



ACADEMY OF MODEL AERONAUTICS CHARTERED CLUB #1255

SERVO CHATTER

A PUBLICATION OF:

ANOKA COUNTY RADIO CONTROL CLUB, INC.

FEBRUARY 2014

THE MEETING WILL BE THURSDAY, FEBRUARY 20, AT RIVERWIND!!

PRESIDENT'S CHATTER

I hope everyone is doing well and getting their projects done and ready for the up coming season. The ambition factor has taken a serious whack at my house, and plane projects lay on the bench collecting dust. Hopefully nobody else has fallen into this rut. With the weather being so dang cold I would rather be warm. We have an auction in the books for the start of the year. I did not make it, but hope there were some people from the club that did. Duluth Superior RC is hosting their annual auction in Hermantown and they talking about some good stuff on the auction block. If you get a chance, go for a day trip and check it out. The last two years have seen pretty slim pickings there so hopefully they will have a good one this year. The count down is on; two months till our first fun fly. Haaa Hoooo, I cannot wait. That is it for the month; see you at the meeting.

Andy Thunstrom

FROM THE VEEP

I visited the St Paul RC Club site "Recent Topics" and found that Curt Olson is developing Model Airplane Designer Software (thread date Dec 28, 2013). It can be downloaded at:
<http://www.madesigner.flightgear.org>. For the scratch builder this might be worth looking at and playing with. So far you can design wings; I do not believe you can use it for fuselages yet.

From a friend I received a Live Leak video that shows Russian pilots flying 3D in fighters. See;
http://www.liveleak.com/view?i=77e_1389637750

Also on YouTube search for US Navy Drone X47B. This is a video of a drone fighter taking off and landing on the USS George H.W Bush.

In "RC Sport Flyer" author Andrew Gibbs writes about electric motor efficiency. Percent of Efficiency = Power Out divided by Power In. In short every power system contains resistance, when current flows through this resistance it develops heat, which is wasted energy, wasted energy takes the form of heat. The formula to calculate this loss is Power = (Total Current squared) x Circuit Resistance.

To illustrate this consider a motor with an electrical resistance of 0.1 ohms. We can calculate the heat generated at both 10 amps and 20 amps.

At 10 amps, the heat generated is:

$$(10 \times 10) = 100 \times 0.1 = 10 \text{ Watts}$$

At 20 amps, the heat generated is:

$$(20 \times 20) = 400 \times 0.1 = 40 \text{ Watts.}$$

You can see by this example that doubling the current through the circuit quadruples the heat generated, and results in decreased efficiency.

Let us assume we are using an 11.1 volt battery (3 cell Lipo) in the above example.

$$(\text{Power In} = \text{Current} \times \text{Volts})$$

$$(\text{Efficiency} = \text{Power out} \text{ divided by } \text{Power In})$$

$$10 \text{ amps} \times 11.1 \text{ volts} = 111 \text{ watts In}$$

$$111 \text{ watts} - 10 \text{ watt loss} = 101 \text{ watts out}$$

$$101 \text{ watts} / 111 \text{ watts} = 91\% \text{ efficiency}$$

$$9\% \text{ loss}$$

Continued on Next Page



20 amps x 11.1 volts = 222 watts In
 222 watts - 40 watt loss = 182 watts out
 182 watts / 222 watts = 82% efficiency
 18% loss

In conclusion it is essential that the motor, ESC, and battery be optimized for the current they must conduct.

Virgil Okeson

ACRC MINUTES

January 16, 2014

14 members in attendance

President: Andy Thunstrom Opened the meeting

Vice President: Virgil Okeson went over the great raffle prizes that he purchased. The lucky winners and what they won are on the next page.

Treasury: Phil Vaughn was not able to attend but sent the Treasury Report to the board members. The report was read to the member's in attendance.

Training: "Not much to report"

Membership: Stan Zdon reported that about 30 members have signed up to date. January is the last month to renew without a \$5.00 late fee.

Safety: Nothing new to report

Events: Nothing new to report

2013 Fun Fly Trophies

The results of the 2013 fun fly season and the presentation of trophies took place at the January meeting. Dan Thiede now has two 1st place trophies at home. I should also mention Dan won borrowing Jeff Flanders plane!

- 1st place Dan Thiede
- 2nd place Jeff Flander
- 3rd place Mark Tellevik

Old business:

Stan dropped off the jacket order on Friday and thinks they will be done in the next few weeks. He will send out an email to the people that ordered.

The Freeze Fly was discussed. Tom LaRose, Christian Cone, Scott Oleson and Jeff Slater were the only members that flew this year but there were some supporting people in attendance. As Amy Thiede has done for the past few years, she brought some warm chili to feed everyone. Thanks Amy!

The TCRC auction was mentioned, it is on February 8 at Cross Point Church.

Duluth Superior is having their auction Feb 16 at the Shiners Temple in Hermantown. Stan sent out the flyer for the event with the last email.

New business:

March is the club swap meet at the meeting. Bring anything that you think your fellow flyers might be interested in.

It was brought to the attention of the board that the Vice President and Event coordinator positions are incorrect on the club website. Marc will send an email to Joe and Dale to get this updated.

Show and Tell



Virgil Okeson brought in his Super Cub that he had covered to look like a bird dog. This is the plane that he wrote about in about it in the last newsletter.

Continued on Next Page



Raffle

Prize	Name
4 way socket	Tim Karash
Sanding bar - Sandpaper	Marc Davis
Nana Quad Copter	Marc Davis
Covering Glove	John Sager
Remote Glow Plug	Tom LaRose
2 – 24 inch extensions	Marc Davis
2 – 18 inch extensions	Stan Zdon
Ec3 charger adapter	Bob Moser
Razor Plane and Blades	??
JR/Hitec Switch	Neil Olson
Scorpion Backup Guard	Virgil Okeson
Micro Tachometer	Virgil Okeson
3S-1800ma Lipo	Mark Tellevik
3S-1800ma Lipo	Neil Olson
Spirit Of St Louis	Bob Barton
Agwagon	John Sager
Cessna 182	Tom LaRose
Super Cub	Bob Moser

Marc Davis

shall be done in the in the vicinity of the ditch east of the runway or to the east of that ditch. (08/19/04). (See ACRC FLYING SITE COURTESY, #2, for more information.)

ACRC FLYING SITE COURTESY

2.) The airspace over the runway is normally restricted to Take-offs, Landings, Touch and Goes, and landing pattern practice; with high-speed passes, aerobatics and hovering* done east of the runway. High-speed passes, aerobatics and hovering* can be done over the runway in certain instances such as:

- a.) Only 1 aircraft is in the air.
- b.) At Fun Flies.
- c.) For flight demonstrations at ACRC events.
- d.) With prior agreement of all the on the pilots on the flight line.
- e.) For any other instances pre-approved by the ACRC Board.

*Helicopter hovering practice is to be done in the southwest corner of the parking lot.

If you have any pictures that could be used in the newsletter send them to me. If they are digital, email them to szdon@yahoo.com. If they are prints mail them to me and I will scan them and return them to you. If you come across any articles on the Internet that could be use in the newsletter send me the link and I will download them and use them.

The next meeting will be at Riverwind on February 20 at 7:00 PM.

Stan Zdon

MEMBERSHIP NEWS

IT'S GETTING CLOSER TO SUMMER. LET'S GET THOSE NEW PLANES BUILT !!!!!!!!!!!!!

About 59% of last year's members have rejoined for 2014. This is a little more than last year at this time when it was about 55%. If any of your friends have not rejoined, please encourage them to do so ASAP. The 2014 budget is based on a projected membership of 100 fully paid members. If we drop much below that number we will have to cut services somewhere.

In 2011 ACRC approved a change to Rule 10 to allow high speed passes over the runway. Some restrictions were part of that change. The new version of Rule 10 and the related wording from the ACRC Flying Site Courtesy are reprinted below so that all members are aware of this change.

The Revised Rule

10. When student pilots are receiving instruction all high-speed passes and aerobatics maneuvers

SAFETY IN THE WORKSHOP

Keep it Clean

Many injuries result from poor housekeeping in the shop. Trips, slips, and falls account for the bulk of these mishaps. Scrap material and wrappings, loose parts, scattered tools and equipment, or oil spills can cause injury. Debris

Continued on Next Page

should be swept up and disposed of. Parts should be kept on workbenches. Tools should be placed where they cannot fall and cause damage or injury. Oil spills should be covered with absorbent material and cleaned up.

Lighting, Heating, and Ventilation

Enough windows and overhead lights are required for a good level of overall illumination. Additional lighting should be available over benches and stationary tools.

When supplemental heating is required for winter workshop operations, the heating unit should be located to provide an adequate, even distribution of heat; but should not cause a fire hazard.

Adequate systems are needed to vent smoke, fumes and exhaust gases. Open windows and doors may provide enough ventilation in the summer. Special systems may be needed to remove exhaust fumes and other gases during the cold-weather months.

ACRC SAFETY

DEICING FOR R/C FLIGHT

March is right around the corner and if you are like me you are already starting to dream about the possibility that the runway may be starting the poke its dark black asphalt through the slowly retreating whiteness of snow. At the very least it might even start being tempting enough to take out a foamy for a spin around the neighborhood park. While it might be possible to fly it doesn't mean that it is anywhere near shorts and t-shirt weather just quite yet. We still have a few months of frigid weather coming but it is still possible to take to the air.

The best way to stay warm and make your flight as comfortable as possible is to dress appropriately. Fashion is not the statement that you will be trying to make and the only runway that you need to worry about is the one you land on with your airplanes. The key to staying warm and dry is to dress in multiple light layers. The innermost layer should be made of polypropylene

or similar material that will wick moisture away from the body. The next layers should consist of wool or a weave that holds air and provides insulation. Lastly, the outer layer of your thermal cocoon should be made of wind and moisture resistant fabrics. The more layers the easier it is to shed a layer to adjust for temperature in order to keep you warm and not hot. You do not want to start to sweat in chilly conditions as that could lead to feeling colder later.

Next are the extremities, including the head, hands and feet. Wearing a hat can reduce a huge percentage of the body heat loss. A baseball cap might look nice, especially if it is adorned with the club logo, but it will not hold in the heat as well as a knit cap or a bomber that covers as much of the head as possible including ears and neck. Take extra care with fingers; mittens over light gloves will keep your fingers warmer and will allow you to take your hands out to operate the transmitter without exposing your digits directly to the elements. You will be standing outside for an extended amount of time so wear an extra pair of socks and heavy boots.

In order to stay warm you may want to drink hot liquids such as broth, cider or soup. You also may want to avoid drinks containing caffeine, such as coffee, tea, pop and even hot cocoa as the caffeine can make you more susceptible to the cold. Keep in mind that some medications may also make you more vulnerable to cold. Check with your pharmacist and if you do take one of these medications you need to take extra precautions when venturing outside.

If you do fly during the colder weather do not fly alone. Bringing along a friend in order watch each other's physical reaction to cold when at the field in cold conditions. A person might not realize that they are having problems before it is too late. A flying buddy might be able to see the change and offer help when needed. If the situation arises that someone is acting slowly or starting to shiver, get them into a warm car or shelter. Call 911 if the

Continued on Next Page



situation does not improve or if you notice the onset of hypothermia or frostbite.

I don't know how long I can wait for warmer weather to start heading our way, but I do regret not getting that transmitter cover for winter flying that I saw a few years back at a swap meet. At the time I never thought that I would be missing flying so much for these few months of winter.

Brett Ohnstad

ACRC TRAINING

I recently finished my Twist project, which is my new fun fly airplane for 2014. Since I finished the Twist, I began assembling our new Tower Hobbies 40, which is the newest aircraft in our training fleet. The engine and radio gear came out of our old Goldberg Tiger II trainer. That aircraft was old and pretty beat up so the club decided to update the trainer with the new Tower hobbies 40. I personally think that this airplane is a very good trainer. It has proven to be an excellent choice as far as Nitro trainers go. Last year we put hours and hours of flight time on our older Tower Hobbies 40 and even soloed some new members with the airplane. After I finish assembling our new trainer I'm going to spend some time giving our old trainer some well-deserved TLC. I just need to clean up a few little dings and scratches and add a fresh layer of fuel proofing paint in the engine compartment. Honestly, for as many flights as we put on the airplane last year I'm surprised how little TLC it really needs.

As of right now I have absolutely no idea when we're going to start the 2014 training season. This winter just does not seem to want to release its stranglehold anytime soon so we'll just have to wait-and-see what Mother Nature brings us.

TRAINING TIPS

Oftentimes I think about other skills that I could add to my personal curriculum when I am training new pilots. One important thing came to my mind one day when I was thinking about this, is that I never was spent much time with the new pilots practicing dead stick landings before they soloed.

Obviously this is more important skill with the nitro or gas powered aircraft because you just don't see too many dead sticks with the battery-powered airplanes. However I have seen a prop come off of a battery-powered airplane mid flight. In that case being somewhat proficient with the dead stick landing would be helpful. Whether you're a new pilot or a seasoned pilot practicing this is a good idea. You don't need to shut the engine off, just reduce the power to idle or zero thrust. Work on the spot landing, if your little high or a little fast slip the airplane to slow you down or lose altitude. Practicing both of these skills the same time can actually be kind of fun.

Scott Oleson

SPREAD SPECTRUM ORIGINS

Why you should thank an Austrian actress for your Futaba or what did Hedy Lamarr have to do with 2.4G?

When Hitler started to invade various countries in Europe, in the 30's, many people fled. They scrambled all over Europe and many came to the US. One of these people was an Austrian actress named Hedy Lamarr. She went to Hollywood and became a huge star with many movie roles in her career. A few years later the U.S. became involved in the war because of Pearl Harbor and we declared war with Japan and its allies. At the time the U.S. could launch a torpedo but could not "steer" it because the radio frequency, used to guide it, could be easily jammed. We needed a better way to communicate with the weapon. She was watching a classical piano recital that gave her an idea. She devised two rolls of paper (about the size of a roll of scotch tape). These had random holes punched in it and both rolls were identical. One was installed on the transmitter, the other in the torpedo. Both rolls were synchronized and started at the same time. The torpedo would be launched and the radio would broadcast on a frequency according to what random hole appeared. Because the receiver had the identical

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roll the receiver knew which signal to obey. When one hole would disappear on the roll another would appear, (do you feel frequency hopping coming). This is a short version of how it worked. It worked very well and she received a patent from the patent office but because of the war it was not made public. The title for the patent was Spread Spectrum Frequency Hopping. Fast-forward to the 80's and the cell phone people were trying to figure out how to broadcast multiple signals at the same time. Because of the advancement in electronics this frequency hopping idea worked. We all know the outcome of this industry and how this technology spilled over into our lives. By the way she was married at least 6 times (some say more) and few lasted more than a few months, but the one that did last some time produced 3 children. When she passed away in 2000 she left her children multi millionaires. I think I will name my next plane "Hedy".

Neil Olson-ACRC

R/C AIRPLANE DEFINITIONS

Submitted by Stan Zdon

PROP NUT: What a glider pilot calls power pilots.

PUCKER FACTOR: A factor that exponentially gets higher, as your out of control plane gets lower. At the high end of the scale, changing your shorts is necessary.

P51 MUSTANG: What beginners used to learn to fly.

RADIO: An expensive electronic device to randomly alleviate overcharged batteries. A device that enables an airplane to crash in different places than it normally would.

RADIO GLITCH: A documented electronic occurrence, causing immediate and irreparable loss of control. The source of a crash when there is a possibility of someone else's radio in the close proximity to the plane.

RECEIVER: The part of your airplane that picks up interference.

SINK: Non-mythical meteorological event stimulated by R/C soaring pilots.

SKID PROTECTOR: Another word for a spinner.

SNAP ROLL: After a nice high G roll, something snaps, usually the wing.

SPINNER: A critical part of the landing gear.

STALL: Score: Gravity - 1 Mr. Bernoulli - 0. What you tell your wife when you want to take it up "one more time".

SWEPT AREA: The only part of your apartment that is not covered with balsa dust.

TAIL-DRAGGER: An R/C pilot that has just spent the last hour looking for his plane in the woods.

THERMAL: A mythical occurrence of rising air.

TIP STALL: Offering several minutes worth of unrequested advice to a nearby pilot, instead of taking your turn to launch off the winch. Used when sink is in the air, and contest points are at stake.

TRAINER CORD: A handy device for electronically installing false confidence into rookie pilots.

TREE: Implement used to separate wings from fuselage.

UPWIND TURN: Same as downwind turn. NO, IT ISN'T! YES IT IS!! NO, IT ISN'T! ETC.

WETTED AREA: After Rex the wonder dog finds the pit area.

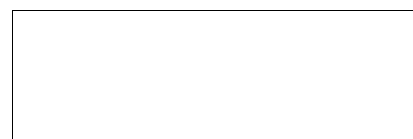
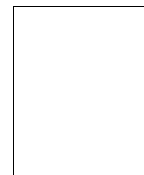
WING: A device that, due to its airfoil, allows air to flow faster over the top, thereby allowing you the opportunity to pour excess funding into the resulting low pressure area.

WING AREA: What you get more of in the car by leaving the wife at home.



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Deadline for the
next newsletter is:
March 1, 2014

CALENDAR OF UPCOMING EVENTS

Thursday – February 20

- ACRC Meeting

Thursday – March 20

- ACRC Meeting

Thursday – April 17

- ACRC Meeting

Thursday – April 19

- ACRC Fun Fly #1

