

THE VINTAGE SAILPLANE ASSOCIATION

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

For more information write:

Vintage Sailplane Association
Scott Airpark
Lovettsville, Va. 22080.

SPOILERS
LIGHTWEIGHT
LENGTH 15"
RETRACTED
HT. 6 in.

OPENS TO
1.05 in.
ABOVE WING

801 376-7805

\$16.95/pair
+ \$3.00
shipping &
handling

R. C. DESIGN & DEVELOPMENT
3051 W 8450 S WEST JORDAN, UTAH 84084



You are invited to join the
NATIONAL SOARING SOCIETY

- OFFICIAL AMA SOARING "SPECIAL INTEREST GROUP"
- YEARLY NSS SOARING TOURNAMENTS
- MONTHLY NSS SOARING "SPECIAL INTEREST GROUP"
- MONTHLY NSS SOARING "SPECIAL INTEREST GROUP"
- NSS FULLY SUPPORTED BY THE FAA SOARING TEAM & USF SOARING PROGRAM
- NSS IS INVOLVED IN THE ORGANIZATION AND OVERSEEING OF THE SOARING PORTION OF AMA RATES (INCLUDING AMAROS BANQUET)
- YEARLY DUES ARE \$12.00 (SPECIAL FAMILY RATES)
- NSS OFFICERS ARE FROM ALL 11 DISTRICTS

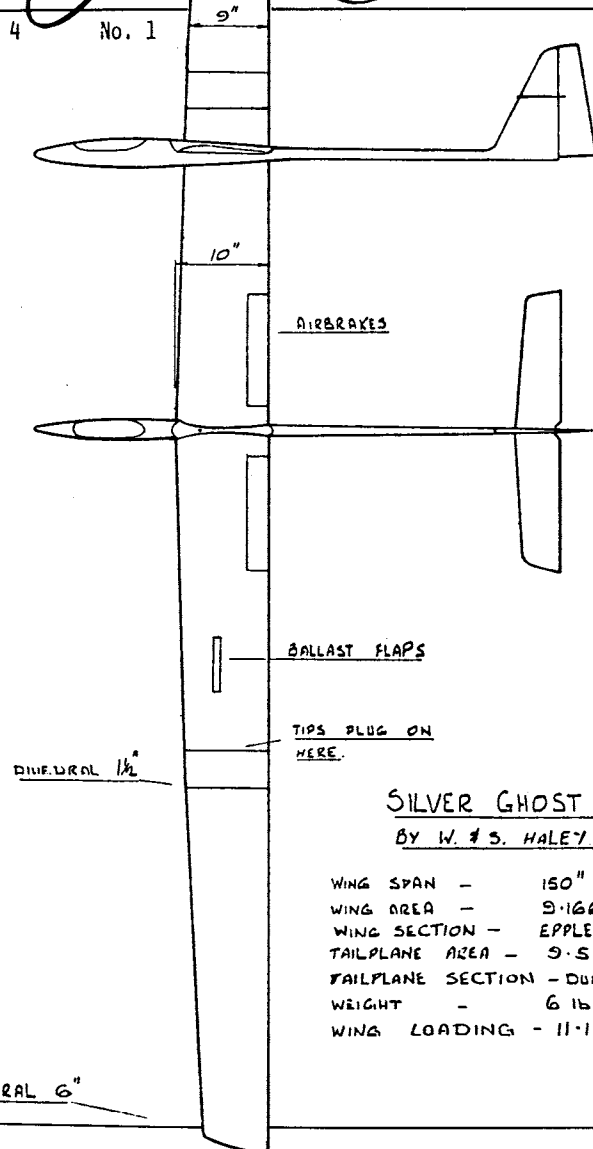
For information Contact
NSS Secretary/Treasurer
R. L. DEK CROWLEY
Rt. 1, Box 8004
Aptn, CO 80044



Vol. 4

No. 1

JANUARY 1987



SILVER GHOST IV

BY W. S. HALEY

WING SPAN - 150"
WING AREA - 9.166 ft²
WING SECTION - EPPLER 193.
TAILPLANE AREA - 9.5%
TAILPLANE SECTION - DUNLOP GREEN FLASH.
WEIGHT - 6 lb - 6 oz
WING LOADING - 11.18 oz/ft²

DIHEDRAL 6"

RC Soaring Digest
P.O. Box 269
Peterborough, NH 03458

Bulk Rate
POSTAGE PAID
PERMIT # 69
PETERBOROUGH, NH 03458

ADDRESS CORRECTION REQUESTED
FORWARDING POSTAGE GUARANTEED

©1987 RC Soaring Digest. Printed monthly; twelve issues per year. Edited and published by James H. Gray, 28 East Hill Road, P.O. Box 269, Peterborough, NH 03458. Telephone number (603) 924-6759. Subscriptions \$16 per year in the USA; \$20 (US)/year in Canada and Mexico; and \$24 (US)/year elsewhere via airmail. All rights reserved. Reproduction with permission of the publisher is permitted. RC Soaring Digest, Radio Control Soaring Digest, and RCSD are registered names.

HI START

This issue begins the fourth year of publication for RCSD. You will find some interesting contents, including some reports of kit sailplanes by their builder-pilots, plus a lot of other information that might be interesting and/or helpful whether you are a veteran or a beginner in soaring. I think the winch article is particularly appropriate because it represents a simple, low-cost approach to building your own launching device. Many readers have written to me asking for winch details, and I can thank Rich Hallett for his timely contribution. You'll notice that he hasn't provided a schematic, and I don't believe that one is necessary, as the photos and text seem to be all the description needed. But, if you feel that one is required, let me know and I'll do my best to have Rich draw one for us.

As usual, the M.A.R.C.S. Symposium on soaring was a big success, and attendance was even better than the previous three-years' records. This is getting to be THE technical event of the year, and one of these times I'm going to be there! Thanks to those who were, we can share some of the highlights. The Proceedings will be available sometime later, and we'll tell you where to get your copies.

The whimsical, tongue-in-cheek article about the DLIF will amuse you, but be sure not to ignore the underlying message. Let me know if you want more of this kind of thing in future issues.

Bob Champine's revelations about how he improved an already great sailplane by adapting it to his particular needs will give us an insight into what we might be able to do on our own...and how to go about it.

You'll notice that there are frequent contributors who appear once more in this issue - Ty Sawyer being one. He's doing an article for us on his "improved" Prodigy, a straight-wing version with ailerons that performs unbelievably well, and has to be seen to be believed. I've asked Ty to have this article ready for next month. Meanwhile, he's done a neat hint on Tee Tail design and execution.

Eric Jackson modestly reports on the new SUNRISE 66 hand-launched sailplane. What he doesn't say is the fact that he has won about everything in sight in the hand-launch category with this tiny bird. For those who like good things in small packages, this article hits the spot.

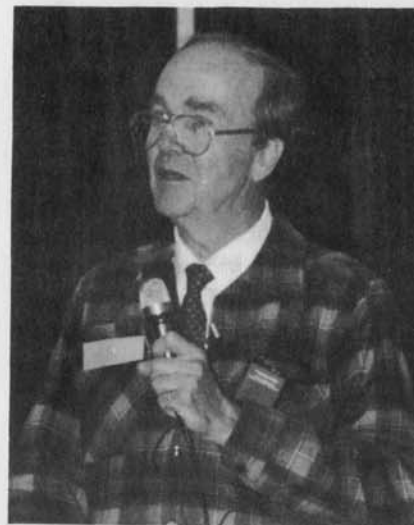
As usual, there are sources listed to help you find some of the things that you're looking for...and also a Readers' Need item. For those of you who may be new to RCSD, write in your questions and sources that you've found - and share them with the rest of us.

The odorless fibreglassing hint from the LISF newsletter has helped me, along with others. I think you'll like it and use it.

Bill Pettigrew's article about the Airtronics CUMIC will be of interest to anyone who contemplates buying one, or anyone who is thinking about what modifications might be worthwhile.

RCSD is YOUR journal. Use it with best wishes and luck...and Happy Soaring, 1987!

JIM



Dr. Carl Mohs opens the symposium by welcoming the audience



Dr. Walt Good recounts the history of R/C soaring

M.A.R.C.S. SOARING SYMPOSIUM.....Lee Murray

The fourth annual MARCS National Soaring Symposium did not fail to meet the expectations of those in attendance, as there seemed to be something for everyone. The first talk by Walt Good was about the first recorded R/C sailplane flight, believed to have been made in 1936 by Lippisch in a contest sponsored by pre-war Germany. The details were well researched, put into historical perspective and presented in an interesting and entertaining talk.

Bob Sealy presented an overview of the 1986 US F3b Team Selection Finals for which he was CD...and accompanied his talk with slides taken of the event. John Grigg and Terry Edmonds led a general discussion of where F3b was going and what factors might generate more support in the US for F3b competition events. The consensus I detected was that F3b competition required more expense and team support (than other types of soaring events)... available to only a few modelers in larger clubs. John Grigg solicited comments on several proposed rules changes now under consideration, including the "weak link" and "builder-of-the-model" rules.

Jeff Troy, Cal Posthuma, and Bob Sealy covered recommendations for conducting successful contests. Jeff was the CD for the 1985 and 1986 soaring events at the AMA Nationals, and Bob Sealy (see above) was CD for the US F3b team selection finals.

Peter Waters and Warren Plohr gave an excellent update on the implementation status of the new FCC-allotted R/C frequencies. In general, interference is no more of a problem today than it was before the changes were instituted. However, the situation will change with the introduction of the frequencies from CH 12 to 38 in January 1988. The US relies heavily on off-shore suppliers of

MARCS (continued)-

R/C equipment to insure compliance, and while transmitter technology has advanced to allow closer spacing between channels, receiver technology has not kept pace. Essentially, no equipment on the market now is capable of assuring non-interference between radios having the mandated 1991 (20-KHz) spacing. ACE Manufacturing does have a design which will work, and the panel proposed a few tests you can make with your own equipment to see if it is safe for the 40-KHz spacing to be introduced in January 1988. At that time it will be ILLEGAL to use the present white-plus-color frequencies. Whereas it used to be an advantage to have a receiver with a wide bandwidth to accommodate shifts of tuning with age, this former advantage will now hurt you when you try to fly with modelers using an adjacent channel.

The new frequency flag format was defined (to be implemented in January 1988): A CHANNEL NUMBER PLACQUE WITH 2"-HIGH BLACK NUMBERS ON A WHITE BACKGROUND WILL BE ATTACHED TO THE ANTENNA BASE, AND A SINGLE-COLOR FLAG WILL BE ATTACHED TO THE TIP OF THE ANTENNA. A red streamer would represent aircraft frequencies, and a yellow streamer would designate surface frequencies. Red and yellow identification labels will be furnished by the manufacturers for the purpose of showing hobby shop owners and customers where each must be used.

Joe Wurts gives details of foam wings. making foberglass-covered



Tom Brightbill talks about complex control mixing



Maynard Hill discussed several of his record-setting flights and the electrostatic stabilizers which made the records possible. The serendipitous discovery and development of the electrostatic stabilizers made for an excellent talk that was both interesting and educational.

The evening program at the (optional) dinner meeting was a talk given by Oliver Smithies from the University of Wisconsin who shared the details of his soaring adventures in achieving levels of accomplishment for distance and duration in full-scale soaring.

These included riding the Rocky Mountain wave in Colorado to 30,000 feet and enduring the -60 degree F. temperature and a frosted-over canopy.

Following the table clinics where participants could "show and tell", Gary Tschautcher and Willy Pfister (both German-born) shared interesting information found in the German literature about model soaring. Gary presented information about selecting the correct wings - best choices being dependent upon the criteria selected. High performance favored by 3M wings having an aspect ratio between 15 and 20. Wind tunnel data was best, but Eppler, theoretical data appeared to be reliable. Willie presented comparative strength data for foam wings of different skinning technology. Blue foam provided significantly improved flexural strength with a minimal weight gain. Reinforcement fibers applied at 45 degrees were also quite valuable. Strengthening the leading edge insured that wing flexing under load would not result in a twisting of the wing to higher angles of attack.

Tom Brightbill shared his experiences in flying more sophisticated models with functions such as flaperons, coupled flaps & elevator, coupled ailerons & rudder, etc. Recommendations for getting the best performance from the Dodgson WINDSONG were offered.

Joe Wurts gave an excellent talk on vacuum-bag wing construction with illustrative slides and hand-outs detailing the technique. Joe points out the advantages of the resultant wings as being: higher efficiency, better Cl max., lower Cd, and stronger, simplified construction.

Jeff Troy said it all by saying: "There was enough soaring information in that room over the two days to keep this hobby going for another fifty years!"

AIRTRONICS CUMIC.....Bill Pettigrew

(Editor's Note: Once again we thank the Montreal Area Thermal Soarers Newsletter for this interesting evaluation of an interesting sailplane that we've all heard about and seen...but few have flown...JHG.)

"When I completed LSF Level 4 with my F3b ships and began to consider the fact that in order to complete Level 5 I would require three wins and several thousand competition points, I began to take my next Standard Class ship a little more seriously. Firmly believing in the old adage 'if you have to beat them, join them', I decided that the sensible thing to do was build a classic North American contest-proven polyhedral kit design.

"The only 100" kits that seemed to have proven contest potential were the Sagitta and the Gemini. Of the two, I preferred the layout and engineering of the Gemini, while I thought the E205 profile of the Sagitta was preferable to Mike Bame's sections. What was needed, I thought, was what I considered the best of both. ERGO,

CUMIC (Continued):

the new Airtronics CUMIC (and besides, I had just won a 50% discount coupon from Airtronics at our contest!) I sent for the CUMIC and it arrived about three or four weeks later.

"The first thing I noticed when opening the kit was a little plastic bag with a message and a 3/8" ply central shear web inside. The note said 'replace the 3/8" balsa shear web with this'. I wondered how many they had lost on zoom launches before they went back to the drawing board.

"Overall, the kit quality was very good and typically Airtronics; good plans and instruction booklet, good die cutting - both balsa and ply parts - good if heavy wood, and in this case an excellent fiberglass fuselage. If there is one weakness about the kit, it is Airtronics' over-optimistic estimate of the finished wing loading. The original kit label offered 7.45 ounces per square foot; a more recent kit label I notice has been revised to 8.1. Both of these are wildly optimistic in my opinion, given the weight of the glass fuselage, wing wires, and wooden components. Simply stated, mine finished out at about 10 oz. per square foot. Had I replaced the wood in the tail group, etc., etc., I might have saved up to six ounces total, or about one ounce per square foot.

"In Airtronics favour is the fact that I used a pair of Multiplex aluminium spoilers which added about two extra ounces over the kit components.

"The natural comparison is with CUMIC'S sister ship, the Sagitta. I haven't built one, but I have seen plenty of them fly. I doubt that there is much (difference) between the two models in practise, although I am sure that the stock Sagitta can be built lighter.

"The CUMIC flies well and it has a very good speed range. Like most Eppler 205-winged ships, it has the ability to 'step out' quickly when given the nudge, but it is difficult to slow right down and hang on the stall.

"It is a good design in aerodynamics and a good kit. It is extremely easy to set up on the field: two wire tip pins, some tape, tighten the central hold-down bolt, and you are in business. Would I buy or build another one? Yes!

"Would I make changes? ...You bet!

1. Replace all the tail group wood with 4-to 6-pound stock;
2. Replace the 1/8" stab wire with 3/32" diameter wire;
3. Use balsa or cables for (actuating) controls;
4. Use a built-up vertical fin instead of the balsa one provided;
5. Build the wing in two pieces with a single central joiner and then bolt both halves to the fuselage - thus eliminating a lot of weight from each wing tip.

"Even without these personal mods I believe the CUMIC would be an almost perfect Standard Class model for North American events if
4 it could be brought in around the manufacturer's suggested wing

loadings. I got one second win with it at this year's Ottawa contest, and my LSF eight-hour slope flight, so I am just getting started on my LSF Level 5.!"

--oooOoooo--

SUNRISE 66 - HLG.....pilot report.....Eric Jackson*

I've been a handlaunch "nut" since my early days when I would toss my vee-tailed CHINOOK 100" and chase thermals in the cool Alaskan air. Every sailplane I've owned since has not escaped without being 'skyed out' many times, and these include a Bird of Time, a 111" Cumana, oodles of 2-meter ships, and - yes - my beloved Windsong. I admit it guys, I'm hooked!

The smaller varieties of 'real' hand-launched planes were never my cup of tea. They were either too light to penetrate, too fragile, wallowing sows with wings, or any combination of the above. These would describe my experiences with my 'gas bag brethren' - until now.

Fellow club member Craig Robinson designed and kitted a cute little sailplane called the SUNRISE. In his capable hands it flew marvelously well; in fact, magically at times. Now, in all honesty I have to admit that I was skeptical."It looked flimsy, prob'ly fold a wing... etc.," all these things ran through my mind, so I dismissed it from my list of airplanes to be built.

Less than six weeks later, disaster struck: you guessed it; the Ol' Man got one! Being the concerned and caring son that I am, I volunteered (free of charge) the use of my arm and thumbs to my dad...to make sure his plane flew properly (of course...ahem)! Gawd, did it ever fly! To say I was impressed is putting it lightly (pun). I became an instant victim of the "I gotta have one" syndrome.

A long session of begging convinced Craig to sell me a kit. Tearing into it, I found the packaging excellent. The long wood was held together with small rubber bands, and the miscellaneous hardware pieces were contained in a small plastic bag. The plans are rolled and, while not tremendously detailed, are more than adequate for this type of bird. An instruction booklet is included and has a small section on flying, as well as some covering tips for the undercambered wing. The design is well thought out and produces a ship that is plenty strong all over without being too heavy. The best part of the kit is the wood...every piece matched and every part machined from the proper density and grain type...and all fit together perfectly. It was a treat to build it.

The wing is a one-piece affair of "D-tube" construction. Ribs are 1/16" and sheeting is 1/32". No capstrips are used. The wing is bolted on to the fuselage just behind the spar: real strong.

The fuselage is made from sheet balsa with a balsa nose block and hatch. The three formers are made from 1/32" plywood. I chose not to cut the finger hole in mine, since I've found they add a lot of drag and really don't allow me to throw the sailplane any higher than I can without them.

Tail feathers are stick-built out of 3/32" stock in the standard truss fashion; light and strong. Covering was Monokote^R, yellow &

SUNRISE (Continued)

transparent blue with striping tape/turbulator strip between the two colors on top, but not on the bottom. It works!

Flying performance stinks....just kidding!!! From launch to landing it is pure fun. Launches are high. How high? Well, mine average about 50 feet, and I find the best launches are accomplished by throwing it at a 30- or 40-degree angle as hard as you care to throw. About ten feet after release the SUNRISE magically rotates to an almost vertical climb. At the top of the launch just knock it over with some down elevator. Practice will help avoid a stall. After transitioning to level flight the hunt is on. When a bit of "air" is encountered, SUNRISE will start to bob and wiggle - you know, it gets "light"; seeming to sniff at a thermal, trying to help you core it. Control response is fast and predictable, with no nasty habits. From past experience I've found it does little good to trim any plane for minimum sink if it's going to be used for hand launching. Personally, I throw away the instructions, reduce the decalage, move the c.g. back, and use one click of "up" trim from the best L/D setting. I won't get into my personal philosophy of hand-launch flying (awww, heck... JHG) but this technique works for me on anything from a SUNRISE to a Windsong...but set your plane for your own flying style if you have any doubts.

Properly trimmed, SUNRISE is a gas to fly. Besides its thermalling ability it does alright on the slope. In 5 - 10 mph winds it is smooth and predictable. Loops, rolls, hammerheads, spins - are all accomplished with ease. Inverted flight is also no problem. Light air is where the SUNRISE really shines (pun? Ouch!). After launch, I strain to see the slightest wiggle as she glides by. I put myself into the cockpit, trying to feel what I'm flying through. A hint of movement at a wingtip...looks bouyant...a little rudder...now the nose is bobbing... more rudder...a touch of up...ooh, yeah! The tail is coming up now, I'm on 'step' and quickly tighten the turn and bring the airspeed up some more. My "variometer" shows a definite, positive rate of climb; a couple more turns and this one is gonna go the distance! Man, the thrill of grabbing a bubble right on the deck and riding it out of sight is one that you have to experience. I've described the first 10 seconds of a flight; the rest is even better!

For those of you who have ignored HL, you're missing a new challenge; or, if you're just looking for some relaxing flying in a school yard, give this a try. You will love HL flying, and I know you'll get many happy hours of enjoyment from your SUNRISE. Good lift!

SPECS: Span: 66-3/4"; Area: 443 Sq. In.; Wt.: 11 - 13 Oz.; Air-foil: Eppler 387; Radio: micro-servos, receiver & 225 mah battery. Available from Performance Designs, 2105 S.E. 85th Avenue, Portland, OR 97216.

* If you'd like to write to Eric Jackson about the SUNRISE, his address is 4916 S.W. 56th, #108, Portland, OR 97221

P.S.: The SUNRISE will come back upwind fairly well if you let it

drift with the wind...provided the wind is no more than 10 mph. or so. Not making it back is what keeps it challenging, not to mention the exercize potential. I get LOTS of exercize by the way!

GOOD NEWSkit supplier variety.....J.Lee Smith

(Editor's note: J. Lee Smith wrote extensively about aero towing model sailplanes in England a few issues back. He has now returned from England to Canada after an absence of six months, and has offered an article about slope soaring there. Meanwhile, he announces that he will represent SAILPLANES INTERNATIONAL in his "spare" time from his regular job as Instrument Flight Check Pilot for the Canadian Government. JHG)

"Dear Jim:

...I have concluded an arrangement with Sailplanes International whereby I am representing their products in the US & Canada. What is the situation on doing/supplying kit reviews? Last, but certainly not least, is the fact that I now have about an hour and a half of Beta or VHS format videotape on aerotowing techniques in the U.K. Copies of this amateur film/tape are available through me for about \$20 Canadian (or \$12 US). Although 'homebrew', the information is very good...and seeing the 1/3-and 1/4-scale machines doing their thing is fabulous! More info soon. (signed) J. Lee Smith."

The SAILPLANES INTERNATIONAL address is: 15 Ravenhill Road, Winnipeg, Manitoba, Canada R2K 3K4. Telephone: (204) 663-3387.

ODORLESS FIBERGLASSINGRobert Tesco

(Editor's Note: The following information is taken with thanks from the Long Island Silent Flyer newsletter, edited by Paul Bell).

By using this method, you can fiberglass a fuse or any other part quickly and easily, and your family will love you for the lack of smell. Materials include 3/4-ounce glass cloth, a can of Robart 007 sparay adhesive, 30-minute epoxy, and non-scented rubbing alcohol.

After the final sanding of the fuselage, cut two pieces of cloth, one for each side, extending from the middle of the top to the middle of the bottom. If the fin is part of the fuselage, then include this in the pieces. Take one side of the fuse and VERY LIGHTLY spray a mist coat of Robart 007. I hold the can at least 18 inches from the fuselage. Wait five minutes and lay the fuselage, or whatever, non-sprayed side down. Gently lay the cloth on the top side. The cloth will stick, but can be lifted to work out any bubbles that occur. Trim the cloth along the center of the top and bottom and around the center of the fin leading and trailing edges. The cloth will not move, and the fuse can be handled lightly. Repeat the entire process for the other side, trimming the cloth to match the edge of the first side.

When all of the cloth is smooth and bubble-free, mix up a batch of 30-minute epoxy in a cup and then thin this mixture with rubbing alcohol, a little at a time, until it is brushing consistency -

FIBERGLASSING (Continued)

about like paint. Apply this mixture to the entire fuse, like paint, with a soft, one-inch brush. The brush can be cleaned later in alcohol, but before the epoxy begins to set up. Do not gob it on, just use enough to wet the cloth well. The entire project up to this point should have taken about one to one-and-a-half hours.

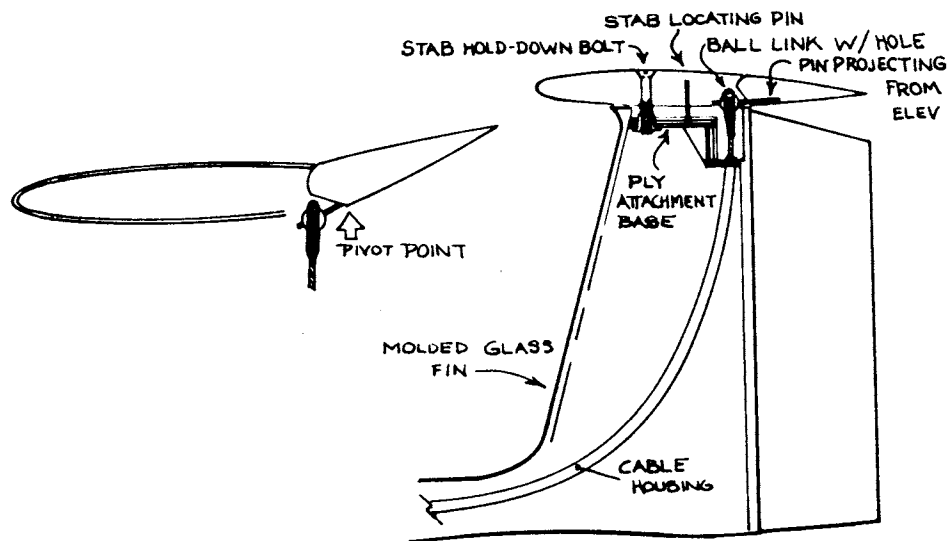
At this point, let the fuse dry for 24 hours and then lightly sand with #400 paper. Then, I apply two coats of Hobby Poxu filler #H90 with a brush, and without sanding between the coats. When the first coat dries you will be able to see the spots that you missed. After the second coat is dry, sand down to the cloth with #320 wet or dry sandpaper. Then prime and paint as you wish with your favorite method.

I think that if you try this method, you'll like it for its relative convenience, and the rest of your family will love you for being able to stay at home.

--oooO00ooo--

TY'S TEE TAIL.....Tyson Sawyer

I've wanted a good tee-tail attachment method for a new design that I'm building, so came up with this idea which may be of interest to others. It appears to have the advantages of light weight, simplicity and strength. The "key" is the use of a ball link with center hole that fits over a pin projecting from the elevator leading edge. To install the tailplane, all you have to do is tilt it enough for the pin to engage the hole in the ball, then position it by the locating pin to fit in the base, and then bolt it down. Neat, simple and fast. You can change the stabilizer incidence angle by shimming under the bolt.

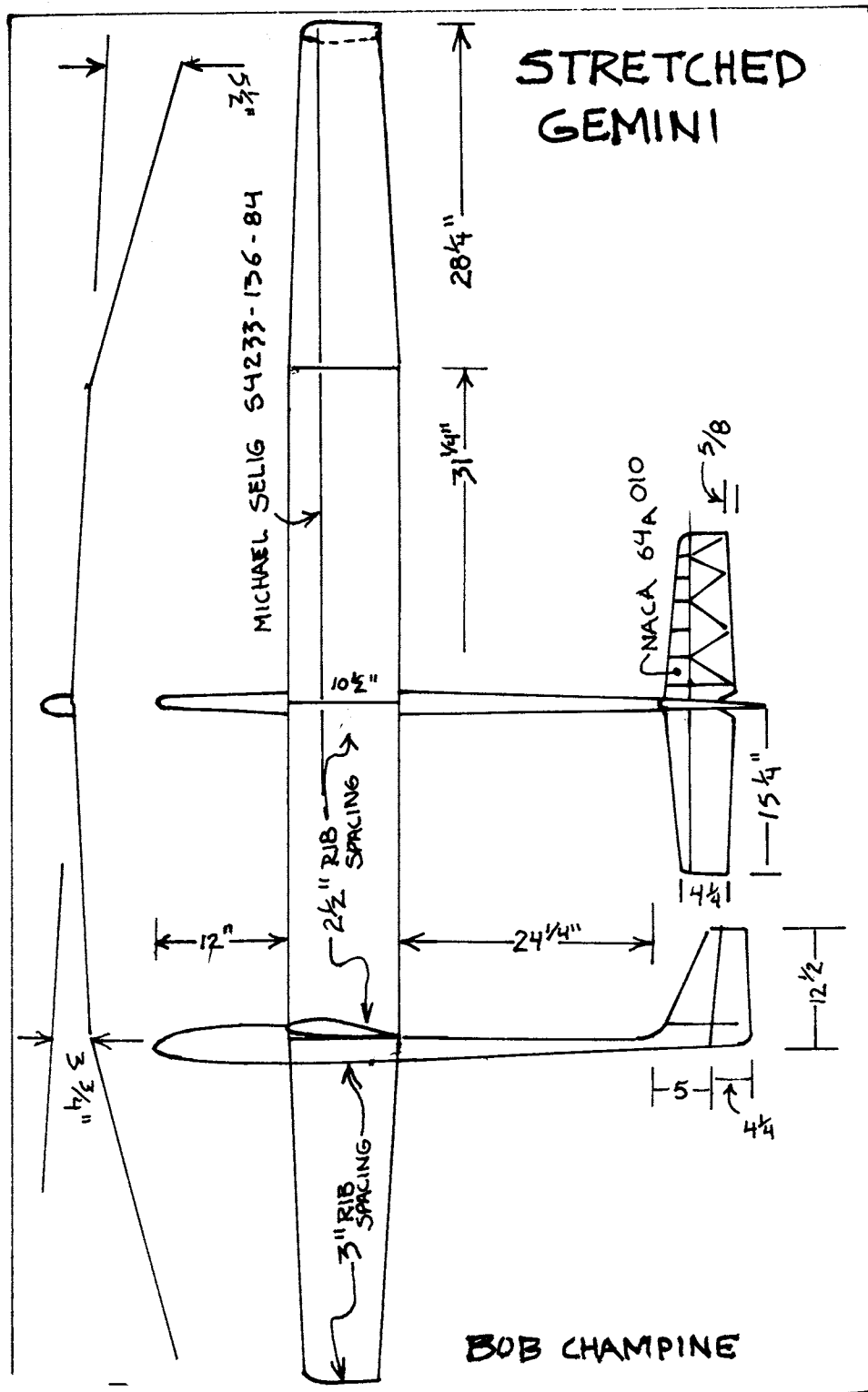


STRETCHED GEMINI.....Bob Champine*

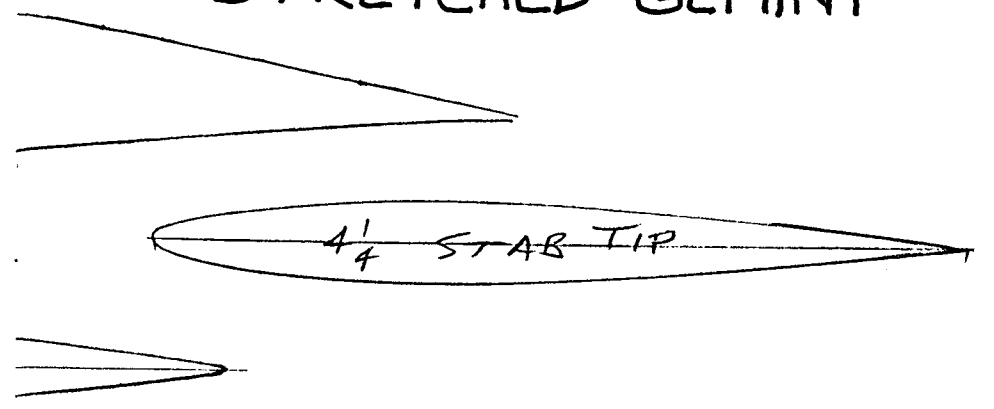
My attention has been directed toward finding a design that would be a good 'fair weather' model for AMA-type contest tasks (thermal duration with landing points). As you might surmise, it's sort of a PARAGON, but I call it a stretched GEMINI MTS. I completed it last winter and have been flying it all summer in contests and for LSF tasks. Right from the start its performance seemed good to me, and - with ballast - it was pretty good under windy conditions. The first one had a chord of 10-1/8" but I increased it to 10 1/2" after getting the word from a NASA airfoil scientist that the TE should be sharp and slightly cusped. So, by extending the basic chord a little at the trailing edge, the proper shape was attained. This is why (on the sketch) there are two airfoils for the root...one shows 10-1/8" and the other shows 10 1/2". I used the SELIG 4233 airfoil for which more information may be obtained from Herk Stokely's Soartech III (write to 1504 Horseshoe Circle, Virginia Beach, VA 23451...JHG). The wings were stretched as shown in the drawing. I did the fuselage by tracing the kit plan around the wing mount area, and then moved the tracing paper forward 2" and drew the nose section. After connecting the nose section to the wing root area by faired lines, I moved the tracing paper aft 4" from the original wing mount area and drew the rudder area; again connecting it with faired lines to the wing mounting area. I also increased the stab and rudder size as shown. Anyway, the sink-rate performance is outstanding and is particularly noticeable on calm days with no thermals...and it will really do better than Gentle Lady or Paragon type sailplanes. Right now, I'm finishing up a second stretched GEMINI because it's my best sailplane so far; having completed my 6 1/2-mile goal & return, my 4-hour slope duration, and several Level V contest points with this model. I'll be glad to write more about this sailplane if anyone is interested.

(Note: I think many of us will be encouraged by your results, Bob, so expect some letters and fan mail. In case anyone wants to write to you direct, I'll give them your address below...JHG).

* 205 Tipton Road, Newport News, VA 23606. Telephone: 804-595-0997



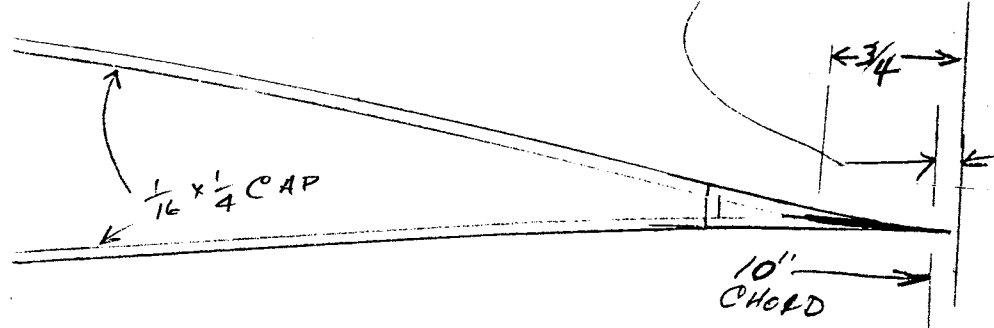
STRETCHED GEMINI



ER 1/4 x 12 5/8 (1/4 or 3/16 taper to 1/16)

1/8 x 1/2 Balsa (firm)
CENTER SECTION ONLY

PLASTIC -
.015 MYLAR -
OVERHANG 1/8"



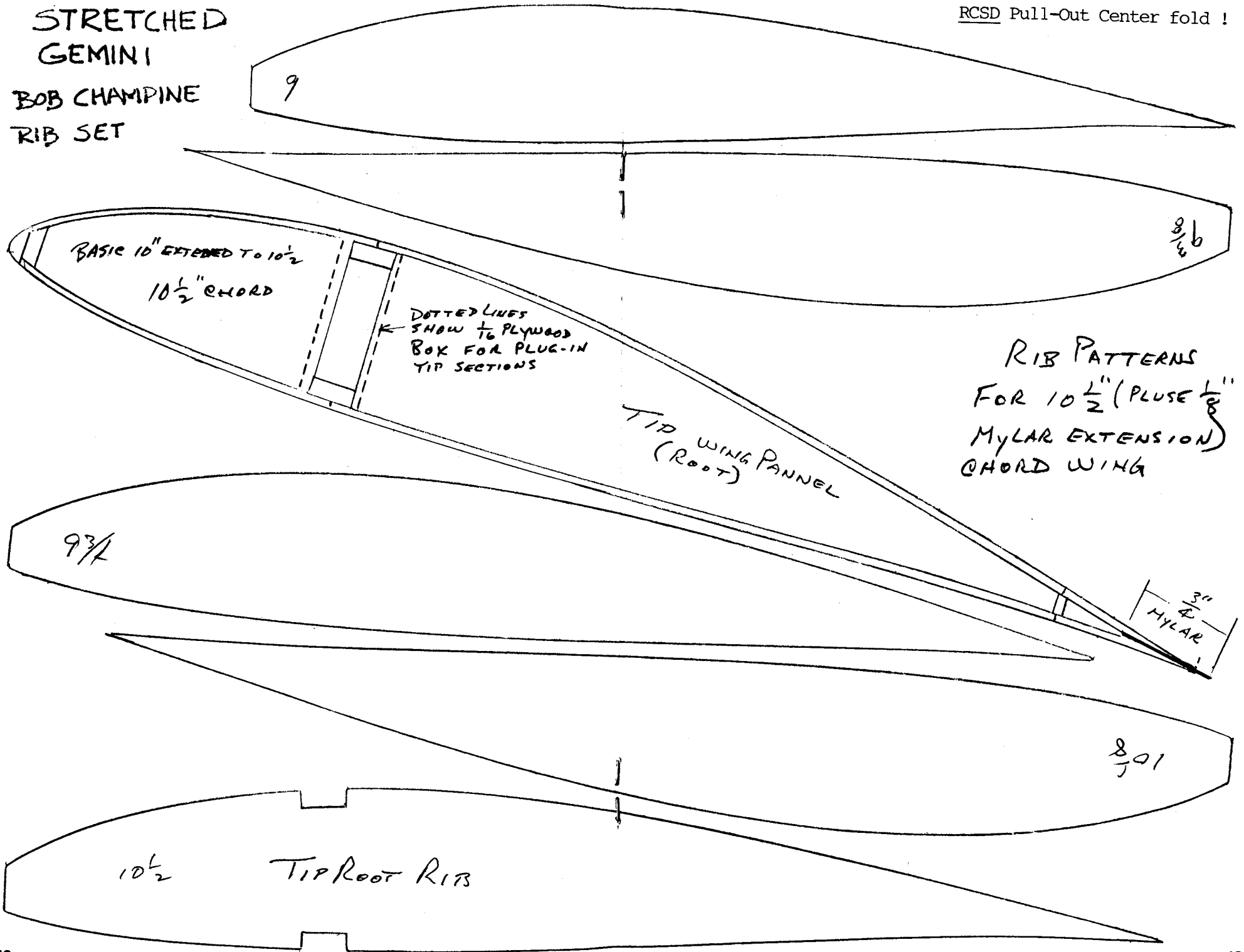
1/16 x 1/4 CAPS

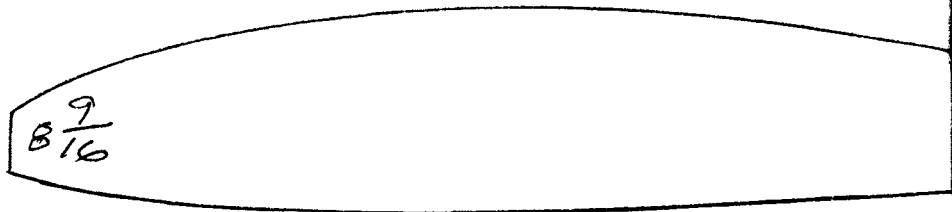
7" RIB 7" chord

STRETCHED
GEMINI

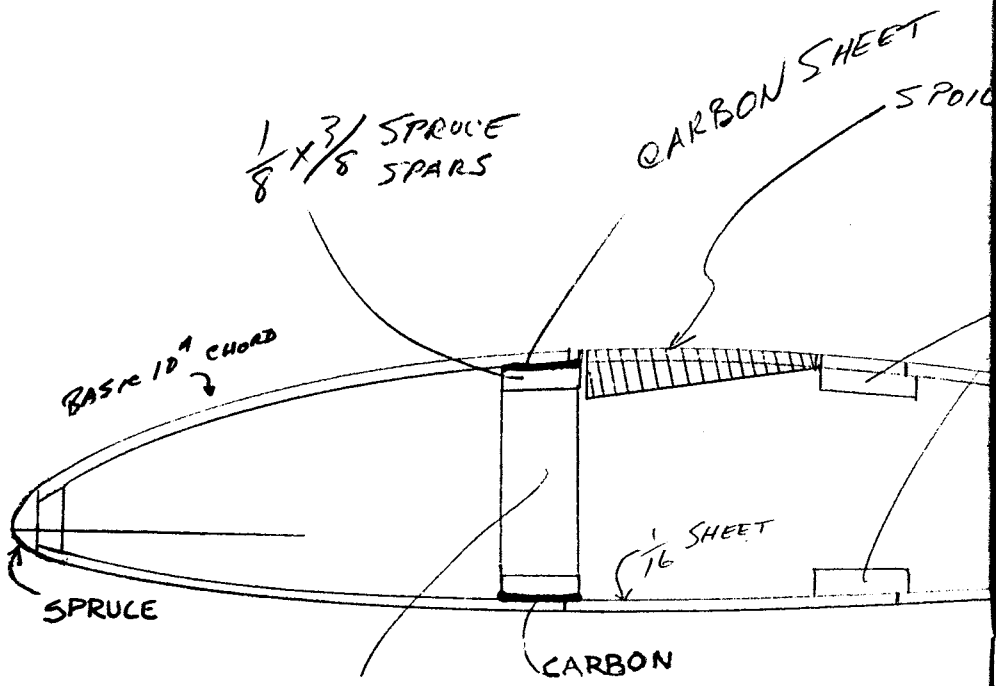
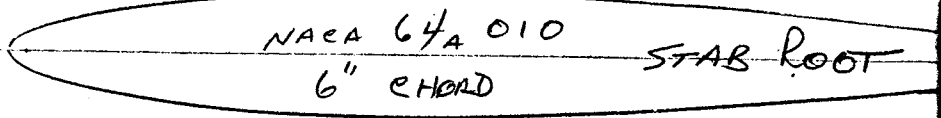
BOB CHAMPINE
RIB SET

RCSD Pull-Out Center fold !



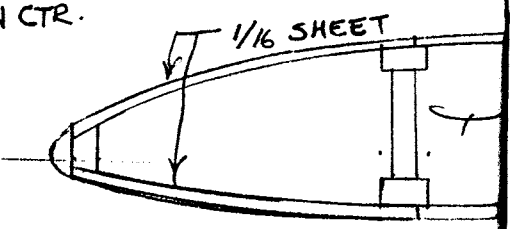


LAMINAR FLOW AIRFOIL

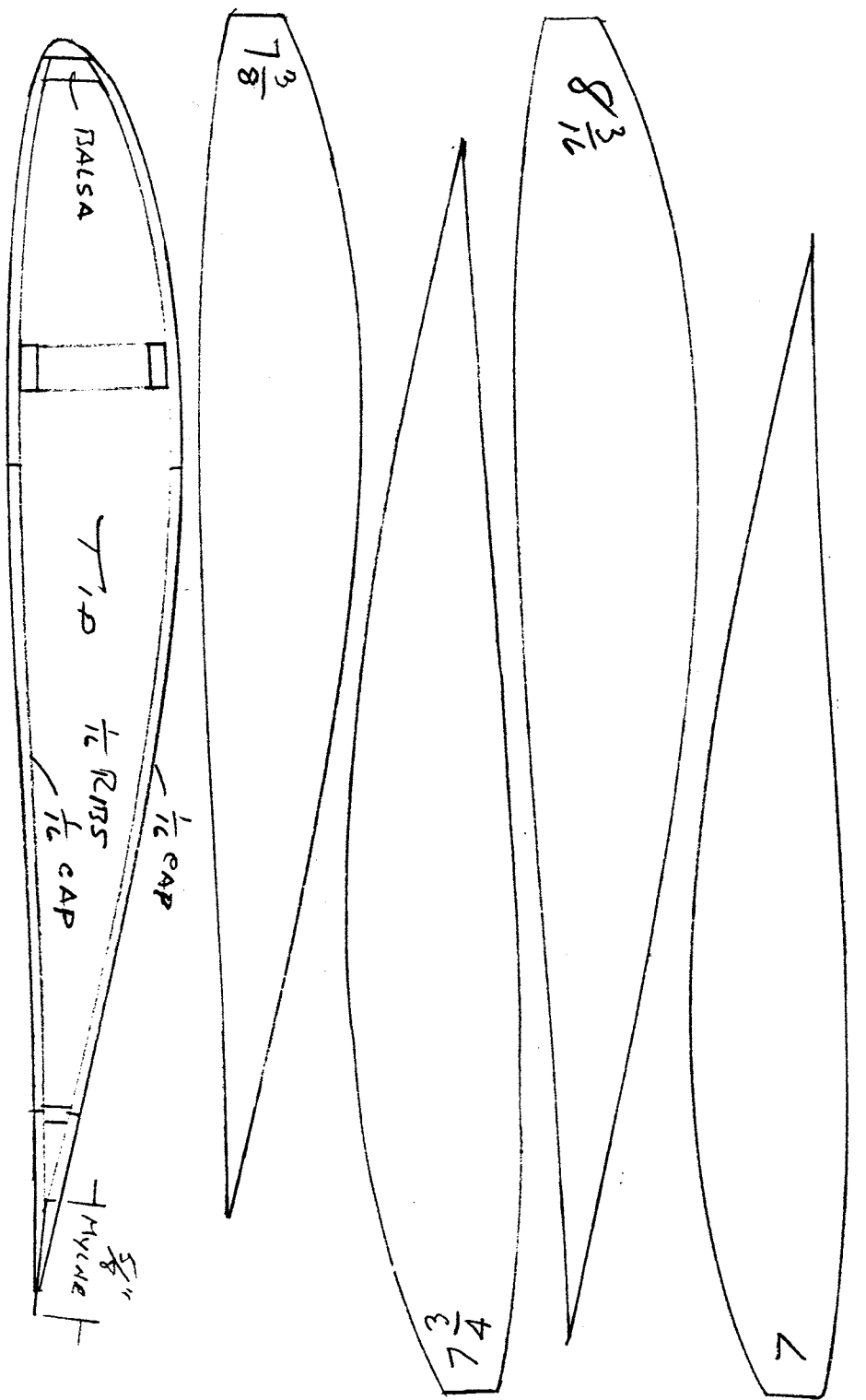


BASK 10" CHORD

3/8 SHEAR WEB IN CENTER SECTION - HARD Balsa IN CTR. SOFTER T'WARD TIPS



BAS CHAMPINE
7/2/86



READERS' NEED:

Tom Gressman is looking for a Bob Smith SUNDANCER II kit. If you have one, or know where one can be found, call Tom at: (414)567-1357 after 7PM Central Standard Time, or (414)781-2560 during business hours.

Dean Craig wants a Scott Metze TEMPEST kit, or even a fuselage. He'd also like to know the address of Victor (Ken) Stuhr from Coeur D'Alene, Idaho. Ken was producing the pivot wing kits at one time, and Craig would like to have one of them.

SOARCES:

If you have noticed the RCSD data base in the past two issues, you may be interested in obtaining this information on diskette. Lee Murray has an APPLEWORKS disk with the data base for \$5.00 He says that the information exceeds what we printed in hard copy, and that includes the following information for REFERENCES and SOURCES: Lee Murray, 1300 Bay Ridge Rd., Appleton, WI 54915

File: RCSD.REFERENCES
VOLUME: 3
NO: 11
DATE: Nov 86
PAGE: 6

Telephone:414-731-4848

CONTRIBUTOR: Jackson, Eric
KEY WORDS: Kit Review, HLG
D1: Flight performance of Sunrise 66 is rated very high by Eric.
D2: 66.75" span 443 sq. inches. 11-13 oz. Cost is \$34.

Kit by Performance Designs

File: SOURCES.RCSD
Name: Winning Image Plaques
Key Words:- Soaring Supplies
Product(s): Engraved Plaques
Address: 5263 24th. Ave. N
City, State, Zip: St. Petersburg, FL 33710
Phone: 813-327-4767
Notes: V3, #9

Key Word List for References

Aerial Photography	Aerodynamics	Allerons
Airfoil	Autopilot	Batteries
CA (cyanoacrylate)	Clubs	Communications
Construction	Contests	Control
Design	Electric	F3B
Fiberglass	Finishing	Flaperons
Flaps	Flying	Flying Sites
Flying Wings	Foam	Forecasts
Fuselage	HLG (hand launch Gliders)	Kit Review
Launching	LSF	Powered Flight
Radio	Sailplane	Scale
Show Review	Slope Soaring	Software
Spoilers	Stability	Stabilizer
Std (standard class)	Thermalling	Trimming
Turn-around	2M (two meter class)	
Unl (unlimited class)	Winch	Wing
Wingerons	Winglets	X-Country

Key Work List for Sources:

Building Supplies	Composite Materials	Electric
Electronics	FG Fuselages	Foam Wings
Kits	References	Soaring Supplies
Software		

Cover

SILVER GHOST IV Winner of 1986 (British) Nationals
Winner of FIVE Northern League Events

The 100" Standard Class Version Won the 1986 Radioglide

(The record of the Haley family in open contests over the last few years can hardly have escaped the notice of anyone interested in contest soaring. Besides numerous wins in League events, this has included two BARCS Northern League championships, one each for father Bill and son Stephen, and wins at the Nationals and Radioglide. Whilst I always feel that pilot ability is a key factor in gaining successes of this kind, a good model is still a necessity. Thanks to Bill Haley's kind efforts, this issue's centre spread is a drawing of the 1986 Silver Ghost IV open model which includes amongst it's contest successes wins at the 1986 Nationals and no less than 5 Northern League events this year. Bill also provided the photographs which accompany this article. Editor)

Having been involved in competition thermal soaring for about ten years, I feel that there may be some interest in the development of the latest in our Silver Ghost open model series, the Mk. IV. This has largely been prompted by the articles which have been published about the Sheffield club's approach to producing open class models. Good though these models undoubtedly are, I feel that many beginners may be put off soaring for good if they feel that they have to build a model with 150 plus wing ribs and employing the services of a tool-maker to manufacture the wing spar system in order to be competitive. Our approach has been much simpler and could be followed by any reasonably competent modeller.

The Silver Ghost series was started in 1981 when I found the need for a new open thermal soarer. Having been a long time F3B flyer, I saw the advantages of "zoom" launches, and so designed the model with this in mind. The polyhedral wing was veneered foam, into which was fitted a solid hardwood spar 5/16 inch wide for the full depth of the section over the centre panels only. Onto this spar, two Graupner flat bar joiners were fixed, with a 12 swg incidence peg near the trailing edge, and an alloy ballast tube was fitted, simply epoxied into holes in the foam cores. The model was 144 inch span and had trailing edge brakes.

The concept worked perfectly, and indeed the model never missed a fly-off in 1982 and helped me to win the Northern League. During that year, and 1983, my views on the desirability of zoom launches, with the consequent need for a strong centre section, were reinforced, not least by the fact that other open class fliers started to use the same technique. Some were successful, but those who tried it with understrength wings provided a good number of spectacular crashes.

For the 1984 season, I was attracted by the idea of a one-piece, bolt-on, centre section with plug-on tips. the reasons for this were:

1. To obtain good zoom launches the model must be towed at maximum speed so that the speed may be converted into height. Naturally this places a great strain on the wing centre section.
2. A strong wing is more efficient in flight than one which is flapping about all the time, and control response is much better, especially at speed..

Despite the advantages, I eventually decided against the one-piece centre section at this stage, since it would have needed a new fuselage plug and mould. As an alternative I decided to use a system thought of, but discarded, some three years before, that is, to use the wing ballast tubes as the joiner tubes.

This system has two advantages, firstly it greatly simplifies construction as no joiner tubes have to be fitted and aligned and secondly the large diameter joiner (17/32") is so rigid as to produce the nearest thing to a one piece centre section. Stephen and I have used several different materials for the joiners - titanium, silver steel and high tensile alloy, all with satisfactory results. As before, these wings were foam/veneer with the same spar arrangement, but this time I used "letter box" spoilers which enabled me to insert ballast through the spoiler without removing the wings. This model again proved most successful and in fact gained second place in Radioglide '84 on it's first competitive outing.

The next development in the series, Stephen's 1985 model, saw a change in wing planform to give one more nearly approximating elliptical lift distribution. Instead of the previously used 9 inch constant chord centre panels with tips tapering from 9 inches to 7 inches, a 10 inch to 9 inch tapered centre panel with the same tip was used. To maintain the aspect ratio the span was increased to 150 inches, and similar construction and joining system to the 1984 model was used. Little need be said about the performance of this version other than that Stephen won the Northern League with it in 1985 and also placed second with it at Radioglide.

For the latest Mk. IV we have taken the step I thought about in 1984 and gone to a one piece, bolt-on, centre section with plug-on tips. A new fuselage mould was produced and Stephen and I built identical models, using the wing planform of his 1985 aeroplane, but this time with trailing edge brakes. Ballast is inserted through small hatches on the top of the wing. In order to make the construction as simple as possible, the tips are glued to the centre panels, and then cut off 4 inches inboard of the dihedral break, cutting through the tube which runs the full length of the centre panel. We obtained some good quality beech and turned it down to fit the tube, including a coat of glass cloth on it, and this is used as the tip joiner with a locating dowel at the rear. In this way everything lines up, construction is very simple and a very good fit can be obtained - the beech hasn't broken yet!

We did have some reservations about the strength of the fuselage due to the large cut out at the wing seating. However, in the interests of science, I arranged to test this by leaving out the centre section braces on my model. At it's first contest, the wings parted cleanly on the top of the line and the fuselage descended vertically onto the tarmac perimeter track! The nose was crumpled, together with a split in the tail, but the wing cut-out emerged unscathed!

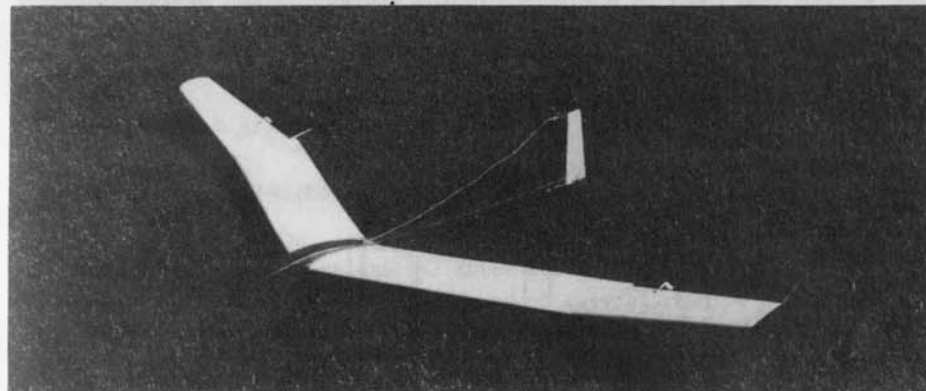
The 1986 models have proved to be the best of the series, they tow well with a good zoom, lift indication is excellent and circling first class. The contest record for the year, with wins at the Nationals and five League events plus numerous places speaks for itself. There is nothing special about these models, except that care is taken with all aspects of the construction. We have stuck to the Eppler 193 aerofoil throughout as experience and observation indicates that this is probably still the best all round choice. Most sections have some advantages in certain conditions, but the 193 is reasonable under all conditions.

Other than the MkI, all the models in the series have had glass coated wings for strength and durability. We take particular care over the accuracy of the first two to three inches of the chord, especially the nose radius of the section. Experience has shown that if this is incorrect the whole characteristics of the model are different. Simple ply-wood templates are used to check the accuracy.

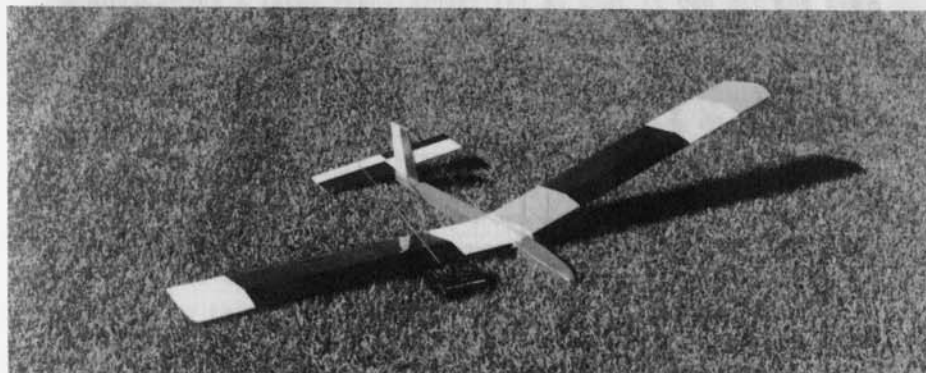
For towing we have compromised between extremely fast tows and breaking lines! I know that some fliers use upto 150 pound line for open models, but we have settled on 100 pound which has distinct advantages in lower line-drag and more stretch. With this set-up we get fast tows with few "genuine" line-breaks.

MONTREAL DLIF (DON'T LAUGH, IT FLIES!).....E.G. Currington

(Ernie Currington comes up with some different, unique, and sometimes old-fashioned, sometimes avant-garde creations. For example, you may recall the bare-bones view of his PTAERODACTYL a few issues back. This time, you've got a photo of it all covered and ready for flight. Now, he's done it again...with the DLIF, a tres simple and good-flying sailplane. Ernie, the floor is yours. With thanks to the Montreal Area Thermal Soarers Newsletter...JHG).



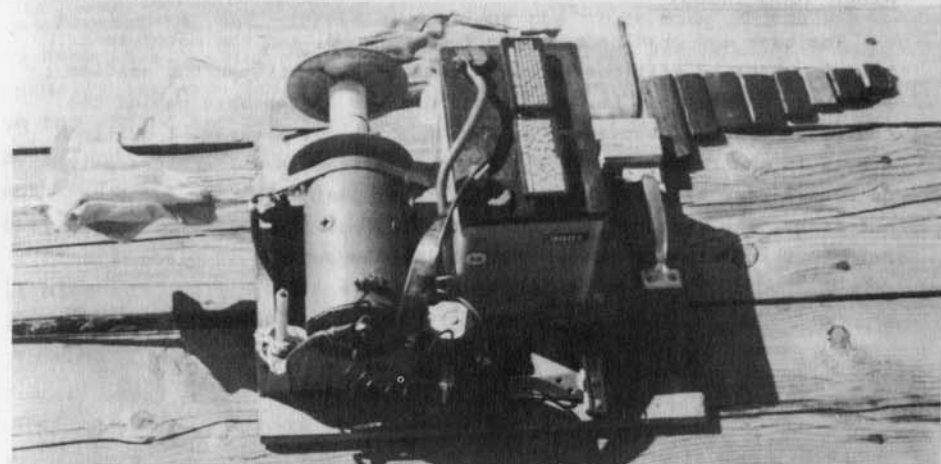
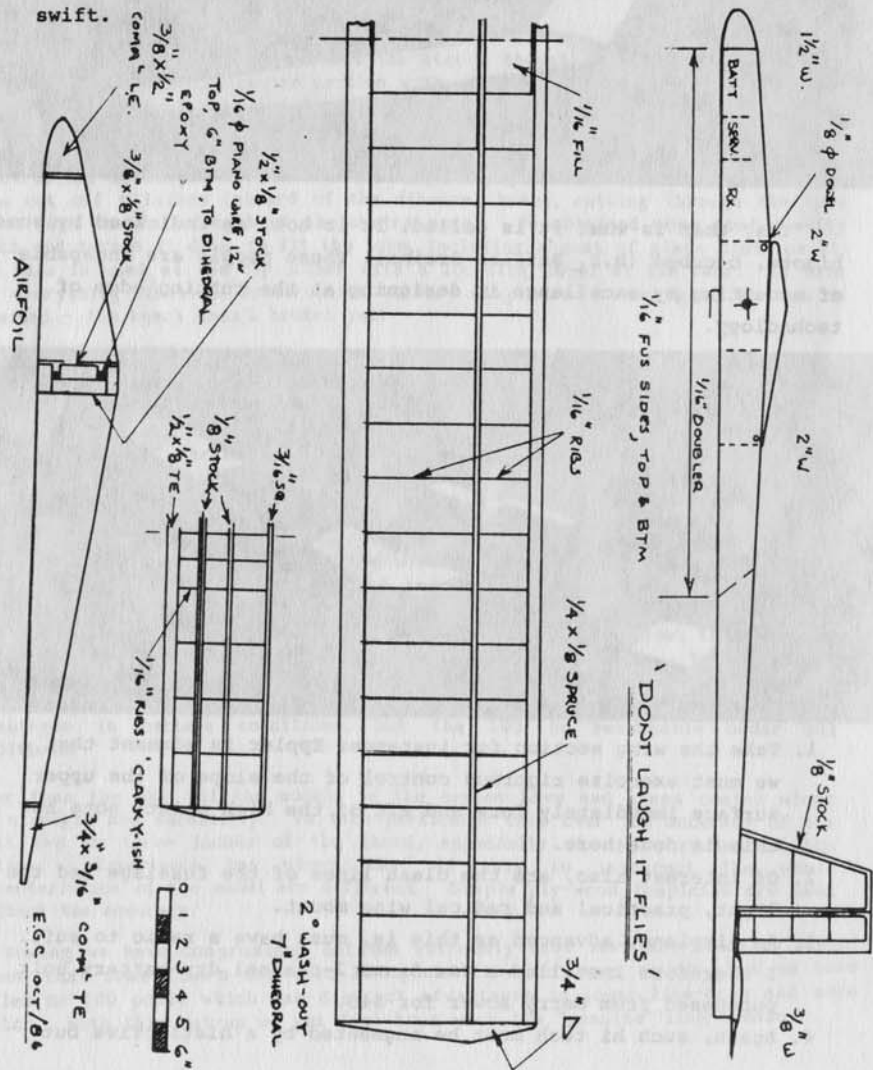
"Yes, that is what it is called. It is not, as indicated by some bigots, b-cubed (B.S. Baffles Brains). These people are incapable of accepting my excellence in designing at the cutting edge of technology.



1. Take the wing section for instance; Eppler is adamant that we must exercise rigorous control of the slope of the upper surface immediately fore and aft of the high point; note how this is done here.
2. Of interest also, are the clean lines of the fuselage and the light, practical and radical wing mount.
3. An airplane, advanced as this is, must have a radio to suit. I therefore installed a Cox-Sanwa 2-channel dry-battery unit purchased from Gerry Bower for \$15.
4. Again, such hi tech must be augmented by a distinctive but

discreet color scheme. D.L.I.F. is covered with red, white, dark blue, light blue and charcoal "moneycoat"; red, white and blue Solarfilm; orange model span and white Jap tissue. (Bill P. ran out of pink M/C and I could not get in touch with Don C. for some yellow.)

5. The plan is enclosed, but no building instructions are given. I believe that anyone capable of understanding such a complicated project would not need a 'give part A to part B ...' approach that this is a time-consuming procedure; the design was put down after supper, on the 25th of August 1986 and the airplane was flown on the 31st of August 1986.
6. There are those of you who say it's ugly; I say maybe, but the difference between your airplanes and mine is that D.L.I.F. was intentional.
7. Yes, it does fly, and at 15 Oz. all-up weight, it is surprisingly swift.



SIMPLE, LOW-COST WINCH.....Rick HALLETT

The small, long-shaft starter motor comes from an early 60's English Ford. The winch drum is made up of several readily available parts: the flanges are the largest available "Chicago" pulleys with solid centers; the set screws are placed on the outside, and the inside flange is hacksawed off and smoothed with a file. The center spool is a 3.5-inch diameter piece of TV mast tubing.

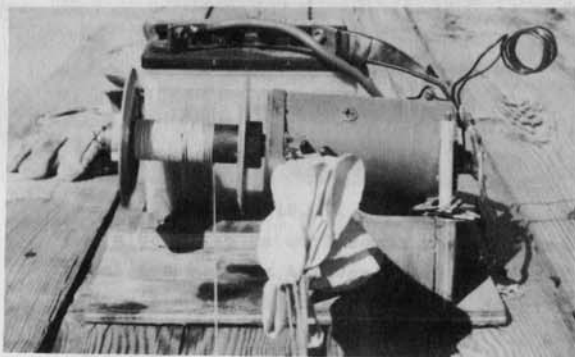
I used a Sears "Diehard" deep-cycle battery, #9601, and purchased the cheapest relay from an auto discount store. The switch was fashioned from a small "T" hinge obtained from the hardware store. The hinge needs a large washer under it, so that it can hit the two brass screws unevenly -- pressure from your foot being required to twist them into contact. This switch will never fail.

I like to use as much monofilament tow line as possible, but do not like to risk backlash, so all the line that wraps up on the drum during tow is braided line. This means that at least the amount of line between the winch and the turnaround should be braided line, and the rest can be monofilament. If you can get 100+ pound test monofilament line, you can use that instead of braided line; but if all you can get is about 60-pound test monofilament line, make sure that it doesn't go through the turnaround if you want it to last. I use the FAI length of 200 meters to the turnaround, since I don't have room for the AMA 300 meter length. Another reason for not winding monofilament line on the drum during tow is the tremendous crushing force built up by the tightly-wound line on the drum. When your tow is at maximum height, you should have only a few turns of line left on the drum.

The turnaround is a simple bicycle front wheel hub, cleaned up and lubricated with Marvel Mystery Oil[®] and kept intentionally loose so that it will accelerate quickly with the line. I used TV antenna mast clamps as line guides and also to hold the whole assembly on an angle-iron stake made from an old bed frame. A line attached to the top of the turnaround extends backward to an 18-inch long "deadman", or anchor, driven into the ground.

Winch (continued)

The base and cradles are made from plywood, and the motor is held in place by silicone rubber. A small brace between the cradles serves as a front handle, and a hole drilled in the base behind the center of the reel serves as an anchor point for a stake. I drilled a hole in the frame to hold a small screwdriver, and I store a pair of needle-nose pliers and a piece of scrap leather on the front of the frame. The leather is used for re-winding, as a friction device held to the flange. A wooden frame holds the battery in place.

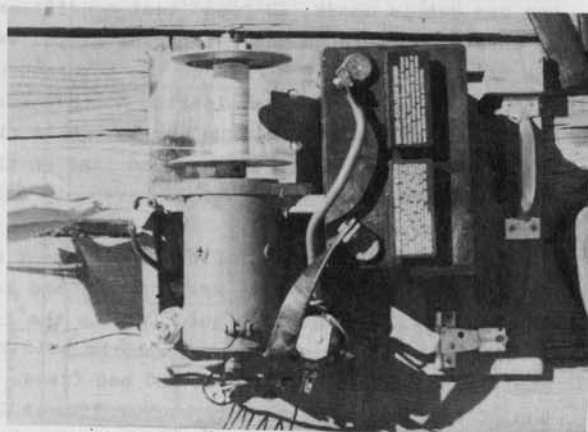


Business end of winch



Turnaround shows bicycle hub

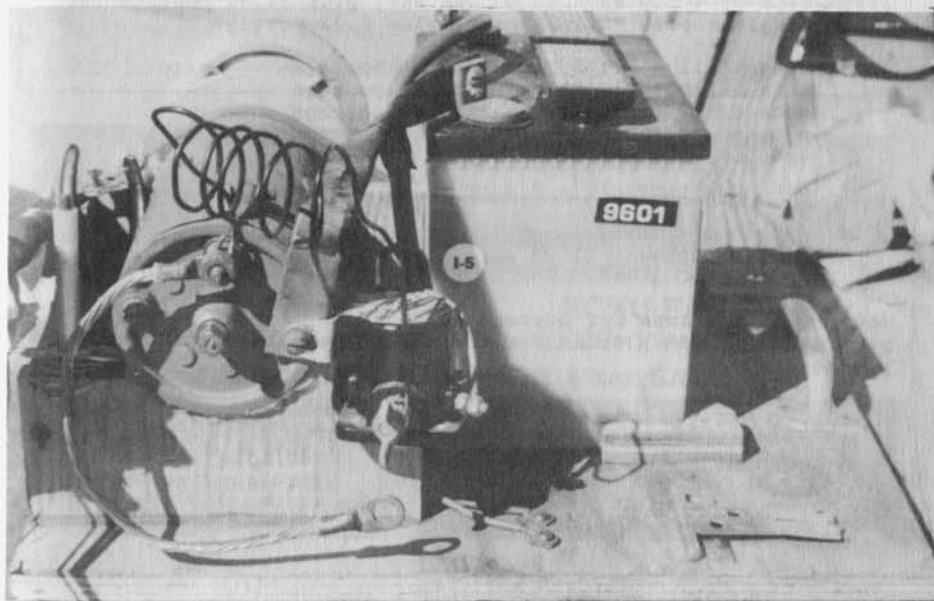
The best material I have found for coupling the battery and the rest of the components is half-inch soft copper, flattened and wrapped with tape. (This easily handles the high current). I also use a resistance coil made from light coat hanger wire between the relay and the starter motor.. As it heats, the resistance increases and the winch power decreases...making rewinding at the end of the day much easier. It can also be used to teach beginners how to use the winch as well as providing reduced power for launching light 2-meter sailplanes or normally hand-launched gliders. Note that this coil is normally by-passed.



Winch drum - two large pulleys and TV mast hub; Top view shows copper strap between battery and motor case

For safety, the reel is located on the right side of the winch to keep it away from me during the launch. This arrangement would normally increase friction losses because the line is slightly closer to the ground and dragging more. Normally, I launch from a loading dock, and because the turnaround is several feet in the air, the entire length of line is almost totally airborne -- enabling this tiny winch to launch even heavy sailplanes.

The small drum diameter allows good torque on a small motor, and it also reduces the chance of backlash when you are "blipping" the switch. The monofilament smooths out the blipping action so that the plane is not jerked out of your hand at launch, or during the blipping of the switch on the way up. Although this is a small, light winch, be warned: it is possible to break most typical wings when launching into even into a light breeze!



Side view shows coat-hanger wire resistor Lifting handle on front of winch base; note foot switch

AIRCRAFT IN MINIATURE

32 Stearns Ave.
Leominster, MA 01453

Finely detailed models, custom built to your specifications. Best materials used in our museum type miniatures. We build all kinds of aircraft from any era. Free brochure on request.



ABOUT BACK ISSUES OF RCSD

- 1984: RC Soaring Digest began publication in January 1984, and there are only a few copies left of just a few issues. For example, you can get a set of 4: June, July, August and December. No single copies are left. You can also get a set of 3 issues: June, July, and August.
- 1985: No complete sets of 1985 are available; however, we can offer sets of 11 issues (7); 10 issues (12); 9 issues (6); sets of 8 issues (7); sets of 5 issues (2); and various single copies (our choice).
- 1986: All of 1986 issues are available in complete sets and in single copies; your choice.

PRICES

- 1984: sets of 4 copies - \$5.00 per set, plus \$1.00 postage
single copies - \$1.25 each, plus \$.22 postage.
- 1985: sets of 11 - \$14.85, plus \$2.00 postage
sets of 10 - \$13.50, plus \$2.00 postage
sets of 9 - \$12.15, plus \$2.00 postage
sets of 8 - \$10.80, plus \$1.75 postage
sets of 5 - \$ 6.75, plus \$1.00 postage
single copies - \$1.35 each, plus \$.39 postage
- 1986: complete sets of 12 - \$16.20, plus \$2.00 postage
single copies - \$1.35 each, plus \$.39 postage

You may send stamps for postage if you wish, but we prefer your check or money order for the entire amount - including postage.

NO REPRINTS

Many readers have asked about the possibility of reprints of early (unavailable) issues. We have looked into this, but find that costs would be totally out of reason for the number to be printed. Therefore, no plans to reprint any back issues are being considered.

SELECTED ARTICLES

Office copies of all issues, regardless of month or year are available, and selected articles (only one per issue) can be copied on a time available basis at a cost to you of \$1.00 per page (which includes postage). Please be specific about which article is wanted, and also be patient, as it may take several weeks to a month or more to fill your order.

RCSD DECALS

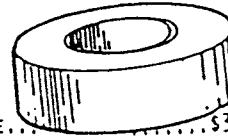
RC Soaring Digest decals are available at \$1.25 each, plus postage. You may order 5 for \$5.00 and 10 for \$8.00. Please include \$.22 postage for 1 - 5, and \$.39 postage for 6 - 10. These handsome decals in blue on white have the RCSD logo plus handy call-outs such as OFF, ON, AILERON, RÜDDER, ETC.

Jim Gray

VIKING MODELS USA

BUILDERS: GET YOUR HI JOHNSON SUPERTAPE HERE

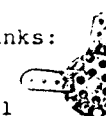
- 1" ROLL.....\$11.95
2" ROLL.....\$23.95
3/8" ROLL.....ONLY.... \$ 7.95
1/2" ROLL SUPERTUFF F/G FILAMENT TAPE.....\$3.95



70-degree and 90-degree bellcranks: \$1.95/pair.

Need a canopy for your sailplane?

Jerry's got 'em! All sizes for all needs; stock and custom-formed... PETG material. Call or write for more information.



PLEASE ADD \$2.00 FOR SHIPPING AND HANDLING. CALIFORNIA RESIDENTS ADD 6% SALES TAX.



2026 Spring Lake Drive, Martinez, CA 94553

Tel: (415) 689-0766

AIRCRAFT SCALE DOCUMENTATION WORLDS LARGEST COLLECTION

Antiques, Military, Civilian, Helicopters, Sailplanes
color FOTO-PAAKS KOKU-FAN 3-views
40,000 pictures in stock 2,000 drawings in stock
26 page CATALOG Send \$2.00 & large S.A.S.E



SCALE MODEL RESEARCH

2334 Ticonderoga Way
Costa Mesa, CA 92626 U.S.A.
(714) 979-8058



C.D.'S, CLUBS: SEND FOR LATEST PRICE
JACKETS, T-SHIRTS, RIBBONS, NAME PLATES
PRICES YOU CAN AFFORD. EVERYTHING FOR THE WINNER.
GUARANTEED QUALITY AND OLD-FASHIONED PRIDE OF WORKMANSHIP.
Fast Service Reasonable Prices in wood, metal and plastic. Stock of standard plaques and trophies always available. Ask for rates on custom designs.



(813) 327-4767

WINNING IMAGE PLAQUES

5263 - 24th Avenue N. St. Petersburg, FL 33710

