

# PEAK CHARGE

dedicated to the promotion of electric propulsion in all types of aeromodeling.

## Calendar

### April

- 6 Pylon Racing
- 16 SEFSD Meeting
- 19 Aussie Postal Contest
- 26 Torrey Pines Scale Fly-In

### May

- 3&4 SEFSD Spring Fling
- 21 SEFSD Meeting

### June

- 1 Pylon Racing
- 18 SEFSD Meeting

## April Meeting

### Agenda

Possible New Meeting Room

### Show & Tell

- Fred's Tri-Bee
- Mike Schourd's Speedy Bee

### Entertainment

Speed 400 Extravaganza

### Raffle Prizes

- Aveox Speed Control 6-16 cell
- 7 1700 mAh cells

# Electric Spring Fling

Saturday and Sunday, May 3 & 4

**SATURDAY May 3** Steve Belknap C.D.

**7:50 AM Pilots Meeting**  
**8:00 Old Timer Pylon Racing**  
 Two rounds

**8:30 SAM LMR 60 sec.**  
 Three attempts, 10 min. max., 7  
 800 mA cells, 05 motor, ROG

**9:30 All Up Last Down**

**10:30 7 Cell Pylon Racing:**  
**Speed 400 Speed 400 Astro Unlimited**  
 10:30&35 10:40&45 10:50 11:00  
 11:10&15 11:20&25 11:30 11:40  
 11:50&55 12:00&05 12:10 12:20

**12:30 Concours d' Elegance** - Pilots Choice ballots due.

**1:00 Lunch:** Sandwich, drink, salad. Free to participants and helpers, \$2.00 for all else.

**1:30 Awards for the day. Open to sport flying.**

### Pylon Racing Courses:

Old Timer, Speed 400:  
 #614 Class A: 300 ft. X 60 ft.

Astro, Unlimited  
 10 Laps. #503 F5D: 180 M X 40 M

*Fun Flying  
 between all  
 events*

**SUNDAY May 4** Pat Conway C.D.

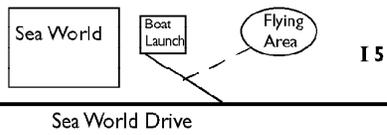
**8:50 AM Pilots Meeting**  
**9:00 Class B Sailplane** - Three flights of 8 min. ea.. No battery charging between flights. No battery limit. Must land on Field.

**10:00 F5B Handicap** - Three rounds. 10 cells; 15 points/lap, 7 cells; 18 pts/lap, all other  
 FAI rules apply.

**1:00 Awards for the day - Pizza at Embers**

### Location:

**Mission Bay Park, South Shores.** North of Sea World Drive between Sea World and I 5.



**Entry Fee: \$5.00 per event.**

**Contacts:**  
 Steve Belknap C.D. 693-3739, LetIFly@aol.com  
 Wayne Walker 284-6119

**Silent Electric Flyers of San Diego**  
**Club Information**

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

**1997 Officers:**

- |                       |                      |
|-----------------------|----------------------|
| <b>President</b>      | <b>Wayne Walker</b>  |
| 284-6119              | ApolloWayn@aol.com   |
| <b>Vice President</b> | <b>Jim Baron</b>     |
| 278-8099              | jbaron1016@aol.com   |
| <b>Secretary</b>      | <b>Bob Davenport</b> |
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| <b>Treasurer</b>      | <b>Chuck Grim</b>    |
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| <b>Editor</b>         | <b>Steve Belknap</b> |
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| <b>Safety</b>         | <b>Steve Neu</b>     |
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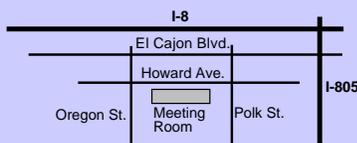
**SEFSD Mentors**

These individuals want to help you (current or potential members) with your electric-flying questions:

- |               |                |
|---------------|----------------|
| Steve Belknap | 693-3739       |
| Wayne Walker  | 284-6119       |
| Jim Baron     | 278-8099       |
| Harold Reed   | 273-6023       |
| Fred Harris   | 223-3043       |
| Phil Moore    | (909) 696-1975 |

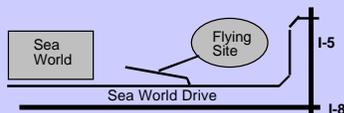
**Monthly Meeting**

Held on the third Wednesday of each month (no meeting in December) at 7:00 PM. Meeting room is at the North Park Shuffleboard Club, 2719 Howard Ave., San Diego, CA 92104.



**Flying Site**

Located one half mile East of Sea World on Sea World Drive.



**Membership or Subscription:**

Twenty dollars per year for membership. Fifteen for subscription only. Ten for under 18 or additional family member. Contact Chuck Grim, 1319 Reed Ave., San Diego, CA 92109, (619) 274-7322.

**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 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.



**PRESIDENT'S CORNER**

Wayne Walker

**I**t's April and we've changed our Schedule already. First the **Keystone RC Electric Meet is on Sept 19-21**. This means our North American **F5B Championships and Team Selection Trials will now be in August on the 23 & 24th**. The North American Champs will be a handicapped event so that all types of Electric Motor Gliders can enter and hopefully be competitive, the points per leg completed will be 10 for up to 30 cells, 14 up to 10 cells, 16 up to 7 cells with ailerons, 20 up to 7 cells, no ailerons.

**The Spring Fling will be May 3rd & 4th** with Steve Belknap as the Contest Director on Saturday and Pat Conway as CD on Sunday. The Pylon Racing and SAM LMR, AULD, and Concourse d'Elegance will be on Saturday, with the Class B Sailplane and F5B contests on Sunday. See the flyer on the cover for more details.

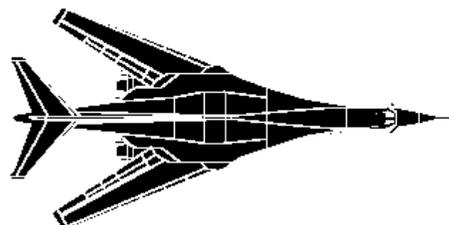
**Thursday the 17th of April starts our Summer Training sessions** after work at the field. Come one, come all to sharpen those flying and racing skills, or just to fly in the evening with good camaraderie. We'll start about 5 ish.

You may have noticed the new gate posts at the entrance to the field. These are there so that the City Parks Dept. can close off the entrance to the field when the ground is too muddy to use, and to have crowd control when there is a major event in the area. We of course will abide by the closure when they are shut and not jump the curbs at any time, (there is a \$500.00 fine for jumping a city curb, and/or driving over planted areas). We'll keep you posted as to the status of the gate.

We may see more spools as several people have volunteered to round up and transport them to the field. I'm not sure how many are too many, but a semi-truck full would be too much!

Our quest for a new meeting room goes on. It turns out that the top priority is to continue having meetings on the third Wednesday, so at this time only meeting areas that can accommodate up to 50 people, have convenient parking, and comfortable seating are being considered. Let me know if any locations turn up and I or Steve will check it out.

**This month's meeting will be devoted to the Speed 400** and all that it goes into. Everyone bring what they've got flying and be ready to talk about what it is and how it goes. I hope to have a speaker on gearboxes and several geared versions of planes to talk about. Biggest question I would like to see answered is **"What prop to use with a Speed 400 geared 2:1?"**



## Letters To The Editor

(The following letters represent the viewpoints of the individuals who wrote them, and should not be misinterpreted as those of the club as a whole, Peak Charge, or the editor. Letters are always appreciated.)

### E-Mail Updates

To: LET1FLY

Steve, we were discussing the deplorable lack of a periodic update of all the club members E-Mail addresses. How about a quarterly or so addition to the club bulletin?

Thanks,  
Lynn Heffern

[ I have printed every single update I have ever recieved in the very next issue! Besides, Harold Reed is the one keeping track of e-mail address updates. Quarterly is fine with me. Next one in May.

Note: If you feel there is something wrong with the newsletter or any other aspect of the club, you may want to bring it up for discussion, either privately or publically, before it reaches the point where it is considered "deplorable". Thank you. - Ed]

### Sanding Safety

Jim Baron

I had a doctor's appointment and had been sanding a model the evening before. My eyes felt like they had sand paper in them. The doctor said to purchase some Collyrium with an eye cup. This worked very well and Longs Drugs filled the bill. The doctor said a young fellow came into the emergency ward and was having a hard time breathing. It was assumed he was sanding wood. But it turned out he was sanding Polyurethane foam. This was a tough challenge to remove from his lungs. My doctor did not know what they would do. So the message is: while sanding have proper ventilation, preferably away from yourself and by all means use a face filter. It seems like the doctors will have a hard time removing the foam from the man's lungs. It will be interesting to see what they use to solve the problem.



Bob Davenport

## Travels with Bob

NO MINUTES MONTH... We had a meeting on March 19th but the gavel never dropped so there were no minutes. Instead the first of our two yearly swap-meets was held. There was a good crowd but no club business. The publisher-editor of Peak Charge has suggested that our members and whoever else may read this publication would like a report on this Secretary's trip, just completed on March 14 to Sri Lanka.. With infinite humility I submit the following:

We visited Sri Lanka [Ceylon] for three weeks and traveled over most of this Indian Ocean island by rental car with driver. This country is a vacation spot for Europeans of all kinds but during the time we were there, we saw no Americans at all. Frankly, I'm not certain why, as it is a real bargain and has much to offer. There are ancient ruins, wild animals, beautiful countryside, magnificent palm fringed beaches, and a polite and gracious population. The best hotels are everything you could want and compare well to fine resorts anywhere. Best of all is the price. In a top resort setting you can get a double room with buffet breakfast and dinner, all taxes and service included, for \$70.00-\$90.00/day. An air-conditioned car with driver-guide included is about 40 cents a mile, for as many days as you would want to stretch your traveling out. On a small island like this, 400 miles will take you everywhere. Beer is \$3.00/liter and arrack is \$6.00 for a 750 ml bottle. [If you haven't tried this palm distilled liquor, it is 70 proof and tastes like good brandy!] Even their airport tax-free store is good. I'm wearing now a Seiko automatic watch that would be \$150+ anywhere else and I got it for \$55.00. Rather than bore everyone with details I will stop, but if anyone would like further details I will try to help. Bob Davenport



[Thanks Bob! The point here is that even though you traveled half way around the world, you still can't get out of your commitment to the newsletter! Ha Ha Ha Ha Ha Ha!!-Ed.]

### Learning to Fly

Peter M. Day

OK so I got the fever. Then I found out how much it was going to cost to cool it down. But I stayed with it. I got an airplane. I got my [AMA] card and asked questions and I observed. Then I flew. OK, so it was a short flight. But I stayed with it and got better. After many confidence building flights and smooth landings I felt I had a pretty good handle on it. Well then the handle flew off. With a difficult airplane, strong wind conditions, and a touch of bad luck, disaster struck. Automobiles and airplanes don't mix. I was very lucky to only cause some property damage. I am writing this to remind everyone that every time your airplane takes to the air the possibility for a crash exists and some can be worse than others. But with a bit more instruction and continued support from my fellow club members I intend to stay with it. With renewed concern for safety, this is one flyer that intends to take his fun seriously.



[We have not seen Pete since this incident. I hope he takes what he said to heart and continues to come out and improve his skills. Living with failure sucks! Put it behind you Pete! - Ed]



By Bob Kreutzer

# LIVING WITH A FANTASY

Long ago in a place close-by there was this club president who put forth the idea of a club project. A prominent manufacturer of quality model aircraft kits wanted to tap on the extensive expertise of The Silent Electric Flyers of San Diego to develop a conversion option to his 40 powered pattern plane kit. In return for engineering drawings, he would provide a kit that SEFSD could build and then raffel off for revenue. A win-win situation said the prez! And so the E-Fantasy project was launched. Volunteers were drafted for the various parts. Steve B. did the fuselage, Steve M. made the composite motor mount and with Steve N. worked out the details of the conversion to E-power. Wayne W. did the covering, and yours truly handled the wing building chores (being built on a 1" thick, blanchard ground, aluminum tooling plate, it IS straight).

The whole project was written up in a back issue of Peak Charge. It was such a success that Bob Benjamin did an excellent video on this very same plane! I should point out the differing philosophies of the Benjamin/SEFSD conversions. Mr. Benjamin did a FULL E-conversion with top hatch battery access et. all. Our charter was to do the MINIMUM changes to effect a quality E-conversion. This we did, and did well. Test flights were successfully conducted and proved how well the Fantasy flew.

The plane was subsequently stripped of its power package and electronics and submitted for the big club raffel. I was elated at being the holder of the winning ticket! I triumphantly trundled off home with my prize, visions of E-flight dancing in my head.

Well, I just could not bring myself with an imitation slab-sided cowling, instead and covered it with matching Astro FAI-40 with 18, 1700mAh three motor capacitors, and an 11X7 trouble free combination. I did use alu-sure gear lubricant in the gear box. low, turbine like whine it produces

Being the lucky guy that I am, I then head soldering iron at another SEFSD about this tool! Thankyou Harold! I These I glued together, and with the 1st class power pack! The radio is a nel system. The stock reciever battery fancy here, just a stock, reliable system.

First flight was in a strong cross (can't say the same for the pilot), no Good acceleration, smooth rotation, trim, and rock solid flight (Mr. Ben-Fantasy's rock solid flight characteris-

After a dozen or so flights, the only thing I've done is to it is add 1/16" toe-in to the main gear. What a difference, who needs tricycle landing gear? This plane flies so nicely that the only comments are about how nice it sounds. People have landed and shut down thier gas jobs just to listen! All are impressed at the smoothness and how light on the wing it really flies. The only problem I have is how far this thing wants to glide on final, it just keeps going ( it weighs a FULL pound less than Mr. Benjamin's). Touchdowns are at a very satisfyingly slow speed. I just can't say enough about how easy this big, beautiful, electric plane is to fly.

Here are the numbers for you who are interested; 60 wingspan, 690 sq. in. area, 5.5lbs. total airframe weight, 2.3lbs. battery weight, 24.9 oz./sq.ft., 5 minute flight times at full power on 18 cells, 77 watts/lb., 120 watts/ sq.ft. with an 11X7 prop.

As a side note, I tried a 12X8 master electric prop. The thing went near vertical! I thought "yea buddy, this is a GOOD prop!". But, not having a amp meter I brought it right in and checked the battery temp. HOT! (bummer) no damage, only a slight shrinkage of the Sanyo shrinkwrap. Back to the 11X7. (If that new Astro gearbox would allow this FAI-40 to turn that 12X8, this would be a good thing.) I have to give the E-Fantasy four stars and two thumbs up. 



to leaving the motor hanging out there Sooo, I made a carbon fiber cowling in-monokote. Power comes from a geared, SCRC's. A Steve Neu FAI controller, propeller completes this powerful, minum tape to seal up the extreme pres-

Many have commented on the sweet, (Much quieter than most). won a famous Harold Reed Hammer-raffel! I can't say enough good things then made up 3-six cell stick packs. gold plated FAI connectors, formed a standard Airtronics Vanguard 4 chan-pack was used for reliability. Nothing It was time to fly!

wind. No problem for the E-Fantasy drama but I could have been smoother. nice climb out, a touch of left aileron jamin was also impressed with the tics). What more could you ask for!

## More From Bob

Economy (yeah, right) car racing classes have what's called "claimer motors". All motors MUST be removed by the owner and sold to any defeated competetor for the going rate (how much is the street price of a speed 400?). In addition, I propose that battery packs are also subject to "claim" at street (or agreed upon, prior to racing season) price. What do you think? Bob K. 

## Australian Electric E-mail Competition Rules

The Silent Electric Flyers of San Diego will be holding this contest on Saturday, April 19, 1997. All are welcome to join. The site will be their field East of Sea World in San Diego. Call Pat Conway with any questions at: (619) 267-9709.

The rules are as follows:

- a) You are to make your flights at any time between March 28th and April 28th 1997.
  - b) The aim is to:
    - i) fly 3 consecutive flight tasks of exactly 5 minutes without landing,
    - ii) use as little motor run as possible and
    - iii) to land on a designated spot.
  - c) Repeat (b) four times and submit your results.
  - d) The 4 flights do not have to be on the same day.
  - e) All results must be emailed to me (Ray Pike) and arrive before Saturday 3rd May 1996.
  - f) Preferred email method is via the MAAA WEB page at: [stingray@c031.aone.net.au](mailto:stingray@c031.aone.net.au)
- [NOTE: See the MAAA Page at: <http://www.ozemail.com.au/~maaa/>]

Description of a flight:

The model is launched and timing starts. One watch is used to time the total motor run, (\*note 1) being started and stopped when the motor is, another watch is used to time the flight duration. At the five minute mark, the pilot attempts to pass under an imaginary 'limbo' of 6 metres. There is a sighting line at the limbo and the timer records the exact time that the model passes this line. (\*note 2) At ten minutes after launch, the pilot again performs a limbo pass and the timer records the second time. At fifteen minutes the final limbo is performed (\*note 3) and the time is again recorded. The pilot then attempts to land on the landing spot.

\*note 1: the pilot may use their motor at any time, but all motor run after launch and before the fifteen minute limbo is counted. The free motor run will be deducted when the scoring is done.

\*note 2: this timing can be achieved by using a 'split' time on a stop watch. The split button is pressed as the model passes sighting line and the elapsed time is written down, the split is pressed again and the watch continues to register the elapsed flight time.

\*note 3: the third limbo is NOT compulsory, the pilot may elect to land at fifteen minutes. The watch is then stopped when model stops moving. This is mainly for anyone who runs out of motor.

**General Note:** Errors in the pilot's timing of earlier limbo passes does not affect the time that later limbos are performed. eg if the first limbo is made at 5:30 then the pilot still tries to make the second limbo at exactly 10 minutes after launch and the third one at fifteen minutes.

Scoring:

Each limbo pass time is recorded as the time since launch. They should be approximately 5, 10 and 15 minutes. For the first flight time, one point will be awarded for every second of flight up to 5 minutes and one point will be deducted for every second of flight over 5 minutes. eg. a first flight task of 4:51 will score 291 points, a flight of 5:06 will score 294 points. The second and third flight times will be scored in a similar way but using 10 and 15 minutes after launch as the ideal limbo times. These flights still score a maximum of 300 points each. A second flight time of 10:05 gains 295 points. Each task has a maximum of 300 points.

Another way of thinking of this is that there are three precision limbo passes to be performed. A point is lost for every second of error from the "perfect" limbo pass time. You are also given a score relating to the power/glide ratio thus the loss of points for excessive motor runs.

Free motor run:

There will be a "free" motor run time based on the number of cells used as follows: 7 cells - 60 secs, 10 cells - 45 secs, over 10 cells - 30 secs - this is the total free motor run for the three 5 minute flights. Motor runs greater than these will lose 1 point/sec for the excess.

Landing bonus:

Landing within a distance of 7.5 metres of the landing spot scores 50 points, within 15 metres scores 25 points. (F5B spot distances)

Number of official flights:

Each competitor may submit four (4) sets of scores. The best three flights will be used to determine the final places. In the event of a tie, the fourth result will be used to separate the tied competitors.



### Capture Range Test for True Distance - from HiTec

Start with your transmitter antenna collapsed at 200 to 250 feet away from your plane. The receiver's antenna should be fully extended. Move toward your plane until the sticks work the control surfaces; this is the true point of capture. Mark the point where the capture occurs - usually 100 to 150 feet from the plane. Move toward the plane moving the sticks to verify capture. About half way between the point of capture and the plane, hold the transmitter steady and watch for "flutter" from the plane's control surfaces - this is an "on air" interference check. If no "flutter" is observed keep moving toward the plane. Watch for signal "swamping" at less than ten feet. If control is maintained - you're ready to fly.





## BENT SHAFT

Steve Belknap

I'm going to have a rather short Bent Shaft this month...Hey, I'm not sure I want to think about that!... Now for an oxymoron: "SpeedyBee". Mike Schourds has one of



these ambiguously named planes. His even has R/C car-type shocks mounted for stabilization during those high speed ground runs. Power is an A15 on 12 cells. Mike says it's easier to build than the Lazy Bee but it is not a very speedy, Speedy.

Michael Breithaupt sent me this photo from Germany of his new plane, "Blue Sky".



It is his own design and, of course, scratch built. Wingspan is 3.5 meters, weight: 3600 grams, motor: Keller 35/10, 15 1700 mAh

cells, & 6 servos (4 in the wing). It flies great and has good climb. Michael's other new baby is named "Stefanie". She was brought out to show on February 25. She is 51 cm long and weighs 3150 grams. Michael hasn't seen her fly but I'm sure in his mind she is a perfect Angel. Congratulations, Old Man! He has said he will send me a copy of a video he made at the International Electro-Meeting in Aspach last September. Also, brushless motors are now being made by Lehner, Plettenberg, Kontronik, and others. They are very expensive. There is a trend by local modelers to use cheap Czechoslovakian ARFs. They are high quality and come in all sizes. Finally, there was a fair in March called Faszination Modeling held in Sinsheim. If Michael was able to attend he said he would send pictures. I understand that it may be a while before he can send any of the stuff he mentioned as I know he has not had a good nights sleep since Feb. 25.

Never one to let grass grow under his wheels, Fred "Multi-engine" Harris has created another of his interesting "Beauties". Ever seen a Lazy Tri-motor Bee? Well Fred



has one of his own making. Three Speed 400s and 18 cells pull this thing around with authority! True to it's name it sounds like a herd of bumble bees when it flies. As always he has done a beautiful job!



Fred is also showing off his Handy from R/C Direct. It comes either covered or uncovered. Nice flying Speed 400 powered glider. Fred removed some of the sheeting to lighten it up.



## Pylon Racing for April

Steve Belknap

Oh no! Oh no! Oh noooo! CRASH!! Well that was how my day started last Sunday. Seems some electrons got confused and when the plane went into BEC it also went into PEC (Plane Eliminator Circuit). I had a total loss of radio. So at the end of my first practice flight my Speed 400 Pylon Racer (the one that was going to kick everyone else's butt!) was destroyed. At least I had my backup plane, slow as it is.



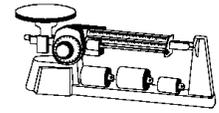
We had a guest from Riverside, known to many modelers, Mike Lee. Mike has been around models for many years and writes several columns for several different magazines. I met Mike about 10 years ago flying gas planes on the streets of a commercial development area in Mira Mesa. At that time I was pretty new at R/C and was quite impressed with Mike's skill. I remember him landing his plane as though his landing flight paths were virtually asymptotic to the pavement. I figured it would take me 10 years to get that good... Well, that didn't happen... Still, it was fun to watch him fly. Mike says he got into electric pylon fun flying last November and was flying something called a Switchblade. During one of the heats he and George Joy really got their adrenaline flowing when they screamed around the course tip-to-tip the whole way! It was the most fun race of the day. Speaking of tip-to-tip, when Mike and Steve Neu raced together, again a very close race, they collided slightly rounding the near pylons. Upon inspection, Mike was missing a small chunk of his wing tip. Sheared

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SAN DIEGO

SCALE



By Bruce Cronkhite

The Silent Electric Flyers of San Diego will fly a new event for the first time at the Fall Fun Fest in October, 1997. It is an Electric scale event named San Diego Scale. Bruce Cronkhite will be the CD for the event, and he will be properly arbitrary and dictatorial, as is required. The rules for the new class follow: (The following are provisional rules for a new class of R/C Electric Flying Scale models.)

### Intent.

The intent of this class is to provide a framework where modelers can build and fly scale models simply, inexpensively, and enjoyably. Hopefully these rules will generate models that are fun to build, fun to fly, and will generate comments from viewers such as "doesn't that plane look neat?", or some such. These rules are intended to remove most of the difficulty in scale competition. No detailed examination of the model is required. The emphasis is on pleasing, realistic appearance and flight performance. In addition it is desired to keep the builders investment minimized. The intent is to follow the lead taken by both the Scale Staffel and the Flying Aces Club in making modeling of real full size aircraft enjoyable and accessible for the electric R/C modeler.

### Aircraft

The model shall conform to the following:

1. It shall be a model of a full sized aircraft. This shall be demonstrated by at least one photo or photo copy of the full size aircraft type that has been modeled. Additional photos or drawings may be provided to show color, markings, and configuration to make judging easier. For instance if you want to color your Fokker D VIII red you better have a verified drawing of a full size one painted red..
  2. The maximum wing span of the longest wing of the model shall be 50 inches. There are no other restrictions. Unusual airplanes are desired
  3. The model shall be electric powered. There are no restrictions on the motors/s or batteries.
- There is no intent to reward complexity in the aircraft choice. A B-36 should not be rated higher than a well built and flown J-3 Cub just because the B-36 has a lot of motors. It is hoped, however, that a Rearwin Sportster would rate higher than a J-3 Cub, other things being equal.

*Provisional-* A separate category is established for models with wingspans greater than 50 inches. Large and small models shall not compete together.

### Competition and Judging

The Competition shall consist of two phases: Flight Qualification and Scale appearance judging.

#### Flight Qualification

In order to qualify for the Scale Appearance judging the aircraft shall be flown to demonstrate its performance. The model shall takeoff, fly around the field area realistically, and land on the runway. During the flight the model shall fly as the full size airplane: zoomy planes should be zoomy, aerobatic planes should do aerobatics, and light planes should fly lightly. C-47's are not pylon racers nor do they do aerobatics. The flight realism\* will be included in the Scale Appearance judging. If the full size airplane was not designed to take off, the model may be hand-launched. Landing is optional. If the full size airplane has retract gear, the model should also, or it will be downgraded for flight realism.

#### Scale Appearance Judging

The models will be judged to evaluate how well the model duplicates the appearance of the full size aircraft as shown in the supplied photos. The "beauty" of the full size airplane design is not to be evaluated, only how well the model reproduces the looks of the original. Size, shape, configuration, markings, color of the airplane exterior are judged. No evaluation of the interior shall be made. A pilot is not required, but a pilot certainly adds to the overall appearance of an open cockpit airplane. The judging will be done by the "Walt Mooney" method. In this method there is no attempt to award an absolute scale points number. The models entered are simply rated in comparison to each other. The most often used method for doing this is to arrange all the models in a line and exchange line positions with the intent of having the best at one end and the others arranged to the other end in descending order of appearance. The flight performance of the model shall be considered in the evaluation. It should be noted that photo documentation completely supporting the appearance of a model, while not required, is strongly desired. Three-view drawings are not to be trusted and are discouraged. The judges are the contestants themselves. The CD will set up the original order, and will resolve conflicts in favor of the contestant offering the biggest bribe. That's it

#### \*Flight Realism Considerations

Flight Speed—Almost all scale models fly too fast. While modelers like to watch their model zoom around it looks wrong for scale. Fly slowly at reduced throttle. One way to build an airplane that will fly slowly is to build it as light as possible. Don't build to be crashworthy. Build to fly.

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By Steve Manganelli

# *Ultracapacitor!*

## Battery of the Future?

The ultracapacitor as shown and described by Dr. Richard E. Smith, President of Ultracapacitor Energy, Division of Maxwell Technologies has great potential as a buffering device where peak electrical power loads are substantially greater than sustained loads. Dr. Smith was the featured speaker at Professional Engineering Society meeting held March 28th and brought and displayed developmental samples of ultracapacitors (UCAPS) ranging from "small" units like 5 Farad and 7 volts to 2400 Farad, 2.3 Volts. Dr. Smith reflected on his career managing high technology and research and development companies and relished the opportunity to bring a new product from the developmental stage to full market practicality. At the present time, Ucaps are a bit pricey at \$1 to \$20/Farad. Dr. Smith showed the 2400 F device which measures approximately 3" X 3" X 8" saying the price needs to be down around \$10 which he hopes to achieve by the year 2002. Before we consider the application to our E-powered R/C models, let's look at the difference between the battery and a capacitor as an energy storage device.

The simple difference is that a battery cell undergoes a chemical reaction to produce electrical current, the voltage predetermined by the chemistry of the materials involved. A capacitor stores charge at whatever voltage is applied. Positive and negative charges are attracted respectively to positive and negative plates of the capacitor when a voltage source is applied. The charge persists when the voltage source is removed, thus energy is stored. How much energy? We have a good feel for how much is in a Sanyo 1700 SCRC cell but how much can a 1 Farad capacitor deliver? Among several complicated definitions of 1 Farad is 1 Amp-Second/Volt or 1 amp for 1 second at 1 volt. Sounds small compared to 1.7 amps for 1 hour at 1.2 volts (i.e. a 1700 SCRC cell) doesn't it? Then what about the size and weight of the capacitor compared to a Nicad cell? Maybe we just need lots of Ucaps. An old fashioned 1 F capacitor is the size of a garbage can and weighs 200 lbs. Usually when we talk of capacitors we talk in units of micro-Farads or .000001 Farads. Even the mighty capacitor bank in the battery zapper totals less than 1/10 of 1 F! That is why the ability to pack 5 F in a 2" X 2" by .25" package is a tremendous innovation and opens up the possibility of Ucaps as energy storage devices. The chemical composition of the Ucap is a trade secret but was said to be composed of aluminum



and carbon plus an electrolyte. Parallel plates of materials are stacked rather than rolled resulting in cubic rather than cylindrical packages, a feature that allows denser packing. Wouldn't nicads fit in our airplanes better if they were square?

For a Ucap to be an improvement over nicads in our application, the Ucap must have equivalent or better energy density—that is we want the same or less weight for the same energy. In fact, the energy density of 1700 SCRC cells is 35 Watt-hours/kg and Ucaps on the order of 5 W-h/kg. Thus equivalent Ucaps would be 7 times heavier than Nicads, whoops! Once I heard that, my modeling interest waned and I became an interested observer.

As mentioned earlier, the primary applications for Ucaps are those whose transient power requirements are large and brief compared with steady state requirements. The Ucaps become the "load levelers" and when combined with a battery can significantly improve system performance. One obvious load leveler application is the Uninterruptable Power Supplies (UPS) for electric utilities where 10 seconds of backup power would alleviate brown-outs during grid switching operations. The advantage of Ucaps over batteries are reliability and electrical efficiency. The charge/discharge efficiency of Ucaps is over 90% compared with batteries in the 80's or less. That and the old bugaboo that effects your flashlight you have sitting around for the power outages : you never know if the batteries are any good until you need them and if they're not, it's too late! Another potentially large market for Ucaps is European cell phones which use a brief power spike for triggering the multiplexing protocol. This transient requirement is hard on the batteries; the Ucap addition would be a significant innovation.

Instead of stocking up on Ucaps for your R/C models, you might consider buying stock in Ultracapacitor Energy Technologies to fund your modeling enterprises. Dr. Smith estimates the total market for products like his to be over \$1 Billion in the next 10 years. His company has grown from Government sponsored R&D to commercial viability in just a few years. As the costs go down, the market goes up. Ultracapacitor Energy Technologies could be San Diego's next Qualcomm.



## New Creations R/C

Charging the air with excitement

P.O. Box 496 Willis, TX 77378  
(409) 856-4630

These prices are good only while supplies last! No back orders.

**Robbe Electric Duct Fan Combo:** motor, duct fan & kit #RB3082C **\$114.95**

**Robbe Planeta 400 w/ 3.7 inline gear box** 1/8" output shaft #RB4185 **\$49.85**

**Robbe 7.2motor w/30mm spinner, 6x4 non-folding prop, prop adapter, and capacitors** #RB7761 **\$17.95**

**Robbe RSC 730 Elec. Proportional Speed Control** 6-21 cells, 30 amps, brake/ opto overcurrent protection #RB8188 **\$60.95**

**Robbe Happy Fly kit** 1.8 meter Sailplane: durathane fuse, build-up wing, Free motor mount #RB3157 **\$69.95**

**Robbe 210 On/ Off controller** 6-8 cells, 10 amps, BEC/ brake #RB8357 **\$24.95**

**Robbe Skyflex 2000 E-Powered Kite ARF** W/mtr. and bec Cont. #RB3204 **\$119.95**

**Robbe 12x6 Dynamic prop ( non folding)** # 77701206 **\$3.50**

**Robbe 9x5 Dyn. prop** # RB 7696 **\$2.25**

## BATTERIES



*Custom Packs Available*

**1700SCRC** \$4.50 ea.  
**RC2000** \$6.50 ea.

Add \$1.00/cell for "Zapping"

Steve Belknap (619) 693-3739

\$0.50 of each cell goes to SEFSD

## SCALE cont'd

Dihedral Many scale models still have the large dihedral left over from the days of free-flight. Many high wing models will turn very well with rudder and the full size scale dihedral. The Cub is one of these. You won't do aerobatics, but this is a scale model, right? And even if you want to put ailerons on your model, with the new sub-micro servos you can put a servo on each aileron with almost no weight penalty.

Wheels. Again left over from free-flight and grass fields wheels are too large. Also, if the full size aircraft had a tailskid, don't put on a tailwheel just to taxi. Most models will taxi very well on a tail skid if you use bursts of power just like the full size guys did.

Flight Maneuvering. Keep the bank angle down. A 60 deg. bank is a steep turn in full size and causes a 2g. load on your passengers. The FAA considers a 60 deg ban and a 30 deg pitch angle as aerobatic maneuvers..

Two excellent sources of airplane photos are the San Diego Aerospace Museum Library and Bob Banka's Scale Model Research,

An excellent source for model designs are Peanut Scale or Rubber Scale kits. Have the plans blown up to the size you want at your local blueprint shop. The structure will be nice and light, and you just have to use appropriate wood sizes

## NEU FAI SPEED CONTROLLERS

Prices for Club Members Only.

3 Micro FAI Speed Controllers: High rate, proportional, opto-isolation, soft start, soft brake, no glitch start-up, very light (9 grams without wires), all operate on 6-18 cells, SMT construction. Three models available:  
40 Amps max. \$55.00  
60 Amps max. \$65.00  
80 Amps max. \$75.00

2 Classic FAI Speed Controllers: High rate, proportional, opto-isolation, soft start, soft brake, no glitch start-up, light weight (25 grams without wires), SMT construction. Both rated at 85+ Amps max. Two models available:  
FAI-HV (8-30 cells) \$75.00  
FAI-LV (7-20 cells) \$75.00

Contact: Steve Neu 284-0816

## Classified ads: Great Stuff !!

from Wayne Walker  
(619) 284-6119

### Turbo Coolers

Keep batteries cool. 12V fan, 4" tube.

Reg \$29.95 Now only **\$23.96**

### Fast Eddie Kits

Sport, pylon plane for 05 **\$15.00**

### Cadcat Fuselages

Fiberglass fuses for pylon racing. For 05 on 7 cells. Wing plans included **\$40.00**

## Pylon Racing Cont'd

off by Neu's prop no doubt.

Bob Sliff came down from Orange County with a couple new Speed 400 pylon racers. His race plane looked real nice and flew fine but the prop he was using looked as though it came off an old Wen Mac from the 60s. When he throttled up (that's another funny story: When Aveox started producing the BEC speed controller for the Speed 400s they set it up so that when you pushed the stick to full throttle it took nearly 5 seconds for the motor to reach full RPM. That must have been something of an embarrassment to Aveox because now every time you call Aveox they answer the phone with "Good morning, Aveox, we fixed the speed control slow start problem, can I help you?") it sounded like there was a blade missing, the bearings were shot, and the motor mount screws were loose! Somebody get this guy a decent prop!

Even after doing "Manganellis" all over the course, Steve still could not catch up with Neu's Aveox powered racer. The two Steves were the only two entrants in the Unlimited class. Looks like we're gonna hafta arm wrestle Manganelli into flying a, gasp, choke, spit, can motor-powered plane! Time to get with the program, Dude!



# SEFSD 1997 CALENDAR

<b>MARCH</b>	15TH	HARBOR FUNFLY	SAT 9AM
	16TH	PYLON RACES	SUNDAY 8AM
<b>APRIL</b>	6TH	PYLON RACES	SUNDAY 8AM
	16TH	MEETING NIGHT	WED 7PM
	26TH	TORREY PINES SCALE FLY-IN	
<b>MAY</b>	3RD & 4TH	<b>SPRING FLING AND OPEN HOUSE/AIR SHOW</b>	
<b>JUNE</b>	1ST	PYLON RACES	SUNDAY 8AM FATHER'S DAY
<b>JULY</b>	4TH	<b>4TH OF JULY BAR-B-QUE &amp; NIGHT FLY</b>	
	6TH	PYLON RACES	SUNDAY 8AM
	16TH	MEETING NIGHT	WED 7PM
<b>AUGUST</b>	2ND - 5TH	ELECTRIC NATS AT MUNCIE, IN	
	7TH	PYLON RACES	SUNDAY 8AM
	23 & 34	<b>F5B TEAM SELECTION TRIALS AND</b> ←	
		<b>NORTH AMERICAN F5B CHAMPIONSHIPS</b>	
<b>SEPTEMBER</b>	17TH	MEETING NIGHT	WED 7PM
<b>OCTOBER</b>	4TH & 5TH	<b>FALL FUN FEST AND AIR SHOW</b>	
	15TH - WED	MEETING NIGHT	WED 7PM
	18TH & 19TH	<b>F5D PYLON RACING TEAM SELECTIONS AND NORTH AMERICAN CHAMPIONSHIPS</b>	
	25TH - SAT	TPG POWAY FUN FLY, ELECTRIC WELCOME!	
<b>NOVEMBER</b>	2ND	PYLON RACES	SUNDAY 8AM
<b>DECEMBER</b>	7TH	CHRISTMAS PARTY	6PM - 94TH AERO SQUADRON

*NOTICE  
DATE CHANGE*

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