


The Transmitter

Suburban RC Barnstormers - P.O. Box 524, Bloomingdale, IL 60108

AMA CHAPTER 640

March 2022

<http://www.suburbanrcbarnstormers.com>

Coming in March and April

March 14th, Monday, Membership Meeting, Itasca Public Library/ZOOM, 7:00pm start

March 28th, Monday, Board Meeting, ZOOM, 7:00pm start

April 11th, Monday, Membership Meeting, Itasca Public Library/ZOOM, 7:00pm start

April 25th, Monday, Board Meeting, ZOOM, 7:00pm start

Next Meeting –Monday, March 14th

The next meeting will be held on the planned second Monday of the month on March 14th at the Itasca Public Library. We will continue with the Zoom option as well. Below is the link to the Zoom meeting.

Topic: SRCB March Membership Meeting
Time: Mar 14, 2022 06:45 PM Central Time (US and Canada)

Join Zoom Meeting

<https://us02web.zoom.us/j/86498308855?pwd=bjZHK3h5Ui94M25ZVVJmMHdqGRrQT09>

Meeting ID: 864 9830 8855
Passcode: 789897
One tap mobile
+13126266799,,86498308855#,,,,*789897# US
(Chicago)

Dial by your location
+1 312 626 6799 US (Chicago)
Meeting ID: 864 9830 8855
Passcode: 789897

Glider Fun Fly at Manville

By Scott Taylor

Ernie Blenkle presented the idea of having a glider fun fly at the Manville/Kress Creek flying field that include members of the Prop Masters flying club. This would not be a trophy competition, but rather a good time get together. Ernie has already spoken to the Prop Masters and they think they would have several members interested.

This event would likely be scheduled sometime in April or May. But of course, it will be a warm and light wind day!

The exact format of the competition has not been finalized either, but Ernie explained that a typical glider event might include a timed climb which starts the clock, and then a landing as close to 10 minutes as possible.

This could be a really fun event that takes us a little outside our normal box. Chances are you have a glider hiding away somewhere in the rafters! Now is the time to dust it off and maybe install a modern electric power system.

Kurt Krempetz has a great article in this newsletter about converting a Carl Goldberg Gentle Lady to an "Elektra" using modern electric components and batteries.

Meeting Notes for Membership Meeting

February 14, 2022

Attendance: There were 13 members attending the January meeting. The meeting was held at the Itasca Library and on Zoom. We had 10 members attend in person and 3 on-line via Zoom. We would like to welcome Ralph Niedzwiecki back to attending our meetings. He had been unable to attend meetings on the 1st Monday. New member Dan Trocue flies .40 to .65 size planes but is working on his first gas model. He wants to learn aerobatics.

OFFICER REPORTS:

President: Hector Rivera welcomed those both present at the library and on-line. Our next Board meeting will be February 28th, and our next member meeting will be March 14th.

Hector said if you have a glider buried in your collection of planes, dig it out and plan to attend a glider event at the Manville/Kress Creek site. Ernie will provide additional information.

Vice President: Paul Kramer was absent.

Secretary: Scott Taylor will be mailing 2022 membership cards soon for renewing members. Name tags will be provided for all new members without charge but may not be distributed until he can attend a meeting in person.

Treasurer: Larry Amiot was absent.

NEW/OLD BUSINESS

Ernie Blenkle said there was a recommendation presented to the Board to make Scott Taylor a lifetime member for his many years of service and dedication to the club. This was approved at the January Board meeting. Members extended their congratulations to Scott.

Glider Fun Fly – Ernie Blenkle said he had talked to our club and to the Prop Masters about holding a joint glider competition at the Manville field. Although details and date of the event have not been finalized, he suggested April or May, and would likely follow a typical format. Common competitions would include a timed climb, then glide with the goal of landing as close to 10 minutes as possible.

ENTERTAINMENT

Glider Flying Tips and Secrets – Ernie Blenkle and Kurt Krempetz gave a presentation on techniques to improve your gliding skills. This is to help those that might want to participate in the joint club glider competition.

It was very interesting and while many may be familiar with watching the clouds and birds circling, watching the flight of insects and the color of the leaves on trees was new to this author!

SHOW AND TELL

Bob Vance showed members his new Spektrum transmitter box. It is a great way to protect and transport multiple radios.



Ernie Blenkle showed members a plane he called a Tech I. It is a small electric with a vectoring prop.



Bob Sulla displayed a 3D electric he acquired. He says it is a bit above his skill level but plans to take on the challenge this summer.



DOOR PRIZES

Bob Sulla was the winner of the door prize and **Marty Schrader** was the “turkey” winner.

Converting an Electra to Incorporate Modern Electronics

By Kurt Krempetz

Background

Many years ago, a kit manufacturer, Carl Goldberg came out with a 2m wingspan glider called the Gentle Lady. A few years later this same manufacturer came out with an Electra which was a Gentle Lady kit with a motor added to the nose of the glider. These kits became very popular because they were fairly easy to build and flew well. But the kits were made before LiPo's were available and brushless motors just hit the modeling world. So, the kits came with a large brushed motor and a toggle switch. A servo was connected to this switch which flipped it from off to on and back. The prop that came with the kit was a 8X4 and the Power to thrust ratio was about .75, therefore the model did not climb fast. The weight of the model was around 48oz.

Manville Field

Many years ago, I was invited by Ernie Blenkle to come out to the Manville field to fly my Electric 3D models. It was a gorgeous, open field and they were also flying some gliders. After an enjoyable day flying at Manville I went home and looked around for a glider that I could bring next time I went flying there. I found an old Electra I built probably 20 or so years ago, it had the original kit setup with the brushed motor, off/on switch for a speed controller and NiCad batteries. The batteries had not been charged for years, so they were trash. So, I decided to modernize my Electra with the more modern electronic equipment that is available today.

New Electronics Design

First, I needed to design or plan out a power system for this model. With the new power system components that are available today I could easily increase the Power to weight ratio of the glider. I was trying to design something that would get me up about 300ft in 5 to 10 seconds, which would be comparable to what some other gliders that were flying out a Manville. This fast climb and then shutting off the motor and gliding looked like a lot of fun. I decided on a Power to weight ratio of about 2 about which is

about a factor of 2.5 larger than the original Electra was designed with.

The weight of the model was 48 oz but with Lipo's this would likely go down to about 30oz, a power to weight ratio of 2 meant I needed a power system that could produce $30 \times 2 = 60$ oz of thrust. I found this useful website, https://rcplanes.online/calc_thrust.htm to help me work out a plan. The website can estimate the static thrust by choosing a prop size and plugging in a rpm. After trying many combinations of these two variables I liked the combination of a 9X6 APC E prop at 12,000 rpm giving me the desire power of roughly 60oz.

So next I needed to decide on how many cell LiPo pack I would like to use. I choose 3 cells which means a full charge pack should deliver 12.6v and as the pack dropped down to roughly where I felt I should land, would deliver about 11.4v. This helps me decide on what KVA motor I should be purchasing. If I was looking for 12,000 rpm, with a voltage of 12.6 that means I need $12,000/12.6=952$ kva motor and with a voltage of 11.4 the motor's kva needed to be $12,000/11.4=1052$ kva. But those numbers are for an unloaded motor. A general rule of thumb is you need to increase the KVA by about 1.25 so that meant the KVA motor I needed is between $952 \times 1.25=1190$ kva and $1052 \times 1.25=1315$ kva. Looking at available motors for sale a 1200kva rating was common and what I planned to use. Next, I needed to understand how many watts this motor needed to produce at 12,000 rpm to deliver the 60 oz of thrust. Sometimes motors are rated in watts, but most common motor's specification supply the maximum amps it can take. The formula; Power= Volts* amps, will help me figure out the wattage a motor can deliver if we know the voltage we are using (I do given I decided on a 3 cell pack). I can calculate the max amps the motor must be able to handle. Looking at the web link above I could see I needed a prop absorb power of about 350 watts or a motor that could handle $350/12.6=27.7$ amps. Now all these numbers are estimates with lots of assumptions, so these

calculations just gets you a best guess on what to purchase.

Value Hobbies

I found this on line store that is in near us, (close to where Al's Hobby Shop was located) which allowed you to pick up your on line order. So here is what I ordered from them for my Electra, given my design calculations.

Motor:

<http://www.valuehobby.com/power-systems/brushless-motors/outrunner-airplane/gforce-e450-1200kv-motor.html>

Speed Controller:

<http://www.valuehobby.com/power-systems/speed-controller/airplane-heli-esc/gforce-30a-esc.html>

Battery:

<http://www.valuehobby.com/power-systems/batteries/3s-lipo/30c-1300mah-3s-t.html>

Folding Prop

<http://www.valuehobby.com/accessories/props/9x6-folding-prop.html>

Spinner

<http://www.valuehobby.com/accessories/spinners-prop-adapters/38mm-folding-prop-spinner.html>

Testing and adjustments

After some testing and flying I have changed my initial setup slightly. Now I am used a 10X6 folder prop from Value Hobbies. This setup loads the motor more and seems to get the model higher. I connect a watt meter to my system and did bench tests. With a 9X6 prop the watt meter reads about 200 watts and with a 10X6 prop the watt meter reads about 250 watts. My calculation predicted the watt meter should read 350 watts. I also measured the RPM of the prop with a tachometer and saw readings around 12,500 RPM. My calculation predicted the watt meter should read 350 watts and the RPM should read 12,500 so you can see this is not an exact science or calculation. There are a lot of assumptions in these calculations and there is a possibility I've done them wrong. My measured data I believe is showing me my prop is not as efficient as assumed in the calculations or props specifications are not correct. I measured the props diameter and pitch with my pitch gage and measured numbers smaller than specified on the prop. The diameter is incorrect by about 1/4", the pitch of the prop changed a lot from station near the hub and tip. So, it is not clear what the pitch of the prop is. It clearly was not a true helical pitched propeller. However, I am pleased with the setup, and it performs as well as the best ones out at Manville.

Final Thoughts

I hope this article will give you some guidance on picking out a power system for your model. If you have an Electra or Gentle Lady and you would like to convert it, I suggest the components above. This article is not an endorsement for Value Hobbies, you can find these items or similar ones at many different places. But I did purchase the above items and am pleased with the converted Electra. Overall, I have been satisfied with my Value Hobbies purchases, but I am not trying to imply this is the best place to purchase items, it's just an example. I have burnt up one ESC I purchased from them after about 50 flights. I also purchase some servo from them that chatter at center. If you have questions or would like some help planning out your custom power system for your model, whether a Electra or some other glider I would be glad to try and help you.

Appendix

Useful general equations

RPM=KVA*V

- RPM is the revolutions per min of the motor unload
- KVA is a parameter for a given motor design
- V is the voltage supplied to the motor

RPML=E*KVA*V

- RPML is the revolutions per min of the motor load
- E is a factor for a loaded motor. Typically .8 is used derived from test data of a good designed power system
- KVA is a parameter for a given motor design
- V is the voltage supplied to the motor

W=V*I

- W is the power in watts
- V is the voltage supplied in volts
- I is the amperage in amps

S=P*RPM

- S is the theoretical velocity of the air generated by the prop in inches/min
- P is the pitch of the prop in inches/rev
- RPM is the revolutions per min of the prop in rev/min

SL=E1*P*rpm

- SL is the estimated velocity of the air generated by the prop in inches/min
- E1 is a factor for prop slippage. Typically .6 is used derived from test data of a well designed propeller.
- P is the pitch of the prop in inches/rev
- RPM is the revolutions per min of the prop in rev/min

A=D^2/4

- A is the cross-sectional area of the prop in square inches
- D is the diameter of the prop in inches.

VR=A*S

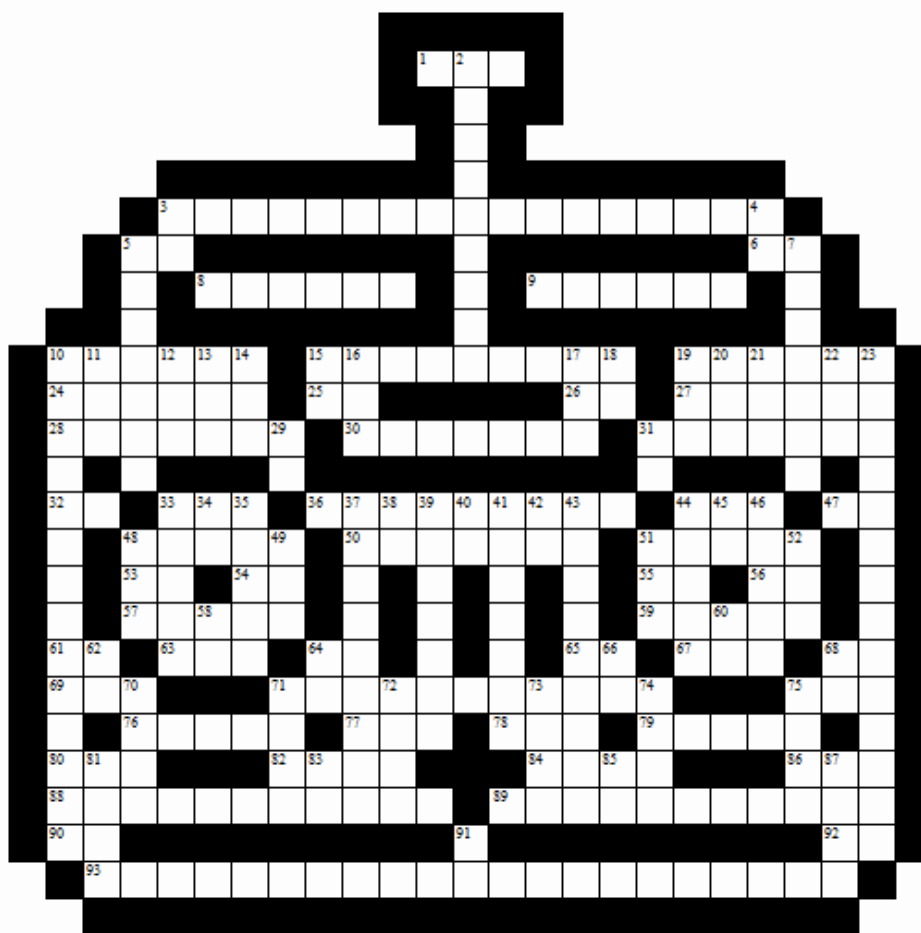
- VR is the estimated volumetric flow rate of the prop in cubic inches/min
- A is the cross-sectional area of the prop in square inches
- SL is the velocity of the air generated by the prop in inches/min

T=.00000157938*RPM*D^3.5/P^.5*(.0004333*RPM*P)

- T is the static thrust provide by the propeller in oz
- RPM is the revolutions per min of the prop in rev/min
- D is the diameter of the prop in inches.
- P is the pitch of the prop in inches/rev

Puzzle of the Month

A little more challenging!



ACROSS

- 1 Don't ___ a little wind keep you from flying.
- 3 Model Aviation column by Paul Kopp - 2000
- 5 State in AMA District IV
- 6 Cyanoacrylate
- 8 Applies liquid finish to model
- 9 Required
- 10 Survives inspection for Quickee 500 qualification
- 15 Typically
- 19 Cut grooves on a pushrod
- 24 Alloy of copper and zinc
- 25 State in AMA District V
- 26 Chemical symbol for arsenic
- 27 Path the pylon racers follow
- 28 You are currently doing this to Model Aviation
- 30 LCD on your computer transmitter
- 31 Officiate at an FAI record attempt
- 32 Us

- 33 F-14 ___cat
- 36 Powerplant that runs on fuel
- 44 Biblical fruit
- 47 State in AMA District VIII
- 48 Upbeat
- 50 Will _____ please get that spectator out of the pit area?
- 51 Supreme being in the Middle East
- 53 Geographical location of AMA District V
- 54 I couldn't get the engine to run, ___ I went home.
- 55 The ratio between circumference and diameter
- 56 State in AMA District IV
- 57 Tubing and sheet metal manufacturer
- 59 Attempted to set a record
- 61 State in AMA District XI
- 63 You, ___, can learn to fly.
- 64 State in AMA District V
- 65 State in AMA District VIII
- 67 Sesame plant

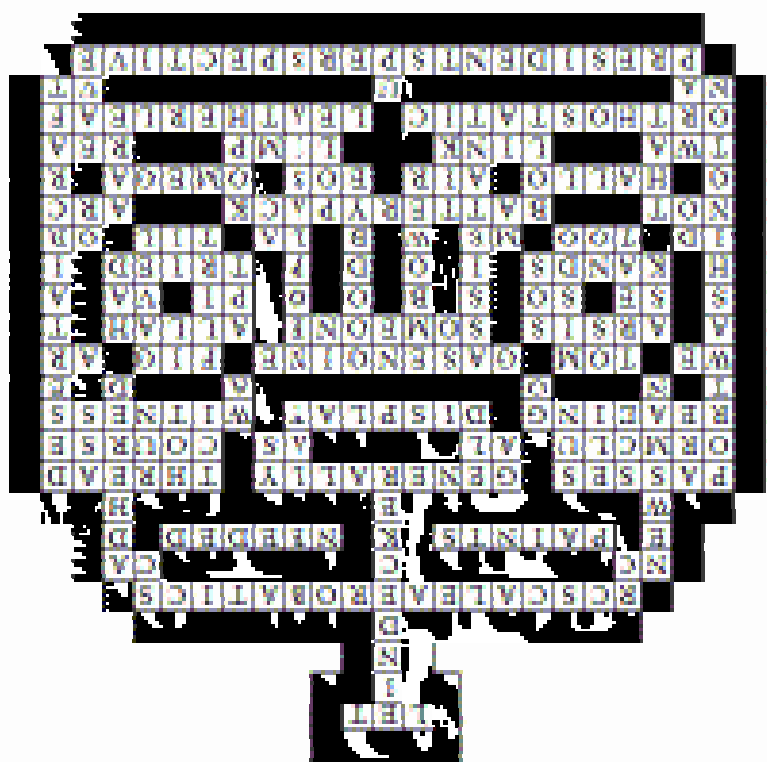
- 68 State in AMA District XI
- 69 Model airplanes are ___ toys!
- 71 Grouping of cells
- 75 Path that a propeller tip takes
- 76 Shout of exultation
- 77 What an airplane flies through
- 78 Greek goddess of the dawn
- 79 Brand of fuel by Morgan Fuels, of Enterprise, AL
- 80 Commercial airline
- 82 Servo-to-control surface interface
- 84 Lame movement
- 86 Rural Electrification Act acronym
- 88 Caused by standing upright
- 89 North American bog shrub
- 90 Not applicable
- 92 State in AMA District I
- 93 Model Aviation "AMA This Month" area - 2000

DOWN

- 2 Vintage German WWI monoplane
- 3 Shortcut for radio controlled
- 4 State in AMA District V
- 5 General title for reporter for Model Aviation
- 7 Stuck to with Zap
- 10 Leading Edge Model Aircraft's city in NY
- 11 There ___ some great thermals out here today!
- 12 The preferred type of grass field to fly from
- 13 Biblical high priest
- 14 Our nearest star
- 15 State in AMA District V
- 16 Antiquity
- 17 Direction of grain in silk cloth covering
- 18 Model engine manufacturer in Gardnerville, NV
- 19 C/L products distributor, in Two Harbors, MN
- 20 Describes a really fast airplane
- 21 Operate an engine
- 22 Donkey

- 23 Propeller manufacturer in Tucson, AZ
- 29 Starter's command at beginning of a Quickee race
- 31 State in AMA District XI
- 33 Pay for another's entry into a contest
- 34 Model engine manufacturer
- 35 Botch
- 37 Flightline helper
- 38 Model engine manufacturer's name - backwards
- 39 Cover with foliage
- 40 State in AMA District IX
- 41 Farewell
- 42 State in AMA District VI
- 43 Formation of neoplasms
- 44 ___ with disaster when performing low-level aerobatics
- 45 Muncie's state
- 46 Chairman's hammer
- 48 ___ him if he's finished with the frequency pin.
- 49 Distress signal

- 51 Very capable
- 52 I ___ a great day at the flying field!
- 58 Electrical switch type
- 60 AMA District that includes NJ and NY
- 62 Perform
- 64 State in AMA District I
- 66 Type of electrical current
- 68 Otherwise
- 70 Now ___'s a nice-looking airplane!
- 71 Threaded fastener
- 72 Polynesian carved image
- 73 Long, cylindrical piece of wood
- 74 19th letter of the Hebrew alphabet
- 75 River in central Switzerland
- 81 Enclose a receiver in foam
- 83 State in AMA District VII
- 85 State in AMA District XI
- 87 Overhanging lower edge of a roof
- 91 Direction a helicopter goes with positive cyclic



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This newsletter is published monthly by the Suburban RC Barnstormers, Inc.

We reserve the right to edit all information forwarded to us. Permission is hereby given to reprint any article that we publish as long as proper credit is given.

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Articles must be received by the 3th Saturday of the month to be included in the following month's newsletter.

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Strictly R/C	7719 W Lawrence Ave., Chicago, IL	(708) 456-9100
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Value RC	1199 N. Ellsworth Ave. Villa Park, IL	(630) 948-0947

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