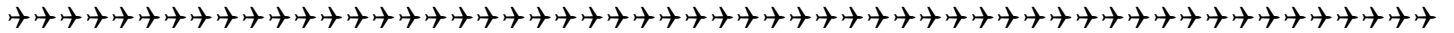




# Squadron News June 2022

An AMA Gold Club

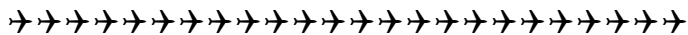


## Newsletter Editor.

Hello everyone, I'm John Lawyer and I am the newsletter editor. I will admit I am terrible with names, so if I get your name wrong in the newsletter I apologize beforehand. If I get other facts wrong, I apologize. If you send me an email or hand me a note on any corrections, I will be glad to get it into the next newsletter. Besides, that will help me to take up space in the newsletter also. ☺ You can contact me at [jlawyer41@att.net](mailto:jlawyer41@att.net) or 765-918-7229

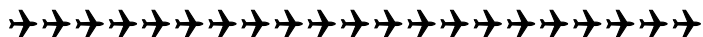
I will always be happy to take input from anyone for the newsletter.

P.S. Pictures of your latest bird or project are always welcome



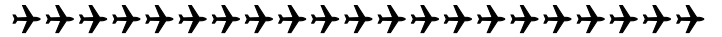
## Upcoming Club Events

- July 3 - cookput and 4th of July celebration
- July 6 - monthly club meeting, 7:30 pm at the field.
- August 3 - monthly club meeting, 7:30 pm at the field.
- August 13 - NMAD event at Club field.



## Upcoming Area Events

- July 9 - Indianapolis RC Modelers - Fly Anything RC
- August 13 - NMAD event
- August 20 - Indianapolis RC Modelers - Annual Toys for Tots
- August 25 thru 27 - Hoosier Dawn Patrol, AMA Natl Site, Muncie, IN.



## June 2022 Meeting Minutes

*Recorded by John Lawyer*

The June 2022 club meeting was held on June 1st, 2022 at the flying field. President Rege Hall called the meeting to order at 7:30 PM. Fourteen (14) club members were in attendance.

### President's Report

- No report.

### Vice President's Report

- No report.

### Treasurer's Report

- No report.

### Secretary's Report

- No report

### Field Marshall's Report

- The Lawn mower has been fixed and running good.
- Waste management has brought and spread 3 truckloads of gravel at the west end of the parking lot.

### Safety Coordinator's Report

- No report.

### Old Business

- Memorial Day was a good day of flying at the field with around 25 members present. Warren busy cooking for everyone.
- The Fourth of July Club cookout will be on the 3<sup>rd</sup> so members can be with there families on the 4<sup>th</sup>. Everyone is encouraged to bring roman candles.
- Our 10<sup>th</sup> celebration of National Model Aviation Day will be on August 13<sup>th</sup>. Again this year, we will hold a fund-raiser in support of Hoosier Veterans Assistance Foundation. Tom Carlyle will file for a sanction with

AMA for the event. Two Kits have been donated to the club for the Raffle that day. An E-flight 1.1 RV-7 and a 50cc Pilot Yak

- Fall warbird Fly-In will be October 15<sup>th</sup>.
- The Columbus Warbird Fly was going to be June 4<sup>th</sup> at the old Landfill.

**New Business**

- It was decided for the club to get more T-shirts with the club logo on them and sell to members. They will be \$15 a piece with XXX size being \$2 more.
- A fall Float Fly will be September 17<sup>th</sup> at the Avon Parks.
- The weekend before our warbird Fly there will be a multi-scale Dawn Patrol at the Dayton Airforce museum. Oct 7<sup>th</sup> and 8<sup>th</sup>.

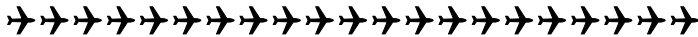
**Show and Tell**

**Raffle**

- No raffle was conducted.

With no further club business, the meeting was adjourned.

One last reminder, please support your local hobby stores. Special thanks go out HobbyTown USA in Castleton for extending a discount to our club for our monthly and year end raffle prizes.



**Message from the President.**

President's message:

I hope everyone is enjoying the weather, we have had some nice days to fly. Summer is moving along, our Independence Day (July 4th in the US as my UK work colleagues call our day of celebration) is almost here. This year the Blacksheep will celebrate on Sunday evening the 3rd. Club will get the meat and buns, bring a side dish or dessert and feel free to bring fireworks for displaying once darkness falls. Oh yeah, bring rc aircraft to fly!

Our Model Aviation Day fly in to support HVAF is coming up quick, if you have businesses that are willing to support via donations for our raffle, please gather what you can. I will have an event flyer by the July meeting. For you newer members, we are very proud of our history of supporting our military veterans via Hoosier Veterans Assistance Foundation. We have led the nation in fund raising every year. Good for our community outreach and while our contributions may not be as large as big corporate donations, the HVAF is thankful for every donation to help Hoosier veteran

Bryan Baumer and I met with WM (they now have changed from Waste Management to WM) Monday afternoon. It was a short meeting to see how we are supported by WM and what it means to us as the Blacksheep RC Modelers to have WM support and our very nice flying field. Interesting they reported that the landfill will go at least 18 more years and we are a member of the WM family. Be sure to thank WM whenever you get the chance. They may ask us to

support them at the fair this year as we used to several years ago. Till next month, Blue Skies and Fair Winds

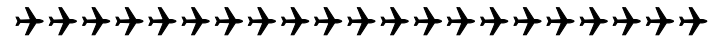
Rege



**Pictures from Rege Hall**







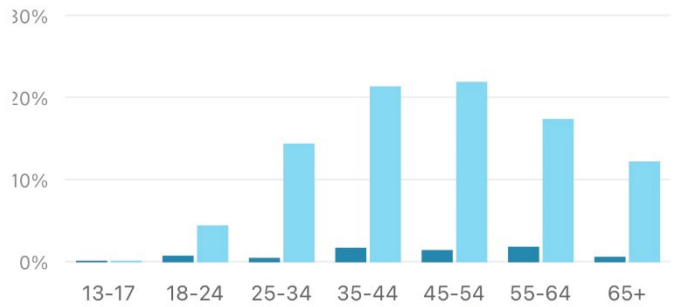
## Current stats on Blacksheep R/C Modelers Club Facebook Page.

Provided by Scott Black

### Age and Gender

People who like your Page are in these age and gender groups. These numbers are estimates.

**53 (7%) Women**    **676 (92%) Men**



## Top Locations

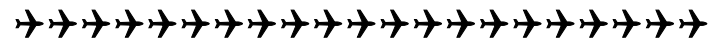
People who like your Page are in these locations. These numbers are estimates.

Cities	Countries
Indianapolis, IN	47
Danville, IN	22
Brownsburg, IN	21
Plainfield, IN	11
Avon, IN	10
Dhaka, Dhaka Division, Bangladesh	7
Columbus, IN	7
Brooklyn, IN	6
Pittsboro, IN	6
Cairo, Cairo Governorate, Egypt	5

## Top Locations

People who like your Page are in these locations. These numbers are estimates.

Cities	Countries
United States of America	492
Brazil	20
Italy	16
Egypt	12
Australia	11
Philippines	11
Thailand	10
Canada	9
Myanmar	9
Spain	9



## Getting Started with E-Power

From Model Airplane news

Gerry Yarrish

Evolution, Featured News, Getting Started, Hobby King, How-tos, Power Systems

12 Comments



Today, our hobby is enjoying a literal “Golden Age” of RC electric flight. The amount of quality motors, batteries, controllers and connectors is just about limitless as are the types and sizes of airplanes you can fly with E-power.



Even though there are plenty of plug n play packages out there where you get everything needed in one box, the newcomer can find it difficult get started. Whether you are a beginner or an experienced RC pilot, if you've never experienced an airplane with clean, quiet electric power, there are some basics you need to know to be successful. Let's get started.



**Today, there are all types and sizes of electric powered models, take your pick.**

The first thing that you need to understand with electric airplanes is you have to look at the entire power system as a whole. One that will work together for maximum power and efficiency for the plane you are flying. And with that, you have to understand how much power will be needed to fly your plane safely. Whether you're flying a lightweight micro indoor flyer or a large 3D aerobatic plane, its performance is based on the amount of power it develops relative to its ready to fly weight. If you get an ARF model airplane, then everything will be included and you're good to go, but if you are putting your plane together with separate airframe and power system components, then you have to know what will work together.



**From trainers to sport planes, gliders and electric ducted fan jets, the choices are endless.**

### Power

Electric motors, propellers and battery packs along with a suitable electronic speed controller make up your power

system. But you have to use the correct combinations of equipment for your system to operate properly. To determine the power of your model's power system, you need to measure the voltage and current while the motor is running. The three important parts of the power formula are amps (A), volts (V) and watts (W). But before we can talk about selecting power systems, we need to understand some very basic things about electric power.



**Picking the proper electric motor and propeller is a very important first step.**

A watt is the unit of electric power in the same way that horsepower is used to express power for an internal combustion engines. You produce a certain number of watts by moving electricity through a device that converts it to power. Movement of electricity through a power system is described by the term ampere (amp), and the force that causes it to move is the volt. The basic relationship between these units with the equation  $Watts = Volts \times Amps$  ( $W=V \times A$ ). The most important thing for modelers to understand is that you can produce watts by using a lot of volts and just a few amps or you can use a small amount of voltage and lots of amps. It all works together. What this means is you can use a small amount of battery voltage and a large propeller diameter/pitch size or a larger battery voltage and a smaller propeller depending on the requirements of your model. And to properly power our models we can use a simple rule called the "Watts per Pound Rule".

### Watts per Pound

This categorization is a loose, flexible way to estimate the amount of power needed for a specific size airplane while giving the performance required for safe flight. The rule is really just a guideline to determine how many Watts of power are needed per pound of airplane weight and is expressed as W/lb.

- 50W/lb. or less. Very lightweight micro RC and slow flyers.
- 50 – 75W/lb. Sport powered sailplanes and gliders, basic trainers, lightweight scale planes, Vintage RC and RC Assist Free Flight designs.

- 75 – 100W/lb. – Basic sport flyers, intermediate aerobatics. scale low-wing designs and medium size warbirds.
- 100 – 150W/lb. – Advanced aerobatics, pattern flying, 3D planes, larger warbirds and EDF jets.
- 150 – 200 plus W/lb. Unlimited 3D aerobatics, warbirds and large jets.

–**Fast Fact:** 746 watts = 1 horsepower

## Batteries and Charging



**Having a quality multi-type battery charger is an important part of the electric modeler's workshop.**

Compared to the NiMH and NiCad (nickel metal hydride and nickel-cadmium,) battery packs we used just a few years ago, the new generation of lithium Polymer (LiPo) battery packs (often referred to as Li-poly) have totally altered our definitions for power and flight duration. Where the older types of batteries offered 1.2 volts per cell, (1V under load), Lipo cells offer a nominal voltage 3.7V per cell and they provide much larger capacities along with an impressive weight saving. More voltage and more capacity and lighter wing loadings have really improved our airplane's flight performance.

### C-Ratings

LiPo batteries must be charged carefully and with chargers designed specifically for LiPo battery packs. Though there are many new Lithium battery packs on the market with extreme charge and discharge ratings, for the best longevity of your packs you should use a 1C charge rate. (1 times the capacity of the battery) Example: 3.3A for a 3300mAh battery capacity.



**LiPo battery packs are the most common used today. It is important to pick the correct one for your model's power system.**

As with most things in RC, extremely high performance RC Lipo batteries with very large capacity ratings have become very popular. Some of these high performance packs have very high charge and discharge ratings up to 5 to 15C charge rates and 45C (continuous) and 90C (burst) discharge ratings.

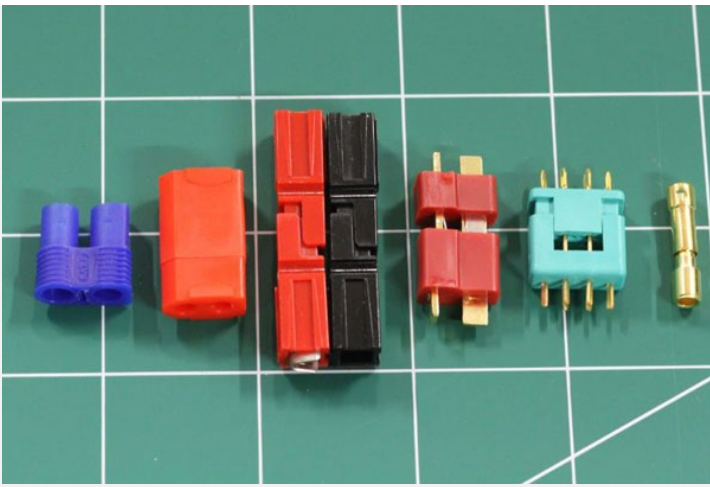
**Safety Warning:** Because of their internal chemistry, extreme care is required when using and operating LiPo battery packs. Overcharging a LiPo battery can cause the pack to burst and vent violently and can cause the pack to catch fire. As for over discharging, most ESCs allow you to set a low voltage cutoff or use the default which varies by manufacturer. 3.0v is the absolute minimum anyone should use as allowing Lipo cells to go below this voltage will damage them. As with any high-energy electrical equipment and battery packs you should always carefully follow the manufacturer's instructions for proper use.

### Fast Facts: LiPo Packs

- Unlike other types of batteries, lithium polymer batteries can be stored for one to two months without significantly losing charge.
- Lithium batteries should not be trickle charged
- Typical maximum and minimum voltage for Lipo cells should be 4.23V and 3.0V volts per cell respectively.

Another battery type of battery used today are the LiFe or A123 (3.3V per cell). Also referred to as Lithium Iron, these are relatively more safe than LiPo cells and are often used for powering RC receivers.

### Connectors



**Like airplanes, battery connectors come in several styles and ratings.**

Connectors are an important element in any electric power system, and you'll find them in between motors and ESCs and between the ESC and the battery pack. The most important thing to remember is to use the proper size connector for the battery and power system being used. Most of the battery manufacturers today include connectors already attached to the power leads or at least include them in an accessory bag. Using a low quality connector or one that's too small increases resistance in the wiring and this translates to heat and loss of power. As a rule, you should use as few connectors as you can to maximize efficiency. Many experienced modelers will eliminate the connectors between the motor and ESC by soldering the power leads directly together.



**Adaptor cables help you manage your battery charger**

Most brand name electric equipment has its own brand and type of connector and you need to use the matching type to charge your battery packs. You can however, simplify your life by switching all of your battery and ESC connectors to a generic one. This will then allow you to mix and match

battery packs between airplanes and you can use the same charger to service your battery packs. If the charger has the proper settings to match your packs. The most common at Deans Ultra T-configured connectors and Anderson Powerpole (APP) (also referred to as Sermos connectors). The Deans require soldering and some heat shrink tubing, while the APP connectors can be soldered or crimped onto the power leads with a special crimping tool.



**At the annual NEAT Fair the electric power airplane hobby is highlighted in a very big way.**

#### **Glossary:**

**Ampere (Amp):** The standard unit of electric current. The current produced by a pressure of one volt in a circuit having a resistance of one ohm.

**Battery Eliminator Circuit (BEC):** – A circuitry that allows the battery that runs the motor to also power the receiver and the servos. This is often built into the ESC

**Brushed Motor:** The traditional type of electric motor where brushes make contact between the rotor and the stator. The touching of the brushes essentially creates the timing and current to make the motor spin correctly.

**Brushless Motor:** Type of electric motor used in RC electric aircraft. Brushless motors are much more powerful than traditional brushed motors, and are commonly used in electric aerobatic aircraft. They can be inrunner or outrunner motors.

**Current:** The flow rate of electrical energy. Measured in Amps

**Capacity:** Is a measure of how long you can draw a specified current from a battery. It is measure in Amp Hours (Ah), or more commonly for the scale of equipment used for electric flight, mill-Amp Hours (mAh).

**Electronic Speed Controller (ESC):** The thing that controls how much current is given to the motor and hence how fast the motor runs. Often they have a BEC (see



above) built in. There are two main types – brushless and brushed.

**Horsepower (HP):** A measure of the rate of work. 33,000 pounds lifted one foot in one minute, or 550 pounds lifted one foot in one second. Exactly 746 watts of electrical power equals one horsepower.

**Inrunners:** Get their name from the fact that their rotational core is contained within the motor's can, much like a standard ferrite motor. They run inside the can.

**Li-Po:** Stands for lithium-ion polymer battery. These are the most modern kind of battery pack being used in electric aircraft. They provide enormous amounts of power for their size, especially when used in conjunction with a brushless motor.

**mAh (Milliamp Hour):** A measure of a battery's total capacity. The higher the number, the more charge a battery can hold and usually, the longer a battery will last under a certain load.

**NiCD:** Abbreviation for nickel cadmium. They are a form of rechargeable battery cells used in radio control gear as well as motor battery packs. NiCDs are being used less and less these days, as NiMH and Li-Po batteries take over.

**NiMH:** Abbreviation for nickel metal hydride batteries, they are the successors to NiCDs with much better performance and up to 3 times the capacity for an equally sized battery. Only Li-Pos top NiMHs.

**Outrunner:** The other type of brushless motor, where the outer shell, or 'can', of the motor rotates with the shaft. The extra inertia produces more torque, so outrunners are more powerful than inrunners and rarely are geared.

**Power:** For electric models this is a product of voltage and amps and is measured in watts.

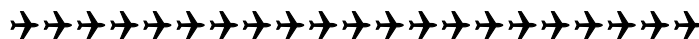
**RPM (Revolutions Per Minute):** The number of times an object completely rotates (360 degrees) in one minute

**Voltage:** A unit of electromotive force that, when applied to conductors, will produce current in the conductors. Voltage is also referred to as electrical pressure.

**Watt:** The amount of power required to maintain a current of 1 ampere at a pressure of one volt when the two are in phase with each other. One horsepower is equal to 746 watts. Watts are the product of volts and amps.



**A power meter is a handy piece of equipment to have to check how your airplane power system is operating.**



Editor: John Lawyer

**\*\*\* Till next month may all your landings be wheels down. \*\*\***