

**the**

# Monitor

February

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2019

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**Next Meeting: Date: Wednesday, Feb. 6**

**Time: 7:30 Dec. Social Meeting, EAA Building**

**What's In This Issue:**

The January Meeting - Electric Power System to Replace a Glow Power System - My Personal History  
With the Falcon 56 - Indoor Flying Season Info - Membership Application Posted - Upcoming Events

## The January Video

The 7 p.m. aviation related video was "Secrets of Thermal Soaring" by Paul Naton, from Radio Carbon Art. It covered a lot of information about thermals including how they are formed and how they move.

## The January Meeting

Following the video, **Ken Myers** gave his presentation on how to easily select a power system to convert a glow plane in hand to electric power.

**Dave Stacer**, club treasurer, gave the full financial report for 2018.

The bottom line was that we ended the year in black by \$12.

There was a discussion about moving some of our money, that we have in the bank, to a CD to possibly make a little interest.

**Lynn Morgan**, club secretary, reminded folks to get in their 2019 membership as soon as possible.

**Roger Wilfong**, club president, noted that we really need to get more donations to the 'Friends of the Field' fund to offset more our our expenses.

**Ken Myers**, vice-president, noted that he's added a link on our Website to our club Facebook page. **YOU DO NOT NEED TO BE A FACEBOOK MEMBER TO VIEW THE PAGE.** The page will open enough to read the information there, even though there will be a space blocked out on the bottom of the screen.

You will not be able to post to the Facebook page, unless you are a member of that group, but you can definitely read the supplemental information posted there, including the information about when the glider group will be flying at the field.

Our next meeting is scheduled for Wednesday, February 6 and the guest speaker will be **Mark Freeland**.

**Helicopter Frequencies**

21, 27, 29, 39, 41

**Sailplane Frequencies**

11, 12

## **An Easy Way to Select an Electric Power System to Replace a Glow Power System with the Glow Plane In Hand**

A Presentation by Ken Myers

Previously, Ken had presented an in-depth method for selecting power systems for electrically powered planes. It was called "Selecting an Electric Outrunner Motor Power System for an ARF, Kit or Plans Built Electrically Powered or Glow Conversion Prop Plane".

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

The method that he presented streamlined the process so that only a few inputs, that could easily be obtained by a glow flier, are required by the user.

### **Items Required**

Free Drive Calculator program

<http://www.drivecalc.de>

Ken's database for Drive Calculator

<http://www.theampeer.org/G2E2/DCbaseMyers.dcd>

\*Place Ken's database for Drive Calculator in the Drive Calculator Folder

Ken's Drive Calculator Spreadsheet

<http://www.theampeer.org/G2E2/G2E2.xls>

\*This is an Excel type spreadsheet. If you do not have Microsoft Office, you may want to download the FREE Open Office suite.

<https://www.openoffice.org/>

Ken's Drive Calculator Worksheet

<http://www.theampeer.org/G2E2/G2E2-worksheet.pdf>

\*This a printable Adobe Acrobat document. It is used to record the required measurements and data collected while doing the spreadsheet. Printing several copies is suggested.

Pen or Pencil

\*To write down information gathered on the worksheet.

Scale for weighing

\*To measure the weight of the glow plane.

The following is a copy of the annotated worksheet. It is presented here to show how easy it is to gather the inputs and analyze the results of this method.

Photos are used for illustration purposes in this article, but not on the actual spreadsheet.

### **Measurements**

An INPUT for the Ready to fly (RTF) weight: (cell B4)



Only one of the lines will be completed. It depends on how the ready to fly (RTF) weight is measured and/or calculated.

RTF weight in ounces: \_\_\_\_\_ oz.

or

Airframe + radio weight x 1.2 \_\_\_\_\_ oz.

or

Airframe only weight x 1.6 \_\_\_\_\_ oz.

Prop Selection INPUT: (cell B5)



This measurement is made with the plane setting level on its wheels when measured from a flat surface to center of prop shaft of the glow engine. \_\_\_\_\_ in.

### 1. Open the spreadsheet

The first time you open the spreadsheet some of it will be filled in, as it was used for the example plane, a Falcon 56 Mk II.

- A. Input YOUR plane's name in (cell B3)
- B. Input RTF weight in ounces (cell B4)
- C. Input distance measurement taken with the plane setting level on its wheels when measured from a flat surface to center of prop shaft. (cell B5)

Cell B10 Shows the recommended largest prop diameter for flying off of grass

Cell B11 Shows the recommended largest prop diameter for flying off of pavement

Cell B15 shows the lowest pitch prop to try & Cell D15 the largest pitch to consider for the flying off of grass diameter.

Cell B16 shows the lowest pitch prop to try & Cell D16 the largest pitch to consider for the flying off of pavement diameter.

Only APC thin electric (E) props should be used.

I've created a chart on the spreadsheet showing the APC E thin electric props to consider between 5 inches in diameter and 16 inches in diameter. If you require a prop diameter less than 5" or greater than 16" visit <https://www.apcprop.com/product-category/electric-motors/>.

The APC prop link is also on the spreadsheet. If it doesn't open from the spreadsheet in your browser, copy and paste the link to the browser.

### Inputs for the propeller selection

Not all four of the prop inputs are required.

If you fly only off of grass, input only the diameter and pitches recommended for flying off of grass.

If you fly only off of pavement, input only the diameter and pitches recommended for flying off of pavement.

### Minimum Motor Weight

Note the output in cell B25.

Look at the Cobra motor weight chart on the spreadsheet and select a weight class that is just greater than the weight noted in cell B25.

Input that motor weight into cell B27.

### 2. Open Drive Calculator

It can be opened by double clicking on Ken's database (DCbaseMyers.dcd)

Follow the procedure, shown on the spreadsheet, for the inputs for Drive Calculator.

The graphics shown on the spreadsheet, with values in them, are examples and the actual inputs will vary from what is seen, but the input positions and clicks are the same.

**Use the data from the completed spreadsheet to complete the following to select a brushless outrunner motor on the printed worksheet:**

The motor weight will always be the same. Motor weight: (cell B27) \_\_\_\_\_ g

### Kv Ranges from the spreadsheet:

2S (cell B103) \_\_\_\_\_ to (cell D103) \_\_\_\_\_  
 3S (cell B130) \_\_\_\_\_ to (cell D130) \_\_\_\_\_  
 4S (cell B157) \_\_\_\_\_ to (cell D157) \_\_\_\_\_  
 5S (cell B184) \_\_\_\_\_ to (cell D184) \_\_\_\_\_  
 6S (cell B211) \_\_\_\_\_ to (cell D211) \_\_\_\_\_

I highly recommend looking at Cobra motors first. <http://innov8tivedesigns.com/parts/brushless-motors?cat=51>

You can also, look for any brand of motor that weighs about the motor's noted weight and falls into the Kv range for the desired cell count.

A Google search using brushless motor followed by the desired Kv will yield results.

Kv values are in even units, so round as necessary.

ie. 1066 to 1050

or

1134 to 1100

Sometimes the weight is noted in the Google search results and sometimes the link will have be clicked to find the weight.

### ESC amp ratings from the spreadsheet:

2S (cell B105) \_\_\_\_\_ A  
 3S (cell B132) \_\_\_\_\_ A  
 4S (cell B159) \_\_\_\_\_ A

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5S (cell B186) \_\_\_\_\_ A

6S (cell B213) \_\_\_\_\_ A

### LiPo milliamp hour rating (mAh) from spreadsheet

2S (cell B106) \_\_\_\_\_ mAh

3S (cell B133) \_\_\_\_\_ mAh

4S (cell B160) \_\_\_\_\_ mAh

5S (cell B187) \_\_\_\_\_ mAh

6S (cell B214) \_\_\_\_\_ mAh

### How Do You Know Which System to Choose?

You will probably get more than one “Good Choice” recommendation from the spreadsheet.

Note the recommended battery for each “Good Choice”. The mAh size may have to be rounded up or down to find a real LiPo battery with the number of cells and mAh size you are looking for.

I recommend the Hyperion G5 series from RC Dude.

<https://rcdude.com/products.html?cat=14>

You can also ask a buddy that flies electric what he/she uses.

For the Falcon 56 Mk II, the recommended battery for 3S is 3740mAh. DON'T WORRY ABOUT the C RATING!

For 3S, the Hyperion G5 has a 3S 3300mAh and a 3S 4000mAh. Choose the lower mAh.

G5 3S 3300mAh: weight: 266g, dimensions: 25 x 47 x 137mm or 0.98” x 1.85” x 5.39”

<https://rcdude.com/hyperion-g5-50c-max-3300mah-3s-lipo.html>

The recommended battery for 4S is 4S 2830mAh. For 4S, the Hyperion G5 has a 4S 2500mAh and a 4S 3000mAh. Choose the lower mAh.

G5 4S 2500mAh: weight: 205g, dimensions: 105.5 x 34.1 x 26.8mm or 4.13” x 1.34” x 1.06”

<https://rcdude.com/hyperion-g5-50c-max-2500mah-3s-lipo.html>

You could choose between the two by weight, with the 4S being lighter.

It is a good idea to choose by dimension, that way you'll know that the battery will actually fit in the plane where you want it to go.

Make a foam, or cardboard, ‘box’ and actually fit it in the plane where the battery would go.

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Whatever works best for you is the best way to do it.



Dummy LiPo Batteries, Constructed from Cardboard for the Falcon 56 MK II

**Roger Wilfong** suggested that you make the “dummy” LiPo battery a bit longer than the dimensions noted on the Website to allow for the wires coming out of the battery that will not bend. I’d recommend about 1/2” or about 10mm.

I sincerely hope you give this method a try. Please let me know how any of your conversions turn out for you.

### My Personal History With the Falcon 56

By Ken Myers

The model I showed at the Midwest meeting, to illustrate how to select an electric power system for a glow plane, was a Goldberg Falcon 56 Mk II. It was not originally my plane, but I had helped in its construction.



The original Carl Goldberg Models Falcon 56 kit came out in 1962.

<https://www.modelaircraft.org/sites/default/files/GoldbergCarl.pdf>

The first one I ever saw was my uncle's, Richard (Dick) Myers. It was either late 1962 or early 1963. I remember seeing the kit being built in his basement while



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my uncle was helping me build my first RC model, a DeBolt Livewire Trainer.

The original was for a single to 3-function radio systems and had considerable dihedral in the wing. At that time reed-type radios were somewhat popular, so it was also shown to be used with a 6-channel radio, which is what a 3 function reed radio was called. It could also be used as a rudder only plane, single channel.

My uncle's was controlled by a ground based transmitter with a pulser attached and a Mighty Midget motor pulsing the elevator and rudder and there was also a button for 'quick blip' throttle up and down.



There was a second version of the Falcon 56, but it was not called the Mk II. The box art had been changed slightly to include a recommendation for some larger displacement glow engines. The original airframe had only slight changes to it. The box art also called it a "DELUXE KIT". It had the option for a wing with less dihedral for use with ailerons.



I'm not sure when the Mk II kit became available, but it was sometime in the 1970s. There were several airframe changes made to accommodate even larger glow displacement engines and the wing structure was 'beefed up'.



The final iteration was the Falcon 56 Mk II ARF which came out in 2008.

[http://www.rcuniverse.com/magazine/article\\_display.cfm?article\\_id=997](http://www.rcuniverse.com/magazine/article_display.cfm?article_id=997)

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There was also a Senior Falcon which had a 69" wingspan and the recommended power was a .60 glow engine. The JR. FALCON had a 37" wingspan with an .049 glow engine (Cox) recommended for power.

I built my first junior in Korea in 1968 and second while living on Walled Lake in Walled Lake, MI in 1970.

Besides converting the Mk II, brought to the meeting, I have a new, in the box Jr. to build and convert to electric power.

**Indoor Flying Season, 2018-2019, Southeast Michigan**

**Tuesdays, October 30 through April 16, 10 a.m. - 1 p.m.**  
The Best Indoor Flying Venue in Metro-Detroit

**Ultimate Soccer Arenas**  
**867 South Blvd.**  
**Pontiac, MI 48341**

Single Flying Session - \$10  
Any 5 Session Punch Card - \$40  
25 Session Season Pass - \$120

All pilots MUST have proof of AMA Membership  
**Note:** If you are not an Academy of Model Aeronautics member, a special 3 month trial AMA membership is available.

<https://www.modelaircraft.org/membership/enroll>

**Spectators Welcomed**

Trainer Planes on Site

Come Check it Out!

Resister Online at

<http://www.skymasters.org>

or

Call Fred at 248-770-3239

**Support your local hobby shop because they support us!**

**Wednesdays, November 7 through April 24, 12:30 p.m. - 2:30 p.m.**

Legacy Center  
9299 Goble Drive  
Brighton, MI 48116

**Drop in Flying Session - \$10**  
**Spectators Welcomed and free**

**Keep up to date by checking their website.**

**Hamburg Flyers Radio Control Club**

<http://hamburgflyers.org/forum/>

To change your email address contact Ken Myers at [kmyersefo@mac.com](mailto:kmyersefo@mac.com)

The 2019 membership application is available at the club Web site,  
<http://www.midwestrcsociety.org>,  
for downloading with the link on the homepage.

**Upcoming Events:**

**Tuesdays** - 10 am - 1 pm, Ultimate Soccer Arenas, Pontiac, MI (info in this issue)

**Wednesdays** - 12:30 pm - 2:30 pm, Legacy Center, Brighton, MI (info in this issue)

**Wednesday, Feb. 6**, Midwest monthly meeting, 7:00 p.m. aviation related video, 7:30 Meeting, Guest Speaker: Mark Freeland

**The 2019 Membership Application Posted**

<http://www.theampeer.org/midwest/currentapp.pdf>

The Midwest RC Society 2019 Membership Application has been posted to our Website.

Please download it soon, fill it out, make a copy of your AMA card and then send that all to our club secretary or bring it to any meeting through March. Please make that sooner, rather than later. The February meeting would be really good. :-)

Midwest RC Monitor  
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**The Next Meeting:**

**Date:** Wednesday, February 6, 2019

**Time:** 7:00 p.m. Video, 7:30 meeting

**Place:** EAA building, Mettetal Airport