

THE VINTAGE SAILPLANE ASSOCIATION

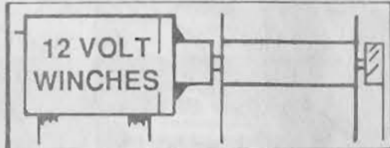
VSA is a very dedicated group of soaring enthusiasts who are keeping our gliding history and heritage alive by building, restoring and flying military and civilian gliders from the past, some more than fifty years old. Several vintage glider meets are held each year. Members include modellers, pilot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

For more information write:

Vintage Sailplane Association
Scott Airpark
Lovettsville, Va. 22080.

FLIGHT LINE SYSTEMS

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



For Information Contact
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Vol. 5 No. 4

APRIL 1988



Slope soaring over the pacific -

Steve Chan Photo

Wilshire Model Center



Bob Retzlaff'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!

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HI START

Although I had planned to talk about other things, something has become increasingly apparent to us here at "HQ" -- and it requires some comments. I refer to the good old U.S. Postal Service.

In recent months, we have received many complaints from you folks out there about NOT receiving your Soaring Digest on time or at all. The "at all" part is what bothers me the most. We send out each month's issue at about the same time...namely around the 10th of the month or before. Allowing a couple of weeks at the outside, this means that you should receive your copy no later than about the 24th. In fact, most of you have been receiving your copy around the 15th to 20th. This is later than we would like, but it's not been possible to beat that date in recent months because of production time and cross-country shipping of the finished product from the printer in Vermont to us here in AZ. Most of you understand this and, so far, have not complained -- for which I am thankful.

The far more serious problem is the one where you don't get your copy of RCSD at all! Lately, we have had several calls each month about the missing copy. There doesn't seem to be any pattern to it, as California, New York, Florida, and several other states all report missing copies.

You might think that this is because we don't send them out...but that is not the case. Every subscriber copy leaves here in a mail bag along with other copies to the same destination. The copies are all zip-coded, bundled and identified...yet, somehow, you don't get them! Of course, when you tell me, I send out a new copy to you by First Class Mail, usually in an envelope. This is an unnecessary expense -- all because somehow, somewhere, someone in Uncle Sam's employ fails to do their duty properly. Sure, mistakes do happen, and we can understand that...but it's ridiculous to have it happen again and again and again!

Next time you fail to receive your copy, tell me as usual.. but ALSO report it to your local Post Office. Maybe they can't (or won't) bother doing anything about it...and maybe they will...so it's at least worth a try. US copies of RCSD go by Third Class mail; i.e., bulk rate, pre-sorted, bundled and bagged. Although not quite as fast as First Class mail, Third Class mail still arrives at its destination within a week or ten days. For us, it's a lot less expensive to mail...running about 12½¢ per copy instead of 39¢ per copy.

However, if you really want to insure that your copy of RCSD gets to you in good shape, and quickly, you can send another \$5.00 per year to cover the extra cost of adding the stamp and placing the copy in an envelope. Many subscribers do that now, just because of the problems they have had with the USPS.

Speaking of mail, it is the single largest cost item that we face in publishing RCSD. Each copy to Canada (by postal regulation) MUST GO FIRST CLASS! That costs 40¢ plus an envelope. Each foreign copy costs either \$1.12 or \$1.35 to mail via air, plus the envelope. By contrast, each copy costs approximately 75¢ in printing and preparation costs. If you add these up, you see that RCSD is truly a non-profit operation!

In spite of all this, it's still FUN -- and the biggest benefit I derive is meeting and corresponding with YOU, my readers.

Happy soaring,

ADVERTISERS AND ADVERTISING IN RCSD.....Jim Gray

No doubt you've noticed that the number of advertisers in RCSD is increasing each month -- and that is good. Advertising can go a long way toward helping out the income and profit margins. In fact, most publishers look upon advertising revenue to equal subscription revenue, but - so far - that has not happened in RCSD. One of the reasons is that our ad rates are ridiculously LOW by any standards you care to choose, and another reason is that we don't follow

the usual procedure of having the number of ad pages equal the number of editorial pages.

There are two things that you have been doing that really help us: you are buying from our advertisers, and you are telling them where you see their ads. This means they will continue to advertise in RCSD which also means that you will continue to get the good buys they offer. The word gets out fast, believe me, and you will see more and more advertisers in our pages as time goes on.

Now, a word to the advertisers themselves: we love ya, and need ya, guys and gals. Up to now, I have been absorbing most of the ad preparation cost -- and in some cases, not charging at all. This is not fair to some of the advertisers who pay all of the makeup costs themselves, or who furnish ads ready to go (we call that camera-ready ad material). Therefore, from now on, we will charge fair and reasonable make up costs for all advertisers who need us to make up their ads...and we will also charge fair and reasonable rates for changes in ads. Our graphics director, Bob Rondeau, has called to my attention that there are a lot of changes these days...but we haven't been charging for them. He's right, of course, and it's not very businesslike for me to neglect those matters.

We've decided that Bob will henceforth bill any advertisers for such revisions and changes to existing ads. This will have a twofold effect: it will slightly increase our revenue (meaning decrease our losses) and it will encourage advertisers to make their own changes and send them in to us in read-to-go form.

We believe that this is fair and equitable, and will eventually become an advantage to readers, publisher, and advertisers alike.

AIR MAIL FROM READERS

Jim Martin, HOBBY LOBBY INTERNATIONAL, INC., 5614 Franklin Pike Circle, Brentwood, TN 37027 dropped us a line recently about the subject of launching:

"Dear Jim:

"I'm enjoying RC Soaring Digest very much. In the Feb. 88 issue your comments on page 1 brought up a problem that's close to my heart -- how do you get these sailplanes UP if you don't have a slope to fly from???

"Anyhow, I've finally figured out a way to fly sailplanes here in the USA and danged if it isn't catching on! Boost 'em into the air ELECTRICALLY! It took me almost a year to find out that Graupner's SILENTIUS ain't a Carl Goldberg ELECTRA. The SILENTIUS is a very high-performance soaring machine. I can get it up to 700 feet in about a minute-plus, and from this height I DO find thermals.

"I've gone so bananas about this 'new' method of sailplane flying that today I test flew sailplane no. 2 -- a Graupner ASW-22 with 'THERMIK' wing and electric power with folding prop. AND, at Nurnburg Graupner showed a 3-meter fiberglass fuselage, foam/balsa ASW-22 with a motor and folding prop combination that'll even get this high performer into the thermal region.

"The funny thing about these efficient electric-boosted sailplanes is that rather than the extra weight of motor and battery working against them, they could use even MORE weight for good thermal flying.

"I'm still in the learning stage, but danged if this ain't the way to fly a sailplane!

Best regards, (signed) Jim Martin.

Editor's note: Jim, that's a good thought, and we've all seen how weight seems to help rather than hinder performance. I'd like to have some other input on electric-launched sailplanes. A month or so ago, a reader took me to task for not promoting the "electric revolution" with lots of information and articles. I had to tell him that I just don't seem to get any input from readers about elect-

Jim Martin's letter (continued)

ric-powered sailplanes. Either you aren't interested in them, OR you don't want to write me about what you know. If there's anyone out there who is "into" electric power for sailplanes, drop me a line or - better still - an article for RCSD.

XOXOXOX

HERE'S SOMETHING ON ELECTRICS!

Mark Nankivil, 1815 So. Newstead Avenue, Apt. 1, South St. Louis, MO 63110 writes about his electric, and about the World Champs. Go, Mark...

"I'm in the process of moving and trying to get it all dealt with. It's putting a crimp in the building season but I'm working on a Cobalt 40 F3E ship and the plug for a Cobalt 60 powered ship for the F3E team trials in May.

"Enclosed is a copy of the World Champs bulletin. Needless to say, we're excited about hosting a World Champs. I went to Lommel, Belgium in August '86 and watched the 'goings on' at the 1st F3E World Champs; and in the process made many new 'world' friends. It'll be great to see many of them again. I'll send more details as soon as I get resettled. My new address (as of March) is shown above.

(Signed) Mark Nankivil. "Keep up the good work! Good health and good lift.
XOXOXOX

Editor's comment:

Mark, just after I finished commenting about not receiving any input about electrics, your letter arrived with all the "goodies". So here goes the announcement:

AMA SECOND WORLD CHAMPIONSHIPS F3E - RC ELECTRIC MODELS

PARKS COLLEGE OF ST. LOUIS UNIVERSITY, CAHOKIA, ILLINOIS, USA: August 17,18,19,20 1988.

American Continent Championships: August 10th through 20th, 1988, same spot. F3E Pylon racing, F3E Aerobatic, F3E Standoff Scale.

Organized by the AMA, Mississippi Valley Soaring Association, and the Electric Aircraft Association. Individual and Team competition. Correspondence, entries, questions for further information for the World Championships should be sent to

Academy of Model Aeronautics
Attn: Michelle Madison
1810 Samuel Morse Drive
Reston, VA 22090 USA
Telephone: (703) 435-0750

Questions, entries, requests for information about the American Continent Champs may be addressed to the above address (AMA) or to Cal Ettel, #3 Castle Drive, Florissant, MO 63034, USA; Telephone: (314) 831-5031

LETTERS FROM READERS..... B² KUHLMAN *

* Bill & Bunny Kuhlman, P.O. Box 975, Olalla, WA 98359-0975

"Dear Jim:

"Received the October issue of RCSD some time ago, and have been meaning to comment on your notes at the bottom of page 7.: washout, sections, droops, etc. It's taken me some time to really get this together, but thought you'd appreciate the information.

"'Washout' can be achieved in a number of ways, whether geometric or aerodynamic. The real question is not so much 'how' but 'why'? True, some washout is called for in sailplanes, particularly those designed to be easily controlled and docile flyers. The purpose of washout here is to delay upper surface stalling near the wing tips, and usually allows the wing root to stall first. With the outboard portion of the wing still lifting, a spin is averted. The airplane loses lift, however, and the nose will automatically drop to pick up flying speed and reattach the airflow to the inner panel's wing surface.

KUHLMAN LETTER (CONTINUED):

"Another way of accomplishing the same thing, without washout, is to sheet the upper surface of the wing from the root outward, then add turbulator spars in lieu of the sheeting to the outer panels. It is prevention of spin that is the focus of these construction methods.

"In contrast, you will also find washout, particularly aerodynamic washout, used to give an elliptical lift distribution. Now, the purpose is to eliminate drag; the source of this drag is the tip vortex generated any time the wing tip is generating lift. Actually, you don't have to change airfoils at all-- just decrease the chord to zero at the tip. A primary example of this is the British Spitfire. An elliptical lift distribution does NOT eliminate or even delay the onset of a spin; in fact, it makes the spin easier!

"What the NASA droop does is promote delayed stalling of the outer portion of the wing by (1) lowering the effective angle of attack, and (2) blunting the leading edge. What happens during a stall? The root stalls first and the aircraft is held in the air by the outer 38% of the half span (just like normal). The intent is not elliptical lift distribution, but maintenance of control.

"Why a sharp break? So that the stall doesn't creep spanwise across the wing. What's been constructed is a wing 'fence' which veerily cleanly divides the halfspan into 'stallable' and 'non-stallable' sections. Airlines use the mechanical devices to produce high lift at low speeds. The requirements to be fulfilled for flying at 30,000 feet (6 miles) at 650 mph are a LOT different than those for the power-on glide to touch down at 150 mph or less, at sea level or thereabouts.

"In European sailplanes, we are beginning to see small 'sucking' or 'blowing' holes in the wing. The idea is to control the separating boundary layer (blowing air into the separation point) or eliminate the turbulent boundary layer (sucking it away) into the wing). Another way of keeping airflow attached at the upper surface is to allow air to bleed through from below. Leading edge slats, Fowler flaps, multi-element flaps, etc., are examples. This is to control the stall at the root of the wing where the lift is being generated. (Also remember the glide slope is controlled by changes in engine thrust, not flap setting or elevator movement).

"One of the newer L.E. droop techniques is to hinge the lower surface at the L.E. and have it swing forward when high lift is needed: It looks to me like this really changes the camber line, particularly the first 5% or so, thus generating high lift. Problem is, I'm sure the bottom surface is stalled also. If not, there's still a lot of drag. For landing a powered plane, however, you'd still get high lift, steep descent and speed control. Use of regular flaps would really make this a high lift (and drag) device.

"In summary, the NASA droop is for stall and spin control, washout can be used to provide an elliptical lift distribution as well as stall and spin control, and there are differences between landing/thermalling a sailplane and a jetliner. Hope this helps! Good soaring! (signed B^c.)

Editor's comment:

Boy, have you opened a can of worms here, Bill! I take issue with some of these explanations but agree with others -- partly! Rather than take up the rest of this page with my own views of how these things work, I'll let some of our knowledgeable readers send in their comments and explanations.

One very interesting thing that was brought to my attention some time ago was a wing section which looked very similar to the one you sketched where the leading edge hinges down and forward. I saw some airflow studies made of the section which showed a trapped vortex neatly rotating behind the lowered section...this tended to keep the flow smooth and reduce drag while still producing lift at high angles of attack. So, according to the information I saw, the drag was considerably less than had been supposed due to the vortex making the in-flow of air at the leading edge "think" that the transition was smooth. Apparently, the trap-

ped vortex occurs at very high angles of attack, and not at low angles, so perhaps we're both right. At low angles, the drag is high but at high angles, it is reduced. Could be?

One more point: there's no such thing as a free lunch. Aerodynamics is a compromise. Washout, while improving some things manages to hurt others. For example, it induces twist in the wing which increases in severity at higher speeds. Washout also creates drag. In one sense, you lose on the apples what you make on the bananas. I wonder if aerodynamic washout is better in this regard than geometric washout? Maybe someone can tell us.

By the way, boundary layer control by suction seems to me to be a means of removing stagnant, low-energy air from the wing's surface...not to remove turbulent air as you mentioned. Am I wrong? Blowing, on the other hand, is a means of adding energy to an area where moving air tends to stagnate, and is a possible means of entraining air from the oncoming flow to keep the air attached to the surface as it moves past.

Turbulation is a means of inducing early flow separation and producing turbulent flow over the wing on the basis that turbulent attached flow is less drag-producing than separated laminar flow. In particular, where the speed is low and the chord is short (wing tip, for example) the Reynolds Number trends toward a "critical" value. Loss of lift can be serious, so turbulation often helps keep the tip "flying". Not long ago, one of my friends managed to change an absolute "beast" of an airplane into a pussycat. In his case, the ailerons were almost totally ineffective. By turbulating the wing at the leading edge in an area in front of the ailerons, he was able to drastically improve aileron effectiveness!

I'd like to get a discussion going about these matters so that we can all learn something. Any aero engineers out there who would like to stick their oars in to the discussion and stir up the water a bit?

SLOPE SOARING VIDEOTAPE SHOWING SCALE MODELS IN FLIGHT OVER THE SLOPES OF SOUTHERN CALIFORNIA IS AVAILABLE FROM MARK FOSTER. 826 ONEONTA DRIVE, SOUTH PASADENA, CA 91030. THE VIDEO RUNS FOR ALMOST 2 HOURS, AND SHOWS A VARIETY OF SAILPLANES FROM A VINTAGE SCHWEIZER TG-2 IN ARMY COLORS TO A CONTEMPORARY LS-4...AND MANY TYPES IN BETWEEN. THE VIDEO IS AVAILABLE FOR RENT OR PURCHASE, AND MARK INVITES INQUIRIES FROM INDIVIDUALS AND DEALERS DIRECTED TO THE ABOVE ADDRESS.

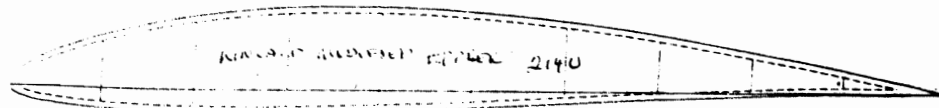
MCRE LETTERS

Leon Kincaid, 1971 Groveland Road, Palm Harbor, FL 34683 writes to tell us about a couple of interesting developments.

"ACE will be kitting my 3-M SCOOTER, and it should be out this spring. I've also been measuring the coordinates of several of my original airfoils and then using Chuck Anderson's airfoil program -- printing my own -- enclosed is a sample of the modified SCOOTER foil. I call it the KME 214U. It is a 12% SCOOTER airfoil reduced to 11.2%, and ends up a 'dead ringer' for a modified E214 but with undercamber...which is where the 'U' comes from. KME means Kincaid Modified Eppler. (signed) Leon.

Editor's comment:

It's pretty hard to go wrong with a Leon Kincaid design. I have flown a couple of his SCOOTERS, and like them a lot. Therefore, when Leon says that he has modified an Eppler airfoil, I figure it's worth a try, and therefore enclose it here for YOUR use if you'd like to give it a shot.

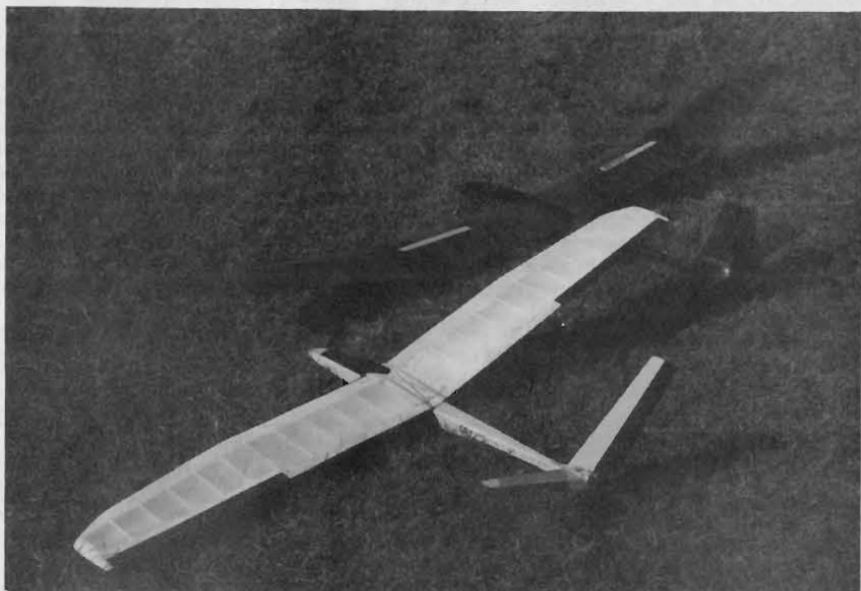


LETTERS FROM READERS

Chip Gibbs, 6300 Old Canton Road, 13-207, Jackson, MS 39211; Telephone (601) 956-8711 wrote to tell us:

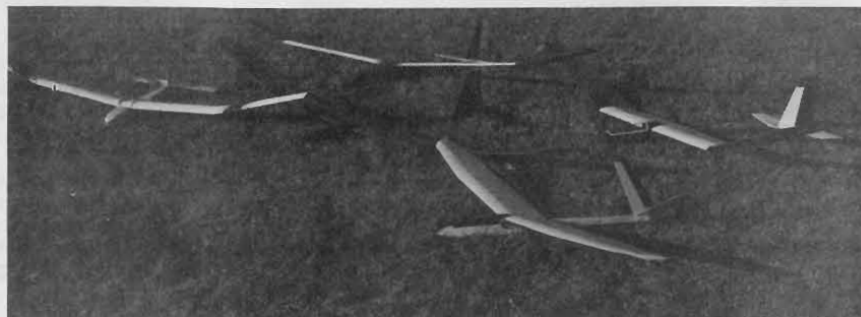
"I'm Chip Gibbs, a faithful reader/flyer, and thought I'd drop a note to let you know there's life here in the South and possibly generate a little needed interest in the sport here.

"I've sent some photos of my CG-1 and the guy's aircraft. I just started to tinker with designing my own sailplanes because most modern high-tech planes are too expensive. Also, I feel the 'plane must be tailored, not only to the pilot, but also to the area and conditions in which it will be flown; hence the CG-1.



Chip Gibbs' design CG-1 at left. Span 72", Airfoil E205. Controls are Vee tail with ailerons. Original vee tail caused problems, so design was changed back to conventional tail. Next, the E-193 will be tried.

Ship on right is hard to see due to contrast problems, but it is the using the wing (E-205) from a CUMIC 10C". Rudder, elevator & spoilers. A Bob Sealy-made Mike Bame fuselage was mated to the wing - mounted in a "shoulder" configuration. Chip says it came out lighter than the CUMIC, and flies like a "rocket." New straight wing with ailerons will be next...no polyhedral.



Another "armpit" view of the CG-1 by Chip Gibbs. Interesting fuselage. Nice wing platform arrangement. Elimination of dowels and rubber bands would "clean" it up a bit by reducing drag. Details show landing skid of 1/8" diameter tubing, flattened at ends, drilled and screwed to bottom of fuselage. Canopy is rolled 1/64" ply, with ply floor. Fuselage is 3/32" balsa sheet with taper and split-boom design, covered with one piece of super shrink Coverite. Wing has carbon-reinforced bottom spar, D-box leading edge and built-up trailing edge

"The CG-1 is basically a test bed built around the DRIFTER II's dimensions (my first try, remember) but that's where the similarity stops. Wing #1 uses an E205 airfoil, is built of balsa and lite ply, and is formatted after the straight T.E., tapered L.E. design. To aid low-speed flight, the wing was covered with a fabric top and film bottom. I hope to advance to foam wing construction soon for true airfoil benefit.

"Unfortunately, there really isn't much info available here, as most are into powered flight (Low Tech, High Power). I WOULD ENJOY CORRESPONDING WITH ANYONE INTERESTED IN THE CG-1, OR LIVING IN THE MS AREA. WE COULD USE A FEW MORE GLIDER GUIDERS! I HOPE THE PICTURES ARE HELPFUL. (Signed) Chip Gibbs."

Editor's comments:

Chip, the RCSD readers are a pretty friendly and helpful bunch, and I think you will receive some letters. Also, you are on the right track for a beginning designer. Starting with the basic dimensions of a successful design is always a good place to start. You can get fancy later! By the way, my friend Bruce Abell from Australia says that a textured top surface and a "slick" bottom surface on a wing is an excellent combination and one that works better for him than any other. I will be interested to hear how your experiments work out, and how they perform.

"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 \$9.00/\$16.50 for 12/24 issues. Sample copy \$1.25 postpaid. —

ROHACELL & FRIENDS

ONE OF THE NEWER TRENDS in airframe construction as seen in our European tour, is the use of Foam/Carbon Fiber/Fiberglass construction for flying surfaces.

Hoffsass, in F1B, Venuti F1C, and Van Wallere in F1A are typical examples of the successful use of this technique, along with many other European fliers who have recognized the advantages of the System.

The result is a rigid, "bullet proof" wing, in most cases light enough - but always strong enough - for the job.

One consideration to its new-found popularity is the use of "Rohacell", a rigid foam (poly-methacrylimide) unique in its characteristics. Strength values, such as compression strength, modulus of elasticity and shear at comparable densities are unequalled by other products.

Additionally, Rohacell is available in several densities: Rohacell 30 is 1.9 lb. per cubic foot; Rohacell 50 is 3.1 lb. per cubic foot; Rohacell 70 is 4.4 lb. per cubic foot. Compare this to "contest grade" balsa at 5 to 6 lb. per cubic foot!

Negatives? A few: Rohacell cannot be hot wired, but a drum sanding jig is satisfactory. Price is a bit steep. 1/4" thick at \$1.62 per square foot. Thicknesses up to 2-3/4" are available, but material available only in 4 ft. by 8 ft. sheets. F.O.B. Sanford, Maine. Cyro Industries, 25 Executive Boulevard, Orange, CT 06477. (Note: \$250 minimum order - so a club purchase would be feasible...JHG)

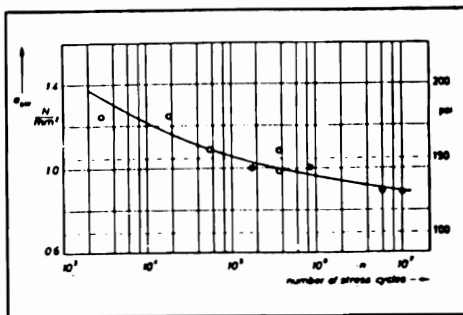
Drop them a letter for a price list and tech sheet.

Most of the balance of construction of the System consists of a full-depth "I"-beam spar with C.F. roving on leading and trailing edges. A vacuum bag device applies positive mold pressure after application of glass/epoxy covering to finally give a rigid, non-compressible product.

Mechanical properties of ROHACELL 31, 51, 71

ROHACELL					
Properties ¹⁾	Units	31	51	71	Standard
Gross density	kg/m ³ (lbs/ft ³)	30 (1.9)	50 (3.1)	70 (4.4)	ASTM D 1622-63
Tensile strength	N/mm ² (psi)	1.0 (142)	1.9 (270)	2.8 (398)	ASTM D 638-68
Compressive strength	N/mm ² (psi)	0.4 (57)	0.9 (128)	1.5 (213)	ASTM D 1621-64
Flexural strength	N/mm ² (psi)	0.8 (114)	1.6 (228)	2.5 (356)	ASTM D 790-66
Shear strength	N/mm ² (psi)	0.4 (57)	0.8 (114)	1.3 (185)	ASTM C 273-61
Modulus of elasticity	N/mm ² (psi)	36 (5120)	70 (9950)	92 (13100)	ASTM C 638-68
Shear modulus	N/mm ² (psi)	14 (1990)	21 (2990)	30 (4270)	ASTM D 2236-69
Shear modulus at break	N/mm ² (psi)	13 (1850)	19 (2700)	29 (4120)	ASTM C 273-53
Elongation at break	%	3.5	4	4.5	ASTM D 638-68

¹⁾ Test conditions: 23 °C (73.4 °F) and 50 % relative humidity



Alternating flexural strength test of ROHACELL 51 at a stress frequency of 10 Hz.

The long-term behavior of ROHACELL under dynamic stress is excellent. There was no observable, time-dependent decrease in the stress up to an exposure time of 10⁷ load cycles.

In the December 1987 issue of Soaring Flight, newsletter of S.O.A.R., Tom Kallevang, editor, there appeared this article by Harley Michaelis who is well known to soaring pilots everywhere. I think it's most appropriate and valuable, and present it for your pleasure and education. JHG.

The manual lacks specific instructions to get the most out of the radio for sailplanes with ailerons, full-range flaps, rudder and horizontal stab. Additional input from Airtronics, other fliers, trial and error, has established a set of TX settings for a practical, versatile and elaborate control setup. In addition to the usual dual rate, independent and mixed rudder/aileron and elevator P.S.T., the settings described below will provide (1) Proportional or maximum spoilerons with elevator mixing; (2) Proportional flaps that can go 90 degrees down with elevator mixing and 10 - 15 degrees up; (3) Combinations of spoilerons and down flap; (4) Independent flap reflex; (5) Combinations of up flap and spoilerons to trim entire trailing edge for speed; and (6) Maximum aileron throw and travel adjustment.

Under the trimmer cover, set pots as follows:

Top Row: Aileron and Up...fully Clockwise...fine tuning later
 Aileron Left & Right, fully Clockwise to maximize aileron movement
 Elevator P.S.T. "1" - will be discussed later
 Ail-Rud...straight up for starters
 Flap-Elev and Spo-Elev, see below
 Elev-Flap...will be inoperative
 Flap 2...Fully Clockwise to maximize aileron movement
 Flap Trim ... will be inoperative
 Aileron Differential...fully Counterclockwise to maximize aileron movement.

Bottom: Elevator, Down, Rudder L & R, all full Clockwise for maximum movement...fine tuning later
 Elevator P.S.T. "2" will be discussed later
 Flap-Spoiler select is DOWN
 Flaperon-Spoileron is UP
 Pulse Mixer switches are in "2" and "6"

Ch. 6 for flaps limits servo throw on the throttle stick and kills the trim tab. Instead, Ch. 1 (throttle) is used, preserving full throw to more easily get full flap movement. The trim tab works, and down elevator CAN be mixed on the throttle channel, as explained below. Separate aileron servos go in Ch. 2 and 7 with "Y" cable that also provides power. With the above settings at least, the Aileron Travel adjustment pots are disabled with Ch. 2 and 7 switches in "Reverse". Thus, the mechanical linkup should permit these switches to be in their normal positions.

Since aileron throw is maximized only if the Aileron Dif setting is fully Counterclockwise, differential can be achieved mechanically by 45-degree offset of output arms. If Swingees (dark, opposing set) are used the arms on the wing-mounted servos point down, angled TOWARD a vertical line between them. Position these on the shafts with the Auxiliary Channel lever DOWN and the Mix switch in F1-E. Then adjust linkages mechanically to put ailerons in neutral. On "right" command, both Swingee arms move right, the right Swingee goes up, and the left Swingee goes down.

Test fly without using flaps or spoilerons. To avoid possible calamity from accidental movement of the Auxiliary lever, disable the spoileron function by putting the Mix switch in the F2-E position. Find the best balance and stab position for level flight with very slight pullout tendency after a dive. Mark this neutral stab setting position with a pinhole, etc., in the fin. Adjust the linkage to get the output arm close as possible to a right angle. Adjustment of the Flap-Elev pot (under the word MIXING) will change the neutral setting of the

elevator servo. After adjusting for mixing with spoilers as outlined below, ALWAYS check the stab setting with the pinhole, and RESET the arm on the shaft and/or adjust linkage so the stab is at the predetermined neutral.

FLAP-ELEVATOR MIXING: With settings above, flap servo in the throttle channel, mixing adjustments for the flaps are done with the Spo-Elev pot (under the word "ADJ"). Full Counterclockwise gives maximum down elevator with flap. If this leaves any ballooning tendency, mechanically increase the stab throw. This may make the ship tucky in the pitch axis. A further forward CG and uptrim can reduce this sensitivity. If full Counterclockwise causes the ship to dive, move Clockwise as needed for the desired attitude. Don't overdo down elevator mixing that leaves insufficient stick response and also adversely affects the tow.

SPOILERON-ELEVATOR MIXING: Do with the Flap-Elev pot and with "MIX" switch in F1-E. The Auxiliary lever must be down to make mixing adjustments. Movement up should then move both ailerons up proportionately. If they go down, reverse the servo connections. Full Counterclockwise rotation of the pot mixes maximum up elevator. If the ship stalls, rotate the pot Clockwise. Check stab with the pinhole! E - F position on the Mix switch puts the ailerons in full up, overriding the lever, for maximum spoiler type effect.

The flap mechanism can be set for up for neutral flap with the throttle stick fully up, trim tab fully down. The tab can then give a little up flap for faster cruising or more to act as spoilers. Maximum airspeed can be attained by slightly reflexing both the ailerons and flaps. When you find the best reflex position, adjust the Flap-Elev pot to get the right amount of elevator mixing with this combination. Alternately, a portion of the stick movement can be reserved for more up flap, and the trim tab left centered for up or down trim.

P.S.T. "1" can be used for a bit of up for tow or for turning in a thermal "hands off" with some rudder/aileron trim. "2" could be used for a bit of down to flatten out a glide. Either could be used if elevator mixing is inadequate. Fine tune by making changes in small increments and observing the effect at safe altitude. Carefully preflight all optional settings.

Harley Michaelis, AMA 32343, LSF 023

Doug Klassen is no stranger to soaring or to slope soaring in particular. He has flown slope in California mostly, operated a hobby shop there for quite a long time, and generally hung out with the soaring bunch, altho he has been known to fly powered ships now and again.

Here's Doug's interesting article about moving to Arizona and trying to find a way to fly here. Timm Webb and company had a lot to do with Doug's success.

"SLOPE RAMBLES"

BY DOUG KLASSEN

I'M BOTHERED BY TOO MANY RULES, CROWDS AND WAITING FOR MY FREQUENCY TO OPEN UP. I GUESS I SHOULDN'T START WITH A NEGATIVE STATEMENT LIKE THAT BUT WHAT THE HECK; IT'S THE TRUTH AND IT'S WHAT LED ME TO TAKE UP SLOPE SOARING AS MY PREFERRED FORM OF R/C FLYING SOME TEN YEARS AGO NOW. YOU SEE I FOUND THAT I REALLY LIKED GRASSY HILLSIDES, BROAD VISTAS AND FLYING WITH JUST ONE OR TWO FRIENDS AS OPPOSED TO THE CLUTTER AND COMPETITION AT THE TYPICAL THERMAL SITE (NEVER MIND THE LOCAL POWER FIELDS).

I LOVE THE DIVERSITY OF PLANES THAT YOU SEE ON THE SLOPE: SLOW FLOATERS, AILERON TRAINERS, HOT ROCKS THAT MAKE YOUR KNEES SHAKE AND THE IMPROBABLE

DESIGNS BORN OF TOO MANY HOURS ALONE IN THE GARAGE. I RECALL MY FRIEND OF A FEW YEARS AGO, ONE CHRIS HANZLIK, WHO FOREVER LACKING THE \$ TO BUY A KIT CONTENTED HIMSELF WITH BUYING THE LEAST EXPENSIVE Balsa HE COULD FIND AND THEN SCRATCH-BUILDING HIS OWN DESIGNS. NOT ORDINARY DESIGNS MIND YOU BUT THINGS THAT ONLY AN UNTRAINED SIXTEEN YEAR OLD MIND COULD CONJURE UP. PLANES LIKE THE "KATIE BOX SPECIAL" A TAKE-APART DESIGN THAT GOT ITS NAME BECAUSE CHRIS NEEDED SOMETHING JUST THE RIGHT SIZE TO FIT INSIDE OF A BOB MARTIN MODELS "KATIE II" KIT BOX WHICH HAPPENED TO BE JUST THE RIGHT SIZE TO FIT ON THE RACK OF HIS BICYCLE. THEN TOO YOU SHOULD HAVE SEEN HIS FLYING SAUCER! SOMEHOW IT SEEMED TO HAVE EVOLVED FROM THE "RAVEN" FLYING WING DESIGN (RCM CIRCA 1979). THE SAUCER WAS A 36" SPAN DISK WITH ONE VERTICAL FIN, ELEVONS, AND COVERED IN PINK SOLARFILM. NOT EXACTLY THE KIND OF DESIGN YOU ARE LIKELY TO FIND AT THE NEXT THERMAL DURATION CONTEST BUT WHICH SOMEHOW SEEMED PERFECTLY LOGICAL FOR SLOPE FLYING. THE SAUCER'S FLIGHT CHARACTERISTICS COULD BEST BE DESCRIBED AS "UNUSUAL" AND THE PLANE FINALLY MET ITS DEMISE WHEN AN ATTEMPT WAS MADE TO LAUNCH IT LIKE A FRISBEE.

ANYWAY, LOVING SLOPE SOARING LIKE I DO, IN 1981 I DID THE ONLY LOGICAL THING THAT A REAL SLOPER WOULD DO: I MOVED FROM THE BEAUTIFUL HILLS AND COASTAL BREEZES OF LOS ANGELES TO THE DESERT OF PHOENIX, ARIZONA. OH SURE, PHOENIX IS SURROUNDED BY MOUNTAINS AND HILLS BUT THE MOUNTAINS AND HILLS ARE COVERED NOT WITH LUSH GRASS BUT WITH ROCKS. AND NOT JUST ORDINARY ROCKS BUT ROCKS THAT ARE REALLY DECOMPOSED AND BROKEN UP LAVA! THE ONLY PLACES WHERE THERE ISN'T ROCKS ON THE HILLS IS WHERE THE CACTUS GROWS... SIGH. IF YOU LOVE THERMAL SOARING SOARING OR CROSS COUNTRY SOARING PHOENIX IS A GREAT PLACE BECAUSE BETWEEN THE HILLS ARE MILLIONS OF ACRES OF FLAT GROUND AND WARM WEATHER.

OUR FAMOUS ARIZONA HOT WEATHER MAKES FOR GOOD THERMALS THE YEAR ROUND AND THE CENTRAL ARIZONA SOARING LEAGUE HAS SOME REALLY NICE FLYING SITES THAT ARE AS GOOD OR BETTER THAN ANYTHING I EVER SAW IN L.A. BEYOND THAT THERE ARE A MULTITUDE OF CITY PARKS, SCHOOLS AND LOTS OF JUST PLAIN EMPTY DESERT WHERE YOU CAN STRETCH OUT A HI-START OR STAKE A WINCH.

SO HERE I SIT, IF NOT IN SLOPE SOARING HELL AT LEAST IN SLOPE SOARING PURGATORY. THE SOLUTION FOR ME HAS BEEN SIMPLE BUT NOT CHEAP OR SATISFYING. I USE UP MY VACATION TIME EACH YEAR TO DRIVE BACK TO LOS ANGELES AND GO SLOPE SOARING WITH MY OLD FLYING BUDDIES. THE SOLUTION ISN'T SATISFYING BECAUSE I ONLY GET TO FLY MAYBE TWICE OR THREE TIMES A YEAR AND IT ISN'T CHEAP BECAUSE MY WIFE GOES SHOPPING IN L.A. WHILE I GO FLYING. ON THE OTHER HAND IT'S LEFT ME WITH LOTS OF TIME TO BUILD AND REPAIR BEFORE THE NEXT FLYING SESSION. AFTER SEVEN YEARS I HAD SETTLED INTO THIS MAKE-DO ARRANGEMENT AND EVEN SUPPLEMENTED MY URGE TO FLY WITH AN OCCASSIONAL THERMAL FLIGHT OR POWER PLANE (GASP!). AND THEN WONDER OF WONDERS WHILE WALKING THROUGH THE CENTRAL ARIZONA MODELERS SHOW WHAT SHOULD I SEE BUT SOMEONE SHOWING A VIDEO TAPE OF SLOPE SOAR-

ING IN PHOENIX! AND NOT JUST SHOWING A VIDEO BUT SELLING A SLOPE SHIP SPECIFICALLY DESIGNED FOR ARIZONA STYLE SLOPING! THE RELATIVELY RECENT CONVERTS TO SLOPING TURNED OUT TO BE T.J. WEBB AND MIKE DOBBS OF FIBRE FLIGHT. THE GLIDER TURNED OUT TO BE THE "INDEX ONE" A 48" SPAN PLANE CONSTRUCTED OF FOAM AND CARDBOARD WITH THE WINGS BEING COVERED WITH 100LB PAPER. LOTS OF QUESTIONS FOLLOWED: WHERE DO YOU FLY? "NEAR SOUTH MOUNTAIN". HOW'S THE LANDING AREA? "COVERED WITH ROCKS AND CACTUS". WHAT DO YOU DO FOR LANDINGS? "WE ONLY MAKE ONE FLIGHT PER DAY NORMALLY, LASTS ABOUT AN HOUR AND THEN WE PUT 'ER DOWN IN THE ROCKS AND GO HOME TO FIX IT". AH HA, WHY DIDN'T I THINK OF THAT... I COULD UNDERSTAND WHY THE INDEX ONE WASN'T PRETTY. IF YOU HAVE TO LAND IN LAVA ROCKS A DISCUS OR SB-10 IS HARDLY THE TICKET BUT CARDBOARD MAKES A LOT OF SENSE,



CARL AND TIM GET READY FOR ANOTHER FLIGHT

THE WIND IN PHOENIX IS INCONSISTENT AT BEST AVERAGING ABOUT 7 MPH AT VARIOUS TIMES OF THE DAY BUT NOT EVERY DAY OR EVEN EVERYWHERE. THAT BEING THE CASE WEBB AND I TRADED PHONE NUMBERS AND HE PROMISED TO CALL ME NEXT TIME THE WIND LOOKED GOOD FOR THEIR HILL. THREE MONTHS LATER THE PHONE RANG. WEBB SAID THE WIND LOOKED LIKE IT MIGHT BE GOOD IN THE AFTERNOON AND DID I HAVE A GLIDER CHARGED UP? I DIDN'T EVEN HAVE ONE IN ONE PIECE. IDLE HANDS ARE NOT ONLY THE DEVIL'S TOOLS BUT THEY DON'T FIX GLIDERS THAT SHOULD HAVE BEEN FIXED AFTER THEY CRASHED (MID-AIRED, ACTUALLY) SIX MONTHS EARLIER. I CONFESSED TO T.J. THAT I WASN'T READY READY TO FLY BUT THAT I'D TAG ALONG AND TAKE PICTURES, SECRETLY IN MY BLACK LITTLE HEART I KNEW THAT SOMEONE WOULD TAKE PITY ON ME AND PUT A TRANSMITTER IN MY HANDS BEFORE THE DAY WAS OVER.

I MET WEBB AND TWO FRIENDS OF HIS AT WEBB'S PLACE AND WE CARAVANED OUT TO HILL. AS IT TURNED OUT THE ONLY PLANE BROUGHT ALONG WASN'T WEBB'S BUT BELONGED TO ONE OF THE OTHER FELLOWS (SORRY, FORGOT THE NAME) AND WAS A MUCH FLOWN INDEX ONE. UPON ARRIVAL THE GLIDER AND TRANSMITTER WERE CARRIED TO THE BASE OF THE HILL AND HANDED OVER THE IRON RAIL FENCE (DON'T ASK) AS EACH OF US IN TURN SHINNED UP AN OVER. AS I LOOKED UP THE ROCK STREWN FACE OF THE HILL I TURNED TO WEBB AND SAID IN MY NICEST VOICE "CARRY ME DADDY?". I WON'T DIGNIFY HIS REPLY BY REPEATING IT HERE. WEBB AND COMPANY MARCHED ON UP THE HILL WHILE I WHEEZED AND PUFFED ALONG BEHIND. HALF WAY UP I STOPPED TO REMOVE TWO CACTUS (CACTI? CACTUSES, CACTUM?) FROM MY RIGHT SHOE. NOW YOU NORMALLY THINK OF CACTUS AS THOSE BIG THINGS THAT YOU SEE IN OLD ROY ROGERS MOVIES BUT THOSE BIG CACTUS START OUT REAL SMALL ABOUT HALF THE SIZE OF A TENNIS BALL. THE SPINES ON THE OTHER HAND START OUT FULL GROWN AND REALLY SHARP. SCRABBLING UP THE HILL I GOT TWO OF THEM DEAD CENTER. MIX ONE CUP OF AVACADO DIP WITH 1/2 CUP OF T-PINS, PLACE THE WHOLE MESS ON THE GROUND AND STEP ON IT...REAL HARD. YOU'LL GET THE GENERAL IDEA. ONWARD AND UPWARD,

BEFORE I REACHED THE TOP OF THE HILL THE YOUNGER FOLKS HAD THE INDEX ONE LAUNCHED IN LIGHT LIFT. WATCHING IT MOVE BACK AND FORTH ON THE HILL I ALMOST FORGOT THE BURNING IN MY LUNGS AND MY RUBBERY KNEES. ARRIVING AT THE TOP I FUMBLER FOR MY CAMERA WHILE CATCHING MY BREATH, EYES GLUED TO THE SITE OF A RATHER RATTY LOOKING GLIDER FLYING JUST FINE OVER THE ROCKY HILLSIDE WITH THE BROAD VISTA OF THE VALLEY OF THE SUN SPREAD OUT BELOW. AHH! I FELT LIKE A THIRSTY MAN ABOUT TO GET A COOL DRINK OF WATER IN A DRY LAND.



LANDING AREA WITH INDEX ONE AVOIDING IT

AFTER A FEW MINUTES THE TRANSMITTER WAS HANDED OFF TO T.J., WHO FLEW FOR A WHILE WORKING THE WEAK LIFT AND GAINING A HUNDRED FEET OR SO. AS THE INDEX DRIFTED OUT A BIT FARTHER FROM THE HILL T.J. TURNED WITH THE TRANSMITTER AND HANDED IT... BACK TO THE OWNER! MY FACE REMAINED IMPASSIVE AS I STARED AT THE TRANSMITTER. INSIDE I FELT LIKE THE NERD WHO WENT TO THE PROM BUT FORGOT TO INVITE A GIRL.

IN TIME THE YOUNG MAN DOING THE FLYING SENSED THE GREAT UNTAPPED SKILL THAT WAITED IN MY FINGER TIPS OR PERHAPS HE JUST NOTICED THAT I WAS DROOLING ON MY CAMERA. IN ANY CASE HE SPOKE TO ME HALF TURNING HIS HEAD AND KEEPING ONE EYE ON THE GLIDER "YOU EVER FLOWN SLOPE BEFORE?" STAY COOL. DON'T SOUND ANXIOUS OR HE MIGHT NOT TRUST YOU. "YEAH, QUITE A BIT WHEN I LIVED IN L.A." "HERE, GIVE IT A TRY. SEE WHAT YOU THINK" HE SAID HANDING THE TRANSMITTER TO ME. TRANSMITTER IN HAND I SPENT THE NEXT TEN MINUTES PUTTING THE INDEX THROUGH ITS PACES. LOOPS NICE AND TRUE. NEEDS MORE AILERON THROW BUT DOES A DECENT ROLL. THE OLD CLARK Y AIRFOIL GAINS ALTITUDE EASILY IN THE LIGHT LIFT BUT NEVER REALLY BUILDS UP MUCH SPEED. ALL IN ALL I THOUGHT IT A VERY NICE GLIDER FOR SLOPE BASHING AND ONE OF THE BETTER AILERON TRAINERS I'VE FLOWN. I HANDED THE BOX BACK TO THE OWNER. HAVING ACTUALLY SLOPE SOARED IN PHOENIX I DECIDED THAT I HADN'T FELT THIS GOOD, THIS REFRESHED SINCE I GAVE UP MY DIET.



TIM WEBB READIES HIS INDEX ONE FOR LAUNCH

**AMERICAN SAILPLANE
DESIGNS**

Unique Glider Kits and Supplies

COMBAT MODELS

F-16 SLOPE SOARER



\$45.95
PLUS \$3.50 SHIPPING
CA Res Add 6.5% Tax
Price Good Thru 5-31-88

COMPLETE CATALOG \$3.00
• THERMAL • SLOPE • SCALE • ELECTRIC •
2626 CORONADO AV. #89
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SHORTLY A LANDING WAS ATTEMPTED. WONDERMENT! THE INDEX SURVIVED WITH LITTLE MORE THAN A PRICKLY PEAR STUCK IN ONE WING TIP. TWO MORE FLIGHTS WERE COMPLETED AFTER REMOVING THE SPINES AND BEFORE THE WIND PETERED OUT. DOWN THE FACE OF EVEREST WE TRUDGED, DODGING CACTUS AND SLIPPING ON LOOSE LAVA BUT WELL PLEASED TO HAVE GOTTEN IN MORE FLYING THAT WE WOULD HAVE IN A FULL DAY OF THERMAL SOARING. AND WE DIDN'T EVEN HAVE TO SET UP A WINCH.

OTHER HILLS ARE BEING SCOUTED NOW AND MY BROKEN BIRDS ARE ALL REPAIRED, I'M NOT SURE THAT I'M INCLINED TO FLY ANY BUT THE CHEETA AROUND HERE THOUGH. I'LL STILL GO TO CALIFORNIA TO FLY WITH MY OLD BUDDIES BUT DOG-GONNED IF THERE ISN'T SLOPE SOARING IN PURGATORY AND PRETTY GOOD SOARING AT THAT. YOU CAN BET THAT THE NEXT TIME THE WIND BLOWS DECENT IN PHOENIX ON A WEEKEND THAT KLASSEN, WEBB AND FRIENDS WILL BE OUT SCALING ANOTHER HILL TO FLY... EXCEPT MID-MORNING IN THE SPRING. THAT'S WHEN THE RATTLESNAKES ARE ACTIVE.

1988 National
Mid-Columbia RC Soaring Scale
Fun Fly and Soaring Social
Agenda

- I. Thursday May 26th
 - a. Registration at Clover Island Motor Inn 6:00 PM - 9:00 PM
 - b. Social Hour in receiving room or bar
 - c. Information on event, area activities, site maps

 - II. Friday 27th
 - a. FORMAL Registration at Clover Island Motor Inn
 1. 8:00 AM - 10:00 AM
 2. Telephone call in for site location after 11:00 AM*
 - b. Site selection 9:00 AM
 1. Site selection determined by wind direction
 2. No wind will require that flying be from W. Richland field
 - c. Pilots proceed to selected site any time after 9:00 AM
 - d. Flying to proceed from 10:00 AM - 5:00 PM
 1. Pilots attempt to limit their flight times to 15 minutes.
 - e. Tentatively 7:00 PM wine tasting and social hour.

 - III. Saturday 28th
 - a. Registration if necessary; telephone call in for site location*
 1. 8:00 AM - 10:00 AM
 - b. Site Selection 9:00 AM
 - c. Pilots proceed to selected site
 - d. Flying to proceed any time after 9:00 AM ending 5:00 PM
 - e. Social hour and no host bar 7:00 PM
 1. Video of Baron Hilton's soaring ranch.
 - f. Banquet 8:00 PM
 - h. Guest speaker
 1. Bob Moore a long time full size soaring pilot with slide presentation which will include slides of vintage gliders.
 - i. RAFFLE Awards presentation; to include two PCM radios and other prizes.

 - IV. Sunday 29th
 - a. Telephone call in for site location 8:00 AM - 9:00 AM *
 - b. Flying to proceed any time after 9:00 AM ending 4:00 PM
 - c. Frequency control will be ended at 4:00 PM
- * Call in telephone numbers are 627-5224 & 375-1587, which will yield a recorded message specifying the site location.

This article was taken from the January 1988 issue of the Millstone Valley Silent Flyer, and brings to mind similar stories of my own. Do you recognize yourselves in this piece? Yep, we all do...read on...

(...Lest I forget: Millstone Valley, New Jersey, that is... Once upon a time I went to a contest and discovered I had forgotten rubber bands. I was forced to borrow some from a friend who casually remarked: "You come to a contest and you forget rubber bands?" After that, I always packed all the basic essentials into my flight box and felt secure.

Then one weekend in Green, New York I performed one of my infamous dork landings and shattered the Monocote on one wing panel. Herr Zeigenfuse was kind enough to produce a "repair box" from the bowels of his station wagon, and in it were two or three rolls of Monocote and an iron. From then on I carried with me to all the contests an old kit box with Monocote, iron, and some assorted bits and scraps of balde, ply, and hardwood.

OK, so now we're at Reading and it's Saturday morning and my Silver Seven ain't got no range. Asking Don Goughnour for help, he immediately whips out a choke and solders it, with a battery-powered soldering iron, to the circuit board of my receiver, and with his volt meter proceeded to tune my radio! After that, I always carried a choke and a meter. I still haven't gotten around to purchasing a battery-powered soldering iron.

We now have everything any flyer could want in our flight box and repair box, right? Wrong. The scene is Reading again. Why do I have so much trouble at Reading? It rained that night and into the early morning, and the field was like a cranberry bog. I maxed the first flight and was feeling good as I set up for my landing. Carrying a little speed, I /put the nose down about five feet in front of the mark and proceeded to slide on the wet grass through the 100 foot mark and right on out of the circle. Walking back to the tent and remarking out loud about not having a skid on the nose of the fuse, and I cudda been somebody, my timer, Tony Matyi said: "Yo, I gotta skid!" He drilled the guide holes with his jeweler's drill and then mounted the skid with self-tapping screws. Who the hell carries an extra skid in his flight box? Tony did, and he saved my day.

Are we getting the message? You cannot bring too much to a contest. I suggest you make a check list, and include everything you could possibly use to make any and all repairs to your sailplane and radio equipment. Carry with you extra battery packs (charged, of course)...and extra servos. Suppose you strip the output gear in your aileron servo. End of contest? Not if you have an extra servo with the right plug!

What I am saying in all these parables is: BE PREPARED. A lot can go wrong at a contest, and no one wants to be forced to leave early because of a small repair or a missing part.

____;____;____;____;____

HERE ARE SOME SOURCES TO REMEMBER:

George Sparr - Aerospace Composite Products, P.O. Box 16621, Irvine, CA 92714 Telephone: (714) 250-1107. Fiberglass, Kevlar, Carbon, etc.

Aircraft Spruce & Specialty - P.O. Box 424, Fullerton, CA 92632; (714) 870-7551 Sitka spruce, fiberglass, carbon, Kevlar, epoxy. nitrate dope, carbon fiber, etc. Caters to home builders of full-size aircraft and modelers.

Gougeon Brothers, P.O. Box X908, Bay City, MI 48707; Telephone (517) 684-7286 WEST system epoxy (105 resin, 205/206 hardener, 301 pump; dispensers, fiberglass, carbon fiber. Caters to boat builders.

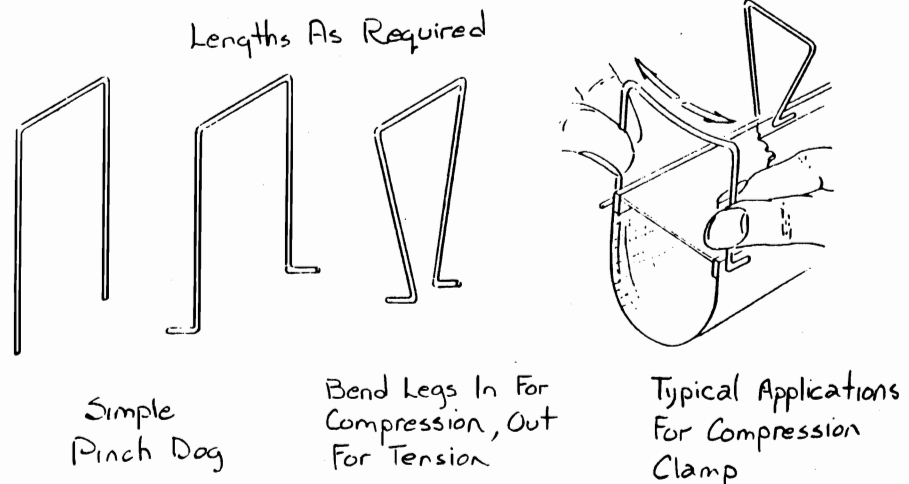
Bob Violett Models, 1373 Citrus Road, Winter Springs, FL 32708; (305) 365-5869 Fiberglass and carbon fiber laminates...not cheap!

How many times have you wished you had a small light clamp; one that is inexpensive, has adjustable pressure, can be shortened, lengthened, squashed, etc., and is readily available? Well, you probably have the material for such a clamp lying around your shop, but just didn't know it!

For lack of a better name, I like to call the type of clamp I will describe as a "pinch dog." Old-time cabinet makers used this term to describe a small steel plate which had a "V" cut out of one edge. The pinch dog was used by hammering the points into the ends of a pair of edge-glued boards, straddling a glue line, to hold the boards together with pressure while the glue dried.

Our pinch dogs are not meant to replace C clamps or clothes pins, but they are just the ticket for light-duty work such as installing longerons, applying doublers, or holding trailing edges together. Their advantage lies in their light weight, complete adjustability, cheapness, and the ability to apply force in opposing directions -- pushing or pulling.

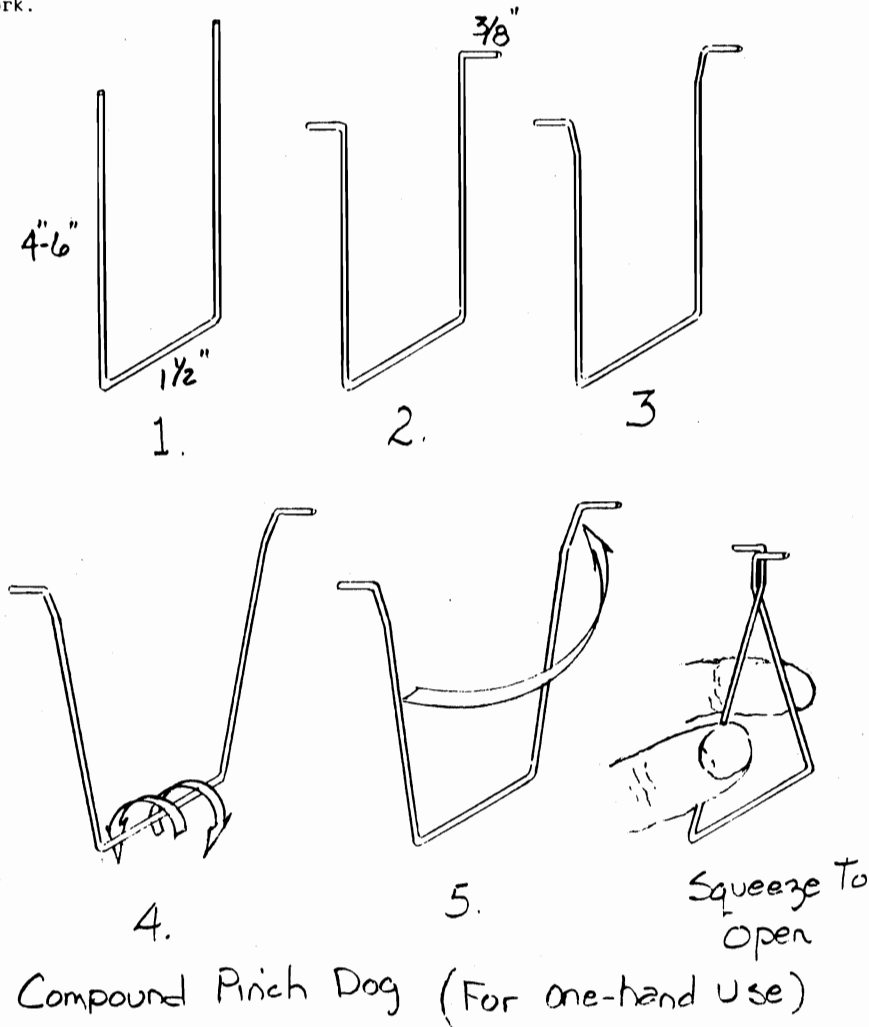
So, how do you make this "animal?" All you need is a wire cutter, a pair of pliers, and suitable lengths and diameters of good old music or piano wire. I have found 1/16" diameter wire to be a good size to use because it's easy to bend and the pressure supplied seems adequate for most applications. Of course you can substitute lighter or heavier gauge wire depending on the job you have to do.



If you don't want to bend up your push rod wire stock, a good substitute is coil spring material found in mattresses or upholstered chairs. (You might just as well rip up your own bed, because if you attack your spouse's favorite chair, you won't have a place to sleep anyway!) Old, discarded, "junk yard" furniture makes a good source of such wire.

Pinch dog clamps can be made in any size you desire or need, and in several configurations. The illustrations should be self explanatory. You can apply compression or tension with a single pinch dog, depending on how you bend the

legs. The amount of bend will determine the force applied by the pinch dog to the work. Bend them in, and you have a compression clamp; bend them outward and you have a tension clamp for applying tension between opposing pieces of work.



When making this compound clamp, be sure to flare out each end of the legs as shown in Step 3 to insure a flat clamping surface. You don't want the ends of the wire to dig into the balsa or other easily damaged material. Also, bend the legs around the connecting axis as shown in Step 4 to keep the legs together when they are crossed, and to stop the clamp from rotating and springing off the workpiece. These pinch dogs can be active little rascals!

Editor's note:

You can write to Asher Carmichael at 106 Pineview Court, Daphne, Alabama 36526. I'm sure he would be pleased to hear from you.

NEW AND INTERESTING DEVELOPMENTS.....courtesy SOUTH BAY SOARING SOCIETY

The newsletter of the South Bay (California) Soaring Society, editor John Dvorak, presented recently an INNOVATION - a foam core wing press.

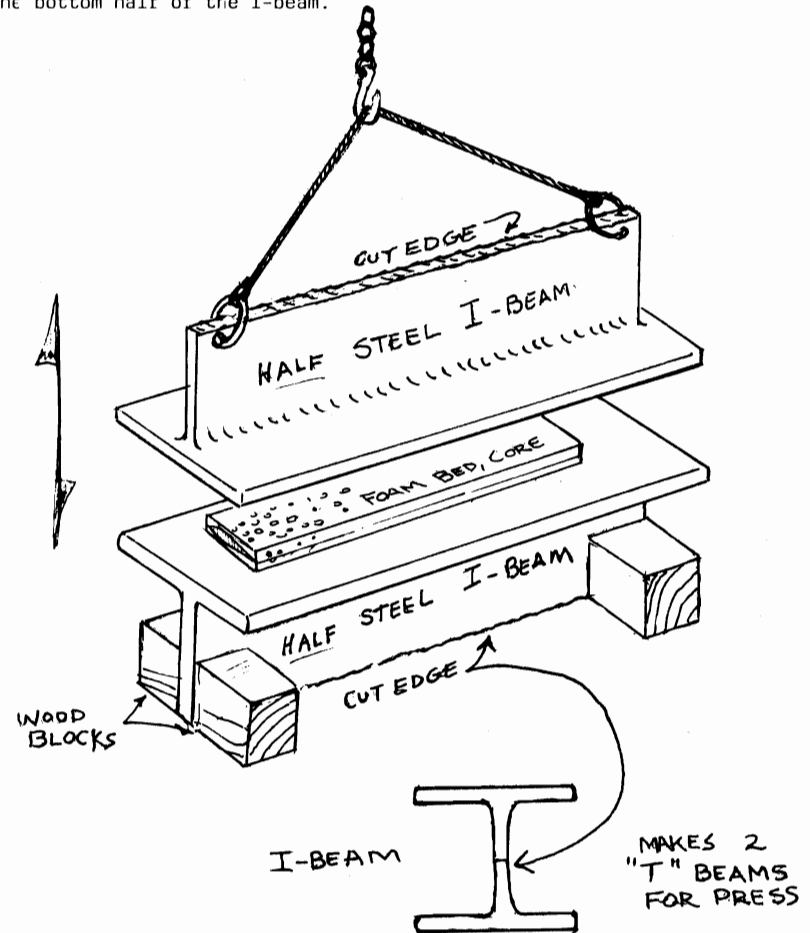
Oscar Rico has developed a press for bonding skins to foam cores that insure a straight and true wing. He uses a steel I-beam that is normally installed in buildings. The 16" beam is 3/4" thick and weighs nearly 600 pounds. Oscar had to cut the beam down the center of the web to make the two "I"-beam halves of the press. The top half weighs about 290 pounds. To achieve a force of one pound per square inch on a foam core wing, two 100-pound sacks of cement are loaded on to up the total weight to about 500 pounds.

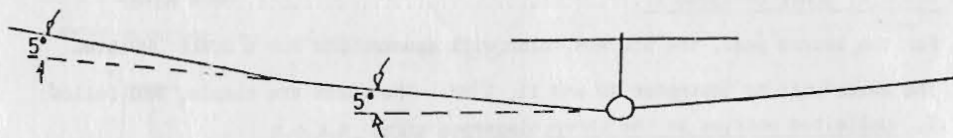
A rope sling is attached to a hoist which lifts the top section of the I-beam press. Wood blocks stabilize the bottom half of the I-beam.

Oscar uses only one ounce of epoxy to bond the balsa skins to a WINDSONG foam core. The total weight of the complete wing is 13 ounces! This includes the LE, TE, spar and 1/16" balsa sheeting!

A special process is used to fabricate the 1/64" x 1" plywood trailing edge and bond it to a foam core. White glue is applied to the plywood and allowed to dry. The plywood trailing edge is then ironed on to the foam core, heat reactivating the glue.

For more information, you can phone Oscar Rico at (408) 996-0727, or write to him at 18711 San Palo Court, Saratoga, CA 95070.





BRILLIG2 140" SPAN OPEN SOARER

ALGEBRA 8 FUZ 35 oz

CG LOCATION 130-135mm MESD ALONG ROOT CHORD
HOOK POSN 112mm (WINDY POSN)

NO NOSE WEIGHT

1/2 oz Tail weight for balance
with a 600mAh NICAD

HI PHASE WINGS 32 oz

1x 1/4" ϕ SPRING STEEL JOINER

1x 6 SWG FRONT JOINER

SPLIT 6 SWG REAR INCIDENCE KEEP

2x 1/2"x 1/8" SPRUCE + 18" HT30F ALLOY TUBE

9" ROOT

7.3" AT DIH BRK

55" TIP

12" BRAKES

GLASS EPOXY COVERING

T/PLANE 1 3/4 oz

5" ROOT

3" TIP

24" SPAN

96 \square " AREA 8.7%

40mm TP CENTRES

3/8" THICK SYMMETRICAL TAPERING TO 3/16"

12 SWG PIVOT 16 SWG MOVER 20 SWG LOCATION

RUDDER 5/8 oz

ATTRIBUTES: QUICKER THAN IT SHOULD BE

GOOD GLIDE ANGLE

POOR LOW SPEED ROLL STABILITY *

LAUNCH IN WINDS OVER 5 KNOTS

GOOD TRACKING ON TOW

WEIGHT

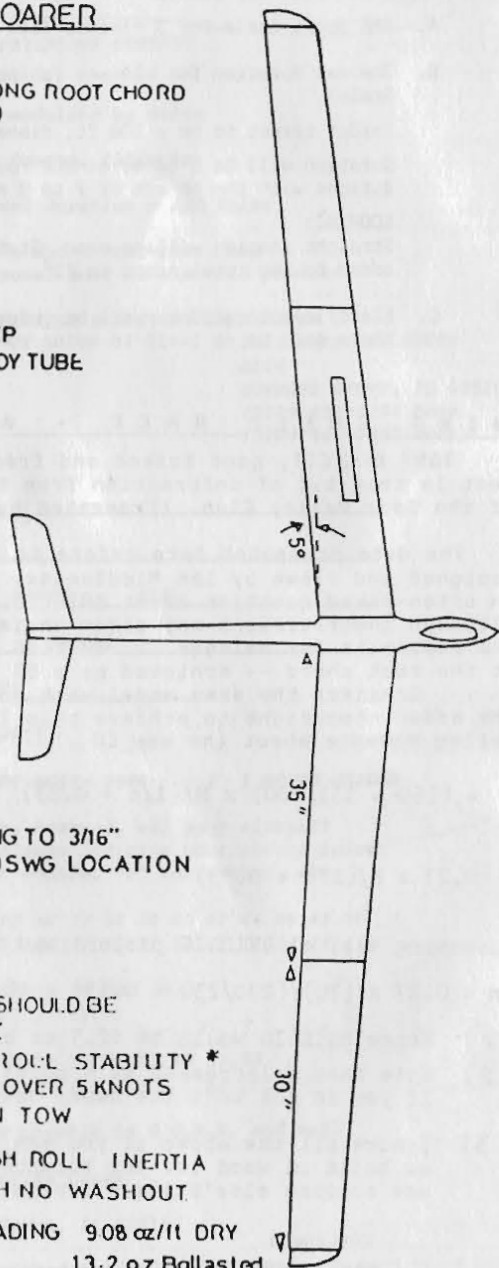
* SUSPECTED HIGH ROLL INERTIA

- FOAM TIPS WITH NO WASHOUT

694 oz

AREA 1100 in² LOADING 9.08 oz/ft DRY

13.2 oz Ballasted



PROPER WAY TO FASTEN WINCH/RETRIEVE LINES TOGETHER...CASA NEWSLETTER 11/87

On Tow:

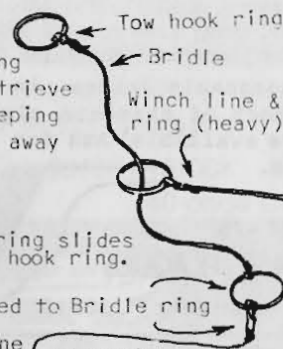
winch line ring is against retrieve line ring, keeping retrieve line away from glider.

On Retrieval:

winch line & ring slides up against tow hook ring.

swivel attached to Bridle ring

retrieve line (light)



LORUS Sports Timer

COUNT-UP or COUNT-DOWN at the touch of a button. Program any target time up to one hour.

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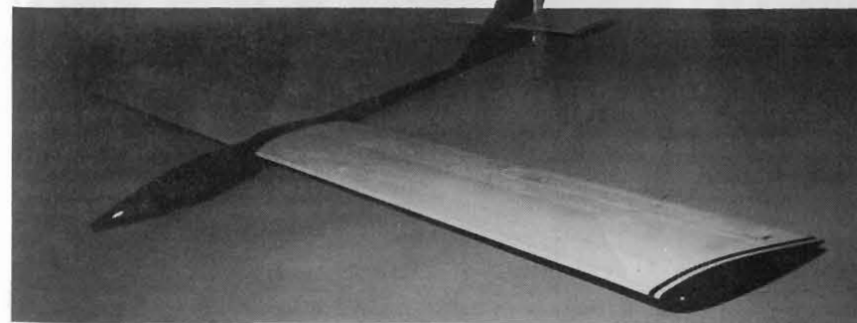
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PRECISION FOAM CORES

Basic sizes and Custom Panels

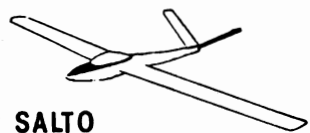
Basic sizes:

Center panels 48" long by 8" cord
 " " " 8½" "
 " " " 9" "
 " " " 10" "

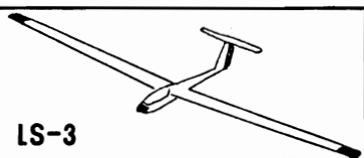
Tip panels

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

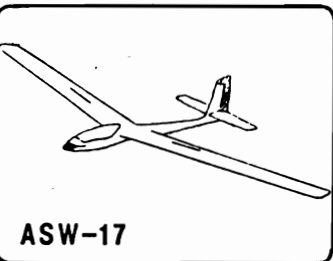
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 850 Concord Street, Pleasanton, California 94566 Phone (415)-462-0672



SALTO



LS-3



ASW-17

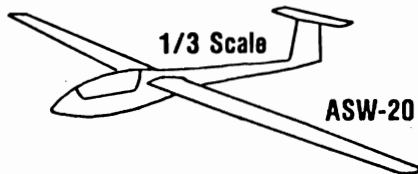
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