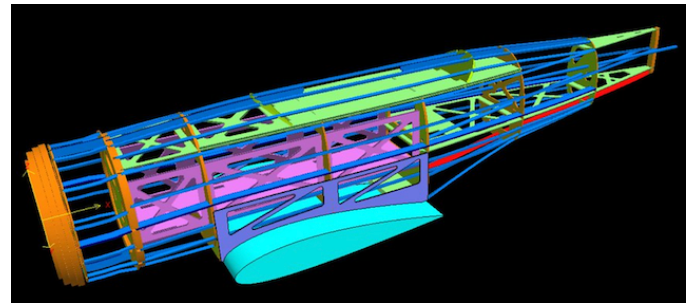
<https://flic.kr/s/aHBqjArHf2>

It should be flying sometime this spring, and if it survives until July, I'll bring it to the MidAm for everyone to see.

Also, I have not used any of the parts in the original kit. If you know anyone who would like the original kit as is, let me know.

Thanks,  
Steve Labuta

*(Here Are a Few Screen Grabs From His Linked Account - Check it out - Really Great Job! - KM)*

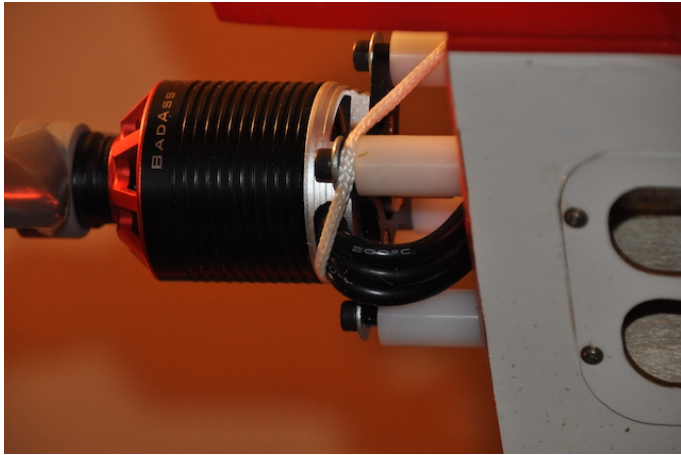


**Motor Mounting Out Runner Motors**

From Joe Hass via email

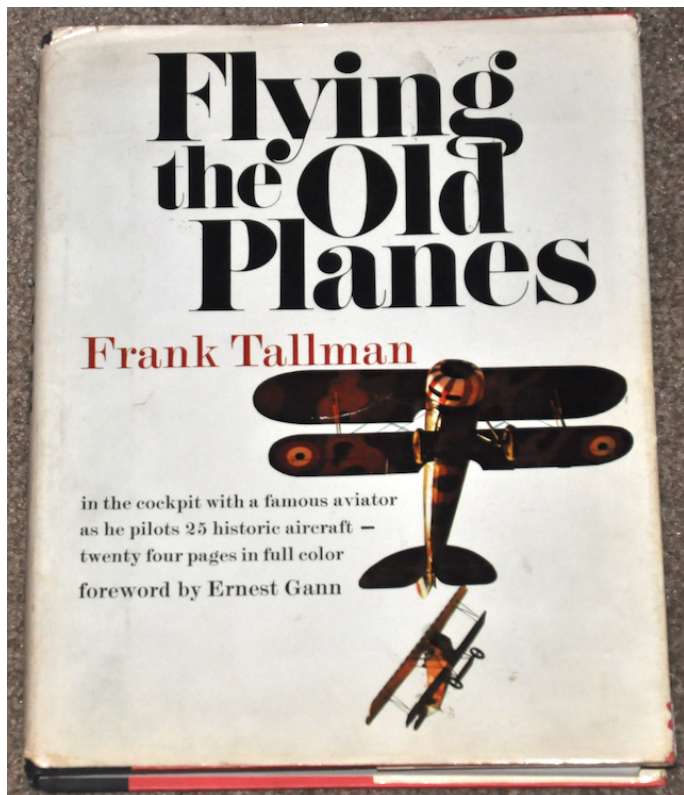
I routinely use pre drilled nylon spacers from the local hardware store with hardened socket head cap screws to get proper motor spacing.

Use the biggest outer diameter that will fit with the I.D. to match the bolts.



While not the best picture, as the airplane is currently hung from the ceiling in the garage (hence the rope), you can see the typical layout.

Look in the specialty hardware section. Sometimes they are called bushings.



For my STAGGERWING I had steel spacers custom made. The spacer was almost 2 inches long and I needed all the weight I could get in the nose.

I think the was the book was mentioned in the *AMPEER*. (It was. KM)

Send my Get Well Wishes to Mark Rittinger.

Joe Hass  
248-321-7934

(Thanks for the reminder about this method. I've used it for years and years, and it works well. I get my "stand offs" at Lowes. KM)

**Innov8tive Designs**

<https://innov8tivedesigns.com/>

**You've Gotta Check 'em Out!**

By Ken Myers

**Disclaimer:**

**I was not asked by anyone to write this.**

**I am only a VERY, VERY SATISFIED CUSTOMER!**

**Ken Myers**



Lucien Miller, Mr. Innov8tive Designs, sends out email updates if you subscribe. I recommend that you do!

This information is from his March 2023 newsletter email.

**New Electric Power System Informational Series:**

**A Look Inside Electronic Speed Controllers**

First, we would like to thank you for being subscribed to our company's email newsletter system. This is a great way for us to get important information out to our customers about new products, featured customer builds and other important information. When it comes to Electric Power Systems, one of the most important things

that people often look for is educational information that helps them understand all the ins and outs of electric power, along with explanations of all the new terms, numbers, and other information.

In this installment of our Power System Informational Series, we take a look at the ESCs we typically use in our hobby. Brushless Electronic Speed Controllers are the most misunderstood and overlooked component in an R/C Electric Power System. These little marvels of modern electronics handle huge amounts of power and current, while switching on and off at a rate of thousands of times per second, all in an effort to make a brushless motor spin a prop to power our model aircraft. In this informational article we will look at the basic function of Brushless Speed Controllers, the parts that make up an ESC, talk about many of the features and adjustable parameters that ESC's offer and dispel some of the myths and misinformation surrounding them.

It is our hope that you find this information useful and keep a copy of it as a reference for future projects. If there are other specific topics that you would like additional information about, please let

us know, and we will do our best to add it to this informational series.

Here is the link to the mentioned PDF.

<https://innov8tivedesigns.com/downloads/Brushless-Speed-Controllers.pdf>

He also has another article, "Motor Part Numbers: What do they mean?" and it is found here in PDF format.

<https://innov8tivedesigns.com/downloads/MotorPartNumbers.pdf>

I high recommend that you take some time to explore his Website and consider purchasing from him.

My favorite part of his site are the motor voltage and prop tables. He actually tests all of the motor types that he sells. What a useful undertaking! Thank you Lucien!

This is the link to the Cobra C-2826/12 Brushless Motor, Kv=760.

<https://innov8tivedesigns.com/cobra-c-2826-12-brushless-motor-kv-760.html>

Prop Manf.	Prop Size	Input Voltage	Motor Amps	Watts Input	Prop RPM	Pitch Speed	Thrust Grams	Thrust Ounces	Thrust Eff. Grams/W
APC	9x7.5-E	14.8	19.48	288.4	9,152	65.0	1104	38.94	3.83
APC	9x9-E	14.8	23.17	342.9	8,959	76.4	1130	39.86	3.30
APC	10x7-E	14.8	20.13	297.9	9,153	60.7	1493	52.66	5.01
APC	10x10-E	14.8	29.14	431.3	8,563	81.1	1361	48.01	3.16
APC	11x5.5-E	14.8	22.12	327.3	9,028	47.0	1772	62.50	5.41
APC	11x7-E	14.8	26.01	385.0	8,764	58.1	1870	65.96	4.86
APC	11x8-E	14.8	28.06	415.3	8,639	65.4	1863	65.71	4.49
APC	11x8.5-E	14.8	30.46	450.8	8,476	68.2	1856	65.47	4.12
APC	11x10-E	14.8	35.12	519.8	8,141	77.1	1663	58.66	3.20
APC	12x6-E	14.8	28.36	419.7	8,572	48.7	2176	76.76	5.18
APC	12x8-E	14.8	34.88	516.2	8,132	61.6	1960	69.14	3.80
APC	12x10-E	14.8	40.16	594.4	7,727	73.2	2066	72.88	3.48
APC	13x4-E	14.8	22.31	330.2	8,970	34.0	2016	71.11	6.11
APC	13x6.5-E	14.8	38.07	563.4	7,967	49.0	2614	92.21	4.64
APC	13x8-E	14.8	40.58	600.6	7,763	58.8	2549	89.91	4.24
APC	13x10-E	14.8	47.24	699.2	7,265	68.8	2388	84.23	3.42
APC	14x7-E	14.8	44.29	655.5	7,438	49.3	2884	101.73	4.40
APC	15x4-E	14.8	38.11	564.1	7,954	30.1	3065	108.11	5.43
APC	15x6-E	14.8	46.62	690.0	7,279	41.4	3262	115.06	4.73

His motors, of the same physical size and weight, come in many various winds. All the data you need to know about the motor is provided in its description.

Here is the link to the battery and prop chart for this motor. It is extensive.

[https://innov8tivedesigns.com/images/specs/Cobra\\_2826-12\\_Specs.htm](https://innov8tivedesigns.com/images/specs/Cobra_2826-12_Specs.htm)

At the top of the chart is a table with the pertinent data.

Cobra C2826/12 Motor Propeller Data					
Motor Wind 12-Turn Delta	Motor Kv 760 RPM/Volt	No-Load Current I <sub>o</sub> = 1.10 Amps @ 10v	Motor Resistance R <sub>m</sub> = 0.045 Ohms	I Max 42 Amps	P Max (3S) 460 W
Outside Diameter 35.0 mm, 1.38 in.	Body Length 46.0 mm, 1.81 in.	Total Shaft Length 66.0 mm, 2.60 in.	Shaft Diameter 5.00 mm, 0.197 in.	Motor Weight 171 gm, 6.03 oz	

He prop tested this motor with 4 different voltages; 11.1V, 14.8V, 18.5V and 22.2V.

This is the chart, on the previous page, is for the 14.8V testing.

You know that I use these voltage and prop charts all of the time in selecting power systems for my planes, as well as other people's planes.

Thank you Mr. Miller!

### Comment Regarding Hanging Wings with Wire Coat Hangers

From Jim Blanner via email

In the article "Wing Storage - What took me so long to think of this?" by Joe Hass, he suggested a method to hang wings from pipes using coat hangers.

<http://theampeer.org/ampeer/ampfeb23/ampfeb23.htm#HANG>

Jim responded with the following information.

Hi Ken!

One thing to consider is that using wire coat hangers can, after a while, lead to a point of corrosion on the copper pipe (dissimilar metals & wire rust); which can sprout a leak – it's happened to me.

Jim

### Using DeWalt 20V Power Packs to Charge Small LiPo Battery Packs

From Ned Watt via email

For those flying small aircraft (or large aircraft with small batteries), consider the DeWalt 20 volt power pack and one of the small, but very capable, ISDT chargers.

I have been using a non-OEM DeWalt 6.0Ah pack (two packs for less than half the price of the DewWalt pack, branded "Waitley") and an adapter that snaps onto the pack, easily available on the internet.

The ISDT charger is rated for over 20 volts. A very light and compact set up for those not needing to refill large packs. With two 850mAh packs and an Eratix, I can fly all day without lugging around a big lead acid power source.

Thanks for your newsletter. Always worth reading.

Ned Watts

(Thank you sir! KM)

### My Old 1/6-scale Cub

From Gary Gullikson via e-mail



I was surprised to see pics of my old Sig (1/6 scale) J-3 Cub in the *Ampeer*.

There were a number of subsequent changes in power and RC system stuff, landing gear, cabin details, etc.

The old Astro Flight geared brushed motor and speed control was eventually replaced by a brushless Cobra 3515 motor and speed control.

The scaly E-Flite metal landing gear was too heavy and bungees were fiddly.

I had a bad crash, and was given another built up Sig 1/6 Cub, transferred guts from crash and have been flying the “donor” Cub for years.

I haven’t been very active flying this year because of Covid and fire danger field shut downs, hot weather and winds, and health and mobility problems at age 83.

I have a 30 mile round trip to get to the OCMA club field. Dues are now \$125. To pack up and get to the field only to find wind problems and unannounced fire helicopter operations has been a problem.

We also share the field with commercial events. Our field is part of Orange County CA Parks Dept., we have to be very careful not to lose favor with the Parks Dept. I have been flying mostly foamies, i.e.,

Dynam WACO, a Park Zone Reliant, and getting ready to fly a Dynam PT-17 as well as a discontinued Tower Hobbies Miss America P-51.

I hope to see Dynam replacement parts and models become available again from Bitgo and others.

I want to get back to building Pat Tritle designs, and I have his DC-3 started.

Keep up the good work and have fun.

Gary Gullikson

### **How to Find the Specs on an Unknown Motor**

From Pete Waters via email

Ken,

I have a large brushless motor, from my son-in-law, and I think it would be ideal on my pattern ship, the Altair... but how can I get an idea on its numbers?

Pete

Hi Pete,

Are there any numbers or lettering on it?

What is its weight in grams?

We can start there.

Later,

Ken

It weighs 378g.

Diameter of “black” painted outrun is 50mm, length over all is 60mm shaft 6mm and length of

armature, ie the black painted is 30mm all with National Calibrated Harbor Freight filled plastic digital caliper!

Hi Pete,

I think we have the size equivalent. It is similar to the Cobra C-4130 series of motors. <https://innov8tivedesigns.com/products/brushlessmotors/cobra-aircraft-motors/cobraairplanemotors/cobra41mmmotors.html>

Now we need to narrow down the Kv so that we can use the Innov8tive Designs tables to get the cell count and prop choices.

How to measure a brushless motors Kv, motor constant is found here:

<https://theampeer.org/Kv/kv.html>

How to do it using a drill press is in the section titled “Measuring a motor's Kv Using the Drill Press Method”.

Once we know the Kv, we can use the tables, like this one, to figure out the prop and number of cells.

I just picked one from the 4130 series to show you a sample of the tables, but when we know the Kv we can narrow it down.

[https://innov8tivedesigns.com/images/specs/Cobra\\_4130-14\\_Specs.htm](https://innov8tivedesigns.com/images/specs/Cobra_4130-14_Specs.htm)

Later,

Ken

I will run the drill press... for the Kv. With the 3W/g its around 1200 watts!

Pete

### **Scientists Find the Holy Grail: the Reason Why Lithium-Metal Batteries Fail**

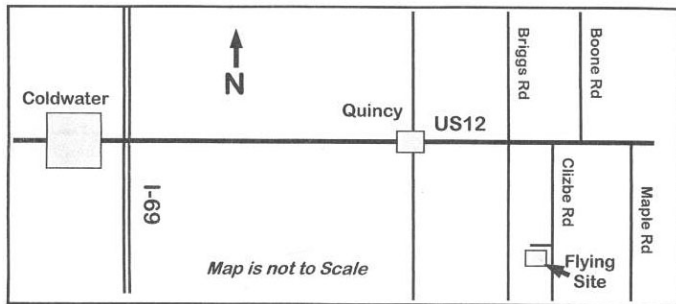
<https://www.msn.com/en-us/news/technology/scientists-find-the-holy-grail-the-reason-why-lithium-metal-batteries-fail/ar-AA174Q1G?ocid=msedgdhp&pc=U531&cvid=03c1317>

From Arthur Deane via e-mail

From Arthur Deane via e-mail

Arthur sent me the above link to this Popular Science article. As with all of the Popular Science articles, it is not too technical, but it does have some interesting information.

### **The Upcoming Keith Shaw Birthday Party Electric Fly-in 2023**



The Balsa Butchers are hosting the “Keith Shaw Birthday Party Electric Fly-In”, for the 21st year, at their field near Coldwater, MI. The event takes place on Saturday, **June 3, 2023**. It is a one day event.

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:  
grifesd@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.

### **39th Annual Mid-America Electric Flies 2023 & FREE Open Air Swap Meet On Sat., July 8 ONLY**

(See Swap Meet Note at the end of this announcement.)

AMA Sanctioned Event (Proof of AMA membership required to fly - Sorry MAAC membership is no longer accepted)

**Saturday, July 8 & Sunday, July 9, 2023**

Hosted by the:

**Ann Arbor Falcons, Electric Flyers Only and The Midwest RC Society**

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 –

**Website for updates:**

<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**

**There are NO SCHEDULED EVENTS on Sunday, just open electric flying)**

### **No Pilot Landing Fee**

**Donations will be gladly accepted**

**No Parking Donation Will Be Requested from Spectators or Those Participating in the Open Air Swap Shop**

**Donations to Midwest will be gladly accepted from Spectators and Open Air Swappers**

### **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 the winner in each category

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

**Field Lunch is provided** to pilots and friends (hot dogs, chips, water or pop) Available on Saturday

**Field Dinner is provided** (Burgers, Brats on Saturday evening for Pilots & Their Guests)

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 2023 - THE FLYING FIELD ENTRANCE TO THE MIDWEST FLYING FIELD CHANGED FOUR YEARS AGO!**

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

**This what the flying field entrance looks like. Please Drive SAFELY**

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!4m1!1m7!3m6!1s0x8823559bdf962b57:0xd100df97d9dcebf1!2s7419+7+Mile+Rd,+Northville,+MI+48167!3b1!8m2!3d42.418705814d-83.6190072!3m4!1s0x882355a2c9e29cb5:0xaaaf592068692b984!8m2!3d42.422025!4d-83.6148888?hl=en>

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.

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>

### **Open Air Swap Meet - Saturday, July 8 ONLY**

There is a designated area for swappers. Please check-in at the event registration table before setting up. Someone from registration will point out where you may set up. Bring your own table(s) and chair(s).

There is no swap meet fee for Saturday. A donation to the Midwest RC Society for the use of their flying field would be greatly appreciated.

## Upcoming Events

### Upcoming May 2023 EFO Meeting

**May 6**, EFO Flying Meeting, 11 a.m., Midwest RC Society Flying.  
Everyone with an interest is welcome to join us.  
Proof of AMA membership required to fly.

**June 3**, Saturday, Keith Shaw Birthday Electric Fly-in, 8 a.m. to 4 p.m. Near Coldwater, MI  
(details in this issue)

**July 8 & 9**, Saturday and Sunday, 39th Annual Mid-America Flies (details in this issue)  
Free open air swap shop on Saturday ONLY.  
Donations to the Midwest RC Society would be greatly appreciated!



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

### May Monthly Meeting:

**Date:** May 6, 2023 **Time:** 11 a.m.

**Place:** Midwest RC Society 7 Mi. Rd. Flying Field