

March, 2004  
Volume XVII, issue 3



# PEAK CHARGE

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- Pylon Racing
- F5B Contest
- Next Meeting
- Electroglide

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**Mission Statement**

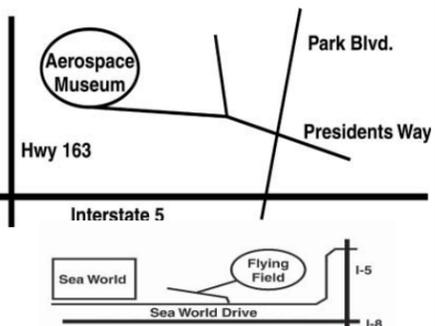
The objective of the Silent Electric Flyers of San Diego is to promote and further the technology of electric powered R/C aeromodeling; encourage competition in Electric Soaring, Pylon Racing, FAI-F5B/D, Scale, Old Timer, and Pattern Electric categories by hosting major Industry-sponsored events and sanctioning "Fun-Fly" types of contests; provide forums for the exchange of technical information, instruction and experience; and participate in demonstrations of electric propulsion in area-wide model aviation events.

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**Cover Credits:**

- Glenn Merrit's hooked *Skyscooter* - front center
- Tim Friakowiak's *Partner* - bottom center
- Cory Bird's *Symmetry* - front top right - a composite fibre plane from Burt Rutan's design shop

My apologies to the makers of the many other unidentified models, pictures taken in the main by your editor.



Web Site: <http://sefsd.org/>

**Making Successful Crosswind Landings**

By GARY CHUDZINSKI

During the past year, I've heard a number of comments regarding taking off and landing in crosswinds. Many of these pilots ground themselves if the wind is blowing across the runway. This is unfortunate, because pilots can overcome the difficulty with understanding and practice of crosswind operation. The first ingredient for successful operations is adequate rudder. Your rudder can't be too large, but it can be too small. Usually kits have an adequate amount, but you should be looking at 40-50% of the total vertical flying surface for excellent response. This should handle crosswinds in the 12-15 mph range.

The other, and most important element, is pilot input. In full-scale flight, pilots are taught three distinctive techniques: crab, cross-controls, and a combination of both. These techniques apply to models as well.

**Crab:** This is the simplest maneuver to perform. You turn the aircraft into the wind to maintain a straight line coincident to the runway centerline. This is accomplished immediately after rollout approach upon landing. This track is maintained with small corrections until landing. At touchdown, rudder is used to straighten the ground path, and (most importantly) aileron is applied as if banking into the wind and held until rollout is complete.

**Cross control:** This is definitely more difficult but is more professional and personally rewarding. After rolling out on final approach, apply and hold aileron into the crosswind with sufficient opposite rudder to maintain aircraft heading aligned with the runway heading. Standing on the ground (not in the cockpit) makes estimating the amount of control more difficult. So, start out with 1/8 to 1/4 application of each stick. Again, aileron into the crosswind, rudder opposite, and you are cross-controlling. Apply enough aileron to maintain track to the runway and continue to hold it, gradually increasing the amount if necessary until landing is complete. As with crabbing, rudder control is used for steering after all wheels have touched down. For touchdown in a crosswind, do not flare as much. Fly the model onto the ground while retarding the throttle. Remember, do not stop flying the aircraft until it comes to a complete stop.

**Combination:** This method uses both techniques with less amounts of each. I want to comment on two more

areas of crosswind operations—taxiing and takeoff. In many ways, the same considerations are given for wind direction and velocity.

**Taxiing:** Those of you who have flown full-scale, light aircraft are instructed to know the direction and intensity of the winds before taxiing. This not only confirms the runway is in use, but provides you with information for safe ground taxi. Control input while taxiing in a light aircraft is extremely important for control, and in extreme cases of wind, keeping the wheels on the ground. The same considerations apply to our models, especially the light, high-wing types. The whole idea is to apply control input to keep all wheels planted firmly on the ground. For example, if you are taxiing into the wind with a taildragger, apply aft stick to keep positive pressure on the tail wheel. The reverse applies to a tricycle gear. In a tailwind, use forward stick for the conventional and aft stick for trike. For crosswinds, apply aileron into the wind. From an aerodynamic standpoint, you are shaping the control surfaces to give you a lift advantage, however slight it may be.

**Takeoff:** Like it or not, cross-controlling is the only way to make a safe, straight, good-looking takeoff. You have done it many times but may not have thought of it in these terms. A good technique is to taxi to (using the information above) and lineup on the runway centerline. Before increasing the throttle, think about using the ailerons to keep the wings level and the rudder to track straight through the takeoff. Initially, apply about one-half aileron stick into the crosswind. As you increase throttle, the aircraft picks up speed, which means the controls are generating more and more lift. With the increase in lift, less aileron is needed. Meanwhile, continue to track straight with rudder. As the aircraft cleanly breaks ground, keep the wings level and use enough elevator for a consistent rate during the climb. Slowly take out all rudder and continue your flight. Congratulations! You look great!—Although somewhat confusing and thought-provoking at first, talk yourself through these techniques, then give it a fair chance with practice. Remember, the two most important maneuvers of flight are takeoffs and landings. from *Wingflaps* Windom Eagles Model Airplane Club Bob Byers, editor Windom MN

## Make Sure Your Aircraft Is Ready for Flight

### “Before Leaving the House”

Q Do you have the transmitter with the correct channel, your airplane, wing, rubber bands or wing bolts, glow starter, electric starter, proper fuel, and your flight box?” Q Do you have cold drinks, a hat, sun block, sunglasses, insect repellent, and long pants for walking in the woods?” Q Check your airplane and transmitter batteries. Is there any damage to the airplane, wing, or covering? Turn your transmitter and receiver off.

### “Before a New Model’s First Flight”

Q Is the model too heavy? Is the center of gravity within the range shown on the plans? Is the model balanced side to side?” Q Are all flying surfaces at the proper angle relevant to each other? Are the control surfaces securely attached with all snap-links closed? Are the control throws in the proper direction and amount?” Q Have all screws been attached to servo horns? Are all engine screws tight?” Q Is the fuel tank level with the flying altitude of the airplane? Is the carburetor at the same height (not above) as the fuel tank? Is the fuel tank clunk in the proper position and moving freely?” Q Has a full range check been performed on the radio? Has the flight pack been checked with a voltmeter? Have the receiver and battery been protected from vibration and shock? Is the receiver’s antenna fully extended and not placed near a fuselage with any sort of metallic covering?

### “Before the first Flight of the Day”

Q When you remove the transmitter from the car, make sure it is off. Put your AMA card in the slot and the transmitter in the impound if someone already has the frequency. Q Before putting on the wing, check all servo mounts for loose or missing screws. Check all wiring to make sure there are tight connections and no broken wires. Check for broken antenna wire. Check wing mounting blocks to make sure they have not broken loose, or if using rubber bands, check rubber band pegs for tightness. Check the vertical and horizontal stabilizers for damage. Make sure the fuel tank is not loose in the airplane and the clunk (fuel pickup) is in the back of the tank. Q Check landing gear for loose wheel collars or bent materials. Check for holes in the covering. Make sure the muffler is attached and the engine mounts are tight on the

firewall.” Q Is the propeller tight? Check the throttle linkage. Pull on the ailerons to check hinges. Check the aileron servo and linkages. Check rubber bands for cracks or oil. Make sure the wing is on straight and is square with the fuselage. Make sure the wing is on tight if using bolts, and that both bolts are in the proper holes. Check the balance before filling the fuel tank, and after filling the tank, check for leaks. Q Get your transmitter from the impound. Make sure you tag your frequency. Turn on your transmitter and then turn on the receiver in your airplane. Stand behind the airplane and check that all control surfaces work properly and move in the correct direction.” Q Do a range check. Make sure the antenna is down all the way and both the transmitter and receiver are turned on. Walk about 25 yards and try all the controls. Someone should be near the airplane to make sure everything is working. Put your antenna up now. Check all trims on the transmitter. Are they where they should be?” Q Before starting the engine, make sure throttle is in the idle position. Start your engine. Idle okay? High speed okay? Will it run if it’s at a 45% angle at high speed? Will it transition from low to high to low to high without stalling? The engine will shut off from the transmitter. Start the engine (if applicable) and test the entire throttle range. Run it at full throttle with its nose in the air for at least 15 seconds.

### “Before each Flight”

Q Always refuel, even after short flights. Q Check the operation of all control surfaces. Q Make sure the wing is tight and the rubber bands are okay. Q Check the landing gear.” Q Check for any damage or holes in the covering. Q Make sure the antenna is up. Q Start and check the engine. Always run the engine at least to full power before takeoff. An engine that just ran perfectly may never run right again. Q *After a hard landing:* Basically do the “before first flight check” again. Pay extra attention to dirt in the engine, bent landing gear, control surfaces, the propeller, clunk in the tank, and internal damage to the wing or fuselage. When you land, turn your receiver off first, then your transmitter.

from *The Beam:* Elgin Aero Modellers  
Dale Palmer, editor  
Niceville FL

## The President’s Message

*by David Pitcairn*



Welcome back to another month of flying. Unfortunately, I neglected to mention Michael Neale last month when I listed the people who went over and above the call of duty as volunteers leading up to a during the MWE. In addition to his help with the MWE, Michael has put in many hours the past few years doing a great job keeping the club finances in order, and I thank him very much! All in all, the MWE 2004 went very well and I have received numerous thank-you notes and “good jobs” from attendees in and out of town. This result was made possible in no small part by the many club members who volunteered their time during the event. Thanks for making it a success!

Please note that this month is the last chance to renew your membership without a newsletter interruption or having your flying privileges taken away. Starting April, 2003 cards can no longer be used on the Frequency Board.

As a full scale licensed pilot, if I am a bit rusty on my skills or no longer feel comfortable flying, I go up with an instructor for some extra practice. In addition, the FAA

requires that each pilot take a “checkride” with an instructor every two years, whether we need it or not. Radio control airplanes are not different, other than we don’t currently have strict training rules, and I hope there are not so many “incidents” at the field that they need to be implemented. To that end, I highly recommend anyone who is a new pilot to continue to get help from more experienced pilots. This may just mean test flying and trimming a new airplane or advanced training. As pilots step up to harder-to-fly aircraft, it is a good idea and much safer to get some help. For example, I could fly aerobatic aircraft just fine, but then I needed a lot of help in order to safely transition into glider and pylon racer competition; so whatever your level, it is a good idea.

I attended the Mission Bay Parks meeting last week, and it sounds like there will be some construction going on near our field for the next few months. Sea World is building a gathering place near the water, partly in return for being allowed to build that unsightly roller coaster. Please try to keep your planes away from the areas where there are construction workers and vehicles. Mostly it will be along the waterfront between the gazebo and the entrance to Fiesta Island, so it should not be a problem.

### MWE 2004 VOLUNTEER WORKERS – THANK YOU!!!

(note: many of these people worked more than one job during the event!)  
Please forgive me if I missed anyone. -Prez

#### IMPOUND WORKERS

FRANK GAGLIARDI  
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DICK KANTNER  
DAVE KIRSCHEN  
CHAD KROGH  
STEVE MANGANELLI  
ZEKE MAZUR  
JAY (JUNGSANG) PARK  
GLENN RITCHIE  
STEVE RITZI  
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PANDI BALA  
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DOUG RUBIN  
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MIKE MORGAN  
STEVE NEU  
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WAYNE WALKER  
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MICHAEL NEALE  
JOHN HOOD  
GERRIE GAGLIARDI  
ED GURULE (JOINT MILITARY R/C FLYERS)  
DON HILLE (CHOLLA LAKE R/C PILOTS)  
MIKE O’DONNELL (MIRAMAR R/C FLYERS)

#### FIELD MARSHAL

CHUCK GRIM  
DAVID PITCAIRN  
BRADEN MOORE

#### ANNOUNCER

TIM ATTAWAY  
DON WEMPLE

# Minutes from the February Meeting

*by David Fee*



**Prelude-**

Doug Rubin played some scenes of full-scale sailplane flight from the new DVD, "Just Want To Fly 2."

**Introduction-**

David Pitcairn called the January meeting to order on 2/24/04 at 7:15PM. There was one new

member in attendance this evening, Mr. David Campbell, who has joined recently with his son. No other visitors or new members introduced themselves.

**Old Business-**

The SEFSD video library has been stable for some time. Any questions or concerns, including requests for new items, should be addressed to Urana Green.

The president reported that Chuck Grim had organized all field cleanup and improvements in preparation for the MWE.

Mike Morgan has posted signs at the gate to the flying field which inform and remind all who enter that the gate is to be kept closed at all times. It shall be unlocked by the first person arriving in the morning and it is the responsibility of the last person leaving to lock the gate. If you see anyone leaving the gate open, please remind them of the rules.

No other field improvements were discussed at the meeting.

**New Business-**

**Club Competitions and Events-**

A special-edition Electroglide contest was held during the MWE at 9:00AM on Sunday the 15<sup>th</sup>. Don Wemple was not present to report, but the event was very popular with the attendees of the MWE.

The S400 Electroglide will be held Saturday, 2/28/04, at 9:30AM. If weather precludes, the event will be rescheduled for the following weekend. The Electroglide event is always held on the Saturday following the SEFSD monthly meeting. For further information, please contact Don Wemple.

The 2004 Mid-Winter Electrics (MWE) was held February 13<sup>th</sup> – 16<sup>th</sup>. David Pitcairn extended a warm "Thank You" to all who participated. He reported that he had received some very good feedback, and that the pilots had been very positive and supportive. In all, the MWE this year was a great success. Now that the event is over, we have an opportunity to reflect and decide, as a club, "where do we want to go from here?" David asked that the membership be thinking about the MWE concept. Do we want to continue the MWE as it stands, or do we want to see changes? What is our vision for the future? He encouraged those in attendance to be thinking of ideas and possibilities for the future. There will be ongoing discussion of this in the future.

Don Madison reminded those in attendance of the upcoming Swap Meet at the Weedwacker flying field in Santee, Saturday March 6<sup>th</sup>. The gate opens at 7AM.

David Fee asked if any members would be interested in pylon racing with the GWS foam warbirds. He offered to do the research and organization. There was a positive response from a number of pilots in attendance.

**Newsletter-**

Our newsletter editor, Bill Fee, spoke about the mailing process. Some members have been receiving the newsletter promptly, while others have not. The Post Office suggested that the use of the full 9-digit zip codes would save as much as two days in the delivery time. Bill reported that Chuck Grim had taken it upon himself to obtain the full zip code for each of the 300+ SEFSD members. Thank you, Chuck!

# The Special MWE 2004 Electroglide

*Don Wemple*

Pilot	Model	Toss 1	Toss 2	Toss 3	Total
Pedro Brantuas	Big Bird	69	57	67	193
Dave Roberts	Pulsar	80	40	70	190
Dave Kemper	Lil Bird	68	57	64	189
Tom DeShon	Lil Bird	61	43	34	138
Bob Stinson	Elexaco	27	30	17	74
Stelio Jackson	Graupner Terry	19	14	17	50

This was a special Electroglide, shortened to fit into the "thought to be crowded" 2004 MWE.

Instead of the 60 second motor run, we shortened it to 50, and the 15 minute maximum flight time was shortened to 10 minutes. The top competitors made it quite a competition — the extra points on the landings made the difference — Pedro scored a 10 and two 20's, Dave Roberts, two 20's, and Dave Kemper, three 20's. Tom Scored a 20 and a 10. As it

turned out, there were not as many people eager to fly at 9 AM as thought, and we could have easily used the regular Electroglide rules..... well, perhaps next year!

Anyway...the next regular San Diego Electroglide (old rules — 60 second motor run and 15 minute flight maximum) is to be held on the 28th of February - the first toss at 9:30. We hope that you will all be there! If you have any questions, drop me an e-mail at <[donk126@sbcglobal.net](mailto:donk126@sbcglobal.net)> or a call at (619) 469-5566.

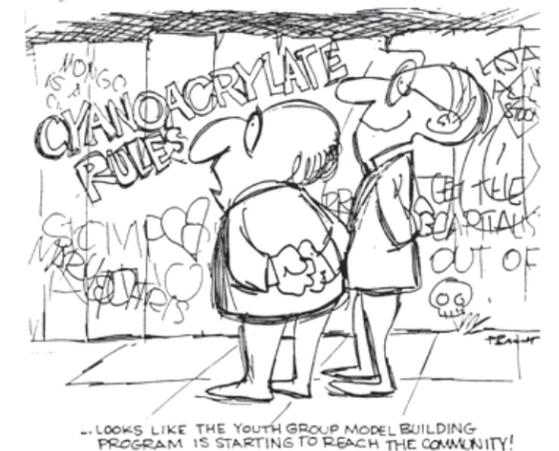


Hi Bill:

I will be calling you in a few days and get acquainted and see what kind of fun we can work out. Thanks to all of you for your generous and fast response; you are a great group!

I'm Jack Robbins; maybe a misunderstanding is beginning that I would like to clarify: Although, I'm a wheelchair user, I have the vehicle and carryall for that; the difficulty can be fixed if I could get someone to come over to 805 Valley Ave. in Solana Beach, about 2 blocks N. of Via de La Valle and park their car here and ride down as my co-pilot just once or make it a car pool to save money. I just kept missing the turns somehow when I tried it; too many exit signs to look at I think. Hope this clears this up; maybe I could just follow someone on a light traffic day learn all the ropes. I will have my micro bell222 ready in a month or so but I'd still to get to know some of you and watch; again, on light traffic times. Getting back into modeling has been a dream of mine for way too long and I'm determined to do it! Thanks, Jack.

There but for the grace of God go I, or YOU. A friend in need is a friend indeed.



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## Volts, Amps, Watts... What does it all mean???

*Compiled by David Fee*

### Volt

Named after Italian physicist and inventor of the battery, Alessandro Volta (1745-1827), the volt (V) is the standard unit of electrical potential. It is defined<sup>1</sup> as a unit of potential equal to the potential difference between two points on a conductor carrying a current of 1 ampere when the power dissipated between the two points is 1 watt; equivalent to the potential difference across a resistance of 1 ohm when 1 ampere of current flows through it. It is roughly analogous to pressure in a water pipe.

### Ampere (Amp)

Named after French physicist André Ampère (1775-1836) and having units of coulombs per second, the ampere (A) is the standard unit of electrical current. The ampere is defined<sup>2</sup> as that current flowing in each of two long parallel conductors, 1 meter apart, which results in a force of exactly  $2 \times 10^{-7}$  N/m of length of each conductor. The plumber's analogy would be flow rate through a pipe.

### Coulomb

The standard unit of electrical charge is the coulomb (C). One coulomb is defined<sup>3</sup> as the amount of electric charge carried by a current of 1 ampere flowing for 1 second. It is also about  $6.24 \times 10^{18}$  times the charge on an electron. It is named after Charles-Augustin de Coulomb (1736-1806).

### Watt

The unit for power is the watt (W). It is equivalent to 1 joule per second (1 J/s), or in electrical units, 1 volt-ampere (1 V·A). The watt was named after Scottish mathematician and engineer James Watt (1736-1819) for his contributions to the development of the steam engine.<sup>4</sup> There's no substitute for cubic watts.

### Ohm

Given the symbol ( $\Omega$ ), the ohm is the standard unit of electrical resistance. The ohm is named for Georg Ohm (1787-1854), a German physicist who discovered the

relation between voltage and current, expressed in Ohm's Law ( $V = I \cdot R$ ). By definition<sup>5</sup> in Ohm's Law, 1 ohm equals 1 volt divided by 1 ampere. In other words, a device has a resistance of 1 ohm if a voltage of 1 volt will cause a current of 1 ampere to flow.

### Joule

The joule (J) is the standard unit of energy and work, and is defined<sup>6</sup> as  $1 \text{ kg} \cdot \text{m}^2/\text{s}^2 = 1 \text{ N} \cdot \text{m} = 1 \text{ W} \cdot \text{s}$ . It is named in honor of the English physicist James Prescott Joule (1818-1889). One joule is the work done to produce power of one watt for one second.

### Newton

The newton (N) is the SI unit for force, which follows from the definition given by Sir Isaac Newton's (1642-1727) second law of motion which states that a force is a mass times an acceleration. It isn't used much in electronics, but it's useful to know all the same. A newton is the force required to impart an acceleration of  $1 \text{ m/s}^2$  to a mass of 1 kg.<sup>2</sup> Therefore,  $1 \text{ N} = 1 \text{ kg} \cdot \text{m/s}^2$ .

### Some Useful Unit Conversions:<sup>7</sup>

$$V = (\text{kg} \cdot \text{m}^2)/(\text{A} \cdot \text{s}^3) = \text{J}/(\text{A} \cdot \text{s}) = \text{J}/\text{C}$$

$$A = \text{C}/\text{s}$$

$$C = A \cdot \text{s}$$

$$W = (\text{kg} \cdot \text{m}^2)/\text{s}^3 = \text{J}/\text{s} = V \cdot A$$

$$\Omega = (\text{kg} \cdot \text{m}^2)/(\text{A}^2 \cdot \text{s}^3) = V/A$$

$$J = (\text{kg} \cdot \text{m}^2)/\text{s}^2 = \text{N} \cdot \text{m} = \text{W} \cdot \text{s}$$

$$N = (\text{kg} \cdot \text{m})/\text{s}^2$$

### References:

- 1: <http://www.hyperdictionary.com/dictionary/Volt>
- 2: **Physics**, Douglas C. Giancoli, Prentice Hall, 1995
- 3: <http://en.wikipedia.org/wiki/Coulomb>
- 4: <http://en.wikipedia.org/wiki/Watt>
- 5: <http://en.wikipedia.org/wiki/Ohm>
- 6: <http://en.wikipedia.org/wiki/Joule>
- 7: CRC Handbook

There was a question from the floor, asking if Bill could print a battery and charger technology column in the newsletter. There have been such columns in *Peak Charge* in the past, but it should be remembered that the newsletter depends upon the submissions of the readership. The editor needs your help. If you write something, or find something helpful on the E-Zone or elsewhere, let your editor know. If you would like to see something printed, contact Bill at [dwfee@cox.net](mailto:dwfee@cox.net).

Doug Rubin suggested that some of the members might not want a hard copy of the newsletter. This topic has been discussed before, and the general consensus is that most members do appreciate the high quality printed newsletter. Back issues of the newsletter are available, in reduced-resolution format, for download from the SEFSD website, <http://www.sefsd.org/>.

### Membership-

Our membership chairman, Pandi Bala, was not present to report on membership renewals. If you have any questions, Pandi can be reached at [pandi@san.rr.com](mailto:pandi@san.rr.com). Membership dues are \$35 per year and include a subscription to *Peak Charge* and full use of the club flying field seven days a week.

### Club Programs-

No specific discussion was held on club officer positions or elections.

### Safety, Safety, Safety...

There was no safety announcement at the meeting. Please remember to review and be familiar with the Field Rules which are posted at the field, and may be found in your January 2004 *Peak Charge*. Be courteous and safe at all times.

### The Training Program-

There was no specific announcement regarding the training program. General training is available most weekends from 8:00-10:00AM. Aerobatics training is available Wednesdays at 10:00AM. New volunteers to help with training are always appreciated.

### Club Raffle-

**Some raffle items went unclaimed at the MWE because contact information was not written on the winning ticket. These items were added to the regular club raffle this month, with some items being carried over. There were kits, motors, batteries, servos and other accessories.**

### How To-

This month, there was no "how to" demonstration at the meeting.

### Show & Tell-

Randy Ritter brought a new fuselage mold he has been working on. It is for a S400-sized pylon racer of his own design. He has been working on the project for many months and has tried many new techniques. The plug is carved from hardwood, while the mold is plaster of Paris, reinforced with flax. He used Minwax floor wax and liquid fabric softener for release agents. Quite innovative!

Steve Younger showed a work in progress. He has been experimenting with paper-covered foam fuselage structures. The item he showed was a fuselage roughly based on the SE5 biplane. The fuse was shaped from lightweight white foam, and then covered with newspaper using thinned white glue. The result is very stiff, and very light!

### Entertainment-

Doug Rubin showed us more video of Dynamic Soaring on Parker Mountain and elsewhere. The video is from a new DVD called "Just Want To Fly 2." Much of the DS video footage was submitted by Doug, while the editing and narration was done by the producer, Radio Carbon Art.

The meeting was adjourned at approximately 8:30PM.

# "Landing!"

By Bruce Cronkhite

## The First Law of Landing:

You cannot land an airplane. The airplane will land itself when it decides that it can no longer fly. It is the duty of the pilot to have the airplane very close to the ground when this happens.

## Corollary to the First Law:

The pilot must try to keep the airplane flying

The most prevalent problem in landing is that the airplane "bounces." What is really happening is that the airplane doesn't bounce, it is just not done flying yet, and contact with the ground imparts a little upward acceleration, which adds to the wing lift, and the airplane starts flying again.

This happens most often when the pilot tries to "land" the airplane at too high an airspeed, and therefore too low an angle of attack. This generally happens when the pilot has done two things: 1. He sees that he is high on approach and has dived the airplane to lose altitude (and has picked up speed as a result), and 2. The excess speed has caused him to be really long, and he tries to push the airplane down onto the runway. The result: BOUNCE, or noseover and maybe crash.

The only way to prevent this is to Go Around.

This sequence of events all started when the pilot set up a bad approach. Conversely, a good approach is the secret to a good landing. My suggestion is to use the good, old-fashioned, rectangular pattern. This has some very worthwhile characteristics.

1. Fly your downwind leg straight and parallel to the runway and at a good altitude (50-60 ft.). When you are opposite the desired touchdown point, reduce the power to the approach setting to set up the descent rate.

2. Using the elevator, pull the nose up to make the fuselage level with the ground. This will slow the airplane to a good approach speed. Now during the whole approach keep the fuselage level with elevator.

Now we're going to take a little side track, but not very far. The type of approach I'm going to ask you to do

is the same (aerodynamically) as the U.S. Navy uses to get an airplane onto a flight deck. It's called--among other things--an "on speed" approach. In all Navy aircraft, just above the glare shield, both left and right sides, are "on-speed" indicators. These are really Angle of Attack indicators. The pilot sets up his approach power and descent rate and then "flies" the on-speed indicator, using only the elevator. He never has to look at his instruments to see what his airspeed or pitch attitude is. The throttle is used only to adjust altitude. Doing this the airplane's airspeed and AOA are held at the proper values, and the pilot has only to think about altitude and making the flight path hit the #3 wire. Back on track, now.

3. Make your base leg turn. The point at which you turn base fixes the point at which the airplane will touch down, because you will be keeping a constant descent rate by holding a level fuselage. When you hold the fuselage level, you are effectively holding the Angle of Attack constant, using only the elevator.

4. If you are high or low, adjust the altitude by using power only. (Remember that the throttle is the altitude control, and the elevator is the speed--angle of attack--control.)

5. Turn onto final approach, and don't change your speed. Keep the fuselage level with the ground.

6. As you approach the touchdown point, start to increase the angle of attack with the elevator. This does two things: it slows the airplane, and it decreases the rate of descent by increasing the lift temporarily.

7. Keep increasing the AOA slowly, while flying close to the ground. Don't let the airplane touch down yet; when the AOA gets to the stall point the airplane will say, "I can't fly any more," and land. And the way to get good at this is to practice a lot. You'll begin to see how easy it is very quickly. But try to do it the same way every time. The only changes should be to compensate for wind changes.

This method should be used for both conventional (tailwheel) airplanes, and airplanes with training wheels (tricycle gear). If you do it this way, you will never touch

the nosewheel first, which causes the biggest bounces of all. If you concentrate on KEEPING THE FUSELAGE

LEVEL during the approach, the landing is a piece of cake.

## TRAINING YOUR AIRPLANE

By Bruce Cronkhite

Now that you can take off and land with some degree of safety, it's time to move on to better things. Right now you can fly around and keep the airplane from crashing most of the time. But there is more fun to this game than simply preventing the model from crashing, although that can really be satisfying, too.

A model airplane is somewhat like a dog: if you don't mistreat it, it will be a good companion and a source of happiness. If, however, you give it some concentrated training it will be much more satisfying and rewarding (and do some tricks, too). Now obviously I'm talking about training you, not the airplane. But the process you go through to train the airplane, and you, is very much the same as that involved with training a dog, or a great violinist for that matter. You, the owner, must decide ahead of time what you are going to do in flight, decide how to do it, and then practice it until you get it right.

The most obvious thing to start with is the landing. If all you do each flight is takeoff, fly around, and then struggle through one landing out in the middle of the field, you are not really getting enough PRACTICE to get much better at it. And by the time you get the batteries replaced or recharged, you may have forgotten how you screwed up the last landing. If you don't make a lot of landings it's very hard to get any practice at it, and very hard to get any better at it sometime this century. This is why full scale pilots shoot touch and goes over and over. You should do

that, too.

Decide ahead of time how you will fly the approach and make the landing, and then be very intolerant of your own performance, and then do it again. Criticize your own performance; if your downwind leg isn't straight and at a constant altitude, do it better next time. If you're high or low on approach, fix it. A poor, or worse, dangerous landing maneuver should be a source of embarrassment, not something to simply giggle about. Sometimes asking an experienced pilot to help is a good thing. A slightly bent ego is a lot better than a bent airplane. And a good landing should be a source of pride. You can't do that sort of thing by accident.

Now that our field operating size is reduced because of the nesting Terns, it is even more important that we become precision flyers. The best way to do that is to quit making excuses for yourself and your flying, and start doing it right, on purpose, by practicing. And remember that practice is not just repetition. It must involve planning, execution and evaluation.

Making a short approach restricted by the requirement that you not fly over the foliage at the east end is not an easy thing to do well in the first place. So give it some concentrated practice. You will soon be making good landings with a good short approach.

And maybe you'll get a pat on the head, too.



Doug Cronkhite's Corsair