March 2006 Edition

Wine Country Flier

Next meeting: 21 March, 7:30 P.M.
Veterans Memorial Bldg. (Northwest Room) Across from Fairgrounds
Get there early for your free door prize raffle ticket!
www.wcflyers.com
Promoting Model Aviation in Sonoma County

2006 Club Officers:

President:	Guy Nicholas	(707) 544-2141	Guy@Gui-Soft.com
Vice President:	Brody Carlson	(707) 545-8272	brody@connectionsit.com
Secretary:	Larry Miller	(707) 577-0496	exefire@aol.com
Treasurer:	Brian Blackburn	(707) 527-9645	bblackburn@santarosa.edu
Member @ Large	John Reade	(707) 545-9831	johnereade@earthlink.net

2006 Board Members:

Steve Cole	(707) 566-8838	stevecole@awesomehobbies.com
Mike Cracchiolo	(707) 291-2739	vdubbub@hotmail.com
Phil Leech	(707) 538-8557	leechstudios@sonic.net
Sid Maxwell	(707) 584-4428	airmanx@inreach.com
Jerry Williams	(707) 762-5368	jerrywilliams99@comcast.net

Newsletter and Website

Newsletter Team:	Guy Nicholas, Phil Leech, Larry Miller, Sid Maxwell, Red Jensen
Website:	Patrick O'Halloran

Presidents Report

Guy Nicholas

Welcome to March…and what a big month it is…get it? Big month, giant C-17 model…come on, its winter, my brain is cold and I can't come up with much better material. The front page model can be seen at the following URL http://rammpage.com/hugercaircraft/HugeRCaircraft.htm It's kind of cool if you've got tens of thousands of dollars to throw around.
The weather has really been biting the big one lately, and I actually haven't flown in a month and a half! I think that is the longest I have gone without in the past 5 years ☹ I hope you all are doing better than I in that regard.
What would a newsletter be without some sort of safety tip? When I haven't flown for a while, or on the first flights of a recently built or repaired aircraft I have a few guidelines I like to follow. First, I never fly in my normal spots as they tend to be more populated than the dump is. I like to have the large empty space just in case I forgot a nut or missed some critical part that should have been replaced. I remember once watching someone who had just spent $350 repairing his heli, have it blow itself to bits because he failed to notice a $0.10 ball link was broken. I also like to take off, hover around in a pretty easy fashion keeping it upright and moving slowly just in case. After my first gentle flight I make sure I remove the canopy and give everything a once over just to make sure nothing is coming loose. My next flight I will take it a bit higher and then start doing some gentle 3D and again I land and give it an inspection. After that I feel OK to really dig in. I do all this because I have seen things go wrong, with my own machine as well as others. I try to pass along these bits of information to try to keep others from experiencing the pain I have felt. I urge all of you to do the same. Sharing, it's what its all about.
At the last bored…or is that board…oh well, at the last gathering of club officials we went over the agenda for the opening day event. I have to say, Sid has a great series of events lined up and I think everyone that attends will be very glad they did. Stay tuned for further information.

WCF Board Meeting

3/7/06
By Larry Miller

-The meeting was called order at 7:00 pm by Board Chairman and President Guy Nicholas.
-Members present were Brody Carlson, Sid Maxwell, Phil Leech, Steve Cole, Jerry Williams, John Reade, Larry Miller, and Brian Blackburn.
-A check was made out to the AMA for $250.00 for our new 2006 Club Charter and to renew our insurance policies for the year.
-The date for our Open House event was set for Saturday, May 20th. Sid passed out a tentative schedule of demonstrations for the day and it was reviewed and commented on by the members present.
-A work party was scheduled for the Saturday (May 13th) before the event to make sure the field is looking good for our visitors.
-Guy will pick up a new PA system similar to the last one before that weekend.
-Sid brought in some new fencing material for the spectator barricade to show us before proceeding with the purchase of any more. He will erect several sections at the field for us to review before buying any more.
-Sid also reminded us that some of the table tops are due for replacement which he will take care of before our next event.
-Steve said that he would like to hold his instructor review meeting at the field on Sunday, April 9th. All instructors are encouraged to attend. He just wants to make sure that everyone is following the syllabus and the training is consistent from one instructor to the next.
-There being no more business, the meeting was adjourned at 8:15 pm.

Respectfully submitted,
Larry Miller, Sec.

WCF General Meeting

2/21/06
By Larry Miller

-The meeting was called to order by President Guy Nicholas at 7:30 pm.
-We had 34 members present and one guest.
-The free door prize (a gallon of fuel) drawing was held with Larry Miller holding the winning ticket.
-Sid passed around a list of the frequencies used by club members and asked everyone to make any changes necessary.
-Sid, being the chairman of the field acquisition committee, gave a report on his progress with finding another flying site.
-Steve Cole announced that he would like to meet with all flight instructors to insure that everyone is working off the same page.
-Treasurer Brian Blackburn gave his monthly report and stated that we have 105 members signed up so far for the new year.
-The secretary's report was voted on and approved as printed in the last newsletter.
-Ralph Grella, chairman of the audit committee, gave a verbal report on his and John Stoufer's audit of the clubs financial records. According to them, everything was in fine order. A written report will be presented next month.
-Guy told us that the web page is slowly being updated. The opening page has been completed and Patrick is working on getting the rest of it done soon.
-Sid filled everyone in on the float fly schedule for the year. It will be included in the calendar of events for the upcoming year.
-Ralph is looking into getting a billboard advertising our opening day event set up.
-John Reade, chairman of the field maintenance committee, announced that there are now separate recycle and garbage cans set up at the field and we need to put all our recyclable materials in the proper container. John will be watching.
-Sid's chain gang has been busy cutting trees, bushes, and grass at the field when weather permits and John has been spraying Round Up.
-Sid announced the forming of a group of aerobatic pilots to compete in the Nor-Cal Cup event to be held on the 6th of June. Anyone interested in joining up, contact Sid.
-Mike Cracchiolo briefed us on the prizes he had picked out for this month's raffle.
-There being no Show and Tell this month, we dove right into the raffle. The first ticket drawn belonged to, who else, Mike himself. Of course, he chose the .60 size Edge 540 ARF. Next up was lucky Phil Leech who picked out the JR Flight Pack followed by James Coleman who got a Fuel Topper for his fuel can. Oliver Burns won a Field Charger and Tom Haddorff took home a Glow Starter. Kurt Hiner got an electric foam 3D Ulntimate aircraft and John Reade won a Flight Box. Julio Alvarez also got a Glow Starter, Sid won a CG Machine, plus numerous other winners took home something.
-There being no more business, the meeting was adjourned at 8:30 pm.

Respectfully submitted,
Larry Miller, Sec.

Float Fly at SAL Lake

By Sid Maxwell

It's only one month away. On April 29 we are going to Sal Lake for the first float fly of the year. The water level is high, right up to the top. That's one thing about lots of rain. I bet you are ready to go, I know I am. Flying off water is really fun, everybody loves it. This will be the first of five times to the Lake so we can get our fill this year. Get you float plane ready, it will be Float Fly Madness in one month.

Model Air Show

By Sid Maxwell
Coordinator & CD

On May 20 the Wine Country Flyers will put on our biggest event of the year the, "Model Air Show". The public is invited along with all

your family and friends, to the best model airplane show ever. It will be an extravaganza!
There are 14 events scheduled with Skydivers dropping in and full scale airplanes flying by. We will have a Bar-B-Q hamburger lunch served, Hit & Miss engines, RC Wear on sale, Raffle for airplane prizes and an Info Booth full of RC information. Sound like a lot of fun??? Yes it does!
All members should bring all the planes they can to put on display. We want to show the public as many models as possible. Anyone interested in helping contact Sid Maxwell 584-4428.

Pylon Races

By Sid Maxwell

The Pylon Races on March 5 were rained out but we will have our second Pylon Race on April 2 and every first Sunday of the month until November. Come out and join the fun, whether you race or not.
For more info contact Red Jensen.

Windy Weather Flying

by Clay Ramskill
From the Middle Point RC Flyers, Murfreesboro TN

All too often, on an otherwise nice but windy day, folks just don't fly. Obviously, for a beginner, that's common sense—but for someone who has some experience, the wind can be a challenge that adds some spice to flying.

While it's easy to see that experience level has a lot to do with how much wind is too much, it may not be quite as apparent that the type of model you're flying also can have a great effect on your ability to handle winds.

Let's go through some airplane design features to see which ones give us the best flying characteristics to handle winds and the resulting turbulence.

Size: In general, the larger the airplane, the better it will handle winds of all kinds; large models don't "flop around" as much!

Dihedral: The more dihedral in a model's wings, the more they are going to be affected by crosswind gusts; it is hard to keep the wings level, therefore lineup to the runway is difficult in a crosswind situation.

Wing Loading: The higher the wing loading, the less an airplane will be affected when hit with a gust.

Aspect Ratio: Lower aspect ratio (stubby) wings will be less bothered by gusts; there is less leverage for side forces to upset the airplane, and lower aspect ratio wings have a greater tolerance to changes in angle of attack caused by gusts.

Power: Having the power to overcome the force of wind is necessary. The same thing goes when you get into a sticky situation.

Lateral Control: Ailerons are beneficial in a crosswind landing and takeoff phases. The ability to dip a wing into a crosswind without changing heading is essential, as is the ability to rudder the airplane parallel to the runway heading while keeping wings level with aileron while landing.

Landing Gear: Models with tricycle landing gear are easier to land and take off in a crosswind than tail draggers; in addition, the wider the spread on the main gear, the better.

Maneuverability: This one is a bit harder to quantify. You want a model with stability, yet you do need good maneuverability to cope with gusts. Therefore, you want a model that is stable, yet responsive.

Wing Mounting: Generally, a low-wing airplane will handle crosswinds better. This is because the center of gravity of the airplane is nearer, in a vertical sense, to the aerodynamic center of the wing. Therefore, a side gust does not roll the model as easily.

Moreover, by mounting the main landing gear on that low-wing model, they can be spread wider.

It's unfortunate that almost every item above is in direct opposition to the characteristics found in many popular trainers. The main exception is the requirement for tricycle landing gear. But even with trainers, there are differences. Compare a Seniorita with the Kadet Mk2. While the Seniorita may be a bit slower and a bit easier to fly, the Kadet, with its ailerons, higher wing loading, lower aspect ratio, and lower dihedral, is a far better airplane when flying in windy conditions. Going a step further with the same kit manufacturer, the Cougar (.40)/Cobra (.60 size) kits embody all the right characteristics for windy flying.

In closing, I offer Confucius' only known saying about RC flying: "To learn to fly in wind, one must fly in wind!"

Basics of Electric Flight

by Pat Tritle
From the Albuquerque Radio Control Club, Albuquerque NM

I really enjoy getting together with clubs and speaking to the group about the basics of electric power. However, because there is so much information that needs to be passed along, it would be difficult, if not impossible, for those attending to remember much of the pertinent information. For that reason, it's better to write up the basic guidelines so that those who are interested in getting into electrics would have the information available for reference at a later date.

Here goes. I'll keep the numbers as simple as possible to avoid unnecessary confusion.

OK, here's how it all shakes out. The basic power required to fly an electric model is as follows:

Direct Drive Systems 60 watts/pound
Gear Drive Systems 50 watts/pound
Mild aerobatic performance 70-80 watts/pound
For all-out aerobatics 100-110 watts/pound
3-D performance 150 watts/pound or more

The above numbers are based on models with wing loadings from 8-16 oz/square foot. As with gas models, higher wing loadings require more power since they must fly faster to support the added weight. By the same token, a lightly-loaded model with a wing loading in the 3-5 oz/square foot range will fly very well at 25 -30 watts/pound.

What's a 'watt'; and where can I get some?
Wattage is the term used in electric flight to relate the level of power that an electric drive system will produce. To relate it to terms we're familiar with, 746 watts = 1 horsepower. To calculate the wattage delivered by a given system looks like this: amps x volts = watts. So where do these numbers come from and how do I know how many volts and amps are needed to fly a given model?

Okay, let's say you want a mildly aerobatic sport model with a 14 oz/square foot wing loading that will weigh in at 2 pounds. We already know that the power requirement for a model like this is about 70 watts/pound, so we're going to need to generate about 140 watts. Let's assume that you are going to use an eight-cell Ni-Cd battery. At 1.2 volts per cell, eight cells will deliver 9.6 volts. To arrive at the necessary current draw to achieve 140 watts, simply divide 140 (watts) by 9.6 (volts) and you arrive at 14.58 amps.

Now, let's assume that you have a three-cell Li-Poly battery for the model, which is rated at 11.1 volts. The formula is the same; 140 (watts) divided by 11.1 (volts) = 12.6 amps. As you can see, as the available voltage increases, the lower the current draw needs to be to deliver the necessary wattage.

Now here's something to consider when selecting your system: the higher the current

draw, the shorter the flight duration on any given battery. Therefore, the ideal setup would be to use a higher-voltage battery with lower current draw for maximum duration. On the downside, when using Ni-Cd and NiMH batteries, as the cell count goes up, the weight will increase significantly as well. It works that way with Lithium too, but Lithium batteries are dramatically lighter then the old "round" cells.

Okay, let's say we're going to use an 11.1 volt Li-Poly battery. All we need to do now is select a motor that will swing enough propeller at 12.6 amps to fly the model at a top speed of around 40-45 mph and we're in business. Now that you know the parameters, visit your local hobby shop and select a motor that fits that description.

Gear Drive vs. Direct Drive: Why is one better then the other?
Well, it all depends on the kind of performance you're looking for. If you're looking to go fast, go with direct drive. Going fast requires a high-pitch propeller turning high rpm. The formula to calculate propeller pitch speed is an easy one; it looks like this: rpm x pitch (in inches)/1056 = mph.
Let's say that you are turning a 7-6 propeller at 14,000 rpm. 14,000 x 6 = 84,000/1056 = 79.55 mph

Now, let's assume you are setting up a slow, relaxing park flyer with about a 5 oz/square foot wing loading. If we swing a 9-7 propeller at about 3,500 rpm, we'd be looking at a top speed of roughly 23 mph. To swing that much propeller with a small, light drive system, we would use a gear drive unit at a very low current draw and a small, light battery.

Again, to make a known comparison, we can relate all this to riding a 10-speed bicycle. A gear drive swinging a big propeller is like riding your bike in low gear. You pedal like mad with little effort, you don't go very fast, but you can climb steep hills with ease. The direct drive system could be compared to riding the bike in high gear. It'll really go fast, and even though you're pedaling slower, it requires considerably more effort.

What all this boils down to is "propeller disc loading." We all know what wing loading is: it's the amount of the model's weight that each square foot of wing must carry. Prop disc-loading works the same way. A large propeller will be more lightly loaded, thus delivering more torque then a smaller propeller turning high rpm. The tradeoff, of course, will be speed.

One more thing to cover and we'll give you a rest. Batteries are rated in "voltage" and "amperage." Voltage dictates the amount of power the battery will deliver. The amperage rating dictates for how long the battery will deliver that power. To relate that to glow fuel, consider the voltage as nitro content. High voltage (nitro) means more power. The amperage is related to the quantity of fuel, or simply the "size of the tank."

To figure the size of battery needed, let's go back to our 140-watt sport airplane. If we're pulling 14 amps from a 1400 mAh (1.4 amp hour) battery, we will have full power duration of five to six minutes. In the real world, with proper throttle management, you'll see flight times of approximately eight minutes. These are common flight times, even with liquid-fueled models.

To arrive at that number, divide the battery amp rating by the current draw: 1.4 (amp hours)/14 (amps) = 0.1. Then take 60 (minutes per amp hour) x 0.1 = 6 minutes. Now, to double the duration, you must either cut the current draw in half (to 7 amps), or double the battery size (to 2800 mAh or 2.8 amp hours)—again we see tradeoffs. To reduce the current draw, we can use a larger, higher-pitch propeller turning slower with very little weight penalty. If we double the size of the battery capacity, the weight penalty is quite high unless we go over to the new Lithium batteries in which we will discover we have benefited from a tremendous weight reduction, but at a higher price then conventional batteries.

Okay, I promise I'll quit before we all end up in "system overload." Once again, there's a tremendous amount of information here for a newcomer to electrics to digest, so let's do this: if you have specific questions about setting up an electric model, please feel free to drop me a line and I'll do what I can to steer you in the right direction. For now, I'll offer up one last piece of advice. To get started, work with a known good design, and use the recommended equipment that has been proven to work. Talk to the people who are successful and copy what they're doing. The one thing I do know about modelers is that they are always willing to share their knowledge with those interested in what they are doing.

Contact Pat at patscustommodels@aol.com

EVENTS CALENDAR 2006

April 2	Pylon Races
April 29	Float Fly Madness - Sal Lake
May 6	Aerobatic Clinic by Joe Hunt at Healdsburg
May 7	Pylon Races
May 13	Work Party at Alexander Valley Field
May 20	Open House-Model Air Show
May 27	Float Fly Madness
June 3	Northern California Cup at Ukiah
June 4	Pylon Races
June 9-11	Float Fly at Red Bluff
June 17	Learn to Fly Day
June 17-18	Dan Sullivan Memorial at Ukiah - Scale Masters
June 24	Swap Meet - Vets Hall Santa Rosa
July 2	Pylon Races
July 4	Day on the Pond - Sal Lake
July 15	Northern California Cup at Healdsburg
July 22	Larry Frank Fun Fly
July 22-24	Down on the Deck at Ukiah - Open flying and Demos
Aug. 6	Pylon Races
Aug. 19-20	PCAM - Santa Rosa Airport
Sept. 3	Pylon Races
Sept. 4	Day on the Pond - Sal Lake
Sept. 9	Neil Taylor
Sept. 14-17	Reno Air Races
Oct. 1	Pylon Races
Oct. 14	Float Fly Aftermath - Sal Lake
Nov. 5	Pylon Races
Dec. 16	Christmas Party at Santa Rosa

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