



ACADEMY OF MODEL AERONAUTICS CHARTERED CLUB #1255

# SERVO CHATTER

A PUBLICATION OF:

ANOKA COUNTY RADIO CONTROL CLUB, INC.

**JUNE 2014**

***THE MEETING WILL BE THURSDAY, JUNE 19, AT THE FIELD!!***

## PRESIDENT'S CHATTER

We officially have our season of events started with the Spring Fly-In. I would like to thank all the participants and helpers. A good crowd of pilots was on hand and there were a few spectators to enjoy the festivities. Here is a quick story of a couple that I had an opportunity to talk to before I had to get someone out of an elevator. I was actually taken by surprise on what they had to say. The couple has been to our Fly-Out for the pig roast and another event. They both really liked both events and said they definitely liked to watch the R/C planes vs. full scale. The reason for that is that they feel safer at our field watching us fly. They said that although they like full scale they always have an uneasy feeling about some bad could happen and someone could be injured or killed. They like the variety of planes and the neat moves they make over full scale. So they keep coming to our events. That short conversation made me feel pretty good to be apart of a good club where folks can come and enjoy all aspects of our hobby. So whether your a beginner, hot rod go fast, aerobatic or 3D people pay attention to what is going on. They enjoy what is going on no matter what you fly. So bring planes and fly; spectators love it and so do I.

June 27 is a Friday night combat session. Foamies and SSC are invited to participate. We are looking at starting at about 6ish get a couple rounds of each in before dark. Any complaints please call. Also get your pictures in for the crash of the

ACRC Forum - <http://anoka-rc.com/forum>

month. Send pictures to Stan to put in newsletter we can vote on the winner at the meeting. Have fun.

Until the meeting, fly safely.

Andy Thunstrom

## FROM THE VEEP

It has finally gotten warm and we can fly without the winter coat. I was looking into purchasing some servos and had some questions. I found a site ([www.rchelicopterfun.com](http://www.rchelicopterfun.com)) that has some interesting information about RC flying and required equipment.

For example, what do servo specifications mean? Speed of 0.12 sec/ 60 deg means it takes 0.12 seconds to rotate the servo arm 60 degrees. Torque is the maximum amount of rotational force the servo can apply. So if the spec was 40 oz-in that means that one inch from the center of the output shaft the servo can produce 40 ounces of force push / pull before stalling. At 1/2 inch the force would be would be 80 ounces, at two inches it would be 20 ounces, easy right.

The difference between analog and digital servos is how the pulsed signals are sent to the motor. Analog servos send the pulses at about 50 per second while a digital servo sends upwards to 300 pulses per second to the motor. The advantage is that with more pulses per second the motor speed is faster and the torque is more constant, smaller dead band, quicker and smother acceleration.

You can test this by connecting the two types of servos to your receiver and try turning the servo

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wheel off center. You will notice the analog servo can be turned slightly before the servo starts to respond and resist the force you are applying. It feels a little spongy. Do the same thing to the digital servo and it feels like the shaft and wheel are glued to the case, it responds that quickly and holds that well. Notice the speed and torque specification can be better on some analog servo verses a digital servo, but remember the analog servo is slow to respond and provides little torque to small fast stick movements. The specs of an analog servo are given at full stick movements when the servo is ramped up to full speed and torque. In this case the slower digital servo will provide more speed and torque where it's needed.

Coreless and brushed servo motors, what is the difference?

A brushed servo motor is built with a 3 or 5 pole motor. It uses steel core with wire windings around the core. This core is then surrounded by permanent magnets. This core and wire weighs quite a bit, therefore it has to overcome this weight to get things moving which causes it be slow to accelerate. It also tends to continue to rotate after the power is removed resulting slow deceleration.

In a coreless servo motor the steel core is eliminated and replace with a wire mesh that spins around the outside of the magnets. This change result in a lighter, quicker accelerating and decelerating, smoother operating, with more available torque and faster response time motor.

If you want to compare servos check out [www.ServoDatabase.com](http://www.ServoDatabase.com).

That's it from your VP this month, many happy landings.

Virgil Okeson

## ACRC MINUTES

No minutes this month. My hard drive crashed.

Marc Davis



## ACRC EVENTS

Hey everyone, I want to thank all of you who joined us for a fantastic Fly In! The weather was great for a good part of the day and the food was excellent. Thank you John Sager for making that great turkey, and Amy Thiede for making such fantastic sides! I appreciate all the deserts brought by members that rounded out the meal.

I truly look forward to seeing you all at the War Bird Fly in June 14. We will be enjoying fresh burgers, hot dogs and of course those fresh french fries we have come to love! Desert will be ice cream. Bring the whole family and lets have fun!

Chris Cone

## ACRC TRAINING

The weather for the Wednesday night training has been really good so far this season and training is going well in my opinion. A couple of our new pilots from the end of last season are getting very close to soloing already. I want to sincerely thank all of the members who have stepped up to help with training. Two weeks ago we actually had more members on hand to help instruct than new pilots needing instruction!! That's pretty cool guys!!

The club's trainers have been working great as well. We have the two .40 size nitro trainers and a newly added electric Apprentice. The Apprentice is maintained by Bob Moser and has proven to be an excellent training platform. We had all three of the airplanes at this year's fly-in for discovery flights. To me it was a huge success. We put 8 flights combined on the nitro trainers and a couple with the Apprentice. I heard a couple comments from spectators stating how cool it was that our club promotes training and that we allow people to fly the airplanes for discovery flights. A special thanks to Tom Larose, John Sager, Dan Thiede and Andy Thunstrom for helping with the discovery flights.

Scott Oleson  
(Cell) 952-201-3352  
smo47@live.com

## MEMBERSHIP NEWS

The meeting this month will be the second one at the field for 2014. The road should be in good shape and hopefully it will be a good day for flying. The starting time is 7:00 PM and if you get there early you can get in some flying before the meeting. Remember that you should be using your current membership card to mark your channel and guests should be using their AMA card to verify their AMA membership.

The nearest hospital is in Wyoming, MN and is the easiest to get to. Just take Hwy 22 (Viking Blvd.) east across 35W and turn right on Hwy 61. The hospital is about a block south of Hwy 22. If you have to call 911 for an ambulance they will want to know where the field is located. The road where we turn off of Hwy 65 is 197th and the address of Central Wood Products 19801 NE Hwy 65, East Bethel.

The GPS coordinates of the field are:

45<sup>0</sup> 19' 44.4" North Latitude

93<sup>0</sup> 13' 52.2" West Longitude

On June 14 there will be a Warbird Fly-In. If you have a plane that has military markings bring it out to the field and fly. In July we will be having a Pot-Luck Fly on July 12. The ACRC Pattern Contest and the ACRC Fun Scale Contest have been canceled for 2014 due to lack of interest for the past two years.

THE NEXT MEETING WILL BE AT THE FIELD ON JUNE 19 AT 7:00 PM. The summer meetings will be at the field through August. There will be a fun-fly on Saturday June 21 at 10:00 AM.

Stan Zdon

## ACRC SAFETY

The flying season is ramping up and a lot of old faces are starting to make an appearance at the field. It is nice to see some old favorite airplanes and all the new stuff sitting in the pits. Half the fun of flying is watching these planes become airborne during the course of an afternoon of flying and the smiles on the pilot's faces after a successful flight.

As these airplanes are coming out of storage from a long winter's rest, I hope we are doing some of the usual checks: Everything is tight that is supposed to be tight, everything is loose that is supposed to be loose, and so on. There are few things that I would like to highlight that should be checked that are easy enough to overlook that could be catastrophic. And I unfortunately can speak from experience.

I brought a glow plane out to the field a few weekends ago and during my "go-over" of the plane at home I found that the receiver battery was not holding a charge. I replaced the pack and the next day brought the airplane out to the field. During my range check I noticed that the ailerons were operating backward but the rudder was working correctly. Easy enough fix, I just reversed the servo on the radio and I was good to go. I started the engine and noticed that the throttle servo was also working properly. The engine coughed a little but that seemed fine and after a few false starts I was ready to take off. I got the airplane onto the runway and pushed the throttle forward. As the tail started to lift off the ground I noticed that the airplane just didn't want to leave the ground. A little more elevator and I should be up and cruising. Nope, the tail-dragger seemed a little nose heavy. A little more elevator and Oh no! Prop strike. Without even looking at the airplane I knew what I had overlooked. The elevator servo was also reversed. The prop tips were scraped up but not splintered. That was good because it would have been terrible if I had hit the ground hard enough to send a broken prop sailing toward the pilot line. That did not happen but nonetheless, the airscrew was still destined for the trash.

So what happened? The radio settings had not been changed in the past year but somehow it appeared that the radio had forgotten the settings. Possible, but unlikely. I did have to rebind the airplane after changing the receiver battery. It is possible that I bound it to the wrong airplane program or maybe I somehow reset the program. Then again, it could be something entirely different too. Either way a simple check of ALL control surfaces would have weeded out the

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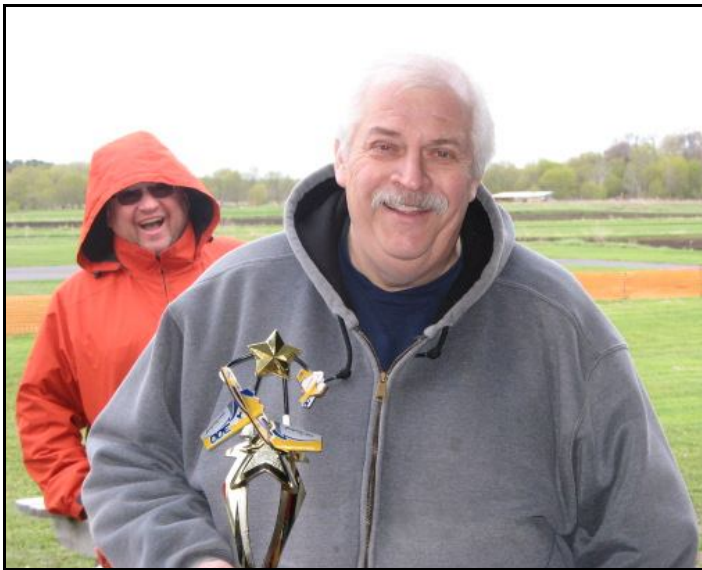
problem preflight rather than post flight. I missed the opportunities to catch the problem and missed it not just once but twice. Once was during my check at home, and again during the pre-flight. The bad part was that I had an indication that something was wrong when the ailerons were reversed and I incorrectly assumed that everything else was alright

At least this problem only cost me a couple dollar propeller. Still, I got an idea for this month's newsletter and nobody got to see me kill my airplane due to reverse thumbs rather than killing just the prop due to a reversed servo.

I am looking at doing an article on radio receiver brownouts and failures. I would like to get some information from members on Tx and Rx issues that they have had. Please send me stories and/or links that you have found for inclusion in a future article. Next month: Lighting Safety, please try to not get struck by lightning before I finish the article.

Brett Ohnstad

## ACRC CRASH OF THE MONTH TROPHY



Tim Karash shows the Crash of the Month Trophy at the May meeting



Bob Proulx's electric pattern plane is the only is the only contender for the June *Crash of the Month* trophy.

## GLOW PLUG PROBLEMS

*Camarillo Flying Circus, Camarillo, California*

Today's glow plugs are well made products and they should give you good service. Although the life of a glow plug is unpredictable, you should reasonably expect a dozen or more flights out of one. It's always best to follow the manufacturer's specific glow plug recommendations, but if you have an engine that seems to eat glow plugs, the probability is that it is suffering from one of the following three causes:

**Overheating:** A glow plug coil will melt if it gets too hot. The reasons why this happens vary. Sometimes the combination of running an engine wide open with a lean setting before you take the glow plug heater off is too much for the element. Quite often people use a power panel that has a built-in surge feature, which sometimes results in a momentary over-voltage to the plug when the power is first switched on. When a glow plug fails because of overheating, the end of the element wire has a tear drop shape at the break. Sometimes a microscope is needed to see this affect.

**Vibration:** If the engine is soft mounted the element is shaken from side to side with tremendous force. This literally fatigues the metal

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until it breaks. When you look at the end of the element wire break through a microscope it has a jagged, rough type appearance. The only solution is to increase the rigidity of your engine mount.

**Shockwave:** Most model engines use a steel or brass liner mounted on top of a cast aluminum case. As the engine gets older, the liner flange works its way down into the case and lowers the head with it. When the piston clearance gets too low the increase in compression forces air out of the squish band area with supersonic velocity and the action on the glow plug elements is like when a jet plane zooms over your house and knocks out the windows. The cure here is to raise the head with another head gasket.

Less often reasons why glow plugs sometime fail are:

Cranking the engine when it's flooded sprays raw fuel onto the plug and the droplets beat the element over to the side of the housing where is shorts out.

Another problem that occasionally occurs is that engines sometimes wear abnormally, causing a crankshaft to crack, bearings to fail, or a connecting rod to chew metal off the crank pin. Of course, when this metal goes up and deposits on the plug element, the plug burns out.

## May Fun Fly Results

1st Event – Guess your time for a takeoff, two loops, two rolls, two stall turns and land. Closest to you guessed time wins. Chris Cone won the event guessing 60 seconds and flying a time of 59 seconds.

2nd Event – Guess your time 3 laps around the runway, the catch here is you guess your time after you land. Kris Westerbur won the event guessing 60 seconds and flying the event in 59.72 seconds.

3rd Event – 15 second climb and return to the runway, fastest time wins. Jeff Flander - 30.22 seconds.

Compiled by Marc Davis

## May Fun Fly Results:

| Name           | 1st Evnt | 2nd Evnt | 3rd Evnt | Ttl | Plce | Pnts |
|----------------|----------|----------|----------|-----|------|------|
| Kris Westerbur | 3        | 1        | 5        | 9   | 1    | 25   |
| Chris Cone     | 1        | 7        | 2        | 10  | 2    | 24   |
| Andy Noll      | 4        | 3        | 6        | 13  | 3    | 23   |
| Paul Rono      | 3        | 9        | 3        | 15  | 4    | 22   |
| Andy Thunstrom | 2        | 10       | 4        | 16  | 5    | 21   |
| Jeff Flander   | 11       | 6        | 1        | 18  | 6    | 20   |
| Roger Jeffery  | 10       | 2        | 8        | 20  | 7    | 19   |
| Phil Vaughn    | 6        | 4        | 11       | 21  | 8    | 18   |
| Mark Tellevik  | 7        | 5        | 10       | 22  | 9    | 17   |
| Dale Anderson  | 8        | 8        | 9        | 25  | 10   | 16   |
| Stan Zdon      | 9        | 11       | 7        | 27  | 11   | 15   |

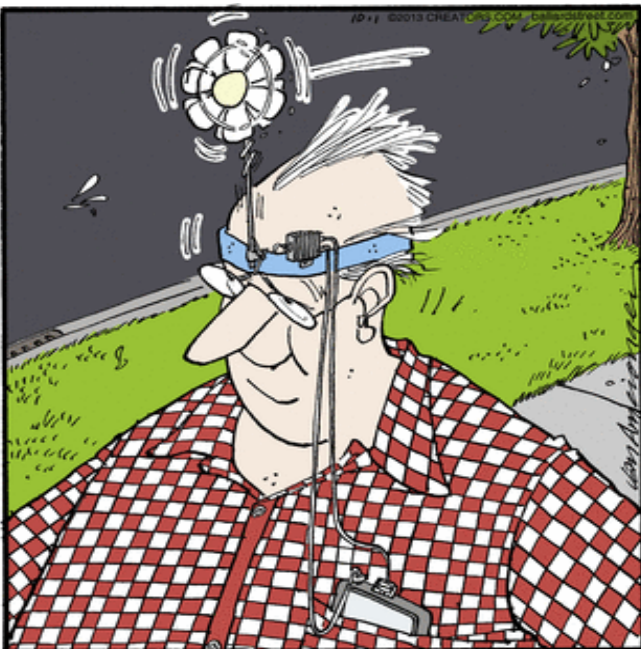
## Current Standings - 2014:

| Name           | April | May | Total | Place |
|----------------|-------|-----|-------|-------|
| Andy Noll      | 24    | 23  | 47    | 1     |
| Paul Rono      | 25    | 22  | 47    | 1     |
| Kris Westerbur | 20    | 25  | 45    | 2     |
| Andy Thunstrom | 22    | 21  | 43    | 3     |
| Jeff Flander   | 23    | 20  | 43    | 3     |
| Chris Cone     | 18    | 24  | 42    | 4     |
| Stan Zdon      | 24    | 15  | 39    | 5     |
| Mark Tellevik  | 21    | 17  | 38    | 6     |
| Roger Jeffery  | 19    | 19  | 38    | 6     |
| Dale Anderson  | 18    | 16  | 34    | 7     |
| Scott Oleson   | 24    | 0   | 24    | 8     |
| Phil Vaughn    | 0     | 18  | 18    | 9     |

MAY SHOW AND TELL



Ballard Street by Jerry Von Amerongen



Dale uses wind power to operate small pocket-size gadgets.

CIVIL AIR PATROL

ACRC hosted cadets from Civil Air Patrol (CAP) Fort Snelling Squadron 131 on May 18, 2014. Nine cadets, two siblings and several parents had the opportunity to try their hand at model aviation during introductory lights on three of the club trainers, as well as Tom LaRose's personal airplane. We were even able to get a cadet's personal airplane set up, range checked, running, tuned up, trimmed up and flying for him.

I want to thank all the club members who were able to attend this great event and help organize the flight lessons, instruct, and answer questions. Club members in attendance were Tom LaRose, Virgil Okeson, Kyle Ruesch, Andy Thunstrom, Phil Vaughn, Tom Janos, Chris Cone, Christian Cone, John Sager, and Kris Westerbur.

Introductions were made, a safety briefing and pilot briefing were conducted then all the cadets were able to get a 7-10 minute buddy box introduction to our great hobby. Two Tower Hobbies trainers and two E-Flite Apprentice-S 15e airplanes performed flawlessly. Chris and Christian Cone and Phil Vaughn performed some airshow maneuvers with their giant scale, gas powered aerobats and the Cones also flew their very impressive hexcopter with gimbal mounted camera to get some awesome aerial shots of the group.

Additional photos taken at the event are at [www.zuralesphoto.com/acrc](http://www.zuralesphoto.com/acrc) (Password - acrc)

Bob Moser



Bob Moser and Cadet Hadzma sharing some air time on the club's Apprentice S trainer.



Civil Air Patrol Fort Snelling Squadron, Parents and ACRC volunteers



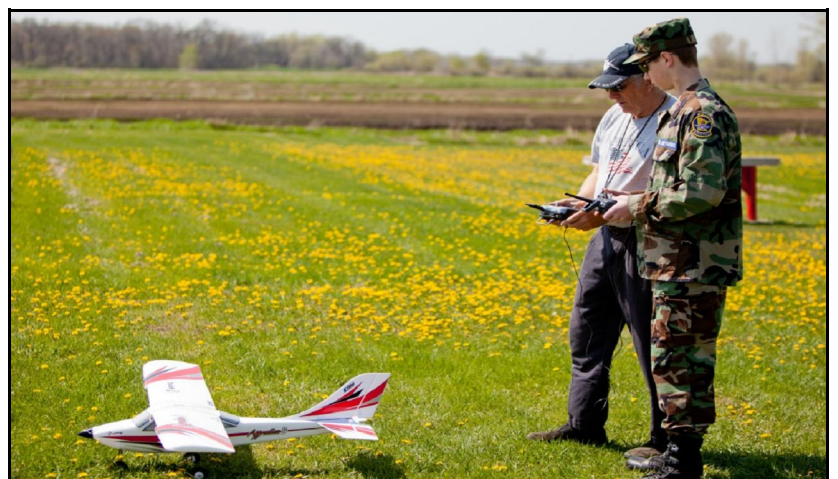
Virgil Okeson holding an impromptu ground school



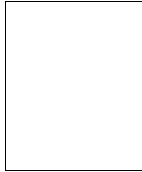
John Sager sharing some of the finer points of RC flying



Andy Thunstrom's smile says it all



Tom LaRose and his student conduct a pre-flight check on Tom's Apprentice S



## Anoka County R/C Instructor List

Please note that it is up to the new pilot to contact an instructor for flight lessons. It is good practice to get a hold of an instructor prior to a training session.

- |                 |                |
|-----------------|----------------|
| Scott Oleson    | (952)-201-3352 |
| Lead Instructor |                |
| Matt Campson    | (612) 987-0191 |
| Dale Anderson   | (612) 481-6405 |
| Bob Moser       | (612) 325-7942 |
| John Sager      | (612) 386-9319 |



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*Andy Thunstrom*

*Stan Zdon*

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*Deadline for the  
next newsletter is:  
July 1, 2014*

### CALENDAR OF UPCOMING EVENTS

Saturday – June 14

- ACRC Warbird Fly-In

Thursday – June 19

- ACRC Meeting

Saturday – June 21

- ACRC Fun Fly #3

Saturday – July 12

- ACRC Pot Luck Fly

