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R/C SOARING DIGEST

TABLE OF CONTENTS

- 3 Soaring Site
Jerry & Judy Slates
- 4 "Why Are RC Sailplanes So Addicting?"
Part II
Joe Chovan
- 12 Jer's Workbench
I Came Prepared
Jerry Slates
- 16 Crow On
or Hand-Launch Topics
Scott Smith
- 18 On The Wing
Dr. Martin Lichte's EMX 07 and EMX 14
Bill & Bunny Kuhlman
- 19 Winch Line
Transitional Wings
Gordon Jones
- 21 Lift Off!
Electric Skyhawk
Ed Slegers
- 22 Cornfed
Your Turn!
Fred Rettig
- 23 UIUC Low Speed Airfoil Tests Program
Prof. Michael Selig
- 24 Cutting Slots in Foam Cores
Bruce Abell
- 26 Three Peas in a Pod
SWSA 2M Soarfest '96
Mike Deckman
Paul Ikona
Curt Nehring
- 27 C. R. Aircraft "Blazer"
Joe Thomas
- 33 A New NiCad/Nickel Metal Hydride
Microprocessor Controlled
Fast Charger/Cycler
Daniel deVries
- 38 Rodel Modellbau 1/4 Scale ASK 21
Ron Wahi

Fred Mallett (L) and Bill Griggs (R) discuss the C.G. location of Bill's A-6. Photograph by David Garwood. Story on page 40.



**AN A-6 INTRUDER
AT FRANCIS PEAK**

- 40 This Old Plane
Soar Utah 95
Fred Mallett
- 46 The WMSSF
George Voss
- 48 Long Island Silent Flyers
Empire State Classic
Taylor Fiederlein
- 59 Winch-Retriever Bride
Pancho Morris
- 59 How About a Cool Band?
Judy Slates

OTHER SECTIONS/INFORMATION

- 57 Events
57 New Products

ADVERTISING

- 60 Advertiser Index
51 Classified Ads

SPECIAL INTEREST GROUPS & CONTACTS

- 53 League of Silent Flight - LSF
53 T.W.I.T.T.
53 Vintage Sailplane Assoc. - VSA
53 Sailplane Homebuilders Association - SHA
54 R/C Soaring Resources

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The Soaring Site

Western States Triad

The following "Tidbits & Bits" was received from Iain Gllithero, of Mesa, Arizona.

"After two rounds, The South West Winter Soaring Contest (SWWSC), and the Rose Bowl Soaring Festival, it is still wide open for the WESTERN STATES TRIAD trophy.

"The winner at the Rosebowl, Mike Regan, did not fly at the SWWSC, but Mark Levoe finished well at the Rosebowl to add to his win at the SWWSC, and so took the lead, but Mike Aguirre of Team FUNK, Jim McCarthy of CVRC, Ben Clerx of Team FUNK, and Chris George of the CVRC club are all very close behind. The final event will be on Chris' home ground; could this be the deciding factor, or will Mark Levoe be able to keep his slim lead?

"The TEAM award is still any body's guess; CVRC, PSS, FUNK and TPC are all in striking distance after two rounds. All four teams are within 100 points out of a possible 8000. The slim lead by Pasadena Soaring Society over Central Valley R/C of 32 points could very quickly disappear in the landing task!

"The total number of pilots who have flown in both events so far is 71. It is expected that almost all of these will be at the Fall Soaring Festival on the weekend of the 7th and 8th of October.

"This year's Fall Soaring Festival will be an exciting weekend, with the contest itself, plus the added interest generated by the TRIAD.

"The first event of the 1996 TRIAD will be the 96 SWWSC to be held on 3rd and 4th of February in Gilbert, Arizona."

And, now we're off to a fast start.

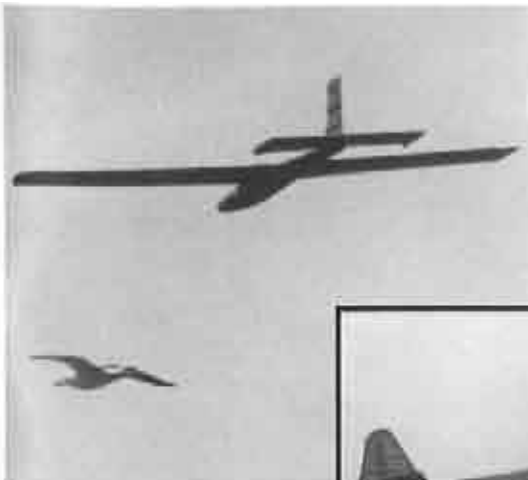
Happy Flying!
Jerry & Judy Slates

"WHY ARE RC SAILPLANES SO ADDICTING?" PART II

...Written by Joe Chovan
...Photography by Dave Garwood
North Syracuse & Scotia, New York



Many RCSD readers will recall this question which Dave Garwood posed to soaring enthusiasts almost three years ago. The replies he collected were varied, coming from builders and flyers with different goals who offered novel observations. The allure soaring had to each was intense enough for them to 1) admit the existence of an addiction, and 2) discuss the most attractive aspect(s) of partaking in this sport/hobby. Before reading the February '93 article, a cursory glance at its title led me to expect a light-hearted approach which would dance around the "grown men playing with expensive toy airplanes" concept that some non-participants have towards the hobby. I foresaw excuses given, with trite



were received by e-mail, or in the message base forums.

So let's delve further into the minds and hearts of our soaring comrades, and see perhaps a little of ourselves in the process.



Rudy Coletti mounts a Cape Cod dune with a Hobby Horn Sensoar.

explanations, as one often hears in attempts to justify a caffeine, cigarette, or even video game addiction. I expected humorous references to vices, but quickly saw that there were many healthy attitudes and serious opinions expressed, similar to those which might come from fisherman, hunters, sailors and athletes. This was a serious research project, which probed the very core of one's being — the need to soar!

When Dave proposed this sequel, with correspondence to be conducted in "cyberspace", given the growing numbers of computer-literate personalities in our hobby arriving on-line, I knew we would get more great insights in e-mail responses to the questions which are still intriguing:

1. Do you find yourself building and flying RC sailplanes to the exclusion of other important things?
2. Are sailplanes strangely compelling to you?
3. Why are RC Sailplanes so Addicting?

These questions were posted on three on-line services: America Online, CompServe, and the Internet Newsgroup rec.models.rc. All replies

The variety of the unknown

A recurring concept which Dave found, is the aspect of unpredictability; that we are drawn to new experiences. Change is good, and a necessary ingredient in luring the flyer from one excursion to another:

One definition of addiction is, "Doing the same thing over and over, expecting different results." For RC soaring and me, this most certainly applies!

...Erik Halberstadt

"Learning the basics of flying a sailplane is like learning the alphabet. You do it because it is a doorway to a great adventure in knowledge."

...Wildey Johnson

"RC soaring is the only facet of the hobby where no two flights are ever the same. You can launch from any number of devices (hi-start, short or long; winch; a throw off the slope; or a throw into a thermal), fly for as long as your skill or the luck of the thermal Gods allows, land with as much or little grace as you desire."

...Jim Thomas

"Soaring is like fishing in a way, the quarry is invisible and you can only guess where it might be hiding. Each flight is a different experience and the atmosphere can never really be mastered.... The more difficult the day, the more interesting the pursuit."

...Herk Stokely

"Humans are only fascinated with an activity as long as they are not sure what to expect next time they try it... With soaring, Nature is the constant foe and variable in the equation. Every flight is something new, every flight requires constant decision making (if you're doing it right). There is an element of gambling, the pilot has a little control, and he can bring his skills to bear, but the challenge is always random. Sometimes you win, sometimes you lose, and always you can't predict the outcome in advance. That's why sailplanes are addictive."

...Frank Weston

How it all comes together

One brings skills into this hobby, develops them, and others, found along the way. There are just so many ways to apply oneself, that people with various creative and expressive talents find their wings in the common pleasures of soaring.

"I partake in this hobby for the multi-faceted feature... The real beauty in modeling is still the fact that so many skills are necessary to bring a beautifully constructed and finished plane to the field, put it in the air and operate it to its fullest potential. Then bring it back down in perfect condition for another day."

...Rick Chalmers

"Flying model sailplanes is a very nice combination of experiencing nature, improving your flying skills, technical achievements and having a good time with your friends."

...Lars Ivansen

"It is creative — you can design, build and fly your own design. It takes craftsmanship and engineering. It takes skill to build and fly well. There is an element of chance as well as skill when flying in contests... Performance, as in other sports, can always be improved, so it is an endless challenge."

...Bob Harold

Kris Sexton flies Great Planes Spirit over small dune on Cape Cod.



Joe Chovan with PSS A-6 Intruder designed by Walter Bub. Joe is both a fuel power and soaring pilot who has been bit hard by the slope soaring bug. He is the editor of *Flight Lines*, newsletter of the Midstate Modelers in Syracuse, New York, and the host of the *Model Aviation SIG of America Online*. His e-mail address is: GreenHawk@aol.com

Relaxing, Satisfying, Rejuvenating

Once again, respondents found soaring a soothing way to unwind and "re-charge".

"I feel the greatest satisfaction comes through letting the mind and spirit soar up there with the plane, working with the wind and the thermals, moving with speed and grace - it is a very freeing feeling... Working on planes requires a different part of the brain, and gets my mind off of my work. I find that working on planes revives my energy far better than just resting or watching TV."

...Julien H. Hurault

"For me, soaring is not only an addiction, it is also the best therapy I've ever found."

...Erik Halberstadt

"I love my gliding, it is more satisfying in a relaxing way than my cars, and the ability to fly alone with only seagulls for company is therapeutic and uplifting..."

...Max Christoffersen

"I fly more power than sailplanes. I guess because it's easier. I always come home more satisfied after flying sailplanes. It probably has the same roots as my sailing addiction."

...David Dale

"It is a part of model flying that is very relaxing."

...Anders Ekdahl

People, Camaraderie

An observation which did not seem to appear as prominently in responses to Dave's original survey is the fun of soaring within groups. We seem to keep very good company:

"The nicest people fly sailplanes. I like being around nice people."

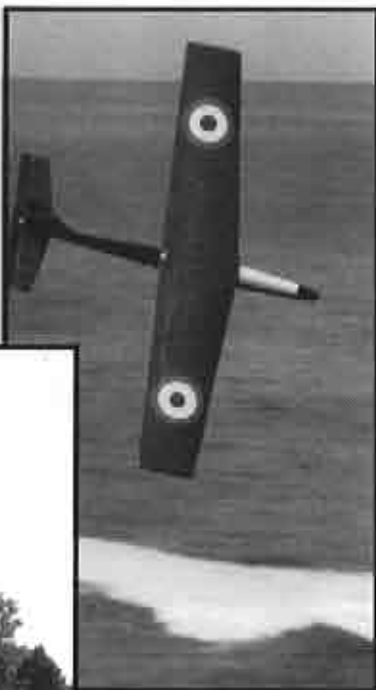
...Chuck Anderson



Jim Harrigan launches a Carl Goldberg Gentle Lady from a high start.

"Soaring pilots around the world are the best part of the hobby. They are always willing to help out, whether you are a beginner or a seasoned vet. Soaring competition is the only type I know of where a competitor will help you out as much as possible while trying to beat you in the competition."

...Jim Thomas



David Garwood at Simsbury, CT, WFC contest. (Photo by Bob Powers.) Dave flies both slope and thermal sailplanes and often carries a camera on flying outings, always looking for ways to capture the spirit of soaring on film. His e-mail address is: garwood@logical.net

Low Garwood flies Super Cheetah over Cape Cod Bay.

"In no other hobby have I experienced such a solid support group."

...Chris Bajorek

"I have been flying RC thermal sailplanes for two and half seasons now, and I think they are addicting for me as a lawyer because they are the perfect lawyer's sport — you have to be good with hot air, and you have to be comfortable spending most of your time going around in circles."

...Tom Nagel

Competition

Revisited is the element of competition that many forms of soaring allow. Whether fierce and furious, or calm and casual, the desire to match skills in contest was expressed by many:

"Common to all my hobbies are: elements of competition, the need to practice lots to get good at it, and a possibility of exploring some unknown limit or horizon."

...Chris Bajorek

"...The competitive outlet of contest flying — this is what keeps me "addicted". True, the camaraderie is super and I have made more friends in this hobby than the others, but it must be the competitive, goal setting opportunity that keeps ME going. Coming up with new designs and modifications to get an edge, practicing with a specific goal in mind — these plus much more lend to an overall "hook" for me.

"Unfortunately many would say, if I were only able to fun fly, it could get pretty boring. I envy the people whose naivety, either by choice or not, allows them to fun fly forever."

...Roger Lackey

"Thermal soaring is the most relaxing form of competition that I know."

...Chuck Anderson



"You are always competing against yourself. It is very easy to see if you are steering in an optimal way. Even if you are very good at it, there is always room for improvement."

...Johan Bartsch

The "Zen" of The Flight

"For me, there are a lot of reasons for my addiction. First and foremost, there is a purity to soaring that really appeals to me. It is only you and the elements. No engines, no crutches. Just you, your airplane, and your skills/experience. Soaring can be quiet and graceful, a scale ship at sunset on a coastal slope coming to mind. Or it can be pure adrenaline with 1 on 1 combat. Or it can be pure speed with 11 pound slope racers in 60 knot winds. It even can be athletic with HLG or F3J.



"With all of them, the addiction is still one of being at one with the elements, where the ultimate goal is to "become" the airplane, feeling the currents air around you and using them to your advantage. Sometimes I feel as if I am matching wits or doing battle with the elements, and I realize that I am going about it all wrong. The objective is to work with the elements, not overcome them.

"Another thing that I like is that it is open ended. No matter how skilled you have gotten, there is always more to learn. There is no such thing as perfection. I am always comparing my flying performance to myself, seeing if I can hold myself up to my standards. Occasionally I will do a check by a spot comparison with pilots whose talent I value, but primarily I try to only compare to myself. I have found that my path to frustration and failure is in comparisons with others. Even in contests, I try to evaluate my flying vs my personal set of standards as opposed to the other competitors scores. It is much more worthwhile to place 12th with a good effort, than to win with a poor one."

...Joe Wurts

The Control

"Having created this little mass of balsa and covering into a flying machine makes us feel as though the glider is an extension of ourselves. Every time I actually GAIN altitude with a glider, I feel a certain rush of success."

...Mark Rose

The Passion

"Many things in life have always intrigued me. Ever since the completion of puberty, I've always wondered what it would be like to fly. Many times I've wished that I could be a hawk for a day, and to remember what it was like to soar above the clouds in the grandeur of the vast horizons. I find myself frustrated at times being stuck on terra firma, and not being able to at will, climb into the heavens and descend like a bolt of lightning, effortlessly, quietly, serenely.

"There have been many times during a clear night, pinpointed by the brilliant families of stars, where I would lay on my back and lose perspective. I would feel at this moment as if I were amongst the stars themselves, unrestrained and infinite.

"I've tried to capture these feelings through

hang-gliding, but unfortunately, this was too cumbersome. Then came RC gliders. I've found my passion, with the balance of practicality and of ability to soar amongst the hawks. Whether on the slopes or chasing thermals, I constantly find myself losing all thoughts of reality, submerged in a fantasy of flight. I become the glider. Circling and gesturing to mother nature, that I'm here to play in her splendor..."

...Manny Tau

"What had previously been an insane desire to throw time and money at the earth became an overwhelming passion."

...Erik Halberstadt

"Where else could you deliberately crash two airplanes into each other, and keep a smile on your face!"

...Mark Rose

"Slope racing - NOW THAT'S FUN. You're really at the edge of your seat there, that's fun going 50 m.p.h.+ two feet in front of your face."

...Jonathan Spoer

The Purity

"I like the grace and silence of glider flight. I like to see the sailplane feel out the air currents. Sailplanes are pure aircraft. You cannot overcome a bad design or other problems by going to a larger engine."

...Bob Harold

"There is no engine or related mess and noise to detract from the beauty of pure flight. There is nothing more rewarding than flying for several hours without a tank of gas burned!"

...Mark Rose

A Chemical-Free "High"

"Flying R/C Sailplanes is like having an illegal-drug insurance program. You invest a few bucks up front and then you can get high nearly any time you want and as often as you want with no further major investment. At the same time you can feel good about yourself for being politically correct and practicing safe simulated-drugs because you have the thrill of even multiple highs with practically no risk to your body or to your health.

"Of course, there is the element of uncertainty that makes the anticipation of the soaring high craved even more adamantly. The idea that the high is dispensed at random by dispassionate

mother nature and may bypass you on any given flight, no matter how much of it you have had before and no matter how badly you think you need this fix, is in itself a powerful anticipation enhancer. However during a temporary rebuke by nature, you can still sniff some CA glue fumes to tide you over. Simply put, the soaring high is the "Holy Grail" of all the mind-altering uppers."

...Bob Dodgson

Good CLEAN Fun

"I like soaring because its quiet, challenging to stay up in light lift and you don't have to wipe that slime off your plane like the power flyers do. <Grin>"

...George Gillburg

"For some it is simple, just like fishing, you just don't know what unseen uplifting forces may hook your winged-bait and carry it outside the boundaries of normal eyesight. Just the thought of perhaps hooking into the mother of all lifting forces, or the winged object becoming a mere speck against a perfectly blue sky, would have a mortal addicted to the rush of casting the ship once, and again, and again, and..."

"For others, it is more complex. It involves the fulfillment of the natural being and the search for adventure within. A rare psychological encounter of the third kind. Unexplainable yet predictable, forces souls into an expending frenzy in the search of unspoiled lift.

"For me, it is just a lot of fun!"

...Antonio J. Castillo

Amazement

To those who experience soaring for the first time, the effect is often dazzling and wonderful. Some never lose this appreciation.

"...I watched as the skillful pilot made his little plane loop, roll, whiz by at high speeds or just park and hover, and the plane was completely soundless!... I had never in my life come across anything so amazing... I think the attraction to it is the lack of noise and the ability to fly a plane to such a degree without a motor!"

...Dirk Grajales Finger

"There is nothing in the world better than flying 25 feet above your head slowly and quietly and being able to hear the buzz of the servos as you give small control

inputs... Silent Flight is the best flight there is."

...Joe Joseph

"I like to convict the statement that what goes up must come down!"

...Roger Magnusson

"The silent grace and beauty of sailplanes floating on the invisible ocean of air is almost magical. That's why I like R/C model sailplanes better than full size; while you're riding inside it, you can't see how good it looks!"

...Waid Reynolds

"For me, RC soaring produces the wonderment of defying gravity with an unpowered, heavier-than-air flying machine."

...Dave Garwood

The Research — Over?

So once again, we have a look into the obsession of radio control soaring. As we've seen, there is so much to appreciate in RC soaring. It's no wonder it attracts such an interesting crowd with its plethora of enticements.

If we consider Frank Weston's observation, "Humans are only fascinated with an activity as long as they are not sure what to expect next time they try it," then it appears RC soaring has so much to offer, that for many, the "addiction" might never lose its appeal.

Whether it's the magic or science, competition or casual fun, relaxation, or challenge, RC sailplanes present builders and flyers with an outlet that appears to be more than a mere hobby. For some, we've discovered a way of life. ■



ZIKA



Jer's Workbench

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I Came Prepared...

Well, after taking a month off, I have had to come back to work and mow the lawn, so that I can rest.

In mid-June, I started my travels by driving to the Mid-South Soaring Championships held in Huntsville, Alabama. I arrived a full day early, as I needed a full day of rest having driven for nearly eleven hours; I also wanted to get in some practice flights. I like to be prepared for a contest. On the first practice flight, I stripped the gears in the elevator servo. Unable to find another set of replacement gears or another servo, I spent the rest of the day in my tent watching others fly. But, "That's OK," I told myself, as I have a back-up glider back at the motel. Did I say, "I came prepared?"

Arriving back at the motel that evening, the first thing I did was to pull my back-up glider from its travel box. (It was in the box for about 6 months!) I plugged in the charger and went to dinner with the gang. The next

Mike Evans' beautiful PIK-20 is yellow with red trim.



day, I loaded the van and headed for the flying site. The van was quickly unloaded; the back-up glider was assembled, and off I went to get a frequency pin. The controls checked out; up was up, right was right, and so on. A quick hand toss of the plane looked good, and I returned the frequency pin. I like being prepared for a contest.

On my first flight, the launch looked good, got my time, and was setting up for the landing; pulled crow, and up came the nose. Holding a lot of down elevator, I passed over the landing spot and landed about 75 feet long. "That's OK," I told myself. "Something must have changed as I haven't flown this glider in some time. I will just program in some more down into the crow setting." Next flight? Same type of landing, again! It was very long, and there were no points.

Well, it was time to take a close look to find out what was causing the problem. After a careful examination, I found that the rudder post had broken loose from the side of the rudder. The elevator pivot tube had also broken loose from the glue joint. So, what really happened to the plane in flight? As near as I can tell, when down elevator was pulled, the fin would spread because the rudder post wasn't holding; the elevator pivot tube would pull out of its hole, and the trim was off. With no pressure on the elevator, everything would pop back into place.



(Top) Taken at Caddo Mills, Martin Simons with Grob 109 Motor Glider. (Bottom) Martin on tow in Schweizer I-26.



CA glue was used to do the field repair, and off to the next flight, round 4, where I got my time and a 60 point landing. "I'm feeling better, now," I said to myself. Into round 5 the old Falcon was flying like it should. Ten minutes into my eleven minute

thermal, WHAM! I found myself in a mid-air with two other gliders. The Falcon won't be flying, any more...

Was I prepared for this contest? First, I didn't have any spare servo gears or a spare servo. While I had a back-up glider, this was probably one of those week-ends I should have stayed on the ground, as far as flying was concerned. Other than that, I sure had fun!

The day after I got home from Huntsville, I headed out to the Dallas/Fort Worth Airport to pick up a long awaited glider enthusiast, Martin Simons, of Australia. This was his third visit, and I knew that we were going to have fun.

Caddo Mills

On the other side of Wylie, lives the Head Elf of Elf Engineering. His name is Dale King, as many of you already know. One day we were visiting Dale, and he said something about a full-size



(Top) Super Chipmunk by Brian Furlong at the July Jubilee.

(R) Sig Morrissey Bravo on display at the July Jubilee.

(Below) A scratch built Little Toot by D. Cassett at the July Jubilee.



glider port at a place called Caddo Mills. It was only 23 miles from our house, which is not very far by Texas standards; off we went. AND, back we went the following week-end, two days later. Martin did his thing, and I did mine! Martin was not only checked out in a Grob 109 motor glider, but got some stick time in a Schweizer 1-26.

As for myself, I was in pig heaven. A

couple of months ago, as you'll recall, I was searching for data on two gliders that I needed for my scale projects: a PIK-20 and Diamant. And behold! There they were, at Caddo Mills! The owner of the PIK-20, Mike Evans, was kind enough to roll his pride and joy out of the hangar so that I could photograph it. I'll have to wait on the Diamant, but at least I know where it is, now! Of course, this will require another trip to Caddo Mills! Thanks, Dale!

After two weeks, Martin was off to Elmira, New York to attend the full-size International Vintage Sailplane Meet which was held July 16 - 25th. Did he have fun? You bet! But that's another story (or 2) that we hope to include in the next issue.

For myself, I only had one week left to get ready for the Wasatch Mountain Scale Soaring Festival in Utah. Radios

Jay Helt's Original Design, 25 pounds, G-38, and Jay's helper, Herbert Swafford at the July Jubilee.



needed to be installed into two scale sailplanes: my LS-D Ornith and Salto. I also needed to prepare two aerobatic type slope gliders and, as usual, mow the grass. And, then the phone rang...

July Jubilee

The week-end before I was getting ready to leave for Utah, I received a telephone call from Richard Booth, of the Richardson Radio Control Club, a local power club. I was invited to join them and participate in their July Jubilee event. I said, "Yes," as their flying field is only around the corner from the house (2.3 miles). I was not able to fly because of timing with the Utah event; I wanted to be sure that I had planes to fly in Utah. However, I did set up a static display. As it was somewhat unusual to have sailplanes at this event, the display created a lot of interest; I enjoyed talking with everyone who stopped by to ask questions and to chat.

I want to thank those that helped me set up and take down the tent, and for having a pass ready for me at the gate to the park. (I wasn't expecting all that royal treatment!) I had a wonderful time and hope to be invited back. Next time, I hope to demonstrate how the sailplanes fly. (Guess who got the neat cookbook *Jer* brought at the fund raiser? Thanks, *Jer*!)

The next day, I finished packing the van for the long trip to Utah. I was prepared this time! ■

July Jubilee

...by Richard Booth
Plano, Texas

On July 16th, the Richardson Radio Control Club held a fun fly event we call the July Jubilee. The purpose of this show was two fold. Our primary goal was raising money for the Spina Bifida Association of Dallas. The second, raising public awareness about Radio Control Modeling.

All funds from the event were donated to the Spina Bifida Association of Dallas. As a result of these efforts, two local youngsters affected with the second most frequent birth defect (after heart defects) will be able to attend a week long camp for the physically challenged. What troopers those kids were, braving the 100 degree weather to watch a bunch of guys have fun. Some of the youngsters did more than watch; Larry Dobson volunteered his plane and Allen Pimm assisted these kids to get in a little stick time on a Giant Stick. Need I say, "It got real exciting a couple of times!"

I want to thank Jerry Slates from Viking Models for attending our event. Jerry was contacted the day before the Jubilee. In spite of this late invitation, Jerry showed up to help us with the fund raiser. This is particularly gracious of him considering we are basically a "wet power" club. Even though Jerry was unable to fly that day, his static display attracted much attention. I don't know much about soaring, but if his sailplanes fly half as good as they look, they must eat the competition alive. Thanks for the help, Jerry. ■

Thank-you, Richard! *Jer* ■



ZIKR

Crow On or Hand-Launch Topics

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Internet Address Change

I've now got a full-time Internet connection at work; see my new address above.

Eating Crow

Ah ha! Thought the title implied some discussion on setting crow on a full-house HL, didn't ya? Nah, I have several retractions to 'fess up on; by the time I'm done you should see black feathers sticking out of my mouth.

(Sigh!) Here goes.

Rudder-Elevator Competes (sort of)

In the July issue, I spaketh that, in the Riverside ISS classic, the first four places were won by full-house ships; fifth place was won by Merrill Farmer with his built-up rudder-elevator Illusion. Remember? Well, I was right on that one.

I also said that 4 out of the next 5 places were won by full-house planes. WRONG! Someone (sorry, I forget who), sent E-mail asserting that ALL of those places were won by rudder-elevator planes. "Baah," bleated yours truly, sheepishly. Well, I'm glad; I fly rudder-elevator myself and will continue to.

Built-Up Competes (sort of)

Bob Dodgson E-mailed to say:

"Since not much information has been net-dispensed on the HLG kit with which Steve Cameron just won the 1995 LSF/AMA Nats, here are the basics. It is an Orbiter. It features all built-up construction (Yes, you have to actually build it.) and it flies better that way than the many foam-winged versions of it that have been tried. It uses the older Selig 4061 airfoil that seems to work better when it has sags

between ribs. It has a one piece 59" shueman wing, 432" area, an 8 to 1 aspect ratio and a flying weight of 17-18 oz. with flaps and ailerons. It can be built with just ailerons or also with optional flaps. It utilizes flat wings with a little dihedral in the center.

"I believe that Steve Cameron's Orbiter is lighter in weight — around 14 oz. He made some mods to the fuselage including substituting balsa sides for the lite-ply sides in the kit. He did some additional reinforcing to get some strength back after the substitution.

"The kit costs \$75 from us - Dodgson Designs.

"If you want more information, e-mail me your snail-mail address and I will send you our catalog and a copy of the brand new 95-1 edition of *Second Wind*.

"Bob Dodgson - Still keeping it up with hot air!"

Two things to note: It is a "full-house" ship, and Steve is one heck of a flyer! Also, I doubt it would be competitive on a light day at 17 oz.

Mini-Phone Jacks

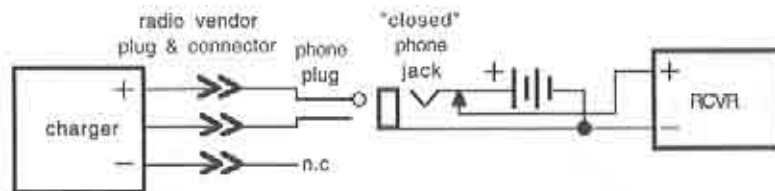
The schematic diagram shows a circuit that many flyers use to control charging and on-off functions in small planes. This works excellently in HL gliders because of its small size and weight.

The way it works is as follows: the "closed" phone jack and the parts to the right of it are mounted in the airplane; the phone plug and parts to the left are external to the airplane.

When the phone plug is NOT plugged in, the jack is in the "closed" position and you can see that the positive battery terminal is connected to the positive battery terminal in the receiver. In this configuration, the plane's radio is on.

If the phone plug is plugged in without the charger being plugged in to the phone plug via the radio vendor's connectors, then the plane's radio is turned off.

If the phone plug is plugged in AND the charger is plugged into the phone plug's cable, then the receiver is disconnected from the battery and the charger is connected to the battery. This facilitates charging the battery through the phone jack.



I use a 3/32" mini-phone jack available at Radio Shack. I've used this scheme for several years with excellent results.

Caveats:

Other pilots had the following comments on using small phone jacks:

John Dillon:

"Is the switch robust ??

"In a word, no. It is not robust. Those of you who would take this thread and go write a magazine article should please, please also pass along some version of the hazard warnings below.

"The slide switches supplied by R/C gear manufacturers are designed to take a few amps of current that a servo may draw while stalled.

"The switch contacts built into an earphone jack are designed to carry only a few 10s of milliamps, enough to switch the audio from speaker to earphone, or in some cases, to automatically switch on the power of a low-power portable radio.

"Slide switch contacts are resistant to shock and vibration. The contacts are tiny and sandwiched under high spring forces. R/C manufacturers discovered a few decades ago that slide switches were best, better than toggle switches or other leaf-spring types.

"The earphone jack leaf-spring contacts have long lever arms that are much easier to vibrate. This could cause intermittent contact under vibration when releasing from a winch, landing, or when used with those noisy, smelly, greasy things some people bolt to the front of their fuselages.

"Finally, the earphone switch contacts are more exposed to dirt than slide switches. Contaminants are the enemy of switches and plugs.

"I have spoken to users of earphone switches. Some report reliability problems and most have discontinued use.

"But the earphone jack as on/off

switch has its applications:

- Low vibration environments
- Low current draw
- Ultra-light weight requirements

"In short, HLG gliders would be a reasonable application. Just make sure you don't stall the servos. I would never use one in my Legend, or my sloper, or any power plane (as if I fly power any more :-).

"Most earphone jack designs do not cover the switch contacts to protect them against dirt or impact from objects inside the fuselage (fingers, screwdrivers, crash debris :-). Try to select a jack that has a plastic cover on the fuse interior, or make a cover yourself.

"And finally, caveat emptor: you should check the operation regularly, both radio range checks and by checking voltage drop in operation. If you have a voltmeter which can record glitches, use it and see what happens when you give the switch some hard knocks."

Author's Response:

See, it's okay! At least in hand launch.

Marc Lacroix:

"Some recommended the use of a 3/32 jack, with the risk of shorting at insertion. I recommend the use of the Power supply dedicated jack (the one with a hole in the pin). It does not short, and it has a switch. Radio shack has them. An empty plug gives you a switch; a wired plug can be used to charge battery (receiver off at the same time). Only drawback: weight is probably 1 or 2 grams higher :-)"

Author's Response:

Take your pick. Finally, Bob Reynolds commented that he doesn't re-use the mini-phone jacks; they do "wear out" when they are moved from one plane to another.

'Nuf said! (More than 'nuf said!) ■

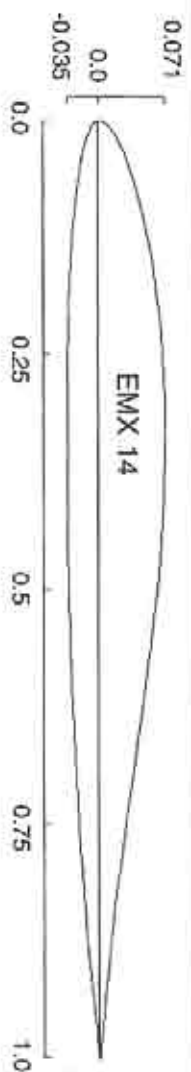
AERODYNAMIC DATA

	EMX 07	EMX 14
thickness	9.91%	10.63%
x_{max} thickness	28.4	34.2
camber	2.54%	1.82%
x_{max} camber	22.8	34.5
α_{zero} lift	-0.30°	-0.50°
C_m	0.0210	0.0019



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

EMX 14			
XU	YU	XL	YL
0.000	0.000	0.000	0.000
0.050	0.258	0.050	-0.231
0.101	0.374	0.101	-0.319
0.151	0.466	0.149	-0.385
0.201	0.546	0.199	-0.438
0.251	0.618	0.249	-0.485
0.301	0.684	0.299	-0.526
0.401	0.803	0.399	-0.600
0.501	0.910	0.499	-0.664
0.752	1.146	0.749	-0.799
1.002	1.351	0.999	-0.915
1.252	1.535	1.249	-1.022
1.502	1.705	1.498	-1.121
2.003	2.010	1.998	-1.303
2.503	2.280	2.498	-1.464
3.504	2.755	3.497	-1.732
5.005	3.348	4.997	-2.040
7.506	4.142	7.496	-2.423
10.007	4.778	9.996	-2.702
12.508	5.302	12.496	-2.913
15.008	5.737	14.996	-3.075
17.509	6.100	17.495	-3.201
20.009	6.403	19.995	-3.298
22.510	6.650	22.495	-3.372
25.010	6.844	24.995	-3.425
27.510	6.989	27.495	-3.462
30.010	7.084	29.995	-3.484
35.010	7.132	34.995	-3.491
40.010	6.998	39.995	-3.457
45.010	6.693	44.995	-3.390
50.009	6.245	49.995	-3.290
55.008	5.684	54.995	-3.159
60.007	5.035	59.996	-2.996
65.006	4.327	64.996	-2.796
67.506	3.958	67.496	-2.681
70.005	3.587	69.996	-2.555
72.505	3.214	72.496	-2.419
75.004	2.845	74.997	-2.270
77.504	2.484	77.497	-2.110
80.003	2.132	79.997	-1.936
82.503	1.795	82.497	-1.747
85.002	1.476	84.998	-1.544
87.502	1.179	87.498	-1.327
90.001	0.910	89.998	-1.094
92.501	0.668	92.499	-0.847
95.001	0.449	94.999	-0.588
97.000	0.285	96.999	-0.375
98.000	0.206	98.000	-0.267
99.000	0.127	99.000	-0.159
100.000	0.050	100.000	-0.050



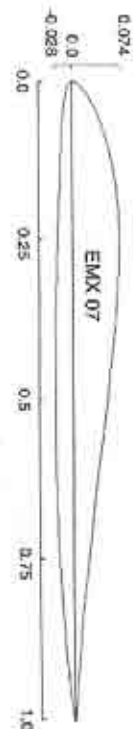
Dr. Martin Lichte's
EMX 07 and EMX 14

Dr. Martin Lichte's EMX 07 was originally featured in this column in December of 1988, along with his Phoenix and Elina profiles. Since the coordinate table for the EMX 07 given at that time contained only 36 points, we thought it time for enhanced plotting information. When we wrote that original article, aerodynamic data for this section was not available; the included table lists all of the relevant information.

Also covered this month is one of Dr. Lichte's newer sections, the EMX 14. This section is a bit thicker than the EMX 07, and has a lower pitching moment. Aerodynamic data for the EMX 14 is also included in the accompanying table.

It should be noted the EMX 07 was originally recommended for use on wings with a small amount of sweepback (about 10°), rather than planks. Our own recent experience, however, has shown plank planforms do not need large amounts of reflex and high positive pitching moments. We

EMX 07			
XU	YU	XL	YL
0.000	0.000	0.000	0.000
0.274	0.723	0.274	-0.495
1.093	1.679	1.093	-0.831
2.447	2.692	2.447	-1.113
4.323	3.690	4.323	-1.362
6.699	4.655	6.699	-1.571
9.549	5.555	9.549	-1.751
12.843	6.333	12.843	-1.916
16.543	6.921	16.543	-2.077
20.611	7.291	20.611	-2.236
25.000	7.447	25.000	-2.394
29.663	7.360	29.663	-2.539
34.549	7.074	34.549	-2.656
39.604	6.636	39.604	-2.744
44.774	6.091	44.774	-2.801
50.000	5.475	50.000	-2.825
55.226	4.819	55.226	-2.811
60.396	4.152	60.396	-2.756
65.451	3.504	65.451	-2.659
70.337	2.896	70.337	-2.502
75.000	2.339	75.000	-2.273
79.389	1.845	79.389	-2.013
83.457	1.425	83.457	-1.755
87.157	1.078	87.157	-1.497
90.451	0.793	90.451	-1.225
93.301	0.571	93.301	-0.947
95.677	0.407	95.677	-0.688
97.553	0.291	97.553	-0.466
98.907	0.152	98.907	-0.295
99.726	0.152	99.726	-0.189
100.000	0.152	100.000	-0.152



would not hesitate to use the EMX 07 on a high performance plank platform.

The EMX 14, on the other hand, with a pitching moment near zero, should be used on moderately swept wings. If you choose to use the EMX 14, utilize the Panknin computer program to assure your design has sufficient stability.

We invite anyone experimenting with either of these two sections to forward flight information to us at P.O. Box 975, Olalla, WA 98359-0975 or bsquared@halcyon.com. ■



Gordon Jones, 214 Sunflower Drive,
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Transitional Wings

With the contests of today, a matter of how well you land determining how well you place, emphasis on spot landing has become an obsession. To improve your landing you want to be able to adjust your approach speed all the way to the spot in varying conditions and obviously at varying speeds. The question then becomes, "How do we get the best of both worlds without affecting the thermal performance of the airplane?"

About two years ago, during an after dinner conversation, the topic of trip

strips came up. From trip strips the conversation turned to tip stall, which is a natural transition in itself. The crux of the talk was how to reduce tip stall and not use an un-natural device to obtain that reduction. Well, obviously there were several answers that made sense; just use the trip strips as in the past, redesign the wing planform to provide better flow of the air, put in some washout, or use a slightly different airfoil to generate the washout naturally.

We have brought the design of wing planforms down to the "nth" degree over the past few years using many of the F3B designs for starters and then refining those designs. After a few more changes, we have the basic triple taper planform used by the majority of the airplanes flying today. Unless something really dramatic happens in the materials we use to build wings, there are not likely to be any major

changes in the current planforms in the foreseeable future.

Many builders have used washout built into the wing for years, and it has endured because it works and is easily accomplished when cutting the cores or framing up the built-up wing. But it requires that both panels be set at the same amount of washout when you are cutting or building. In the case of foam cores, you have to either build the washout into the templates or put spacers under the templates when you cut the cores. In both instances you are only talking about adding the washout from the center of the wing to the tip. This does not transition the change the full extent of the wing to gain the maximum from all the trouble that you go through.

It's easy; use a transitional wing or set of airfoils to provide the transition. Some manufacturers are doing the same thing to some extent by thinning out the tip to retain the speed of the wing at the tip. This does lessen the chance of tip stall by keeping the tip flying longer. But it does not reap the most benefit from the exercise. Plus manufacturers want to advertise the use of just one airfoil (even if it has been "modified").

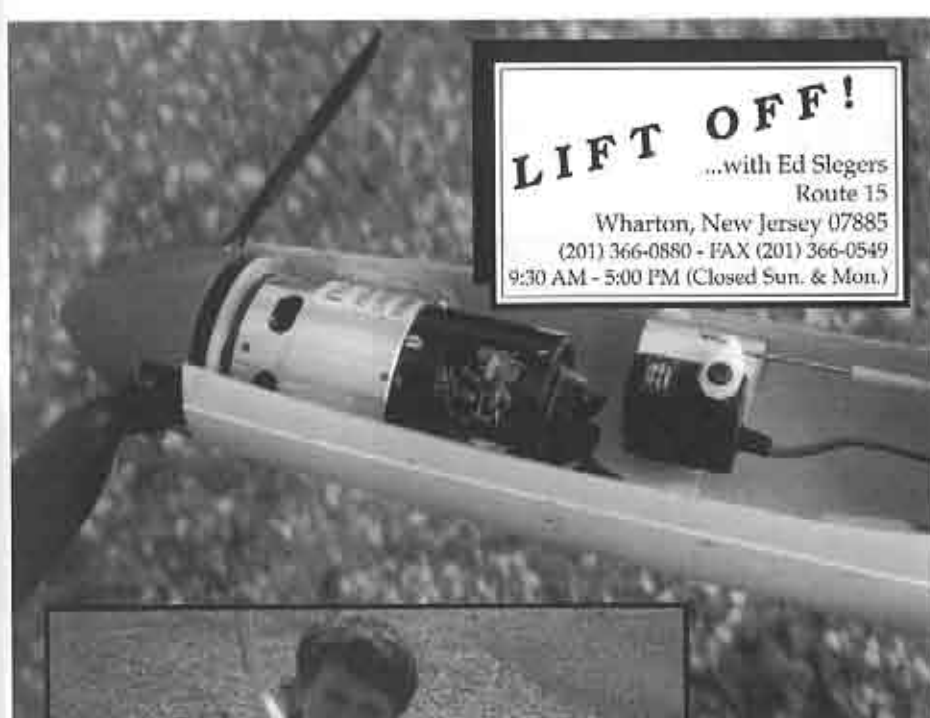
Enter a fully transitional wing. This is accomplished by using a thicker but less cambered airfoil at the root; then progressively adding camber and decreasing the thickness as you progress toward the tip. Most folks will say that this is just as much work as adding washout the old fashioned (and proven) way. Well, yes, and no. In most instances, when we build a new sailplane, we are looking for an improvement in performance from either a new airfoil, a new wing planform or we just want to do something different. Also, in most instances, we are going to end up making new airfoil templates anyway; so why not something even more different?

The full transition takes very little time to figure out, but the results are worth the effort. To give an example of this

type of wing, we will use the HQ 2.5/10 at the root and transition to a 3/9 at the tip. The root chord will be the standard 2.5/10 airfoil. The intermediate break or outboard end of the first panel will be a 2.75/9.5. This transitions the airfoil evenly to the first break.

The next panel will be the 2.75/9.5 at the root and transitioning to a 3/9 at the tip of the panel. You will notice that the change in camber is .25 and the thickness is .5; both natural graduation/reductions which provide for the even transition. For the tip panel itself, we just use the 3/9 on both root and tip to carry the thinner more cambered airfoil to the end of the wing. Our end result is a wing that flies a little faster at the tip, and at the same time, has some additional camber to help with lift.

While this may seem like a lot of trouble it is not any more trouble than building a set of templates for any new wing. All you have to do is plan the transition. And in case you are wondering if this works or not, well we have a couple of these wings flying here in Texas that perform extremely well. You can slow the airplanes down to a very slow walk, and if Dale can catch one of them on landing they should be slow enough for anyone to hit the spot. ■



very few were produced before it was discontinued. I think interest is now getting stronger in large electric sailplanes.

With this increased interest, I started to look at what is available that would make an open class, electric sailplane, and decided on the Skyhawk.

The Skyhawk was chosen for a couple of reasons. First, there is lots of room in the fuselage for the motor, speed controller, and batteries. The

Electric Skyhawk
There are many seven to ten cell, two meter, electric sailplanes on the market, but very few large, open class, electric sailplanes available.

A few years ago, I converted a Falcon 880 into electric with great results, but at that time, there was not much interest in large electric sailplanes. So,

elevator servo being in the fin helps. Next, the Skyhawk has lots of wing area and is a light sailplane to begin with: about 60 oz. Also, the Skyhawk is a great flying sailplane.

Having an already built and flown Skyhawk made the conversion very simple. First, I cut the nose off to match the spinner. Then, I installed the

To convert the Skyhawk, I used:

Motor	Hecktoplett 320/4
Prop	12.5 x 7
Controller	STW 85 amp
Receiver Battery	Flat 600ma
Motor Battery	10 cell 1000ma
Spinner	45 mm
Electric Flying Weight:	81 oz.

firewall. I then relocated the rudder servo back from its original position about 2 inches. To get the C.G. correct, I used a 10 cell flat pack and velcroed it in place. That is all that had to be done to convert the Skyhawk into electric.

I am sure that there are other large sailplanes that have been converted into electric, but I think that the Skyhawk would be one of the easier to convert.

If anyone reading this has converted a large sailplane into electric, let me know what plane and equipment was used, and the results.

Good Flying! ■



ZIKA

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Your Turn!

You know, I have come to the conclusion that it just don't matter how much you practice, whether it be horse shoes or fishing, and/or sailplanes; you can only practice so much. Then, the "your turn" or "luck factor" has to come into play. Now, you take a race car driver. That dude could be leading the race all day long, only to blow an engine or have a flat. Now, you all know what happens! He ends up in the back of the pack. You know it just wasn't supposed to be his day.

Anyhow, I know that there are a lot of you guys out there, in the sailplane world, who have had the kind of days when you were out flying as if no one could stop you. You're getting your time and driving the nail in the ground on the one hundred mark, only to have that one round that you could have done without. Boom!! There you go to the back of the bus. Not only do you try to fight back for a respectable spot, but the mind starts playing tricks on you. It asks questions that cannot be answered, such as, "Should I have

gone right instead of left? Was the lift just a little further out? Should I have listened to my timer?" I mean, after all, one could have a hard time forgiving the timer for the blind date he set me up with!

I'm not actually saying that you should not practice, for you should. But after you have practiced all you can, check over the equipment and plan the possible winning strategy. Then, give it your best shot, and hope that you will get a break or two that could make the difference between winning or just placing.

Another thing to keep in mind is to try to stay consistent in your flying. I mean, try and keep your point losses to a minimal. In doing so, there is a better chance of staying in a position that could slide into first place, when just plain lucky loses his lucky rabbit's foot.

To sum it up, try and fly consistently. Give up as few points as possible. Always remember, and I mean always, get a landing. Now about luck, I was told that it is "preparation for opportunity to come along". So, prepare yourself. Remove all possibilities for bad luck and fly smooth!

**Signing Off,
Cornfed**

P.S. Say your prayer, and don't forget to take care of your teeth!

ATTENTION: CASH contest canceled due to lack of interest. ■

UIUC Low Speed Airfoil Tests Program

Update 8-24-95

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More wind tunnel testing (Test Series 2) is about to begin in earnest and will last for a 6 week period—about the same amount of time as Test Series 1 which lead to the latest SoarTech airfoil data book: "Summary of Low-Speed Airfoil Data — Volume 1." Although we will be testing a spectrum of airfoils (for soaring, power, free flight, etc.), we plan to spend the majority of time testing airfoils for thermal duration. By popular demand, we have plans to test the S3021, RG15, SD7037 and S7012 all with flaps. Special wind tunnel model endplates are currently being CNC'ed to secure the flap for settings: -15 to 40 degs. Around 0 deg we will be going in 2.5 deg increments in order determine the camber effectiveness for thermalling. Several new airfoils were designed and are currently being built for the tests. For thermal duration, the S7075 was designed to take advantage of a boundary layer trip just upstream of the 21 flap hinge. For clean airfoils designed for use without a trip, the bubble ramp must be effective over the entire operating range. Ideally, the ramp should be designed for just one angle of attack, but of course a point design like this would suffer when operated off-design. With a trip, the demands on the bubble ramp can be relieved (effectively halved). Over half of the operating range, the boundary layer trip causes transition to happen. Over the rest of the operating range the bubble ramp takes effect. The advantage is that the bubble ramp does not have to operate over such a wide range and fewer compromises have to be made. The result is lower drag ... we think. Computational results show very significant improvements. The device drag (trip drag), however, is not included in the predictions, so

wind tunnel tests are needed to determine the net drag reduction. This new airfoil will also be tested with a flap since it may be the next "hot" airfoil.

A new 8 thick tail airfoil has also been designed—the S8025. The airfoil is not symmetrical because all the symmetrical airfoils tested to date show some degree of deadband in lift about zero angle of attack. For a sailplane that is nearly neutrally stable, the tail operates in and out of the zero angle of attack range. While it has not been a noticeable problem for the SD8020, this deadband must negatively impact the handling; that is, improvements in handling are likely with the elimination of the deadband. A non-symmetrical airfoil might bypass the deadband problem, or at least the problem should be mitigated to a degree. Another advantage of going to a non-symmetrical tail is that the airfoil can be better tailored for the required performance. The entire operating range on a symmetrical tail airfoil is rarely used. It could be said that symmetrical tail airfoils are over-designed. More tail download is needed that upload. The new airfoil is design with this fact in mind.

Another thermal duration airfoil is in the works and should be tested during the upcoming Test Series 2. Currently, the SD7037 and RG15 seem to be the most popular airfoils used in the US. In terms of performance, these airfoils are worlds apart. The SD7037 is best suited for thermalling, while the RG15 shows its strength in cruising. Between these two airfoils (extremes), there is a compromise emerging — the SD7080. Trade studies show that the SD7080 might be improved. More work is needed, but preliminary results are promising.

Those with access to the World Wide Web might be interested in exploring the world of airfoil design. On the homepage <http://uxb.cso.uiuc.edu/~selig>, there is a link to PROFOIL, which is one of a suite of codes that I use for airfoil design. Through a Web browser, the user can input the airfoil design parameters and design their own airfoils (in theory). The current page on PROFOIL is just a demonstra-

tion of my airfoil design code. For analysis of candidate airfoils designed with PROFOIL, I use the Eppler code and also Mark Drela's XFOIL. I plan on giving a brief description of these codes, but I have not done this yet. Also, input data for the SD7037 should be included by the time this gets published. The user can then use the SD7037 airfoil as a seed to new designs. Finally, we still need support to keep the tests on a firm foundation. Since June, support of the tests has fallen precipitously and predictably. Many probably wondered "whatever happened to Selig and those wind

tunnel tests" at a time when we were silent and busily preparing the latest SoarTech book (gasp). Clearly, we are still in the business and need your help. Any donations should be sent to the address above, made out to the "University of Illinois, AAE Dept" and reference on the check or letter "Selig Wind Tunnel Testing". If you have helped us out before, you might want to consider another installment; new business is always welcome. Finally, thanks for everything so far; we are truly enjoying ourselves in the tunnel (when all works according to specs)! ■

Cutting Slots in Foam Cores

...by Bruce Abell
Cessnock, NSW, Australia

I read with great interest Lee Murray's brief article on cutting slots in foam cores for spars in the December *RCSD*, and I thought you might be interested in the system for this that Mike Sampson and I have developed.

The photos tell most of the story and the power supply is a 6V transformer from a "Scope" soldering iron unit.

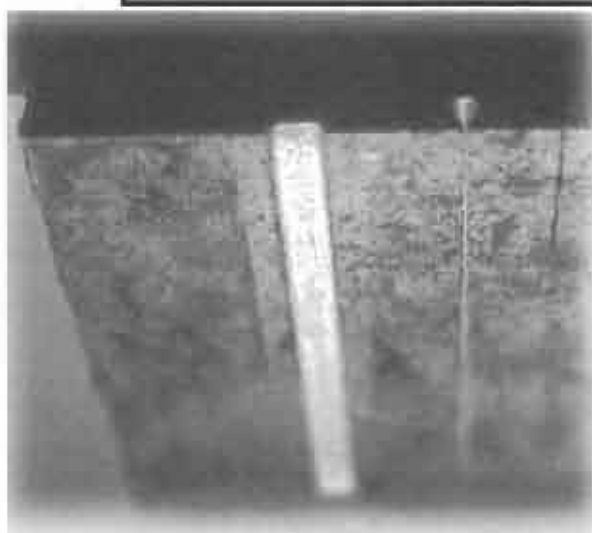
I pin a strip of balsa about 1/2" x 1/4" to the core as a guide for the edge of the cutting board, and I make this overlap the end of the core as a lead-in for the cutting board.

The system gives a very clean groove that only requires the edges to be squared out or the edges of the spar to be radiused to fit. Also, the round slot for the aileron/flap leads only needs a small amount of "Magic Filler" to seal the slot after the drinking-straws have been inserted.

If the aileron and flap slot are positioned to go through the rear of the servo bays, then the one long hole is sufficient for both leads. (See diagram.)

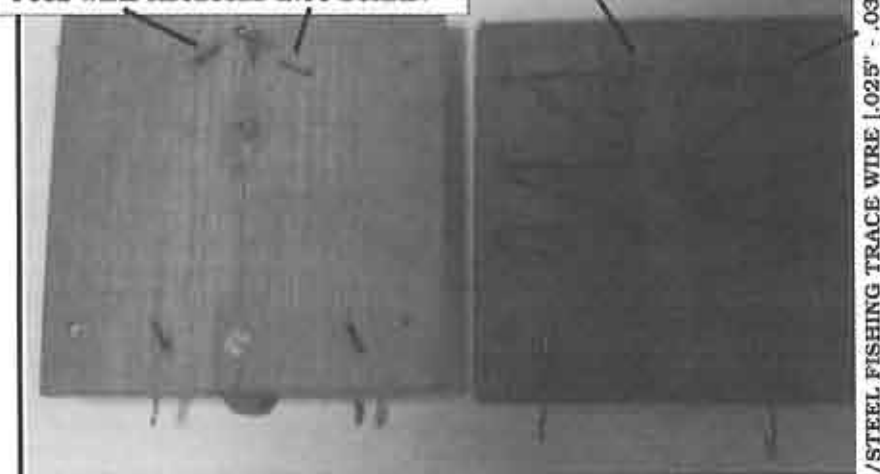
The base board of the cutter is approximately 3" square x 1/8" ply, but this can be larger or smaller, depending

DIA. OF LOOP TO GIVE A HOLE TO TAKE DRINKING STRAWS JOINED TOGETHER

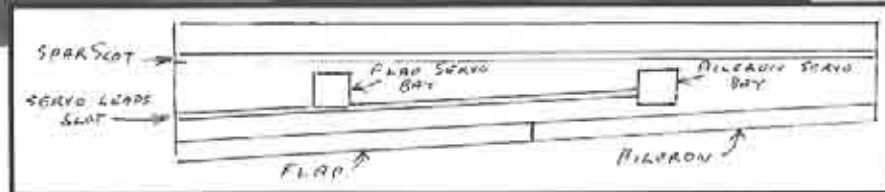


CUTTER BOUND TO BASE-BOARD WITH FUSE WIRE RECESSED INTO BOARD.

HANDLE



BALSA STRIPS TACK GLUED TO BASE BOARD TO ADJUST DEPTH OF SPAR SLOT



on the whim of the builder, and the cutting wire is zig-zagged to give enough length to give a suitable heat. The handle is a piece of pine 3" x 3/4" x 3/8" and is attached to the base-board

with two counter sunk screws and glue.

As you can see, the system is very simple, but is extremely effective and there is scope for a lot of variation. ■

THREE PEAS IN A POD



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SWSA 2M Soarfest '96

Curt: By the time you read this, plans will already be in full swing for 2 meter, 2 day mega-event, hosted by SWSA, California's Silent Wings Soaring Association.

If you've ever flown the Masters, or just attended as an interested spectator, you're already familiar with this energetic club, its friendly members, and a grassy flying site that's locally famous for its "noon balloon".

Flatland soaring has never been better, and SWSA intends to prove it. California Soaring Products', Paul Ikona (#1 Pea in the Pod), dreamed up this contest, and has been crunching the numbers for the past several weeks.

Slated for Saturday and Sunday, June 8-9, this competition is designed NOT to conflict with the West Coast's Big Three; namely the Southwest Winter Soaring Contest (February '96) in Gilbert, Arizona, the Rose Bowl Soaring Festival (May '96), and of course Visalia's Fall Soaring Festival (October '96). At this time, it hasn't been determined whether the Masters of Soaring Tournament will once again be presented by SWSA, or an East Coast based club; but either way, the traditional April series will pose no scheduling problem in regard to Silent Wing's 1st Annual 2M Challenge.

Mike: According to Paul, planning SWSA's first two-day event, to be both highly competitive and lots of fun, has

been a real "pain in the ...". Still, Paul seldom complains about anything. We leave that up to Curt! Basically, there will be 6 rounds on Saturday and 4 rounds on Sunday, with pilot's meeting at 8:30 A.M. and first flights at 9:00 o'clock.

Saturday

Round 1 - 3 mins.
Round 2 - 10 mins.
Round 3 - 5 mins.
Round 4 - 10 mins.
Round 5 - 7 mins.
Round 6 - 5 mins.

Sunday

Round 1 - 5 mins.
Round 2 - 10 mins.
Round 3 - 6 mins.
Round 4 - 8 mins.

This will be a "called flight order" format, scored at 2 points per second under, and 10 points per second over.

Landings valued at 30 points max. in or out, will consist of a 1 meter painted circle, approximately the diameter of a standard sized Hoopla Hoop. Incidentally, buying one from a local toy store would probably be a great tool for practicing this task! Winches are of the 12 volt variety, and the line runs approximately 500 feet to the turnaround. Multiple landing areas will be mowed grass.

Attractive trophies will reward 1st through 10th places, in addition to the team placing first overall.

Paul says he's still negotiating a few additional perks, but isn't ready to put them into print just yet. He mentioned that there will be restrooms, and probably a lunch truck on site, but not necessarily in that order!

For those interested in over night accommodations, a map will be provided to all contestants including a list of hotels and assorted eating establishments. RV parking may be available at nearby Puddingstone Lake.

This contest will be open to the first 100 pilots, but the application must be received by "tax day", April 15th. A confirmation letter will be returned to those accepted. The entry fee should be consistent with most 2-day events, probably \$30 - \$35.

A raffle is guaranteed, but T-shirt and custom name tags are still up for discussion. Either way, this should prove a weekend of fun and great flying. Hope to see you there!

Paul: Hey, SOAR HEADS! Let me

C.R. Aircraft "Blazer"

...by Joe Thomas
San Jose, California

The "Blazer" is the newest offering from Charlie Richardson, a San Diego County-based pilot, designer, and builder of model sailplane kits. I had previously flown two of Charlie's models: the Turbo S sloper and the Climmax handlaunch. Both flew nicely, so I knew that Charlie flight-tested his designs before putting them on the market. There's not much worse than shelling out money for a new kit, only to find out that it has major design flaws or poor flight characteristics.

I have been looking for a light-air slope model for some time. Some of the models considered were the Turbo ST, the Climmax with ailerons, the NSP Sparrow, the Mark Allen Skyhawk, and the Dodgson Pivot Plus, with the Climmax at the top of the list. One of my flying buddies has one, and I was impressed with its ability to just about keep up with a Gentle Lady in light winds on the slope. I had even consid-

ered (am still considering) building a two-meter 5D7037 wing for my Ninja. Then, I saw the ad for the Blazer. Now, lots of kit manufacturers say their slope models will fly in light air. If the truth be known, probably 95% of them can not stay aloft in five mph winds with light thermal activity. There are, however, many polyhedral-wing sailplanes that fly well in these conditions. I probably get more flight time out of my Gentle Lady than all eleven of the other flyable models I have, combined. In fact, just last Sunday, I flew it for about four hours. I only flew one other model on that day, and I was afraid that I was going to have to land downhill and possibly damage that expensive thermal competition glider.

say this about that... 2M gliders are back, and flying them is more fun than ever. Polys or straight wings, built-up or composite, the 2M revival is on and in a big way. They're all competitive. I still see a lot of Gnomes, and that's one heck of a thermalling machine. I can't tell you how many of those I could sell if kits were still available. But think about the current breed, and an ever-expanding market. How about Mark Levoe's 2M Super-V? Or the Vulcan and Spectrum series? Seems to me the Falcon 600 and Banshee aren't exactly dead, yet. Then, there's Airtronics' Whisper, and even that little EZ-Answer would fit the bill, just fine. Got a Sagitta 600, Spirit 2M, or some un-named home brew? Whatever it is, we'd like to see you flying it here on June 8th and 9th, 1996, in Covina, California for this 1st Annual SWSA 2M Shootout. Watch for more details in RCSA and your local club newsletter. For additional information, contact me at California Soaring Products or call CD, Pete Olsen, at (909) 597-2095.

'til next month... "Boomers!" ■

So, I get lots of flight time with the Gentle Lady, and it is lots of fun. My favorite kind of flying, outside of heart-pounding aerobatics, is searching for (and sometimes finding) thermals off a slope when the winds are light. But, without ailerons, a sleek fuselage, and



The Blazer kit is fairly complete. You'll need only glue, covering materials, and aileron linkage.

strong wings, there are no high-speed passes and only loops for thrills. That's where the Blazer comes in. Since I had flown C.R. planes in the past and also heard great comments from other flyers of Charlie's designs, I felt that I could trust his statement that this model will fly in light lift. I called Charlie and asked two questions:

- 1) Are you shipping the kits now? His answer, "Yes."
- 2) Does it really fly in light lift? His answer, "Yes, I flew it a lot last fall."

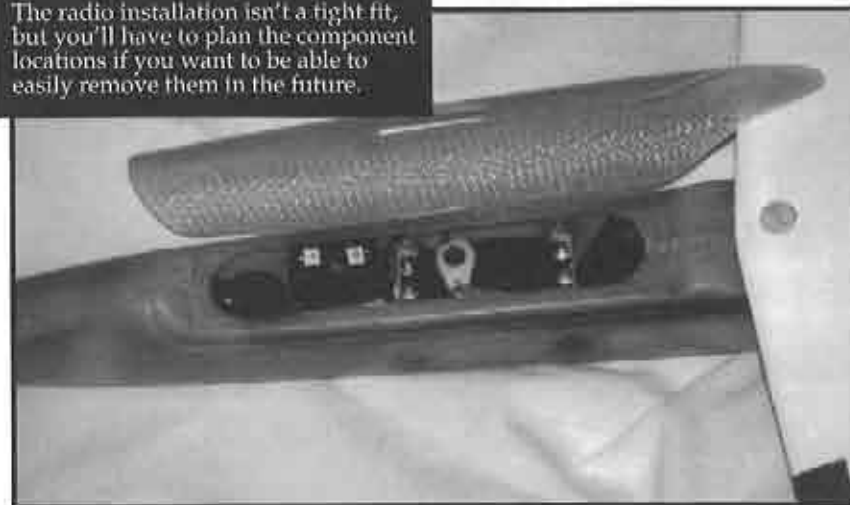
Knowing that fall is not the best time for Southern California slope flying, I understood his meaning.

I ordered the kit with the balsa pre-sheathed S-3014 wing, a \$20.00 option, and it arrived in ten days. There isn't much to the kit. There are the wings (in their beds), the fuselage with canopy, trailing and leading edge material, ailerons, the elevator push rod and housing, elevators, v-tail pieces, a bag of wood pieces and hardware, rolled plans, and the construction manual. In addition, you provide glue, covering material, hinging material, and aileron linkage. The manual is not illustrated, but the plans are sufficient for the minimum amount of assembly required. The kit is simple, but it helps to have built a few models in the past. The manual is good, but not detailed enough for someone with no previous building experience. You will need your woodworking skills for this kit.

The fuselage had minimal pinholes, mostly near the seams. There was one minor flaw in the fuselage, and one very small crack in the wing saddle. It is a fairly simple layup, with taped seams and an extra layer of cloth from the nose to just past the rear wing saddle. The canopy attachment method is left up to the builder. To keep the overall weight down, I decided not to paint the fuselage. In the future, I may decide to paint it, if only to cover up my repairs due to the inevitable (for me) bad landings. The fuselage has a rounded rather than pointed nose, which to some may not be as attractive, but the benefit is that you can put a larger battery pack further up front, reducing the need for lead for balancing.

The wings are balsa-sheathed with decent wood, and the roots, trailing edges, and leading edges are trimmed. There is a strip of carbon fiber running under the top sheeting. The first step in construction is to cut the tips to the angle specified on the plans, unless you like square tips. Then the leading edges and the sub-trailing edges are glued on. After the glue dried, I cut out the openings for the wing servos, though this step comes later in the instructions. I felt it was easier to work with flat 30-inch sections rather than a 60-inch wing with dihedral. The servos were placed about one-half inch closer to the leading edge than shown on the plans. This was done to put the servo

The radio installation isn't a tight fit, but you'll have to plan the component locations if you want to be able to easily remove them in the future.



wiring closer to the wiring tunnel and to keep more of the weight toward the front of the fuselage. Tunnels for the wiring are already cut into the foam. Two JR 341 servos were used for the ailerons. These servos are a bit pricey, but I have received good reviews from other flyers, and they are light-weight at .63 ounces apiece. The leading and sub-trailing edges are then sanded. There is a cross-section view of the wing airfoil on the plans, but I didn't notice it before I shaped the leading edge. The sheeting was given the once-over with 220-grit paper.

The dihedral angle (one inch total) is sanded into the roots of the wing sections before they are epoxied together. The trailing edge pieces are glued on and sanded, then the center section is wrapped with two pieces of glass and epoxied. While waiting for the epoxy to cure, I reinforced the wing saddle of the fuselage with carbon fiber tow and epoxied the wing-mounts in.

I used basswood for the wing tips instead of the supplied balsa. The extra .2 ounce weight would be worth it to counter those "drag-a-wing-tip" landings. The tips were rough-shaped before being glued on, thus requiring minimal sanding.

Next, the v-tail stabilizer panels were sanded to shape, then assembled with the mounting pieces. The instructions say to sand the v-tails at the bottom to match the angle (110°) on the plans, but

in newer kits this is already done for you, so I just glued them together. My one concern was whether the incidence angle was correct as is. There is nothing in the instructions or plans to indicate the angle; it is set by the mounting flange at the back of the fuselage and the bevel sanded into the tail pieces. The wing is squared and mounted to the fuselage using two 1/4-20 nylon bolts. Though not stated in the instructions, the v-tail assembly should be squared to the wing before the mounting holes are drilled in the fuselage. The assembly is bolted to the fuselage with two small, countersunk screws and blind nuts. If you do not sand enough material off the bottom of the v-tail assembly before gluing on the plywood base, the screws will not be long enough. Be sure to check this before gluing on the bottom plywood piece. I was able to find longer replacement screws for 5 cents apiece.

The elevators are cut out of trailing edge stock and sanded to match the stabilizers. Hinging is left up to the builder, but tape hinges are suggested. I decided to try monokote hinges to keep the tail clean-looking and ensure free movement. This is more work than tape hinges, but I wanted to try this method. Before covering the tail, the ball link mounts are installed. This procedure requires some studying of the plans, and care in choosing the proper location in the elevators to prevent the ball links from contacting

the fuselage during down-elevator movements. I needed to trim about 1/8-inch off the brass pieces for the best fit. Monokote was used as the covering, with dark blue on the bottoms and white elsewhere.

Next, I sanded the wing tips and ailerons to match the main wing panel. I felt the trailing edge at the tips was too thin (due to over sanding on my part), so I added a piece of 1/4-inch wide .007 carbon fiber at each end for strength and stiffness. The hangar rash and sanding gouges were then filled with spackling compound, and when dry, the entire wing panel was lightly sanded, then cleaned. The bottom was covered with dark blue Ultracote, and the top was covered with white Ultracote. The c.g. position was marked on the bottom with 1/8-inch striping tape.

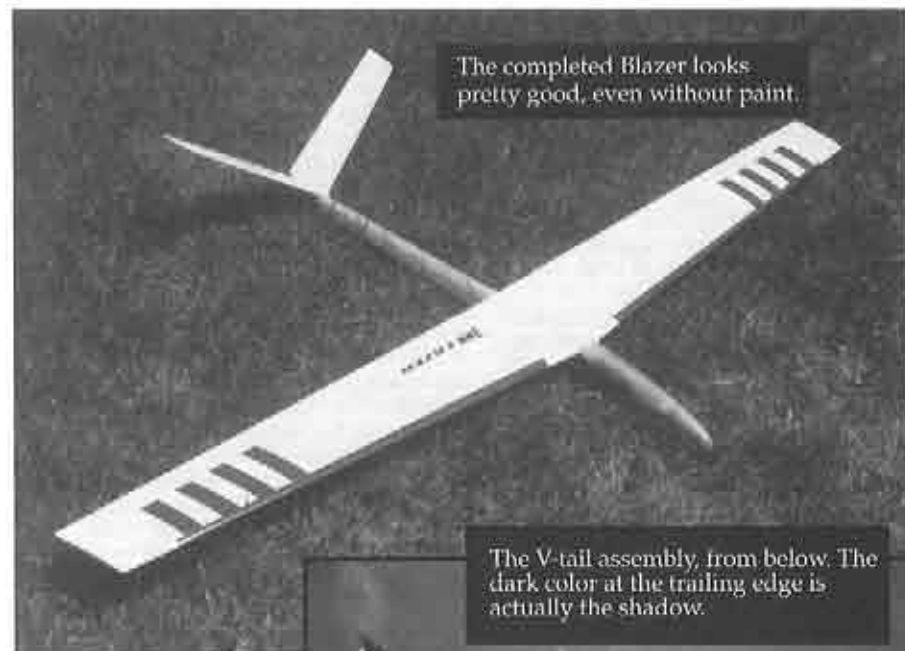
The aileron servos were fitted to the wings and the wires were run. Since I had planned to put the receiver in front of the elevator servo, I made aileron wire extensions using Dean's pins so as not to have to run wires from the wing to the receiver every time the model is assembled. The extensions are kept plugged into the receiver and run to the wing saddle opening. With the change in receiver location (see below) these extensions really aren't necessary. The ailerons were slightly warped after covering, but were easy to straighten with the sealing iron. The aileron servo linkage was made using nylon snap links and all-thread wire. The supplied aileron horns are plywood. The servo holes were cut to provide a snug fit, so the servos are held on only with tape. The wing was then bolted to the fuselage, and the hatch cover was fitted. This required some sanding. There is a mold line on the cover, but you have to look closely to see it. The front wing mounting bolt head interfered with the cover, so I wasn't able to get the best fit. If I had drilled the hole for the bolt further forward on the wing, the cover would have fit properly. Initially, the hatch cover will be held in place with tape.

The v-tail assembly was bolted on. To keep the model as light as possible, I was careful in placing and choosing the radio gear. I had two different battery

packs, two different receivers, and three different elevator servos to choose from. My intent was to select the different components and their mounting locations so as to use as little lead in the nose as possible to get the correct c.g. Initial testing showed that the heaviest components would be preferred. I used a 600 mah flat battery pack and Airtronics 831 mini servo for the elevators. A standard servo would work, but it's a tight fit. The receiver is an Airtronics 6-channel, though I may later use a smaller 4-channel receiver instead. The location on the plans for the elevator servo is under the front wing saddle and the plywood wing mount. I could see no way to glue the servo mounts in and then screw the servo in. It is possible to screw the servo to the mounts, then glue the mounts in, but you'll end up with a permanent installation. Instead, I mounted the servo, using the supplied mounts, between the battery pack and the receiver, making sure it was far enough back to allow battery removal. Next, the pushrod housing was glued in. The elevator pushrod end links were then soldered on.

Setting up the Vision radio took about one hour. The flaperon template was used. The flight mode switch was set to provide down camber for thermalling and reflex for speed or spoilers. The flap lever gives about 45 degrees of down aileron. I will be experimenting with these settings and other mixing functions when I have a few flights on the model.

For final trimming and c.g. checking, the wing and tail assemblies were bolted in place. The v-tail assembly, which was carefully aligned in a previous step, was now crooked. It must have shifted when the nuts were glued into the fuselage. A piece of electrical tape under one side of the assembly returned it to proper alignment. To get the proper c.g., 2 ounces of lead were required. This brought the total ready-to-fly weight to just under 26 ounces, only two ounces above maximum specification. I would have preferred that it weigh less, but I tend to build heavy — too much glue, I guess. There isn't much that can be done to reduce the total weight. A



The completed Blazer looks pretty good, even without paint.



The V-tail assembly, from below. The dark color at the trailing edge is actually the shadow.

lighter covering material and judicious sanding of the v-tail might have helped, along with a lighter receiver and elevator servo and no carbon fiber. Charlie said he was surprised that the model weighed this much, since most of the completed models he had seen came out

closer to the 20-ounce mark. What this extra weight does is just make the model fly faster, which is not a problem with my flying style. At the 20-ounce weight, it would probably be a decent hand-launch model. One problem I noticed was the front wing-mount bolt contacting the receiver case. Again, if the bolt hole had been drilled slightly forward, this would not have occurred. Trimming the bolt length by 1/8-inch corrected that problem.

Total building time was 21 hours. A more experienced, dedicated builder could probably do the whole job in about 12 hours. Hinging and covering the tail took 3 hours. It should have taken about 1 hour. It took about an hour and 15 minutes to cover the entire wing.

Flying

Finally, after a whole week of less-than-favorable flying conditions, the Blazer took to the air. The wind was barely blowing at 5-10 miles per hour. The Gentle Ladies and Whirlwinds were not having an easy time staying aloft, because the lift was not consistent. One more check of the control throws, a radio range check, and my friend Sean launched the glider. The first flight lasted about 10 minutes, because I did not feel very comfortable with some of the flight characteristics. With seven clicks of up trim to try to get some lift, the model felt like it wanted to tip stall every time I banked it. It also felt like the aileron response was insufficient, which probably contributed to the feeling that the model was going to fall

out of turns. I brought the plane in for a landing, and it handled very well. The aileron throw was increased from 66% to 100%, and 1/2-ounce of lead was added to try to get the model to lift better.

The second flight was much better than the first, partly because the lift had improved. The launch was high, and the plane seemed to handle a little better, but there was still a feeling that it was on the verge of a stall every time it was banked. Also, the elevator had more power than I needed. Sean flew the Blazer for awhile, commenting that it reacted very well to the slightest lift. He dialed out all but one click of up trim, which increased the airspeed significantly, but did not cause any loss of altitude. Being that I was flying in the company of the Gentle Ladys, I had trimmed for a speed that was too slow for the airfoil. A dive test indicated a nose-heavy condition, so I landed to make an adjustment. Again, the landing was easy.

After taking out 1/4-ounce of nose weight and decreasing the elevator throws from 66% to 50%, the model was launched again. This flight lasted for about 45 minutes, until I brought it down to show it to another flyer. This time, I let the model fly at the speed it preferred. It lifted very well, eventually gaining more altitude than all the other models in the air at the time. Some altitude was lost in turns, but it all came back when the model leveled out. In tight turns with lots of up elevator, there was no tendency to tip stall. In fact, when trying to induce a tip stall, the model just dropped its nose without any desire to roll over. Stalls were very gentle, with the nose pitching up nearly vertical before dropping straight down — again, with no desire to drop a wing.

Since the model was flying very well, and I was starting to feel very comfortable with it, aerobatics were next on the agenda. Loops were tight and clean, and the wing stayed level. The roll rate was surprising. This baby rolls darn fast! Inverted flight required only a small amount of down elevator. Need some speed? Push it over and it speeds up. Add a little reflex and it speeds up some more without losing any altitude.

Next up, thermal turns. Remember, this is a 60-inch slope plane, not an unlimited thermal duration model. However, I built it to fly in light-wind conditions with modest thermal activity. It had already demonstrated its ability to indicate lift, but I wanted to see how well it would circle up in a thermal. When the model indicated lift, I would fly out a bit, turn back into the lift, bank, then pull up on the elevator. Too much elevator and the Blazer would raise its nose and tighten the circle, requiring opposite aileron deflection to widen the circle. I can see that I need to practice this maneuver. I have the same problem with my Genesis, although my Thermal Eagle and Ultima don't have the nose-up tendencies. I think with a little more flight time under my belt I will be able to thermal turn with the best of them. After all, this model climbs right on up in the lightest lift.

A week later I was able to get another hour of flight time with the Blazer. On a slope in the Santa Cruz mountains, with 4 to 6 mph winds, I got a bit more comfortable with the model. I let it fly at its preferred speed, which is much faster than floater speed. High speed passes and aerobatics were a blast. To clean up the rolls, I think it needs some aileron differential dialed in. There was minimum pitch change with flap or spoiler deflection. Landing was somewhat tougher this time — the Blazer did not want to come down. My last flights were in winds of less than 4 mph. The glider would stay up, but I really had to work the lift and fly very smoothly. My big 3-meter, all-moulded, thermal duration model wouldn't go up at all. "Glider" was the appropriate terminology of that model in those conditions. And hill climbing is not my favorite exercise.

What's next for the Blazer? Probably a tow hook and ballast mount. Maybe some paint for the fuselage, but maybe not. It looks just fine in the air. In conclusion, the Blazer, at \$99.95 delivers quality and value in a model that flies very well. It is easy to build, flies in light lift, as advertised, and is aerobatic to boot. The Blazer fits my needs perfectly. If you want one, call Charlie Richardson at 619-630-8775. ■

A New NiCad/Nickel Metal Hydride Microprocessor Controlled Fast Charger/ Cycler



...from TRC Engineering, Inc.
Latest Revision: 22 May 95, 5 June 1995
...by Daniel deVries
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This article covers a review and analysis of the **IMPULSE 2-Digital™** Fast Charger in a non-technical manner, as well as a tutorial on charging NiCad and NiMH batteries. Its unique set of operating features and applications are discussed from a practical standpoint.

In 1986 TRC Engineering, Inc. developed the **IMPULSE™** series of peak-detecting Nicad fast chargers. TRC founder and president Jim Tasma is an Electronics Engineer with nearly two decades experience with commercial and military avionics. He designed the original **IMPULSE 2™** to meet his own need. With fast charging, now he wouldn't be grounded on Saturday because he forgot to charge his plane and transmitter the previous evening. He found fast chargers used by early R/C car and electric plane enthusiasts were crude and could easily overheat and damage cells. With charging of Nicad batteries a little understood phenomena to most modelers, Tasma applied his skills and resources to investigate battery technology in detail. Tasma's work in avionics often involved emergency and auxiliary power supply systems for the Lear Jet

and other corporate aircraft. As an engineer he was involved in gathering NiCad data from tests in environments from -55° C to +70° C and sea level to 50,000 feet. With his insights into Nicad performance and intuitive expertise in electronics, he created the deceptively simple yet brilliant design for the **IMPULSE™** fast charger. Now fast charging would be easy, effective and efficient.

Fast chargers have been slow in gaining acceptance in the soaring community, and within the arena of general modeling. An undeserved bad reputation seems to prevail due to old wives tales and perpetual rumors. These (most likely) began in the early days of rapid charging of electric cars and aircraft with relatively crude chargers. Multiple "cram" charging overheats cells and shortens cell life or damages packs. Conventional (non-SCR type) cells were nearly impossible to effectively charge in this crude manner.

Tasma's electronics consulting and design business, TRC Engineering, Inc., pioneered sophisticated "slope detect/soft peak" fast charging when these terms were still unknown in the modeling field. Independent field tests by reviewers in major modeling publications rated it as the best and most effective fast charger available. Since 1986 TRC Engineering, Inc. has manufactured and sold thousands of its **IMPULSE 2™**, **IMPULSE 4™**

and **IMPULSE 2™** fast chargers. Its hallmark - simplicity of operation: charging any number of cells without need to preset, operating from your twelve volt field battery or car cigarette lighter, automatic "soft" shut off; and circuitry so efficient no cooling fan is required.

The newest model of the **IMPULSE™** series of chargers, the **2-digital™** from TRC Engineering, Inc. features a sophisticated microprocessor controller as its central element. Designed for both NiCad and NiMH (Nickel Metal Hydride) batteries, the chip was tailored to suit N.A.S.A. requirements for future space station/shuttle applications and adapted for commercial applications. TRC Engineering has added to the microprocessor a special I/O and display circuitry system to make the **2-digital™** perfectly suited for modelers. The result is superb control of battery charging with a multitude of accompanying benefits.

A two year NASA study and other research data has demonstrated that fast charging of NiCads *does* result in extended cell life and greater cell capacity. One of several culprits which causes cell degradation is heat. Charging is actually an endothermic process (heat absorbing). Only excessively fast rates or overcharging beyond full charge causes heat build up. Heat caused by over-charging causes chemical breakdown and very high pressure within the cell. Heat also results from very high discharge rates such as is seen in electric powered aircraft. A well controlled recharge can actually help cool these hot cells.

Another culprit is crystal and dendrite growth in the cell that causes what is commonly known as "memory" and, over time, internal short-circuit. Continuous slow or "trickle" charging with the charger supplied with most radio sets is about the worst thing to do to NiCads. This warms the cells somewhat when they become fully charged, and crystal growth begins. The finely powdered chemicals recombine as much larger crystals. The crystals have far less surface area for chemical reaction than the fine powder and thus store far fewer mA/H (milliAmp hours). The crystals will

slowly grow into long skinny fingers known as "dendrites" that eventually reach out and internally short-circuit the cell.

Cycling is part of a regimen that can rejuvenate NiCads, especially old cells that have been mistreated by repeated slow charging. There are a number of ways to handle cycling - a proscribed program of discharge and fast recharge - of NiCads. The drawback of cycling is the tedious nature of quickly (but not too quick) discharging to an "open circuit" cell voltage of 1.1 volts and then fast recharging back up to 100% of capacity. How do you know what 100% is? How will you determine the "stop charging" point? And how will you "balance" or top off all the cells in a pack to 100% charge capacity. Figure 1 is the characteristic time/voltage charge curve for Nicad and is useful in showing the different points of interest occurring during charging.

Light bulbs, ballasts, voltmeters and timers, or expensive electronic cyclers are used to get an approximate idea of how many mA/H were discharged from the cell/pack. Recharge up to "full" (?) capacity and trickle charge after to "balance" out the cells completes the task in a somewhat crude fashion. When "soft peak" (see Figure 1) detecting fast chargers were first introduced by TRC Engineering in 1986, they revolutionized fast charging by making full capacity, high amp charging safe, reliable and easy. Tests on the original two amp **IMPULSE 2™** and later four amp **IMPULSE 4™** showed a 90% charge achieved with "soft peak" and nearly 100% charge with re-start in VR peak mode. In comparison, an average trickle charge of a cell pack will result in only a 70% charge, continually degrade your cells capacity (and take sixteen hours, too!) Many companies manufacture various grades of chargers, dischargers, cyclers, cell analyzers and meters. All these have their place. The old "voltage peak detect" way of evaluating the progress of charging measured the voltage of the charge rate curve (see Figure 1). When circuitry detected a drop in the cell voltage charging would be stopped. The **IMPULSE™** "Soft Peak" detection recognizes the

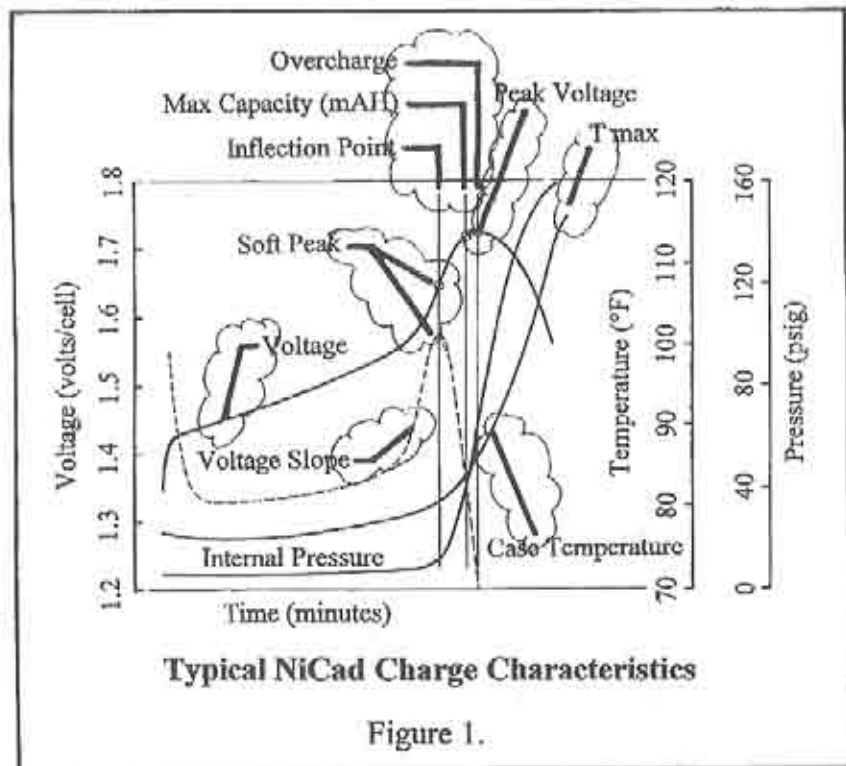


Figure 1.

cell voltage rate of increase is beginning to slow down and stops charging going too far into the "peak". For a 100% charge, the **IMPULSE™** could be re-started. It would continue a short charge cycle until it reached a second curve change (where the cell voltage began to drop) and shutoff occurred at max peak. The "peak detect" feature of the **IMPULSE™** has gained solid trust among its users.

TRC Engineering has nearly ten years developing an insight in users and uses of fast chargers. This knowledge is combined with Tasma's electronics expertise to yield the new microprocessor controlled **IMPULSE 2-digital™**. Here are some of the things modelers want to know and have from their batteries, whether airborne receiver or propulsion:

- Are my batteries FULLY charged?
- How much power (mA/H) is in them?
- Are they in good condition?
- How much battery power (mA/H) have I used so far today?

- Will the charger run off a field battery or car battery?
- Is the charger going to deplete its power source?
- How do I accurately do a discharge to cycle the cells?

The new **IMPULSE 2-digital™** works in a totally new way and has new features and benefits previously unavailable in a single simple unit.

The microprocessor in the new **IMPULSE 2-digital™** is combined with TRC Engineering's proprietary charge management circuitry. A new level of control and evaluation of your batteries is available without the need for several different pieces of equipment. **IMPULSE™** chargers are so efficient they need no cooling fans like some other high output chargers. They barely get warm even at the highest charging rates. The same efficiency applies in reverse, too. The **IMPULSE 2-digital™**, when doing a controlled measured discharge of a NiCad battery pack, actually recharges your supply battery (car battery or field battery) with 80% efficiency by using the

electricity drained from the cells!

The microprocessor evaluates the charging of the battery pack in a very accurate manner. Stored in the permanent memory of the chip is the characteristic charge acceptance curve of NiCad (or NiMH) cells. Each second of the charge is analyzed and stored in chip memory. From this data is derived the averaged charge slope along with the sum total mAH of charge.

A select switch allows you to view various statistics on a large easy to read LCD display. The display normally shows volts output. A running total of exactly how many mAH have gone into or drained out of your battery pack is displayed at the flip of a switch. You can also select display of source battery voltage at any time while the charger is operating or idle.

A calibrated dial allows you to select the cell size (i.e., 300, 500, 1200 mAH, etc.) and the **IMPULSE 2-digital™** automatically charges the pack in about fifteen minutes. The **IMPULSE 2-digital™** will self-shutdown after twenty five minutes to preclude any overcharge in the case of bad cells or electrical problems.

The charge/discharge cycle is initiated by hooking up the cell pack and connecting it to a twelve volt source. Alternatively, if the **IMPULSE 2-digital™** is already hooked into a power source, it can be reset and restarted by removing and re-inserting the charge cord. A "Charge" or "Discharge" indicator LED glows to let you know the process is underway. The charger ticks quietly until the cycle is complete and the LED goes out.

An internal voltage regulator controls the power used to charge the battery pack. Source battery voltage variations won't affect the accuracy of the **IMPULSE 2-digital™**. This allows very accurate cell capacity analysis and measurement. The cells are "reverse-pulse" charged for five milliseconds of each one second charge cycle, eliminating the false "surface charge" voltage. The charging then stops for a few milliseconds to allow the most accurate reading of cell voltage by compensating for charge cable and internal cell

resistance. Reverse-pulse fast charging has also been shown to recondition cells degraded by slow charging and "memory" effect.

Since the the chip uses digital signal processing and storage of charge data, it knows if a charging cycle has been interrupted and will pick up where it left off, keeping accurate track of mAH of charge until the interrupt occurred. The entire charging cycle is programmed into the chip. It begins with a two minute "soft start" to acclimate the cells, then begins a steady high rate of charge with second-by-second monitoring of the process. The microprocessor continuously compares and averages the charge process, looking for an inflection point (see Figure 2). As the microprocessor "sees" the cell nearing capacity it slows down the charge to a "top-off" rate. When it recognizes the characteristic "100% full" curve point, the **IMPULSE 2-digital™** backs down to a special maintenance mode to keep the cells at 100% until used, without causing crystal growth.

The **IMPULSE 2-digital™** can charge both NiCad and NiMH cells. Because the voltage slopes are quite different, there is an internal jumper that must be set for the type of cell. Although cells can be charged without excessive damage with the jumper set incorrectly, NiCads will be over-charged or NiMH cells will be under-charged. The charge time for NiMH cells is approximately one hour because of both a slower charge rate and larger cell capacity. As with NiCads, there is a maximum charge time shutoff to prevent inadvertent cell damage from overcharge.

A built in "Cycle Mode" provides an automatically managed discharge/recharge routine, feeding power back into your source with 80% efficiency.

Any number or type of cells, from one through eight cell packs, can be charged with the **IMPULSE 2-digital™** automatically sensing the pack size. Measured discharging and cycling is accurate only with one, four or eight cell packs although other sizes of cell packs can be cycled or discharged with a slight error in the total

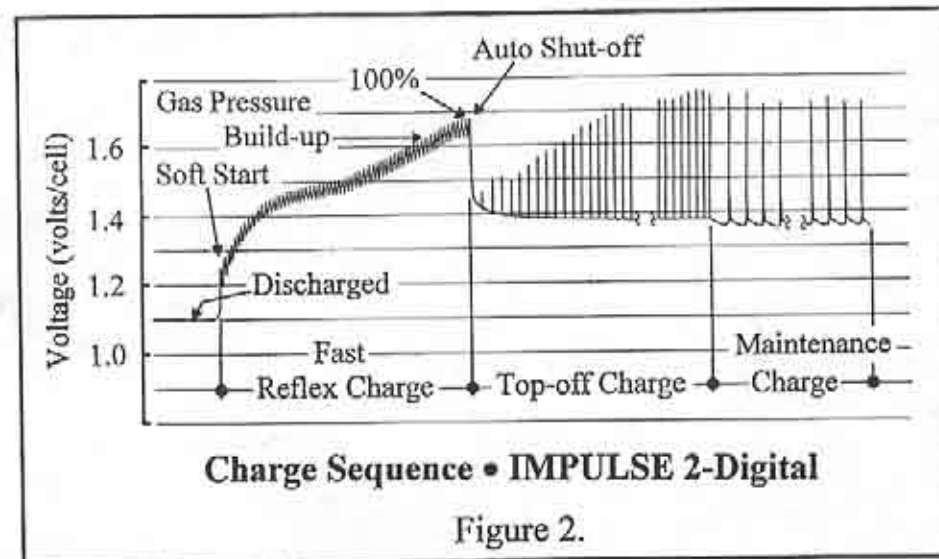


Figure 2.

mAH capacity and draw-down voltage.

Transmitters often have a diode in their internal charge circuit. This prevents transmitter batteries from being discharged or cycled via its standard external charging jack. To do so requires the battery pack be removed and hooked up directly to the **IMPULSE 2-digital™**.

This brings to mind another benefit for the electrophile: cell matching. Making sure all the cells in the pack have the same discharge rates and capacities, so they don't "work against each other" during high demand use. The extremely accurate display of mAH, both input and output, can be obtained for a single cell at a time. By evaluating a number of cells a "matched" performance group of cells can be assembled to maximize output with minimum losses.

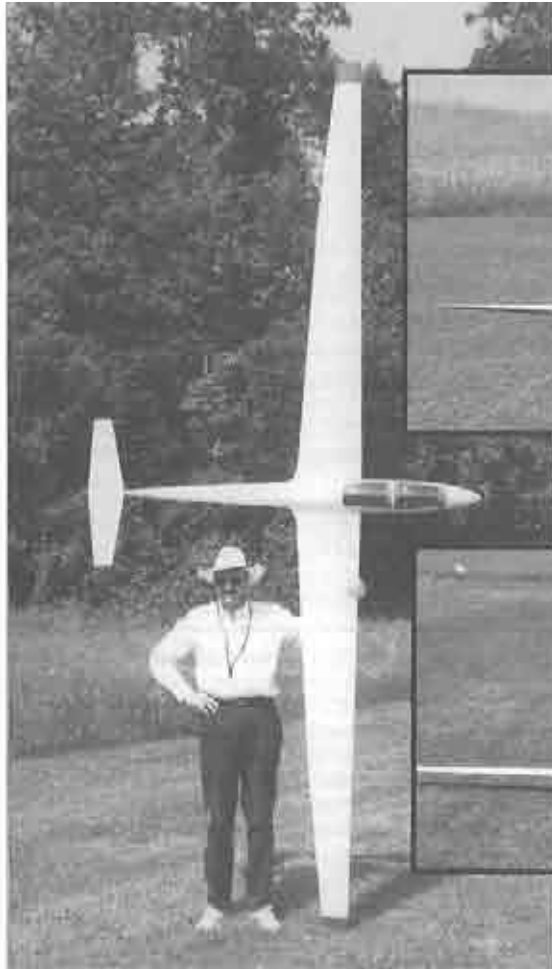
You can fly a single flight, short or long, and fast recharge with a continuous display of how many mAH went back into a pack to bring it back to full-

an instant indication of cell performance, TRUE aircraft power consumption, charge still remaining, etc. Old packs can be reconditioned and maximum capacity realized from your flight and transmitter packs. And the security and convenience of fifteen minute full charges is reassuring.

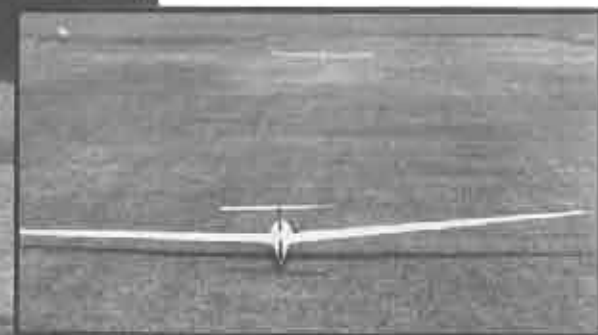
I have used the **IMPULSE™** chargers, both "2" and "4" model, for my sailplanes and electrics exclusively for three years. I virtually NEVER slow charge (except for minimal cell balancing). Both my Futaba transmitter and receiver packs still test out at over 90% of rated new capacities. With an estimated 1,000+ recharges in this period, I'm confident in **IMPULSE™** chargers and fast charging.

Jim Tasma Of TRC Engineering says the price will be \$187.00 + \$4.00 S&H. There is a 1 year unconditional guarantee.

TRC Engineering, Inc.
10700 Whispering Valley
Middleville, MI 49333
(616) 795-9585



**Rodel Modellbau
1/4 Scale ASK 21**

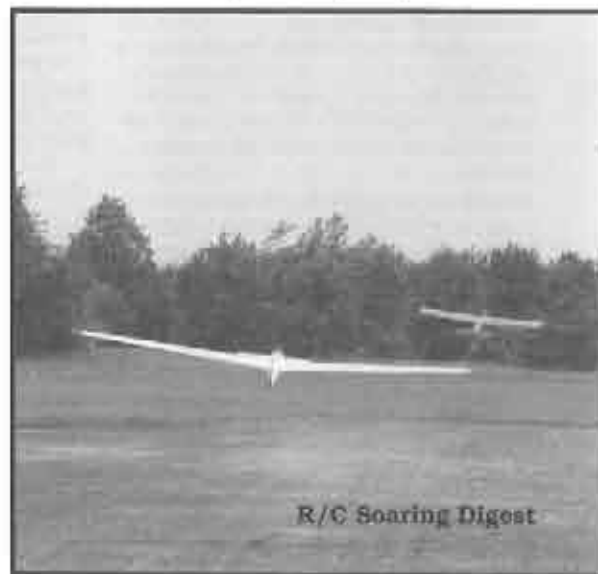


a fast builder, it would be possible to do it in less time. The plans and instructions are in German, but the parts and numbers are shown on the two sheets of plans, and after you identify the parts with

...by Ron Wahl
Newark, New York

The 1/4 scale ASK 21 is a kit that consists of balsa sheathed, white foam wings and tail structures. It has a light, but strong, fiberglass fuselage, and all the other parts needed to build a nice flying, good looking glider, except for the spoilers. You will have to buy the spoilers; I used a set of 14.5 inch long Grapner Tech spoilers from Hobby Lobby. They really drop the ship when fully deployed.

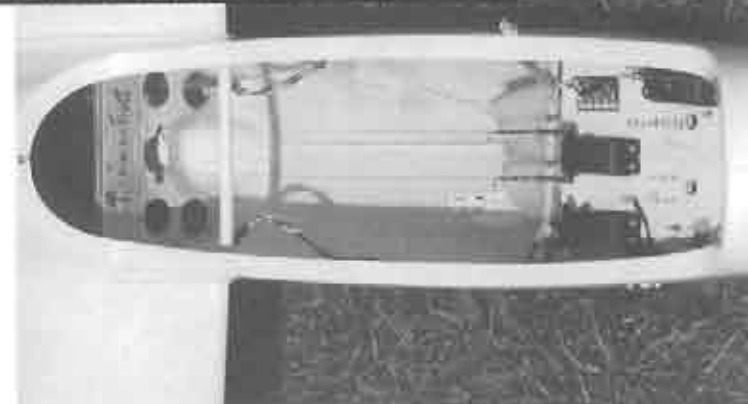
As built, the 4.2 meter span ship came in at 10 lbs, and 11 oz. ready to fly. It took very close to 100 hours to build and assemble this plane. If you are



R/C Soaring Digest



the lift, while light, was good enough to keep the plane well up. I had expected to just fly around and do a stunt or two until low enough to be landing, but had a pleasant surprise. This is a model of an aerobatic ship, and it will fly



the correct numbers, the sequence of assembly can be followed and understood well enough by anyone who has built similar models before.

I built the servos for the ailerons and spoilers into the wings, as I prefer to just plug up connectors, rather than mechanical parts, when at the field. It also makes for a mechanically simpler set up and adjustment of the system.

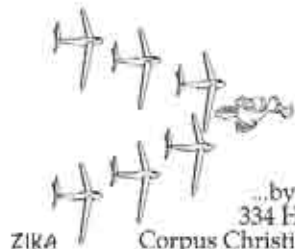
This is one of the nicest and easy to fly large gliders that I have, or have flown. It will fly and thermal as well on calm days as many floater types, and it flies on the slope, in the wind, like it was made for slope flying. Shortly after building this plane, I had over an hour of thermal flight on a late morning tow up, into a gray, over cast sky. The release altitude was approx. 1600 ft., but

whatever you feel safe attempting. So far, I have flown rolls, spins, loops, and stall turns without any surprises.

At a price of \$495.00 plus shipping, this has to be one of the best buys in this country for a good German glider kit. It is available from Sailplanes Unlimited, Ltd., 63 E. 82nd St., NY, NY 10028. The phone number is (212) 879-1634. If I could only have one or two good scale ships, this would have to be on the list.

I have included some pictures of the ASK-21. They show a typical towing takeoff, cockpit and internal details, and the size of the ship. All photos were taken at the Genesee Valley Aero Modelers flying site near Honeoye Lake, New York. ■

This Old Plane



ZIKA

...by Fred Mallett
334 Haroldson Dr.
Corpus Christi, Texas 78412
(512) 991-3044 (Week Days)



SOAR UTAH 95

Point of the Mountain, Utah
Photography by David Garwood

(Except as noted in captions.)

I was told early on that in this event the emphasis was to be on fun.

Well, in my case the fun was overdone, because no one should be allowed to have that much fun.

Here I am, 9 days later, sitting in the mountains of Colorado, by a beautiful, trout filled stream, the sun just beginning to peek over the rocky craig to the east, and all I have to do is close my eyes, and I can see the skies over the Point at South Mountain filled with beautiful planes. I got in so much flying, airplane talk, model fondling, and camaraderie in those 5 days that I am filled to the rim with it all. It was such a great time I am loath to do any more flying 'til all my experiences at the Point settle in

and find niches in my brain to call home. That is the wonder of life's great experiences, they all stay inside you, to be recalled for repeat enjoyment, as desired.

If you have never been to one of the large events like this one, it is an experience that should not be missed. The only recommendation I can make is to be sure to bring planes for all types of wind conditions. I thought that went without saying, but a few people only brought high wind planes, and spent some time waiting for more lift. Not that there was nothing to do mind you; I walked around Saturday and counted 215 planes out on the ground. There were many more than that, as this was

Pete Marshall with Dodgson Saber at Point of the Mountain.



The Contest Director, Tom Hoopes, of the Intermountain Silent Flyers IMSF. Jerry Slates photo.



Bob Harman looks on. Jerry Slates photo.



Fred Mallett at Point of the Mountain with Gazelle by Inventec.

counting the planes that were in open cars, or assembled on the ground. People had planes tucked everywhere. I was accused of keeping planes in my van's glove box. (Actually, I only brought 12.) There were also tables set

up by vendors that traveled from many states to join in the fun. In addition, there was a hobby shop set up for on-site repairs, which came in handy for several of us.

I like the way it was called an event. It was not a contest, although the event was inclusive of 2 separate contests. There was plenty of time for fun, slope flying around these two contests. Friday was a slope fun fly, fling what you brought. One thing I like about the Point (I have been vacationing there for 3 years.) is that the lift varies throughout the day. We had wind enough at times to fly all but the heaviest models, mixed with periods of light to sometimes non-existent lift. The trick to flying in the light conditions at the point is to be prepared to change to thermal flying when you start to sink. It takes guts. Head out over the valley (Remember, if you are at hill height, that is like a good winch launch height over the valley.), and look for lift. This was even done by the better

pilots there with loaded up slope planes. The thermals are very strong out west, so when you find one, near anything will go up. You then circle the thermal back to the hill; when it passes, the draw to the thermal creates wind for more slope flying. Great fun.



Gary Brokaw with winning Bergfalke I.



Fred Mallett's rack of planes.



Ed Mason and Hal Weber, Nampa Model Aviators Club in Idaho, work of the giant B-29.

sections: Flight Performance, Static Judging, and People Input. Although the "People input" was broken into two sections, vintage and modern, there was only one category for final scoring, with three places awarded. The flight part consisted of being scored on flying in a realistic manner during launch, two 360 turns, a figure 8, landing, and two maneuvers of your designation. This sounds easy, 'til you hit a 1000 fpm updraft during your circle. I watched an ASW17 during a circle. About 200 degrees or so into it the plane hit one of these honker thermals. The pilot (Ed Mason), did a good job maintaining constant altitude, but the plane, I swear, was flying at about 20 degrees nose down to do it. Ed went on to take second place. The whole scale contest period was plagued by two things. One was the intermittent lift, which caused many great scale planes to not be flown, like the 1/4 scale Mig, the B-52, a

Saturday brought the scale contest part of the event. This was my first scale event, and I did not know what to expect; but several people mentioned that it was scored differently than many, so let me give you the run down. The first big difference was that no documentation was required. This allowed many of us to compete. The scoring was based on three

David Nash's big P-51 Mustang.



R/C Soaring Digest



David Garwood flying Coyote. Fred Mallett photo.



David Garwood letting Katie Martin fly his Coyote. He nicely passed over the transmitter, and then told her which plane he was flying. Fred Mallett photo.

1/4 Scale P-51 and many others. Gary Brokaw, who wowed us all with his Vintage Austria (about 25 feet worth) took first with a well deserved award for his Bergfalke I. Fourth and Fifth had one point separations from each other and third, and went to Carl



September 1995

Bice with a beautiful Pilatus B-4, and Brian Laird with a great flying Slope Scale Models ME-109. I was Honored by a third place. I entered a 30 inch span Beechcraft Bonanza that was very PSS'd. As in, it didn't really look a lot like one, but it was so small, who could tell. And during the flight portion, I looked for the most nearsighted judges I could find, and flew the little thing as far away as I could. Worked great. Next year, I will build a 1/48 scale Cessna. The other thing that plagued the day was all us regular slopers following Tom Hoopes around like a bunch of puppies behind a sausage cart asking if we could fly slope ships yet. When all the scale planes were

finished, the air was suddenly filled with about 40 slope ships darting around. It was as entertaining to watch the planes jink around each other as it was to fly.

I must admit that the intimidation factor in flying a scale plane was rather high during open soaring. In fact, when Wayne Angevine got to the Point on Friday with his brand new Ventus, the first thing he saw upon getting out of the

car was a brutal mid-air. The intimidation came from the fact that when the wind was good there were warbird PSSs buzzing the slope, fast slopers making screaming runs, some thermal ships doing passes, and flying circles out front, and a few HLGs floating up

high as targets for the fast birds during stall turns. At one time, I counted 43 birds in the air. It is sorta intimidating to launch a scale sailplane into this caucus. After the initial scare, it turned out to be fine flying in this crowded airspace

David Nash's big MIG 15.

with a big bird. Pilots waited on the edge of the slope 'til an opening in the grass skimmers occurred (Or hollered, "Scale ship going up," and everyone gave you room.), then chucked it out into the fray. It was like watching a freighter leaving a harbor crowded with pleasure craft. Everyone avoided the scale planes, as they were so easy to see. On the south slope there is plenty of thermal lift out front, so pilots of scale sailplanes usually cruised straight out front, found thermals, and then spent the whole flight in realistic scale flight patterns. It is amazing how far away you can see a 4 meter scale plane. They were often flying across the valley against the mountains to the east where they looked magnificently like 1:1 scale planes.

The PSS warbirds from Slope Scale (Brian Lair) had many mid-air, mostly due to close formation, follow the leader flying. A pair even locked tails at the top of a stall turn, and dove straight in with no damage. These are tough planes. They flew in very light through the highest wind we had. There were a few bad mid-air. Dave Garwood had an A-10 torn to pieces about 15 feet in front of him. Pieces blew back up over the hill for 30 seconds. Four of us sat there with video cameras in hands and no-one got it on video.

I was not exempt from mid-air, as on my first flight with my Salto (1/5 scale Viking Models USA fuselage, my own carbon wings) a warbird was coming in from the right, and it appeared to be much closer to the hill than my plane. Splat. The Salto did 4 or 5 spins, then pulled out. The warbird had the wing torn off so you can guess the rest. The damage was not that bad, but the plane was out for the day. The Salto came out of it fine; just some C/A to fix the delamination on the leading edge, and it flew for the rest of the trip.

Saturday night the static scale judging occurred during the raffle; there was plenty of time for the judging, as there were so many prizes. The amusing part about the raffle was that the first FIVE prizes drawn were won by the people working behind the prize desk!! After that things became more random, but a couple people made out very



Mark Wilkerson of Performance Aircraft with his new pitcheron design, Scepter. (This was my favorite ship of all.) Fred Mallett photo.

well by buying hundreds of tickets. Sunday was the Cross Country contest, and it was held at the Point, also. The course was very short for the planes, about 2.9 miles out and back, but very long for the pilots.

It was a bloody battle, but more about that later. You launched from the top of the hill, climbed as high as you could, then got in the chase vehicle, and crossed the starting line. The difficulty of the event was that the road down the hill was dirt, and very washboard, with a few ditches thrown in for good measure. The lift was very light, and intermittent, and several of us made some first attempts and got caught in sink. Finally, Arlie Stoner, with a Larry Jolly designed Comet (15 foot span?) and a thermal sniffer made it out to the turn around, and back most of the way to the hill. This turned out to be good enough for third. Feeling challenged, I made my second attempt with my 1/5 scale Viking Models Salto. After 5-10 minutes or so, a good thermal appeared to the east of



Charrlic Harris of Seattle, Washington and his 2 week old I-26. Fred Mallett photo.

the slope and, with good altitude, we were off. Half way to the bottom of the hill (before you start the out and back) the plane was already down to hilltop height, and it almost beat us to the ground. When we got to the bottom, there was about 15 feet between the plane and the telephone poles. With lots of good coaching from the driver/timer team, after about 28 minutes of scratching around under 150 feet, thermal to slope to thermal, lift finally came through again and we were off; great air all the way, we could not keep up. Out and back easily, we were all hooting at what appeared to be a winning flight as the flight window was about to close. Doing a few victory rolls across the edge of the ridge, my timer (Bob Harman) informed me that we had to drive back up the hill. That is when I made the bad decision. I told the driver to hit the gas, and go as fast as possible up the hill, about 100 feet before the first hidden potholes. After bouncing nearly out of the truck, my plane flew into tremendous sink. It dropped like a stone, could not seem to get out of the sink, and down she came, landing down the road a ways. Then I looked at the transmitter. I had hit the

We didn't catch the name of this plane. Neat. Fred Mallett photo.



flap trim lever in the bouncing, and had about 1/4 inch of reflex on the flaps. Oh well.

I was pretty bummed on the way to the top of the hill, where minutes before, the flight window closed; George Voss crossed the starting line with Arlie's Comet. They were out and back in about 12 minutes (compared to my 36 minutes). We were all hooting as the truck came up the hill, and rounded the last corner at the top; about to cross the finish line, the Comet started a spiral dive and the truck stopped. Figuring a radio failure, we wondered why it took so long for them to come back. This was the first place flight, as no one else had made it that far before. It seems that George sat up on the side of the truck for the easy ride to the finish, one corner too early. The driver (Dale Taylor) thought George was still safely inside the bed of the truck, and took the last corner onto the straights; out went George. Out in two ways; out of the truck, and knocked out cold. We all had a scare, but after a trip to the hospital for a checkup all was fine. Good job, George, and I am real glad you won, and not me!!

A big "hats off" to the IMSF club for pulling off a great event! Especially so, when you consider that this was the first scale event they have run. I think there was a good mix of flying tasks that allowed everyone to get in lots of flying; and it was a smoothly run event. ■

The WMSSF

...by George Voss
Oklahoma City, Oklahoma

I'm writing this from the plush confines of GEO-Design studios, feet propped up, heating pad in place and cool drink in hand. So, "What does all this have to do with soaring," you ask? Let me fill you in.

I was invited to one of the nations outstanding slope events, the Wasatch Mountain Slope Soaring Festival (WMSSF) by their prime organizer, Bob Harman. Now for those of you that have a slope site close to you, this might not light your jets. But for those of you that have to drive 70 plus miles to a flyable slope, to say I was excited is an understatement. I'm not going to give you a blow by blow description of the event since Fred Mallett will do his usual outstanding job of covering the event. Instead, I'll cover a situation that brought out the best in those present.

I'll have to admit that slope soaring is not my forte since I only go once or twice a year. I enjoy thermal flying! To me it's the ultimate challenge. You and a sailplane, against the elements. The organizers of the WMSSF event went to great lengths to assure all the guests would have a way to fly, whether the wind blew or not. On Sunday, July 23rd, they scheduled a cross county event. The course started at the top of the slope, followed the freeway frontage road for roughly 2 miles to the turnaround point and then back again.

Now that course might not sound too tough since we started on top of a 500 foot slope, but the wind was only 3-5 MPH. Not near enough to keep the larger ships aloft. Fred Mallett was the first to enter the course with his great flying Salto. Fred built the wings and tail and used a Viking Models glass fuselage. Fred was able to work a combination of slope and thermal lift to get started on the course. He was able to fly to within 400 feet of the turnaround point on his first attempt.

Arlie Stoner from Idaho was the second flyer to enter the course. Dale Taylor was our driver and I timed for Arlie. Arlie's 11 pound LJM¹ Comet

was able to get about as high as Fred's ship at the course start. We raced down the slope and entered the frontage road portion of the course. We made it about as far as Fred's flight and it appeared that we would land short of the turnaround point. Arlie found a small thermal between the frontage road and the freeway. We gained a couple of hundred feet and raced to the turn around, and then back toward the slope. We were unable to find any more lift on the way back and we landed after covering 3/4ths of the entire course. As we arrived at the top of the slope, Fred was again heading out onto the course. Arlie and crew took a well deserved break.

After drinking a couple of soft drinks, I started watching the slope soarers work the light lift. Fred appeared at the bottom of the hill, still flying the Salto. It appeared he would be the first to make it to the finish line. While watching this event unfold, it became obvious that something was wrong with Fred's ship. One minute it looked like he was climbing quite well, and the next thing we knew he had landed out. Later that day we found that one of the trim levers had been moved when the truck hit a bump. I told Arlie that we would have to finish the course to win. We gathered the team together so we could set out again.

Arlie launched the Comet and found some lift near the starting line. I told Arlie to get in the truck while I fly the ship for him. Arlie got in the truck and quickly found the Comet and asked for the transmitter. While he did find the ship, he became disoriented. Trying to straighten out a tight turn, he applied the wrong control and the Comet did a split ess. He quickly gave me the transmitter back and in a few moments the Comet was again under control. For those of you that know Arlie, you know his eyesight is not what it used to be. He was having a hard time seeing the 14' Comet when the background was the mountains in the distance. As long as the Comet had the sky as a backdrop, he had no problem seeing the ship. Arlie recommended that I try the course since I could see the ship farther away than he could. It didn't take much arm twisting to get me to fly.

We learned from the first flight that altitude was our best friend, so I spent as much time as I could gaining altitude before entering the course. I was about 1000' high when I entered the course. I traveled as close to a straight line as I could and made the turnaround point without the aid of another thermal. I made it half way through the return portion of the course and was in need of a thermal to complete the trip.

I found a small thermal at about 150' and told Dale and Arlie that I would have to stop and thermal out if we expected to win. With the lift drifting toward the slope I followed the thermal down wind to an altitude of about 1000'. The toughest part of the course lay ahead. The frontage road curves away from the slope by some 1000' or so. There it connects with the gravel road that runs parallel to the face of the slope. Dale drove as fast as the speed limit would allow and soon we were at the bottom of the hill with only the road up the hill to complete.

I was still in lift as we started the climb up the hill. It appeared that I was going to be the first one to complete the course, and then it happened. Everyone was doing their required task: Dale driving, Arlie timing and George flying. As we crested the hill, I started to move from the driver's side of the truck bed to the passenger side; Dale made a left turn at about 15 MPH and, at the apex of the turn, we hit a small bump.

The next 20 - 45 minutes are still beyond my recognition. The last thing I remember was facing the rear, leaning with my back against the truck's rear window, with my left leg braced against the right wheel well. My team was cautioning me about the power lines I needed to cross to get to the finish line, so I started to make a turn away from the lines. I found out later that everyone in the pit area, a couple hundred feet away, was prepared to cheer the first course finisher. At this exact time, I did a one and a half gainer out of truck! I still don't know what happened exactly, but somehow I managed to apply full spoilers and full up elevator as I jettisoned the truck bed. The crowd couldn't understand why, all of a sudden, the truck stopped, the spoilers opened, and the Comet landed 100' short of the finish line. Arlie hollers

to Dale that I'm out of the truck. Dale thought I jumped out on purpose so I could walk across the finish line. When Arlie got to me I was rolled up in a ball, covered with dirt and moaning. When Dale arrived I was laying flat out on the ground, bleeding, scratched and moaning.

It was the decisive action of those involved that eased the minds of the crowd. Bill Griggs, a New York State Highway Patrolman, and a licensed "First Responder" took control of the situation. My wounds were cleaned, my neck immobilized, and off we went to the hospital. Fortunately, damage to my body was minimal. Some cuts, scratches and bruises, a knot on the head and a VERY sore back, but no broken bones.

This is being written six days after the accident. I'm healing nicely, no scars. Most of the scabs are gone, but my back is still in a lot of pain. I would like to thank all of you for your concern, phone calls, etc. If there is a more caring bunch of people, I'd like to meet 'em. In a world of sue happy people, I want to say that what happened was an accident, and nobody's fault. I appreciate the sincere care I was given.

In closing, I'd like to recognize several people that were instrumental in this incident. First, Bob and Marlene Harman, Bill Griggs, Dale Taylor, Arlie and Shirley Stoner, Tim Neja and all the rest of the WMSSF crew. I'm sure there were many others involved that I did not name, but thank you!!

On the bright side, I was told that my first question was, "Is the sailplane OK?" And second, "Am I still in the lead?" (According to Katie Martin, these are the signs of a true flyer.) While still dazed, Tim Neja asked if I knew who the President was. My response, "Some stupid Democrat." A hearty laugh, and they assured me I was OK. And finally, one of the classic things I've ever seen. Fred Mallett kept the name plate from his trophy, and gave the trophy to my driver, Dale Taylor. By the way, I won the Cross Country event. So, what exciting event happened on your LSF level 4 cross country?!

Thermals! George Voss



Paul Wohrab, LISF club member, retrieves chute. David Garwood photo.

ated tape landings. Four club winches (Ford Longshaft, with VMC retrievers) were used. Our arrangement also consists of each winch battery being continuously charged by a 10 AMP charger. This extends the running time of each battery significantly. The CD really kept things moving and, at times, we had as many as 10 planes in the air simultaneously. Unfortunately, this also proved somewhat hazardous as we also had 3 mid-air collisions. One flyer, Steve Hess, lost his plane in a mid-air and, in true LISF spirit, John Hauff of our club, loaned Steve his backup ship. Steve ultimately came in second!

Long Island Silent Flyers Empire State Classic

...by Taylor Fiederlein
Oyster Bay, New York

The Long Island Silent Flyers held the 18th annual Empire State Soaring Classic at Syosset, Long Island on June 17th and 18th. We read very little about competitions in the northeast but rest assured, RC soaring is alive and well in this area of the country. The Eastern Soaring League, which is composed mainly of individual members from participating clubs, sanctions contests along the east coast. This year, all participants were rewarded with two days of almost perfect soaring conditions in ideal surroundings only 20 miles from New York City! In addition, this year the LISF went all out and participants were served breakfast, lunch and dinner!

The first day of flying, the conditions were near ideal except for a wind of 15 mph plus. Hans Weidekehr, CD, called for 14 minute and at least six 7 minute rounds with 100 point maximum gradu-

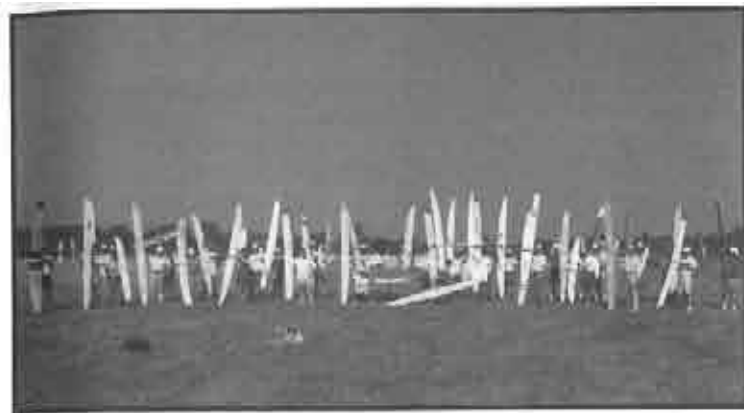
Scoring is always a challenge, but recently, Stan Grom of our club developed a Lotus spreadsheet which handled the task. Stan couldn't make the contest, so I volunteered to keep the scores. The program worked perfectly and after each round scores were posted.

Despite the high winds and the usual



Greg Uhug with Spectrum. David Garwood photo.

R/C Soaring Digest



The LISF contestants. Ray Juschkus photo.



Taylor Fiederlein
David Garwood photo.

"I went to my first two day contest on June 17 - 18, the Eastern Soaring League event sponsored by the Long Island Silent Flyers. The competition was tough and the camaraderie was great. Charcoal broiled hamburgers and hot dogs for lunch both days was delicious and convenient, and the evening BBQ on Saturday gave a bit of a social hour. I was tremendously impressed with the organizational abilities of this club, and their warm hospitality. I'll be back next year. Taylor is a tireless contributor to R/C soaring, and I'm happy to know him."

...David Garwood

gorilla, pedal to the metal, contest launches (350+), we had no structural failures. There are so many different manufacturers today, and most deliver planes that can handle contest stress. We did a survey and there were over 20 different models by 20 different manufacturers. The most popular planes were the Weston Magic (7), Slegers Skyhawk (4), Slegers Spectrum (3), Airtronics Peregrine (3), and Dodgson Anthem (3). As far as the electronics are concerned, Airtronics radios dominated with the Vision being the most popular.

Vision	18
JR	10
Futaba	10
Micropro	9
Infinity	7
Quasar	4

One pleasant change in our usual format was to have a 20 minute lunch period. Hamburgers and hot dogs were served, and this short break allowed all flyers to relax before a full afternoon of flying. After this brief respite, the sky was again full of airplanes. As usual, the wind picked up a little more in the afternoon and there were several "landings" in the trees surrounding our field. By the way, our field is part of a nature preserve and the LISF has "adopted" the field. Our club keeps the field and the surrounding area clean and performs maintenance work on the access road. In return, Nassau County cuts the field which is over 25 acres. Perhaps other clubs could "adopt" a field. It's worth checking out, as this arrangement works out very well for us. Since we know the area well, all except for two planes were located immediately. The two lost planes were



David Garwood launches his Peregrine. Dave had a mid-air collision on this flight. Ray Juschkus photo.

They were:

Steve Lucke	7:07	Skeeter
Tony Matyi	6:27	Monarch
Dave Wood	6:12	Monarch
Dave Walter	5:58	Mosquito
Josh Glaab	5:28	Mosquito

Steve's Skeeter was stock! After the hand launch contest a barbecue dinner was served. This capped of a great day of flying and, more importantly, fun!

The next day the wind died down and the lift was booming! Most flyers were specking out all day long so landings were crucial. The day was relatively uneventful (no mid-air, or lost planes) although as usual a few ego were bruised. It was very competitive, especially in the sportsmen's division. The top sportsmen finishers were:

Dave Wood	2599	Spectrum
Taylor Fiederlein	2596	Saturn 2.9
Dave Walter	2595	Magic
Zefev Alabaster	2595	Skyhawk
Steve Hess	2594	Magic

The overall grand champion was Bill Miller. There is an intense rivalry between the LISF and the Millstone Valley Silent Flyers in New Jersey. This year the Millstone flyers were very lucky as they just eeked out the LISF in the team standings. We'll get you next year! Better yet, we'll get you next month at the Millstone meet! ■

located by club members and returned within a week.

During each round, flight numbers were picked out of a hat and prizes were awarded. In addition, after each day, a raffle was held. All proceeds were donated to Friends of Nassau Parks, a local charity. The LISF wishes to thank our sponsors. They were Airtronics Inc., Slegers International, Balsa USA, Leisure Electronics, SK batteries, SIG manufacturing, Futaba, Tower Hobbies, Du-bro Products, Satellite City, Rocket City Specialties, Peck Polymers and COX Products.

The expert winners on Saturday were:

John Hauff	3302	Magic
Bill Miller	3278	Magic
Tony Matyi	3200	Magic
Mike Lachowski	3194	Skyhawk
Ken Mosca	3140	Anthem

After a full day of open flying, we held a hand launch contest. This consisted of two ten minute windows. The five longest flights were recorded for each round with no flight longer than two minutes. It was very tough, especially in view of the windy conditions. The five highest scorers flew one ten minute window to determine the winners.

You don't need high tech to win handlaunch. Handlaunch winner Steve Lucke shows off his stock Skeeter. Taylor Fiederlein photo.



Soaring D

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

For Sale - Business

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

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PRECISION AMAP WING CUTTER, replacement parts, and service. AMAP Model Products, 2943 Broadway, Oakland, CA 94611. Butch Hollidge, (510) 451-6129, or FAX (510) 834-0349.

A.M.P. Aerial Model Products, sport, slope, race prototypes - all airfoils. 60" Del Valle Snake, 94" H&K Cobra, AMAP Flair, Kevin Cutler's full house Davenport Monitor. All race tested. Hal Kramer, (510) 449-0441, ave, California.

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

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High performance and scale sailplanes: Original Synergy III w/6 Airtronics servos, excellent slope racer or first F3B ship... \$390.00 or \$225.00 without servos; Synergy 91 wings and tail with custom (IL) EAGLE fuselage (like an Eagle fuselage but 3" longer and 1/4" wider), all components in immaculate condition, includes 5/8" rectangular carbon joiner, four 141 Airtronics servos in wings... \$525.00 for all or \$435.00 for wings and stab only; very rare Southern Sailplanes 2 - meter slope Ricochet, beautiful, won the IMS Show beauty contest twice, flies better than it looks, selling with 6 Airtronics servos and 1200 mAh battery, includes fuselage stand and custom wing and stabbags, immaculate, must be seen and flown to be fully appreciated... \$750.00. Quarter scale Roberts Discus with no servos, needs some cosmetic TLC... \$350.00. Fifth scale Multiplex ASW-22 with Alpina Magic wings, beautiful model, 100% airready and flies great, set-up for slope, winch or aero-tow launching, includes 9 Airtronics servos, Graupner retract, custom wing bags, plug-in wing tips for standard 13" or 15 4" scale wing span option, requires computer radio to operate full-house rudder, elevator, ailerons, flaps, spoilers, retract and aero-tow release functions... will sell with everything... \$795.00. Steve Condon, (619) 630-2909 (H), (619) 594-7823 (W), California.

NIB kits: Legionaire 140... \$200.00; Airtronics Grand Exprit... \$200.00; Bob Smith Sundancer II... \$100.00; Estcom 110... \$280.00; Airtronics Legend... \$150.00; Airtronics Thermal Eagle... \$300.00; NIB, never used, never charged, Vision 8SP 3.0 Program... \$589.00. Prices do not include shipping. Tom Gressman, (303) 979-8073, Colorado.

Diamant (molded) 96", RTF less receiver... \$500.00 + S&H; Mako 114", 7037, Air 141 servos (2), HS 80 mg's in wing (4), custom carrying case... \$550.00 + S&H; Laser by Bob Sealy (ARF) 124", 1110 sq. in., 62 oz. (8 oz. wing loading)... \$185.00 + S&H less electrics. Paul Ikona, California Soaring Products, (818) 966-7215, California.

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Robbe ASW 24, 3.5 meter wing span (foam with balsa), new, never flown, 80% of building completed (eg., air-brakes installed and wings covered). Make me a fair offer. Call Cameron at (217) 333-2037 (w), (217) 344-4342 (h), Illinois.

Spectrum, NIB, RG-15... \$290.00 including U.S. shipping; Futaba 7FGK radio, 7 ch Tx & FM Kx, new Tx nicads, like new, gold stickered... \$100.00. Robin Riggs, (818) 506-7753, S. California.

JR PCM10S, ch 23, only one year old transmitter, 2 receivers (credit card rec.), 4 servos and 10 model memory, all for only \$740.00. Darryl James at (619) 622-5706 or e-mail dljames@ucsd.edu, California.

RnR Genesis, custom colors, red tops & blue bottoms, selling with 6 servos, a real beauty... \$600.00; RnR Synergy III SE, white on top & black on bottom, selling with 6 Airtronics 141 servos & 1000Mah battery pack, has a lot of hours on it but no crashes, flies excellent, just add receiver and you're ready to launch... \$600.00; Southern Sailplanes slope Ricochet kit, the last known original kit in existence, mint condition... \$350.00 O.B.O. (If you know of this airplane, you know it's a beautiful rocket ship and a rare find.) Scott Condon, (619) 471-2453, California.

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1/3 Club Libelle (Krause), 5 meter span with servos rigged for Futaba with nose release, absolutely ready to fly... \$1400.00; Twin Astir (Wik), 4 meter all glass, excellent condition, completely finished, ready to fly, slight hangar rash, has an immaculate detailed twin cockpit, competition worthy, all servos rigged for Futaba radio, nose tow release for airtowing... \$1000.00; Thermoflug all glass 4 meter Salto with Futaba servos, slight hangar rash, absolutely ready to fly... \$900.00; 6 meter Nimbus 2 with flaps, spoilers, airtow and all servos, ready to fly, mint condition... \$1500.00; Wik Twin Astir, all glass, NIB, 3.8 meters... \$595.00; Multiplex 1/4 DG-300, all glass (wing section FX 60-126), NIB... \$695.00; Multiplex 1/4 Ka6E, 4 meters, NIB... \$595.00; Roke SB 10, 4.8 meter wing span, completely finished, ready to fly, w/airtow release, all servos installed... \$650.00; huge towplane, will tow the largest sailplanes, 1/3 L5 with saks 8.4 twint and Futaba servos, mint condition... \$2500.00; Salto, large Glas Flügel, 176" span with flaps, spoilers, airtow, all Futaba servos, excellent condition... \$600.00. Robin Lehman, (212) 879-1634, New York.

ASW 24 by Thermo Flügel, 3.5 meter span w/ removable winglets, good condition, great slope ship, obechi w/glass wings and stab, ready to fly with your radio... \$350.00 or offer. Brian McLean, (714) 363-7331, eve, California.

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Wanted

GOOD Thermal Sniffler for cross country flying. Call Bob Sowder, (901) 751-7252, Tennessee.

Lorus or Seiko countdown stopwatch in good condition for use in F3B and other soaring activities. If you have one you would sell for a fair price, call Steve Condon, (619) 630-2909 (H), (619) 594-7823 (W), California.

Right wing or both wings for Multiplex LS-3. Gerald Fukuoka, Johnston Atoll, P.O. Box 049, APO/AP 96358.

Left wing for Multiplex DG-300 or 300/17 (obechi). Will consider entire kit, NIB, or damaged plane. John Derstine, (717) 596-2392, Pennsylvania.

Gliders: old, wood scale or modern, Baby Bowlus or Albatross, Nelson Ka6, Minimoa or Primary, Synergy 91, F3B and F3B types. Wings: Multiplex, DG-600 (end feathers), DG-300, 100" or 130" (carbon fiber), Hobe Hawk [tail feathers - I have a right wing if anyone needs it.]. JR receivers and crystals, stuff - anything. I restore old wooden gliders and just can't stand to see anything thrown away! If you have something that you are going to throw away, please call me first. I'll work with you, on a trade or whatever. Gene, (805) 527-8582, California.

Left wing for Multiplex Ka6e, or a pair of wings. Ron Wahl, (315) 331-7417, NY.

Left or both wings for F880, Airtronics S3021, obechi. Gary, (904) 271-2625, Panama City, Florida.

Synergy III right wing tip. Ron Widel, (408) 633-4114, California.

Sailplane Homebuilders Association (SHA)



A Division of the Soaring Society of America

The purpose of the Sailplane Homebuilders Association is to stimulate interest in full-size sailplane design and construction by homebuilders. To establish classes, standards, categories, where applicable. To disseminate information relating to construction techniques, materials, theory and related topics. To give recognition for noteworthy designs and accomplishments.

SHA publishes the monthly *Sailplane Builder* newsletter. Membership cost: \$15 U.S. Student (3rd Class Mail), \$21 U.S. Regular Membership (3rd Class Mail), \$30 U.S. Regular Membership (1st Class Mail), \$29 for All Other Countries (Surface Mail).

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Dan Armstrong, Sec./Treas.
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LSF



The League of Silent Flight (LSF) is an international fraternity of RC Soaring pilots who have earned the right to become members by achieving specific goals in soaring flight. There are no dues. Once you qualify for membership you are in for life.

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

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

R/C Soaring Resources

These contacts have volunteered to answer questions on soaring sites or contests in their area.

Contacts & Soaring Groups - U.S.A.

Alabama - North Alabama Silent Flyers, Ron Swinchart, 8733 Edgehill Dr. SE, Huntsville, AL 35802; (205) 883-7831.

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

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

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

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

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

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

California - Southern Calif. Electric Flyers, John Raley (President), 1375 Logan Ave., Costa Mesa, CA 92626; (714) 641-1776 (D), (714) 962-4961 (E), e-mail: E-Flyer@ix.netcom.com.

California - Torrey Pines Gulls, Ron Scharck, 7319 Olivetas Ave., La Jolla, CA 92037; (619) 454-4900.

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

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

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

Illinois (Chicago Area) - Silent Order of Aeromodeling by Radio (S.O.A.R.), Jim McIntyre (contact), 23546 W. Fern St., Plainfield, IL 60544-2324; (815) 436-2744. Bill Christian (contact), 1604 N. Chestnut Ave., Arlington Heights, IL 60004; (708) 259-4617.

Iowa - Eastern Iowa Soaring Society (Iowa, Illinois, Wisconsin, Minnesota), Bob Baker (Editor), 1408 62nd St., Des Moines, IA 50311; (515) 277-5258.

Indiana - Bob Steele, 10173 ST Joe Rd., Fort Wayne, IN 46835; (219) 485-1145.

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

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

Maine - DownEast Soaring Club (New England area), Steve Savio (Contact), RR#3 Box 569, Gorham, ME 04038; (207) 929-6639. InterNet e-mail <jim.Armstrong@acornbbs.com>.

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

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

Michigan - Great Lakes 1.5m R/C Soaring League & "Wings" Flight Achievement Program & Instruction, Ray Haycs, 58030 Cyrenus Lane, Washington, MI 48094; (810) 781-7018.

Minnesota - Minnesota R/C Soaring Society, Tom Rent (Contact), 17540 Kodiak Ave., Lakeville, MN 55044; (612) 435-2792.

Missouri - Independence Soaring Club (Kansas City area, Western Missouri), Edwin Ley (Contact), 12904 E 36 Terrace, Independence, MO 64055; (813) 833-1553, eve.

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

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

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

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

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

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

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

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

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

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

Tennessee - Memphis Area Soaring Society, Bob Sowder (contact), 1489 Wood Trail Circle, Cordova, TN 38018, (901) 757-5536, FAX (901) 758-1842.

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

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

Virginia - Tidewater Model Soaring Society, Herk Stokely, (804) 428-8062, email: herkstok@aol.com.

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

Outside U.S.A.

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

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

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

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

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

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

BBS/Internet

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

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

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



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Reference Material

"Summary of Low-Speed Airfoil Data - Volume 1", Michael Selig wind tunnel testing results. \$25 USA (includes postage), \$29 surface outside USA, \$31 air Western Hemisphere, \$38 air Europe, \$42 air all other countries. Computer disk, ascii text files (no narrative or illustrations), is \$15 in USA; \$16 outside USA. Source for all "SoarTech" publications, also. Contact Herk Stokely, 1504 N. Horseshoe Cir., Virginia Beach, VA 23451. Phone (804) 428-8062, email: herkstok@aol.com.

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

Schedule of Special Events

Date	Event	Location	Contact
Sept. 16	1.5m Hi-Start Contest	Washington, MI	Ray Hayes, (810) 781-7018
Sept. 17	TPG Thermal Contest	Poway, CA	George Joy, (619) 748-2167
Sept. 17	SOAR Contest	Plainfield, IL	See Illinois R/C Soaring Contacts
Sept. 17	Team Duration	Coteau Station, Canada	Dan Gregory, (514) 684-1795
Sept. 23	MARCS F3J	Madison, WI	Al Scidmore, (608) 271-5500
Sept. 23-24	Astro Champs	Fountain Valley, CA	John Raley, (714) 641-1776
Sept. 23-24	2m & Open	Orlando, FL	Hank McDaniel, (407) 831-3688
Sept. 23-24	Last Fling of Summer	Tulsa, OK	Mike Teague, (918) 747-1245
Sept. 24	F3J	Coteau Station, Canada	Dan Gregory, (514) 684-1795
Oct. 1	Great Pumpkin	Coteau Station, Canada	Dan Gregory, (514) 684-1795
Oct. 7	1.5m Hi-Start Contest	Washington, MI	Ray Hayes, (810) 781-7018
Oct. 7-8	Fall Soaring Festival	Visalia, CA	
	Western States Triad		
Oct. 7-8	SOAR Fun Fly	Plainfield, IL	See Illinois R/C Soaring Contacts
Oct. 14	1.5m Hi-Start Contest	Washington, MI	Ray Hayes, (810) 781-7018
Oct. 14	TPG Unld. Slope Race	Torrey Pines, CA	Eric Larson, (619) 793-7640
Oct. 15	TPG 60" Slope Race	Torrey Pines, CA	Eric Larson, (619) 793-7640
Oct. 15	Open	Dallas, TX	Jim Truitt, (214) 348-2929
Oct. 14-15	Fall Soaring Tournament	Memphis, TN	Bob Sowder, (901) 757-5536
Oct. 14-15	2m & Unl.	Morrison, FL	Frank Strommer, (813) 844-7225
Oct. 15/18	Slope Soaring	Cape Cod	Alex Wenzl, (514) 984-7957
Oct. 21-22	Canyon Lake Classic	Canyon Lake, TX	Greg Dickerson, (210) 656-1796
	2M, Open, HL - Potters Creek Park		Tom Meeks, (210) 590-3139
Oct. 21	1.5m Hi-Start Contest	Washington, MI	Ray Hayes, (810) 781-7018
Oct. 22	TPG Thermal Contest	Poway, CA	George Joy, (619) 748-2167
Oct. 22	SOAR Contest	Plainfield, IL	See Illinois R/C Soaring Contacts
Oct. 29	One Design Contest	Orlando, FL	Rick Eckel, (407) 365-9757
Nov. 4-5	2m & Unl.	Morrison, FL	Ken Goodwin, (904) 528-3744
Nov. 4	TPG HLG Contest	Poway, CA	Art Markiewicz, (619) 753-3002
Nov. 5	TPG Fun-Fly & BBQ	Poway, CA	Steve Stricklett, (619) 741-1037
Nov. 5	SOAR Turkey Shoot	Plainfield, IL	See Illinois R/C Soaring Contacts
Nov. 11	TPG 60" Slope Race	Torrey Pines, CA	Eric Larson, (619) 793-7640
Nov. 12	TPG Thermal Contest	Poway, CA	George Joy, (619) 748-2167
Nov. 12	Open	Dallas, TX	Chuck Fisher, (214) 270-2634
Nov. 19	Open	San Antonio, TX	Perry Van, (210) 658-8842
Nov. 24-26	22nd Tangerine	Orlando, FL	Ed White, (407) 321-1863
Dec. 9	TPG 60" Slope Race	Torrey Pines, CA	Eric Larson, (619) 793-7640
Dec. 10	TPG Thermal Contest	Poway, CA	George Joy, (619) 748-2167
Dec. 9-10	Winter Soaring Festival	Indio, CA	Buzz Waltz, (619) 327-1775
June 8-9	SWSA 2M Soarfest '96	Southern CA	Pete Olsen, (909) 597-2095

New Products

NEW PRODUCTS

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



Semi-Scale Warbird Slope Gliders

...from Dave's Aircraft Works
Models available include Messerschmitt Me-109, Kawasaki Ki-61, Curtis P-40 Warhawk, Focke-Wulf Ta-152, and P-51D Mustang. Kits feature simple and rugged balsa-sheathed foam core wing, with balsa fuselage and tail construction. All models except the Me-109 are capable of accepting standard size radio gear and large capacity battery packs. Spans range from 30 1/2" to 36", and all models weigh 14 - 18 oz., ready to fly. Selig 3021 airfoil; can be flown in 10 - 50 mph winds. Aerobatic, cut-throat slope combat. Retail price is \$35.95 + \$7.00 S&H in U.S.A. CA residents add 7.75% tax. Send \$1.00 for complete catalog of kits and plans for scratch builders. Dealer inquiries welcome. Dave's Aircraft Works, 123 Avenida Buena Ventura, San Clemente, CA 92672; (714) 498-4478. ■

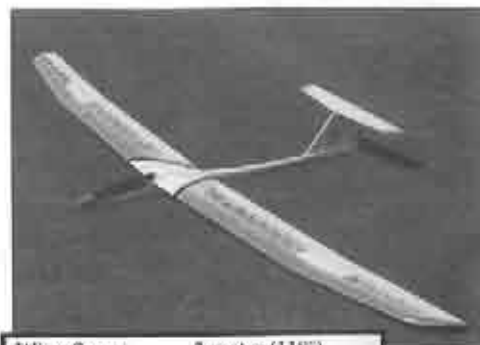


Sailaire

...from Dream Catcher Hobby, Inc. The Sailaire, originally designed by Tom Williams and originally produced by Craft-Aire, is being re-introduced. The new Sailaire kit comes complete with hardware, and the wing joiner rods have been beefed up. The Sailaire has a molded epoxy fiberglass fuselage forward fuselage pod, with a rolled plywood tail cone per the original. Wing span is 149", with a wing area of 1643 sq. in. Flying weight is 5 to 11 lbs., giving a wing loading of 7 - 15.4 oz./sq. ft. Wing is built-up construction with spoilers, and features spruce spars with machine sanded balsa ribs with the spar notches cut in the ribs. Kit comes with clear canopy, two sheets of full-size blueprints, and detailed instructions. Cost is \$139.99 + \$10.00 S&H, continental U.S., only. Indiana residents include 5.0% state sales tax. Bank check, money order, Visa, and Mastercard. Kits available for immediate shipment. For a product flyer on the Sailaire or other products, send SASE to: Dream Catcher Hobby, Inc., P.O. Box 77, Bristol, IN 46507; (219) 848-1427. ■

Mystery Ship

...from L&H Distributors The Mystery Ship is a 3 meter (118") sailplane which incorporates all the latest aerodynamic advantages. Revolutionary new CAD development and precision laser cutting makes this all wood kit easy to build. Built-up wings, full D Box, double shear web spar, cap-stripped ribs, ailerons and flaps. Fuselage is designed with hidden tab-loc construction for easy alignment and strength, lite-ply sides, balsa top and bottom, and full flying T-tail. Unique telescope canopy hatch for easy fit and strength. Manufacturers suggested retail price: \$169.95. Dealer inquiries invited. Available through selected hobby dealers or Major Hobby, L&H Distributing, 1520 B Corona Dr., Lake Havasu City, AZ 86403; (520) 855-6900. ■



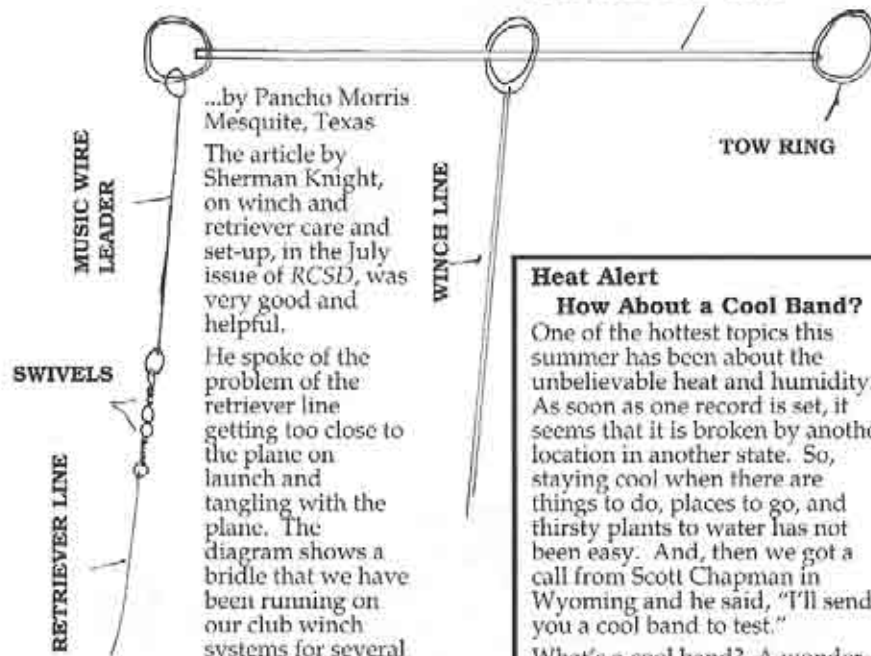
Wing Span	3 meter (118")
Flying Weight	62 oz. and up
Wing Area	973 sq. in.
Wing Loading	9 oz./sq. ft. and up
Fuselage Length	53.25"
Airfoil	SD7037

New Products

1.5 Meter Osprey

...from Sky Bench Aerotech The 1.5 Meter Osprey is an R/C hand launch sailplane kit that can be built with a V-tail or fin/rudder and stabilizer. Wing can be either polyhedral or flat with options of spoileron, flaperon, or aileron plus flaps. Building choices included on CAD drawings or in instructions. Wings are laser cut with much of the balsa wood removed to reduce weight. Fuselage parts are machined for accuracy, including the stabilizer spar caps and elevators for the V-tail version. All hardware is included, including a tow hook. Wing is fully sheeted on top. Rudder and elevator are built-up construction, and covered with light weight, heat shrink covering material. Price is \$89.95 + \$6.00 S&H. Sky Bench Aerotech, 58030 Cyrenus Lane, Washington, MI 48094; (810) 781-7018. ■

Winch-Retriever Bridle



...by Pancho Morris Mesquite, Texas The article by Sherman Knight, on winch and retriever care and set-up, in the July issue of *RCSD*, was very good and helpful.

He spoke of the problem of the retriever line getting too close to the plane on launch and tangling with the plane. The diagram shows a bridle that we have been running on our club winch systems for several years now, and it pretty well takes care of the problem, along with keeping the lines from tangling up.

It consists of a piece of braided nylon utility rope like you find at the hardware store. It is about 3/16" in diameter and about 3 foot long. There is a good ring at each end. The winch line attaches to a ring that slides on the nylon bridle, and is slightly smaller than the rings on the end. The retriever line attaches to one of the end rings. There is a music wire leader on the end of the retriever line. It is about .047 or so, and about 18" long. This keeps the whole thing from winding up when you bring up line tension, before throwing the plane on launch. There are swivels on the retriever line where it attaches to the leader.

On launch, the retriever line is about 3 feet from the plane at the other end of the nylon bridle from the launch ring, and under retrieve, the whole thing comes back nice and straight with no tangles. It seems to work best to grab the retriever line after the plane releases while there is still some energy in the system before the lines get slack. This yanks the bridle system straight.

NYLON BRAIDED CORD

TOW RING

WINCH LINE

SWIVELS

RETRIEVER LINE

Heat Alert

How About a Cool Band?

One of the hottest topics this summer has been about the unbelievable heat and humidity. As soon as one record is set, it seems that it is broken by another location in another state. So, staying cool when there are things to do, places to go, and thirsty plants to water has not been easy. And, then we got a call from Scott Chapman in Wyoming and he said, "I'll send you a cool band to test."

What's a cool band? A wonderful idea when you're trying to hold your own against the heat! It's a cloth band that fits loosely (kinda drapes) around the neck. The instructions are simple. Soak the band in water for 8 - 10 minutes or until fully expanded, and pat with a towel to remove excess water. For a colder scarf, refrigerate!! After several days, as cooler dehydrates, re-soak as needed.

The back part of the band contains some sort of material that swells up, absorbs and holds water. So, the cool cloth against the neck sure feels great. At least, for Jer. He's not sharing. So, I picked up the phone, called Scott, and said, "It's wonderful! And, I want to place an order for 6 more!"

If you're interested, the cost is \$6.50 postage paid in the U.S.A. and Scott can be reached at (800) 359-0233, 10AM - 4PM, Mountain Time. He says the colors are red, blue, black, or wild.

Judy Stator ■

Advertiser Index

62	Aerospace Composite Products
63	Aire Master
64	Agderson, Chuck
65	B ² Streamlines
65, 79	California Soaring Products
63	Composite Structures Technology
62	C.R. Aircraft Models
66	Dave's Wood Products
67	David Layne Designs
71	D.J. Aerotech
61	F.K.H. Enterprises
69	Future Flight
66	Hog Wild
68	Inventec Corporation
64	J&C Hobbies
75	Just Plane Fun Models
60	Kennedy Composites
61	Major Hobby
74	Mountain Wings

64	P.E.P. (Sky Shine)
75	Perret's Studio
66	Performance Composites
65	RA Cores
69	RuR Products
78	Sailplanes Unlimited, Ltd.
62	Sanders, Eric (CompuFoil)
76, 77	Slegers International
80	Slegers International
72	Soaring Specialties
66	Squires Model Products
64	Taucom
67	Tekoa: The Center of Design
66	The Birdworks
63	TNR Technical, Inc.
70	Torque & Recoil Club
73	Viking Models, U.S.A.
73	Windspiel Models
64	Zatloka, George
60	Zoomit Creations

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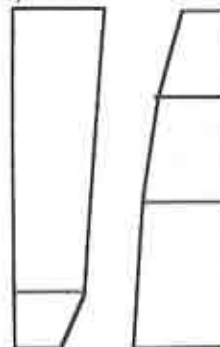
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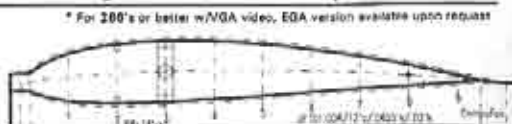
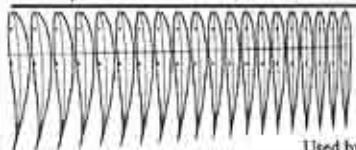
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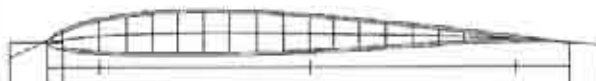
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Airfoil	HQ 2/9-2/8	HQ 2/0-2/8	HQ 3/10-3/9
Weight	65 - 72 oz	57 - 65 oz	40 - 45 oz
Wing Loading	10 - 11 oz/ft	10 - 11 oz/ft	9 - 10 oz/ft
Price	\$199.00	\$199.00	\$149.00

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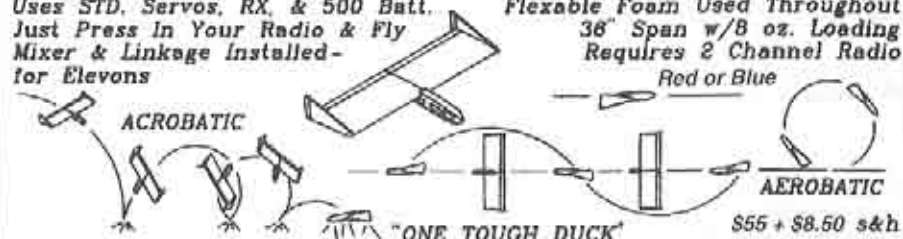
Join an exclusive group of California performance pilots by flying an efficient, fast, durable PERFORMANCE COMPOSITES sailplane. These V-tail planes are completely assembled, needing only a few hours to finish. Wings: RG-15, obechi, blue foam, carbon. Fuselage: 100% Kevlar & S-glass. 60" STARLING: \$179.95. 2M STARSHIP: \$249.95. S&H: Call; CA res. add 7.25% tax. **STARLING now available w/carbon wings & stubs! Call for price.**

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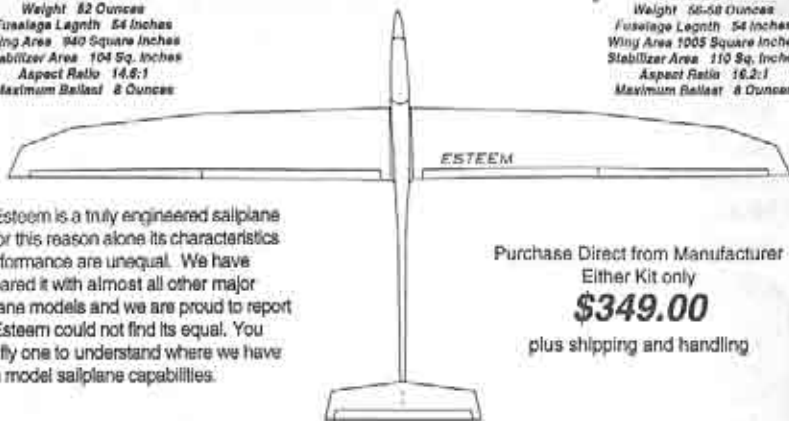
ESTEEM 110

Span 110 inches
Airfoil SD7080 Modified
Wing Loading 8.6 Oz/Sq.Ft.
Wing/Stub Pre-sheathed obchee over foam
Weight 82 Ounces
Fuselage Length 54 inches
Wing Area 940 Square Inches
Stabilizer Area 104 Sq. Inches
Aspect Ratio 14.6:1
Maximum Ballast 8 Ounces



ESTEEM 121

Span 121 inches
Airfoil SD7080 Modified
Wing Loading 8.2 Oz/Sq.Ft.
Wing/Stub Pre-sheathed obchee over foam
Weight 86-88 Ounces
Fuselage Length 54 inches
Wing Area 1005 Square Inches
Stabilizer Area 110 Sq. Inches
Aspect Ratio 16.2:1
Maximum Ballast 8 Ounces



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Gazelle

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Airfoil SD7080 Non Modified
Wing Loading 8.40z/Sq.Ft.
Wing/Stub Pre-sheathed obchee over foam
Flying Weight 34 Ounces
Fuselage Length 48 inches
Wing Area 595 Square Inches
Stabilizer Area 162 Sq. Inches
Aspect Ratio 13:1
Ballast Magazine: Additional 16 Ounces

Wings are sheathed obchee over foam with a 3/8" carbon fiber spar tube inserted 60% of the length. Carbon fiber cloth reinforced top and bottom sides. Weight is only 8.4 oz./sq.ft. Two piece wing joined by a 3/8" diameter carbon fiber rod.

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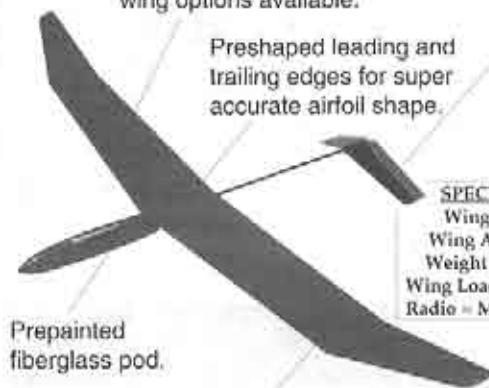
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Mariposa has been designed by a team of engineers and avid modelers, using the latest computer techniques combined with extensive flight testing to deliver contest winning performance.

SPECIFICATIONS
Wing Span = 59 in
Wing Area = 328 sq in
Weight = 11 oz approx.
Wing Loading = 4.8 oz/sq ft
Radio = Micro w/V-tail mix

Send \$3 for a detailed full color flyer. Full payment will lock in this low price and get you a delivery date. First delivery is projected for Sept '95. You may cancel at any time.



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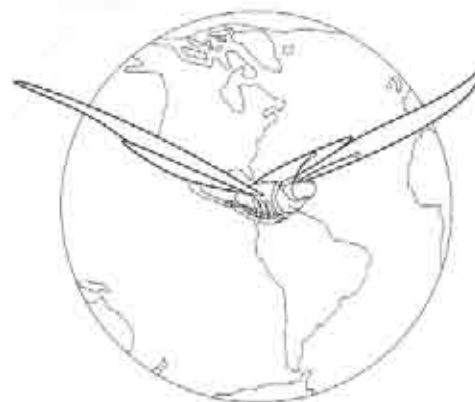
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AIRFOIL: SD7037
AREA: 525 SQ. IN.
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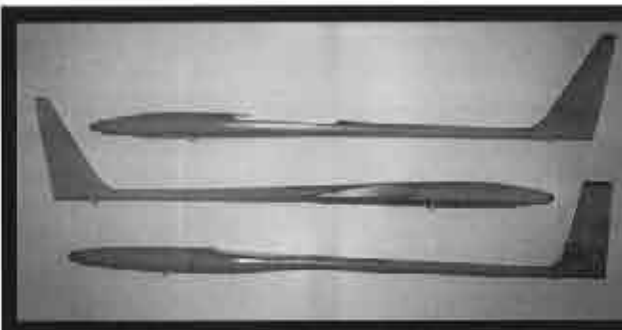
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Specifications

Span: 45.4 inches
 Length: 30 inches
 Weight: 24 - 30 oz.
 Wing Loading: 12-15 oz/ft²
 Airfoil: S4233 Tripped
 Controls: Ailerons & Elevator

Features

Accurate Scale Outline
 Realistic Flight Characteristics
 Balsa Sheeted Foam Wing
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Specifications

Wing Span 110"
Airfoil SD7080
Weight 59-61 oz.
Price \$395.00



VULCAN 2M

Designed by Mark Allen

V-tail

Vucanistics:

Wing Span 78.73"
Weight 33 - 38 oz.
Airfoil (8 1/2%) S7012
Wing Area 558.55 sq. in.
Wing Loading 9.25 oz./sq. ft.
Aspect Ratio 11.13:1
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Airfoil	SD7037/RG-15	SD7037
Aspect Ratio	13:1	11.2:1
Weight	60 oz.	40 - 43 oz.
Wing Loading	10 oz./sq. ft.	10 oz./sq. ft.
Price	\$359.00	\$259.00

ELECTRIC HAWK

Designed by Mark Allen



Wing Span: 74 in
Wing Area: 510 sq in
Airfoil: SD7037
Price: \$229.00

Fiberglass fuselage reinforced with Kevlar
Pre-sheathed wings and stab
Double taper planform
7 - 10 cell electric

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Designed by Mark Allen



Wing Span: 60 in
Wing Area: 370 sq in
Airfoil: RG15
Price: \$195.00

The design features a slightly longer fuselage and larger stab for high speed stability and to provide better energy retention through turns and aerobatics.
Fiberglass fuselage
Pre-sheathed wings

Specifications

Wing Span 116"
Weight 58 - 85 oz.
Airfoil - Root SD 7037 or S7012
Airfoil - Tip SD 7037 or S7012 - 8%
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Wing Loading 9.8 - 10.5 oz./sq. ft.
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- ✓ Long tail moment
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