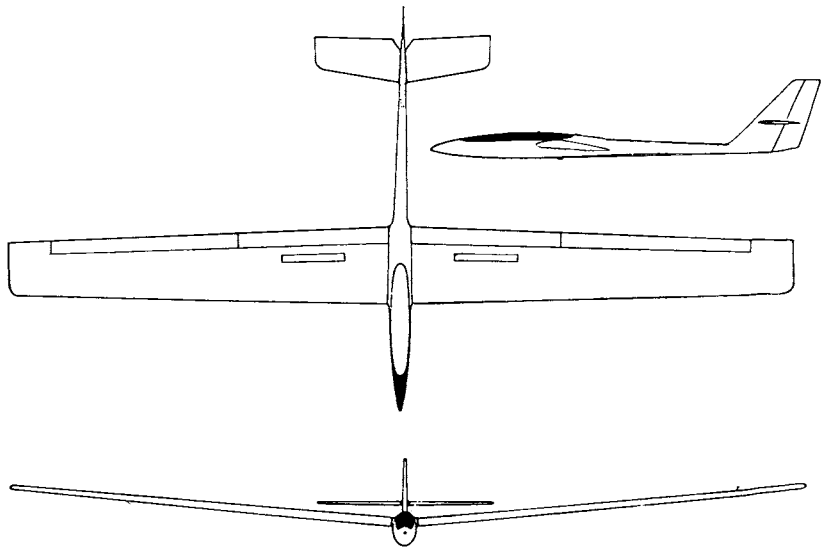
R/C Soaring DIGEST

Vol 6. No. 3 March 1989

RICHOCHET "UNLIMITED"

By Grant Finlay & Southern Sailplanes of Australia



Span	108 inches
Area (est.)	985 sq. in.
Airfoil	Grinsberger RG-15
Weight	6 - 7 lbs.
Length	53 inches
Controls	A, E, F, R
Wing Loading	14 - 16+ oz./sq. ft.
Root Chord	10.25 inches
Tip Chord	8 inches

Featured on page 2

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High Start

This month we'll go for a little change of pace: no F3B, NSS, AMA or earth-shaking catastrophe...just a little ol' reminiscing and ruminating (Did I hear a sign of relief?).

Vacuum bagging is of current interest among builders because of the opportunity to achieve flawless surfaces on wings, tails and other relatively planer objects. Progress in the fine art of preparing a wing with cloth and resin, a suitable air-tight bag, proper inlet and outlet orifices, and all of the other "arcane" techniques has been nothing less than astounding! A couple of years ago only a handful of builders were using the system, but now it's widespread. You've seen Hi Performance Sailplanes ads in recent issues of RCSD, and - this month - you'll see an ad from Channel One Productions, on the subject of vacuum bagging.

Suffice it to say that the new techniques have replaced the "silk and dope" covering of yester year (and it took a real "artist" to do a fine job), or the banana oil and tissue of even further back, to produce strength and beauty that is unsurpassed - even in full-size sailplanes. Even I have been encouraged to (someday) try my luck at this gentle art without too great a fear of damaging or destroying something irreplaceable. Even Ye Ed might be able to do a creditable job, and all because of the HELP modelers are getting from knowledgeable masters of the art. A review of Channel One's video in this issue will bear reading for those of you who still fear a "hands-on" approach.

In recent months I've noticed that another little nest of sailplanes has been fledged by Culpepper Models of Dubuque, Iowa. Here, we have a meter-and-a-half CHUPEROSA, a tiny hand-launch sailplane that has set a Class A distance record of over 6 miles! Then, there's Terry Edmonds' 2-meter IO and Standard Class CALLISTO being kitted by Culpepper. Soon, you'll see an ad in RCSD for them.

Speaking of hand launching, my arm hasn't been up to the task for many moons (or suns, for that matter), yet I absolutely enjoy these tiny sailplanes...possibly because of a long-held belief that "good things come in small packages". So, I up and ordered the plans for ZEPHYR, a 52-inch span hand-launchable sailplane designed by Bob Owens, and originally appearing in MA back in the early 80's. ZEPHYR also happens to be the only HLG that I've ever been able to soar successfully...and that's out of half a dozen different ones tried. So, with luck, I may have it ready for the coming season. One nice thing: it can sit in the back of the car, fully assembled, ready to go. Just pick it up, switch it on, and HEAVE...

For many of today's soaring pilots the BIGGEST event and most desired one is CROSS COUNTRY SOARING. This year, in California, there will be an International Cross Country contest, and you'll read about it in RCSD — both before and after the event.

Slope soaring has become almost as popular as thermal soaring — even more so, in areas where slopes are available. Read about a new Mark Foster video in this issue that covers the famous and not-so-famous slope soaring sites.

Finally, like me, you probably want to know what's next. Wanna know what I think? It's ELECTRIC-POWERED SAILPLANES and SOARING. Heck, they're here already, right in front of our eyes, yet there hasn't been an overwhelming urge on the part of "purists" to enter this fascinating new aspect of soaring. Let me put it this way: whether or not you're a purist, it will soon be the ONLY way to launch a sailplane. Yep, I'm serious, and here's why.

Available flying sites (and by that I really mean LAUNCHING sites) are becoming fewer and farther between. The greed for unused flat land has become astronomical among those who lust for land as a means of quick profit. Airports are going or have gone...dozens of them in every state each year. Park land is becoming scarce for our purposes, golf courses

High Start continued...

never were viable sites. Acres of shopping centers are gobbling land as fast as you can blink your eyes. This means that those wonderful, open, clear and unused acres for setting out winch lines or hi starts are going FAST.

What can we do? It's obvious that we can't fight BIG BUCKS and vie for the land...at least not always and not successfully. We have to modify our own needs and ADAPT to the new situation. As I see it, part of that adaption is utilizing smaller fields such as school playgrounds, college athletic fields, or even smaller areas which haven't been attractive to the land grabbers because there isn't enough acreage to make them commercially attractive. Okay, so here we are on a "postage stamp", what do we do now? WHAT WE DO NOW IS USE ELECTRIC POWER FOR HAND LAUNCHING. Heck, most of us can LAND in a small field; it's just that we can't take off in one by currently conventional means.

Even if you don't use the power after you've reached soaring altitude, it's still nice to have to avoid those down-wind retrieves and lost opportunities. Just think: no more crossed winch lines, no more 'chutes snagged in trees or power lines, and no more exhausted "helper" gasping his last on a hot day as he (or she) drag the 'chute back to the flight line.

Think about it: drive to your nice small plot of grass, reach into the trunk or wherever you keep your sailplane. Pull it out, assemble it (not always necessary), check the batteries, click on the power switch, set your radio, and GO. When you're finished, land close by your car, shut things off, stow the sailplane, and drive away. It will save hours, save nerves, and save soaring. Let's DO IT!

Happy Soaring,
Jim Gray

P.S.: Watch for our new column on electric-powered sailplanes coming soon to RCSD!

♣ ♣ ♣ On the Cover ♣ ♣ ♣

Southern Sailplanes of Australia's RICHOCHET UNLIMITED is an interesting sailplane constructed from balsa, carbon, fiberglass, foam and polyester. It was used by Grant Finlay in the F3B event at the 1987 New Zealand National Championships and at the 1988 soaring championships. At the nationals it was privately timed to go under 23 seconds on the speed run, but due to a malfunction of the official time recorder, this time was not recorded.

There are several versions of the popular RICHOCHET series, but this particular one was especially made for F3B competition. The fuselage length is 53 inches and it is made from fiberglass and polyester (as opposed to the more normal U.S. practice of epoxy). The wing has a span of 108 inches, a root chord of 10 1/4 inches and a tip chord of 7 inches. There are no spars per se, but wide carbon strips are layered over the white foam cores, both top and bottom, before skinning with balsa, glassed and painted. The wing has a dihedral of 5 degrees and uses a Girsberger RG-15 airfoil. Controls include aileron, elevator, flaps and rudder. The all-up weight (dry) is six pounds and the ballasted weight is 7 pounds.

The wing cores also contain 5/8" diameter by 27" long alloy tubes which are used to hold stainless steel ballast rods (removable) which also act as a "surrogate" spar when in place. The wing joiners are made from 1/4" diameter alloy rod, and one is located at the ballast tube position one-quarter chord behind the leading edge of the wing, and the other acts as a locater pin some distance behind that.

RCSD thanks the newsletter of the New Zealand Soaring Society, Colin Stace, editor; 17 Grimsey's Road, Christchurch 5, New Zealand, and Grant Finlay, designer, builder and pilot of RICHOCHET UNLIMITED. It occurs to me that this, too, might be a suitable design for the RCSD challenge. Southern Sailplanes of Australia kits other versions of their popular RICHOCHET series, including the better-known Standard Class machine.

On the Wing

...by B²

The show stopper of the scale slope meet in Richland last May was a model of the Northrop YB-49. Many people take pride in recounting the experience of seeing the original YB-49 in flight, and anyone who has seen its graceful shape in the science fiction movies of the fifties can readily understand their awe. It was an absolutely beautiful airplane in the air, and the model at Richland was just as impressive. It was hard to imagine that it was a glider.

Nearly everyone now knows that the B-2 "Stealth" is a flying wing, and, based on the demise of the YB-49, there are of course questions as to the suitability of a flying wing as a bombing platform. To see the B-2 in proper perspective, it is wise to first get some facts about the YB-49. Along the way, perhaps we can learn something about the design and stability of our tailless models.

The YB-35 (propeller driven) and the YB-49 (jet powered) proved the span-load theory for large aircraft. In a conventional airplane, the fuselage and tail assembly produce a large weight and inertia load on the wing-fuselage junction. Since there is no fuselage and tail assembly on the flying wing, the weight and inertia distribution is along the entire wing, and the bending moments are much smaller. Surprisingly, maximum loads on the flying wing may occur during landing rather than maneuvering in flight or gusts. If an airplane is to always land and takeoff at the same speed, then its weight can increase only with the square of its size. The bending moments, however, increase by size cubed, as does weight. You can thus build a bigger airplane, and obtain the effects of increased Reynolds Number and greater payload, by going to an all wing design.

Some of the quirks of full sized flying wings don't appear in RC models. The primary example of this is elevon loading at high angles of attack. A wing stalls from the trailing edge forward and so the pilot of a full sized flying wing would feel the elevators/elevons being lifted by the vacuum. If he did not keep forward pressure on the stick the rising elevators would contribute to an even higher angle of attack and a worsening stall condition. During such a stall, the pilot would view the airplane as being longitudinally unstable. It is felt that the crash of the N9M (the one third size plywood forerunner of the YB-35) was due to just such a condition. The servos in our models don't perceive such feedback from the control surfaces, and we, as pilots, are infinitely removed from flight forces by virtue of the fact that we are on the ground rather than in the cockpit. The YB-35/YB-49 had devices installed which prevented aerodynamic forces from being transmitted to the pilot.

The designers of the YB-35/YB-49 provided a means of achieving high lift for takeoff and landing. Although the airfoils used were symmetrical (NACA 6513-019 at the root, NACA 6513-018), the wing twist was 4°. This placed the root section at a positive angle during flight, with the wing tips exerting a small down force behind the CG. Flaps were used during take-off and landing to provide the high lift needed, and they could be lowered 50°. Since they were close to the CG their effect on the pitching moment was quite small.

Both the YB-35 and YB-49 were stable and controllable. The crash of the YB-49 piloted by Glen Edwards occurred during flight #25 of the testing program, while investigating low power stalls at high altitude. The airplane, whether due to excess weight, Edwards' piloting it outside the safe flight envelope, or another factor, flipped during a stall and somersaulted until crashing into the ground.

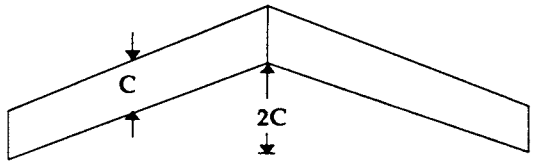
The demise of the YB-49 program probably was not due to the crash. Jack Northrop stated that while the YB-49 had won the competition with the B-36, the Air Force wanted the production lines to be at General Dynamics in Texas. There was a merger demand from the secretary of the Air Force, Northrop claimed the terms to be unreasonable, and the YB-49 contract was cancelled. Why the Air Force crews with torches destroyed all of the remaining YB-49s, even those on the assembly line, is not known.

The B-2 "Stealth" takes advantage of many new technologies, including computer designed airfoil sections, composite construction techniques, and active flight controls. The resulting design is a high speed long range airplane. Add to all of this the fact that an all metal flying wing without radar defenses produces one tenth the radar image of its conventional counterpart. Constructed of low reflectivity composites and endowed with a unique outline the B-2's radar image will be very small, if it exists at all.

What, of all of this, can we apply to our tailless models?

Any fuselage parts should be eliminated, if at all possible, to both reduce drag and take full advantage of span loading.

Problems that full sized flying wings have with a shifting CG don't show up in our sailplanes. We have no fuel to use, no bombs to drop. If we're careful with CG placement, wing sweep and wing twist we needn't worry too much about instability. In an article in TWITT newsletter #4, Irv Culver (of Lockheed "Skunkworks" fame) promoted the idea outlined in the drawing below. Simply put, to assure that a flying wing doesn't get caught in its own lift circulation, make sure that the "crotch" is DOUBLE the average chord. (The YB-49's ratio was only 1/3 of this.) When properly designed, our aircraft have no need for "black boxes" to maintain stability.



Our aircraft are remotely piloted, meaning that flight loads are not transmitted to us; we navigate our models by their orientation in the sky, not by our perception of the horizon from inside the airplane. This can be an advantage.

Wings are very fast, considering their wing loading, and flaps are a very effective way of getting them to slow down. Flaps can and should be used. Remember to keep the flaps close to the CG, and use flap/elevator mixing if your transmitter has that capability, otherwise you may need to make provisions for a mechanical device.

One item which we have not addressed here is wing twist. There are three methods for achieving the twist required for stability. The first is the simple method that we use in making a foam core wing which results in a straight leading and trailing edge. The second method places most of the twist in the outer portion of the span. The third method, supported by Irv Culver, puts most of the twist at the wing root. This at first seems a rather strange thing to do, but it does optimize span loading and may porovide other benefits. We'll discuss all three methods in a future article.

The YB-49 model that appeared in Richland was constructed of foam and covered with fiberglass and epoxy, spray painted aluminum. The fins that project both above and below the wing were made of lite-ply. Small diameter dowels extending from the lower fins were inserted in brass receiver tubes in the wing, holding them in place but allowing them to be knocked off during landing. The flight performance, as mentioned above, was sensational. Jack Northrop would have been proud!

Most of the information on the YB-35/YB-49 was found in an article by William R. Sears, a professor in the Department of Aerospace and Mechanical Engineering of the University of Arizona, and published in Aerospace America, July, 1987. ...continued on page 10

The 1989 International Model Show in Pasadena

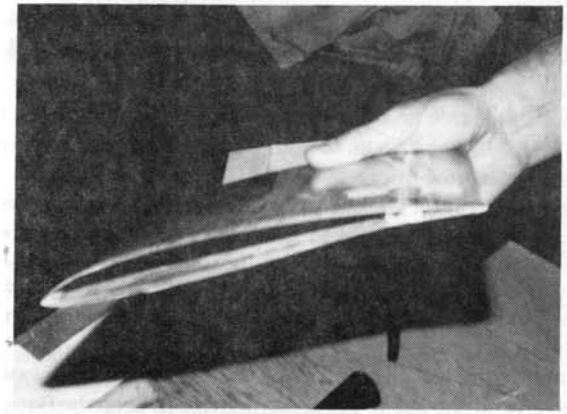
...by Rick Palmer

Fellow Arizona sailplane pilots Rick Palmer and Mike Holland made the trip all the way from Springerville, Arizona to far-off Pasadena (a 12-hour drive) to see what's new in modeldom. Their report and photos follow.

♣ ♣ ♣

Mike and I should have taken you with us — you would have taken better notes. On the morning of the Public show we went into a "surplus" store, and I'll bet they even had something for a Ham (radio) operator like you: batteries, electric motors, timers, vacuum pumps...wow!

Photos by Rick Palmer



Section of Synergy III all-fiberglass wing

When we reached the show, I started looking for anything that flew without motors. The first thing I found was the Robbe booth, and the neatest thing there that caught my eye was their new Vampyr (Vampire) flying wing, and - stupid me - I forgot to take a picture of it. Its span is about 10 - 11 feet, and it is largely pre-made...a 'mean'-looking ARF with a price range that might be around $250 - $275.

I found the F3B United States Soaring Team, and when I told them I was taking a picture for you, they asked me to give you their promotional flyers. (See photo elsewhere...JHG) Mike and I each had to buy a Team Patch from them! If anyone would like to help send them to the World R/C Soaring Championships in Paris, France this coming August, they will take donations. A Team Decal is $2, a Team Patch or Pin is $5, and all three cost $10...but, remember, they wouldn't be upset if a person gave more!

The Team had a neat display at their booth, too: one of the Team winches, a SYNERGY U.S. Team sailplane, and some wing sections which I think show about the best workmanship I've ever seen. Rich Spicer is holding evidence (if you look closely) of what happens when a carbon-spar F3B ship comes in contact with a high-voltage power line. What a way to charge batteries!

I found some great-looking sailplanes on display at other booths, too. One was a Nimbus scale model — and I was hoping the builder's name would come out in the picture — but it didn't. There was a beautiful Baby Albatros, but I couldn't read any of the information next to it. The leading edge D-tube looked like stained wood. Hmmm...wonder if the manufacturers make a transparent brown?

Here's a picture of 'Wolf Man Jack" aka Gary Anderson...who was doing a fantastic job of taking in money! It looked like he had everything in stock at his booth: an ASW-20. (If he'd put wings on it, he'd have had to buy an extra booth!)

We saw Buzz Waltz of Buzz Waltz Designs, JM Glascraft and their PENETRATOR, and Bob Sealy and his ULTIMA. He's still up in the air (no pun intended) about kitting a Standard Class version of this sailplane, but if he does, I want one! This is a GREAT kit for the money, with typical Sealy glass work.

We saw Ken Stuhr of VS Sailplanes at the American Sailplane Design booth with Gary Anderson. Ken was busy answering questions about his ROTOR kit. I think Mike bought one. Another thing Gary had was a YOUNG STAR — a small sailplane for only $20. He was out of this scale-looking ship, but people were still asking for them after they were all gone...they looked that good! I ordered a kit from Gary, and I'll get you a picture of it for another issue.

Here's the gang from Slope Soaring News. When I told Charlie Morey that I was going to send you a picture, he said: 'That Jim Gray is the nicest person' — come ON, you guys, are you having a contest to see who can say the best things about each other? Heck, as far as I'm concerned...you're both the best — as long as you fly gliders! By the way, that's a ROTOR overhead. On the bench is "Tipstall Wingover's" fuselage — recognize it, anyone? Now we know where Charlie gets those computer graphics!

"Wolf Man Jack" of American Sailplane Designs

Left to right: Carl Fountain, Charlie Marey, Chuck Korolden of Slope Soaring News. ROTOR in center.

Apparently, you can get a fuselage from Cliff Hanger Models, so I went over to see them. They had a lot of nice Power Scale kits: an F-20, F-5E, P-40, KAI-100, P-51D, and a newer F4U-1 Corsair. Fellows, these are really neat scale SOARING models for slope soaring! The kits appear to be very nice. Prices average around $59.95 with the Corsair $10 more.

Mike found some of his friends he used to fly with at the Santa Maria Soaring Society. Yup, more great, nice people. Major talk followed, like: 'What are you eating?'

At the Hobby Shack booth I noticed two gliders I'd heard of before: a SITAR SPECIAL and an OSPREY 100. Come to find out, Global Hobby Distributors, aka Hobby Shack, carries some of the Sailplanes International kits.

Rainar Wiebalck of High Sky was manning a booth showing off his Thermal Navigator. I use one and

...continued on page 9

Video From "Julian"

Here's something you absolutely MUST know about — a great hour and a half video that shows you how to vacuum-bag foam-core wings, using fiberglass and epoxy. It shows everything, leaving not the slightest "how to" detail to the imagination.

I used to be very much afraid to try new methods and techniques for fear of spoiling good materials and good equipment...but after seeing this great "how to" lesson, I would be confident that with one or two tries, I'd be able to turn out a satisfactory wing.

Julian Tamez tells all: what materials to buy, what tools to use, where to get them, and why you need them instead of substitutes. What is the best way to begin, and what you need in the way of an assistant at the critical points...it's all there.

Not only that, you'll want to watch it again and again because of its fascination in watching a true professional at work. Haven't you always delighted in seeing a craftsman turn out an exceptional product? Well, then, you'll really enjoy this video for its entertainment value alone. I'll warn you, though, it will make you want to head for the shop and turn out some wings yourself — right NOW!

One more thing: this is only the beginning. Julian's next one will deal with making a mould for building fiberglass fuselages...and the video will be out by the time you read this. With the materials, techniques and knowledge you need to build a "Modern" sailplane with space-age materials, there's no reason you can't have a competitive machine in any category you wish. Only one thing: the pilot has to be up to the machine...and maybe Julian will do a video on that, too, one of these days. For only $34.50 plus S&H you will get several hundred dollars' worth of value and knowledge as well as dozens of hours of time saved by doing things right the first time. (Julian Tamez, Channel 1 Productions, 19827 Bishops Gate, Suite No. 1, Humble, TX 77328; Telephone (713) 278-4575)

Pilot Error

In the February 1989 issue of RCSD, please refer to page 10: Eppler Airfoils continued...line 8 should read: "...low sink rates as long as the Reynolds Number is NOT lower than 100,000. However its..." The meaning is clear: to get a low sink rate, you have to have a R.N. over 100,000. One of those Gremlins grabbed the not and ran off with it at a crucial moment in the proceedings. Sorry 'bout that...

A Change of Address

...by Ben Trapnell

NEWS FLASH!! League of Silent Flight members: If you haven't received your latest issue of LSF Short Lines (because you haven't achieved level III status or haven't communicated with the LSF in some way during the last calendar year), you probably don't know that the LSF has changed addresses. Complaints were surfacing concerning the turn-around time on level vouchers. After looking into the situation, it was found that changing the address was the solution. So, if you've got a level voucher, get it out RIGHT NOW. Cross out the old address and write in the new one:

League of Silent Flight
P.O. Box 517
Winfield, Illinois 60190

According to the LSF front office, "We know this will take a week off the processing time so all the hassle will be worth it, we assure you. We promise not to change addresses again. Ever!"

From Ben Trapnell's column "Silent Flight" in R/C Report, March, 1989

Video Reviews
...by Jim Gray

Slope Soaring Sites

Mark Foster's done it again! "It" being a new video entitled SLOPE SOARING SITES OF THE WEST or THE EIGHT BEST SLOPE SOARING SITES OF THE WEST or...furnish your own title for this spectacular video, available in VHS or BETA format. I have a VHS format VCR, and when I inserted the cassette into the machine, I frankly had some trepidation about what I was going to see. Well, I watched it (about an hour and 20 minutes) and feel compelled to tell you about it as honestly as I can.

First: it's well worth watching, and I enjoyed (almost) every minute! The video itself is thoroughly professional with interesting graphics, reminiscent of some of the work done on the Sports News Network. There is nice music, and 'though my personal taste does not always run to contemporary style, it is well done — and even pleasing!

The scenery is spectacular, and the soaring is some of the best slope soaring I've seen...extremely enjoyable...and Mark's own ASW-20 soaring at Malibu looks for all the world like a full-size machine; smooth, scale-like soaring at its best.

Some of the featured sites are: Malibu, Point A, Mount Washington, Big Sur, Aspen (Colorado), Morro Bay, and Kawai-Hui "swamp" in Hawaii.

Vintage scale buffs will find the in-flight shots of a Schweizer TG-2 (SGS 2-28) all dressed up in Army Air Force colors a real delight to the eye.

Power slope scale soarers will enjoy seeing the WWII Spitfire perform on the slopes, too.

The video shows Torrey Pines (rated the #2 spot) and Eagle Butte (the #1 rated site) and others such as Coyote Hill in the S.F. Bay area, and even Crater Lake in Victoria Australia (still photos). The site in Newport, Oregon is shown, too, and one of the best features of the video (aside from the soaring and scenery, of course) is the narration.

The narrator describes the good and bad points of each site; the best time of year to soar the slope; preferred landing spots and approaches; prevailing winds; and the ease or difficulty of soaring at each site...plus much more.

The price is $25, including postage, from Mark Foster, 826 Oneonta Drive, South Pasadena, CA 91030; telephone: (213) 257-4573.

In my opinion, it's worth having the video for its entertainment value alone, but if you're a dyed-in-the-wool slope soaring pilot, and would like to know which slope to try next, you'll find this video a ready and excellent reference.

The 1989 International Model Show...continued

have to say it is easy to use and works great. More people should try it.

Jarel Aircraft Design and Engineering (TELOS canard sailplane) gave two new kits coming soon. Not shown in the booth.

ACE R/C has a great new radio called the Olympic V single stick. It is a 5-channel with optional dual rates and can be purchased with a Model 91, 1991 receiver for about $185. Mike and I will most likely end up with one.

All in all, my first trip to Pasadena was great, but I couldn't make up my mind what to buy...so I didn't buy anything! The only drawback of the show for me was that I didn't see anything new in thermal gliders — which makes me wonder why not?

California has a lot of great designers and manufacturers...and I'd like to see some of this talent put to use in new F3B and Thermal sailplane designs...Yeah!

Any takers on the RCSD F3B CHALLENGER?

Rick Palmer

Flight Line Systems Winch

...by Vern Poehls

Those of us who fly at Scottsdale Community College have had the privilege of using a FLIGHT LINE SYSTEMS winch on loan from Jim Gray of RCSD fame. This report is based on our use of this winch over the past several months.

I have been flying R/C gliders for about one and a half years now and having used the winch on a weekly basis has really improved my launching coming contest day. Owning and using a Hi-Start is a great way to go when you are by yourself, but learning how much to step down on the pedal is an acquired skill.

First off, I was impressed with the quality of workmanship. The winch package is compact and just looks good. The turnaround did have some weld flashings on it that caused some of the guys some worry, but it has performed without a hitch. I really like the foot pedal; the line of thought on pedals here at CASL seems to be towards ones that have little or no stroke to them. This one has some stroke to it and it gives me a better feel for what I am doing with my foot. One change I would make would be to make the switch a plug-in type. This would facilitate changing switch if one failed (not a problem, yet).

The instructions that came with the winch are adequate to get you going. One thing that I had a question about was line strength. The instructions state that the line used is 100-120 lb. test; since we have been using over 200 lb. line on our club winches I expected trouble with line breaks. Not so. For the most part we have not had any problems. One fellow did manage to break the line, intentionally, twice with a heavy Meteor, but I have launched my 3 lb. 10 oz. Brillant from it repeatedly with no problems. It seems that whatever the tested strength of the line, it is certainly of good quality and has lasted quite some time.

Lack of a brake on the drum has caused this winch to be a little more difficult to use than our club winch. However, once one gets used to it, backlashes are at a minimum. When using a retriever with it, you have to watch that it doesn't backlash at the end of the retrieve.

Overall, this winch has performed wonderfully. It has handled all of our planes without complaint. We have launched sailplanes from an OLYII to a 9 lb. MERLIN. It did groan some with the MERLIN. The information with the winch says that it is slightly less powerful than our standard winches. I would emphasize slightly and also say that I can only detect the difference with the heavier planes. It has been a reliable way of getting our sailplanes up on Saturday afternoons. **ED: Thanks, Vern, for writing the review and testing out the winch; and many thanks to Jim Gray for allowing CASL to do a product review. Jim, if you have anything else to try out give us a holler. CRW**

Vern Poehls CASL
5135 N. 86th Street
Scottsdale, Arizona

On the Wing...continued from page 5

Aerospace America is the publication of the American Institute of Aeronautics and Astronautics. TWITT (The Wing Is The Thing), P.O. Box 20430, El Cajon, CA 92021. Back issues are still available and the article by Irv Culver should be required reading for all those interested in designing their own flying wings. Full size plans for the Icarosaur, a flying wing with flaps and great flight performance, are available from the designer, Gene A. Dees, 2309-B Walke Street, Virginia Beach, VA 23451. A wealth of information, most of it applicable to construction of conventional models as well, is included. Woolridge's Winged Wonders is also an excellent source of information about the Northrop designs and flying wings in general.

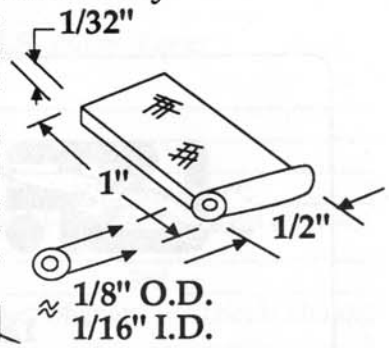
By
Bill & Bunny
Kuhlman
P.O. Box 975
Olalla, WA 98359
-0975

Spoiler Hinge Replacement

...by Marshall Searcy

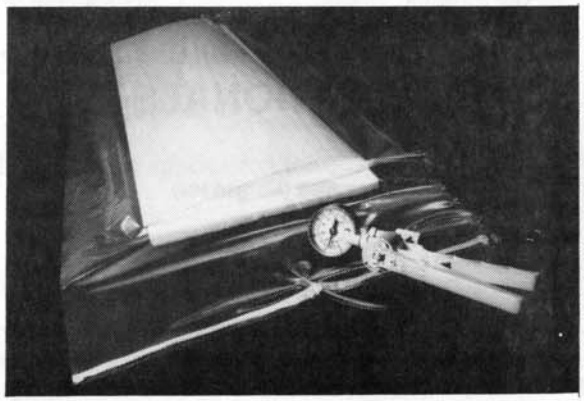
Marshall Searcy, 308 North Second Street, Porterville, CA 93257; telephone (209) 782-1400 is offering molded fiberglass spoiler hinges. How often have you lost a spoiler hinge and had to rig up a replacement?

Marshall says that as far as he knows, there aren't any such hinges available commercially — until now! For only $1.00, he'll send you a pair of hinges, each long enough to be cut to match your requirement. The sample I received was a half-inch wide by an inch long. How can you lose for a buck? JHG



New Product Release: The Sucker Kit

...from Composite Aircraft Eng. & Supply

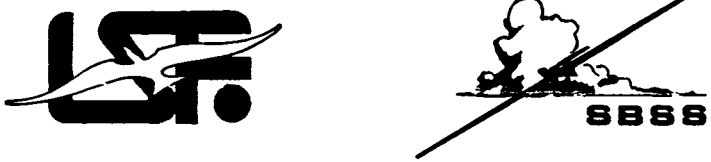


The SUCKER KIT at $59.95, New Show and Tell Video at $39.95 (plus S & H) from Composite Aircraft Eng. & Supply, P.O. Box 866, Lapeer, Michigan 48446, (313) 664 - 3330 or (313) 797-4357

The SUCKER KIT, four years of research and development, offers you a goof proof method of laminating any type of skin and foam. Cuts building time by 80% with cost comparable to built-up wings. Many advantages to Aerobatic, Combat, Pylon, Sport, and Soaring. The SUCKER KIT provides you with a manual pump, bag material for several wings. The Show and Tell Video guides you through three of the most common types of wings, with a segment on our Gapless Hinge Kit. We feature wood veneers, kevlar, mylar, carbon fibers, video and the SUCKER KIT. Send SASE plus $1.00 for samples. Order Direct.

2ND Bi-Annual Sportsmen/Novice F3E FAI Contest: $2000 CASH PRIZES

A seven cell electric glider contest hosted by Harbor Soaring Society to be held at the Harbor Soaring Society, Costa Mesa, CA flying site, August 19 & 20, 1989. Open to U.S. resident AMA members. Not open to anyone who qualified for the U.S. AMA, FAI, F3E team selections or made the team, or 1st or 2nd place winners of first contest held August, 1987. This is to ensure only beginners, novice/sportsmen have opportunity at winning the cash prizes. Seven 1.2 AH or smaller batteries, any size glider, any size electric motor. Winning planes will be measured and weighed to assure they are within FAI, F3E rules. Send for entry or inquires to: Felix Vivas (714) 645-3263, 1800 16th Street H-310, Newport Beach, CA 92663. Entry fee: $25



League of Silent Flight
and the
South Bay Soaring Society

presents

1989 LSF SOARING-NATIONALS

DATE:	May 6, 7, 1989
PLACE:	South San Francisco Bay Area (Morgan Hill)
TIME:	8:00 AM check in 9:00 AM pilots' meeting
TASK 1:	Precision: AMA task T5 & L4 landing
TASK 2:	International Duration: AMA task T1 & L3 landing
ROUNDS:	Eight round minimum
TROPHIES:	10 places for overall placement Three places for each class (A, B, C, D, Scale) Best team Best youth
EQUIPMENT:	4 12 volt winches & ground- based line retrievers
FIELD:	15 acre flying site & 7 acres mowed grass
BANQUET:	Saturday Evening, Flying Lady Restaurant
REGISTRATION:	1 entry per pilot (1 class only) For registration materials call or send SASE to Contest Directors:

Alan Peterson
1115 Seena Avenue
Los Altos, CA 94022
(415) 941-0623

Michael Forster
30 Vista Verde Way
Portola Valley, CA 94025
(415) 851-3834

1989 LSF SOARING NATIONALS Entry Form

NAME: _____
Street: _____
City: _____ State: _____ Zip: _____
AMA Number: _____ LSF Number*: _____ NSS Number*: _____
AMA License is required! * LSF and NSS membership is not necessary.
Club Affiliation: _____
Frequency Choices: 1st _____ 2nd _____ 3rd _____
Banquet Dinner Choice: Chicken Kiev Filet Mignon (circle choice)
(Special diet requirements: _____)

General Entry Fee:	$18.00 Contest Only $36.00 Contest and Banquet
Youth Entry Fee:	$10.00 Contest Only $25.00 Contest and Banquet
Entry Fee at Contest, please add	$4.00

Make Checks Payable to South Bay Soaring Society

Mail check with application to:

Alan Peterson
1115 Seena Avenue
Los Altos, CA 94022

Contest Description:

The pilot will choose which task was flown at the conclusion of the task. Each pilot scored on the best four rounds of each task automatically by the scoring computer. All additional rounds will be thrown out. As many rounds as possible will be flown to enable contestants to improve their score.

A backup plane will be allowed only when the primary is determined to be unflyable by the CD. No frequency change will be allowed. If the backup plane is is a different class, the larger of the two planes will determine the pilot's entry classification.

Task scoring will be normalized to have the same basis. Precision (task 1) will be three minutes. International duration (task 2) will be seven minutes.

The distance from winch to turn-around is 200 meters. The pilot may choose others to launch the airplane and operate the winch. However, the pilot must operate the transmitter during the entire flight.

The flying site will be open the weekend and Friday prior to the contest for guests to fly and become familiar with the area and equipment.

Camping and motor homes are permitted on the site. Completely equipped restrooms are available for your convenience. Local motel and visitor information will be included in your contest information packet.

1989 International Scale RC Soaring
FUN FLY
MAY 26, 27, & 28, 1989

Pre-Registration Form

PRE-REGISTRATION DEADLINE APRIL 29

NAME: _____

ADDRESS: _____

CITY: _____

STATE: _____ ZIP: _____

AMA# _____ PHONE: _____

FREQUENCIES: _____ _____ _____ _____

ENTRY FEE: Includes one entry to raffle & Banquet Dinner $30.00

ADDITIONAL MODELS: QUANTITY _____ @ $5.00 ea. _____

Each additional model entered is eligible for raffle ticket

BANQUET DINNER
CLOVER ISLAND MOTOR INN
MAY 27, 1989 • 7:00 P.M.

Banquet will include entree, salad, choice of potato, choice of vegetable, roll, butter, and beverage.

Also included:
No Host Bar, Guest Speaker, Slide Presentation & Raffle

ADDITIONAL BANQUET GUESTS: Number _____ @ $18.00 ea. _____

Total $ _____

ROOM RESERVATIONS

Clover Island Inn
435 Clover Island
Kennewick, WA 99336
(800) 833-1800
(509) 586-0541

Pool
Sauna
Restaurant
Room Views on Columbia River

Special Room Rates
Single $30.00
Double . . . $35.00

★ ★ ★ ★ Please Help by Pre-Registering ★ ★ ★ ★

Sponsored by Tri-City Soarers • 632 Meadows Drive East, Richland, WA 99352 • (509) 627-5224

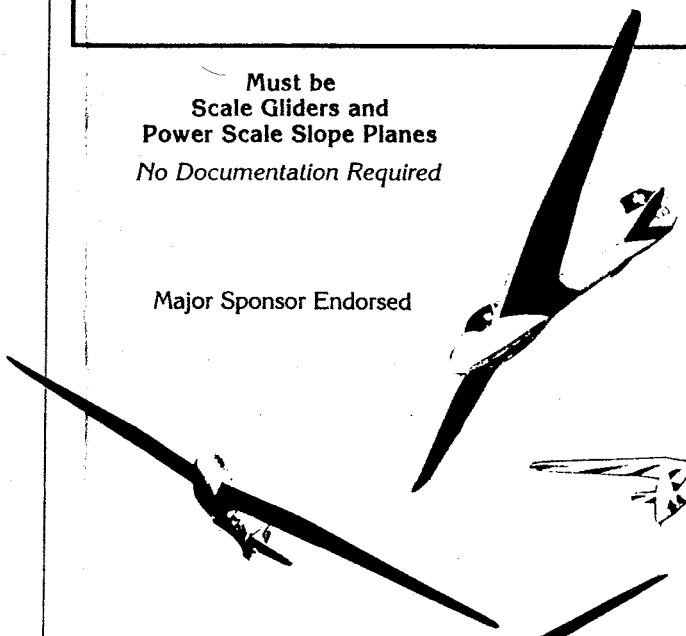
This is about FUN!

1989 International

Mid-Columbia RC Soaring Scale
FUN FLY and SOARING SOCIAL

AMA Sanctioned

MAY 26, 27, 28, 1989
TRI-CITIES, WASHINGTON, U.S.A.



Must be
Scale Gliders and
Power Scale Slope Planes

No Documentation Required

Major Sponsor Endorsed

For information contact:
Wil Byers
632 Meadows Drive East
Richland, WA 99352
USA
Phone (509) 627-5224

Contestant Fee - $30.00
- Banquet Included!!

Guest Speaker and Presentation

Additional Entries
$5.00 per plane

No Judging
No Rules
No Hassles

Only flying, looking, swapping and talking

TRICS
TRI CITY
SOARERS

AMA Membership & Participation Required
THIS IS STRICTLY A FUN FLY!!

FCC Approved 1988 Frequencies only!!
Pre-Registration Required

★ ★ ★ ★

THE GRAY AREA

Dear Jim,

I read with interest your challenge to your readers regarding F3B models, and I would like to make an entry. In fact, my entry already exists and has existed for nine years. It is the "Hustler" sailplane that I designed and built for the 1981 World Championships in Sacramento (placed 7th) and also flown in the third Two Meter World Cup (First Place).

Hustler uses a modified Sagitta 900 fuselage combined with custom designed straight-taper aileron wings. They use a few of the spar and joiner parts from the kit, along with a foam wing sheeted with 1/16" balsa. The wing is sheeted with Hi Johnson's Supertape. No vacuum-bagging or other high tech processes needed. In fact, I built four examples in my apartment in a four month period. One still remains (the other three were sold, not crashed) and I fly it actively.

The details are as follows: the airfoil was a true Eppler 205, which is still OK but I would probably replace it with a 374. Radio was standard: elevator, ailerons, spoilers, and rudder. One slight complication is that the ailerons are each driven by a separate servo, embedded in the wing. Area was 840 square inches and all-up weight was four pounds.

Perhaps there is a market for this bird. In any case, it is my entry. Let me know what you think. I have construction plans and I think I took photos during construction, so it would be easy to kit.

(signed) Best Regards, Don Edburg

P.S.: Would you be willing to mention our team fundraising efforts in your newsletter? Here are the details:

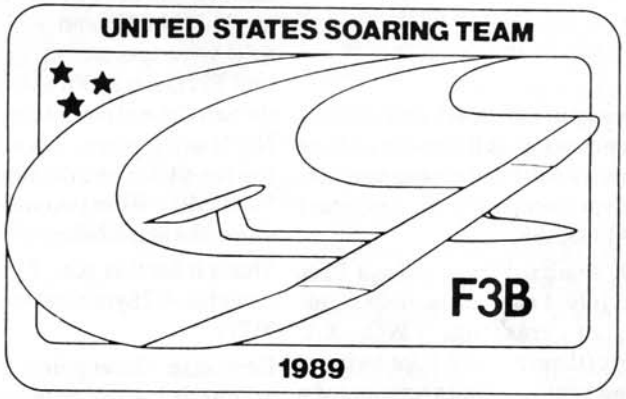
If you would like to support the U.S. F3B Team (the equivalent of the Olympic team for RC sailplanes, we (I am the 1989 Team Manager) are requesting donations for merchandise. Patches and pins are returned for a $5 donation (each). Press on decals are $2. All three may be had for $10 donation. In addition, we are holding a drawing for merchandise donated by many manufacturers, including R/C systems, kits, battery packs, and accessories. A $5 donation will get you one chance at the raffle, and there is no limit to the number of raffle donations. Please send your contributions to U.S. Soaring Team, P.O. Box 19608-489, Irvine, CA 92713.

A copy of the team logo used on patches, pins and decals is enclosed. Perhaps you'd like to donate a subscription to RCSD to the raffle?

Left to Right: Rich Tiltman, Rich Spicer, Don Edberg, Ed Devlin
Photo by Rick Palmer

PLEASE HELP THE U.S F3B SOARING TEAM WIN THE DAN PRUSS MEMORIAL TEAM TROPHY

in Paris, France
August 11 - 20, 1989



The 1989 F3B Team needs **your** support to send the team to the World Championships

Donations

$5 -- Official US F3B Team Patch OR Team Pin	$2 -- Official US F3B Team Decal	$10 -- Patch, Pin, and Decal

Model products donated to the team by the hobby industry will be distributed to contributors in a drawing to be held July 4, 1989.

Prizes for the drawing will consist of
Radio Systems • Airplane Kits
Building Supplies • Model Accessories

Make your check payable to the **US Soaring Team**
and send your donations to: P.O. Box 19608-489
Irvine, CA 92713

WITHOUT YOUR DONATIONS THE TEAM CAN'T GO

Dear Jim,

Sorry for the delay in re-upping my subscription, but I hoped to write you a letter with pix, etc. Looks like a hasty note must do.

Enclosing a rather murky picture from DONZEL one-design contest of May, 1988. SWSA club made 25 kits...ten flew this day. Contest won by 11th pilot: Dan Tatum. Mine crashed in a spectacular demonstration of how to cut 'phone wires at high speed! Plane rebuilt and doing well in 2M contests.

I'm getting ready to CD the 6th annual HLG contest (see enclosure) at Riverside on June 4th, 1989. This is a real FUN contest with lots of prizes and spectacular flights. Last year I flew a PARAPHRASE.

At TOSS 6th Annual Western Great Race (Taft, CA) in July, I earned the unenviable distinction of crashing TWO X-C craft...neither of them mine! A pilot-induced oscillation and bent wing rods terminated a certain Level V distance flight at 6 miles. Ship is now mine, and repairs were completed this week. Hopefully, I will complete Level V without any more crashed (5 to date). The other plane - Myles Moran's VYGER - was lost due to tuck and flutter on the 21-mile race course...still sorry about that Myles...

I have other projects in the works and will tell you how they come out next year! Oh yes, almost forgot: 1987 Record Flights (see pix).

The Silent Wings club established some 22 new records...and as of March, 1988 they still stand. The SWSA holds 24 of a possible 84 soaring records. It all started when I combined parts from two trashed GNOMEs into a 60" Class A version that I call IGNOMINI. It flew well and everyone wanted to fly it. In fact, we ran the battery down on its long maiden flight. "Crash" would become its middle and last names.

I set up a record trials where Junior and Senior could have some fun with my planes: the IGNOMINI and PARAPHRASE. Results were spectacular, and we had a lot of fun. Pix taken at our awesome flying site in the San Gabriel mountains. Only problem is NO landing place. It's either put it on the road or stick it into the side of the mountain. IGNOMINI spent two weeks just a bit too far down the slope before it could be rescued!

That's it for this year, I guess...(signed) Ian Douglas, 912 Syracuse Drive, Claremont, CA 91711

Response: Great going, Ian. These pix are wunnerful — jus' wunnerful. Trouble is, I haven't got the room (or the ability) to print 'em all. Readers, this was a slope distance record trials, and we're talking hundreds of laps and hours of time. Remember, too, that Juniors and Seniors are NOT adults. Nice work, Ian, and congrat's to the youngsters. JHG

Left to right: Ian Douglas, Robin Olsen with IGNOMINI, Pete Olsen with KYOSHO

♣ ♣ ♣

Readers, we aren't going to beat the subject to death, as it's been well covered in past issues, but here's final icing for the cake, so let's just let it go after Brian relates his experiences.

Ian Douglas launches IGNOMINI on record attempt. Robin Olsen as pilot.

Dieter Rozek with IGNOMINI, CD Ian Douglas and Marc Weimer with PARAPHRASE

On left: "DONZEL" One-Design Contest of May, 1988 (Silent Wings Soaring Assoc.)

Dear Jim,

I'm sitting here reading Kevin Thomas' item on page 13 of the latest SD...my fourth time through, by the way. I have absolutely no engineering background, but have had some good experience building wings with 1/8" X 1/4" spruce spars and 1/16" balsa shear webs front and rear...for my two-meter sailplanes, of course.

In 1987 I campaigned my 2-meter 'JACKPOT' flying hard in contests over a 5-state area. I zoom-launched this little ship for a whole flying season — and sometimes with 16 oz. of ballast! I really thought it would fold at any time, but it never did. Then I gave it to a friend of mine who is still abusing it - with NO problems.

The real neat part is that I never expected this ship to perform as well as it did, since I built it all out of junk! The 1/4" X 1/8" spars were definitely of the junk store variety, but I put 1/16" balsa shear webs front and rear **with a real good fit and good glue joints, and Voila!** That's the real point of this letter.

I keep reading all this discussion and test cases, and thought you might enjoy another 2 cents worth.

(signed) Just for fun, Brian Smith, WB8V, 493 17th, NW, Barberton, OH 44203

Dear Jim,

Thanks for the quick response to my last letter. It's nice to know you have the time and interest to respond; it's most appreciated.

This missile is in reference to your one-design F3B plane. Since I'm basically lazy when it comes to designing sailplanes, I'd like to recommend a design that's already available: Paul Carlson's QUASOAR, from his Off the Ground Models line. With a little tweaking, this ship/kit could be turned into an excellent entry-level F3B sailplane.

There are several reasons for choosing the QUASOAR. ***First***, it is available now, and is within the price range you suggest. I see in a recent RCM that Omni Models is selling the kit for $109.99, which is a real bargain. I paid more than that for my introductory model kit. For that money, it deserves serious consideration.

Second, it is about the right size and weight you proposed. My first design mod would be to limit the wingspan to 111 inches, which is right in the middle of the 99 to 123 inch range, and the parts are already there. (Happened to be talking to Rich Spicer recently about the concept and the plane, and he agreed that a 123" span version would be too large.) ***Next***, I would definitely add ailerons.

Third, it utilizes a fine Selig airfoil, one with a wide speed range.

Fourth, it is a new and modern design, a sharp looking airplane. He has also incorporated foam wings and CF reinforcement. There is sufficient room in the fuse for most any radio installation, yet there is some room under or in the wing for the ballast necessary during the speed runs.

I have one of the kits, which I have just started putting together. John Dvorak has been bugging me to see the kit, so I'll have to let him drool over it within the next few days. If it flies anything like the Prodigy does, it should be a very good sailplane.

Since starting this letter I have had the opportunity to go over the QUASOAR plans with John, carefully, and we would suggest the following changes for the F3B version:

- Reduce the wingspan to approx. 111 inches

- Add capability to add ballast

- Replace the supplied towhook and mount with a heavier one

- Lengthen the servo tray, filling the entire fwd. area, for strength

- Replace all balsa LE materials with spruce/bass, for durability

- Fully sheet the stabs and rudder

- Make the "optional" fiberglass tape sub-TE a must, rather than an option (could substitute 1/64" ply or CF matt strip)

- Hide rudder cable by hinging rudder on one side and moving the horn in

- Add ailerons, for better high-speed turning capability

- Put aileron servos (micros) in wing, to avoid long cumbersome linkages

- Flatten the inboard sections of the wing some, and reduce tip dihedral

For a little extra pizzazz, I may change the TE's of the tip sections, sweeping them back so all TE's are straighter. Then to go one step further, I may add the Schuemann tips that are the rage right now.

Well, Jim, what do you think? Take an existing airplane (QUASOAR), make the mods listed above, and there you have it, an entry level F3B model. The average thermal modeler with a few kits under his belt could easily make these mods himself. Also, I have written a similar letter to Paul Carlson to see if he is interested. My problem now is which version of the kit to build: stock for thermal and cross-country or the F3B version as modified above? Who knows, I could probably talk Rich into wringing it out for me! Being a little anxious and curious, I've so far made all the mods for a 111" F3B version.

Keep in touch, and let me know how the effort is coming along, and if there is anything I can do to keep the momentum going.

(signed) Sincerely, Earl Levin, 8356 Charbono Ct., San Jose, CA 95135

Response: Earl, that's a neat idea, and has real merit. As we've seen in Don Edberg's letter, HUSTLER has been suggested as the RCSD challenger. The judges haven't decided yet, and won't until all bids are in. One of the drawbacks (emotional, perhaps) is the idea of using an off-the-shelf design already in being. I had hoped for an original one-design sailplane to be developed for the challenge. However, I will admit that an off-the-shelf design does have a practical and timely appeal, so we'll leave it to the jury to decide. First, I'd like a lot more input before we begin deliberations, though. JHG

♣ ♣ ♣

Bernard Henwood, editor of the BARCS (British Association of RC Soarers) newsletter SOARER dropped me a line recently to let us know what's happening across "The Pond".

Dear Jim,

A long time since I last wrote, but I seem to have had very little time what with work and SOARER. Correspondence is not the only thing to hae been neglected. The house also needs a great deal of attention. The hall has had oddments of carpet nailed to the floor and partly plastered walls for nearly eighteen months now and the need to do something to make the place civilized is becoming rather urgent.

To make amends for not writing here are a couple of SOARERS and an SSA Newsletter. Hope you enjoy them. I have just spent a good proportion of the Christmas holiday finishing another SOARER and dispatched it to the printer this morning, so that ought to be with you in the near future.

Building and flying have suffered a bit too and it has been about five weeks since I last flew. I did manage to get in about two hours yesterday, however, which was great. We had intended to fly thermal, but the wind was on the local slope and as that was where the rest of the club was, I went, too. It was very, very light, so I flew my 136 RE Stiletto and thoroughly enjoyed myself. I always feel that the old skills will have suffered after any sort of lay of, but I suppose it is a bit like swimming. Once the model is in the air it all comes back and, at the end, I felt quite pleased with myself. The lift dropped away and most people still in the air ended up having to retrieve models from down the slope. I managed to put the Stiletto down onto a ledge next to me that was just big enough for the model. When you get it right, you feel good, which I suppose is what keeps us going.

Must finish now to drop a line to Byron.

(signed) Good flying, happy landings, Happy New Year, Bernard Henwood, 219 Highcliffe Rd., High Storrs, Sheffield, South Yorkshire, S11 7LQ

♣ ♣ ♣

Gentlemen:

The following is submitted for your "letters" feature:

It's a pity that airplane designers do not have access to the computer program referenced in the article "Flyweights VS. The Lead Sleds", as published in December issue of "Soaring Digest"! If they did, they would surely realize the mistake being made in not designing in cast iron or perhaps something more efficient such as depleted uranium. By doing so, they could take advantage of the increases in L/D, the measure of overall flight efficiency, that comes with increased weight.

This is, of course, nonsense, as are the conclusions drawn in the referenced article, and points out the already recognized concept that a little knowledge is dangerous; especially if one is going to generalize on the basis of parametric studies performed with a computer program characterized by limited scope.

...continued on page 24

The following letter from Don Winiecki offers a remarkable and thorough response to several of my questions and comments about several matters: the "Schueman" tip, the slope soaring in California from an "Easterner's" eyes, suggestions for an entry-level F3B machine, and much more. I won't bother trying to make an answer to all the items covered, so take it away, Don.

Dear Jim,

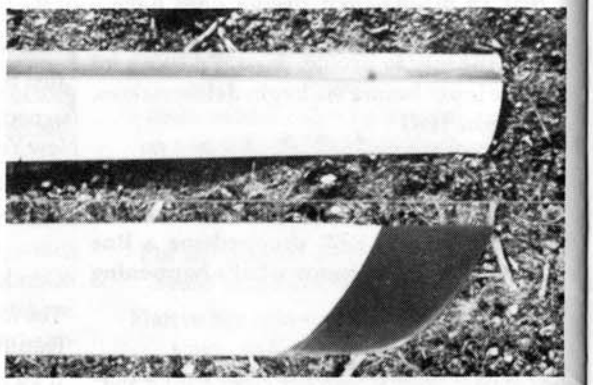
I had intended to get this out to you sooner, but in my normal procrastinations...

Many thanks for the guidance on flyers in Lodi, California! The man in Lodi admitted to not having flown in about a year but suggested I call Brad Clasen. This name was familiar! Brad was second at this year's "Western States" and his son, Steve, won the same contest last year. Now if that wasn't an opportunity to learn something!!

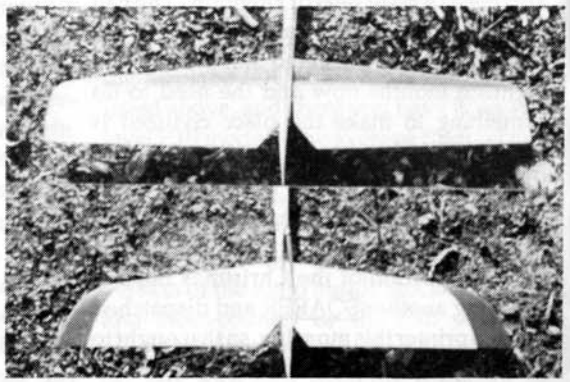
The next morning was heavy fog! But, Brad felt confident that it would soon burn off so we went out to Linden, CA (Pop. 65 & 700 cats) stopping to call another flier, Steve Callup (7th at Western States).

Brad and Steve were flying Windsongs with Brad's having some aerodynamic improvements in the wingtips and stabs (photos enclosed). The wingtips were extended 4" and curved toward trailing edge. What I think is more important than the extension though, is the fact that the ailerons are further inboard moving them out of the vortex. Brad explained that roll response was much faster and the flying speed, without reflexing the wing, was noticeably faster than stock Windsongs. He's also performed these (and other) mods on a Camano and, now, has created the Super Camano. Needless to say, I'm trying to figure out how to implement these mods on my Camano without pushing the wing into "Unlimited" span and without noticeably affecting aileron and flap area.

Flying. The first flight off the winch was Brad. I soon learned that these guys have no qualms about standing on the winch and zooming off tow! So, Brad zooms up right into the fog. The first words out of his mouth were, "Uh-Oh...!" Just enough of the plane was visible to allow limited range — but, I really don't think he was looking to climb out! He eventually got tired of it



TOP: Stock Wingtips before (Steve's);
BOTTOM: Modified Wingtips after ("Clasen's Tips")



TOP: Stock Tail; BOTTOM: Modified Tail

and got dirty (flaps and spoilers on) and came down. He was satisfied that day as, later on, he managed a 22 min. flight on nearly the shortest day of the year. He also flew a Telemaster and we had some fun with the doll he was dropping from a parachute. He also put me to shame by thermalling the dead stick Telemaster!

Steve Callup was distracted with his helicopter most of the time (He still says that it's more difficult to fly a sailplane well than to fly anything else!), but did let me fly his Windsong. Much nicer than the ones I've flown here — but, still...

Steve Clasen — 16 years old. He was flying an Adante this day and, except for the first flight (7 min.), he only wanted to go fast! Maybe it was just "off season" boredom, but this kid has the makings of a killer F3B flier.

Me and my Pivot. Well, I never got higher than the launch line (you know what I'm talking about). Maybe they were just trying to make me feel better, but they all agreed that a Pivot isn't really a good sailplane. I'm hoping that the recently completed 72" wing will help somewhat...

As it turns out, I'll probably be heading back out there in the future (for work, of course) and, by then, I hope to have the Camano finished. I have another hunting bow carrying case that is sized perfectly to that airplane so, Lodi, here I come! Strangely enough, I will probably also have to go to Pasco/Kinnewake, Washington (site of 1989 Nats and close to the Mt. Washington Scale Fly). Unfortunately, it'll probably be in January or February.

Moving on. About your "F3B for the Common Man": I realize that you're trying to initiate some new designs, but some obsolete F3B designs are still available and excellent as an entry level airplane for F3B.

The ADANTE is still available and can be built with flapperons/spoilers or with ailerons and flaps. It is heavy at 14 oz./ft². But, it flies very well at this weight.

The GEMINI MTS - 2 channel airplane is a very strong airplane. Maybe it could use a better airfoil and add flaps, but it would still be competitive at a class "B" level giving up ground only in the speed run.

The GOBBLER. Dwight Holley's world championship design is available from M.E.N., although they don't advertise it.

The CAMANO. With recent mods to the flaps, ailerons and new stab placement, this can be a very effective class "B" airplane.

Something we also need to think about — we need to introduce the potential F3B flier to the new construction methods. None of these airplanes are cutting edge technology, but will teach the flying skills necessary for competitive F3B flying.

As for teaching building methods, how...? Do we include wing molds and a vacuum bag system? Or, go to foam cores and instructions on glass lay-up? I don't know. Possibly, the best way to accomplish this is to disseminate as much information on the hows as can be fit into the modelling press. I don't subscribe to it, but "F3B USA" would be the most logical place for it as they already have the most specific audience.

So, as much as its worth, here's my opinion: (1) Establish a list of existing designs that are suitable for entry level F3B events. Include instructions on how these models can be modified with space age materials for better performance, (2) Create an NGB (National Governing Body) such as the LSF or NSS, that will host F3B type events at regional sites. (I know we don't really want another faction in our hobby, but it's the only way to guarantee good results.), (3) Promote seminars on the specialized building methods necessary. The Eastern Iowa Soaring Society has such a seminar. Possibly offer video tapes, on those methods used for Multi-task airplanes, for those interested but unable to attend. With this system, those interested can help themselves to the materials and in-

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The Gray Area

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formation they need to be competitive.

Finally, I'd like to share a personal theory with you: a smaller per capita participation in Multi-task because of a lack of strong slope soaring activity. (Yes, I know it's growing.) It seems to me that you can't practice distance and speed tasks unless you have a good slope. These events require many trials to develop the most efficient technique. A good slope would allow you to go up again and again without relaunching, allowing the flier much more practice time and freeing them from the requisite retrievers and launching equipment.

All of the fliers at the trials were from the West or Mid west where slopes are said to be more common. Jim, in Western New York, I know of one slope, and it requires a NW wind. You'll probably remember that we get a northwest wind about 10 days a year. Eight of those days are in Dec. - Feb. when you just can't stand out in 30 mph winds! To boot, it's almost 2 hours away.

No, I'm not saying it can't be done here. Jim Sonnenmien has acquired Joe Wurts' F3B trials "Comet" and is going to make a dedicated effort to be competitive. We both know he's a gifted flier and we'll see what happens. Don't leave me out, either. Remember, I've got two Adante airplanes, minimal investment, to see if I could enjoy the different style of competition. Only time will tell.

As for the issue-issue, I like the idea of a big issue occasionally, but I also look forward to the mag each month. I guess that means that I'd be willing to put out more money for the extra goodies.

That should cover all the bases for now. Talk to you soon. (signed) Don Winiecki, 161 Stewart Ave., Buffalo, NY 14211

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Two major factors are ignored, i.e., the fact that any launch system has limited impulse, and the drag of the vehicle is more than wing drag. The first factor produces a lower launch height with increasing weight. If not, we are truly doing miraculous deeds! Since duration, the thing we really want, is the integral of sink rate over the launch height, we cannot accept high sink rates as suggested.

The second factor, drag, can be divided into fuselage drag and trim drag. The fuselage drag increases with fuselage angle of attack (weight). For a stable configuration, the trim drag (horizontal tail) also increases with weight. The fuselage drag could be reduced with proper wing incidence and the trim drag could be reduced by reducing the stability margin (move the cg aft). When conditions warrant ballast (a drastic step), to maximize efficiency, it would be desirable to increase the wing incidence and reduce the amount of static longitudinal stability in the vehicle.

To do this properly, however, one would need access to wind tunnel data taken at the appropriate Reynolds No. and yet another computer program which may well open up another can of worms.

(signed) Sincerely, S. Cole, P.O. Box 2249, Jackson, WY 83001

Response: Anyone want to answer Mr. Cole's letter? JHG

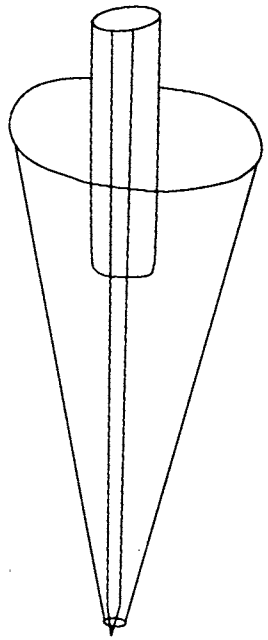
Tip of the Month

Use the plastic 'tubing' supplied for the Seal-A-Meal (c) food savers as a vacuum bag for stabs, fins, fuselages, etc. Supplied in 8 and 10 inch widths. The 10 inch size could be used for wings with chords of 8 1/2 inches or less. The brand I found, Dazey Micro-Seal, sells for $4 for a 20 foot roll. Seal one end with the machine if you have one (I use cellophane tape.) and it's ready to use. The material is 2 mil as opposed to the normally recommended 6 or 7 mil. But, I haven't had any problems with leaks.

On the Right: Tip of the Month is from the S3 (Sierra Silent Soarers) Newsletter #24, February, 1989, Jim Nelson, Editor

Doctor Fix Repair Kit

...by Myron Klingensmith



After one full season of flying it would be nice to be able to write about an accomplishment other than fixing but, since we know most about what we do the most, this article shall be on fixing. Actually, the methods described work well for initial construction as well as repairs. But, it was my insatiable repair habit that helped me put the Dr. Fix Repair Kit together.

The kit consists of C/A glue, a 35mm plastic film canister filled with baking soda, a McDonald's coffee stirrer, a 5" square piece of monokote backing, and a small phillips screw driver.

I am sure everyone is familiar with the miracle of a joint tightened by baking soda doused with C/A. If not, go break your plane right now and try it. It is great.

The stirrer and the monokote backing can be used in very creative ways to apply the baking soda to those troublesome, hard to reach repairs. The square, flat, stirrer is an ideal spoon and it can also be used for smoothing the soda where cosmetics is a consideration. The piece of monokote backing rolled into a cone and taped with scotch tape is perfect for applying the baking soda in precise amounts or in exact locations.

If the opening at the small end is too large, the baking soda flows too freely. If it is too small it can clog. If it is rolled so the phillips screw driver can plug the small end, it can be used as a valve to control the flow simply by rotating it; or, it can be used to plug it entirely.

Next season, I hope to be writing about advanced duration soaring or hysteresis simplified but, until then, happy fixing.

from The Spoiler, Journal of the Pike's Peak Soaring Society, 1325 Big Valley Drive, Colorado Springs, CO 80919, Ron Watts, Editor

Authors Anonymous

"Sniff-sniff"

That Dick loved his Sniffler 'twas clear.
It gave altitude right in his ear.
But after the splatter
"It just doesn't matter,
The sink is all I can hear."

While flying a plane he calls Willie
Said Tom "It's really not silly.
It flies smooth as cream
and lands like a dream.
I guess you could say it's a dilly."

The editor had a terrible curse,
He poked fun at his friends in a verse.
He disappeared from the scene
When they vented their spleen.
Now his body is widely dispersed.

From The S³ (Sierra Silent Soarers)
Newsletter #24 - February 1989
Jim Nelson, Editor

Tip of The Month

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