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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.

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- YEARLY DUES ARE \$12.00 (SPECIAL FAMILY RATES)
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R/C Soaring

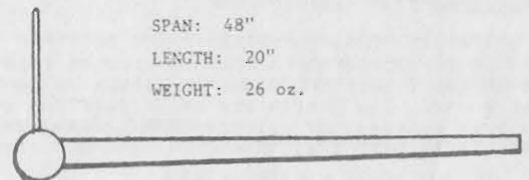
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Vol. 4 No. 10

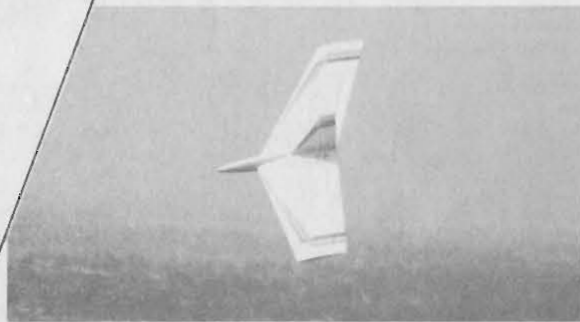
OCTOBER 1987

DESIGNED FOR: LIGHT LIFT AEROBATICS
BY: MIKE REED & CARL MAAS

SPAN: 48"
LENGTH: 20"
WEIGHT: 26 oz.



FALCON



F3B W.C. RESULTS

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HI START

Twenty-seven hundred and sixty miles in four driving days from Peterborough to Payson, and we missed the moving truck by only 45 minutes! Not bad for the first real cross-country in our Plymouth Voyager. Lee Iacocca, take a bow!

In one sense the trip to Arizona was uneventful - a "grind" to be sure - but in another sense full of interest, crossing terrain we'd never seen before, and meeting new people. New Hampshire, Vermont, New York, Pennsylvania, Maryland, West Virginia, Virginia, Tennessee, Arkansas, Oklahoma, Texas, New Mexico and - finally - Arizona! Each state having its own charm and beauty.

We stopped in Elmira to visit Howie and Lorraine, old friends we used to fly with at Harris Hill.

In Virginia, where we stayed overnight, the motel was in full darkness when we arrived, due to a power failure. Have you ever eaten a meal, taken a shower, and gone to bed by the light of a flashlight?

In Tennessee, we visited with Bob and Irene, folks we've known through RC Soaring for many years. Bob had a couple of new sailplanes ready to fly: a Paul Carlson MINI-PRO, and a pretty little English free-flight sailplane called the GULL...with a span of about 36 inches. Bob gave it to me as a going-away present! Time and weather didn't permit a chance to fly, however.

Interstate 40 took us west through Tennessee and into Arkansas, where we encountered swarms of locusts for the first time. These little guys were in every bush and tree, and their noisy "singing" drowned out all other sounds. The Ozarks are beautiful, and we decided we'd have to come back someday for a longer visit. The roadside picnic area where stopped for lunch was a sheer delight and rest for weary travellers.

Oklahoma and the Texas panhandle were entirely different from anything we'd seen before. Miles of open spaces punctuated by irrigated land, grain elevators, ranches, and cattle. People have said that there is nothing quite so desolate as the Texas panhandle, but we didn't see it that way because it has a simple beauty of its own quite unlike any other place, particularly when seen at dawn.

City after city was by-passed on I-40, and in a couple of places we saw 5 AM twice, having crossed another time zone. Breakfast in Memphis and Abilene, dinner in Oklahoma and New Mexico...all different from our previous experience.

By arising at 4 A.M. and starting out at 4:30 A.M., we managed to drive in the cool darkness with only truckers and an occasional early riser to keep us company, eating up the miles of highway toward our Arizona destination. We averaged 700 miles a day by driving nearly 800 miles on some days and only 600 on others.

In Albuquerque, we stopped to see Nick Trubov and met Steve Work who gave us some insights into F3B on an international scale, and what our U.S. Soaring Team might be able to do in future to improve its performance.

One of the outstanding but ever-changing sights was the BIG SKY of the western United States -- a giant blue canvas stretching from horizon to horizon upon which brilliant white cumulus stretched downwind in cloud streets for a hundred miles or more! The scale and size of this country staggers the imagination. We thought of Pioneers and Indians.

Finally, Arizona, and a stop at Heber, just north of Payson, to take photos of a huge red and white sign saying "Jim Gray's Rock Shop". We knew we'd made it, then.

Adios, Amigos -- and Happy soaring.

Jim

WORLD R/C SOARING CHAMPIONSHIPS - 1987 - OSNABRUCK, W. GERMANY

TEAM RESULTS - BY COUNTRY

1. AUSTRIA
2. GREAT BRITAIN
3. WEST GERMANY
4. SWITZERLAND
5. HOLLAND
6. ITALY
7. USA
8. HUNGARY
9. FRANCE
10. BELGIUM
11. CZECHOSLOVAKIA
12. SWEDEN
13. AUSTRALIA
14. POLAND
15. JAPAN
16. ISRAEL
17. DENMARK
18. EAST GERMANY
19. NORWAY
20. ARGENTINA
21. FINLAND
22. SPAIN
23. NEW ZEALAND
24. CANADA

MISSING POSSIBLE ENTRIES

- CANADA - 2
NEW ZEALAND - 1
TURKEY - 3

LESSONS LEARNED: MUCH MORE EMPHASIS ON F3B IN USA ON AN EVERYDAY BASIS.

MANY MORE F3B CONTESTS TO SHARPEN AND HONE FLYING

COMMENTS: WE HAD GOOD SAILPLANES, BUT THE BEST SUFFERED CASUALTIES AND BACKUPS WERE FLOWN

OUR TEAM WAS EXCELLENT, BUT OTHER TEAMS HAD MORE PRACTICE, AND THEIR SAILPLANES WERE BETTER FOR THE CONDITIONS THAT EXISTED.

FOREIGN TEAMS WOULD LIKE TO FLY IN VIRGINIA BEACH AT THE NEXT WORLD CHAMPIONSHIPS...THE US HAD BETTER START THE PLANNING NOW.

NO SINGLE COUNTRY HAS A CORNER ON BRAINS AND ABILITY; PRACTICE AND CONTESTS ARE MOST IMPORTANT ASPECTS OF IMPROVED F3B PERFORMANCE.

INDIVIDUAL RESULTS BY COUNTRY

- | | |
|------------------------------------|--------------------------------------|
| 1. REINHARD LIESE - W. GERMANY | 36. JAROSLAV MÜLLER - CZECHOSLOVAKIA |
| 2. PETER HOFFMAN - AUSTRIA | 37. JOZEF LOPP - CZECHOSLOVAKIA |
| 3. SAMUELE VILLANI - ITALY | 38. SWEN-OLOF CARLSSON - SWEDEN |
| 4. STEPHEN HALEY - GREAT BRITAIN | 39. PETER MIKKELSEN - DENMARK |
| 5. RAINER AMMANN - SWITZERLAND | 40. GARY JORDAN - AUSTRALIA |
| 6. NIC WRIGHT - GREAT BRITAIN | 41. BERND FALKENBERG - EAST GERMANY |
| 7. HOLT TEN JORIS - HOLLAND | 42. ARIEL MEIR - ISRAEL |
| 8. KARL WASNER, JR. - AUSTRIA | 43. GERT HOLTBACK - SWEDEN |
| 9. DAVID WORRALL - GREAT BRITAIN | 44. KARSTEN JEPPESEN - DENMARK |
| 10. GUNTHER AICHOLZER - AUSTRIA | 45. YAMAJI UCHIDA - JAPAN |
| 11. BRUNO SIEBER - SWITZERLAND | 46. THOR ØGRE - NORWAY |
| 12. PETER ABELL - AUSTRALIA | 47. OLA D. SMITH - NORWAY |
| 13. RUDOLF BINKERT - SWITZERLAND | 48. ZVICKA NAVE - ISRAEL |
| 14. JEROEN SMITS - HOLLAND | 49. MICHEL CASTEL - FRANCE |
| 15. RALF DECKER - WEST GERMANY | 50. CARLOS CORDERO - ARGENTINA |
| 16. MARTIN SCHLOTT - WEST GERMANY | 51. HITOSHI OHTAKA - JAPAN |
| 17. MARTIAL LEGOU - FRANCE | 52. ICHZKEL COHEN - ISRAEL |
| 18. STEPHEN WORK - USA | 53. FORNIES J. PORTELLA - SPAIN |
| 19. FRANCIS CASAUX - FRANCE | 54. JORGE H. KRENKEL - ARGENTINA |
| 20. RICHARD SPICER - USA | 55. WILLFRIED VOLKE - EAST GERMANY |
| 21. FRANCO GIVONE - ITALY | 56. GRANT FINLAY - NEW ZEALAND |
| 22. JANOS HORVATH - HUNGARY | 57. PEKKA VALLITTU - FINLAND |
| 23. JOAKIM STAHL - SWEDEN | 58. GERHARD KOHN - EAST GERMANY |
| 24. HENK BONESTROO - HOLLAND | 59. PEDRO RUBIO PEREZ - SPAIN |
| 25. GRZEGORZ PESZKE - POLAND | 60. LESZEK ZYGA - POLAND |
| 26. ROBIN JOSEPH - BELGIUM | 61. ESPEN TORP - NORWAY |
| 27. ANDRAS SZERI - HUNGARY | 62. GRAEME TAYLOR - AUSTRALIA |
| 28. STEVEN LEWIS - USA | 63. JOSE JUAM DIAZ - ARGENTINA |
| 29. HIROYUKI YASUI - JAPAN | 64. UDO RUMPF - CANADA |
| 30. DENIS DUCHESNE - BELGIUM | 65. WARWICK GATLAND - NEW ZEALAND |
| 31. MARCO LORENZONI - ITALY | 66. ESA HEIKKILA - FINLAND |
| 32. ENDRE VOROS - HUNGARY | 67. NIELS E.-RASMUSSEN - DENMARK |
| 33. CEZARY ZDROZKOWSKI - POLAND | 68. MIKKO MAKINEN - FINLAND |
| 34. JEAN-CLAUDE REMY - BELGIUM | 69. JAEN A. CORONILLA - SPAIN |
| 35. ZDENEK JESINA - CZECHOSLOVAKIA | |

This information was provided by "Competitor's ACHMER NEWS" furnished each contestant by the German Aero Club, and furnished to RCSD through the courtesy of Steve Work. Thanks, Steve.

NOTEWORTHY EVENTS:

M.A.R.C.S. NATIONAL SAILPLANE SYMPOSIUM - Fifth Annual sponsored by the Madison (Wisconsin) Area Radio Control Society. October 31st and November 1st, 1987 to be held at the Ramada Inn, 3841 East Washington Avenue, Madison, Wisconsin 53704.

Room reservations can be made by calling 1-800-356-7476, or (608)-244-2481. Identify yourself as a Symposium participant for a special block of rooms.

Carl Mohs suggests that anyone who is not on the M.A.R.C.S. mailing list should contact him at 5024 Lake Mendota Drive, Madison, WI 53705. Carl's home telephone is (608)238-2321, and he can also be reached at the office on (608)233-8888.

The Symposium this year will feature a report by Michael Selig on the results of his airfoil test program; Walt Good will open the program with his "History of RC" talk; Professor Roland Stull will give his lecture about thermal research - an expanded version of last year's extremely popular presentation. In fact, early arrivals may be treated to a tour of Professor Stull's Meteorology Research Lab at the University of Wisconsin. Tom Runge of ACE MANUFACTURING will show the latest 1991 radio developments, with particular emphasis on equipment for sailplane pilots. Ken Bates will give a short talk about his Flying Wing experiments, and a possible breakthrough that allows good launches with a "wing". Joe Wurts, winner of a couple of the premier cross-country events for two years running, will give a show-and-tell demonstration of his vacuum-bagging techniques for producing superior quality sailplane wings. Leon Kincaid will talk about his design philosophy, and how that philosophy carried through on the contest field. Dolly Wischer (wife of Scale Expert Bob Wischer of MA magazine) will give her popular "Teddy Bear" workshop for the ladies who attend. **DON'T MISS THE SYMPOSIUM THIS YEAR!**

GREATER DETROIT SOARING AND HIKING SOCIETY DUAL MEET: October 10th and 11th, 1987 features thermal duration and spot landing for 2M, STD, and UNLIMITED classes. Location Ford Utica Test Track. Pilots meeting at 9:00 AM for both events. Call Art Slagle for your reservation at (313) 477-2228. The meet will be held at the flying site on Van Dyke between the 22 & 23 mile roads in Utica, Michigan. Pat Flynn will be the CD (Practice Day, October 3rd; Contest Day October 4th) FOR GOAL AND RETURN MEET - You'd better check to confirm these dates and times by calling Pat Flynn at (313) 581-2131 (home) or at (313)523-1353 (work).

1988 NATIONAL Mid-Columbia RC Soaring Scale FUN FLY and SOARING SOCIAL MAY 27, 28, 29 1988 AT TRI-CITIES Washington State. For information, call or write Will Byers, 632 Meadows Drive East, Richland, WA 99352. Telephone: (509)627-5224.

This will be a real FUN FLY with no rules, hassles or judges -- just looking, flying and talking. Bring your scale gliders, your scale power slope soarers, and don't worry about documentation, as none is required. AMA membership is required, as this is an AMA-sanctioned contest. A fee of \$25 covers registration and BANQUET.

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" " " 9" "	10" to 6" x 40"
" " " 10" "	

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LETTERS FROM SUBSCRIBERS

My friend Dieter Eberhart from South Africa sent a picture of himself and his new bride, as well as a photo of his ASW-22 - all fiberglass - which he says "flies fantastic!"

Besides glider flying, Dieter enjoys wind surfing, and is quite good at it from what I can discover. He says: "We have a dam some 4 miles up the road. Diane (new wife) got me started but I hated it. Balance and aerodynamics - plus a few tricks - are needed. The sail works like an airfoil, while the feet move the board to suit wind and sail. I have clocked my board at 26 mph...not too bad for somebody who didn't like it! Here's Dieter:

"My ASW-22 flies like a dream, and I am now fitting a camera (aerial camera, that is...JHG) and pix will follow soon.

"In general, the weather has not been good. Sunday was a windy day although thermals were fast and super strong, which meant I WAS FLYING IN THE "HELICOPTER" MODE...and going backward. That required a long, long flight back to base and - if you are lucky - you can make the fence.

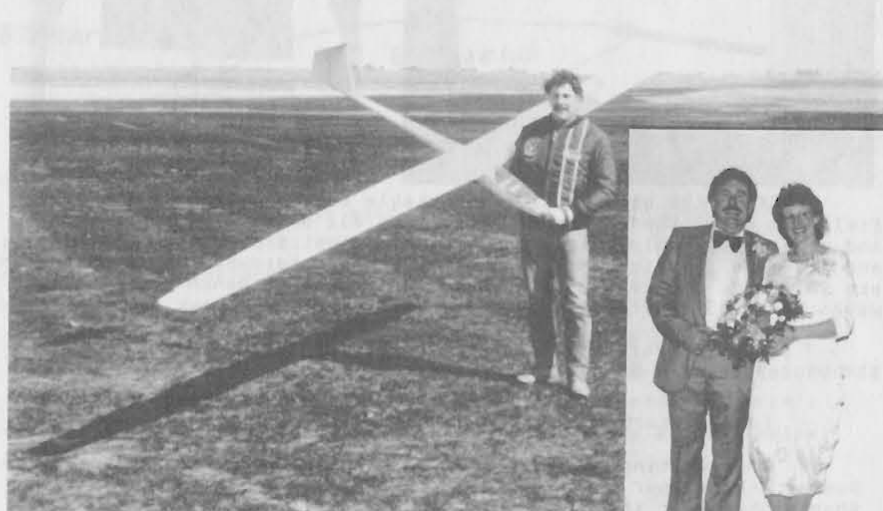
"On the day of the postals I managed to damage 5 gliders. My FIESTA was the best, and I managed to slice the RH wing off on the fence so you can imagine the (poor) scores we flew. The F3H (cross-country) scene has almost died with the exception of the Natal C/C, where the Natal F3B boys drilled us ETB boys into 5th and 6th spots. Yes, they were flying their F3B air's compared to our 5-Meter ships. Anyway, we all had a lot of fun and a good time...if you consider fun to be losing my 5-meter in the blue when it was the size of a match! Doc found it about 40 degrees from where I was looking. Man, a beer goes down quick in a situation like that! I made 9.5 kMs, and the F3B boys made 18 kMs.

"The F3B scene has also lost a lot of interested parties due to the high cost of kits and manpower. I bought a K6E kit, but as yet no time to put it together. I'll get started shortly though. I almost bought the full-size one 14 years ago. My dad sold his Astir CS about 3 months ago, and is now not flying that much.

I don't have a license anymore, but am a 'Pirate Pilot' - not a Private Pilot! I had a flight in a King Air 2B and helped with the take off. A 'pirate pilot' is the kind that flies with a Private pilot, see? That King is the best aircraft I've ever flown, even beating the Tiger. I still need to crack the Pitts and the ATc, and one day I'll do it. The Mustang is my all-time favorite, and flying it is my goal.

"Well, mate, that's about it from this end of the globe. Hope the move goes okay, and best regards to all. (signed) Dieter.

* 49 Highveld Road, Kempton Park, Kempton Park 1620, South Africa



THERMAL MIXER II.....Rainer Wiebalck

In last month's RCSD High Sky ran an ad on the Thermal Mixer II, a new device to help the soaring pilot detect and center thermals (or sink, if he prefers). The manufacturer HIGH SKY is owned and operated by Rainer Wiebalck. Rainer sent me a testimonial letter from Cliff Oliver, treasurer of the NSS, and I reproduce that letter here for your interest (JHG). Letter dated May 27, 1987.

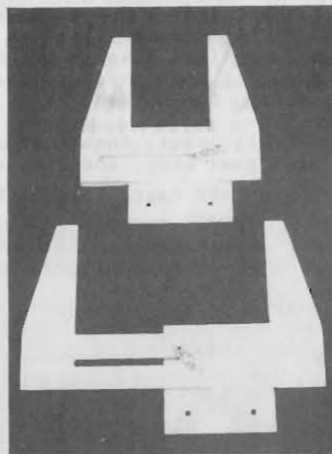
"Dear Mr. Wiebalck: I received the 'High Sky Thermal Mixer' last week, and have been having a ball with it. I installed it into a 2-meter 'PUSSYCAT' Friday night, and on Saturday I got 1st place in a precision/duration contest, beating out 14 other pilots flying the likes of FIESTA SF, CUMIC, ROBBE ASW-17, SAGITTAS, PROPHEI, GEMINIS, etc. I was the only one with a flat-bottom airfoil floater plane!

"After defeating everyone with my plane last Saturday, I think everyone who attended the contest is going to buy one. (Signed) Sincerely, Cliff"

Editor's Note: I have a Thermal Mixer II for installation in one of my own sailplanes, and plan to report on it for RCSD as soon as we get settled out here in Arizona. Also, Bob Gracey in Morristown, TN has one, and plans to do a report for us on his results...JHG.

BOXES PLUS.....NEAT NEW CRADLES AND HOBBY BOXES

Boxes Plus, P.O. Box 176 Canby, Oregon 97013; Telephone: (503) 263-6281 have introduced a new line of wood products for the modeler and hobbyist. A new model, DB-6D, comes fully assembled, pre-sanded, and ready for the finish of your choice. Lightweight, durable plywood construction, glued joints - air stapled - are features. The DB-6D has six drawers in three different sizes, and has a lockable, five-inch deep top compartment and comfortable metal carry handle. Overall size is 22" long x 10 1/2" wide x 17" high, and weighs 17 pounds. Send SASE for free catalog.



BOXES PLUS also provide adjustable fuselage cradles for your field box or workbench. Model AFC-1 fits all Boxes Plus hobby boxes and most other field boxes. The cradles adjust from 2 1/4" to 6 1/4" wide and are sold in pairs. Mounting instructions, hardware and edge padding are included. The cradles are easily adaptable to bench mounting as well. Send SASE for more information.

Suggested retail prices are \$74.95 for the DB-6D Box, and \$34.95 for the AFC-1 cradle.

Fully assembled boxes start at \$34.95.

When writing to Boxes Plus, please mention RCSD. Use Dept. Number A-6 on your letter for the cradle, and Department Number D9 when writing for the Box.

SPARROWHAWK AND THE BARNBURNER.....Toss Newsletter

The TOSS Newsletter is the journal of the Thousand Oaks Soaring Society in California. Editor Ed Oldenburg, 951 Warwick Avenue, Thousand Oaks, CA 91360. (Almost forgot: apartment #A2 should be added to address).

In the issue that came out in June, there was an excellent and informative article entitled "Keeping the Tips Up" which was a reprint from an article in the January 1987 issue of KITPLANES magazine. Part of this article bears the title above as it appeared in TOSS Newsletter.

"The NASA LE droop is already a feature on a flying, RC aircraft. You can read about that aircraft in the January 1987 issue of MODEL AVIATION magazine. The article by A.G. Lennon is titled 'Sparrowhawk' and starts with a two-page photo of the aircraft on pp. 24-25.

"Lennon doesn't get very technical about the NASA LE Droop. In fact, his discussion of it is very short and thoroughly conservative.

"He says the device delays the stall of the outboard panels by 'an additional 10 degrees' angle of attack while still retaining full aileron control. He's undoubtedly talking about the whole plane performance.

"Authot Thurston's more technical treatment in the KITPLANES article speaks to the more narrow scope of the drooped airfoil section considered alone. Data from NASA and independent researchers shows that an airfoil section equipped with the NASA LE Droop will remain flying up to 40 degrees angle of attack, and that lift increases between 35 and 40 degrees.

barnburner

"'Sparrowhawk's' airfoil is the Eppler 193. Unadorned, that section will suffer stall at somewhere between 10 and 12 degrees angle of attack at its maximum coefficient of lift.

"Without a sit-down between Lennon and me, I'll assume that the extra coefficient of lift given to the 'Sparrowhawk' by the NASA LE Droop results in a whole-plane stall of 20 to 22 degrees angle of attack when the bird is at maximum coefficient of lift.



the shape of things to come

The NASA LE Droop starts with the airfoil of your choice. Take a plot of the airfoil section and draw the chordline; that is, the line from the furthestmost forward point of the leading edge (LE) to the furthestmost rearward pint of the trailing edge (TE).

"Then you draw a parallel line beneath the chord line starting at the lower surface's point of maximum thickness and extending forward to a point 3% forward of the chord forward of the airfoil section's LE. Then you fill in this lower surface addition like the example below and you have the NASA LE Droop.

The shape's not all the thing of course. NASA found that the shape works best when it covers the outboard 38% of the half-span; that is, 38% of the wing beginning at the tip and extending toward the root. But the shape is a big part of the improvement, and the droop's shape has some very definite spin-offs (pun?...JHG) into spin resistance and spin recovery.

"Thurston quotes commentary on on experimental flying tests of a full-scale plane: 'The airplane was somewhat reluctant to enter a spin and recovered quickly regardless of the recovery control technique employed.'

"Lennon says the 'Sparrowhawk' will spin, but only from a snap roll in a fast vertical climb. The spin lasts two or three turns and then converts to a fast spiral dive which stops promptly on control centering.

"Of course, we're talking power planes here...a 'Sparrowhawk' RC model, that is.

"Nonetheless, RC sailplaners generally like to stay away from tip stalls and their consequent spins. Having a (special) airfoil outboard to thwart the tip stall makes any sort of a spin a force of the pilot's will, and allowing a quick spin recovery is cash - just cash.

INCREASING CAMBER AT THE TIPS

OLD STORY

"If it's done right, a gradually increasing camber from wing root to wing tip is one of the superior ways to to control the stall. It results in the wing root stalling ahead of the tips, efficient whole-wing performance across a wide speed range, and very little increase of drag due to the more cambered tips...

"Basically, it's matter of calculating the difference between the aerodynamic zero angle of attack at the root and the tip, and then progressively adding that difference as degrees of washout between the root and the tip.

"It's enough for now to say that the technique is exacting, complicated, and difficult to build well..

"It,s enough because I suspect the NASA LE Droop is superior in flight as well as being vastly more easy to do on the building board.

new story

"All the benefits you get from the gradual camber increase technique you also get with the NASA LE Droop -- plus you get spin resistance and recovery capabilities that nobody has (yet) claimed from the gradual camber increase technique.

"But let's not lose track of the trees while surveying the forest. The NASA LE Droop is still a method of increasing the camber (of the airfoil) at the tips.

"And it's only a bit bothersome that both increases are constant, chord-wise, across all of the outer 38% of the half-span.

"In fact, the 'Sparrowhawk' was built with NO transition zone

between the Eppler 193 airfoil and the drooped 193. Just - BAM! -drooped 193 like that! NASA says it's best to do it this way. Any transition badly degrades the whole plane's resistance to spinning.

"INCREASED CAMBER HAPPENS AUTOMATICALLY when you add a NASA Droop.

"If you refer to the drawing, you'll see that the original chord line of the airfoil no longer applies once the NASA LE Droop has been added to the section. The chordline has to be re-drawn for the now-new section.

"As always, the chord line runs from the furthestmost forward forward point on the LE to the furthestmost point on the trailing edge TE. For now just lay a clear plastic ruler on the drawing. With the new chordline in place you can easily see what's happened to the camber. There's a whole lot more section profile above the chord line and a whole lot less of the section below the chord line. Since camber is the difference between the chord line and the "mean line" (a line that's equidistant from the upper and lower surfaces and drawn between LE and TE) you'll see that the camber has increased a LOT. Note that washout also happens automatically when you add the NASA LE Droop.

"Washout is commonly applied by twisting the tip by moving the TE UP with regard to the LE. But it doesn't necessarily have to go that way: washout can also be obtained by twisting the LE DOWN with regard to the TE. Sure enough, the NASA LE Droop 'twists' the LE DOWN with regard to the TE! Sophisticated story. The best of the new fits well with the best of the old."

(Editor's comments: Looks like it will be fun to try. Who will be the first to check it out on a sailplane and report results to RCSD?-----
Actually, there is a third way of accomplishing aerodynamic tip washout as compared to geometric tip washout. Geometric washout happens when you twist the wing, but aerodynamic washout occurs when you change the wing section. Some devotees invert the airfoil section at the tip; others use a different airfoil section altogether; while still others don't bother doing anything except using ailerons. If you adjust ailerons to give "washout" you accomplish nearly the same thing.

One thing bothers me with this explanation. It has to do with the NASA change of profile. Ordinarily, one goes from a higher lift section to an almost symmetrical section at the tip, whereas this appears to be the reverse of that method. However, I know that modern airliners use mechanically drooping leading edges almost full span, so at this point I am confused as to who, or what, is "right". Anyone care to comment?

Once again, thanks to TOSS for bringing up this interesting subject.

"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.

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IMPROVEMENTS (?) TO A GREAT LITTLE DESIGN.....Pancho Morris*

Pancho Morris who flies with the Eastfield (Texas) Boomers sent in this review, along with a friendly and newsy letter in which he says: "...Here is a piece I've been threatening to do for a long time. Hope you can use it. It is a good flying plane. If you come through Dallas on your move (we didn't. ed.), come see Johnny Clemens and me at his HOBBY COUNTER hobby shop. The address is 1909 Greenville Ave., Dallas 75206. We are just NE of the downtown district in what is called Old East Dallas. Phone is 214-823-0208. We have been open now for just over a month after being burned to the ground in February. A 46-year-old hobby shop/museum was destroyed and can never be replaced, but we are making a good start and are getting lots of help. (Signed) Good Lift, Pancho"

(Readers, as we all know Johnny Clemens has overcome adversity before, and he will again! Soaring people take care of their own, and we all know that HOBBY COUNTER will rise again. Let's give them all the help we can, okay? JHG)

Buzz Waltz's POQUITO PRIMERO caught my eye. I was looking for a new hand launch RC design. Being of Mexican descent the name appealed to me and I have liked the way Tom William's CRAFT AIR line of flat bottomed turbulated airfoils performed. This looked like a similar wing with lots of area.

Upon receiving my kit I saw I was right, flat bottom, turbulated with ACRES of area. It should really float. I don't feel penetration is all that important as you generally fly these things in fairly close from a low launch.

The one thing that surprised me about this very well prepared kit was the wood sizes used. They looked like the wood sizes used in a two meter or 100 inch plane. I suppose in the interest of simplicity and economy they are as he makes this plane in 2 meter, 100 inch and 118 inch sizes.

The kit built up very well and looked great. Using mini, but not micro, radio gear the weight came in a about 16-17 oz.. This was a little heavy I felt and heavier than the 12 to 15 oz specified.

My next disappointment came on my first time out with it. The fuselage cracked at the finger and wing bolt blocks on a hard landing. It was the kind of landing you would make going for the spot.

After many repairs to the fuselage I built a new one with a layer of 1/64 ply full length on the sides. This came out heavier even with micro servos.

After several more months of abuse to this little plane I decided to scratch build a new one. Wood sizes were changed. Ribs were cut from 1/16 rather than the 3/32 of the original. The spars were changed from 1/8 x 3/8 to 1/8 x 1/4 spruce. The turbulators were changed from 1/8 x 1/4 to 1/8 sq. balsa. The tailfeather stock was changed from 1/8 x 3/8 and 1/8 x 1/4 to 1/8 x 1/4 and 1/8 x 3/16.

The fuse was built as per the original plans with the exception of adding a small bundle of carbon fiber tow (Dave Brown) at the top and bottom of the fuselage sides underneath the forward verticle doubler and the triangle stock in the rear. This runs full length of the fuselage.

On the recommendation of several of my friends from Houston, I added both more dihedral and polyhedral. They feel this makes the roll response quicker and keeps the plane up in a turn better. I agree after seeing the change. The original has a very flat wing much like the Top flite Metric.

The new plane with Micro servos and a 100 mah battery weighs in at about 12 oz. All of my radio gear is in the forward compartment under the hatch and it is actually nose heavy. I have added a tad of lead to the tail (I hate it!) rather than try to remount a servo further aft.

The new version flies great. It handles much more like it should. It does float. At the heavier weight it had to be flown fast and would stall if slowed down. It turns quicker and stays up in the turns much better. The fuselage is very tough now and has even bounced with a nice ring to it after hard nose ins almost straight down.

In the hands of a better thrower and flier than I this could be a formidable weapon! It is also great from a highstart or winch.

Pancho Morris

LIFTING AND LOFTING - AN ALTERNATE LAUNCH METHOD.....LT. COL. WILLIAM C. KALUF

Some months ago, a casual conversation with Jim Martin from HOBBY LOBBY caused me to write to "Bill" Kaluf who, with his son, has been launching sailplanes by the "Piggy back" method for about three years - with excellent results. I wrote to Bill, and asked him for an explanation. His reponse was immediate and enthusiastic, and the article I requested follows...JHG.

Engineering, solving a problem or making something work better is much more interesting to me than the act of flying. My favorite machine for flight, though, is the sailplane. Not glider, I learned the difference between sailplane and glider during glider assault training-a glider goes one way, down.

Sailplaining in Germany seems to me to be a little different for the average pilot than here. In this country slope and thermal soaring tend to be described as different forms of sailplane flight. The activity I've seen in Germany is more a combination of both. The average machine available is technically more complex, very clean of line and very very fast. I certainly can't say they aren't used in Germany but, where I go, about 50 miles north of Bonn, I've never seen a sailplane with polyhedral. Almost all have some method of slowing them for landing-usually a real necessity. Spoilers are extensively used. These are not the type frequently seen here, a section of aileron stock pulled up into the airflow an inch or more by a string. Instead, they are models of spoilers used on full size sailplanes. Made of a very light aluminum by a longitudinal pulling action a section of the wing, at the point of lift, about 1" wide and 10 to 14" long is deployed into the the airflow. Although the full deployment is only 1/4 to 3/8" lift is spoiled and the sailplane descends. Deployment is in pulses, as on full scale, and counter action by the elevator is not necessary. Another braking system used on smaller sailplanes is the canopy brake (I think it is called "Haubeclappe" in German). Simply a canopy hinged in the rear and raised about 60° into the airstream in about 1/2 to 1 second deployments. I use this system on my slope soarer. It is effective and does not require counter action by the elevator. My transmitters are equipped with a button on the top left of the case. A down thrust with the middle finger of my left hand deploys the spoiler. When released a half or a second later the spoiler is withdrawn.

The combination slope/thermal soaring I've seen in Germany is a result of really ideal conditions. The country is a sprinkling of hills within mountains. Frequently all that is needed for launch is a hand toss for a 3-4metre sailplane into a breeze flowing up a knoll. The knoll may have only three available sides because cars will be parked on one side. These sailplanes are so fast, with such a high glide ratio they have time/distance to hunt for thermals. At the same launch area will be smaller slope soarers operating at the same time. All using spoilers or canopy brakes to land fantastically fast ships in perhaps a 75' of available space. (I fly slope on the Outer Banks of North Carolina and with those winds I've always landed on the valley floor to my front-on the way home). If breezes are such that hand launching is marginal a high start system

LIFTING and LOFTING (CONTINUED)

is often used. I'd describe this as a "slack line". The system is laid out down the hill slope and is only pulled taut enough to flip the sailplane forward over the slope. If this sounds relaxed it is just what I have tried to convey.

Not all conditions, in any country, are so perfect. But, I soon found where perfection did not exist a solution had been found.

In a farm area nearby with no room to lay out a hi-start or winch I saw my first tow plane launch. Again space was small. Probably about a hundred feet. Sailplanes, using the same mechanics as for landing on the knoll, were being carried aloft piggy-back and released at an altitude of about 500'. The tow plane appeared to have a wing spread of just under 2metre. The turn around time from the time the tow plane started its taxi 'till it had released the the sailplane and was back on the ground seemed little longer than retrieving a hi-start from the weeds.

So now I am back around to the title. It wasn't long after my return that I noticed Jim Martin was advertising in the Hobby Lobby catalog a large airplane he called "Big Lift" from Multiplex, a fine German company, I ordered the airplane and the launch system which was sold separately. I will always remember building her as one of my great pleasures. Only one problem was encountered. The directions were well translated with the exception of the fact the outer panel of the wing was built with 15mm of washout built-in and the translation failed to cover the fact. I know enough German to translate with little difficulty. The sailplane is strapped to a plywood cradle fitted between the wing halves and the fuselage. A pylon rises from just aft of the windshield and through this operated by bellcrank and servo deep in the fuselage is a 1/16" piano wire that closes and opens a slot in the pylon. This in combination with a steel wire yoke which connects to a bellcrank on the rear of each half of the cradle. The forward end of the yoke slides into the slot in the pylon and is captured by the piano wire in the pylon. This is the heart of the release mechanics. The sailplane is set on the cradle, which is adjustable for wing cord, and strapped on with #64 rubber bands. In the front the bands are held firm. In the rear they slip over the aforementioned bellcranks after the yoke has been engaged at the pylon. The bands create a tension on the bellcranks held in a hook position so long as the yoke is connected to the pylon. The release of the yoke from the pylon is by activating the 6th channel (flap switch) on a 7FG Futaba transmitter. When the yoke is released this allows the bands to disconnect from the rear of the cradle halves and the sailplane is released.

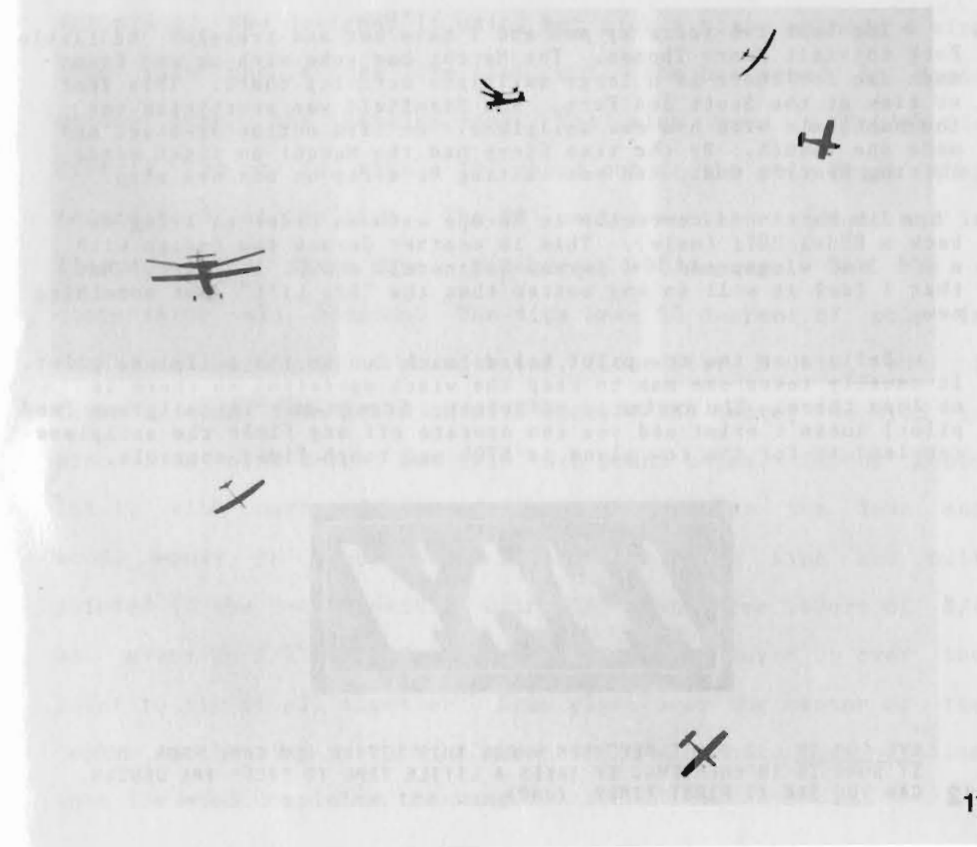
I finished the airplane in the spring of 85 in time to take it to my son in Missouri for test. Before that trip I took her with me to Bill Winter's and he discovered it was actually a model of the Aeromacchi Conestoga.

Instructions didn't include ailerons because they would upset the airflow between the wings and cause the sailplane to wobble. I installed ailerons regardless thinking of flights without a sailplane being carried. The engine is a Saito .90 twin swinging a 15X 5 prop of my own pattern. The thought behind the engine and prop was low speed and takeoff power. This really has proved to be a perfect combination.

Instructions were written which required both pilots to turn on and check radios. During the takeoff and climb to altitude the only thing the sailplane pilot has to do is tell the tow pilot



* Big Lift is designed to launch sailplanes...author



where he wants to be released. When altitude and position are reached the tow pilot throttles back to idle and begins a countdown from 5. On 1 he activates the release lever, when he perceives a clean disconnect he announces "free" and the sailplane pilot takes control of his craft. The climb to altitude is the "lifting" part. "Lifting" occurs when the release is accomplished. Even though the tow plane is at idle there is sufficient speed for the sailplane to loft to a considerable higher altitude. The countdown and separation is always a thrill.

This is the third year of use without mishap. The airplane/engine/prop are all a fine combination. My son is the pilot and we have never found a sailplane we couldn't lift. Even in a no wind condition takeoff is at about 50'. The sailplane mounts at about a 3½° angle of plus incidence so the combination takes off much quicker and the rate of climb is much steeper with a sailplane mounted. True to instructions ailerons could well cause an accident. It was tried on the first flight and never again. The control combination we've hit on is simple and makes for easy control by the tow pilot. The rudder was switched to the right stick and the rudder and aileron coupled. During the tow the coupling is off (all directional control is by rudder). After release the pilot of the tow engages CAR and goes into a tight spiral. Climb to altitude between 5 and 600' is 3 to 3½ minutes. After release the tow plane is on the ground in about 20 seconds.

We have in three years of use/that^{learned} the system creates no strain such as a winch on the sailplane, the sailplane pilot doesn't have to be good enough to be able to work a winch and he gets let off exactly where he wants and when. If he should change his mind the combination is as easy to land as takeoff.

The last two years my son and I have met and traveled to Little Rock to visit Henry Thomas. The Macchi has gone with us and found much use for there is a large sailplane activity there. This year we flew at the Scott Sod Farm. Ron Stanfield was practicing for the Nationals with his new sailplane. He laid out the hi-start and made one launch. By the time Steve had the Macchi on final after lifting Henry's Cunic Ron was waiting to strap on his new ship.

Jim Martin is currently in Europe with an order to bring me back a Rödél Müli (mule). This is another German tow design with a 7'5 3/4" wingspread. I intend to install a O.S. 1.2 twin. Not that I feel it will do any better than the "Big Lift" just something new.

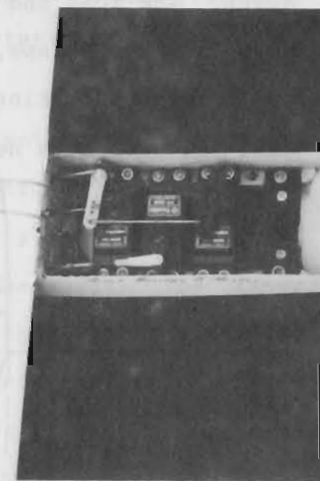
Believe me the tow pilot has as much fun as the sailplane pilot. It usually takes one man to keep the winch operating so there is no loss there. The system is efficient. Strain on the sailplane (and pilot) doesn't exist and you can operate off any field the sailplane can land in for the tow plane is STOL and rough field operable.



EYE-FOOLER: I DON'T REMEMBER WHERE THIS LITTLE GEM CAME FROM, BUT IT SURE IS INTERESTING. IT TAKES A LITTLE TIME TO "SEE" THE DESIGN. CAN YOU SEE IT FIRST TIME? (JHG).

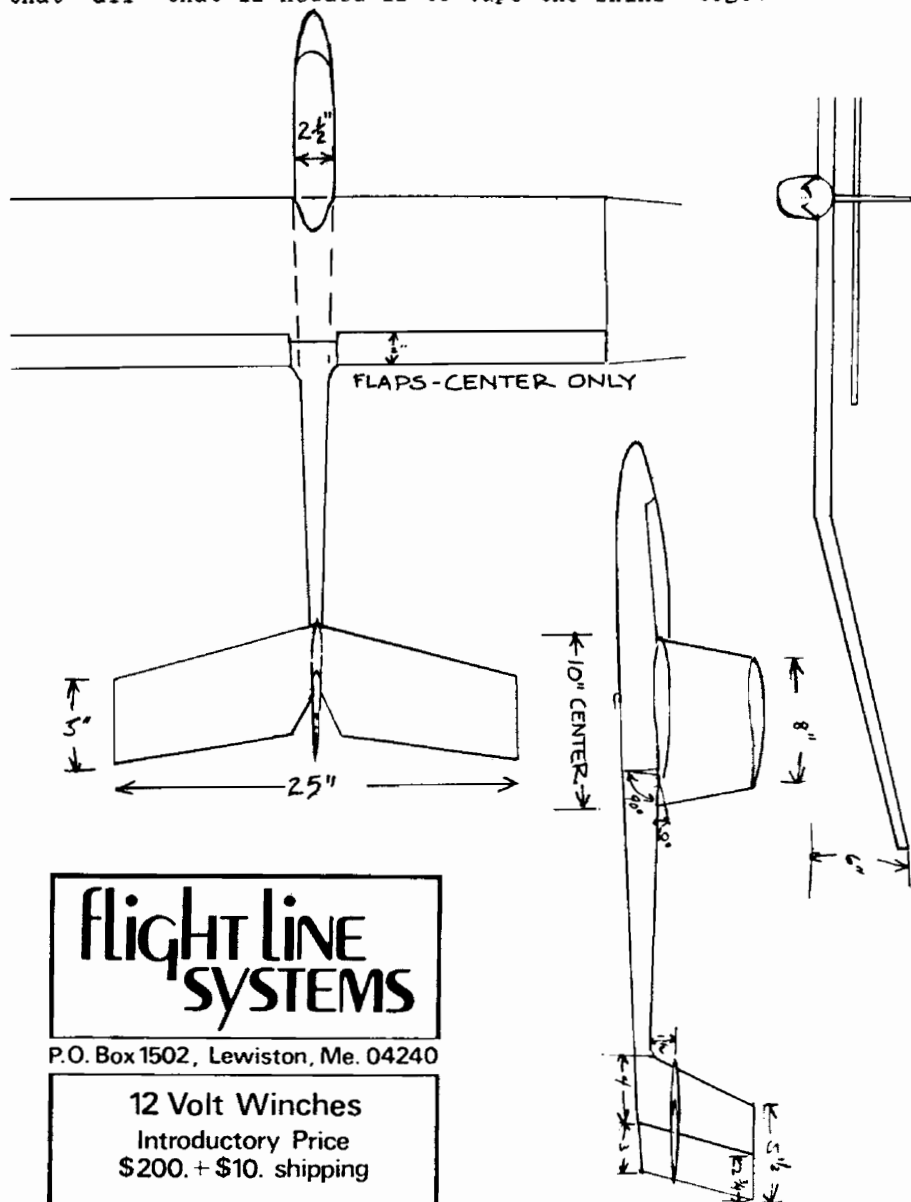
MANIC MONDAY - A TWO-METER SAILPLANE WITH CLASS.....RICH BORDER

Rich Border's sailplanes have appeared in RCSD before. One example was his interesting and different flying wing design. This time, Rich turns the center stage over to his wife Marilyn who is the designer and namer of MANIC MONDAY. Here's how it all came about.



I have enclosed some photos of my wife's newest two meter sailplane. She designed it using her pick a plane method, a wing like this one, a fuse like that, ect. She has named it Manic Monday after the Bangles song. The wing uses a Eppler-214 airfoil, 744 sq. in. with a 10" chord out to the poly break then tapers to 8" at the tips. The 36" center section is flat, and is flapped. The flaps move -8 degrees, +90 degrees, and has a compensator ala Dodgson. The tips have 20 degrees of poly in each, and are 1/16" 4 pound balsa, (Lone Star Models, out of Texas), over foam glued on with epoxy. The center section is also foam over balsa, but 1/16" 6-8 pound balsa, (Hobby Lobby Int.), with carbon fiber and fiberglass between the foam and wood, epoxy is used to bond it together. The tips are butt jointed to the center section using CA, then three layers of 3/4 oz. glass in 1/2", 1", 1 1/2" wide strips are layed up over the joint to tie it all together. Some glass over the center of the center section for protection against the wing hold down cutting into the wood completes the wing.

The fin, rudder, and stabs are NACA 0009 sections, made with foam and 1/32 balsa. The fin is glassed with 3/4 oz. and flared into the fuse. The fin and rudder were made as one then cut apart, the foam and balsa are epoxyed together. The stabs are made using 3M tape, this didn't work as well as the epoxy. I don't glue the skins together, when using the epoxy I've found that all that is needed is to tape the skins together on the



outside with masking tape, as you scrape the epoxy off enough gets between the skins to bond them. The 3M tape is very flexible and allows the skins to slide making the seams visible. Not gluing the wood together saves LOTS OF TIME! I use the same method on the main wings also, no failures.

The fuselage is a Terry Luckenback two meter, (Wizard), made with Kevlar, great workmanship, light, and strong.

The wing hold down was invented by Terry for his X/C ship. Terry replaces the rubber bands normally used with the inner cable of a bike brake cable, and takes up the slack with the bolts pulling the cable down snug. The advantage of this system is there is no vertical play, yet the wing can slide some laterally if you catch a tip on landing.

I weighed the plane in parts, (24oz. scale), and came up with 35 oz., before Monokoting it. My scale must weigh heavy, the IO in Model Aviation 9/87 would never come to 38oz. on my scale! I'm claiming 38-40oz. ready to fly and everyone that picks it up is surprised by how light it is.

The most important part, how does it fly? I'm happy to report it's a super flier, floats great, great lift indicator, wide speed range. The only problem is it's responsiveness to control inputs makes it a handful for Marilyn's OLY II reflexes.

An update on my flying wing that I sent pictures of earlier seems in order. I have found it out launches any flying wing I've seen, by 50% or better, and launches better than 95% of the normal sailplanes. I flew it in a weird airplane contest at Syosset, N.Y. and came in second. I could have done better, (this is not meant as sour grapes, I LOST), but I had just put the radio back in the wing and it was terribly out of trim on the first flight. A Windfreak, (RCM, Ken Bates design I think about 1976), won, but other than the first flight, my times were

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marginally better. There was also two Ravens, (Dave Jones designs, about 1976), which it out flew, one of which Bill Meleski, LSF V, was flying, so it wasn't the pilot. Woody Blanchard flew my wing at, (not in), the CASA X/C contest, and said it was one of the best flying wings he's flown. After 40 flights or so it turns out to be a better flier than I had thought it would be, but probably still better suited for the slope.

Good Lift

Bob Rondeau



FLYING THE 3-METER ALGEBRA SAILPLANE.....JIM GRAY

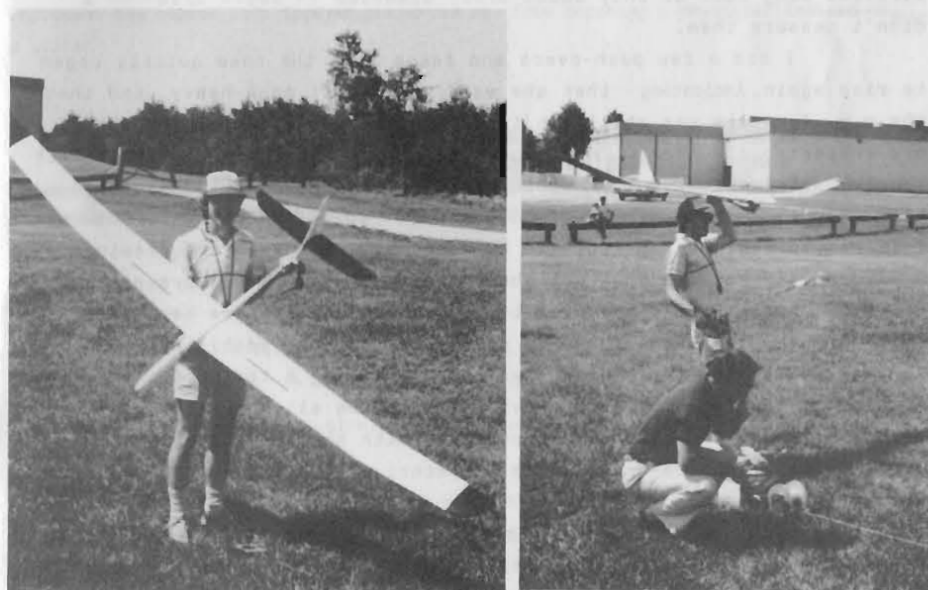
Bob Rondeau did a construction review of the ALGEBRA in the combined August-September issue of RCSD. He finished the color scheme in my favorite: white fuselage and fin-rudder, with red stabilizer (top and bottom), red wing tips, and white on top surface of the wings with red on the bottom surface, making for a highly visible and nice looking sailplane. It still does that famous "disappearing" trick when coming at you head-on, though, and I may have to do something about that - like brilliant metallic silver leading edges. In any case, we were ready to go fly this unusual and rather beautiful slim sailplane.

Bob had mounted his Atronics "Championship" series radio servos in-line so as to fit the extremely slim and narrow fuselage. The first launch was by high-start on a sunny and calm Sunday morning. The launch appeared to be at a much shallower angle than I had expected, and there was a pronounced "dutch roll" during turns, especially upon application of rudder. Remember, this is a rudder/elevator sailplane, but - even so - I didn't expect the dutch roll which reminded me of the Hobie Hawk. Right away it looked like we ought to enlarge the fin/rudder a bit. (Readers: don't rush out and do this just yet, hear me out before making that mad scramble to the shop). Several successful flights ensued, and two or three other pilots flew the Algebra. None of them really said much about it. No thermals were worked, and all flights seemed under five minutes...which was NOT good, as other 'planes seemed to work lifting air without any problems. Anyway, we did no damage during those first half-dozen flights, and decided to put it away while it was still in one piece.

I had questioned Bob about the C.G. location (plans call for a C.G. location between about 40% and 45% of root chord). I suspected this to be the result of the very slight sweep-back of the wing planform and the extraordinary size of the ^{lifting} stabilator. There are two very noteworthy features of the ALGEBRA: the long nose moment arm and the aft C.G. location. In the air, the fuselage appears even slimmer than it does on the ground; the wing sweep-back and up-turned tips give it a bird-like appearance, and the extra-long stabilator is very noticeable. In general, it doesn't really look anything much like the sailplanes most of us are used to seeing. Not bad - just unusual and different.

Getting back to the C.G., I asked Bob if he had measured it carefully, and he assured me that he had...so I measured it, and found that the C.G. was at about the 30% chord point instead of the 40% location. The wings had been mounted about 1/2" further aft on the fuselage than the "pip" marks on the fuselage for the forward wing rod hole would indicate. Hmm...There was no way to improve this situation without re-kitting the sailplane; that is, cutting it apart and re-mounting the wings further forward...or was there?

Let's see: if I move the battery from the nose back to an area between the wings, what would happen? I tried that and found that the new C.G. would come out slightly forward of the foremost location specified on the plans and in the instructions. Good enough! I extended the battery lead, and re-assembled the glider. Time to try it out again.



Two weeks to the day had elapsed since her first outing, and ALGEBRA faced another beautiful Sunday morning. Thermals abounded, and the breeze was just enough to insure a decent launch. I did a couple of hand launches, and made a couple of adjustments to the elevator pushrod to get a flat glide with neutral (centered) transmitter controls. Time 17

for launch. Fortunately, the local on-duty Police Sergeant who had stopped by earlier was absent, and I was alone. If something bad is going to happen, I don't like to have witnesses present to say: "I told you so," or "I knew he'd prang it on the first outing," and derogatory things like that. Well, now or never, I thought, so drew back on the high-start and.....UP SHE WENT! Nice steep climb out, and magnificent transition off the top into a flat, flat glide. A gentle left turn and then a much steeper one as she encountered a thermal; into the lift in a nice tight turn...UP, and UP, getting visibly smaller with each turn. Finally I got out of lift because the ALGEBRA was so "tiny" I feared losing it in the blue sky, or in the sun. Back over the field and way out over the valley, with hardly any altitude lost. "Hey, I can't believe this," I thought to myself; "This ship is an absolutely magnificent flyer!"

All evidence of Dutch roll was gone. The turns were just as smooth as you could wish, and anything from a wide, easy turn to a steep and tight one is possible. Stalls are clean, with quick recovery, and very little altitude lost. Big, wide loops and smart stall-turns--no trouble at all. The landing was easy and close at hand; didn't even need spoilers, although the scissors-type are mounted in the wing. I didn't need the ballast provided for in those long wing tubes, although I may use it in a strong wind someday. One nice thing about ballast carried in the wings is the fact that the wings carry the load, and do not stress the wing-fuselage connection which, in this case, consists of two parallel wing rods of only about 5/32" diameter -- maybe 3/16" -- I didn't measure them.

I did a few push-overs and found that the nose quickly began to rise again, indicating that she was still a bit nose-heavy, and that the c.g. location was still a bit too far forward, confirming what I had suspected all along. In retrospect, if she had been built EXACTLY to dimensions marked on the fiberglass fuselage, she would have been perfect, with no nose weight needed at all for balance. However, in all fairness to Bob, he did indicate by means of red ink on the drawings a discrepancy between what was shown and what dimensions were given. So far, I haven't felt the need to re-measure and compare because I think ALGEBRA is at the peak, or nearly so, of her capability. Just another small change of balance weight (by adding a tad or two of weight to the aft fuselage (or maybe moving the servos slightly aft) will bring the C.G. into exact correspondence with the suggested location. That, (plus slight re-trim of the elevator) will bring everything into its optimum location.

While it's true that her nose does protrude about 1/2" more ahead of an already long protrusion ahead of the wing leading edge, ALGEBRA is still a very beautiful sailplane, indeed.

In hands more capable than mine, she will exhibit extremely winning ways at contests and even for just Sunday afternoon fun-flying. She is docile enough for a beginner, yet capable enough for an expert. Her obochi-covered foam wings, fiberglass fuselage, and overall construction make for a strong and sturdy machine for general use on a daily basis, and you needn't worry about having her in the shop for constant

repairs -- unless your crashing is more severe and frequent than mine. Because of her "different" and slim attractiveness, she ought to be very much in the limelight on the field where your friends will notice her and ask where she comes from.

In my opinion, ALGEBRA is a good-looking and smooth-flying sailplane. It will be one that you can be proud of and enjoy in almost any kind of weather, and will surely and definitely "telegraph" a thermal as she is most sensitive to lift and waggles her wings to show you where and when to turn. She will accommodate even standard-size servos, although she might be more adaptable to the smaller ones.

As a final comment, you ought to know that ALGEBRA has a noble heritage, and is one of a long line of winning sailplanes designed by Sean Bannister and bearing the same name. The latest, a younger member of the family, is the new ALGEBRA 2.5-meter span machine that has one of the new Selig airfoils. I suspect that this new one may make her older (and larger) sister a bit jealous. If you wish, you can even buy a 2-M ALGEBRA from R.J. Edmonds Model Products. Just in case you think you ought to get in touch with Dick Edmonds, here's the address: R.J. EDMONDS MODEL PRODUCTS, UNIT 20, VERNON BUILDINGS, WESTBOURNE STREET, HIGH WYCOMBE, ENGLAND. Tell Dick Edmonds for me that he's got a winner of a product in those ALGEBRA's that he sells.

Editor's note: Chris Foss called his sailplanes the "PLUS" series, and that is an arithmetic symbol; Sean Bannister called his sailplanes the "Algebra" series - a mathematical symbol. Who, I wonder, will name his sailplane the CALCULUS? There could be INTEGRAL Calculus, DIFFERENTIAL Calculus, and how about EQUATION? That has a nice ring to it...and if someone calls it DIFFERENTIAL EQUATION, then that will represent the course that forever prevented me from becoming a physicist instead of a writer!

SLOPE SCENE

Harry Finch,

SLOPE SOARING SITES

I live in Southern California. We have several really good places to fly depending on the wind direction. As long as it's blowing, I can fly.

Having never lived anywhere else, I guess I just didn't realize how well blessed we are with sites in this area.

Some readers have written in and asked about site locations. Ocean coast and mountain areas most often have suitable places to fly. The primary criteria is a slope or ridge more or less perpendicular to the wind direction. The more height of the hill the better, but even a hill of 50 feet height with good shape and direction can work well.

There are lots of people out there who would like to fly slope but don't know where. Maybe we can help them and tell them where to go fly but I think if you want to fly slope you should be willing to get a lot more aggressively involved than that. You should get a good map of your general area which shows topography. Get in your car and drive out to likely areas, explore. Keep your eyes open

whenever you're out on a business trip or family outing. Believe me, if you want to fly slope you can and will find one on your own and then you can share it with the rest of us.

The size, shape, wind force and surrounding topography of a flying site will directly determine the type of glider that will fly there.

Access to a slope will many times be the limiting factor. As an example, the really tough job I have has required me to travel several times to the island of Oahu in Hawaii. Any slope glider guider would look at that island and be absolutely sure that you could find numerous places to slope glide. Beautiful high, long ridges, trade winds, glider heaven. Not so.

The super glider site on the north shore is indeed great but is occupied by the full-size glider guys. Every single other good site is either a state or national park or a military reserve.

After hours and hours of looking I have been able to locate just one, not so good, all-lava rock landing, over an ocean point, from which you have almost no chance of retrieving a downed plane, and that is MAKAPUU POINT. It can be very frustrating.

THE ANSWER IS: All of you out there must help. I will have to say that to this point I have been dammed well upset at the lack of help I have recieved when I have asked for it and I hope you will please respond to this plea.

SEND ME A LOCATION MAP AND A SET OF DIRECTIONS TO GET TO ANY SLOPE SOARING SITE YOU KNOW OF. Tell us a little about the site and what criteria are required to create lift, wind direction, velocity, etc. What kind of planes fly well there?

We will try to put a couple of site locations in the column each month and I will also compile a complete list which we will make available by mail.

THE FALCON FLYING WING by MIKE REED

Slope gliders in the form of "flying wings" seem to be making a comeback, and in a big way, too. There are a few kits showing up on the market and plans are available through most model magazine plan services. My interest was flared when my friend Carl Maas showed me the wreckage of two flying wings that had been collecting dust in his garage. Carl and I started talking about the characteristics and construction of our own "wing" design. We put our thoughts together and roughed out the first design of the "Falcon".

The main design objective was to make an easily built sloper that is tough enough to resist mild impacts and slope rash but the glider has to be fully aerobatic. The Falcon has to be small enough to fit in any car without compromising passenger space. A fast roll rate was also a consideration for small size.

Since I have experience with foam wings, we decided to use a foam core for main wing construction. Carl and I designed the symmetrical airfoil using our combined experience and the famous hit-and-miss method. We settled on a thickness of 11% at the root and 10% at the tip. Rearward sweep is 17° measured at the mean aerodynamic cord line. The wing core is cut from 1lb. density polystyrene, then partially sheeted.

Cut-outs are made with a hot wire to save approximately 2 oz. weight.

The prototype uses two S-33 servos for movement of the elevons. The signal is electronically mixed in the transmitter so each servo acts independent of the other. Our final design will have enough room in the fuselage to mount two S-28 servos in tandem utilizing a slide mechanism. This way, you can throw your Aero Sport two-channel in and go for it. The structure of the Falcon has proven itself to be nearly indestructible. The first five flights were attempted with a C.G. point too far back. In other words, the first flights were displays of "aft C.G. uncontrollable flight". In simpler words, it looked like a paper plate in a dust devil. After five bad crashes and flying the wing through a combat glider (and shredding the combat glider) only minor cracks were sustained.

The flying weight of the Falcon is 26 ounces yielding a wing loading of 6.2 per oz. per square foot.



This plane can keep up with any model it's size but still float in light air.

With the Falcon there is no compromise in performance. It will fly in light lift and penetrate 30 m.p.h. winds with the addition of ballast. The Falcon has an incredible roll rate which makes 4-point rolls easy to perform. Outside loops are child's play and the glider seems to fly upside down better than most other slope gliders.

The Falcon far exceeded my expectations in performance, and this flying wing has inspired other pilots at our slope to design their own flying wings.

The Falcon is the result of two modelers brainstorming and making an idea work. I hope this inspires other modelers to materialize their ideas and make designs work.

TOSS Cross Country

from "The See Gull" newsletter of the Santa Maria Soaring Soc.

Joe Wurts came in first place in the four day event, with a total points score of 3975, Larry Jolly came in a close second with a score of 3759. I do not know the author of the following piece, it came out of the latest TOSS newsletter.

I had been observing Ed Slobod as he got out of Joe Wurt's truck after a course run. He didn't look very different from the way that I would expect and Official Timer to look. Hair, wind blown. Glasses, slightly askew. Nose, a bit red from looking out the window in the sun.

It must have been the eyes,- yes!- eyes. Now that I look back Ed's eyes must have told the real story. They had a far-a-way look with just a hint of - (what's the word I'm looking for) - Terror! - that's it - Terror. Ed Slobod with just a hint of terror, way back in those wise old eyes. I know, its hard to picture, but just for this story, give it a try.

The time, - 1600 July 11, 1987 - the place Taft California, the name's Chuck. My beat - the Bosses truck. I'm an Official Timer.

The hairy legged group was huddled in the back of a small pickup truck. I know their faces, I know their names, Gary Ward second in command, tall shifty eyed, Julian Tamez, the hit man. Both imported from Texas. Another, Don Vickers - met him before the race, said hes was from Pasadina - likely story. They knew if they didn't perform at peak efficiency today da Boss would rub em out.

There he is - the Boss!, Transmitter in one hand Receiver in the other. He's ready for anything. He looks relaxed, lounging back on the bean bag. The little muscle over his left temple twitches. This is it. No second chance, this will be a record breaker.

"Gary, cool off my arm rest" the order was crisp. The sun is starting down toward the Pacific, but the temperature is still in the high eight's. Gary dives for the water bottle, pulls the trigger five times with the barrel pointed at a point about one and a half inches above the bosses head. The first water hits the hot bean ball balls up and dances around like a drop on a hot burner. The others hit the bag at precisely the right spot. They drop the temperature enough for the bosses arm to rest comfortably.

"Chuck", his voice cracks like a whip. "I'm almost ready, I need another 500 feet before we start".

I've been ready for thirty minutes. My throat feels like the sun is going to set between my teeth. My neck has a permanent crick, from staring straight up for half an hour, desperately trying not to loose sight of "Wiley" Everyone knows what it is. The boss has been carrying it around in a bass fiddle case for the last couple of days. He only takes it out when he's planning to use it, and when he takes it out someone gets second.

The other big gun, "Jolly" (only his enemies call him that, most call him Larry), has been stalking the Boss for two days now. He figures its only a matter of time before he knocks him off. His Road Runner has been nipping at the heels of Wiley and the boss is starting to get a little nervous.

Looking up again, the bosses regular timer "Slobod" called that area of the sky Wurt's corner. When he gets in that area, Wiley likes to climb and drift back across the hoopsight, behind the course.

Now Wiley's behind the start line. "You're behind the hoop, Boss, you can drop the hammer anytime" the words tumble out, I'm trying not to stutter. The Bosses lady is behind the wheel. She's got her long hair stuffed in an old hat. Her foot gently taps the accelerator. The supercharged engine springs to life. Her hand comes down hard on the gear shift lever. "Your on the course Boss" my hand is shaking so hard that the stop watch almost feels alive.

"Get in, and sit down" Jan says. She's normally a warm, soft spoken person, but when Wiley's running its all business. Her foot slams down on the accelerator, the rear tires scream in protest as 140 horse power try to pull the tar form the road. "Keep my heading" I hear from the open rear window. "Sure, Boss, steer a little right" The horn blares as we cross the first mile marker and a voice barks "mile marker one" "keep my heading" "Yea! Boss a quarter mile to the first turn" Jan gears down two and sets up a perfect four wheel drift. "Up five" the voice from the rear drifts through the open window "Up five" Jan echoes the tires strain to maintain traction.

Soon the sounds are starting to run together, Horn - "Steer left" - "Mile marker five" - "Up five - Down ten".

I feel light headed, am I starting to gray out? No one told me I needed a pressure suit. I look up to see Wiley cruising along side and about 2000 feet up. I try to focus on the ground speed indicator ... 55. Wiley is still directly over head.

"Down ten, - Down ten, - Stop!" "I got something I'm going to take her up".

The truck is off the road stopped, engine idling. Tom Cruse would have loved the Top Gun Quick stop maneuver.

"I've got to give it to you Jan, you really got the touch when it comes to driving this thing". She looks over at me a little smile softens the line of her face. "I was born with a wheel in my hand" she says.

"O.K. Let's go, take her up to 30 Jan" We're off, the head rest on my side of the truck is really getting a work out. "Mile marker nine" "My God, we're half way there".

I feel a soft touch on my shoulder, "When I slam on the brakes, you jump out, sight the plane, and jump back in - got it?" I nod a terrified "yes".

I hear the tires screaming for mercy before the bone shattering deceleration starts. The door flies open and I'm out of the truck before it comes to a complete stop. "Where's Wiley" I shout. "Right under the sun" a voice from the back booms. I see the flash as a wing dips, the bird already starts its head long dash for home. "You're by the turn" I shout. An arm jerks me back inside the truck.

We're off, back down the same road, this time "I'm going to relax" I tell myself. The calls from the back are starting to make sense. The hum of the tires, the purring 140 horsepower doesn't seem to intimidate me as much as it did on the way out.

"Mile marker seventeen" - "Jan you are going to have to go flat out se we can get in front of the plane". I hear the engine race as Jan drops from fifth to third. I look up just in time to see a stop sign coming up fast - check out the ground speed - fifty

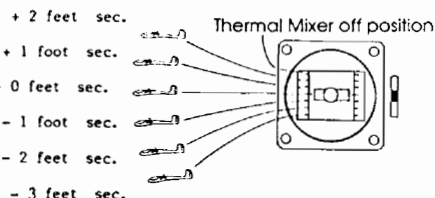
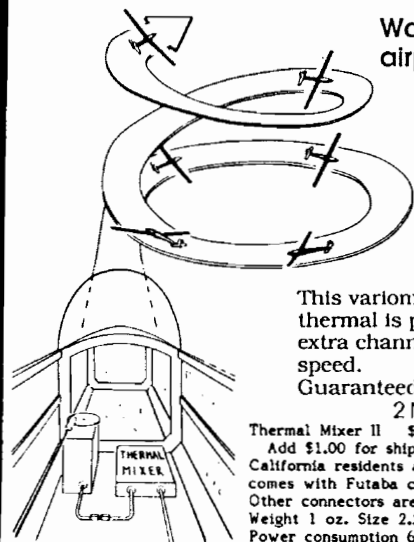
five. I feel another four wheel drift and now I'm afraid to check the speed again, I know by the way my head is disappearing into the seat back, we are accelerating fast. Jan has her knee locked straight, foot flat on the floor with the throttle peddle under it. If women can have a steely look in their eye - Jan definitely has it.

"Mile marker nineteen" The soft touch on my shoulder again. If she kicks me out at this speed I'm finished! "Listen, - Chuck - we are in front of Wiley - you get out when I stop and find the plane. When you have it tell the Boss and catch the time. - O.K? - Here we go! - Oh! - By the way - Chuck! Take the watch with you."

"Huh! - O Yeh!"

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