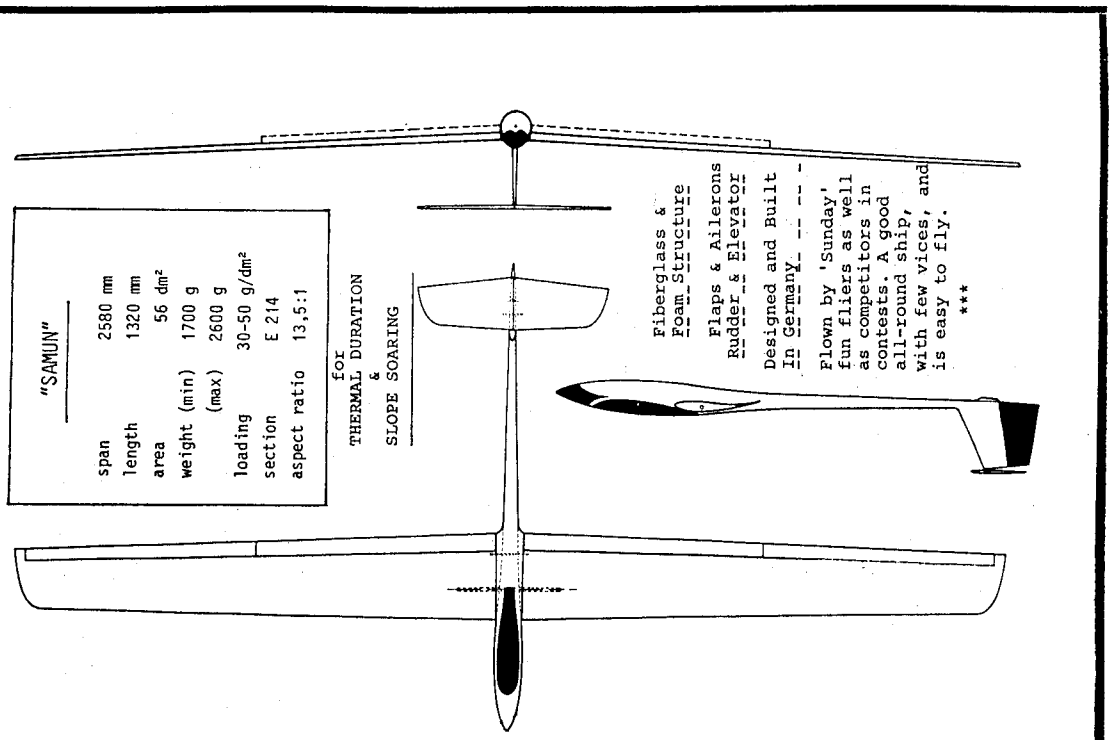
Soaring RC Digest

JUNE 1984

VOLUME 1 NO. 6



FLYSWAPPER

CLASSIFIED ADVERTISING:

RC Soaring Digest will take classified advertising from both individuals and from businesses. The INDIVIDUAL RATE will be 10¢ per word; the BUSINESS RATE will be 25¢ per word. Addresses free. Count only the words in the main ad. Copy must be typewritten and prepayment by check is required. Please submit all advertising copy before the second week of the prior month. For example, February issue ads must be in before January 15th. Checks payable to RCSD.

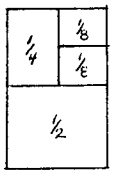
DISPLAY ADVERTISING:

RC Soaring Digest will take display advertising. The rate will depend upon the number of issues in which your ad is to appear, and the following schedule is based on frequency of appearance in RCSD. We suggest, to start, that all ads be typeset and ready for camera.

Ad sizes and formats are as shown in the table below, with the requested dimensions and formats. Full-page, half-page, quarter-page, and eighth-page sizes are available.

Note: All ads, classified or display, will be half price to all clubs and not-for-profit organizations. Ads received too late for publication in the desired issue will be held for the subsequent issue, unless requested otherwise by the advertiser. Publisher takes no responsibility for the accuracy, truthfulness, or credibility of offered merchandise. Any ad repugnant to common sensibility may be turned down by the publisher as unsuitable.

1 issue	3 issues	6 issues	9 issues	12 issues	Sz.
$10	$9	$8	$7	$6	1/8
$20	$18	$16	$14	$12	1/4
$40	$36	$32	$28	$24	1/2
$80	$72	$64	$56	$48	1



Note: Dimensions of ads - 1/8th page - 1/4th-page - 1/2-page

Full: 12"H x 7"W 3"H x 3.5"W 6"H x 3.5"W 6"H x 7"W

RC Soaring Digest
P.O. Box 186
Peterborough, N.H.
03458

POSTMASTER: ADDRESS CORRECTION REQUESTED

HI START

You want to know something? Every reader of RC Soaring Digest ought to be classified as a National Treasure! You have contributed more ideas and suggestions of value for RCSD than I would have guessed possible only a few months ago. Not only that, there's more than I can use for the rest of the year...so we'll have a grand trove of goodies going into 1985. The articles that you have contributed are of the greatest use and value, and readers from virtually all over the world have written in to tell me how much they appreciate the information, and how useful it is to them in designing, building, and flying. That's how it is in a mutual admiration society, right?

Anyway, I wanted to mention a few things about RCSD and about RC Soaring in general that may be of interest to you...sort of a consensus, if you will. First, it has become quite apparent that the MAIN interest out there among the readers is THERMAL SOARING; not F3b, not speed, not scale, not slope, not anything else. Good Ol' Thermal Duration is where it's at, folks, and I guess none of us ever really doubted it. The next most popular subject is CROSS-COUNTRY soaring. Many of you have written in about that subject, asking for designs and information...all of which brings me to ask for help from YOU out there among my readers - all 325 of you at present.

I would like to do some special or 'theme' issues this year and next. For example, I want to do a Cross-Country issue, with designs and specs, and how-to info. I'd like to do a Two-Meter issue, with lots of designs featured, plenty of three-views, and flight reports. Then, I'd like to do an issue devoted to Scale, and another to Techniques. Techniques for thermalling, for winning contests, for flying slope, for building scale, for landing, for anything and everything that you can think of. Then, I'd like to do a kit review in each issue; not only the 'hot-shot' items, but also the average, everyday, garden-variety of sailplane - the kinds that most of us fly. What I'm getting at is the fact that I can't generate all of this on my own. I NEED YOUR INPUT AND CONTRIBUTIONS. Please start sending in the stuff now, so that I can assemble it for presentation a few months downstream. Okay? Pick your favorite subject, and send me the material. Oh yes, before I forget, I'd like to do a 'theme' issue on airfoils. I've got some beauties to show you. Let's do hand-launched RC sailplanes, too!!

Our readers come from Italy, Germany, Australia, New Zealand, South Africa, England, Austria, Canada, Japan, Pakistan, Holland, France Switzerland, and elsewhere. These just came to mind as I sit here thinking about YOU, and where you're from and what you're doing.

Things are going very well for RCSD, and we're getting new subscribers at the rate of three or four each day. Many of you write to me after having seen the first few issues, and say that I'm right on track. Well, that's good to hear, because it's YOUR newsletter. Someday, if all goes well, we may be able to offer you a real 'slick' magazine; but I don't want to even think about that until we get four or five thousand subscribers. Right now I'm betting that we'll have 1,000 by the end of the year...five hundred by the end of June! All of your comments point to the fact that you like to have an issue out on a regular basis, with lots of different information contained. You don't seem to care too much whether it is on slick paper or not, or whether there is sophisticated (and expensive) typesetting. Several [illegible] al printers have told me they like the nice clean format and type [illegible]. It's done on my typewriter here on the card table, and is photo-reduced before printing. Let me tell you one thing, though: before I go to a 'slick' publication, I am going to increase the number of pages. That's right;more information every month, as the budget allows. My plans are to break even in '84 and make a slight profit in '85. Last year, which was spent gearing up for our January first-issue introduction, was a loss financially...you might say an investment or 'seed' money, really, for the future - which, by the way, is bright!

I'll be going to third-class postage, too, to help out on the cost of mailing. The USPS assures me that this won't appreciably slow up the delivery, and I can save 11¢ on each copy mailed. That way, I can justify making the newsletter thicker, with more info. Frankly, I'm having fun - a reall ball; and I hope you are too!

Happy Soaring,

Jim Gray, Editor & Publisher

FEEDBACK AND FLUTTER - Tempest story incomplete - an update

Some of our subscribers have reported difficulty in trying to reach Scott Metze of SCOTT'S MODELS (Soarces, March RCSD, page 10) about his TEMPEST sailplane. I was able to talk with Scott last night and found out that all is well. He is reorganizing his production and training new people to produce TEMPEST kits. Production has started in batches of ten kits, and the first order of business is to supply orders on hand. He has already supplied 60 kits, and more are coming every day. Eventually, the TEMPEST will be available in both 60" and 78" wingspans, as well as in T-tail or Vee-tail versions. Scott has asked me to request a delay in new orders until the end of June, when he expects to be able to fill them as received - from stock. I will have an address, and maybe an ad, for SCOTT'S MODELS in July RCSD

CONTEST CALENDAR

SOARCROSS '84: cross-country challenge for RC sailplanes; July 14 - 15, 1984 (practice July 13, 10 AM - 5 PM). Registration beginning May 1, 1984. AMA Sanctioned. Awards through 4th place; $40.00 entry fee (includes Saturday night picnic). For application and information, write SOARCROSS, P.O. Box 933, Wayne, MI 48184. Call Mark Wencel (313) 562-9099; Don Riggins (313) 595-7235; or Ron Ski (313) 728-3528.

ELECTRIC FLY: September 22-23, 1984 (Saturday 9 AM - 5 PM, Sunday 9 AM - 3 PM) at the Keystone R/C Club field, Hatfield, PA. Location: SPS Technologies, Township Line Road, north of town. Events include "All Up - Last Down," for every plane; daily clinic and seminar; informal Saturday-evening social (free to all guests); Awards for best-looking plane; longest flight time; most aerobatic; surprise events. This is a FUN fly in a casual, relaxed atmosphere. On-field charging of batteries available. Current AMA license required. Bob Kopski, 25 West End Drive, Lansdale, PA 19446.

M.R.C.S. Cross-Country Race; C.D., Chet Tuthill, 24709 Ridge Road, East; Novi, MI 48050; Telephone (313) 348-1137. JUNE 9th & 10th.

LSF 1984 REGIONAL; August 19 - 19, 1984; C.D. Jack Iafret, 529 Boutwell Drive, Grand Blanc, MI 48439. Telephone (313) 694-2490

June 18-22 US INDOOR CHAMPIONSHIPS - Michigan State Fair Coliseum

Rick Drury of Goleta, California has been making trips to Europe on a regular basis. As a result of these trips, he has accumulated some good information about European designs and kits, particularly the German ones. The following information - in English, French, and German may help you figure out what some of the words mean on the set of plans or instructions that you have acquired - but can't understand. Thanks, Rick!

GERMAN	ENGLISH	FRENCH
Fluggewicht, max.	Maximum take off weight ...	Masse maxi en ordre de vol
Flächenbelastung, max.	Maximum wing loading	Charge alaire maximale
Höchstgeschwindigkeit	Maximum speed	Vitesse maximale
Überziehgeschwindigkeit	Stalling speed	Vitesse de décrochage
Geringstes Sinken bei ... km/h	Minimum sink speed ... km/h	Vitesse mini à ... km/h
Beste Gleitzahl bei ... km/h	Best glide speed ... km/h	Finesse maxi à ... km/h
Profil	Wing section	Profil

Spannweite	Wing span	Envergure
Flügelfläche	Wing area	Surface alaire
Flügelstreckung	Aspect ratio	Allongement
Länge	Length	Longueur
Breite	Width	Largeur
Höhe	Height	Hauteur
Rüstgewicht	Empty weight	Masse à vide
Zuladung	Load	Charge utile

REPRODUCIBLE SAILPLANE COMPONENTS MOLDED FROM TWO PART EXPANDABLE POLYURETHANE FOAM

Robert Mackay, 5438 Quentin Street, Philadelphia, PA USA 19128 PH: 215-483-8792

Competition sailplanes have three basic requirements: a good design, outstanding craftsmanship, and a simple procedure for making highly consistent and interchangable components in the event that they get damaged. This concept is probably best exemplified by the Sitar brothers of Austria. Most American modelers however dismiss this concept citing the fact that the molds are too expensive and time consuming to produce. This situation is rapidly changing however. The March issue of RCSD detailed a simple laminated shell mold construction method for producing consistent and highly reproducible sailplane wings in a manner well within the reach of most modelers. A number of excellent airfoils such as Helmut Quabeck's 2.5/8 & 2.5/9, Michael Selig's 3002-098-83, and the Eppler series are now readily available. Competition fiberglass fuselages are available in a variety of designs with personal preference options of Kevlar^{R}, graphite, and boron filaments along with foam core wing beds for making wing molds from Jerry Slates, 2026 Spring Lake Drive, Martinez, CA 94553 and a number of other sources. But what about the tail feathers and wing tips? Wouldn't it be nice to have a simple and highly reproducible method to make several virtually identical spare sets of components to keep on hand in your flight box, or to be able to head for a contest with three or four virtually identical superships with interchangable components? Also I have found that some sailplane components are just too thin or have complex curves that just cannot be cut from solid foam with a hot wire. This article will describe how to make two component 2 lb/ft^3 polyurethane foam fins, rudders, elevators, wing tips, spoilers, flaps, and ailerons using fiberglass molds. Your imagination is the only limitation.

This method requires the handling of raw fiberglass, unpolymerized epoxy resins and polyurethane foam. Common sense as well as an awareness of product safety warnings, proper clothing and ventilation, and a safe working area are all required. With a little imagination you may in fact be able to use a component of your present sailplane to produce a mold. If not or if you are working on a new design, you will first need to carve a "plug" or example of the item that you wish to mold. The plug may be carved from a variety of woods or foam but I routinely use balsa and finish it to a smooth finish with sanding sealer. I have found that it is a waste of time to attempt to achieve a super mirror-like finish or to attempt to produce razor sharp edges on the plug as there is a certain amount of "mold rash" that prevents copying perfection. Your time is better spent achieving these goals on the final molded product. Also if you use solvent evaporation type sealers, thin trailing edges can be produced without warps if you sand and seal only half of the plug on one side of the trailing edge, allow to dry, and then repeat on the other side rather than doing both sides at once.

The procedure for making fiberglass molds that I use is the Mike Bame of the SFVSF method. It was covered very nicely by Bill Forrey in the May, 1984 issue of Model Builder magazine (Model Builder, 621 W. 19th St., Box 10335, Costa Mesa, CA 92627-0132). The first half of the mold of the plug is made on a "splitter plate". A plug is usually molded with left and right halves, only one of which need be made on the splitter plate as the second mold is cast directly on top of the first (see below). The splitter plate is a 1/8-1/4" thick sheet of masonite available at your local lumberyard or home improvement supply store. I then place a silhoutte outline of the plug near a corner of the sheet about three to four inches from two sides. I then trace the outline of the plug on the sheet and then cut it out with a saw so that the plug can be submerged exactly halfway into the sheet with a fairly tight fit. I usually cut the outline smaller than required and file to final shape rather than chance making a large gap between the plug and the plate. I then cut free the two remaining sides of the plate again so that the edges are three to four inches from the plug outline. Next I build and assemble a base for the splitter plate from 1x2" or 2x4" wood so that it frames the outline of the plug and is about 1/2" away from the plug outline edge. The actual height of the base obviously must be greater than the half-depth of of the plug being molded. I then sand both the top and bottom edges of the base flat and then nail the masonite shiny side up to the base and countersink the nails. I then fill the nail holes (allow for some shrinkage) with autobody spotting (glazing) putty (available at automotive paint supply stores) or an equivalent filler and sand flush. I then taper the top edges of the plug outline into the splitter plate on the top shiny surface to a 45-60° angle with a file. The splitter plate is now basically complete except for some method which will allow you to perfectly align the resulting mold halves with respect to the product during the molding step. To do this, two options are available. One is to drill holes for bolts in the mold halves at the time that they are superimposed over the plug (see below), and the other is to incorporate some form of bump on the splitter plate which will be molded as a depression in the first mold half and as a bump again in the second mold half. To do this second method,

I drill two holes in the mating surface of the splitter plate in diagonally opposite corners (the exact location is not critical) and mount two round headed carriage bolts (available at your local hardware store) flush with the mating surface so that only the round heads project above the plane of the splitter plate. Once the plug and splitter plate are complete, I give them both several good coats of Johnson's Paste Wax (available at your local supermarket) with alternate polishing between applications followed by one or two very light dustings of mold release agent. Any mold release agent that does not contain silicates will work fine but I recommend MS-122 available from Miller-Stephenson Chemical Company, Inc., George Washington Highway, Danbury, CT 06810 to responsible persons. They also have sales offices in Los Angeles, Chicago, Toronto, and some foreign cities. It is available in up to four 16 oz spray cans as "samples" on a special advertisement basis at $4.00 per can postpaid. It is available as regular MS-122 or as MS-122R which incorporates a red dye to help judge the coverage on application. I have found that the regular formula works just fine as judging coverage is no real problem and the red dye has a tendency to bleed back into the molded products. If your surfaces are well waxed, all that is required is a light dusting of MS-122 as heavier applications merely add to the "mold rash".

I then submerge the plug exactly halfway into the splitter plate and support it from below with some childs non-drying type modeling clay (available in the toy department of most discount stores). I also seal the 45-60° angle bevelled area between the plug and splitter plate with clay and smooth it flush with the splitter plate surface so that only half of the plug projects above the plane of the splitter plate (along with the carriage bolt heads if you used that method). I then mix up a batch of epoxy resin and allow the air bubbles to rise to the surface. I routinely use Resin B and Hardener B available from Partnerships Limited, P.O. Box 6503, Lawrenceville, NJ 08648 or the West System line of epoxy resins available from California Custom Yachts, 531 N. Francisca Ave., Redondo Beach, CA 90277 or from JT's Ship Chandlery, P.O. Box 777, Newport, RI 02840 (1-800-343-9350,VISA/MC,UPS). One of the problems in working with epoxy resins is that they tend to run due to gravity when the molding surface is not flat. Consequently, in those areas with angles greater than about 45°, for example where the plug meets the splitter plate, a thickening agent must be added to the epoxy resin prior to application. Cab-O-Sil (Partnerships Limited), phenolic microballons or Colodial Silica (West System) is added directly to the mixed resin to a consistency of mayonnaise and then applied as a first layer directly to the plug and splitter plate in these areas. This will prevent the epoxy from running during the long polymerization time and hence from forming an air bubble in the space where it vacated on the surface of the mold. If you are hesitant about trying it, use it around the carriage bolt heads on your first mold. Remarkably these agents have little influence on the final strength of the cured resin. I then apply a layer of normal resin over this material and continue as usual with layers of resin and fiberglass as previously described.

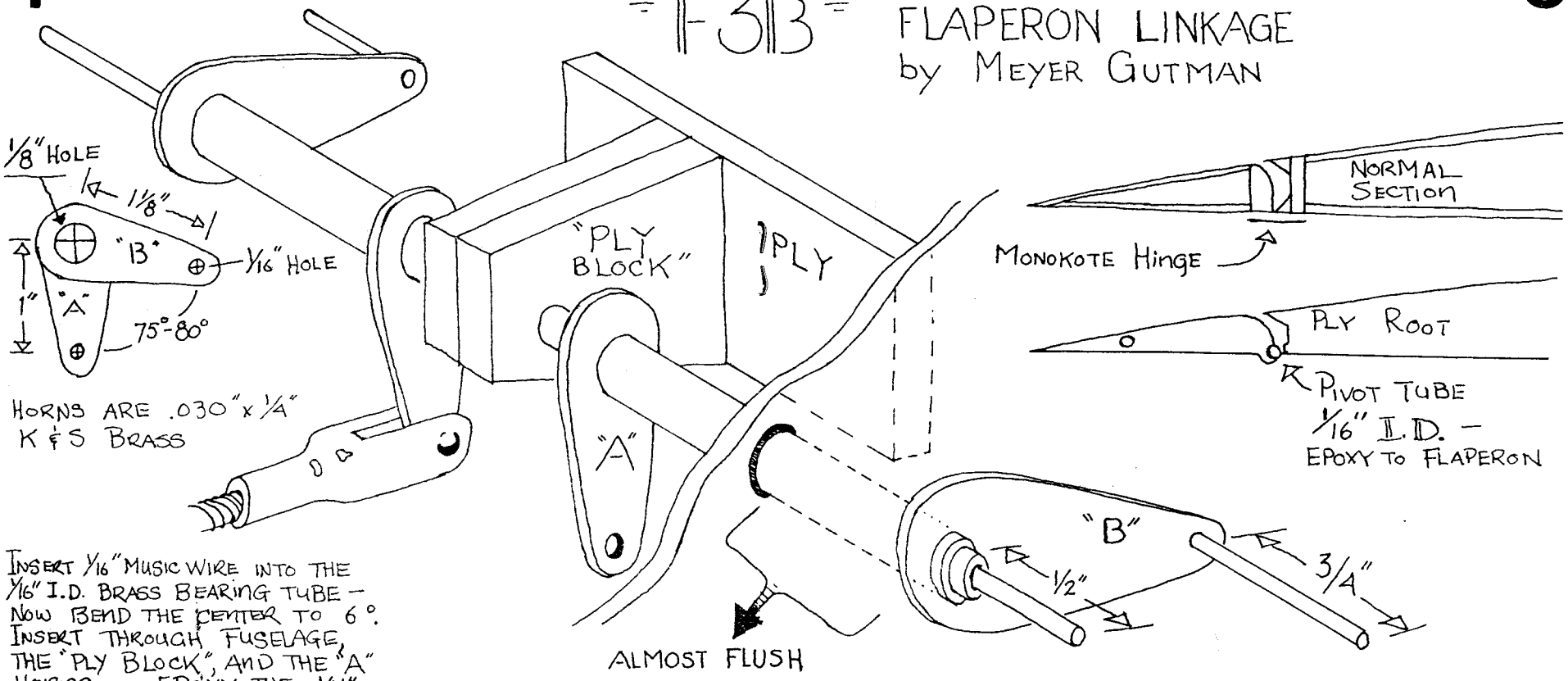
I first apply a thin layer of epoxy resin with a disposable brush to both the plug and splitter plate mating surfaces. Don't worry about damaging the mold release agent layer with the brush and try not to introduce air bubbles in the resin during application of the resin as they will be trapped in the eventual molding and mating surfaces of your mold. I then add a layer of 0.75 oz/yd^2 fiberglass (K&B Mfg., Inc., 12152 Woodruff Ave., Downey, CA 90241) available at your local hobby shop and wet it out with resin until it turns clear. I then add a layer of Partnerships Limited B-1080 or equivalent 1.45 oz/yd^2 E-glass, followed by several layers of B-1522-4 or equivalent 3.8 oz/yd^2 E-glass, and finally a couple of layers of B-7781-9 or equivalent 8.95 oz/yd^2 E-glass. The actual number and sequence of layers depends on the item being molded. Large items generally require more layers and those with complex curves usually require more of the lower weight glass layers to fit the curves before going to the heavier layers. Be sure to thoroughly wet out the fiberglass with resin before applying another layer and to remove any air bubbles that form as you go. When attempting to get the fiberglass to wet out over a complex curve, do not cut the glass to eliminate a wrinkle, rather use a disposable brush to work the resin into the fiberglass and you will be surprised how it can be manipulated to fit the shape. I allow to polymerize overnight over a few sheets of newspaper in case of any drips. I then use a very thin knife or spatula to separate the mold from the splitter plate. A little patience is usually required in this step so don't get in too much of a hurry and try not to scratch the surface of the mold or splitter plate with the spatula or knife. If it is at all possible, try and release the plug still half-embedded in the first mold half from the splitter plate. I then clean up the first mold half and the exposed portion of the plug by removing any residual clay, sanding any high spots, and filling any air bubbles or pits in the first mold mating surface with spotting putty. I then give both the mold mating surface and the exposed surface of the plug several coats of wax with buffing between coats and finally a light dusting of mold release.

I then mold the second mold half directly on top of the first which contains the half-embedded plug thereby producing right and left mold halves. I then repeat the above procedure of applying a thin layer of epoxy resin with thickeners where necessary to both the plug half and the first mold mating surface followed by the same sequence of light, medium, and heavy layers of fiberglass and again allow to cure at

(Cont. p. 6)

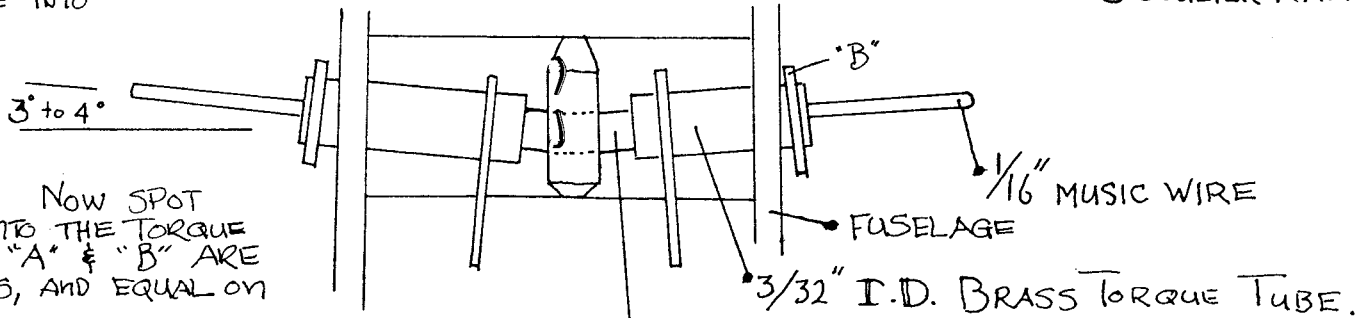
F3B FLAPERON LINKAGE

by Meyer Gutman



INSERT 1/16" MUSIC WIRE INTO THE 1/16" I.D. BRASS BEARING TUBE — NOW BEND THE CENTER TO 6°. INSERT THROUGH FUSELAGE, THE "PLY BLOCK", AND THE "A" HORNS. EPOXY THE 1/16" I.D. BRASS BEARING TUBE INTO THE "PLY BLOCK". INSERT THE 3/32" I.D. TORQUE TUBES & SOLDER ON THE "A" HORNS. SOLDER THE 3/4" LONG 1/16" WIRES INTO "B" HORNS. NOW SPOT SOLDER "B" HORNS ONTO THE TORQUE TUBES SO THAT HORNS "A" & "B" ARE AT 75 TO 80 DEGREES, AND EQUAL ON BOTH SIDES.

USE "STAY-BRITE" LOW TEMP. SOLDER.



least overnight, if not longer. At this point, if you elected not to include the carriage bolts in the splitter plate as a means of mold alignment, you will need to drill holes through the right and left mold mating surfaces near the plug while they still encase the plug and hence are perfectly aligned at this time. You may wish to epoxy the bolts heads into one of the mold surfaces and washers for wing nuts in the other to save time during subsequent product molding steps. After everything is cured, I then carefully pry open the mold with a spatula or thin knife and remove the plug. I then clean the molding and mating surfaces of both halves, sand and fill as required, and wax and buff as usual. I then sand the edges of the mold halves and otherwise check them for sharp edges or burrs as they will need to be handled very rapidly during subsequent product molding steps. I then give the molding and mating surfaces of both mold halves a light dusting of mold release, assemble the mold to prevent damage to the surfaces, and then put it away until I am ready to use it to mold a product.

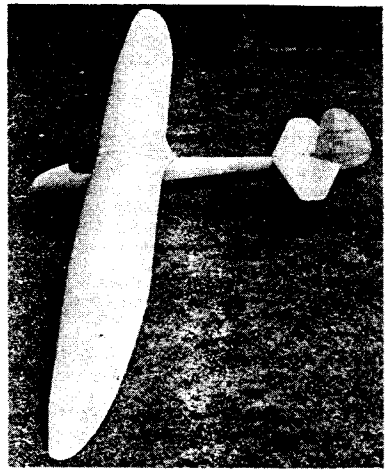
To mold a component, I first apply a thin layer of epoxy resin over the molding surfaces (where the product will be cast in contrast to the mating surfaces which are used to align and hold the two mold halves together) of both molds lying flat on a table. If you happen to get some resin on a mating surface wipe it off with a tissue. I then apply a layer of 0.75 oz/yd^2 E-glass. I routinely apply just enough resin to completely wet out the fiberglass. I then mix up the two component polyurethane foam available as "Superfoam" (Cat. #SF-001) from Sig Mfg. Co., Inc., Route 1, Box 1, Montezuma, IA 50171 or as Tap Plastic's "X-40" (Cat. #M-25) from Aircraft Spruce and Speciality Co., 201 W. Truslow Ave., Box 424, Fullerton, CA 92632. This step takes practice so if it does not go perfectly for you the first time don't get discouraged, just clean out the mold and try it again. I use a disposable cup and mix equal volumes of the two components just enough to see an even color change then rapidly pour approximately half of the contents into each mold half and then rapidly spread it evenly over the resin and fiberglass surface with a cotton tipped Q-tip and then immediately put the two mold halves together. The best way to approach this technique is to understand the following. There is a certain amount of lag time from the time of mixing until the foam begins to expand. This is your "working time" to get it mixed, poured, spread, and the mold assembled. Once expansion of the foam begins, any manipulation of it (mixing or spreading) will decrease its final expansion volume and therefore require more foam components to fill the same space and hence add more weight. This is why it is critical to have everything ready, to work quickly, and to align the molds rapidly and precisely. If I used the carriage bolt method of mold alignment, after molding a product I immediately place the assembled mold in an old telephone book and weight it down with two cement blocks. Although not as fancy as the bolt method, it is very fast and works fine especially for smaller components. Actually, the foam sets up rather quickly but I cure overnight. I like to use slow cure epoxy resin to allow a reasonable working time to get everything set up especially if I incorporated other structures in the product (see below).

The next obvious question is how much foam should you mix up for a given mold? The answer to this is to experiment and take advantage of the situation. Mix up a small batch of the foam well below that which you expect to fill the mold and leave it in the mixing cup and determine your "working time" until actual foam expansion begins. Then mix up another batch and practice getting it into the mold (without the epoxy resin and fiberglass layers present in these practice sessions) and spread before it expands. Then increase the volume until you completely fill the mold so that there are no major voids or air spaces in your final product. Too much foam will cause seepage into your mating surfaces and hence produce a thicker product than desired with attending unwanted "flash" especially if the molds are not held together tight enough or are not flat. The ideal product then is one in which the foam has fully expanded and there is enough foam to fill the mold, but not too much foam so that it begins to compress back on itself.

Since most sailplanes use the brass tube and music wire method for actuating the tail surfaces, the foam can be easily cut after polymerization and they can be added at that time if you desire. However, they may be incorporated inside the molded product before adding the foam. To do this, I first add a minimal layer of epoxy resin to saturate a layer of 0.75 oz/yd^2 E-glass as usual for a smooth and sandable exterior surface. I then add additional layers of E or S-glass, or you may want to add Kevlar^R or graphite fabric (Partnerships Limited) in high stress areas, for example over the joiner tubes and taper it from root to tip. Also spruce, graphite, boron filament spars may be included for additional strength. After polymerization, the exterior surface of the epoxy resin may be sanded lightly to remove any "mold rash", primed, and a color coat applied. For a variation, you may wish to pigment the epoxy resin directly before application with various epoxy resin pigments (available from boating supply stores) and then use it directly as it comes out of the mold. For those who desire razor sharp trailing edges, a strip of fiberglass, graphite, boron filaments, or plywood may be incorporated at the trailing edge before adding the foam. Similarly, leading edge enhancers of the same or different materials may also be incorporated and you may wish to allow the epoxy resin to cure slightly so that the edge enhancers do not shift during the foam expansion step. An alternate method is to cut off the trailing edge after polymerization and add one of spruce or an edge of your choice.

For reduced weight, some applications may require hollow foam molded components, for example wing tips. All that is required is to make several molds at various angles of the plug and then glue the resulting molded portions together into a solid form. Also with multiple molds, volume consuming objects may be incorporated inside the mold during polymerization to decrease the foam thickness and subsequently removed before assembling the final product. Finally a word about weight. The foam as cast produces a 2 lb/ft^3 product which is far lighter than solid balsa at 6 for soft and 16 lb/ft^3 for hard. For those interested in the lightest possible weight, the epoxy and fiberglass layers may be omitted and the foam poured directly into the mold. Also the final product may be drilled or cut out in a regular fashion to remove as much weight as consistent with the required strength. It can be covered with the usual heat shrinking materials with a little practice. However, for competition soaring applications, spars and extra layers of fabric are obviously required.

So make up a set of molds of your favorite sailplane, run off a couple of spare sets of components, and then head back to the competition.



SCALE FEATURE FOR JUNE
by
Martin Simons
Adelaide, South Australia

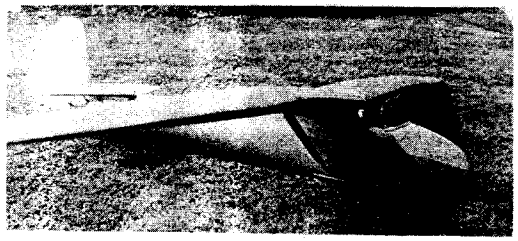
Quarter-scale KIRBY KITE

"HAS NOT YET FLOWN, BUT WILL FLY SOON."

SPAN: 3.55 METERS (FULL SIZE SHIP SPANS 14.2 METERS).

"It is a sailplane I have flown quite a lot in England, full sized, so I was pleased with the model. I may be able to get the plans published, and if so shall let you know."

"I hope not to break it on its first day out!"

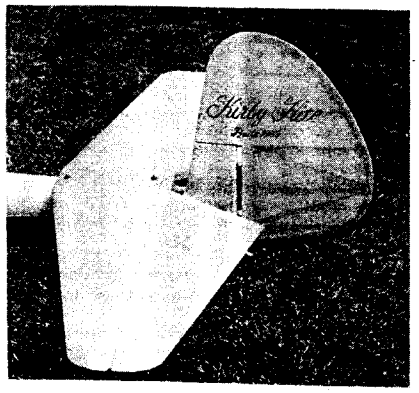


First flight of the prototype was August 1935. Twenty-four were built.

Performance of the KIRBY KITE was about 21:1 L/D at a speed of approximately 40 miles per hour. It stalled at 30 m.p.h.

*** ***

Gottingen Go 535 air foil. Empty wt.:309# Carried 185-pound pilot.



The KIRBY KITE was made by Slingsby Sailplanes of Kirbymoorside, Yorkshire, England. Its design was based on that of the German Grunau Baby, a prewar favorite in Germany.

The KITE had a lovely gull wing, open cockpit, and wood/fabric construction. Birch ply semi-monocoque fuselage. D-tube wing nose box of plywood.

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Those who flew the KITE said it was a delight to handle, in spite of its plain ailerons and old-fashioned aerodynamics

Since it is a design not very often seen, why not build it?

WING'TIPS'

WARPED INTEGRAL FIN

Here's a solution to the problem of a warped tailfin on a fiberglass fuselage. Edmund Depue of Long Beach, CA submitted the idea...which has worked fine for him. "This building hint was given to me by Elbert Witt, a member of S.U.L.A. (Soaring Union of Los Angeles). The Larry Jolly PANTERA kit is very popular here in Southern California, and it has a fiberglass fuselage with the fin molded in. On more than a few of these attractive bodies the fin is out of alignment with the vertical center. Elbert wraps a terry towel around the boom, pours boiling water over the towel, twists the fin back into the proper location, and then - while still holding it in place - a helper pours cool water over the towel to set the tail in its new alignment. The fiberglass becomes very soft & pliable when heated thus. Don't allow the heat to remain too long on the boom, or it may lose shape. I am sure this mthod will work with any fiberglass fuselage. Use care!" Thanks to Edmund and Elbert for this neat solution.

REPAIR OF EPOXY MOULDINGS

Bruce Abell, our Australian correspondent, says that moulded epoxy parts that have become broken are easy to fix. Here's how he does it. "Just roughen up the area around the break - scraping is preferable to sanding - and carefully mate the fractures. Run some cyanoacrylate into the fracture lines, and then lay some four-ounce cloth (cut on the bias) over the break (preferably on the inside of the fuselage if accessible) and work in some epoxy resin. Polyester resin, I'm told, is more difficult because the epoxy resin is reluctant to hold to it. The scraping, however, should expose enough glass fibers for the epoxy resin to 'key' to and anchor a patch. The cyanoacrylate should hold okay. Another technique (and this one I have used on the field) is to scrape the affected area, cut a patch of glass-fibre to suit, and then proceed to 'glue' said patch to the broken area with the cyanoacrylate, while rubbing the CA into the patch with a piece of plastic film wrapped around your finger, doing only about 2 square inches at a time. It makes a terrific job on epoxy/glass fuselages, and I think it should work well on polyester, too." Thanks, Bruce. You may have just gotten some folks back into the air after they thought their flying was done for the day.

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SOARCES

Flying wing sailplanes ... new book tells all. Perhaps a better term for a 'flying wing' (since all wings are presumed to fly) would be tailless aircraft. For many years there has been a fascination among modelers for tailless machines. First, they look strange and interesting. Second, they should have less drag than their conventional counterparts among tailed aircraft, because elimination of fuselage and tail surfaces would greatly reduce total drag of the machine. Many efforts in the past have been directed to this end, and the Germans have led the world in tailless aircraft design for half a century. The Horten brothers, Walter and Reimar (still alive, incidentally) pioneered this work in Germany in the early 1930s. Now, a book about their research, their discoveries, and their solutions to the 'problem' of controllability and performance has been written. Nurflugel, authored by Peter Selinger with the co-operation of the Horten brothers, is the definitive work, and one you must have in your library. Although it is in German, a passage in each chapter has been translated into English to explain the relevant content of that chapter. Further, there are hundreds of photos and descriptive drawings that make the text clear. If you're a 'wing nut, as I am, then you must have the book. It's expensive, and it's available from Jan Scott, Scott Airpark, Lovettsville, VA 22080. Cost is $35 including postage. Mention RCSD or my name when you order, please.

RC Sailplane Model 'Wings'

If you want a real treat in the realm of flying wing RC sailplanes, write to Sean Walbank, 22 The Gardens, Acreman Syreet, Sherborne, Dorset, England DT9 3PD, and ask him for the "Flying Wings Special" , No. 2, of The White Sheet. It's the club newsletter edited by Sean, and it contains more information, three-views, and flying/performance data than I've ever seen collected in one place about flying wings. Tell him RCSD sent you, but please: send him a couple of dollars to help defray the mailing cost of this heavy newsletter. You won't be sorry.

Just a few comments about flying wing design. There appears to be two different 'schools' of thought about the best configuration. One school favors the highly swept-back configuration and a highly reflexed airfoil, while the other school favors a straight leading edge, or even a 'plank' configuration, and symmetrical airfoil. There could be a third school, as well. This one uses the reflexed airfoils on a plank or straight leading edge wing, and symmetrical sections on swept wings. See for yourself which is best, and let me know.

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