Fort Worth Thunderbirds
Radio Control Association Inc.
The Pilot's Log

Issue, 6206 June 2024

Next club meeting: June 24th – 6:30 pm - Location – Rocket Roosters 1, 2, 3 - 7709 Camp Bowie West Blvd, Fort Worth TX 76116

Presidents Corner: *by James Meadows*

Well it's finally happened! The cool days and nights have given away to hot days and warm nights. So be careful out in the heat! Lots of things going on in the club. Over that last few weeks the club hosted a 3d fun-fly for aircraft and helicopters.

The Dawn Patrol (WW1 era type aircraft) event took to the skies! Thanks to our CD's, the many volunteers for their hard work in bringing these events to us.

Please make plans to attend our 4th of July Fun-fly and picnic! The event will kick off on the fourth with a swap meet sale and trade at. 7 am in the parking lot! Limited fun-fly events will start around nine with a lunch of hotdogs and burgers sometime between 1130 and noon. The event will wrap up around 1pm. Open flying is encouraged throughout the event and is free! Come out and enjoy the holiday with family and friends!

Time is approaching fast for our annual float fly at Camp Joy Park in August. Dust off your water wings and trim your floats! This is a favorite of many and is always a good time.

Hope to see you soon!

James

Vice Presidents Corner: *by Rob Lowe*

No Report this month.

Secretaries Corner: *by Mike Schroeder*

May Meeting Cancelled. No minutes to report.

From the Treasury: ***By Chris Berardi***

Membership Update

Renewals have settled

Here is our latest membership count as of 04/15/2024.

Membership Type	Count
Individual	104
Family	5
Associate	2
Life	15
Service & Gift	1
TOTAL	**127**

Safety Officer submission: ***by Sam Corlett***

Safety is No Accident

We have all seen or heard the slogan throughout our lives. No one seems to know who first used the phrase, but of course it is a catchy double entendre.

One meaning is that we define being safe in our endeavors by not having accidents. (The Oxford dictionary defines an accident as: an unfortunate incident that happens unexpectedly and unintentionally, typically resulting in damage or injury.)

The second meaning which is normally the point of the slogan: safety doesn't happen by chance. Safety requires purposeful thought or design.

The organization I work for has espoused a Safety Management System (SMS) in a written order for incorporation in its organizations. Full scale aviation has adopted a form of the SMS and it generality includes 4 tenants:

1) **Define Your Aviation Values and Personal Minimums**
2) **Stick to Your Personal Minimums**
3) **Update Your Operating Policies**
4) **Contribute to the Community**

While these may not seem to translate directly to our modeling activities, there are takeaways. Know the limitations of your equipment and experience. Don't get "suckered" into trying something to impress someone else. Find what works for you and improve on it, both in flying, ground handling and maintenance. Talk and share with other modelers and enjoy the experience of going to other modeling events.

Sam Corlett

Dawn Patrol Fly-In: ***by Dave Williams***

I want to thank everyone who attended our first 'Dawn Patrol Fly-in Event' and all those folks who volunteered to help me put on this event. Just sorry the winds were not really in our favor. But, maybe next year.

Awards:
Johnny Hunt - Best of Show, for the only crash his Fokker D-7
Woody Lake - won the Pilot's Choice Award for his gorgeous SE-5
Edwin Smith from Austin - Longest Distance Traveled Award. He really gave a show with his Great Planes 15 cc powered DR-1

RC Electric Set-up; Back to Basics: *Text and Photos by John Reid*

A quick lesson on the ins and outs of electric power

These are the three basic items of electrical power: the battery, motor and ESC.

I OFTEN GET QUESTIONS about electric power that deal with some of the basic concepts of e-power. For example, "What is the C-rating on batteries?" "What does the kV on a motor mean?" "How many amps can my ESC take?" "Why did my motor burn up?" Although all of these questions have been answered at some point, it takes some time to find them. This month, I've compiled the answers to some basic e-power questions.

MOTORS

Brushless motors have become the mainstay of e-powered, RC airplanes, and there are many reasons why they have become so dominant in the RC industry. Compared with traditional motors, brushless motors have better speed, greater power, are light-weight and have a greater longevity. Their one drawback is that they require a more advanced controller to operate. The electronic speed control (ESC) has to convert the DC from the battery into three-phased AC that the motor can use. These motors come in two basic types: inrunners and outrunners.

Inrunners were the first motors we had in the hobby. They get their name because their rotational core is contained within the motor's "can," just like the

standard ferrite motors of which we were accustomed. A well-designed inrunner is extremely efficient. Inrunners will spin exceptionally fast-too fast for our aircraft propellers-and they have a low torque. Because of this, we used gearboxes to reduce their speed and increase their torque.

Outrunner motors have quickly become popular and are now available in many sizes. This type of motor spins its outer shell around its windings. The outer shell will generally have the magnets imbedded. Because of this, the outrunners spin much more slowly than their inrunner counterparts, which have a more traditional layout. However, they produce far more torque. Because they spin the prop with great torque and eliminate the extra weight and complexity of the gearbox, outrunner motors have become the motor of choice for e-power aircraft.

MOTOR KV RATING

Some motors have the kV rating printed right on them, like this Hacker motor If the kV rating is not printed on the motor, it will be listed in the instructions or on the company website.
The kV rating gives you the no-load rpm that you can expect per volt of current. For example, when powered by an 11.1-volt battery, a motor with a kV rating of 860 will produce a no-load rpm of 9546. Any load on the motor, such as a prop, will reduce this number. These numbers should be used as a guide when picking out motors. As a rule, motors with a high kV value will turn small props at high rpm, so they are good for high-speed aircraft and electric-ducted fans. Motors with low kV are better suited to spinning larger props at lower rpm, so they're great for aerobatic and 3D planes.

DETERMINING E-POWER REQUIREMENTS

When used with its BEC, this Castle Creations Phoenix 125 ESC can only have a maximum of 3 cells (11.1 volts). Use it without its BEC and you can use up to a 6-cell (22.2-volt) LiPo pack.
We use watts to measure power in electrics. A good reference point for this is to know that 746 watts equals 1 horsepower. But the problem is that many motors do not list the watts or maximum watts on the box or even the instruction sheet. So, how do you determine the power of the motor and whether it will be enough for your aircraft? Fortunately, watts = volts * amps, and most motors will have the maximum amps and volts listed on the box or the instructions. Multiplying these two values will tell you how well the motor you're looking at will pull your plane through the air.
Before we look at a specific example, let's look at how to determine the power requirements of a model, based on the "input watts per pound" guidelines that have been around for some time.
§ 50 to 70 watts per pound is the minimum level of power, good for park flyers and lightly loaded slow flyers.
70 to 90 watts per pound is perfect for trainers and slow-flying aircraft.
90 to 110 watts per pound is good for fast-flying scale models and some sport aerobatic aircraft.
110 to 130 watts per pound is what you want for advanced aerobatics and high-speed aircraft.
130 to 150 watts per pound is needed for lightly loaded 3D models and ducted fans.
150 to 210+ watts per pound gives unlimited performance for any 3D model.
Armed with this knowledge, you only need to know how heavy your model will be ready to fly. Keep in mind, this can just be an educated guess; you won't know the actual weight until the aircraft is finished. Let's say that the motor you're looking at will allow a continuous current of 40 amps (always use the continuous current rating, not the max burst) and 5 to 7 LiPo cells. We know that each LiPo cell is equal to 3.7 volts, so this motor will handle 18.5 to 25.9 volts. Using the previous formula, this motor can produce 740 (18.5 * 40) to 1036 (25.9 * 40) watts of power. That would have decent power to pull around a 10-pound sport aerobatic plane if you ran it on a 7-cell LiPo battery. The same setup would pull a 7-pound lightly loaded 3D model through the air with good authority. A 6-pound 3D aircraft would have unlimited performance with the same

equipment. As you can see, this motor could have different performance; it depends on the weight and type of aircraft into which it's going.

ESCS

An ESC controls the speed at which the motor turns, and it's connected to the throttle channel of the receiver. ESCs control the distribution of the magnetic field inside the motors, and this turns the armature. ESCs are rated by the maximum amount of amps you can pull to run the motor. A good guideline is to use an ESC that has maximum amperage that is about 20 percent above what you expect the system to ever need.

PROGRAMMING ESCS

The label on this Flight Power battery tells you exactly how many continuous, sustained and burst amps it can handle.

Some computer-programmable speed controls have user-specified options that allow different program settings. These can be programmed in by using programming cards, boxes and computers or just by moving the sticks on the transmitter at certain times during the setup. Programming could include setting low voltage cutoff limits, timing, acceleration, braking and direction of motor rotation. Having control over the different features of an ESC allows you to customize your power systems to your flying needs.

BATTERY ELIMINATOR CIRCUIT

The battery eliminator circuit (BEC) allows pilots to use the large battery that powers the motor as a source of power for the receiver. Typically, the BEC is built into the ESC but you can buy it as a separate unit. The BEC's task is to reduce the voltage from the battery to the receiver. The other job of the BEC is to divert the last remaining voltage from the motor battery to the receiver, so that the pilot can still control the aircraft after the motor quits. It does this with a motor cutoff feature that turns off the power to the motor when the battery is running low, leaving enough power to operate the radio system for some time.

BATTERIES

The "C" rating on LiPo batteries lets the modeler know how much amperage can be safely pulled from the battery. A 20C battery means that you can pull out amperage up to 20 times the size of the battery pack. A 4200 mAh battery that is rated at 20 C will discharge up to 84,000mAh, or 84 amps. Many packs have three different C ratings on them. For example, "continuous" is the amount of current that can be pulled from the battery for continuous operations or until the battery is depleted. The next is "sustained," which is the maximum amount of current that can be pulled from the battery for short periods of time, generally less than 1 minute. The battery will have to run at the continuous current for quite a while before running at the sustained current again. Finally, there is "burst current." This is the maximum amount of current that can be pulled from the battery for a very short period of time, generally only a few seconds. The battery will have to run under the continuous current for a while before running the burst current again.

mAh

Milliamps per hour (mAh) is often used to refer to the output capacity of battery packs. This is the amount of current you can expect to pull from your packs during normal operation. Think of mAh as how much flight time you can draw from the pack. A smaller battery, like a 2400mAh pack, will provide a shorter flight time than a larger pack, such as a 4200mAh pack.

VOLTAGE

Voltage is often used to increase the power to the motor. Supplying more voltage to the motor will make it spin faster and will also produce more rpms for the prop (see kV previously). The faster the prop moves the more speed and power you'll get from the plane. Think of voltage as power and performance.

2P3S

Battery packs have cells arranged in different configurations; this is often referred to as series (s) and parallel (p). When connected in series, the negative terminal of one cell connects to the positive terminal of the next cell and so on. If you have 3 cells connected in this manner, it's called a 3s pack. A series-connected pack supplies more voltage than a single cell, and the amount depends on how many cells are connected in this way. In this example, the 3s pack has 3 cells x 3.7 volts, which is equal to 11.1 volts.

In the parallel-connected pack, all of the cell's positive terminals are connected and all of the negative terminals are connected. A parallel-connected pack is used to supply more current than a single cell, and the amount depends on how many cells are connected in this way. In our example, if you have 2100mAh cells and they are connected 2p, then you have 4200mAh. Therefore, as a result, your 2p3s battery would be a 4200mAh 3-cell (11.1 volt) battery pack.

FINAL WORDS

Every e-power pilot will benefit from visiting these basic electrical concepts. Having this knowledge at your fingertips will make your next electric conversion that much easier. Once things become easy, they really start to become fun- enjoy!

Greater Southwest GSW Biplane Fly-in: ***by Darrell Abby***

Great weather and lots of flying. The field was busy with pilots, spectators, and the Dallas ACE Academy (aviation summer camp) with parents. This is an American Airlines sponsored Youth organization geared towards careers and involvement in the aviation area.

2024 CALENDAR

DATE	EVENT	POINT OF CONTACT
July 4th	Fun Fly/Club Picnic	Club officers
August 10	Float Fly at Campo Joy Park	Mel Wells
September 14	Warbird Fly-in	Dave Williams
TBD	EDF Electric Jet Fly	Tom Blakeney
October 12.	Fun Fly and Demo	Club Officers
October 26	Tx Electric Expo	Tom Blakeney

October 31 **Halloween Fly in**

December first weekend is the CORP youth deer hunt

December Christmas Party

www.fwthunderbirds.org

POSITION	BOARD MEMBE	EMAIL
President	James Meadows	president@fwthunderbirds.org
Vice President	Rob Lowe	vicepresident@fwthunderbirds.org
Secretary	Mike Schroeder	secretary@fwthunderbirds.org
Treasurer	Chris Berardi	treasurer@fwthunderbirds.org
Safety Officer	Sam Corlett	safetyofficer@fwthunderbirds.org





Pres: **James Meadows** ***VP:*** **Rob Lowe** ***Sec:*** **Mike Schroeder** ***Safety:*** **Sam Corlett** ***Treas*****: Chris Berardi**

2023 July 4th Club Picnic



SUPPORT OUR ADVERTIZERS

jtshobby@yahoo.com

JT's Hobby Shop 817 244-6171
8808 Camp Bowie Blvd. Fort Worth TX 76116

Project List

FW THUNDERBIRDS
2022 PROJECT LIST
2/27/202247:21 PM

Project #	*Proposed Project*	*Summary of Project*	*TYPE*	*EXPENSE*	*POC*	*Status*	*Notes*
1	Update Freq Board	Update signage a use or Freq. board	self	$100.00	BOARD	AWAITING ACTION	Update Boundries and rules
2	Lost Aircraft Security	Provide a means to secure lost aircraft Found and returned	self	$100.00	MEADOWS	Purhase approved	
3							
4	Additional Storage AREA	Utilize Cargo container	self/contract	$20,000.00	Chris	Hold	Would it require Lease mod?
5	Weather Station	complete with camera and Data port	Self	$	Chris/Mike	Discussion	Allow member or guest to see and look at actual Field conditions
6							
7	Members Walkway	Personal engraved brick pathway from Pit area to Flagpole	Everyone		meadows	Discussion	Membership due details
8	Toilet	Real Toilet	combo	?	Meadows	Discussion	asked the Corp about co-op agreement
9							
10							

Flying Field Rules

Academy of Model Aeronautics
National Model Aircraft Safety Code

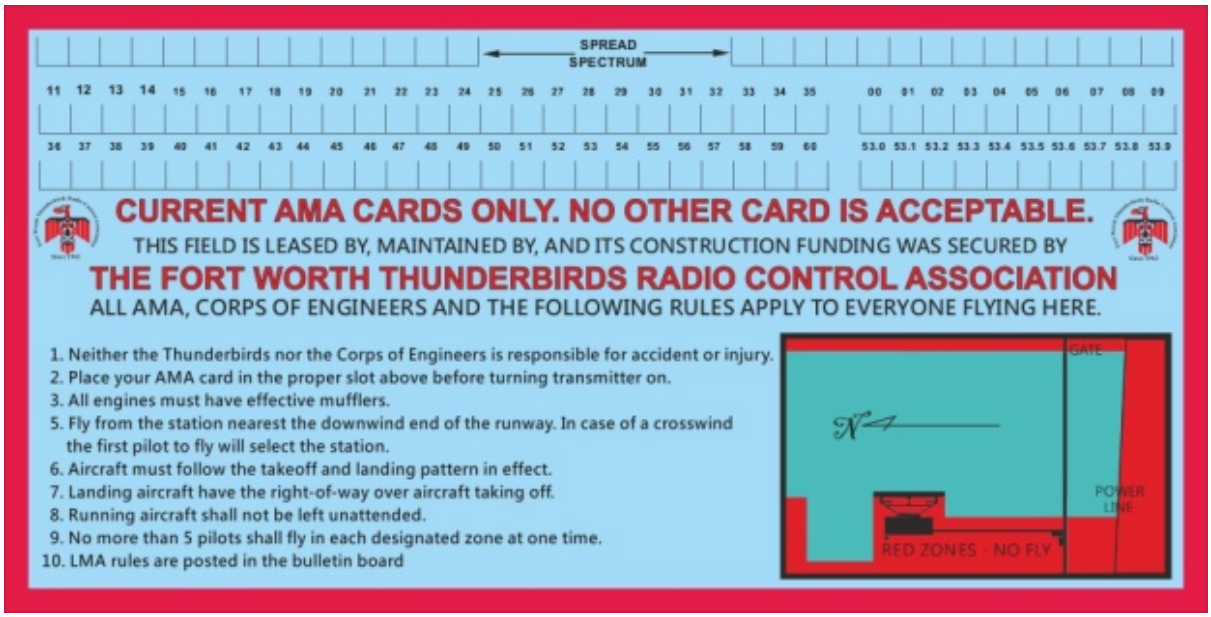
Effective January 1, 2018

A model aircraft is a non-human-carrying device capable of sustained flight within visual line of sight of the pilot or spotter(s). It may not exceed limitations of this code and is intended exclusively for sport, recreation, education and/or competition. All model flights must be conducted in accordance with this safety code and related AMA guidelines, any additional rules specific to the flying site, as well as all applicable laws and regulations.

As an AMA member I agree:

- I will not fly a model aircraft in a careless or reckless manner.
- I will not interfere with and will yield the right of way to all human-carrying aircraft using AMA's *See and Avoid Guidance* and a spotter when appropriate.
- I will not operate any model aircraft while I am under the influence of alcohol or any drug that could adversely affect my ability to safely control the model.
- I will avoid flying directly over unprotected people, moving vehicles, and occupied structures.
- I will fly Free Flight (FF) and Control Line (CL) models in compliance with AMA's safety programming.
- I will maintain visual contact of an RC model aircraft without enhancement other than corrective lenses prescribed to me. When using an advanced flight system, such as an autopilot, or flying First-Person View (FPV), I will comply with AMA's Advanced Flight System programming.
- I will only fly models weighing more than 55 pounds, including fuel, if certified through AMA's Large Model Airplane Program.
- I will only fly a turbine-powered model aircraft in compliance with AMA's Gas Turbine Program.
- I will not fly a powered model outdoors closer than 25 feet to any individual, except for myself or my helper(s) located at the flightline, unless I am taking off and landing, or as otherwise provided in AMA's *Competition Regulation*.
- I will use an established safety line to separate all model aircraft operations from spectators and bystanders.

For a complete copy of AMA's Safety Handbook please visit:
www.modelaircraft.org/files/100.pdf



Events

4th of July Event

Join the Fort Worth Thunderbirds

4 July **2024**

Thunderbird Fld.

Activities Start at 9:00am

OPEN TO ALL MEMBERS and FAMILIES

SWAP and SELL @ as early as sun-up (Your choice)

Fun Fly Events @ 9am then thru out the day!

(Climb and glide, spot landing, musical Chairs, other events)

OPEN FLYING ALL DAY

HOTDOGS, BEVERAGES,@1200am

Thanks for being a part of the Thunderbird Family and These UNITED STATES OF AMERICA!

FW THUNDERBIRDS AUGUST FLOAT FLY

DATE: SATURDAY AUGUST 10th - 0900-1500 LOCATION: CAMP JOY PARK (LAKE WORTH)

Open to all types of R/C seaplanes, fixed or rotary. Come join us at beautiful Camp Joy Park on Watercress Drive Lake Worth, TX for a great float fly.

Raffle items: Piper Cub including Floats and Saito 70 FS

GPS Coordinates: 32.8145, -97.4905

AMA required. This is an AMA sanctioned event (16608) - Landing fee $20.00.

Bring your own lunch, Beverages Provided, Pilot Give-A-Ways: Misc RC items/Equipment

Contact: Mel Wells: malekat@sbcglobal.net

Club web site http://www.fwthunderbirds.org

Blast From the Past (Float Fly)