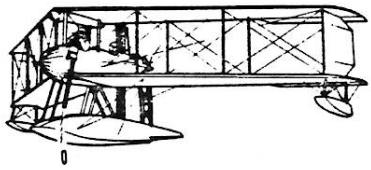
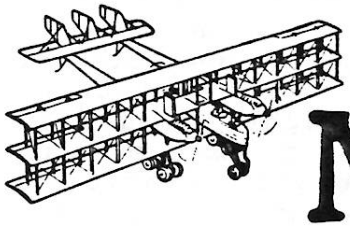
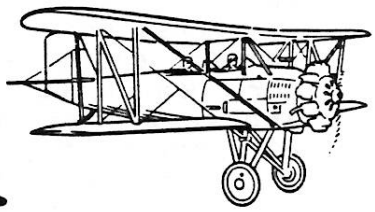
Catapulting Navy "Corsair" — 1932



Bombing Device—Burgess-Dunne Plane



Caproni Heavy Bomber—Italy



O2U Scout-Observation—1928

MAX - FAX

THE NEWSLETTER OF THE D. C. MAXECUTERS

NOV/DEC 88

MEMBERSHIP

Dues for membership in the D.C. MAXECUTERS is $10 per year for residents of the USA, Canada, & Mexico, and $11 for all other countries. Your mailing label indicates the last year and month for your current membership. A red X next to the label is a reminder that your current membership has ended. Send a check, payable to the D.C. MAXECUTERS, to the Treasurer.

MEETINGS

The D.C. MAXECUTERS hold meetings on the first Wednesday of every month at the College Park Airport.

PRESIDENT

Bill Ceresa
11410 Blueridge Dr.
Beltsville MD 20705

SECRETARY

Bert Phillips
1709 Crofton Parkway
Crofton MD 21114

TREASURER

Allan Schanzle
20008 Spur Hill Dr.
Gaithersburg MD 20879

UPCOMING EVENTS

Nov. 5 1988 : Pax River Indoor Contest. See Flyer in this issue.
Nov. 19 1988 : Indoor flying at Sherwood H. S., 4:00 - 7:00 PM.
Dec. 3 1988 : Sherwood H. S., 4:00 - 7:00 PM, Helicopter contest.
Dec. 10 1988 : Christmas Banquet, see Club News.
Dec. 17 1988 : Sherwood H. S., 4:00 - 7:00 PM, Bostonian (14 Gm).
Jan. 14 1989 : Sherwood H. S., 4:00 - 7:00 PM, No Cal (7 Gm).
Feb. 4 1989 : Sherwood H. S., 4:00 - 7:00 PM.
Feb. 18 1989 : Sherwood H. S., 4:00 - 7:00 PM, Any scale 10 inch or less wing span, (5 Gm minimum).
March 4 1989 : Sherwood H. S., 4:00 - 7:00 PM, Indoor Towline glider contest, (sheet balsa, foam, or tissue covered frame).
March 25 1989 : Sherwood H. S., 4:00 - 7:00 PM,

CLUB NEWS

Bert Phillips

In case you have not noticed, model builders are different. One might even say "strange." I'll give you an example. At the September meeting, Allan Schanzle, our eternal treasurer, long-time Newsletter editor, and forever contest director, announced that after expending vast sums of energy and time over the past year to make the FAC NATS run right, that he would really like some time to build a model.

In pursuit of his goal, Allan asked for a volunteer to put together a couple of issues of MAX-FAX. Now we all know it's a lot of work and that Allan certainly has earned the right many times over to take off his editor's hat now and then, but when Allan asked for volunteers, I thought it would be a good idea not to look at him. Maybe he wouldn't notice that I was there. I concentrated on looking at an exposed nail head in the opposite wall and became partly mesmerized by it, and then I heard my name being called, as if from a great distance. I reluctantly took my attention from the fascinating nail head and came back to full consciousness, only to learn that all present had agreed that I would be the one to volunteer, presumably because they all knew I owned a pencil (all club secretaries own pencils). No one seemed to care that I'm a poor speller.

So here I am - the Newsletter editor for at least two issues. Allan said I had to do two issues or until I learned to do it right. So I please ask you - if you see Allan, tell him what a wonderful issue of MAX-FAX this is. Some of you live far away - a postcard will do. At the same meeting, Doug Buchanan volunteered to run the MINI-CONTESTS for the indoor season at Sherwood Gym, and he wasn't even at the meeting. You may be hearing about it before he does.

The September Fun Fly has come and gone. It was a little more windy than most of us would have liked. Contest results are elsewhere in this issue.

After the contest, many of us went out to eat, and Allan asked me if I noted any amusing anecdotes at the contest for the Newsletter. "Oh, Gosh," I thought, "I got so involved in trying to make my stupid (read overweight) embryo do better than 25 seconds that I plain forgot, even though I had brought my pencil and a piece of paper for just that purpose." However, I did remember two:

Amusing Anecdote #1 - A contestant who shall remain nameless tripped over the tent peg while approaching the registration table and fell on the box containing all but one of Allan Schanzle's airplanes. But this contestants plans went astray, since one of Allan's models (the Focke Wulf for power scale) was at the judging area, and he managed to squeeze out a first place in this event. But the unnamed contestant did manage to wipe out two other models.

Amusing Anecdote #2 - Claude Husted, my good friend for 46 years, of Wilmington, Delaware, came down with a dozen or 15 really nice models and with the high wind and bad luck, proceeded to break several of them. As he was packing up to go home, he remarked that his wife will wonder why he had to come all the way to COMSAT to break them when he could have broken them just as well in the front yard. But Claude has true grit, and he will be back next year. He had a nifty Jumbo Church Mid-wing with a dummy engine that looked like it would start if someone yelled, "Contact." Earl Stahl took a picture of it. If Earl wanted a picture of one of my planes, I wouldn't care how many planes I broke, either.

Don't miss the November 5 Pax River Indoor Contest if you can help it. It's almost like flying

outdoors, but with no wind. This may be the last time we get to use the Rotary Wing hangar, as they are going to put up some kind of stationary test rig, thus rendering the premises unsuitable for the March 1989 contest. Watch this space for future bulletins. Claude Powell, our man at Pax River, is working hard to get another hangar.

The MAXECUTER'S Christmas banquet (gads, is it that time already) will again be held at the OLD EUROPE restaurant on December 10 1988. Cash bar, 6:30, dinner at 7:30. Cost is the same as last year at $ 18.50 per person, (including tax and tip) and of course, ladies, girlfriends, or day old acquaintances are welcomed. *HOWEVER, DUE TO A TRIP BY PAUL SPREIREGEN, WHO HAS MADE THE ARRANGEMENTS AGAIN THIS YEAR, YOU MUST INDICATE YOUR INTENTIONS TO ATTEND NO LATER THAN NOVEMBER 16 1988. THERE IS NO GUARANTEE THAT YOUR RESERVATION WILL BE ACCEPTED IF YOU NOTIFY PAUL LATER THAN THIS DATE.* Send a check, payable to Paul, to the following address.

Paul Spreiregen
2215 Observatory Place N. W.
Washington D. C. 20007

As most of you know, this restaurant serves some of the best German groceries in the metropolitan area. You will be allowed to select, at dinner time, one of 4 entrees and 3 deserts. Unfortunately, at the time of this writing, we do not have the guest speaker lined up, but several individuals are being contacted.

If you check the upcoming events schedule, you'll find a whole slug of indoor dates for Sherwood High School. If, for some strange reason, the heavens bless us with large quantities of that white stuff, you can get school closing information by calling 279-3673.

We have another full-size folded plan in this issue of Jerry Paisley's Cessna C-145. This is a plane worth building. Jerry got third in the Golden Age Mass Launch at the FAC NATS. Professor Bud Carson - famous as the originator of Coconut scale - has contributed another fine technical piece. This is the fourth episode in the series. Good as it is, I liked the one which explained squeezing watermelon seeds the best. And speaking of watermelons, you'll find the lyrics of a song dedicated to Allan. You can figure out the relationship to watermelons after reading this masterpiece. Also included in this issue is the 3-view of the plan by Hurst Bowers that appeared in the last issue. Seems that our editor fell asleep at his desk last time. Finally, Tom Schmitt offers us his usual array of fine photos.

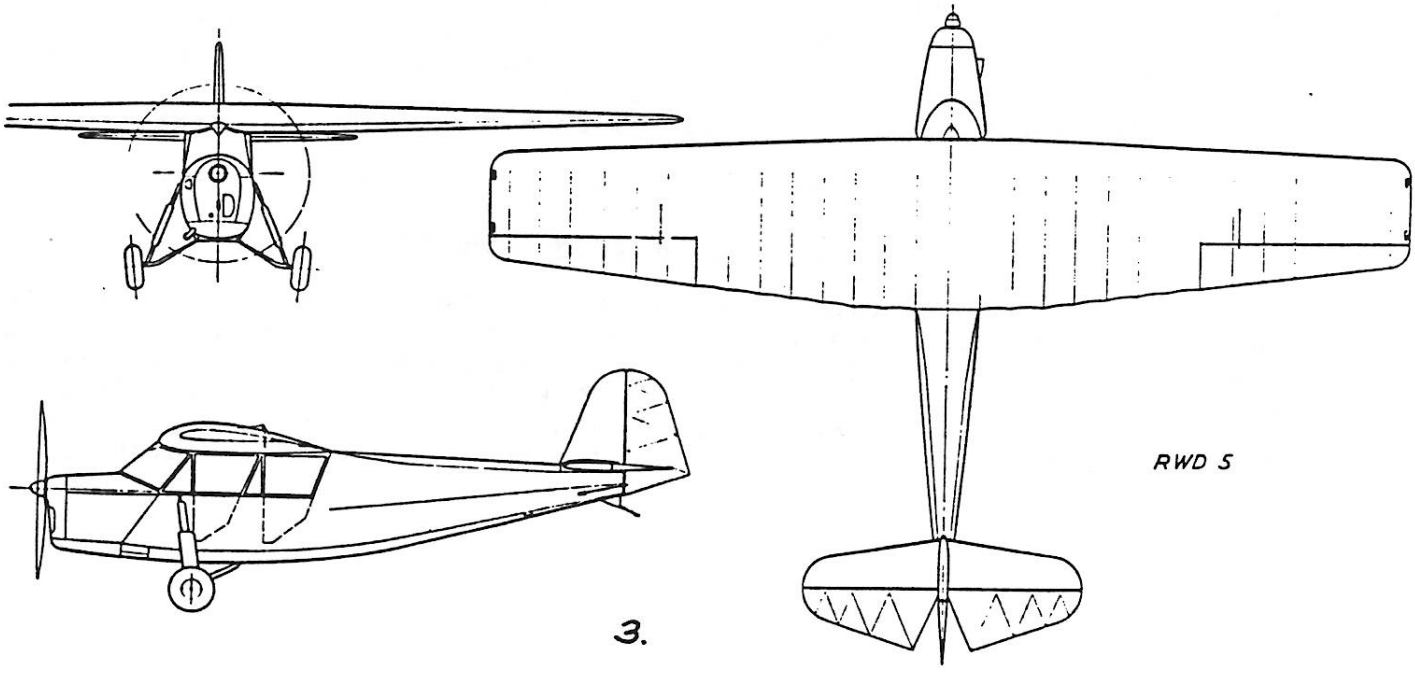


PHOTO PAGES

Tom Schmitt

1. This issue's full size plan is by Jerry Paisley. It's his high flying Cessna C145.
2. How about an electric powered PEANUT? Don Srull shows off his Hi Line powered Huntington.

MAXECUTERS Summer Fun Fly

3. Rowland Hoot explains some of his Vultee's finer points to Paul Spreiregen.
4. That dynamic duo from Pennsylvania, John Houck and his better half get ready for WWII.
5. Mark Houck usually walks away with his share of the prizes; our editor and CD awards him a trophy.
6. A RAIDEN no more; Dave Rees surveys the mess after a dork with a fully wound motor. Four Pound balsa just doesn't make it under those conditions.
7. The ole professor, Bud Carson showed up with a nifty Libel Jumbo scaled up from a Walt Mooney plan.
8. Bill Bell and his very pretty original Bellanca CF, soon to be a MAX-FAX full size plan.

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9. Jane Schlosberg and Dave Smith model the CACTUS SQUADRON T-Shirts; they are very colorful, terrific, and available to our readers for a nominal price. See note on this page on how to order.

KUDZU FAC Contest in North Carolina

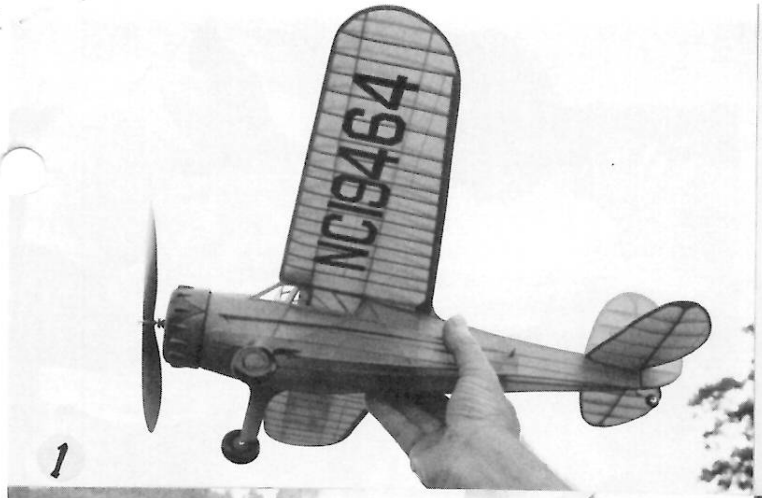
10. Dick Schneider's terrific JUMBO Pilatus Porter heads for the clouds.
11. Joe Hurdle prepares his very pretty Hughes for the Races; note the nifty KUDZU T-Shirts.
12. Dave Smith from South Carolina shows off two of his latest creations, a Douglas Skyshark and a Curtiss Helldiver. How about some plans Dave?
13. All the gang at the KUDZU meet; how about some more of you out there joining the fun next year. It is a great place to fly and we have a terrific time with Dave Rees, Tom Odom and Bob Wedell as genial hosts.

More FAC NATS Photos by Glen Simpers

14. Dave Stott's JUMBO version of the DH-4A.
15. A close-up of Allan Schanzle's high flying CO2 powered FW-190.
16. Mike Midkiff's DH-5. Mike will be happy to sell you a plan of this aircraft. I have one and it is great.
17. Another beautifully done model by Dennis Norman, his JU-88.

CACTUS SQUADRON T-SHIRTS

Take a look at Number 9 on the Photo Page. Those terrific CACTUS SQUADRON T- Shirts are available from Bob Schlosberg for price of $7.50 each plus $2.00 shipping. The sizes are med, large, X-large and XX-large. Mail orders to Bob Schlosberg at 7420 E. Buena Terra Way, Scottsdale, Arizona 85253. Please make checks payable to Bob Schlosberg. Get one; I have one because not only is it colorful but has one of my favorite A/C!



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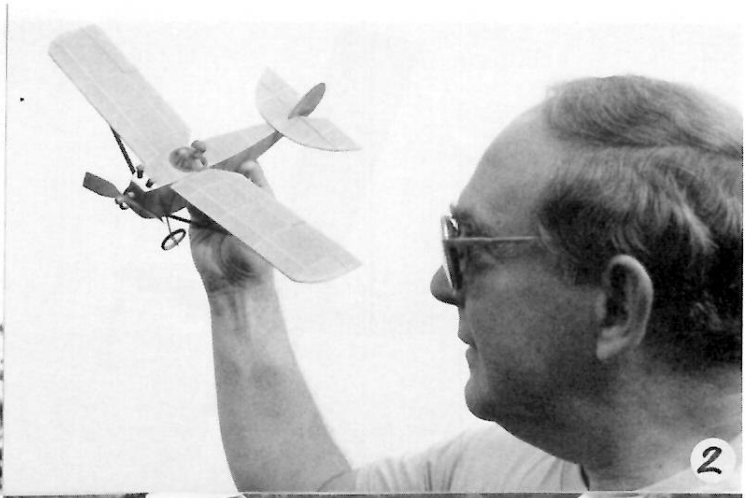
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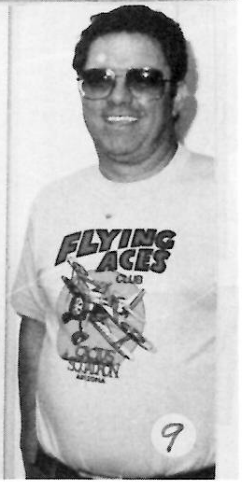

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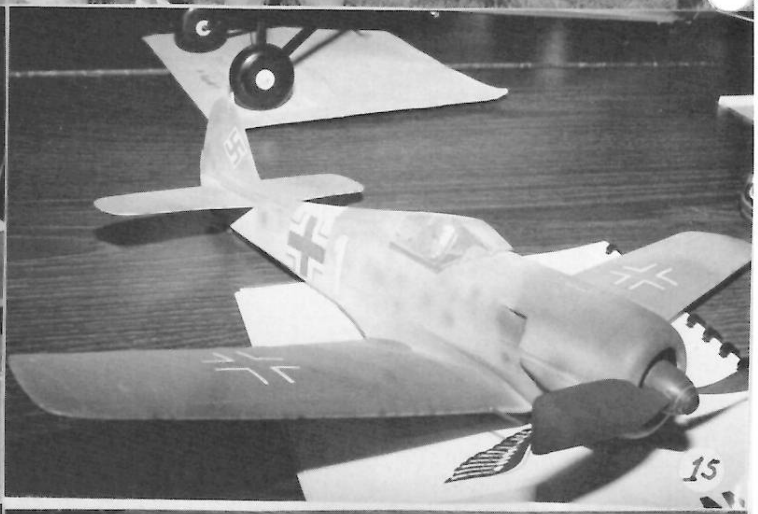
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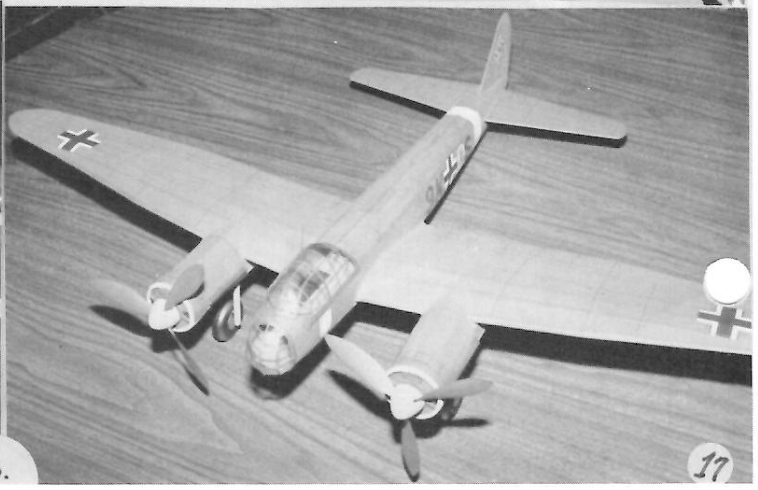
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BASIC AERODYNAMICS
-Bud Carson

PART IV:
LOW REYNOLDS NUMBER WINGS, OR CURSES, FOILED AGAIN

Last time (actually, in the issue before last) I said I was going to say something about airfoils in the next installment. The truth is, I've been dreading this. For more than a quarter century I have been doing and teaching aerodynamics, and you might think that by now, I might know something on the subject. Fact is, I do; on a full scale basis, I can usually hardball with the big guys on most any aspect of airfoil theory, design, or selection. Modelling is, well, something else. It's that *$!^#@* Reynolds number again!

Over the years I have read a good many model-mag articles on this subject, some of them very good, and certain others written by self-styled balsa-butchers who don't know their aspect ratio from their elevator. There has already been enough misinformation, half-baked theories, and just plain nonsense written on this subject to make an aerodynamicist want to stick his head in his wind tunnel; I just read an article published a few months ago where the author asserted that a wing worked on the principle of bouyancy (as in, say, the Goodyear blimp) and so fatter airfoils were thus bound to produce more lift than skinny ones. Thus it was the wing's volume, not its area, that really counted. Pity the poor microfilm model with its zero-bouyancy, .0001 inch-thick wing, condemned forever to remain earthbound! His theory would (you should excuse the expression) hold up better if our wings were filled with helium, or at least hot air. There was enough of that going around in his article to float the B-1 bomber.

So now comes yet another blurb on the subject. Before I begin my discourse, however, I must relate this story about airfoils that I got from Maynard Hill, an old acquaintance and one of the all-time great radio control pioneers, having at one time held practically every RC record imaginable. Maynard is a metallurgist by trade, not an aerodynamicist who has pickled his brains from years of sniffing manometer fluid, and could therefore speak coherently on the subject

The story begins when he was setting the R/C altitude record. Somehow it had just never occurred to him to put vents in his Monocoated wing, so the plane took off with the wings sealed up tighter than a drum. As the model ascended to its record-setting height, the outside pressure fell, and the trapped air began to expand. He figured later that the seams must have leaked enough to equalize the pressure; otherwise, the wing would have exploded. Coming down was a different story. The seam leaks were one-way valves, and refused to let the air back in. The outside pressure eventually compressed the wing so badly that the ribs collapsed. Naturally, Maynard was blissfully unaware of this until the ship got back on the ground. You can imagine his consternation when he found his wing reduced to nothing more than a plastic bag full of scrap balsa that rattled when he shook it, as if it had been steamrollered!

The mystery was that the plane had given no hint of this in the approach and landing pattern, flying merrily on just as it normally did. "Right then and there," Maynard delares, "Everything I thought I knew about airfoils went right out the window!"

Well, maybe an airfoil shape for anything but the truly high performance stuff like Wakefields really doesn't matter that much, as Maynard found by accident, as long as it looks like an airfoil to begin with. Maybe yes, maybe no. There seems to be compelling evidence of this down at the scale level where we Maxecuters normally fly. The next time the clan gathers, take a close look at Don Srull's models. (I usually find it hard not to!) Don seems to prefer the traditional "Clark Y-ish" type scale airfoils that complement the realistic appearance of his models. On the other hand, Dave Rees prefers the flat bottomed, sliced rib approach, regardless of the model design, for its weight-saving advantage. Both Don and Dave are superb modellers who build gorgeous models that are trimmed to fly magnificently, wringing every second out of the timer's watch possible. That should tell you something about airfoil selection; I know it does me. What it tells me is that if there was one "right" approach to scale model airfoils, you can bet your sweet Ohlsson they would both be doing it. Ergo, there must be more ways than one to skin a cat, or to hack out an airfoil.

So in the remainder of this article I am not going to bore you with all that stuff you know already, about the air going faster over the top surface of an airfoil, and Bernoulli's principle, etc. etc. Instead, let's look as some of the things about airfoils that a

number of people have asked me about, and consider a few practical aspects of model airfoil design.

First of all, I find many fellow modellers very much concerned about the merits of undercamber. I get asked about this all the time. Is it good to have? If so, how much? Here are the answers I feel comfortable with.

Many experienced modellers shun undercambered airfoils because they believe that when airfoils have noticable undercamber, unnecessary drag will be the result, which is certainly true at low angles of attack. The flow will separate off the bottom side of the leading edge, creating a drag-enhancing "dead water region" underneath the airfoil. That's why you seldom see much undercamber used in power freeflight, where the models rocket straight up at zero angle of attack in the minimum drag configuration. On the other hand, undercamber transfers the load on an airfoil aft with increasing speed, so it helps provide high-speed trim. That is, at speeds above normal trim (as happens shortly after launch) the undercambered airfoil produces a nose-down pitching moment that tends to counteract the decalage provided for trimmed flight at lower speeds, so you don't have to put as much downthrust in to prevent initial stalling. Remember, a large amount of downthrust needed initially to overpower the decalage is going to penalize performance later on when the speed settles down.

Another advantage to undercamber is that it gives the leading edge a better "entry angle" into the airflow at high angles of attack, where endurance models spend most of their flight time. Finally, undercamber will direct the flow downward at the trailing edge, which helps entrain flow from the upper surface, moving the separation point aft. Thus undercamber may help decrease presure drag, and increase the stalling angle. The main disadvantage of thin, highly undercambered airfoils is the problem they present in structural design. One of Tony Fokker's major contributions to aeronautics was his discovery that thick wings having no undercamber worked as well as thin wings, but could be made much stronger, eliminating the need for (and the attendant drag of) external bracing.

This should give you some insight on the undercamber issue. When to adopt undercambered airfoils appears to be a matter of taste, and mostly application. For most scale models, the question is really academic, unless the prototype itself actually had undercambered wings, as was typically the case in pre- and early WW I aircraft. An undercambered wing might make a scale Spitfire fly a bit better, but it would surely spoil its good looks. For embryos and Bostonians, my advice is to forget undercamber, but if you are really hung up on it, go ahead and experiment. It only takes an hour or so to build an extra wing for one of these ships, and you can rubber-band it in place until you decide which wing, the one with, or the one without undercamber, gives the better performance.

The same thing holds, incidentally, with props. I used to carve undercamber in my props, but for some time now, I have simply used flat-bottomed sections. I can't tell the difference - maybe someone else has some insights on this that I've overlooked. If so, I would love to hear about it.

The next thing people ask about is turbulators. Normally, flow over a wing will undergo "natural transition," i.e., transition from laminar to turbulent flow, at a Reynolds number of around 500,000. The advantage of having the flow turbulent is that the boundary layer is more energetic, and hence will remain attached where the flow would normally separate (i.e., stall) if it remained laminar. This process can sometimes be forced to occur at lower Reynolds numbers if the leading edge is roughened by gluing on spanwise threads, applying thin strips of tape, and so forth. These are called "boundary layer trips," or turbulators.

There is a limit to this, however. At chord Reynolds numbers of 30,000 or so where most of our scale models fly (see the previous installment) it is not possible to induce leading edge transition, no matter what method is used; the flow will simply remain laminar. In fact, a trip may even cause laminar separation, which is exactly what you *don't* want. I believe what many people call "turbulators" are not really turbulators at all, but what I call "Coanda inducers." I will not go into the Coanda effect here, but you can demonstrate this easily by turning on your kitchen tap until the flow comes out of the spigot in a smooth stream. Now take a teaspoon and slowly bring the *back* (convex) side into contact with the water. You should see the water suddenly, almost magnetically, attach itself to the spoon and cling to the surface, following the surface completely around without separating. It is possible to divert the direction of the stream by perhaps 30 degrees or more. What you are

witnessing is called the Coanda effect. No one really knows for certain why this works.

I am firmly convinced that thin, spanwise leading edge spars like the ones seen on the Korda Wakefield, Lamb Climber, Stahl Gypsy, and other high performance models of the 1930's era are not "turbulating spars" as they are often referred to, but rather, highly efficient "Coanda inducers", which help keep the flow attached at high angles of attack, and this feature has been incorporated in all my P-30 designs, which so far have never failed to place in any contest they were entered in. (This is also a great way to build a very light, strong wing; the thin outer spars give the model much more stiffness than one or two thick spars of the same total cross sectional area.) A relatively new form of construction, known as "cracked ribs", where a balsa sticks are simply broken over a full-depth spar to form triangular shaped ribs, which then becomes the supports for spanwise leading edge spars, does the same thing with minimum building effort. The result is a series of flat leading edge "ramps" (depending on the number of spars added) that will "Coanda" the flow around the airfoil and help keep it attached. I should point out that this is an original idea and to my knowledge has never been discussed in the literature.

Now, what about this "wing volume" business; do thicker wings produce better lifting characteristics than thinner ones? The answer is, generally speaking, yes, but the reason most assuredly has nothing whatever to do with bouyancy. A thicker wing usually has a more rounded leading edge, which tends to "smear out" the stall region so that the model willl fly at or near the stall, mushing along, perhaps, but still flying. In contrast, a thin wing will normally have a much more abrupt (some even say "vicious") stall than a thicker wing because of its relatively sharper leading edge, which causes the flow separation at stall to be highly localized.

You might be interested in knowing that during the great air racing era, many designers opted for extremely thin "racing sections," believing that they were better suited to high speeds. The result was a tragic series of accidents attributed to "high speed stalls," which is really a misnomer, since stalling has little or nothing to do with airspeed, but only angle of attack. There was of course, no mystery; these thin sections simply paid off in high-g (i.e., high angle of attack) maneuvers with virtually no warning to the pilot, and in he went.

People who have built R/C versions of some of these aircraft, such as the Gee Bee racer, have evidently found the models to be as squirrely as the real ships , which they have thus attributed to lack of "wing volume," but the problem is simply the result of the thin, sharp sections used on these ships.

For this reason, my practice has been to round my leading edges so some extent. I have even done this on my peanuts and pennyplanes. Perhaps it's only self-delusion, but I believe this to be the correct approach. As for thickness, going much above a 12% thick section is not going to improve lift, but will increase pressure drag appreciably, since laminar separation takes place at or slightly beyond the point of maximum thickness at low Reynolds numbers.

Last but not least, we should consider trailing edge design. These should always be quite sharp. The reason is that to get good lifting characteristics, it is important for the flow to shear cleanly off the bottom surface at the trailing edge, with no tendency for the flow to recirculate back into the flow streaming off upper surface. In fact, it is quite possible to kill lift completely at <u>any</u> angle of attack, simply by rounding off the trailing edge sufficiently, and it doesn't take much. This is the principle of "non-lifting" struts that may still be seen at the local airport on Cessna aircraft. So we should all take some care with our trailing edges. How sharp is sharp? Well, as sharp as you can make them without risking a trailing edge warp, or cutting your finger, whichever comes first. That's about as good as you can do.

So there you have it. No equations or graphs this time, folks, just a few "rules of the road" in Low Reynolds Number aerodynamics. Much of aerodynamics in our scale model region still remains a mystery, but I hope these general insights will prove helpful to the modelling community. I will certainly welcome any reader comments.

1988 SUMMER FUN FLY

FAC SCALE

	NAME	AIRCRAFT	STATIC: CONST	STATIC: COLOR	STATIC: WORK	STATIC: TOTAL	STATIC: BONUS	FLIGHT (SEC.): F1	F2	F3	SCORE
1.	REES, DAVE	CANT 1007	25	17	12	54	35	51	34	40	140.0
2.	EGGERT, WALT	SE-5	21	18	8	47	15	77	-	-	130.5
	REES, DAVE	NICHOLAS BEASLEY	24	18	10	52	10	69	62	66	126.5
3.	HOOT, ROWLAND	SANTOS DUMONT 14 bis	25	19	12	56	25	44	-	-	125.0
4.	HOUCK, JOHN	FOKKER D VI	20	15	8	43	15	41	58	-	116.0
5.	MAYO, ROSS	HEINKEL 100 D	23	17	10	50	10	50	42	20	110.0
6.	CARSON, BUD	FARMAN	23	17	10	50	5	41	52	-	107.0
7.	HOUCK, MARK	XB-42	19	15	4	38	10	52	-	-	100.0
8.	YODER, MARV	BOEING F4B4	20	15	6	41	15	27	35	33	91.0
	HOUCK, JOHN	BOULTON PAUL DEFIANT	23	15	8	46	10	27	-	-	83.0
9.	KLEINERT, R	PIPER J-3	22	17	8	47	0	27	35	28	82.0
10.	BELL, BILL	INTERSTATE L-6	23	16	9	48	0	22	27	-	75.0

POWER SCALE

	NAME	AIRCRAFT	STATIC: CONST	STATIC: COLOR	STATIC: WORK	STATIC: TOTAL	STATIC: BONUS	FLIGHT (SEC): F1	F2	F3	SCORE
1.	SCHANZLE, A	FW 190	25	20	11	56.0	10	60	27	-	121.0
2.	SRULL, DON	CURTISS OC-2	21	18	9	48.0	15	57	-	-	114.0
3.	REES, DAVE	HEATH BULLET	24	18	10	52.0	5	43	41		100.0
4.	EGGERT, WALT	FOKKER DR-I	24	18	8	50.0	20	28	-	-	98.0

JUMBO SCALE

	NAME	AIRCRAFT	STATIC: CONST	STATIC: COLOR	STATIC: WORK	STATIC: TOTAL	STATIC: BONUS	FLIGHT (SEC.): F1	F2	F3	SCORE
1.	REES, DAVE	BELLANCA 28-92	25	19	12	56.0	35	37	52	-	143.0
2.	CARSON, BUD	LIBEL	21	15	8	44.0	0	35	52	21	96.0
3.	PHILLIPS, B	CESSNA C-34	22	15	8	45.0	0	20	35	-	80.0
4.	BELL, BILL	TAYLORCRAFT	22	16	9	47.0	0	26	-	-	73.0

THE RACES

NAME	AIRCRAFT	ROUND ELIMINATED 1	2	3	4	5	PLACE
	FLIGHT A						
HOOT, ROWLA	SUZY						1
MAYO, ROSS	CESSNA CR-3		X				3
HOUCK, JOHN	GEE BEE 1			X			2

WW-I

NAME	AIRCRAFT	ROUND ELIMINATED 1	2	3	4	5	PLACE
	FLIGHT A						
DRISCOLL, DAN	SE-5	X					
REES, DAVE	MARTINSYDE S-1						1
HOUCK, JOHN	FOKKER D-VI	X					
BELL, BILL	FOKKER D-VII	X					
MAYO, ROSS	BRISCOL SCOUT		X				
	FLIGHT B						
HOUCK, MARK	FOKKER D-VII	X					
HOOT, ROWLAND	ALBATROSS			X			3
EGGERT, WALT	SE-5	X					
ROEDEL, BILL	SE-5	X					
SRULL, DON	DH-VI		X				
GREGORY, ROLF	DH-VI				X		2

GOLDEN AGE

NAME	AIRCRAFT	ROUND ELIMINATED 1	2	3	4	5	PLACE
	FLIGHT A						
SIMPERS, GLENN	TAYLORCRAFT		X				
HOOT, ROWLAND	FAIRCHILD 24			X			
YANOSKY, TOM	CORBIN	X					
DRISCOLL, DAN	PIPER J-3		X				
REES, DAVE	NICHOLAS BEASLEY						1
HOUCK, JOHN	DOUGLAS Y10-43			X			
ROEDEL. BILL	PUSS MOTH	X					
BELL, BILL	LINCOLN APK-5		X				
BUCHANAN, DOUG	ALLIED SPORT	X					
	FLIGHT B						
HOUCK, MARK	AERONCA 7AC		X				
POWELL, CLAUDE	BUCKER JUNGMAN 131		X				
KLEINERT, RANDY	PIPER J-3		X				
YODER, MARV	CURTISS ROBIN	X					
GREGORY, ROLF	CESSNA C-37					X	2
CARSON, BUD	FAIRCHILD 24	X					
MAYO, ROSS	REARWIN SPEEDSTER	X					
SPREIREGEN, PAUL	PUSS MOTH				X		3

EMBRYO ENDURANCE

PLACE	NAME	BONUS PTS	FLIGHT TIMES (SEC) 1	2	3	SUM	TOTAL PTS
1.	DRISCOLL, DAN	3	66	56	60	182	185
2.	HOOT, ROWLAND	0	72	41	44	157	157
3.	HOUCK, MARK	0	44	43	31	118	118
4.	PHILLIPS, BERT	9	35	28	28	91	100

HAND LAUNCH GLIDER

PLACE	NAME	FLIGHT TIMES (SEC) 1	2	3	4	5	6	BEST 3
1.	KLEINERT, RANDY	46	59	26	53	23	34	158
2.	HOOT, ROWLAND	35	14	50	18	17	38	123
3.	SIMPERS, GLEN	29	13	27	5	4	40	96
4.	HOUCK, MARK	26	16	31	18	-	-	75
5.	MC LINDEN, BOB	8	5	5	12	7	8	28

WW-II

NAME	AIRCRAFT	ROUND ELIMINATED 1	2	3	4	5	PLACE
FLIGHT A							
SCHANZLE, ALLAN	HELLCAT						1
REES, DAVE	MITSUBISHI RAIDEN		X				
HOUCK, JOHN	BOLTEN PAUL DEFIANT	X					
HOOT, ROWLAND	VENGENCE	X					
FLIGHT B							
HOUCK, MARK	P-51A				X		2
EGGERT, WALT	P-47	X					
ROEDEL, BILL	HEINKEL		X				
KLEINERT, RANDY	HELLCAT	X					
DRISCOLL, DAN	P-51			X			3

TO 'DA SCHANZ
(Sung to the tune of "THE RED RIVER VALLEY")

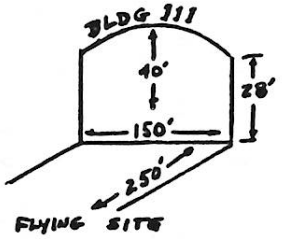
by the FAC Club Jester
and Watermellon Eating Champion

I was masking and spraying some roundels,
When my brush clogged so what did I do,
Well I grabbed me a copy of MAX FAX,
And proceeded, page by page, ah to flip through.

I was torn from this relaxing moment,
As I read the first line of Club News,
I was shocked, shammed, and sheepishly humbled,
Even more than when I forget my dues.

You were giving your sincere appreciation,
To the folks who wrote letters to you,
And you said it was almost worthwhile,
But an encore you simply wouldn't do.

Well I swallowed my deep guilty feelings,
Cause this Negro with his Boeing sure had fun,
So I sat down and wrote you this music,
Just to say,....Schanz your job, was, well, done.

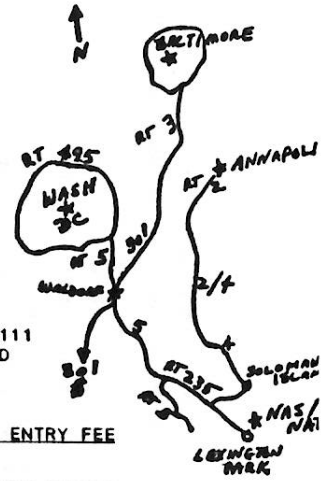


INDOOR MODEL AIRPLANE CONTEST

NOVEMBER 5 1988

9:00 AM - 5:30 PM

ROTARY WING HANGAR, BUILDING 111
NAS/NATC PATUXENT RIVER, MD
LEXINGTON PARK, MD



FAC RULES

NO ENTRY FEE

MASS LAUNCH		OTHER EVENTS
WW-I	12:00 NOON	FAC SCALE
NAVY SCALE	1:00 PM	FAC POWER SCALE (4 OZ. MAXIMUM WEIGHT)
PEANUT SCALE	2:00 PM	BOSTONIAN (ROG, 14 GM. MINIMUM WITHOUT RUBBER)
GOLDEN AGE	3:00 PM	COCONUT SCALE (1 OZ. MINIMUM WEIGHT)

SPECIAL EVENTS (NO TROPHIES)

NO-CAL (7 GM. MINIMUM WITHOUT RUBBER)
PENNY PLANE

AWARDS: 5:10 - 5:30

FAC JUDGING STARTS AT 11:00 AM. NO QUALIFYING FLIGHT REQUIRED.
NO FLIGHT SCORES RECORDED AFTER 4:30 PM.

LOCAL RULE: ONE MASS LAUNCH EVENT PER MODEL.

INFORMATION: COORDINATORS: CLAUDE POWELL (301) 872-4105
TOM SCHMITT (301) 530-0327
CONTEST DIRECTOR: ALLAN SCHANZLE (301) 840-5884

SPONSORED BY: NAVAL AIR STATION/NAVAL AIR TEST CENTER, PATUXENT RIVER, MD AND ST MARY'S COUNTY RECREATION AND PARKS.

Cessna C145 Airmaster

By Jerry Paisley

When our fearless editor put the bite on me for these plans I suddenly had a whole new appreciation for what Bert Phillips was saying in his article on The Boston Blinger (MAX-FAX July-August 1988). Like Bert, I didn't have a No. 3 pencil, so I asked if I could borrow his. He didn't even answer me! Bert is too nice of a person to ignore someone so I assume that he didn't hear me. Bert said that "Boston Blinger" is euphonious (agreeable in sound). I agree with you Bert, but the word euphonious sounds like something we would call a clump of red leaves that was found in top of the wrong tree while looking for an errant plane. (You Phonies's)

Conventional construction methods were used in building this model, however the following comments may be of interest to some.

The hot bent wing ribs can be formed several ways. One way is to steam a 1-1/2" x 1/16" sheet of balsa over a tea kettle and form to the desired airfoil over something cylindrical like a water glass. Walt Eggert told me one time, that there is something magical in "spit" that really helps the wood bend. I prefer to soak the balsa in water with household ammonia added, then bend over the hot barrel of a heat gun. Slice 1/16" wide ribs from the formed sheet with a balsa stripper. This method yields very smooth and unwrinkled ribs. Pin down the trailing edge, bottom half of the ribs, spars, leading edge, and raise the outer edge of wing tips flush with top the main wing spar. Next, place a 1/16" shim under the trailing edge where the wing tip joins. Install the top half of the ribs. Spray the entire wing with water to relieve any strain in the wood and let stand over night until dry. The wing frame will have a 1/16" washout at each tip free of strain or warps.

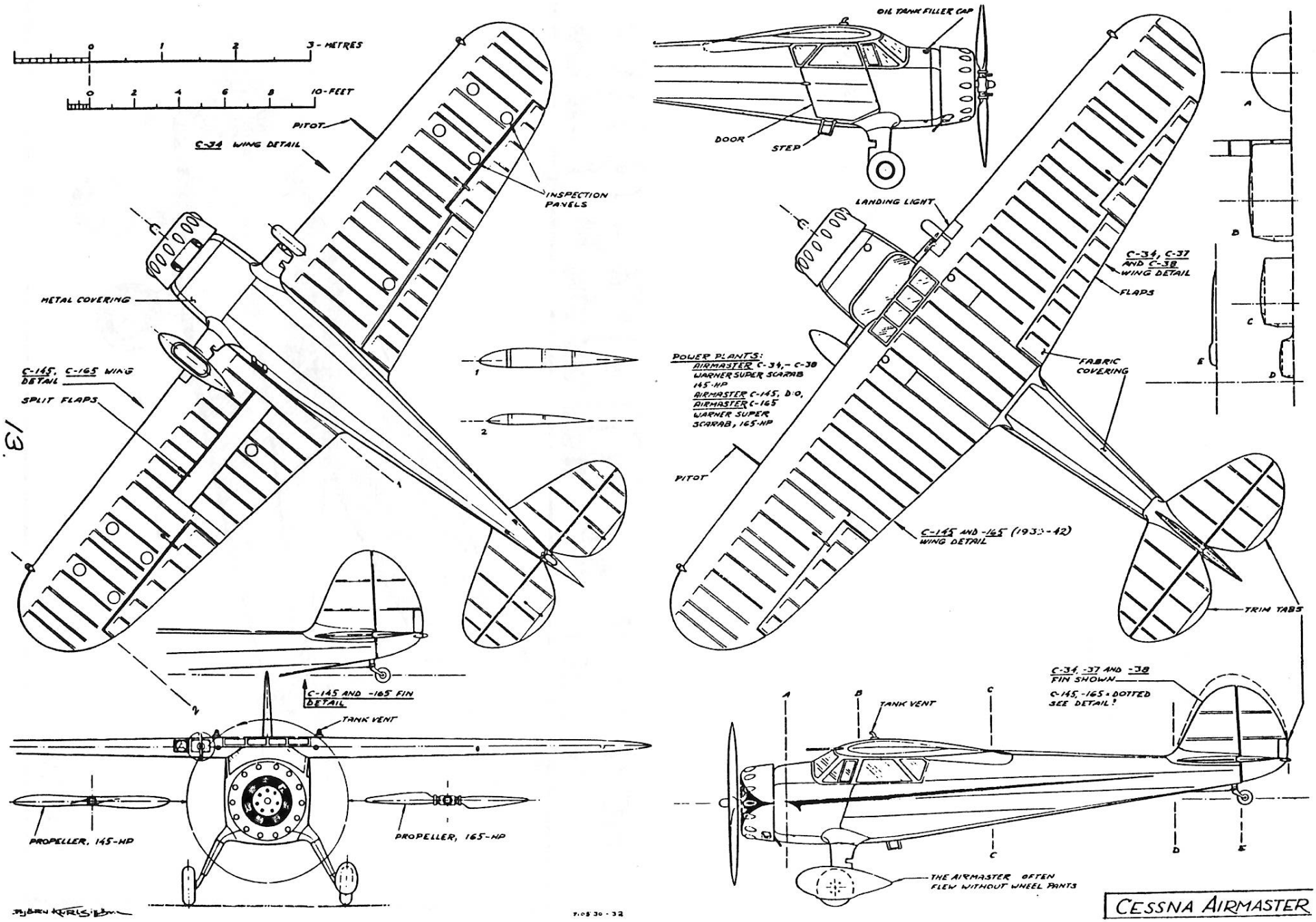
The landing gear fairing is carved from foam. Slice the leading edge of the fairing with a knife and slide over the landing gear wire and attach with white glue. Fill the gash with "Red Devil Onetime Spackling super-light" (Tom Schmitt MAX-FAX 7,8 1983). The fairing can be covered with tissue attached with white glue if you are good at this sort of thing on compound curves. I tried but couldn't make it, so I painted the foam fairing with thinned white glue to give it resistance to floquil paint and lacquer spray. If the paint finds a thin spot in the white glue and softens the foam, merely repair the spot with "Red Devil" and do it again.

The wheels are vacu-formed. Cement a 1/32" balsa bulkhead to the inside half of the wheel at the seam where the two halves join. Attach a 1/16" O. D. aluminum tubing to the inside wheel half and the bulkhead to form an axle bearing. Place this on the landing gear axle and secure with a washer and solder or glue. Cut the excess wire off. Cement the outside half of the wheel to the inside half and trim. Bingo! You have a completed wheel on the airplane with no axle showing on the outside. Painting a wheel after it is on the airplane can be difficult. I used a permanent black felt writer. The black wears off fairly fast where the wheels touch down but it is very easy to repair.

The thrust adjustment is from Rolf Gregory's article MAX-FAX 1,2 1983.

No ballast was used, although the model tends to be a little nose heavy. The rubber will usually bunch up in the tail on most flights which compensates for the nose weight and the result is a fair glide (provided "HUNG" is agreeable).

The airplane finished third in Golden Age at the recent FAC Nats in July. This proves that there are two kinds of luck! My son Scott, (He has 4 Kanones. I have none.) was mechanic and the airplane might have placed higher, had we reversed roles. He yelled at me, "that was a bad launch Dad!!". I complained that I didn't launch it. The wind took it out of my hand! (Smart aleck kids.) Going to the FAC Nats was an enjoyable experience. I recommend it to everyone.



13.

BJÖRN KURLSBERG

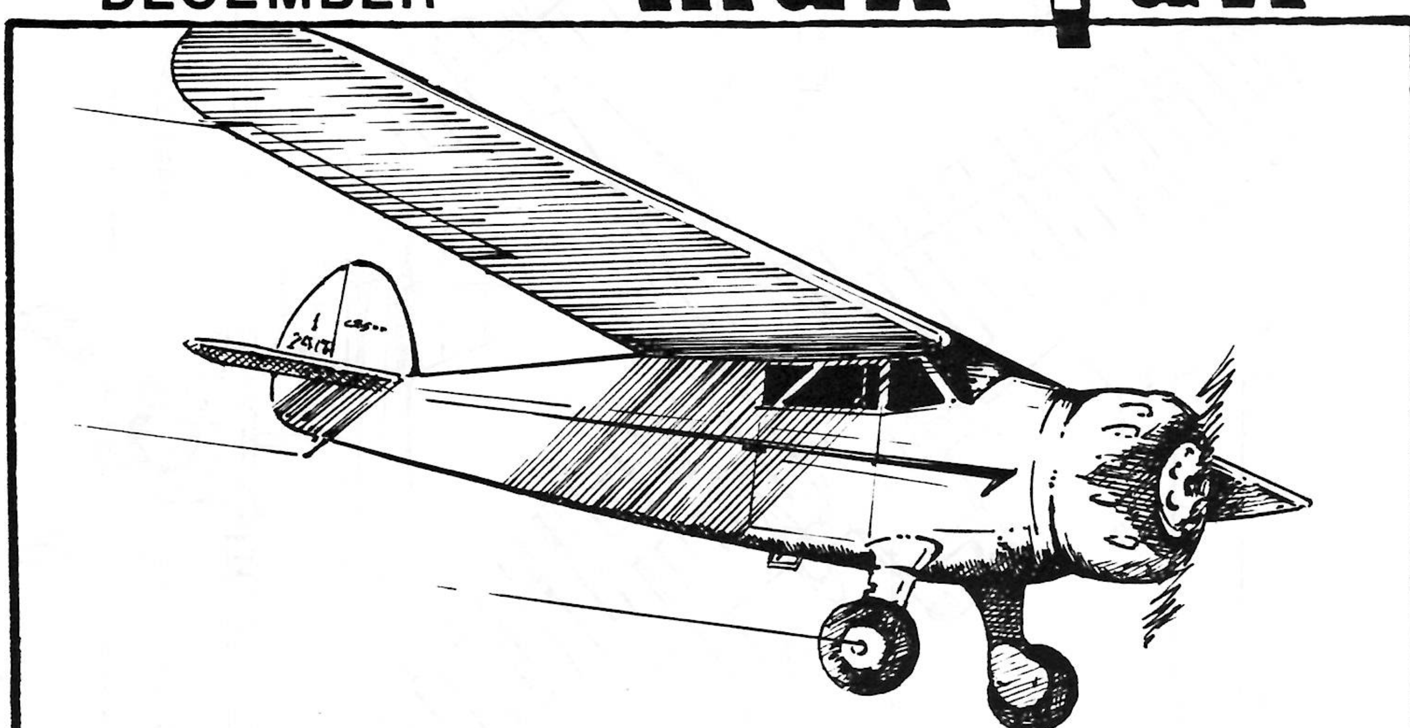
7-05 30 - 32

FIRST CLASS

DUES DUE

20008 Spur Hill Dr.
Gaithersburg MD 20879

NOVEMBER DECEMBER '88 max-fax



Leading Edge 1/8" x 1/8" med. Hard

Pitot Tube

Landing Light

Match Line

Fuel Cap

1/32" Sheet Doubler

Fuel Cap

NC1946

Laminated w/ 2-1/32" x 1/8" Balsa & 1-0.016 x 1/8" Bass

Aft Wing Spar Shown in dashed line 1/32" sheet. Spar is not Notched

Main Wing Spar - 1/32" sheet

Trailing Edge 1/8" x 1/4" soft

Match Line

NOTE A

Former B hollowed out to inside diameter of Former A (dashed line) after Fuselage is const.

1/4" x 1/32"

Pitot Tube

Fuel Vent

Wing Ribs 1/16" Square Hot Bend

A B

CT

1/32" Sheet

Tissue Fairing

NC 19464

Brass Thrust Bearing

Trim Line

Laminated w/ 2-1/32" x 1/8" Balsa & 1-0.016 x 1/8" Bass

Stringers 1/8" x 1/32" Tappers to Nil at Tail

Match Line

Match Line

L.G. Wire Between 1/16" sheet under & 3/32" sheet over

CB

Landing Gear Fairing Carve from Foam Block

SIDE VIEW

0.045 Music Wire

All Longerons, uprights & cross pieces 1/16" Square

FRONT VIEW

Vacu-form Wheels w/ 1/32" sheet between halves

1/16" OD Al. Tubing

Bond Paper Cowl Covering

Dashed lines represent Bottom Stringers & Cross pieces

Bond Paper Fairing

1/4" x 1/32"

Peck-Polymers Cyls

Thrust Adjustment

#6 x 3/4" Wood Screw

0.032 Al.

Oil Cap

1/64" Ply

Stringers 1/8" x 1/32"

Nose Block Assembly

Soft Wire Hinge

Windshield Pattern

.003" Acetate

See note A

A

B

1/16" OD Al. Tubing

0.045 Music Wire

CT

CB

TOP VIEW

Cessna Airmaster C-145

COLOR NC19464 - Red w/ Blue Trim

24.0" Span
89.8 Sq in. Area
Scale: 0.70" = 1.0'

42 Gm's Empty
4 strands 9/64" F.A.I.
36" long w/ 8" Plastic Prop

Designed & Drawn by [illegible]rry Paisley
From 4 View by Björn Karlström