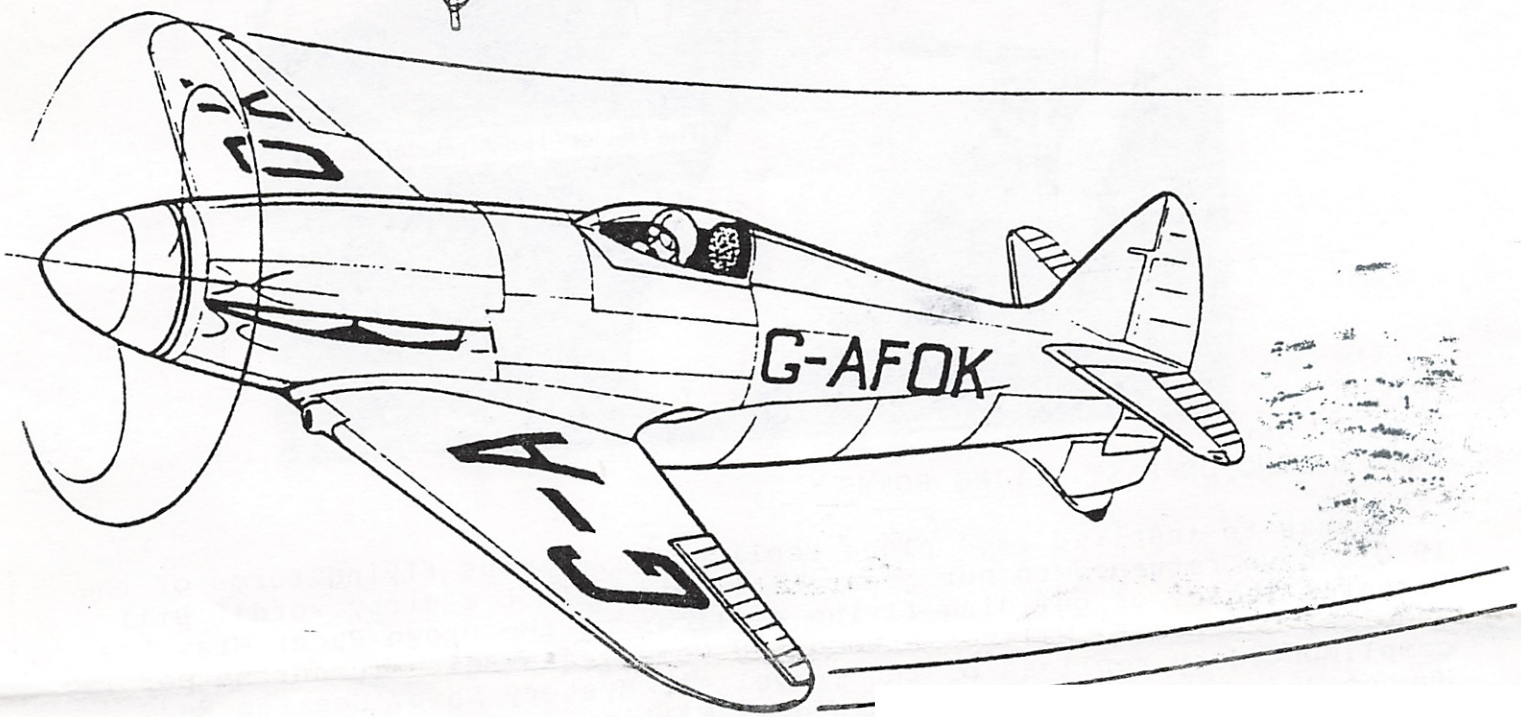
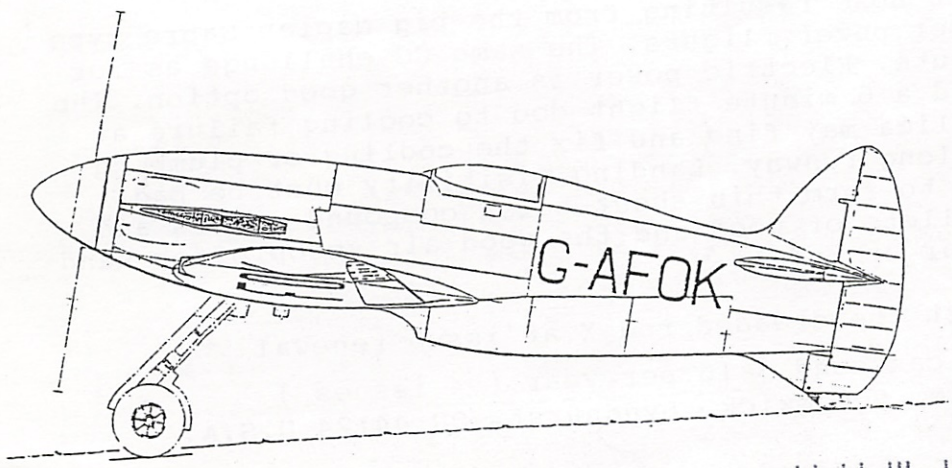
CROSSWINDS

108

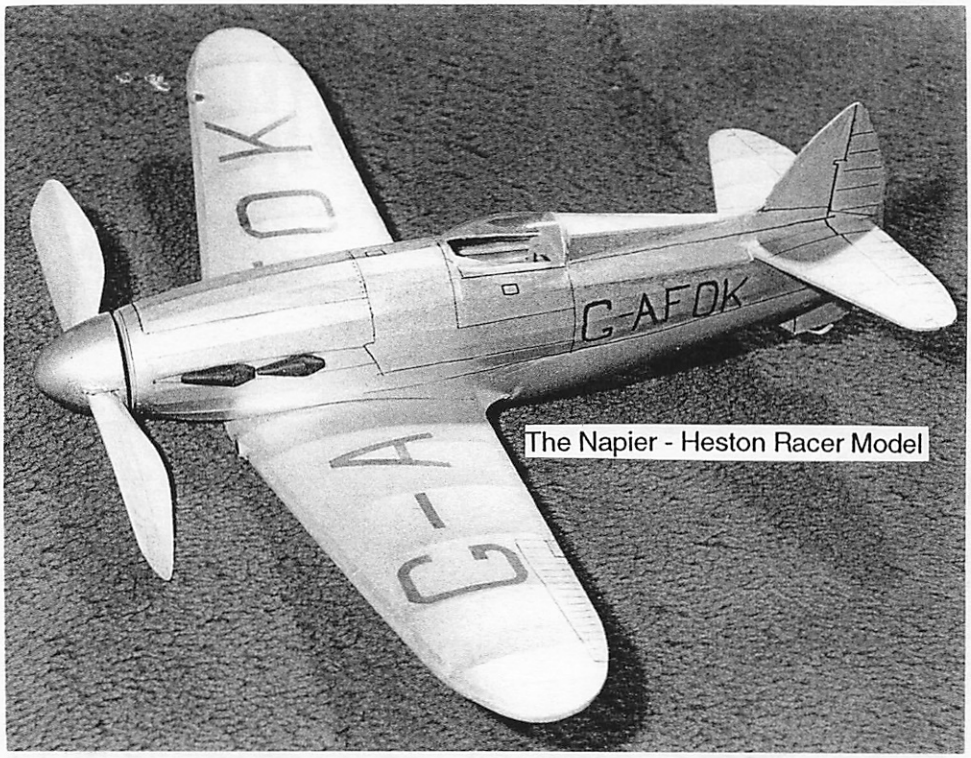


CROSSWINDS
RUSS BROWN
4909 N. SEDGEWICK
LYNDHURST, OH 44124

NAPIER-HESTON RACER COURTESY SKYWAYS



44094+8476 01



The Napier - Heston Racer Model

FLAT HATING ON FAST FLYING FORMS

Thanks to inspired race plane replicators, famous flying forms of the 1930's have returned to our great titillation (not a dirty word). Bill Turner's legacy of building flying replicas of the Brown Racer Miss Los Angeles, Gee Bee Z, Miles & Atwood, dH Comet, and Laird-Turner Meteor is complimented by replicas of the Travel Air Mystery Ship, Gee Bee R-2, Hughes Racer, Mr. Mulligan, and Wedell Williams.

Dave Ostrowski's SKYWAYS magazine July 2003 issue presents new detail of the sleek, dynamic '38-'40 Napier-Heston Racer from the replica project leader Frank Benko. Art work for SKYWAYS by R. Straub, and the 3-view do compel parallel restoration in flying model form. CFFS Storkville #3 FAC Squadron's Air Marshall Steve Griebling kindly accepts the challenge to integrate (expand, again not a dirty word) The SKYWAYS presentation to a worthy flying model. Test flights continue as weather permits. By calcul-ation, the 36% of mean Aerodamnamic chord max. may be 1-1/2 inches behind the wing leading edge ar rib W1, or .900" behind the leading edge at the 2.516" MAC rib at W4. the ballance point here is the intersection of the wing spar with W4. Enlarging the horizontal tail would help shift the max CG back, but a 10% enlargement puts the TE back to the rudder edge.

We don't expect the short nose resulting from the big Napier Sabre type engine will allow long rubber power flights. The same CG challenge as for the Hawker Typhoon WW II brute. Electric power is another good option. The full size N-H Racer only had a 6 minute flight doo to cooling failure at take off. The full size replica may find and fix the cooling or plumbing problem while flying off a long runway. Landing visibility must be bad! Meanwhile, we can learn how to form thin sheet balsa compound curves and enjoy the model. Wing TE fillets of wood and the wood air scoop offer hand grips for hand launching gear up models.

CROSSWINDS readers with the dreaded red X at issue renewal code No. 108 or lower can send $ 16 per year (4 issues) to Russ Brown at 4909 N. Sedgewick, Lyndhurst, OH 44124 U.S.A.



Underside of Napier - Heston Racer showing front of Air Scoop

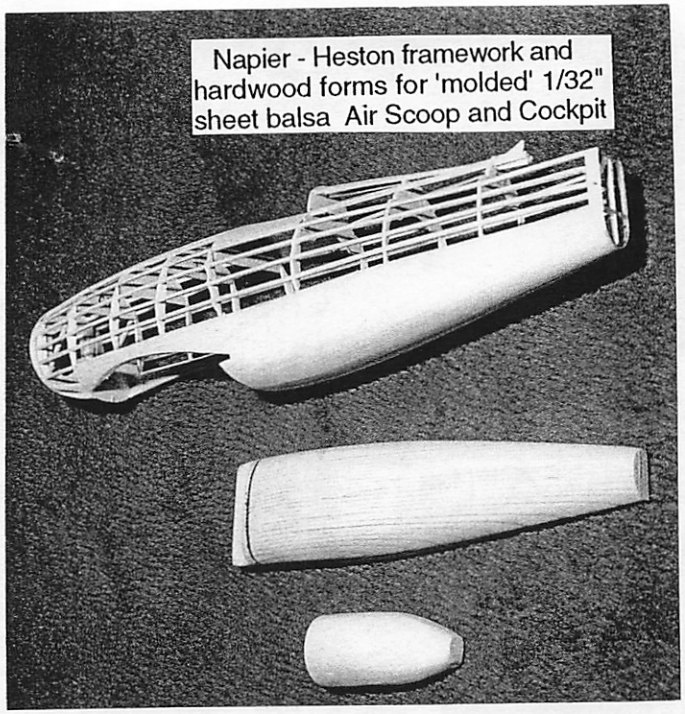
LOCAL NEWS

Medical leave for FAC Top Gun Air Marshal Gordon Roberts will be brief. Phase one of cataract surgery recovered near 20-20 eyes right with a bright new plastic lense,& restors eyes left on 3/16/04 for full driving and for model tracking form. We are as pleased with this fix-it right surgery as with the contrasting don't fix it if it ain't broke told by Steve Griebling in FAC CLUB NEWS Jan-Feb 04. Additions are more positive than subtractions 'Nes Paw? Reviewing Gordon's many contributons to CFFS FAC activities as a Contest Director, and touring event flier :

He has left his mark, as Rearwin Speedsters Taylorcrafts, and Debuts litter the woods at FAC Prangmore Field. His award winning Debut Embryo Endurance was first featured in CROSSWINDS No. 17 back in Sept. 1975, with full size plans in CROSSWINDS No. 99 and a FAC CLUB News. A kit version is available from Easy Built Models. Gordon has built and fed Hung most of the 13 Debut Models to date. His productive building was vital for the many Mall Shows to display Free Flight models for public awareness. Tissue WT. data and Hellical Pitch Prop text in CROSSWINDS No 102 and this No. 108 add to the merit tally. All this may merit FAC Hall of Fame support. Now, thanks to Visual Technology, the show goes on! Hallelujah fearless leader! CROSSWINDS back issues feature 12 plans by Gordon Roberts.

Geoff Phillips sand struck all at the CFFS meeting in February with a shark mouth desert P-40 Kittyhawk. Geoff demonstrates pastel artist chalk tissue covering techniques developed by Chris Parent and Rich Weber at the March monthly CFFS meeting and at the Parma Hobby class Saturday March 27; 10 am-12am Class limit 6 at $ 15. 216-741-6440. www. parmahobby.com. Geoff suggests light gray chalk on white tissue with a dusting of silver floral spray for silver tissue on the N-H racer or his Hughes racer in test.

Rich Weber has created great looking pastel chalk metallic finishes on his race planes, without adding leathel weight. His 22" w/s Haines Greve racer in CROSSWINDS No. 103 is a striking coppertone bronze. The Canadian Golden Hawk AT6/SNJ Harvard in light gold was not tarnished a bit in winning at the 2003 FAC Non-Nats in Geneseo. Rich continues mining matallics with intensive research on the rare Sundorf '36 Bendix racer. Rich as CFFS Clob Presidentstimulates activity with monthly meetings for show and tell craft.



INDOOR SCIENCE

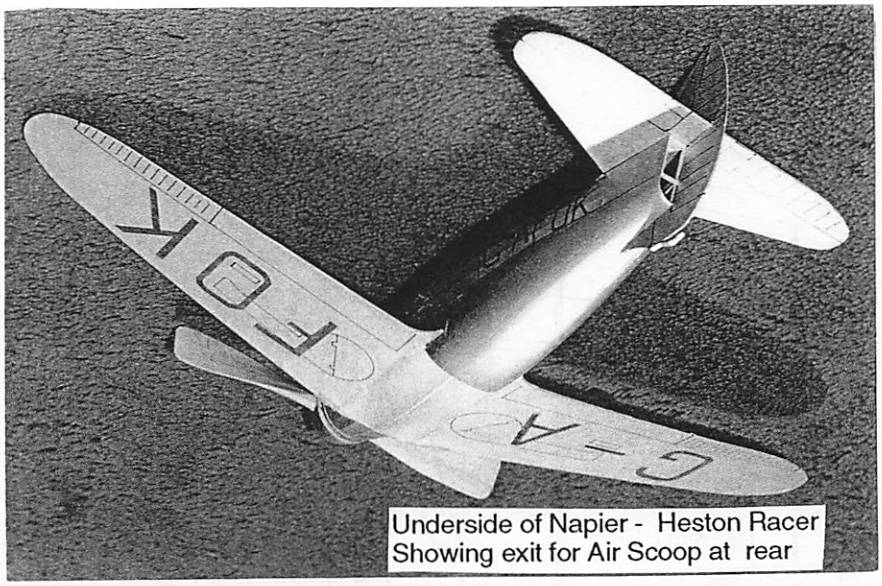
Brian and Wayne Johnson have just published a 61 page booklet designed to close the gap between novice and expert indoor flyers. The book is clearly written and profusely illustrated with diagrams and photographs explaining the theory, design, and construction of indoor free flight models. The offering includes five plans for Jr. and Sr High Division B and C wing, stab, and fin plans. It is a valuable addition to indoor free flight libraries and will retail for $30 plus postage and handling. For more information, contact Geauga Precision Models, 9113 Robinson Road, Chardon, OHio 44024. The book is highly recommended, as is the winder.

CFFS NEWS CONTINUED

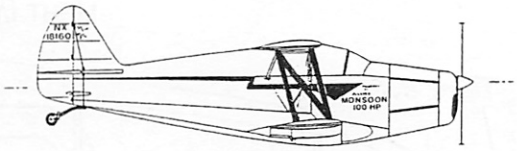
G-8 Jim Hyka goes Navy for WW II combat flying with the Griebling mod. Hannan Hellcat from CROSSWINDS No. 105. G-8 is experimenting in wet forming tip laminations with the improoved wetting action of the new 7.3 % alcohol Molson XXX white cross, black lable. A second opnion from Blue Fox base confirms the taste is choice vs.ammonia and the cross slant fits pre WW II Spanish Civil War modeling like the popular Don Srull Heinkel 112. Hawwwww!

Dennis Norman hosts the March CFFS meeting and will clean up chalk dust residual from the Geoff Phillips tissue tracks. Dennis continues to refine the Travel Air Mystery plan for a future CROSSWINDS and will write an Air Ace Monograph. Dennis has some excellent information from Cleveland Air Racing Historian Bill Meixner and John Sunyak on history and wing marking.

CFFS outdoor contest dates are approved for Lorain County Community Col. on the following Sundays 9am-5pm: May 23, June 13, July 25, Aug. 8, Sept 19, and Oct. 3. AMA filing will follow when application forms arrive. CFFS events are as shown in CROSSWINDS No 105, with the option of Fiction Flyers. Plans for the Griffon's Black Bullet of Arch Whitehouse by Dick Bennet in Crosswinds No. 61 are an example of the Fiction Event eligible designs. Other events of intrest include: 5/26-30 U.S.I.C. at Johnson City, TN, 6/26-27 WACO Fly-In at Mt. Vernon, OH, 7/3-4 FUNK 70th Anniv. Fly-In at Akron Fulton City Airport, 7/10-11 Taylorcraft Fly-In at Alliance Barber, 7/15-18 FAC Nat's at Geneseo, NY, AMA Nat's at Muncie,IN, 7/27-8/2, EAA at Oshkosh WI, 9/4-6 Cleveland Air Show & Parma Hobby/CFFS at Burke Apt. 9/11-12 FAC at Muncie, IN.



Underside of Napier - Heston Racer
Showing exit for Air Scoop at rear

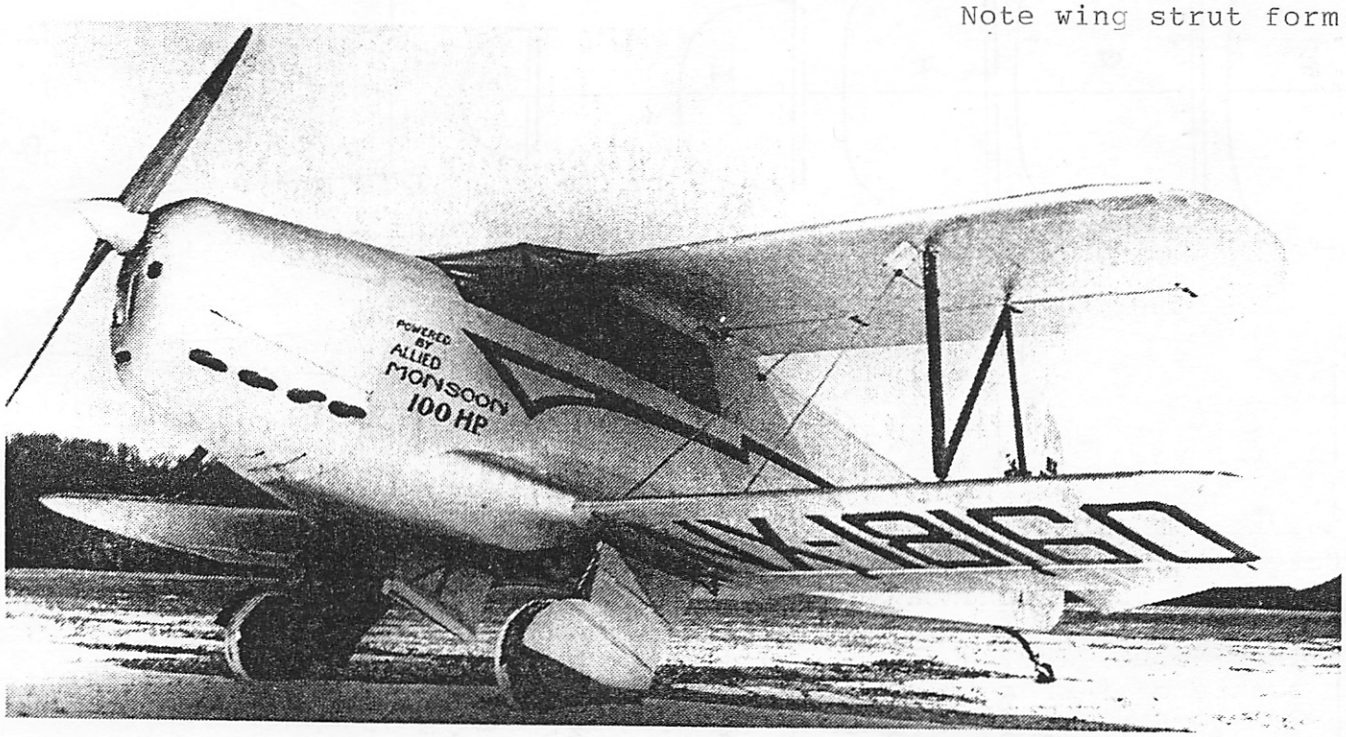


B-100 wing strut fix

CROSSWINDS RECALL-BAUMANN B-100

Recall censor R/C Blews orders black out of the secret B-100 2nd cowl form shown in FLYING ACES photo Oct. 1940 and in CROSSWINDS No. 107,pg 11. This 2 nd form with left side air scoop, spinner shape and revised openings on the nose piece, and revised lower side slant above exhausts,less three gaps or slots at cowl bottom rear,is censored for B-100 models. Delete the scoop from B-100 model drawings, pg 14. The 2nd cowl remains secret with no known right side photos. Another fix option is changing the slant of the center bar of the wing "N" struts to match B-100 photos. The B-100 3-view, XW #107 pg.13, and SKYWAYS 7/2002, pg.6 shows a left side view with the mid bar at the top front and bottom rear like the pg. 16 production BT-120, S/N 2 on. Mark or cut on 2 cross bottom cowl slots at .20" space under the 3rd and 4th exhaust stacks as shown by SKYWAYS preview photo Jan. 2002,pg 62.

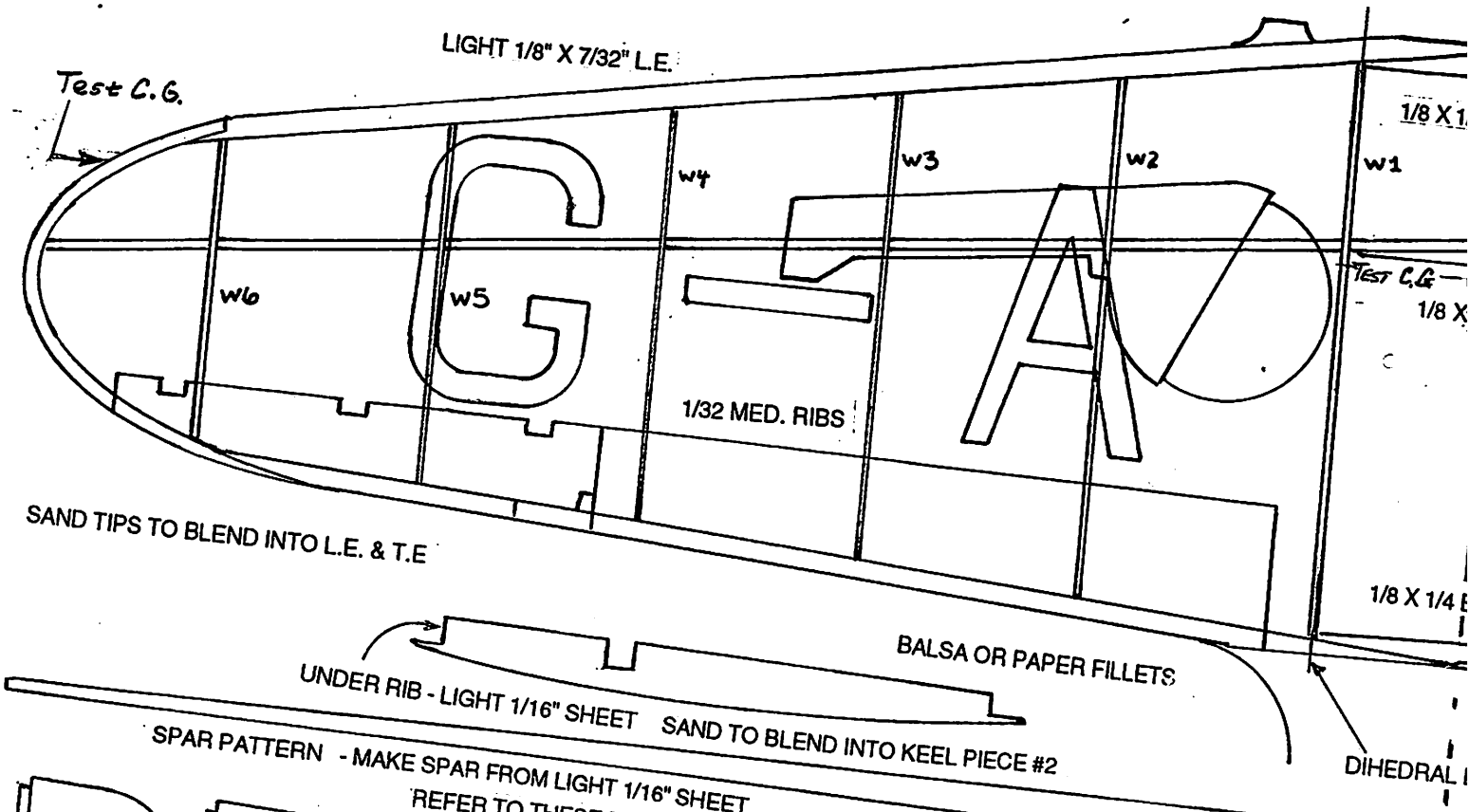
Note wing strut form.



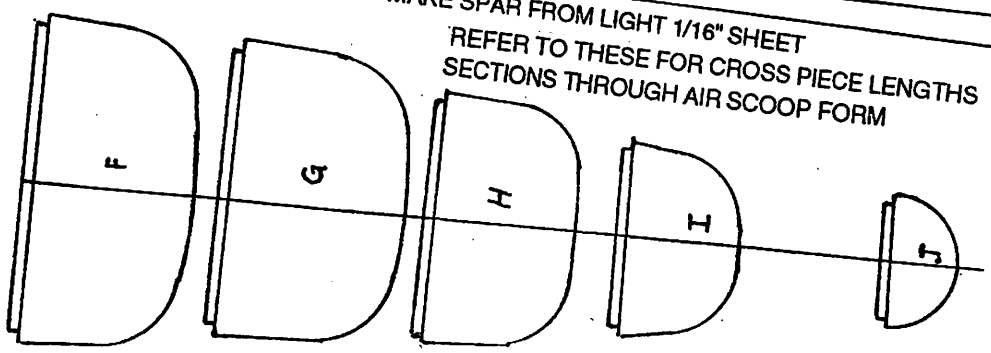
The Baumann B-100 four-place, negative stagger cabin biplane.

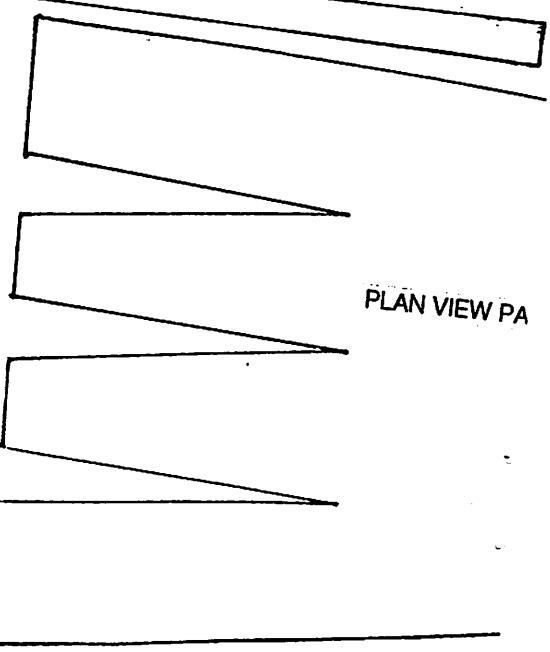
Original cowl with cowl bottom slots.

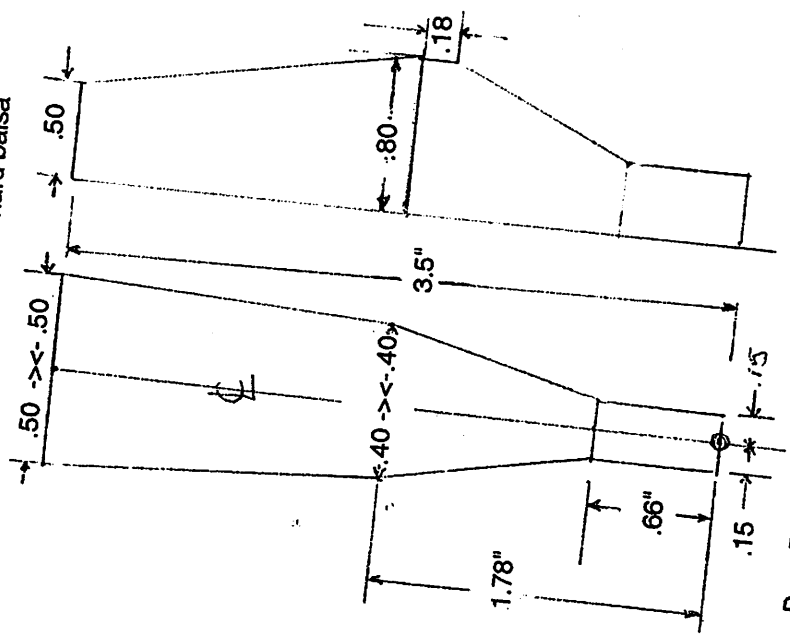
Photo: Editor's Collection



SPAR PATTERN - MAKE SPAR FROM LIGHT 1/16" SHEET
REFER TO THESE FOR CROSS PIECE LENGTHS
SECTIONS THROUGH AIR SCOOP FORM







Prop carved from hard balsa

Prop Blank for 16" Napier - Heston Model
Prop is 7" dia x 11.2" pitch (1:1.6 =p:d)

Turn spinner from hardwood with 3/16" wall thickness
Install "Struck" type free wheeler with a Crockett hook
or stirrup for the front end rubber hook-up.

The Nuffield-Napier-Heston Type 5 Racer of 1938

By 1937, the Napier Sabre engine had been fairly well developed, but an airframe was needed to test it, so the Heston Aircraft Co. Ltd. was engaged to produce two machines for the purpose. Messers George Cornwall and A.E. Hagg headed the design team which originally intended to produce a rather straight forward design. Their efforts, however, resulted in a beautiful machine with some unique and advanced features among which was the large air scoop under the fuselage, anticipating the North American "Mustang" fighter by several years.
The first machine was completed and the engine run-up on December 9, 1939, but taxying trials and vibration tests delayed the first flight till March 12, 1940. No vices were discovered in the plane and the torque reaction was far smaller than anticipated, but suitable weather conditions did not permit a test flight till June 12. A severe jolt upon hitting a bump in the field during the takeoff run may have caused a leak in the cooling system, and after a flight of about seven minutes the engine overheated. Test pilot G.L.G. Richmond then attempted a dead stick landing but the machine stalled at an altitude of about 30 feet and the plane was totally wrecked with the landing gear driven right through the wings. The pilot was scalded, but not badly hurt. Because of war priorities, the second machine was never completed.

The Heston Racer was a very streamlined, clean machine with no projecting control levers, horns or mass balancers and the surfaces were highly polished with scratches no more than .0005" deep!
Internal structure was entirely of wood, which permitted quicker fabrication. Wings had a bi-convex airfoil for the greater part of their span, but were slightly cambered near the tips to improve tip stall. The maximum ordinate was at 40% chord, again anticipating the laminar flow wing of the Mustang! The thickness to chord ratio was 16.2% at the root, 12.8% at the L.G. attachment location and 9% at the tips. A special Gallay radiator was housed in the tunnel at the rear.
The fuselage was of birch plywood with spruce frames and stringers. The wings featured box spars and were covered with fairly thick birch plywood. Control surfaces had metal framework , but were fabric covered. The aileron hinges were on the upper surfaces of the wings and were completely sealed for smoothness. A three bladed, constant speed DeHavilland airscrew was used. The Napier Sabre engine, first used in the Heston Racer, was later successfully employed in the Hawker Typhoon.
If the second aircraft (G-AFOL) had been completed, it could well have been the fastest piston engined plane of all time.
Many consider the Heston Racer to be the most beautiful piston engined A.C. ever produced.

Art Chester's post war "Swee' Pea" featured a cockpit contour nearly identical to that used on the Heston!

References: "Flight" magazine - April 15, 1943; "Skyways" magazine - July, 2003; "The Air Racer" by Charles A. Mendenhall - published by Specialty Press.
Thanks to Russ Brown, ace archivist of the CFFS, for furninshing the reference material.

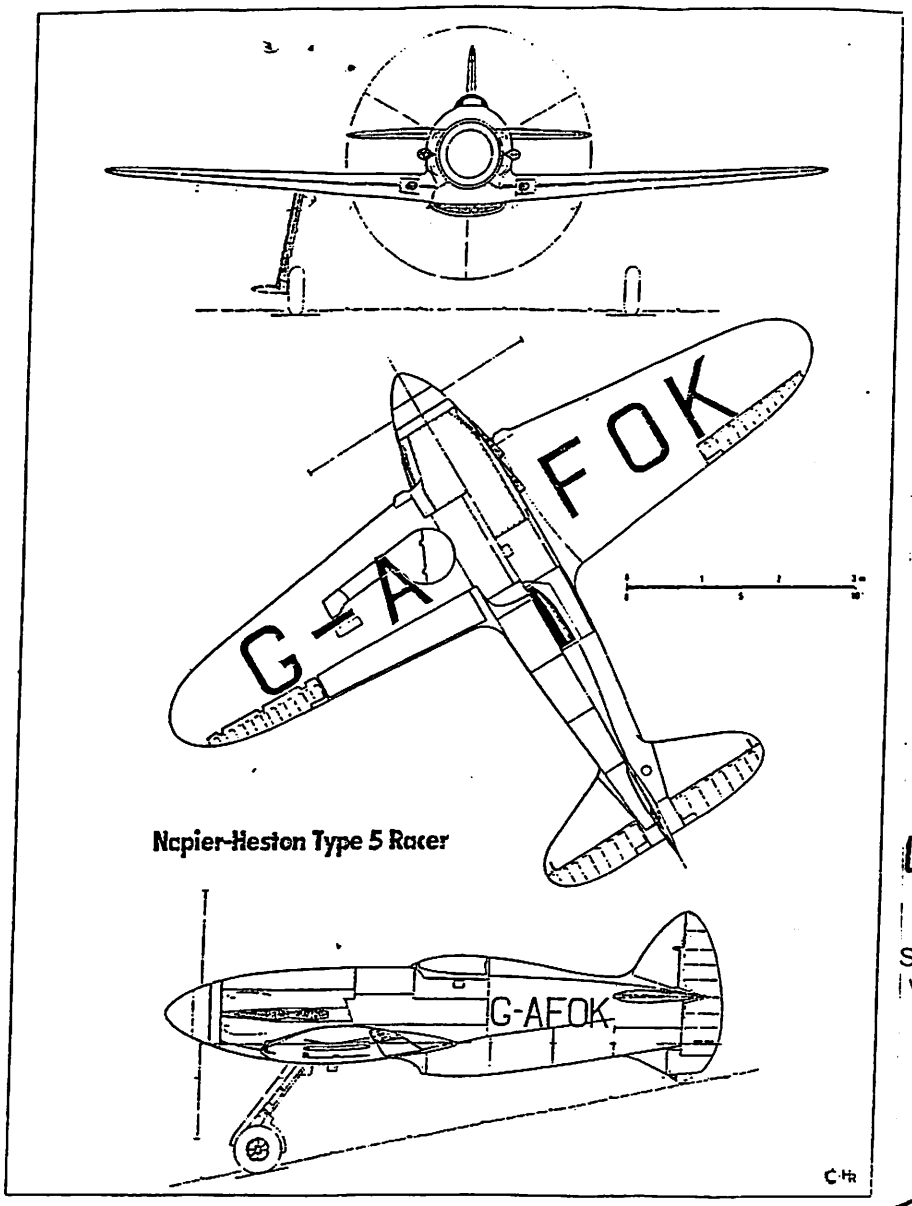
SKYWAYS
THE JOURNAL OF THE AIRPLANE 1920-1940
David Ostrowski, Editor

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ISSN 1051-6956
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- Their enthusiasts, including:
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  - Modelers
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  - Restorers
  - Museums
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Leonard E. Opdycke (WW1 AERO)
Board: Harold Andrews, Peter Bowers, Lou Buffardi, Robert C. Mikesh, Dan Hagedorn, Jack Bruce, Peter M. Grosz
Business Manager/Advertising: Beverly Williams

The prototype model was
Nupastel chalk rubbed in
clear krylon set, with a
will be lighter. Use Eas
for greated color densit



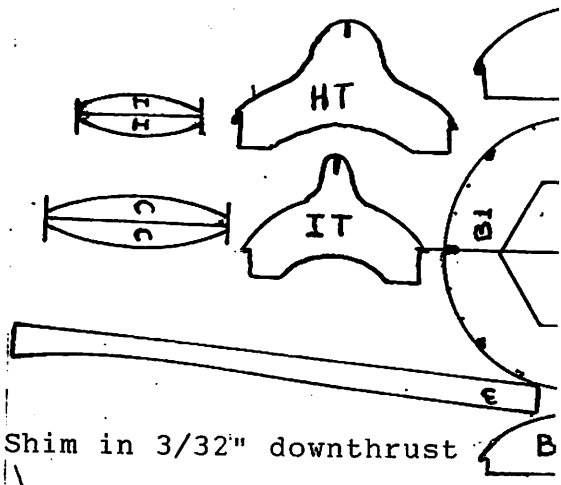
MOUNT ON SURFACE AFTER COVERING AND DOPING

COURTESY SKYWAYS

SHORTY'S BASEMENT
1036 Bexley Ave.
Marion, OH 43302
Ph. 740-223-7471
Fax. 740-387-0853
Contact for Aerographics and West Wings kits.
Also ducted fans and L-2 Rapier Motors.
Plenty in stock. Shipment within a couple of days.
(See issue #102 for plane photos.)

SHORTY'S has Lycra elastic thread for rigging

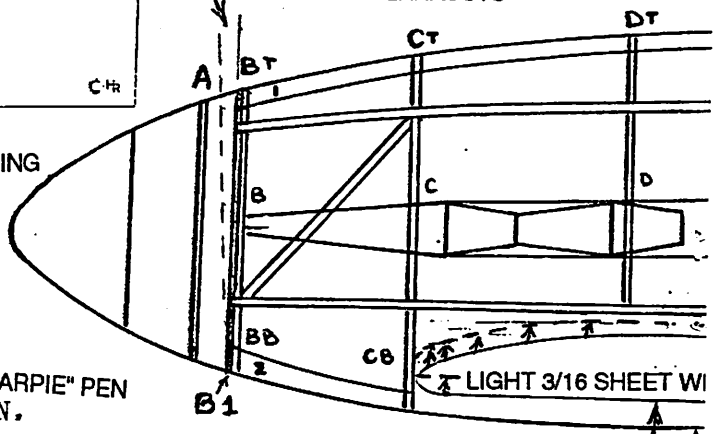
WEIGHTS OF UNCOVERED FRAMES: FUSELAG
WING:
STAB:
RUDDER:



Shim in 3/32" downthrust

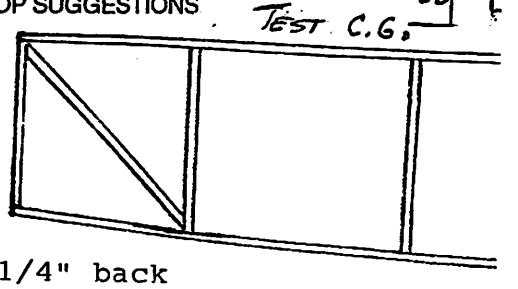
NAPIER HESTON PARTS - MEDIUM 1/3

BLACK FOAM EXHAUSTS -



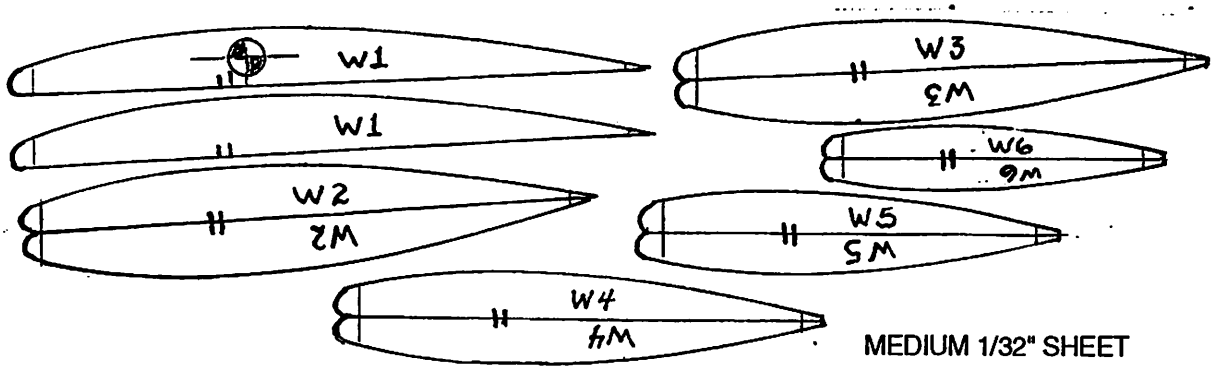
DRAW PANEL LINES WITH BLACK "SHARPIE" PEN
ALT: TRY A ZIG OR ITOIA PEN.

SEE TEXT FOR SPINNER AND PROP SUGGESTIONS



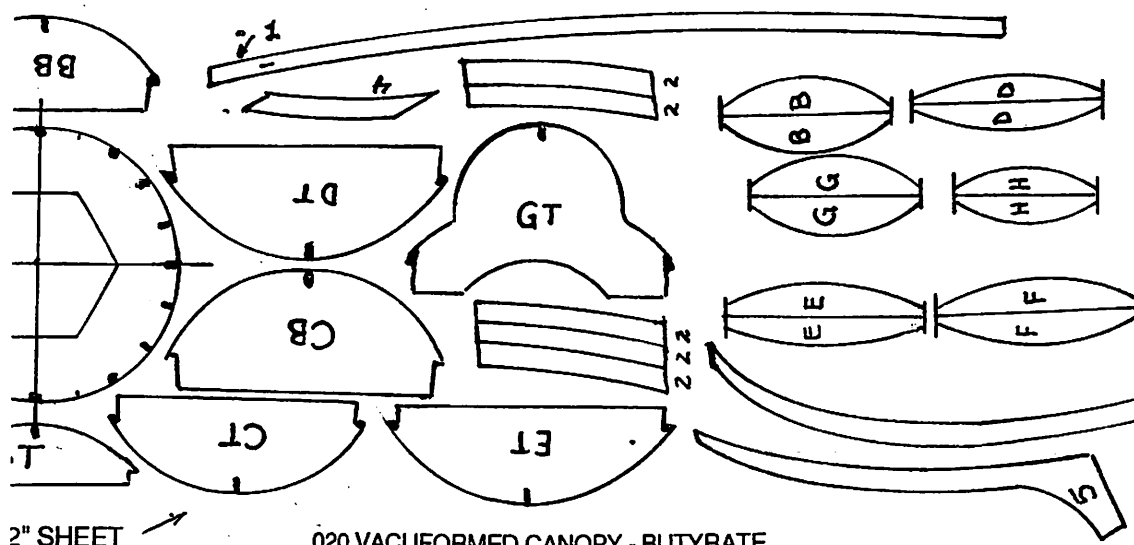
Test flights flew well with the ballance point C.G. 1-1/4" back of wing leading edge at root rib. Cut away wing leading edge seat for + 3/32" additional incidence. Add lightness for duration.

spray painted with Krylon silver. Light grey
to the back side of white tissue and
light spray of floral silver spray on top
Built blue, or domestic, with blue chalk
and sun fade resistance of tissue letters.



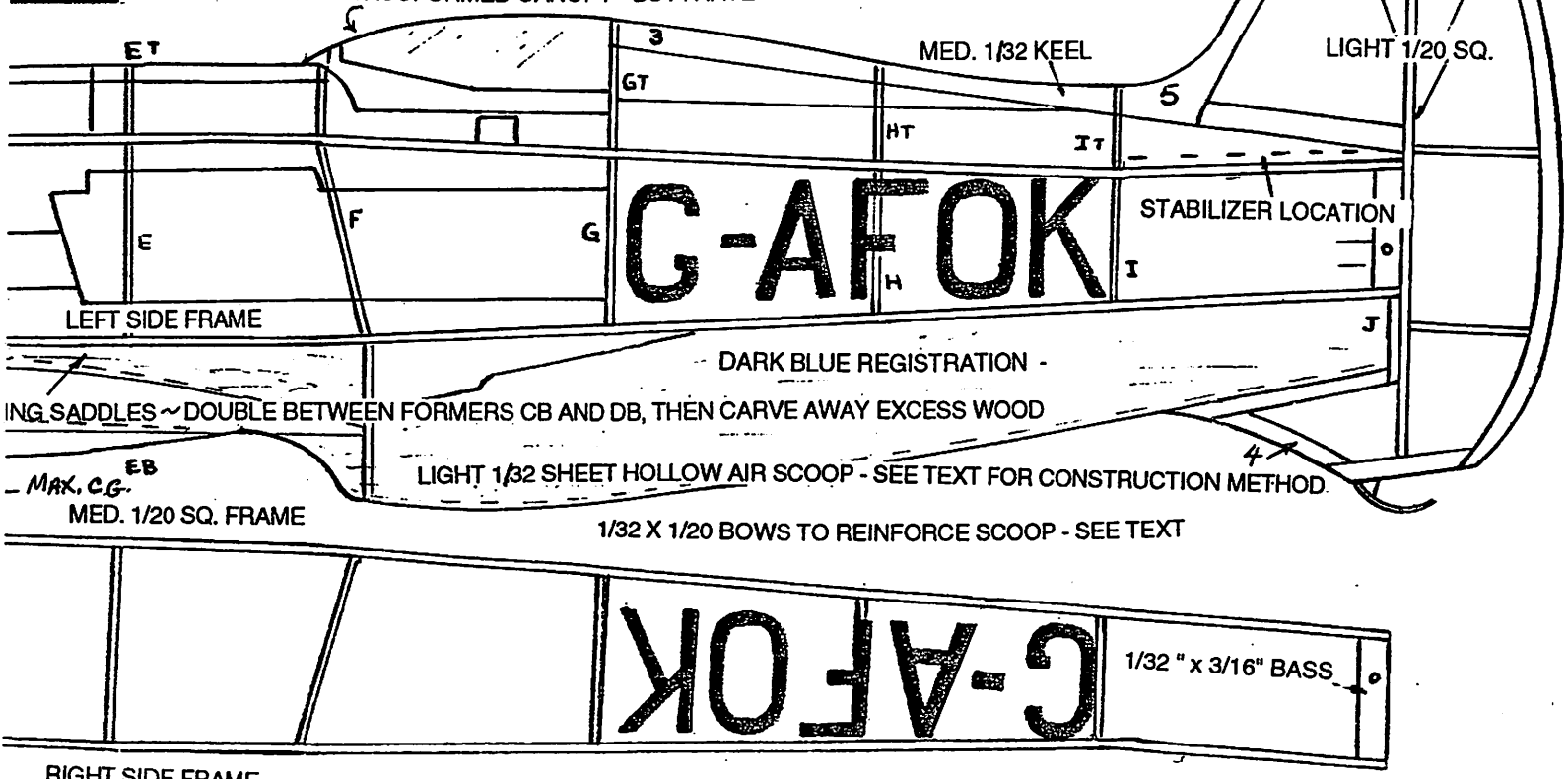
E 3.9 0 GRAMS
1.9 0 "
.31 "
.17 "

MEDIUM 1/32" SHEET



2" SHEET

.020 VACUFORMED CANOPY - BUTYRATE



RIGHT SIDE FRAME

CROSSWINDS No. 108

16" NAPIER HESTON RACER

MODEL PLAN BY S.T. GRIEBLING - CFFS, FEB. 2004

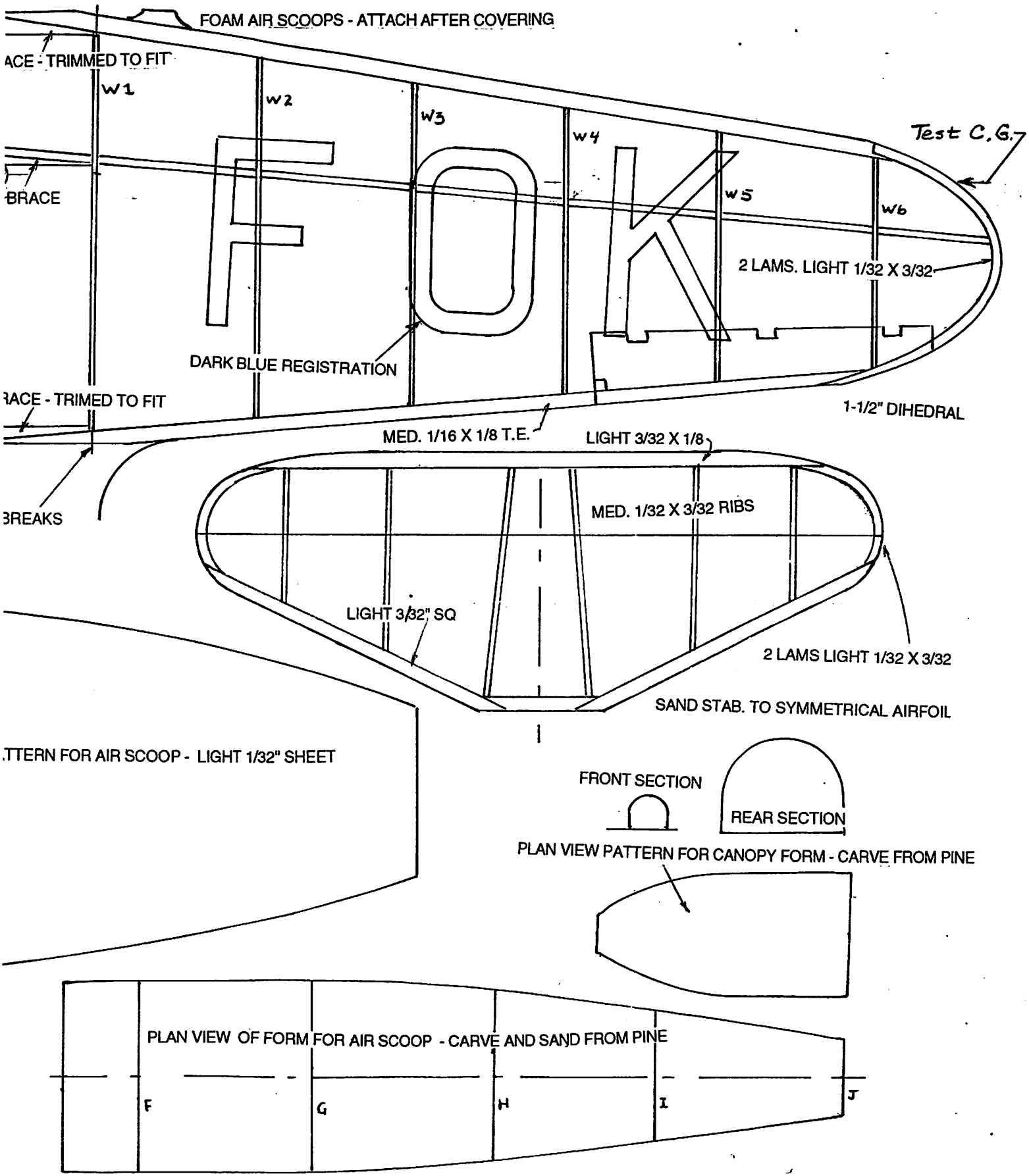
The Napier- Heston Model

This, most beautiful of all piston engined racing planes, presented some unique challenges in designing a structure for a rubber powered model , namely:
1. The empenage has no slots (cut outs) for either elevators or rudder. The elevators are interrupted at their centers to allow the stabilizer to extend beyond the stern post and there is a slot in the rudder which allows the stabilizer to extend into it permitting the fuselage to blend smoothly into the full length of the stabilizer .
2. The large air scoop under the fuselage is open from front to rear providing a neat opportunity for to air pass all the way through the scoop and exit at the tail, both sides of the stern post.
3. The open and wide rear end of the fuselage provides an opportunity for the rubber motor to extend all the way to the stern post if so desired.
4. The short nose makes it desirable to keep the tail structure as light as possible in order to avoid nose ballast.
5. The original wing airfoil was symmetrical, its lower surface blending into the fuselage contour . However, I wanted to use a thin, flat bottomed airfoil, more suitable for a flying model. This made it necessary to "cheat" a little by adding a single 'under rib' below the center of the wing to obtain the desired fuselage profile at the centerline of the model.

I have had good results with a compromise box construction on several models and decided to use that method again on the Heston Racer. It requires a left and right hand side frame drawing since contoured side formers take the place of the usual stick uprights. The advantages of this construction are several: 1. The formers can be quite light (1/32"). 2. The top and bottom formers extend into the side frames where the side formers are weakest, reinforcing them and squaring up the framework at the same time. 3. The longerons serve as stringers, saving weight. 4. Side formers don't need to be added to the customary stick uprights, saving the weight of glue and more wood.

Use medium 1/20" square balsa for the longerons. and medium 1/32" sheet for the formers. I recommend a temporary balsa square be inserted in the tail section to keep it true while you add the top and bottom formers. Simirarly, former "B1" serves to keep the front square. I recommend you start by adding top and bottom formers at the two ends, then the formers and cross pieces at station "FT" and working fore and aft from there. Add top keel piece "1" , formers "GT" and "IT"and keel piece "3"so any necessary adjustments to formers "CT" through "ET" can be made as you add them.

In order to let air pass through the air scoop to reduce drag, I decided to try to mold a 1/32" sheet balsa shell over a wood form and avoid using any formers inside the scoop. This worked out very well and gives me a new technique which may be useful on some future projects! (Maybe a Vega or Albatross?) I have provided sectional drawings for the form, but they are probably not necessary, because you will come up with a good contour on your own if you simply blend the contour at "F" to the contour at "J", keeping the lower profile and the fuselage widths accurate at each station.
The pattern for the 1/32" balsa sheet is slightly oversize so the final molding can be trimmed to size. The "Vee shaped" darts and added side pieces in the front allow the scoop to be formed to the reverse curve at its front end from a single piece of 3" wide sheet. Soak the balsa in water for a few minutes and strap it carefully on exact center over the carved pine form with a long strip of 1/4" wide rubber so that each turn of the rubber is butted to its previous turn. This will prevent any bumps from forming between winds of the rubber and will keep the balsa in intimate contact with the form. Teflon plumbers tape can be wound around the form, where glue will be applied to close the darts, preventing the glue from sticking to the form .
I suggest "Titebond" be used for this, since it provides more working time to get everything in place. After the glue has been applied to the dried sheet balsa shell, wind the rubber back on again to force the joints together.



Model Plan by S. T. Griebling

16" NAPIER HESTON RACER

Once the shell has been removed from the form, place temporary cross pieces at each station (F, G, H, I and J) so it will fit the fuselage framework exactly. These will be knocked out once the shell has been glued in place. I suggest you assemble the scoop to the framework before adding stringers to help stiffen the structure. Wet- form a 1/32" x 1/20" strip of medium balsa for a reinforcement which is glued inside the scoop near its front end, and another butted to the rear end. See section drawings "F" and "J" for shapes of these reinforcement "bows". These will keep the scoop from splitting. A 1/32" x 3/32" balsa stern post should be extended from the bottom of the scoop to the top fuselage cross piece after the scoop has been glued in position. The rudder spar will be glued to this when the model is assembled. File a notch in this to accept the lower cross piece before you install it..

I have suggested locations for the additional stingers on former drawing B1 but each builder can decide how many stringers to use. I used 5 lb. 1/20" square stringers on my model, spacing them about 5/16" apart (3 side stringers and 4 top stringers, not counting the longeron/stringers) and came up with a bare fuselage weight of 3.9 grams .
I have also found that precut stringer notches are rarely in exactly the correct position on inboard formers so I recommend you file the notches as you go! Use a .050" thick needle file to cut them. After the stringers are glued in place, scallop the formers between them with 320 grit sandpaper wound around a 3/8" dowel to avoid the "starved horse" look.

The wing, stabilizer and rudder are built in the conventional manner, but take care in fitting the wing so its leading edge will blend into the fuselage at former CB and its trailing edge will fit neatly into a notch filed into the scoop just behind the saddle pieces. Take care in getting the wing square with the fuselage, and lined up perfectly with the stabilizer platform.
Now fit the rudder to the fuselage, taking care that all the joints fit perfectly, but without strain. Do not cut the slot for the stabilizer in the rudder till after the covering is applied and shrunk. Sand the entire framework so there are no bumps from glue and so that all surfaces blend together smoothly. All flying surfaces should be pinned down over waxed paper while the tissue shrinks. The wings should have about 1/16" washout in each tip. This can be set as the tissue is wet by canting dihedral-setting blocks slightly inward at the trailing edges of the wing. Trap the wing to these blocks with pins to prevent unwanted warps.

Target weights of uncovered framework: Wing = 1.9 grams, Stabilizer = .30 grams, Rudder = .17 grams, Fuselage = 3.9 grams.

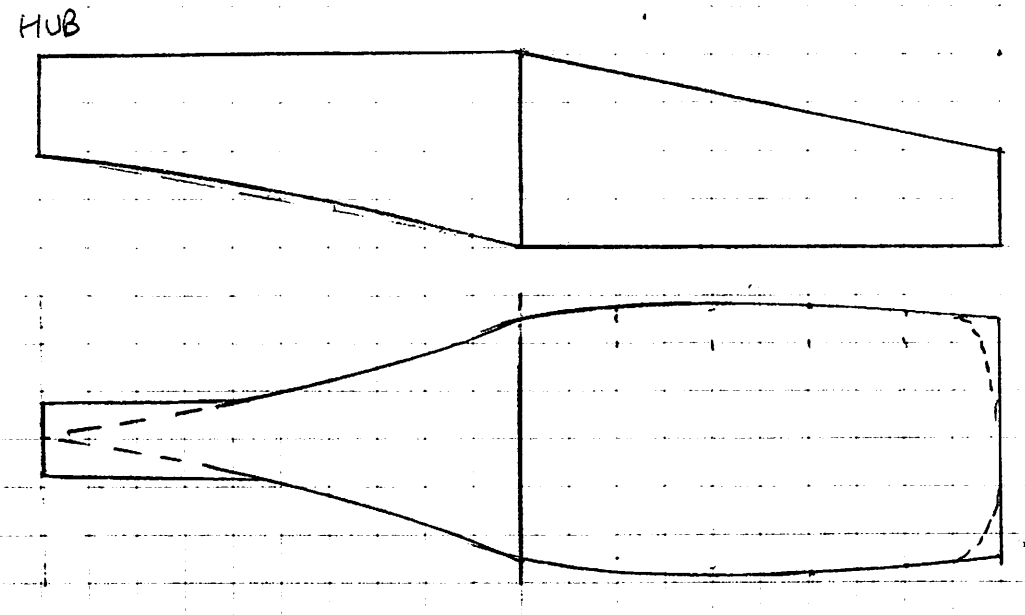
I like to use diluted "Titebond" for attaching the tissue, but if silver tissue is used you will get a better appearance with clear dope as an adhesive.
I decided to use white Esaki tissue and colored my model with aluminum Krylon spray lacquer. If this is done, all the solvent based materials will have to be applied before foam parts, such as exhaust stacks and wing air scoops, are added. They can be colored, after attachment, using acrylic paints. Wing fillets can be made of foam, paper or balsa.
I recommend that tissue not be applied to the large air scoop because you are almost sure to get a few tiny wrinkles in it. Instead, apply two to three coats of sanding sealer to the scoop so the final aluminum spray coat will not show grain. The nose pieces and spinner can be treated similarly. A pine form will be needed for the canopy. Form the canopy from .020 butyrate sheet, heated and pulled tight over the form using a frame and vacuum box .
Registration letters were dark blue. They can be cut from blue "trim strip" if you use colored dope over white tissue on your model or from tissue if you use silver tissue to cover your model.

I like to make the prop and spinner assembly after the model has been roughly fitted with a rubber motor in order to determine how much weight needs to be provided to the front to get the correct C.G. If a lot of weight is needed, make the spinner and/or the prop from pine, otherwise use balsa. I recommend the Struck type free-wheeler, which can be almost totally enclosed within the spinner. For winding the rubber motor a Crockett hook or Stirrup may be used as the front hook. Since this is a low drag model, it will fly fast and a high pitch prop may be used to get maximum motor run times. I suggest a P:D ratio of 1.7:1 be considered. Prop diameter can be 6 or7".

Steve Griebling, Cleveland Free Flight Society - Stork Squadron February, 2004

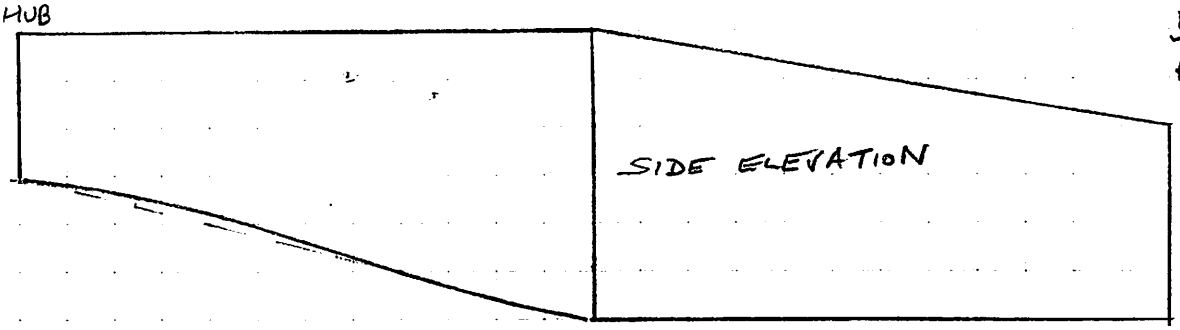
Hellical Pitch Propellers-Continued

Inthe first installment on this subject in Crosswinds # 102, I mentioned the approach of Jim Fullarton, who used a straight taper in the depth of the outer half of the blade,and utilized a greater width to keep the pitch constant. Quite different from keeping the width constant and using a "dip" in the depth as is done earliler in # 102. Having made about a dozzen of the " dip and double dip" props and using them with some good success in the 2002 contest season, I suddenly realized that it would be very easy to calculate a Fullarton-type propeller. In fact one only has to use One formula to complete the design layout for a prop of this type. It works like this : We can draw out the complete side elevation of our desired propeller-the taper on the inner half as was done in the previous installment and the straight taper on the outer half (from full depth to half depth at the tip). All we hve to do is to compute the widths at various stations on the outer half, the inner half is the same as for the previous design. The result is a slight curve on the LE & TE of the prop blank just as shown in Fullartons' letter shown in the first installment. I have calculated 4 typical prop layouts and these are shoen here, a 12", a 10", an 8" and a 6" diameter prop exactly as done before. The only difference is that the block width has to be increased slightly to take in the curved outline generated. Lets not forget that the original calculations were done for the original block sizes in # 102 and so the half-way and full-diameter widths are still the same size asthe originals. I think if you compare these block drawings with the one given in Fullartons letter you will see that he came up with the correct shape, just like the ones herein. The only difference us that we can now calculate the block dimensions in a few minutes instead od doing a lot of drawings like Fullarton shows. But it was a good show to get it right a couple of years before WW2 when all the "Experts" were using the lousy "standard block" type propellers or even worse. This concludes the saga on helical pitch props (great sighs of relief all around). Happy prop-carving and much success with your contest flying! Gordon Roberts.

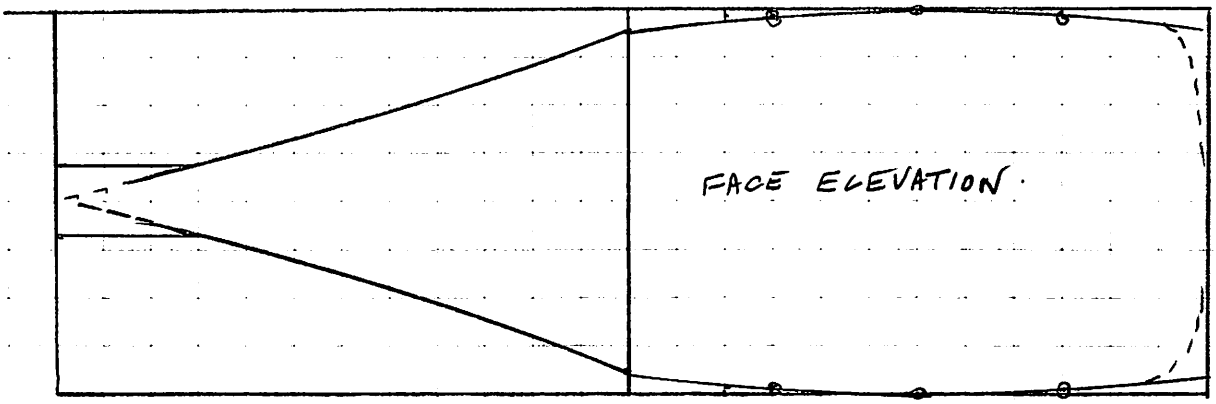


10" PROPELLER
BLOCK 10" x 1" x 1½"
12.6" PITCH.
P/D = 1.26

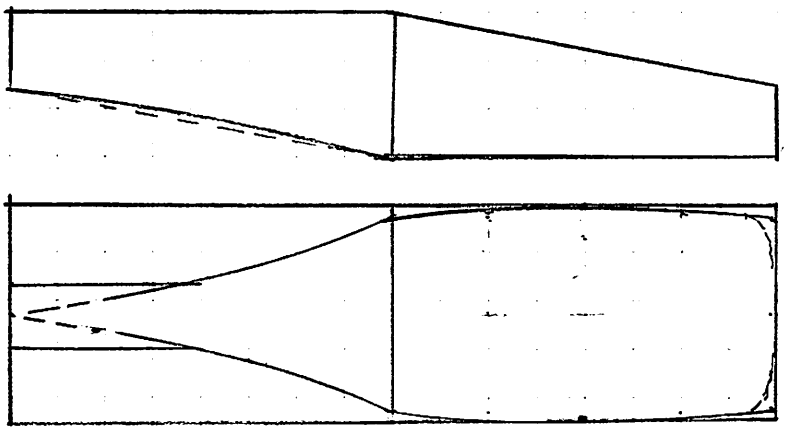
HUB



12" PROPELLER
BLOCK 12" x 2" x 1½"
16.2" PITCH
P/D = 1.35.

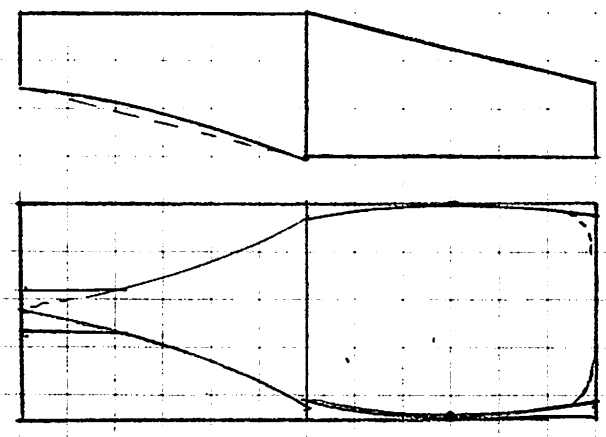


HUB



8" PROPELLER
9.42" PITCH
BLOCK 8" x 1⅛" x ¾"
P/D = 1.18

HUB.



6" PROPELLER.
7.1" PITCH.
P/D = 1.18
BLOCK 6" x 1⅛" x ¾"

THE CLEVELAND FREE FLIGHT SOCIETY

A.M.A. sanctioned Indoor Contest

SUNDAY, April 4, 2004 Valley View, Ohio 8:30 a.m. to 6:00 p.m.

Flying Site - Sports Dome, 6060 w. Canal Rd.(across from Cinemark)

SCHEDULE of EVENTS

7:30 a.m. -- Building opens (test flying)

8:30-10:30 a.m. 1. *Standard Class Catapult Glider.* AMA Rules

8:30 a.m. to 4:30 p.m.

2. *EZB* - Scoring is the best of five officials. 30 seconds minimum. Two attempts/flight.

3. *Limited Penny Plane*

4. *Mini-Stick* - - Best flight of 5 officials. 20 second minimum. 2 attempts/Flight.

9:00 a.m. to 3:00 p.m.

5. *Seven Gram Bostonian* - A.M.A. rules.

6. *Jetco R.O.G.* - CFFS Rules.

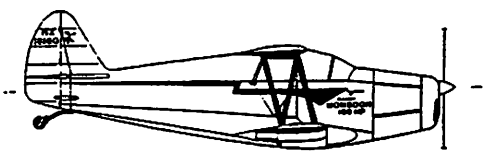
F.A.C. EVENTS

10:00 a.m. to 4:30 p.m.

7. *W.W.II Combat* - Flown at 12:01 p.m.

8. *Hi-Wing Peanut* (Experimental, Lacey,Fike etc.)

9. *Hi-Wing Peanut* (Production types).



Baumann/Mercury B-100

10. *Peanut Scale* (all others except pioneer models).

11. *W.W.I Peanut Biplane Combat* - 4:05 p.m.

12. *Golden Age Scale*

13. *Dime Scale*

14. *W.W.II No-Cal Combat.* Flown at 4:30 p.m. **Minimum weight - 6.2 grams without motor.**

15. *No-Cal Profile Scale* (3 flight total) **Minimum weight - 6.2 grams without motor.**

16. *Pioneer Scale* - Bonus points added to the flight points . This event for all models (any size) of aircraft produced before 1914.

17. *Shell Dash of the Flash - 2 officials by 3:00pm* Mass launch - (2 heats) at 3:15pm.

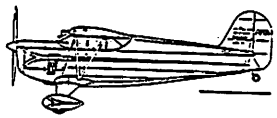
For Your Information

1. All events are JSO combined.
2. Steering of Models: as per A.M.A. rulebook.
3. Entry Fees: - *Open* - $30.00 - *Junior* $1.00 (includes AMA Lic.)
4. VERY IMPORTANT - You must provide your own table and chair.
5. Sports Dome is a non-smoking facillity.
6. No Indoor RC flying permitted during the contest and all flyers must have a valid AMA license.
7. Vendor's fee: $25.00 - payable to Sports Dome

Science Olympiad event will be scheduled if this activity does not conflict with regional or state S.O. competitions. S.O. flyers are encouraged to fly in any of the events at this contest.

AWARDS There will be a Contest Grand Champion based on the following criteria: 3 points for a first place
2 points for a second place
1 point for a third place

Highest total determines the winner. There will be a special merchandise award for the Grand Champ.



1st through 3rd - All events except mass-launch.
W.W.I & II Peanut and No-Cal Combat
1st place award only but 2nd and 3rd place points for Grand Champion will count.
2nd place - minimum of 5 entries in the event.
3rd place - minimum of 7 entries in the event.

CONTEST DIRECTORS

Michael C. Zand
5803 East Ash Road
Independence, OH 44131
216-524-3480 *imzand@hotmail.com*

Larry Mzik
117 Sycamore Drive
Painsville, Oh 44077
440-357-7361

For information on the Sports Dome **www.thesportsdome.com**

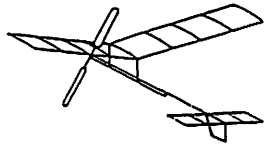
Jetco R.O.G Rules

1. Build from plan with no structual changes.
2. Any commercial plastic prop may used. It may be cut down to 5½". Prop may be altered by sanding and/or cutting to size.
3. Tissue covering.
4. Model must R.O.G.
5. Unlimited attempts. Official flight is 20". 2 attempts equal 1 official. Best of 5. An attempt is an R.O.G.
6. Any prop bearing or prop hangar may be used.
7. Center section of wing may be flat.
8. Minimum weight of model without rubber is 3.5G.
9. No camber(baggy tissue to wing)

Phantom Flash (Dash of the Flash)

1. Model must be built according to plan. Wheels must turn and any type of prop may be used.
2. Markings must be on model, either cut from the plan or similar paper.
3. Rubber band to hold wing is optional, but model must weigh a minimum of 3.5g without motor.

Scoring - Total of 2 qualifying flights (20" official). These must be recorded by 3:00 pm. The five best time totals will qualify for the mass launch event which will be flown at 3:15pm. There will be two heats to determine places.



Directions to the Sports Dome

The Sports Dome is conveniently located and easy to get to from I-77 & I-480
6060 W Canal Road, Valley View OH 44125-3329

From I-480

Exit at Transportation Blvd.
Travel north to Granger Road.
Turn left on Granger to Canal Road.
Turn left on Canal, you will see the Dome on your right, across from the theaters and restaurants.
Turn right on Old Rockside Road and a quick right onto West Canal
The sports Dome will be on your left.

From I-77

Exit at Rockside Road.
Travel east on Rockside to Canal.
Turn left on Canal.
Turn left on Old Rockside and a quick right onto W. Canal.
The Sports Dome will be on your left.

There is ample free parking.

The Independence Rockside Road area has many restaurants near the dome. McD's is at the corner of Brecksville Rd and Rockside. Other restaurants nearby are Dennys, Wendy's and Bob Evans. Aladdins, Chipotle and Winking Lizard are in the Rockside Corners Shopping Center. There are many fine restaurants too. Harry's Steak House, Cookers and the Lockkeeper are nearby.

Hotels:			
	Baymont Inn	6161 Quarry Lane	1-877-229-6668
	Red Roof	6020 Quarry Lane	216-447-0030
	Comfort Inn	6191 Quarry Lane	1-800-424-64232
	Days Inn	5555 Brecksville Rd	1-800-DAYSINN
	Holiday Inn	6001 Rockside Rd.	1-800-Holiday
	Hampton Inn	6020 Jefferson Dr.	1-800-HAMPTON

