



PEAK CHARGE

Dedicated to the promotion of
electric propulsion in all types of aeromodeling

SEFSD Newsletter

November 2002

Volume XII Issue XI

calendar

November Meeting
7:00 PM, 11-26, 2002

Aerospace Museum
Balboa Park

Schedule of Events

ElectroGlide

Saturday,
November 23, 9:00 AM

Jet Day at the Bay

Saturday,
December 14th

November Raffle Prizes

Complete ZAGI kit
S200 power system
MC2002 Charger
Pr 200 motors w/connectors
Pr Micro servos



Silent Electric Flyers of San Diego

Club Information

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

2002 Officers:

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Secretary TBD

Treasurer Mike Neale
858-674-1378 MNeale@energy.com

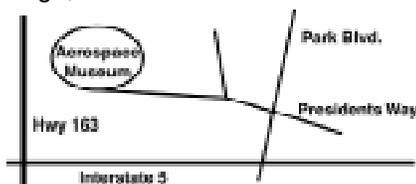
Editor Bill Fee
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Safety Steve Neu
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Membership Dennis Collins
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Monthly Meeting

Held on the fourth Tuesday of each month (no meeting in December) at 7:00 PM. Meeting room is at the San Diego Aerospace Museum, San Diego, CA.



Flying Site

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



Membership / Subscription:

\$25 per year for membership. \$15 for subscription only. \$10 for under 18 or additional family member. Contact Dennis Collins, 5150 Corte Playa Catalina, San Diego, CA 92124

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.

PREZ SEZ



I have discussed several items with the board including increasing the dues, but for now,

there will be no changes in the dues structure.

We EXPECT every regular flyer at our field to volunteer for some aspect of the MWE. Wayne (our fearless CD) and I will be meeting this Monday to begin the planning. After that, meetings will be held on alternating Mondays. All the major players will continue to organize the event.

Jet Day at the Bay, Part Trois (December 14) will be another "dry run" of the impound system, with some changes incorporated. This event will begin with "unique, interesting, or unusual aircraft," and finish with the jets. As before, a Zagi is not unique or unusual, and definitely not interesting!!!

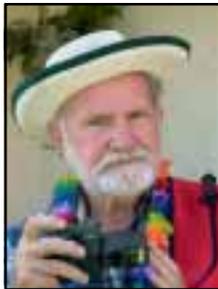
I have received several complaints about unsafe flying and inappropriate field behavior such as "frequency hogging" and vulgar language. This will no longer be allowed to continue. We will use the "Three Strikes" approach. You get two warnings, and the third time, you will lose your club membership and be asked to leave and never return. A bit harsh, yes, but it appears to be the only way to solve the problem.

Lastly, I want everyone to try to make it to our November meeting for the elections. If you don't vote, you can't complain about the outcome.



In this Corner

An Editorial by Bill Fee



The Dodo bird has ben extinct for some time. Sometimes I feel that the things I value make me part of an endangered species. In a constantly changing world it is easy to fall out of touch with today's realities.

For those of you with a computer and access to the internet, much information is almost instantly available on the the club website produced by webmaster Stilianos Jackson.

But not everyone has a computer. More than that, there is something about having a "hard copy" in your hands. The news is available almost instantaneously on radio, TV or the internet, yet we buy newspapers and magazines (as if the written word confirmed or verified information).

We are moving back to the Aerospace Museum. Before the last meeting I did a mini tour of that facility and photographed three full size "models": (see front cover) sorry, they were neither RC or electric.

The meeting is always on the fourth Tuesday of the month (unless otherwise advised due to holidays, etc.) Articles should be submitted by the second Saturday. I need to get PC to the printer the Tuesday before the meeting, and mail it the following Thursday.

My COX E-Mail allows a total file size of 5.0 mb Preferably, picture files should be transmitted as JPEGs or PDF; either PC or MAC formats acceptable.

NIMH cells

by Steve Neu

Lately, there has been a flood of new NIMH cells for electric flight coming to the hobby market. This month we looked at the Sanyo HR4/5FAUP(see below)—a real mouth full! It is a "fat" A size cell which is a little shorter than the much-loved 800AR. It measures 41mm in length 17.7mm in diameter and weighs 39 grams. I ran tests at both 20 and 40 amps as I believe this battery will find wide use in the medium power segment.

The new Sanyo cell delivers about 1800mah useable capacity under load. The voltages for both the 20 and 40 amp loads are pretty good. If, as I suspect, this cell is made using similar construction methods as the Sanyo NIMH 2600 cell I tested a few months back, this cell will be very durable.

It gives best performance when charged at a high rate, which gets the battery pretty warm, and then discharged while hot. If you let the pack cool the performance will degrade.

It may be a few months before these cells make it to your supplier, as the cells tested here were pre-production samples supplied by Diversity Models



SHOE



MONT

by Chris Cassatt and Gary Brookins



Minutes from the October Meeting

By Vice President Tom DeShon



Introduction –

The October meeting was called to order on 10/22/02. There was the usual contingent of visitors/new members. In attendance were new members Apul Nehata, Mary Dixon, Linda Irish, Roland Maxwell, John Archibald, and Bill Bolenbacher. Also attending was Sam Valdez representing the mentorship program that joined fliers at the field a few weeks ago.

general rules have changed recently. The motor and battery requirements have been expanded. In the past, battery packs were limited to 7 cells. That has increased to 8 cells. Also, the S400 motors had to be 6.0v or 7.2v versions. Beginning last month, competitors may use S400 4.8v motors. All Junior pilots, 17 years old and under, are able to fly any configuration of plane regardless of motor size or cell count. Future competitions are planned for 9:30 AM on 11/30, and 12/28. For information on this event, please contact Don Wimple.

Old Biz –

The club's video library has been stable for quite some time now. As always, donations are accepted and videos of more current topics/events would be greatly appreciated. Please see Urana Green with questions and suggestions.

The newsletter will now be compiled and distributed by Bill Fee. Another new development is that the newsletter is now published in color. Bill is still looking for club members to submit articles related to the hobby. Topics may include articles on construction, assembly review, flight review, or specific "how-to" topics. The club is also entertaining the idea of accepting advertisements to defray the cost of publishing the newsletter. Anyone interested in advertising in the newsletter should contact Bill Fee directly. Please forward any text or graphic submissions to dwfee@cox.net.



The November meeting will be moved back to the Aerospace Museum. The day and time will remain the same (4th Tuesday @ 7:00). For those of you who have never attended a

meeting at the Aerospace Museum, the entrance to the conference area is found around the back of the building. Follow the stairs up to the entrance of the building and once inside the meeting area will be obvious.

Awards –

Usually we reserve this space to announce internal awards given by the club to one or more of its members. Every now and then, the club receives an award from an outside agency. Sam Valdez from a local juvenile mentorship program presented the club with a certificate of appreciation for the time and effort expended by members of the club in support of the "Day at the Field" on 10/13. Consideration is underway regarding a repeat performance as this event was very well received by all in attendance.

New Biz –Club Competition / Events –

The S400 Electroglide will take place Saturday, 10/26 at 9:30 AM unless weather precludes. In this case, the event will move to the following weekend. This event always occurs on the Saturday following the monthly meeting. All entrants, please note that the



Club Programs -

The 2003 MWE is currently in the planning stages. This year, the event will run from 2/14/03 – 2/17/03. Cost is \$15/day or \$25 for all three days. The committee is looking for volunteers as usual. Wayne Walker has volunteered to be Contest Director (CD) of the event. Anyone interested in volunteering should contact Wayne, Bill Knoll, Bill Everett, or Chuck Grimm. This year's schedule of events are:

Saturday – Sky Scooter, All Up – Last Down.

Sunday – Limbo Combat

Monday – S400 Pylon Racing

Also included will be demonstrations of helicopters, 3-D aerobatics, ducted fans, F5B, and F5D airplanes. Prizes will be awarded to competitors and “incentives” are being suggested for all volunteers.

Construction / Development -

The club is currently in need of a trailer to store club equipment. The existing trailer is degrading and a

replacement 6 X 8 enclosed trailer would be perfect. All of the F5-B timing equipment as well as the pylon and landing zone markers are all stored in this trailer. Donations would be preferable, but a low-priced trailer would also be considered.

Wayne Walker is attempting to get financial support from Hitec, the radio manufacturer. Each year, Hitec donates money to deserving clubs in support of flying fields, etc. Wayne is initiating the application and will keep us posted on his progress.

Other Events –

On a political note....local elections are coming up in a few weeks. The club has a new friend in Kevin Falconer who is running for a council position that will directly impact our flying site. Kevin is currently the head of the Mission Bay Planning committee. Some of us have already made donations to his campaign, but there's never enough money. Bill Knoll has been collecting donations and will continue to do so up to

the day of the election.

Special Presentations / Internal Events—

The AMA has required all clubs to review and update their bylaws. These revised bylaws were voted on at the October meeting and accepted unanimously.

Its time again for the election of club officers. Nominees were suggested during the meeting, but official voting has not yet taken place. Those nominated were essentially the same officers as those that served last year. If you are interested in serving on one of the many club positions, please mention it to Bill Knoll and he will make sure that your name is on the list of nominees. Most of the current officers would be more than willing to give up their position to a motivated member.

Safety, Safety, Safety....

There was no formal Safety discussion at this meeting.

The Training Program-

Flight Training has been going very well recently. In addition to the ongoing beginner instruction on weekends, there is now aerobatic training for those interested. The trainer, Tim Attaway, is available at the field on Wednesdays at 10:00 AM. Reservations or a formal sign-up is not required. General flying assistance is available at the club on most weekends from 8:00 – 10:00.

How To-

The night's "How-To" was very informative. Steve Belknap and Steve Neu discussed the latest battery technology and its impact on the hobby. The general overtone of the demonstration was that the newer Nickel Metal Hydride batteries are becoming as good a performer as the older Nickel Cadmium cells. Steve Belknap showed slides that detailed the performance of these NiMH cells versus NiCads of the same dimensions. The information was thorough and too detailed for a full explanation in this context. If anyone is interested in Steve's presentation, it may be included in this or a future issue of the newsletter; or you could

always ask Steve directly.

A second demonstration was presented by Mike Blott regarding Lithium Ion and Lithium Polymer batteries. Mike explained that these cells are not generally available to the public for use in our applications. The LI cells must be charged individually as the charging parameters are very exact. Most of the packs available today are from the cell phone industry and already include a charging circuit built into the pack. The associated risk of LI cells is that they do not have a vent and may explode if over charged. The Lithium Polymer batteries are not yet available on the general market but are speculated to have higher capacity than the LI cells. The LP cells are designed to expand with use so the risk of accidental explosion is reduced.

Show & Tell-

Richard Whitley brought his custom "Buz-zard". The plane looks just like its name and flies well.

Bill Knoll demonstrated the new "Duck Decoy" that he and Mike Holland designed and built. They started with a decoy of a mallard and added electronics, a power system and now the duck moves about the pond by radio control. Acceleration and cruising speed were undetermined.

Chuck Grimm brought his new Tango by FVK Model. The glider had not yet flown but looked like it would be competitive in the S400 Electroglide.

Jeff Keesaman showed off his new P51 ARF by World Models. The plane weighs about 7lbs, and flies using a Plettenberg F5B motor and 24 cells. Performance is unlimited.

As usual, Mike Blott brought another plane that weighs less than 1lb. It's a P-51 by GWS that Mike has assembled with the intent of writing a magazine review. The plane weighs 13 oz, flies using a S400 or S300 geared motor, and requires a 4 channel radio and 6-cell battery pack. These planes should be available to the general public by December of this year.

Steve Neu brought his new Mini Super Dioblotin. This 3-D plane flies with an Aveox 1010-2Y motor coupled to a Maxon 4.4-1 gearbox, 16 cells and a 14 x 8 prop. The performance is unlimited.

The meeting adjourned shortly after 9:30 PM.

Ode to the Spell Checker

Eye halve a spelling checker, it came with my pea
sea.

It plainly marks four my revue, miss steaks eye kin
knot sea.

Eye strike a key and type a word, and weight four it
two say.

Weather eye am wrong oar write, It shows me strait
a weigh.

As soon as a mist ache is maid,
it nose bee fore two long.

And eye can put the error
rite, its rare lee ever
wrong.

-. Eye-have- run this poem threw it, and I
am shore your pleased two no.

Its letter perfect awl the
weigh, my checker tolled
me sew.

Sew eye hope that this has shed sum light on why
their is an occasional miss steak in my column. It ain't my
fault.

Here is a little poem that will help you understand just how
stupid a spell checker really is.

Member Classifieds

Limited to 100 words or 10 lines of 12 point
type, INCLUDING SUBJECT, NAME AND AD-
DRESS, PHONE NUMBER AND/OR E-MAIL
ADDRESS.

Copy must be received by the 2nd weekend of the
month for inclusion. The advertisement will be re-
peated in three consecutive issues, unless the Editor is
informed otherwise.

Motors for Sale: Astro15 like new, used 5 times.
Aveox 1412/3Y new in box, Aveox F12 new in box
with Aveox controler l260
Endoplasma and gear box for E3d. E-Mail me if you
are interested. Doug Rubin, docrubin@san.rr.com

SEFSD Christmas Party

Reuben's, Harbor Island

Come One, Come All! This year on Sunday,
Dec. 1st at 6 PM, we'll be meeting at Reuben's in the
Garden Room for our **5th Annual Christmas Party**.
As usual the view and comraderie will at least as good
as the food. And that's a lot to say when you realize
they consistantly get 4 or 5 stars in the ranking of San
Diego Restaruants!

This year we'll have a room all to ourselves so we
don't have to worry about distrubing the non-flyers in
the main restaruant! Bill Everitt has gathered up some
great Door Prizes to tease us with (Radios & Mo-
tors?).

Please bring your checks to the November Meet-
ing at the Aerospace Muesum to pay for your dinners
in advance. Right now we have room for 6 more. If
you want to reserve a spot, let me know by e-mail
(wayne@walker.org) or mail me your checks at 8120
LaurelridgeRd., San Diego 92120 if you're not going
to be at the Nov. meeting.

Don't get left out, there's Prime Rib, Swordfish,
or Herbal Chicken with all the trimmings and desert
too! We'll start with social hour at 6 PM.

Wayne Walker

At the Christmas dinner, we will have a couple of great
door prizes.



*"The quickest way to double your money is to fold it
in half and put it back in your pocket."*

*"Duct tape is like the Force. It has a light side & a
dark side, and it holds the universe together."*

Wayne

October Electroglide Results

by Tom DeShon



The contest was rescheduled from 10/26 to 11/2 due to rain.

The competition began at 9:30 and finished at 10:15. The longest individual flight was Pedro's second heat with 10 minutes, 21 seconds.



From left to right in the picture....

Daniel Belknap flying a Fling Thing with 61 total points.

Stinson flying an Athos with 70 total points.

Doug Rubin flying a Rubin Special with 104 total points.

Richard Chambers flying a Boomerang XE with 49 total points.

Pedro Brantuas flying a Sunbird with 148 total points.

"Never test the depth of the water with both feet"

"Good judgment comes from bad experience, and a lot of that comes from bad judgment."

WANTED

WHAT: two hours of your time

WHEN: Saturday, December 14, 2002

WHERE: SEFSD Field

To sign up, PLEASE contact Lou Rosse at the November meeting, or:

Phone: 619-442-2112

Fax: 619-442-6866

Email: Clrosse@aol.com

DUTY: IMPOUND WORKER

TIMER.....Pilots will have transmitters for a limited time. We will be using two systems.

CLOCK/TIMER (1)

COMPUTER (1)

FREQUENCY MONITOR (1) We hope to have a frequency meter to help keep flying safe.

TRANSMITTERS (1 OR 2) Workers will help check transmitters in and out.

FLIGHT LINE MONITOR (1 OR 2) Workers will make sure that pilots return to Impound at the end of each flight.




San Diego Mid-Winter Electrics

Presented by the Silent Electric Flyers of San Diego and Hitec

Join us at the West Coast's largest Electric Airplane event in warm, sunny San Diego, California and enjoy up to 4 days of Electric Airplane Flying at our beautiful Mission Bay site. This is a great family vacation destination, just minutes from the world famous San Diego Zoo, Balboa Park, Sea World and other parks and attractions.

Our new format will include fewer events and demos with more "open flying."

Events

Check website for schedule

- Sat. Sky Scooter "all-up, last down"
- Sun. Dr. Jet's Dreaded Limbo Combat
- Sun., Mon. S400 Pylon Racing 1/2A course

Demos

Manufacturers "noon time" demos will include

- Helicopters
- 3D Aerobatics
- Ducted Fans
- F5B and F5D

Prizes

Hitec sponsored \$1500 pilots raffle
PLUS \$2000 open "buy a ticket" raffle

Vendors

Come and see your favorite R/C electric equipment suppliers.

For information on events, schedules, accommodations and for pre-registration form, see www.sefsd.org or contact **Bill Everitt** at:
 Phone (760) 753-1055
 Fax (760) 633-2271
 Email bill-everitt@cs.com
 or **Glen** at (858) 748-6948 x310



When

President's Day Weekend
 Friday thru Monday
 Feb. 14, 15, 16 & 17, 2003

Where

Silent Electric Flyers flying field directly east of the Sea World parking lot. See the web site for detailed directions.

How Much

\$15 a day or
 \$25 for all 3 days



SPECIAL THANKS TO:

Airplane
MAGAZINE

Quiet Flyer
 Magazine



Here's how to make a flying wing out of a cheap Wally World foam glider

INSTRUCTIONS

by Gerry Alvey

First off, throw everything but the wings away. These gliders come with 2 wing "halves". Using a straight edge, draw a line from root to tip about about 1/3 back from the leading edge of the wing half. Now split one wing half lengthwise down this line using a SHARP blade. The idea is to "sandwich" a balsa spar between these two pieces to strengthen the wing. I used a 3/16" x 1/2" spar but it was probably overkill. You can see the spar location in the unfinished photo. Use Tightbond or Elmers glue, as they are lighter than epoxy. Smear the adhesive on one side of the spar and press the spar and wing "quarter" together. Wipe up the excess that oozes out with paper towel, and tape the spar to the wing quarter TIGHTLY with masking tape. Pull the tape off in the morning and use similar procedure to bond the other piece of wing to the spar....now you have a complete 1/2 wing. Repeat for the other half wing

You now have two reinforced wing "halves". If you want a really strong wing you can add an internal carbon fiber spar also. Here's how: drill 1/4" holes in both wing halves (drill into the wing root, drill pointing towards the front wing tip), slob tightbond (or epoxy) into the hole and on a 1/4" carbon or fiberglass tube and shove the tube in until it contacts the balsa spar. The wing half will now look sorta' like this:

Balsa spar is the heavy line, carbon tube is the heaviest line which protrudes from the wing root.

Now you should have two wing halves with a rod sticking out of the root of one of them and a hole in the root of the other one. Let the glue dry and then stick the wing half with the carbon rod sticking out into the other wing half using same procedure and also coating the mating surfaces of the wing roots. Hold the wing halves together with tightly stretched masking tape for a day or so. I also attached 1/8" x 1/4" spruce spars to the trailing edges using the tightbond & tape



method. Sand down anything that sticks out and then fill any gaps with Red Devil Lightweight spackle (get it at any hardware store. It's the same stuff as the high priced model filler but it's lots cheaper. Buy the masking tape, and tightbond or a big bottle of Elmers glue at the same time.)

After the spackle dries, sand everything so it's more or

less even. I used 1 1/2" trailing edge stock for the ailerons. Hinge the ailerons to the wing's most done. Now

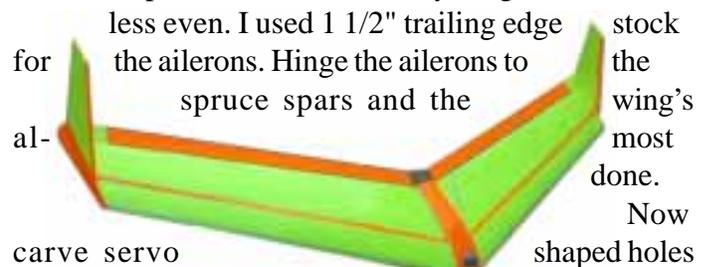
carve servo shaped holes about 1/16" deeper than the servos and cover the bottom of the holes w/ a very thin layer of epoxy. Holes should be sized so you have to press the servos in. I cover the servos in shrink wrap and use a bit of silicone to glue the covered servos into the holes.

Holds really tight and you can remove fast by simply cutting the shrink wrap. If you don't have shrink wrap, use tape or just use the silicone directly on the servo case. I cut some skinny little grooves for the servo wires. Then cover it with a piece of tape and paint right over it.

I painted the whole thing in really outlandish colors just for fun. Use cheap acrylic paint from the local art store (cleans up w/ water). Paint directly onto the foam; no surface prep is necessary. After the paint dries, use 2 1/2" wide clear packaging tape to cover everything. Stretch the tape top and bottom ala Zagi

style and it makes things pretty strong. I also added reinforced strapping to the leading edge for ding resistance.

Hollow out a hunk of scrap EPP



foam for a “fuse” and epoxy strips of velcro all around the areas where it mates to the wing. Used a pencil to mark the area on the wing and then epoxy velcro to the wing. Stick the painted EPP “fuse” to the wing with the velcro. It’s not strong enough for a motor mount but it protects the electric stuff, serves as a hand hold to launch, makes a great bumper to land on, and will hold a few ounces of ballast for windy days. If you choose to use a motor, bury some balsa or light spruce stringers in the bottom of the wing to use as motor mounts.

All in all, it’s a fair amount of work, but costs as close to nothing as you can get for a flying thing and actually flies pretty good.

All this stuff sounds heavy but my slope glider wing is exactly 13.0 oz using a 5 cell, 600ma battery in the front to balance. Figure I could add a motor and two more cells for about 3 to 3.5oz more and still be under 17 ounces ready to fly as a really strong s400 powered Zagi killer. If you work at it you could probably cut around 3 ounces out if you were careful building, used smaller spars, and didn’t slob glue everywhere like I did. As a slope glider it looks great from a distance of a few feet away, and is just about indestructible.

Cheers!

Gerry

It Could Happen To You

Saturday, November 2nd, 2002

Doug Rubin’s *MAGIC* was only two months old. It had been up, up and away perhaps a dozen times, but on this fateful morning it reached for the sky in a vertical climb, performed several impressive manoeuvres, and suddenly was out of control and spiralling downward. Miraculously, the plane pulled out on its own, made a landing approach (still out of control) and sustained only minor damage.

Initial assessment of the problem indicated that the switch was only half way on; a little zap, a ground check of vital functions, and the ship was again in the air.

Suddenly, and inexplicably, *Inexplicably, Lupin Rubin* was again out of control and headed earthward, but this time lady luck deserted Doug.

He will bench test surviving components, and the suspect switch will get special attention. No doubt we will get a full report at the next meeting. Two things we know for sure; it wasn’t pilot error, and there’s no indication that it was “a hit”.

This type of “disaster” has happened to most of us. Fly aways are almost as bad (maybe worse, depending on your perspective).

There’s the expense, and the hours of reconstruction, assembly, and hopefully test flying. And there’s a sense of personal loss; something you were pleased with, perhaps even proud of, is no more.

The measure of the man may well be how he responds to adversity. There had to be pain in his heart, but Doug had a smile on his face. He knew he would live to fly another day.

Some of us can remember when we only had one model to fly, when a crash meant painstaking hours of reconstruction and parts replacement, when weight was a major concern, and the beam scale was an essential on the work bench (or perhaps it was the kitchen table).

Next time you have what appears to be a calamity, remember that it’s only a hobby. Aren’t the friendships you make really what it’s all about?



“If at first you don’t succeed, skydiving is not for you” ...submitted by Wayne Walker

TREASURERS REPORT 2002

by Michael Neale

The SEFSD bank account began the year at \$24,393 it will close at approximately \$26,431. Our net income for 2002 is projected be \$2,038 – well done!

Subscriptions, flying members (\$25) and newsletter only members (\$15) accounted for \$5,030 income. The other main income source was the Mid-Winter Electrics (net income \$3,762) including \$1,000 sponsorship from **Hitec** –thanks guys!

Our most significant expenses have been the Peak Charge newsletter (\$2,650) and our membership of the Aerospace Museum (\$500).

Bill Everitt has run yet another excellent raffle, using sales of raffle tickets to buy the next month's prizes. We have broken even (again) on the raffle.

Dennis Collins has again been kept busy running our membership activities. Our membership has grown steadily throughout the year to an all time high of **two hundred and forty two**.

Please help Dennis by following these simple instructions when you renew your membership:

- 1) Send Dennis a copy of your new AMA card with your check.
- 2) Write "Renewal" or "New" as appropriate on your check.
- 3) Only send an Application Form if you are a new member or want to change your address, telephone number or email address etc.

SEFSD membership runs from January to December. If you do not renew your membership by March we will stop sending you Peak Charge and assume you are no longer a member.

If you are coming to the Christmas party, please give me your checks at the November meeting, or mail them to me before the 1st of December. I like to enjoy the party and not have to chase people for checks all night.

Enjoy a safe 2003 flying season.

Michael Neale, Treasurer SEFSD.

"Before you criticize someone, you should walk a mile in their shoes. That way, when you criticize them, you're a mile away and you have their shoes."

Wayne Walker

Pics of the N/L

by Steve Belknap

Linda Irish (left) and Mary Dixon with Linda's Fiesler Storch park flyer.



Jet Day group



Bob Davis with his Ken Willard designed Shoemaster.



New Member

John Archibald



This month we welcome John Archibald to the SEFSD. Like many of us, John started modeling at the early age of nine years old. He started with rubber and gas powered free flight.

As John grew up his focus shifted to somewhat larger aircraft when he enrolled as an engineering student in the Boeing

School of Aeronautics. His work included aircraft repair at Edmonton, Canada, PBYS and B-29s at Boeing in Vancouver.

John then worked for Northwest Industries of Edmonton with design and certification work on the Bellanca Skyrocket. The Bellanca was fitted with a larger 600 horsepower AT-6 engine and floats for water operations. Included in John's design duties was establishing the DNE (Do Not Exceed) maximum airspeed by flying the terminal dive test flights (I'll bet that was fun!).

Much to John's displeasure he was refused military service in WWII because his engineering education was in such high demand.

John then worked at A. V. Roe on the Avro Jetliner, which was edged out of being the first commercial airliner by only ten days (the De Havilland Comet holds that honor). John also worked on their CF-100 twin-engined fighter.

In 1956 John moved to Solar and did boundary layer work for the F-4, and bleed air on the B-70. John has also designed fuel system components for the Saturn 5 rocket second and third stages, a steam powered car, and gas turbine systems.

John finally returned to modeling in the 1980s, flying with two local gliders clubs, the Torrey Pines Gulls and The Thermal Pilots Association before joining the SEFSD this year.

John is flying a 48 inch Stinson powered by a 400 motor with a 1:2.33 gearbox and a 7 inch prop. Steve Belknap of Diversity Model Aircraft outfitted John with the motor/gearbox, speed controller/BEC, 7 cell 600 mAh Ni-Cd packs and a charger. The Stinson weighs 20 oz. and has a 7 minute run time. I have been doing the test flights with John and it flies GREAT! John is considering scratch-building a Bellanca Skyrocket for his next project. Welcome to the club, John.

- Bob Anderson

Field Safety!

Just a few quick notes here this month.

- Make sure your name is clearly printed on your frequency pin.
- Place your frequency pin on the board just before you turn on your transmitter.
- Remove your frequency pin as soon as you have turned off your transmitter after landing.
- If the field is crowded then limit your flight time to no more than 10 minutes—even if there is no one on your frequency.
- Landing and take-offs will be to the west unless there is a strong east wind.



Low Cost Post-Cure Oven for Composites

by David Fee

Introduction:

If you've ever worked with epoxy resins then you know that waiting for the epoxy to cure is the most time-consuming part of the process. You may also know that heating the cured part to a specified temperature for a given time interval (known as post-cure) will ensure the best physical properties of the final product. This simple and inexpensive project will help in both of these areas.

Sometimes, especially in the winter months, the workshop air temperature can be low enough that epoxy cure times will be greatly lengthened. In fact, some resin/hardener systems may not cure satisfactorily at all. For this reason, it is desirable to have a way to heat the part to a temperature around 75-80°F. Some of us have used the kitchen oven from time to time, but temperature control can be difficult, not to mention the constraints on physical dimensions (kitchen ovens are not shaped like wings or fuselages). There may also be complaints from wives, domestic partners or Mom. There must be a better answer.

Implementing a post-cure procedure will do several things for you. The fundamental benefit is that you will have a fully-cured part in several hours, instead of several days (or even weeks). Caution must be exercised, of course, because a 250°F post-cure will very quickly turn your beautiful new glass and carbon over blue foam vacuum-bagged wing into a lumpy little potato chip. Don't ask me how I learned this! If the epoxy manufacturer's spec sheets suggest 220°F for 2 hours but your foam (or mold) will distort at a lower temperature than that, then simply post-cure for a longer time at a safe temperature. Remember, any post-cure will be better than none, as the elevated temperature serves to drive the curing process to completion. Also, post-cure should generally be done after the initial cure. That is, the epoxy should be firm and not liquid. Generally, overnight at 75°F is sufficient initial cure for room-temp epoxy systems.

Ok, so now that you're convinced (or even if you're not) that a post-cure oven would be helpful, how do we go about building one without investing a lot of

time and money? You should be pleased to know that the solution is simple and inexpensive. Total cost is around \$20, and you may already have several of the required items in your home or garage.

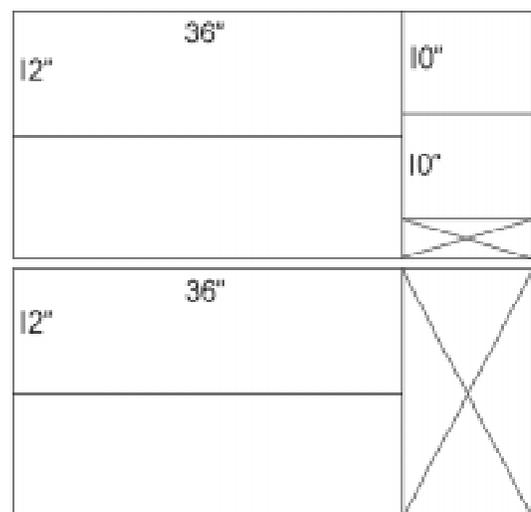
Bill of materials:

- 2 2'x4' sheets of 1" metalized Mylar coated insulating Styrofoam (R-Gard/Insulfoam from Home Depot).
- 1 4' 2-conductor extension cord.
- 2 plastic lamp holders.
- 2 40W light bulbs.
- 1 wall-mount light dimmer.
- 1 light dimmer switch cover-plate.
- 1 plastic wall receptacle box.
- 1 roll duct tape (high temp).

Construction:

Take your Styrofoam board measurements and figure out the dimensions for the oven you desire. I chose to make an oven large enough to hold a S400 pylon wing or fuselage. This size was convenient, as the finished oven is not overly bulky. It may even be worth experimenting with a collapsible oven for more convenient storage. If you make your own box, just keep in mind that this system uses light bulbs as a heat source, so you want to leave plenty of room between the tallest part you expect and the bulbs themselves. Once you have worked out your dimensions you can get started!

Figure 1:
Oven Components



Cut out the individual panels from your Styrofoam boards using a sharp knife and a straight edge. Assemble the panels of the oven using duct tape. Glue isn't necessary. Now would be a good time to decide if you want your oven to be collapsible, in which case you could just hinge the side panels to the top with the duct tape (like a Monocoat hinge). Small strips of tape could then be used at the bottom corners to hold the sides in place. This doesn't need to be elaborate!

Take the extension cord and the lamp holders and wire them in parallel. Space the lamp holders so they are approximately at $\frac{1}{4}$ and $\frac{3}{4}$ of the inside box dimension (see Image 1). Insulate the back-sides of the lamp holders and then duct tape the assembly into the oven box as shown. Screws may be used to further secure the lamp holders, if desired. Note that this is not intended to be an Aerospace or Industrial-quality oven. Feel free to improve upon the construction techniques to increase durability and reliability.



1. Inside view of the oven box. Reflective aluminum surface faces inwards.

Now that we have a heat source, we need to somehow regulate the temperature. I'd love to use a digital temperature control unit with RS-232 serial communication from OMEGA®, but let's be realistic. A wall-mount light dimmer and a digital thermistor (you know, the one in your kitchen window) will suffice. Wire the dimmer switch inline just outside the box, so it can rest on the counter when the oven is in use. The thermistor probe can just be shoved through the foam wall and into the oven.



2. Dimmer switch control. Temperature of oven is controlled by adjusting the voltage to the lamps.

Once you've got your oven assembled you're ready to give it a trial run. Use 40W bulbs to start with, and experiment with the dimmer to get temperature settings you're happy with. Try to get a stable 70-80°F, 100°F and perhaps 120°F. The temperature range of your thermistor may limit you. For example, mine has an upper-limit of 122°F. In most cases, this is hot enough to do a satisfactory post-cure job. Some tooling resins or hardeners require higher temperatures, for which a more sophisticated system would be required.



3. Thermistor readout. Simple digital thermometer with thermistor probe located inside oven.

I hope that you will try this project, and that it will work well for you! If you have any questions or suggestions, feel free to e-mail me at davidfee@cox.net.

