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THE JOURNAL FOR R/C SOARING ENTHUSIASTS



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Spring Fever

As hard packed snow begins to melt for many of us in the U.S.A. and Canada, the days lengthen, and all the other signs of spring pounce suddenly upon us, we find it's time to finish all the projects started during the winter months. Whether making small adjustments, here and there, replacing old or worn parts, or putting the finishing touches on a Christmas present in preparation for its maiden flight, spring has, indeed, arrived. It's party time!

For some, that means heading for the nearest slope site, while for others, a parking lot seems to do just fine. Many of us are fortunate to have mountains or ocean cliffs in our back yard, and some enjoy the boomer thermal activity at local sod farms. This is also the time when many events get underway in earnest. For those of you involved in the logistics of pulling together an event, please be sure to get us your schedule information as soon as possible.

And, for those of you that spent the winter building a new glider(s) for your flying season, we'd love to hear from you, too. Send us a photo with a few words about your project, so that we can share it with the other readers of *RCSD*.

One of the things we try to do every month is balance out the mix of articles. While that is not always easy, one reader in Nevada, Jack Dusseau, of the Las Vegas Soaring Club, Inc., writes, "Just wanted to let you know how much I appreciate the Journal and your continuing efforts to keep it going. You are providing a great mix of articles covering all aspects of the sport (i.e., design, materials, construction techniques, club activities, and flying). As a relative new comer, about eight years, in the sport, I can honestly say that the vast majority of my current knowledge has been the result of reading/studying *R/C Soaring Digest*. Keep up the good work."

Thanks, Jack! On behalf of all the authors whose articles have appeared in *RCSD*, I think we can safely say, "That's what we like to hear!"

Happy Flying!
Judy & Jerry Slates

T.W.I.T.T.

(The Wing Is The Thing)

T.W.I.T.T. is a non-profit organization whose membership seeks to promote the research and development of flying wings and other tailless aircraft by providing a forum for the exchange of ideas and experiences on an international basis. T.W.I.T.T. is affiliated with The Hunsaker Foundation which is dedicated to furthering education and research in a variety of disciplines. Full information package including one back issue of newsletter is \$2.50 US (\$3.00 foreign). Subscription rates are \$18.00 (US) or \$22.00 (Foreign) per year for 12 issues.

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OTHER GOOD STUFF

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SCALE BEAUTY!

Rod McLeod, of British Columbia, Canada, holds his Grunau 2B. It was built from a Jim Ealy plan 15 years ago.



R/C Soaring Digest (RCSD) is a reader-written monthly publication for the R/C sailplane enthusiast and has been published since January, 1984. It is dedicated to sharing technical and educational information. All material contributed must be exclusive and original and not infringe upon the copyrights of others. It is the policy of RCSD to provide accurate information. Please let us know of any error that significantly affects the meaning of a story. Because we encourage new ideas, the content of all articles, model designs, press & news releases, etc. are the opinion of the author and may not necessarily reflect those of RCSD. We encourage anyone who wishes to obtain additional information to contact the author. RCSD was founded by Jim Gray, lecturer and technical consultant. He can be reached at: 210 East Chateau Circle, Payson, AZ 85541; (520) 474-5015, <jimpeg@netzone.com>

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Jer's Workbench

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Spring Cleaning

The other day, while working on one of my models, I needed a small Phillips screwdriver, in order to change out a servo arm. I headed for the roll-around toolbox and opened the lid, expecting the Phillips to be in its proper place. Unfortunately, the next 15 minutes were spent searching the workshop, on the workbench, under the workbench, and in every nook and cranny. The screwdriver was not to be found.

I knew that my field tool box also contained a Phillips, so I opened it next, and was greeted by not one, but three of the little rascals! "Ah, well." I told myself, "Perhaps it's time to do some spring cleaning."

When was the last time I cleaned the field tool box? From the looks of it, "Never!"

The box contained wads of old wing tape, empty plastic bags, and scrap paper. A pair of extra long nose pliers, obviously not mine, must have been dropped in my box by mistake. My old trusty stop watch looked up as if to say, "Don't you think it's time to change my battery? I've been long overdue, and I've been with you for 5 years!"

"OK, so enough of this," I thought, and put 1 new battery for Mr. Pushy Stop Watch on my shopping list. It would, indeed, be most embarrassing for the watch to stop, while timing for someone at an event!

So, readers, have you changed your stop watch battery, lately? Or, cleaned out your field box?

Modellbau Markt '98

This month, I received a copy of *Modellbau Markt '98*, a special magazine, which contains a great deal of information about the model products which were on display at the "Nürnberg Toy Fair".

While I can't read or translate German accurately, I most certainly drooled over many of the pictures in this, obvious, wish book. What follows is a list of models that may be of interest to you. Starting with HLG's, there is the Virus by AHL, Dart by Multiplex, and the Hattrie by Conrad. The thermal types included Soarmaster by Graupner, Apollino II by Hans Müller, and my personal favorite, Ibis by SMG. Since most of these models are V-tails, it sure looks like V-tails are in this year! And, if you like scale, the Germans do some of the best workmanship I've ever seen. There's the Duo Discus, Ventus 2C, and a 7m Nimbus 4D by EMS; a Minimoa by Graupner, and a DG-600 (another personal favorite) by Conrad. Of course, this list is only representative of but a few of the



wonderful flying machines on display at the fair.

Modellbau Markt '98 contains 116 pages packed with details on power models, gliders, electrics, motors, radios, boats, cars, and hardware items. If you would like to get a copy, the cost is DM 12,80.

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EVENT ANNOUNCEMENT

Intermountain Silent Flyers to Host Soar Utah '98

Contact: Scott Marshall
Soar Utah '98 Publicity Chairman
W:(801) 536-1049 H:(801) 965-6055

InterMountain Silent Flyers (IMSF) is proud to host the 3rd annual Soar Utah on September 5-7, Labor Day weekend, at the Point of the Mountain slope soaring site, located in Salt Lake City, Utah.

The unique combination of a premier flying site and its close proximity to a major metropolitan area attracts remote control soaring pilots from throughout the country to participate in this event. Pilots are encouraged to bring a variety of aircraft as there will be time slots for vintage scale, modern scale, power slope scale (PSS) and open fun flying.

The primary site for Soar Utah '98 is the Point of the Mountain, one of the best soaring sites in North America. The south side of the Point rises more than 400 feet from the valley floor and levels off to a wide, flat plain on top. The north side is quite different, as it consists of two distinct ridges. The first ridge levels off at 300 feet with a bench that is several hundred feet wide then rises an additional 800 feet to the "rear" hill.

The highlight of the event is the opportunity to fly at Francis Peak. At an elevation near 10,000 feet, Francis Peak rises more than a mile above the valley floor, offering an unforgettable soaring experience and breath-taking views of the Great Salt Lake and the Salt Lake Valley.

"One of the things that makes Soar Utah so special is the social aspect," said Curtis Miner, IMSF President. "In addition to sharing our superb flying sites, we want to share our hospitality. Our club members have gotten behind this event and have organized some outstanding social activities. Some of these include a static display with pilots' choice awards, a banquet and one of the best raffles in the West."

Pre-registration for Soar Utah is encouraged. Registration materials are available on the World Wide Web at <http://www.worldplace.com/soaring>. Registration packets are also available by contacting Kent Peterson, Soar Utah Registrar, at 13121 South 2665 West, Riverton, UT 84065. Soar Utah is an AMA event and proof of current AMA membership will be required.

InterMountain Silent Flyers, an Academy of Model Aeronautics chartered club, was formed in 1979 to promote the social, competitive and educational aspects of remote control soaring. IMSF maintains two flying sites: the Point of the Mountain and a 60 acre thermal field in Kearns, Utah. IMSF members participate in all aspects of the sport including scale, PSS, slope, thermal duration, hand launch, cross-country, aerotow and combat. The club encourages new pilots to join and offers a training program for fledgling pilots and monthly competitions and meetings to help sharpen member skills. ■

April 1998

News Update

Aerotow "98"

from John Derstine
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The registrations are pouring in from all corners of the world. We have 10 confirmed from Germany, one from Switzerland, one from Australia, a large contingent from Canada, and entrants from all over the US, including California and Hawaii. Our once humble scale aerotow has the potential of becoming the most widely attended scale soaring event ever.

Our picnic on Friday evening will be catered by Market Street Brewing Co. of Corning, New York. They are the area's premier micro brewery and will be supplying their own homemade barbecued sausage, as well as hamburgers, hotdogs, and on tap micro brew. Our Saturday banquet will again be catered by "A Step Above"; these are the same folks who did last year's excellent dinner.

RC Forum Germany will again be posting live reports to the internet as the event unfolds. This year we are hoping to have streaming video reports online.

<http://www.RCOnline.de/airtow> in cooperation with EMS and RC Forum, will be offering sponsors a chance to become part of this program by donating a fee in exchange for a link, a banner in Elmira and other promotions in a three tiered pricing schedule from about \$20.00 to \$200.00. This video ad will then be broadcast to the world over the internet. Any sponsors wanting instant worldwide exposure and an association with one of the best scale events anywhere, should contact Michael Schellburg of <http://www.rcforum.de>.

Thomas Schmidt of TS Models reports that he will be bringing his 1/3 DG 600 with a second transmitter, so everyone can try his hand at flying it. This model is scale detailed down to the wing joiner system.

One member of the Swiss IGG group is coming to Elmira. His name is Adrian Eggenberger, one of the guys who made the one direction flight from the Moench, one of the highest mountains in Switzerland, down to the village Grindelwald through a distance of 9600 m. Read about this account on Sailplanes Unlimited web page <http://www.sailplanes.com>, in the scale soaring news section.

There is lots more going on that I don't have time to report; I will add details as I can. ■

5th Annual

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Aka-bee and his 'wing at 60 acres. The winglets have been installed, but the Horten influence remains very evident.

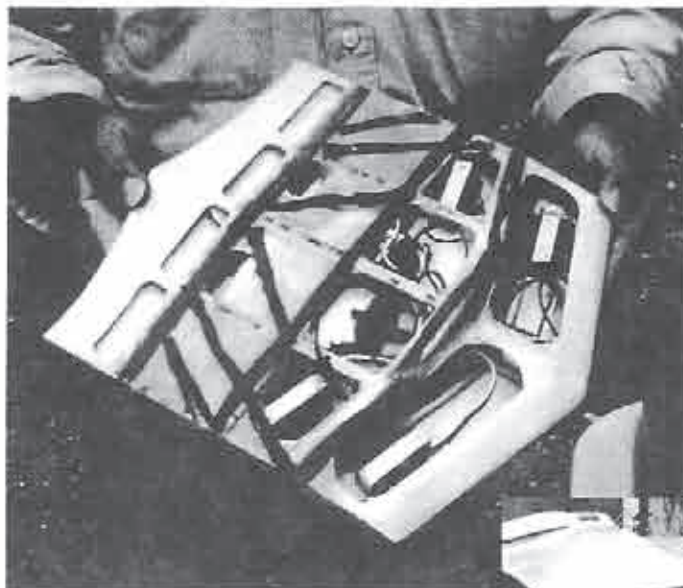


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Aka-bee's 'Wing

This past summer and fall were filled with a number of exceptional experiences. The real highlight, however, was our involvement in Hidemi Akaba's flying wing project. Hidemi, known to his fellow American glider pilots as Aka-bee, approached us early in the development process, inquiring about a spar system for his endeavor. Following months of construction, and a couple of months of reconstruction, Aka-bee flew his 'wing successfully. Although originally conceived as a slope soarer, it was quite a success at the Seattle Area Soaring Society's flat land site, 60 Acres.



The exceptional part of the 'wing is the center section. Aka-bee actually made a female mould for this part of the project! The resulting component is a work of art. The skin is a fiberglass shell, with plywood bulkheads added. The servos are mounted at the outboard wing junction, the battery pack and receiver near the center. The upper skin is in two layers. First there is a layer which bonds the ribs and other structural components, as the bottom skin. Much of this layer is cut away for access to the radio equipment, wing alignment pins, etc. There is a lip near the leading edge which serves to hold the second layer, the outer skin, in place. No tape is needed to make a smooth surface. Nylon screws are used to assure this outer skin stays in place during flight.

On the field, Aka-bee's 'wing assembles from three pieces: the center section and two wing panels. The main wing rod is roughly parallel to the quarter chord line of the wing, while the alignment pins are perpendicular to the wing centerline. For flying, a wing panel is slid onto the main wing rod, then the alignment pin is pushed

The center section with the access cover removed. The servos closest to the leading edge drive the split drag rudders, while those behind the main spar drive the elevons. The access cover slips into a slot near the leading edge and is then held in place by nylon screws.

The open starboard drag rudder. The drag rudder chord is about 2/3 of the wing tip chord, making it very effective. Aka-bee uses the drag rudders to assist in turning and for glide path control during landing.



into its receptacle in the wing. The pin has a 90 degree bend at its inner end, such that the pin is pushed in, then rotated for locking. Since all four servos are mounted in the center section, connecting the control cables is relatively easy.

In June, we finally managed to coordinate our schedules and see Aka-bee's 'wing take flight. It was truly beautiful, but not free of problems.

In its initial configuration, the 'wing had a tendency to sideslip in turns. This sometimes led to the wing yawing so much it would end up sliding toward the ground like a javelin. There was also a tendency to tip stall. Luckily, Aka-bee had included

drag rudders in the design from the very beginning. When in trouble, opening both drag rudders simultaneously immediately damped the yaw and allowed controlled flight to continue, albeit with some loss of altitude.

An additional problem was one of visibility. Although the span is a large 100 inches, at a distance it was difficult to determine the actual attitude of the aircraft, and even more difficult to catch adverse or proverse yaw. Even more dangerous, however, was the tendency for it to disappear.

These two problems were eventually eliminated, or at least minimized, through addition of

Hidemi Akaba's RC Flying Wing Sailplane	
Configuration, initial	No fuselage, no vertical surfaces; wing only
Configuration, final	Winglets added
Span	100 inches
Root chord	10 inches
Tip chord	4 inches
Sweepback	18 degrees at LE
Wing section	EH 1.5/9.0
Weight	40 ounces, approximately
Wing loading	8.2 ounces/ft ²
Controls	Elevons and split drag rudders Four servos, mixing
Appearance	Horten-like

winglets. This was a difficult decision for Aka-bee, as he wanted very much to retain a true "flying wing," (i.e., no vertical surfaces). Still, he had the foresight to include a winglet mounting method during the original construction, so adding the winglets was not a difficult project.

Flutter frequently reared its ugly head, especially on launch, but also during high speed flight. To reduce flutter, the flexible wings were reinforced with carbon fiber between the wing spars and the trailing edge. Since the wings were sheeted with balsa, Aka-bee also added a layer of fiberglass to the exterior, with the grain running diagonally. Not only was this an easy thing to do, it also placed the 'glass on the outside of the structure, where it could provide the most strength. At the same time, efforts were made to tighten the elevon hinges. Some play still remains in the wing rod system, as there is no way to tighten the connection.

With the improved visibility offered by the addition of winglets, flight testing began providing legitimate feedback. Flight characteristics continued to improve as the CG was moved aft, the tow hook was relocated, and radio mixing was reorganized.

By August, the 'wing was flying well and had been thermalled several times. Bill was going out to 60 Acres each weekend, often spending the entire day flying our own planes and watching Aka-bee's 'wing cruise the skies. August was also the month Aka-bee was told he was being transferred back to Japan in early September.

Hidemi is now working in the aerospace division of Fuji Heavy Industries, makers of Subaru automobiles. He is assigned to the unmanned vehicle section, and is working on a remotely piloted helicopter. This is an RC helicopter which weighs more than 650 pounds, including 220 pounds of payload. These machines are used in Japanese agriculture to apply insecticides and other chemicals.

Summer is now just around the corner, and we already see a vacancy in the air and feel Aka-bee's absence at the field.

If you have a tailless project which may be of interest to readers of *R/C Soaring Digest*, we'd very much appreciate hearing from you. ■

Sailplane Homebuilders Association (SHA)

A Division of the Soaring Society of America



The purpose of the Sailplane Homebuilders

Association is to stimulate interest in full-size sailplane design and construction by homebuilders. To establish classes, standards, categories, where applicable. To disseminate information relating to construction techniques, materials, theory and related topics. To give recognition for noteworthy designs and accomplishments.

SHA publishes the monthly *Sailplane Builder* newsletter. Membership cost: \$15 U.S. Student (3rd Class Mail), \$21 U.S. Regular Membership (3rd Class Mail), \$30 U.S. Regular Membership (1st Class Mail), \$29 for All Other Countries (Surface Mail).

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On the 'Wing... the book, Volume 2

by Bill & Bunny (B²) Kuhlman

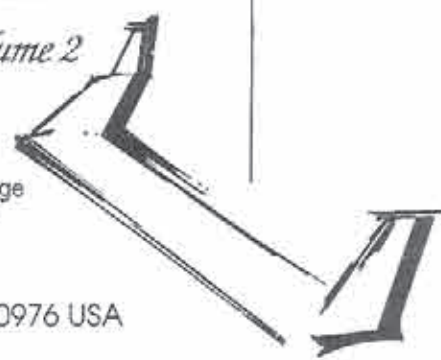
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Jim Blum holding our beloved 1/3 Spacewalker towplane.



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The Spacewalker Mystery Solved!

As we all know, where we balance our airplanes is most important. It can make the difference between an easy to fly or a very difficult to fly airplane. Too far forward and the airplane can be a real handful, while too far back can result in unwanted spins or worse. What we didn't know, is that the balance point can sometimes drastically affect how well or badly a towplane flies while on tow.

Last summer, a friend built another

Spacewalker and was having an awful time towing with it. We have been flying ours for three years now and it's one of the easiest to fly and best towplanes around. At first, we couldn't figure out what was going on. What was the difference between these two?

After measuring them, we found that the ONLY difference was the center of gravity position. The balance point on the new (difficult flying when towing) Spacewalker was well within tolerances marked on the plans, but it was in the aft position. It flew just fine off tow, but when hooked up to a glider, it was all but impossible to fly.

The cure? We added a few ounces to the nose, which brought the C. of G. to the forward-most position marked on the plans, and we tamed our tiger. Now this Spacewalker is a treat to fly when on tow, just like the one we've so enjoyed these past three years.

There might be a lesson here. If you are having problems flying on tow with a new tug (which has plenty of power), and which flies just fine off tow, you just might have the center of gravity too far towards the rear. Try adding a little nose weight and see if things get better. We've never run into this situation before, but in the case of the Spacewalker at least, a little added nose weight did the trick!

Aerobatics

There are a few maneuvers which when learned, can become extremely useful in many aspects of your every day flying. One of these, though rarely used or learned, is not only of great value as part of your stunt routine, but will become an invaluable tool when thermalling and airtowing as well. It's the spin.

There's no doubt that the spin gets a bad name because it's a real killer of people and airplanes when near the ground. That stall and wingover on takeoff is really the beginning of an unwanted spin and on the winch, it's a real nightmare! Although pilots of 1/1 sized aircraft are required to learn how to enter and recover from a spin, they spend most of their time avoiding that maneuver. For us model airplane folks, the spin is a most useful tool and when you get too high in a boomer thermal; it can even save your sailplane! It's particularly useful when you are maxed out in a thermal or are airtowing at the edge of visibility and need to lose a little height.

When properly done, the spin puts very little strain on the airframe and, as the wings rotate, your airplane becomes more and more visible. Another huge advantage of the spin is that you come straight down - meaning that you know where you are - you won't have to go searching the sky to try to find that tiny, disappearing, elusive speck somewhere up there... Your alternative for losing altitude is a shallow dive, which builds up a lot of airspeed, covers a lot of airspace (which can make the airplane disappear on you) and, if you're not careful, is a good way to break your wings. When you get to know it, the spin could become a most important and user-friendly tool.

The Spin

(easy for some R + E and
easier for some R + A + E)

According to the AMA rule book, "All spins begin and are ended by horizontal flight. In order to accomplish a spin, the model must be stalled. The entry should be flown in a near horizontal path with the nose high attitude increasing as the speed decreases. The nose then drops, as the model stalls. Simultaneously, the wing drops in the direction of the spin."

In other words, fly straight and level, feed in some up elevator so that your model flies slower and slower and, just before it stalls, hold in full up elevator and full rudder. The wing should drop, you should nose down and enter your spin. If you find that you can't spin with rudder and elevator only, next time add ailerons and that should do the trick. If you don't enter a spin, you will be in a spiral dive, which is NOT a spin. Best to try your first spins high enough to have plenty of room to recover, but low enough to be able to see what's going on.

Some very stable airplanes won't spin. Sometimes you can correct this, sometimes not.

Some airplanes won't spin, because they are balanced too far forward. If you try a spin and all you get is a large downward spiral, you might have too much nose weight. Try taking out a little and see if

Aerobatic Flight Plan

October 1997

- Uncouple your rudder & ailerons.
- Practice flying Straight & Level.
- Master airspeed.
- Practice the Inside Loop.
- Determine what rudder & aileron adjustments are required to fly a perfect loop.
- Tackle Inverted Flight.

November 1997

- Practice the Split-S or Wing-over.
- Practice gaining sufficient airspeed to be able to complete a 360° Roll.
- Practice The Roll.
- Combine maneuvers to develop your personal, custom, aerobatic sequence.

December 1997

- Practice 1/2 Cuban 8.
- Practice the Cuban 8.

January 1998

- Practice the Outside Loop.

February 1998

- Practice the Immelmann and Reverse Immelmann.

March 1998

- Practice the Hammerhead, Reverse Cuban 8, and Reverse Half Cuban 8.

April 1998

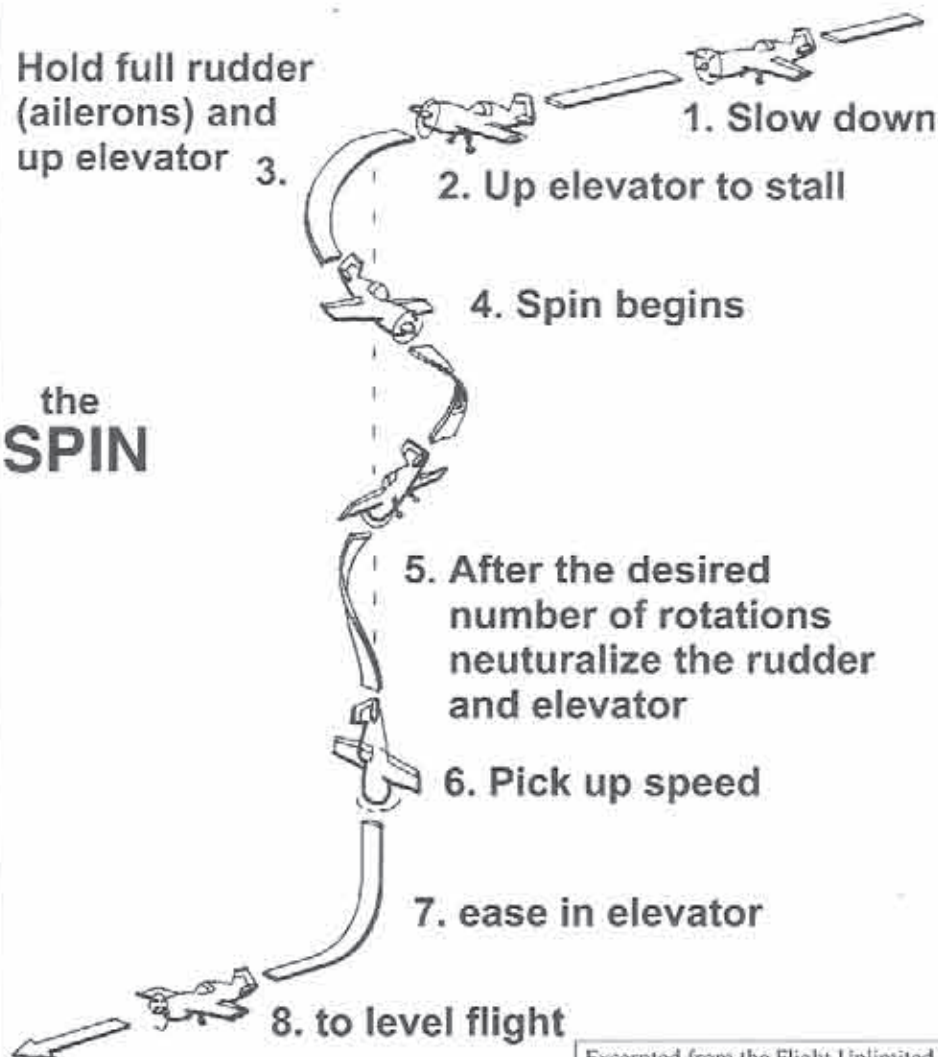
- Practice the Spin.

Notes:

- Establish and maintain a "Sailplane Diary" for each plane.
- Review monthly progress.
- Practice flying with a knowledgeable friend or expert, and remember that safety comes first.
- Practice with a flight simulator program such as Flight Unlimited (April, 1997 RCSD).
- Definition of "One Mistake High": Be darn sure you're high enough to complete the maneuver and make one mistake, before hitting the ground.

Hold full rudder
(aileron) and
up elevator 3.

the
SPIN



Excerpted from the Flight Unlimited
game manual. Copyright 1995, 1997
LookingGlass Technologies, Inc.

that helps. You might find that you have been flying nose heavy all these years. Go at this until you have reached the rearward most balance point of your aircraft - and if you still can't spin, you might find that don't have enough rudder throw, or that your rudder is too small.

The first time you try to spin, do it with rudder and elevator only. If that doesn't work, try rudder, elevator and ailerons. If you still can't get your bird to spin, then see if you have too much nose weight. Approach your spin in that order. If you STILL can't spin then probably the airplane is just too stable. Many full-sized aircraft have the spin built out of them as much as possible for obvious reasons. It must be said that some airplanes won't spin no matter what you do.

Let's say that you have easily entered a spin. How do you get out of it? Simple; just let go of your sticks and neutralize all the controls.

Remember that the spin is a stalled condition and when you want to end it, you must get the wings flying again. You need to gain airspeed, which is why it's very important to get rid of your up elevator. If your C of G is too far aft, you might even need to feed in a bit of DOWN, but that's quite rare.

Normally, when you stop the elevator and rudder (and aileron), your airplane will abruptly stop rotating; it's just that easy with most airplanes.

The spin has many advantages in aerobatics, because it can be used in lots of different ways. You can best use it any time you end up flying slowly (for example, after an Immelman), because it requires minimum airspeed. It can be used as a turnaround maneuver (half turn spins, 1 or 2, etc.), or not, and you can exit the spin to level flight inverted or right side up. You will tend to have quite a bit of airspeed when exiting the spin, so you can immediately go right into any number of maneuvers requiring faster airspeed (such as a loop, roll, Cuban-8, etc.).

More than an aerobatic maneuver, the spin can help you lose height safely whenever necessary. Perhaps we should follow the lead of our full-sized sister ships and learn how to enter and exit a spin; this knowledge might well save you an airplane now and then! ■



ZIVA



"The Launch Pose (Gordy)"
photo by Rick Eckel.

GORDY'S TRAVELS

Two Great "Clubs" Farvfeg-Servo-gen Hobby Club's Amazing Volz Servos from Germany

By Gordy Stahl
Louisville, Kentucky
GordySoar@aol.com

Okay, yes, this is about some new exciting servos... But this story started out about a club of sailplaners who were part of a secret government genetics program, now residing as part of one of those new identity relocation things. Apparently their coding makes them incredibly friendly, organized and fun to be with. It also has a weird side affect that urges them to meet at a certain location (their "flying" site) on weekends. They work together improving the site, maintaining their equipment, having lots of events, in general having a good time and being wonderful hosts to the unwitting (but fortunate) visitors.

I met them while attending one of their events with Carl Otto, Mike Clancy, Jim Thomas, Rick Spicer and a couple other "normal" guys. These Sacramento Valley Soaring Society guys are basically the ultimate RC Soaring types, and the club they have created sets a standard for all clubs to strive toward. Most guys in California are intimidated by the high level of flying of these "guys". So, pretty much only the real top competitors go there, being gluttons for punishment. Any of you traveling that way need to stop in to meet them and check out their club... The truth is out there and you can find it via their editor, Leeroy Cooper (Like as if that's his real name?), at Lcooper428@aol.com. (I finished in the top ten, in case you were wondering; if my memory serves, there

seemed like about a hundred contestants.) So, how did THAT lead to a story about the Hobby Club company and German servos? Well I started out with an idea for a story about this great club, but while I was there, fixing a servo, one of those 'guys' passed by and said, "Oh, you use black servos."

Now, that struck me as a little odd, since most servos are black... But the comment led me in search of a source for colored servos and eventually to the Hobby Club company and their superb German Volz servos... And, they're blue!!!

I had heard the name Volz in passing article references, but dismissed them as being some strange stuff, since they weren't from the far east. I mean, blue servos from Germany. Who would have thought?

Well, what could I do? I didn't want to just have black servos, so I contacted David and Alberto at Hobby Club.

Hobby Club? I know; what's it cost to join? Actually, the company was started at a time when lots of companies were using the designation of "club" (like autoclub...). The basis of their business was to find unique RC sailplane products from around the world and offer them to the US market. As close friends of Mr. Volz, they were able to import the Volz servo line, which are blue. More importantly, they are radically different than the servos we are used to. From the color to the gear train, it's clear that Mr. Volz had a different agenda when he created his servos.

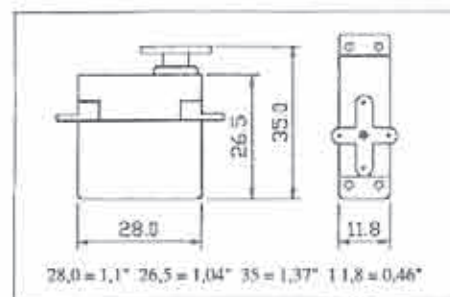
Check out this resume from their brochure:

- "Injected molded parts, metal gears, shafts, etc., are all made in Germany, and up to German standards."
- "Most components are patented to Volz."
- "Bronze gears machined by camera manufacturer Zeiss-Ikon and held to super quality standards, allowing them to be the only servos to carry a 5 year warranty on their gear sets."
- "Used in world record holding sailplanes, and high stress pylon racer applications, all over the 'rest of the world' for the past ten years."

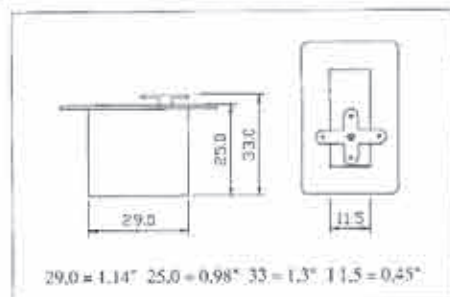
Aside from being blue, these servos are tiny and powerful, too. They work fine and have plenty of power on 4 cells, but really power-up on 5 cells. While they have a selection of servo sizes, there HAD been specifically three that are of special interest to us ('til now that is.).

For everything other than HL or Mosquito aircraft, the Micro Maxx is THE servo. About the size and weight of a micro servo, yet they have exceed the power of the "popular" metal gear servos... A whopping 47 oz. of torque on 4 cells and 57 oz. on 5 cells! They aren't only blue, tiny, light and strong, they are FAST, too!

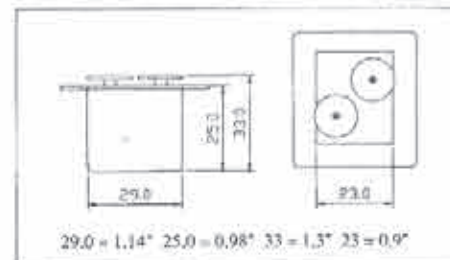
So, what about those patented innovations? Well, the output shaft has an extremely long bottom shaft with two support areas in the case; the top of the shaft passes through the ball bearing on top. The other gear shafts are pretty thick, and they mount into big molded bosses in the case to



ZIP, .39 oz.

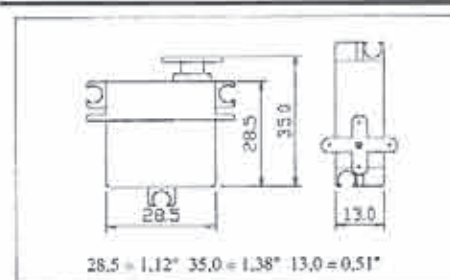


29,0 = 1,14\"/>



29,0 = 1,14\"/>

Kolibri, .26 oz. and .5 oz.



28,5 = 1,12\"/>

Micro-Maxx, .67 oz.

keep the gears meshing right for that 5 years. The cases have unique side and standard screw mounts molded in; the side mounts consist of one on each side, near the top, and one at the bottom, for the very secure mount needed in the high stress application of F5B super electrics, and F3B speed ships, that are so popular in Europe, England and Japan.

Think they stop there? Wrong! Each servo has about a 2" connector wire, but on the end of that wire has to be the smallest plug I have ever seen. That makes it very convenient for mounting in wing and rudder applications. A longer pig tail is supplied with a matching (VMS) tiny plug on one end (Sort of looks like a microscopic version of the old Futaba plugs.), and a plug of your choice on the other to fit your RX. The output shafts show the super fine workmanship in the sharp and high count of splines, snugly matched by the stiff plastic arms. The pots have 4 wiper arms, to insure long-term accurate centering. An

optional mounting kit is available that includes mounting 'frame' and molded streamlined linkage cover.

For the HL and Mosquito class stuff they offer Zip and Kolibri servos. Now we are talking state of the art stuff: plastic gear super tinys! The Zip looks like the Micro Maxx, but only weighs in at 11 grams! And, have a 4 cell torque of 19 oz.! Great for keeping the weight down in your EPP HL's! And yes, a ball bearing on the output shaft, and the microscopic VMS connector.

The Kolibri's specs seem impossible. Two versions, one with one output and the other with two (the 'Twin'), as in two servos in one box! Light? Well not in power, that's for sure; but yes, they only weigh (Get this!)... At 11 oz. of torque, they weigh in at 7.5 grams and 15 grams. They feature an unusual molded case with a 'deck' all the way around for convent mounting, and can actually be taped in place to save weight. Very cool!

For you big bird scale guys, they have recently introduced the Alu-Star. This is a standard size servo, with machined aluminum case, not plastic! And, at a lousy 4.8 volts, they pump out a speedy 90 oz. of torque, and huge 111 oz. at 5 cells!

What's next? Well, they currently have applied for a patent on two ultra thin (10mm) Micro Maxx category type servos for use in thin wing and rudder applications. Imagine no linkage tracing down the boom of your fuse, adding weight and changing trim as your fuse expands, flexes or contracts! Your elevator and rudder are directly driven by powerful metal gear

servos, with a cumulative weight far less than the current linkages of today's TD ships. That also leaves plenty of room in the nose for that fifth cell, and C size high capacity cells too, instead of lead!

So, with all this they have to be really expensive, right? Well, compared to the current batch excellent plastic gear servos being offered, yes. But these ain't your dad's Oldsmobile, and neither are the sailplanes we fly today.

Apples to Bronze, can't be compared. Compared to current metal gear offerings, the Micro Maxx sells for \$58.95 each. The Zip and Kolibri are unique and so can't be compared. The Zip sells for \$35.95 and Kolibri singles for \$39.95. (The Kolibri Twin costs \$78.95; the Micro-Star 3 is \$48.95.)

David and Alberto, the founders and operators of Hobby Club, offer a whole catalog of unique kits, both sailplane, electric and power ships from Europe, and continue to add the 'unique'. You can find them at <http://www.HobbyClub.com> or 714-498-5377.

The Germans have become very interested in producing their own servos, RX's and are the largest manufacturer of advanced radios, chargers, etc.

Sooo, now I have blue servos, too! Hope you enjoyed this trip with me. I know it kind of took some strange turns, but that's part of the fun!

Remember, when you least expect it, I may show up at your field. Thanks to the great guys of the Sacramento Valley Soaring Society, and to David and Alberto for

making the effort to bring us alternatives for our servo needs and for putting up with my questions!

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A Design Procedure for Composite Wing Structures of R/C Model Sailplanes

By Oliver Wilson
Punta Gorda, Florida

R/C model sailplane wings of closed cell foam, woven E-glass cloth, unidirectional graphite fabric and epoxy can be stronger, lighter and easier to build than spruce and balsa or obeche and beaded foam wings. The materials and configurations covered by this procedure not only produce stronger and lighter structures but are consistent with quicker and easier construction methods.

This design procedure allows the designer to choose the span, airfoil, plan form, and strength of the wing. The underlying mathematical model has been simplified by eliminating refinements that have little effect on the results. The method is presented in a series of five graphs that allow the designer to pick off the answers. To avoid calculations associated with the last graph, a drafting (geometric) construction is offered as an alternative.

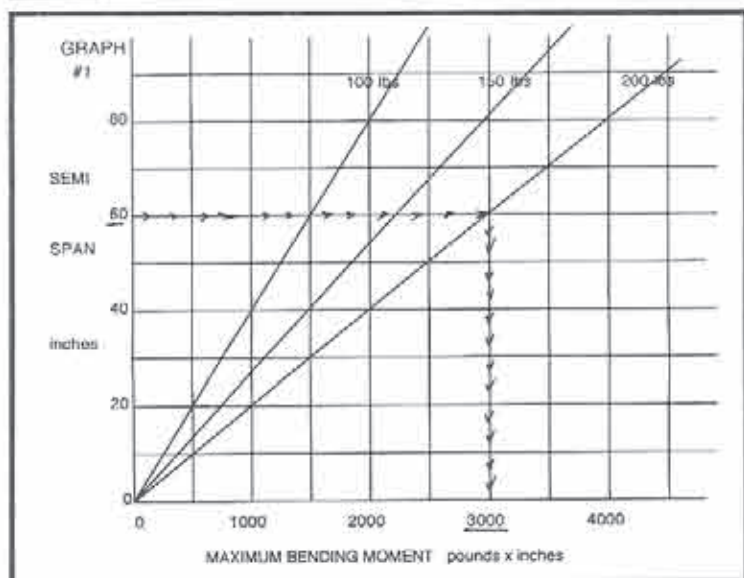
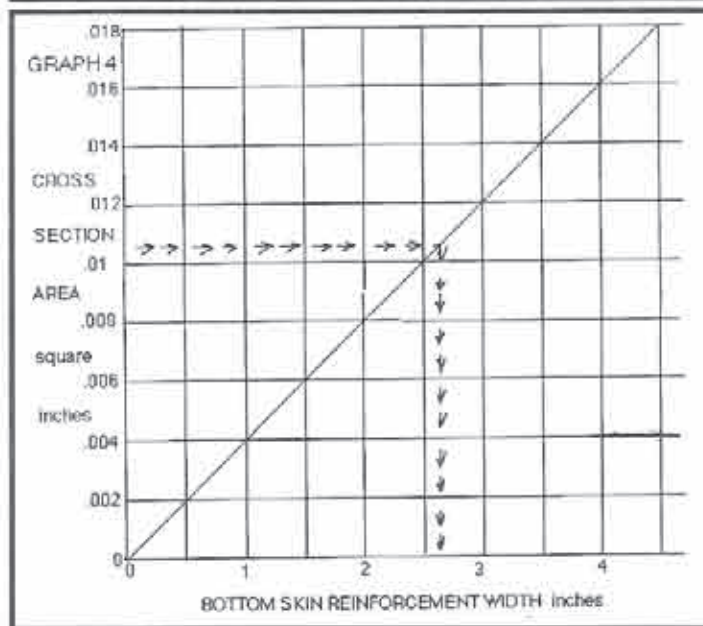
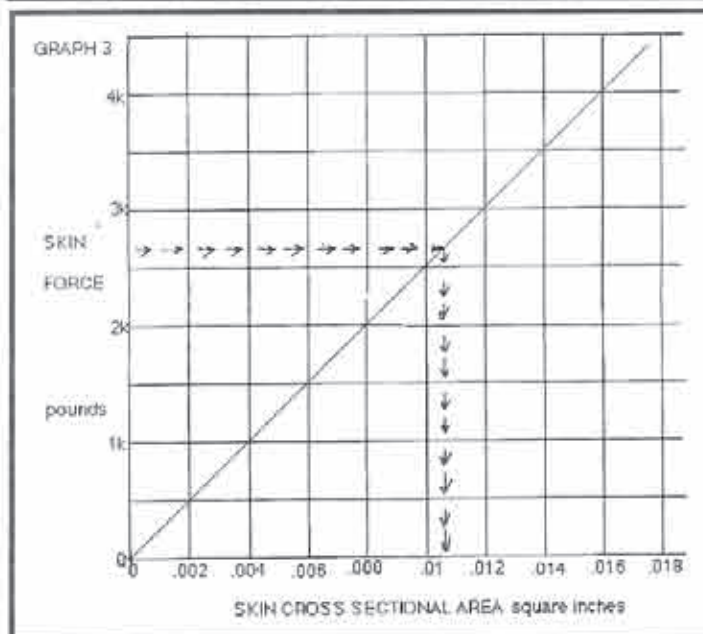
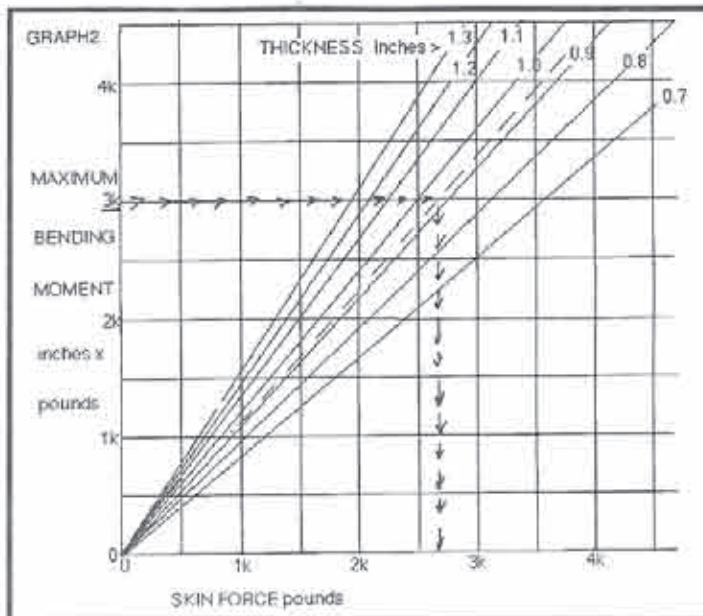
The strength and stiffness advantages of unidirectional graphite fibers in epoxy are shown in Table I. The compressive strength to weight ratio of unidirectional graphite in epoxy is three times better than obeche,

four times better than spruce and seven times better than balsa. The tensile strength-to-weight-ratio advantage of unidirectional graphite fiber in epoxy is greater, yet. Graphite is ten to twenty times stiffer than conventional materials, so it holds its shape that much better under load.

Until recently, the easy to build stressed-skin-over-closed-cell-foam configuration was seriously limited by the lack of strength and stiffness in readily available closed cell foams (blue, gray or pink). The availability of spyder foam, with its improved cell orientation, allows the stressed skin configuration to much more closely approach its potential. The problem is that the

TABLE I
COMPARISON OF MATERIALS FOR R/C SAILPLANE STRUCTURES

MATERIAL	STIFFNESS (MILLIONS)	TENSILE STRENGTH (KPSI)	COMP STRENGTH (KPSI)	DENSITY LBS/CU. FT.	RELATIVE STRENGTH (COMP.)
UNI-CARBON IN EPOXY	25	250	56.5	94	1
UNI-S-GLASS IN EPOXY	5	128	57	120	0.79
KEVLAR IN EPOXY	10	43	20	82	0.40
OBECHÉ	0.86	7.8	3.9	20	0.32
SPRUCE	2	7	3.5	25	0.23
BALSA (MED.)	0.5	2	1	12	0.14



skin on the compression side fails in buckling, because the foam is not stiff or strong enough to prevent it. Since spyder foam is about three or more times stronger than the others, it is, by far, the foam of choice.

The wings discussed in this article have two layers of 1.4 ounce per square yard woven E-glass fabric, cut on the bias, for the outer skin. This outer skin results in a sharp trailing edge, which has lower drag than obeche. For lightness at the expense of some ruggedness, two or three layers of 0.75 ounce cloth may be used for the outer skin. The function of the outer skin is to hold the airfoil shape and to provide torsional rigidity. The leading edge and tips are reinforced with three or four strips of 1.4 ounce cloth, cut on the bias. These strips can be varied in width, so as to avoid an abrupt change in thickness of the skin. If the wing is to be built in more than one piece, the panels can be joined with dowels of appropriate size and materials. The joiner tubes are carried by two light ply ribs, one at the joint and the other 2-1/2 or 3 inches from the joint. These ribs must be flush with the surface of the foam cores.

The holes for the tubes are drilled in the ribs before lay up, but the holes in the foam are not made until the panel is removed from the vacuum bag. At that time enough foam is removed so that the tubes can be tied to the skin between the ribs with a filling of reinforced epoxy. This rib and tube joiner system has not failed even in the most severe crashes.

The design procedure for the unidirectional graphite skin reinforcements is based on a number of assumptions which result in minor errors. These errors are in favor of a stronger structure and are tolerable because they simplify the design procedure and because they have such small effects on the results. The assumptions are:

1. The outer glass skins contribute nothing to the strength of the wing.
2. The unidirectional reinforcement is most effective over the thickest 30 or 40% of the airfoil.
3. The lift distribution is rectangular along the span.
4. Uni-web graphite at 2.9 ounces per square yard is used to reinforce the skin.

5. A thickness form factor of 0.9 allows for the change in thickness over the thickest part of the airfoil.
6. The tow line tension is in line with the wing's resultant lift-drag force.
7. The top reinforcement is twice the bottom reinforcement to resist buckling.

Even with the above assumptions, this simplified method gives practical and conservative results.

There are two criteria for the design strength of a model sailplane wing. The first is based on the breaking strength of the tow line, and it assumes that it is better to break the line than the wing. The second is based on the maximum lift coefficient of the wing and some maximum speed of the model sailplane. If the model is traveling at some maximum speed and a sudden control input or gust pushes the wing to its maximum lift coefficient, then a momentary maximum bending load will be experienced by the wing. Winches based on the long shaft Ford starter motor probably can't launch a 2-meter sailplane fast enough to generate 200 pounds of lift or even 150 pounds of lift. So, for 2-meter models, the recommended criteria is 100 pounds of line tension. For standard class models the recommended criteria is 150 pounds and, for unlimited class models the recommended criteria is 200 pounds of line tension.

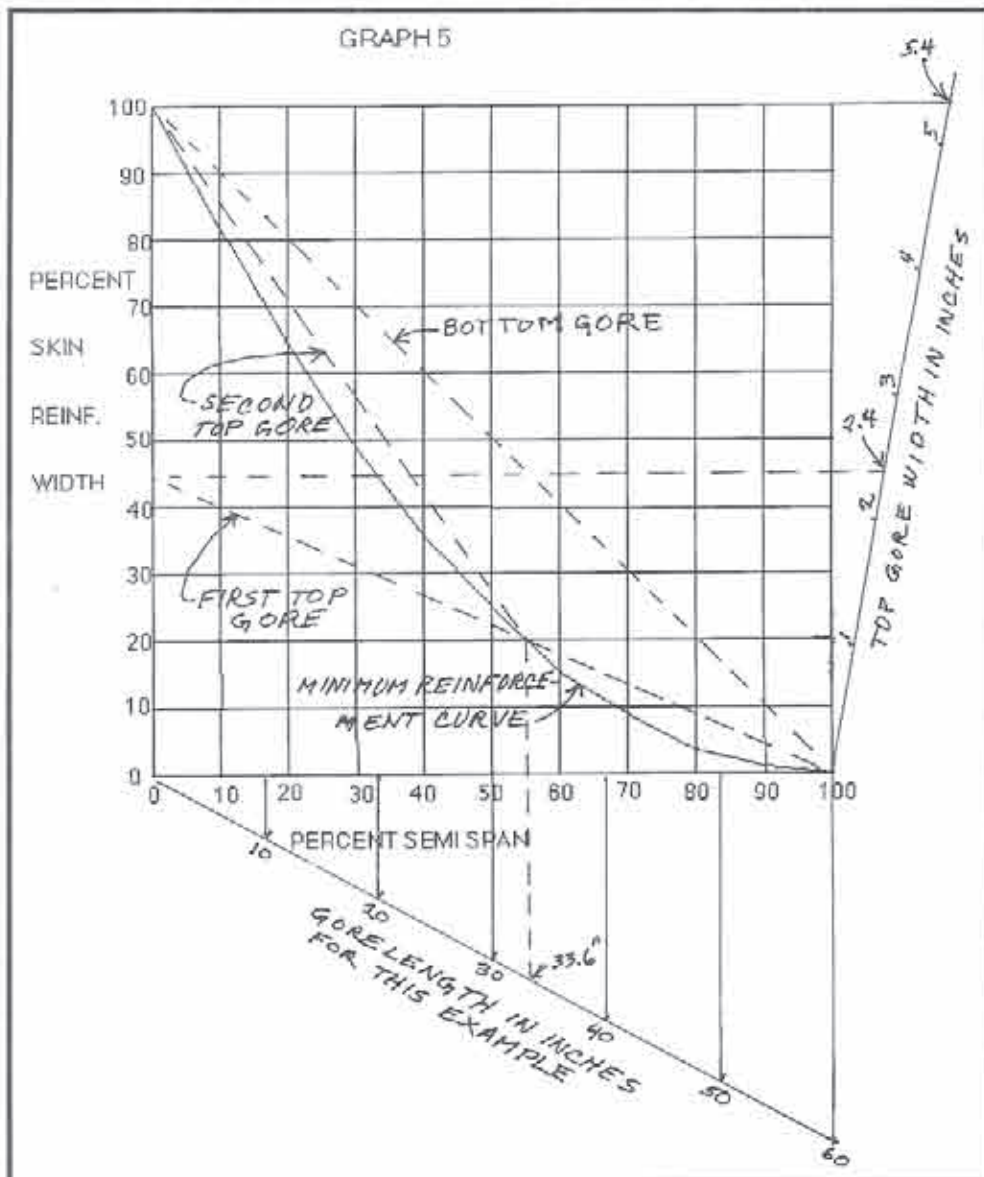
F3B and cross country models should use the second (maximum speed) criteria by applying the following formula:

The maximum bending load (in pounds) is approximately equal to the wing area (in square feet) times the maximum lift coefficient of the airfoil, times the square of the maximum speed (in feet per second), divided by 840.

To illustrate the use of the graphical design method take the following example:

FIND THE REINFORCEMENT REQUIRED FOR AN UNLIMITED DURATION MODEL OF 120 INCHES SPAN, 10 INCHES ROOT CHORD AND SD7037 AIRFOIL.

1. Enter Graph 1 with a semi-span of 60 inches and for 200 pounds of line tension the bending moment is 3,000 inch-pounds.
2. The SD7037 has a maximum thickness of 9.2% for the 10 inch root chord. Enter Graph 2 with 3,000 inch-pounds and at .92 inch thickness drop down to the skin force of 2,700 pounds. This may seem like a lot, but the Uni-web graphite has a tensile strength of 250,000 pounds per square inch of cross section.
3. Enter Graph 3 with the 2,700 pound force to get a cross-sectional area of 0.0108 square inches. This applies to the bottom skin. The cross-sectional area of the top skin is taken at twice the bottom skin cross-section to allow for its smaller strength in compression and the less than perfect resistance to buckling provided by the spyder foam.
4. Enter Graph 4 with the cross-sectional areas of the top and bottom skins and get



2.7 inches of width for the bottom skin and double it to 5.4 inches of width for the top skin.

5. These widths will require one ply on the bottom and two plies on the top, in order to keep the reinforcement within the thickest or 30% of the airfoil. Graph 5 allows us to find the length of each triangular gore of reinforcement. Graph 5 is in percent of semi span on the horizontal axis, so each 10% corresponds to 6 inches in this example. The vertical axis is in percent of reinforcement width which, at the root, is 0.27 inches for each ten percent of the bottom skin and .54 inches for each ten percent of the top skin. The lightest design results from using the narrowest strips as the longest gores.

For the bottom skin, the gore is 2.7 inches wide and is within the allowable gore width of 3 inches at the root. Since there is only one bottom gore, draw a straight line from the horizontal axis at 100% to the vertical axis at 100%. This intersects the minimum reinforcement curve at the ends so the bottom gore is 60 inches long by 2.7 inches wide at the root.

For the top skin, 5.4 inches of width is divided into two gores of less than 3 inches width each. If we make one of the gores 3 inches wide (30% of the root chord), that leaves 2.4 inches of width for the narrowest top gore. 2.4 inches is about 44% of 5.4

inches, so draw a straight line from 44% on the vertical axis to 100% on the horizontal axis. This line crosses the minimum-required-reinforcement curve at about 56% of the semi span. Since 56% of sixty inches is 33.6 inches, the second reinforcement must start at 33.6 inches from the root. The second top triangular gore is 3 inches wide at the root and 33.6 inches long.

If aileron or flap servos are to be mounted in recesses in the bottom of the wing, then those servo mounting holes and the unidirectional graphite skin reinforcement gores must be arranged to avoid each other while still keeping the reinforcement within the thickest part of the airfoil. It is imperative that the reinforcement not be notched for the servo holes. Notching produces stress risers that seriously weaken the structure.

This design procedure, together with the recommended outer skin scantlings and leading edge reinforcement, will result in a wing that can't be folded on the launch and a wing that is much more tolerant of "hanger rash" than traditional methods and materials.

If you have any questions about this method, you can contact me at ocwilson@sunline.net or 1987 Nuremberg Blvd., Punta Gorda, FL 33983.



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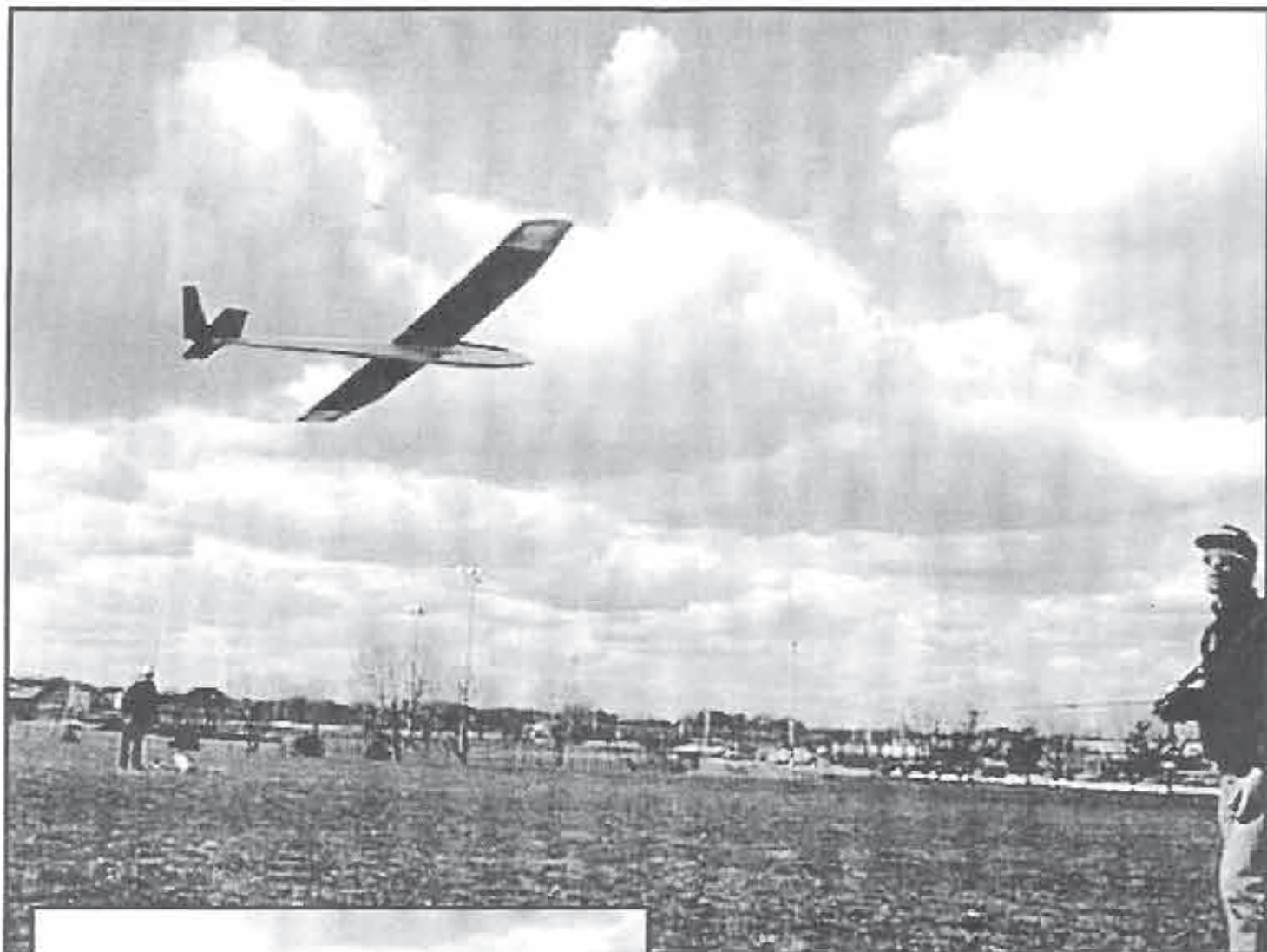
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Mike York flying a modified Skeeter. It has ailerons, and MOST of the original parts. Mike says it flies great and penetrates well. A nice plane for light lift! Photography by Weylan Wang, Buffalo Grove, Illinois.

GOTCHA! What's so hard about this?

Mike flying the Skeeter into his hand. A good pilot, he flies everything from scale to HLG's and Foamies. His models look incredible. Photography by Weylan Wang, Buffalo Grove, Illinois.



Ventus 2c

Specifications:
Span: 142 in. (3.6m)
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Weight: 110 oz.
Airfoil: E203

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Measured Pitching Moments

By Martin Simons
Stepney, South Australia

It is extremely pleasing that Michael Selig's team has now been able to measure and publish pitching moments on some airfoil sections at low values of Reynolds number. We have been needing this kind of information for a long time. Dave Register's review, in *RCSD* for March, is right to emphasize the importance of this new work and every serious sailplane modeller should get it and read it with close attention, as well as the earlier volumes.

Something more needs to be said to clarify the results.

It is standard wind tunnel practice to measure pitching moments at the 25% chord position on wings. The 25% mean chord location is, in 'thin airfoil theory', the aerodynamic centre of any wing and is universally used as a reference point for centre of gravity location and stability calculations.

However, in practice with real wings, the true aerodynamic centre is often not exactly on the 25% point. It may be slightly behind or slightly ahead by one or two percent. This has been recognized for a long time. Reference to the very well known text, "Theory of Wing Sections" by I. H. Abbott and A. E. Von Doenhoff (Dover 1959), shows that moment coefficients measured at the standard 25% chord point frequently have slopes and slight irregularities in the curves very like the ones now published.

But the aerodynamic centre is defined, not as being the 25% chord point, but the point where the moment coefficient is constant. When the measurements are made at the true aerodynamic centre of a real wing, as opposed to the theoretical one, the curve on the chart becomes practically horizontal at all useful angles of attack. This, too, is shown repeatedly in the Abbott & V Doenhoff book.

To go into the mathematics would take too much space and time and, moreover, stretches my own mathematical abilities about as far as they go.

However, summarizing the measured results, if the charted pitching moment curve measured at 25% chord is a roughly straight line, sloping generally from more negative values at the left to less negative values at the right, as in the example SD 7037 chart published with Dave Register's review, this means that the aerodynamic centre of this section is slightly in front of the 25% chord point, by about 2%. The aerodynamic centre of the SD 7037 section at Reynolds numbers above 100,000 is closer to 23% than 25%. (Note the Abbott books has the moment chart the other way up so the slopes appear reversed.)

This does not mean that the aerodynamic pitching moment coefficient increases as the angle of attack reduces, it means only that the reference point for c.g. and stability figuring should be slightly forward of that usually used. In ordinary modelling this 1 or 2% is not going to matter very much - on

a wing of say 8 inches mean chord, the difference will be about 5/32nds of an inch. A model with this wing section will not show any increasing tendency to tuck under as the airspeed rises. The moment coefficient at the 23% chord point is practically constant, so if the model is in trim to begin with, and if the wing does not twist seriously under load, it will behave perfectly normally and will not need a larger tailplane than any other section. But to be very precise, the c.g. position and stability margin should be measured from the 23% chord position rather than from 25%.

The moment chart for SD 7037 shows some quite large irregularities at low Re values, especially at Re 60,000. This, too, is not surprising. The lift and drag curves also show wobbles. The whole theory of thin wing sections depends on the flow over the wing being attached all the way to the trailing edge, the so-called Kutta -

Joukowsky condition. As the Re number falls below 100,000 some separation of the flow is almost always present and the theory begins to break down. Fortunately, with most radio controlled sailplanes, the wings are operating on average at higher Re values than 60,000. For much smaller and slower flying models, such as indoor fliers, hand launched gliders and for unusually narrow wing tips, a different approach is necessary. ■

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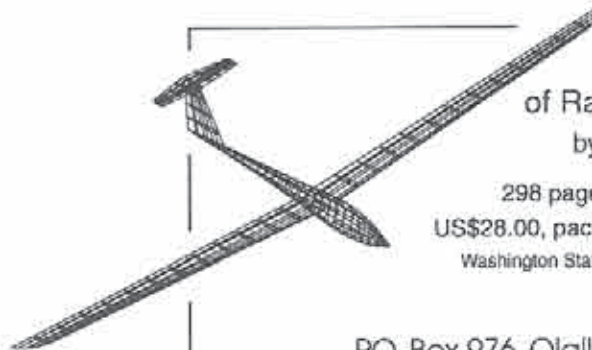
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THE CONDOR

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The Condor is designed by Mark Allen, who is considered one of the best model sailplane designers in the United States, if not the world. Mark has taken all of his previous experience in competition thermal duration flying, plus all the knowledge he has gained from his earlier contest and sport designs, to design the Condor. Mark Allen's previous planes, to name only a few, are: Falcon 880 and 800, Falcon 600, Swift, Thermal Eagle, Vulcan, Night Hawk, Sky Hawk, Electric Hawk, Falcon 550E, Rocket, Pocket Rocket and, of course, the molded, world championship F3B Eagle. By taking the best of these designs and the new construction techniques available today, Mark has come up with what we feel, is the absolute best open-class sailplane available.

The wings are made in America by Ron Vann, owner of Spectrum Enterprises. Ron is also an avid competition flier, and is considered to be one of the best wing manufacturers in the industry. Taking his years of experience in manufacturing wings, Ron has produced wings and stabs for the Condor that we feel are world class. Starting with the spar that Mark Allen designed, Ron uses only the best and most accurately cut foam cores available. He then uses hand-picked obechi from Kennedy Composites, which is applied with West Systems epoxy.

CONDOR

*Tomorrow's Sailplane,
Technology Today*

This is after he has first reinforced the wing with carbon fiber and fiberglass. The servo wells are routed out, as are the flaps and ailerons. What this means for the sailplane enthusiast is a minimum amount of work before getting the sailplane into the air. The wing is light but strong enough to take "pedal to the metal" launches. Also available as an option is Ron's unique internal capped hingeline. This means even less work for the modeler.

The fuselage is made by Steve Hug, owner of the Fuse Works. Steve is another master at what he does. Fuse Works makes what we consider to be the best fuselage in the business. Steve uses only the best fiberglass and Kevlar™ available. All fuselages are manufactured using the West Systems epoxy. Steve's fuselages have the least amount of pinholes, if any, that we have seen. In fact, the fuselage is so pretty that many people do not paint it. The fuselage is extremely light, and yet strong enough for very aggressive flying and landing. For those with very little

building time, and those who don't like to paint, there is an optional pre-painted, in the mold, fuselage which includes a unique carbon fiber canopy.

All kitting is done at Slegers International's new and larger manufacturing facilities. We have spared no time or expense with supplying the modeler with the best materials available. The kit contains pre-sheathed wings and stabs by Ron Vann, fiberglass and Kevlar™ reinforced fuselage by Steve Hug, 3/8" diameter titanium wing rod from Kennedy Composites, optional 3/8" diameter steel wing rod by Squires Model Products, control horns and tow hook by Ziegelmeyer Enterprises, pushrods by Sullivan, or optional one piece steel rods. All wood is custom cut. Specially cut basswood of 60" is supplied to eliminate splices in leading edge, flaps and aileron capping. All balsa is hand picked, light to medium, to ensure light weight wing tips, stab tips, and rudder. Aircraft ply is used for the pre-fit servo tray and towhook block. A comprehensive instruction manual is included.

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SPECIAL REPORT

Mosquito Class "MANIA"

...by Paul Clark
Osaka Fu, Japan

The March 1979 issue of Model Builder magazine carried RCHLG "god father" Dave Thornburg's initial challenge to the soaring community to take up, "...a new type of R/C sailplane event, designed to separate the REAL pilots from the 'experts'." There followed the "first" contest (wasn't) article in September 1979, the first RCHLG specific plan, the Sunbird in April 1980, and THEN the follow-up article, "R/CHLG UPDATE", October 1980, all of which led to today's international phenomena of RCHLG. THIS ARTICLE is a follow-up to the RCSD scoop "Gogai! Gogai!! Extra! Extra!! Mosquito Class Declared" report made here by Sky Pilot in the January 1998 issue. Did you ever light a firecracker

with an unexpected short fuse? sish! BOOM!! That's the Mosquito Class, MRCHLG; it has been one Boom! KaWOOSH!! Blast off. The TDKH club, Tokyo, set off "RCHLG MANIA" in Japan with the First Annual Joe Wurts RCHLG Cup Fly, and now with the 4th JW RCHLG CF they have set off MOSQUITO MANIA around the world.

I knew the guys, thinking particularly of "Buzz" Tokunaga and "Tomity" Tomita, really had something, but the immediate and intense show of interest has been nothing short of overwhelming. There has been an incredible rush among the kitters to get something on the market in this regular RCHLG (1.5m - 59.5") micro mutant and, at this writing, there are at least eight manufacturers with some eleven plus Mosquito Class R/C sailplanes out there in three months' time! One vendor is already having ARF Mosquitoes manufactured

abroad. Mark Mech has a cute one, the Mosquito Hawk, available with plug-in tail; and he has a pair of flying wings, the Cortini and the Noseum, to go along with it. There is also Michael McKeown's, Performance Composites, new design, Stardust. Then, Dave Sanders has introduced the first EPP micro, Dragonette, in a best buy low of \$39.95, having sold over 85 to date. John "Sensei" Roe is campaigning this one in local parking lots. The latest is Sky Bench Aerotech, Ray Hayes' Martin. Obviously, this run on new kits and the continuing posts on the Model Airplane News sponsored RC Soaring Exchange (RCSE) are indicative of a deep running interest in our new class — an idea who's time has come! (Thank you, TDKH!)

Mark Allen's MicroHawk was the first to appear and as a real standard bearer! An inside report from Ed on Allen's mosquito, available through his Slegers International, is that he had sold 150 of them in the first two weeks it was available — at \$150, mind you, but it IS a micro-molded glass carbon fuselage with presheeted wings! Allen

1998年 08月10日 13時50分

Mosquito 750

Tomity RACING BICYCLE MECHANICS & TECHNOLOGY

Professional Cyclist Toshihiko Tomita

Mosquito 750

by Toshihiko TOMITA Tomity (TDKH)

Wing Span	750 mm
Fuselage Length	675 mm
Airfoil	SA7036
Wing Area	10.53 dm ²
Wing Chord	150 mm
Weight	130g

c.a.

posted RCSE that he would estimate the performance of his MicroHawk, "At about 80% of a good 60" HLG... Definitely better than I expected." Slegers International advertises it at 85%. From the rather extensive data gathered, calculated and reported on here from the 1st Mosquito Class contest, this would be ball park fair, 80 to 85%. Nonetheless! Hear ye! Hear ye!! This is where Mark has tossed the gauntlet down and the challenge or the fun begins. Don Stackhouse says he is "...not really all that concerned about being first. I'm much more concerned about being BEST." (*Vintage, Don.*) DJ Aerotech's Mosquitoes, the Harvester, their high performance presentation, and the Nymph, their low-tech version are "still under development. We sell no [sailplane] before its time." As you read this, the prototypes are now "show and tell", with the Nymph having first emerged at the April Toledo Show!

Reports in from the March Sanwa RCHLG Cup, Tokyo, are that, though the contest got blown out, they did fly a round each of 1.5m and 0.75m. Any effort to evaluate the difference between the performance of the two sizes on the basis of the event would seem nothing less than comedy, but Buzz was eager to relate just what did happen. (Some know that Buzz is good, how he challenged, was ahead of, Daryl and Joe at IHLGF '96, going into what was to be the sudden death last round.) He reported that he took both the regular and the mosquito rounds, but flying his Wizard in the regular class, he couldn't muster even a single one-minute MAX, with his 54 seconds being the best single time. However, in the mosquito round he got a max and 55 seconds. He also reported his one flight that left everybody just a little astonished, no less himself. Preparing to catch his mini soarer, it appeared to hit turbulence, at which point he grabbed for the air and proceeded to sky up to about 100 feet — WITHOUT turning: apparently he had caught the wave lift generated by the TDKH trademark Charlie Brown RCHLG grabbing tree!!

Even with all the kits, and ARFs, showing up on the scene, it appears this new mania has helped create a whole new era of designers and builders; RCSE is facilitating the exchange of information on the subject! What a boon to the hobby if this is so!!

The recent Sanwa RCHLG Cup saw several more original designs. Pictures from the December JW RCHLG CF and the March SCF may be viewed at the following web sites:

<http://www.bekkoame.or.jp/~way/971206.html>

<http://www.bekkoame.or.jp/~way/980314.html>

http://www1.plala.or.jp/~ajiki/rchlg/98sanwa_tokyo/98sanwa_tokyo.html

The Japanese will come through scrambled, but the pictures will be fine. This issue we have been able to provide a three-view of Tomity's Mosquito 750,



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which was pictured in the January issue and has been used to campaign the Class. Tomity has now given over 100 sets of these wing cores away.

Mark Allen and Don Stackhouse have earned their reputations as designers; Don says it's, "Really a shame we're competitors... I wish him the best!" Further he comments, "Getting a model to perform up to the true potential of this class is more difficult than almost any other design I've worked on before, and requires some innovative approaches to the entire aerodynamics/structures/controls question." Nevertheless, they aren't the only ones plunking away at their computers trying to find the right combination of factors to come up with a "better mosquito". Kevin McKiou, Vectoraero (kitter of FAI rocket boosted gliders the Cuda and the US S8E Team's Sting Ray), posted a long research



Cortini, Mosquito Hawk, Noseum
(Photo of Mosquito Hawk)
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effort comparing the RCHLG regular and classes on RCSE, which provoked a lot of response showing how deep this Mosquito MANIA runs.

Of Sky Pilot's own eye-ball/common sense approach to aerodynamics, a pitcher on, Don said, "...Your biggest asset with that concept is that it will be fairly cheap and easy to try different iterations of your design. This is a HUGE advantage, especially in this class, where most of what's in the books doesn't work. One thing's for sure, I'll bet you have fun doing it!" A sure bet it is, the only kind Sky Pilot makes: the sure "FUN" for doing it!! It plain brings out the kid in you — but there is something more in this designing, building and flying fun: the pleasure and fulfillment of being CREATIVE! Go for it ALL!! ■



Group Photo - (standing, L to R) Tim, Ed, Bill, Mickey, Mike, (kneeling) Roy



Bill Swingle and his Cutlass.

Group Build

By William G. Swingle II
Pleasanton, California
bill_swingle@electro-test.com

Has this ever happened to you? Have you ever been at your wits end over what to do for your doctoral thesis in sociology? No, neither have I. Thus, when my buddy Roy suggested we get several modelers together and build some foamies, I was skeptical. I've always considered building to be a solitary activity. It's almost spiritual. Time loses much of its meaning when it's spent building. Except that it's never long enough! It seemed to me that too many cooks could easily spoil the supper.

Building is also intensely personal. No two modelers build exactly alike. How would we get multiple modelers to agree on what to build and how to build it? My pessimistic tendencies began running amuck, shooting down the idea with abandon. Luckily, Roy wasn't fazed in the slightest by any concern I could raise, so we pressed on.

Of course, the choice of a foam airplane did simplify things quite a bit. Realizing this, I began to warm up to the idea. But before it would surrender, my pessimism had to take one more shot at the idea; I raised the one thing it knew I'd have trouble ignoring: logistics.

Build somewhere other than my garage? The idea was sobering. I shuddered at the thought of all the various parts, tools and other generic implements that I'd have to pack up and transport to wherever we chose to locate this building party. But once again we were talking about a foamie. Tape, hot glue, epoxy, sandpaper and a few incidental items would most likely be sufficient. I was convinced.

What would we build? This was a tough choice. We wanted it to be our own design; but we also wanted it to be cheap, easy and have good performance. We gathered the group for dinner at a top secret location in



Los Banos and tossed around multiple ideas. Many good candidates were discussed, each with its own strong points. After much haggling, the best combination of cheap, easy and known performance was decided. We chose the Ruffneck Cutlass from Pat at Bowman's Hobbies. It's a combat scale model of the Chance-Vought F-7U/3 Cutlass.

As the day drew near, I began to get excited. I found myself really looking forward to spending a whole day with my flying buddies accompanied by food, drink, music and airplanes. I was glad my pessimism had been defeated. A few days before the group building session, the kits arrived. One of the participants, Mike, really had the itch build and asked if we'd mind his doing some preliminary work like installing spars and gluing the wing halves together before the group session. Well, gee, Mike's got 20 some odd years worth of experience, and everything he builds flies like a dream. This wasn't a hard decision. We told Mike to go for it!

The day arrived. My alarm was set for 7:00 a.m., but I woke at 5:15 a.m. I felt like a kid on Christmas morning. I can't remember the last time I was that excited about modeling! Try as I might, I just couldn't get back to sleep, so I got up early. It was a joy to pack the car at a calm, leisurely pace instead of the frantic speed that seems to happen way too often lately.

We came from far and wide. Our paths ranged in distance from 35 to 115 miles and all converged at Roy's garage. True to form, the garage was spotless and completely set up. Roy had arranged four long tables in a square with chairs placed around the outside edge and electrical power strips hanging in the center. Coffee was brewing and the garage was warm, cozy and ready for action!

Mike had done a fine job of gluing the wing halves together and gluing in the wing spars of all the kits. We arrived to find a wing and fuselage placed neatly in front of each chair. I felt like a dignitary!

We began building with glee and the foam started to fly. It was very interesting to see how each builder had his own style and technique. For radio installation, Roy and Tim favored a Dremel tool, while I preferred my tried and true rectangular shaped wire in my soldering gun. To be honest, I didn't notice what techniques the other builders used. I didn't pay sufficient attention, because of all the hanger flying I found myself doing. I would often have to remind myself to close my mouth and pay attention to the airplane I was building!

As is often the case with modelers, several in the group chose to make a modification to the kit. The Cutlass has twin vertical fins. It's very visually appealing, but three of the group felt they could reduce drag by



Mike and Roy beveling the elevons with a table saw.



Mike and his Cutlass. Note the single fin modification.

installing only one. They chose to install a single vertical fin centered on the rear of the fuselage similar to ME-163 Komet. The modification really changed the appearance of the plane, but still looked good and was considered a success by those who chose it.

Mike, because of the head start, had finished his Cutlass before the group session. Tim, though building a plane with the group, had already built a Cutlass previously. Their prior experience allowed them to provide many useful tips and suggestions throughout the day. Having finished his own plane several days early, Mike spent the day roving about the garage helping the rest of us wherever he could. He rounded fuselages, installed switches and battery packs, taped elevons and wings and gave lots of great advice. This proved to be very valuable and prevented anyone from getting behind the others. The second pair of hands was often useful. Be warned though. Once you've had a seasoned builder at your disposal during a building session, you'll miss it when you're back in your garage building alone.

Once again, my theory about time losing its meaning when building proved true. I arrived at 9:00 a.m. and in no time folks began talking about lunch. Then, in what seemed to be only a few minutes, it was 2:00 p.m., and the guys were talking about making it out to the hill to try out our planes. I put my efforts into high gear and hurried myself along!

I'd not expected to complete the planes in the same day. I figured the socializing



Tim cutting pockets for radio gear. (Large soda stands at the ready!)



Doug and his British flag-covering scheme. Note the power strip hung for easy access.

would slow us down too much (my pessimism again), but the guys did great. By 3:45 p.m. we were done and rushed to the slope. Once there, we found no wind, so the bungees were unrolled. Most pilots chose to stretch the bungees to a safe, conservative tension for their maiden flights, but it wasn't warranted. Each of the planes flew well. I was quite amazed considering that we only hastily checked CG's on our finger tips!

My Cutlass flew great. I did initially have the CG too far aft, but one half ounce on the nose more than fixed this. It now seems a bit nose heavy though I'm not sure. Some good consistent wind will tell the tale. I have to admit that the aft CG made

Frontal Attack

By Bill Swingle

I was feeling a twinge of GPS (grumpy pilot syndrome). Just a slight case really. Then, I got the bright idea to call the wind talker at Los Banos.

This was not a good idea, as it's too risky for anyone battling GPS. It could be beneficial or it could really ruin the day. If the wind was blowing at Banos, my GPS would take a serious downward turn!

I shouldn't have taken the chance. I shouldn't have even thought of it. That would have been best. Then, the corruption of my thought process wouldn't have happened at all. But, I'm a fool. Looking out the window at work I could see that the wind was threatening to blow and it got the best of me. I couldn't help it. I had to know. I called the number.

"Hello, the temperature is 77 degrees. The average wind condition is NNE at 2 MPH."

Hooray! The wind was only 2 miles per hour. I escaped. GPS launched a frontal attack and I emerged unscathed. Ahhhh. Of course, the last time I was at Los Banos with those conditions, the thermal lift was great for HLG... Oh no! Here comes another attack! ■

inverted performance terrific. I'm looking forward to fine tuning the CG and really exploring the plane's capabilities.

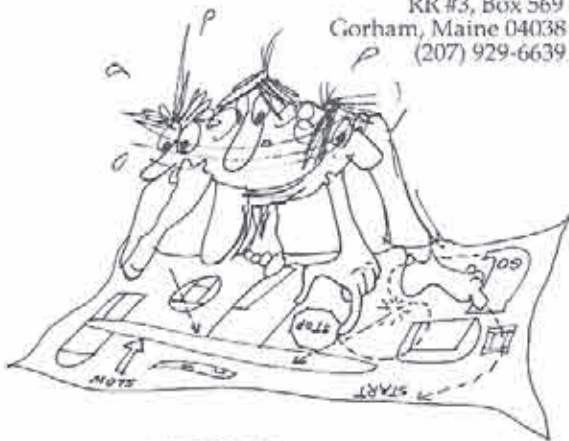
Many unknowns exist when individuals try to agree on how to construct a model airplane. Points of view will differ. This should be realized before the building session begins and allowances made. Further, it is this diversity that makes it so rewarding. I was awed by the realization that we had a whopping 95 years of modeling experience sitting in that garage. This is one heck of a resource. Recognizing it goes a long way toward a successful outcome.

I really enjoyed our building session. It was a very good day. Coming home with a brand new airplane was icing on the cake.

Bowman's Hobbies The Ruffnecks			
<p>The newest Ruffneck EPP Glider is the Cutlass. A scale version of the Navy fighter bomber, 4 7/8 Cutlass. This plane was specifically designed for use with a Zip start. It also flies great off the slope.</p> <p>Wing Span 44" Fuse 20" Wing Area 408 sq. in. Airtail E130120 modified Weight 20-24 oz. Wing Loading 8-7.7 oz/sq ft \$59.95 - \$7 S&H + Tax in CA</p>	<p>The Javelin. A HLG that you can gorilla launch without folding the wing and fuselage. Build to a competitive 16 OZ. light air efficient, 4 channel (flaperon, rudder, elevator) made of EPP with the durable nature of the Ruffnecks. Competition or training, the Javelin is only a hand toss away.</p> <p>Wing Span 60" Wing Area 420 sq. in. Weight 16 oz \$69.95 +\$7 S&H + Tax in CA</p>	<p>The redesigned Comanche is a state of the art control slope sailplane made of EPP foam. It has proven to be a competitive and virtually indestructible control slope sailplane.</p> <p>Wing Span 48" Fuse 25" Wing Area 408 sq. in. Airtail 601 Weight 28-32 OZ. Wing Load 8.7-10.7 Oz/sq ft</p>	<p>Wing Span 60" Fuse 22" Wing Area 420 sq. in. Airtail 7037 Weight 16 oz Wing Loading 4 - 6 oz/sq ft</p>
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WRAM Show

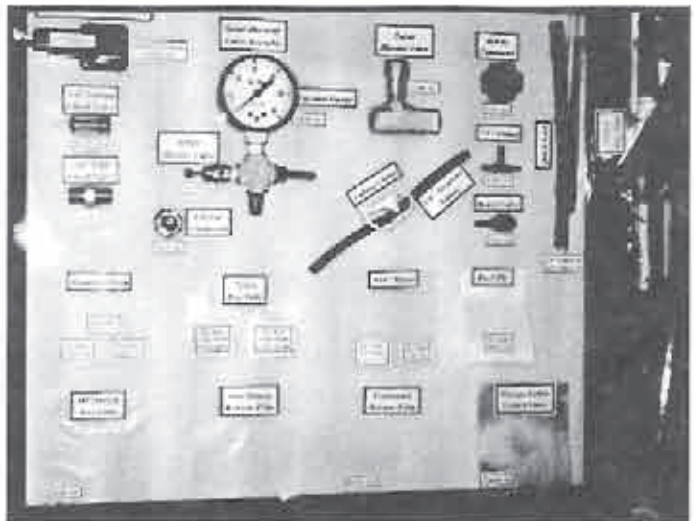
Last month, I attended the annual WRAM show at White Plains, New York, and while the drive down from Vermont was 3 hours closer than Maine, it was still worth it. This year, Friday was open to all attendants vs previous years when it was only open to exhibitors and those associated with the commercial aspects of the hobby. I attended on Saturday and while it was quite busy, I think that the new layout made traveling around the show much easier than the previous times that I attended.

My first stop was Aerospace Composite Products' booth to say hello to George and Barbara Sparr. George was one of many vendors who were giving discussions on fabrication techniques. George demonstrated vacuum bagging methods at both his booth and in the lecture room on both Friday and Sunday. He discussed glass bagging, carbon bagging and wood sheeting bagging. Much interest was paid to his demonstrations at the booth, especially from those "power guys" interested in bagging skins onto foam cores.

Airtronics' booth was immediately adjacent, so I spent some time chatting with their representative (Robert Tom) about the new "Z" connectors being supplied with their servos. Seems that Airtronics is trying to enhance the marketability of their servos by supplying them with a new universal plug/polarity system that can't be used with existing Airtronics equipment without (You guessed it!) an adapter from Airtronics. The R/C car receivers are now being produced with this new connector arrangement and the receivers are manufactured in a new "blue" case to identify the new connector system (blue).

I was told that servos would still be manufactured for a time (No answer as to how long.), with both the new and old connectors. But not to worry, because the adapters can be purchased to use the new connectors with existing equipment. Aircraft receivers will also be manufactured with the new plug system or the old plug system for some time. Time will tell whether this new marketing strategy will result in short term gains for servo save, or a gradual loss of radio system purchases. Time was beginning to fly (no pun), so I

Aerospace Composite Products display - new line of vacuum pump equipment accessories.



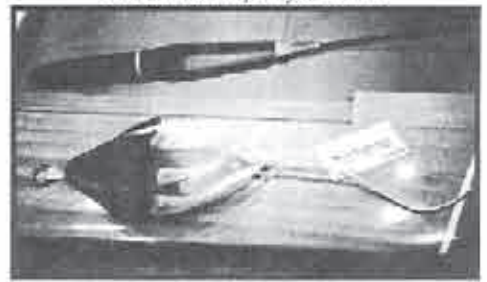
The MicroHawk is one of the new breed of Mosquitos.



Sal lasilli's 1/5 scale ASW-27.



Airtronics adapter for servos.



Slegers International offers a mesh net parachute.

had to run and sit in on Ed Slegers' presentation on natural wing finishes. He detailed a really neat method to finish obeche wings with 1/3 the weight that would be added by conventional Monokote methods. His technique merits its own article, and I hope Ed has the time to put it down on paper and submit it to "RCSD".

I managed to spend some time with Ed at his booth to find out what's new at Slegers International, and Ed was willing to show me some new models (I really liked the red-head...). I was first shown a 4 oz., 30" Micro HLG that was ready to fly. That's right, a flying weight of 4 oz., with receiver, battery and 2 servos. This neat little plane is manufactured by Mark Allen and has a wing loading of 3.9 oz./sq. ft. Ed also had a replacement Monarch fuselage that's bagged with a carbon skin and inner Kevlar™ skin for the fuselage - light and very tough; I thought it was a bit pricy, but if folks are going all the way with flaps and ailerons, what's the little extra a fancy fuse

is going to add?

On the other end of the product line was his Predator open class thermal duration ship. I can only compare the quality and degree of prefab to the expensive German scale kits that I've been exposed to in the last few years by Robin Lehman. The great thing about the Predator is the fact that this plane is built in the USA by Dave Hill Models. The kit must be seen to be appreciated; it's a bit pricy, but you're getting what you paid for and then some.

The next speakers in the Lecture Hall were Jim Martin and Jay Burkart representing Hobby Lobby. They gave a great discussion on getting into electric powered gliders, from nuts to bolts and back again - everything from matched cell mythology to brushless motors, motor controllers and full competition ships. I spoke with Jim after the lecture and asked about new products. Seems that Hobby Lobby is offering a nice ARF 82" electric called the "Jerry". Balsa over foam with fiberglass and C.F. reinforcement creates a nice, accurate, strong wing that shared 3 transitional HQ airfoils. A real nice ship



Ed Slegers gave a presentation on natural wing finishes.

for the money, and a good performing intermediate plane, in my opinion.

Other highlights were Sal Iasilli's 1/5 scale ASW-27 alongside 6 vintage scale models in the static display arena. I also noted a beautiful scale model of the aircraft carrier FORRESTAL. This model had to have been almost 20' long and had surely taken years to build. Overall, it was a good show! ■

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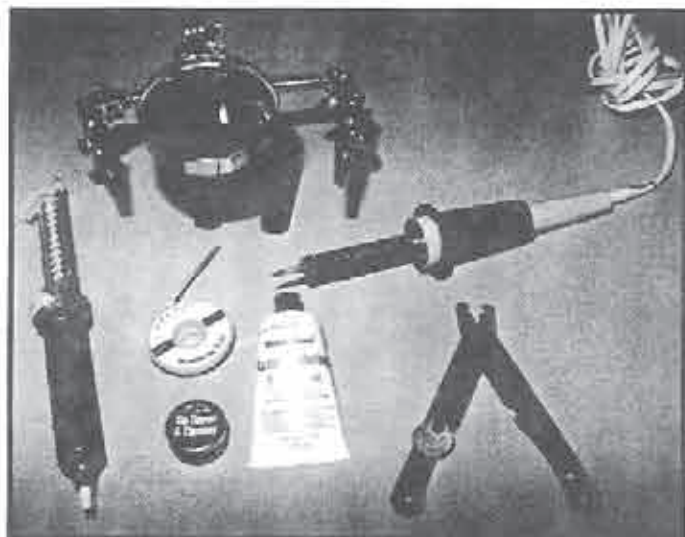
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REVOLUTION	X	X	X	X	X
SB-3C	X	X	X	X	X

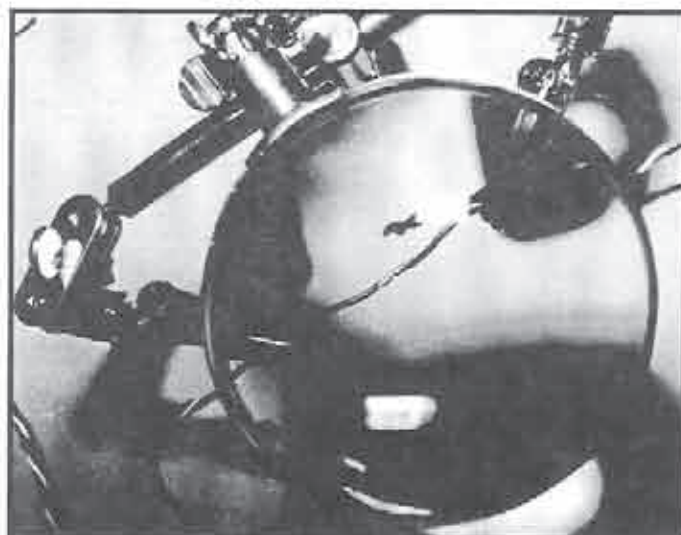
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(clockwise) Top - Third hand with magnifier, soldering iron, wire stripper, tube of Rosen Soldering Paste Flux, Tip Tinner & Cleaner, Desoldering Braid, and solder sucker. Jerry Slates photo.



Third hand, looking through magnifier. Jerry Slates photo.

Techniques to Solder Switches & Wires

By Donn Shifano
Hayward, California

Years ago, I worked for a company that made microwave bandpass filters. Some of these filters helped radar analyzers identify enemy radar. Some went into rockets. My job was to tune them to frequency by taking an exacto blade and bending tiny metal tabs (changed the impedance as I recall), or by adding solder in various places.

However, I did the work using a 60 power microscope. The solder diameter was only slightly bigger than a hair, and the soldering guns were tweezers controlled by a foot pedal. The tweezers allowed us to grip the work where the solder was to be added, adding heat precisely where it was required.

The bandpass filters used in the rockets were very difficult to make. One reason was the NASA certified soldering required. Having everyone certified to that requirement was the goal of the entire company. So, even though I wasn't making the rocket filters, I was given training on how to solder to NASA specifications. I use those techniques to solder switches and wires in my modeling, and I would like to pass them along.

The Basics

I use a soldering iron appropriate for the amount of heat I need to do the work. Using a large (read powerful) soldering iron on an RX battery or servo wire may be more closely related to barbecuing than soldering. For most of my modeling work, I use a pencil iron from Radio Shack. I looked for one with replaceable tips. They will burn up or corrode over time. The small tip allows me to put heat at a precise point.

I bought the smallest diameter wire I could find at Radio Shack. I have had it for several years (5) so it goes a long way. It is easy to feed into the work and I can control the amount of solder being added to the work better.

Solder wick is an important tool. I use the solder wick to remove solder from the old joint or to start over. It is copper braid that

"wicks" up the solder and, since you aren't adding any solder, the joint becomes devoid of solder. A solder sucker also works, but with vacuum action.

I use acid free solder paste in a little tin can, applying it to the work I am going to solder. I also dip the hot iron tip in the paste on occasion.

Important Tip!!

I use an old sponge, soaked in water, and squeezed out, so the water doesn't flow on the bench when I wipe the iron tip on it. Yes, I wipe the iron tip on it. I have only had two soldering irons since I worked at this job in 1972, so I don't think it causes excess corrosion of tips. At least, not for the infrequent soldering I encounter.

I dip the iron tip in acid free solder paste (flux) after it is at operating temperature, and I immediately begin to apply solder to the tip. Called "tinning", this coats the tip in solder. As I recall, it protects the tip from corrosion, and it helps the heat transfer to the work. I try to get the solder around the entire last 1" of the tip. I let the flux burn off and wipe the tip on the wet sponge, removing the excess solder. The tip should look like shiny silver, without a bubble of solder hanging on the bottom side. If there are any areas that look uncoated, I add solder directly to the area and re-wipe the tip. Once the tip is coated, I am ready to actually solder. If the work is not ready for me to actually start, I "tin" the tip again and let it sit until I am ready to start.

I use a "helping hand" which has alligator clips to hold the work pieces in position while I solder. Any other type of mechanical holder would work. Just make sure the jaws can withstand the heat of the iron without melting. You need both hands free to do the soldering.

I hold the spool of solder in one palm and, with 5-7 inches of wire extended from my fingers of the same hand, I feed the wire into the work. I pull the end straight and hold it between my thumb and index finger

for "feed control".

SAFETY

I am gonna be a modeler 'til I drop, but I'm not gonna drop cause I'm a modeler.

I use all available safety aids. EVERY TIME. Glasses, masks, respirators, gloves, face shields, I use them all.

Use a respirator. One that removes vapors not just dust particles. If I am doing a lot of soldering, I may also use a fan but positioned so I don't have the air flow cooling the work piece. The fan keeps the flux smoke away from my face.

Safety glasses are mandatory when working in the shop. Years ago, I could see the details of the work without glasses, so I wore safety glasses to protect my eyes. Now I wear bifocals and they ARE safety glasses. I also use a face shield for added protection. Unless your safety glasses are like goggles that seal around the face, they don't prevent splashes or particles coming from the top, bottom or side getting in the eyes.

The four step shuffle

The basic soldering "rhythm" I use is a four step pattern. I use the steps to make my soldering more consistent and most of all, mechanically strong and electrically sound. Got your dancing shoes on?

1. **Add Heat.** The pieces of work (wire and terminal for example) must be in physical contact and you touch them with the iron tip to heat both at the same time. On small wires or terminals, 2-5 seconds could be long enough. Repeatedly test to find out if there is enough heat by going to the next step.
2. **Add Solder.** While leaving the iron in contact with the items to be soldered, add solder by feeding it into the work pieces, not the iron tip. If the work is hot enough, the solder

should melt immediately, flowing into the work and be very shiny. If it doesn't flow, remove the solder, but keep the iron in place and keep adding heat. Wait a few seconds more and try again.

3. **Remove the solder.** Stop the feed of solder into the work. Too much and it drips or forms big joints. Only add enough solder to fill the nooks and crannies of the pieces. Large, bulky joints with drips aren't any stronger.
4. **Remove the heat (iron).** You're done, so remove the heat.

2 Critical Steps

1. **KEEP your mouth shut.** Don't blow on a solder joint. Let it cool naturally. If your eyes are good, you can see the liquid solder go solid. It only takes 2-5 seconds for it to go solid. The **worst** thing you can do is to blow on liquid solder to cool it. The colder air fractures the joint, called a "cold solder joint". As I recall, cold solder joints can cause failures in the electrical connection, intermittent contact and sometimes mechanical failure if there was enough vibration. It shows as a crack in the solder, but is very difficult to see. I used a microscope, so it was hard to miss.
2. **Don't move it.** (And it shouldn't move, because you are not holding it!) Moving the joint while it cools can also cause the dreaded cold solder joint.

(If you use the "blow to cool technique" and have had a crash with no obvious other reason, could the cold solder joint be a possibility?)

With small items, all of the steps can occur in as little as 3-5 seconds. Obviously, the larger the mass of the work the more heat will be required and the longer it takes.

If things didn't go well and you have a large, blackened blob or solder that is dull and rough looking, you have over heated the solder joint. Place the braided solder wick on the work pieces and heat the wick with the iron tip. When the solder goes liquid again, the wick soaks up the solder into the braided copper wire. Cut off the wick as the solder soaks the braid. A "solder sucker" is preferred by others. It is a small, usually trigger operated, vacuum plunger. Pull the trigger with the tip of the sucker next to melted solder, and "bang" the liquid solder is sucked up into the plunger.

I start with step 1 again, and if it goes well this time, by this step I am done. SO... I tin the iron again. I wipe it off on the sponge and tin it once more. I don't wipe it off this time. I pull the iron plug and let the iron cool with the solder on the tip. Next time the iron heats up it has some "tinning" still on it and I go through the "tin" and "wipe" waltz again.

I hope this helps you improve your soldering skills and solder joint integrity as it did mine.



For days when the wind is up, and your floater isn't penetrating.



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Setting up the gates for the pylon turns of the race course.

Thoughts from the Second Coupe du Quebec

By Jacques Blain
Photography by Etienne Dorig
Quebec, Canada

Organizing a slope event can be frustrating or rewarding. For the second year in a row, we put together an event that fulfilled our hopes. Last year, we held it as a trial event, and were maybe not too lucky with the conditions (see *RCS* '96), but the site is so nice and we're so hooked on slope flying that we had to give it another go in '97.

The Leclercville site is near a rest area on top of a high embankment by the St-Lawrence river. The asphalt parking is flanked by picnic tables covered by wooded structures. You assemble your models in the shade, on the tables, and then a 30 second walk takes you to the slope. If you get hungry, a roadside restaurant is five minutes away. You have lots of clear landing room; the wind coming in over a kilometer of open water is turbulence free when it hits the slope. Need we say more?

According to meteorological statistics, the province of Quebec is one of the windiest regions in North America. For example, the Gaspesian region has been put forward for one of the largest windmill electric power plants on the continent. Looking at the same statistics, we decided to hold our event slightly earlier this year, to get into the northwest wind peaks of the season. Our gamble paid off and we were treated to four days of continuous winds. Maybe not the sunniest weather, because of the instability of these winds, but the numerous cold fronts passing through lead to the best winds of the year.

We started with 12 preregistered entries; maybe twice as much people joined us during the four days to do some informal flying. So, we had an adrenaline filled weekend of slope fun.

Friday

Friday was the training day and the westerly winds lead us to our alternate site at Mt. Glen, a former hang glider camp.



The Sunday afternoon finalists of the HLG race: Alex Wenzl, E. Dorix, P. Thiou, J. Blain.

Because of the size of the slope (in this case a mountain), and because it is located at the end of a valley that channels the wind, you get to experience monster lift along with thermal activity. The landing area is quite challenging, so once airborne, you tend to do extended flights.

Anything will fly and even newbies, like myself, can bust out and try wild maneuvers. Case in point - I flew a 31 oz., 48" home built foamy, with 17 oz. of ballast!! Etienne Dorig really wrung out his scale 2 meter Fox. Few things are as beautiful as a scale ship doing aerobatic maneuvers that a mountain site allows. And I have to give credit to Etienne's landing skills, too.

The courage (foolhardy) award of the day goes to Pascal Thiou who chucked off his just completed and beautifully finished 60" racer from a heavily wooded mountain site he had never flown before. The flight was quite short (25 feet), but the model came out OK, Paul St-Arnauld, with a home built model, also showed his pattern flying prowess.

Saturday

Every slope event has to have bad weather and this was it. The strong winds came from the wrong direction; we played hide and seek with light drizzle in the morning. Nevertheless, we did find a flyable site close by and got a chance to see Steve Dunn's and Tim Pawson's (southwestern

Ontario fliers) beautifully built and flown F3B type machines.

In the afternoon, the race course was set up back at the original site, and the first rounds were flown. The strong winds caused some problems, demonstrating some unusual spike landings. Screaming speed passes into 40 mph wind, with fully ballasted models, is something awesome to see.

Steve Dunn and Tim Pawson demonstrated that craftsmanship is alive and well in Ontario. Their immaculate designed and built home-brew racers were very impressive (and heavy!). They were doing the biggest stall turns I have seen at this site.

Sunday

Sunday was the most beautiful day, and was filled with the races at Leclercville, our

main slope site for racing. The wind and the sun kept up all day and we really got a chance to fly this magnificent site to its fullest. The event was kept as informal as possible to allow the many visitors to give it a try; many a newcomer did their first slope flight. Because of the width of the site, racing heats and fun flying took place at the same time. Everyone got to fly their batteries (or nerves) dry. Inevitably, a few models were sacrificed to the slope gods, but casualties were still rare.

Demonstration of combat was flown by Daniel Mc Rae, Paul St-Arnauld, Louis Cimon and Andre Larochelle. Their flight maneuvers brought some big laughs from the on lookers. Alex Wenzl also demonstrated how well his Avocet 60" flies inverted and upright. (It has to be the model's fault right??)

The parking lot quickly filled with onlookers, drawn by a beautiful blue sky full of models. Near sunset, the dropping winds lead the pilots to have some fun races with HLG; amazing how much thrill you can get out of slow flying, man on man.

Final standing after 8 rounds of racing were: 1. Alex Wenzl (Avocet), 2. Etienne Dorig (60" racer), and 3. ended up as a tie between Pascal Thiou and Jacques Blain (both 60" racer).

Monday

A four day weekend slope event is prob-



ably too long, as Etienne and I found out. After Sunday's exhausting fun, few people were left for Monday's flying. A pity, because as beautiful as Sunday was, Monday's northeast winds were even better. We also experienced some good thermal activity. So, typical flights on this day were of the "fly until your neck aches" variety.

Wrap Up

Events like this one, where competition and fun flying coexist peacefully, are the key to the growth of slope flying in our part of the continent. This year was an all Canadian event with modelers from

Quebec City, Trois-Rivières, Montréal, Ottawa and Toronto. By its nature, it is an informal event where you can fun fly your Ridge Rat or Gentle Lady, race your 60" lead sled, or break out a combat with your foamies.

This year, we would like to see some American flyers, so if you're anywhere near the northeast, come May 1-3, or May 16-18 (weather permitting), please join us at the 3rd Annual Coupe du Quebec Slope Race. We guarantee to make it a memorable experience. Please give me a call at (514) 652-6167, for more information.

We would like to thank all of our sponsors

(above) Youngster giving a throw to a mosquito at the Sunday sunset.



The proud owner of the me109 (Andre Larochelle).

this year, in particular East Coast Model Center for a nice Sig Samurai kit, Balsa USA, Futaba, SR Batteries, Tower Hobbies, Sig Manufacturing, RC Modeler magazine, MM Glider Tech, Great Planes, JR, and RCSD (promotional support)!

See you in '98! ■



(left) Andre Larochelle Me109 before its maiden flight.



(below) Steve Dunn's F3B ship on launch.



Safe spike landing.

Pascal Thiau new 60" sleek design, features a thinned MH43 airfoil, very fast even unloaded, and has very nice thermalling capability.

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Fayetteville '96, Lehman photo.

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Pasadena, CA

May 16-17
Los Banos Slope Scale Soar-In
Lynsel Miller, (408) 275-6403
Los Banos, CA

May 16-17
CSS Memorial Contest
Ed Franz, (606) 586-0177, ejfranz@fuse.net
Cincinnati, OH

May 15-17
Lass Midwest Slope Challenge
Paul Wright, (402) 796-2175
paulw@isco.com
Lucas, KS

May 23-24
Torrey Pines Scale Soaring Classic
Scale Fly-In
Ron Scharck, (619) 454-4900, scharck@aol.com
Gary Fogel, (310) 838-6068, gfogel@ucla.edu
San Diego, CA

May 23-24
442-444
Herb Rindfleisch, (931) 455-1836
Tullahoma, TN

May 30-31
SVSS Spring Fling '98
Jim Thomas, (916) 984-5123
<http://www.SVSS.org>
Sacramento, CA

May 30-31
CSS Spring Intergalactic
HL Series Event
Paul Siegel, (513) 561-6872, psiegel@fuse.net
Cincinnati, OH

May 30-31
Sailplane Weekend
Addison Oaks Park, MI
Ray Hayes, (810) 781-7018, skybench@teleweb.net

June 5-7
SBSS Golden State XCountry Race
California Valley, CA
Mike Gervais, (408) 683-4140



Los Banos, Lehman photo.



Pensacola, Lehman photo.

June 6-7
IHLGF
Ron Scharck, (619) 454-4900, scharck@aol.com
Poway, CA

June 11-14
Elmira Aerotow '98
John Derstine, (717) 596-2392
johnnders@postoffice.ptd.net
Elmira, NY

June 13-14
Baltimore Area HL/2M
Al DeRenzis, (410) 448-0808
Walkersville, MD

June 13-14
Land of Lincoln E-Fly
Tim McDonough, (217) 523-8625, tpm@inw.net
<http://www.inw.net/~tpm>
Springfield, IL

June 26-28
MSSC '98
Ed Wilson, (502) 239-3150
ewilson1@bellsouth.net
Louisville, KY

July 19
HL Series Event
David Rice, David_Rice@reyrey.com
Dayton, Ohio

July 25 - August 1
LSF/AMA NATS
Cal Posthuma, CALPLSF@aol.com
Aldin Shipp, alden@bel.net
Muncie, IN

August 22-23
SBSS Summer Classic/AMA EXPO '98
Mike Gervais, (408) 683-4140
Scott Meader, (408) 244-2368
Gilroy, CA

August 29
HL Series Event
Paul Wiese, pwiese@avcomsmt.com
Columbus, OH

August 29-30
Cape Blanco Inagual Slope Fly-In
Larry Broman, (541) 751-8847
Port Orford, OR

September 5-7
Soar Utah '98
Kent Petersen, (801) 254-5018, petersek@wipd.com
<http://www.wordplace.com/soaring>
Salt Lake City, UT

September 12-13
Sailaire One Design Contest
Ed Franz, (606) 586-0177, ejfranz@fuse.net
Cincinnati, OH

September 19-20
442-444
Herb Rindfleisch, (931) 455-1836
Tullahoma, TN

October 3-4
25th CVRC Fall Soaring Festival
Phil Hill, (209) 686-8867
Visalia, CA

October 3-4
CSS Fall Intergalactic
HL Series Event
Paul Siegel, (513) 561-6872, psiegel@fuse.net
Cincinnati, OH

October 16-18
(Rain date October 23-25)
Airtow Aerobatic Sailplane Contest
Wayne Parrish, (919) 362-7150
Fayetteville, NC



Elmira '96, Lehman photo.

October 17-18
Pumpkin Fly
Ed Franz, (606) 586-0177, ejfranz@fuse.net
Cincinnati, OH

November 7
Turkey Fly (Winch & HL)
Ed Franz, (606) 586-0177, ejfranz@fuse.net
Cincinnati, OH

Outside U.S.A.
May 1-3 or May 16-18
Coupe du Quebec Slope Race
Jacques Blair, (514) 652-6167
Leclercville, Qc, Canada

July 11-19
Canadian Soaring Nationals
Jacques Blair, (514) 652-6167 eve.
<http://www.rfq.qc.ca/users/pthiou/c2vm/index.htm>
St. Jean, Qc, Canada

August 1998
F3J World Championships, organized by BARCS
August 14-16
GNATS Scale Fun Fly
Gerry Knight, (905) 934-7451
Don Smith, (905) 934-3815
mistral@niagara.com, linden@niagara.com
Niagara Peninsula, Canada



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CD Jim Thomas (916) 984-5123
or
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PC-Soar Version 3.5 Sailplane Performance Evaluation Program Optional Sailplane Library now expanded to 54 models including: Alcyon, Anthem, Genesis, Mako, Probe, Thermal Eagle, and Synergy-91. Free Library Upgrades. PC-Soar Upgrade to Ver. 3.5 \$10, PC-Soar New Purchase \$40. New Libraries of Sailplanes and Airfoil Polars \$30. Please include \$3 P&H for all purchases & upgrades. Also available: Laser cut airfoil templates. LJM Associates, 1300 Bay Ridge Rd., Appleton, WI 54915; ph: (920) 731-4848 after 5:30 pm weekdays or on weekends; <http://www.athenet.net/~atkr95/pcsoar.htm>.

PRECISION AMAP WING CUTTER, replacement parts, and service. AMAP Model Products, 2943 Broadway, Oakland, CA 94611. Butch Hollidge, (510) 451-6129, or fax (510) 834-0349.

A.M.P. Aerial Model Products, sport, slope, race prototypes - all airfoils. 60" Del Valle Snake, 94" H&K Cobra, AMAP Flair, Kevin Cutler's full house Davenport Monitor. All race tested. Butch Hollidge, (510) 680-0589, eve, California.

PARACHUTES: \$10. Dale King, 1111 Highridge Drive, Wylie, TX 75098; (972) 475-8093.

PLANS - R/C Sailplanes - Scale, Sport & Electric. Old Timer & Nostalgia - powered, rubber, and towline. Scale - rubber. All models illustrated. Catalog: \$2.00. Cirrus Aviation, P.O. Box 7093 Depot 4, Victoria, BC V9B 4Z2, Canada.

For Sale - Personal

Twin Astir (WIK), 4m, all glass... \$400.00; 1/3 scale German Reiter glider, great shape... \$600.00; Skyhawk glider, new, never flown... \$500.00; new, never flown, Lasso 650 electric glider... \$400.00. All above gliders have Futaba servos. NIB Airtronics Sigitta XC... \$225.00. Gene Woolley, (941) 294-1793, eve, Florida.

1/4 Roedel Super Cub (towplane), 2.687 meter span, wing profile Clark Y mod. (suitable motors are 160 T, 300 T, OS BGX-1, Brison 3.2 or similar), NIB... \$385.00. Contact Robin Lehman, 63 E. 82nd St., New York, NY 10028; (212) 879-1634.



The League of Silent Flight (LSF) is an international fraternity of RC Soaring pilots who have earned the right to become members by achieving specific goals in soaring flight. There are no dues. Once you qualify for membership you are in for life.

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1/3.6 Roedelmodell DG 800 - 4.15 meter span (163"), wing profile E 207, ca. 11 lbs.
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1/2.77 PriBek ASW 19 - 5.4 meter span (212"), wing profile Ritz 3 mod., ca. 20 lbs.
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ELMIRA AEROTOW "98" AT HARRIS HILL



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HOSTED BY: HARRIS HILL L/D R/C
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The National Soaring Museum
The Harris Hill Soaring Corp.

Our event this year will again be at Harris Hill. There are some new developments to report. This year we will be given exclusive use of the Harris Hill Soaring Corporation's airfield on Thursday and Friday the 11-12. Thursday will be open flying (aerotow or slope) for early arrivals. Friday will be the start of the official event with radio impound. The field will be shared with full scale sailplanes, including ASK-21's, and Schweizer Trainers on Saturday and Sunday 13-14. Rides will be available during these days. Factory demos are scheduled for Saturday afternoon. National and international vendors will be showing their wares. The emphasis will be on fun and aerotowing, as well as some fantastic slope soaring, if conditions dictate. Tow planes and experienced pilots will be there to tow you to altitude. Bring your 3 meter (118") or larger aileron sailplane with nose release and join the growing aerotow movement. Scale gliders are recommended, but not required. We will have a few scale sailplanes available on site for those who can't bring their own. This year we are going to have pilots choice awards and a special award for the best Schweizer scale sailplane. Other prizes to be announced. On Friday evening there will be a picnic at the Harris Hill Youth Camp adjacent to the flying field. We will have an evening banquet Saturday night at the National Soaring Museum. Guest speakers to be announced.

More exciting plans are in the works, so keep an eye out for further developments as they become available. Current AMA membership is required. There will be a \$25.00 pilot registration fee. For details & info. (including shipping your sailplane to Elmira), contact:

John Derstine
717-596-2392

johnnders@postoffice.ptd.net
<http://www.Geocities.com/CapeCanaveral/Lab/5739>

R/C Soaring Resources

These contacts have volunteered to answer questions on soaring sites or contests in their area.

Contacts & Soaring Groups - U.S.A.

Alabama - North Alabama Silent Flyers (NASF), Ron Swinehart, (205) 722-4311, <ron.swinehart@svl.lmco.com>, or Rob Glover at AMA3655@aol.com, <http://shl.ro.com/~samfara/>

Alabama - Central Alabama Soaring Society, Ron Richardson (Treas.), 141 Broadmoor Ln., Alabaster, AL 35007, <ron_mail@bellsouth.net>

Alabama - Southern Alabama & NW Florida Aerotow, Asher Carmichael, (334) 626-9141, or Rusty Rood, (904) 432-3743.

Arizona - Central Arizona Soaring League, Iain Clithero, (602) 839-1733.

Arizona - Southern Arizona Glider Enthusiasts, Bill Melcher (contact), 14260 N. Silwind Way, Tucson, AZ 85737; (520) 825-2729. SAGE welcomes all level of flyers!

Arkansas - Northwest Arkansas Soaring Society, Tom Tapp (President), RT 2 Box 306, Huntsville, AR 72740; (501) 665-2201, eve.

California - California Slope Racers, John Dvorak, 1063 Glen Echo Ave., San Jose, CA 95125; (408) 287-0375.

California - High Desert Dust Devils, Stan Sadoff, 14483 Camrose Ct., Victorville, CA 92392; (760) 245-6630, <Soareyes@aol.com>.

California - Inland Soaring Society, Robert Cavazos, 12901 Forman Ave., Moreno Valley, CA 92553, RCAV@aol.com.

California - Northern California Soaring League, Mike Clancy, 2018 El Dorado Ct, Novato, CA 94947; (415) 897-2917.

California - Sacramento Valley Soaring Society, Lee Cooper, 4856 Rockland Way, Fair Oaks, CA 95628, (916) 966-2672.

California - South Bay Soaring Society, A.J. Angelo, P.O. Box 2012, Sunnyvale, CA 94087; (415) 321-8583, fax (415) 853-6064.

California - Southern Calif. Electric Flyers, John Raley (President), 1375 Logan Ave., Costa Mesa, CA 92626; (714) 641-1776 (D), (714) 962-4961 (E), e-mail: E-Flyer@ix.netcom.com.

California - Torrey Pines Gulls, Ron Scharck, 7319 Olivetas Ave., La Jolla, CA 92037; (619) 454-4900.

Colorado - Rocky Mountain Soaring Assn., Phil Weigle, 1290 Salem St., Aurora, CO 80011; (303) 341-9256 eve.

Eastern Soaring League (VA, MD, DE, PA, NJ, NY, CT, RI, MA), Jack Cash (Pres.), (301) 898-3297, e-mail: BudIdeas@aol.com; Bill Miller (Sec./Treas.), (609) 989-7991, e-mail: JerseyBill@aol.com; Michael Lachowski (Editor), 448 County Rt 579, Millford, NJ 08848, e-mail: mikel@airage.com, <<http://www.eclipse.net/~mikel/esl/officers.htm>>.

Florida - Florida Soaring Society, Mark Atzel (President), 1810 SW Terrace, Ft. Lauderdale, FL 33312, (954) 792-4918.

Florida (Central) - Orlando Buzzards Soaring Society (<http://www.speccs-usa.com/~ingo/OrlandoBuzzards/>), Jerre K. Ferguson (Pres.), 4511 Pageant Way, Orlando, FL 32808, (407) 295-0956, <jerre@bellsouth.net>.

Georgia - North Atlanta Soaring Association, Tim Foster, (770) 446-5938 or Tom Long, (770) 449-1968 (anytime).

Hawaii - Maui Island Slope Soaring Operation (MISO), Duane A.K. Asami, 262 Kamila St., Kula, HI 96790, pgr. (888) 932-6247, <dasami@mauigateway.com>.

Illinois (Chicago Area) - Silent Order of Aeromodelling by Radio (S.O.A.R.), Jim McIntyre (contact), 23546 W. Fern St., Plainfield, IL 60544-2324; (815) 436-2744. Bill Christian (contact), 1604 N. Chestnut Ave., Arlington Heights, IL 60004; (847) 259-4617.

Illinois (Northwest) - Valley Hawks R/C Soaring Club, Jeff Kennedy (President), 414 Webster St., Algonquin, IL 60102, (708) 658-0755, eve. or msg.

Iowa - Eastern Iowa Soaring Society (Iowa, Illinois, Wisconsin, Minnesota), Bob Baker (Editor), 1408 62nd St., Des Moines, IA 50311; (515) 277-5258.

Indiana - Bob Steele, 10173 ST Joe Rd., Fort Wayne, IN 46835; (219) 485-1145.

Kansas - Kansas Soaring Society, Pat McCleave (Contact), 11621 Nantucket, Wichita, KS 67212; (316) 721-5647.

Kansas - Aerotowing, Jim Frickey, (913) 585-3714.

Kentucky - Bluegrass Soaring Society, Frank Foster (President), 4939 Hartland Pkwy., Lexington, KY 40515; (606) 273-1817.

Kentucky - Louisville Area Soaring Society, Ed Wilson (Contact), 5308 Sprucewood Dr., Louisville, KY 40291; (502) 239-3150 (eve), e-mail <ewilson1@bellsouth.net>.

Louisiana - Capitol of Louisiana Soaring Society (CLASS), Leonard Guthrie (contact), 12464 Fair Hope Way, Baton Rouge, LA 70816, (504) 275-2122.

Maine - DownEast Soaring Club (New England area), Steve Savoie (Contact), RR#3 Box 569, Gorham, ME 04038; (207) 929-6639. InterNet e-mail <Jim.Armstrong@juno.com>.

Maryland - Baltimore Area Soaring Society, Erich Schfutzkus (President), 52 North Main St., Stewartstown, PA 17363, (717) 993-3950.

Maryland & Northern Virginia - Capital Area Soaring Association (MD, DC, & Northern VA), Chris Bovais (Coordinator), 12504 Circle Drive, Rockville, MD 20850; (703) 643-5513.

Michigan - Greater Detroit Soaring & Hiking Society, Greg Nilsen (Sec.), 2163 Highsplit Dr., Rochester Hills, MI 48307; (810) 651-8598, GNilsen624@aol.com.

Michigan - Great Lakes 1.5m R/C Soaring League & "Wings" Flight Achievement Program & Instruction, Ray Hayes, 58030 Cyrenus Lane, Washington, MI 48094, (810) 781-7018.

Minnesota - Minnesota R/C Soaring Society, Tom Rent (Contact), 17540 Kodiak Ave., Lakeville, MN 55044, (612) 435-2792.

Missouri - Independence Soaring Club (Kansas City area, Western Missouri), Edwin Ley (Contact), 12904 E 36 Terrace, Independence, MO 64055, (816) 833-1553, eve.

Missouri - Mississippi Valley Soaring Assoc. (St. Louis area), Peter George, 2127 Arsenal St., St. Louis, MO 63118, (314) 664-6613.

Nebraska - B.F.P.L. Slopers, Steve Loudon (contact), RR2 Box 149 EJ, Lexington, NE 68850, (308) 324-3451/5139.

Nebraska - SWIFT, Christopher Knowles (Contact), 12821 Jackson St., Omaha, NE 68154-2934, (402) 330-5335.

Nebraska - Ken Bergstrom, R.R. #1, Box 69 B, Merna, NE 68856; (308) 643-2524, <abergst@neb-sandhills.net>.

Nevada - Las Vegas Soaring Club, Jim Allen (President), 7117 Caprock Cir., Las Vegas, NV 89129; ph (702) 658-2363, fax (702) 658-1996.

New Jersey - Vintage Sailplane R/C Association, Richard G. Tanis (President/Founder), 391 Central Ave., Hawthorne, NJ 07506; (201) 427-4773.

New York - aerotowing Rochester area, Jim Blum and Robin Lehman, (716) 367-2911.

New York - Elmira - Harris Hill L/D R/C, aerotowing & slope, John Derstine, (717) 596-2392, e-mail 2076482@mcimail.com.

New York, aerotowing Long Island Area, Robin Lehman, (212) 744-0405.

New York - (Buffalo/Niagara Falls area) - Clarence Sailplane Society, Lyn Perry (President), (716) 655-0775; e-mail perry1@staff.sunyerie.edu; Jim Roller (Competition Coordinator), (716) 937-6427.

New York - Long Island Silent Flyers, Stillwell Nature Preserve, Syosset, NY, Ze'ev Alabaster (President), (718) 224-0585, or Peter DeStefano (VP), (516) 586-1731.

New York - Syracuse area, Central NY Sailplane Group, Dave Zintek, Minoa, NY, (315) 656-7103, e-mail Zintek@aol.com.

North Carolina - Aerotowing, Wayne Parrish, (919) 362-7150.

Northwest Soaring Society (Oregon, Washington, Idaho, Montana, Alaska, British Columbia, Alberta), Sandie Pugh (Editor - NWSS Eagle), 1119 SW 333rd St., Federal Way, WA 98023, e-mail: parrot2luw@aol.com, (253) 874-2429 (H), (206) 655-1167 (W).

Ohio - Cincinnati Soaring Society, Ed Franz, 7362 Ironwood Way, Burlington, KY 41005; (606) 586-0177, <efranz@fuse.net>.

Ohio - Dayton Area Thermal Soarers (D.A.R.T.S.), Walt Schmoll, 3513 Pobsi Dr., Kettering, OH 45420, (513) 299-1758.

Ohio - Mid Ohio Soaring Society (MOSS), Hugh Rogers, 888 Kennet Ct., Columbus, OH 43220; (614) 451-5189, e-mail tomnagel@freenet.columbus.oh.us.

Oklahoma - Central Oklahoma Soaring, George Voss, (405) 692-1122.

Oklahoma - Tulsa R/C Soaring Club (TULSOAR), <http://www.mccserv.com/tulsoar>

Oregon - Portland Area Soaring Society (PASS), Pat Chewning (Secretary), 16766 NW Yorktown Dr., Beaverton, OR 97006, (503) 645-0323, e-mail: patch@sequent.com, www.europa.com/~patch/

Oregon - Salem Soaring Society, Al Szymanski, CD, (503) 585-0461, <http://home.att.net/~aszj/sss/> for club's home page.

Oregon - Southern Oregon Soaring Society, Jerry Miller, 3431 S. Pacific Hwy. TRLR 64, Medford, OR 97501, e-mail Milljer@aol.com, ph/fax (541) 535-4410.

Tennessee - Memphis Area Soaring Society, Bob Sowder, 1610 Saddle Glen Cove, Cordova, TN 38018, (901) 751-7252, FAX (901) 758-1842.

Tennessee - Tullahoma (Southern Middle Area), Coffee Airfoilers, Herb Rindfleisch, 106 Ingledwood Circle, Tullahoma, TN 37388, (931) 455-1836, <herb@cafes.net>.

Tennessee - Soaring Union of Nashville, Terry Silberman, PO Box 17946, Nashville, TN 37217-0946, (615) 399-0846.

Texas - aerotowing, Dallas area, Andrew Jameson, 9426 Hillview, Dallas, TX 75231, (214) 349-9346, e-mail ajsleep@aol.com. Larry Sengbush, (972) 291-4840.

Utah - Intermountain Silent Flyers, Tom Hoopes, (801) 571-3702 (eve), "Come Fly With Us!"

Virginia - Tidewater Model Soaring Society, Herk Stokely, (757) 428-8064, herkstok@aol.com.

Virginia - Appalachian Soaring Association, Virginia's Southwest (Bristol area), Greg Finney, 106 Oakcrest Circle #5, Bristol, VA 24201; (540) 645-5772, e-mail <ghfinney@naxs.com>.

West Virginia - Chip Vignolini, 1305 Perry Ave., Morgantown, WV 26505; (304) 598-9506, <cydne30a@prodigy.com>.

Washington - Seattle Area Soaring Society, Waid Reynolds (Editor), 12448 83rd Avenue South, Seattle, WA 98178; (206) 772-0291.

Wisconsin - Valley Aero Modelers, Lee Murray, 1300 Bay Ridge Rd., Appleton, WI 54915; (920) 731-4848, <74724.65@compuserve.com>.

Outside U.S.A.

Australia - Southern Soaring League, Inc., Mike O'Reilly, Model Flight, 42 Maple Ave., Keswick SA 5035, Australia. Phones: ISD+(08) 8 293 3674, ISD+(08) 8 297 7349, ISD+(018) 8 (082-156 (Mobile). FAX: ISD+(08) 8 371-0659.

Canada - Montreal Area - C2VM Glider Club, Jacques Blain (President), days (514) 443-5335, eve. (514) 652-6167.

Canada - Greater Niagara Area Thermal Soarers (GNATS), Flat Field Soaring & Aerotowing, Gerry Knight, (905) 934-7451 or Don Smith, (905) 934-3815.

Canada - MAAC Men Gliding Club, Jim Holland, 168 Verona Dr., Winnipeg, Manitoba, Canada R2P2R8, (204) 697-1297.

Canada - Southern Ontario Glider Group, "Wings" Programme, dedicated instructors, Fred Freeman, (905) 627-9090, or Bill Woodward, (516) 653-4251.

England (CIAM Flyer), Jack Sile (Editor), 21 Bures Close, Stowmarket, Suffolk, IP14 2PL, England; Tele. # 0449-675190.

England (southwest) - Sean Walbank, Woolcombe Hays, Melbury Bubb, Dorchester, Dorset, DT20NJ, phone 01935-83316.

Hong Kong - Robert Yan, 90 Robinson Road, 4th Floor, Hong Kong, (852) 25228083, fax (852) 28450497, yanr@asiaonline.net.

Japan - Dr. Paul "Sky Pilot" Clark, 2 - 35 Suikou Cho, Hirakata Shi 573, Osaka Fu, Japan; IAC+(81) 720-41-2934, <pclark@osk3.3web.ne.jp> <http://www3.osk3web.ne.jp/~pclark/skypilot/>

Scotland - Ron Russell, 25 Napier Place, South Parks, Glenrothes, Fife, Scotland KY6 1DX, ph. 01592 753689.

Seminars & Workshops

Free instruction for beginners on construction & flight techniques, week-ends (excl. contest days), "A" Angelo, South Bay Soaring Society (San Jose area), (415) 321-8583.

RCSD Index/Database

Available from: <<<http://www.athenet.net/~atkr095/pcsoar.htm>>>. Or: <<<http://www.halcyon.com/bsquared/RCSD.html>>>. Or, send 3.5" high density disks and SASE with stamps for 2 oz. Lee Murray, 1300 Bay Ridge Rd., Appleton, WI 54915; (920) 731-4848 after 5:30 pm weekdays or on weekends, 74724.65@compuserve.com.

Reference Material

"Summary of Low-Speed Airfoil Data - Volume 1" & "Volume 2", Michael Selig wind tunnel testing results. Cost for each: \$25 USA (includes postage), \$29 surface outside USA, \$31 air Western Hemisphere, \$38 air Europe, \$42 air all other countries. Computer disk, ascii text files (no narrative or illustrations), is \$15 in USA; \$16 outside USA. Source for all "SoarTech" publications, also. Contact Herk Stokely, 1504 N. Horseshoe Cir., Virginia Beach, VA 23451. Phone (757) 428-8064, email: herkstok@aol.com.

"Elmira Aerotow 96 Video" taken at the First Annual Northeast Aerotowing Fly-in, New York. Over 40 minutes of flying, interviews, and a special preview of the National Soaring Museum with Paul Schweizer. Check or money order, \$19.95 plus \$3.00 S&H (U.S.), payable to Harris Hill L/D R/C, c/o John Derstine, RD 3# Box 336, Gillett, PA 16925; (717) 596-2392. S&H foreign: \$6 Canada/Mexico, \$7 Europe, \$8 Asia/Africa, \$8.50 Pacific Rim. VHS format, NTSC standard.

BBS/Internet

Internet - Email list/resource of RC soaring related folks, including US and international club contacts, vendors, kit manufacturers/distributors, software, equipment and supplies. Check out the web site: www.ocpapsy.com/yellow.htm, or contact Manny Tau at taucorn@kaiwan.com.

Internet soaring mailing listserve linking hundreds of soaring pilots worldwide. Send msg. containing the word "subscribe" to soaring-request@airage.com. The "digested" version that combines all msgs. each day into one msg. is recommended for dial-up users on the Internet, AOL, CIS, etc. Subscribe using soaring-digest-request@airage.com. Post msgs. to soaring@airage.com. For more info, contact Michael Lachowski at mikel@airage.com.

Clubs, events, major contest scores, pilot chat board, classifieds, picture gallery - <http://www.rcsoaring.com>.

Advertising Note

Please note that the cut-off date for classified & display ads is the 15th of the month.

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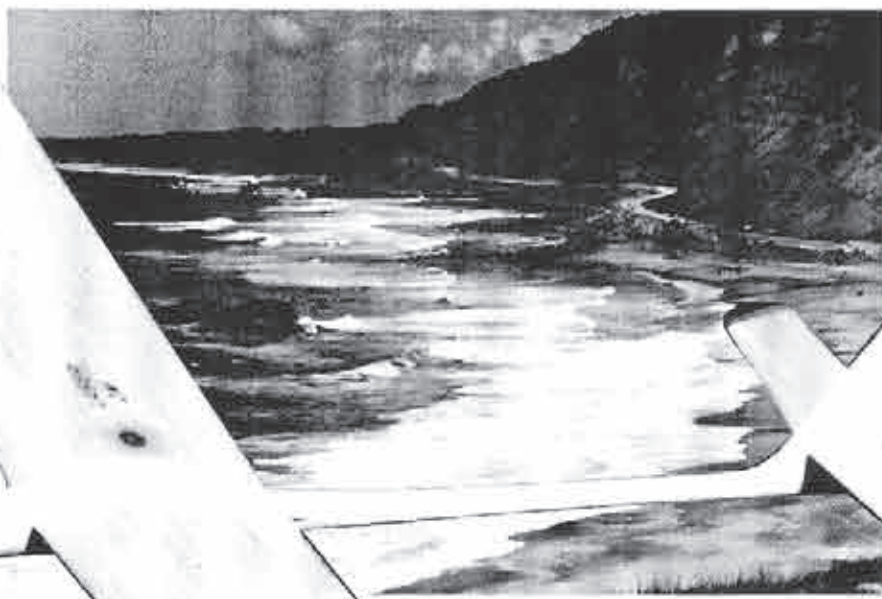
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