



ACADEMY OF MODEL AERONAUTICS CHARTERED CLUB #1255

SERVO CHATTER

A PUBLICATION OF:

ANOKA COUNTY RADIO CONTROL CLUB, INC.

MAY 2015

THE MEETING WILL BE THURSDAY, MAY 21, AT THE FIELD!!

PRESIDENT'S CHATTER

The MARCEE fly has come and gone. I want to thank everyone who participated, especially Amy and Dan for the food preparation (GOOD JOB). Thank you to everyone who brought something to share. We had a very good crowd and everyone enjoyed flying and watching.

Our next event is a Fun Fly on May 23, so let's get them ready for some flying.

The benches and tables have been tightened and carpet has been replaced on most of the starting stand uprights. Thank you whoever took care of them.

Food for thought. Ducted Fan flyers have been discussing how to reverse a brushless motor after landing to slow the aircraft to a stop. We know that to reverse a brushless motor you have to switch any two of the three motor leads. The motor would have to stop before reversing direction. The circuit would have to supply 60 amps of current for a short period of time. A circuit that might work would be a (2) high current flip-flops. One flip flop circuit in two of the three legs. We think that some helicopter ESCs can reverse a motor. Any thoughts please let us know. Stay on the bleeding edge of R/C flying techniques and current technology.

I'll see you at the field.

Virgil Okeson



ACRC MINUTES

Meeting called to order at 7:05 PM

Members: - 20 in attendance

Finances: - in check

Membership: - little low from last year at this time, 80 members roughly to date.

Training: - no inquiries as of yet for both trainers and trainees. Looking for a carb for a Thunder Tiger 40, if have such call Scott Oleson.

Safety: - no problems so far this year.

Events: - Fun Fly April 18, MARCEE Fly May 2, Fly In May 30.

Old business: - benches need some work.

New business: - none

Show and tell:



Bob Svare brought in a FPV set up to check out. He set up a radio case with a screen and receiver. He passed around a camera and explained how the

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transmitter and receiver work and at what distances. He also explained the video frequency and how it ties in to amateur radio frequencies. Lots of info.

Brett Ohnstad also brought in an FPV set up with a little bigger screen. He explained that you could get larger size screens for FPV and also explained a little bit about how to get GPS to work. Lots of info to be had.

Raffle prize winners:

Stanley storage containers	Bruce Martin
5 min epoxy	Andy Noll
Thin CA	Jeff Voelz
Medium CA	Marc Tellevik
Table vise	Jeff Voelz
Micro screwdrivers	Virgil Okeson
Horizon ultra small faze	Scott Oleson
Kobalt screw stick	Marc Tellevik
LED cap light	Grandpa Stan
	Andy Thunstrom

ACRC EVENTS

The first big event of the 2015 summer season is in the history books and, by all accounts, the Spring Electric Fly-In was a great success!! We had an excellent turnout with an estimated 25 to 30 pilots and about 50 aircraft. The MARCEE club made a good showing with around 20 or so of their members at ACRC field. The weather was nearly perfect with sunshine and warm temps later in the morning. We did struggle with increasing wind speeds as the day progressed but it wasn't enough to keep most of the pilots from getting in at least few good flights.

Everyone that attended was well fed thanks to Amy's excellent prep work. Amy wasn't able to attend the event but she still made sure everything was well organized for those of us who did the cooking and serving. If you weren't there, you missed out on her now famous Broccoli Bacon Salad. Thanks Amy!! Dan Thiede was gracious enough to not only deliver the food Amy had

prepped, but he spent the entire morning and afternoon helping make sure everything went smoothly and saw to it that clean-up was done afterwards, so a Big THANKS to Dan as well. All in all, an excellent event and the MARCEE club is welcome any time.

Now, let's start looking forward to our next event which is the Spring Fly-In coming up on May 30. This event is open to all aircraft of all power types and we generally end up with a large turnout, so put it on your calendar now. As always, we'll be looking to club members for help with preparations for the event as well as snacks, salads and side dishes to be served at lunchtime. We're planning on serving Sloppy Joe sandwiches for lunch this time so don't miss out!!

One last thing I'd like to mention. ACRC has been asked if we would be interested in putting on a small display of our aircraft at the East Bethel Booster Days celebration on Saturday, July 18. This event will be held at "Booster Park" and I'll be taking a look at the area they are proposing that we use for flying. I'll have more details on the event and the flying site at the May meeting. If even only a small group of ACRC club members were to show up for this event it would go a long way towards building a good impression of our club within the local community.

I know we have a Fun Fly that morning, but I think that most of the planes that are small enough to fly safely at the park are not going to be involved in that event and so we should be able to put together a small group to represent the club. And if we get a large group, even better!!

That's all for this month. Remember, the May meeting is at the ACRC field.

Bob Proulx

ACRC TRAINING

Contact me at Designerfirewood@gmail.com or 651-329-8449 for training this summer or to volunteer to be a trainer this summer. (Please put ACRC Training in the remarks so I don't delete you as spam).

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Be sure to read the article about adjusting the needle valves on 2 and 4 stroke engines. It is being sent as a separate attachment.

Tom Janos

THE NEXT MEETING WILL BE AT THE FIELD ON MAY 21 AT 7:00 PM. The summer meetings will be at the field until August. The fun-fly will be on Saturday May 23 at 10:00AM.

Stan Zdon

MEMBERSHIP NEWS

The meeting this month will be **AT THE FIELD**. 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.

ACRC members should remember and follow the safety rules. We all have mental lapses from time to time so gently remind others when you see them having a SENIOR MOMENT. Starting engines with the plane facing other than toward the runway and full RPM run-ups in the pits seem to be the most frequent violations of club rules. If you just visualize where the prop blades will go if the blades break off it will help you remember why the club has these rules. The plane should be started in the pit area and moved to the run-up area for the high RPM run-up.

The flight stations are close enough so pilots can communicate their intentions concerning take-off, landings, etc. Be sure to let other pilots know what you are going to do. Shout out "coming out", "taking-off", "landing", "on the field" etc. Remember, if the wind is from the north, you should be flying from the 5 stations by the south half of the runway and vice-versa.

Be sure that you are standing on or behind the flight station blocks. If you stand ahead of the blocks you could be blocking the view for someone who is landing and if you are standing way ahead of the blocks you are definitely in a Danger Zone. All flying is to be done beyond the runway. This even applies to Micro-Electric planes (See Rules 9 & 10). Once you land, clear the runway and taxiways as quickly as possible. If you have to do maintenance on your plane or change the battery, take it back to the pits.

ACRC SAFETY

Do you really need a License to fly FPV

In an attempt to construct several different FPV aircraft to be used with a ground station and FPV goggles, I am testing video transmitters in several different power ranges. I have noticed that some of these systems are labeled as "FCC approved" and do not require licensing in order to use. Other systems indicate that a Ham radio license may be required for use. I have also noted that there is not a lot of specific information out that relates to the requirements for flying FPV and as to why one system would suggest having a ham radio licensing and another doesn't. The question is: Do you really need a license to fly FPV with these all of these systems? Well, no, you might not need a license. Well at least no more than you might need a license to go out and hunt or fish or even drive a car or fly a full sized airplane for that matter.

We all use low power radio frequency devices every day. These devices include garage door openers, home networks, car fobs, cordless phones, baby intercoms, cell phones, short range FSR or CB radios, and even our remote control airplanes. For the most part these devices play well with each other and seldom cause interference between devices. A lot of this has to do with the fact that the devices put out so little power that they typically have an effective range of only a few hundred feet or less. When interference does happen it may be as simple as being able to hear a neighbors phone conversation on a baby monitor. Our radio control transmitters, for example, put out a little more power than a cordless phone but have a maximum limit of 1 watt of power for sending telecommand signals to radio control models (97.215(c)). These transmitters fall under the guidelines established

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by the FCC for use in amateur radio. The reason that you do not need a ham radio operators license to use a RC transmitter is because commercially available, off the shelf transmitters have been certified by the FCC as to not cause interference with other equipment.

So why have a license for video transmission? It is easy to understand the need to be licensed in order to drive a car, it provides accountability and enforceability by making it illegal to drive a car without a license. The same could be said about hunting and fishing without a license in that it puts legal enforceability upon poachers who could affect the enjoyment of these activities by those who would hunt legally. It might not seem obvious, however, as to why licensing would be required for using a radio frequency transmitter to send out video from the front of a quad or plane.

Like your RC transmitter, the video transmitter needs to have FCC certification showing that it does not cause interference in order for it to be used without a license. If the transmitter is not certified, then it is the responsibility of the operator to use the device so as to not cause harmful interference. Having a license to operate what is essentially ham radio equipment is the way that the FCC can determine that the operator "understands the rules of the road" and that they know and understand how to safely share the airwaves.

With transmission power of about 1 watt and a range greater than several miles, some of the video transmitters being sold for FPV have the potential of being able to overpower other transmissions and may prevent the enjoyment of the use of specific radio frequencies by others. This is something that would be less likely to occur with a licensed operator

Most of the equipment available for use by Ham radio operators and in particular FPV pilots can transmit not just across the flying field to a ground station or a person's FPV goggles, but it is possible to transmit across town, across the country, and even around the world as well as into

space. In order to make sure that everyone is operating harmoniously with each other, all users need to pass the exam that shows that they understand operating procedures, rules, and frequencies. This is not limited to just the United States, every country in the world requires their amateur radio operators to be licensed to show they know their country's rules.

To get a license you may want to start by going to the www.arrl.org (American Radio Relay League). You may also want to head over to Radio City in Mounds View www.radioinc.com where you can get test study guides and ham radio supplies. You can find apps online for apple and android that allow you to take practice tests. These study books and apps use the current questions taken directly from the testing material pool making studying easy and accurate. The license needed for flying FPV is called a Technicians class license and the test consists of 35 multiple choice questions. The cost for the test and application for the license is about \$15 and is good for 10 years

As a side note: It is not true, however that an operating license for a private or commercial pilot covers the licensing requirements for ham radio. Ham Radio licensing is covered under FCC part 97 and addresses specific frequency use and procedures for use with amateur radio.

So do you need a license to fly FPV. Well no, not to start. There are very good beginner low powered setups that are FCC certified and do not need licensing in order to use and be legal. Because these systems are expandable they will grow with you, and should you need to get a license you now know that it is easy enough to do. Should you want to live life on the wild side, you can remain an "Outlaw FPV Pilot", and not get a license. You rebel, you!

Brett Ohnstad



LIGHTNING SAFETY

Each year, roughly 400 children and adults in the United States are struck by lightning while working outside, at sports events, on the beach, mountain climbing, mowing the lawn, or during other outdoor activities. About 67 people are killed and several hundred more are left to cope with permanent disabilities. Many of these tragedies can be avoided. Finishing the game, getting a tan, or completing a work shift isn't worth death or crippling injury.

The threat of lightning

All thunderstorms produce lightning and are dangerous. Lightning kills more people each year than tornadoes.

Lightning often strikes as far as 10 miles away from any rainfall. Many deaths from lightning occur ahead of the storm because people try and wait to the last minute before seeking shelter.

You are in danger from lightning if you can hear thunder. If you can hear thunder, lightning is close enough that it could strike your location at any moment.

Lightning injuries can lead to permanent disabilities or death. On average, 10% of strike victims die; 70% of survivors suffer serious long-term effects.

Look for dark cloud bases and increasing wind. Every flash of lightning is dangerous, even the first. Head to safety before that first flash. If you hear thunder, head to safety!

Lightning can travel sideways for up to 10 miles. Even when the sky looks blue and clear, be cautious. If you hear thunder, take cover. At least 10% of lightning occurs without visible clouds overhead in the sky.

The single most dangerous place

Outdoors is the most dangerous place to be during a lightning storm. When lightning is seen or thunder is heard, or when dark clouds are observed, quickly move indoors or into a hard-topped vehicle and remain there until well after the lightning storm ends. Listen to forecasts and

warnings through NOAA Weather Radio or your local TV and radio stations. If lightning is forecast, plan an alternate activity or know where you can take cover quickly. The U.S. lightning season is summer but lightning can strike year round! The Fourth of July is historically one of the most deadly times of the year for lightning. In summer, more people are outside, on the beach, golf course, mountains or ball fields. Outdoor jobs such as construction and agriculture, and outdoor chores such as lawn mowing or house painting are at their peak, putting those involved in danger.

Safety rules

1. Postpone activities promptly. Don't wait for rain. Many people take shelter from the rain, but most people struck by lightning are not in the rain! Go quickly inside a completely enclosed building, not a carport, open garage or covered patio. If no enclosed building is convenient, get inside a hard-topped, all-metal vehicle. A cave is a good option outside but move as far as possible from the cave entrance.
2. Be the lowest point. Lightning hits the tallest object. In the mountains if you are above tree line, you ARE the highest object around. Quickly get below tree line and get into a grove of small trees. Don't be the second tallest object during a lightning storm! Crouch down if you are in an exposed area.
3. Keep an eye on the sky. Look for darkening skies, flashes of lightning, or increasing wind, which may be signs of an approaching thunderstorm.
4. Listen for the sound of thunder. If you can hear thunder, go to a safe shelter immediately.
5. If you see or hear a thunderstorm coming or your hair stands on end, immediately suspend your game or practice and instruct everyone to go inside a sturdy building or car. Sturdy buildings are the safest place to be. Avoid sheds, picnic shelters, baseball dugouts, and bleachers. If no sturdy building is nearby, a hard-top vehicle with windows closed will offer some protection. The steel frame of the vehicle provides some protection if you are not touching metal.

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6. Listen to NOAA Weather Radio. Coaches and other leaders should listen for a tone-alert feature during practice sessions and games.
7. If you can't get to a shelter, stay away from trees. If there is no shelter, crouch in the open, keeping twice as far away from a tree as it is tall.
8. Avoid leaning against vehicles. Get off bicycles and motorcycles.
9. Get out of the water. It's a great conductor of electricity. Stay off the beach and out of small boats or canoes. If caught in a boat, crouch down in the center of the boat away from metal hardware. Swimming, wading, snorkeling, and scuba diving are NOT safe. Lightning can strike the water and travel some distance beneath and away from its point of contact. Don't stand in puddles of water, even if wearing rubber boots.
10. Avoid metal! Drop metal backpacks, stay away from clotheslines, fences, exposed sheds, and electrically conductive elevated objects. Don't hold on to metal items such as golf clubs, fishing rods, tennis rackets, or tools. Large metal objects can conduct lightning. Small metal objects can cause burns.

Three Deadly Sins of RC Flying

by Jeff Procise

In the three years that I've belonged to the Knox County Radio Control club, Knoxville, Tennessee, I've witnessed my share of crashes and even thrilled my buddies with a few of my own. One thing that amazes me about this hobby is how often we crash. On any given weekend, one or two members will probably lose an airplane. What's even more amazing is that the vast majority of these crashes are entirely preventable.

Most crashes are caused by simple errors that we make before the airplane leaves the ground. Eliminate these errors and you'll have a far better chance of bringing the model home in one piece. Here are the three most common mistakes that lead to crashes and simple steps for avoiding them.

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

Wrong Model Number

Programmable radios make the sport more fun and arguably safer, too. One of the primary benefits of a programmable radio is that it can store settings for several models. With the click of a button, you can call up the settings for your favorite model, complete with trim settings, end-point adjustments, servo directions, dual rates, exponential, and more.

But programmable radios have a dark side. If you fail to select the right model number before takeoff, you may find yourself flying with reversed ailerons, a reversed elevator, improper trims or throws, or other ailments. Rare is the airplane that lands safely when the radio is set to the wrong model number.

The solution is twofold. One, remember to check the model number the moment you switch on your transmitter and make sure it matches the airplane you're about to fly. Two, always check the movement of the control surfaces before flying. Even if you forget to check the model number, you'll almost always catch the error if you check the control surfaces before every flight.

Having a radio set to the wrong model number is the most common cause of reversed servos, but it's not the only cause. Occasionally we simply forget to program in the servo directions before flying a new airplane. Again - make it a habit to check the control surfaces before every flight and you'll head disasters off before they happen. Before flying a new airplane for the first time, get a second pair of eyes to go over it with you. If the ailerons are reversed and you overlooked it once, you'll probably miss it again.

Improperly Located Center of Gravity

There's an old saying in this hobby that says "A nose-heavy airplane flies poorly; a tail-heavy airplane flies once." Most beginners fail to appreciate how big a role balance plays in the performance of an airplane. Balance is important in full-scale airplanes, but it's even more important in RC aircraft, where an inch or so can make the difference between a model that flies well and one that's unmanageable in the air.

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Most construction manuals specify where the model's center of gravity (CG) should be located, and a model shouldn't be considered complete until you've ensured that the CG is at or near the recommended location. If necessary, you can add a few ounces of lead to the nose or tail to achieve the recommended CG. Often adding lead isn't necessary; you can achieve the desired CG by moving the receiver battery backward or forward.

Be certain to check the airplane's CG before flying it for the first time. I usually mark the location of the manufacturer's recommended CG with short pieces of trim tape. That way I can check the CG even if I don't remember precisely where it's supposed to be. Assuming your aircraft's fuel tank is on or in front of the CG, be sure to check the CG with the tank empty. Finally, if your airplane has retracts that fold backward (like the F4U Corsair) check the CG with the wheels up.

Deploying the gear prior to landing will move the CG forward, but it's better to be nose-heavy during landing than tail-heavy during flight.

Inadequately Charged Batteries

If you crave excitement, try flying your favorite airplane without charging the receiver battery. To double the fun, don't charge the transmitter, either. Then you can take bets on which will fail first. Joking aside, charge those batteries before flying, and check them at the field if you're not sure whether they're charged.

Most transmitters have built-in voltage meters; I don't fly if the voltage is less than 10 volts - just to be safe. You can check receiver batteries with an inexpensive voltmeter (which should be part of every flight box), or you can install an onboard voltage indicator like the Hobbico VoltWatch. Remember - low batteries lead to dead airplanes. This is one case where an ounce of prevention is worth a pound of cure.

YOU'RE ADDICTED TO RC, WHEN...

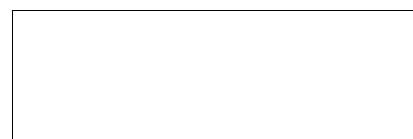
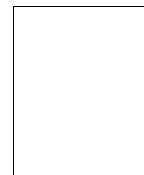
*From the Sacramento Valley Soaring Society,
Novato, California*

1. You read nothing but transmitter and model manuals in the bathroom.
2. You have converted a mobile home to have room for all your airplanes with just space enough to sleep.
3. You have something R/C within a radius of 5 feet from you at all times.
4. You've heard, "Hey that looks just like the airplane I tossed in the bin after crashing last week," more than once at your flight field.
5. A full-scale airplane passes overhead and you move your thumbs to match its movements.
6. When the power steering goes, you tell the people at the garage to change the servo.
7. If you worked feverishly in all your free time, it would take three years to clear up your backlog of kits.
8. You host a fun-fly when it's so cold that one of the events is starting your engine.
9. You accept a crash as an opportunity to start a great new kit.
10. Every time you pass a garage sale, you look for wings.
11. If you spend more money at the local hobby shop in one hour than you make in a month.
12. You keep your old van just to transport airplanes in.
13. When you go to Home Depot and the PVC pipe and fittings section gives you ideas for new wing racks instead of plumbing projects.
14. The smooth tarmac bike trail at your local park has funny airport markings sprayed on it.
15. Your car has a ski box on its roof, yet you never go skiing.
16. You have a "special room" for your airplanes.
17. You have a gallon of adhesive in your shed.
18. You have at three different heating irons.
19. Your neck shows a white strip that is the same width as your transmitter strap.



SERVO CHATTER

902 - 88TH LANE NW
COON RAPIDS, MN 55433



ACRC BOARD MEMBERS

PRESIDENT
Virgil Okeson

president@anoka-rc.com

TREASURER
Marc Tellevik

treasurer@anoka-rc.com

VICE PRESIDENT
Phil Vaughn

vicepresident@anoka-rc.com

INSTRUCTION COORDINATOR
Tom Janos

instruction@anoka-rc.com

MEMBERSHIP SECRETARY
Stan Zdon

membership@anoka-rc.com

FIELD SAFETY OFFICER
Brett Ohnstad

fieldsafety@anoka-rc.com

RECORDING SECRETARY
Andrew Thunstrom

secretary@anoka-rc.com

EVENT COORDINATOR
Bob Proulx

events@anoka-rc.com

ACRC Website - <http://www.anoka-rc.com>

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

SERVO CHATTER EDITOR

Stan Zdon

newsletter@anoka-rc.com

CONTRIBUTORS THIS MONTH

Tom Janos

Virgil Okeson

Brett Ohnstad

Bob Proulx

Andy Thunstrom

Stan Zdon

ACRC SPONSORS

King Kong Hobbies

Abraham Technical

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*Deadline for the next newsletter is:
June 1, 2015*

CALENDAR OF UPCOMING EVENTS

Thursday – May 21

•ACRC Meeting-At Field

Saturday – May 23

•ACRC Fun Fly #2

Saturday – May 30

•ACRC Spring Fly-In

Thursday – June 18

•ACRC Meeting-At Field

Saturday – June 20

•ACRC Fun Fly #3

Saturday – June 27

•ACRC Warbird Fly-In

Saturday – July 11

•ACRC Fun Scale