

Sky Hawk

**MICHAEL LACHOWSKI WINS
1995 EASTERN SOARING
LEAGUE CHAMPIONSHIP
SERIES FLYING SKYHAWK!**

*Available in
Michael Selig
"Red Hot" 57012*

*Designed by
Mark Allen
Packaged by
Slegers International*

Sky Hawk kit features a kevlar - carbon reinforced, fiberglass fuselage with carbon reinforced obechi-foam, pre-sheathed wings. A unique direct drive elevator servo is installed in the vertical fin.

Sky Hawk Attributes

- ✓ High aspect ratio wing
- ✓ "Swift" wing tip technology
- ✓ Thin airfoils at the wing tip
- ✓ Large control surfaces
- ✓ Large tail surfaces
- ✓ Long tail moment
- ✓ Exceptional performance
- ✓ Sleek lines and good looks
- ✓ Easy to handle
- ✓ Lots of room for radio gear

Specifications

Wing Span	118"
Weight	58 - 85 oz.
Airfoil - Root	SD 7037 or 57012
Airfoil - Tip	SD 7037 or 57012 - 8%
Wing Area	900 sq. in.
Wing Loading	9.5 - 10.5 oz./sq. ft.
Aspect Ratio	15:1
Price	\$359.00

SLEGERS INTERNATIONAL

Route 15, Wharton, New Jersey 07885

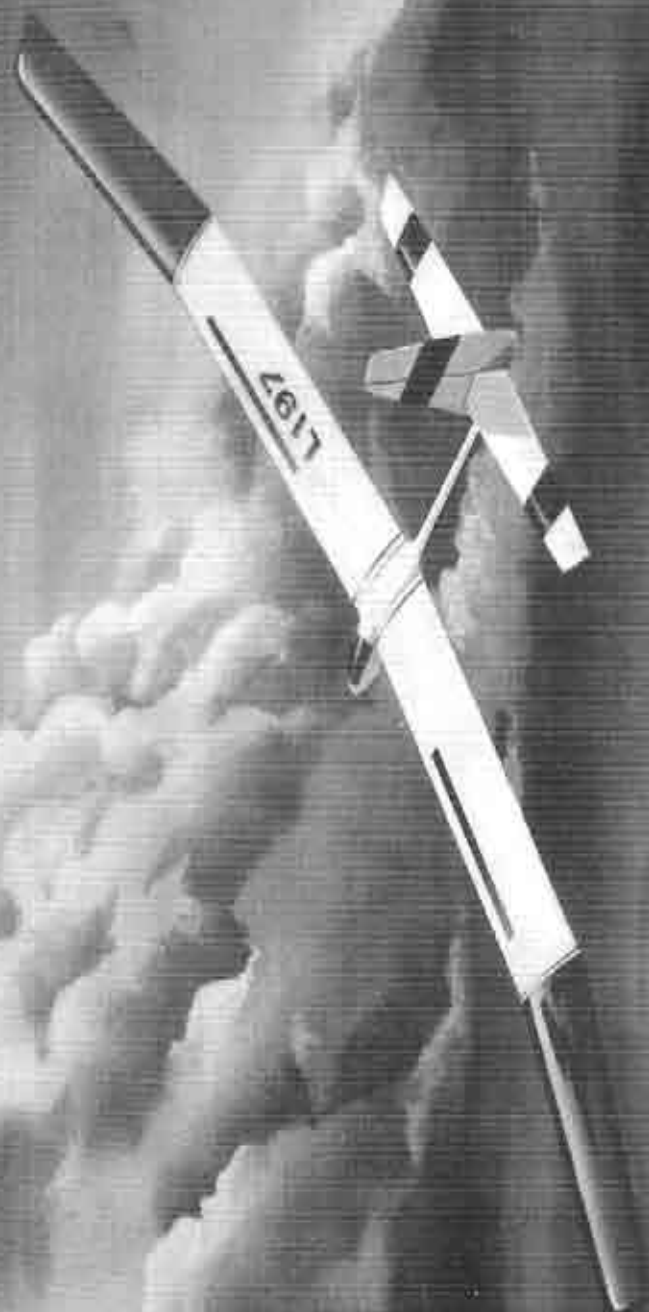
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R/C SOARING DIGEST

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"SKY JACK"

Jack Hamilton's "Sky Jack" makes a final thermal turn before heading for the landing tape. Jack's home office is decorated with awards and trophies, including the 1986 AMA National championship, which he won with this original-design sailplane. The "Sky Jack", designed in 1979, has built-up interchangeable 100" and 200" polyhedral wings, lite-ply fuselage, and a fiberglass tail boom cut from a fishing rod.

Chuck Fisher, a fellow club member and retired art director of Dallas' Channel 8 TV, painted a watercolor of the sailplane after it was finally retired from active competition in favor of an aileron/flap type sailplane. Chuck and Jack are members of AMA and the Soaring League of North Texas.

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The Soaring Site

On-Line or Snail Mail??

We've been thinking about the "Web" and other on-line services for a long time. We've even waded through one 1200 page book called "Using the Internet". Some of you have dropped us notes on the subject, and others have come right out and asked, "How come you don't have an on-line presence?"

That's a good question and has given us much food for thought, particularly of late. We've experienced 7 increases in postal and printing costs in just under a year, and we expect more. The printing increases are caused by the paper companies and many, if not most of you, have heard about the "paper" phenomenon.

So rather than speculate as to why this is so, we have decided that it is time to put the issue of going on-line to those of you that are familiar with the services, and those of you who have no interest at all in becoming a computer expert, much less use one.

Why is this issue important, now? Well, most of you are aware that last year, we began phasing out 3rd class service due to "delivery". While two months are left on this schedule, approximately 30% of all 3rd class subscribers elected not to renew; with new subscriptions, 25% of the subscriber base are relatively new to the pages of *RCSD*. Sharing has increased, and readership is at an all time high. But the net effect of subscriptions and postal/printing price increases, dictate that we do something quickly. So we have dropped the number of pages with this issue.

In the meantime, we have two important questions that we would appreciate your input on: On-Line or Snail Mail? Just take a blank piece of paper or a yellow sticky and write #1 - yes or no, #2 - yes or no. The decision as to how we proceed will be based on your input, and thanks in advance for your time.

- 1) If you could obtain *RCSD* via an on-line service, would you?
- 2) If you could or could not obtain *RCSD* via an on-line service, would you still want a printed/mailed copy of *RCSD* each month?

If you're an expert, with on-line services, and think you may have valuable input on this subject, please don't hesitate. We'd like to hear from you.

Happy Flying!
Jerry & Judy Slates

High Altitude Blues

...by Robin Lehman
New York City, New York



1/2.5 G102 Roke kit
White with red trim.

It's a beautiful day. There are little white ice cream puffs forming everywhere in a deep blue sky. I hurry to get ready and launch as soon as possible. Soon, I am spiraling up in booming lift, and my sailplane is getting smaller and smaller. Now it's a tiny speck, underneath a small white cloud. That's as high as I care to go, so I dial in a little down trim and head for the next cloud upwind.

Almost as soon as I fly into the river of blue between the clouds... IT'S GONE! Vanished! It simply vanished into thin air...

This spring I had the pleasure of introducing a new friend to airtowing. It was a beautiful, warm, blue sky day. Unfortunately, on his second tow, his all-white DG 600 disappeared. By the time he caught sight of it again, it was hurtling straight down.

We heard the CRACK as it snapped a wing and covered the remaining distance gently before it touched the ground. There was not too much damage; but the plane was now in two pieces.

I have seen this happen four times before, and in every case the sailplanes were all-white, and over four

meters in span. Three were totaled; one was never seen again.

Have you ever lost sight of your all-white glider? Did you catch a marvelous thermal under a wonderful little cloud? Did you ever fly into the blue and - presto - it's gone?

Well, if you fly scale, you are faced with the worst possible color scheme,

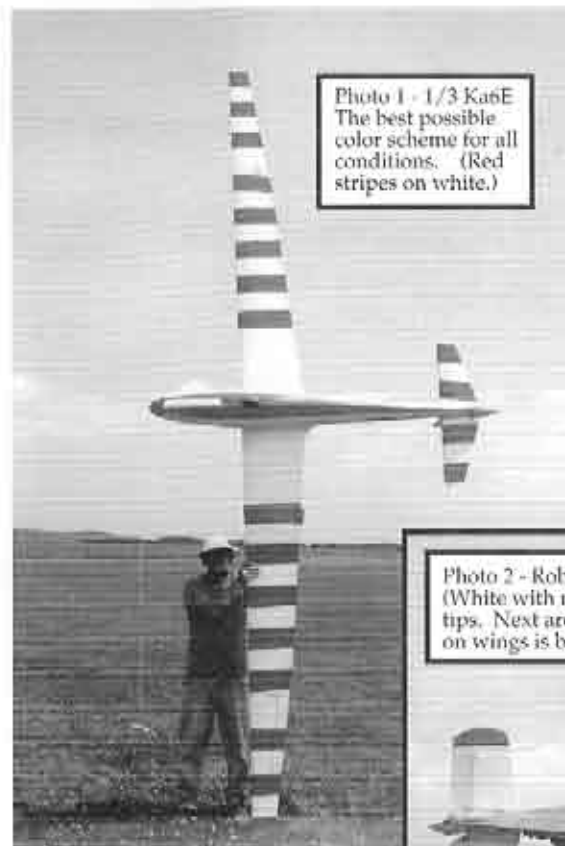


Photo 1 - 1/3 Ka6E
The best possible color scheme for all conditions. (Red stripes on white.)

which is mostly all-white for modern ships! The reason these ships are all-white is because they are fabricated with relatively low temperature resin that reduces strength when it heats up. As white reflects the major portion of the sun's rays, it's the coolest possible color; hence, modern sailplanes are usually white. Of course, they have their share of sighting problems also; midairs are all too frequent!

Unfortunately, white is the same color as the clouds and so a white sailplane is well camouflaged. When flying high in a deep blue sky, the wings



Photo 2 - Robin 99
(White with red tips. Next area in on wings is black.)

Photo 3 - Robin 99
(White with red markings.)



tend to turn bluish from reflected light and will blend right in. So, to make a long story short, if you are a scale enthusiast and absolutely set on a scale color scheme (virtually none), sooner or later you are going to have problems when you fly high.

If you have ever tried airtowing on a white sky day, the problems quickly manifest themselves on your first turn. The glider wings tip towards you and show up as white against a white sky. You

can't tell whether you're turning or not! A wonderful disappearing act in other circumstances, but when you're trying to fly, it's not so great!

Size does not help either; virtually any size glider will disappear in the right sky, where the right sky is either a wonderful cumulus cloud day, or a deep blue sky day. This is the very time to find thermals and is the very time to have the most trouble with visibility.

Over the years, and several broken airplanes later, we have found that white is definitely not the way to go if you want to SEE your airplane.

So what can you do to improve its visibility?

Yellow seems to be the best overall color, and is most likely to show up in all conditions. But it really helps enormously to have patches of color underneath the wings. I have found that stripes under the wings definitely help the sailplane to show up when flying in a deep blue sky, and sometimes in a gray sky, also. Red works well and I find it attractive, but black seems to be the best possible color. Here is an example of what was done on a 1/3 sized Ka6E (photo #1). You will note that I have left some white underneath the wing. This combination of stripes and white areas is the best all around scheme and works for all sky conditions. I know stripes under the wings are not scale, but it's the penalty you have to pay for being able to SEE!

We tend to fly towplanes quite high much of the time, and so maximum visibility is a must. I've never yet lost a towplane at altitude because I couldn't see it.

Many of the towplanes we use are not scale, and the best



1/3 Flybaby bi-plane. Very easy to see, it has a light and dark wing which help make it visible in any conditions! (Wood finish, red leading edges, and black stripes on underside of bottom wing.)

all around towplanes seem to be either the Telemaster (for the smaller gliders) or the unscale Robin 99 (kit sold through Indy Hobbies). As you can see from the photos (photo #2 & photo #3) the top of the wings and stab have a stripe on them. This helps you on the first turn when you are quite low and can't see the top of the wings.

As you might expect, we have two large areas of stripes underneath the wing. The outer wing is orange but the next area is black. We probably should paint the underneath of the body black, and perhaps put another black stripe on the wing. My Yak 112 towplane has a series of red stripes underneath the



Photo 5 - Pratt-Reed Trainer
Try this for an unusual color scheme!
(Red Pterodactyle outlined in black on white.)

Photo 4 - Yak 112 T
The best color scheme, yet. Very pretty, and very easy to see! (Wings colors from tip to fuselage are black, red, yellow.)



Yak 112 T. Very visible!
(Black fuselage, black wing tips, red & white stripes, black leading edges.)

wing, and the body is black below. On top of the wing I have red on the outer tips and a nice color scheme on the fin. Although this scheme looks scale, it is not (photo #4)! This is the best possible scheme we have come up with to date!



SR Telemaster is light yellow with red stripes; leading edge is blue.

In summary, for the best possible visibility, you need some areas of dark color underneath your wing and the fuselage (red or black work best). For your low circles on an overcast day, when you see the top of the wings, you will need a patch of dark color on the wing tips. It's always nice to have something dark on the rudder or the fin, but this is not necessary.

With a little bit of creativity you can come up with a beautiful color scheme which will enhance your sailplane, and at the same time help you to see! If you do some research, you can even find some wonderful paint schemes on older scale sailplanes such as the ASK

18 or, if you want a really unusual scheme, how about the Pterodactyl on this Pratt Reed (photo #5)?

If you must have a strictly scale (non-color) scheme, you'd better fly low enough so that your model will never disappear on you! Be aware of the brilliant blue sky as you will surely disappear when flying high. Beware of the white sky when you turn and

the wings are pointed right at you; the glider becomes white-on-white and can easily vanish when you are flying low. The best possible sky for high altitude flying is complete overcast. In these conditions, often without thermals, the best way to get up from flat ground is airtow. Except for the first low altitude turn (when on tow), the airplane will be completely silhouetted and, therefore, very visible. In these

conditions, it doesn't matter whether or not you have dark stripes underneath the wing, but be careful when speckled out and flying in any other sky conditions. You will surely lose sight of it sooner or later!

Most important of all, when flying high, never ever take your eyes off your glider! Not even for a second. If you do, you may never see it again!

Happy Landings! ■



ASW 22 coming home, white on white. A little color on the nose would help a lot! (If this photo is scanned just right, the plane is so light against the background it might just disappear from the photo! And it's coming in for a landing! ED.)

Book Review

"Understanding Polars Without Math"

Written by B²Streamlines
...Reviewed by Jim Gray
Payson, Arizona

So, what is a polar you ask? In the world of sailplane aerodynamics and airfoils — which this book is about — the word refers to a polar diagram: a graphical representation of airfoil data.

For those who understand and use polar diagrams on a regular basis, a mere glance at such a diagram quickly reveals almost everything one might want to know about a particular airfoil.

Very simply, a "polar" is an engineering tool that can help you evaluate different airfoils and decide which one is best for your purpose. Because it is a VISUAL representation, you don't have to imagine what the mathematical description of an airfoil means... you can see it right in front of you!

For those individuals who enjoy

designing, building and flying sailplanes, or those who would really like to know how but don't know where to start, "Understanding Polars Without Math" can be a tremendously helpful beginning. Understanding is the mother of knowledge, and knowledge is the father of progress, so let's start a family.

Bill and Bunny Kuhlman, the two B's, and their business B²Streamlines, are well known to RCSD readers through their series (and book) "On the 'Wing...'" their former plans service, and now their publishing venture. Why B²? Simple: their first-name initials, raised to a power, representing a TEAM effort!

Five or six years ago, *R/C Soaring Digest* surveyed its readers, and several respondents noted their desire to understand and use polar diagrams, but confessed their inability to undertake the mathematics involved. That information planted in the minds of the Kuhlman's the idea for an easy-to-understand book about airfoils. Bill

Kubiak from Minnesota, who was visiting them at the time, enthusiastically assisted with a proposed outline and eventually wrote the historical note in Appendix B of this book. Of course, RCSD's Jerry and Judy Slates encouraged them to proceed, and soon the assistance and contributions of Lee Murray, Tish Pylman (the two B's daughter and a math teacher, by the way), Michael Selig, Martin Simons, Herk Stokely, and Frank Zaic were incorporated in the planning and execution of the book.

"Understanding Polars Without Math" presents a method of getting the most information from a polar diagram without the use of mathematical calculations. It contains numerous charts, tables, and diagrams to help you along the way, and also provides a glossary that explains the meanings of terms used in its pages.

Each of the curves in a polar diagram is explained, and the reader is encouraged to participate in a "hands-on" learning process by doing exercises based on the lessons of each chapter. The authors suggest that the reader make as many as five or six enlarged copies of some of the diagrams for later use, and obtain a straightedge (a ten-inch, 45-degree, clear-plastic triangle is a good choice), a french curve, and some sharp pencils.

The first five chapters cover lift and drag coefficient curves, pitching moment coefficients, and lift-to-drag ratios. Chapter Six teaches you how to apply airfoil section characteristics to a wing, and Chapter Seven tells you how to put all this information together.

Chapter Eight is "about all those other curves" and how the Eppler system of diagramming airfoil data differs from the system of, say, Abbott and von Doenhoff, which was the original "bible" of airfoil data developed by NACA (now NASA).

Of course, there's a "Conclusion," Chapter Nine, and there's a Bibliography and several Appendices. And there are charts (6) and Tables (10). If you like nomography and nomograms,

you'll be delighted with the profusion of them in this book... each of them useful and of much help in your progress toward understanding.

You'll discover the meaning and significance of the term "drag bucket" and Reynolds number, how they relate to airfoil behavior... and how they appear on polar diagrams.

How does a "stall" look on a lift coefficient curve? How do you find the best angle of incidence for the wing of your new glider? What's the best L/D speed, and that of minimum sink?

How does wing chord affect performance, and what effect does altitude have? What happens to drag when the Reynolds number changes and why? What is a turbulator strip, and where should you place it? All of these and more will become user-friendly and easily understood when you've finished this book. Best of all, it can be a continuing reference to be used in conjunction with the Selig-Donovan-Fraser book "Airfoils at Low Speeds" and Selig's new book, "Summary of Low-Speed Airfoil Data," based on his University of Illinois wind tunnel studies.

I think you'll find, as I did, that everything in airfoil aerodynamics is related to everything else, and this book tells you how and why. It also is consistent throughout in the use of the same terms to mean the same things to avoid confusion. Perhaps best of all, it teaches you how to USE what you've learned and how to apply that information to a new design.

You can get your own copy of this soft-cover, 158-page, 8-1/2 by 11 inch horizontal format book from the publisher, B²Streamlines, P.O. Box 976, Olalla, WA 98359-0976. The U.S. price is \$18, packaging and postage included. For further information about airmail delivery, multiple copies, and special handling, readers should direct inquiries to the publisher either at the above address or via e-mail at <bsquared@halcyon.com>. ■



Jer's Workbench

Jerry Slates
P.O. Box 2108
Wylie, TX 75098-2108
(214) 442-3910

Did You Ever Wonder?

This is not a kit review, but just something that I did while building an electric sailplane, the LASOAR 650 from Perref's Studio.

The manufacturer states that the LASOAR 650 has an exceptional light wing loading of 11 oz./sq. ft., with a ready to fly weight of 50 oz. While wanting to complete the model according to the manufacturer's weight specifications, I also wanted to use the biggest battery supply that would fit into the fuselage. The ready to fly weight, less batteries, came in at a gross weight of 1155 grams or 40.43 oz. So, the battery pack that I used was a 1000 ma that weighed approximately 10 oz.

The only real construction that I had to do on this model was to build the stabilizer and the rudder, as the wings are pre-sheated, and the fuselage is made of fiberglass. I built them per the plans; the rudder ready to cover was 7 grams; after covering, it came in at 11 grams. The stabilizer, 26 grams before covering, was 37 grams after covering. Not too bad.

Where I think I really saved on weight was finishing the wing. The wing halves were joined, tips added, and the ailerons were faced for a grand total of 433 grams or 15.16 oz. Using Behr water-based sand sealer, two coats were applied. After drying for 24 hours, they were then sanded. This process added 17 grams, or a total of 15.75 oz. A thin coat of Red Devil, one time spackling, was applied, allowed to dry, and sanded. This added 4 more grams and a total of 15.89 oz. One coat of Behr water-based polyurethane (crystal clear satin) was applied again, which added 9 more grams. A second coat was applied, adding another 8 grams; the total came to 16.49 oz. The two coats looked good, so a third was not required. Kryon fluorescent orange was applied to the wing tips for trim, adding 13 grams. The finished wing added only 1.78 oz.

Well, that's what I did to save some weight. I'm off to the shop now to find some batteries so I can go out and fly.

Perref's Studio
1780 Prytania Street
New Orleans, LA 70130
(504) 524-3442

Dick Wylegala of Buffalo, New York sent in a note asking about the availability of videos on the subject of foam cutting and vacuum bagging. Since many of you are new to these pages, we thought that the following list of videos and books may be of interest to some of you, as well.

Tekoa: The Center of Design carries a Feather Cut hot wire foam wingmachine. They sell a Feather Cut video that is 1 hour and 20 minutes long, which is condensed from a 3 hour seminar on foam cutting that was held at Cerritos College in Los Angeles. The video also shows how to cut an elliptical foam wing with the Feather Cut. The price of the video is \$29.95 + \$2.95 S&H (MC, Visa).

Tekoa: The Center of Design
49380 Sky Harbor Way
Aguanga, CA 92536
(909) 763-0464
fax (909) 763-0109

"Building Hollow Composite Aircraft Structures" is a new video that was covered last month in "Jer's Workbench". The video is 75 minutes and covers everything from making the plug to making the mold, what to do after the mold is made, and suggested lay-up from spar to completed wing. The video is \$24.95 + \$3.00 S&H (MC, Visa+) and is available from:

Soaring Stuff
9140 Guadalupe Trail NW
Albuquerque, NM 87114
ph/fax (505) 898-8281

"Old Buzzard Goes Flying" is a video that covers Dave Thornburg's flying techniques for the beginner / novice. Both Taylor Collins and Dave Thornburg do a captivating job, as it is well done and laced with humor. Excellent for the newcomer and as a refresher for the expert flyer. Available from Soaring Stuff for \$24.95 + \$3.00 S&H (MC, Visa+).

"Old Buzzard Soaring Book", written by Dave Thornburg, is one of the most widely read books out there, today. You guessed it; the book came before the video mentioned above, and covers: launching, thermaling,

landings, and handlaunch technique. It's funny, instructive, and great for clubs and individuals, alike. (Dave carries a second book, as well, called "Do You Speak", which covers modeling history.) The book is \$16.95 postpaid (MC, Visa), available from:

Pony X-Press
5 Monticello Dr.
Albuquerque, NM 87123
(505) 299-8749

"Gliding with Radio Control" by Martin Simons is a beginner's guide to building and flying model sailplanes. It covers how to get started in the hobby - choosing and building the glider, installing the radio equipment, and learning to fly, etc. Excellent guide for the beginner, it is US\$18.00 which includes shipping, and is available from:

B²Streamlines
P.O. Box 976
Olalla, WA 98359-0976

B²Streamlines offer other specialty books as well, but too many to list. Just ask for a complete brochure when you write. However, there is a brand new book available through them this month that we just can't resist commenting on; it's called "RC Soaring... A Laughing Matter", and is by Gene Zika, the artist who has been sharing his clip art every month through the pages of RCSD! This book contains nearly 200 original cartoons that have never been seen in print anywhere, before. The cartoons are delightful; a note of caution, however, as one should be sitting before opening this book! The cost is US\$15, packaging and postage included, and is delivered worldwide.

George Sparr, Aerospace Composite Products, will be offering a brand new professionally done video on or before January 1, 1996 (ready for the IMS Show) on the subject of sheeting / carbon & glass. It will also cover vacuum bagging molds, using the SIG Samuri and CR Aircraft Contender as models, and include flying scenes. The cost will be \$20.00 + \$5.00 S&H in the U.S. (MC, Visa) available from:
Aerospace Composite Products
14210 Doolittle Dr.
San Leandro, CA 94577
(800) 811-2009 (new)
(510) 352-2022
fax (510) 352-2021

e-mail: george@acp-composites.com
A new and revised "Product Video" is

also available from Aerospace. It includes an overview of all the products available, including vacuum bagging. The cost is \$10.00 + \$5.00 S&H U.S. (MC, Visa).

Aerospace is redoing their written vacuum bagging instructions. The price is "No Charge". Just give them a call.

Another New Service: Soaring Onto the Web

Submitted at our request, the following is written by John Cope of Union Gap, Washington, E.D.

With my dad's hobby of R/C scale soaring, I was "encouraged" to create a web page for him when he got connected to the Internet. He knows R/C soaring, but he doesn't know how to write web pages. With his help, we created a basic page, The Pacific Northwest R/C Soaring Page, which is a good example of what can be done to introduce people to your hobby.

A web page is the main ingredient in the World-Wide Web. A person can create pages filled with graphics, text, or other media to tell other people about their interests, such as my dad's hobby: R/C soaring. So many people use the web now, that a popular page can receive several thousand visitors a day. The people who run these pages usually sell ad space on the pages to companies. This is a great new way to advertise.

To start out on the web, you need to create a web page, and have a network provider. America On-Line and Prodigy now provide their users with the ability to host their own web pages. Getting a web page created and on-line can be difficult for an individual or business that does not have much experience with the Internet.

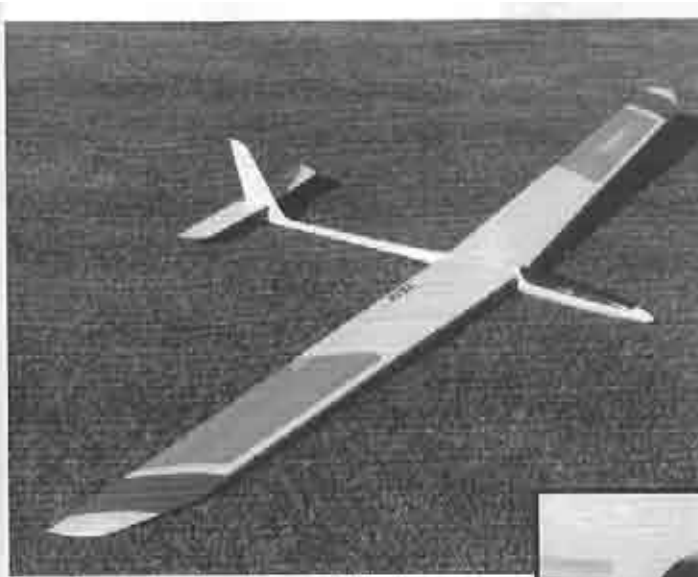
Wonka Web Services takes the pain out of creating web pages and getting them on-line. We create web pages for both businesses and individuals to fit their needs. We can scan in color graphics or create new graphics as needed to integrate into your page. We can even take a brochure and turn it into an interactive web page. We can set up an internet account for you until your own web server is up and running, so your page is out on the net as soon as possible.

The cost of our web service depends on how much work we must do to

accomplish the job. Individuals who don't use their pages for business are charged the least, while businesses that want large multi-page set-ups are charged the most. Pages for individuals start at around \$20, while business page charges vary by size and amount of work. For example, a recent single business page we did was \$500 with monthly upkeep around \$70. This is still pretty cheap when you consider that most web page designers charge \$150 an hour, and work for several hours, even days, on a single page. A large web page can take quite awhile to create. If we are provided with a clear

idea of what the customer wants, it can be accomplished quickly. Usually, it will take us about a week to finish any pages.

To reach The Pacific Northwest R/C soaring page on the net, the address is <<http://www.wolfenet.com/~gcope>>. If you have an interest or want more information on web pages, you can reach Wonka Web Services e-mail: <Conner@wolfenet.com> or phone (509) 457-9017 after 4:00 pm PST. You can also write to Wonka Web Services, c/o John Cope, 3203 1/2 Main St., Union Gap, WA 98903.



Peregrine in August. To be quite honest, I had a hard time proceeding with the Peregrine because I felt that I had more sophisticated designs with the Sky Hawk and Esteem 110. As mentioned before, both the Sky Hawk and the Esteem are excellent planes, but I was never more pleasantly

discussing the minor modifications that I made to the kit, and a couple of building and finishing techniques that I have found to be helpful. There are two reasons for this approach. First, I am a flyer first and a builder second. Second, the construction manual and one page of blue-line drawings that accompany every Airtronics kit are clear, concise, step-by-step instructions for the successful completion of your kit.

During the past couple of years, I have been fortunate to have owned a number of "full-house" competition sailplanes. The first was a Falcon 880. I loved that plane. Its easy flying characteristics made it appear that I was a better thermal pilot than, in fact, I was at the time. I have since owned a Shadow, a Sky Hawk, an Esteem 110, a Mako (current building project), and the Peregrine. It was the Peregrine, however, that first caught my eye as a replacement for the Falcon. It just looked like a Falcon only larger and more sophisticated and it had a SD7037 airfoil. The Peregrine has been sitting in its distinctive white box for over a year patiently waiting for me to complete the "sexier" T-tailed Sky Hawk and Esteem. I had never owned a T-tail ship and so they took priority. Each of these planes has a distinct personality and each is an excellent flying sailplane which I have enjoyed flying.

I finally got around to building the



Receiver is mounted onto tray with velcro. Note name and telephone label.

AIRTRONICS "Peregrine"

...by Ron Schiavone
La Jolla, California



inch beauty is pure pleasure. It is a pleasure to build and, even more so, a pleasure to fly. Beginning with the moment you open its pristine white box and inspect the neatly packed contents and, continuing through the construction period, you will know that you have purchased a kit of the highest quality.

Like a fine chef, Airtronics takes great pride in not only what it produces but in how it is presented. No kit manufacturer that I know of presents their product better than Airtronics. Their kits are so complete I am surprised that they don't just throw in the CA, epoxy, and a hobby knife. Every piece of wood, every piece of hardware, every component (save and except the standard building tools, glues, covering materials, etc.) that is needed to complete the kit is included. You even get a maple sanding block. If anything, you will have spare parts left over.

Unlike most "construction" articles that spend a lot of time telling you how to build the model, I am going to skip the mundane building sequences and spend more time on the flying characteristics of the Peregrine. I will spend some time

Looking for a winter building project that will reward your efforts with a good looking, easy flying, competition grade, thermal duration plane? Take a serious look at the Peregrine by Airtronics. This 117



surprised than when I sent the Peregrine on its first flight. I specifically set the plane up (CG, towhook location, control surface throws) as per the plans and building instructions so that I would be able to report what changes, if any, you should consider when setting up your Peregrine.

After a hand launch to make sure that the trims were reasonable, I proceeded to the winch. My first launch with a new ship is always done without flaps. The last thing you need is a pop-off at 30 feet with a brand new plane. I tapped the winch peddle a couple of times to build up some tension and then gave her a healthy throw. Without flaps, the Peregrine launched straight and steep, requiring only intermittent taps on the winch peddle to maximize winch altitude. Then, with a slight dip of the nose, a press on the winch peddle followed by a little up elevator control, the Peregrine shot skyward another 200 feet before I leveled her out. After a couple of clicks of down elevator and two clicks of aileron trim, the Peregrine searched the sky for lift in the same graceful and efficient manner as her namesake.

Twenty-seven minutes later I brought my "less-sophisticated lady" out of the sky with a dive test to check the CG and the flap/elevator compensation mix, both of which proved to be right-on. I then proceeded to land her at my feet.

I can report to you that the Peregrine has the same easy flying flight characteristics of the Falcon 880 but is far superior. At 74 ounces (actual flying weight with landing scags) and a wingspan of 117 inches, my Peregrine, with it's SD7037 airfoil, will climb in the lightest of thermals and lands as if on rails. Its thermaling ability is outstanding as is its ability to cover ground when the need arises. For those small, tight thermals, throw in the camber, which it loves, stand it on its tips and away you go. As a matter of fact, what I enjoy most about my Peregrine is the challenge of, and the ability to work those HLG thermals.

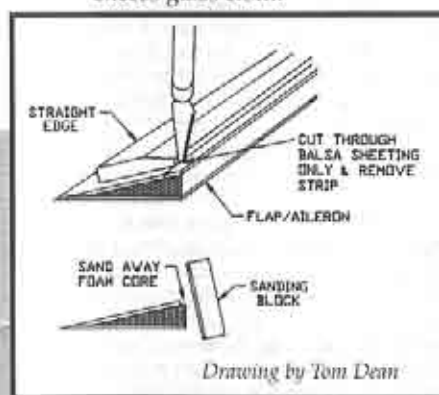
I was so confident in my new Peregrine that I flew it in our club contest the next Sunday. Three max times and 272 landing points later, I placed third. Which goes to prove two things. One, we have some very good pilots in our club and second, the Peregrine isn't ready to take a back seat to any of the so-called "super-ships".

With minor exceptions, I built my Peregrine according to the building instructions and the plans with the materials that were supplied in the kit. Listed below are the modifications that I made and the reason for them:

1. Replace the metal cable push rods that come with the kit with Sullivan #581 Carbon Fiber push rods to save weight.
2. Use Styrofoam plugs (3) stuffed down the boom of the fuse (one just in front of the vertical stab, one midway down the boom, and one at the trailing edge) to hold the push rod housings in place. I have never had a push rod flex using this technique.
3. Install a 1/4" dowel on the inside of the fuse between the leading edges of the wings to prevent the wings from crushing the fuse on hard landings. You will have to work at this a bit to get the dowel to fit snugly. Once in place, secure it with CA, then install a fillet of a mixture of epoxy and finely cut fiberglass

around each end. Do one side at a time allowing the epoxy-fiberglass mixture to cure before proceeding to the other side.

4. Install a full length servo tray. The Peregrine fuselage has a long nose moment which, without this extra structural reinforcement, would be susceptible to fractures, particularly if you are a contest flyer. The newer kits come with an extended servo tray and bulkhead kit. If you happen to get a kit that does not include this modification, simply call Tim Renaud at Airtronics and he will be happy to send you one.
5. Apply a layer of 2 oz. glass cloth to the wing tips starting 1" inside the balsa wing tip. This procedure is done to the underside of the wing and tips to prevent dings from "less than graceful" landings. I apply a mist coat of 3M77 spray adhesive to one side of the glass cloth which allows you to tack the cloth onto the wing and around the corner of the tip while you wet the cloth out with a thin coat of laminating epoxy. Wipe excess epoxy off with paper towel and let set overnight. When cured, use a sanding block to remove the excess glass cloth.



Drawing by Tom Dean

The Peregrine kit comes with an epoxy glass, Kevlar™ reinforced, fuselage. The glasswork on my fuse had a tad more pinholes than most of the other kits I have built. A minor inconvenience at most. The wings and stabs are white foam cores pre-sheeted with obechi with root ribs installed. Hinge lines and servo pockets are routed for your convenience. The hardware package for the Peregrine is complete with high quality components. For those of you who dislike bent wing rods, you will be pleased to know that the Peregrine has a straight, 5/32 case hardened steel wing rod. With the one minor exception of the pinholes in the fuselage, the quality and completeness of the kit is excellent.

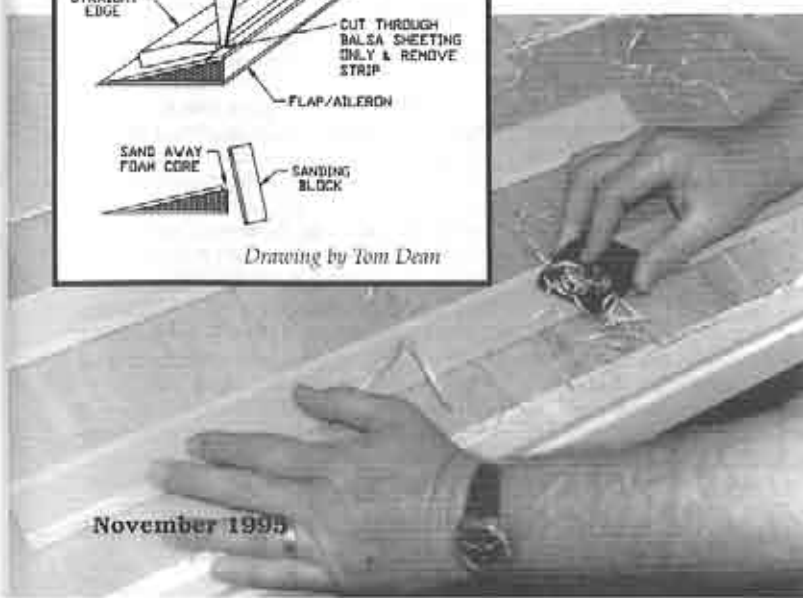
I promised a couple of building tips, so here they are:

Beveling Sheeted Foam Core Control Surfaces

This was always one of the more frustrating tasks required in the building process for me. I wanted nice straight bevels that were consistent. All the instructions ever said was "sand the appropriate bevel into the aileron/flap". After much thought, I finally arrived at what turned out to be, a very simple solution that works every time.

1. Measure on the plans how far back the bevel need to be. The flaps on my Peregrine required 1/16th" and the ailerons required 1/8th".
2. Measure on the flap and aileron and make a mark on each end.

An inexpensive razor plane makes easy work of capping material. Masking tape prevents unwelcomed gouges into the obechi.



3. Lay a steel straight edge on the marks and cut through the sheeting material only.
4. Peel off the sheeting material to expose the foam underneath.
5. Use a sanding block to sand the foam back to the sheeting.

The sanding block will go through the foam like a "hot knife through warm butter". As long as you don't sand into the covering material, you are guaranteed to have a straight edge with a consistent bevel. If some extra foam comes out during the sanding, don't worry. Just use some light weight spackling compound to fill the voids. If it is a small hole, just fill it with glue when you glue on the cap strip.

Lost Plane Insurance

I feel a responsibility to inlay this tip especially since the cost is zip and the reward can be very great. Last month, while flying a new plane, I lost sight of it in a big thermal. The person who was with me at the time, lost sight of it also. I did everything I could to regain sight of my beautiful new plane... to no avail. It is hard to describe the feeling that one gets when something like this happens, but it is a fact of life - if you fly, you will occasionally lose a plane. The worst part of this story is that, due to laziness, stupidity, and arrogance on my part, I had virtually guaranteed that I would never see this plane again. You see, I failed to put my name and phone number in or on the plane. Every plane I own now has the following identification tag:

Ron Scharck
619-454-4900

REWARD call COLLECT

Please take time to identify your planes so that when one is lost, there is at least a chance you will see it again.

Finishing Hint

There are a thousand ways to finish your obechi wings. I have tried a number of them. They range from the super simple to the exotic. Usually the super simple involves three light coats of clear lacquer or varathane. What you wind up with is a nude wing that is semi-weather proof. Usually the people who select this method have a nude fuselage to match! All, by the way, under the guise of saving weight.

I am not into ugly, no matter how light it is, so I paint my planes. I am also not into spending the winter, summer or any other extended period of time applying an exotic finish to my planes. As stated earlier, I am a flyer first and a builder second.

The finishing instructions in the construction manual are excellent. I do a couple of things a little different. I hope the following is of benefit to you.

Any good painter will tell you that the quality of the surface to be painted is paramount to the finish you will get. The first thing I do to my wings (read stabs also) is fill any dents, dings, etc. with Patch-N-Paint lightweight spackling. I have found this to be the easiest to sand. I then sand my wings using a sanding block with 220 aluminum oxide sandpaper. For the first couple of sandings, I sand cross-grain (from leading edge to trailing edge). This sands any ridges in the wood while protecting the integrity of the airfoil. Be sure and remove all obechi dust after each sanding. This is best done with a vacuum, followed by a tack cloth.

The next step is to sprinkle baby powder on the wings. You say, "WHAT?" You read it right. Baby powder. Sprinkle baby powder on one side of the wings and rub it into the grain of the wood. After you have completed this, spray a light coat of Deft Semi-Gloss Clear Wood Finish. Allow to dry to touch (about 10 minutes). Repeat this for the other side of the wings. Allow to dry for 30 minutes. Sand lightly with 400 grit wet/dry sandpaper. Remember to sand at a 45 degree angle to prevent the sandpaper from removing the filler from the grain. Repeat this series of steps two to three times. With each additional coat of baby powder, the ensuing spray of Deft can be a bit wetter. After the third coat, the grain of the wood should be filled. One more light sanding, followed by a vacuum job, and tack cloth rub down; you're ready for the color coats.

This is where most of the time comes in. It's not the color that is time consuming; it's the masking that eats up the time. If you keep your color schemes simple you will shorten the time of this process. One way to cut your masking time is to use UltraCote Plus for your trim colors. Whatever your color scheme, make the

underside of your plane predominately dark (red, black or blue). A wide (8") accent stripe(s) across the underside of the wing will help you identify your plane from the rest. After you mask off the wing, shoot a light coat of color. I use Krylon Color Works Quick Dry, which is a lacquer based paint. By the time you have shot your first coat of color you will be ready to go back and apply the second coat. All you want to do is apply enough paint to give a consistent color - no more, no less. After about 10 minutes I remove the masking materials and allow the paint to thoroughly dry - 2 hours. Repeat the above for each different color. Don't worry if you don't get a consistent wet look from your color coat. That will be resolved when you apply the Diamond Finish Varathane.

The next step is to lightly wet sand the painted surfaces with 600 wet/dry sandpaper. Use as little water as necessary. I use a drop of dish soap on my sandpaper when I wet sand. It helps keep the paper wet and slick. All we want to do is clean any dust or other foreign matter from the painted surface. Allow to dry thoroughly.

Now comes the easy part. Using a good quality foam brush (I use three different sizes.), apply a medium coat of Flecto Varathane Elite, Diamond Finish Clear Gloss. It dries to the touch in about 15 minutes which will allow you to do both sides before you set it aside. Allow 2 hours to dry thoroughly. Wet sand lightly with 600 wet/dry sandpaper. Wipe with a damp cotton cloth until clean. Repeat this application two more times or until you are happy with the results. The last coat can be left as is; no more sanding!

I have used this technique a number of times and I always get compliments on my finishes. All products that I use in the finishing process are purchased at HomeBase. Home Depot or a well stocked hardware store will most probably carry these items.

My Peregrine is "loaded" with Airtronics radio gear. The four wing servos are 94141's which are metal geared, ball bearing, high torque, micro's. The rudder and elevator are controlled with 94831's, a nylon

geared, ball bearing mini that has plenty of torque for these functions. I have been using the 831 servos for this purpose for the past three years and have yet to replace a gear.

The radio itself is the new Airtronics Stylus. If you liked your Vision, you will love the Stylus. If you wanted a Vision, buy the Stylus. This is the radio of the future for Airtronics. With it's Memory Card System that allows you to upgrade the radio at any time, the Stylus may very well be the last radio you buy, unless you just want two transmitters. The Stylus has custom programs for fixed wing aircraft, helicopters and sailplanes that will perform most any function you can think of. It also has an array of convenience features including trim memory, switch assignability, separate camber and flap controls, a stopwatch/timer, LCD voltage display, and three free programming compensation mixes. One of the most important features to me was the ease of programming the radio. There are no complex codes or menu structures to remember and the terminology is logical and consistent. I will leave a full review of the Stylus for someone more steeply versed in the operation and abilities of this outstanding radio.

Because of its easy flying characteristics, its design (long nose moment, which means less lead, and cruciform tail, which reduces or eliminates incidence problems), the quality of the kit and the detailed building instructions, the Peregrine makes an outstanding choice for those pilots who are serious about wanting a competitive "full-house" (six servo) sailplane, yet may lack the building expertise required of some of the other outstanding sailplanes available. And by the way, "competitive", is all-inclusive of competing against the Joe Wurts' of the world or your personal competition with Mother Nature. So whether you're competing against Joe Wurts or Mother Nature, be sure to investigate the Airtronics Peregrine, you will be happy you did.

The Peregrine may be purchased directly from Airtronics for \$310. Airtronics is located at 11 Autry, Irvine, CA 92718 or give Tim Renaud a call at (714) 830-8769. ■



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"The Middle Effect"

In the March 1994 issue of *RCS*, we discussed Dr. Ing. Ferdinando Galè's Ubara, a swept wing free flight HLG. This model featured a "bat tail," and a good portion of our column was devoted to an examination of possible effects this configuration might have on performance. Figure 1, which was included in that column, generated the following request from Ted Off, of Ventura California:

"That little 'throw away' drawing of the Horten brothers (p. 14, *R/C Soaring Digest*, 3/94) was fascinating. I've never seen this idea before. How about more information in your next column?"

Well, we didn't get his written in time for the next column. In fact, we're well into the next year! Hopefully, however, this month's column will provide the information Ted was requesting.

The "bat tail" or "cuspidate tail," as it is also known, has been portrayed as a method of compensating for "the middle effect," defined as a loss of lift at the center of a swept wing.

The proposed reason for this loss of lift is the detrimental interaction of vortices at the center of the wing. The Horten brothers offered a solution to this problem: construct the wing such that the quarter chord lines of the two wing halves meet at an angle of less than 180° at the center line. Refer to Figure 1 to see how this is accomplished. This modification of the quarter chord line is said to change the angle at which the vortices

meet, thus inhibiting the adverse action. A side effect of this is an increase in the wing area at the root which gives a proportional increase in lift.

A logical question to be asked is, "How did designers and pilots recognize such a loss of lift at the center section?" The answer is, through flight experience. It was found that even though the CG had been determined by calculating the lift distribution, the resulting aircraft was always nose heavy in flight. To explain this nose heaviness, it was assumed there was a loss of lift at the center of the wing.

Such an aerodynamic explanation turns out to be not correct, however. To find the real reason for the nose heaviness of sweptback wings, it is only necessary to look at the method being used for determining the lift distribution.

Figure 2 shows that for a swept back wing, the lines formed by the local neutral points do not follow the quarter chord lines. The local neutral point is aft of the quarter chord line at the center line, and ahead of the quarter chord line at the wing tip. This is the case for all wings which are

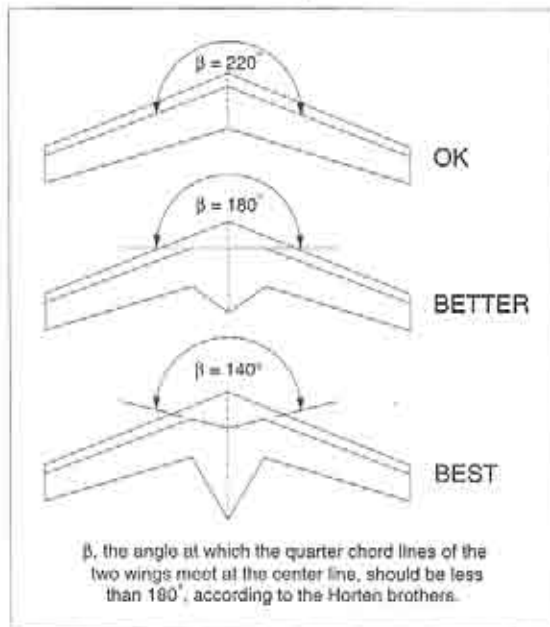


Figure 1

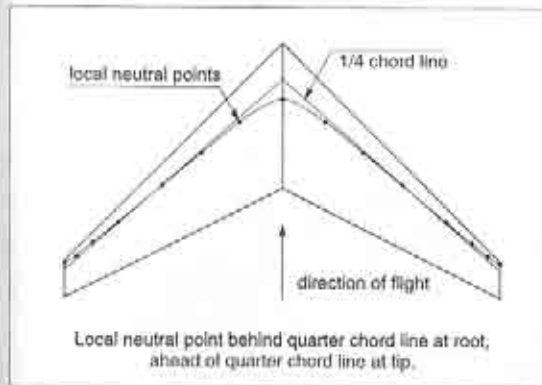


Figure 2

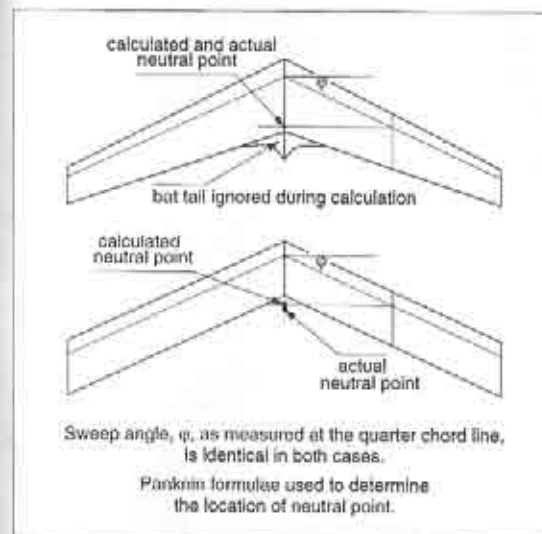


Figure 3

swept back. (If the wing is swept forward, the situation is reversed.)

Prior to and during World War II, the lift distribution of swept wings was determined by working out the lift distribution of an "equivalent" unswept wing. That lift distribution was then placed on the quarter chord line of the swept wing. This led to errors, but until about 1950 there was no better way.

This method of calculating the lift distribution predicted too much lift for the center of the wing and too little for the wing tips. The calculated neutral point of the aircraft was therefore forward of the actual location. Since the location of the CG is based on the location of the neutral point, it also was

excessively forward, thus leading to a nose heavy condition.

The nose heaviness experienced in flight, then, was not due to any true loss of lift, but rather to errors in the calculation of the neutral point; an aerodynamic phenomenon was erroneously blamed for what was really a mathematical shortcoming. Modern full size swept wing aircraft are designed using computational fluid dynamic methods which can predict the effects of sweep on the location of the neutral point and so the CG is placed accurately.

We'll complete this month's column with an interesting sidenote. Our good friend Alan Halleck has been designing and building swept wings for thermal and slope flight for a number of years. His Razer I, an extremely successful design, appeared in this column in May 1991. Alan uses the Panknin formulae to determine both wing twist and CG location. As a reminder, the Panknin formulae determines the location of the CG based upon the (arithmetic) mean quarter chord point and a prescribed stability factor. All of Alan's wings are of tapered planform and incorporate a bat tail formed by a proportionally enlarged root section. The bat tail is ignored during computations, yet all of Alan's designs have flown exceedingly well using the CG location determined by the Panknin formulae. In fact, he has consistently found movement of the CG away from the specified location leads to poorer performance. In direct contrast to this experience, our own swept wings, which are of constant chord and do not incorporate a bat tail, have always proven to be slightly nose heavy when balanced according to the Panknin formulae.

Reference:

Nickel, Karl and Michael Wohlfahrt. *Tailless Aircraft in Theory and Practice*. American Institute of Aeronautics and Astronautics, Washington D.C., 1994. pp. 445-447. ■



(L - R) Gene Cope, Eric Eiche. Pilots choice award for vintage went to Erik Eiche for his Fafnir. Eric also took longest single flight in vintage with 42:28 min, and 1st combined in vintage with 1:31:15 with the Fafnir.



Pilots choice award for modern went to Fred China for his ASK-13. Fred also took 3rd combined in modern with 31:02 min. flying an ASK 13.

Scale Soaring At Its Best

...by Gene Cope
Union City, Washington

On August 12th and 13th, a small soaring group in Yakima, Washington sponsored a Scale Fun Fly. The rules were simple: fly as long and as many times as possible within a set 45 minute window. No scale judging, no landing

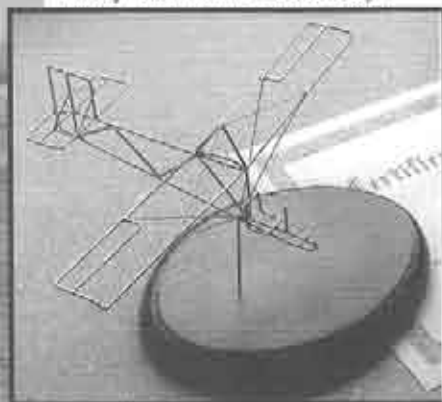
2nd combined in vintage went to Frank Smith with 36:54 min. flying a Grunau Baby IIB.



points, no mandatory maneuvers. Just fun flying.

A tug was graciously provided by Randy Holzapple and Frank Smith of Spokane, Washington, as ours met an untimely end two weeks before the event date. Even with Randy doing the tugging, he placed in two of the modern categories with his Schweizer 126 B. Aero towing was an experience that I hope to repeat as soon as possible.

The winch crew worked diligently throughout the weekend to provide launch lines for the flyers, even in windy conditions on Saturday.



R/C Soaring Digest



Longest single flight in modern went to Randy Holzapple with 15:19 min. Randy also took 1st combined in modern with 1:21:46 flying a Schweizer 126 B.



was the beautiful location of the flying site with the grassy runway, the hard working launch crew and the all around relaxed atmosphere... You were right in your fun fly announcement when you stated that the ridge produces excellent thermal activity throughout the day. What a weekend this was in spite of windy conditions on Saturday. And then, to top it all, you surprised us with the most unique awards... All in all, we pilots appreciate the many hours/days you and your helpers

2nd combined in modern went to Arthur Boysen with 42:20 min. flying an ASW 27.



As an event contest director, I was so busy it was hard to really know how things went, so I will rely on a letter from one of the participants that pretty well sums it up.

"Now that I am back home and the excitement of flying is over, it slowly begins to sink in how fortunate I was to be at your scale fun fly. In my 18 years of R/C glider flying, this was truly the most enjoyable event. It

spent to make your 1st scale fun fly so successful. The only sad note was the low turnout. The guys that didn't show up will never know what they missed..."

The event was divided into Vintage and Modern categories with a pilots choice award in each. Wire sailplane sculptures were awarded for the longest single flight, 1st combined times, 2nd combined times, and a certificate given for 3rd in each category. The entrants could enter in both categories and the flying was set up so that all had an equal opportunity to air time. Some of the memorable events of the weekend include the aero towing of Eiche's Fafnir, the long flights of Randy Holzapple and Eric

Eiche, along with the maiden winch and aero tow launches of Art Boysen's ASW 27. As a contest director, you pray for perfect weather and settle for what you get. On this weekend it was no different except that it was a tad cooler for August, only in the 80 degree range.

The camera failed to catch the surprised look on both Fred China and Erik Eiche's faces at the pilots choice awards presentation. The vote was unanimous for the Fafnir in vintage and the ASK 13 in modern. These two ships were magnificent.

With the help and support of scale flyers this event may happen again next August. ■

The Performance Composites' Starling How I Didn't Spend My Summer Vacation - BUILDING!!!

...by Don Whiteside
Lafayette, California



STARLING "package" as it comes.

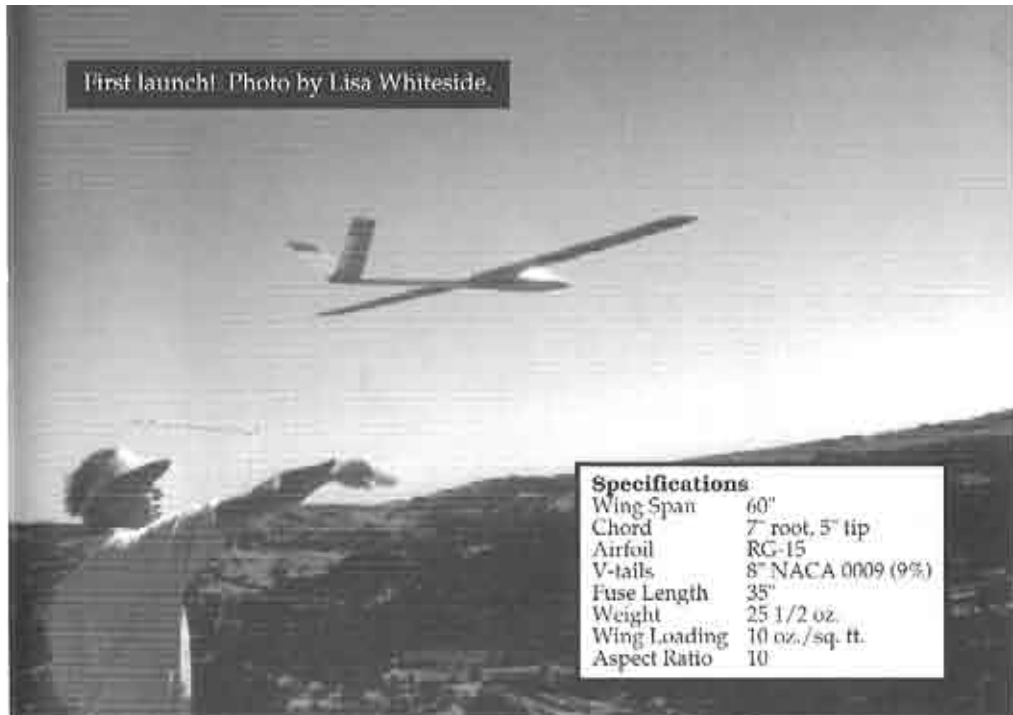
I like to fly radio control slope gliders. I also enjoy building gliders. However, given the choice of spending the afternoon in the garage with a tub of epoxy or being out on the hill with my buddies, find me on the hill. It is frustrating to spend more time building and repairing models than flying them!

I chose the STARLING because I wanted an already built plane. Bluntly, I wanted to trade money for time. I also wanted a sloper I wasn't capable of building. You may be in the same position, longing for a slick vacuum bagged composite wing but not owning a foam cutter and a vacuum bag outfit. Or you may want a Kevlar fuse slope killer, but not want to deal with cutting and finishing the

dreaded Kevlar. Yup, that was me. It struck me after a particularly long project, trying to get a really smooth surface on a foam and obechi wing, that I wanted a glassy finished wing with no hassle.

The STARLING came to my attention from the ad in *RCS* and from reading comments about it on *America Online*. Mike McKeown, a mechanical designer by trade, had participated in some of the discussions about his STARLING and construction techniques, and his comments made sense to me. Mike makes the vacuum bagged carbon wings for Daryl Perkin's MAVERICK so I figured he could make a pretty good wing. I actually met Mike one day at his local hill, and briefly flew his STARLING; two weeks later I was on

First launch! Photo by Lisa Whiteside.



Specifications	
Wing Span	60"
Chord	7" root, 5" tip
Airfoil	RG-15
V-tails	8" NACA 0009 (9%)
Fuse Length	35"
Weight	25 1/2 oz.
Wing Loading	10 oz./sq. ft.
Aspect Ratio	10

the phone ordering my own.

Time Is Money

Soooo... While most reviews start by telling you about construction, at this point we're going to talk about writing a check. If you work and/or have a family, this may be the best way to go, and likely cheaper, too. When I looked around at the variety of 60" composite gliders available, the prices ranged from \$130 to \$300+. None of these came as "Ready to Fly" as the STARLING. Choosing a kit with an obechi sheeted wing meant still spending quite a bit of time (and money). The extra work of leading edges, joining the wings, and all that sanding is why Performance Composites charges more for the pre-built obechi version than the glass version.

I just wanted to fly and spend my evenings with my wife and kids, so the investment for a glass STARLING was easy to justify. Also, I wanted to fly right away, and my "do the first 90% and then ponder the last 10%" nature can stretch construction projects for weeks. The windy Northern California summers only last so long. My STARLING, with all the options (pre-routed servo bays and ballast), cost \$195 plus tax. I picked it up so there

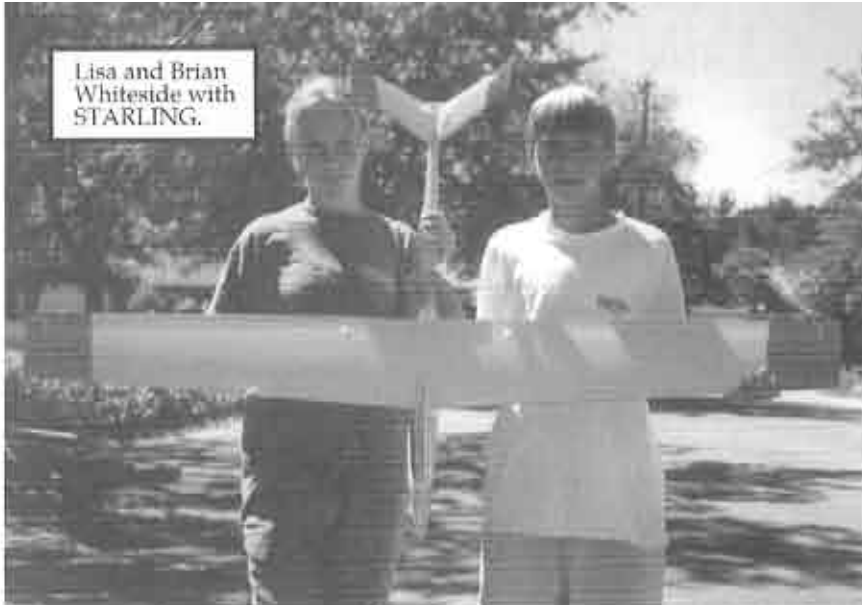
were no shipping charges.

Well, how about the quality? Let me tell you. I CANNOT build this nice. No way. The finish is smooth and beautiful. The colors I chose, yellow and red (white, orange, green, blue, brown, and black are also available), are cool! The wing is several layers of 5-glass over white Spyder foam and the colors look like the finish on a show roadster. The pigment is added to the resin which saves the weight of paint. The colors don't look opaque like paint, but rather look somewhat transparent. They almost seem to glow. Very cool! The trailing edge is razor sharp, and the ailerons and elevators come cut and beveled. The wet seam joined, molded fuse is nearly perfect and I left it "naked" to show off the Kevlar, proving to my slope buddies I've entered the big time!

The wing mounting bolts are installed and the fuse and wing are bedded for a perfect fit. Everything is square and level. The V-tail stabs look just like the wing and are joined very robustly and smoothly with 5-glass. Incidence is 0 degrees, as advertised.

Every part needed to complete the plane was included. The instructions were in depth and easy to understand.

Lisa and Brian Whiteside with STARLING.



My only reservation was that the leading edges of the wings and V-tail were exactly as they had come out of the Mylar used in vacuum bagging; sharp and not smoothly rounded. Mike assured me they would fly fine and "cut weeds better that way".

A Little Construction

There was SOME finishing time necessary. It took about three hours from opening the box until the STARLING was ready to toss off the hill. Here is what you will have to do:

- 1) Wax the plane. This will keep the sun from fading those beautiful colors. Use the recommended three coats and this will take you about an hour.
- 2) Hinge the aileron and v-tail control surfaces. I used the recommended 3M plastic tape. Install the control horns.
- 3) Install the wing servos. I paid Mike (\$2.50 per hole) to route holes for my Hitec HS-80s. I needed to relieve the holes a tiny bit and make them a bit deeper. Now, the servos fit SNUGLY and perfectly. I put white tape on the 'inside' servo surface so it won't show as much through the top of the wing. Besides, I like things that have a Whiteside. The HS-80s are just close enough inboard so that the normally, too-short Hitec leads, reach through the pre-drilled holes to the center of the wing. You will need to remove the plastic connectors from the servo leads to do this. The servo leads protrude

about 3/4" and I DIDN'T HAVE TO SOLDER ANY WIRES! Attach the provided linkages and the wing is done.

4) Install the elevator servo and linkages. The ball links are already soldered at the tail, but you must cut the music wire to the right length and solder them to the provided clevis. As with the ailerons, I taped the V-tail control surfaces in place. It took me a few minutes to get up the nerve to stick a hot soldering gun into the tight spaces of my new beautiful fuselage, but it was actually pretty easy.

5) Complete the radio installation and final check. I stuffed a 500 ma square pack battery in the nose, a full sized receiver just behind that, and only needed to add 1/4 ounce of lead in the nose to bring it to the recommended CG. The total weight is 25 1/2 ounces for a wing loading of 10 oz./sq. ft.

That's it. Let's go fly...

Time To Fly

Yahoooooooooooooo! I thought I wouldn't be nervous for my STARLING's first flight, because I didn't have much time invested in it. Guess again. I was really worried I'd mess up the most beautiful sailplane I'd ever owned. My daughter Lisa and I went to the top of the local hill and I eventually worked up the nerve to toss the STARLING into a light and variable breeze. It climbed right out and flew terrifically! Whew! The lift was going from little to less, but the

STARLING was staying aloft and climbing a bit on each run along the hill. The CG seemed perfect. Control was very solid, and I immediately shifted to full rates. (I like LOTS of control surface movement, but usually program less throw for initial flights.)

A thermal or two drifted by and I was able to gain some altitude. It rolled and looped well, and flew inverted like it was on rails. As always (except with a fully symmetrical wing), it took a little more speed to maintain altitude inverted. Stalls were gentle. With the elevator stick held full back, the plane wallowed along in a stall and I was able to maintain roll control (for awhile).

The wind picked up a bit and we were not asking, "Are we having fun yet?" This thing scoots! With a bit more altitude, we tried outside loops (no problem and little energy loss when I flew them smoothly enough), fast rolls (three rolls after a bit of a speed run), and some fast low passes. This is the fastest airplane I've flown yet, and I was beginning to crush the case of my transmitter; time to land.

My Futaba Super 7 was programmed to deploy both ailerons UP about 25 degrees with the flip of a switch (spoilerons). I had tested this setup when the STARLING was high and it seemed to kill lift and slow things down. There still seemed to be roll control. A slower, lower pass... pop the spoilerons... ease it toward the softest weeds... IT'S DOWN IN ONE PIECE! I relaxed for a bit, and then enjoyed two more uneventful flights. This plane is comfortable to fly and a lot of fun.

A Bit More Construction

After the first flights, I decided to spend a little more time on the plane. Carefully sanding the leading edges of the wings and the V-tail gave them a rounder, smoother shape. I covered them with a strip of 3/4" tape. Plywood tip plates (1/32") were added for more protection. The ballast mounting screw was installed. All this took about an hour.

A Lot More Flying

The next weekend it was time to really wring it out. The winds were just right at two terrific sites. The STARLING flew unballasted, and with 8 oz. of lead in great lift. GEEZ, is this thing fast! It

must be faster with the lead, but it is faster than my brain in either case. The extra 8 oz. did stabilize it in rough air close to the hill. With the leading edge mods it is quieter, cleaner, and possibly faster. I sort of miss the screaming whistle that it had at first. You will have to be very careful about large control inputs when it is at the end of a long speed run. The roll rate at warp speed can be truly frightening. It is so gorgeous in the air that other people landed to watch it. (Or maybe they were afraid I'd run into them at Mach 2.)

The STARLING can also be flown quite slowly, making it easy to land. Flaperons or spoilerons are a big help. Most of the landings were right where I hoped they'd be. On the last (of course) landing of the day, I did manage to land on top of the only sharp rock for 100 yards. It creased the underside of the wing and deeply scratched the fuse. It is still completely flyable, but I will spend a little time smoothing out the dents. I believe one of my other balsa or obechi skinned wings would have been in two pieces from this impact, and I shudder to think about a built-up fuse after that arrival. I'm sold on composite sailplanes.

Conclusion

I highly recommend the Performance Composites STARLING. I would have considered it a bargain even if I had spent more time "building" it. Other versions are available including an Obechi STARLING unassembled pre-sheeted kit (\$120), and a Carbon STARLING (\$250) if you'd like to spend less or more money. The Glass STARLING at \$180 (\$195 with all the options) was exactly right for me. When the inevitable occurs, you will be able to buy any needed replacement parts.

And... when I talked to Mike last week, to check some details for this article, he mentioned a new Two Meter STARSHIP with a hot airfoil and a carbon wing. Oh boy... I bet there is one in my future!

If you have comments or questions, please contact me at dwhiteside@aol.com, or for more information on the STARLING: Mike McKeown, Performance Composites, P.O. Box 6843, Napa, CA 94581; (707) 253-8029, e-mail: perfcomp@community.net. ■

THREE PEAS IN A POD

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Visalia Fall Soaring Festival Part I

Curt: Visalia, known as the Gateway to the Sequoias, was founded in 1852 and is the oldest city between Stockton and Los Angeles. It's situated in a huge valley (altitude 331 feet), rich in farm land and crops of cotton, plums, walnuts, olives, grapes, and avocados. It's an easy drive to the enormous trees and rustic surroundings of Kings Canyon National Parks, and just a few hours from Yosemite's gigantic waterfalls and impressive Redwoods.

Thermals abound in Visalia's vast flatlands, and it is not uncommon to see several dust devils develop into massive, twisting vertical columns. Spectacular piloting by local crop dusters also adds some enchantment to this valley for those of us visiting from the inner-city.

Visalia is approximately 3-1/2 hours north of Los Angeles, and offers a

scenic drive through mountainous terrain on Interstate 5, and Highway 99. This particular area is known as the "Grapevine" and is famous for its steep climbs, and sometimes treacherous, downhill grades.

Fresno airport is only 40 miles from Visalia, has rental cars, and is a realistic alternative for those that prefer to fly. CVRC (Central Valley R/C Soaring Club) provides on-site camping for tents and RV's, porta-potties, and a catering truck both days of the event. Reasonably priced hotels and motels



Ron Vann with Prism V-tail



Jim Parson's new sailplane.

Top 10 Standings

1. Joe Wurts (PSS)	Peregrine	Infinity 1000
2. Roger Lacky (FUNK)	Mako	Vision
3. B.J. Wiseman	Super-V	Vision
4. Greg Johns	Super-V 100	JR385
5. Mark Tribes	Spectrum F3B	JR385
6. Mike Aquirre	Mako	Vision
7. Gordon Jennings	Black Hawk	Super 7
8. Keith Kendrick	Peregrine	Vision
9. Ben Clerx	Mako	9ZAP
10. Mark Levoe	Super-V	Vision

Top Two Teams

First Place
Flyer Under No Kontrol (FUNK)
Roger Lacky
Ben Clerx
Mike Aquirre
B.J. Wiseman

Second Place
Pasadena Soaring Society (PSS)



Photo by Ed Slegers.

line Highway 198, just adjacent to the field, and although CVRC offers their traditional BBQ, Visalia has a wide selection of family-style restaurants and fast-food chains.

CVRC's Fall Soaring Festival has been the largest, most heavily attended two day contest on the West Coast for over twenty years, and continues to attract nationally and internationally recognized pilots, as well as an abundance of interested spectators.

Paul: If you fly contests frequently, every once in awhile you'll find yourself finishing above some of the top jocks on the circuit, and probably feel pretty damn good about it. As a matter of fact, you may even repeat the story of your tremendous feat to people that didn't want to hear it the *first* time! But that's the fun and camaraderie of competition, and no contest has more that CVRC's Fall Soaring Festival.

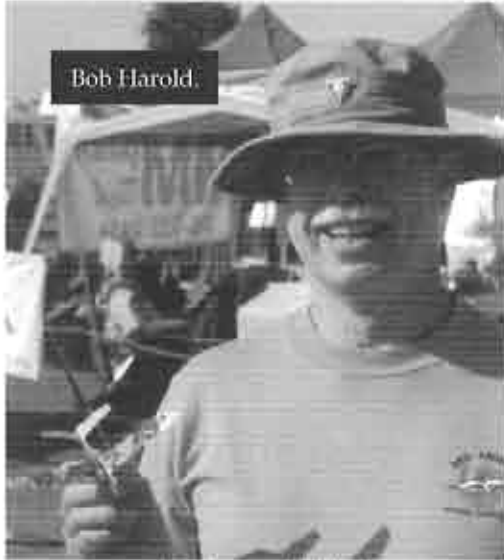
Of course, it usually works out that, even though top flyers may have a couple of bad rounds at Visalia, they'll still have more good ones than you do by the end of the contest; they'll be on top, and you'll be in the same old spot you usually are. Sure, you might try blaming it on the called-flight-order and the sink cycle you flew into, the patented CVRC downwind launch and landing, or, "How about them landing zones that look just like someone was trying to paint an aluminum step ladder onto the grass?"

But that's what this contest is all about. Some of us get the time and make it back to the field, and

Stepladder landing area with Ron Vann.



Bob Harold.



some of us just land "in" the cotton field. But either way, each year, more folks will keep coming back to Visalia with more practice under their belt, new gliders, and high hopes that by the last round on Sunday, their name is on the first page of that darned-printed score sheet.

This year's format, as announced in the usual 7:30 a.m. pilot's meeting, was four rounds on Saturday of 3-5-7-5 minutes, and Sunday's 3-6-8 minute rounds. Approximately one thousand flights were made on Saturday, and 750 on Sunday. CVRC really has this stuff down to a science, and should most certainly be congratulated for their efforts.

Basically, everyone is assigned a flight group. For example, Curt was "A". On Sunday morning, "B" was pulled from the hat, and first to fly; so throughout the day, Curt was one of the last pilots up in each round. This was good for Curt, because the thermals at this field seem to build later in the day, and he was able to make all his times and that blasted first page. (Some Soar Heads have all the luck!)

But I can't complain either, because I got my share of some darn big thermals and specked out my old 2M Super-

V something fierce. We saw the last Vision raffled off on Sunday, but I just want to say that I was flying a new Stylus radio, and it performed flawlessly. This is one super rig that's gonna be a big hit for Airtronics. Anyway, Curt timed for me both days, as I battled it out with my smoking buddy and fellow Soar Head, Ron Adams. Curt's theory to flying is to



Ben Clerx and new Mako.

Joe Wurts, winner of the fly-off.



"go deep and speed is your friend". This is something that he claims to have picked up from Team Funk's Mike Aguirre and Roger Lackey (those Mako guys), and we get tired of him preaching it at our home field; but at Visalia with the downwind conditions, it seems to work.

"Going Deep", I understand. But the "speed" thing he's never really explained. I think it has something to do with keeping up the speed in the

Sunday A.M. fly over.



core, and not using a whole lot of camber. Heck, my Super-V thermals in reflex! Maybe, *that's not* the secret. Anyway, Ron and I finished the contest neck-to-neck, and these two boys from California Soaring Products will definitely be back again next year.

Curt: While Paul and Ron manned the booth, I had the chance to wander about, taking snapshots, and doing a few casual interviews. CVRC's two day is traditionally a fairly accurate indicator of things to come. The poly open ship is still present, but even in winchable form, is slowly drifting out to pasture. As a serious contender against today's preponderance of full-house performers, and although obechi is still predominant, it may soon be gradually be edged out by glass and carbon bagged wings or other offerings in molded technology. Currently, price

is the only barrier for most, but continued advancements in lay-up and the demand for the product, I'm told, should drastically curtail this obvious objection. Don't hold your breath, though, for this hollow composite wing to be available in anything less than an RG-15 to be available in the future.

Personally, I would consider forking out the big bucks for a durable 70 oz. Synergy 3 with a 7037, but that ain't gonna happen either! Yes, the Genesis is still around, but even its numbers are fading.

So, what's new?!? Team Funk's Ben Clerx, Roger Lackey, and Mike Aguirre were flying prototypes of Ben's latest model, MAKO 2. With wings carbon bagged over foam (blue inboard, gray outboard), MAKO 2 weighs in at 68 - 72 oz. a 7037 airfoil, with a 118" span and 947 sq. in. A

triple tapered leading edge, slightly modified from the original MAKO, sports a highly efficient, carbon spar and wing rod. MAKO 2 should be available by the end of '95. Expect to pay \$550 - \$575. I've known Ben for a long time, and witnessed his prototype testing process of the DAZZLE, which lead to the introduction of the MAKO 1. Ben doesn't settle for anything less than perfection; although MAKO 1 had all the numbers right, the new generation, MAKO 2, has added refinements as a result in leys technology. MAKO 2 has already made its mark at Visalia, and I'm sure it will continue to see much success in the upcoming '96 contest season.

After taking a quick photo of Ron Vann at the Spectrum booth holding an absolutely gorgeous obechi winged Prism V-tail (his contest ship), he asked

TOP 10!



Soaring Society) in Costa Mesa, California. Jim was working on a wing with scale-like flex and a Prism fuselage with two mini-bellcranks linked by small diameter carbon rods used to actuate the T-tail and eliminate any unnecessary slop. Many years ago, Jim paid his way through school

me to check out the V-assembly with a closer look. I found that the two pushrods appear to drive a very imaginable and completely internal linkage mechanism that must be seen to be appreciated. Ron says it's simple and effective, and very serviceable; the empennage is easily removed for transporting. The obechi version of the V-tailed Prism has a 117" span, 910 sq. in., 7037 airfoil with a 15:1 aspect ratio, and weighs 60 - 65 oz. A great Christmas gift for \$359.00, this kit is available through Slegers International and associated hobby shops.

Another glider that seemed to attract a lot of attention was the 2M Barracuda, designed by Brian Agnew, holder of 15 national titles. You might remember Brian for his nicely designed and fine flying Banshee. The 2M Barracuda has the same outstanding craftsmanship, featuring pre-sheeted flying surfaces and top of the line hardware. It's also distributed by Slegers International. If you happen to be in Southern California, you can stop by California Soaring Products and see Ron's and Brian's kits for yourself. (A plug for the boss, and #1 Soar Head, Paul Ikona. Paul says to watch for a new kit coming soon: the California Condor.)

Although Jim Parsons is not a manufacturer, I couldn't go on without mentioning something about his most recent and attractive class contribution. Jim is probably one of the most meticulous builders I have ever met. He's also probably the slowest! But his finished products are obviously well thought out and incredibly engineered. I originally discussed this project with Jim about a year ago while visiting the guys at my former flying field (Harbor

making custom surfboards, so glass-bagging 122", 16:1 triple tapered RG-15's should have been a breeze; apparently not. According to Jim, this Visalia outing will add to just a handful of flights on this 70 oz. airplane. Although he admits that reading the RG-15 will require a substantial learning curve over his previously equipped 7037 contest plane, he's in it for the long haul. Good luck, Jim, and be thankful that your education didn't depend on mass producing glass bagged, glider wings! Some of the other items that seemed to draw a great deal of attention were Hitec's new Micro HS60's (perfect for HLG's), some clever Mark Levoe pushrods, and home brew 1/2" five degree hollow chrome-moly wingrods used by a few of the pilots...

Paul: God, you're long winded!

Curt: By now, you might have noticed that Mike hasn't had anything to say.

Paul: I wonder why!

Curt: Mike's quite an accomplished scuba diver and underwater photographer. He even does excellent work, without the mask and fins, that has been shown right here on the cover and within the pages of RCSD. He...

Paul: Let me take it from here. You could write twenty pages about a thumb tack for God's sake!

Mike did a three week stint in New Guinea on a line — aboard ship, did some divin', drank that darned water, got sick, and missed Visalia.

Curt: So, you're saying he got sea sick? A scuba diver gets sea sick?!

TEAM FUNK!



He also makes bi-planes, flying wings, and seagulls. Bob suggests that these are safe and easy projects for kids with some adult supervision, and proved it by hitting his fingers several times with the edge of an aluminum sheet.

Paul: Mike's okay and he'll be back next issue. Somebody, please give me a cigarette!

Curt: The pit area at CVRC's flying site during the Fall Soaring Festival is about the size of a football



Some of the Super-V's in attendance.

field lined with motorhomes, utility vehicles, tents, cars, and colorful sunshades adorned with the pilots' club banners and flags. I made the trip through the maze of activity many times during the weekend and kept running into palm-sized, aluminum can, free-flight gliders.

I sent Karlton Spindle (Critic Bits) on a mission to find the source. He introduced me to retired mechanical engineer Bob Harrold who was kind enough to make me a mini V-tail. Working from the trunk of his car, with a pair of scissors and a packet of pre-cut beer and soda cans, Bob was able to make my glider in a matter of minutes. He claims that he's only cut himself once, and that the models aren't dangerous, but suggests practicing with cardboard at first, because they fly a little slower. After setting the incidence and kidding about bending a 7037 into the wing, Bob made several downwind (Remember, it's Visalia!) tosses, and was able to get my plane to track on a straight course. Bob uses clay for the nose weight, and claims the Canard is the only design that works without it.

These gliders would be great for Cub Scouts, or a school winter project, with fly-off contests in the gym. For more information, contact Bob Harold at 519 N. Youlan, West Salem, WI 54669, or e-mail bobcanman@aol.com. Thanks, Bob!

Paul: The Mid Pack Fly-Off was won by Sal DeFrancisco. He was the last flier to fly in the flight of participants, and was the last to launch at the time two other pilots were tied. He won by one point, and was flying a Victory C with a new Stylus radio by Airtronics. He won a Falcon 880 kit donated by Shawn Wilson, which he later donated back to the CVRC raffle.

There was another fly-off called up by the CVRC contest director. Roger Lackey and Joe Wurts were called to fly a three minute precision round with a 100 point tape for landing. Roger was flying a new carbon over foam, bagged Mako using a Vision radio. Joe was flying a Peregrine with an Infinity 1000 radio.

The two contestants met for a brief period prior to the fly-off. Roger was to launch first, and the tension started



CVRC Raffle Booth

to mount. As time elapsed, the crowd, along with Roger, moved to the landing zone. As the time counted down, we felt that Roger was "cool" under the pressure, at the landing zone. For us, time seemed to be standing still. With twenty seconds to go, Roger made his final approach. As the nose of his Mako touched down, the time elapsed was 2:57 and the landing points: 93.

Joe approached the winch and launched after Roger had landed. He knew what it would take to beat Roger. As he launched, the tension in the crowd started to mount, again. Joe flew the flight as if it were no different from any other. He seemed "cool" as could be as the time counted down. As Joe moved to the landing area, he was followed by the crowd. With twenty seconds remaining, Joe began the final approach. As the nose of the Peregrine touched down, the time elapsed was 2:57 and the landing points: 96! Joe won the CVRC annual 1995 Fall Soaring Festival. As in any sporting event, Joe received a victory "hug and kiss" from his wife, Jan.

The Western States Triad consisted of three contests during 1995; the first in February was sponsored by CASL (Central Arizona Soaring League), the second in May was sponsored by PSS (Pasadena Soaring Society), and the third in October was sponsored by the CVRC (Central Valley Radio Control).

The total number of fliers making all three of the events totaled 71. (Yours truly is "tail end Charley" at 71.) The

Triad champion was determined by placements of all these contests. The first winner of the revolving trophy is to be kept by the champion from Visalia 1995 through Visalia 1996.

First Place - Mark Levoe, Super-V, Vision
Second Place - Mike Aguirre, Mako, Vision
Third Place - Ben Clerx, Mako, 9 ZAP

Curt: Before we wrap this up, I

wanted to take a few moments to address the topic of skags or shark-toothed skids. During our stay at Visalia, I had a chance to talk with many pilots about this issue.

As you may already be aware, some other columnists have become quite insistent about their demise, and feel our gliders should fall in line with F3J and F3B. To our knowledge, the AMA has yet to see its first injury case due to these devices. I personally believe that there is a greater chance of being hit by the nose or the wing of the aircraft than the protruding nose skid and aft skag. The general consensus appears to be a suggestion that any eventual ruling should permit their use, but perhaps limit their size. The rear skag protects the flaps (servos) on landing, and angles the nose down into the grass. The nose skid actually does most of the work. Some of the flyers used interchangeable nose cones, or taped temporary skags to the fuselage.

I feel that the landing points play such a predominance role in determining the outcome of any contest, these devices should remain in use, and continue to perform a duty that is more in the interest of safety than a detriment to those involved. We're interested in your opinion. Drop us a line c/o CSP.

Paul: Once again, all of us Soar Heads want to thank Central Valley R/C Soaring Club for an incredibly enjoyable contest, friendly atmosphere and some real, down-home hospitality.

Until Next Month... Boomers!!! ■

Fall Soaring Festival

...by Fred Mallett
Corpus Christi, Texas

If you go next year, you might see what I saw this year, and more, too!

- * An extremely well run and organized sailplane contest. Over 1600 launches, and slightly less landings.
- * Over 13 splice marks in the power lines next to the field. It is amazing how conductive sailplanes are. There were no new ones this year, but Tim Renaud tried.
- * More dork landings in two days than most club fields get in a year.
- * How smoothly, and gently, the big boys can dork a plane. No kidding; they make it look delicate!
- * 27 planes in the same thermal.
- * The soaring gods whose names you read about in the magazines, and they actually seem like normal people.
- * Over 50 sailplanes raffled off, along with associated gear like the last Vision in the world.
- * Dolls, barbecues, bikes, and bandsaws raffled off at a sailplane contest.
- * The best fliers in the world.
- * Big sink cause 6 planes to land simultaneously in the dirt at the end of the landing zone.
- * How fast final results from a contest can show up in your mailbox.
- * The "you might be a redneck if" tape played over, and over, and over, and...
- * People fly handlaunch at night with Cylume sticks.
- * Joe Wurts fly HLG at night without a Cylume stick.
- * Just how hard a dork some planes can take without breaking.
- * Just how hard a dork it takes to break a plane.
- * Just how sad someone can look after dorking too fast and landing upside down.
- * Just how sad someone can look, after launching their Esteem turned off, the day before the contest.
- * Planes that were not skagged skid wildly after a slow landing.
- * A sailplane dodging a crop duster while trying to get back to the landing zone on time.
- * That most sailplane kits being sold will fly well, if built well and flown well.
- * A contest where whiners and complainers are laughed at or ignored.
- * A well run contest!

An Update on the Visionary

...by Don Whiteside
Lafayette, California

I wanted to jot you a note to follow up on the Visionary ("Cheap and Easy", 3/95 RCSD) article that was published a few months ago. I don't often see follow up on kit reviews and I know from experience (not all of it great) that sometimes things come to light weeks or months after first impressions are made. Well, I am continuing to have a wonderful time with my "Vis". I must have flown it 75 - 100 hours. It's become my "main plane". I've highstart launched it, loaded it up with weight (Beware the aileron flutter!), and just generally abused it.

Several of my friends have built Visionaries and there were three the other day at the local hill. Now for some formation aerobatics...

It continues to teach me things. I finally crashed mine hard enough to need some repair (new elevator - already fixed). After loading it with 6 oz. of lead and rolling at the end of a speed run, I actually SAW the tail rotate away from its tape mounting! I rolled back the other way and, amazingly, the tail "re-stuck" itself long enough to land. THEN, I tried it again, inverted, and it must have come unstuck again cuz it kind of aimed itself at the grass...

If others are considering building this kit, I'd strongly recommend some of the modifications I suggested in the original article. Use rubber bands to attach the wing, and mounting tape to attach the tail. Strengthen the fuse from the wing saddle to the tail. This has kept my plane in one piece after crash landing. I've built a second "Super" Visionary experimenting with some new techniques for me. I've fiber glassed the fuse and sheeted the wings with obechi. I used glass and some carbon under the obechi. I realize this is overkill, but really wanted to try it. I may have defeated the purpose of a "cheap and easy" airplane, but I learned a lot! I also used two servos in the wing for flaperons. It was a hell of a lot of work and, frankly, doesn't fly as well as the original one. It's too heavy. When the wind picks up though, it is fun. My son is building one "of his own" and I'll probably borrow that one if I kill my original. Only kidding, Brian! ■

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Classified ads are free of charge to subscribers provided the ad is personal in nature and does not refer to a business enterprise. Classified ads that refer to a business enterprise are charged \$5.00 per month and are limited to a maximum of 40 words. The deadline for receiving advertising material is the 5th day of the month. (Example: If you wish to place an ad in the March issue, it must be received by February 5th.) RCSD has neither the facilities or the staff to investigate advertising claims. However, please notify RCSD if any misrepresentation occurs.

Personal ads are run for one month and are then deleted automatically. However, if you have items that might be hard to sell, you may run the ad for two months consecutively.

For Sale - Business

GLIDER RETRACTS - high quality, 1/5, 1/4, 1/3 scale made in U.S.A. 1/4 are standard or heavy duty. Contact Bill Liscomb, 7034 Fern Place, Carlsbad, CA 92009; (619) 931-1438.

PC-Soar Version 3.5 Sailplane Performance Evaluation Program Optional Sailplane Library now expanded to 54 models including: Alcione, 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: RCSD Database and Laser cut airfoil templates. LJM Associates, 1300 Bay Ridge Rd., Appleton, WI 54915; ph: (414) 731-4848 after 5:30 pm weekdays or on weekends.

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.

WANTED: Sales Reps. Just Plane Fun Models is looking for energetic people who love flying R/C sailplanes and would like to support their hobby by becoming a sales representative for my line of sailplane kits. Be your own boss and set up your own territory. Call or write Buzz Waltz, Just Plane Fun Models, 3390 Paseo Barbara, Palm Springs, CA 92262, (619) 327-1775. Commissions paid on all sales.

FORD LONG SHAFT MOTORS, \$75. Classic glider kits, cool bands. HITEC, FUTABA, AIRTRONICS radios. #2 meter zip starts: \$24.95. Call us for your glider needs. 1-800-359-0233. Ask for Scott. 10AM - 4PM MTN time.

For Sale - Business

1.5m Osprey hand launch sailplane kit. Laser cut ribs, CAD drawn plans, flying weight 3.7 to 4.7 oz., very stable. Build it full house, flat wing with Cannon R/C to achieve 4.7 oz. w/six servos. 425 sq. in., \$3014. \$69.95 Intro. plus \$6.00 S&H. Skybench Aerotech, P.O. Box 316, Washington, MI 48094.

For Sale - Personal

Dodgson Designs Pixie, 2m, set-up for flap and aileron servos in wing, Airtronics releasable tow hook, excellent condition... \$225.00; Camano kit, 100" span, flaps and ailerons, some building done... \$150.00. Bill Maserang, (817) 838-2069, day or nite, Texas.

NIB Airtronics Sagitta, bought new late 1994, factory sealed box... \$125.00; Ace Easy Eagle... \$25.00; built Sig Samurai, never flown, two Futaba 5101 servos, radio ready... \$150.00. John Pearson, (303) 770-0797 (w), (303) 756-9234 (h), e-mail JP7120@aol.com, Colorado.

NIB kit, 3m Alcione, fiberglass fuse... \$150.00. John, (219) 436-1677, Indiana.

OLYII, 1-1/2 years old, mint shape, 4 servos... \$200.00; NIB '95 Shadow 3m w/carbon & ballast rods... \$300.00; NIB Aquila... \$150.00. If you are interested, make offer. Marc, (419) 648-2438, after 8 pm EST, Ohio.

Airtronics Infinity 1000, ch54, complete with extra 1100 mah TX battery, 10 ch PCM RX, new 700 mah RX battery, 5-94102 servos, charger, as much of the manual as Airtronics has received... \$900.00. NIB kits: Mariah 2 meter... \$100.00; Multiplex Schaumpus (3 or 3.5m)... \$375.00; Falcon 600 (Mark Allen version)... \$200.00; Falcon 880 (Mark Allen version)... \$250.00. Ready to fly: Slegers Prism RG-15, 72 oz. all up, set up for Airtronics... \$350.00; Airtronics Swift, 2m, RG-15 custom 2-piece wing... \$300.00. Shipping on all items extra. Jim Thomas, (206) 488-2524, Washington.

Classic Rowing IS-1, completely finished, rigged for Futaba, wing servos included... \$750.00; Thermoflugel DG-600, exceptional high performance, two sets of wing tips... \$750.00; highly detailed, 100% scale, Primary Glider SG-38, Futaba servos throughout... \$500.00; Viking Models Libelle, complete with retract, nose release, servos included, modified RG-15 wing section makes for fantastic flight performance... \$600.00; PT Electric Cub trainer... \$135.00. Call Mark after 5 pm PST or week-ends, (213) 257-4573, California.

Electric Hawk by Mark Allen, built by Ed Slegers, 3 JR 341 servos, Astro 05 FAI motor, Simprop "590 BEC" speed controller, 2 1000 mah batteries (1 SR & 1 Astro), Astro 112 charger, Freudenthaler folding prop, all with Astro Gold connectors, add receiver & fly, brand new, only flown 2 times... \$700.00. Will pay 1/2 of shipping. Ken (907) 248-9069, Alaska.

NIB kits, prices include shipping: F3B Spectrum by Ron Vann, RG-15, beautiful molded 117" T-tail for F3B/thermal duration... \$850.00; DLD Saturn 3.0, deluxe glass kit with wing finished, Q2.5/9 airfoil... \$550.00; Terry Luechenbach Probe, CF molded wings & stab, 129", E214, excellent quality... \$575.00; Airtronics Sagitta 900... \$125.00; Sagitta 600... \$100.00; Off the Ground Models Prodigy... \$100.00; Bob Smith Sundancer II... \$100.00. Tom Gressman (303) 979-8073 or (303) 744-3535 X3105, Colorado.

Century IV transmitter, ch 44, FM w/charger, all kinds of features, needs battery... \$120.00 + shipping; Futaba PCM w/instructions, w/receiver & charger/tachometer, 53.300 mhz, original box... \$380.00 + shipping; Futaba Conquest, ch 42 AM, 4 ch w/receiver w/charger... \$125.00 + shipping; Futaba FG series, ch 50 AM, 4 ch w/charger w/receiver... \$120.00 + shipping; Graupner Silentricks Electric w/motor, w/speed control, w/servos (2), w/motor battery... \$150.00 + shipping; 2m Duck, built by Jim Thomas, Airtronics servos, 141's in wings, 1/JT flap servo saver/rudder & elevator are fiberglassed, wings & fuselage need some work... \$250.00 + shipping. Robert R. Maldonado, (517) 851-7386, Michigan.

Model Builder magazine, complete set, Vol. 1, #1 through 1994, plus extra copy of Vol. 1, #2 & #3. Please make offer. Will sell to highest bid received by December 15, 1995. Paul Strona, (808) 373-9509, 245 Panio St., Honolulu, HI 96821.

Hand Launch at Muncie

...by Steve Cameron
Seattle, Washington

The HL contest at the '95 AMA/LSF NATS was the first NATS I have flown in. Apparently, it was the largest HL contest ever held in the U.S. Cool.

I have been flying HL for about three years now, using the Orbiter exclusively. I would like to describe the nature of my win, and the specifics of my plane, since inaccurate comments have been printed about it, and cover some general thoughts about HL.

The weather in Muncie was a shock to me, having never experienced this degree of heat and humidity before. I knew about wind chill, but a heat index? We humans are a fragile lot. Some have stated that I had an advantage in being able to rest between rounds in what was dubbed "Club Seattle" - a forty foot air-conditioned Winnebago that SASS (Seattle Area Soaring Society) member, Doug Buchanan, drove to the event. As almost everyone knows who has flown HL events, there is very little down time between flying and timing, and we had four flyers from Seattle in our group. In fact, it became quickly apparent that, for every time you went in to this "haven", you

1/3 Club Libelle (Krause), 5 meter span with servos rigged for Futaba with nose release, absolutely ready to fly... \$895.00; Twin Astir (Wik), 4 meter all glass, excellent condition, completely finished, ready to fly, slight hangar rash, has an immaculate detailed twin cockpit, competition worthy, all servos rigged for Futaba radio, nose tow release for airtowing... \$795.00; Wik Speed Astir (Roebers), all glass, NIB, 3.8 meters... \$595.00; Twin Acro III, NIB, 4 meters... \$495.00; huge towplane, 134" span, will tow the largest sailplanes, 1/3 L5 with Saks 8.4 twin and Futaba servos, mint condition... \$2500.00; Graupner Electric UHU plus Graupner direct drive speed 600 motor plus on and off switch plus two Sanyo batteries plus Aristocraft AC/DC multicharger... all for \$395.00. Robin Lehman, (212) 879-1634, New York.

Wanted

Airtronics Super Grand Espirit, Super Aquila Grand, Mark's Models Windfree, Windward, and Wanderer 99, Dodgson Maestro, Maestro Megan, Talisman, and Todi, Soarcraft Magnum 12 and Libelle, Joe Hayes, 2468 Arrowhead Cr., South Bend, IN 46628.

Usable Super-V parts and pieces. Brian Smith, (615) 393-4876, Tennessee.

Alpina wanted. Ela Nimes, (415) 459-1877, California.

had to come "back out".

I went to the NATS primarily to fly HL. On Sunday, the night before the contest, many people were out throwing and flying: I decided to gauge my launch height and hang time against what I figured must be the best HL pilots in the nation. I was very encouraged by the fact that no one else was doing any better than I was. Having flown competitively for five years now, I have come to appreciate the advantage of a positive and confident mental attitude going into a contest. This helped. Call it the 6 P's or a psyche out, or whatever, but luck usually falls to the well prepared.

In the Northwest, you must learn to fly in marginal conditions if you want to fly all year. By this, I mean weak lift. I prefer a thick, high camber section for these conditions: 1) The camber for climb rate. The faster you climb, the less distance you have to cover to get back home. 2) The thick section for handling. (In weak lift, you must fly silky smooth to stay in.) I progressively blunt the leading edge towards the tip of the wing to give excellent stall and recovery characteristics. Fortunately, I encountered a lot of weak lift that felt exactly like home to me.

In the past five months, our club has

sponsored five HL contests of almost identical format to the NATS. Thanks to Joseph Conrad, our CD, who modified the California model to emphasize thermalling, and the intense competition of our participants, I felt very familiar with the tasks.

My plane started out to be a stock Orbiter. The wing has remained stock as an aileron only wing, with contest balsa throughout. The stock fuse tail moment was too short, and the plane would not track well from downwind without lots of control input. A friend, Phil Pearson, suggested that I lengthen the tail moment by two inches, and reduce the stab span by a like amount. In a necessary attempt to lighten the fuse, it became too tender for contests. Enter Phil again who, after much persuasion, convinced me to build a pod and boom for it, which not only increased the strength 10

fold, but lightened it up, as well. Phil is a designer/builder extraordinary, and a reservoir of knowledge our whole club depends upon. I regularly lose to him in our club contests. My plane at the NATS weighed 11 3/4 oz. with two servos. Phil builds an original plane with the same 430 sq. in. wing as the Orbiter with four servos, at the same weight! My plane has aileron/rudder on one servo mechanically mixed, and elevator on the other.

I must add, at this point, that if Mike Fox had not continued to stay focused, and brought down fellow team member, Rusty Shaw, in the last round, I would have ended up first loser.

My belief is that winning HL planes are very region and pilot dependent. For me, a large number of variables came together, and I was there, ready to take advantage of them. Such is the beauty and lure of competition. ■



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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).

Sailplane Homebuilders Association
Dan Armstrong, Sec./Treas.
21100 Angel Street
Tehachapi, CA 93561 U.S.A.



A NEWSLETTER FOR
F3J ENTHUSIASTS WITH
EUROPEAN F3J LEAGUE NEWS

Thermal Talk is an unofficial publication designed to act as a forum to discuss, educate, and exchange information concerning FAI Class F3J. Subscription Rates: £5.00 UK, £8.00 Continental Europe, \$11.00 North America, £8.00 Rest of World.

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ZIKA



The Vintage Sailplane Association

Soaring from the past and into the future! The VSA is dedicated to the preservation and flying of vintage and classic sailplanes. Members include modelers, historians, collectors, soaring veterans, and enthusiasts from around the world. Vintage sailplane meets are held each year. VSA publishes the quarterly BUNGEE CORD newsletter. Sample issue: \$1.00. Membership is \$15.00 per year. For more information, write to the:

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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 twelve issues.

T.W.I.T.T., P.O. Box 20430
El Cajon, CA 92021

LSF



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.

The LSF program consists of five "Achievement Levels". These levels contain specific soaring tasks to be completed prior to advancement to the next level.

League of Silent Flight
10173 St. Joe Rd.
Fl. Wayne, IN 46835

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, Ron Swinehart, 8733 Edgehill Dr. SE, Huntsville, AL 35802; (205) 883-7831.

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

Arizona - Southern Arizona Glider Enthusiasts, Bill Melcher (contact), 14260 N. Silwind Way, Tucson, AZ 85737; (602) 325-2729. SAGE welcomes all level of flyers!

California - California Slope Racers, John Dvorak, 1063 Glen Echo Ave., San Jose, CA 95125; (408) 259-4205.

California - Desert Union of Sailplane Thermalists, Buzz Waltz, 3390 Paseo Barbara RD, Palm Springs, CA 92262; (619) 327-1775.

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

California - South Bay Soaring Society, Mike Gervais, P.O. Box 2012, Sunnyvale, CA 94087; (408) 683-4140 after 5:00 pm.

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.

Eastern Soaring League (VA, MD, DE, PA, NJ, NY, CT, RI, MA), Jack Cash (President), (301) 898-3297, e-mail BadIdeas@aol.com; Bill Miller (Sec./Treas.), (609) 989-7991, e-mail JerseyBill@aol.com; Michael Lachowski (Editor), 448 County Rt 579, Milford, NJ 08848, e-mail mikel@airage.com.

Florida - Florida Soaring Society, Ray Alonzo (President), 3903 Blue Maidencane PL, Valrico, FL 33594; (813) 654-3075 H, (813) 681-1122 W.

Georgia - North Atlanta Soaring Association, Tim Foster, (404) 978-9498 or Tom Long, (404) 449-1968 (anytime).

Hawaii - Maui Island Slope Soaring Operation, MISO, Hank Vendiola, 10-C Al St., Makawao Maui, HI 96768.

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; (708) 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 - Wichita Area Soaring Association, Pat McCleave (Contact), 11621 Nantucket, Wichita, KS 67212; (316) 721-5647.

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

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@acornbbs.com>.

Maryland - Baltimore Area Soaring Society, Russell Bennett (President), 30 Maple Ave., Baltimore, MD 21228; (410) 744-2093.

Maryland & Northern Virginia - Capital Area Soaring Association (MD, DC, & Northern VA), Steven Lorentz (Coordinator), 12504 Circle Drive, Rockville, MD 20850; (301) 845-4386.

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 Kodjak 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; (813) 833-1553, eve.

Nebraska - B.F.P.L. Slopers, Steve Loudon (contact), RR2 Box 149 E1, Lexington, NE 68850; (308) 324-3451/5139.

Nebraska - S.W.I.F.T., Christopher Knowles (contact), 12821 Jackson St., Omaha, NE 68154-2934; (402) 330-5335.

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

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

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

New York - Long Island Silent Flyers, Stillwell Nature Preserve, Syosset, NY, Joe Coppola (President), (516) 798-1479, or Taylor Fiedelstein (VP), (516) 922-1336.

Northwest Soaring Society (Oregon, Washington, Idaho, Montana, Alaska, British Columbia, Alberta), Roger Breedlove (Editor), 6680 S.W. Wisteria Pl, Beaverton, OR 97005; (503) 646-1695 (H) (503) 297-7691 (C).

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

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

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

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

Tennessee - South Central Area, Brian Smith, 317 Crestwood Dr., Tullahoma, TN 37388, (615) 393-4876, anytime.

Texas - Texas Soaring Conference (Texas, Oklahoma, New Mexico, Louisiana, Arkansas), Gordon Jones, 214 Sunflower Drive, Garland, TX 75041; (214) 271-5334.

Utah - Intermountain Silent Flyers, Bob Harman, (801) 571-6406. "Come Fly With Us!"

Virginia - Tidewater Model Soaring Society, Herk Stokely, (804) 428-8064, email: herkstok@aol.com.

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

Outside U.S.A.

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

Canada - Manitoba, Winnipeg MAAC Men Gliding Club, Bob Clare, 177 Tait Ave., Winnipeg, MB, R2V 0K4, Canada, (204) 334-0248.

Canada - Southern Ontario Glider Group, "Wings" Program, dedicated instructors, Fred Freeman, (416) 627-9090, or David Woodhouse (519) 821-4346.

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

Hong Kong - Robert Yan, 90 Robinson Road, 4th Floor, Hong Kong; (852) 25228083, FAX (852) 28450497.

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

BBS/Internet

BBS: SLOPETECH, Southern California; (714) 525-7932, 14.4 baud - 8-N-1

BBS: South Bay Soaring Society, Northern California; (408) 281-4895, 8-N-1

Internet - Email list/resource of RC soaring related folks, including US and international club contacts, vendors, kit manufacturers/distributors, software, equipment and supplies. Also a resource for aeromodelling related WEB sites on the Internet. Contact Manny Tau at taucom@kaiwan.com, or on CompuServe: 73617,1731.

Internet soaring mailing list serve linking hundreds of soaring pilots worldwide. Send a msg. containing just the word "subscribe" to soaring-request@airage.com. The "digested" version that combines all the 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 mike@airage.com.

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California Soaring Products 1010 North Citrus Covina, CA 91722 (818) 966-7215	Hobby Counter 1909 Greenville Ave. Dallas, TX 75206 (214) 823-0208
Finney's Hobbies 3455 Peachtree Industrial Blvd., Ste. 980 Duluth, GA 30136 (770) 495-8512 (770) 495-8513 fax	Hobby Town USA 8090 S. 84th St. La Vista, NE 68128 (402) 597-1888
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HiTec Hobbies 284 - B Wellsian Way Richland, WA 99352 (509) 943-9241	Tim's Bike & Hobby 2507 Broadway Everett, WA 98201 (206) 259-0912

Reference Material

"Summary of Low-Speed Airfoil Data - Volume 1", Michael Selig wind tunnel testing results. \$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 (804) 428-8064, email: herkstok@aol.com.

Still a few copies available of some issues of the printed transcripts of talks given on RC Soaring at the Previous Annual National Sailplane Symposium. Prices reduced to clear out stock. Talks were on thermal meteorology, flying techniques, hand launch, cross country, plane design, airfoil selection, vacuum bagging, plastic coverings, flying wings, etc., etc. Send SASE or call for flyer giving details. Many copies of most recent (1992) transcript left. Clubs have found them good for raffle prizes, gifts, etc. Al Scidmore, 5013 Dorsett Drive, Madison, WI 53711; (608) 271-5500.

Seminars & Workshops

Free instruction for beginners on construction & flight techniques, Friday & week-ends (Excl. contest days), Bob Fairman, 3274 Kathleen St., San Jose, CA 95124; (408) 377-2115.



FAI Legal F3B Winches

...from BS Engineering
...by Gavin Botha

BS Engineering was started by Gavin Botha and Rich Spicer. The winches were selected and used as primary winches for the 1995 World Champion United States F3B Team. Design objectives were to create a top quality FAI legal F3B winch that is maintenance free, light weight, compact for travel, and at an affordable price. The entire winch was designed to fit into a 19"x8"x8" carrying case, including turnaround. The frame and wheels can be assembled in a few minutes. The winch is fabricated from CNC machined aluminum with an anodized finish. The drum and one-way-

NEW PRODUCTS

The information in this column has been derived from manufacturers press releases or other material submitted by a manufacturer about their product. The appearance of any product in this column does not constitute an endorsement of the product by the *R/C Soaring Digest*.

Winch Specifications

Frame	Anodized Aluminum, 14"x6-1/2"x6"
Shaft	Steel
Drum	Anodized Aluminum, 1.7" or 2.5" dia. 8" long
Motor	FAI legal rebuilt Bosch starter motor. Factory new motors avail.
Resistor	Stainless Steel, adjustable for exact resistance.
Switches	On/Off Toggle and foot pedal
Cables	Heavy duty battery cables

bearing brake mechanism is recessed into the end plates, eliminating any exposed rotating hardware. The drum can be quickly removed and replaced with a small diameter drum, simply by removing two screws. This allows a second drum to be ready for high wind conditions with a complete spool of line. Drum changes can be made within a minute. The variable resistor provides a means for optimizing legal resistance and the ability to increase power for sport flying. The turn-around features a 2" phenolic pulley with anodized aluminum endplates and a 17" ground spike. Winches are completely assembled including Bosch starter motor, solenoid, switches, heavy duty battery cables, and foot pedal. Add line and launch! Winches are available in various stages of completion, and parts and turn-arounds are sold separately. 180# Advantage line is also available. BS Engineering will be expanding its F3B line to include sighting devices and an electronic course signaling system. BS Engineering, 121 Paone Dr., Boulder Creek, CA 95006; (408) 338-0662. ■

Options

Handle: 1" anodized aluminum box section that disassembles into 15" sections. Includes battery support, 7" wheels, and ground spike.
Turn-around: Anodized aluminum plates with 2" Phenolic aircraft pulley. Features a swivel attachment that automatically aligns the pulley with the winch line even when circle towing. 17" single ground spike anchors the turn around in almost any conditions.
Carrying Case: 19"x8"x8" rugged tool box construction, that carries complete Winch, Handle and Turn-around.
Complete Package: Complete Winch, Motor, Solenoid, Switches, Handle, Wheels, Turn-around, all in a Carrying Case. Add line and launch.
Line: 180 lb, 700 yard Advantage monofilament. Good stuff!
1.7" Dia High Wind Drum: Smaller diameter drum for high wind conditions. Drums are designed to be quickly interchanged to optimize wind conditions.

Prices

• Winch, motor, solenoid and switches.....	\$ 875.00
• Handle and wheels.....	\$200.00
• Turn-around.....	\$70.00
• Carrying Case.....	\$25.00
• Complete Winch Package: (all the above).....	\$1185.00
• Monofilament Line.....	\$38.00
• 1.7" Dia. High Wind Drum.....	\$175.00

NOTE: Add \$50.00 For shipping. CA residents add 8% sales tax

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Monarch Mania

...by Joe Hahn
...from DJ Aerotech

Well, we've done it! It wasn't easy, but we managed to improve an already great sailplane, the Monarch '94! How? The fuselage now incorporates carbon fiber tow reinforcements (longerons) which run the full length of the fuselage, in all four corners. At the same time, the fiberglass used in the layup has been changed. The result: a fuselage with tremendous improvement in strength, with no weight increase (and nifty racing stripes)! We call it the MONARCH '94+.

There's more!!!! Introducing... The MONARCH "C".

The Monarch '94+ fuselage is combined with a wing which incorporates a new airfoil shape designed to improve the low speed handling without affecting the high speed performance and launch height of the '94. We have increased the wing width at the tips to further enhance tip stall resistance. And speaking of tips, how about molded fiberglass tips that simply slide onto

the tip panel and get CA'ed in place! No more sanding those balsa tip blocks to a complex shape! We've also increased the wing strength by strategically placing fiberglass on the wing upper surface during the layup.

This version's performance is truly remarkable. The MONARCH "C" will climb in lift that many "high performance" ships cannot even begin to use!! Another thing that we like is that this version of the MONARCH is also the easiest version to fly!!!! Tip stalling is nearly impossible, and the handling at low speed is absolutely awesome! All this and high speed performance that allows tremendous searching ability and launch height! The Monarch '94+ is available in either pre-sheathed wing and tail, or non pre-sheathed versions. The Monarch "C" is only available pre-sheathed. Both are available direct or through select dealers. Contact us for more information at DJ Aerotech, 719 Pisk St., Piqua, Ohio 45356; Phone (513) 773-6772. ■

Schedule of Special Events

Date	Event	Location	Contact
Nov. 19	Open	San Antonio, TX	Perry Van, (210) 658-8842
Nov. 24-26	22nd Tangerine	Orlando, FL	Ed White, (407) 321-1863
Dec. 9	TPG 60° Slope Race	Torrey Pines, CA	Eric Larson, (619) 793-7640
Dec. 10	TPG Thermal Contest	Poway, CA	George Joy, (619) 748-2167
Dec. 9	Winter Soaring Festival	Cal State Dominguez Hills, CA	Buzz Walz, (619) 327-1775 Dick Long, (310) 530-0678
1996			
Jan. 13-14	2m, Unl.	Punta Gorda, FL	Ollie Wilson, (941) 627-2117
Feb. 24-25	2m, Unl.	Cape Coral, FL	John Agnew, (941) 936-7148
Mar. 23-24	2m, Unl.	Orlando, FL	Hank McDaniel, (407) 831-3688
Apr. 20-21	2m, Unl.	Orlando, FL	Hank McDaniel, (407) 831-3688
May 24-27	2m, Unl., Fun, XC	Morrison, FL	Ken Goodwin, (904) 528-3744
June 8 - 9	SWSA 2M Soarfest '96	Southern CA	Pete Olsen, (909) 597-2095
June 20 - 23	Mid-South Championships	Memphis, TN	Bob Sowder, (901) 751-7252
June 29-30	2m, Unl.	W. Palm Beach, FL	Jim McCudden, (407) 967-8909
Aug. 3-4	2m, Unl.	W. Palm Beach, FL	Jim McCudden, (407) 967-8909
Aug. 30-Sept. 2	2m, Unl., Fun, XC	Williston, FL	Ken Goodwin, (904) 528-3744
Sept. 21-22	2m, Unl.	Orlando, FL	Hank McDaniel, (407) 831-3688
Oct. 19-20	2m, Unl.	Williston, FL	Bob Wargo, (813) 938-6582

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Wing Loading = 4.25 oz/sq ft
Radio = Micro w/V-tail mix

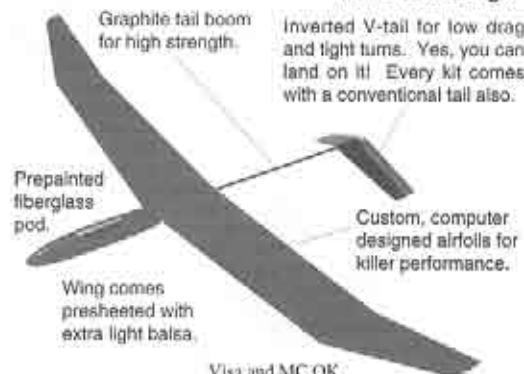
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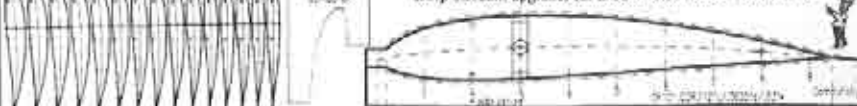
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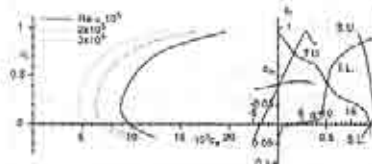
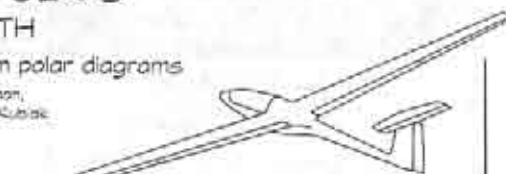
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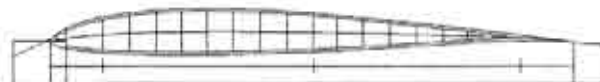
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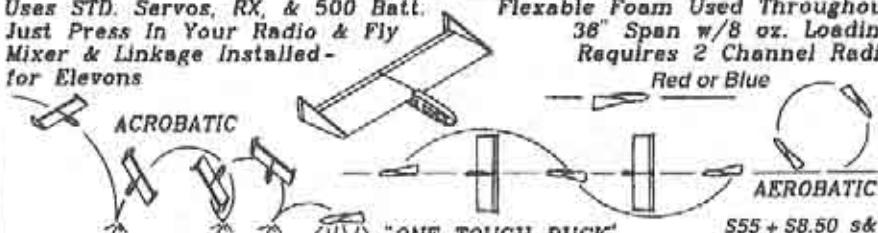
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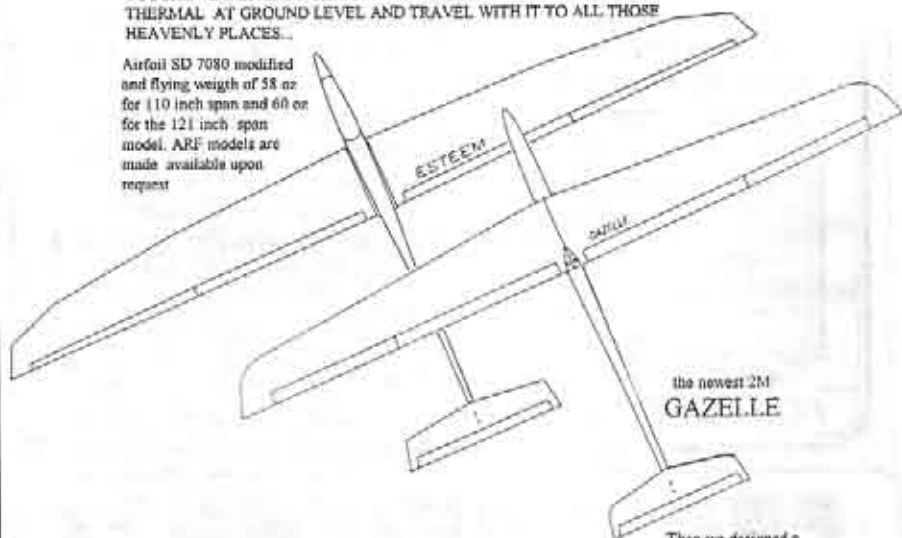
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Price: \$155.00 + \$20.00 S&H

Scale

Epoxy Fiberglass Fuselages	Price	S&H
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1/5 Scale ASW-19/20 (132"/RITZ III/4) 54" fuse, canopy, plans	\$85.00	\$10.00
1/5 Scale Nimbus (159"/Wortman/4-5) 54" fuse, canopy, plans	\$85.00	\$10.00
1/5 Scale Rhoenbussard (112.5"/Scale/4) 40" fuse, plans	\$80.00	\$10.00
1/5 Scale ASW-17 (135"/Mod. Eppler/4-5) 49" fuse, canopy, tray, dwg.	\$90.00	\$10.00
1/5 Scale Orlic (135"/E392/3-4) 49" fuse, canopy, tray, dwg.	\$80.00	\$10.00
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1/4 Scale Libelle (154"/RITZ I/3-4) 58.5" fuse, canopy, frame	\$155.00	\$20.00
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NEW!



Short Kit Contents
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Price: \$65.00 + \$10.00 S&H

Design Suggestions

Wing Span 60"
 Airfoil - Root NACA 63A010 10%
 Airfoil - Tip NACA 0008 8%
 Wing Loading Appx. 10.5 oz./sq. ft.
 Controls Aileron, Rudder,
 Elevator

Designed by David F. Woods.
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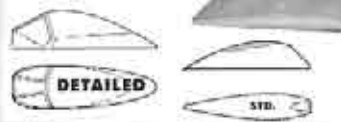
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Contestant (148"/E205/3-4/10.5" chord) 60" fuse, canopy, tray	\$80.00	\$10.00
Elf 2m (bolt-on wing mount/up to 10" chord) 44 3/8" fuse, nose cone	\$70.00	\$10.00
Factor (83"/E193/3) 41" fuse, hatch, plans	\$75.00	\$10.00
Oden (100-130"/S3021/As Req./10.25" chord) 51" fuse, canopy	\$75.00	\$10.00
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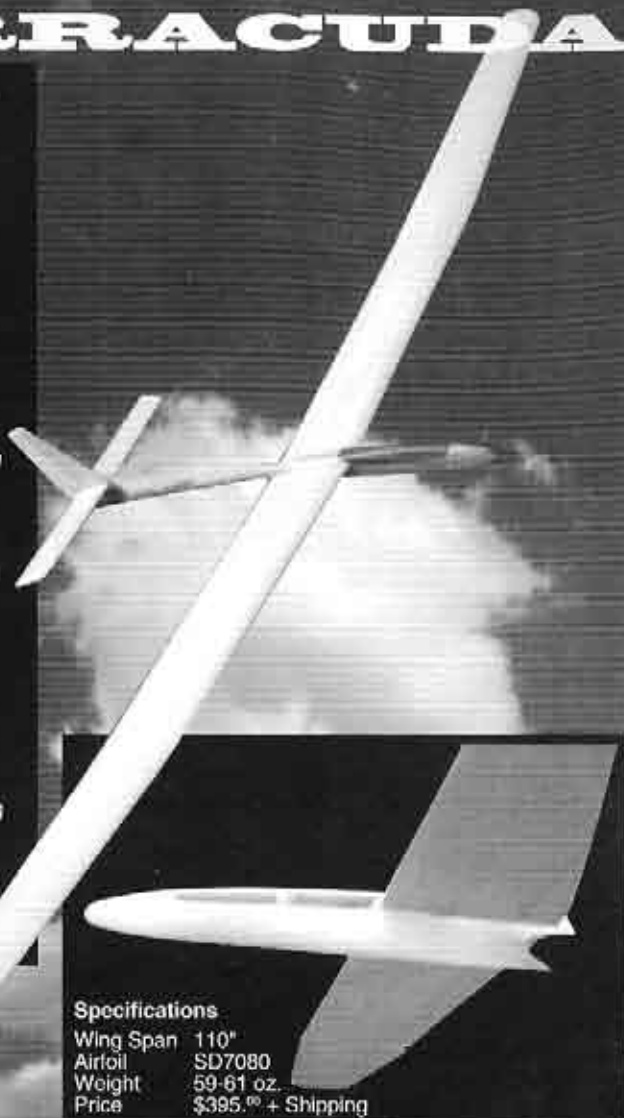
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