

Radio Control Flyers Unlimited

Flight Plan

AMA Charter # 1442

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www.rcflyersunlimited.com

Current News

Please be reminded that all members flying at the field are to have a current membership card for 2009. If you see anyone flying with out both the current AMA card and a 2009 membership card on the frequency board, you have both the right and obligation to inform that person that they cannot fly until the proper documentation is in order. The only exception, is a visiting flyer sponsored by a current member consistent with our rules for visiting pilots.

The Jet Rally scheduled for March has been canceled, but we will still be having our annual swap meet March 28th. I sure hope that it will be nice day instead of the dismal weather we have had in the past.

The last meeting, the membership talked about the need for repaving the field. To help with this I have set up a separate account (savings) to put extra money in to help offset the cost of repaving the runway. You will note that I have put an initial amount of \$7,000 into this account. Based on the amount spent on improvements and operations of the club for each year, I will determine the amount to be put into the savings account.

A few club members have stated that some pilots are not obeying the no fly areas of the field. Based on our safety rules, flying to the south of the pilot's fence is not allowed for

any reason except a bona-fide emergencies. The line extends along the fence to infinity on each side of the pilot's fence. Excuses that will not be accepted are: I cannot land without going south of the fence line; My airplane is just a small electric or a glider (etc); I am a great pilot and know what I am doing; and others not listed, but you get the idea. If you are having problems with controlling your airplane with these boundaries then you should ask for help or not fly at the field.

Exceptions will be made for contests or events that require offset flying on the west side because of early morning interference with the sun, and this request is brought before the membership at any scheduled meeting, and it can be done safely.

The membership discussed the idea of having a sanctioned T-34 pylon race at the field during September 12, 2009. A couple of the race's major proponents from both our club and a guest from another club discussed what would be needed to run this type of event. Many of the club members expressed enthusiasm for sponsoring this type of event. One of the most important request is to have as many club member as possible volunteer their help to set up and run the races. If you are interested, contact one of the club officers or Jose Macias for more information.

Another idea was brought up, is to have some float flies held during the week. I will have more information and a list of dates that will be included in the web site, if this happens.

PILOTS CORNER

Battery Shorts, How They Occur

by Red Scholefield
From the Anoka County Radio Control Club,
Coon Rapids, Minnesota

A short develops in a NiCad when conductive particulates bridge the separator or the separator itself deteriorates to the point where it allows the negative and positive plates to touch. Rarely does the short occur all at once but rather building up a very small conductance path termed "soft shorts."

In a charged cell the energy in the cell will blow away any short as it tries to develop. You've heard about "zapping" cells. The cell actually zaps itself before the short can develop. Only in cases of severe overcharge at high rates when the cells heat up significantly, can the separator melt down to the point where the plates contact each other (hard short). In this case the energy in the cell then dumps and we have what is referred to as a hot steamer, the electrolyte boils, nylon in the separator melts down and is forced by the steam through the vent.

On some occasions the vent is clogged by the molten nylon separator and becomes inoperative causing the cell to rapidly disassemble. So under normal circumstances a cell maintained at some state of charge is much less likely to short than a cell that is completely discharged.

It should be noted however, that the self-discharge increases rapidly in cells where there is a short building (high resistance-soft short) because of separator deterioration and/or cadmium migration. One other shorting mechanism is a manufacturing defect where the positive or negative collector tab bridges the opposite plate. These usually fall out before the cells are shipped or assembled into batteries.

Servos

by Richard Lindberg
From the Rocky Mountain Flying Machine
Web site

What's a "servo"?

Servos are small, electro-mechanical devices that are mounted to your RC airplane. When connected with push rods, they move control surfaces such as elevators, rudders, and ailerons.

What's "in" a servo?

A typical servo consists of a motor, drive gears, output shaft and arm, a circuit board, and a potentiometer. The circuit board contains a signal amplifier and comparator circuits. These items are configured as in the following:

Position + Position
Reference Output

What differentiates one servo from another?

Primarily the motor, then the amplifier type. Inexpensive servos contain cored motors, which are incredibly common and cheap. The core, or armature, is comprised of metal plates (poles) sandwiched around a metal shaft that's supported by bearings at both ends, and each pole is wrapped with wire. The armature spins inside a hollow center, permanent magnet that lines the inside of a metal can (the enclosure). Power is introduced to the windings, generating an electromagnetic field, which is opposed by the permanent magnet field, thus causing the armature to rotate. More expensive servos contain coreless motors. These motors have the armature on the outside (imagine a hole saw with an arbor attached) that's very light, and rotates around the fixed permanent magnet. Because of the larger size (diameter) of the armature, a coreless motor has a higher torque rating, and the lack of poles allows the motor to center more accurately while maintaining or holding position with increased authority.

Okay, that's fine, But what about the amplifier? There are two basic kinds of amplifiers: analog and digital. Analog (conventional) amps interpret receiver commands and pulse power to the motor armature at 50 cycles per second. The space between pulses is known as the dead-band. If a signal is received from the receiver or the servo arm is deflected, the amp pulses power to either move the armature or resist the opposing force. The duration of the pulse speeds up the motor (longer pulse) or slows it down (shorter pulse). Digital amps interpret receiver commands and pulse power to the armature at 300 pulses per second. The increased pulse cycles command the servo motor to react and perform with more precision. This results in faster response to control command signals, lower dead-band numbers, increased holding power, and much better resolution. Also, these digital amps are microprocessor controlled, and some can be externally programmed. Center and end-point positions, speed, dead-band, rotation, failsafe, and more are programmable.

Wow! Digitals seem to be the way to go. What's the downside? In a word, cost. While there's no inherent reason why a digital amp couldn't be incorporated in a cored motor servo, the built-in limitations of such a servo would make the benefits very small. So, multi-pole (less than 3 poles) motors or coreless motors are used, and the cost is commensurately higher. The microprocessor cost is somewhat higher, too, but that's coming down as more servos come to the marketplace.



Cash Flow Report

Income		Expenses	
Club Dues (including initiation fees, field assessment fees, and Donations)	\$760.00	Port-o-potty service	\$140.00
Raffel Income (included in above)		Newsletter	\$238.80
		AMA charter	\$90.00
		Web Site	\$99.00
		Savings Transfer	\$7,000.00
		Club Raffel Expense	\$33.81
Totals	\$760.00		\$7,601.61

Last Month's Total	\$15,622.92
Income	\$760.00
Expenses	(\$7,601.61)
Balance	\$8,781.31

**The March Club meeting is scheduled for:
Wednesday, March 11, 2009 at 6:30 pm
at the Police Station at 10th and G sts.**