



Stetson Flyer

Stetson Flyers Model Airplane Club

February 2001

Event photos on the club web site

If anyone would like their event photos added to the club web page, please scan them, attach them to an email and forward them to johnmathewson@igs.net. Please identify the event, the builder/flyer and the model type.

Most of the event photos on the Stetson web site are actually hosted on John's web site, and are made to appear as if they are on the Stetson web site. This should make no difference to you, the user, but helps keep our space used on the web site down to a reasonable amount. The bottom line is that we have room for photos from older events AND we can keep back issues of the newsletter online.

T-Shirts—2nd Chance!

Any members who missed the run on the Stetson Flyer shirts or would like another, can contact me (Doug Tufts) as I have five requests for another run. The shirts are \$20 each, and sweatshirts are \$35.

There is a minimum of 20 shirts per run. You can reach me at 613-745-0041 or e-mail doug_tufts@hotmail.com

**Get well soon, Marc Shaw!
Field Work Party is coming and
we would hate for you to miss it...**

Next Meeting

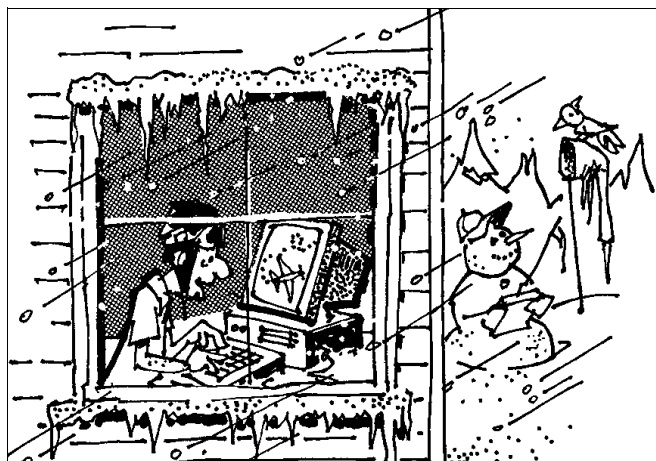
Tuesday February 27th
7:30 pm

Don't forget your "Bring'n'Brag"!

***Use the back door
to the museum!***

Coming Events...

February 27 th	Regular Meeting
March 27 th	Regular Meeting
April 24 th	Regular Meeting
May 29 th	Regular Meeting
June 3	25 th Anniversary FunFly



Winter Fun Fly Frozen/Winded out. Cool temperatures combined with high winds meant there was little fun in flying on February 17th.

Our website address: <http://www.stetsonflyers.com>

Club Officials and Contacts

President	Gerry Nadon	824-9100 gerald.nadon@sympatico.ca
Vice-President	Peter Barnes	824-5352
Secretary	Erich Zappe	830-7549
Treasurer	Christine Devlin	830-7533
Events	open	
Chief Flying Instructor	Bob Butterworth	487-2851
Field	open	
Webmaster	Roger Hiscocks	837-0186 hiscocks@idirect.com
Newsletter	John Jackson	445-5726 john.jackson@netmanage.com

Mailing Address:

The Stetson Flyers Model Airplane Club
P.O. Box 456, Orleans, ON, K1C 1S8

Web Page:

<http://www.stetsonflyers.com>

Dues:

\$55.00 per calendar year; \$30.00 for students under 18

Meetings

The Stetson Flyers meet at 7:30 on the last Tuesday of each month, except for December, June, July or August. The meetings are held at the National Aviation Museum in the Bush Theatre.

Receive this newsletter via email!

Instead of sending a printed newsletter by Canada Post, we can send you an email notice with the web site address where you can download the newsletter each month. The file is an Adobe Acrobat PDF file, which means that you need to use a FREE Acrobat Reader software to view or print the document. There is a link to the Adobe site to get the FREE software on our web site.

The benefits to you are faster delivery, colour pictures, less cost to the club, and environmentally friendly to boot!

To receive the newsletter by email, send **your** email address to john.jackson@netmanage.com.

Please visit our web site at

<http://www.stetsonflyers.com>

Our web site is hosted as a community service by
Magma Communications
(613) 228-3565

Would you like a member discount on your internet access? Contact club member Rick Ramalho at rick@magma.ca to receive information on discounts for Stetson Flyers members.

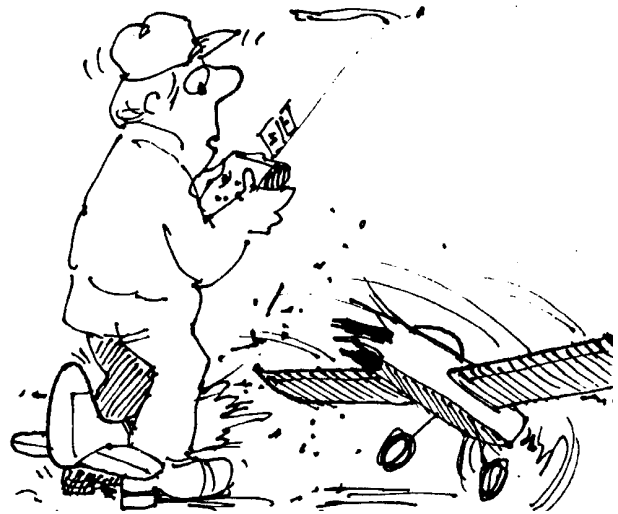
Like milk, every airplane has an expiration date... some sooner than others.

The farther you fly into the trees, the smaller your plane becomes.

The size of your plane is directly proportional to the size of your ego.

The size of your engine is directly proportional to the size of you wallet.

TIP: Ask your Doctor or Vet. for some old X-Ray film. Dip them in household bleach to remove the emulsion and you have a clear plastic that is good for cabin windows and windshields.



For Sale: If you have something you would like to sell, feel free to send me the details and I will add it to our next newsletter!

Minutes From Meeting-January 30, 2001

Aviation Museum

1.0 Gerry welcomed all that attended on a snowy evening, and wished all the best in the New Year.

1.1 Gerry wished on behalf of the club that Marc Shaw would have a speedy recovery from complications of his leg injury. A card was circulated for all to wish him their best.

1.2 Minutes from last month's meeting were accepted. The motion was put forth by Bert Fortier and seconded by Jim Brown.

1.3 The upcoming Winter Funfly coordinated by Rick Ramalho is slated for February 17. The drive-way into the field will be ploughed prior to the event. Other area clubs will be invited.

1.4 As this year is the Stetson's 25th Anniversary, Gerry proposed the June Funfly would celebrate this on June 3. This was passed with the motion put forward by Bert Fortier, seconded by Ed Whynott.

1.5 Upcoming meeting topics planned are Roger Fulks visiting to discuss digital servos and fibre optics for modeling, Richard Robichaud of Discount Hobbies sponsoring the March Meeting, and the April meeting will be our annual auction.

1.6 Due to the small turnout of the meeting and smaller revelations of flying mishaps it was decided to postpone awarding the Pink Pig until next meeting.

1.7 John Jackson apologized for difficulties with emailing of the newsletter. Changes for the next one should alleviate this problem. John was thanked for his work on producing the newsletter. John added that he needs articles for the newsletter.

1.8 Ed Whynott was congratulated for the first flight of the year on January 1. Ed was awarded a gift certificate for Discount Hobbies and a set of plans.

1.9 The business part meeting was adjourned, followed by Bring'n'Brag and a film to close the evening.

President's message

Well this is winter. Skis are mandatory for those avid winter pilots. I just cannot believe, that winter has been similar to our past summer, precipitation wise.

Considering all of this, I hope your year 2001 is a good one and happy 25th anniversary, yes already your club is 25 years old. A 25th anniversary fun fly will be held on June 3rd as decided at our last meeting.

Feb. 17th was our date for the winter fun fly. Bad weather took care of this event. It will be rescheduled for the beginning of March, how about ht e 3rd, snow date the 4th.

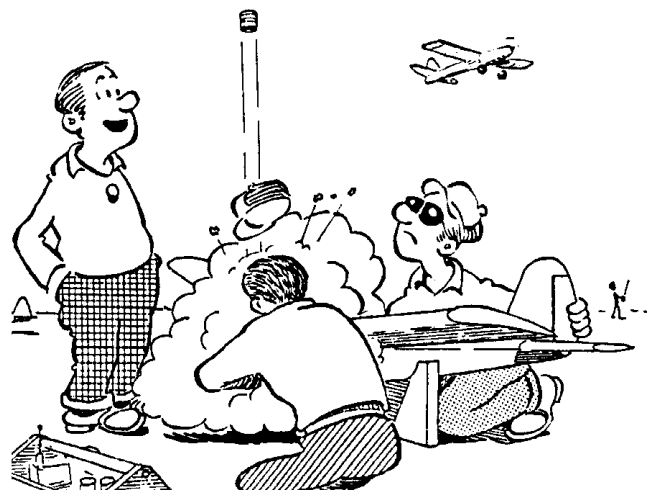
Our next meeting is Feb. 27th, Roger Foques from Cornwall will give us a demo on fiber optics for models and to explain digital "programmable" servos. Let's discuss events for this also.

See you then.

Marc get well soon!(Marc Shaw)

Happy Flying, Gerry Nadon

Don't forget: Dues are due as of January 1st



By golly, look at that - a 3-ringed piston !!!!!

R/C Definitions—From the Flying Penguins Web Site

<http://soldcentralfl.com/flyingpenguin/homepage.htm>

AEROMODELING : The art of turning precision-cut and glued balsa wood and foam into toothpicks and confetti.

AIRPLANE - Heavier than air machine that flies like it's heavier than air.

BALSA - An extremely light substitute for gold.

CRASH - Method of seeing inside a model airplane.

DINNER - A meal that is always cold by the time you get back from flying.

DUCTED-FAN: A high-maintenance salad shooter.

ELEVATOR - Device to prevent level flight.

ENGINE - Device that doesn't start when you want it to, and cuts your fingers.

FAIL SAFE - Option on PCM radio's that allows a pilot to choose whether to crash near him, or a long way away.

FLYING FIELD - Take off area. Landings occur elsewhere.

GIRLS - Something to be interested in before you take up flying.

GLIDE-TIME (1): The time between the Engine falling out and the Airplane hitting the ground.

GLIDE-TIME (2): Time between the Wings folding and the airplane hitting the ground.

HINGE - Device to prevent control surface movement and cause flutter.

INSTRUCTOR: Old pilot who loves flying and teaching others to fly...usually can not tell you how many planes he has crashed.

INVERTED FLIGHT - Method of landing without wear and tear on the wheels.

JOKER - Person who invites you to "taxi back" after a dead stick landing.

LANDING - Test of strength between your plane and the planet.

LB. - Abbreviation for "pound", used to describe how much overweight an airplane is.

MIXTURE SCREW - Device to meter too little fuel to the engine at critical moments.

MOTOR - Electric device that starts when you don't want it to, and cuts your fingers.

NOSE WHEEL - Device that prevents an airplane from landing without bouncing.

PLUG - (1)-Electrical device for making intermittent contact in your engine's ignition.

PLUG - (2)-Electrical device for making intermittent contact with your radio.

PROPELLER: Wood, plastic or composite device used to stabilize inferior landings.

RADIO - Device that enables an airplane to crash in different places than it otherwise would.

RECEIVER - Part of the radio that picks up interference.

RUNWAY: Flat object used by student pilots to walk on to retrieve aircraft which "almost landed ok".

SKID - Another word for spinner.

SPINNER - Critical part of landing gear.

TAIL ASSEMBLY: Fragile device which has affinity for door frames during non-flight transport.

TANK - Temporary storage place for chemicals before they saturate the airplane.

TRAINER: Inexpensive throw-a-way device used by beginning pilots to scare instructors and spectators with.

TRANSMITTER or RECEIVER FAILURE: Something which happens only on first flight of a plane (usually the last flight, too).

Please Note!

MAAC Expires January 1st. You must have valid MAAC in order to fly.

On April 1st we will be mailing newsletters based on the 2001 membership list. If your dues have not been received by March 10th you will not be included in the April Newsletter mail out.

Ni-Cd Life - or why is down so quick?

C. Scholefield

(<http://gnv.fdt.net/~redscho/>)

While volumes have been written on this subject I would like to relate it to the specific application of R/C, separating fact from fiction and enabling the R/C fraternity to focus on more serious issues of the day, like convincing your wife it's too foggy to clean the pool so you're going flying while the field is not so crowded.

The primary failure mode of Ni-Cd cells (outside of user abuse) is separator deterioration. This will occur in all Ni-Cd batteries as they age. The separator breaks down allowing the plates (electrodes) to touch and short out the battery. Millions of testing hours on thousands of cells has established the mean time to failure of a single cell to be 8 years for cells/batteries maintained at 25C (77F). Higher temperatures will significantly reduce these numbers. Mean time to failure means the time that it takes for half the cells in a given population to fail. As the cells are built into packs the mean time to failure decreases. For a 4 cell receiver pack the mean time to failure comes out to be 5.7 years while an 8 cell transmitter pack falls to 4.8 years. Now it is completely possible that the average R/C modeler doesn't want to tempt statistics to the point where half of his battery packs should have failed. A more reasonable number would be the expected time for 0.1% of his batteries to fail. The number comes out to 58 weeks for a receiver pack and 49 weeks for a transmitter pack. For the more adventurous willing to live with 1 failure in a hundred, he can stretch his receiver pack to 103 weeks and his transmitter to 87 weeks. Does this mean that he should rush out and buy new packs at these intervals? Not really. Proper battery monitoring, while it may not significantly increase life, will give you ample warning that your pack should be considered for replacement. Remember, normal failure is the deterioration of the separator system. As the separator deteriorates (oxidizes) self discharge rate of the battery increases significantly. A pack that loses 15% or more capacity over a week of open circuit stand is at risk. A pack that loses 10% overnight should be used for ballast only. Check your pack with a cyclor or some technique that gives you the amount of capacity available immediately after charge and then (after fully charging again) after a rest period of 5 to 7 days. (NO, this isn't MEMORY!). Doing this at least quarterly (if you are fortunate enough to live where you have a flying season longer than 3 months) will greatly increase your odds of crashing by some other defect than battery failure.

The number of cycles you put on your battery is secondary in the life equation, again, assuming you don't abuse them by high rate over charge, vibration or exposure to high temperature. I know of very few people that totally exhaust their battery packs while flying (at least not as a matter of course) so the packs seldom see a full discharge

and the risk of cell reversal is nil. Tests have demonstrated that hundreds of cycles of reversal where 140% of the rated capacity is taken out in a driven discharge resulted in a capacity loss that was barely measurable. Many multi speed power tools use the technique of tapping the battery for speed control with no adverse effects on the battery. A single cell can be discharged through a load to zero volts without damage. In fact this is a good way to determine if a cell has suffered from separator deterioration. A cell discharged to zero volts will recover to over 1 volt open circuit if left to stand. Those that will not are approaching the steep part of the failure curve and could be a crash waiting to happen. Bottom line: the number of full charge/discharge cycles that can be accumulated by today's Ni-Cd technology is in the 400 to 500 cycle range. Of course partial discharges seen in the R/C application can extend the use cycles to significantly more than this. It doesn't take a battery expert to figure out the amount of flying time you can accumulate on 500 full discharges. We are talking in excess of 1000 hours. If you put in a full two hours a week in the air every week year round, you would be well into the next century before you reached 500 cycles. Separator failure or old age will probably do you in before you run up 500 cycles. Meticulously recording the number of discharge cycles to establish a replacement schedule can be a study in futility and should be left to the electric R/C indoor microfilm pylon set. Don't worry about reversal. If you have left your switch on overnight or for even a couple of days, just give the pack a good long slow charge using your regular charger supplied with the system for 48 hours and you will probably be OK. It would be prudent to run a capacity check cycle after such an incident just to make sure.

Long term overcharge, leaving your packs plugged in to the charger supplied with the system, while considered an acceptable practice for many consumer applications can contribute to a reduction in battery life. First, as a battery goes into overcharge, oxygen is generated on the positive electrode and then recombined on the negative electrode. This oxygen rich atmosphere only accelerates the oxidation of the separator. As the oxygen is recombined on the negative it generates heat. We all know how to make a chemical reaction speed up, turn up the heat.

One further phenomena recently brought to light after years of testing is that of cadmium migration. This is a transfer of cadmium metal through the porous separator structure to form a conductive bridge between the electrodes. In simple terms a high resistance short which causes the cell to self discharge, shunts charging current to where the cell takes longer to charge and ultimately, if left of continue, become a hard short which, if happens during a period when batteries are part of, or contributing to the direction of an airborne operation, result in a rapid depletion of model resources. The same testing reference also

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confirms that the same amount of charge put into the battery in a short period significantly reduces the cadmium migration. Therefore using a simple appliance timer to switch your charger on for about an hour a day minimizes the overcharge and yet maintains the packs at peak charge should an airborne operation be called for at any time. For the experimenter, a charger designed to charge the battery at C rate (1 hour rate) run at a 10 to one duty cycle (on 0.1 second, off 1 second) is more effective than charging continuously at the C/10 (10 hour rate common to most system chargers) and will enhance battery life. For a maintenance charge a 25 to 1 duty cycle is recommended. This pulse charge is better than even a very low trickle charge for maintaining the battery as cadmium migration is driven by passing current through the separator (charging) over a period of time. The rate of cadmium migration does not seem to increase proportionally to the current density, leaving us with the conclusion that getting the job done (replacing charge loss through inherent self discharge) quickly by a pulse of charge current is better than dragging it out with a long sustained overcharge. While this gives battery a break it will probably give rise to a new generation of exotic (expensive) chargers focusing on the dreaded cadmium migration phenomena (hereafter referred to as CMP, people only take three letter problems seriously) and leave the dreaded memory effect (DME) alone for awhile. Just remember that you can do the same thing with a \$5.00 timer and spend the savings on a subscription to your favorite R/C magazine, RCM.

Storing the battery is no big deal. Living in Florida where there are no cool (damp, dark, moldy) basement work shops, I store my batteries in the refrigerator on off flying season (July 3rd 9:30 AM to July 4th 7:00 AM). Those living in Northern climates don't really have anything to worry about (there must be some advantage) but should remember about the trunks of cars and what happens to batteries you leave them in there when you are visiting us for a winter flying vacation.

Looking at the battery voltage after several months of storage is an excellent way to pick out a weak cell (use straight pins to probe each cell). If a cell voltage after several months drops noticeably below any of the others, beware. You have a potential problem and the pack should be relegated to some benign surface application. While we are on the subject of measuring battery voltage, consider getting one of the little digital voltmeters available through electronic hobby outlets. They give you a precise reading and are well worth the modest investment. Second piece of advice. don't listen to the R/C car guys when it comes to batteries, they have never experienced the thrill of real rip roaring, crank shaft bending, dirt in the transmitter, kind of crash and as a consequence take liberties with batteries that would make Leclanche and Volta turn over in their graves to say nothing about causing me just a little heart burn when they get me cornered in "technical" conversations.

CLS 1/24/91 (published in RCM 6/91) Rev 10/31/96

Regarding latex gloves for working with epoxy

By Don Stackhouse

I had a discussion several years ago with one of the technical/safety experts at Hexcel, the makers of epoxy resins. He made a VERY STRONG comment that we should NOT use LATEX gloves with epoxy. Latex is good for protection from biological hazards, but some of the hazardous chemicals in epoxy diffuse right through latex. Barrier creams by themselves also do not provide adequate protection.

He recommended vinyl gloves. These have sufficient resistance to the chemicals involved. Barrier creams on your hands and forearms as a SUPPLEMENT to the vinyl gloves are also a good idea. Ventilation is also important. Even though epoxy doesn't smell as bad as other resin systems, some of its relatively odorless components are hazardous in vapor form.

EVERYONE will eventually develop an allergy to epoxy, given enough exposure. Some folks will get it in a few exposures, others may take years. The amount of exposure you get with each episode has a lot to do with it, the effects are cumulative. Vinyl gloves are available from the same medical suppliers as the those nearly worthless (for this application) latex gloves, for close to the same price. Buy a box of VINYL gloves, and use them EVERY time you do ANY work with epoxy!

Don Stackhouse
DJ Aerotech
djarotec@bright.net

Plane Cleaner

Here's a quick and easy cleaning solution for getting that post-flight goop off of your prized helicopter or power plane:

- 4 oz ammonia
- 8 oz rubbing alcohol
- 1 oz dish soap
- 5 cups water

Shake it up and you're done!

Author unknown—information taken from Charles River Radio Controllers web site at:
<http://www.charlesriverrc.org>