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R/C Radio controlled SOARING DIGEST

THE JOURNAL FOR R/C SOARING ENTHUSIASTS

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THE JOURNAL FOR R/C SOARING ENTHUSIASTS

ABOUT *RCSD*

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

RCSD should not be considered to endorse any advertised products or messages pertaining hereto. An advertising rate card is available for businesses, and clubs.

R/C Soaring Digest
P.O. Box 2108
Wylie, TX 75098-2108 U.S.A.
(972) 442-3910, FAX (972) 442-5258
e-mail: rcsdigest@aol.com
http://www.halcyon.com/bsquared/RCSD.html

***RCSD* Staff**
Jerry Slates - Editor/Technical Editor
Judy Slates - Managing Editor, Subscriptions
Lee Murray - *RCSD* Index/Database (available on-line)
Bill & Bunny Kuhlman - *RCSD* Web Masters

Feature Columnists
Scott Gradwell, Bill & Bunny Kuhlman (B^2), Lee Murray, Tom Nagel, Mark Nankivil, Dave Register, Steve Savoie, Jerry Slates, Gordy Stahl

Artwork
Gene Zika is the graphic artist who designs the unique ZIKA clip art.

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OTHER GOOD STUFF

RCSD Index/Database

Available from: <http://www.athenet.net/~atkron95/pcsoar.htm>. Or, send 3.5" high density disks & SASE with stamps for 2 oz. Lee Murray,1300 Bay Ridge Rd., Appleton, WI 54915; (920) 731-4848 after 5:30 pm weekdays or on weekends, <lmurray@athenet.net>.

RCSD ON THE WEB

http://www.halcyon.com/bsquared/RCSD.html

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.....(E-mail/web addresses, plus general information about their areas of interest)
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On-Line Articles - Great articles originally written for the printed version of *RCSD*.
..... "Trimming Your Sailplane for Optimum Performance" by Brian Agnew
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..... "The Square-Cube Law and Scaling for RC Sailplanes" by Dr. Michael Selig
..... "Modifying & Building the MB Raven (Parts 1-4)" by Bill & Bunny Kuhlman
Bookshelf Listings - A listing of recently published books of interest to aeromodelers.
Complete RCSD Index, 1984-1999

The Soaring Site

Hitec Focus III

In December 1999 the *RCSD* team prepared a brochure entitled "Getting Started in RC Soaring." The Hitec Focus III (three channel, single stick) radio was discussed as it can be an "inexpensive introduction to slope plane control."

Recently, Bill & Bunny noted that the Birdworks web site included information on a modification for the Focus that they felt would be of interest to many of you. Attempting to access the web site earlier this month met with 'technical difficulties', however we eventually accessed the site. So, if any of you encounter trouble accessing the site, just be patient, and keep trying:

http://www.harborside.com/~birdworks/focus.html

Happy Flying!
Judy Slates

18th Annual

APPLETON SAILPLANE CONTEST

A Wisconsin Championship Event
AMA Membership Required

Sponsored by the Silent Flight Group of The Valley Aero Modelers

- Unlimited Thermal Duration
- Thermal Duration for RES models, no wingspan limit
- Foamy Thermal Duration

The contestant's meeting will take place at 9:30 AM, Sunday, August 12th, 2001 at Anderson Sod Farm in Appleton, WI. The sod farm is 7 miles west of US 41 on Cty BB / Winnegamie Dr.

First Place Plaques will be awarded for the winners of the Unlimited and RES Classes. A gift certificate will be awarded to the winner of the Foamy Class for a MAD Aircraft Design of the winner's choice.

For information contact the CD:
Lee Murray, 920-731-4848

R/C Soaring Resource Changes & Additions

(The following changes have been submitted this month and will be added to the "R/C Soaring Resource" listing(s): on-line pdf file, and periodic hard copy distribution.)

Canada (MATS) - URL Addition
Montreal Area Thermal Soarers
http://www.mats.rcclubs.com

ESL - Listing Changes
President
Phil Barnes
13610 Chrisbar Ct
Germantown, MD 20874
(301) 916-9574
Secretary-Treasurer
Lois Ziegenfuse
8 Craig Dr
Reading, PA 19606
grz53lgz@gateway.net
Score Keeper
Anker Berg-Sonne
8 Middlemost Way
Stow, MA 01775
(508) 897-1750
ANKER@ULTRANET.COM
Contest Coordinator
Tom Kiesling
Newsletter Editor
Tom Kiesling
101 Leon St
Johnstown, PA 15905
(814) 255-7418
kiesling@ctc.com
Webmaster
Mike Lachowski
65 Perryville Rd
Pittstown, NJ 08867
(908) 713-6695
mikel@eclipse.net

The Great Midwest Oc-Tow-Berfest 2000

Andrew Jamieson's 1/4 scale Mosquito from Dallas, Texas, originally built by Dale King (Wylie, Texas), soars at the Oc-Tow-Berfest! Viking Models, U.S.A. fiberglass fuselage is also from Wylie.

Photography by Mark Nankivil, St. Louis, Missouri.

The Back Cover:

Robin Lehman's 1/3.75 scale Rodel Fox from New York on finals at the Oc-Tow-Berfest after flying a full aerobatic sequence for a local TV station covering the event.

Photography by Mark Nankivil, St. Louis, Missouri.

Jer's Workbench

Jerry Slates
P.O. Box 2108
Wylie, TX 75098-2108
(972) 442-3910
RCSDigest@aol.com

It's the Season Sailplane Travel Tips

It's spring, and many of us are stretching our wings by getting out and doing a bit of flying. Of course, then there's places like Wylie, Texas, where it's rained what seems like every day or so. And, the northeast sure seems like it's getting more than its fair share of rain and snow according to Steve Savoie. So, even if 'true' spring time is not yet a reality for all of us, the contest season is still gearing up.

The contest season means that some of us will be planning some long haul traveling, out of town or out of state, meeting up with old friends or making new friends along the way. If you have not experienced traveling with sailplanes, there are a few tips that might make the travel more enjoyable before you commence stuffing sailplane stuff in the back of your car, van, or pick-up. Those of you familiar with sailplane travel will, of course, likely agree with most of what I have to share.

A good place to start is with a travel box, one large enough to protect your plane(s). If you don't have one, I would suggest wrapping the planes in blankets, beach towels, or anything else that might be readily available, to ensure that a sudden stop doesn't cause a suitcase to shift, thereby damaging a precious sailplane before it even gets a chance to fly.

This is my travel repair box kit with extension cord.

Protect your sailplane at all cost! A travel box works well!

Of course, the sailplane will likely need the usual tender loving care,

Travel Check Off List

- ____ Model Travel Box
- ____ Transmitter w/Antenna
- ____ Battery Charger
- ____ Extension Cord
- ____ Tool Box
- ____ Travel Repair Kit
- ____ First Aid Kit
- ____ Stopwatch
- ____ Folding Chair
- ____ Sun Tent
- ____ Hat
- ____ Sunglasses
- ____ Sun Screen
- ____ Suitcase
- ____ Map to Contest Site
- ____ AMA Card
- ____ Check the Weather Channel

(Do you know where your wings are?)

Mississippi Valley Soaring Association

Proudly Hosts the

Gateway Soaring Open 2001

June 9th & 10th, 2001
Emerald View Sod Farm
O'Fallon Missouri

The Mississippi Valley Soaring Association invites you to join us for the *Gateway Soaring Open 2001* contest on our beautiful home field just west of St. Louis, Missouri.

This year's event will again include a 3 Function Class flown to the rules established by the League of Silent Flight (LSF). Each round flown will be within a time window (typically one (1) hour but adjusted to the number of entries) which will allow everyone to fly in two classes if they wish.

Each day will be a separate, sanctioned contest that can be applied to your LSF requirements. There will also be trophies and prizes for the overall combined weekend scores in each class.

Entries for the event will be limited to 50 per class with a maximum of 4 entries per transmitter frequency. It would be very helpful if you would pre-register for the event. Registration will be allowed at the field but may be limited due to the 50 entry limit or assigned frequencies being filled. Should you have any questions regarding the event, please don't hesitate to contact us.

A Registration Packet containing a site map and hotel information will be mailed to you as confirmation that we have received your registration form and payment of entry fees. There are a number of hotels available in the immediate area from which to choose. Practice/Sport Flying will be available at the field on Friday for those of you who arrive early. Food will again be available on site and lunch is included for registered contestants. There also are other fast food options within just a few minutes of the field so you won't starve!

Please pass the word on to others who have not attended previous contests and for those of you who have attended in the past, we look forward to seeing you again. It's fun to fly with friends!

Good Health and Good Lift!!

Tony Estep
President, MVSA
tonyestep@yahoo.com

Alden Shipp
Contest Director
alden@adam.net

Wayne Wimbish
Event Coordinator
WDWIMB@aol.com

Or visit us at our club web site at: http://www.mvsaclub.com

which includes taking along a tool box containing all the necessary, essential sailplane accessories and tools. And, there's also the travel repair items which you may not normally store with the travel tool box, and should be included in anticipation of Murphy's Law: whatever you forget to take will likely be the one thing that you need! I like to include items such as 5 and 30 minute epoxy, a bottle of CA with kicker, mixing sticks, paper towels, model knife, and drill with a few handy drill bits. I also throw in a few extra scraps of balsa wood and fiberglass cloth, masking tape, extra wing tape, and hinge tape. Oh, and then there's the servo repair kit, and a personal first aid kit, just in case. I usually do a walk through the work shop and, as I wander around, something important usually catches my eye. Even if I don't need everything that will be stuffed into the repair box, should someone else need repair help, then perhaps I'll make a new friend.

And, DON'T forget to include an extension cord, important for charging batteries.

Hopefully, I've given you something to think about. The travel check off list can be modified to suit your personal needs, of course.

Have a perfect trip! ■

Mississippi Valley Soaring Association

Proudly Hosts the

Gateway Soaring Open 2001

June 9th & 10th, 2001
Emerald View Sod Farm
O'Fallon, Missouri

Pilot's Meeting at 9am *SHARP* each day

AWARDS:
Expert – 1st thru 5th Place each day
Sportsman – 1st thru 3rd Place each day
3 Function – 1st thru 3rd Place each day

ENTRY FEES:
Expert & Sportsman - $22.00/day or $35.00 for both days
3 Function - $12.00/day

DAILY TASKS:
T1 – Modified International Duration
L6 – Modified Graduated Runway
5 Rounds – 5, 7, 7, 7 & 9 Minute Target Times

Contest Director: Alden Shipp
Event Coordinator: Wayne Wimbish

Please Pre-Register!!
A Registration Packet containing a site map & hotel information will be mailed to you when your registration form and payment is received.

***Registration Form: Make Checks or Money Orders Payable to:* Wayne Wimbish**

Name: _____ **AMA#** _____

Address: _____ **LSF#** _____

City: _____ **State:** _____ **Zip Code:** _____

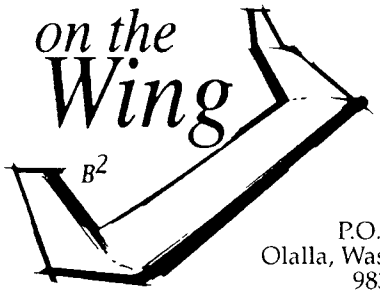
E-Mail Address: _____@_____

Amount Enclosed - _____ ***Days Flying* – Saturday ( ) Sunday ( )**

***Classes to be flown* – Expert ( ) Sportsman ( ) 3 Function ( )**

***Frequency* - 1st Choice – Expert ( ) Sportsman ( ) 3 Function ( )**
2nd Choice – Expert ( ) Sportsman ( ) 3 Function ( )

MAIL TO: Wayne Wimbish, 924 Crescent Moon, St. Charles, MO 63301



P.O. Box 975
Olalla, Washington
98359-0975
E-mail: bsquared@halcyon.com
http://www.halcyon.com/bsquared/

Using the Panknin formulae to choose a plank airfoil

Craig Coles, a plank planform enthusiast, wrote to us a while back, inquiring about control surface location as related to various tailless planforms. The ensuing column, completed after nearly five years of languishing as a "work in progress," appeared in *RCSD* a few months ago. Craig then responded with a few questions concerning how to choose an airfoil for a plank planform, and this column is the result. We'll never be in want of subject matter for future columns if Craig can just keep this routine going.

Craig's questions were all related to the required pitching moment for a plank planform which is currently in the design process. He had been leaning toward one of the EH series, but then took a look at some of the MH sections in the 40 and 60 series, noting that these were designed for flying wings.

The EH sections, which we've several times promoted within this column, have positive but near zero pitching moments. They have been used on swept wings, deltas, and, surprisingly, on planks as well. The Zipper, put out by The Bird Works in Port Orford Oregon, uses the EH 2.0/10.0 and flies extremely well on the slope. Flying speed (and pitch stability) is directly related to elevator trim. It is capable of flying at very high speed in good lift and can stay up in the light stuff, too.

The MH sections, on the other hand, were designed for swept wings and several have slightly negative pitching moments. Some amount of wing sweep and twist is necessary for pitch stability when using the sections with negative pitching moments, and so they cannot be used on plank planforms without a significant amount of up trim from trailing edge control surfaces. The MH sections with low positive pitching moments can be used on planks in exactly the same manner as the EH sections mentioned above. The MH 46 and 49 have substantial positive pitching moments, +0.03 and greater than +0.04 respectively, and can be used on planks when larger amounts of stability are desired.

So long as the center of gravity is forward of the neutral point, some amount of positive pitching moment is required to make a plank planform stable in pitch. In choosing an airfoil for a plank planform, therefore, the question becomes a matter of determining how much positive pitching moment is needed for pitch stability and specific coefficients of lift. Craig's primary question was, "Can we use the Panknin formulae to determine the amount of pitching moment needed for a plank planform?"

Joa Harrison wrote an Excel spreadsheet template for the Panknin formulae a few years ago, and it remains available on our web site on the Panknin page. The spreadsheet is set up so that changes to the various parameters automatically update the "geometric twist" cell, so you can immediately see the effects of any changes.

To demonstrate the pitching moment required for various flight regimes, we set up a very simple "generic" plank planform with a constant chord wing. The various parameters are listed in Table 1. Because plank planforms utilize the same airfoil across the entire span, the section zero lift angles can be set to any consistent value. For simplicity, we used zero. Be sure to plug in identical pitching moment values for both the wing root and wing tip sections. Note also that there is a very small amount of sweep in the wing. That's because the Panknin formulae can not handle zero sweep situations — there will be a division by zero error, indicating that the twist required will be infinite. Using a sweep angle of one quarter of one degree eliminates this difficulty, but makes the geometric twist value very sensitive to changes in the pitching moment value(s). Changes in the pitching moment of just 0.001 equate to several degrees of twist.

On Joa's spreadsheet, we first plugged in all of the constants, then went about finding the pitching moment value for both the root and the tip which would set the required twist to zero. This was somewhat difficult, as we explained before, because the small sweep angle magnifies the twist values, so any twist value within one degree of zero was considered acceptable. Through an iterative process of approximation, we developed the pitching moment values enumerated in Table 2. As would be expected, the required pitching moment increases along with increases in the coefficient of lift and a larger static margin.

In light of the information in Table 2, let us reiterate what we said previously about the EH and MH sections Craig was looking to use.

The very small positive pitching moments of the EH sections are not very strong, but are sufficient for flying at high speed, that is at a coefficient of lift of around 0.1 or lower. Very small amounts of up elevator trim are sufficient to increase the pitching moment such that the angle of attack increases and the airfoil is capable of higher lift. The positive pitching moment limit occurs when the airfoil stalls or the up elevator trim produces so much down force that the overall lift of the airfoil becomes zero.

The MH sections which have slightly negative pitching moments can not be used on non-swept wings unless sufficient up trim is imparted that the pitching moment becomes positive. The designer is better off picking a section with some amount of reflex built in, such as the MH 60, MH 61, or MH 45. These sections have small positive pitching moments and can be trimmed for various flight regimes much like the EH sections. The MH 46 and 49 have substantial amounts of reflex and therefore have relatively large positive pitching moments.

As a final note, we've built a large number of planks over the years, and have considered the CJ sections to be too stable for our flying style. Despite their popularity, most of the CJ sections have pitching moments of around 0.02 to 0.03 and above, which is too much in our opinion. The excessive reflex built into them is a source of unwanted drag and requires a more forward CG, which further detracts from performance, and small amounts of down trim for effective cruising

Table 1: Generic plank planform

Parameter	Dimension
Span	100 inches
Root chord	10 inches
Tip chord	10 inches
Sweep angle	0.25 degrees
Zero lift angle, root Zero lift angle, tip	zero degrees
Static margin	0.03, 0.05 (variable)
Coefficient of lift	0.25, 0.42, 0.60 (variable)

Table 2: Required pitching moment

C_L	Static margin	Required C_M
0.25	0.03	0.0074
	0.05	0.0123
0.42	0.03	0.0125
	0.05	0.021
0.60	0.03	0.018
	0.05	0.030

between thermals. The MH 46 and MH 49 may be in this same category. We would prefer using sections with a lower positive pitching moment. Applying a small amount of up trim while thermalling and reverting to neutral trim for moderate speed when coming back from downwind is our ideal.

We very much encourage anyone designing a plank planform to utilize Joa's Excel spreadsheet and spend some time manipulating variables and looking over some airfoil polars. Minutes of effort during the design process can yield substantial returns in the form of better flying performance.

Thanks again to Craig Coles for being the impetus behind another column. You, too, can be influential in determining the subjects of future "On the 'Wing..." columns. Send your suggestions to us at P.O. Box 975, Olalla WA 98359-0975 USA, or <bsquared@halcyon.com>.

Reference notes:

Information on the Panknin formulae, including Joa Harrison's spreadsheet and BASIC code for both Macs and DOS, is available on our web site at <http://www.halcyon.com/bsquared/Panknin.html>.

Coordinates for the EH sections can also be found on our web site at <http://www.halcyon.com/bsquared/EH.html>. Polars for the EH sections can be found on Michael

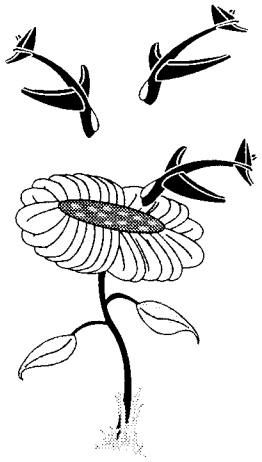
Selig's web site through <http://amber.aae.uiuc.edu/~m-selig/flyingWingAfs/>.

Coordinates and polars for the MH sections (except the MH 49) can be found on Martin Hepperle's site at <http://members.tripod.de/MartinHepperle/Airfoils/>. (As this is being written, Martin is in the process of moving his site to a new server, so this URL may differ from what *RCSD* readers have previously bookmarked in their web browsers.)

Those wishing to have a better understanding of the Panknin formulae and the relationships between sweep, static margin, pitching moment coefficient, the design coefficient of lift, and required twist may find it helpful to revisit our "On the 'Wing..." columns of October 1994 through January 1995, "Four Basic Concepts." Additionally, our August 1996 column, "Sections With Near Zero Pitching Moments — Good Choices for Plank Planforms," is a good parallel to this month's article. Both of these items are available in "On the 'Wing... the book, Volume 2."

The Zipper is available from Steve Hinderks at The Birdworks, P.O. Box 1302, Port Orford OR 97465, <http://www.harborside.com/~birdworks/bwhome.htm>, <birdworks@harborside.com>.

■



R/C Soaring Digest

Radio controlled

THE JOURNAL FOR R/C SOARING ENTHUSIASTS

A MONTHLY LOOK INTO THE WORLD OF SAILPLANE ENTHUSIASTS EVERYWHERE

R/C Soaring Digest (RCSD) is a reader-written monthly publication for the R/C sailplane enthusiast. Published since 1984, *RCSD* is dedicated to the sharing of technical and educational information related to R/C soaring.

RCSD encourages new ideas, thereby creating a forum where modelers can exchange concepts and share findings, from theory to practical application. Article topics include design and construction of RC sailplanes, kit reviews, airfoil data, sources of hard to find items, and discussions of various flying techniques, to name just a few. Photos and illustrations are always in abundance.

There are *RCSD* subscribers worldwide.

R/C Soaring Digest
P.O. Box 2108
Wylie, TX 75098-2108 U.S.A.
Voice (972) 442-3910
FAX (972) 442-5258
e-mail: RCSDigest@aol.com
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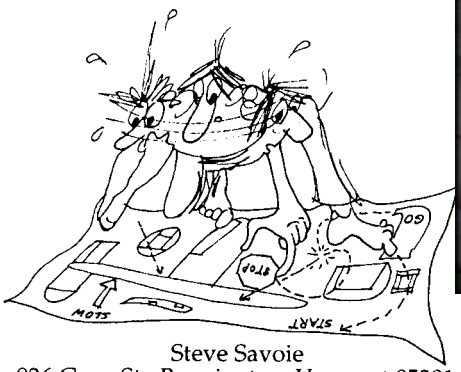
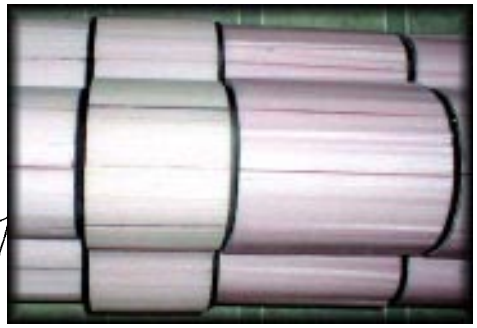
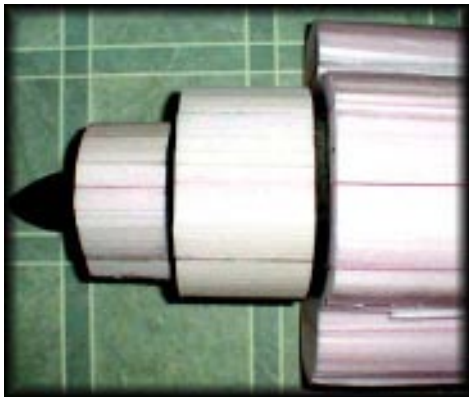


Steve Savoie
926 Gage St., Bennington, Vermont 05201
(802) 442-6959





X-4 fuselage with foam bulked up and bonded to the Rohacel™ bulkheads.

X-4 BANTAM

Well, it's been a few months since I've had any time to even think about the X-4 and, when I finally went to the basement to check out the bulked up foam sections of the fuselage, I was disappointed to see that after 4 months the 3m-77 failed and the foam blanks had fallen apart. I hated to do it, but the fix was to bond it all back again, this time using 5 minute epoxy. So, once all that was done, it was time to bond up all the foam blanks to the Rohacel™ bulkheads. Each of the bulkheads are aligned to the foam and other bulkheads via two 1/8" music wire rods 48" long.

The edging on the bulkheads was paint black to help stand out more when the sanding process begins. Each bulkhead has at least 3 lightning holes which will help the acetone disperse into the foam after the foam plug has been laid up with fiberglass/Kevlar™. The concept being that the acetone will not attack the Rohacel™, just the pink and blue foam. The plan is that the Rohacel™ bulkheads, cut to final size, serve as sanding guides for contouring the foam as well as structural bulkheads. Both the nose cone and the tail cone (not yet installed) will be made from Rohacel™ foam. See enclosed pictures, and now for the shaping.

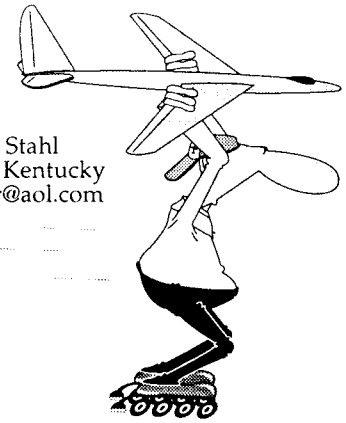
■

MONTAGUE CROSS-COUNTRY CHALLENGE

2001
MONTAGUE
CROSS COUNTRY CHALLENGE

Location	Siskiyou County Airport, Montague, CA
Date	June 8th - Practice and LSF Task Days June 9th & 10th - Contest Days
Time	Pilots meeting at 9 am, flying begins at 10 am
Task	Saturday - Free Distance within a prescribed course Sunday – Speed Task, 2 hour minimum, 3 hour maximum
Classes	Open, 3 Function (Rudder, Elevator, Spoiler or Rudder, Elevator, Flap)
Prizes	Plaques will be given to 3 members of the top 3 finishing teams in each class.
Entering	Entry fee is $75 per team, each team will receive 3 event T-Shirts, and 3 tickets to a Saturday night BBQ. All entries must be received by May 8th, 2001. There will be a limit of 20 teams, so don't delay.
Lodging	Camping is available on-site, no services available. Motels are available in Yreka, approximately 12 miles away.
Info	For additional info please call Dean, Scott, or Randy at (541) 899-8215 days, or Dean (541) 899-7034 evenings, or e-mail us at dgair@cdsnet.net.

GORDY'S TRAVELS



Gordy Stahl
Louisville, Kentucky
GordySoar@aol.com

Planes-Wings-Things' New Tails

Paul Trist has been supplying RC sailplane accessories like hinge tape, carbon horns, flashy wing tape and other neat things, but this time he has really found us something special! Gorgeous, built-up, transparent UltraCoat covered, carbon spar'd and capped balsa ribbed, works of art!

My travels with Michael Volz on our annual 'Pre-Visalia Slope Adventure' took us to the lair of Paul Trist at Aero-Environment, which is also the home of some of the world's most sophisticated flying machines ever.

It's the place where RC Pteradyctals and Gossamer Condors are born and reside, as well as where some of the worlds most brilliant aero-minds do their daily work.

Building with light weight, high strength materials is the norm, precision and perfection the for-granted standard.

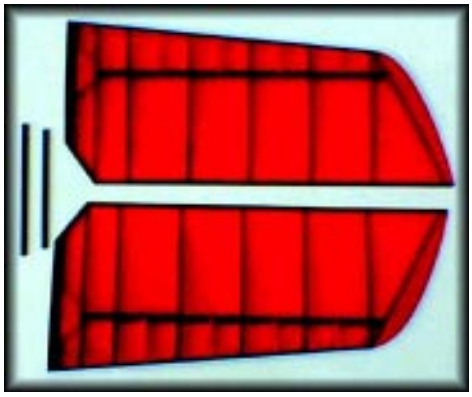
Paul is an excellent RC sailplane pilot and a full scale sailplane pilot also, so when he mentioned that he found a Euro-source for gorgeous 'after-market' stabs for our USA made open class TD ships, I couldn't wait to see them.

Currently, the stabs provided by NSP, Fred Sage, or RnR, are very light, stiff, and true – and kind of boring, basic planks of white and carbon. Our option being to start cutting and gluing balsa and spruce, then getting out the iron to stick on the covering of our choice. The problem being weight and strength.

PWT's new stabs use a carbon tube leading edge and carbon tube full span spar. The ribs and quarter ribs are balsa, capped with carbon. They are covered with UltraCoat Transparent Red or Yellow (at this time).

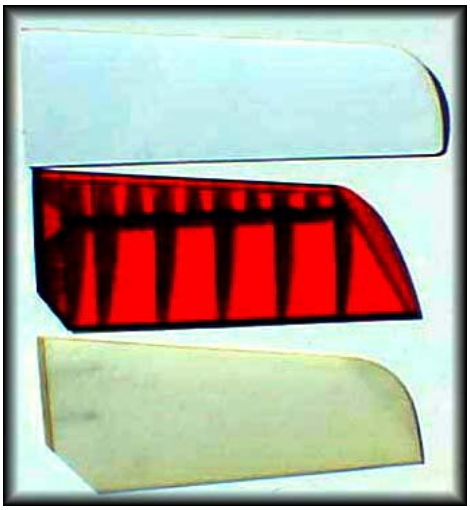
Here's the specs:
15 to 18 grams each before rods
Root chord: 5.5"
Tip Chord: 4"
Span: 13.5"

Did I mention they are stiff? Well, they



are light too! They weigh slightly less than the originals I checked in my quiver. Size wise they are just right, almost identical in shape, chord and span as my Addiction and Pelican stabs. About 1 1/2" shorter than Psyko Stabs, although the Psyko stabs have a more constant, shorter chord. I found them slightly larger than a set of 2m Duck stabs. In general, they have the 'right stuff'.

The stabs come with carbon rod 'inserts' to fill the spar tubes and to adapt to a common stab joiner rod. The locator pin hole spacing is set to match our typical bellcrank hole spacing. Selling price is $69 a set, which tells you these are serious competition sailplane components. You'll find that the trailing edges are sharp and absolutely straight on all planes. There is next to no spanwise twist.



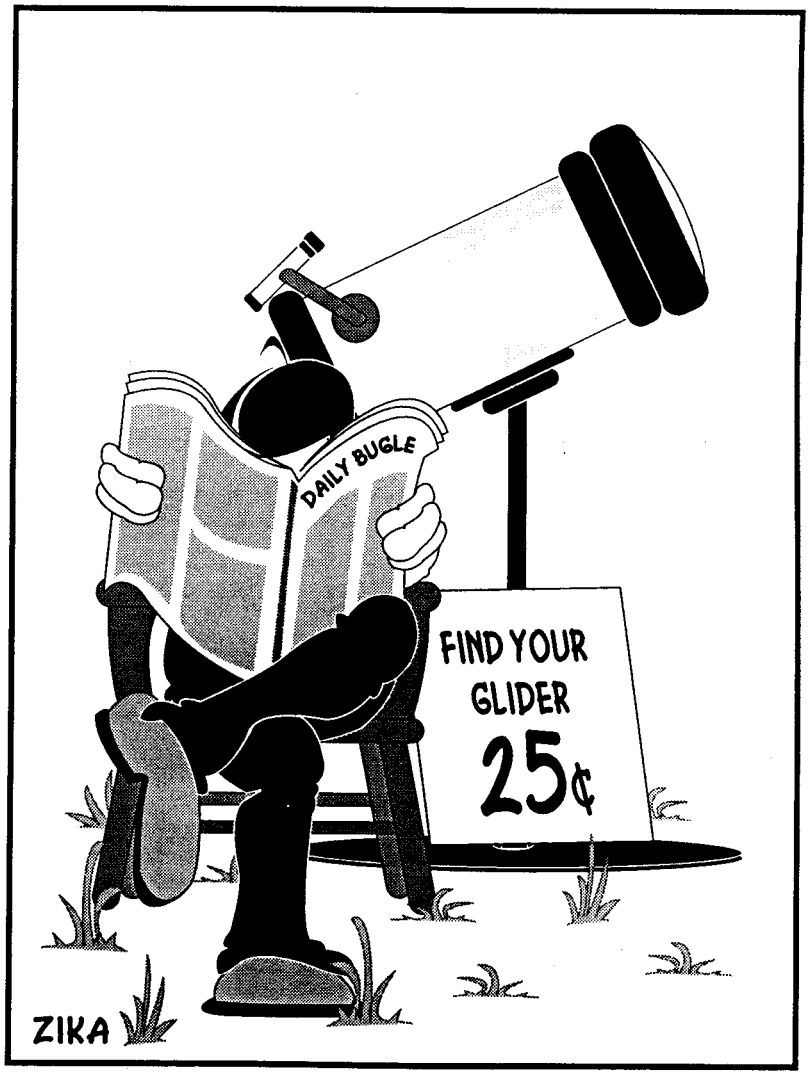
Psyko stab (top), PWT stab (middle), and Addiction stab (bottom).

Ready for more good news? Paul tells me that he is working on getting a similar constructed rudder that will fit nicely on Addictions, Emeralds, most of the NSP planes, and Sapphires, as well as home brews!

Check out more of Paul's goodies at <www.Planes-Wings-Things.com>.

So, what's next on my itinerary? FMA's new super tiny 'smart' IPD 5 channel Extreme Receiver and, well, a bunch of neat things. But right now, I am off to fly…somewhere! See you at *YOUR* flying site!

■



ELECTRIC CONNECTION

by Mark Nankivil
7411 Canterbury Ave.
St. Louis, Missouri 63143
(314) 781-9175
nankivil@telocity.com

The Great Oc-Tow-Berfest 2000

(This event was held near St. Louis back in late September/early October. Submitted by Mark Nankivil and Pete George, photography by Mark Nankivil.)

For the second year running, Peter George and the Midwest Air Wing R/C Club hosted The Great Midwest Oc-Tow-Berfest from September 29th through October 1st at their club flying field near Alton, Illinois, which is just across the Mississippi River from St. Louis, Missouri. The weather was excellent for all three days with clear skies and a light breeze out of the south. A relaxed atmosphere amongst the attendees, with a good number of spectators stopping by to watch, made for a very enjoyable weekend of flying.

Oc-Tow-Berfest will be back again in 2001, so keep watch for further information in *R/C Soaring Digest*. 'Til then, enjoy the photos and start building the model you will bring later this year!

Photography available for current viewing, in color, by downloading .pdf file from *RCSD* web site.

(L) Robin Lehman prepping his Fox prior to one of his many flights over the weekend. Robin has been instrumental in expanding scale aerotow in the U.S. of A. and deserves much credit for his efforts.

(R) Rick Lake from Tecumseh, Michigan took the Pilot's Choice for Best Vintage with his 1/3 scale ASK-18.

Bob Harold's 1/4 scale Multiplex ASH-26 on finals. 3.6 meter span and 12 lb.

Event director Peter George's workhorse tug - a 1/4 scale Vogt Modelbau Dornier Do27. Powered by a 70cc Brison motor and weighing in at 32 lb., this model easily handled 185 of the 201 tows made during the event.

Mike Watson's gorgeous 1/3 scale ASH-26 was the Pilot's Choice for Best Modern. 6 meter span and 26 lb. of sheer beauty in the air.

Group Shot - there were 20 pilots with 22 sailplanes and 3 aerotow tugs registered for the event.

(L) Bob Harold came from West Salem, Wisconsin and brought along a 1/4 scale Reiher made from the Bob Sealy short kit - 183" span and 14 lb.

(R) Rick Ransom from Ionia, Michigan flew this nice 1/3.6 scale, 13 lb., 165" span Rodel Ka-6e.

(L) Pete George's 1/3rd scale EMS Duo-Discus looks the part with an Axel pilot in the cockpit. 5.3 meter span and 26 lb. - awesome flier!

(L) Gene Barker from Bloomington, Illinois brought this nice 1/4 scale Pipe Cub for aerotow duties.

(Above & Below) David Crutchley of Bloomington, IL brought a Flair 1/4 scale ASK-8b for his first aerotow event. Model is all built up with 144" wingspan and 7.5 lb. flying weight.

(L) Andrew Jamieson's Glasflugel Mosquito and Graupner Twin Astir at rest. Both models are 4 meter span, and approx. 12 lb. Andrew is from Dallas, Texas and had the models shipped up for the event.

HAVE SAILPLANE, WILL TRAVEL!

By Tom H. Nagel
904 Neil Ave.
Columbus, OH 43215
tomnagel@iwaynet.net

This month's column involves a major discovery by Erich Jost which should allow sailplane fliers to travel a whole lot more easily by airline. Disguise yourself as a golfer. Airline personnel and even other travelers expect golfers to lug their bulky gear with them, and it is part of the accepted routine. Erich describes how to convert a piece of golf equipment for sailplane use.

As further protective coloration, you might also consider traveling in bright green checked pants, with a white belt, an apricot polo shirt and a tam o'shanter. (And people say we dress funny!)

Airplane Travel Case

by Erich Jost
Chesterfield, Virginia

My job gets me all over the North American Continent. Some places are nicer than others, but a lot of places are perfectly suitable for electric, thermal, and even slope flying. On some occasions, I find a perfectly suitable field right behind, or beside, the motel or hotel.

I work night shift quite frequently, thus there are some daylight hours during which I can go about my favorite activity, which is flying gliders and electric gliders. All I had to do was come up with a travel case sturdy enough to withstand the rigors of airplane travel.

Well, I have found such a case at a golf equipment discount store in Tulsa, Oklahoma on one of my trips. It is a hard sided golf case made by SKB, model 2SKB-4816W, and it even has wheels, which makes it a lot easier to drag from the baggage area to the rental car agency. The price at the discount golf store was $150.

Now it was up to me to arrange the interior so as to accommodate at least three planes, radio, battery charger, volt meter and all the necessary knick knacks one has to carry to make things work. The three planes I wanted to travel with were all from Northeast Sailplane, and are all of the Orion family: a 2 meter, a HLG and the 1.8 meter electric, all with removable horizontal stabs.

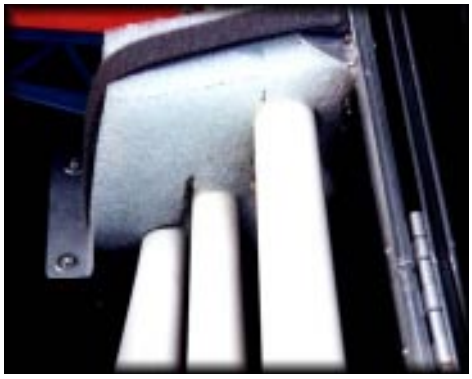
The travel case is 46 inches long,18 inches wide and 12 inches deep. It opens up in two halves, with the bottom half arranged to carry the three fuselages, two large plastic storage containers with lids for the radio, volt meter and sunglasses. Another container stores the Astroflight 110D and SIRIUS battery chargers, a couple of 7 cell 1000 mah Nicad packs for the electric, as well as a spare pack for the transmitter. A soft terry cloth towel is folded up and placed between the chargers and the container lid. This

prevents the contents from bouncing around. A small container holds wing rods, CA glue, nylon bolts, screwdrivers, pliers, etc. All the containers are pop riveted to the flat bottom part of the travel case. Velcro straps riveted to the sides of the containers keep the lids closed tight.

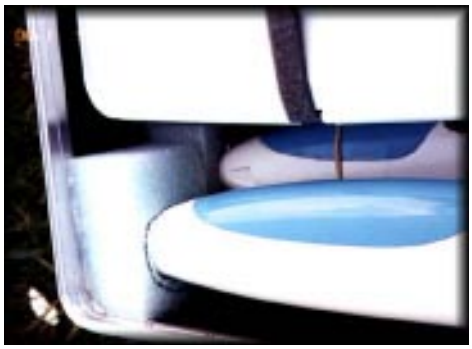
The three fuses are held in place by a couple of custom carved EPP foam blocks, glued into the case with Household Goop. The rear EPP block is in two pieces, held together with a velcro strap. The fuses are held tightly for travel and transport but can easily be removed by undoing the velcro strap and separating the EPP block.

The three pairs of wings are each wrapped in quilt liner fabric, large enough to wrap around the wing panels several times. The wrapped wing panels are held in place in the lid of the travel case with velcro straps which are riveted to the lid. The three stabs travel in a sleeve made from bubble wrap and stored with the wing panels.

This arrangement has proven to be solid. The whole rig, with planes and equipment, weighs only 35 pounds. The contents of my travel case have survived several extended trips. The roominess of this particular case would allow the carrying of other planes, as long as the fuses and wing panels fit inside and are properly protected. The pictures are pretty much self explanatory and should show some details and the general lay-out of all the pieces, outside and stored.



Travel case detail - fuselage block.



Travel case detail - nose block.

I have had many a compliment about this neat arrangement, and therefore decided to share this story and pictures with other 'Traveling Glider Guiders'. I hope to inspire some other glider enthusiasts with this article and maybe, some time, I will cross paths with some of them.

Good Luck and Happy Trails!!

■

This column is dedicated to soaring vacations. If you have a favorite sailplane saga, consider writing it down for *RCSD*. If you are planning a vacation that includes your plane and transmitter, consider making notes as you go, and working up an article later. Take photos. Collect maps. And send your story to Tom Nagel at tomnagel@iwaynet.net for gentle editing and suggestions.

Tom

Swing Plus Is A Big Plus

by Joe En-Huei
West Windsor, New Jersey

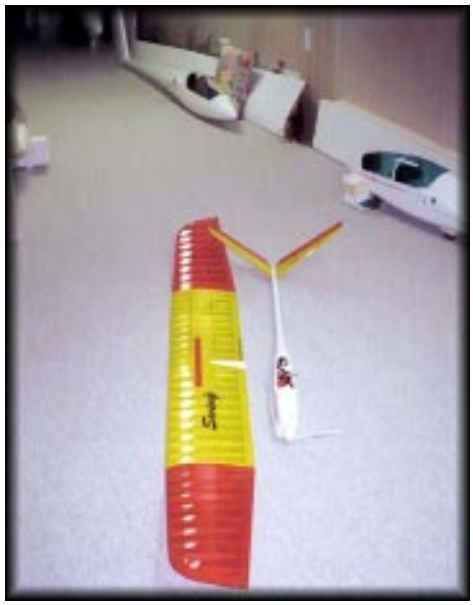
Introduction

My flying buddies and I have lost several 2 meters size gliders in strong thermals over the past few years. The planes often became difficult to escape from strong thermals and the planes either suffered structural failure during spiraling/spinning decent or were never seen again. We decided that the next project should have a spoiler design.

The Swing Plus is the latest design of 2 meter class, electric thermal gliders manufactured by Kostka Modelcentrum of Germany and imported to the USA by Hi-Country Hobbies. The Swing Plus has a V-tail configuration (no ailerons) and a central spoiler, which is a desirable feature. The Swing Plus is a very beautiful plane.

Kit Content

This plane is completely built and is ready for radio and motor. The fuselage is of fiberglass with gelcoat, and a blind nut is installed on which to bolt the wings. The wings are built up with 3-piece design and covered with transparent heat shrink film. The middle wing panel is flat with upward break at the outer panels, which are ready to be plugged in with pre-bent piano wire joiner. The spring-loaded spoiler is already installed. Complete accessories with instructions in German and sketches are included in the kit.



1/4 Rodel ASK-21 (Background) and 1/3.5 Muller ASW-22.

The wing spar is reinforced with carbon fiber. The wings were built true and straight. The wing profile is a relatively thin Eppler series. The tails feathers are also done, hinged and ready to be plugged into a set of piano wire joiner already installed in the tail. The quality (fit of parts) of this plane is one of the highest I've seen. The Swing Plus was built with precision and passion and its value is phenomenal.

Assembly

I use a planetary-geared Speed 600, 12x10 inch folding prop, 1000 mah 10-cell battery (2x5 - cell packs) and a JETI speed control (with BEC) to power the plane. Hi-Country Hobbies also provides various motor systems. I use 3 HS-85 servos for V-tail and spoiler control. The radio is a JR X-388S. The entire items can be shoehorned into the plane without any additional ballast to balance the plane. The takeoff weight is about 3 lb.; the wing loading is about 11 oz/sf.

Test Flight

I flew the plane during a winter day, with light wind from the northwest and dry air, at a private field in Princeton, New Jersey. I double-checked that the battery was secured without any possibility to shift in flight, and that the V-tail control surfaces were free of any slop. My good friend, Mark Goresky, of

Princeton was with me as my spotter and also helped me to do a thorough pre-flight check. We had some concern about the spoiler being in the center of the wing (the wake created behind the activated spoiler), which could "numb" the V-tail control surfaces.

I powered up the plane and the climb angle was 45 degrees. The plane was almost out of sight after 15 seconds of climb. It went into a glide mode at about 500 feet and the subsequent glide was very flat. I trimmed the plane to fly very slow and quickly spotted very light thermals in the house thermal area. The Swing Plus circled very efficiently and tightly in light thermals, gaining several hundred feet, but drifted downwind quite far. So, I brought the plane back by trimming the plane to fly faster; the sink rate remained very low. Recovery from an intentional stall was almost instant. During one high-speed low pass, the wings did not flutter, perhaps due to carbon fiber reinforcement. Because of lack of aileron control, I noticed a minor tendency to wobble in low speed turns.

Landing

Upon final landing approach, I deployed the spoilers and noticed a higher rate of decent without speed increase, because I mixed the spoiler with slightly up elevator per instruction. Interesting that the V-tail control surfaces remain very responsive with the spoilers deployed. The flight lasted about 40 minutes and we were amazed by the performance considering its size.

We also flew the smaller Graupner Cumulus and X-440 with similar design (no spoiler however). By comparison, we agreed that the Swing Plus is substantially more efficient at all speed ranges (lower sink rate). Its high efficiency perhaps is due to the streamlined design, optimum wing profile/planform, optimum wing loading and well built wings. (I have seen a few other 2 meter and smaller sailplanes with unintended warped wings.) The Swing Plus is more responsive to the controls even in the low speed range, perhaps due to its long tail boom design. The Swing Plus also penetrates better in the wind. Under powered flight, the Swing Plus climbs "much faster" to thermal altitude. Additionally, the Swing Plus climbs faster in thermals. Most importantly, the central spoiler definitely enables an easier landing at a small field and a safer way of escaping thermals.

Conclusion

I highly recommend the Swing Plus to modelers with intermediate building skills (mainly to install radio system and motor) and novice flying skills. The designer of this high performance sailplane should be acknowledged. I would like to thank Hi-Country Hobbies for importing this fine plane. I have not flown "small" planes for a long time but it is still "big" fun to fly a high performance 2 meter sailplane.

It is my wish that a scaled up version of Swing Plus (3 meter class to take Speed 700 motor) can be designed for an even higher level of performance. Hi-Country Hobbies' web site is <rcmodelairplanes.com>.

■

CROSS COUNTRY SOARING

Scott Gradwell
Medford, Oregon
scott@xcsoaring.com

First, entries for the Montague Cross Country Challenge are rolling in, so don't delay if you are interested in entering.

My dad and brother were over in England awhile back picking up some full size vintage sailplanes. While there, they were able to visit a slope site and chat with some of the local pilots. My brother told this one fellow that he really liked R/C cross country soaring and asked if they did much of that in England. The fellow laughed and said, "No way, you have to be in great shape to do that."

Well, he has been to several cross country contests and athleticism definitely wasn't a prerequisite for cross country soaring. They talked a little bit more and he finally figured out that, over there, the pilot has to chase the sailplane on foot!

I doubt they will ever set any FAI distance records over there in England. Even the best athlete in the world couldn't keep up with an SB-XC going 50 miles in 4 hours. Luckily, over here, we have a better method, although it still isn't perfect. Do you suppose that's because Detroit hasn't rolled out any 2001 Special Edition Cross Country Chase vehicles? Anyway, we'll just have to make do with what we've got.

Truck Bed Modification For Cross Country Soaring

In the first cross country contest I flew in, I just threw some cushions in the back of my brother's four wheel drive (raised a few inches) diesel truck. This worked OK, but it was loud, a bit of a rough ride, and a pain to get up into. Also, my teammate, Randy Banta, had to hold up the Multiplex vario receiver out of the bed and ended up looking like the Statue of Liberty for most of the weekend.

After the contest, I knew there had to be a better way. I was already going to buy a Ford F150, so I decided to try and adapt this to a chase vehicle. I put a flat sheet of plywood in the bed as a starting point, and added what I thought would be useful. First, I was

Scott's brother is checking out the new arrangement.

able to pick up a couple of bass boat seats and pedestals from a fishing supply store. Next, I made a stand that could hold the sailplane on the trip back to the airport. To this stand I attached some cup holders and a post to attach the vario receiver. I put some seat belts on the seats to satisfy the local law enforcement and it has worked well, so far.

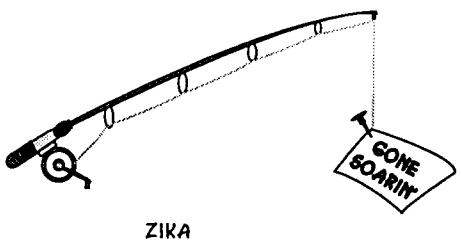
During a contest, we were pulled over by a state highway patrolman who looked at the set-up and just let us go. Although he seemed satisfied, I surely wouldn't want to get into an accident with this set-up. I only did it to keep from getting a ticket. I have included a couple of pictures and if you have any more questions about this set-up just send me an e-mail.

■

International Scale Soaring Association

There is a growing interest in scale soaring in the U.S. We are dedicated to all aspects of scale soaring. Scale soaring festivals and competitions all year. Source for information on plans, kits, accessories and other people interested in scale. For more information, write to:

International Scale Soaring Association
37545 Oak Mesa Drive
Yucaipa, CA 92399-9507
e-mail: 70773.1160@Compuserve.com
web site: www.soaringissa.org



Soaring League of North Texas

presents

TEXAS NATIONAL TOURNAMENT

TNT 2001

ENTRY FORM

Contestant Name: ..... AMA #: .....
Address: ..... Telephone: .....
City: ..... State: ..... Zip Code: .....
E-mail ----------

Class (circle one) Expert Sportsman (Unlimited Only)

Events

Friday May 4th	..... Hand Launch	Freq:	Alt: .....
	..... R E S	Freq:	Alt: .....
Saturday May 5th	_____Unlimited	Freq:	Alt: .....

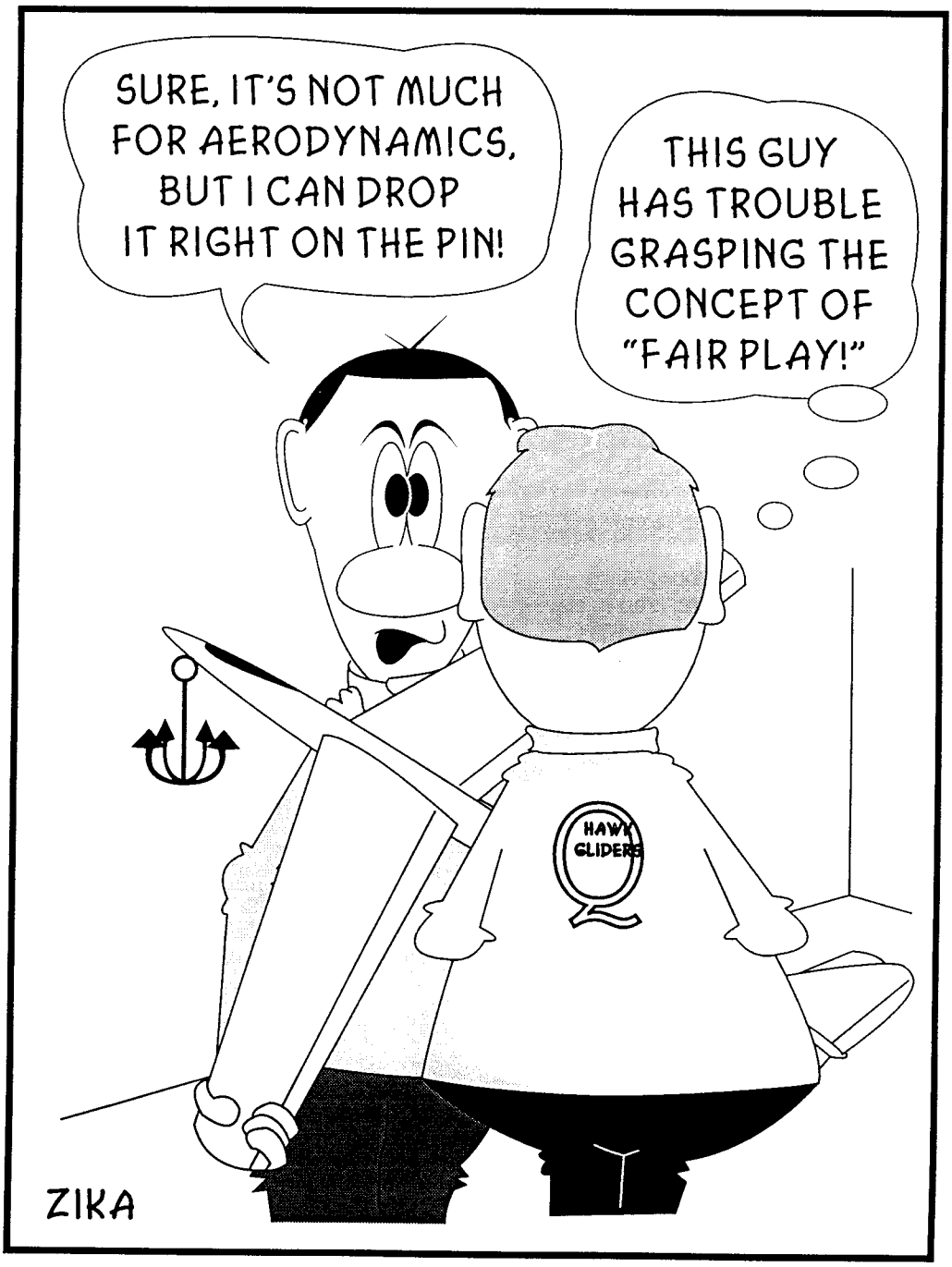
Entry Fees:

	Fee
Friday Hand Launch	$10.00
Friday R E S	$10:00
Saturday and Sunday Unlimited	$35.00
Preregistration Discount (Unlimited only)	$ 5.00
Total Enclosed	$

Make Check Payable to: **SOARING LEAGUE OF NORTH TEXAS**

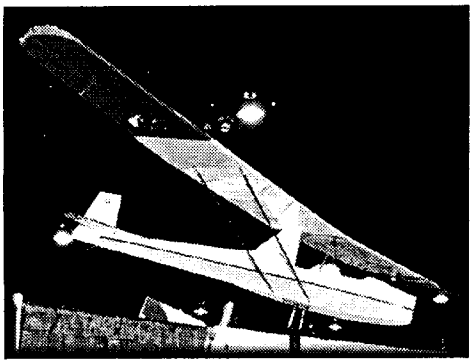
Return to: Pancho Morris
2715 Eastbrook Dr.
Mesquite, TX 75150

General information sheets will be returned with entry confirmation. Pre-entry forms with check must be **postmarked** prior to April 15th. Cancellations received prior to May 2nd will receive full refund. **PLEASE REGISTER EARLY-IT'S EASY!!**


SURE, IT'S NOT MUCH FOR AERODYNAMICS, BUT I CAN DROP IT RIGHT ON THE PIN!
THIS GUY HAS TROUBLE GRASPING THE CONCEPT OF "FAIR PLAY!"
HAWK GLIDERS
ZIKA

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.



Slingsby T-31B Tandem Tutor Sailplane Kit
....from Buzz Waltz R/C Designs

Buzz Waltz R/C Designs and Manufacturing provides his first in a series of wooden scale kits, the Slingsby T-31B Tandem Tutor, a 1/5th scale reproduction of the full size sailplane owned by Raul Blackstein of Hemet, California.

The all balsa, plywood and lite-plywood parts in the kit are machine cut and sanded to make this kit one of the easiest scale kits to build. Plans are on two full size sheets and the instruction is easy to read and follow. Fuselage features pre-cut sides and bulkheads along with a pre-welded front cabane wing support. Fuselage length is 44-3/4". The wing is built in two sections and is joined to the center pylon by two 1/4 hardened steel rods. The front spar is made of 1/8x3/8 spruce with 1/8 balsa sheer webs forming I-Beam spar construction. The rear spar is 1/4x3/8 spruce. The wing span is 102" with a wing area of 848 sq. inches. Radio functions are rudder, elevator, ailerons and spoilers. Flying weight is 54 ounces, thus giving this floater a light wing loading of 8-1/2 ounces.

Kit is available directly from Buzz Waltz R/C, 68-320 Concepcion Rd, Cathedral City, CA 92234, introductory kit price: $165.00 plus shipping.

For more information view web site http://www.buzzwaltzrc.com or call 760-327-1775, FAX: 760-778-5439. ■

"Oldtimer Segelflugzeuge"
(Flying rarities from the time of the soaring pioneers)

by Jochen Ewald, Rainer Niedree, Peter F. Selinger
Published by Aviatic Verlag GmbH, Germany. ISBN 3-925505-58-X
Hard bound, 175 pages, 212 color photos.
Large 11 1/2x8 inch format. German language.

"Martin Simons published a very good book called "The Worlds Vintage Sailplanes" fifteen years ago. So why another? Well, "Oldtimer Segelflugzeuge" is quite different. It deals with a representative cross section of yesterday's gliders that are still active around the world.

"Each of the 44 chapters features just one glider type. Half of these are active, or at least air worthy in this country. The chapters contain the glider's general history, where it was built, the designer's name and such, and then goes on to describe its current whereabouts and owner. Each chapter is 3-4 pages long with only about 30% text. The remaining space is taken up by some stunning color photos, a large three view, and a box containing dimensions, weight and performance data.

"Selinger and Ewald made the photos at recent vintage sailplane rallies, some taken less than a year ago. Chapters of special interest to U.S. readers include The Baker McMillen Cadet, Minimoa, Weihe, Orlik II, Pratt-Read, Moswey III, and the 1-26. All are currently flying or recently flown in the U.S.A.

"Rainer Niedree made the very accurate 3-views from original factory drawings whenever these could be found. These, along with the many detailed photographs should appeal to scale model builders everywhere.

"Anyone interested in vintage gliders, scale model building, or soaring history should own this book. The current favorable exchange rate makes it an excellent value: $30 plus $5.

"It may be ordered from Jan Scott, 12582 Lutheran Church Rd., Lovettsville, VA 20180, <Flycow@aol.com>. Check or money order only." ■

Please send in your scheduled 2001 events as they become available!

SCHEDULE OF SPECIAL EVENTS

April 28-29, 2001
DARTS Aerotow Fly-In — Muncie, IN
Paul Siegel, (513) 561-6872
psiegel@fuse.net

May 4-6, 2001
Texas National Tournament — Segoville, TX
Pancho Morris, (972) 681-1098
Lynn Williams, (214) 321-3005
tooth@hawkpci.net

May 18-20, 2001
Midwest Slope Challenge — Wilson Lake, KS
Loren Blinde, mwsc@alltel.net
http://www.alltel.net/~mwsc

May 19-20, 2001
CSS/OVSS May Memorial Contest — Cincinnati, OH
Ed Franz, (859) 586-0177
ejfranz@fuse.net
http://www.cincinnatisoaring.org

June 9-10, 2001
Montague XC Challenge — Montague, CA
Dean/Scott/Randy, (541) 899-8215 Days
Dean Gradwell, (541) 899-7034 eve.
dgair@cdsnet.net

June 9-11, 2001
CANAM Aerotow — Ontario, Canada
Bill Woodward, (519) 653-4251
woodwab@mail.mohawkc.on.ca

June 22-24, 2001
Mid-South Soaring Championships — Huntsville, AL
Ron Swinehart, RSwinehart@msn.com
(256) 722-4311 days, (256) 883-7831 (eve)

June 30 - July 1, 2001
SKSS UNL Thermal Duration & RES (Aerotow & BBQ on Saturday) — Newark, DE
Jim Faassen, (302) 239-4923
jfaassen@dca.net
http://www.silentknightssoaring.org

July 7-8, 2001
CRRC RES Contest — Sudbury, MA
http://www.charlesriverrc.org
Pete Young, (617) 484-0640
pwyoung@ix.netcom.com
Dick Williamson, (781) 981-7857
williamson@LL.mit.edu

July 21-22, 2001
Gerry Knight Memorial Scale Aerotow Rally Y2001 — Ontario, Canada
Phil Landray, (905) 468-3923,
linden@niagara.com
Don Smith, (905) 934-7415,
donsmith@mergetel.com
Charlie Rader, (905) 563-4108

August 11-12, 2001
Pacific Northwest HL Regional SASS R/C HLG — Redmond, WA
Adam Weston, (206) 766-9804
red@tgworks.com
http://www.reddata.com/SASS

August 11-12, 2001
CRRC Soar-In Contest — Sudbury, MA
http://www.charlesriverrc.org
Dave Walter, (978) 562-5400
dwalter@ultranet.com
John Nilsson, (978) 368-7136
nilssonj@rd.simplexnet.com

September 14-16, 2001
Last Fling of Summer — Broken Arrow, OK
Dave Register, regdave@aol.com

Books by Martin Simons: "World's Vintage Sailplanes, 1908-45", "Slingsby Sailplanes", "German Air Attaché", "Sailplanes by Schweizer". Send inquiries to: Raul Blacksten, P.O. Box 307, Maywood, CA 90270, <raulb@earthlink.net>. To view summary of book info.: http://home.earthlink.net/~raulb

Reference Material

Summary of Low-Speed Airfoil Data - Volume 3 is really two volumes in one book. Michael Selig and his students couldn't complete the book on series 3 before series 4 was well along, so decided to combine the two series in a single volume of 444 pages. This issue contains much that is new and interesting. The wind tunnel has been improved significantly and pitching moment measurement was added to its capability. 37 airfoils were tested. Many had multiple tests with flaps or turbulation of various configurations. All now have the tested pitching moment data included. Vol 3 is available for $35. Shipping in the USA add $6 for the postage and packaging costs. The international postal surcharge is $8 for surface mail to anywhere, air mail to Europe $20, Asia/Africa $25, and the Pacific Rim $27. Volumes 1 (1995) and 2 (1996) are also available, as are computer disks containing the tabulated data from each test series. For more information contact: SoarTech, Herk Stokely, 1504 N. Horseshoe Circle, Virginia Beach, VA 23451 U.S.A., phone (757) 428-8064, e-mail <herkstok@aol.com>.

BBS/Internet

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

Classified Advertising Policy

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/month and are limited to a maximum of 40 words. *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. If you have items that might be hard to sell, you may run the ad for 2-3 months.

For Sale - Business

PARACHUTES: $15 (includes S&H U.S.A.) Send check or money order to Dale King, 1111 Highridge Drive, Wylie, TX 75098; (972) 475-8093.

FENDERS! Cover your aileron and flap pushrods with a set of fenders, to help protect bottom of wings & control horns. Price (check or money order): $5.95 (set of 4) + $3.50 S&H USA. (Texas residents add 7.250% sales tax.) Viking Models, U.S.A., 2 Broadmoor Way, Wylie, TX 75098; (972) 442-3910.

DesignAire: EASY TO USE AIRCRAFT DESIGN SOFTWARE (PC). 3-D sketch, performance, Wt/Bal, inertias, color graphs, panel analysis, static stability, airfoils, FAR 23A loads and envelope. Runs "airfoil ii". $119. JammAero POBox 69, Wallops Island VA 23395. www.jammaero.com.

SAILPLANE PLANS: Copies of ORIGINAL, SOAR BIRDY & BIG BIRDY plans as originally kitted by Bridi Hobby. $12.00 per set, shipping included. BUZZ WALTZ, 68-320 Concepcion Rd., Cathedral City, CA 92234, 760-327-1775 or e-mail, <buzzwaltzrc@excelonline.com>.

For Sale - Personal

RnR XBSC cross country ship with low milage. Install receiver, trim and fly. Includes 6 Airtronics servos and battery pack, plus original RnR shipping case. $550 UPS COD. Bob Sowder, Memphis, TN, 901.751.7252 eve., or e-mail <bsowder@wmctv.com>.

Father retiring from sport and my wife will kill me if I don't clean up my shop. Built models are outstanding craftsmanship and in mint condition. Price listed or P.O., plus shipping cost. Sagitta 900 built with spoilers and Futaba radio... $300.00. Pulsar 100" w/S3021 w/5 servos... $300.00. Gentle Lady w/Futaba radio... $200.00. Windspiel Kestrel 19 kit in box, glass fuse., 134.5"... $200.00. Electra kit in box w/elec. motor... $60. John, (860) 651-9126, Connecticut.

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 $20.00 (US) or $25.00 (Foreign) per year for 12 issues.

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

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.

Send for your aspirant form, today:

League of Silent Flight
c/o AMA
P.O. Box 3028
Muncie, IN 47302-1028 U.S.A.

http://www.silentflight.org

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 desiminate information relating to construction techniques, materials, theory and related topics. To give recognition for noteworthy designs and accomplishments.

SHA publishes the bi-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.

The Vintage Sailplane Association

Soaring from the past 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. The VSA publishes the quarterly BUNGEE CORD newsletter. Sample issues are $2.00. Membership is $15 per year. For more information, write to the:

Vintage Sailplane Association
1709 Baron Court
Daytona, FL 32124 USA

The Eastern Soaring League (ESL) is a confederation of Soaring Clubs, spread across the Mid-Atlantic and New England areas, committed to high-quality R/C Soaring competition.

AMA Sanctioned soaring competitions provide the basis for ESL contests. Further guidelines are continuously developed and applied in a drive to achieve the highest quality competitions possible.

Typical ESL competition weekends feature 7, or more, rounds per day with separate contests on Saturday and Sunday. Year-end champions are crowned in a two-class pilot skill structure providing competition opportunities for a large spectrum of pilots. Additionally, the ESL offers a Rookie Of The Year program for introduction of new flyers to the joys of R/C Soaring competition.

Continuing with the 20+ year tradition of extremely enjoyable flying, the 1999 season will include 14 weekend competitions in HLG, 2-M, F3J, F3B, and Unlimited soaring events. Come on out and try the ESL, make some new friends and enjoy camaraderie that can only be found amongst R/C Soaring enthusiasts!

ESL Web Site: http://www.eclipse.net/~mikel/esl/esl.htm

ESL President (99-00): Tom Kiesling (814) 255-7418 or kiesling@ctc.com

The Great Midwest Oc-Tow-Berfest 2000

(Details on page 3.)