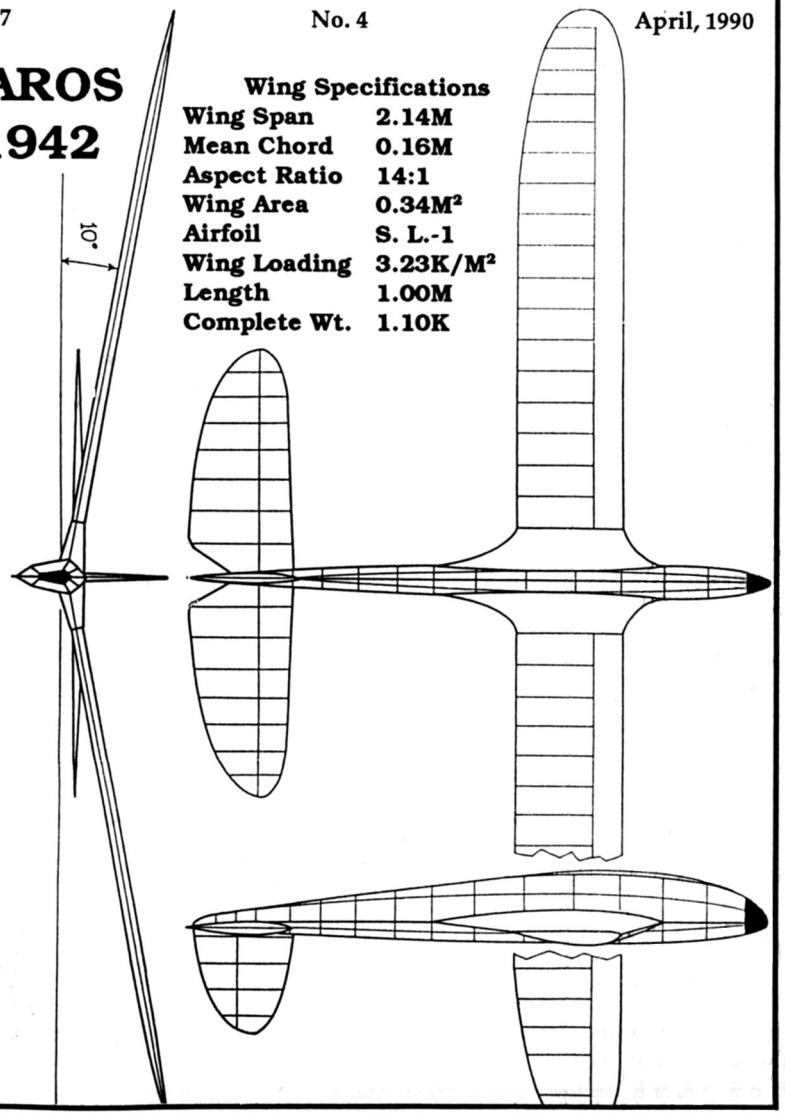
R/C Soaring DIGEST

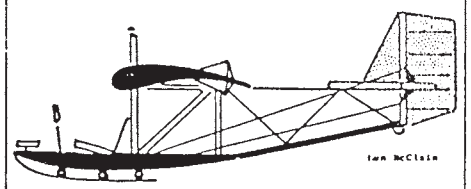
Vol. 7 No. 4 April, 1990

LAROS 1942



Wing Specifications

Wing Span	2.14M
Mean Chord	0.16M
Aspect Ratio	14:1
Wing Area	0.34M²
Airfoil	S. L.-1
Wing Loading	3.23K/M²
Length	1.00M
Complete Wt.	1.10K



R/C SOARING DIGEST
P.O. BOX 6680
CONCORD, CA 94524

ADDRESS CORRECTION REQUESTED
FORWARDING POSTAGE GUARANTEED

Schedule of Special Events

Date	Event	Location	Contact
April 28	Thermal Soaring 2 Meter & Unlimited	Pasadena, CA	N. Brooks (818) 796-9929
May 5	Thermal Soaring 2 Meter	Winter Springs, FL	J. Wagner (407) 699-1132
May 5-6	Thermal Soaring Handlaunch Cross-Country	Beaverton, OR	Pat Chewning (503) 645-0323
May 6	Thermal Soaring Unlimited	Winter Springs, FL	T. Stott (407) 699-1237
May 6	F3B	Denver, CO	J. Wyss (303) 494-0363
May 19-20	Cross Country	Calif. Valley, CA	R. Mullen (805) 736-5777
May 25-27	Thermal Soaring 2 Meter, Unlimited Sport, Scale	Morriston, FL	T. Beckman (305) 252-0014
May 25-27	International Scale Soaring Fun Fly	Richland, WA	Wil Byers (509) 627-5224
May 26-28	F3J/Open RadioGlide '90'	Oxford, England	(None Listed. Call RCSD.)
June 2-3	Cross Country Sugarloaf Classic	Dickerson, MD	G. Dickes (301) 484-2627
June 9-10	Western U.S. R/C Soaring Championships Unlimited	Modesto, CA	R. Lenci (209) 838-3869
July 7-8	International Slope Race	Davenport, CA	Ray Kuntz (213) 645-4269
July 21-22	F3J World Interglide	Warwick, England	Sam Hitchman (0926) 651511

About The Cover...

The LAROS, a 1942 free flight model, has been redrawn for radio-assistance by the original designer, Ferdinando Gale' (Via Marconi 10, 28042 Baveno, NO, Italy, (#17) and co-founder of SAM-Italia, Chapter 62.

Full size plans with all ribs and formers are available in the U.S.A. from the B^2 Streamlines plans service (See their ad towards the end of this issue.). Elsewhere, the plans can be obtained directly from the designer.

Ferdi says, "In presenting the plan of the LAROS, please notice that wing and stabilizer have the same average chord (16 m). This means that they are always operating at the same Reynolds Number. I cannot establish how much this counts for the good overall performance. It is, however, a simple and often neglected minor feature in the good direction. And, here (in Italy), the oldtimer activity (not only gliders, but also rubber & power) is booming."

The Soaring Site

Are you planning a soaring vacation? Well, we wanted to take a moment to point out two announcements that appear later in this issue. Tony Beckett of England has written to say:

Radioglide is the biggest U.K. soaring event of the year, and is being held over the holiday period 26th - 28th, May in the Oxford area. The main part of this event is the F3J or Open, as we are used to calling it. There will be 120 entrants, flying 10 to a slot, for three rounds...then a two round 12 man fly-off. The other F3J will be Interglide, held at Warwick Race course on Saturday and Sunday 21st - 22nd, July. The same format, although if previous events are anything to go by, the entries will be 80 plus rather than 120.

BARCS is making a big effort to welcome international entries to both these events, and we hope to see some people from the U.S. There has been interest, not only from Europe, but from the U.S. as well about these two events.

Tony can be reached at the following address: The Populars, Harringworth Road, Seaton, Oakham, Rutland, England LE15 9HZ.

Read & Enjoy,

Judy

Management Plans and 20K Confirmation

Robert Underwood, Technical Director for the Academy of Model Aeronautics, has recently distributed the following material to the "Model Press & RC Industry":

Recommended Frequency Management Plans for 1991

1991 "Narrowband" Operation Confirmed

If your club is new and has not received or been advised on this frequency material, please let us know by sending a L.S.A.S.E. to RCSD and we'll send you a copy.

About RCSD...

RCSD is a reader written-publication. The articles & letters are freely contributed to *RCSD* in order to provide:

"The widest possible dissemination of information vital to R/C soaring to enthusiasts all over the world."

It is the policy of *RCSD* to provide accurate information, but if we print a factual error, we want to make it right. Please let us know of any error in *RCSD* that significantly affects the meaning of a story. The opinions expressed are not necessarily those of *RCSD*. Please see the back cover for subscription costs and additional information.

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High Start

...by Jim Gray

Model Construction Videos (MCV) has produced their first video tape called Building the MARIAH, and it is a tape well worth your time and money to acquire!

While it uses the MARIAH (Competition Products' Two-Meter Sailplane) as the "star" of the movie, there is much, much more to see and learn. The pace is relaxed and conversational and the photography is excellent. The narrative discusses at some length what you see — from the opening of the kit through to the completion of each step and final assembly. Although nearly a full two-hour instructional vehicle, one is never bored, and there are literally dozens of neat little tips, jigs, processes and ideas which are brought forth during the construction phase. Ways and means of guaranteeing accuracy of alignment, proper incidence and dihedral, and special ways to work with the foam and balsa to produce an outstanding-quality sailplane abound.

Especially pleasing is the calm, precise and unhurried approach to building a sailplane, where the craftsmanship and love of good tools and procedures are everywhere apparent. If you have ever said, "I like work because I can sit and watch it all day," you will find this video immensely entertaining. My own impression was to hurry up and get busy building those kits I have on the shelf in the workshop — I was that inspired, and I think you will be, too!

One of the techniques I particularly liked was the method and "jig" used to build a sharp, true and absolutely flat, straight trailing edge: you build it on a piece of plate glass atop your workbench and you will see a method of sanding to a desired edge thickness that can't be beat...then, you will follow the lay-up of balsa, foam and graphite (carbon) ribbon for strength and stiffness.

Model Construction Videos
4227 E. 83RD ST
Tulsa, OK 74137

Video Price: $21.95 (Plus $4.05 S&H)
OK Residents: Please Add 7% Tax

Even if you don't ever plan to build a MARIAH, this will be a useful tape for you to have in your library as a reference. We understand that this will be the first of several MCV videos detailing the construction of the better-known kits. I only wish that the producer of the video had shown the test flying of the finished product...but, I guess we'll have to wait for that.

Happy Soaring,
Jim Gray

SVMAC Annual Spring Soaring Contest

May 26, 1990
Ed Bollin Flying Field in Sierra Vista, Arizona
7 Minute Precision Duration + Break-Time Special
Events: RC Sailplane Class B (2 meter), C (Standard), D (Unlimited)
Special Event: 1 Round/Classes Combined
CD: Don Mulligan, 931 Cactus Wren Ln, Sierra Vista, AZ 85635
(602) 458-7677

The Birth of MCV

...by Denny Darnell

I've been in RC soaring since '71 and am a serious competition flyer...although the degree of seriousness varies from time to time, and place to place!

I've built a great many competition sailplanes. My first kit was the OLYMPIC 100 from Airtronics. Dale Nutter and I built two of the first six GRAND ESPRITS and from there it was the AQUILLA, GRANDE, then the SAG, etc. In the past couple of years, I've built several fiberglass/foam ships, some of which include Bob Sealy's ULTIMA, Ed Berton's MARIAH, and Mark Allen's FALCON 880.

Some of the kits (not necessarily those mentioned above), have written instructions which the novice will have a hard time with. Although "old hands" will usually read (i.e., "gloss over") written instructions, they normally refer to them only in an emergency! (At least, that's what I do!)

Anyway, having dealt with a few "negative examples", I decided that while some of the kits were really good — that is, the quality of the materials is good, and the finished product's performance likewise — that the written instructions could use some "reinforcement". Hence, the birth of MCV.

The aim of these tapes is to show someone actually building a kit, while making helpful suggestions, offering honest criticism, bitching, humming, whistling, etc. (Interestingly enough, the sound track is the hardest part...trying not to be too corny or folksy, but interesting enough, at least in content, not to put anyone to sleep.) Then, trimming and flying the model. The tapes let you see what the whole building/flying process would be like, and whether you want the kit, or maybe another, due to something that you couldn't otherwise be aware of. The next tape out will be on building the FALCON 880.

What Do You Mean It Won't Fit In There?

...by Bob McGowan
Via
The Diablo Valley Soaring Society
Thermal Tales

Getting that radio gear to fit into a small fuselage or a thin wing can be frustrating at times, but don't give up too easily.

You don't necessarily need that super micro flight system...just force your standard stuff to fit! You can take the flight batteries out of their plastic case to fit into a tapered nose...don't pay for an additional mini-battery and sacrifice potential flight time. You can even move the individual cells around to fit unusual shapes, but be sure to wrap with electrical tape so nothing shorts out.

In my hand launch plane, I don't have room for a switch harness, so I just plug the battery connector directly into the receiver. And about receivers...my friend Dave Thornburg removes them from their cases so he can make his hand launcher's fuselage a little narrower and lighter. The radio manufacturers recommend 1/2 inch of foam rubber around the flight battery and receiver. I use the foam where I can, but personally, I don't worry about using minimal (or no) foam in my smaller planes.

When mounting servos in a small fuselage where they sit behind one another, you can overlap the mounting flanges and use two longer screws to secure both at once. You can even go one step further and cut the mounting flanges completely off and use silicone rubber or servo tape to mount them. Build them in if you have to...standard size servos are not that expensive. When building your next fuselage, you could *...continued on page 17*

On The Wing

...by B^2

"Faszination Nurflugel" is a new book on flying wings published by the German firm VTH (Verlag fur Technik und Handwerk GmbH). Hans-Jurgen Unverferth is the editor. Consisting of over 150 pages, it includes many photographs, drawings, 3-views and graphs. Divided into several sections, the book covers planks and swept wings, airfoils, control methods, and various solutions to problems pertinent to tailless aircraft.

Additionally, several items dealing with flying wings and F3E (electro-flight) are included. Although the text is entirely in German, this is a valuable work. (A very simple German-English technical dictionary can assist immensely and we'll give you information on an inexpensive one at the end of the column.)

♣ ♣ ♣

"Faszination Nurflugel" begins with a discussion of the evolution of flying wings, using Curt Weller's appearance at the 1982 Kaltenkirchner flying wing contest with his "Elfe II" as the starting point. This is followed by a brief definition of the term "Nurflugel" ("only wing").

The book really begins in earnest with a description of the plank concept. Included in this section are some airfoils that have sufficient stability for this type of tailless sailplane, some tips on wing geometry to improve efficiency, a simple method of computing the neutral point and CG, and various construction methods that can be used. Reinhard Werner, long a proponent of planks for thermal duration work, has written an entire article on flying techniques and design considerations for this type of glider.

Two members of the LOGO Team, Reinhard Kaufmann and Peter Wick, then explain the evolution of their team's attempts at achieving a competitive F3B 'wing. In all, descriptions for nine swept 'wings are included. Beginning with the "Gnom" in 1983/1984, and ending with the "Holon" in 1988, the entire process of integrating aerodynamics and increasingly sophisticated RC systems with piloting skills and increased performance can be traced. There are three views for five of the LOGO Team's aircraft.

Hans-Jurgen gives a wonderful description of his CEOZWO series, tracing its development from "Pirx, " through "Just In Time, " and then continuing with its evolution into a smaller version (CEOZWO-mini), a larger version (4 meters!), and a few electric powered versions. Hans-Jurgen also discusses some interesting construction methods. There are several 3-views in this chapter.

Flying wings nearly always fly well in a straight line. The problems arise when, as Reinhard Werner says, "... we stop letting them fly by themselves and begin stirring the sticks a little." Elevator, aileron, flaps and air brakes are all covered in a chapter written by Dr. Michael Wohlfart. His "6 surface" system using one of the newer computer radios is marvelous!

Perhaps the most in-depth section is that dealing with winglets. Three 'wings are described; the first with no winglets, a second with large winglets covering nearly the entire tip of the wing, and a third which consists of a higher aspect ratio fin which covers the rear 50% of the wing tip. A number of graphs, fourteen in all, several pages of interpretation, and a summary table provide very good indication of performance characteristics for these configurations and allow the reader to relate the information to the objectives the designer wishes to obtain.

New airfoils -- the MH 45, and EH 1.0/9.0, EH 1.5/9.0, and EH 2.0/10.0 -- are described with polars, pressure distribution graphs, and coordinates. Zero lift angles and moment coefficients are given so that the reader can reach conclusions regarding their application.

With 152 pages and 165 illustrations and diagrams, this book is a survey of flying wings and their development. A review, with examples of construction of flying wings from three countries, their development over the years, and new insights and remarkable improvements in recent years in these unusual aircraft, together with diagrams and illustrations, form the backbone of this book. You will see high-performance "wings" as well as simpler "Sunday Fliers" for all types of flying: cliff soaring, thermal soaring, electric flight, and distance-duration tasks as in F3B. Outstanding designers and builders give you their tricks and ideas for practical aircraft of guaranteed performance. You won't find another book for the R/C sailplane pilot quite as comprehensive and interesting on the subject of tailless aircraft as this one for the person who wants to take advantage of all previous experience to design and build his own flying wing. Jim Gray

Contrary to the opinion held by many pilots of conventional aircraft, not all 'wings look the same. Horst Pritschow's "Octopus", a scythe-shaped 'wing, is shown and described through photos taken during construction, a good three-view and printed data, plus some in flight shots. A description of the underlying design philosophy makes for interesting reading. In the same section is a discussion of the implications of increasing the aspect ratio of a design. Sweep angle, wing twist, control methods, and construction techniques are all covered. Beginning with "Sky Diver" (aspect ratio of about 8.5) and ending with "Lotos" (aspect ratio of 20), Robert Schweissgut goes so far as to discuss the problems and implications of high speed stall at the wing tips during control surface deflection.

"Faszination Nurflugel" ends with a well written article by Prof. M. Schonherr. Here is described the seven basic problems of flying wings and how each is solved through the "Stromburg Principle". Control of air flow over the center section, for example, is obtained by a very specific method, and the results are demonstrated with actual in-flight photos of the tuft studies that were done using an on board camera mounted on the CG! The entire set-up is shown in one photo, and eight excellent pictures show controlled airflow during tow, turns, and a flaps down landing.

A short chapter describing currently available flying wing kits and another listing available literature back to 1984 finishes off the book. Other authors, who we failed to mention above, include Alfons Reiger, Martin Schlott, Curt Weller, and John Yost.

In Summary

"Faszination Nurflugel" lacks some important items, like a method for calculating wing twist for various stability factors, but all of these missing things are readily available elsewhere. Hans-Jurgen's intent was to outline the progress of flying wing technology during the past several years, and to include "state-of-the-art" items along the way, while not duplicating the work of others. He has managed to do this in most outstanding fashion. "Faszination Nurflugel" is an excellent value for its $20.00 total cost (see below), and we recommend it highly.

"Faszination Nurflugel" is available directly from Verlag fur Technik und Handwerk GmbH, Postfach 1128, 7570 Baden-Baden l, Federal Republic of Germany, for DM29,50 plus DM3,00 for shipping. As this is being written the exchange rate is just under DM1, 00 = US$0.60, so DM32,50 equals US$19.50. VTH will accept your personal check made out in US dollars at the current exchange rate. The publication to request is Best.-Nr. FB 2026.

Those of you who are looking for a reasonably priced German-English technical dictionary and finding only "big honkers" costing $60.00 and *...continued on page 10*

How To Install Push-Rods from...
Jer's Workbench Part II

Last month I shared with you the method I use to install push-rods into a long, thin fuselage. This month, we'll look at how to install push-rods into a fuselage whose size is more on the order of a 1/4 scale. With this type of fuselage, one can put their whole arm down into the fuselage. We don't want the push-rods to get lost!

Installation Materials

Generally, the same type of materials are required as discussed last month. The material includes the cable/sheath type push-rods, 1/4" HARD balsa wood, a box of round cocktail toothpicks and a bottle of CA-type glue.

Set-Up

Cut the 1/4" HARD balsa wood into 1" strips. (The number of strips will depend upon the length of the fuselage.) Pre-drill each strip with two holes, in order to accept the push-rod sheaths. See figures 1-5.

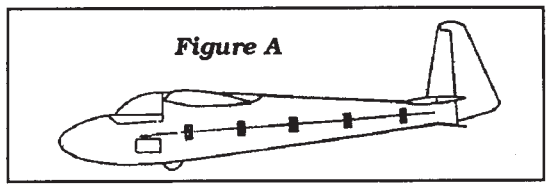
Installation

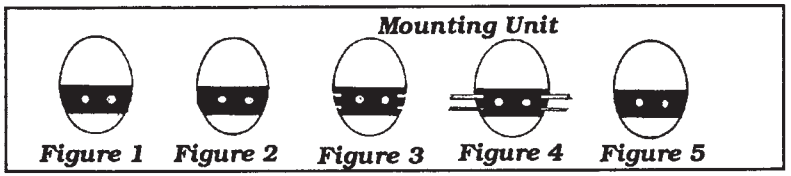
Slide the push-rods into the first mounting unit. Now, carefully slide this assembly into the fuselage. Because the fuselage is somewhat translucent, it should be easy to see the mounting unit through the sides of the fiberglass fuselage. See Figures A & 1.

- Continue adjusting the assembly until satisfied with the position of the first mounting unit. Then drill a 1/8" hole into the fiberglass fuselage at the end location of the mounting unit.

Do NOT DRILL directly into the mounting unit at this time (Figure 2). If you feel uncomfortable and a little lacking in experience, you may want to go find someone to help you with the installation. If you're going to drill a hole in your fuselage, you want to make sure that you don't make a mistake.

- Place a few drops of CA glue into the hole once the mounting unit is in position. This should not only wick up into the balsa wood, but it should tack glue to the sides of the fiberglass fuselage, as well. Once satisfied with the position, drill the holes, again. This time, make them a little deeper. 3/16" to 1/4" is recommended. See figure 3.
- Next, insert the round cocktail toothpicks and glue into the holes. See figure 4.
- Continue to repeat this process with each of the pre-cut and drilled mounting units.
- When you have completely installed all of your mounting units and the glue has cured, trim off the excess toothpicks. See Figure 5.





Obechi Strong But Light
...by Gordon Jones

"Have you ever looked at the wings that come in the European kits and longed to have wings that looked as good, and were as strong as well. I know that I did for years but never realized the difference in the sheeting."

I knew that it was obechi, but I didn't understand the difference between obechi and balsa. And, I know that I was not alone in this lack of knowledge, either. We all look at things in a different light, and some of our judgments are somewhat preconceived from past experience. But, think about sheeting a foam wing with a material that is one piece, is exceptionally strong, and adds little weight to the structure. Obechi gives you these advantages! Think of the time that you spend at the hobby shop matching pieces of balsa for sheeting foam wings. Aside from this, or ordering the super expensive one piece balsa sheeting (when you can find it), there are not many options...except obechi. Add to that the expense of these individual sheets of balsa and all the time that it takes doing the edge cutting, gluing them together, and making sure that all the panels are about the same weight, and it becomes a real pain. Now, the obechi option has some real advantages.

First, it comes in one piece and all you have to do is cut it to fit the wing outline and tape the rear edges together for sheeting. If you measure it right you can even do the stabs with the same sheets and add some strength there also. Cutting the obechi does take a little practice, but if you use masking tape over the cutting lines and a sharp xacto knife, you won't have any problems at all.

Secondly, the strength that is added to the structure is incredible! If you use epoxy resin and a bit of carbon fiber at the trailing edge and over the spars, you have a wing that will serve you well for a long time to come. It doesn't matter if you use the weight/clamp method or if you vacuum bag the sheeting in place, you still end up with an incredible structure. One word of caution is in order at this point. Do not use the spray-on adhesives and expect the same results. It just won't happen. The bonding action will not be as permanent, and the chance that separation will occur is very high. (I have tried it and I know.) This method leads to all sorts of problems and is not worth the effort nor the headaches.

Some additional pluses in using obechi come to mind:

- You can do a very long panel in one piece (they come in sheets of about 10 feet). This is great for the high aspect scale ships or for cross-country birds.
- Obechi is very easy to sand and most of the heat-shrink coverings go on very easily.

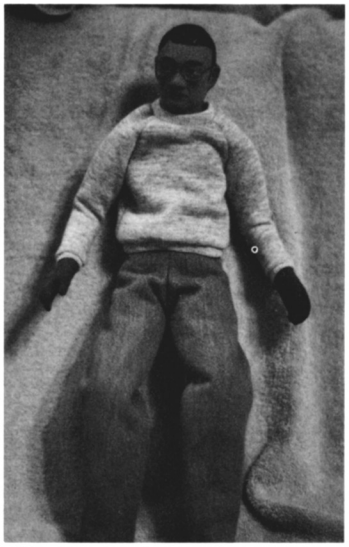
All in all, I haven't found any negatives using obechi, so I highly recommend it. An excellent source of information for obechi is Precision Foam Cores. Dave Acker will be happy to answer any questions you might have.

Gordon Jones
214 Sunflower Drive
Garland, Texas 75041

Detailing That Neglected Cockpit

...by Gene Cope

There is nothing more disappointing than to see a beautiful scale sailplane with all of the extras (flaps, spoilers, retractable landing gear, a beautiful finish, etc.) fly by and see an empty cockpit!



1/4 scale DGA pilot still requires hat, tinted glasses, and a seat chute.

Unless it is a drone, there's no full-sized plane — power aircraft or sailplane — that flies without a pilot. Whether it is a simple Williams Bros. bust or a DGA 1/4 scale pilot, any pilot figure adds to the completeness of your scale project.

When I started building scale sailplanes, my pilots really looked painted. Now, I try to make them look realistic and life-like. The process to a more life-like pilot is really quite simple. Use good grade flat paints sparingly. If you have to use glossy enamels to obtain the color needed, use a coat of clear flat over the glossy coat.

When you do the faces, use light grey for the "whites of the eyes". Make the center of the eyes look to the side or very slightly cross-eyed to prevent that "bug-eyed" look. Use brass tubing pressed lightly on the eyeball to outline the iris, and then paint inside the outline. (I use a toothpick.)

To add some color to the flesh tones, use pastel chalk dust applied with a small brush. If you use too much, just wipe it off and start over again. When you have the desired effect, "fix" it with a lightly sprayed coat of clear flat paint, if it is to be out in the weather or to be handled much.

To make things look dirty or worn, use a dull coat with a little plain dirt mixed into it. Brush gently or spray the area until you get the desired effect.

On large cockpit figures, painted clothes look like painted clothes. Now is the time to bring your wife, girlfriend, or sister into the project. They have probably sewn clothes or doll clothes at some time in their lives. Use their skill from time to time to help you out. The clothes are made the same whether they are large or small; so the pants, shirts, jackets, and hats on the scale pilots will look as real as their full-sized counterparts.

When you detail the cockpit, use whatever you can find to make it look realistic. Use your imagination. You don't have to buy exact copies. In fact, you probably won't be able to find the right parts, anyway. My son used a computer to make a "log book" that I used in the side pouch of my DG101G. The navigation map was a little insert from a state road map. Just fold and refold to make it look used.

Scale instruments for today's sailplanes are hard to find, if at all. For the instruments in my latest project, I was lucky enough to have the pilot of the full-scale sailplane take a colored picture of the instrument panel while in actual flight. The computer and instruments were in actual flight positions. In the picture, the panel is about a quarter of an inch

Spitfire pilot's oxygen mask is formed from epoxy putty and May West is made from cardboard.

Military insignias were copied from a National Geographic Magazine and reduced to the appropriate size.

too big, so I'm going to have it reduced. I acquired the negative for this necessary step. After the pedestal is made from foam and glassed, glue on the print, mask off the dial areas and, then, lightly spray with dull coat. Unmask and then add the knobs and switches. These can be invented by looking at the notions in a fabric store or a department store. If the instruments have raised bezels, have some extra copies of the panel made. Cut out the bezel, paint it flat black, and glue over the instrument. Above all, keep an open mind when detailing. Anything might work.

In Summary

All the little things add up, and when you're finished, you can step back and say, "Wow! It looks real good!"

Gene Cope
109 N. 42nd Ave
Yakima, WA 98902

The F3B/USA Mailing Address Has Changed

A Special Notice From Randy Reynolds

"F3B/USA has gone through a couple of evolutions looking for publishers and a permanent mailbox number. Hopefully, we have the situation stabilized so that we can begin to build a subscriber list reflecting the interest in the "middle ground" of R/C soaring...F3B/MTS. I have received a number of letters wondering what is going on with the subscription process, and without going into details, we have made a switch in responsibilities that should result in better service. All mail subscriptions or other contacts for F3B/USA should go directly to me."

Randy Reynolds
122 East Uintah Street
Colorado Springs, CO 80903

The International Modeler Show at Pasadena

...by Rick Palmer

I keep forgetting to tell you about the IMS Show this year. It was a bit smaller as in the amount of displays, but I still can't bear not to go.

It is always fun to see the products outside of a magazine. The Robbe Company had a nice looking glider called SAPHIR. When I asked for some information about it, they all turned dumb and could not tell me anything about it. Anyway, I thought it looked nice.

Hobby Dynamics, Yoshioka Models had a nice ARF glider called "ON AIR S". This glider has a wing span of 67", wing area of 480 sq. in. and weight around 30 oz. There is an electric powered version of the same glider called "ON AIR E". The main points are: that I don't know what airfoil it uses, and it has a retail price of $187.99. Ouch!

I stopped in at Gary Anderson's table. He had a WESTWIND on display. I had seen the ad in RCSD from H&S Manufacturing saying this glider was coming. I guess it's here. It looks to be a winner.

Doug Hertzog was sitting in with Gary and we talked about how I was getting along with my SILHOUETTE. (I'm still having a blast.) His new one is the QUICK SILVER. Most likely, we will see it soon.

Over at the Ace table they had the QUASOAR, PRODIGY, SKYHAWK, AND TANTRUM. There was also a new 2-meter called EASY EAGLE that was designed by Harley Michaelis. Along with a left-handed single stick radio, I saw a new computer aided transmitter. However, there were so many people looking it over that I could not get a good look. Hopefully, they will show it off soon.

At the Peck-Polymers table I was able to pick up a new GENESIS flying wing glider. You know how I am with flying wings. It has a 59" wing span, wing area of 346 sq. in. and should weigh about 10 - 12 oz. I'll let you know when I have it done.

Looking in the back of the room, I found a person selling a glider called LANCE. This is an aerobatic slope glider that is mostly pre-built. The wing is machine balsa with a Selig 3021. It has a 48" span and a 269 sq. in. area. The fuse is fiberglass with carbon fiber. "You need only to cover and install your radio." However, it looked to me that there would be a little more to do than that to get it ready to fly. The cost was $145 plus tax and shipping. The address was Glidesigns, 3184 Lynn Ct., Newbury Park, CA 91320.

In the way of accessories, I found a company called Eagle Model Products. (I keep thinking that I have seen them before.) Anyway, they have a neat, colorful line of trim tape. You can't believe the color. Their address is 754 Dodsworth, P.O. Box 4609, Covina, CA 91723.

I saw Ken Williams of K&A Models Unlimited...the maker of the Mini-I. He said he is trying to get a new kit out sometime this spring or early summer, and he would let the world know about it.

Rick Palmer
Box 1513
Springerville, AZ 85938

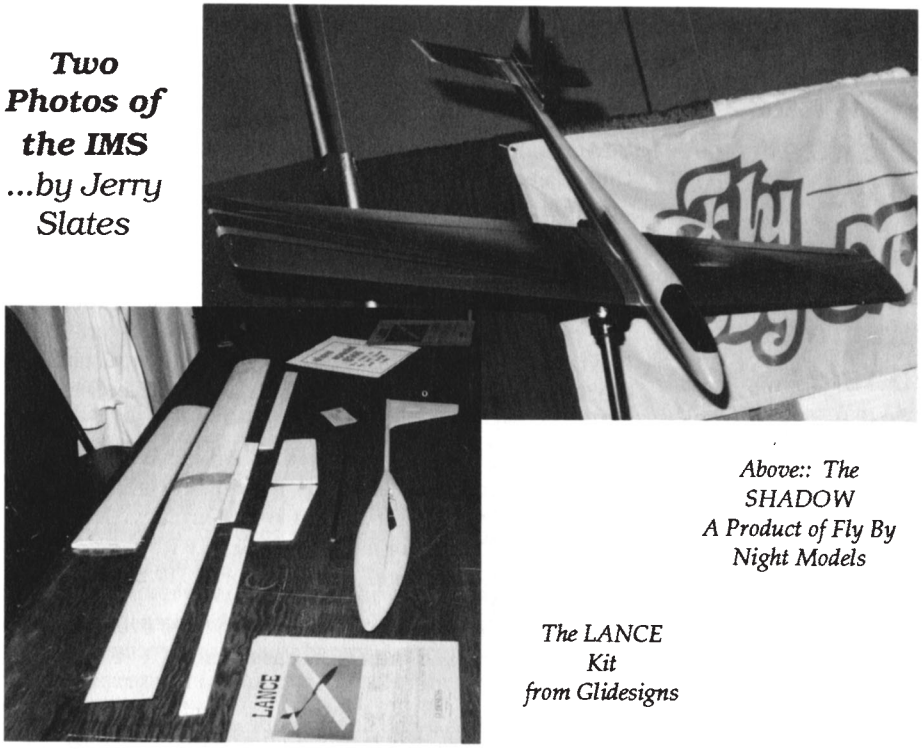
On The Wing...continued

more, take heart. You will have a hard time bettering the RC sailplane terminology dictionary by Armin Saxer found in SOARTECH #6. It should already be on your library shelf, but if it's not, the complete 150+ page SOARTECH #6 is available for $5.00 from Herk Stokely, 1504 Horseshoe Circle, Virginia Beach VA 23451.

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

Two Photos of the IMS

...by Jerry Slates



Above:: The SHADOW A Product of Fly By Night Models

The LANCE Kit from Glidesigns

My SPERBER:

Ray Reiffer of Zeeland, MI writes to say, "Well, it's basically done, finally! It was quite a project. But, it turned out nice with 10.3 oz./ft² loading. The bulkheads are 1/4" foam. They are sandwiched between 1/16" ply where needed. The fuse is glassed up to 3 ply in some areas with 3/4 oz. cloth. I'm happy with the final weight."

While Wandering Down the Aisles of the International Modeler Show

...by Jerry Slates

Although far from complete, I wanted to share with you some of the interesting things I found in the glider world.

I found one of the most interesting booths to be that of Curt Steven's of Model Research Labs. There were lots of boxes to go through, and lots of surprises. I found carbon fiber paper, carbon fiber fabric, kevlar cloth, ultra light fiberglass (0.5 oz. Yd.), S-light and kevlar composite cutting shears ($10.00). Curt can be reached at 714 240-8433 after 8:00 P.M. California time. He puts out a neat catalog! (Model Research Labs, 25108 Marguerite #160, Mission Viejo, CA 92692)

Across the aisle was Rainar Wiebalck of High Sky with his "Thermal Navigator". It's easy to install, as the rudder servo just plugs into the Thermal Navigator. You can let the Navigator be in control, or you can override it by just moving the rudder stick. (High Sky, 3929 Kansas St. #9, San Diego, CA 92104)

No one seems to have more fun than Arnold Wratschko. He comes out into the aisles to talk to you. He is the National Distributor for Bauer Modelle of West Germany. Are you're looking for a MU-18 or a 1/4 scale SHK with a pre-sheeted wing and glass fuselage? (AMS Imports, 110 S. Wells Ave., Reno, NV 89502)

Ken Stuhr of VS Sailplanes has some of the most exotic machines I have ever seen. For example, the XINGU100 features wingerons, and the ZULU has tailerons. (VS Sailplanes 2317 N. 63rd, Seattle, WA 98103)

DCU means quality. Mark Hambelton carries a fine line of slope gliders for Aerobatic & Racing. In mid 1990, he plans to release an F-14 TOP GUN. (DCU, 1556 S. Anaheim, Unit C, Anaheim, CA 92805)

The SHADOW is a product of Fly By Night Models. This sleek epoxy-fiberglass fuselage comes with foam core wings and all pre-cut wood all for $89.95. They advertise that it will fly in light air. (Fly By Night Models, 3217 Salta, Santa Ana, CA 92704)

Are you searching for good wood like balsa or plywood? Mike Taibi of Superior Aircraft Materials has a complete line of balsa (sheets & sticks...medium & light), lite plywood and birch plywood. For those of you that do foam cores, you might be interested in the sheets that are 6 & 8 inches wide by 42 inches long. (Superior Aircraft Materials, 12020-G Centralia, Hawaiian Gardens, CA 90716)

Cliff Hanger Models carries an interesting line of power slopers: ZERO, CORSAIR, WARHAWK, MUSTANG and BEARCAT. There are a couple of jets called the F-18 & F-20. I have seen some of these in the air, and the ZERO is my favorite.

In addition to the LANCE, Glidesigns plans to have a 2-meter called LANCE-A-LOT. Gene Lovejoy is the chief engineer and can be reached at (805) 498-2491.

In addition to the his two kits, Ken Williams, of K&A Models Unlimited, provides custom cut cores. (K&A Models Unlimited, 5990 California Ave, Long Beach, CA 90805)

Would you like to fly a SPITFIRE, P-51 MUSTANG, ME-109, ZERO, P-63 KING COBRA, FW-190 or a P-38 LIGHTNING (coming soon)? Contact Slope Scale at 12935 Lasselle St., Moreno Valley, CA 92388.

Combat Models INC. has a video available to show the latest in combat fighters and slopers. It can be obtained by contacting Byron Bruce at (619) 536-9922 or writing to 8535 Arjons Dr., Suite R, Miramar, CA 92126.

The R/C Soaring Scale Fun Fly for 1990

...by Wil Byers

The following is an update of the current status of the Tri-City Soarers International R/C Soaring Scale Fun Fly for 1990, which will feature among other things Mr. Michael Selig as our guest speaker.

As of this writing (February 15, 1990), we have formally registered 27 pilots with over 60 models. At this date, that level of registration is the greatest we have had in this events history. So, we feel the number of entrants and participants will go well beyond past participation. Some of those currently registered will be arriving from such far away places as Germany, Canada, and from locations with names like Milwaukee, WI.

Some of the notable who will be participating are Mr. Byron Blakeslee from M.A., Charlie Morey from *Slope Soaring News*, and I believe the editor of this publication, Mr. Jerry Slates. One individual who I am very excited to have participate, and we think you will be also, is Mr. Michael Selig. Michael is, of course, from the Selig, Donovan, Fraser team who performed the low Reynolds number research and then compiled that data in "Airfoils at Low Reynolds", which is available through Herk Stokely of Soar Tech. Michael will be lecturing on sailplane design and performance as well as the findings from their research. By the way, he will arrive early Thursday prior to the Fun Fly and will be departing for home on the Tuesday following the event. So, if you are interested in what Michael has accomplished you will not only have a chance to hear him lecture but will also have a chance to talk with him one on one. Note, also, you do not have to register for the event to hear him lecture. However, you will have to participate in the banquet, which will cost you $20.00.

Another interesting thing which will be happening during the event is the Friday night wine tasting and social. This after hours get together will be presented by Charlie Morey of *S.S.N.* and Marty Silbersteing and Steve Peacock of Cliff Hanger Models. It will feature our delicious Washington wines as well as plenty of hors d'oeuvres. In the past, this time has provided participants a chance to get to know one another in a relaxed non-windy environment.

As many of you are already aware, Saturday night is the night of our banquet and guest speaker. It is also the night of our much touted raffle and this year's event is promising to be an opportunity to win some very nice prizes, also. Heading the list of contributors is J.R. Radio's Mr. Tom Kikuchi, who is awarding some state of the art new computerized radios. He will also be coming with J.R.'s Vice President of sales, Mr. Ottoa, from Japan. These radios promise to be very competitive because, as you must already know, Nic Wright of F3B fame won the 1989 World Champs flying a Graupner radio built by J.R..

Airtronics has donated a 7 Channel Spectra radio, and Futaba is offering a very nice gift certificate. Just having an opportunity to win one of these would be nice, but many other manufacturers have been very generous, also. Not the least of these has been Mr. Pete Bechtel of Windspiel Models. Pete is putting on the raffle table one of the premier models on the market, a Fiber Glas Flugel Unlimited machine. These beauties are all glass and come finished. And, I can give a testimony to their absolutely outstanding performance.

Bob Boomer of R.C. West, who so generously contributed 6 models last year, is also a major contributor this year. Another contributor is American Sailplanes Designs, Mr. Gary Anderson. Then, we have companies like Cliff Hanger Models, who felt it wasn't enough to just help out with the wine tasting, and are adding to the raffle with some of their great kits. And, if you haven't tried Vinylwrite's vinyl letters or stencils yet, you may just have a chance to get some from Art and Cynthia for free. Not wanting *...continued on page 22*

Understanding Thermal Soaring Sailplanes

Part 2 Section 2

on

The Sources of Drag

...by Martin Simons

(This is the fourth in a series of articles by Martin Simons. The material in this section may refer to information & drawings in part 1. Reproduction of this material requires the permission of Martin Simons.)

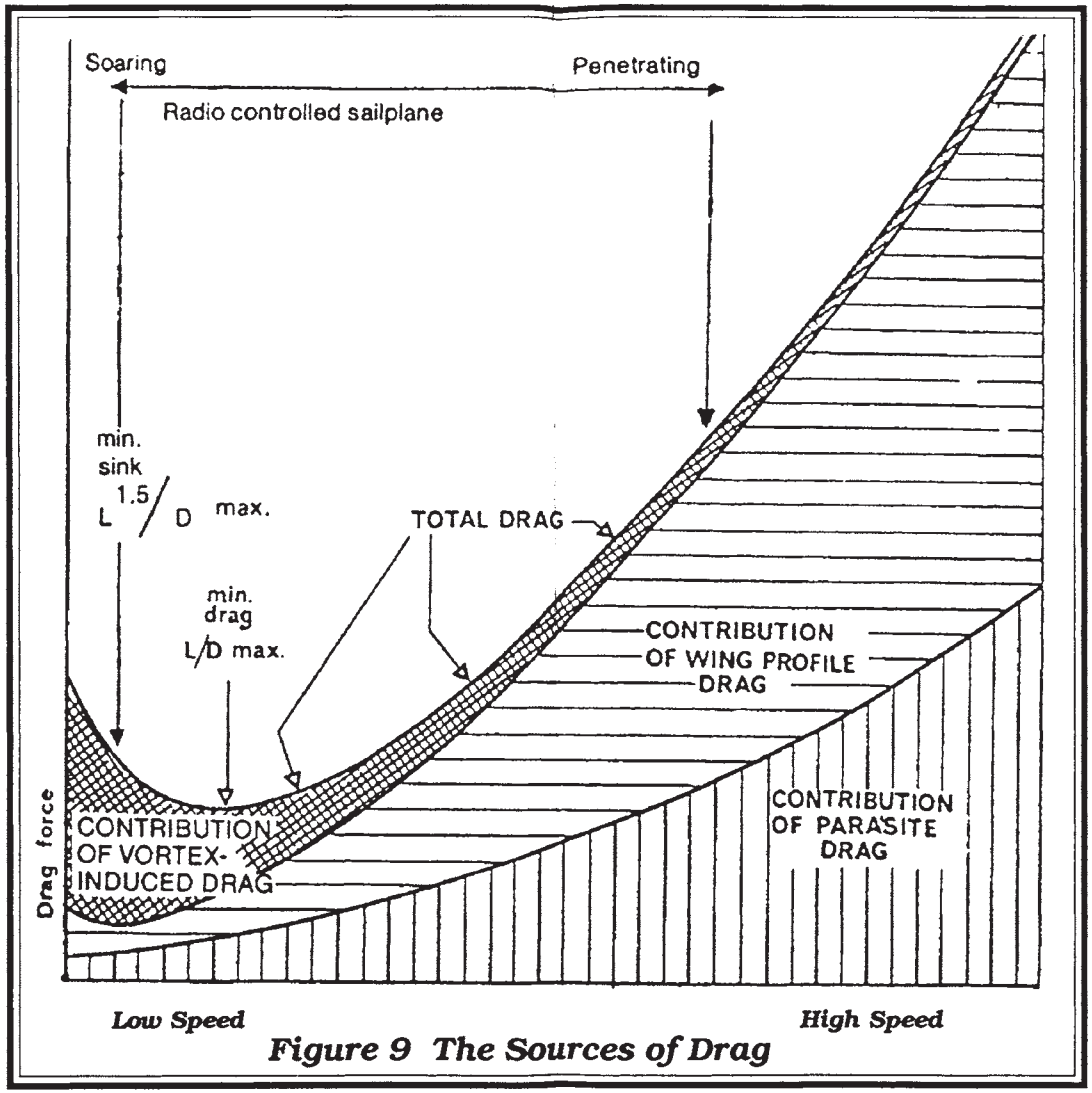


Figure 9 The Sources of Drag

Aerodynamic improvements

Ideally, the sailplane pilot would like to have a very light, slow model while in the thermals, and a very heavy, fast one between thermals. Since ballast may not be dropped or picked up during a single flight, improved performance at both high and low speeds has to be sought in other ways.

The purpose of aerodynamic refinement of a sailplane is to achieve better minimum sinking speed, lower stalling speed for circling tightly, and better penetration as well (Figure 8 - See page 16). A refined model can still be ballasted if conditions require it.

The performance of the glider, whether turning or in straight flight, depends on the drag. If drag can be reduced at low speeds, the minimum rate of sink, both in straight flight and in turns, will be less. If drag can be reduced at high speeds, penetration improves.

The sources of drag

Figure 9 shows how the total drag at each flight speed is made up. Every part of the glider over which air flows in flight adds to the drag, but some parts contribute more than others and the proportions change as the speed of flight is varied. The best L/D ratio, i.e., the flattest glide in calm air, occurs when the drag is at its minimum. The minimum rate of sink is found at a slower flight speed.[1]

Parasitic drag

Parasitic drag, which is caused by all the non-lifting parts of the glider, fuselage, tail unit, etc., is important at high speeds but less so in slow flight, as the diagram shows. This is one reason why a model which has a good basic wing design fitted to a relatively crude fuselage and tail, will nevertheless be capable of climbing well in thermals although its penetration is poor.

A varying proportion of the parasitic drag is the drag of the stabilizing surfaces, which are really small wings. Everything that follows in the discussion of wings applies equally to these. Depending on the layout and trim of a model, the horizontal stabilizer may or may not contribute a lifting force and this force may be either upwards or downwards. Normally the tailplane of an orthodox aircraft 'lifts' downwards, this being required for purposes of balance and stability. When the stabilizer does contribute such a force, in either direction, it inevitably produces more drag than when it is not lifting. This applies to the forewing of a canard layout, which contributes to the total upward lift but not without a corresponding drag penalty. The drag of the stabilizer for orthodox aircraft layouts is normally counted as entirely parasitic .[2]

Wing drag

As Figure 9 shows, more than half the total drag at all speeds comes from the mainplane or mainplanes. It follows that in trying to achieve a better performance, the wing must be considered first. It is hardly worth bothering about the rest of the model if the wing is poor.

Wing drag is of two kinds, **vortex-induced drag** and **profile drag**. Vortex drag is often referred to simply as induced drag but vortex drag is a better term since it draws attention directly to the cause.

Vortex drag

The vortex drag originates almost entirely with the wing tips. There is, on any wing or part of a wing which is supporting a model (or a lifting stabilizer, etc.), lower air pressure on the upper side than below. Air will always try to flow from high pressure to lower pressure areas and this tendency is most marked where the high and low *...continued on page 16*

Understanding Thermal Soaring Sailplanes ...continued

pressures come close together, at the ends of the lifting surface. The air cannot turn suddenly at right angles, but the flow becomes distorted, slanting somewhat outwards underneath and inwards above. These cross flows are most pronounced near the tips themselves but the influence extends towards the root. The only place where the air flows directly from front to rear on both upper and lower sides, is on the exact centre line of the wing. (Even here it is usually disturbed by the fuselage.) Behind the trailing edge where the upper and lower flows meet, vortices form, the strongest ones nearer to the tip. The numerous small vortices behind the inner parts of the wing are wound into the more powerful ones, rather like a number of tiny twisted threads being spun into a strong yarn, to produce two strong vortices behind and slightly inboard of each tip (Figure 10). These trail off behind the wing for a long distance. The trailing vortices represents loss of energy and this is felt by the glider as extra drag.

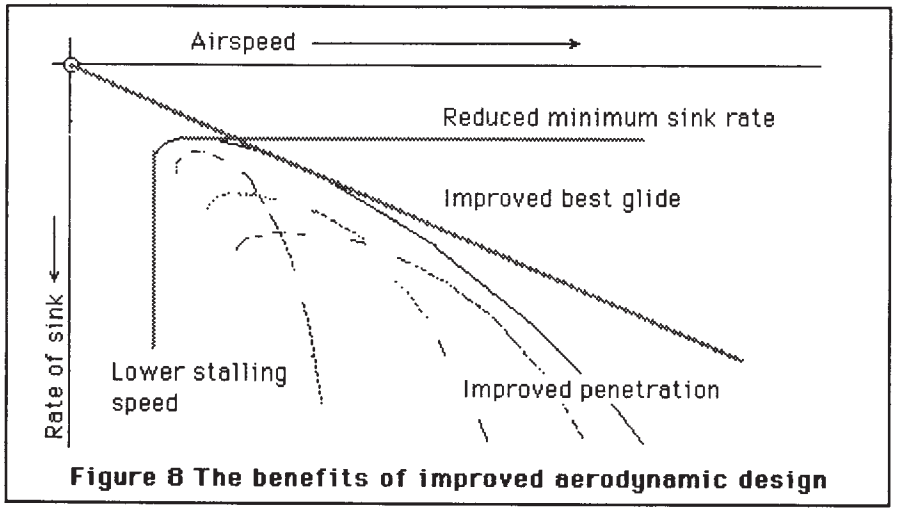


Figure 8 The benefits of improved aerodynamic design

When the wing is at high angles of attack, i.e., in slow flight, the vortices are most powerful and the drag so created is greatest. At low angles of attack, i.e., high flight speeds, vortex drag is much reduced although never entirely negligible. Figure 9 shows this clearly.

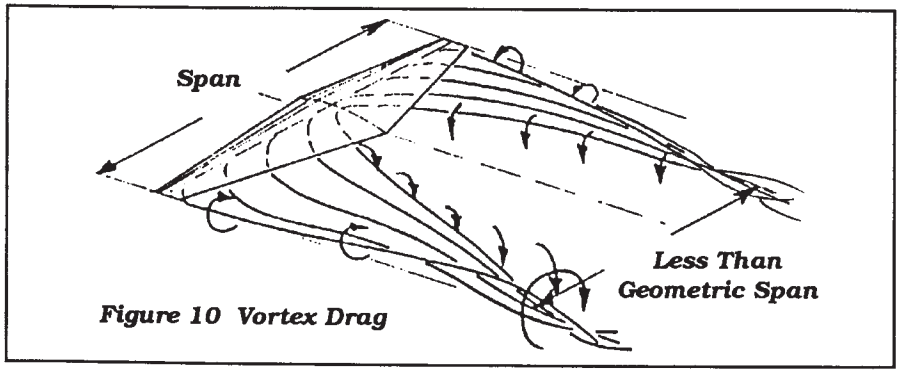


Figure 10 Vortex Drag

Profile drag

Profile drag, as the name implies, depends chiefly on the wing section or profile. Part of the profile drag arises simply because of the resistance of the air to changes of direction and pressure as it flows round the thickness of the profile. This is called pressure drag and arises through the general shape, especially **thickness form** and centre line **camber**, of the profile. The rest of the profile drag arises because of friction of the air in contact with the skin of the wing. This is called skin drag and is affected by the smoothness or roughness of the wing covering and finish. Small bumps and hollows may have a disproportionately large effect on the thin layer of air nearest to the surface, the so-called **boundary layer**.

The skin drag and pressure drag interact with one another so the division between them is for convenience only. In particular, the pressure changes over the wing as the air flows from leading edge towards the trailing edge, have great effects on the character of the boundary layer. The boundary layer responds by changing character and thus exerts an effect on the pressure variations which react again on the boundary layer, and so on.

At the high speed end of the sailplane polar curve, as Figure 9 shows, profile drag is dominant. The wing profile also has important effects on the stalling speed and handling in turns, so a good wing section is important for a sailplane at both fast and slow ends of the speed scale.

♣ ♣ ♣

[1] The minimum power required to sustain flight is found when the ratio $L^{1.5}/D$ is a maximum. This corresponds to the minimum sinking speed for a glider.

[2] Canard, tandem and tailless aircraft require slightly different treatment. Much theoretical and practical work has been done on tailless, canard and three-surface types of aircraft, with some very successful results. Contrary to some enthusiastic claims, however, it has never, so far, actually been established that these layouts have any advantage, for sailplanes, over the orthodox types. For a typical, recent research report, see the Journal of Aircraft, Vol 26, No 8, August 1989, Pages 699 - 704.

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13 Loch Street
Stepney
South Australia 5069

What Do You Mean ...continued

cut the bulkheads a little narrower to make it cleaner looking, have lower drag, and still make the radio fit.

Many of the new multi-channel sailplanes require mounting servos in the wings. In my FALCON 880, I originally used Airtronics 94401 micro servos for my flaps, but they kept stripping gears when landing in the grass. I didn't want to spend about $50 each for all metal gear servos, so I experimented with some Airtronics 94631 servos which cost around $12 at Sheldon's. These are Airtronics' old "standard" servos which have strong gears and 50 oz. of torque. With some easy modifications, I made them fit in my FALCON wing.

First, I cut off the mounting lugs. Then, I took a belt sander to the case and sanded the sides down, tapering towards the trailing edge, until I was sanding into the threads of the screws that hold the servo together. I removed the screw that was towards the TE upper surface and sanded some more until they fit flush, and then "glued" them in with silicone rubber. You could do the same with any manufacturer's larger servo.

DIGEST MAIL

More Thoughts on S-MTS

Dear Jim:

This is in response to your *RCSD* (Vol. 7, #2) article in which you expressed your views on the wing loading spec's for the S-MTS sailplanes.

I am in favor of the 12 oz. limit. However, I'd like to say...I belong to several So. CA clubs, and fly under the Pasadena Soaring Society banner. I'm entering my third season of competition. The first was spent marching through the novice ranks, and I flew sportsman during the '89 season. I average three contests a month which gives me the privilege of flying with/against some of the top guns (no names) in RC soaring. I imagine these top guns are the pilot/builders who have taken the wing loading to the places that prompted your article. If the question is, "Why?", then I think the answer is — "competition". And, it's not the sportsman class that will offer that competition. It's the inner competition among the top guns that bring the higher wing loadings to the "play pen". But, let me say this...in general S-MTS competition, the sportsman will be the sportsman, and the expert, the expert. The top gun/F3B oriented pilot is going to out score me regularly even if he were to be handicapped with a bent wing craft. It's because of their experience and expertise that put them up on me. And, it's this experience and expertise that I, as a student, want to tap. I don't think it's to our best interest to estrange this wealth of information and knowledge.

Thank-you, (signed) David J. Butkovich, 3247 Los Olivos LN, La Crescenta, CA 91214

Response: **Thanks very much for your thoughtful answer to my editorial in the February issue of RCSD. Your soaring history and contest experience matches exactly the person I had in mind when the idea of S-MTS competition was proposed in the first place...not only by myself, but also by the other five committee members I appointed to handle the proposed rules and regulations.**

We are in agreement on the 12 oz./sq. ft. wing loading limit. However, in regard to the comments about the "top guns" always out-scoring you in S-MTS competition, I don't fully agree — for a couple of reasons.

- **First, I don't think the "top gun" F3B types should fly in the S-MTS events. these events are NOT intended for the top-gun F3B types...they are intended for pilots like yourself.**
- **However, for those CD's who allow the "top guns" to fly in S-MTS events, the wing loading should be limited as proposed.**
- **The wing loading rule will serve as an "equalizer" which, although not complete, will help to prevent a complete route of the S-MTS people by the top guns. In that way, you can have your cake and eat it, too. The top guns will be limited to the same wing loading you S-MTS competitors have to meet, yet their superior (?) skills will allow the experience that you want to tap, and the wealth of information and knowledge that you seek, to continue to excel.**

Therefore, I would propose that in those cases where the top guns wish to fly against S-MTS beginners like yourself, and where the CD approves, then these guys ought to be forced to abide by the same rules you do...namely, the wing loading limitation. Admittedly, this does not exist at present, but I surely hope it will be adopted for these reasons listed above. If you want the "top guns" to play in your "play pen", then the least I can do is to try to keep you from being obliterated or "skunked" as we used to say in team sports. With the proposed limitation, you might find the top guns learning something from the beginners, too! Jim

Dear Jim:

Just read your High Start article in the Feb. 1990 *RCSD*, and felt this may be the time to respond with some comments and observations that reflect some of our club's S-MTS experience over the last year.

As you are well aware, the SBSS has been one of the driving forces in F3B in this country for a long time, having held 3 regularly scheduled F3B contests per year for several years, and having been blessed with the talents of Don Edberg, Rich Spicer, Seth Dawson, Steve Lewis, and Gene Englegau on several of the recent US Soaring Teams.

Having had to compete for several years against the heavy metal fliers mentioned above and others, when the S-MTS concept came up, we were especially eager to give it a shot. We went ahead and used the dual format in all 3 of our club F3B contests last year and our most recent contest held last weekend. The response has been very good, with the S-MTS class normally drawing twice as many fliers as the regular "Expert" class. Everyone enjoyed the experience, and mixing the two groups caused no problems. We had feared the more serious heavy metal fliers would not be very happy with the intrusion of the S-MTS group, but we found this was definitely not the case. All the experts pitched right in and helped out the fliers in S-MTS, who were in most cases flying off-the-shelf domestic sailplane kits. And as you mentioned, they sometimes had a hard time flying a straight line between the gates.

The latest SBSS F3B contest was held this past weekend, and 30 (yes, 30!) fliers showed up. This was our first club F3B contest of the year, and CD Brian Chan was almost overwhelmed by the number that showed up, and who some of these fliers were. Don Edberg and Daryl Perkins drove up from Southern California. Mark Allen, Ron Vann and a few others came down from the Santa Rosa area. 12 flew in the Expert class and 18 flew in the S-MTS class! 2 fliers, Scott Meader and Don Edberg, flew in both classes (using separate airplanes, of course). The winner of the Unlimited event was Rich Spicer, who turned in a so-so 21.9 sec.(!!) speed run, and the S-MTS winner was Don Edberg flying his Hustler (the plane submitted for your one-design contest). And yes, Jim, there were at least 5 Falcons entered in the S-MTS class! Mark Allen flew his in the Expert class where I believe he finished fourth.

But, as you so accurately point out in your article, the F3B types are playing in the S-MTS playpen. For our most recent contest, the S-MTS class was dominated by Experts who finished 1-2-3-4, and who should have been flying in the other event. If my memory is correct, 2 of the 3 club contests held last year were won by an Expert class flier using a plane weighing under the 75 oz. limit. Even though the Hustler is not a new and high-tech design and met the 75 oz. weight limit (don't know what the wing loading was), in the hands of a top flier like Don Edberg, the combination is still formidable and really defeats our intent of a truly Sportsman MTS event.

In some of my earlier correspondence last year, inputs from George Paige strongly urged some sort of pilot classification is needed, which unfortunately also died somewhere along the way. Based upon our club experience to date, I think George was right. Our club is faced with the dilemma described above where some local club Experts, who don't feel they can be competitive against the F3B folks like the Spicers yet want to be able to take home some hardware and also compete for seasons championship points. So, they unload their favorite airplane so it will meet the 75 oz. limit. Since there is no wing loading rule, as you say the wing loading on their ships can go quite high, well over the 12 oz. limit you and others proposed. (There are still some people like Don Edberg, Mark Allen, and Brian Chan, who insist that the criteria should be a wing loading limit rather than the 75 oz. weight limit). *...continued on page 20*

The Digest's Mail...continues

Opposite this we have the true Sportsman fliers who have neither the flying skills or the mega-buck equipment, who, through the advantage of S-MTS, are able to give F3B a try.

So, what this all boils down to is that we have two issues: a pilot classification problem (what to do with the typical club "Expert"), and a sailplane classification problem (wing loading versus the 75 oz. weight limit). Until these issues are resolved, S-MTS is in for a long hard struggle. Maybe we're trying to mix apples and oranges again, by trying to sort out and simplify two complex problems at the same time. Is there some middle ground for all fliers? I certainly hope so, or, as you say, the new S-MTS event may wither and eventually fade out. Maybe it is too early to tell what the outcome will be. Maybe we need to look very closely at the European format where, from what little I understand, there is an A-level and a B-level of pilot classification system.

I've read where some clubs have tried S-MTS, but have left out the speed run, saying that it takes too much manpower. F3B/S-MTS does take a handful or more workers, but not that many more. I hate to see clubs passing up the speed event, which is the most exciting of the three.

On a more positive note, what is quite evident is that F3B is very exciting to watch and fly in, at any level. it really gets the juices flowing, and is a very big step above thermal competition. Spectators have shown up in good numbers to watch, and quite a few of the less competitive club members have also shown up to watch and lend a hand as workers. The numbers we have seen and the enthusiasm shown says a lot for the interest in S-MTS (These people have really been excited!), so the concept has considerable merit. It is definitely there and should be carefully nurtured and allowed to grow and develop someday into a formally recognized event.

I hope this makes some sense to you. I've edited and rewritten it several times, trying to make it flow, somehow. I'm sure we will have to revise the club rulebook again, but at the moment I haven't the foggiest how this will turn out. Will keep you posted.

Sincerely, (signed) Earl Levin (President, SBSS), 8356 Charbono Court, San Jose, CA 95135

Response: Many thanks for the fabulous letter of comments, thoughts and experiences. I really do appreciate them, and must agree with you and your SBSS conclusions.

It seems that only a few clubs in the "east" are doing much about S-MTS, yet those few seem to be very encouraging with comments and experiences. I really wish more people would ask for it so that the club officers and contest committees would schedule some S-MTS events...even modified ones, if necessary... to got the ball rolling. It is my belief that once tried and enjoyed, more of such contests will be forthcoming. Certainly, I am by no means discouraged at this point!

For example, I am impressed that the S-MTS events have drawn more than the usual run-of-mill events...but then I would expect that from SBSS because of the great number of F3B enthusiasts in the club. This is not to belittle it by any means, because the driving force for S-MTS shown by the Edbergs, the Chans, the Dawsons, Spicers, Engelgaus and Lewises have been most important — in fact, vital.

I was somewhat surprised and not a little pleased to see that the S-MTS beginners and the F3B experts mixed so well....but, of course, am not in the least surprised that the "experts" came in 1-2-3-and 4. If this doesn't discourage the beginners, and if the F3B'ers continue to advise and assist, then that is all to the good. It is the best of both possible worlds...and I may well have to retract my comment about invading our "play pen".

Edberg and I both *...continued on page 23*

RADIOGLIDE 90 ENTRY FORM
Comprising the First UK FAI International F3J Contest

Name_____BARCS No._____

Address_____

_____Post Code_____

PROOF OF VALID INSURANCE WILL BE REQUIRED BEFORE FLYING WILL BE PERMITTED.

1. Entry Qualifications: (See instruction pages for entry details)
   Seeded Entry — 1989 League placing
   Southern_____Midland_____
   Scotland_____Northern_____N. Ireland_____
   100s_____Postals_____Radioglide 89_____

2. FAI Competition License: To compete in the OPEN (F3J) Event, you must hold a valid License obtainable from the SMAE. Please tick here_____if you wish the organizers to obtain one for you, but you must include the £2.00 fee with this form.
   The license will be issued when you "book in".

3. Events: OPEN (F3J), 100s and ELECTROSLOT £3.00 per event and MINIGLIDER £1.50
   Please tick the events you wish to enter: Open_____100s_____Electroslot_____
   Miniglider_____TOTAL £_____

4. Frequencies: Please indicate ALL your frequency channels in order of preference by PLACING A NUMBER in the space provided.
   60__62__64__68__70__74__76__78__80__82__84__UHF__
   If you are entering Open, 100s or Electroslot on 27MHz, give your color_____
   Minigliders will be operated on 27MHz, only.

5. Camping: Competitors — £2.00 per head per night. The rest are Free!
   Please tick — Friday_____Saturday_____Sunday_____TOTAL £_____
   Please tick here_____if you require a list of local hotels and guest houses and include and extra SAE with this form. You must make your own bookings direct.

Please send this form duly completed, photocopy if you wish, with one FIRST CLASS SAE (two if you need the hotel list) and your check for the TOTAL £_____made payable to BARCS RADIOGLIDE 90 to:

Radioglide 90, 81 Burbage Lane, Coventry, Warwick CV6 6AX.

To arrive not later than Saturday 28 April, 1990.

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Contest to include 5 (or possibly 6) rounds of percentage slot flying to F.3.J. rules.
Frequencies 35 Mhz even number only
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For further information and entry forms contact:
Sam Hitchman, 7 Verney Close
Lighthorne, Warwickshire, England CV35 OAZ
Please enclose a S.A.E. for reply.

Fun Fly...continued

to be left out of a Fun time, *Model Airplane News* has contributed generously with both magazine subscriptions and magazines, which I know will make a number of participants happy. Lastly, we aren't sure what Viking Models has up its sleeve, but we do know that anything Jerry Slates turns out is worth having in one's inventory. As you can see, the Fun Fly has tremendous support from the hobby industry, and I haven't even listed them all. One maybe shouldn't just come for the chance of winning a nice raffle prize, but it certainly can't hurt. In addition to all the above, the Tri-City Soarers will also give out some much deserved special awards. However, you will have to attend to find out what they are!

A final comment is that I haven't said much about the slopes themselves. So, for those who haven't read or heard about them, they are, we feel, two of the best in the world. One being only 600 feet high, pumps out lift that is wide and strong. The other site, Kiona Butte, which faces the opposite direction and is about seven miles away from Eagle Butte, is 1163 feet high, and is absolutely astounding to fly from in any conditions. One can also expect the winds to range from anywhere between 10 mph to 60 mph, but mostly the winds will be in the 10 to 30 mph range. If you're concerned about the room required to land your big model, we have landing zones at both sites which are very large and grassy. By large, we mean in the range of 150 acres or larger with no trees or obstructions.

We do very much hope you and your scale model will pack up for a trip to the Tri-Cities during the weekend of May 25, 26, 27, 1990, for what we think will be a very fun time. Remember, you must be an AMA member, or join when you arrive in order to participate. We will be providing good frequency control and will have a safe time of flying, soaring adventure. We anticipate you should be able to get lots of flying time in if the wind cooperates as well as it has in the past. So, if you're coming, say a prayer or two for wind. Lastly, TRICS will begin registration at the Clover Island Inn on Thursday evening prior to the event at 6:00 PM. Reservations can be made at the Inn on the Columbia by calling 1-800-541-7628.

Wil Byers
632 Meadows E.
Richland, WA 99352

agree that there has to be a wing-loading limit as well as an overall weight limit for S-MTS, and I opt for 12 or 12.5 oz. per sq. ft. I allowed myself to be "talked out" of that limitation by our committee, and would not allow that again, as I foresaw (correctly, I think) the "battle of the wing loadings" in its formative stages. I am not in favor of flying missiles, as you well know. I believe that stored energy from launch is NOT the ONLY criterion for performance capability, although it is perhaps all powerful in the speed event where "missiles" are preferred to winged vehicles.

I don't know if you remember the (in)famous Carnaby Brothers from Wylie, North Dakota and their World Speed Record Sailplane — it was a 2-3/4" steel ball, dropped from a mountain top, and passed through the FAI traps at something a bit under terminal velocity. Unfortunately, the record was never homologated, as they could not find the vehicle after its "landing" impact!

Yep, we DO have the pilot classification issue (and I'd go along with the German "A" and "B" systems or something akin to those). Regarding sailplane classification, I am strongly in favor of the wing-loading limitation discussed earlier, and/or a one design sailplane. Although initially I was not in favor of the "mixing" between F3B and S-MTS fliers in the same contest (but scored separately), I could be persuaded IF the above-suggested limitations are applied. Jim

♣ ♣ ♣

Dear Readers: I would like to hear your thoughts and comments on the subject of S-MTS — especially those of you who are relatively new to S-MTS/F3B soaring competition. Jim

♣ ♣ ♣

An Update on the B2 Streamlines Plans Service

Dear Readers,

We have recently received inquiries about submitting plans to B2 Streamlines. As there is apparently a bit of confusion in this regard, we thought that we would take this opportunity to clarify some points which may be in question.

First, and most important, it is not necessary that drawings submitted be done on vellum or mylar! Plans drawn on bond paper are perfectly acceptable! We transfer plans drawn on opaque (solid white) paper to vellum or mylar through a photocopy process. We pay the costs involved in doing this. We also cover the postage costs involved in getting the plans and returning them to the designer.

Second, our blueprint machine can produce plans up to 3O inches in width, but plans submitted in formats wider than this can be physically rearranged to fit this requirement. Plans are reproduced on our Ozalid 32.NV blueprint machine. The blueprinting process involves taking plans from a vellum or mylar original and making prints through an ammonia based photocopying process. The process is identical to that used by engineering and architectural firms.

Financial arrangements are as follows: As we said above, B² Streamlines pays the costs of obtaining the vellum or mylar masters necessary for reproduction. Once we have a copy of a plan on file, we can accept orders for prints. We are responsible for advertising and publication of catalogs; we pay all blueprinting and mailing costs. Payment of royalties to the designer is at the rate of $.10 per square foot for each copy sold. Thus a print of 30" x 72" earns a royalty of $1.50. As can be easily seen, B² Streamlines takes all of the risks involved, and the royalty earned is free and clear income for the plan's creator. For those who have considered selling plans for one of their own designs, but who have held off because of all of the initial expenses involved, B² Streamlines offers a risk-free opportunity. Please do not hesitate to contact B² Streamlines if there are any other questions which we can answer.

Sincerely, (signed) B², P. O. Box 976, Olalla, WA 98359-0976

More Digest Mail

Dear Jerry,
I am a new member to the addiction of R/C soaring. I currently live in Byron, Texas and fly with the Brazos Valley R/C Club. Unfortunately, most of the interest in this area is currently power planes. I say currently, because I would like to change that. There are a few people besides myself who are interested in a soaring club, and flying at competition level. I believe with some exposure in this area, we can draw more people in. What I am searching for is guidance. There is really no one around experienced in a soaring club and competition flying. A big help would be other people in clubs within driving distance to fly with and learn from. Bryan is about 2 hours north of Houston, Texas. If you could ask the readers to drop me a line with any info. and help they could offer, I would greatly appreciate it. Thanks, (signed) Bruce Martin, 615 East 32nd, Bryan, Texas 77803

Response: **Does anyone live in the area that can help Bruce out? JGS**

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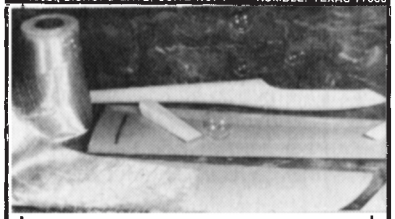

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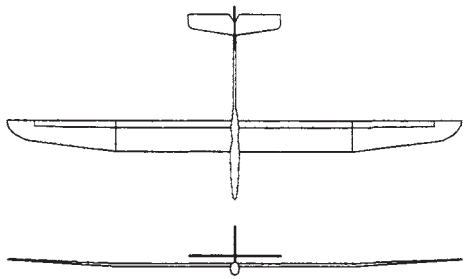

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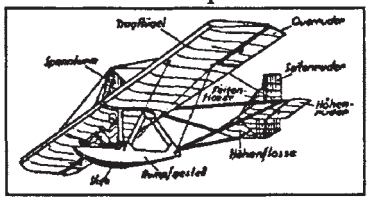

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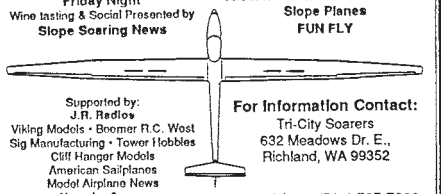

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