Colonial Virginia Aeromodelers

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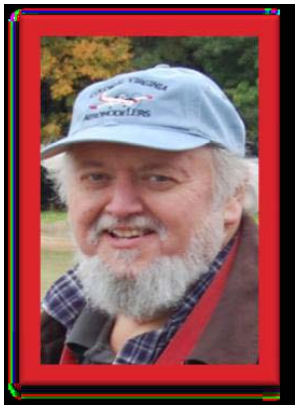
April 2016 Newsletter
Editor: Alan Fry



Presidents Column: John Backes

2016 Meeting Schedule
All meetings (except for the Christmas Dinner) in 2016 will be held at the Williamsburg Christian Church on the second Thursday of the month, starting at 7 PM. The next meetings will be 14 April and 12 May.

Upcoming events
April 16 – CVA Spring Picnic and Egg Drop
April 30 – CVA WALT
May 7 – CVA Electric Fly
May 14 – HRRC Spring Fly-In
May 21 – CVA Warbirds Over Williamsburg (WOW)

CVA Fun Fly
Is there any interest in having a Fun Fly? It can be either a very low pressure event where anyone can do the tasks or a more high pressure with task like most loops (timed) that reward a high performance pilot and plane. Please give me feedback and if I received a positive response, I will set something up.

"Good Junk'
Last month, I talked about "Good Junk" in my column. Because the meeting was running long because of other business, we did not talk about this. Please re-read last month's column in preparation for the talk at the meeting this month.

Windy Weather
We sure have had a lot of windy weather lately. That is not unusual for this area and this time of year. There a several options that you can take. One would be to just not fly at all during March and April. There are better options. Option One is to watch the weather forecast and be more flexible in your flying times. Winds are very often much lower in the morning and the evening. Last Sunday, I went to the flying field later in the afternoon and although the winds were very strong most of the day, they diminished greatly and after 5PM the winds were light and it was very easy to fly. Option Two is to have planes that are better flying in the wind. These planes that fly well in the wind usually have a higher wing loading, larger control surfaces and lots of power. It also helps if they have durable construction and are easy to repair. Another factor is to expand your comfort level. If you are only comfortable flying in completely calm conditions, then try flying in 5 mph winds. If you are only comfortable flying when the wind is straight down the runway, then try flying with a slight crosswind. By gradually expanding your comfort level, you will eventually greatly increase the number of days that you can fly.

Show and Tell
We are going to have a short show and tell at the end of each meeting. I would like to have Show and Tell be a significant part of each meeting.

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Secretary's Report: Gary Clifford

CVA Meeting Minutes 3/10/16

The March 10, 2016 meeting, held at the Williamsburg Christian church, was called to order by the President at 7:02pm with 15 members and 2 guests present. The President announced the minutes of the February meeting that were published in the corresponding newsletter. A motion was made to approve the minutes as published. The motion was seconded, a vote taken and approved unanimously.

Treasurer's Report
No report this month.

Site Improvements
Tom reported that he had mowed and rolled the runway and taxi areas on Tuesday and that Gary had re-leveled the storage shed.

Activities
Joe reminded everyone present that NNPRC would have their annual Frost Bite Fun Fly this Saturday 3/12/16.
TRC was having a swap meet on 3/26/16.
HRRC would host their Spring Float Fly on 4/9/16.
The CVA Spring picnic and Freeman Post Annual Egg Drop contest was scheduled for 4/16/16.
Tom proposed a spontaneous Night Fly for tomorrow night, Friday, starting at 6:30.

Safety
Reading of the AMA Safety Code was postponed until next month.
Those in attendance discussed the recent, and very destructive fire that appears to be the result of a failed LiPo battery left unattended on the seat of member Brandon Dilk's truck. Several members offered their suggestions for saving or discarding LiPo batteries that have varying degrees of "puffiness". Winston indicated that one of his batteries, when connected to a battery voltage meter, displayed a tendency for the voltage to fluctuate when squeezed. This unit was de-energized and disposed of.
John also reminded everyone to cycle NiCad batteries in glow planes that have not been used and charged regularly.

Training
Alan indicated there was no new training information to report.

Club Promotion
Steve Kolet has scheduled the WALT Initiative classroom segment for April 27th and the hands on field segment for April 30th from 12:30 to 3:30pm with a rain date of May 1st.

John indicated that CVA has been offered the opportunity to provide a static aircraft display at the Williamsburg-Jamestown Airport on June 25th with a rain date of June 26th. It is uncertain at this time but flying of some aircraft may be possible. This is a great venue for CVA to gain some community exposure.

Old Business
Gary reported that a corrected AMA insurance certificate for year 2016 has been received.
Alan passed around and read information he had assembled related to Homes For The Troops. A not-for profit charity that he proposed for our NMAD sponsorship. All those present agreed unanimously to support this organization.
A representative from S.E.V.R.A. (Jeff Goldstein) gave a brief presentation related to how their specific Model Rocket group would like to periodically utilize the CVA facilities. Several members posed questions to gain a better understanding of any possible impact on normal CVA activities. After the discussion, it was decided that the CVA field was probably too small for the rocket group's proposed use and Jeff stated that he would go look at our site and contact us if they were still interested.

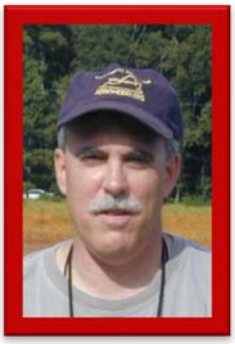
New Business
Tom spoke about a recent letter he had received from Matt Burton of Virginia Tech asking for permission for their group to perform drone certification testing at CVA.
Jay Willmot gave a brief presentation related to yet another company that would like periodic use of the CVA facilities. Once again several members posed questions centered around any possible impact on normal CVA activities.
A motion was made, discussed and passed to send a list of conditions to the two companies and to discuss the matter further at the April 14th meeting if they were still interested. John will discuss all the issues with John Hofmeyer and gain his approval before proceeding.

Show & Tell
Bill Talbot showed a Phoenix Decathlon he had recently purchased at the NNPRC swap meet and asked for suggestions for mounting his Saito 82 under the cowling for this electric to glow conversion.

There being no further club business the meeting was adjourned at 8:35pm.

Activities: Joe Musika

Was sad to hear of the death of Butch on March 28. He was one of the characters in our club, and will be missed.
In the next two months there will be 5 events. The first takes place in Suffolk. Directions to Suffolk are: cross the James River Bridge, follow directions to Bens Church. At the dead-end at Bens Church turn right. You'll see a Taco Bell shortly. Turn this side of the Taco Bell, on the street. This leads you to burro pit, you can't miss it. It'll have lots of cars parked there.
On Apr.16th CWA will hold their Spring Picnic and Egg Drop! Not a contest, but a FUN EVENT. On May 7th, we're holding "Electrics over Williamsburg". It's okay to fly anything you want, as long as it is powered by electric! More, next month.



Training: Alan Fry

Website of the Month
I got the idea for this month's website of the month from Steve and Fran. The website is called **Fancy Foam** and their slogan is "High Performance Electric R/C Aircraft". Fancy Foam carries a wide range of planes from trainers to high performance aircraft, indoor to outdoor models, and EPP to Depron kits. Here is the link:

http://fancyfoam-com.3dcartstores.com/

Do you have a favorite website? If so, let me know and I will put it in the newsletter. Favorite online store, how to build, how to fly, etc- send me the link! My email address:

AlanWFEmail-CVA@yahoo.com

Training Column

With the upcoming CVA Electric Fly In on May 7th, I thought I would reprint an informative article for choosing an airplane electric power system written by John Backes. Here is John's article:

How to choose a power system for an electric model – John Backes – 11/10/2011

"Power system" includes the motor, Electronic Speed Control (ESC) and the battery.

1. Parameters

a) Voltage – Normally specified as a range of voltages or number of cells.

b) Current - Amps may be specified as either continuous or burst (for a number of seconds) or hopefully both.

c) Watts – measure of the input power that the motor can handle. Watts may be specified as either continuous or burst (for a number of seconds) or hopefully both. You should have a Watt Meter to measure your installed setup. The propeller selection has a large effect on how much power a motor uses.

d) KV – This relates to the rpm of the motor.

1) A 2000 KV motor will spin twice as fast as a 1000 KV motor using the same battery voltage but will need a much smaller prop to limit the watts.
2) A 1000 KV motor can spin at the same speed as a 2000 KV motor if it has twice the voltage. These two setups will use similar props.

2. Motor - You need to choose the motor first and then size the other pieces accordingly. The follow methods can each be successful but a combination will probably give the best results:

a) Follow the manufacturer's recommendations

b) Choose a system that is equivalent to the manufacturer's recommendation. The important parameters are Maximum Watts, Volts, KV and Weight.

Watts are given in the specification sheets on many motors. If not, then calculate by multiplying the voltage by the current. (Use 3.3 Volts per cell for Lipo and 1.0 volt per cell for NiCad/NiMH).

c) Research what others are using for the model that you have chosen or a similar model. For example, if you are building a 40" P-47 and cannot find information then the information from a 40" P-51 would be a good starting point. My favorite website for this is the Ezone. The address is http://www.rcgroups.com/forums/index.php and there are many discussion groups such as "Electric Warbirds"; "Glow to Electric Conversions"; "Indoor and Micro Models"; etc. Go into the appropriate area and then use search.

d) Use the rule of thumb for power requirements (based on flying weight of the model):
- Less than 50W/lb - very lightweight / low wing loading slow flyer.
- 50 to 80 W/lb - powered gliders, basic park flyers and trainers, classic biplanes and vintage ('Old Timer') type planes.
- 80 to 120 W/lb - general sport flying and basic/intermediate aerobatics. Many scale (eg warbirds) subjects
- 120 to 180W/lb - more serious aerobatics, pattern flying, 3D and scale EDF jets
- 180 to 200+W/lb - faster jets and unlimited performance!

3. Electronic Speed Control (ESC) – Size you ESC so that it can handle the maximum current that your setup will pull. There is usually only a small cost and weight difference to go to the next higher capacity ESC.

4. Battery – The battery must have enough current capacity to exceed the maximum that the motor will require. Calculate by multiplying the battery capacity by the C rating. A 2000 Mah is the same as 2Ah. If the C rating is 20 then the maximum current capacity is 40 A (2 X 20). The battery will last much longer if you do not run it at its maximum capacity.

5. Example – I have a 2 pound scratch built airplane and therefore have no manufacturer's recommendation. I want it to be very aerobatic and therefore want 150 W/lb or 300 watts. One place that I go for research and buying is Heads Up RC. They have good prices, very fast and inexpensive shipping and more information on motors that other sites that I have used. The website is http://www.headsuprc.com.

#	Motor	Weight	Voltage	Current	Watts	KV	Cost
1	Power 480 Plus	3.6 oz	3-4 lipo	B35/ 60 sec	B380/60 sec	1000	$25.95
2	3536-10	3.7 oz	2-4 lipo	B35/30 sec	B475/30 sec	1050	$25.95
3	Emax GT 2812/10	3.4 oz	2-3 lipo	B27/30 sec	B320/30 sec	970	$26.95
4	2814/06	3.6 oz	2-4 lipo	24 B32/60 sec		1290	$27.99

B indicates burst

All four motors are very similar in weight and price. The differences that I would use in making my decision are KV and voltage. Motor #3 has the lowest KV and therefore will swing the biggest propeller. Motor #4 has the highest KV and would need a smaller propeller but would probably have the highest speed. There is some discrepancy in the watts listed. Watts = voltage X current and the voltage used in the calculation by the different manufacturers is not consistent. Motor #1 is 10.85, motor #2 is 13.57 and motor #3 is 11.85. So motor #2 is calculated using a 4 cell battery and the others are using a 3 cell although they are using different voltage. The rule of thumb above is to use 3.3 volts/cell. Assuming a 3 cell battery and rounding the voltage to 10.0V then the max watts of the 4 motors would be 350, 350, 270 and 320 respectively. I would probably avoid Motor #3 since it might not meet my 300 Watt requirement. The other 3 motors would be acceptable choices.

The **Power Up 32 Sport** is a 7.5 ounce, 800KV, 800 watt outrunner brushless motor that is roughly equivalent in power to .40 and .46 size two stroke glow engines. It's a good choice for sport and scale airplanes weighing 3 to 6 pounds, or 3D planes up to 4 pounds.

The **Power Up 32 Sport** is designed for use with 3, 4 and 5 cell Lipo batteries. When using a 3 cell Lipo, the APC 12x8E is a good prop for sport planes. The APC 13x6.5E prop can be used for maximum thrust, and is a good choice for 3D flying. If you're after high speed, the APC 10 x7E or 11x7E props can be used with a 4 cell Lipo., or use a 9x6 prop with a 5 cell Lipo.

We recommend using a 50A to 70A Electronic Speed Control (ESC) with this motor.

MOUNTING OPTIONS: The **Power Up 32 Sport includes an X mount** for mounting the motor in front of a firewall. A **5mm Prop Adapter** is included for mounting props on the motor shaft.

Propeller data for the Power Up 32 Sport using a 3-cell Lipo battery:
It's a good idea to balance all propellers with a Propeller Balancer before using them on this motor.
Rotating propellers are dangerous. Please stay clear of prop and wear eye protection.

APC 13 x 6.5E: 86 oz thrust at 45 amps, 530 watts

APC 12 x 6E: 68 oz thrust at 32 amps, 380 watts

APC 12 x 8E: 67 oz thrust at 40 amp, 470 watts

Propeller data for the Power Up 32 Sport using a 4-cell Lipo battery:

APC 11 x 5.5E: 86 oz thrust at 41 amps, 650 watts

APC 11 x 7E: 88 oz thrust at 47 amps, 740 watts

APC 10 x 5E: 66 oz thrust at 27 amps, 430 watts

APC 10 x 7E: 72 oz thrust at 36 amps, 570 watts

Propeller data for the Power Up 32 Sport using a 5-cell Lipo battery:

APC 10 x 5E: 95 oz thrust at 39 amps, 750 watts

APC 9 x 4.5E: 74 oz thrust at 30 amps, 600 watts

APC 9 x 6E: 71 oz thrust at 36 amps, 700 watts

Power Up 32 Sport Specifications:

Weight = 7.5 ounces (212 grams)

Diameter = 1.65 inch (42 mm)

Motor length = 1.7 inch (43 mm) from motor base to tip of rotor

Shaft = 5mm x 0.6 inch

Voltage = 9 - 21 volts (3, 4 or 5 cell Lipo batteries)

Current = maximum of 50 amps for 60 seconds

Watts = maximum of 800 watts for 60 seconds

KV (rpm/v) = 800

Mounting holes are spaced 30mm across center of motor and are tapped for 4mm screws.

E-mail a friend about this item.

See you at the field.

Alan Fry
Training Coordinator

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Safety Officer: Cliff Casey

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