

April 2023

BCMA



**AMA # 2475
Silver Leader Club
@ Kingston Downs**

Upcoming:

**Field Improvement Day
Saturday, April 22nd
9:00 AM**

President's Corner

The club conducted its spring 2023 quarterly club meeting last Month at the field. We also had some awesome food (cooked on site chicken and steak street tacos, all the trimmings, and desert) as well as voting on the 2023 club budget / two new members. Many thanks to Jessica Cogging for supplying the food and cooking it!

I am happy to announce that the club approved the 2023 budget proposal as presented as well as approved two new members, Tom McDonald and Scott Sappington. Welcome to the club to them both!

During our Spring "Work Day" Saturday, April 22nd, we will be cutting some trees and brush along the west approach to the runway and we will be adding some dirt to improve driveway access to the pits. Also, we will be removing the white cattle guard safety barriers and installing black chain link safety fencing along the flight line.

Next, on May 13th, we will be aerating, "sanding", and leveling the runway in preparation for Bermuda overseeding / fertilizing mid May. The sanding will be a minor inconvenience for a few weeks that will pay off huge dividends when the grass starts growing this spring.

See you on the Work Day!,

Jeff Holland, President

Jeff Holland - BCMA President

Night Fly

BCMA's 1st Saturday Night Lights at Kingston Downs Field took place on Saturday, March 25th with 11 members and guests in attendance. The pilots test flew their planes in mild wind conditions from the west as well as a brilliant sunset. However; it all changed when the sun went down and the wind suddenly came in from the west and then disappeared with the setting sun. The weather turned out to be perfect for the event and I hope to see more members at the next one in the fall.

Night Fly Highlights.....

Only a few planes were worthy enough to take to the night sky so we only had 1 to 4 planes up at any given time so, thanks to Richard, Chris, Jason and Jeff who were able to continue flying into the moon light well, Jeff landed early. I personally missed a few of the club's favorite night flyers like Joe's "Radian" running the Knight Rider light show and all the pilots that own one of Ed Boyett's NEFPV SPEC FOAM Wing Night Flyers! We had Chris Garner's Night Timber X 1.2, Richard's Multiplex "Original" Fun Cub, Jason Beaver's E-Flite RV7 and Jeff Holland's Timber X. Looking forward to building on this annual event in the near future.

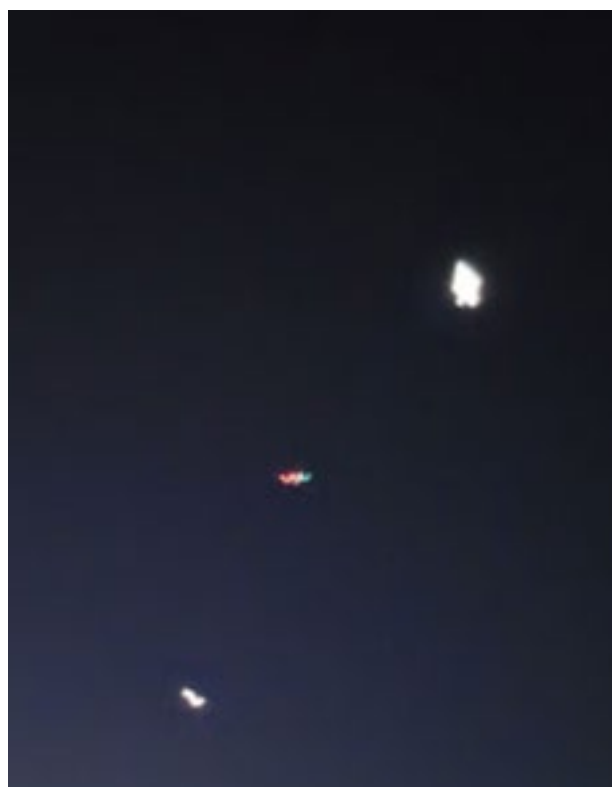
See photos from the event on the next pages.

Keith Scheuling - BCMA Treasurer

Pictures March 25th night fly...



Pictures March 25th night fly...



Pictures March 25th night fly...



So You Want to Fly Jets?

Part 3

Written by Jeff Holland

So you want to fly jets - Installment 3 - EDF Power Systems Basics

So in Installments 1 & 2 of "So you want to fly JETS" we discussed basic jet information as well as basic JET aerodynamics. Hopefully, those two installments gave you a basic understanding and a good background to understand and hopefully get your interest up in JETS. This month's installment will explore some of the basics of EDF Power Systems and how to pick an appropriate power system for your jet and what your goals are in flight.

First of all, I just want to tell you that what really launched EDF (Electric Ducted Fans) was the LIPO battery. Lipo's finally gave us the power density to allow for a good level of power that was light enough to be practical. Lipo's carry much higher energy density than the old school NiCad or NiMh batteries. Modern Lipo batteries can now rival and mostly exceed the power levels of the old glow ducted fans of the 80's and 90's. They can actually match turbine power with the right combination. If you remember my story in installment one about my old Byron Originals F-16... it was one of barely getting airborne, (maybe once out of 3-4 tries) and really just not flying like a JET at all. It was cantankerous and just not fun! Well modern Lipos have changed that for the good.

Also, from installment one, we discussed the different sizes of EDF's... 64mm, 70mm, 80mm, 90mm, 105mm, and 120mm and their common comparisons to glow engines.... . First of all, let's pick a generally easy to work with, good performing and relatively economic EDF to start with. I will say that's the 80mm EDF package. Many manufacturers provide 80mm jets that all pretty much fly well and are excellent "trainers" to get you started. 80mm jets will get you a good size jet, one that flies well, one that gets off our grass runway well, and uses relative economic Lipo batteries (usually 6s 4000-6000mah).

Practical Example Time - Let's use the Freewing Avanti from Motion RC as our "example" . It's right at \$400 for a receiver and battery ready arf kit that can be assembled in an afternoon. It flies excellent and is VERY forgiving to the new jet pilot. You really have to work at it to get this jet to misbehave yet it gives you good jet speed (110 mph) but can be flown around the pattern at similar speeds you are used to on your sport prop planes. It gives you an easy to repair (easy to fix foam or just purchase inexpensive, bolt on replacement parts) to fix the "goofs" you WILL experience learning to fly jets.....I highly recommend it as your first EDF Jet.



Next, no matter which size edf you choose to build and fly, we need to understand some basic electric motor theory and nomenclature to accurately decide what motor and edf you need. You will find inrunner and outrunner motors are common although most edf jets now use inrunners. Outrunner motors are where the motor windings (which create the magnetic fields that power electric motors) rotate outside the fixed stator. These are what you most likely are used to seeing if you fly electric prop planes. These typically give good torque, which is what spins a big prop, at a lower speed. Think of your prop plane with a big motor / large diameter prop that turns slow for high thrust, lower speed applications. Inrunners are the opposite in that the motor windings are INSIDE the stator instead of outside like on the "outrunner". These typically run higher RPM's and lower torque much like a Rossi 45 in a quickie racer vs. the YS 120 in the Super Sportster. Most edf's use inrunners now as they are more efficient at higher speeds (more runtime) than outrunners and turn up easier to the higher rpm's needed for EDF Jets (35000-50000 rpm).



Next, we need to discuss motor KV ratings. This is basically a measure of how fast the motor will spin the edf rotor, and by definition, how much power and speed the EDF system makes (within reason). EDF motor KV is expressed as a number such as 2100 KV or 1680 KV. "KV" means this is the rpm the electric motor will turn with 1 volt of DC electric power supplied. So a 1000 KV motor will turn 1000 rpm with 1 volt applied.... or approx. 11,100 rpm with a 3 cell lipo battery (11.1v nominal voltage). The same motor will turn twice that rpm with a 6 cell lipo battery at 22.2v nominal for 22200 rpm. So this sounds easy... just do the math, right? Well not so fast! You can't just take a motor that works in the proper rpm range and just double the voltage! You would burn something down quickly. There is a narrow window where you up the voltage (by using a higher cell battery) and get more power but yet not let out the 'magic purple smoke'..... This is because the load of a edf rotor (or a prop for that matter) increases on the logarithmic scale vs. a linear scale..... in other words the load goes up exponentially faster than the voltage rises. For example, let's take the Avanti stock factory motor, which is 1920 kv, at the designed voltage of 22.2v (6s lipo battery). It spins at $1920 \text{ KV} \times 22.2\text{v} = 42,624 \text{ rpm}$ and puts out about 7 lbs of thrust at 105 amps. If we just bump this up to an 8s battery we would have one HOT Avanti now at $1920 \text{ KV} \times 29.6\text{v} = 56,832 \text{ rpm}$ right? IF the edf can hold together at the rpm level (it wont)... and the motor doesn't melt down (it will in a few seconds)... and the ESC can handle the current (unlikely - it will burn out), we would be pulling about 160 amps and hitting around 10-11 lbs thrust..... so while we get a 25% or so increase in rpms... it takes over 50% more amps..... not a good tradeoff.

So Jeff.... how DO we get to the thrust levels of some of the really fast jets? If you remember back installment one, the current BCMA club record for an EDF Jet is 208 mph.....That jet was mine and it got there not by pulling 150 amps... or 200 amps... or 250 amps.... no Lipo battery can survive that level of punishment... it would just turn to mushy puffy goo.... I have been there... done that....it was ugly... and expensive... We get to higher power levels with VOLTAGE and not current..... And EDF Fans, that discussion on how to go fast with higher voltage will be the subject of our next installment.....

See you at the field soon. Kick the tires... and light **the fires!**

Thoughts about Easter...

~Ron Adams

So many times, we pass each other at the field, flying, going about our way, and in so many ways, people don't talk like they used too years ago. Typically, in this day and age, we try to stay away from politics and religion. I would be doing an injustice if I just didn't say a few words about this one time of the year. Tomorrow is Easter Sunday. For some of us, we grew up with our parents taking us to church and we have fond memories of Easter Sunday. For some its bunnies and eggs, for others, we know it is the celebration of the resurrection of Jesus Christ.

Now you may say, Ron, I don't believe in all that stuff. Ok, but give me a few minutes to share a few words with you and give you something to think about.

The fact is, IF Jesus didn't rise up from death after 3 days, then the Bible becomes just fiction or some nice historical stories, and it really doesn't mean a thing. Some will argue Jesus was nothing but a wise prophet, and there is no evidence that He rose from the dead. Historians say that Jesus did in fact live. That is hard to dismiss. He lived here on earth and we have historical records of such. There is much evidence to prove He did. There is also evidence to prove that many of His followers and disciples lived. And....There is evidence of how those people died as well.

Just for a minute, I want you to think about those apostles and followers. Most of them died a gruesome death. People usually don't just volunteer to go out and die for something they don't think is real. Think of the great American soldier, he or she believes in our country and what the constitution stands for. Many have died bravely for believing in our country and what our country stands for. See, I believe many of the apostles and followers of Jesus saw him alive after his death. Because no man would go out and stand for something so strongly, knowing it would ultimately lead to their torture and most likely a gruesome death, unless they firmly believed it was true that Jesus rose from the dead.

Here is an interesting list.

- **Andrew: (brother of Peter) Martyrdom by crucifixion (bound, not nailed, to an "X-shaped" cross) at Patrae, Achaia [southern Greece]. Hung alive for two days, exhorting spectators all the while.**
- **Bartholomew (Nathaniel): Martyrdom by being skinned alive and crucified, head downward by the idolaters of Armenia (Western Asia near Turkey). The most travelled of the Disciples after Jesus death, Preached the Gospel in Mesopotamia [Iraq], Persia [Iran], Ethiopia, Arabia and India.**
- **James the Greater (son of Zebedee / brother of John) : Beheaded or stabbed with a sword by Herod Agrippa around 44 AD near Palestine and not far from where he was a local missionary to the Jews in Judea. His accuser was converted by James' courage & the two were beheaded together.**
- **James the Lesser [son of Alphaeus]: Was first Bishop of Jerusalem Martyred in his early 90's by being thrown from a pinnacle of the Temple at Jerusalem , then stoned and head bashed in with club.**

- **John (The Beloved) (son of Zebedee / brother of James) : Natural Death The only apostle who did not meet a martyrs death. Banished by Roman Emperor Domitian to Isle of Patmos where penned Revelation, the last book in the Bible. Was later freed & went to preach in Turkey and died at 100.**
- **Jude (Thaddeus) : Wrote Book of Jude. Martyred by being beaten with a club then crucified 72AD at city of Edessa [Turkey] while on a missionary trip that went to Persia (Iran).**
- **Judas Iscariot: Suicide / hanged himself (Matthew 27:5) after betraying Jesus (John 13:2). Scriptural.**
- **Matthew (Levi) : Martyred about 60 AD by being staked and speared to the ground. Preached the Gospel in Ethiopia (Africa) and was killed for questioning the morals of the king.**
- **Simon Peter (The Rock / Petra): Martyrdom by crucifixion at Rome by Nero. Crucified around 68 AD upside-down at his request because he did consider himself worthy to be crucified like Jesus.**
- **Philip: Said to have been tortured, impaled by iron hooks in his ankles and hung upside down to die. preaching to death 54 AD in Heliopolis, Egypt. Preached in Phrygia which was in the Roman Province of Asia near Ephesus [Turkey].**
- **Simon [The Canaanite] : Called "The Zealot" because he was associated with that sect. Thought to have ministered mostly in Jordan. Martyred by crucifixion in Britain in 74AD and then sawn in half.**
- **Thomas [Didymus] : Martyred thrust through by spear in India .Preached the Gospel in Parthia [Iran] and in Kerala, [southern India] where yet today the Mar Thoma Church exists.**
- **Mark (John Mark): Was dictated to writing the Book of Mark. Dragged to death.**
- **Luke: The Physician. Wrote Luke and The Acts. Was hanged on an olive tree,**
- **Matthias [Disciple who filled the place of Judas Acts 1:20-26] : Was stoned and beheaded at Jerusalem.**
- **Apostle Paul (Saul): Wrote half of the New Testament was beheaded by Emperor Nero at Rome.**
- **James (The half-brother of Jesus): Thrown some 100 feet off a wall - done to him after he repeatedly refused to deny his faith in Jesus. He survived the fall and was beat him to death with clubs.**

I believe those men saw something or experienced an event that gave them no doubt and complete confidence, that Jesus was the Son of God, died on the Cross and rose up within 3 days. Why else would they go out and try to share Jesus to the world and suffer such a death?

I believe there is a life after this one. Those men did too. I believe Jesus loves us no matter what we have done wrong in our lives. I believe in his forgiveness.

Many churches across town and in the area will be celebrating Easter Sunday tomorrow. There is no better time to learn more. Think about attending a service tomorrow near where you live. I can suggest, Cartersville First Baptist, Tabernacle Baptist, or Atco Baptist here in Cartersville.

One of our members, Mike Barone, is the pastor, at Renovation church in Rome. The address: 13 Redmond Ct. Nw, Rome. His email is : mbaronesr@rcrome.com His number is 706-676-3119. Their service will be at 10:30 AM

Think about it, attending a church service tomorrow is a good way to learn more.

For Sale:

ACE R/C Extra 230 - old school - great flyer - \$800 OBO

If you remember ACE R/C, you know these are good kits. Sheeted, foam-core wings. Solid construction. Flies on rails.

I flew it at BCMA recently.

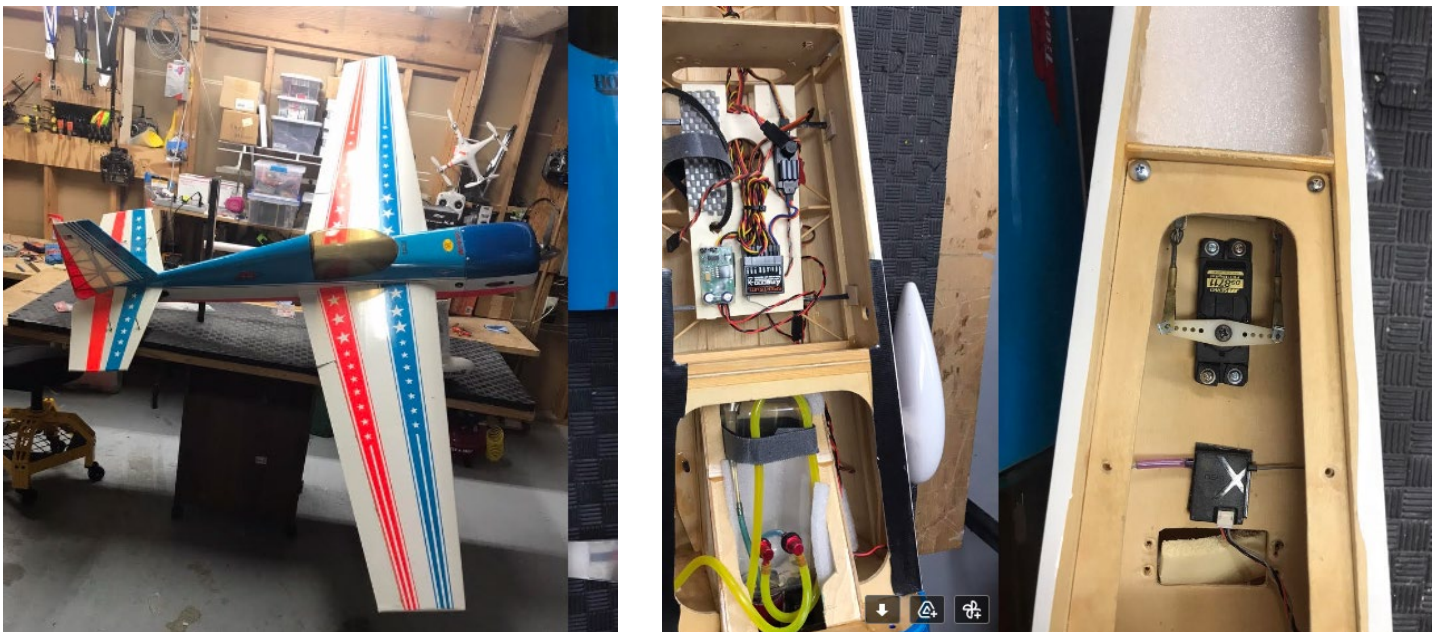
- 87" wingspan
- Evolution GX33 Gas engine with pitts style muffler and Tru Turn spinner - low time on engine
- Mix of analog (Hitec on elevator) and digital (JR8711 on aileron and rudder) servos
- AR8000 Spektrum DSMX receiver and one satellite.
- 5.9v voltage regulator
- Tech aero IBEC (nearly new)

I have had this plane for nearly 20 years. Pulled a Super Tiger 3000 nitro engine out to put the gas engine in.

I will include the Super Tiger 3000 in the sale if someone wants it. I don't fly nitro any longer, but it is a still a strong motor.

Might be a good plane for someone who wants to get into larger scale for old school "big sky" style flying.

James Grebe: jgrebe@cioblueprint.com
972-261-4377



If you have something you want published in the newsletter each month, please let me know by the 1st of each month. Same goes for carry over items, I need to know if you wanted listed again.- thanks, Ron

For Sale:

Optima 7 AFHSS 7-Channel Receiver

This is the Hitec Optima 7 7-Channel 2.4GHz Receiver 3-Pack. Ideal for most applications, the Optima 7 is the workhorse of the Optima line of receivers. Featuring full telemetry capabilities and utilizing a dual-end block design, the Optima 7 is slim enough to fit in the tightest of spaces. The Optima 7 2.4GHz receiver is designed for use with Hitec AFHSS 2.4GHz transmitters.

Basic Features

- Size: 2.25 x 0.84 x 0.46 in
- Weight: 0.60 oz
- Single Boosted Omni-Directional Antenna
- Telemetry & SPC Port
- Selectable Smart Scan

Boosted Omni Directional Antenna (BODA)

The Optima 2.4GHz line of receivers features Hitec's exclusive BODA receiver technology. Independent tests have proven that the single BODA system in Hitec's 6 and 7-channel systems is equal to or better than a dual antenna system.

Telemetry System

The Optima line of receivers and Spectra 2.4GHz module have full telemetry capabilities with built-in low receiver batter warning. Additional telemetry capabilities can be added using optional sensors for display in the Aurora 9 or with Hitec's PC-based Telemetry Monitoring System

\$30

Email, Call, or Text Don Rainey

donjr451@gmail.com

678-464-2292



Reminders

Have an article you want share? Send it in.

Something you want sell? send it in.

Have a new plane? want to share pictures? Send it, tell us what you think about it.

Send me your stuff: roneadams2@gmail.com

Get your Trust # and FAA # to Keith Schevling :
keithschevling@gmail.com

If the club doesn't have a record of your Trust # and FAA# you are going to cause unwanted trouble. We need to be 100%.

See you at the Field.