SILENT ELECTRIC FLYERS SAN DIEGO

PEAK CHARGE

dicated to the promotion of **electric propulsion** in all types of aeromodeling.

SEFSD Newsletter | April1999 | Volume IX Issue 4

Calendar

April
4 Pylon Racing
21 SEFSD Meeting

May
2 Pylon Racing
19 SEFSD Meeting

June
6 Pylon Racing
16 SEFSD Meeting

SEFSD Swap Meet

April Meeting

Agenda
Possible new meeting room

Entertainment
Doug Cronkhite discusses aerobatics w/video. Don't miss!

Show and Tell
Steve Neu's electrc Heli
Bob Davenport's Robbe Twin

Raffle
Supra Fly kit
B-2 kit
Large cutting board
Prop balacer
2 mini servos
Robart Foam stand
HobbyLite filler
Zoom 600 Motor
Zoom 400 Motor

LEARNED AT THE AERODROME

By Bruce Cronkhite

Landing, One More Time:

You know who you are, so I won't mention names. I'm still seeing a lot of landing bounces because the airplane is landing on the main wheels before it is done flying, and it won't land if it's not done. Remember that the elevator is the airspeed control –(that's the right stick to most of us enlightened folk)-, and that the corollary to first law of landing is that "it is the pilot's duty to keep the airplane flying as long as possible". Keep it off the ground until it's slow enough to land.

One more thing:

I'm still seeing a lot of folks trying to fly an untrimmed model. This is like hitting yourself over the head with a stick. I guarantee that if you trim your model to fly hands-off in level flight, flying will be a lot more fun.

Dihedral

Here's one that even I (ho-ho) didn't understand until we had made one or two changes to the model.

One of our members had built an absolutely beautiful version of the Krupp Bowden Contest Winner. The design is a very conventional arrangement with a straight dihedral wing mounted on a wire cabane structure above the fuselage. Conventional rudder/elevator/motor controls were used. Preflight showed good balance and no warps.

I almost crashed it on the first test flight because it just wouldn't turn-in either direction. Pitch stability was excellent, and there appeared to be adequate dihedral to make the model roll into and out of turns using the large rudder. But it wouldn't turn.

The same problem had been previously reported on another example of the breed, so maybe it wasn't unique to this particular one.

I theorized that the slim fuselage did not have enough lateral area forward to cause sufficient yaw in response to the rudder deflection. It is, after all, the yaw and/or sideslip of the airplane that causes the dihedral to produce a roll. I suggested to the airplane owner that he fill in the sides of the wire cabane to produce some more forward lateral area. He did that using clear plastic so that the look of the cabane struts was retained.

Wonder of wonders, that did the trick. That model now flies very well, with very good roll sensitivity.

That was a case of a model not having enough "dihedral effect". I'll use the term "effect" because the model in question had plenty of actual dihedral.

The next tale is one of a model having too much dihedral effect, while having no actual dihedral at all.

Cont'd on page 4

Silent Electric Flyers of San Diego

Club Information

Web Site: http://sefsd.org/

1998 Officers:

President **Wayne Walker**
284-6119 wayne.walker@daou.com

Vice President **Bill Everitt**
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674-1378 mneale@accucomw.com

Editor **Steve Belknap**
693-3739 Let1Fly@aol.com

Safety **Steve Neu**
284-0816 SNEU@aol.com

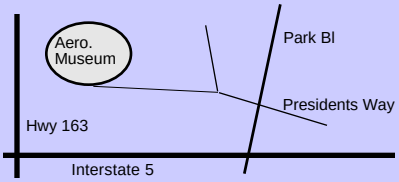
SEFSD Mentors

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

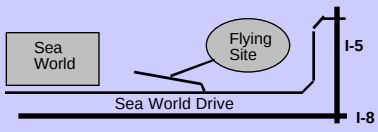
Monthly Meeting

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



Flying Site

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



Membership or Subscription:

Twenty five dollars per year for membership. Fifteen for subscription only. Ten for under 18 or additional family member. Contact Mike Neale at 17140 Tam O'Shanter Dr., Poway, CA 92064.

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

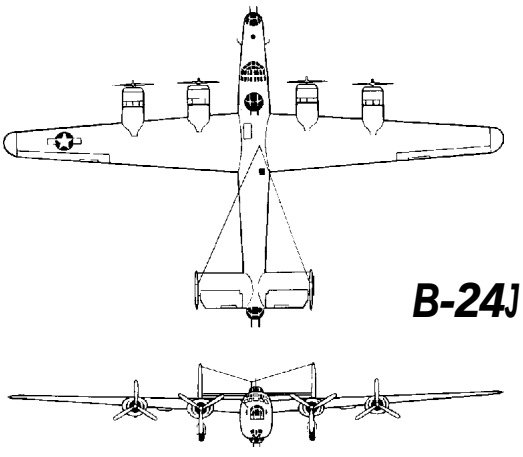
The KRC has been cancelled!! As those of you who read the E-Flight have heard the Keystone RC Club has cancelled their Electric Fun Fly for 1999! Several of us met Sunday and Don Wemple has suggested that we hold a large club meet on Sept. 25,26 and invite all those who normally attend the KRC to come out and enjoy San Diego's Finest flying and vacation hospitality. More info & discussion will be at the meeting Wed. the 21st. Be sure & come to hear the latest & a great presentation on Pattern & Scale flying by Doug Cronkhite. It promises to be a full multimedia event with Video and great show & tell.

June will be our Electric Only Swap meet so get the "Good Stuff" ready to sell, trade, & otherwise dispose of at the June meeting.

It is with great sadness that I report that our long time night maintenance man & loyal aviation buff Bill Dancy has passed away. "Old Bill" as he was affectionately known for all the years I've been coming to the Aerospace Museum passed away March 27 at home. He was a native San Diegan born on January 11, 1924.

He was a World War II veteran and his great love was B-24s—he was an aircraft mechanic in the war and specialized on the B-24's. He also was a nose-art artist and could pull pictures from the archives and show bombers he had painted. He started at the museum in 1980 which made him one of the longest running museum employees. He was also literally a certified clown—he had his clown face paint and clown name registered and everything. He loved bus trips and playing bingo. He is survived by his wife Joan and numerous children, grandchildren and great-grandchildren. He will be missed.

Happy Flying,
Wayne



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.)

Dinner at Ate

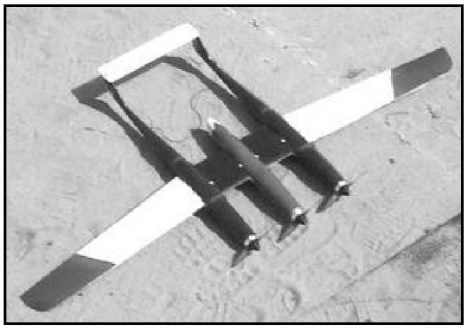
There are eight photos of the MWE dinner (Feb 13, 1999) post on www.adnc.com/web/charliew.

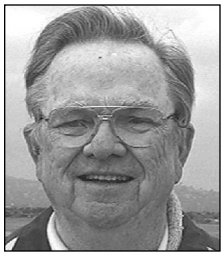
Use either Netscape or Internet Explorer to view the web site. If you use a search engine such as Alta Vista, Hot Bot, etc. you will not get to the web site.

Thanks,
Charlie

FYI - - this is my personnel web site through American Digital Network.

A proud Mike Zimmer with his new Dragonfly





March Meeting Minutes

Bob Davenport

Clad in his raggedy lab smock, our leader blended the epoxy mixtures carefully using a precise scale. The molds were ready and lined with two layers of Kevlar fabric. Using a small brush he rapidly moistened the cloth with the 15 minute epoxy mix. These were the early steps in a demonstration of how to build a composite fuselage. Before evening's end a new fuse had been created in front of the 26 members attending. This was the featured part of the evening activity.

An immediate start of our pilot qualification program was announced by Bruce Cronkhite. The instructors [Belknap, Neu, Davis, Day, Knoll, and Cronkhite] will determine if new pilots have proper control of their aircraft, follow prudent field policies, and have a basic knowledge of AMA safety regulations. Responsible and safe flying is the goal, not to test pilot proficiency. It will be the function of instructors to aid everyone to qualify and will offer advice and guidance to that end.

A word of caution was offered. Poor radio practices have damaged two aircraft in recent days. Remember to post your frequency pin on the board before flying and remove it afterwards promptly. When not flying do not turn on your transmitter at any time unless you have checked first if others are using the frequency.

The treasurer, Mike Neale, reported that we now have $5000 in our bank account. Most, but not all, dues have been recieved. The final tally shows that MWE 1999 was responsible for $1800 of the cash balance.

Charlie White suggested that a change be made in our monthly meeting place. A discussion ensued and a dissatisfaction with the current museum site was expressed by several. Points covered included the present high costs, the unsafe parking, the absense of need for their audio-visual system, the lack of any free access to displays, and the exorbitant charges made by the museum for use during MWEs. Charlie has found several other locations he feels may be suitable, and will report on these alternates at our April meeting, leading to a vote on change of location during May. Any thoughts on this matter should be directed to him.

The flying site situation has clarified somewhat. Mulching of the present area will begin soon but will not cover the strip itself. The Park management is leaning towards letting us stay permanently where we are because they can think of no better uses for this property. They look favorably towards our group as responsible park users. The Fiesta Island site is still in the air until after the Park takes possession of the acreage and this date was delayed because of damage by recent rains to the drainage system. This much large site should also be ours to use however at a future time.

A new member attended , Ron McCleve, who then won the SCRAM kit included in the raffle. Don Doerr won the RCD battery charger. Other prizes were a Dremel, a prop balancer, and glue packages.

Steve Neu displayed his twin tail SKAT with three motors constructed of two Skat bodies and a central pod. Can it get any better?

More is never enough!

Here is the world's only three headed SkaT! Not to be outdone, Steve Neu responded to Doug Cronkhite's idea of making a twin SkaT by making a triple SkaT. We're still waiting for Doug to make his. . .

 Cont'd on page 9

Some of you may remember my Lacey M-10. I designed it to have ailerons, of the same size-to scale-as the full size aircraft.

The model was a pig to fly. It had terrible adverse yaw, to the point that it almost would not roll with aileron deflection. Coupled rudder was required to make it roll at all. How can that be?

Diversion, for a moment.—Adverse yaw

Adverse yaw is the aerodynamic phenomenon whereby the airplane is caused to yaw in the direction of the downward-deflected aileron when the ailerons are deflected. This is often ascribed to be the result of the fact that the downward deflected aileron has more drag than the upward deflected aileron on the opposite wing.

Well,… yes but. It is not the downward deflected aileron that has the drag. An aileron itself has no less drag when it is up than when it is down.

What is actually happening is that the downward aileron increases the *camber* of the wing. This gives a higher lift coefficient, producing more lift and therefor more induced drag for that wing. That is the primary cause of adverse yaw.

And oh, by the way the upward aileron is also a culprit. It has reduced the camber on that side and has reduced the induced drag thereby on that side. The end result is that the airplane yaws toward the down aileron, just the opposite of the desired direction. The effects of the two ailerons is not the same for equal deflections, which is fortunate, because this makes aileron differential work to some extent to counteract the effect. But you are much better off using rudder –coupled or finger fed- to counteract adverse yaw.

Back to dihedral

And back to the Lacey M-10.

After much trial and error I found that the model would fly very well using only rudder for the primary roll control. I stopped using ailerons altogether.

This must mean that the very flat wing was, in fact, generating a large dihedral *effect*. That dihedral effect was attempting to roll the model in the wrong direction in response to the adverse yaw. Big problem.

It turns out that this is the result of the fuselage generating higher pressure under the “upwind “wing, and lower pressure under the “downwind” wing.

That Lacey was very roll stable, even with that flat wing.

Moral: Don't try to put ailerons on a high-wing cabin model unless you are sure you have the whole thing figured out. And differential aileron throw is only partially helpful in reducing adverse yaw.

The SIG LT-25 would fly better with almost no actual dihedral at all. That way the dihedral would not fight the aileron's adverse yaw. I may build another one.

FIELD SAFETY ITEM

By Bruce Cronkhite

Whenever you see someone crossing the runway, DON'T yell at them.

They don't know:

1. Why you're yelling
2. What you're yelling about.

They figure they are not doing anything wrong, and have a right to be there.

Better Suggestion.

Yell "ON THE RUNWAY" , followed by "(Jogger, Bicycle, walker etc.)". Our people are accustomed to that call and will take appropriate action. If you holler "LOOK OUT" or "GET OFF", our own pilots may not understand what you're yelling about either.

Confessions of a SkaT Driver

My name is Bob Kreutzer and I fly a Skat.

It all started innocently enough, seeing these really fast little planes flying around Mission Bay. My Astro 40 powered Fantasy just no longer was enough. I had the need for speed. Well, as the Skat factory was only a few miles down the road from my house it only seemed logical to patronize the local business. A little wrang-dangling and I was the proud owner of a kit and all the power system. My sleep patterns started to change almost immediately. I used to toss and turn aimlessly, now, I turn only left.

"Oh the motors only cost $10!" They said. I now have a pile of those motors. "Oh it just uses a little prop". They said. I now have a collection of meticulously balanced and repitched props. (at $5 a crack!). And on and on it goes. It's the same story, been told a hundred times. And now, I'm lucky enough to be telling it myself. WANNA RACE?

Annual SEFSD In-House Swap Meet

at the June 16th Meeting

This is a great oppertunity for all members to bring any kind of modeling stuff to sell or swap. I'm sure most everyone has lots of goodies they would love to trade for cash. Just bring it to the meeting and unload it!

If you have any questions about it call Steve Belknap at 693-3739.

A Comparison of Meeting Locations

By Charlie White

By far, the biggest advantages to changing our meeting site is the cost. It will cost $5 per night ($55 per year) to use any of these facilities as opposed to the $500 a year for the Aero Space Museum.

[At the March club meeting there was a motion carried to investigate alternate meeting places. It was felt by some members that the current meeting place in the Aerospace Museum is not satisfactory due to the $500.00 per year cost and the perceived high crime rate in the area of Balboa Park. These members felt the money could be better spent elsewhere or the recent $5.00 per year raise in dues could be rescinded. The following matrix has been compiled from information supplied by Charlie White. He has gone to great length to research these locations for the bennifit of the club. Please read it and attend the next meeting so that as many members as possible can voice their opinions about the future of the SEFSD meeting location. - ed.]

Location	Pros	Cons
1. TECLOTE CANYON RECREATION CENTER.	Close to our field in Mission Bay and accessible from Hwy 5. Reasonably good parking facilities	The meeting room is small, can hold only about 40 people. Available: 1 Thurs; 1,2,4 Wed; any Tues.
2. SOUTH CLAIREMONT RECREATION CENTER. This site is located on Clairemont Blvd which is accessible from Hwy 5.	Large meeting room. Available any evening.	All parking is street parking on Clairemont Blvd. This recreation center is heavily used by softball leagues just about every night of the week and the street parking is occupied by the players.
3. SANTA CLARA POINT RECREATION CENTER	Large meeting room Plenty of parking Available: 2,3,4 Tues; 1,2,4 Wed; 1,2,4 Thur	Awkward to get to; located in the North-West part of Mission Bay and accessible only from Mission Blvd.
4. THERE ARE FIVE SENIOR CENTERS AVAILABLE.	We are eligible to use a Senior Center because some of our members can be identified as Senior Citizens.	These, however, all share a common disadvantage of being located in areas that, from time to time, have had police problems. All night parking could be considered risky in these areas.

[In order that history not repeat itself, your editor has asked one of the original club members to write something regarding the proposed meeting hall change. - ed.]

A Short History of Meeting Places for the SEFSD Club

By Steve Neu

Our club has had 4 different meeting locations over the years.

Our club started out at the Tecolote rec center [same as above -ed.]. We moved from there after about a year because of problems with getting reliable access to the building. On several occasions we were locked out and were unable to locate the city employee who had the keys. This ongoing problem plus the increasing meeting attendance forced us to look for a better site.

The next site was the Serra Mesa rec center. This location worked well enough for sometime. We did however have to work around other groups that were also using the small meeting room earlier in the evening. In addition to this limitation we had to be out of the building by 8:30. Of course there was the ever present noise and smell from the basketball court right next door. Parking was very problematic due to a very small lot and poor lighting. After about a year or so the city decided that they needed to charge for use of the meeting room. All of this lead us to look again for a new location.

We next moved to the Senior Center in North Park. We had a nice small room that could hold about 20 -25 people. This worked out

well until a motor cycle club started using the room next to ours. The smoke and noise finally started us looking again. As mentioned above, parking and transients were both a big problem. Our president Wayne Walker then made contact with several possible locations.

As the result of a membership wide vote, the Aerospace Museum was selected as the site. As it turned out we lucked out in getting the museum on the night we wanted—it's a very popular place for meetings! Both the Torry Pines Gulls and the Chula Visa Model model airplane clubs meet there. Unlike the other places, the museum provides many services that are not available at most community hall meeting places. These include a large comfortable meeting room with good acoustics that can seat over 100 people, equipment that is available to show films and videos, an ample parking lot with security and passes to attend special events throughout the year —just to list a few. To get all this the club pays only $500 per year to be a member of the museum. This is very reasonable if you consider what is provided. The cost per member is well under $5 per year—less than the price of a single RC2000 cell for your plane!

The current alternate meeting site investigation should also consider the future. If there is a decision to abandon the museum we will be hard pressed to use these facilities in the future for special events as we have done in the past. The dinner and tours of the museum during the MWE have been very popular with our out-of-town guests.

By now you know SEFSD will be hosting the next World Champs for F5B and F5D in August 2000. The museum would be an ideal location to have a reception and awards banquet after the contest. Maintaining our membership will ensure our access to this world class facility—not to mention it's the best meeting room in town with all kinds of airplanes to look at!

Thank you for taking the time to read this.

The League for Electric Soaring

By Don Wemple

Even though our Mission Statement in Peak Charge makes no mention of soaring as an SEFSD objective, the number of electric gliders one sees at our modelport each flying day shows a real club interest in this aspect of electric flight. I also sense a putdown of electric gliders in the media -- eg. Derek Woodward calling them snorers in EFI. However, it is fortunate that we don t all like exactly the same thing or else this sport, and indeed the whole world would be a dull thing!

That said.....I like electric soaring! I find it a thrilling challenge to try to find and center the elusive thermals at our field, to try to nurse every minute of flight out of each battery charge.

Now, admittedly, one might like to find additional challenges than merely the above. Here s where The League for Electric Soaring comes in.

In 1992, Ken Cashion of Picayune, Mississippi started the L. E. S.

I quote from one of his articles:

"Active modeler, Ken Cashion, who enjoyed the League of Soaring Flight Flight Acheivement Program wished for something similar for sailplanes that took the launching electric motor and battery along in its nose rather than leaving them lying on the ground below. Ken talked to anyone who would listen, wrote active e-sailplane fliers, and over a couple of years of correspondence and testing, the L. E. S. Flight Achievement Voucher was developed.

The L. E. S. is a no-dues, apolitical organization of model fliers who are participating in the L. E. S. Flight Achievement Program. The six-level Program permits every flying day to be important because on almost every flight, L. E. S. tasks can be attempted.

To give you some idea of what the achievement levels are, here is Level I: Two 10 minute thermal flights (Motor runs are limited to 45 seconds for 7-cell sailplanes, and 30 seconds for more than 7-celled sailplanes: Models published before 1943, 1 minute motor runs, and all ferrite motor run times are 2 minutes), and 10 spot landings within 10 feet of a mark.

There are 5 more Levels, the last one requiring Two 1-hour thermal flights, a 2-mile unpowered goal and return, or a 4 mile powered goal and return flight, and competition performance resulting in 3 wins and 8,000 points (at least 10 entrants are required)!"

Tough enough for you? Can you imagine yourself racing up I-5, sitting in the back of a pickup piloting your sailplane on a goal and return?

There is a Level 5 pilot in Tennessee, but according to Ken, no one has made it to 6 yet!

I hope that Ken and I have whetted your appetite enough so that some of you will join the L. E. S. Let Ken tell you how to do it:

An interested flier sends a note to L. E. S., 157 Tennyson Cove, Picayune, MS 39466, stating that he would like to participate in the L. E. S. Flight Achievement Program. He will receive a Level I voucher and his name will be entered into the L. E. S. database as an aspirant. When the requirements for Level I have been completed (there s no time limit), the voucher is returned to the L. E. S., and a Level II voucher is mailed back with an L. E. S. membership number -- now that the flier has achieved member status.

Ken also has an e-mail address -- kcashion@datasync.com

Come on you snorers, join the L. E. S. , add to your e-soaring fun!

MWE 2000

By Don Wemple

I d like to thank the club for the trust that they put in me by asking that I lead the committee for MWE 2000. I will do my best to match the good works of those that have gone before in doing the really hard work of getting the MWE started. However, I still feel as though I m a new member although it has been almost three years since I joined. I know many of you members of SEFSD personally, but there are still some who appear as new faces. But I ask all of you for your support. There will be work for everyone -- some jobs small, others much larger. What I m getting at is that I hope that even if you aren t specifically asked to help, that you volunteer to work on the committee. Getting in on the ground floor of planning something like the MWE is much more fun and rewarding than just sitting back and observing. Join us! Please call me, e-mail me, speak to me at the field or meeting and let me know that you want to help. Phone number: 469-5566. e-mail: donk126@aol.com

A few things have been done already. The dates have been set: Friday, Saturday, and Sunday, February 11th, 12th and 13th, 2000.

I ve also sent letters to all the entrants this year asking for their critique of the event -- what they liked, what they didn t like -- what they d like to see added, what they d like to see deleted, etc. I ve gotten some interesting responses that I ll share with the committee and with the readers of Peak Charge in future issues.

Again, thanks for your confidence and your help in making MWE 2000 bigger and better. Don Wemple

Some thoughts and numbers on wing loading

By Seth Mogk

During the Saturday session of the MWE, I had the opportunity to talk with Steve Ciambrone about his excellent models, the Ford Tri-Motor and the Piper Tri-Pacer. Somewhere in the discussion, I asked him what the wing loading of the Tri-Pacer was, and he responded, "Thirty-five ounces per square foot; that's not bad for a model of that size."

How many times have you found yourself there, whether in conversation with another modeler or in your own musings? Its reasonably intuitive that a 50 inch span model with a wing loading of 35 oz/sq. ft. isn't going to "fly like" a 90 inch span model with the same loading. When we speak of wing loading, that's usually what we're getting at, right? Besides calculating the stall speed, we want to know what a model "flies like," i.e., get a sense of its flight characteristics. Wouldn't it be handy if there were a way to quantify this quality that would apply to models of various sizes?

Turns out there is. In the December '97 issue of Model Airplane News, there appeared an article entitled "3D Wing Loading," by Larry Renger. In it, he discussed a concept originally published in the late 50's by a free-flight modeler for doing precisely this. Can a 40-year-old idea that isn't already in the standard, everyday modeling lexicon be worthwhile? Well, it has a couple things going for it. For starters, if you've explored the Astro Flight web-site and seen Bob's excellent discussion of scale speed, this method and Bob's for dealing with wing loading are numerically equivalent. For another, it couldn't be easier to calculate.

All you do is divide the normal 2D wing loading in ounces per square foot by the span in feet. The result will be on a scale from around 1 for gliders and old timers to about 7 for serious heavy metal. For example, Charlie Chambers' Top Gun-winning P-61 Black Widow has a 3D wing loading of 6.9; Nick Ziroli, Jr.'s TBF Avenger comes in at 7.9. (Renger claims he uses ounces per square inch, which gives a scale from 0.0006 to 0.0041. Please.)

So that Tri-Pacer has a 3D wing loading of 35/(7.5 foot span)=4.7 ounces per cubic foot. A 50-inch span model with the same 3D would have a 2D of 19.4 ounces per square foot. Scale that up to full scale (span=29.3, area=147.5) and you get a flying weight of 1261 pounds--201 pounds over the empty weight. No wonder then, that everyone agreed that it flew in a scale manner. Another example: my Electric Cub comes in at 15/(4.9 foot span)=3.1 ounces per cubic foot. A 50 inch model with a 3D of 3.1 would have a 2D of 12.9 ounces per square foot; a 90 incher has a 23.3 2D loading. At full scale, the flying weight would be 1204 pounds, just under gross of 1220. For these planes at least, the 3D value scales up and down quite well.

Playing around with numbers a bit this way yields some interesting results. The well-known PBY Catalina has a 3D of 3.9. That other combat flying boat of WWII, the PBM Mariner, comes in at 4.8. The DC-3 has a gross weight 3D of around 4.9. These would surely make good, scale-flying models. How about bombers--they're made to carry heavy loads, right? The B-17 has a 3D of 7.1; the Liberator-7.6. Here are some more:

PT -26 Cornell-5.8
G4M Betty-6.4
B-29 Superfortress-8.1
OS2U Kingfisher-10.2
A6M Zero-10.7
P-61 Black Widow-10.8
A-26 Invader-11.7
B-26 Marauder-13.1
F4U-1 Corsair-15.4
P-47D Thunderbolt-17.5
P-51B Mustang-20.0

A 3D wing loading of 20.0--whoa! Your SD scale Mustang would weigh over 15 pounds! What's going on here? Its something called power loading, but that, as they say, is another story.

Mabuchi Madness

By Bob Kreutzer

The speed 400 bug has bitten a lot of people as of late, myself included. The pylon racers caught my imagination and now I too, have a fever of 400 degrees! (Why else would a normally rational man put so much time into a $10 motor?) That having been said, here are the results of my less than scientific experiment to find out why some speed 400 motors are more "cherry" than others. I also have found some likely techniques that may improve the longivity of these enchanting little electromotive devices.

The first thing to remember is that these Mabuchi 380 motors were never made to be used as arc welders (which we E-flyers just seem to LOVE to do with our motors). So my first inclination was the usual slot car buleprinting routine. True the commutator (aka: the comm) and balance the armature (aka: the arm). Ron Hershman of MotorDynamics at fastones@holli.com, was nice enough to do this for me for $4 dollars per arm. He said he would also Zapp my magnets for another $2 per motor for a grand total of $6 per motor! Hey, not bad if I don't have to buy a gross of these little things just to find a cherry! (or so I thought). So off went some motors and within a week I was the happy owner of some truely beautiful, perfectly-dynamically balanced arms and a pair of "cans" with Zapped magnets. I have to put in a non-solicited plug for Ron Hershman here as he was really helpful and and does nice work. Thanks Ron!

So for my tests I chose to use my battery pack from my Scat and the spinner assembly with a Cam 5X5 prop that had been checked for pitch and balanced to within one little dab of fingernail polish. (yes , it was even balanced transversly. Ya gotta love those magnetic balancers!) . Each motor was timed the same (line up the red dot with the brush vent hole..) and they all had the brushes pre-arc'd and broken in. I took about 3-4 tests with each set up off of a fresh charge and averaged the readings so they are pretty good indicators overall:

1: stock motor, serviced arm =12,360 rpm
2: zapped mags, serviced arm =12,240 rpm
3: stock motor =12,320 rpm
4: Rocket 400 =12,200 rpm

Dissappointed that I had not found the Holy Grail of the Mabuchi 380, I then took motor #2 apart and applied some silver filled conductive epoxy to the brushes where they are pressed into the brush/spring holder to act as a sort of a brush shunt. After all everybody knows the brush assembly stinks in these things, right? This yielded 12,320 rpm. so there was some improvement, but what a pain for 80 rpm.

So apart came #2 again and I put on the really trick, epoxied-in-mega-Zapped magnet-can. Visions of 17000rpm danced in my head!

Result? =12,280 rpm

Bottom line is: no significant performance change in these motors while spinning a 5x5 Cam propeller on 7 500mAh cells.

So, I'm mad now , and I break out my trusty roll of 25 awg magnet wire (every house should not be without one!) and rewound that sucker with 27 turns. Yea, that's the ticket! I carefully pried the comm tabs back and cleaned off the insulation. Then I re-swedged them down really good . And as a special extra added bonus, I soldered them. (Yeah, yeah, I know 40/60 is'nt right, but it's all I had on hand). 17,000 rpm here we come!

Result? =12,850 rpm (for four seconds!)

Yep , the solder was flung from the comm and the rpm went to 12,400 and then it started smoking! End of test. Say-La-Douche.

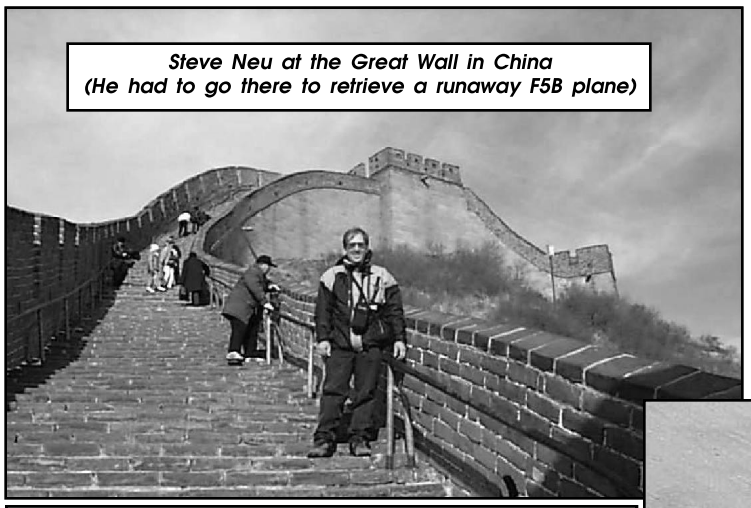
It's the same story, you heard it before. Time it, break in the brushes, oil it, go fly it. Oh, yes how to make it last longer. There are three main items:

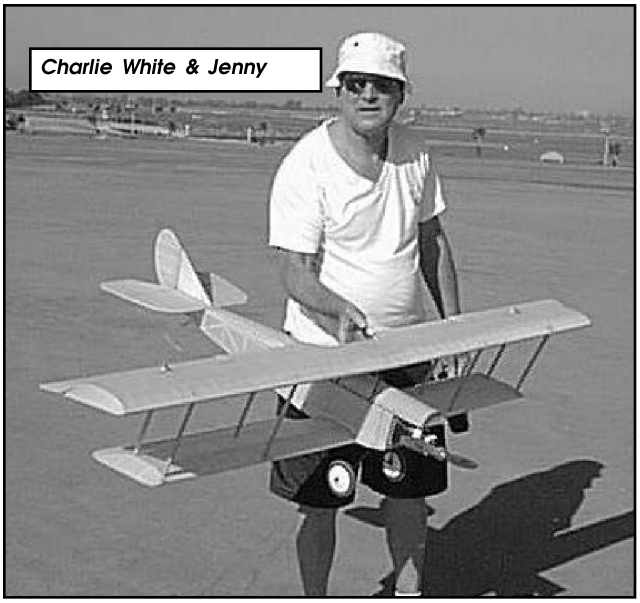
1: Oil your bushings. Every flight is not too often.
2: Keep it out of the dirt. This is a real problem with pylon racers.
3: Don't crash it.

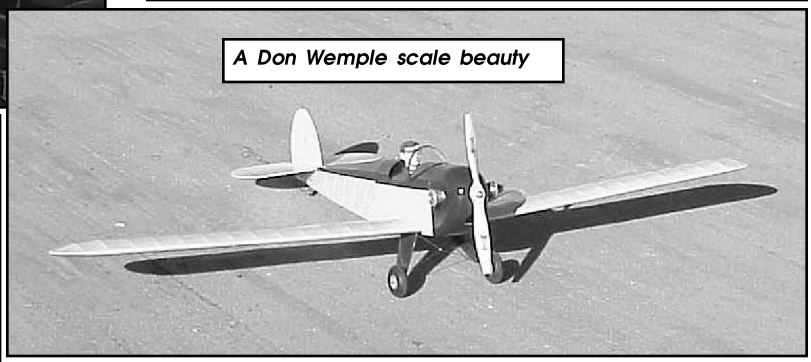
In Conclusion:

Well Steve, all this messing around has yielded no significant results. With a 5x5 (pitched and balanced) and my rigged up test wiring, I got 12.3KRPM from a stock motor with a balanced arm. I got 12.2KRPM with a balanced arm and rezapped magnets. I got 12.2KRPM from the Rocket 400. I then took the balanced and zapped magnets motor and smeared conductive silver epoxy over the brushes where they hook into the spring/holders in an effort to make a type of brush shunt . No effect. My biggest effects were caused by battery charging variations. I took 3-5 readings in different orders of each of the motors to get the above averages.

So, I guess I'm not telling you anything you did'nt already know. [Sure you did! I didn't know you has so damn much time on your hands!] I also moved the timing around and took some readings. No measureable effect on RPM, at least not significant. I do beleive that setting the timing under load with a amp meter in line would have some advantage in minimizing the amp draw though. That is, I have heard that the amp draw around the maximum timing advance point gets very touchy. Seeing as how the rpm is insensitive around this point, it would seem that minimizing the amp draw would yield benifits in maintaining RPM over the course of a heat. What do you think? BOB


Steve Neu at the Great Wall in China
(He had to go there to retrieve a runaway F5B plane)


Charlie White & Jenny


A Don Wemple scale beauty

SEFSD VIDEO LIST

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- *GETTING STARTED IN ELECTRIC FLIGHT
- *AIR FORCE TOP GUN
- *1994 KRC ELECTRIC FLY
- *A-10 WARTHOG
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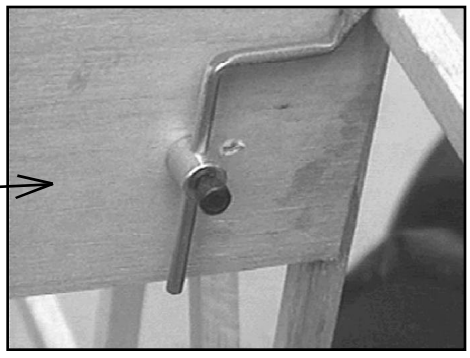
- *THE SCHNEIDER SPORT ELECTRIC
- *ELECTRIFYING THE FANTASY
- *T-BIRDS (THUNDER BIRDS)
- *F-16 FALCON
- *VACUME BAGGING
- *WRING IT OUT
- *WRING IT OUT-II

Clever Idea

Jack Hawks showed me the bones of his new 96" Lanso Record Breaker. The wing area is 1250 square inches! The 6 to 7 lb plane will be powered by an Astro 40G on 18 1250 cells. But the really interesting thing is the way he attached the cabane structure! The wire/tube cabane structure is attached to the fuselage formers using large servo connectors. The four connectors allow for wing angle adjustment in four directions. I wanna see this fly!



Silent Electric Flyers of San Diego

New Membership Application or Change of Information Form

(For RENEWALS with no change of information, just send money & copy of AMA card.)

NAME: Last_____ First_____ Middle Initial_____

DATE OF BIRTH _____/_____/_____

ADDRESS _____

CITY _____ STATE_____ ZIP_____

PHONE: (H)_____ (W)_____

FREQUENCIES USED FOR ELECTRIC ____ ____ ____ ____ ____ ____ ____

AMA NUMBER: _____ Dues Paid _____

Note: AMA membership required to fly **Date _____**

Bring to club meeting or mail with Xerox copy of AMA card and a check for $25.00 ($15.00 for subscription only, $10.00 for under 18 and additional family members) dues to: SEFSD, 17140 Tam O'Shanter Dr., Poway, CA 92064

SEFSD c/o Steve Belknap
10223 Kaiser Place
San Diego, CA 92126

See p5 for information on possible new meeting places!

Doug Cronkhite talks about aerobatics! Don't miss!