

# R/C Soaring

D I G E S T

Vol. 3 No. 9

SEPTEMBER 1986

**NATS WINNER PAUL CARLSON  
WITH 100" PRODIGY**



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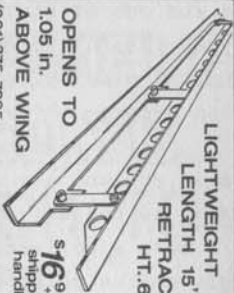
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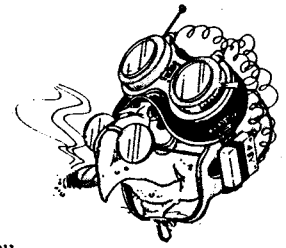
Do you remember that quaint saying "The hurrier I go, the behinder I get?" Well, if you do...or even if you don't... it expresses the present situation here in the Crow's Nest. Your contributions have been pouring in at such a rate that I won't be able to use them all until some time (unforeseeable at the moment) in the future. It's really gratifying to receive the pictures, the comments, the technical inputs, and especially the first-hand accounts of what you've been doing recently.

The NATS are over, and - by now - most of you know that the new National Hero, and winner of the Lee Renaud Memorial Trophy for overall highest score in three classes is Paul Carlson, flying his own design and stock kit of the now-famous PRODIGY, using the Selig airfoil. (See letter and photo from Tom Gressman of the Milwaukee Thermal Soarers later in this issue). Paul took first place in 2-Meter, second place in Standard, and third place in Unlimited to win the award. This is similar to the sweep that Helmut Lelke made last year...and a tribute to a fine soaring pilot and sailplane.

Jack Hamilton took first place in Standard Class, using his own design called SKYJACK. Leon Kincaid took first place in the Unlimited Class flying an enlarged version of his '82-'83 NATS-winning two-meter design SCOOTER. In fact, this is the 3-meter SCOOTER that I saw fly in Florida during my visit there in January. If I'm not mistaken, it has NASA winglets...which certainly don't hurt the performance one Whit(comb)! Sorry, 'bout that.

Here are some more scores to hold you until you receive the 'slick' magazines: (Through 5th place...)

STANDARD CLASS	JUNIOR	SENIOR	OPEN
1.	Rusty Smith	Mike Garton	Jack Hamilton
2.	-- --	Jorge Gusman	Paul Carlson
3.	-- --	Chris Lee	Brian Agnew
4.	-- --	Kevin Fuqua	Al Scidmore
5.	-- --	Tim Walker	Terry Edmonds
UNLIMITED CLASS			
1.	Rusty Smith	Mike Garton	Leon Kincaid
2.	-- --	Alex Bereczky	Tom Brightbill
3.	-- --	Chris Lee	Paul Carlson
4.	-- --	James Simpson	Robert Wilkosz
5.	-- --	Tim Walker	Malcolm Smith
2-METER CLASS			
1.	Rusty Smith	Jorge Gusman	Paul Carlson
2.	-- --	Alex Bereczky	Brian Agnew
3.	-- --	Mike Garton	Julian Tamez
4.	-- --	Tim Walker	Terry Edmonds
5.	-- --	Kevin Fuqua	Tom Brightbill



THE OLD BUZZARD'S PERCH .... by Vulgar Vulture (Cackle, wheeze, ahem...) Consarn it, you young whipper snappers ain't even begun to git the hang of soaring, and yer out ther tellin' ever'body all about how to do it. Lemme tell you when I wuz jist a fledgeling, with hardly any pin feathers A-tall, me an' my other hatchlings wuz taut respeck fer our elders. (Pay attention back there, Buzzard Breath, The O.B. is a-talkin') Now-adays, ain't nobody gonna lissen to experience. Wanna know sumpin'? Lemme ask a question: how many of you make thermal turns with a constant bank angle for efficiency? What's that...hmmm...'bout half or more it looks like..(rasp, belch). Well dammit, yer RONG! Ain't no seasoned soarer ever held a constant bank angle in thermal less-en he was jist a no-good dumb baby bird. Use them eyes. Watch us O.B.'s a-flyin sometimes. How many times y'ever seen a buzzard flap, anyway? Thermals ain't picksher-book reg'lar, no matter what the fancy-pants signtists say. Thermals is allover the place an' kinda wiggly, an' sumtimes like donuts, an' sumtimes knot. More like a dambig ee-ruption jist oozin an' squirmin' ever' where. Ya gotta change yer bank angle all the way around...steep goin' downwind an' shallow comin' upwind. Not only that, but fer best 'fishin-C yer gotta INcrease yer dihedral sometimes, too. Ever noteis what us buzzards do when we git really wound up tight? Wal, we git the ol' wings up at greater dihedral fer too rezins: wun is like a skater doin' a spin whne they reallygit rapped up they pull the arms in an' spin. We do the same thing to git the lift cored out with minimum NRG (energy, I think ...JHG). 'Nother resin, too: when we git the wings up in a big vee, we lay over on one side kinda-like, an' the down-wing is almost flat to the ground fer best lift...an' the top wing is almost vertickle like on o' them fancy sailboats. Less drag, better stability an lets us 'tack' into the thermal - sorta holdin' our own agin' the wind tryin' to push us out o' it. Whaddiditell ya, kids. You chicks gotta lot to lern from us Ol' Buzzards...an' if yer ever figger out how to change yer diehedral in flight (not acksidental neither, like in a bustid wing) yer gonna find a lot better use of yer stored NRG an' core out better. But then, like most dumb kids you ain't gonna lissen until us Ol' Buzzards come over an' give ya a lessin . JIst watch an' use yer I's to C, like we do, 'N' mebbe you kin come join me on my tree if yer gud enuf (retch... stink)!!! I SEE A DEAD ONE, FLEDGES, LET'S GO GIT IT!

Editor's note: I'm not sure we want the Buzzard back, do we? If he can't clean up his language and B.O. (that's buzzard odor). You have to admit that he's a heck of a lot better soarer than most. What do you think...shall we let him come back? ...JHG.

This month we are extremely lucky to have two reviews of this extremely interesting two-meter design by Paul Carlson. One is a review by Lee Murray from Wisconsin, and the other is by Steve Moss from Texas. It's just plain serendipitous to have received Lee's review about a week before the NATS (having no idea who would win) and Steve's review just before we go to press. It is interesting to see the comparisons...so enjoy and judge for yourself...JHG.



Melissa Murray with father Lee's Prodigy. Spoilers are not installed at this point.

OFF THE GROUND MODELS' PRODIGY 2M SAILPLANE Lee Murray

The kit's features were very impressive: 1/64" plywood on all trailing edges, wing fairings, carbon fiber spar laminates, machine cut parts galore including the fin sides with holes pre-drilled. The parts were packages so as to minimize warp and organized well. The plans were clear in most places with several blown-up detail sections. The nine page instruction book was detailed to an impressive level. In short, the kit met the highest standards of the industry. While the sailplane is targeted to the advanced builder-flyer, I believe that it is actually easier to build than some lower level models because of the prefabrication, the quality of the machine cut parts and the instructions. In the course of building I found a few areas to improve, but in all the Prodigy is an excellent model.

FLIGHT PERFORMANCE

The performance of the Prodigy in the hands of its designer, Paul Carlson is truly amazing and was the reason that I purchased the

Prodigy

model. I saw it perform at the 85 NATS where it was up in the 2M standings. Recently at the '86 NSS contest in Madison, WI, Paul flew a Prodigy which not only was first in 2M but also best performance of the contest (2939 points). Paul's Standard Class Prodigy prototype took 2nd in its class. After the contest Paul did some hand launches with a 3/4 scale Prodigy (HLG) to the amazement of those present.

My Prodigy flew perfectly from the first hand launch. In normal air, there was no tendency to tip stall and the pitch stability was very good, at least with the initial CG set up. In lift, the Prodigy gives plenty of indications of that lift with the nose pitching up and wings turning away from the lift. This requires that the flier pay attention in order to fly smoothly. The contest performance in my hands remains to be seen but my expectation is that it will be a super performer in two meter thermal duration events. The Prodigy can stall on launch so give it a little down trim and release straight ahead.

I suspect that the keys to the Prodigy's performance are the selection of the Selig 4061 airfoil, computer optimized for a model of the size and speed, and the attention to drag producers in normal designs.

STABILIZER CONSTRUCTION

The trailing edge 1/16" balsa laminate pieces were already cut and the instructions were to cut them out of 1/16" sheet. The telescoping 1/8 and 5/32" tubes were to be glued together, but I felt it was easier and more certain to solder them together. The instructions for the sheeting seemed to indicate that there was 2" wide 1/16" sheeting, which I didn't find. The leading edge sheeting was provided in such excess that the stab sheeting could have come from the LE sheeting. I also added some 1/16" sheeting to the tips for a better shape for the wingtips. I could hardly believe that the both stabs before covering weighed less than an ounce...the rudder only 8 grams.

THE RUDDER

This construction was a little confusing. Where it calls for 1/8" balsa for the frame I suspected that I should use 3/32" in many places, so I did. These included the horizontal frame components. Also I made the gusset near the control horn out of 3/32" stock vs the 1/8" stock recommended. A subsequent conversation with Paul Carlson brought out that the control horn was intended to be inset to the 1/8"

gusset. The bottom frame member was also covered with 1/16" x 1/4" strips for preserving the contour of the rudder.

THE WING

The wing instructions were more complete than with the stabilizer and rudder although there could be some clarification at a few points. One such area was where to find the spoiler tubing. It was hiding inside the blue outer tubing for the stabilizer control cable/tubing. A potential problem was noted with the dihedral angle obtainable when installing the joiner tubes. The sheer webs were a little small when compared to the plan and possibly a little small with regards to the ribs. I took a measurement of what I could get as far as a dihedral angle without more sanding or grooving of the spars and that turned out to be 2 degrees vs 3 degrees. I calculate the Dihedral Equivalent Angle I would get assuming that there would be no problem with the polyhedral joint and that came out to be 7.2 degrees vs 8.2 if I had all the dihedral specified in the plan. The Vertical Tail Volume Coefficient came out to be 0.024 which is very generous and about the same order of magnitude as the Olympic 650...No Problem. A check of the Sideslip Instability Factor was -.00115 which justified a dihedral equivalent angle of 6.2 degrees. In my estimation there is no problem with the loss of one degree in the dihedral angle.

Sanding of the leading edge is really aided by making a cardboard template negative to aid you in knowing where to sand and not to sand. Very little sanding is needed on the lower leading edge and considerable sanding needed on the upper leading edge. If you want the magic of the Selig airfoil you must do your best here.

THE FUSELAGE & FIN

The parts for the fin are found in the fuselage wood bag even though you may have been using the same dimension wood from longer strips provided earlier. I ran short of the 3/16" triangle stock but perhaps I misplaced some earlier. The pre-drilled holes on the plywood fin sides were a little longer (~1/32") than the bellcrank dimensions. So pay attention to you instruction to check it out. You probably want to add an antenna routing hold in the F2 former as none is provided. If you have right hand servos and a non-reversing transmitter you also will want to exit the rudder on the right side of the fuselage. Also you should note that you should also place your spoiler servo on the left side of the fuselage for that reason. I wanted to use a releasable tow-hook so I moved both elevator and rudder servos to the forward servo bay and stuck the tow hook release right in front of the F4 former. I purchased Futaba S30 servos for this installation but most micro servos will fit side by side in there. My receiver (6 Ch. Futaba) was a little longer than the receiver shown so I moved the F2 former backward just a little since I didn't need much room for the S30 servos. A fuselage jig really helped while trying to align things precisely. After a little frustration I found the formers to be very slightly out of square so that one side of a former's top edge was a few thousands higher than the other side. Marking a vertical center line on all the formers helps when aligning the fuselage. Be careful about the sides of the fuse between the F4 and the tail post. The curl of the plywood causes a small "S" shape to develop if you don't control it here. I wonder if things wouldn't be a lot easier if manufacturers cut a right and left fuselage side so that they would curl inward or outward but not left or right. A few drops of CA proved useful in making hard edges for the canopy block.

The instructions were to use an "L" shaped bent rod to actuate the stabilizer bellcrank. I didn't seem to be able to bend a sharp enough bend in order to avoid some interference with the plywood fuse sides. To avoid this problem I substituted a clevis which took up considerably less space and very little extra weight.

There wasn't much in the way of instructions as to how much balsa to add to the sides of the fuselage to make a smooth transition from fuse to fin. There was a lot of "putzing" with the filler before I was satisfied with the uniformity and contour.

Hinging of the rudder was a little tight and I sanded a little off the hinges to get them not to bind. I also substituted a 3/32 Aluminum tube for the piano wire as the hinge pin to save some weight. I also used some 1/8" nylon tube spacer (spoiler tubing) with some aluminum tubing as a filler for the gap in the hinge line between the hinges.

FINAL ASSEMBLY

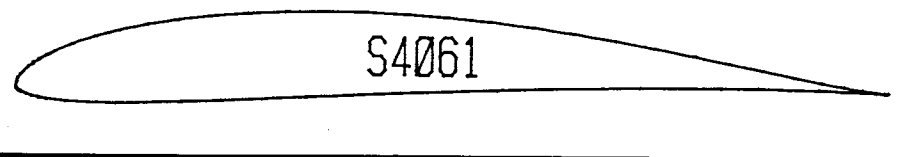
The spoiler plans show a weight for the closing mechanism. I chose to use a 6 mil piano wire torque spring similar to that shown in RCSD by Jeff Troy. However, I used 1/16" square brass tubes only at the ends of the torque wire. My spoilers open up to about 60 degrees max. I believe the problem is that the spoiler control horn should have been installed a little more forward of the position shown (under the top spar). This might require that sheer web be relieved for the control horn if you want a full 90 degree deflection. I am satisfied with the spoiler action at 60 degrees. I have intentionally been operating spoilers on my Sagitta and Cumic only up to 60 degrees maximum to minimize the pitching when the spoilers are actuated. The spoiler design shows Monokote extending 1/8 beyond the side and rear surface of the spoiler bay to cover the slot. After installing the Monokote I had a few small warps in the Monokote where the material hangs over the edges of the spoiler blade. The solution was to put some label release paper between the installed spoiler overhang and the frame beneath it and to use a Monokote iron (low heat) to iron out those warps.

The fuselage was sprayed with Super Poxy primer and paint. The trim weight using a 250ma battery required about 75 grams (2.6 oz). The total weight was 894 grams (31.5 oz).

Wings	290 grams (10.2 oz)	
Rod	53	1.9
H. Stab	31	1.1
Fuselage	520	18.3 (with trim ballast and radio)

SUMMARY

Paul Carlson has an outstanding product which you will hear more about as more kits get into the competition. The Selig S4061 airfoil appears to work well and the low drag features of the sailplane put it clearly in the category of "high performance". The theoretical analysis of the design indicates that it is stable, and perform's best at moderate to low speeds.

Another Prodigy Kit Review!!

PRODIGY 2-METER SAILPLANE REVIEW - Steve Moss, Austin TX

Until I saw a Prodigy kit in the local R/C store, I hadn't

planned on building any more 2-meter planes. However, I was

intrigued with the plane's Selig 4061 airfoil and its high

aspect ratio wing, and a sale at the store led me to satisfy my

curiosity. Having flown a Sagitta 600 and K-Minnow, I was

anxious to see how the Prodigy compared with these older

designs. The Prodigy was designed by Nats winner Paul Carlson.

CONSTRUCTION

My personal benchmark for kit quality is Airtronics. The Prodigy

kit matches Airtronics in terms of wood quality, parts fit, and

hardware supplied. The plans and instructions were also well

thought out.

Most of the construction is pretty conventional. The Prodigy does incorporate several modifications often made to older kit designs. These include the use of 1/64" ply in the wing and empennage trailing edges (making it easy to sand them to a sharp, warp-free edge), and a stabilizer pivot tube extending 1/4" from the fin (preventing the stabilizer wobble common on many planes).

The Prodigy's wing tapers from 6 7/8" at the root to 5 3/4" at the tip. Despite its aspect ratio (12.1) and thin section (9.6%), the wing is strong. The main wing joiner rod is 1/4" in diameter and extends 3" into each wing. Carbon fiber is supplied for the 1/8" by 1/4" spars.

Most modelers won't have any trouble constructing the Prodigy. The only problems I encountered were in evenly tapering the wing spars to accommodate the wing joiner tubes, and attaching the balsa and 1/64" ply wing trailing edge to the sub-trailing edge. Take your time during these steps.

The Prodigy should be kept as light as possible to take advantage of its airfoil. This fact (and my impatience) precluded an elaborate finish. The bottom of the lite-ply and balsa fuselage was covered with 2 oz. and 3/4 oz. fiberglass cloth, and the entire fuselage coated with Safe-T-Poxy. After

sanding, the fuselage was primed and painted with epoxy paint. The rest of the plane was covered with Coverite Black Baron Film, which worked quite well.

A miniature 4-channel Futaba receiver, one S-33 and two S-20 servos, and a 450 mah battery were used. Weight ready-to-fly was 27 oz., giving a 7.7 oz. wing loading.

#### FLYING THE PRODIGY

The Prodigy's designer, Paul Carlson, suggests moving the CG back 40% or more from the wing's leading edge. As he predicted, the plane's performance improves, but the stability suffers. Maintaining adequate airspeed becomes even more important, especially during landing approach.

Winch launches are straight and high. The Prodigy seems to need a fair amount of speed (my aging high start won't launch it well in light winds). However, running the winch too fast at the start of the launch tends to cause pop-offs. Having flown a thick-winged Gemini MTS for two years, I am still a bit suspicious of the Prodigy's thin airfoil and haven't really tested the wing yet, or needed to. On my winch (one of Don Goughnour's products), pulsing most of the way up with a short dive and zoom at the top seems to work well.

The Prodigy is a very effective search-and-thermal plane. You can cover a lot of ground while looking for lift. At the same time, the Prodigy is very good at working small, low level thermals. Keeping the plane's speed up while circling results in a nice climb rate.

Despite it's light wing loading, the Prodigy penetrates well in wind without ballast (a plus here in Texas). I recently flew mine in 20-30 mph winds at a so-called fun fly. Although the Prodigy couldn't run upwind as well as the local Dohle, it wasn't going backwards. If necessary, there is room for at least 10 oz. of ballast just forward of the wing joiner tube.

Because of the CG I'm using, I try to land my Prodigy fairly fast. Approaching slightly nose high with the spoilers open



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about 1/4" will bring the plane in at a sensible sink rate.

#### CONCLUSION

I'm obviously very pleased with the Prodigy. It may look like just another polyhedral design, but it's ability to search for thermals and climb in them is exceptional. It's certainly one of the best buys on the market in a 2-meter plane for duration and distance contests or sport flying. The Prodigy is available from Off The Ground Models, Inc., 606C W. Anthony Dr., Urbana IL 61801 (217) 367-7070.

#### SOARING MAILBAG

Tom Gressman, Milwaukee Thermal Soarers editor, writes:

"Dear Jim: Enclosed is a photo of Paul Carlson with the identical PRODIGY that he did so well with at the NATS. This particular Prodigy, which I had the opportunity to fly twice, is stock. It is the finest 2-meter ship I have yet to fly, and it has an L/D that is superb. With its wide speed range, it is able to land on the spot without spoilers -- and it is able to max out on very light lift and tree-line slope lift. As you know, it took first place in 2-meter, second place in Standard, and third place in Unlimited, to win the Lee Renaud Memorial Award.

"Jack Hamilton took first place in Standard with his own design called SKYJACK, a 100-inch span polyhedral design with a 12% thick wing section (D-tubed). The raised entry section tapers in thickness to 8% at the polyhedral break, and then reverses to a 9%-thick section at the tip. The inner panels is a constant-chord 10.5 inches, and the outer panels taper to about 8 inches. This pod-and-boom sailplane has a dry wing loading of less than 7 oz. per square foot.

"Leon Kincaid took first in the Unlimited Class with an enlarged version of his '82 & '83 NATS-winning 2-meter design SCOOTER." (Signed) Tom Gressman, 614 Daisy Lane, Oconomowoc, WI 53066.

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#### MORE MAILBAG

Clive and Howard Metcalf of METCALF MODELS sent a letter about Harry Finch's review (RCS D July 1986) of their PHANTOM scale slope soarer. In part, Clive and Harry said: "...If anyone asks, the power version flies really great with a :10-size engine -- the hotter, the better.

"We've been flying a profile prototype of the F.W. TA-152 (long-snout version of the Focke-Wulf FW-190) which promises to be as good a seller as it is another great flier.

"The current price in U.S. Dollars for the PHANTOM is:

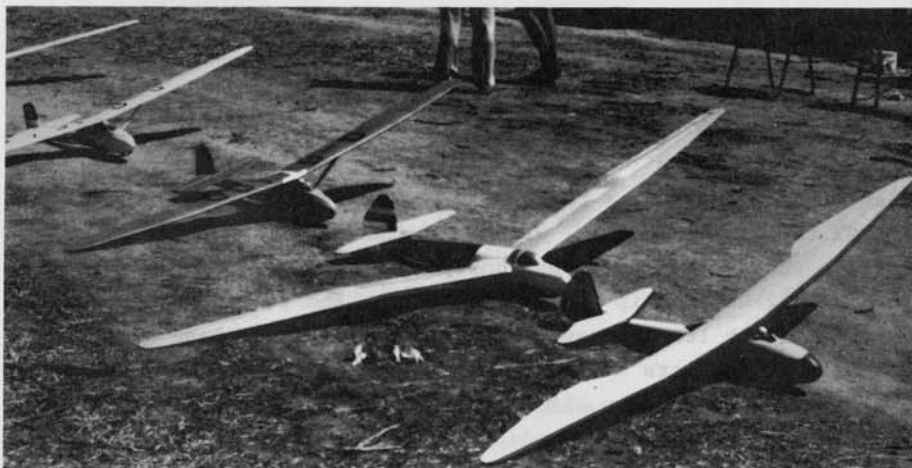
Part kit - \$45; Part kit with blue foam wing - \$63.

We have allowed for conversion and collection of any form of payment except credit cards."

"Thanks again - in haste, (signed)Clive and Howard.

(Editor's note: for those who may not have seen the July issue, Metcalf Models address is 15 Brownlow Avenue, Southampton SO2 7BX, England.)

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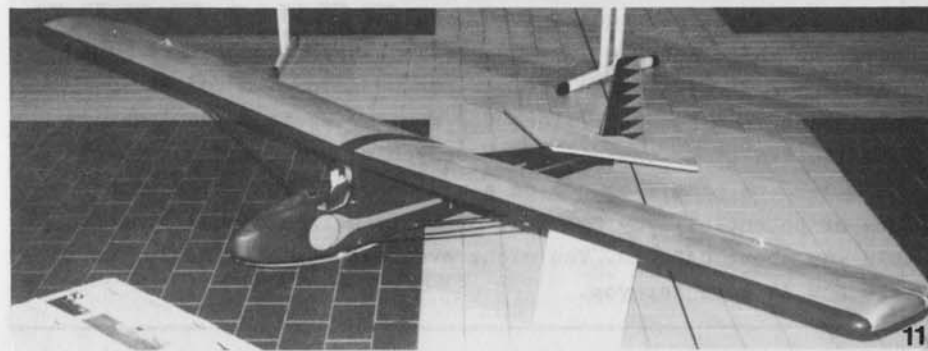


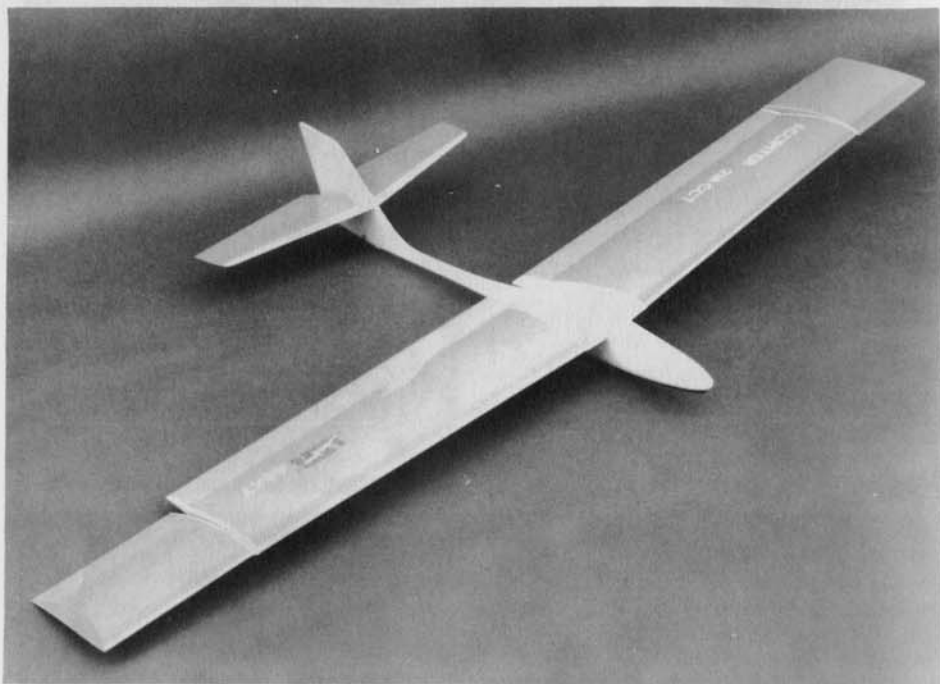
#### Soaring book on the way...

Another letter from Geoff Pentland, manager of Kookaburra Technical Publications, who asked me to tell the RCS D readers that our review copy is on its way via seemail...so I'll be able to present all pertinent information as soon as I can get my paws on it. Incidentally, Kookaburra's ad appears in this issue. Geoff finished his letter by saying: "...Finally, Frank Smith, a local modeler keen on the 'oldies', has kindly passed on to me for your use a few more shots of Australian vintage gliders. Frank took all the photos. With best wishes, (signed) Geoff Pentland." Readers - the photos you see here are courtesy of Geoff and Frank. I wish you could see them in full color!!!



Clockwise from 9 o'clock; a line of vintage gliders in Australia.(2) 1/5th scale Habicht by Frank Smith. (3) Semi-scale Mu 17 also by Frank Smith. (4) Franks 1/8 scale Slingsby Cadet Mk 1. Based on original, two tone blue - a real floater.





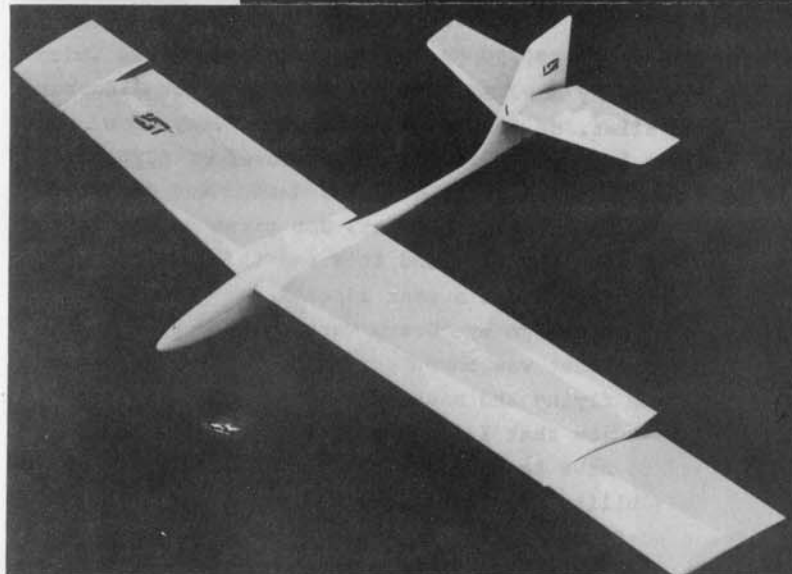
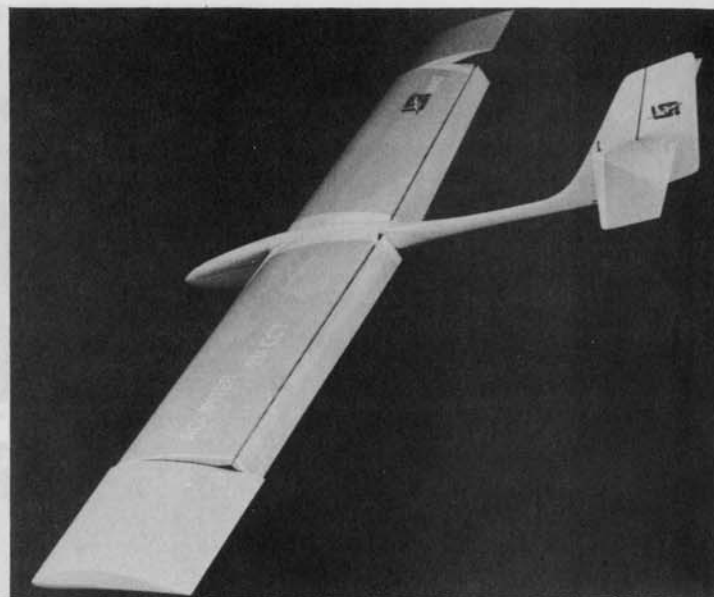
NEW PRODUCT ANNOUNCEMENT .....The ACCIPITER CCT

Recently, RCSD received a letter and some photos from Jeff Morton at CALSOAR -- California Soaring Products -- P.O. Box 367, Topanga, California 90290; telephone: (213) 455-2808.

The ACCIPITER CCT is a tiperon-controlled sailplane...a 2-meter bird with 723 square inches of wing area and close-coupled generous tail feathers. The flaps go 6 degrees negative (up) and 80 degrees positive, and are coupled to the stabilator for precise glide-path control. The rudder is coupled to the tipperons. Unballasted wing loading, according to Jeff, is around 11 ounces per square foot, and the speed range is from "hover to white knuckle (my knuckles, anyway)" says Jeff.

I think Jeff will do an article for us soon, and certainly he will be sending a kit along for review. He is producing kits on a limited-time, one-man-does-everything basis. If you think you'd like to take a chance on a new and different bird with lots of potential, why not call or write Jeff and tell him RCSD told you about CALSOAR. You might even order a kit and let us know how it goes for you.

ACCIPTER: Shown with flaps reflexed and deployed. note large throws on flap and tipperons. Is this the new wave???



## SOFTWARE

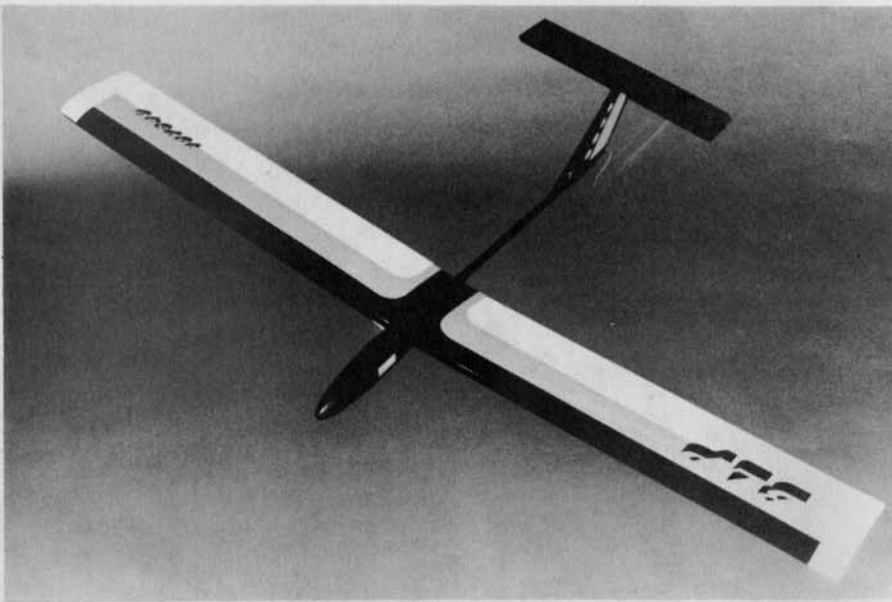
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BLP - THE FINISHED PRODUCT?.....Bob Rondeau

As most of you know by now, Bob Rondeau is RCSD's art director and graphics specialist. He is also a designer of very nice sailplanes. His BLP has been featured on the cover of RCSD, and there have been two articles describing the design and construction ideas behind it. In this installment, Bob gives us the latest information. I have seen BLP fly, and it's smooth!

"It has been just about a year since I put pencil to paper in an attempt to design my 'Dream Machine'. My plan was to create a sailplane that was competitive in a thermal contest yet capable of slope flying and maneuvering through the winds and around the obstacles that I frequently find here in the Northeast. It had to have ailerons and flaps, and I wanted radio room, accessibility for standard-sized gear, and interchangeable flying surfaces. In short, I wanted everything!

"The reality: after 300 hours of building and a lot of head scratching, re-thinking and re-building, I have a shiny new glider that comes pretty close to my original expectations. Sure, it's a little heavier than I planned...and so what if I've yet to place in a contest after two attempts. This sailplane is a gas to fly -- and when I learn to fly it well, I'll be unstoppable! (Way to go, tiger...JHG).

"In my last installment (February RCSD) I had everything framed up with two sets of wings and all the major components propped up and looking pretty much ready for covering and trim flights. I spent the rest of the past three months with little

changes and details to get BLP flying with a polyhedral wing, and it was to be still another month before I completed the flap-eron wing ... but by this time I had tested (and repaired) the pod-and-boom assembly with the polyhedral wing. I also had made several small design changes correcting weak points in the stab and rudder construction.

"First Flights - polyhedral wing: After a couple of trim tests, running around the field, reluctantly tossing when I felt it was ready to fly, I decided to launch it on a hi-start. The first thing I discovered was the difficulty in holding on to the sleek fuselage with my heavy-duty hi start pulling on it.

"The launch was straight and moderately high...BLP was airborne! I let it sit at the top of the launch for a second or two to see what it wanted to do. After a slow turn downwind, it assumed a nose-high attitude and began to stall. A little down trim got it moving, and as I came around into the wind it started to go up!

"Mapping out the lift in my circle, I put in a little 'up' trim, and managed one revolution before the plane needed a bit of cross - or opposite - stick to prevent over-banking; but now it was nose up, then diving; quick - 'up' stick - and whoops! I almost looped...obviously over-controlling...but a switch to low rates smoothed out my climb and I managed to stay with the



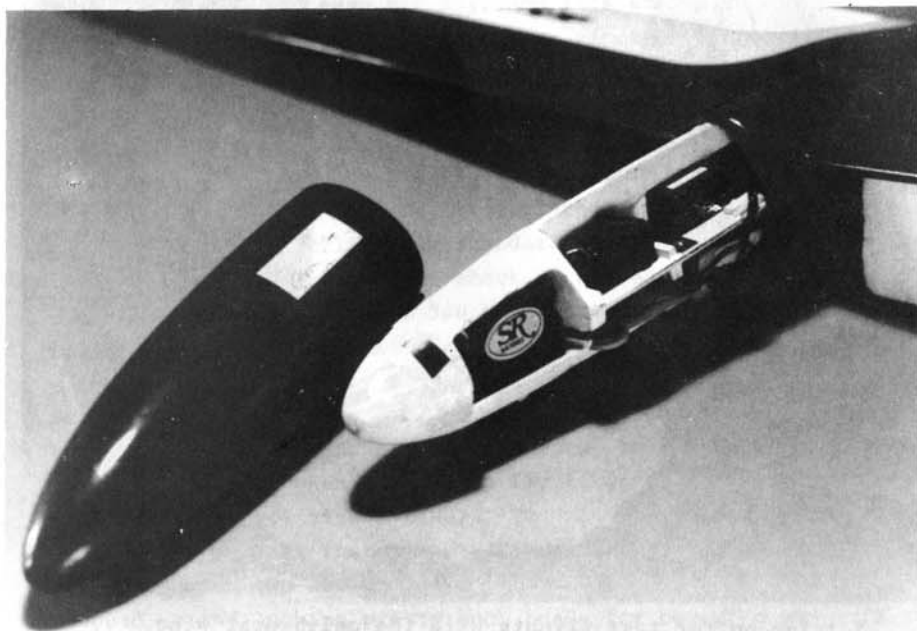
Setting up for test flights with the polyhedral wing. poly wing has spoilers, dihedral wing has flapperons and spioilers. An aileron/flap wing is under construction.

lift. That first flight lasted a respectable five minutes with a fast, smooth landing and resultant slide that would have put me through two landing circles. I had to catch my breath!

"I've spent the last month flying BLP in every sort of weather, and from small cramped fields as well as large open vistas. In good soaring weather, flights have been exciting, with steep launches and smooth climbs. The flaperon wing performs crisp turns, and the angle of bank can be controlled by using opposite aileron to hold up the inside tip, while feeding rudder into the turn to keep the turn going (cross-controls... something I couldn't do with rudder only).

"I have the controls set up to operate on my new single-stick radio, and have ailerons on horizontal axis with rudder on the twist knob. Flaps are on the auxiliary trim switch (top left) and spoilers are on the 'retract' switch (top right). My dual rates are set for full exponential on 'high' rate and 40% throw, and one-half exponential on 'low' rate.

"With this arrangement I can launch and land on 'low' rates with no problems, while 'high' rates are saved for aerobatics such as outside loops and rolls (I've yet to complete a perfect roll). The exponential feature of this radio helps me fly smoothly on 'high' rates and really smooths out a thermal turn on 'low' rate.



Radio gear is all right there however connecting spoilers is still fussy work.

"With a plane this responsive, overcontrol can be a big problem when trying to work weak lift with minimal inputs or when directly overhead. In strong, narrow thermals, BLP really performs. With lots of practice, I'm getting used to using all three axes to carve out a tight, smooth turn by finding just the right stick position - say, for a clockwise turn, the stick might be pushed right to begin the turn, then pulled back slightly and pushed left slightly to stop the inside tip from dropping. Meanwhile, the rudder knob is twisted slightly to the right to overcome the coupled-aileron-and-rudder input.

"As you can see, this sailplane takes your full attention! As yet, I'm still learning this maneuver, and I frequently lose my concentration after a few turns -- and wind up doing everything backwards -- rolling out of the lift in a diving split-S spiralling turn...rather like riding an electric bull!

"There are simpler ways to fly this configuration, such as switching off the C-A-R and flying elevator-aileron, or using C-A-R and leaving the rudder alone. I am still experimenting to find out the best approach to contest flying, and I would be interested in hearing any comments from readers having experience flying multi-function contest planes.

Landings are fast because the flaperon/flap deflection is only about 35 degrees maximum (contrary to what I had hoped and designed for). I come in as long and as low as the field allows, and bleed off speed with flaps and elevator. The spoilers are only used at the edge of the landing circle with about three feet of altitude. The retract switch means it's all or nothing ('up'/'down') and this simplifies things for me at this critical moment. I have installed a 1/8" toothed belt skid which helps shorten the slide.

"To be perfectly honest, I am not yet the master of this glider. My air times are averaging about 4 minutes from hi-start launches. Landings are getting better, but I need lots of practice to be consistent. In a contest I would probably do better if I flew my old two-meter floater, but this plane is a real CHALLENGE to fly! (And Bob likes challenges...JHG).

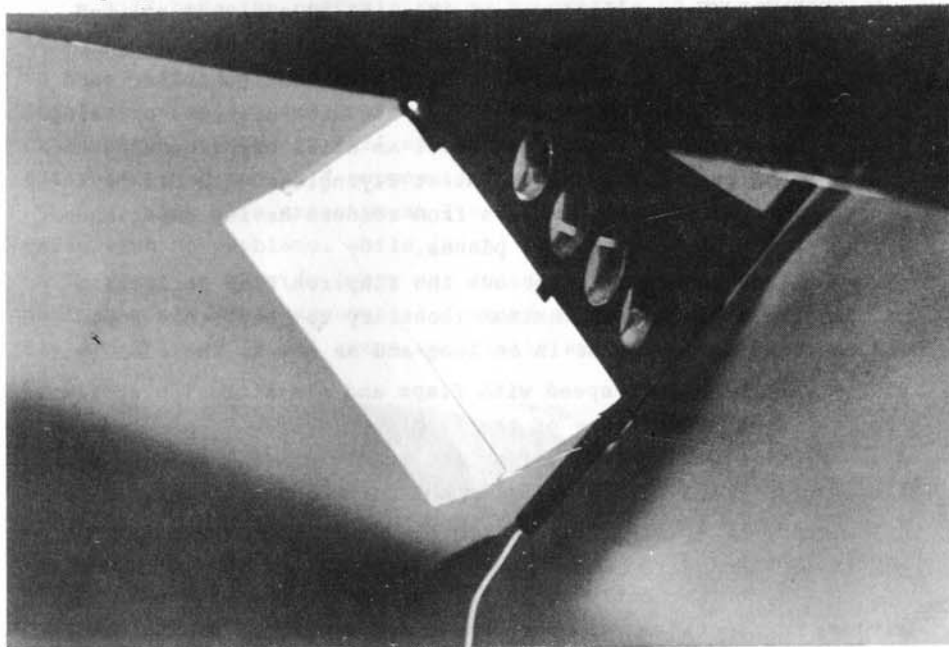
"In Conclusion: BLP has been a great learning process. One of the most important things I discovered is that designing a good sailplane is the result of years of experimenting in 'real world' flying.

"BLP is an interesting glider to look at and to fly, but it's not (yet) the all-around performer that I had imagined; and, in solving some problems, I have created new ones. BLP will continue to evolve as I sort out its good and bad points on the flying field.

More BLP...Rondeau continues:

"BLIP (Best Laid Improved Plans) will begin to take shape next winter. I intend to keep some of BLP's features, but I have a new agenda: I want to use my pod-and-boom arrangement, but will do away with the T-tail (too fussy). I would also like to have 80-degrees of flap like on my beloved WINDSONG. Flat fuselage sides would be simpler for mating wings to, and the same goes for the vertical fin. Simpler, lighter construction would be in order, and good contest performance will be my major aim.

"Who knows? I may just work myself all the way around to a polyhedral floater!



Double hinged rudder is fun-but not really needed on the flaperon version. It turns the poly wing nicely.

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Editor's note: For those of you who wish to write Bob or call him about this article, drop him a line c/o Robert W. Rondeau Graphic Designs, 73 Main Street, Brattleboro, VT 05301...or call him at 1-802-257-5748 (daytimes) and/or 1-802-257-7860 (evenings).

## Dealers!

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Dear Mr. Gray,

If you want to keep the pot boiling over airfoil plotting, here is another method without the cost of vernier calipers, graph paper and no calculations. This method was taught at Delgado Trade School in New Orleans during the thirties and was passed on to me by a shipmate who had attended there. This method will give hundredths of a percent, which is closer than we can hold foam or balsa, and has the advantage of being drawn on the same paper on which the airfoil is plotted.

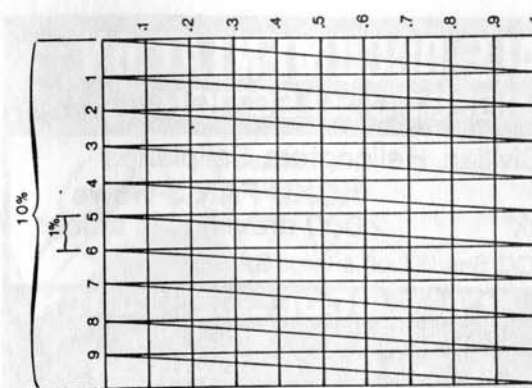
For real stability mylar draughting film is best, but Tandy Leather Co. often has small rolls of acetate film available. This is not as stable as mylar but is better than paper when the humidity changes.

I think the drawing is self explanatory, but this may help. The graph is 10% wide (horizontally) and divided into 10 1% sections and the vertical 10 equal divisions can be an arbitrary dimension. Each horizontal line measured to the slanting lines is 1/10th of 1% and one can estimate 10ths to arrive at 100ths of 1%.

The only tools needed are a good scale (ruler), a sharp drawing pencil (4H-7H) and a pair of dividers.

I enjoy R/C S D very much. Thank you for the good work.

F. F. Jorrey  
5484 Chollas Sta. Rd.  
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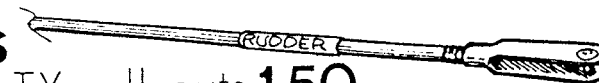
I've run out of storage space, and the ponderous proliferation of papyrus in the form of mountains of magazines has got me on the run...I'm being forced out of my office and workspace. Here's how YOU can help:

I want to sell my collection of SOARING magazines, and those of you who are interested in full-scale soaring will recognize SOARING as the official Journal of the Soaring Society of America. I have a collection that is unbroken back to about 1957, with single copies going back even further -- to about 1946 and 1947. This represents an almost priceless collection of soaring information, articles, photographs, three-views, flight test data and the rest, and is a valuable historical reference library. I really can't afford to give them away, BUT I will sell them to the first person who comes to pick them up with about \$500 in cash... a negotiable figure, by the way. I can't afford to ship them, so plan to bring your car.

Oh yes, I almost forgot to mention that these aren't ratty dog-eared issues with missing covers. They are all in shelf boxes and in like-new condition, except for a few of the really old ones. If you've just got into modelling in recent years, here's your chance to catch up on everything that's happened in the world of full-scale soaring since World War II. If you're an old timer, here's your chance to pick up some of those things you may have missed...and an opportunity to fill YOUR collection. Call me at (603) 924-6759 and tell me when you're coming. I'll meet you at the door!

Jim Gray

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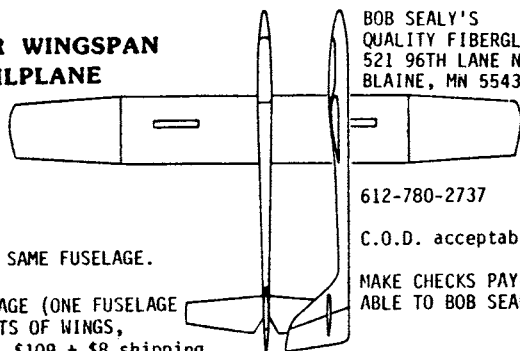
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