

### THE VINTAGE SAILPLANE ASSOCIATION

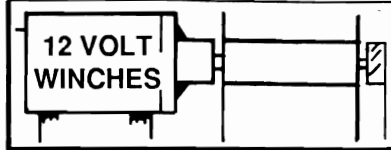
VSA is a very dedicated group of soaring enthusiasts who are keeping our gliding history and heritage alive by building, restoring and flying military and civilian gliders from the past, some more than fifty years old. Several vintage glider meets are held each year. Members include modellers, pilot veterans, aviation historians and other aviation enthusiasts from all continents of the world. VSA publishes the quarterly magazine BUNCEE CORD. Sample issue \$ 1.-. Membership \$ 10.- per year.

For more information write:

Vintage Sailplane Association  
Route 1, Box 239  
Lovettsville, VA 22080

# FLIGHT LINE SYSTEMS

P.O. Box 1502, Lewiston, Me. 04241



For information, Contact  
NSS Secretary, Treasurer  
CLIFF OLIVER  
8151 BROOKDALE  
SAN ANTONIO TX 78209

You are invited to join the  
**NATIONAL SOARING SOCIETY**

- OFFICIAL AMA SOARING - SPECIAL INTEREST GROUP
- YEARLY NSS - SOARING "TOURNAMENTS"
- NATION-WIDE - EXCELLENCE AWARDS PROGRAM
- EXCELLENT BI-MONTHLY NEWSLETTER
- NSS FULLY SUPPORTS THE FBI SOARING TEAM & LSF SOARING PROGRAM
- NSS IS INVOLVED IN THE ORGANIZATION AND OVERSEEING OF THE SOARING PORTION OF AMA EVENTS (INCLUDING AWARDS BANQUET)
- YEARLY DUES ARE \$12.00 (SPECIAL FAMILY RATES)
- NSS OFFICERS ARE FROM ALL 11 DISTRICTS

RC Soaring Digest  
P.O. Box 1079  
Payson, AZ 85547

Bulk Rate  
Postage Paid  
Permit # 17  
Payson, AZ 85547

ADDRESS CORRECTION REQUESTED  
FORWARDING POSTAGE GUARANTEED

© 1988 RC Soaring Digest printed monthly twelve issue per year. Edited and Published by James H. Gray, 210 East Chateau Circle, Payson, AZ 85541; Telephone number (602) 474-8018. Subscriptions \$17 per year in the USA, \$21 U.S. per year in Canada & Mexico; \$26 US per year via Air Mail in Europe and U.K. (\$18 US surface mail); and \$28 US per year via Air Mail in Asia, Pacific and Middle East. All rights reserved. Reproduction with permission of Publisher allowed. RC Soaring Digest, RCSD, Radio Control Soaring Digest and Soaring Digest are registered names. The right to use R/C in place of RC is reserved and registered for all above names.

Graphic Design and Production by Robert W. Rondeau Graphic Design, 73 Main Street, Brattleboro, VT 05301

Vol. 5

FUSELAGE LENGTH : 58"

WEIGHT (DRY) : 75-80 OZ

WING LOADING : 8.6 OZ / SQ.FT.

WING AREA : 1254 SQ IN

WINGSpan : 129"

AIRFOIL : SELIG 4061

AMA 16783

No. 6

Bob Sealy's  
**ULTIMA**

CONTROLS :  
AILERONS,  
FLAPS,  
STABILATOR,  
RUDDER

June 1988

**hi-tech  
thermal  
duration**

ULTIMA

# Wilshire Model Center



Bob Ratzlaff's Wilshire Model Center has a unique model for every soaring enthusiast. Strafe the slopes with JM Glascraft's 28" Pee Wee Penetrator, sail for the stratosphere with a stately European scale sailplane, or pick a great plane in between!

Sailplane Catalog \$2.50

Electric Catalog \$2.50

## USA

Mark Grand Models  
Advanced Glider Concepts  
Quality Fiberglass  
JM Glascraft  
Top Flite  
✓ Sailplanes  
Aeronautics, Inc.  
Bob Martin  
Larry Hargreaves Jaguar  
Astro Flight

## Goldberg

Sermos R/C Connectors  
Tidewater Enterprises  
Slope Master  
Dynaflite  
House of Balsa

## GERMANY

Multiplex  
Robbe Modelle  
Graupner  
Eismann

## Bauer Modelle

Rowing Modelle  
Geist  
Carrera  
M/S Modellbau  
Air Jet Modelltech  
CHK Modelle

## ENGLAND

Edmonds  
Premier Balsa Products  
Micro-Mold, Inc.

Wilshire Model Center  
2836 Santa Monica Blvd.  
Santa Monica, CA 90404

For Phone Orders or  
Product Information  
Call 213/828-9362

We accept Visa or MasterCard, \$10 minimum order.

INTERNATIONAL CLASS.....BERNARD HENWOOD\*  
\*Sheffield, England; Editor BARCS "SOARER".

I found the discussion of the various aspects of soaring competition in the Digest quite interesting. Although in this context I would hardly regard myself as qualifying for the tag of heavy weight!

One aspect of competition flying that seems to have been missed in the debate though, is the way in which rules evolve to reflect local conditions. In Britain we are seldom without some wind and our geography and climate seems to produce a great variety of thermal activity. There is usually some thermal activity on most days during the year and with the wind to mix it all up, and sink to match the thermals, duration soaring offers a continuously varying challenge. As the wind also makes band towing fairly easy on most days, there is no real need for expensive electric winches. So with comparatively short distances to be travelled to competitions; a competition format which is easy to organise and which allows the maximum number to fly with the minimum amount of organisation; totally fair percentage slot scoring; simple inexpensive equipment and straight forward aeroplanes; and an element of luck to catch out the expert and encourage the beginner, it is easy to see why duration thermal soaring competitions are well attended, and why this is the dominant form of competition in Britain.

From my contact with Dave Vorrall who is now living in Germany, I gather that thermal conditions over there are regarded as making duration soaring too easy, so that the essential element of challenge would be missing from duration competition. Hence the interest in the challenge provided by the speed and distance tasks of F3B; and the involvement with designing complex and inevitably expensive models and the winches that launching the heavily ballasted models requires.

As for F3H Cross Country, I cannot see this form of soaring competition becoming widespread in this country, simply because we do not have the open space and relatively unused roads that it requires. I think the same restriction probably applies in the rest of Europe. F3H Cross Country also requires more organisation than our thermal duration competitions, and the more people and equipment that you need to support one flier in the air, the smaller the number of competitors who can actually go to fly in the course of a day. That last comment also applies equally to F3B.

So where does that leave us? Well from what I see, hear and read it appears that F3B will linger on as the declining interest of a very small minority in Britain, America, Canada, and Australia. It may even become extinct in some of these countries. There is no doubt that F3B models represent the pinnacle of RC soarer design, but they are too expensive in terms of money, time and commitment for the class ever to appeal to the average RC soaring modeller. There is no point in telling people that they ought to give more support to the class, or that clubs ought to run more F3B competitions. We are talking about a form of recreation and people will only do what they enjoy doing! As for F3H this may become popular in some locations, but it will only do so where there is the space for it to be flown without difficulty on a regular basis.

I am certain that the form of soaring competition likely to attract most participation has got to be thermal duration, as competitions can be flown from fairly small sites with the minimum amount of equipment and organisation. However before an international thermal duration class could be established, with rules accepted by the FAI, the question of launching method would need to be resolved in a way that would enable anyone, anywhere to get their model up the line WITHOUT launching technology becoming the major factor in competition. The rules would need to be framed so that the emphasis was placed firmly on piloting skills. A duration class in which winch

technology was the key to success would simply go the same way as F3B. My own suggestion for a starting point for consideration would be the idea of a standard class. The rules can then be framed so that the models are kept economical to build and reasonably easy to launch. The technology race is limited to refinement of the model, rather than allowing ever increasing cost and complexity, and the emphasis is placed quite definitely on piloting skills.

In my opinion and at the risk of being accused of being biased, I think that the current British 100" Class rules provide a useful model. They specify a maximum of 100 inch span, a maximum of 800 square inches wing area, and control limited to three servos operating rudder, elevator and airbrakes. These rules produce a nice class of model, they are effective thermal soarers, excellent on the slope and a useful basis for a simplified standard class task event that we have been experimenting with over here for a number of years.

The idea of an international thermal duration class interests me, but getting it would depend on enough interested people making their views known.

Finally a comment on Don Mulligans article in the March issue of the Digest. If I gave the impression that I considered big is the way to go, that is not quite what I intended. Big soarers are OK if you have the space to fly them: if local conditions produce mainly large thermals and if the competition landing requirement relax the need for precision and manoeuvrability. In the UK we often fly from quite restricted sites and many thermals are quite small. Flying in these conditions to a ten minute slot time and fifteen minute fly off slots does require a model that can take advantage of every sniff of lift, and I think 12 foot span is about the optimum for OUR situation. It is also the case that in the UK it is the clean, heavier duration thermal soarers that take the lions share of the prizes and not the light weight 'gas bags'. The ability to cover ground, find lift and avoid sink being much more important than good min sink.

SELIG REPORT.....Jim Gray

Regarding the airfoil tests, Michael informed me that he will be returning to Princeton this summer to do planned wind tunnel tests. Hopefully, they will be complete by this fall.

In addition, there will be a new series of airfoils to be tested in the future, after the current series has been completed. These will include some new Selig sections and perhaps some others, as yet not defined. Again, volunteers to build test sections will be needed.

Michael will also be doing a series of short articles for RCSD, beginning - perhaps - with the July issue. Watch for them, because they will be outstanding!

ELECTRIC POWER FOR SAILPLANES.....Wes Jenkins\*

\*118 Goff Road, Corning, NY 14830

"On May 24, 1981 I strained an electric-powered sailplane downwind through a hedgerow with conclusive results. But before that happened, and it was strictly pilot error, I had enjoyed more good flying from that ship than from any other I had ever built! The beauty of it lay partly in how little effort was required to get it into the air.

"The sailplane was a modified 10-foot Cleveland Albatross built in 1945 on a door I removed from the locker in my barracks. The doped bamboo paper was still holding together in the 70's, so I built

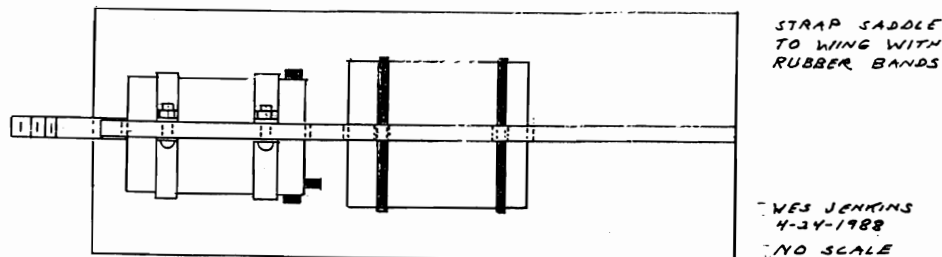
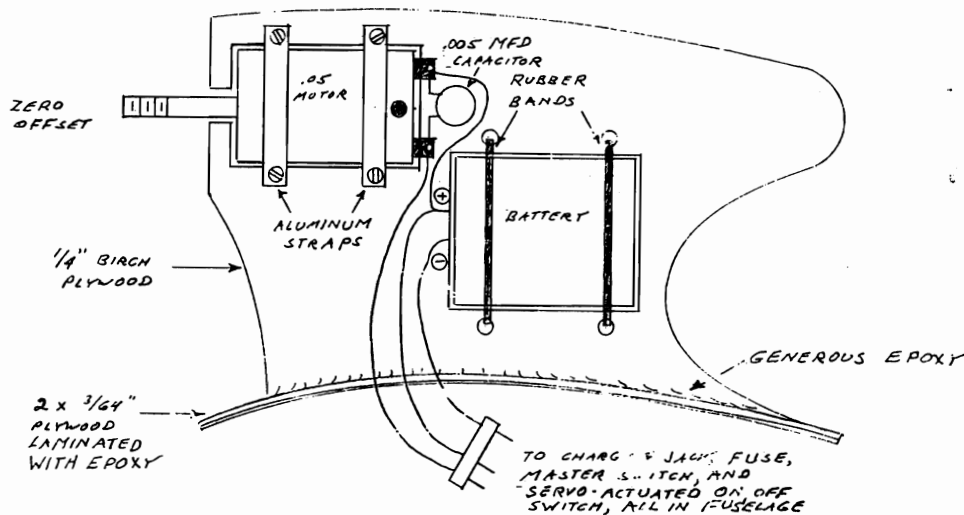
a power por (see sketch) to hold an early direct-drive Astro .05 motor and its 8-cell (800 mA., I think) battery. The simple design was easy to build, allowed full cooling of the motor and battery, didn't look too bad, and -- mounted above the wing -- protected the prop and motor shaft. The motor and 7-inch propeller looked so small that I didn't expect anything more than a power glide.

WRONG! On good days there were great flights, sometimes going higher than might have been prudent. On bad days it would simply cruise around level at about 30 feet while the battery ran down. Fifteen minutes of charging from the car battery, and it was ready to go again. No muss. No fuss.

The point is that this combination was strictly marginal, yet -- in a lazy way -- very flyable.

"A modern ferrite .05 geared to allow a larger propeller, or - better still - a geared Cobalt .05, ought to fly just about any glider up to 3 or 4 meters, provided it's lightly built. Unfortunately, I have no notes on the wing loading of the Albatross, probably because it would have been so tough to figure out the area. It had a lovely planform, something like the Minimoa.

"One day, and additional plus of electric power came to my aid. For reasons I would rather not lay down before you, the glider was lost somewhere in an area overgrown with bushes and small pine trees. After a fruitless hunt I went back for the transmitter. Returning to the suspect territory, I switched the thing on to advance the throttle lever...and somewhere there in the rough I heard the motor start. Walking to it was easy.



LETTERS FROM READERS

"Oz" O'Brien, P.O.Box 7153, Metairie, LA 70010, writes: "Perhaps you could persuade one of your readers with a technical leaning to write about the relative merits of straight vs. 'bent' wings, in layman's terms.

"Another topic I'd like to see is on the merits of different airfoils in specific applications; e.g., why (or where) is the E-205 better than the E-193 or a Selig 4061? Again, I'd like to see such an article written in language that we non-technical types could understand. Is there such an animal? Perhaps one of your readers will oblige.

"A final question if you please: The Reiher kit sold by Hobby Lobby appeals to me greatly. It's not cheap at \$217.00 and I sure would like to have the opinion of someone who either has hands-on experience building one, or someone like yourself who might have had some feedback from one of your readers."

Okay, Oz, thanks for writing. I'm sure you will get some response to your questions from our readers. Meanwhile, maybe I can help, too. Bruce Abell, 17 Ferguson Street, Cessnock 2325, NSW, Australia built a Reiher from a Krick (Hobby Lobby) kit. It turned out very, very nicely but suffered a radio "glitch" and was re-kitted after several flights. Bruce says it's a tedious building job because of all the wood pieces and parts, but results are worth the effort. It looks great and flies very nicely, too. There are several other Reiher's around, and I hope someone else will write and fill you in on details. Regarding your plea for articles about wings and airfoils, I know that your appeal will be answered, but to make sure, is there anyone out there who would like to take on the job of writing about wings and airfoils in layman's terms - answering Oz' questions?...Jim.

R.J. "Dick" Edmonds, Edmonds Model Products, Unit 20, Vernon Buildings, Westbourne Street, High Wycombe, England HP11 2PX; Tel.:0494-28214, writes: "Dear Jim: I thought your suggestion for a One-Design International Contest was quite interesting. I have felt for some time that an international event, in addition to F3B, was required. You have mentioned the one-model design, but you have not suggested any rules for the event. In my opinion, the actual contest rules are the most important thing. However, you suspected the model might look like the present F3B model, so I can only assume you have in mind an F3B-type event.

"If this is so, I am certain there will be very little interest from anyone here in Britain. For example, F3B has only a handful of devotees over here. It is thought there are no more than ten serious F3B pilots in the whole country. In 1987, there were only two (F3B) events organized: one being the trials for the World Champs (entry 8 or 9 pilots), and the other being at the Nationals (entry 9 or 10).

"To put this into perspective, some of the more popular thermal duration events have an entry of over 100, with many being turned away. As usual, of course, I may have jumped the gun, as you may not be contemplating an F3B-type event. I will be very interested to read what other reactions you get from your suggestion.

"Sincerely, (signed) R.J. Edmonds."

Dick, your remarks are appreciated and I, too, am looking forward to reader input about the subject of a One-Design Class, and an event/rules structure for the same. In fact, when I proposed the O-D Class, I did not have any particular type event, or rules, in mind.

I had just hoped that the idea would catch on and that others might propose a format.

It seems to me that a 100" span, or perhaps 3-meter span limit might be imposed, along with limits to functions/controls. With a modern airfoil, a sailplane of this type could be competitive in both thermal duration events of the type preferred both in the US and

Britain, or a modified, entry-level F3B-type contest. I am not yet suggesting the contest format, because I think it's premature without more input from interested parties. To that end, I ask anyone who may be interested in the idea of an International One-Design class to contact RCSD and give us your views.

Dick Edmonds, by the way, is well known for his ALGEBRA 2-M, 2.5-M, 3-M, and 4-M kits (see elsewhere this issue)...JHG.

ALTERNATIVE FUSELAGE CONSTRUCTION.....Peter Bateson

This article courtesy of "Verbals" club newsletter of the Soar Valley Soaring Association (England) via Tony Beckett.

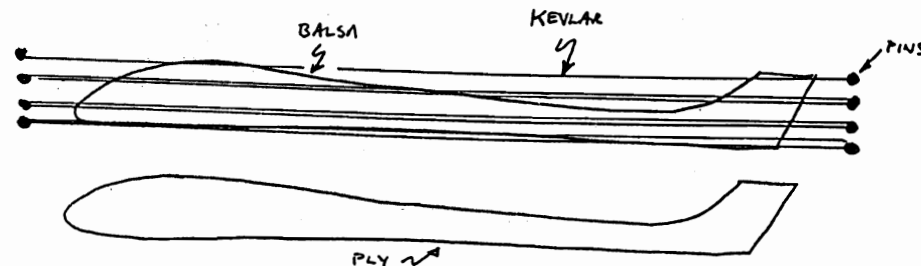
If you would like to build a fuselage with strength, but not much heavier than the average, then perhaps the way I build 'em (not the way I tell 'em) may be of interest.

After building several fuselages of balsa and ply, I had the bright idea of building a fuselage of balsa and ply but reinforced with Kevlar which is very light but very strong.

I may add that one of my fuselages was towed through an oak tree. The oak tree fell over, but my fuselage flies on.

The fuselage consists of four sides, the two outer are light balsa and the two inner of 1/32" ply. These are laminated together with Kevlar in between, using glass resin as the bonding agent.

The fuselage is simple, and is shown in the sketch below:



The two outsides are 1/8" light balsa, and the two insides are 1/32" ply.

Lay one balsa side on a board, then stretch the Kevlar over the fuselage being kept in position using pins as shown. Lightly cover with glass resin, then lay the inside ply over and clamp together. When dry, these form a light but strong fuselage.

# PRECISION FOAM CORES

## Basic sizes and Custom Panels

### Basic sizes:

Center panels	48" long by 8" cord
"	" " " 8 1/2" "
"	" " " 9" "
"	" " " 10" "

### Tip panels

tapers (2 sizes)
9" to 5" x 24"
10" to 6" x 40"

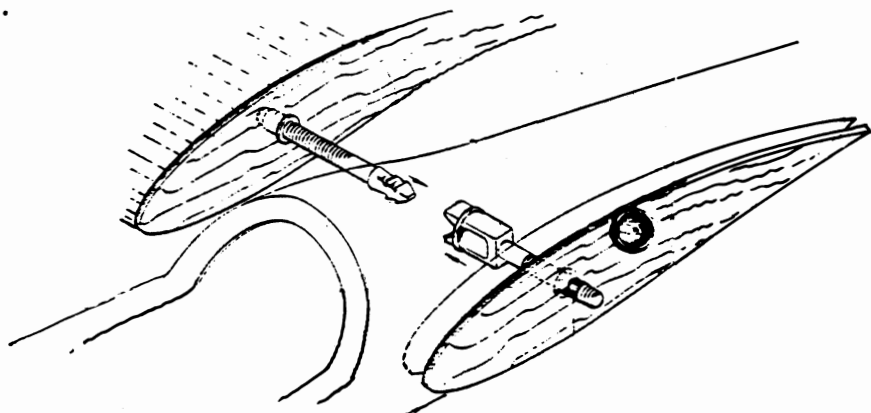
We have most Epllers in stock. Call or send SASE for more information  
850 Concord Street, Pleasanton, California 94566 Phone (415)-462-0672

While finishing up this year's sailplane I came across three products which showed promise for my application.

Hobby Lobby, a fine customer oriented model mailorder supply house distributes two of the products.

The first product is a transparent, self adhesive Hinge Tape manufactured by Graupner Corp. of Germany. They supply the tape as a 10 Meter length roll and is 19 mm wide. It applies easily for an external hinge joint that is totally non-binding with the added benefit of sealing the joint gap. I used this tape for three control surfaces, spoilers, flaps and ailerons. The spoilers were hinged with one layer of tape along the top surface. Due to potential flight loads the flaps and ailerons were hinged both on the top and bottom surface of the joint. The only apparent care you need to take is in the use of a heat gun. The heated airblast will cause curling, shrinkage, and melting even if only directed near the tape. The tape will withstand a heat-shrink iron as long as the iron is not allowed to rest too long.

The second product from Hobby Lobby is a wing joiner mechanism. As the sketch shows, one half of the unit fastens in each wing panel to join in the fuselage. Items 1 and 2, the Blade and Socket, are a plastic which appears to be Acetal or possibly a Nylon type. The Blade has three teeth which engage with the Socket. The Blade and Socket screw into threaded metal ferrules, item 4, which are adhesively fastened to the wing root. A knurled surface on the O.D. of the ferrule gives a strong grip surface for any adhesive from Aliphatic Resin to Epoxy or Cyanoacrylate. Metal retaining rings, item 3, fit around the Socket to provide pulling resistance to normal flight loads while still allowing enough flex for disengagement under impact. The retaining rings are accumulative to the engagement you desire. This unit has allowed easy field assembly. Under mild impact loads the Socket allows the Blade to slip one tooth at a time to dissipate the load so as not to allow full disengagement of the wings.



The third product is Safe.T.Poxy Manufactured by Hexcel Corp. of Chatsworth, Ca. Aircraft Spruce and Specialty Co., who distributes certificated and homebuilt aircraft supplies, handles this resin. Safe.T.Poxy was developed as a composite laminating resin which would be used by people who have developed an allergic reaction to resins. It is a good resin to use even if you do not have the problems which so many people have developed. Why go looking for problems? Safe.T.Poxy is a two-component laminating resin that offers high physical properties with low

moisture absorption and superior cloth wetting ability. I used it with Sig brand glass cloth and found it very easy to use. It mixed well with microspheres and sanded easily. Aircraft Spruce and Specialty Co. offers a 1-1/2 pt kit that contains a bottle of resin and catalyst.

I recommend that you consider these products for your next project.

\* DAVID HOUK, JR., 15091 PORTAGE ST., #32; DOYLESTOWN, OHIO 44230.

GERMAN SAILPLANES IMPORTED.....Jim Gray

AMS Imports, 1110 South Wells Avenue, Reno, Nevada 89502; Telephone: Order Only: 1-800-752-7733; Other: 1-702-786-7733.

Arnold Wratschko, owner, told RCSD today that the famous German BAUER MODELLE are now being imported by AMS Imports. In addition, other German model kits will be coming soon. AMS invites dealer inquiries as well as direct purchases from the above address.

AMS Imports plans to cover the needs of sailplane modelers from the very beginner (offering some durable and easily-assembled ARF types of sailplanes) to the advanced soaring pilot. There will be a variety of advanced soarers and scale machines to suit every need and taste, imported from famous manufacturers in Europe and elsewhere. Call Arnold with your needs and questions, but - please - orders only on the WATS line.



"R/C REPORT" Magazine, P.O. Box 1706, Huntsville, AL 35807

Monthly tabloid with R/C Sport Flier emphasis. Humor, how-to's, product test reports, prize drawings, free classified ads, more product test reports, limited advertising, reader letters, crash photos, and more. Full of fun and facts.

— Subscriptions \$10.00/\$18.00 for 12/24 issues. Sample copy \$1.50 postpaid. —

"...The flying scene: New Zealand is holding its own. The development of F3B gliders continues, and we are probably only a bout a year behind the European technical developments. There are about 5 fliers who concentrate on F3B, and the problem we have is that with such a spread-out population we can't hold a lot of F3B contest like the Europeans. The Europeans are therefore having constant intensive practice through the high number of F3B fliers in that area, which can only benefit their flying skills, as witness the 1987 World F3B Championships results.

"Developments in design that are being followed and copied in New Zealand and are the use in F3B of RG airfoils (Rolf Girsberger RG-12 and RG-15) which I predict will become more popular due to their performance on a couple of the local F3B gliders. Also, the appeal lies in the fact that these are essentially 'no flap' airfoils, making the wing simpler to build.

"The 'Schuman' wing planform concept has finally arrived in New Zealand and we are featuring it in our April 1988 issue of the NZSS newsletter. It will be interesting to see if it becomes a 'fashion' feature, or stays around for a couple of years.

"On the thermal side of things, we are developing a class called 'Premier Duration' which is modelled on the U.K. 'slot' contests: 8-minute max, plus landing points, but flown in a man-on-man matrix. This will probably replace our 'Thermal A' contests (6-minute max, plus landing points, but flown in 1-hour rounds and NOT man-on-man). Premier Duration is popular with the pilots but it requires more effort to organize.

"I think, like most countries, we are having difficulty attracting the 'youngster' into gliding. The main attraction for them, of course, are the R/C off-road cars -- more spills and excitement! They haven't got to the point in life where the inherent beauty and peace of a thermal soarer drifting up through the dusk and catching the last rays of daylight is one of life's pleasures. However, there is some hope; all those kids will have 2-channel sets that can go into a glider when they get tired of 'off road.'

"One of our New Zealand fliers has started running a 'night school' class based on teaching the enrollees how to build a 2-meter glider. This is held one night a week at a local college, and is an excellent way to get new people into the hobby.

"John Shaw, one of our top F3B fliers has been doing a lot of work with exotic materials such as Kevlar and composites. You may have heard of the New Zealand yacht 'KZ7' that was beaten by Stars & Stripes in the America's Cup races. KZ7 was a 'composite' in construction, and a lot of the technology developed in NZ has been spinning off into non-yachting areas, including R/C gliding. John has received a lot of technical help from engineers and consultants associated with KZ7, and one very interesting development is a material called "DIVINICELL" for wing sheeting. It comes in 2-millimeter thick sheets, and is a stiffish open cell synthetic of some sort that lends itself to wing sheeting and the use of fiberglass resins, etc. Besides having better properties than 1/16" balsa, it is cheaper!!! A BIG plus for us. John is also working with Kevlar and has developed wing shear webbing using fiberglass composites.

"I understand the next F3B World Championships will be held in Virginia. We will watch the development of the USA Team with interest. They appeared to be more cohesive in Germany.

"I still fly my GEMINI which now has a new fiberglass fuselage and an all-up weight of 65 ounces...but it's still good to fly and very forgiving. I might put an RG15 dihedral/aileron wing on it to make it more competitive in F3B.

" Must shoot off to work, now. Regards, (signed) Glen Spackman."

Editor's comments: Yes, indeed, we watched America's Cup racing, and surely did see KIWI - KZ7 doing her thing out there against all comers. She's a beauty, and will need careful watching. "Off road" cars are the big thing here, too, but "car" frequencies in the US can not be used for "air" purposes, unlike N.Z. I like the night school idea, and wonder why it isn't being done here through our own programs. Sounds great to me! As soon as you get more info on that new sheeting material, I'd like to report on it in RCSD. It looks as if the discus wing is here to stay, as it does have a slight performance edge over the other planforms. Thanks for keeping us informed, Glen; it's good to hear from you. \*Address: 22 Lynda Avenue, Wellington 4, New Zealand.

"Here are a few tips about painting and finishing the wings. Last time we did the fuselage...so I guess it's time to talk about the rest of the plane.

#### "Silk" & Dope Finishes:

"When I silk and dope a ship, there is a slightly different method I use to accomplish that smooth-as-silk feel and appearance...a GLASS silk finish! I use fibergalss cloth, not silk, of '58 ounce weight from Balsa USA, or Dan Parsons glass cloth. The wood is prepared with coats of clear nitrate dope... NOT butyrate dope. As you know, butyrate ends up being heavier than nitrate when finished, and epoxy sticks better to nitrate, too.

"The wood is first prepared with coats of clear nitrate dope and then sanded with 320, 400 and 600-grit paper, used DRY. This is a progressive process, and finally use a lot of 600 for a very smooth surface. Now, brush 50% thinned dope into the smooth surface for 2 or 3 coats, depending how heavy the grain is, and dry for a couple of hours. Do NOT sand between these coats. Now brush a 70% thinned dope on the surface, using 2 coats, and allow to dry overnight. Lightly sand with 400 dry. Now, mix 70% to 75% thinned dope with Johnson & Johnson baby powder - lots of powder, as this is a filler coat - and brush on a good heavy thick coat. Allow to dry four hours in sunlight. Sand lightly with 400 dry, dust off the powder and check for grain. If another coat is needed, thin dope 80% to 90% and mix with powder, brushing on another coat. Dry overnight and then sand smooth with 400 dry and final-smooth with 600 dry. Apply cloth with water and small sponge, stretching cloth along the wing. Seal the edges with 50% thinned dope, rubbing with finger to insure a good bond to the wood. If edge won't stick, use thinner only and rub with finger, and it should stay down.

"After the wing is skinned with the cloth let water evaporate for a few hours and the cloth will shrink taut. Now, start to paint the weave, with however many coats are necessary. Start with two coats of 50% thinned nitrate dope. Allow to dry for an hour or two between coats. Brush flowing coats, one stroke at a time, with NO repeat brushing over the same area and NO sanding. Next, brush one coat of 70% thinned dope with flowing strokes. One coat is all that should be necessary, but use a 2nd coat if absolutely needed. Dry overnight. When surface is dry, lightly dry-sand with 400 grit just to start the smoothing process. Smooth the seams carefully, don't rub too hard. After this, allow to dry for a couple of days or even a week, hanging the part in sunlight as much as possible. The longer the part is allowed to dry, the lighter it will be due to evaporation of the solvents. Finally, when completely dry, sand with 600 dry to a glass-smooth finish, wipe, and spray on a coat of primer...no need to fog. Clean off primer powder and spray again with a good covering coat to prepare surface for a good color coat. When dry, sand with 600 wet, using a light touch. The object is to obtain a very slick and smooth primer coat that is slippery to the touch. Now, wash, rinse and dry the part and spray the color paint. Mask as necessary if you use a multi-color scheme. When dry, sand with 600 wet as mentioned in first article. I don't use a rubbing compound. Once the epoxy paint is down, all drying of dope underneath ceases, so be sure to allow dope to dry thoroughly. A couple of weeks is not too much.

"It's funny, but the longer the dope is allowed to dry, the lighter the part feels in the hand. I have let a part dry for three weeks in the sunlight and it felt lighter than it did before I started to "silk" and dope it!

"Some of the Pattern and Pylon guys have given up Imron and are using Rustoleum and its primer. I DO ALL PAINTING IN WIDE-OPEN OUTSIDE AIR...NEVER IN THE SHOP. I use Randolph nitrate dope and thinner. If you can't find the Randolph, use Fuller. Randolph is carried by almost all airport shops and air parts supply stores near airports. Look in yellow pages under Aircraft Parts and Supplies. Aircraft Spruce and Specialty Company of Fullerton, California has a lot of good supplies for modelers, too. Call (714) 870-7551. They have fair prices.

"Incidentally, I use anti-blush plasticizer in the dope...non-tautening grade; it does shrink a bit, which I like. Plain nitrate really shrinks! If you've ever recovered a full-size aircraft and used nitrate dope, you know all about scalloped trailing edges! Modelers go to great effort to "cup" the T.E. between ribs so it looks 'scale' but Mother Nature does it naturally.

"Finally, after all is finished and dry, I use a T-shirt or old bedsheet and apply wax for that beautiful deep shine and glass-like finish we talked about before...making for a lovely-looking bird."

PROVOKER.....Eric Morrey

The following information was provided by Tony Beckett, one of RCSD's correspondents from England. Tony says that PROVOKER represents one extreme of Open Class model, and features geodetic wing and fuselage construction. He thought the details of this 154" sailplane would be of interest to American modelers. The article appeared in "Verbals", newsletter of the Soar Valley Soaring Association.

**CENTER SECTIONS:** Fully sheeted panels with aluminum alloy tubular spars. Each panel has 42 ribs; ply at the root, and remainder balsa. Each spar is webbed both sides with 1/4" sheet at the roots, reducing to 1/16" sheet at the tip break. The wing is constructed on the bottom skin, and the top skin is attached using SP113 epoxy (see Fig. 1).

**TIP PANELS:** Partly sheeted, with one half span alloy spar. Ribs are in a geodetic form with 2" squares between the cross overs, all ribs being 1/16" balsa. The alloy spar is fully webbed on both sides, and webbing is also used from where the alloy tube stops. (See Fig. 2).

**TAIL FEATHERS:** Shown below, and also in "Verbals", June 1987, Radio Modeller, October 1987, and RC Soaring Digest. The fin and rudder are removable, being made to plug in using two 3/16" diameter hardwood dowels.

**FUSELAGE:** Constructed from 1/8" plywood with two pieces of 3/8" x 1/2" spruce in the tail boom, stiffened by laying carbon fiber tows along the boom. (See Fig. 3).

**WING JOINERS:** The tips are joined to the center sections with 1/4" diameter piano wire, sleeved using alloy to fit inside the wing spars. The Center Sections joined via the fuselage with one 7/16" silver steel joiner and three #6 SWG joiners.

**CONTROLS:** The all-moving tailplane is driven by a Bowden cable. The rudder is closed loop, and the air brakes are driven by their own servos located under the blades.

TAPERED GEODETIC WING RIBS.....Eric Morrey

This is a companion article to Eric's PROVOKER Open Class Sailplane, and it describes his method of constructing the geodetic wing.

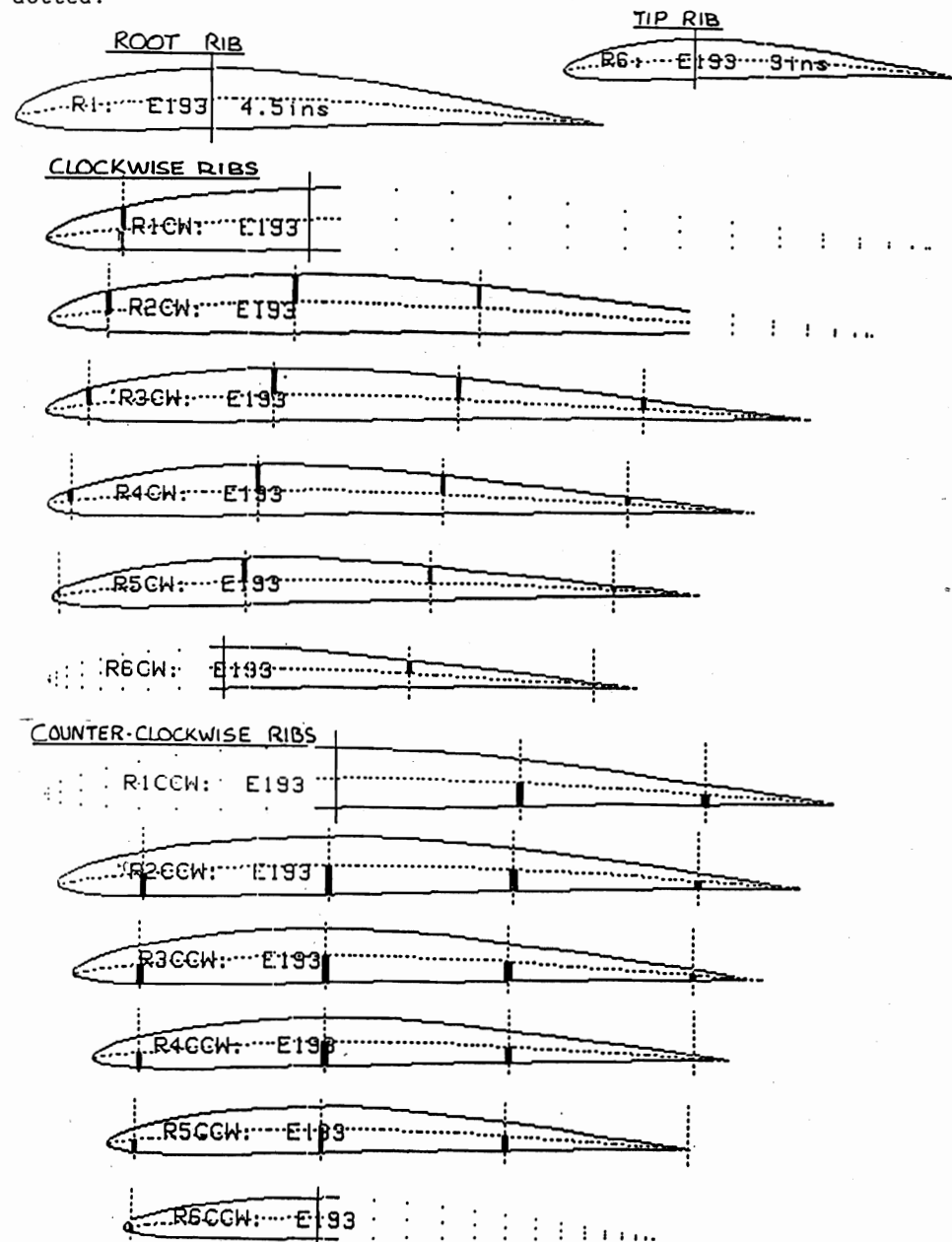
"I am a firm believer in that to get a rudder/ elevator model to handle satisfactorily, the lighter the outer wing panels, the better. When designing my Open Class "PROVOKER" I wanted a very strong, large (12" chord, 150" span) model. To get a model of this size to turn reasonably tightly, light wing outer panels are required.

This posed the problem of how to make very strong but lightweight outer wing panels. Geodetic construction seemed to be the best method, but the only problem was how to make a tapered geodetic wing.

"The problem with these wings is that every rib is different, and that NO rib is a true wing section. To work out the ribs would be a very difficult and time-consuming job, if it wasn't for the ever-useful computer. My father, Denis Morrey, has written a program to plot wing sections on his Hewlett-Packard computer. I gave him the problem, and this is what he came up with. (See example in Fig. 1).

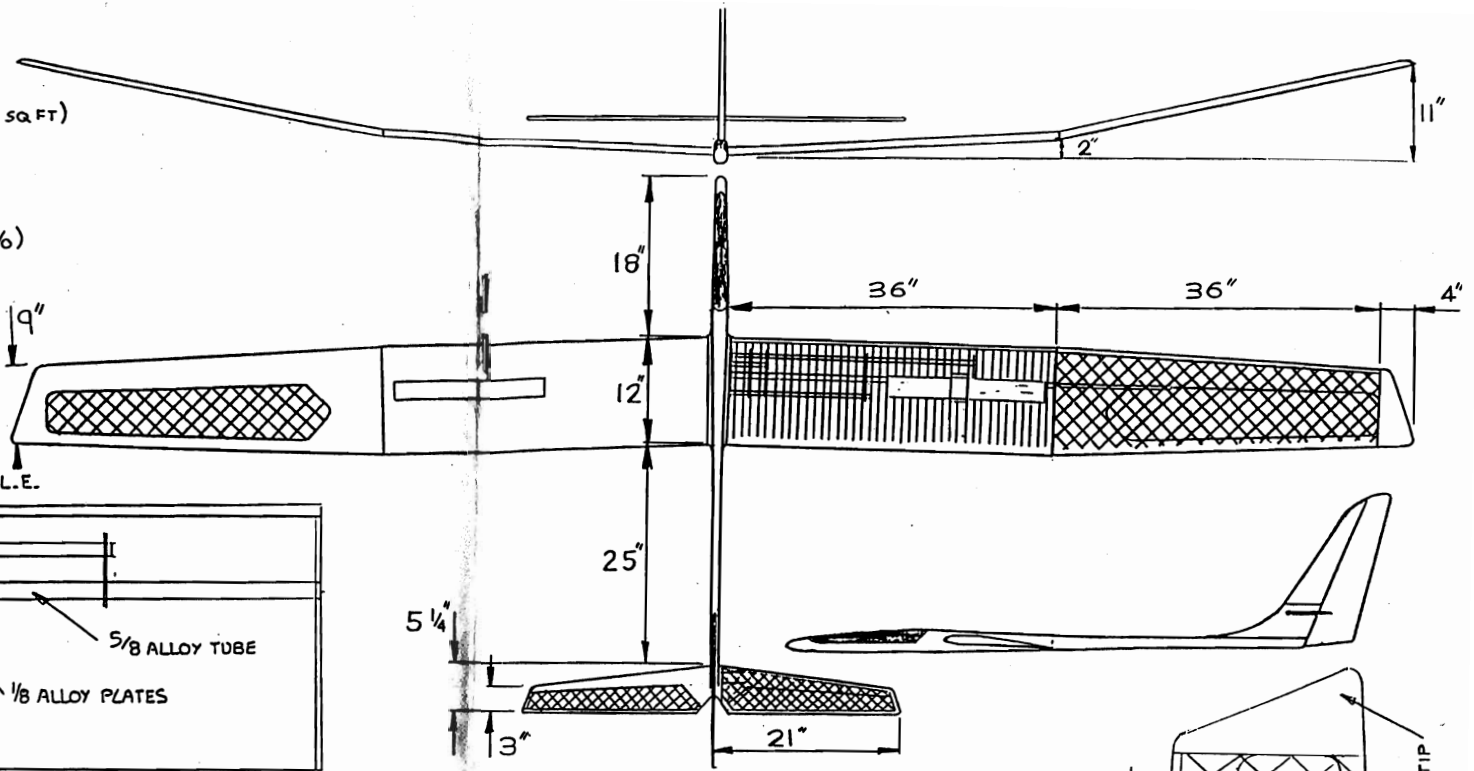
Required parameters are: wing section; wing span; root chord; tip chord; and leading edge sweepback. In addition, the computer needs to know where the principal intersection will be (the point on the root and tip ribs where the ribs cross; and the number of principal intersections (the number of rib crosses on the principal axis).

"The computer then digests this information and produces the root and tip sections drawn in full. The counter-clockwise ribs denoted R?CCW are drawn with R1CCW being the counter-clockwise rib at the principal intersection. As the nose of this rib from the PI forwards is not required, the computer draws a solid intersection line and draws the rest of the rib in dots. The intersections with the other ribs are shown with a vertical dotted line. A dotted line is also used to show the half rib thickness. The rest of the ribs are plotted, again with the areas of the ribs not required being shown dotted.

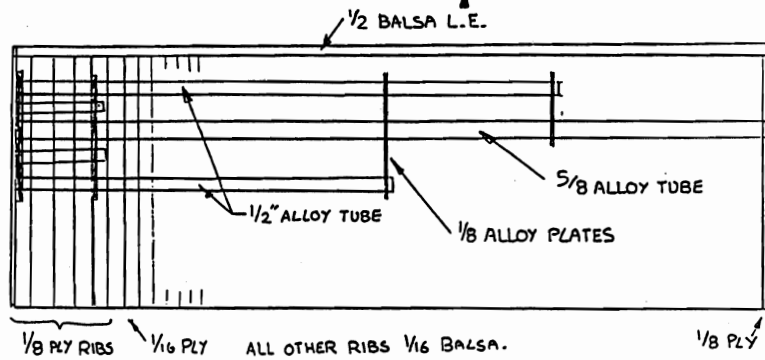


# PROVOKER E MORREY

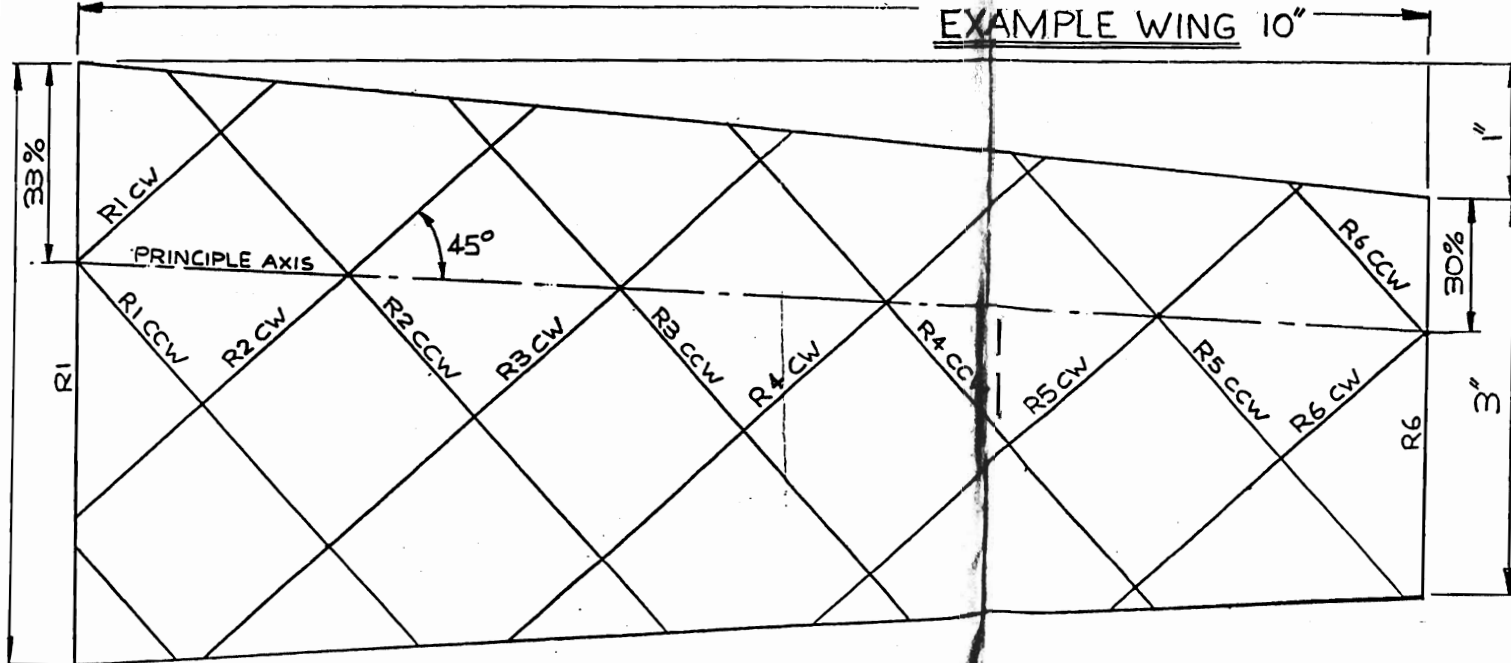
WING SPAN = 154"  
 WING AREA = 1656 sq ins (11.5 sq ft)  
 WEIGHT = 112 ozs (7lb)  
 WING LOADING = 9.7 ozs/ft<sup>2</sup>  
 TAIL PLANE AREA = 165 sq ins (10%)  
 WING SECTION = 1/4 E193



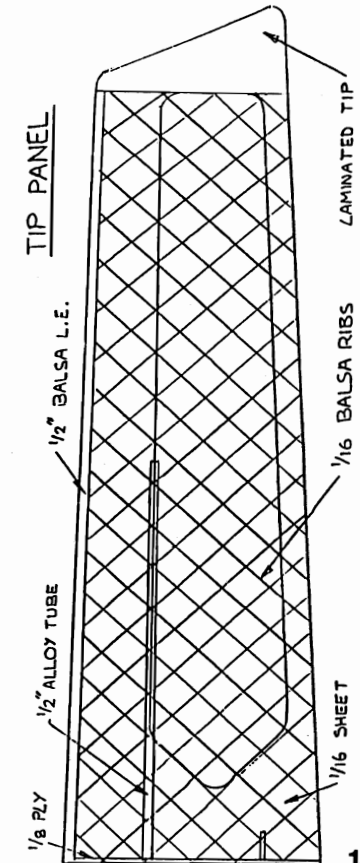
CENTRE SECTION



EXAMPLE WING 10"



TIP PANEL





"When constructing the wing where the ribs cross, if a slot whose width corresponds to the thickness of the sheet used for the ribs is cut up to half thickness at the intersections, from the bottoms on counter-clockwise ribs, and from the tops on clockwise ribs, the ribs can then slot together.

If a large wing is being made, a different technique can be used. If the two ribs R1CW and R6CW are plotted in full, intermediate ribs can be made by the sandwich method. The same goes for the CCW ribs. The program will also plot the part ribs required in the corners.

The program can work out the basic sections, and also modify the basic sections. For example, any section thickness can be specified for the root and the tip. Combinations for root and tip can also be specified, such as E193 at the root and Clark Y at the tip. A leading edge or a trailing edge can be removed, and full or part-chord sheeting thickness can be removed.

The use of a computer to produce these profiles has made production of ribs easier, and has virtually made the impossible possible. I carried out the easy part, building the wing, but all the credit must go to my father for designing the program to do it.

If anybody is thinking of trying this method of construction, give us a call on Leicester 715568 with the basic parameters, and we will be glad to help you out."

Editor's note: This method is not for everyone, particularly for those who do not have the computer program referred to above. However, geodetic construction is strong and light, and worked very well on a couple of WWII bombers, as well as on a couple of homebuilt light aircraft. Perhaps an RCSD reader can come up with a program for us to do the same job. Otherwise, a potential builder might be well advised to call that telephone in Leicester, England. Good luck!

### "TELOS" SLOPE GLIDER



Introductory  
Special  
**\$129.95**

### FUTURE FLIGHT Klingberg FLYING WING



LIST \$49.95  
**\$39.95**

### COMBAT MODELS

### F-16 SLOPE SOARER



**\$45.95**

### THERMAL

Paraphase HLG	\$29.95
Gemini MTS	\$69.95
Paragon	\$59.95
Pantera LJMP	\$119.95
Ariel HLG	\$29.95
Prophet 2m	\$47.99
Prophet 941	\$79.95

### SLOPE

Slope Master	\$44.95
Ridge Rat	\$33.95
Pee Wee Penetrator	\$52.50
Penetrator DLX	\$76.50
Cheetah	\$42.95

Kits plus \$3.50 shipping  
CA Res add 6.5% Tax

FREE TRANSMITTER BAG WITH  
EACH KIT PURCHASED THRU 6-88

COMPLETE CATALOG \$3.00

• THERMAL • SLOPE • SCALE • ELECTRIC •

AMERICAN SAILPLANE DESIGNS  
2626 Coronado Ave. # 89  
San Diego, Calif. 92154

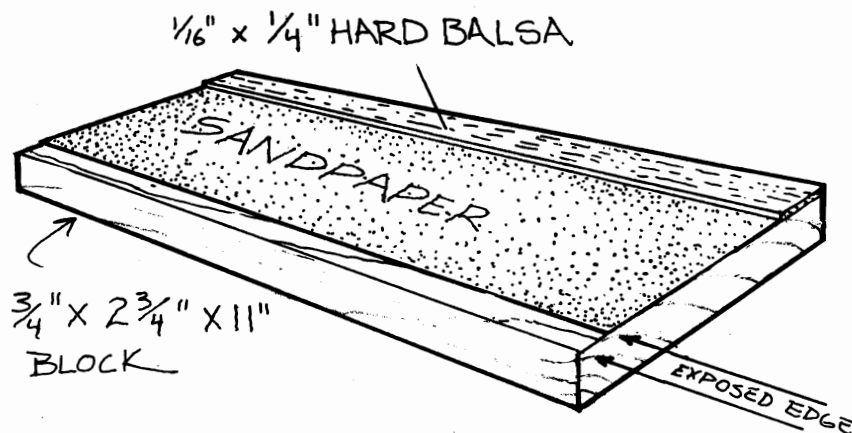
### RAZOR'S EDGE .....Asher Carmichael\*

By the time you read this, I will have finished and flown my first Windsong. How can anyone resist the beauty of this sailplane and its contest record? I trust it will fly and handle as well as its reputation suggests.

After 10 weeks of work, thought, worrying and questions asked of Bob Dodgson and others, I have completed a great-looking airplane. It wasn't really very difficult to build, but this bird is definitely NOT a beginner's model. It requires determination on the part of the initiated to complete a flawless model.

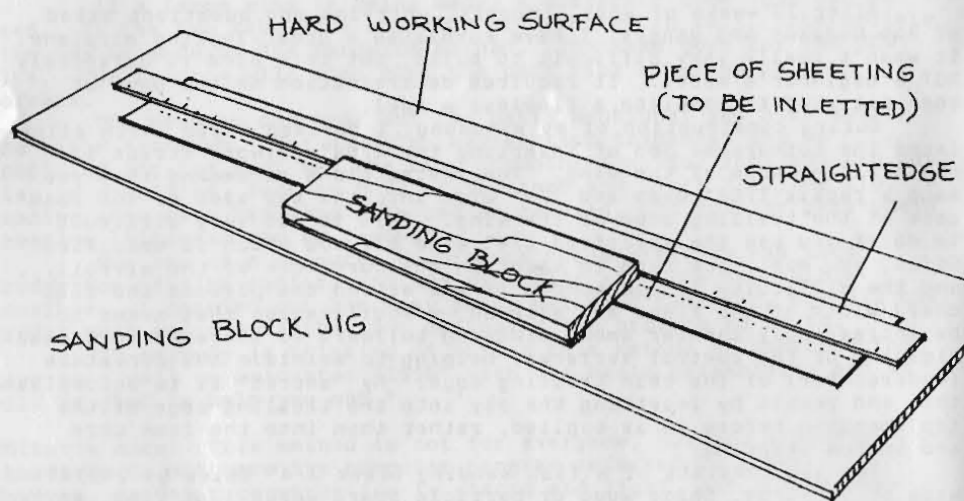
During construction of my Windsong, I devised a jig which alleviated the bothersome job of inserting the 1/64" plywood strips in the trailing edge of the wing. The instructions recommend that you sand a recess 1/64" deep and 3/4" wide into the top side of the foam core at the trailing edge of the wing. This is not very difficult to do if you use the specified 3/4" wide plywood which is specified. Still, you must take care to maintain the curvature of the airfoil... and the difficulty is compounded if you extend the plywood the full chord width of the flaps and aileron, a modification that seems to be increasingly popular among Windsong builders to increase torsional rigidity of the control surfaces, helping to maintain the curvature (undercamber) of the thin trailing edge. My "secret" is to accomplish this end result by insetting the ply into the trailing edge of the top sheeting before it is applied, rather than into the foam core and bottom sheeting.

The jig consists of a flat sanding block 3/4" thick by 2-3/4" wide by 11" long. Solid wood or particle board works just fine. An edging strip of hard balsa 1/16" thick by 1/4" or 3/8" wide is attached along one edge of the block (see sketch). You can also use plywood for this edging strip if you prefer...and it may last longer. Two layers of 100-grit sticky-back sandpaper are laminated onto the surface of the sanding block so that about 1/4" or 3/8" of sanding block opposite the edging strip is left exposed; that is, not covered by your sandpaper. If you can't find sticky backed sandpaper, just use glue, rubber cement or spray adhesive to adhere regular sandpaper to the edging block. Two layers seem to work just right for the 1/64" deep inlet into the sheeting. If you plan to use a thinner material like .007" thick carbon fiber instead of the plywood for your trailing edge, then only one layer of sandpaper need be attached to the jig.

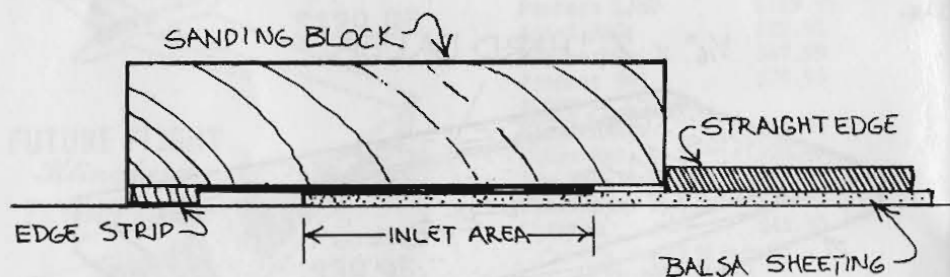


Using the jig is simplicity personified. You'll need a good straightedge that is as long as the piece of sheeting to be insetted, some 3M 77 spray adhesive, a flat hard work surface (glass or formica) and some "elbow grease". Mist the work surface with spray adhesive and wait a few minutes... then lay the sheet with sandpaper on the tacky surface, bottom-side up. Mark the root and tip ends of

the sheeting for the width of the inlet, and don't forget to allow for the exposed edge of the sanding block when laying out the marks (see illustration). Lightly mist the back side of your straightedge and lay it down along the marks on the sheeting. You are now ready to attack the sheeting with the sanding block.



As the illustration shows, the raw edge of the sanding block rides along the straightedge as you sand back and forth, and bottoms-out on the sheeting when the correct depth is achieved. The edging strip rides on the work surface and maintains the necessary depth on the outboard side. As you sand, remove the dust that accumulates around and under the jig. When you stop making dust, you'll know that the jig has bottomed out and that the inlet is complete. Try to avoid excessive pressure downward on the block as you sand, or you may compress the balsa sheeting along the straightedge and thereby cut deeper than you desired.



Yes, it will take a little time to do the whole length of the trailing edge (about 10 minutes) but the results are well worth the time and effort. You should wind up with a perfectly flat inlet ready to receive the ply (or carbon). The jig also works equally well for inletting the ply along the roots of the stabilator...or just about anywhere that you wish to add reinforcing material.

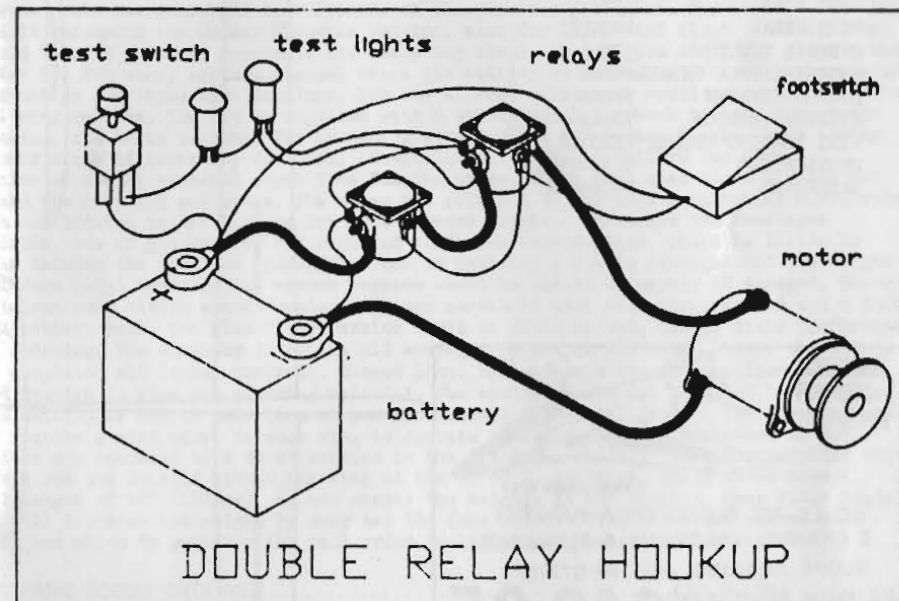
Believe me, you'll love it!

.....

\* 106 Pineview Court, Daphne, Alabama 36526

#### Winch Notes : from The Spoiler, Journal of the Pikes Peak Soaring Society

This safety item was used on the club winches to help avoid the hazards of stuck relays by Barry Welsh, club Secy-Treasurer. Barry explains: "In May a relay stuck and did impressive things to my Oly II. At that time I installed the double relays and test lights. During a contest in October a relay stuck again, but this time the only indication of a failure was a bright test light!" Before launching the test button must be pressed to check for a stuck relay. Both lights should come on - if only one light comes on do not launch until the problem is corrected. Test lights can be Radio Shack #272-332 12v lamps. The test switch is a momentary push button such as Radio Shack #275-619. Use 20 gauge wire for wiring the lights and relay control and battery cable or a metal bus bar between relays. Parts cost \$14.00.



#### THE ZEN - A generic fuselage (F3B/Thermal or Slope) for the Scratch Builder from VIKING MODELS USA



SEMI-KIT: Epoxy Glass Fuselage (51") & Fiberglass Hatch  
PRICE: \$50.00 & \$7.50 S&H, Calif. Res. add 6.5% sales tax

P.S.: Send for new catalog

2026 Spring Lake Dr., Martinez, Ca. 94553

(415)689-0766

# ALGEBRA 4M

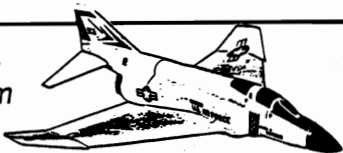
\*Unit 20, Vernon Buildings, Westbourne St., High Wycombe, Bucks, England

CONTROLS - RUDDER, ELEVATOR AIRBRAKE  
OR

RUDDER, ELEVATOR, AILERON, AIRBRAKE  
RUDDER BY CLOSED LOOP SYSTEM  
ELEVATOR BY PUSH ROD  
AILERON MINI SERVO IN EACH WING  
AIRBRAKE SERVO IN FUSELAGE  
WING SECTION SELIG 3021 OR EPPLER 392  
ASPECT RATIO 20.3 to 1

WING SPAN 151"  
WING AREA 1094"²  
OVERALL LENGTH 53"  
WEIGHT APPROX UNBALLASTED  
RUDDER VERSION 74ozs  
AILERON VERSION 78ozs  
WING LOADING RUDDER VERSION  
UNBALLASTED 9.5ozft²  
BALLASTED 14.0ozft²

MINI  
JETS  
Phantom

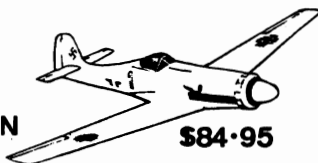


( EDWARD HENGLER'S KITS )

SCALE JET FLYING ON A BUDGET!  
2 CHANNEL (AILERONS & ELEVATOR)  
SLOPE SOARING AND HI-START  
32 INCH WINGSPAN **\$69.95**

PLUS U.P.S. SHIPPING

ALSO  
TA 152  
52" SPAN



**\$84.95**

same construction  
as Phantom

SCALE JET PLANS ONLY.

KITS  
**\$2.80**  
SHIPPING

SR-71 BLACKBIRD	36" SPAN	\$16.00
HAWK 200	47½" SPAN	\$16.00
TORNADO F.2	52" SPAN	\$16.00
HARRIER GR.3	48½" SPAN	\$14.00
F.2. LIGHTNING F.3	37½" SPAN	\$12.00

OTHERS TO COME. ALL POST FREE.

Eric Clutton, 913 Cedar Lane,  
Tullahoma, Tenn. 37388

18

## Algebra 4M ... Dick Edmonds Model Supplies \*

This model is a direct descendant of the popular ALGEBRA range, starting from the 2M 2.5M and 3M. When we were designing the 4M we were a little concerned about its performance, would it be significantly better than the 3M. For those of you who have had and flown the 3M know it is a very competitive machine and difficult to beat at Thermal soaring events, not only that, its ease of handling on and off the tow line is impressive. We need not have worried, three proto-types were flown and tested against the 3M and we are very pleased to say it outperformed the 3M in every way. The sink rate is lower, glide angle better and it penetrates strong winds with less ballasting whilst retaining the good handling qualities of the 3M. The wing section chosen for the 4M is the Selig 3021 (this section has proved very popular with the owners of the Algebra 2.5M) its outstanding feature is its ability to penetrate strong winds without recourse to excessive ballasting. This of course does not mean the 4M will only fly fast or be competitive in winds, on the contrary due to its light wing loading it can be trimmed right back for minimum sink without exhibiting any nasty tendencies and float on and on. However we will be offering as an alternative wing section the Eppler 392 as used on the 3M. For those who request it, the E392 would possibly have the edge over the S3021 on those rare wind less days when there is little or no lift about. There will be two versions of the 4M, one for Rudder Elevator control, the other Rudder Elevator and Ailerons. Both versions will have details on the plan for airbrakes. For thermal duration we would recommend the Rudder Elevator version, also for light wind slope soaring. The aileron version we would recommend for every day slope soaring, its ideal for slope cross country and for windy weather thermal where its ability to manoeuvre with the ailerons is an advantage for those spot landings. For the aileron version we would only recommend the S3021 wing section. The kit is supplied with a strong metal tow hook to take the strain of towing, the 4M is suitable for launching with a 3/8th EMP Laytex Bungee, hand towing or power winch if correctly operated. Construction of the 4M follows our normal practise of obechi veneered styro foam for the wings, which have spar slots already cut to take the main and sub spars. The wings are retained by two very substantial steel rods which are located in metal tubes let into plywood blocks. There are two fuselages available, one of glassfibre, the other of w.b./balsa construction. There is little to choose between the two, the glassfibre one is probably a little stronger and its weight about 20zs (60g) heavier, the wooden version would be easier to repair if damaged. There is sufficient room within either fuselage for any normal RC unit with three servos and a 500mah nicad battery pack. The glassfibre version comes in White or Red, please state preference when ordering. The elevator is of the all moving type and is all balsa sheet, the kit is very complete, all links, pushrod, closed loop, ballast tube etc are supplied, all you would require is glue and covering material. The airbrakes are not supplied but the plan gives details of how to make them or you can install commercial types. The aileron version will require a mini servo in each wing to operate the ailerons. The airbrakes on both versions are operated by a servo mounted in the fuselage. Ballast tubes are supplied with the kit and are located within the wing at the C. of G. position, these tubes have a total length of 48" (1220mm). We can supply the weights in 24" lengths, when fully loaded this will increase the weight by over two lbs (one kilo). The kit comes packed in a strong box which is suitable for mail order including most overseas countries.

RC SOARING DIGEST DATA BASE.....Lee Murray

The RCSD data base, References and Sources, that has appeared in RCSD from time to time is now available FREF 24 hours a day through a computer bulletin board called Bear's Cave in Appleton, Wisconsin. this Appleton Apples Computer Club board can be accessed by anyone with a modem on a computer. The 'phone number is: (414) 727-1605. Andrew Meyers and Thomas Bentle are the System Operators.

It would be nice if one of our readers with a modem and a membership to Compu-serv could place the data base on Modelnet. Once downloaded, the information can be loaded into any data base or word processor that accepts a text file input.

The Sources file can be printed directly since it is relatively short and looks like one of the reports.. The most recent use of the data base is to prepare materials for discussion at club meetings. It has been very useful for topics such as spoiler construction, slope flying, trimming a sailplane, aerodynamics, winch construction, and wing construction techniques.

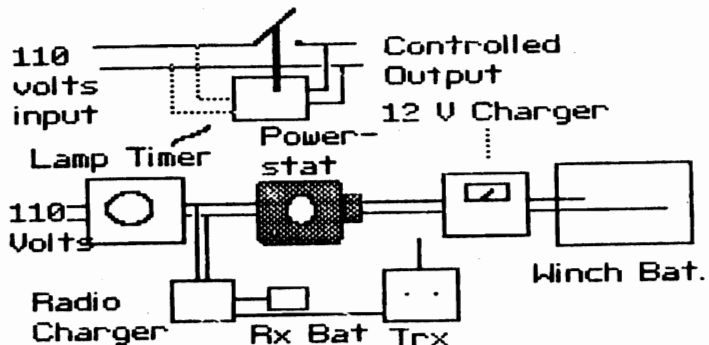
Editor's note:

As many of you know, Lee Murray and his wife have taken the trouble to review all 19

back issues of RCSD and prepare the data base. This is a time-consuming and arduous task with little thanks or compensation except to know that it is a service to all RCSD readers. We at RCSD wish to publicly acknowledge this service and to thank Mr. & Mrs. Murray for their devotion. JHG.

**POWERSTAT AIDS BATTERY CHARGING.....Lee Murray**

Recently, I had a chance to buy a Powerstat variable transformer for a reasonable price. The Powerstat allows one to adjust the output voltage from 0 to 120 volts. I connected the variable transformer between my modified lamp timer and a charger so that I can now charge my winch batteries at an appropriate rate. The Sport Winch gets a 1-amp charge, and the larger Group 24 battery for the Ford starter winch can be charged at 3 or more amps...but not at the same time. Works great! That special timer is a lamp timer with the clock motor hooked to the controlled output so that it does only one cycle. When the output voltage is turned off, so is the clock motor.



**LEARNING TO FLY A SAILPLANE - THAT FIRST SOLO.....Jay Strauss \***

Well, after almost eight months of confusion, worry and occasional sweaty palms I went and did it...I soloed! Even those of you who are seasoned veterans of the "stick" can remember the feeling that accompanies that first flight when you KNOW that you have your bird under control and sent skyward to romp and frolic in the environment that it was created for. Then came the fateful moment: you brought her reluctantly back to earth, and thrilled as she skimmed the surface of the ground and settled, feather-soft, onto the grass. The moment is magic, and the feeling -- pure exaltation!

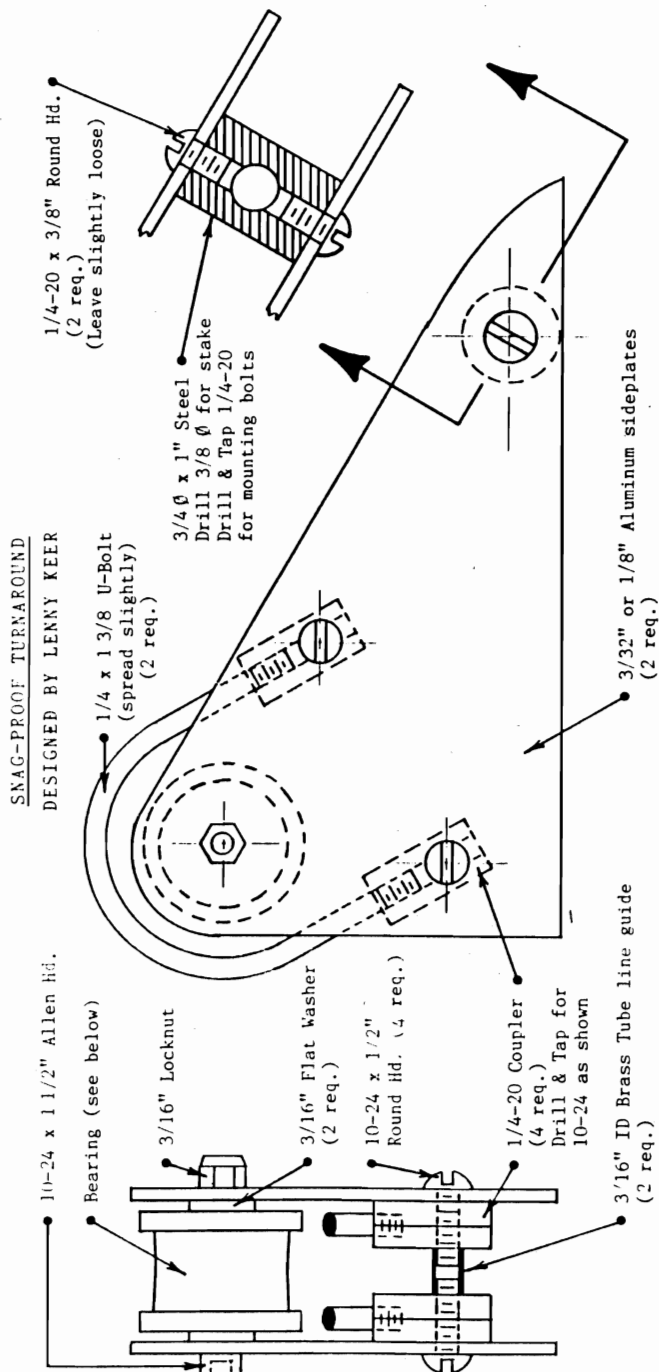
The knowledge that you can now re-create this minor miracle whenever you want is hard to describe, for you know that you will never be the same again; that, somehow you are a little special because you are one of the relative few who call themselves "Pilot". Thanks, Lee, you have given me a wonderful gift. I hope that one day I will be able to pass it on.

**Note:**

Jay Strauss is one of Lee Murray's students and editor of the Appleton, Wisconsin soaring club newsletter. Jay is completing his education in Police Science and is looking for a graduate school. Thanks to Jay, and to Lee, for sharing this with those of us who will most appreciate - and understand - his experience.

**SNAG-PROOF WINCH TURNAROUND.....Lenny Keer**

This turnaround has been used for about 2 years for individual, club and F3B purposes. We have never had a problem with it, even when using monofilament line. These bearings are excellent. Maybe you've seen them before, as they were advertised in RCSD. Lenny Keer, 1305 Stockton Court, Gilcrest, CO 80623



- NOTES**
- \* This turnaround can be built with a hacksaw and power drill (no machine shop required)
  - \* Use Locktight on all fasteners
  - \* Cut excess threads off U-Bolts to leave only 3/8" threads on each side
  - \* It is merely a coincidence that the sideplates are made of the same material as highway signs.

PRICE: \$ 7.50 each, including postage

Modesto Radio Control Club  
Proudly Presents The  
WESTERN UNITED STATES R/C SOARING CHAMPIONSHIPS  
JUNE 18 & 19 1988

Hello! JOIN THE A-C-T-I-O-N !!

**TASK:** A minimum of 9 rounds will be flown. The task will be 7 minute precision duration. The first round on Saturday and Sunday will be 5 minutes. The landing will be a line 50' long with a 100 pt. maximum score if the nose of the glider stops on the line. Points will be subtracted at a rate of 1 pt/in for each inch off of the line. Flight points will be calculated at 1 pt/sec up to the target time and 1 pt/sec will be subtracted over the target time.

**SITE:** Fred C. Beyer High School, 1717 Sylvan ave., Modesto, California.

**EQUIPMENT:** 12 volt winches with FRISBEE retrieval system.

**FREQS:** By date received--9 per frequency MAX! 53 MHZ must have a license!  
All frequencies will be confirmed upon acceptance. You must submit a minimum of (2) choices.

**BACK UPS:** One back up airplane is allowed providing it is on the same frequency.  
C. D. must determine primary unflyable.

**A.M.A. :** This is an AMA sanctioned contest, No. 225 and AMA license is required.

**ENTRY FEE:** \$30.00 (NON-REFUNDABLE) must be received by May 31, 1988.

**AWARDS:** 1st place will be \$500.00 all other placements will be pro-rated down based on the number of contestants.

**C.D. :** C/D 's \*\*\* RON LENCI \*\*\* \*\*\* ARLIE STONER \*\*\*

**MOTEL Accomodations,** rates, and flying site MAP will be provided with CONFIRMATION.

**BANQUET\*\*:** We will have a get together at a local restaurant on Saturday night. The menu will have two selections to choose from, Mexican Combination Dish or Baked Chicken. The total cost per meal is \$ 11.95, including tip.

MAKE CHECKS PAYABLE TO: Modesto R/C Club

**MAIL TO:** Ron Lenci  
1311 San Joaquin st.  
ESCALON, CA 95320  
Ph. 1-209-838-3869 after 6 p.m.

PEACE THROUGH SOARING, RON LENCI & ARLIE STONER

\*\*\*\*\*  
WESTERN UNITED STATES R/C SOARING CHAMPIONSHIPS ENTRY FORM  
1988

NAME: \_\_\_\_\_ AMA# \_\_\_\_\_

ADDRESS: \_\_\_\_\_ PHONE# \_\_\_\_\_

CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

CLUB AFILIATION: \_\_\_\_\_

FREQUENCY : #1 Ch. \_\_\_\_\_ #2 Ch. \_\_\_\_\_ Entry Fee \$ 30.00

(YES) (NO) I would like to attend the Sat. BANQUET \*\* #People \_\_\_\_\_ Combo Dish \_\_\_\_\_ Baked Chicken \_\_\_\_\_

\*\*\*\*\*OFFICIAL USE ONLY:\*\*\*\*\*

DATE: \_\_\_\_\_ ORDER: \_\_\_\_\_ GROUP# \_\_\_\_\_ CHAN# \_\_\_\_\_

Dear Jim,

I hope this letter clarifies the alterations I made to my wing, mentioned in my last letter.

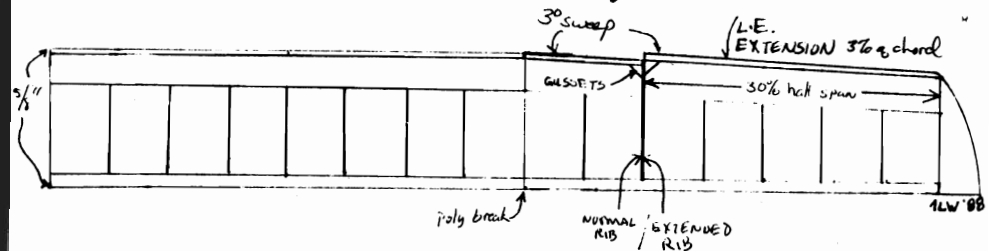
I'd like to thank you, and others mentioned in the Oct. '87 Issue of RCSD for sharing the NASA leading edge droop with me; I hope others will give this design a try.

My 2 meter wing starts out as a conventional flat bottom with entry airfoil with 8 and 5/8 Inch constant chord on the inboard panel. The L.E. sweeps 3° at the polyhedral break, the trailing edge being unswept.

The difference in the wing is the approximate outer 30% of half-span. I used the second rib bay outboard of the polyhedral break as this was close to the 30% point. The ribs from there to the tip were altered to match the 3% increase in chord. The flat bottom of the rib was extended to meet the new L.E. and the upper contour faired in using a french curve. A little extra bracing where the leading edge mismatch is, completes the alteration. As you can see, I use the looks-about-right hack-um-up method of model building.

Enclosed is the sketch you asked for.

*Jim Wilman*



**\*\* FOR ONLY \$3.00 YOU CAN GET \*\***

**YOUR AMA NUMBER** in computer cut 2 Mil. vinyl, 2" high. Includes your choice of 13 colors, forward or backward slant, four typestyles and custom lengths. Each character is pre-pasted on one application strip. Not a Decal. We can cut any text you want... We ship by first class mail. Call 818-363-7131 or write for free information package.

**VINYWRITE CUSTOM LETTERING**  
16043 Tulsa Street  
Granada Hills, Ca. 91344

\*plus P.&H. and tax where applicable

Video  
Tape

**Coming Soon . . .**

**II GREAT NORTHWESTERN SLOPE SOARING**  
(Includes Richland, WA Scale Fun Fly)

**III TOP EIGHT SOARING SITES OF THE WEST**

**Now Available!**

**R.C. SAILPLANES IN SOUTHERN CALIFORNIA**

3.5, 1/4, 1/5 Scale Sailplane in Flight.  
1 hr. 10 min. Music and Narrative.

Send check or money order to Mark Foster  
826 Oneonta Dr., So. Pasadena, CA 91030  
Price: \$22.00 (Shipping, handling & sales tax included.)



## MaxSoar/PC-Soar

Sailplane Performance Analysis Programs  
for the Macintosh and IBM PC Computers.

**INTRODUCTORY PRICE UNTIL JULY 1ST: \$25.00**

### Features:

- Online documentation.
- Use polars and sailplanes provided or enter own.
- Multiple Reynolds Numbers on Airfoil Polars.
- Metric / English capability.
- Plots sink rate & lift / drag versus flying speed.
- Overlay plots to compare aircraft performance.
- Calculates standard design parameters such as: areas, aspect ratios, aerodynamic centers, average chords, tail volumes, instability factors and more.

### MaxSoar Requirements:

Apple Macintosh with 1 megabyte of memory, 128K Roms and two disk drives or a hard disk. HyperCard is required.

To order MaxSoar send \$25 plus \$3.00 S & H to:

LJM ASSOCIATES  
c/o John Hohensee  
9924 West Metcalf Place  
Milwaukee, WI 53222  
(414) 464-7095

### Polars Included:

E193, E205, E214, E387,  
E392, FX60-100, FX60-126,  
HQ2.5/8, HQ2.5/9, S4061

### Sailplanes Included:

Sagitta 600, Sagitta 900,  
Sagitta XC, Prodigy, Epsilon

**Polar & Sailplane Library  
available at additional cost.**

### PC-SOAR Requirements:

IBM PC, XT, AT, or Compatible Computer, 5.1/4" Floppy Drive,  
BASIC, BASICA, or HBASIC and Graphics Compatible Printer.

To order PC-Soar send \$25 plus \$3.00 S & H to:

LJM ASSOCIATES  
c/o Lee Murray  
1300 N. Bay Ridge Road  
Appleton, WI 54915-2854  
(414)731-4848

## AIRCRAFT SCALE DOCUMENTATION WORLDS LARGEST COLLECTION

Antiques, Military, Civilian, Helicopters, Sailplanes  
**color FOTO-PAAKS**      **KOKU-FAN 3-views**  
50,000 pictures in stock      3,000 drawings in stock  
40-page CATALOG \$3.00



Scale Model Research  
2334 Ticonderoga Way  
Costa Mesa, CA 92626 U.S.A.  
(714) 979-8058



C.D.'S, CLUBS: SEND FOR LATEST PRICE SHEET ON PLAQUES, JACKETS, T-SHIRTS, RIBBONS, NAME PLATES, AND MORE AT PRICES YOU CAN AFFORD. EVERYTHING FOR THE PRIZE WINNER. GUARANTEED QUALITY AND OLD-FASHIONED PRIDE OF WORKMANSHIP.

Fast Service Reasonable Prices in wood, metal and plastic. Stock of standard plaques and trophies always available. Ask for rates on custom designs.

(813) 327-4767

**WINNING IMAGE PLAQUES**

5263 - 24th Avenue N. St. Petersburg, FL 33710



## ONE PIECE FOAM WING CORES

**TIRED OF BUILDING LARGE FOAM WINGS  
FROM TWO PIECE CORES?**



We offer One-Piece 72" Cores.

- \*High Aspect Eppler 214 Cores in stock!
- \*We duplicate any airfoil

For additional info call or send SASE.

**COMPETITION PRODUCTS**      813-645-5171  
ED BERTON  
921 BIRDIE WAY  
APOLLO BEACH  
FLA. 33570