PEAK CHARGE

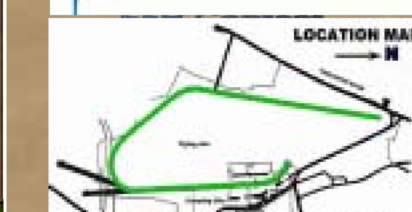
August, 2004
Volume XVI, issue 8

Special Edition

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

SEFSD Calendar

F5B and F5D
2004 World
Championships
August 6/15, York, UK



Next Meeting

Aerospace Museum
Balboa Park
4th Tuesday, 7 PM,
August 24th

Electroglide

Saturday
following meeting
9:00 AM, August 29

We're On Our Way At Last!

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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.

AMA Charter Club 3078

web site: http://sefsd.org/

The Vice President’s Message

By Michael Blott

July and August are typically slow times of the year for our club meeting. Dave Pitcarn picked a good time to let me watch over the flock. He was busy preparing for his international event and really could use the time doing that. He said to have a fancinating presentation and would look forward to hearing about it when he got back. I told him I would do my best. So we had a presentation never to be duplicated.

Sorry the rest of you missed it. (We had about a third of the normal number of members attend so I was able to buy off the ones there pretty cheaply.)

Editor’s Note:

Our regular meeting room was otherwise occupied so we were relegated to the basement. This turned out to be a big PLUS, surrounded as we were with aircraft under reconstruction, we had a real “insiders” view of the museum.

And me without a camera! Although there were only two tables set up, it would be great to have a “guided tour” of this restoratio0n and reconstruction area.

Field

Flying Field GPS Coordinates

Latitude 32.7625480 Longitude 1721415

Zip Code 92109

Aerospace Museum

Monthly Meeting site

Ray Fulks holding a 19 % scale model of a Staudacher S-300.It was built 4 yrs ago for E use from an Ace kit. It is powered by two 3S4P Thunderpower LiPo 7800 packs in series connected to a Sculze 55 bo ESC.An Aveox 1412 2 Y motor swings an APC[E] 15x8 prop. It will perform the IMAC Sportsman aerobatic sequences.It will do this routine for three 8 min flts on one charge

coarse black abrasive material.

They're good for rough shaping nose blocks, cowlings, leading edge, etc. They are washable when clogged and . in an emergency, can lee used on corns and callouses. Found in Dr. Scholl's toot aid displays in drug and variety stores,

Glue: Did you ever get CA (or epoxy) in tubing, goofing upeverything? This works tor me: **smear the inside of the tube very carefully with Vaseline or** modeling clay. Make sore that the exterior is as clean as possible so the glue wll! stick to the tubing where you want It. When the glue is dry, run an appropriate sized wire through the tube and prestol No problems.

Letters To The Editor

(The following letter represents the viewpoints of the individual who wrote it, and should not be misinterpreted as those of the club as a whole, Peak Charge, or the editor. Letters are always appreciated.)

Bruce Cronkhite opened a can of worms when he chose to define angle of attack his way. Actually, all the wind tunnel data begins with the assumption that the airflow is parallel to the walls of the test section. Then the airfoil is mounted on a sting. The angle of the sting is set to zero when the chord of the airfoil (measured as the greatest span from the sharp trailing edge to the most distant point on the rounded nose) is parallel to the floor. of the test section. All the reported test data proceeds from that basis.

Angle of Attack measurement in flight is done by mounting a sting on the nose of the airplane and then using it indicate the location of the free-stream vector. The angle of attack of the wing at any speed and total load is computed from that measurement, ignoring the fact that the air actually drops below the wing, rises to meet it, then is deflected downward (downwash).

Not a criticism. Just a test engineer's report on how it is done.

Peak Charge is still one of the best. Tell Bruce to keep writing.

George Myers


Jack Hix

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Another Editorial

by Bill Fee

As you may have gathered by now, this issue is dedicated to the good old days, which in electric flight terms weren't so long ago. Our web page goes gack to 1996, and that's where this saga of SEFSD and how the dedication of a few men and their toys broke new ground and travelled the globe.

My son David was serious about electic RC flight way back when we belonged to the Harbor Soaring society, and I couldn't afford to buy him a new fangled cobalt motor. Later he "graduated" to free flight, the FAI F1B Wakefield type.

But the love of electric never departed, and from far off UC Santa Brbara he would come home on weekends just to observe SEFSD pioneers pave the way to an all electric future. And now "he are one" of a lucky membership that has benefited from their service and dedication. Some day, Steve Neu and others will be in AMA's Hall of Fame.

Unfortunately, this snapshot of the past fails to recognise many, perhaps most of thsoe who tried and tried and tried again, with underpowered motors, ancient, heavy and decrepit radio equipment (by modern standards) , and battery packs ..... well.

And there will be a better tomorrow. You can count on that. Next time you see one of those faithful few who had the faith and determination to hang in there. Shake their hands and say thanks.

Minutes from the July Meeting

by David Fee

Introduction-

Mike Blott called the June meeting to order on 07/27/04 at 7:15 PM. There were no newcomers in attendance.

Club Business-

Mike Neale introduced a new AMA safety code poster (which was passed on to the editor for size reduction and entry in the newsletter). See the enclosure in this issue. There were also two new DVDs on composite molding and vacuum bagging construction techniques.

Ray Faulks donated several VHS videos to the club library.

Bob Davis brought in a box of 2004 MWE tee shirts, still available at $7.00.

Bob K presented a mold for a F5D fuselage

Club Competitions & Events-

The 2004 World Championships of Electric Flight will be held in York, England, this August. Three of the six team members are members of SEFSD. Chuck Grim announced that the USA F5B team of Steve Neu, Jeff Keesaman and David Pitcairn would leave Saturday. David Fee is going along in support. Urana wished the team good luck.

Membership-

If you have any questions, our membership chairman, Pandi Bala, can be reached at 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.

Safety, Safety, Safety…

It was reported that some pilots are still flying dangerously: if you observe unsafe behavior, please speak to the offender(s) and report the incident to Steve Neu, our Safety Officer, or perhaps even to the park rangers, if the offender persists. 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.

Club Raffle-

There was no raffle at the July meeting.

Show & Tell-

Tim Attaway presented a GWS Spitfire, powered by a Hacker B20 18L with 4.4:1 planetary gears and a Li-poly pack, with a flying weight of 16 ounces. The canopy was held in place with a small magnet.

Abe showed a Dymond “Bird Dog”, which he says flies quite well on an 8 cell Kan 950 and the stock S400 motor. He suggests warping some wash-out into the wingtips.

Mike Blott had a GWS Mustang powered by a 7.2 volt S400, 4:1 GWS gears, 10-cell Kan 650 and a 9 x 9 APC prop (rare prop!).

Misc.

Marvin Gayle would like to trade a (brand new) Hitec 7 channel Superslim Rx with JR shift, for a new Hitec–compatible version. Phone (619) 475-8515.

Bill Fee thanked Mike for heading the meeting.

Tim Attaway “plugged” the IMAC 40% aerobatic competition, August 14th and 15th, at the Chula Vista field, 8:30 AM to 3:00 or 4:00 PM.

The meeting was adjourned at approximately 8:15 PM.

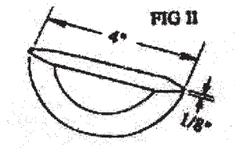
Meeting Minutes

From the March 1996 meeting
By Stephane Gervais

It your flying surfaces are attached to foam blocks to prevent warps, allow for their volume. Also allow for any styrene or soft foam blocks that you choose to place between the contents and the inside of the box **for impact resistance.**

Separate <u>all</u> model components from each other with board partitions. These should all be the full depth of the bottom half of the box to add stacking strength. The flutes of these partitions must be vertical.

Avoid planning to hold components down with *rubber* hands, Add rubber foam to the inside of the top half of the box or its sides.



With the major components arranged for, add triangle and square shaped partitions to hold props, engines, rubber motors, etc.. etc: all partitions to be made full depth of the box.Now you know the length, width, and depth of the inside of the bottom.

So now. add the scoring allowances from Fig 1 and draw the required lines to cut and score,. ‘I”hen cut and score the board.

You may need to tape some board pieces together to get the size blank you need.

Make a few trial scores and practice bending the board 90°.

Bend the panels into the box shape and glue the facing end panels together. Using lessons from Fig I make and check out the partitions for fit. The partitions may need to be taped and glued together.

Check fit everything. Mark *the box* where the partitions will go. Then glue them to the bottom and sides of the box. You may want to add a few 1/4" sq. balsa pieces for security.

While the glue sets (2 hours) measure the bottom of the box, add 1/8" to length, width and depth dimensions to be used in laying out the top of the box.

With these dimensions make the top of the box the same way you made the bottom.

Generally the top and bottom will stay together for non-shipping uses, If not, add Velcro strips or make a 6” wide girth band from board which when slipped over *the two halves will* hold them together,

Now for shipping this box:

To secure the two box halves for shipping and to provide a disposable corer. make a wrap like

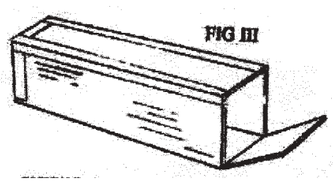
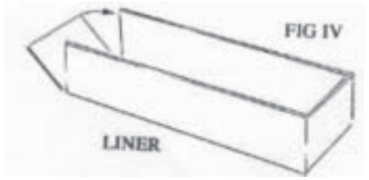


Fig 3. using Fig I scoring.

SHIPWRAP

On the box, <u>only</u> two things should appear: (1) Return and shipping address, (2) Opening instructions, e.g.. “remove tape” or “cut here.” Any more than this implies high value and encourages pilfering. For return, simply add instructions inside the wrapper to retape together after turning inside out.



For moisture. protection, I paint the top with any available semi-gloss err gloss paint, And I also paint the outside bottom 2-3" of the inner half.

For big gas or P.C. modals the above applies. Far added strength simply make litter (fig IV) and glue inside the bottom.Do this and you can use the box like a park bench.

Reinforcing the corners with tape is desirable The best tape is reinforced pacer tape sine it takes paint lost, Duct take is OK, Notice these boxes do not need or use: hinges. latches, handles ear locks.

You are the only one who can protect and preserve your models. So do it!

Tips

<u>**Potato peelers:**</u> The stamped kind faith the long pointing, ***slotted blade*** found in **any stare that** sells **kitchen gadgets, are great** for **carving leading edges, blacks and props.** The do wear out in time.

<u>**Corn files;**</u> These are the plastic boards similar to en emery beard.(!about 3.5 inches long), except imbedded with a fairly

Have You Tried Corrugated paper? Protective; Inexpensive

Model Boxes

BY Ed Lidgard

With some degree of success in this *hobby one* will eventually need to ship or store models in boxes. This article is about my methods which were developed using my professional packaging engineering experience.

Indoor models have extreme fragility and vibration problems which 1 do not address here.

Comments are relative to shipping multiple models in one container. however descriptions will he directed at one model per box and support equipment in another.

With admiration and respect for the aluminum, plywood, wood and composite boxes I've seen, this discussion is about <u>paper</u> *boxes,* specifically common corrugated paper you can get generally free from your local furniture states back yard. Ask first.

Tools needed are: tape measure, yard stick. utility knife, carpenter's square. carpenter's glue, and tape.

Why corrugated paper boxes? Simply because they work. Properly made they have great stacking and impact resistance, are light in weight. easy to make with common tools and very cheap.

When I want to go flying 1 simply load the *boxes in* the car, including tool box and support equipment hex and GO. I'm out the door in about three minutes. I

never worry about travel damage or missing parts.

Boxes can be made on the floor. 1 use a big folding table. h' s easier nn my old vertebrae. Like any good craftsperson, measure twirl, cut once. Be guided by Fig I.

When metal is bent, **allow-**ances are made for the metal thickness and radius of bend, to corrugated paper, there are called "scoring allowances.' Nearly all binds are 90°

My practice is to make a box immediately after finishing the model. When the model is out of the shop after being built or repaired, it goes into and stays in the box until taken out to fly.

Two allowances are shown:

(A) for most commonly available (1!8" to 5/32") corrugated with two liners and one corrugated medium and,

(B) (3/8" to 7/16") is for double wall composed of three layers of paper surrounding two layers of corrugated medium (1/4" to 3/8" thick).

To bend the corrugated paper. hereafter called "board" it is necessary to crease the board so that it will bend where you want *it.*

A sharp tool will cut the paper. so use a tool that has at least 4" radius and 1/8" wide. See Fig 11 for a simple wood devise which can be grasped and guided along the straight edge applying enough pressure to collapse the top layer into the corrugating medium.

The corrugating medium is multiple, parallel sine curved paper. The directions these curves run are called "flutes." They make the layers of paper strong. For best

FIG 1

(A)	(B)
1/8" - 5/32"	1/4" - 3/8"
"C" Flute	"DW" Flute
D + 1/8	D + 1/4
W + 3/8	W + 3/4
L + 3/16	L + 3/8

results, these flutes should run around the girth of the box

Most model boxes can be described as long and narrow to match the long narrow wings and fuselages,

Let's begin the first design.

Lay the model parts on the floor, arranged so as to provide the best space utilization of a rectangle since most models (except scale) are generally disassembled. Wings are best set on their leading edge.

CONSTRUCTION REPORT ON GWS SPITFIRE

by Tim Attaway

SPITFIRE READY TO MAIDEN AT SEAWORLD

It was one of those moments, you know, an aircraft that you have loved forever and you wanted one since you were a little kid. It wasn't expensive and you have a motor system that is crying for an airplane. You run through the servos and batteries that you think you have that might work and it does not look like you will dent your wallet too too much.. It does not come with retracting landing gear…..it is kinda small for that but those spindly light weight pseudo wheels that come with are not going to look scale and so you ask what is available. Pretty soon you are headed out the door with a bunch of accessories and you head up to Discount Hobby to look at the Tamiya acrylic paint.

This was going to be fun. It did not disappoint. I began by looking at the very thorough instruction manual and began to sort out the changes that would need to be made. The plastic hardware is plentiful….way more than is needed it seems. The hinge material is not that impressive….like the wheels…..designed for tame flying. Not this Spitfire, it was going to look and fly with authority. The Hacker B20 15 with maxxon gear box was going to be a funny fit but it would fly the Spitfire with authority…oh yeah.

The options for cramming that baby into the front end were intriguing. I decided to use both the top and the bottom slots for basswood beams and I had to custom cut them in. A lot of custom removal of material was required to make room for the controller and motor. I was concerned about the air flow but went ahead on faith that there would be enough. Once all the trial fitting was done I glued the two sides together and there it was a fuselage. It was not that impressive but it was curved like the real Spitfire. Next I worked on the standard cutting off of ailerons and putting in the torque rods and cutting elevators and rudder etc. etc. Easy stuff except that I upgraded the hinges to strong plastic klett style that were going to be put in with epoxy and I got those ready.

The real challenge was the retracts and the working out the linkage. When I began to cut the recesses for the wheels I decided that the reinforcing 1/8th dowel to go into the recess of the wing for strength was not strong enough so I dug around and found some carbon fiber rods and cut two slots and sunk them length-wise. They just happened to be just wide enough to fit the retract servo between them. I put in ¼ basswood rails to support the gear. The servo I started with was too weak so I had to change it twice until I found a Dymond 200 that was

strong enough and would lock the gear without folding. This was trial and error and I would recommend that you go with a larger servo than you think will be necessary. I used melt glue gun to install the servo. It is easy to remove and change out and it very rigid. The gear worked ok when installed but it cannot take too much abuse. I would choose the new GWS blue retracts over the ones that I got from Dymond. …..same price about 10 dollars. I also put in some crisscrossing support carbon rods to strengthen the gear area. Not much of a weight penalty for a lot more strength..

The axles should be on the front leading edge of the wing when you look down from above, so be sure that your wheel recesses are forward.

.

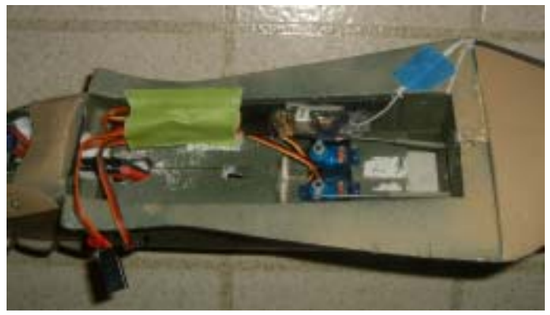
These retracts are just not strong enough to last very long and I replaced them with the GWS retracts.

See the retract servo coming through the wing and the digital JR281 which gives great authority to ailerons. I do not recommend a cheap servo on the aileron.

The next picture shows the arrangement of the equipment in the inside of the Spitfire. Included were the hitec 55 on rudder and elevator…..they are ok.

On Off switch inside and larger battery area to receive the 1500 3 cell lipo.

Very difficult to get the airplane to come out nose heavy…push everything forward.



RC Direct 5 channel Berg receiver and two Hitec 55's

Once the installation of the equipment was completed then on to the paint work and detailing. The bottom of the airplane was painted with tan and decals were installed.The top of the spitfire was patterned using a red brown tamiya acrylic. The paint does come off the foam very easily and I found myself touching up quite a bit. I patched the grooves and uneven areas of the fuse and wings and touched that up. The cockpit was completed with a 1/12 scale pilot and then the canopy lines were attached and clear coated. All the decals were very nice but they tend to wrinkle and I found it necessary to slit the decals here and there to get them to lay down and

SEFSD Book, Video and DVD List

As of August 1, 2004

Book Title

Electric Motor Handbook
Entering Electrics
Foam Wings
The Quiet Revolution
RC Airplane Finishing & Detailing
RCAirplane Building Techniques
RC Airplane Workshop Secrets
Also Available: Some back issues of S&E Modeler Magazine

Video Title

1994 KRC Electric Fly
1996 KRC Electric Fly
1997 KRC Electric Fly
1996 London Bridge Seaplane Classic
1996 NATS Highlights
2000 San Diego Midwinter Electrics
Advanced Kit Conversions
Airborne R/C Video (Fred Harris)
Airplane (Joe Wurts)
Airforce Top Gun
A Celebration of Eagles
Basic Construction for Beginners
Building with Foam
Byron Originals show season 1985
Desert Storm/ Tornado
Double Eagle
Electric Jet Factory
Electric Flight (Building & Flying)
Electric Flight & Schneider Cup
Electrifying the FANTASY (Vol. III)
F-16 Falcon
Float Flying – John Sullivan
Gas to Electric Conversions
Learn How to Build a Power Airplane
Let's Get Serious About Electric Flight
Mini-Max Power Gliders
Monokote I
Monokote A
Neat 2001+
Power for Performance Electric Flight
Schneider Sport Electric
T-Birds
U.S. Air Core Basic Building Tips
Vacuum Bagging tips
Warbirds over Schenectady
Wring it Out (Vol. 1)
Wring it Out (Vol. 2)
Mid-Winter Electrics 2002
Mid-America Electric Fly In, July 2001
Six Minutes of Pure Fun
NEAT Fair 2002
Triad E Fly
Joe Nall 2002
Diablotin, Ferat-MORE
Hacker Brushless Motors

DVD's:

Pro Aero Tow
Secrets of Thermals
Endless Lift III
Just Want to Fly
Airshow 2 (2001 MWE)
Composite Molding and Vacuum Bagging Construction Techniques.

Listed videos are available from Uranna Greene
Phone no.: (858) 543-4249 or email: ugreene@san.rr.com

Nostalgia

Remembering - it seems like Yesterday

Twenty years ago: May,1984
U. S. Free Flight Championships, Taft, CA

P30 Rubber was held far out in the boondocks.. In the Junior event Scott Persons won with 257, **David Fee second with 148,** Scott Cover third with 120, and David Campbell fourth.

Thomas Pils tosses Steve Neu's Tornado

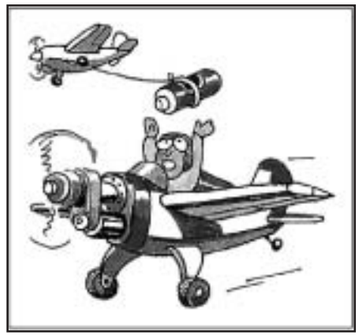
F5D Team USA (L to R) Larry Jolly (9th pla Troy Peterson (11thplace), and Dan Vozenilek (19th place)

F5B US team members (L to R) Thomas Pils, Steve Neu, 1994 World Champion Jerry Bridgeman, and Team Manager Bob Sliff

Speed 400 Pylon Racing

By Steve Belknap

No, it's not an oxymoron. Yes, those little bitty toy can motors will pull a pylon plane 'round the course at quite a pace! Stephane Kerrin knows all about it. His Culex has been clocked at 62 MPH! That is with a 6V Speed 400, 7 KR-600AE cells and a Graupner 5 X 5 propeller. The previous 7 X 3 folding propeler only moved it at 47 MPH. It is a reality!



Steve: can you remember when and where?

then clear coated them after that.

I decided to go with a lipoly battery and the choice was a high C 1500 3 cell kokam. It provides a lot of electrons as I was about to find out on the maiden flight. The prop was the 9x 6 apc and I could not find a spinner that allowed air flow to the motor so I used a black glue on spinner that looked just ok. I wanted scale but I settled for what would work in the end. Ready for the first flight….ok

The take off was complete and I began to trim the Spitfire and I noticed that it was doing about 90 miles an hour and pulled back the throttle. It flies with great authority when at speed and it did not especially like flying slower. As I rolled to inverted flight the unexpected happened…the hatch came off….despite a very positive feel with the magnet style fastening it did not work…..I was forced to tape it for security after three more ejections. The settings were a generous amount of aileron and very little elevator and rudder. The roll coupling was evident in rolls when I applied rudder but it looked like what you would expect. The retracts worked fine. Now the real test was to get it down and have it look scale in the landing mode. Several passes with a steady decline in approach speed told me that I would have to keep the speed moderately high or have it just drop from the sky. Flying weight is 16 oz and the motor produces 28 oz of thrust but landing seemed to be a test of how to control the speed using throttle without it getting too slow. It was touch and go and finally I got it close to the ground on the third pass and it literally dropped 12 inches to the dirt runway and the small wheels just dug in and the airplane just stopped abruptly and nosed over. Undamaged but not too scale landing complete I checked it out and no scrapes but the gear was loose and sloppy. I liked the flight but the landing was going to be a challenge. Went on to try different props but the 9 x 6 was the best for me because the appropriate speed could easily be achieved at a third to a half throttle. Loops and power figures were excellent when using full throttle. No hesitation at any point on huge loops and Cuban eights. Four point rolls wandered somewhat but overall they were pleasing to watch. It snaps ok and spin entry and recovery were interesting. Not sure the Spitfire cared for either of these maneuvers. Remember put as much weight forward as it possible in the installation. This Spitfire still came out tail heavy and I did all that I could to keep that from happening. After 7 landings now I am convinced that a scale landing is just not in the cards for this set-up.

I think that foam airplanes have all the nice curves of the real airplane, they are very reasonable in cost, the weight is low, you can paint and play with the details without a ridiculous time expenditure and if you have a motor system like the Hacker B-20 just sitting around you can easily have something that looks and flies kinda nice.….so…..I am doing another one …….the P-51.

0h dear: It's' sad reflection on our culture that every field of activity sees to harbour its own 'hooligan element'; and electric flight is no exception. Having blagged their way past security, these two undesirables set up a gaudily coloured gazebo, from which they then proceeded to heckle and abuse innocent passers-by. When not thus employed, they took their noisy foam Zagis out to the flightline and terrorised the respectable flyers of proper balsa models, with their wild aerobatics. Perpetrator Kevin Mullarkey has a stock S400 set up, whilst shameless exhibitionist Brian Cullen mercilessly torments an Irvine cobalt in his.I may write to my Member of Parliament

“And there I was”

by Ron Stark and AL Pierce

Taxing past 100" Gassers and two BIG Jet Turbine models, and various other go-fasters. I came to the centerline and lined up. Advancing the throttle I lifted off smoothly and effortlessly. I sucked up my gear and really got up on the step. A little trim here a little trim there, ah doing fine. All of a sudden some spectators called, “You lost your landing gear”. I replied, not to worry they they went up inside the wing. “Ahh, that plane is too small to have retracts”. Negative on that tator. After a quite a few loops and rolls and ten minutes of flying on one tank of electrons, I decided to land back in the “World of Liiput”. Yes, AL’s Zero, (GWS) wowed all those big guys and their big toys. They were impressed with the Zero, that it was so small, had retracts, flew with authority for ten minutes, and looked so scale in the air. The landings were scale also, no tip overs. So we uhhhed them and aweddd them all day Sunday at MCAS Miramar.

TUBES

by Chuck Markos

For short lengths of paper tubes, the standard method used by Indoor flyers is to start with a length of music wire of the desired diameter (2 mm MW is readily available). The glue of choice is Ambroid and the paper is good ol’ Japanese tissue. Cut the tissue so that the grain of the rolled tube will be aligned with its length. Make a dry roll of the tissue on the wire to see how much is needed to make 3 - 5 rotations. Glue one end of the tissue to the wire and let it partially dry. Then smear some more glue on the loose end of the tissue and spin the wire with one hand while holding the tissue against the wire with the thumb and forefinger of the other hand. As soon as the tube is rolled and while the glue is still sticky, push the tube off the wire with your fingernail onto a sheet of food-wrap plastic (The solvent in the glue will soften the initially glued paper to wire). Let it dry competely overnight. To trim the ends of the dried tube, replace it on the music wire and roll it under a razor blade. Tubes up to about one inch in length may be made by this technique. If you make a lot of tubes at one time you can again enjoy biting the excess dried glue off your fingers and spitting it out.

To make fiberglass tubes, coat the wire with candle wax. Use slow-drying epoxy and lightweight cloth (0.6 oz/yd). Give the waxed wire a coat of epoxy and spiral wind the cloth as tightly as you can over the glued portion. Multiple layers of cloth. Cut some Saran Wrap (original) into tape about 1/2" wide and spiral wrap over the cloth/epoxy/waxed wire. Place in the oven set at about 150-180 degrees F for one-half hour. Heat causes the Saran Wrap to shrink and make the fiberglass conform to the wire size as the epoxy cures at an accelerated rate.

It’s a bit of a problem to remove the fiberglass tube from the wire, however. Also, the Saran Wrap is weakend and fragile. I just sand off the excess wrap (it only adheres to the epoxy by electrostatic attraction). Cut the excess fiberglass from the ends as for the paper tubes above. Warm the wire again to loosen up the wax and slide off the fiberglass tube (it may take some twisting with a pliers to break minor adhesions first).

For both techiques, the chances of success are best with short lengths.

Yet Another---

Sometimes silence is golden. At other times it’s deafening.

Sylvia and I accompanied the F1A/B team to the airport; not to see them off, because, nowadays, once they pass through security, they are gone from sight (though much in your mind).

Later, we got a call from David (Fee) that their flight had been delayed. Much later we got a call from Atlanta. They had missed their connecting flight to England. Steve Neu and Jeff Keesaman got separate flights to Europe later in the evening (one was to Paris!).

Another call in the morning confirmed that Chuck Grim and the two Davids were killing off twenty four hours in Atlanta, Georgia, seeing museums and the like in a rental car.

We have had no word since. The Brits have established an excellent web site: http://ewc2004.users.btopenworld.com/#calendar, on which we are promised daily updates. Apparently, nothing is happening, yet.

Chuck asked me to keep you informed by E-Mail, and to check periodically with Stelios for input, but he hasn’t heard anything yet either.

The weather, according to the BBC, has been wonderful, but heavy rains are predicted for next week when the serious business begins.

Probably, by the time you read this, the final results will be in. At the latest, they’ll be available at the next meeting

You can blame Bob Davis for this “yet another.” I called him up to find out if there had been any “buzz” at the field, and he indicated that my call was the first words he had heard.

Bill Fee

SpaceShipOne, Burt Rutan’s entry for the X-Prize