



ACADEMY OF MODEL AERONAUTICS CHARTERED CLUB #1255

SERVO CHATTER

A PUBLICATION OF:

ANOKA COUNTY RADIO CONTROL CLUB, INC.

SEPTEMBER 2010

THE MEETING WILL BE THURSDAY, SEPTEMBER 16, AT RIVERWIND!!

PRESIDENT'S CHATTER

Our events calendar is winding down for the year. We still have two more fun flies and one more combat event. The "Fall Fly Out" on Saturday October 2 will be our next major event with a pig roast luncheon. There will be a \$5.00 per plate charge for all attending to help offset the costs. Also there will be a club potluck for side items with the pig roast. If anyone wishes to cook up some side items it will be greatly appreciated! Here is the link to our club forums if you would like to post what you will be bringing so we will not have doubles of an item.

<http://anoka-rc.com/forums/viewtopic.php?f=28&t=59>

It has been brought up at the last few events that we could use a recycling bin/can for pop cans. If anyone has a large blue trash can with a lid they would like to donate, it would be appreciated. With the large amount of aluminum cans we go through during events, the trash can is filled quickly.

As an important reminder our next club meeting will be Thursday September 16 at Riverwind Community Center, 2701 Northdale Blvd., Coon Rapids at 7:00 p.m.

See you at the field

Erik Castrodale



FLIGHT TRAINING

Training has been busy this year, and some people deserve a lot of credit for their time, devotion and love of the hobby. They are Dan Thiede, Charlie Elg and Mike Dorff. If there is any body that helped out that I don't know about, thanks to you too. People in the club, do me one favor; when you see these people or you know some one that has helped train, please give them a BIG THANK YOU! Because they give up a lot of their time to help and they deserve it. Thanks to all that helped this year, it is greatly appreciated. There is a little training time left so get it in because we're going to call it a season on the day of the Fly Out. So get your flight time in quickly cause when its done its done. That is it for the month.

Andy Thunstrom

Instructor List

Andy Thunstrom	(763) 291-2088
Lead Instructor	
Dale Anderson	(612) 508-2668
Mike Flander	(763) 439-6959
Dan Thiede	(763) 227-3173
Jim Taylor	(612) 868-0419
Jim Wright	(763) 786-7047
Doug Lewis	(763) 670-7678
(Helicopter and Plane)	

COMBAT REPORT

First of all I would like to give a big thanks to all that participated in this years first combat run. Special thanks goes to our official scorers and timekeepers, Roger Jeffery and Doug Jelinek. We had a starting field of 8 pilots, and lost 2 due to damage in the inevitable midairs. The victims Dale Anderson, Matt Campson, the always there to hit your plane Jim Wright, and Andy Thunstrom. Damage assessment; broken switches, bummed up throttles, wings sheared in half, and miscellaneous yard sale parts scattered about the field. The last heat consisted of the 6 remaining planes with some pretty good combat. It was a clean run but with a couple dropped out due to mechanical issues. All in all, pretty good fun. A couple of midairs mixed in with some clean chasing combat. There is going to be a combat demo during the Fly-Out so bring your planes with you. We'll run one heat depending the number of pilots we have show up. Also I would like to have a good showing for the last regular event for the season. The last combat is October 3, the next day, and that is it for the season. I would also like to get a count of fliers interested in doing it again next year so I know whether or not to do it again. Thanks for a good year and good sportsmanship guys, it has been a blast!

Andy Thunstrom

Meeting Minutes

Meeting called to order at 7 P.M.

21 members present.

Board Reports:

Vice President: Dan Thiede reviewed the evenings raffle prizes that included an RV-4 ARF and several field box items. The raffle this month had to be postponed due to a shortage of raffle tickets.

Events: Marc Davis reviewed the Fun Fly results to date. Currently Kevin Carlson is in the lead and Phil Vaughn is second. Marc reminded us that the next Fun Fly would be August 21.

Old Business:

No old business discussed.

New business:

No new business.

Note: Kevin Carlson has a number of items for sale that are listed on RC Universe.

Show and Tell:

No Show & Tell this month.

Raffle:

Raffle postponed till the September meeting.

Steve Ulrich

MEMBERSHIP NEWS

Membership in ACRC is currently at 110 members. There are 93 members that pay full annual dues. The remaining members are Life Members, junior members and family members. This the highest the membership has been in the last 5 years. Each year ACRC gets some new fliers. One of the ways that you can help the club is to become an instructor. If you are interested in becoming an instructor you can contact Jim Taylor at (612) 868-0419.

At the membership meeting in October ACRC will be taking nominations for board members for 2011/2012. Four positions will have to be filled. The two-year terms of Dan Thiede, Jake Groetsch, Joe Coleman and Stan Zdon are ending. Start thinking of who would be a good board member and come to the October meeting and nominate them. If you check with them first to see if they will accept the nomination it will make the process proceed more smoothly. You might even consider entering you own name into nomination. ACRC needs members who are willing to help run the club. You cannot just wait for the next guy to do the work while you just fly. Remember, you too can be a FBM.

THE NEXT MEETING WILL BE AT RIVERWIND ON SEPTEMBER 16 AT 7:00 PM.

Stan Zdon

FLIGHT SAFETY

Receiver Power System Requirements

With all radio installations it is vital the on-board power system provides adequate power of 4.5 volts or more without interruption to the receiver even when the system is fully loaded (servos at maximum flight loads). This becomes especially critical with giant scale models that utilize multiple high torque/ high current servos. Inadequate power systems that are unable to provide the necessary minimum voltage to the receiver during flight loads have become the number one cause of in flight failures. Some of the power system components that affect the ability to properly deliver adequate power include: the selected receiver battery pack (number of cells, capacity, cell type, state of charge), switch harness, battery leads, regulator (if used), power bus (if used).

While Spektrum's receivers' minimum operational voltage is 3.5 volts, it is highly recommended the system be tested per the guidelines below to a minimum acceptable voltage of 4.8 volts during ground testing. This will provide head room to compensate for battery discharging or if the actual flight loads are greater than the ground test loads.

Recommended power system guidelines:

1. When setting up large or complex aircraft with multiple high torque servos, it's highly recommend a current and voltmeter (Hangar 9 HAN172) be used. Plug the voltmeter in an open channel port in the receiver and with the system on, load the control surfaces (apply pressure with your hand) while monitoring the voltage at the receiver. The voltage should remain above 4.5 volts even when all servos are heavily loaded.

2. With the current meter inline with the receiver battery lead, load the control surfaces (apply pressure with your hand) while monitoring the current. The maximum continuous recommended current for a single heavy-duty servo/ battery lead is three amps while short duration

current spikes of up to five amps are acceptable. Consequently if your system draws more than three amps continuous or five amps for short durations, a single battery pack with a single switch harness plugged into the receiver for power will be inadequate. It will be necessary to use multiple packs with multiple switches and multiple leads plugged into the receiver.

3. If using a regulator it's important the above tests are done for an extended period of 5 minutes. When current passes through a regulator heat is generated and this heat causes the regulator to increase resistance that in turn causes even more heat to build up (thermal runaway). While a regulator may provide adequate power for a short duration it's important to test its ability over time, as the regulator may not be able to maintain voltage at significant power levels.

4. For really large aircraft or complex models (35% and larger or jets) multiple battery packs with multiple switch harnesses are necessary or in many cases one of the commercially available power boxes/ busses is recommended. No matter what power systems you choose always carry out test #1 above making sure that the receiver is constantly provided with 4 volts or more under all conditions.

5. The latest generation of Nickel Metal Hydride batteries incorporate a new chemistry mandated to be more environmentally friendly. These batteries when charged with peak detection fast chargers have tendencies to false peak (not fully charge) repeatedly. These include all brands of NiMH batteries. If using NiMH packs be especially cautious when charging making absolutely sure that the battery is fully charged. It is recommended to use a charger that can display total charge current. Note the number of mAh put into a discharged pack to verify it has been charged to capacity.

Joe Coleman



ACRC EVENTS

The last half of the month has been very busy with many events. The month started off with our fun fly and as usual the competition was fun and not too competitive. The highlight of this fun fly has to be the most popular spectator event for fun flies, the limbo, and this year was no exception. This year the event claimed two planes but I think just watching the fliers trying their luck was the most entertaining part. I'll cover the detailed results later in the fun fly recap below.

The Scale Fly-In was a great success despite the high winds this year. While the winds might have kept some flyers away, a good time was still had by all. While the winds were high, they were straight out of the south so the wind was right down the runway, which helped with takeoffs and landings department. We also had a large number of spectators and they were not disappointed as there was a plane up almost all the time. I can't leave out the other big reason that you should have attended this event, the food! The potluck was a great success and with the donations that we received the club was able to cover the expenses for this event and the electric fly. Thanks to everyone who brought a dish to share and thanks to all the volunteers who help with the setup, cooking and serving of the food. It's the total experience that will draw in new members and provide a positive impact on the community.

Last weekend was a busy weekend for events. While there was no doubt that the Labor Day weekend impacted attendance for both the electric fly and combat, both events were still attended well enough to call them a success. The Electric Fly-In had about 20 flyers most of which brought more than one plane. We also had about 30 spectators that stopped by to see the event. I have made a note to myself to make sure that we get the word out to other clubs a few months in advance for this event next year and to make sure that we don't schedule the event over the holiday weekend. A special thanks to the MARCEE members who attended.

Last Sunday was the club combat meet and while we were down a few pilots we did have a whole lot of fun. There were enough flyers for two heats of 4 in the beginning rounds with only one heat for the last round. Dale Anderson gets the award for best mid air this year. While I was flying in this heat I can tell you that the hit was loud enough for me to take my eyes off my plane to look for the carnage that wasn't hard to find, Dale's plane suffered a complete wing failure! As his plane gently settled to the ground in a spiral, I immediately flashed back images of my childhood watching what I called helicopters falling from the trees.

August Fun Fly

This month's fun fly was just that, FUN, but something was in the air. Out of 16 flyers there were 7 crashes of some sort, which has to be a fun fly record. What was even stranger is that only four of these occurred during the event. Perhaps the most unexpected crash was Paul Rono's, his electric powered twist broke its wing in straight and level flight just as he was doing a down wind pass to get ready for an event. Paul, I think you need just a bit more power!

The first event was a high speed, slow speed event. Participants first did a high speed down wind pass with their time recorded; then turned around and attempted to retrace their route going a slow as possible without climbing. The person with the biggest difference in time was the winner. Dave Boll crushed the rest of us with a time of 14.3 seconds with the next closest a distant 4 tenths of second at 13.9 seconds!

The second event was the most loops and rolls in 45 seconds with a half a point given for completion of a loop at the end. Once again, Dave Boll crushed the rest of us with 16 loop/rolls with his next closest competitor only completing 12! I think that we are going to need to request a destructive analysis of Dave's airplane to make sure that he is not breaking any of the non-existent rules so the rest of us have a chance next month. All kidding aside, Dave is a great pilot, and it showed!

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The last event, while not always a pilot's favorite, is certainly the spectator's favorite, the Limbo. This year it was certainly no exception in the thrills category. We had 13 pilots start the event with only 9 flying planes at the end! Two planes ended up with minor damage due to unexpected impacts with the ground and unfortunately two planes attempted to occupy the same air space as the east limbo pole. The only problem with this is that the that the east limbo pole did not get out of the way fast enough which resulted in both planes have fatal damage to their wings. If you know the right people you might even be able to find some cell phone footage of the event! To find the winner this year there were four rounds with the first round having the ribbon starting at the top of the poles, the second round

the ribbon was lowered to the middle position and the last two rounds the ribbon was set to about 3 feet. In the last round the four remaining participants continued to make multiple attempts at flying under the ribbon. Stan Zdon came out on top with 6 successful passes in total for the event. Nice job Stan!

FUN FLY RESULTS

Name	Place 1st	Place 2nd	Place 3rd	Place Final	Points
Kevin Carlson	9	2	3	5	21
Andy Noll	10	5	7	8	18
Doug Jelinek	15	6	5	11	15
Paul Castrodale	6	4	4	5	21
Bob Nagle	7	7	7	7	19
Marc Davis	3	3	6	3	23
Dale Anderson	12	8	5	10	16
Lee Cravens	2	9	6	6	20
Dan Thiede	5	2	5	3	23
Phil Vaughn	4	2	5	2	24
Stan Zdon	8	4	1	4	22
Steve Ulrich	13	4	7	9	17
Chris Cone	11	4	6	7	19
Dave Boll	1	1	2	1	25
Paul Rono	14	2	5	7	19

Fun Fly Standings

Name	Total Points	Current Standing
Andy Noll	100	4
Andy Thunstrom	51	16
Dale Anderson	86	7
Dan Thiede	112	2
Dave Boll	71	11
Dave Dentz	52	15
Doug Jelinek	84	9
Eric Malkerson	41	17
Jason Proffit	14	21
Jeff Flander	83	10
Kevin Carlson	114	1
Marc Davis	99	5
Mike Dorff	11	23
Paul Castrodale	95	6
Phil Vaughn	114	1
Ray Jelinek	63	12
Stan Zdon	108	3
Bob Nagle	54	14
Darren Bitzer	16	20
Steve Ulrich	62	13
Paul Rono	85	8
Chris Cone	34	18
Ken Dinkel	13	22
Lee Cravens	20	19

I have one more none event related item to report on; the club riding mower was delivered to the field this Sunday. If you see Jake Groetsch., Dave Dentz, Andy Noll, Andy Thunstrom or Dan Thiede please thank them for the work that they did to make this happen. The tractor had been in storage the past few years and need to be retrieved, have the steering rebuilt along with general maintenance, and then have it transported out to the field. It is these club members that made this happen!

This year's scheduled activities are coming to an end with only the September fun fly remaining but in October we will close the season with a bang. The Fall Fly-Out will have a first ever pig roast so you will not want to miss that. Look for up and coming emails for details. That's all for now see you at the September Fun Fly!

Marc Davis

SPREAD SPECTRUM INFO

If you already have one or have been thinking of buying a 2.4GHz spread spectrum RC transmitter and receiver then hopefully this article will help you understand more about spread-spectrum.

The introduction of spread spectrum technology happened during WWII and was used for encrypting signals that controlled torpedoes so the enemy could not detect or jam the signal. Today this technology is used in almost every aspect of military communications not to mention Wi-Fi, blue tooth, cordless phones and GPS.

A Globally Unique Identification Code (GUIC) is assigned to every radio transmitter during manufacturing; it is a unique code out of millions of possible codes. The spread spectrum technology binds a transmitter to a specific receiver so that the receiver only "listens" to that particular transmitter using the GUIC and

blocking all other codes in the process. There are two ways to achieve this bond. The first and most common type is Direct Sequence Spread Spectrum (DSSS). This involves the transmitter and receiver staying within a fixed part of the 2.4GHz band. The transmitted signal is spread out over a wide band before being accepted and then re-assembled in narrow band by the receiver, further increasing security. The 2.4 GH transmissions will appear to be random "white noise" for any non-bound receiver. The second type is called Frequency Hopping Spread Spectrum (FHSS) and involves having the transmitter and receiver constantly changing their operating frequency within the 2.4GHz band. It continuously changes its frequency several times a second. From the binding process the receiver knows the GUIC that the transmitter is using. It then focuses on the appropriate frequency as the transmitter changes from one frequency to the next.

Since both DSSS and FHSS radio systems transmit in the 2.4 GHz frequency band the FCC requires that any device that transmits in this frequency range must first scan the frequency band and use only the narrow band frequencies within the 2.4 GHz frequency band which are not in use by another device. This process only takes a few seconds every time the transmitter and receiver are powered up. Once your transmitter and receiver sync up, your flying frequency is chosen for you and it becomes unique to that model – virtually no other radio signals or interferences can penetrate the signal. This makes it possible for many devices to utilize the 2.4 GHz frequency band at the same.

The wavelength of the 2.4 GHz frequencies is so small that it can't go around objects very well and can be easily blocked by metal objects on an aircraft such as the engine or landing gear. To aid with this a second receiver is added to the system so that at least one of the receivers will have a clear unblocked signal from the transmitter. The main receiver resembles a standard receiver and is installed in the same way. The second receiver is

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a satellite receiver connected to the main receiver via an umbilical cord. The two receivers need to be mounted at least 2" (best 3-4 inches) apart. It is important to mount the antennas pointing 90 degrees from one another so that one of them is always receiving a signal at any given time. The satellite receivers are typically mounted in the fuselage where it is easily accessible.

There are many advantages of spread spectrum related to R/C flight. One is the response time - everything happens within a few milliseconds, so servo movement and model response is instantaneous. A safety aspect is the shorter antenna; it is no longer extended several feet in front of you. Crystals are no longer required so you don't need to carry a spare set of those. The transmitter uses less current to operate so the result is longer life to your transmitter and receiver batteries.

Here is a great link for more details on the subject:

http://en.wikipedia.org/wiki/Spread_spectrum

Ellie Pflager

ON THE SAFE SIDE

*From the AMA Insider,
The Lighter Side of Safety: Revisited
by Don Nix, Insider Safety Column Editor*

A few months ago I wrote about some things I had seen at various flying fields that could have been safety disasters, but happily turned out funny instead. I decided to continue the subject because (1) I've remembered a few more, (2) many seemed to enjoy them, and (3) I drew a blank for a subject this month ... Seemed like good reasons to me.

As I've mentioned before, I've been a modeler since I was six years old, and a full-scale pilot for nearly 51 years. I got into RC a little late in life—back in the mid-1980s—after full-scale began to be almost prohibitively expensive for the average guy. I'm sure readers who also fly full-scale can understand what a humbling experience the transition to RC can be. Suffice to say it took a

very long time to get my head out of the cockpit and fly the airplane viewing from the outside.

My late wife was also a licensed pilot, and after I became fairly comfortable with a couple of RC trainers, it was her turn. Things went well for the first few sessions using the buddy box system, but she was a long way from soloing. After a takeoff one day, she said, "My transmitter is out of trim, and I don't feel comfortable enough yet to try to trim it myself." I replied, "Nooo problem. Here, swap transmitters with me, and I'll get yours trimmed up."

(Rim shock....cymbals....think about it for a minute.)

An incident some years earlier occurred while I was flying a full-scale airplane, but the lesson learned remains the same as for models. I lived in northern Illinois at the time and did a lot of business flying in my Piper Comanche.

One winter we had a several-week stretch of weather that I didn't care to attempt to fly in even though I was instrument rated. When the weather finally improved a bit, I departed one day on a long-delayed business trip. I had several thousand hours experience and hundreds in that airplane, but I was quite aware that inactivity for an extended period—models or full-scale—can be dangerous. I went through my checklists very carefully before and after starting the engine, during taxi, and pre-takeoff.

Takeoff and climb to altitude proceeded without a hitch, so I trimmed for level flight, set the autopilot and began to relax, but not for long. My Comanche normally trued out about 180 mph, but after tweaking everything I could think of, I couldn't nurse more than about 155 out of the beast. I stewed and wracked my brain for at least 10 minutes. Remember the cartoons where the little light bulb suddenly lights up over the character's head?

In my special efforts to be very, very careful during takeoff and climb out, concentrating and perhaps too focused, I had neglected to retract the landing gear.

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I was alone with no witnesses, but shame and embarrassment washed over me.

Lesson: No matter how high one's level of experience, after a period of inactivity use a checklist—all of it.

Back to models. The first good-weather weekend after Christmas was always interesting at my favorite RC field in Southern California. All the people with new Christmas airplanes would show up, many of them beginners. I was hangar flying with a friend one January while we watched a young fellow about 14 getting his new ready-to-fly toy assembled. It was some sort of long-winged motor glider powered by a 1/2 A engine. His mother was standing close by watching sonny boy.

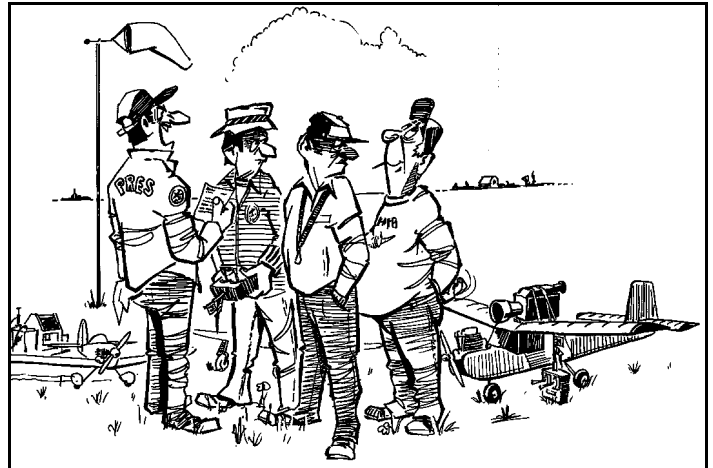
It quickly became obvious the lad had never flown before so my friend, one of our club's instructors, walked over and offered to help. Instead of gratitude, this whiz kid erupted with profanity, suggesting my friend perform an anatomically impossible act on himself.

The instructor said, "Oookay" and walked away. As we watched from the sidelines, the kid hand-launched the model and immediately pulled full up elevator, which was hooked up in reverse. Amazing how thoroughly and quickly a paved runway can convert a foam ready-built into a pile of packing peanuts.

The ironic part? My friend said to the mother, "Ma'am, that wouldn't have happened if your son had accepted my help." Her response was only slightly less vile than the son's.

Clearly, the needless incident could have hurt someone, so to head off myriad e-mails asking why we allowed the boy to fly: it was a public county park, and we had no authority whatever to control operations; we just suffered the criticism if someone did something stupid or careless.

Afternote: While on a nine-month RV tour of the western states this past year, I visited the flying field at Wenatchee, Washington. This was perhaps the most beautiful RC field I've seen in



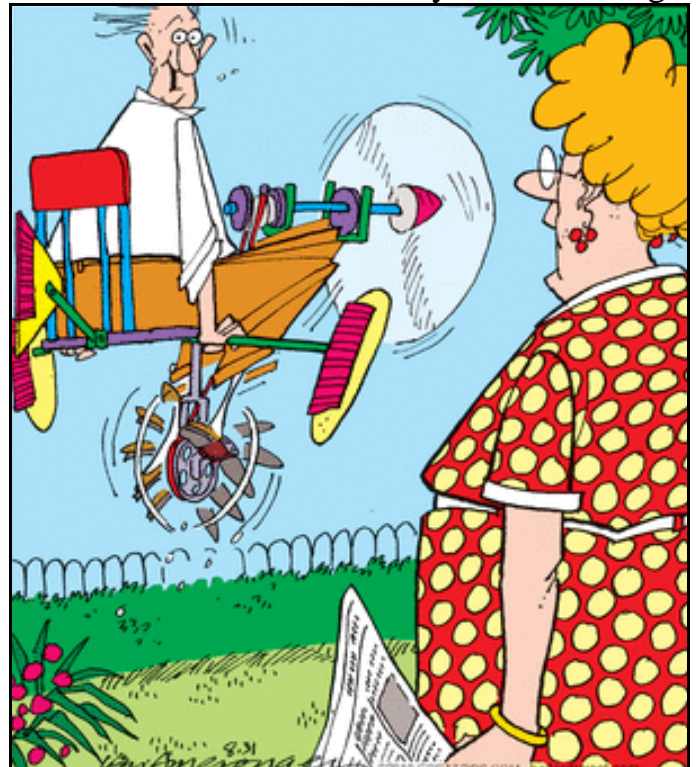
We have a complaint that somebody keeps flying over the sun worshiper's colony

years, and it was clear safety was high on their list of priorities. Unfortunately, I didn't make a note of the club name, but you folks know who you are. Congratulations!

Th-th-th-that's all, folks. I could use some suggestions for safety topics, so ring me up at flyerdon1@yahoo.com.

Contributed by Stan Zdon

BALLARD STREET - Jerry Von Amerongen



Just stay clear of the flower beds, Dan

2010 ACRC ELECTRIC FLY

PICTURES BY STAN ZDON



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Abraham Technical

Aerospace welding

Cambridge State Bank

*Deadline for the
next newsletter is:
October 1, 2010*

CALENDAR OF UPCOMING EVENTS

Thursday – September 16

- ACRC Club Meeting

Saturday – September 18

- ACRC Fun Fly

Saturday – October 2

- ACRC Fly-Out/Pig Roast

Sunday – October 3

- ACRC Combat

