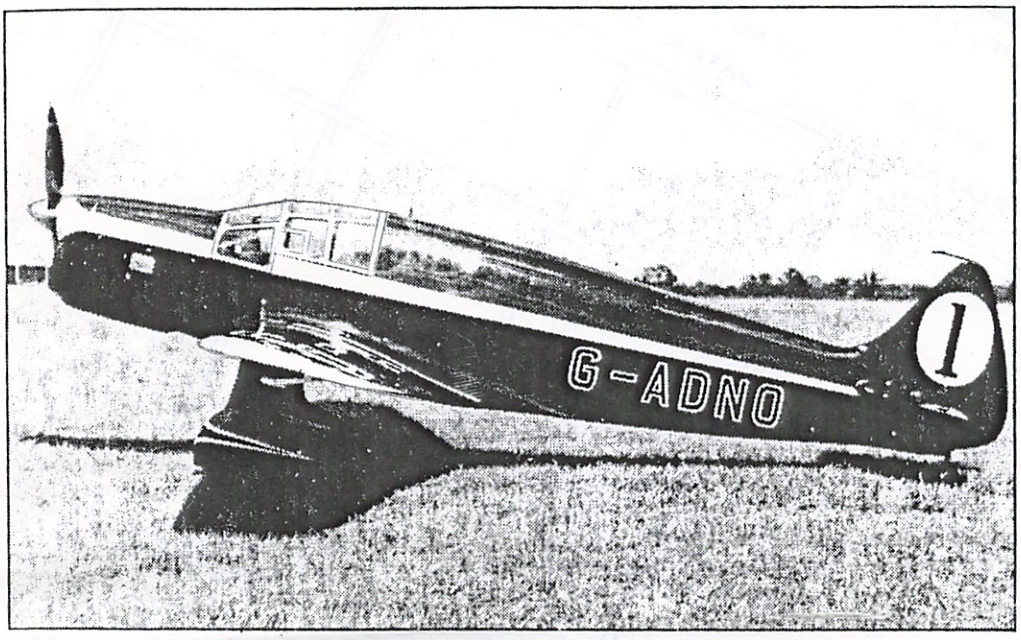
CROSSWINDS

144

CLEVELAND FREE FLIGHT SOCIETY



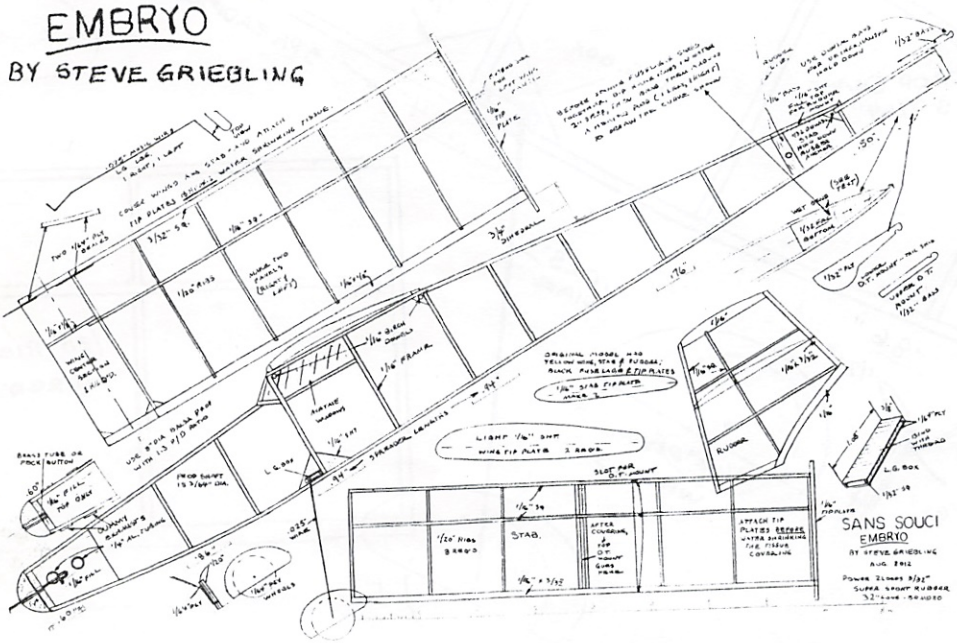
T.K.2

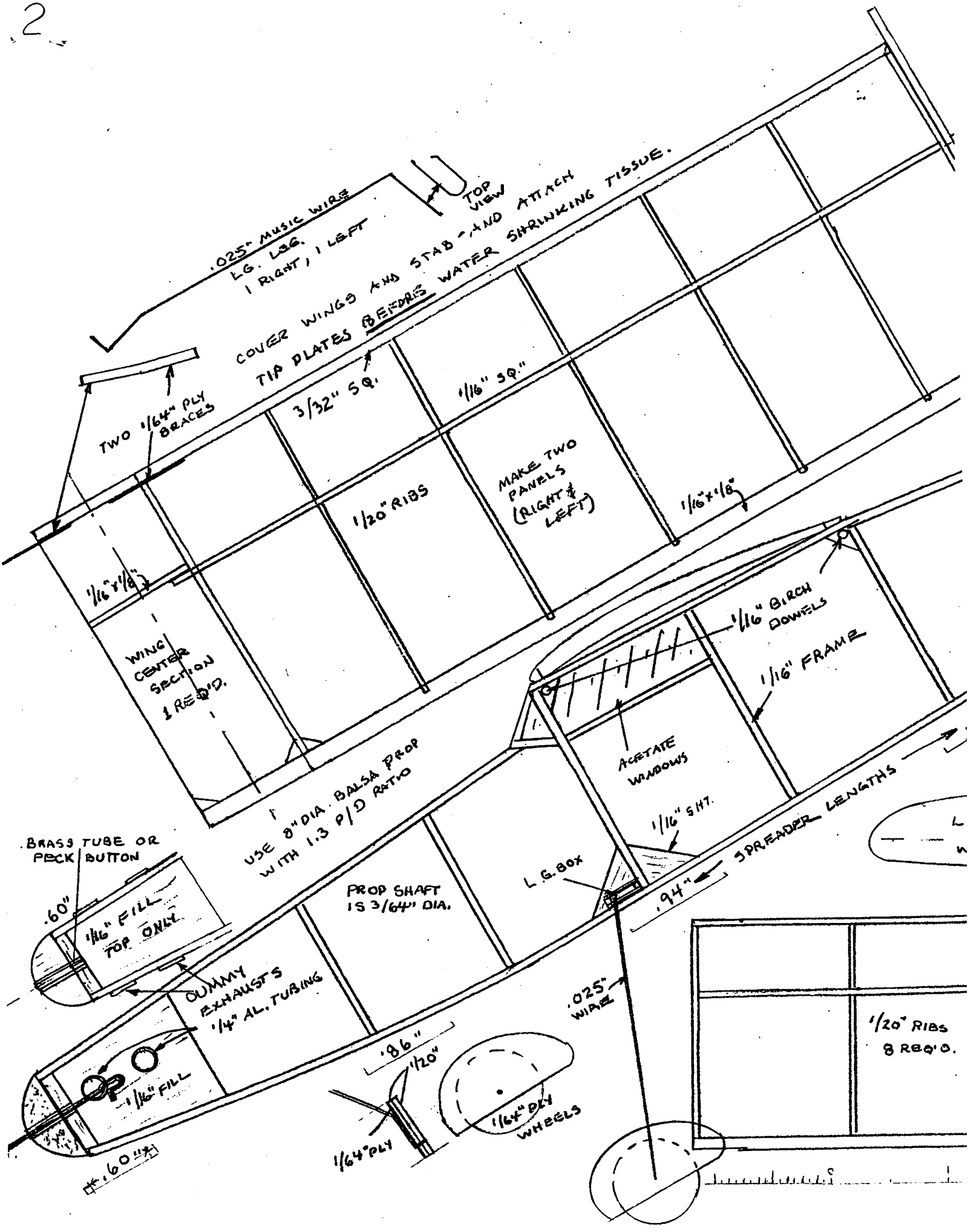
The Technical School's second original design marked a great contrast with the first, being a single seat long range racer. It was first flown as E-3 on August 16, 1935, with a 147hp high compression Gipsy Major, but later as E-5 with shortened span and 140hp Gipsy Major II. Registered G-ADNO it won the Heston-Cardiff race in 1938 at 187.5 mph, and it spent the war as E-0235. With a Gipsy 10 it broke the 100km closed circuit record at 178,3mph, but was scrapped in 1947.

CROSSWINDS
RUSS BROWN
4909 N. SEDGEWICK
LYNDHURST,OH 44124

SANS SOUCI EMBRYO

BY STEVE GRIEBLING




.025" MUSIC WIRE
LG. LSG.
1 RIGHT, 1 LEFT
TOP VIEW
COVER WINGS AND STAB - AND ATTACH
TIP PLATES BEFORE WATER SHRINKING TISSUE.
TWO 1/64" PLY BRACES
3/32" SQ.
1/16" SQ.
1/20" RIBS
MAKE TWO PANELS (RIGHT & LEFT)
1/16"x1/16"
1/16"x1/8"
WING CENTER SECTION 1 REQ'D.
1/16" BIRCH DOWELS
1/16" FRAME
ACETATE WINDOWS
1/16" SHT.
USE 8" DIA. BALSA PROP WITH 1.3 P/D RATIO
SPREADER LENGTHS
.94"
L.G. BOX
PROP SHAFT IS 3/64" DIA.
BRASS TUBE OR PECK BUTTON
.60"
1/16" FILL TOP ONLY
DUMMY EXHAUSTS 1/4" AL. TUBING
1/16" FILL
.60"
.025" WIRE
.86"
1/20"
1/64" PLY
1/64" PLY WHEELS
1/20" RIBS 8 REQ'D.

DeHavilland T.K. 2

This gorgeous British Golden Era raceplane jumped to the top of my must build list after I ran across a profile photo of the T.K. 2 in the Flight Global Archives on the Internet. A quick search turned up a another photo of a plane with the same name but none of the svelte good looks seen in the first picture. Further mouse clicking revealed that the T.K. 2 was designed and built by students of the DeHavilland Tech School under the supervision of design instructor Marcus Langley. It first flew in August of 1935 and it was this version pictured in the rather unattractive second picture mentioned above.

In 1936 and 1937 the boys began modifying the T.K. 2, giving it a lovely finish of overall black with white trim and transforming it into the lovely plane that first caught my attention. By 1938 they had totally reshaped the fuselage and canopy and clipped 4 feet from the wingspan. The plane was capable of top speeds in excess of 180 miles per hour with power from the 140 horsepower DeHavilland Gypsy Major engine. It had a very successful racing career both before and briefly after the war when it received silver livery with black trim and registration. But the beauty and historic significance of this plane was lost on those who decided it's fate. Shortly after it's post war racing career it was scrapped. It is the 1938 version that is modeled here.

All company documents concerning the T.K.2 were destroyed in the war during the bombing of the factory. There is one sparse three view of the homely 1935 version, and some plans both large and small of that version. But there are some good pictures of the 1938 and 1946 versions out there on the internet and elsewhere. These pictures, descriptions on Wikipedia of modifications made, and application of those modifications to the 1935 version three view are what informed the decisions made in attempt to model this plane.

Plans are much more than structural details. For modelers plans are a form of communication and they are fascinating whether we build the plane or not. In this spirit I have packed as many of my own methods and thinking as possible into this plan. If you build it you will of course use your own methods but I always enjoy seeing how other guys do things even if I don't do it their way. A few items warrant further explanation.

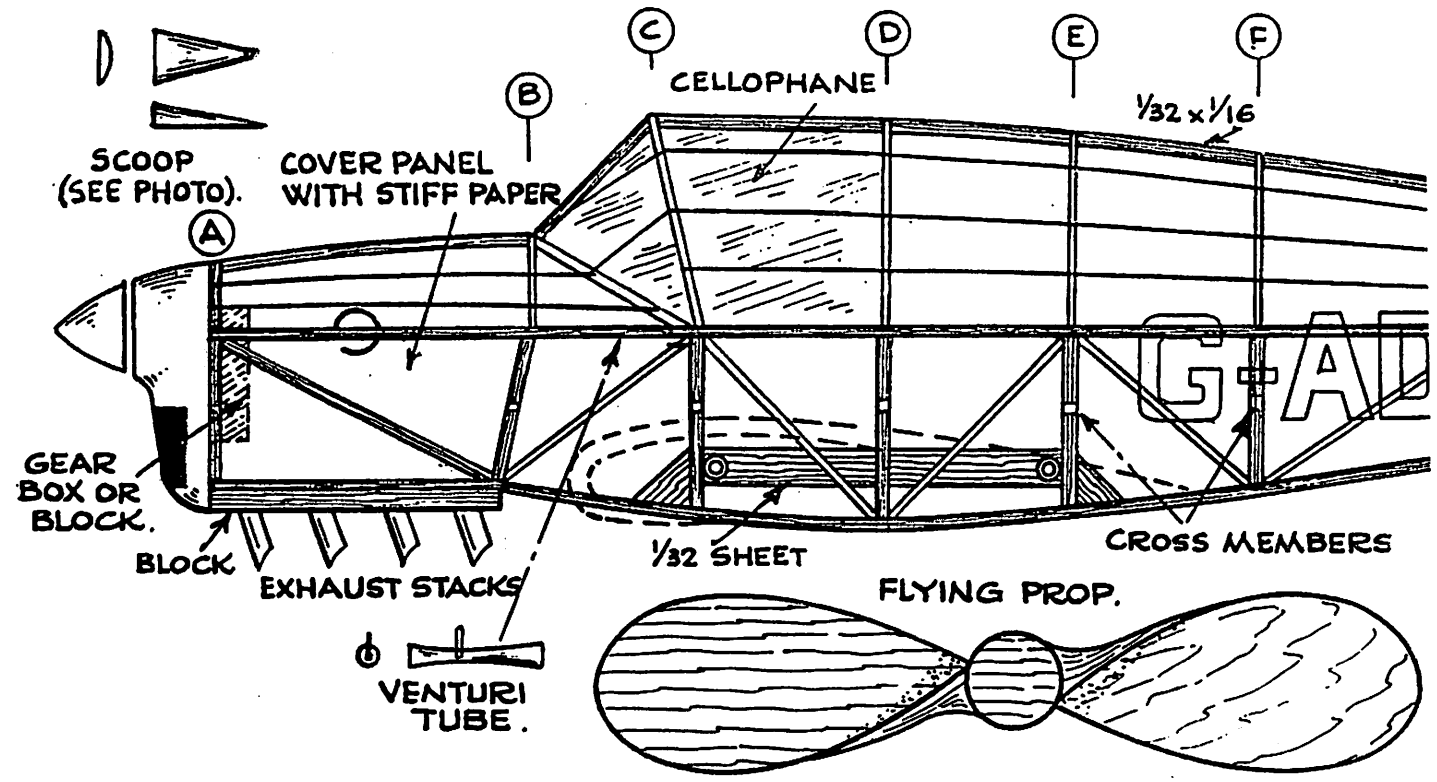
The Paper on Balsa method of cutting out the parts

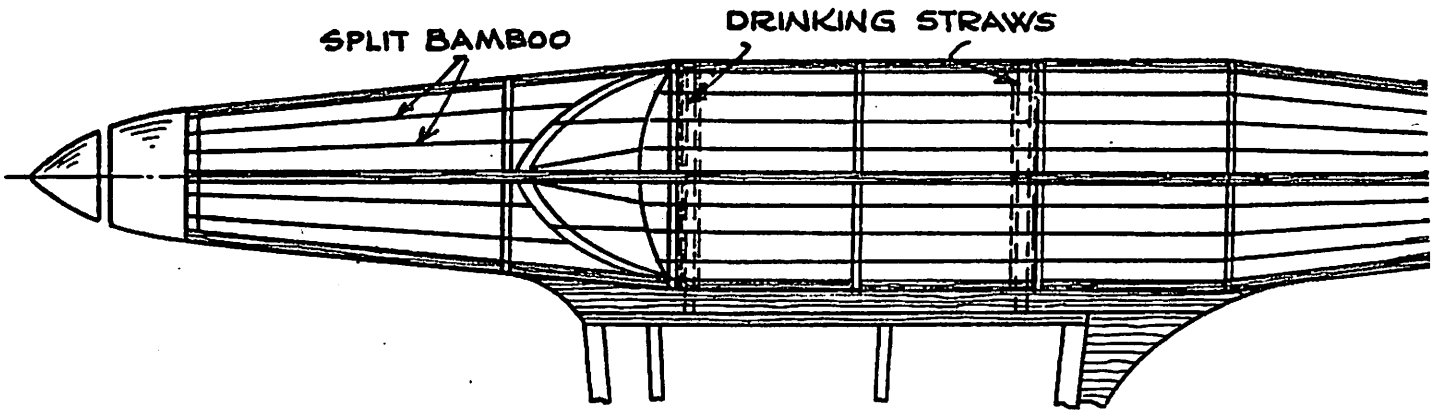
The only draw back to this method (they all have draw backs) is that the paper dulls the blades pretty quickly. Once the blade gets dull it can slightly mash the balsa before it cuts the paper. So change blades often. The problem can be minimized by making a couple of lighter cuts to cut through the paper first. Before the blade starts mashing demote it to rougher duty and replace it with a fresh one. Once the part is cut out the paper is easily removed by applying Naptha in just enough quantity to soak the paper through. It's cheap and available at paint or hardware stores. Then the paper can be lifted from the part in about 10 seconds. The slight remaining glue residue can be wiped off with a dry paper towel. Naptha evaporates so fast that the part will be dry and ready to glue in a minute or less. 3M 77 spray contact cement is the best glue for this but cheaper brands would probably work.

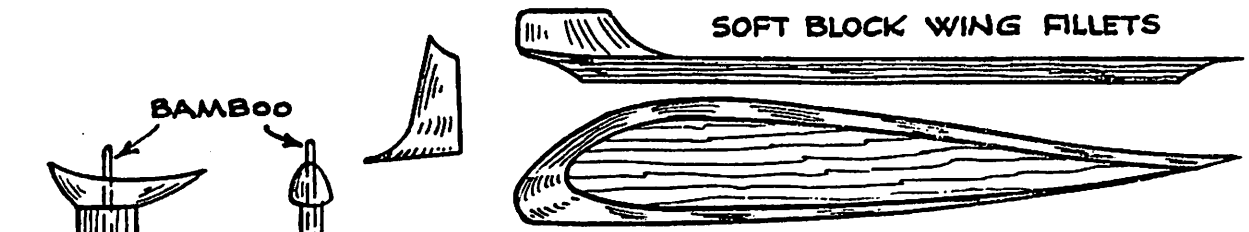
Stabilizer Mounting

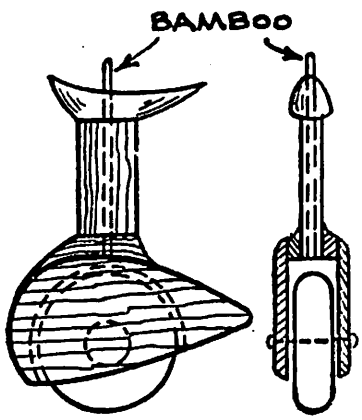
This scheme uses the late Earl Stahl's idea of adding 1/32 by 1/16 soft strips to the flat stab structure on top and bottom, then sanding an airfoil into the strips, with the following addition. To install the innermost strips, first slip the stab into the slot making sure of correct alignment and immobilize it with a pin or two. Then glue the inner strip to the stabilizer so that it touches (but is not glued to) the fuselage side. Make these inner ones a little thicker that the other strips. Do this on top and bottom. A seperate glueing session for top and bottom is best. If you didn't accidently glue the stab to the fuselage sides, it will slip out rearwards after the glue is dry. The airfoils can now be sanded. What may not be clear from the plan is that the tissue stops at this strip next to the fuselage side. The stab, where it passes through the fuselage slot, is still just 1/16 thick. The front of the slot is exactly 1/16" in vertical dimension, thus holding the front of the stab. The slot widens in vertical dimension to about 1/8 or a little less at the rear, allowing shims to be slid in from the side at the rear of the stab on top or bottom in any combination you chose. The vertical stabilizer, once glued in, keeps the horizontal in place. The front is free to pivot slightly as the rear moves up or down and the rear is held by the slip fit of the shims. The close fitting airfoiled strips next to the fuselage keep the stab from moving side to side. Be sure these end about 1/4" ahead of the back of the stab, with a quick taper before the end, to allow space for the shims. It's plenty strong and there is no breaking and re-glueing to change decalage. Just slip in different shims of balsa or paper from the side. After you like the decalage setting cut the shims to fit flush with the fuselage sides for better appearance.

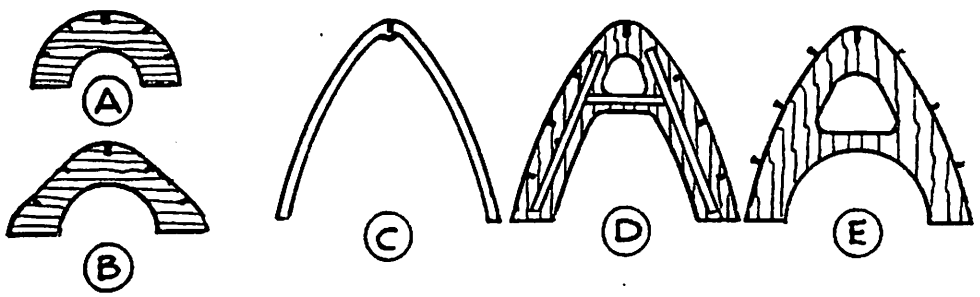
THE DE HAVILLAND "T.K.2" 1935











The Two Center of Gravity Locations

The forward one is the C.G. location on the prototype and results in very safe and stable pitch behavior. The rear one is calculated by using William McCombs' Tail Volume formula and plugging that value into another formula from McCombs for computing the rearmost safe C.G. The application of these calculations to our models has been discussed in detail by Don DeLoach in FACN volumes no. 267 and 268. These two articles are very eye opening and have answered several nagging questions I have had about stabilizer size, C.G. location and decalage. Thank you Don DeLoach! This model could likely benefit from the use of the more aft C.G., but it's already built and would require surgery to reduce the decalage. On the prototype the stab is shimmed to the bottom of the slot and that is the correct decalage for this model with the forward C.G. location and about 1/16" washout in each panel. The wing is at 2 degrees positive incidence to the datum line, and the bottom of the stab slot is at 0 degrees to the datum line. This gives 2 degrees of decalage measured at the wing root, but with the washout in each panel it's more like about 1.5 degrees overall.

The Canopy

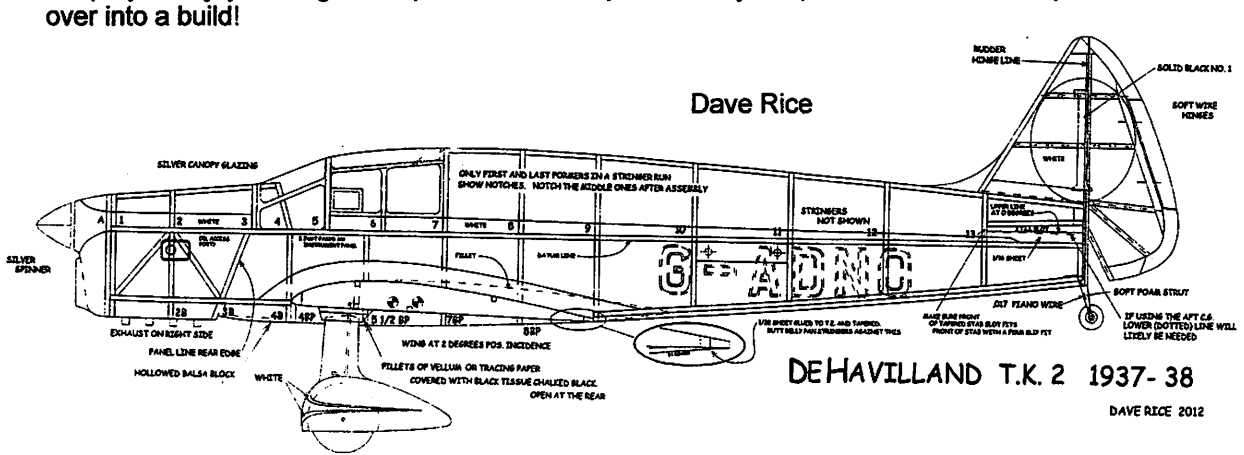
It's an easy plunge form because only the top part above the slightly sloping canopy supports has compound curvature requiring plunge forming. Just make a little balsa mold that fits right in between laminated hoop 5 and bulkhead 7 above the canopy supports. Add some scrap 1/16 balsa around the sides, front and back and sand flush. This gives you some extra material at the edges of the finished canopy to overlap onto the hoop, the bulkhead and the supports. Mount it on a stick and push it into some heated .007" acetate through a hole about 1/8" bigger than the top view of the mold. There is no need to push very far down as if forming a deep canopy. It's very shallow. All the rest of the canopy can be made from .003" piedes of acetate curved to fit.

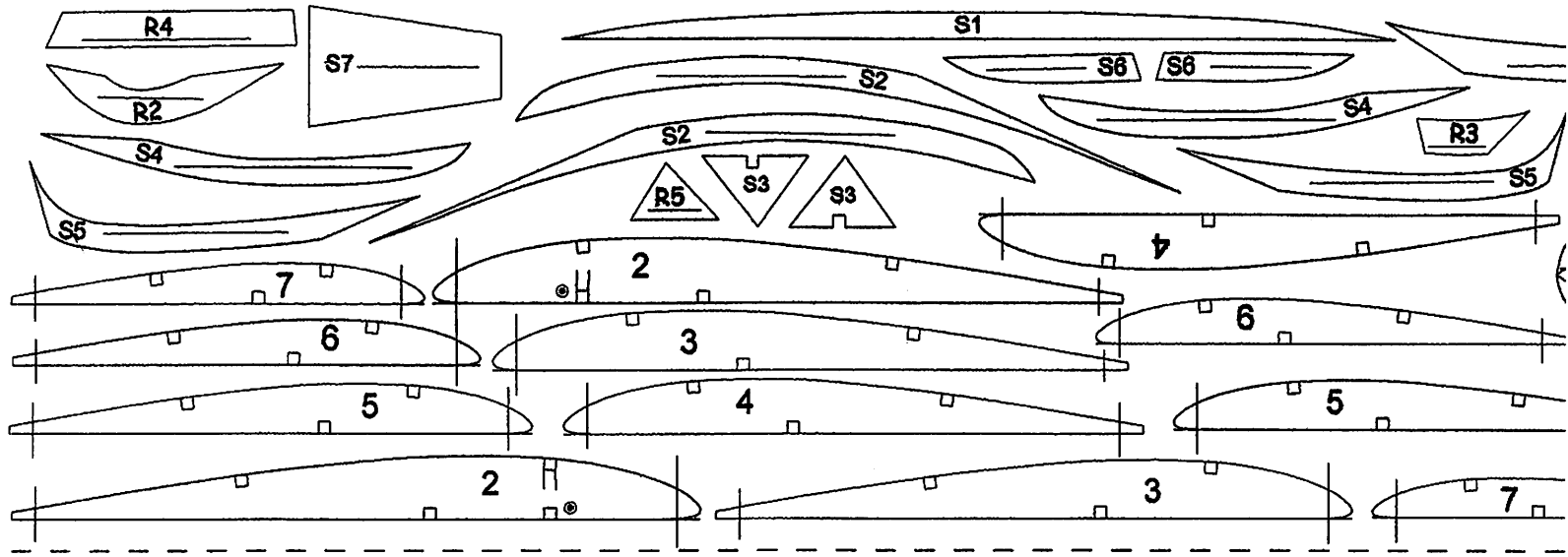
The keen eye will notice that the structure in this model is not the lightest possible. This is due partly to the generous rib, spar, and bulkhead count. I wanted the fuselage contours to have that lovely swooping curve particularly in the turtle deck area. If the bulkheads are a little too far apart the stringers sag between them under the tissue. Likewise a wing rich in ribs and spars resists warps better and has a nicer look. A few grams could be shaved out of it by laminating the wingtips and tail feather rims, making the ribs out of 1/20 or 1/32 and eliminating one of the spars. Also the notched trailing edges could be eliminated by using 1/8 by 1/16 balsa for the trailing edge, and but joining the ribs to the trailing edge. That is certainly a time honored technique, but I just like the warp resistance of a notched trailing edge.

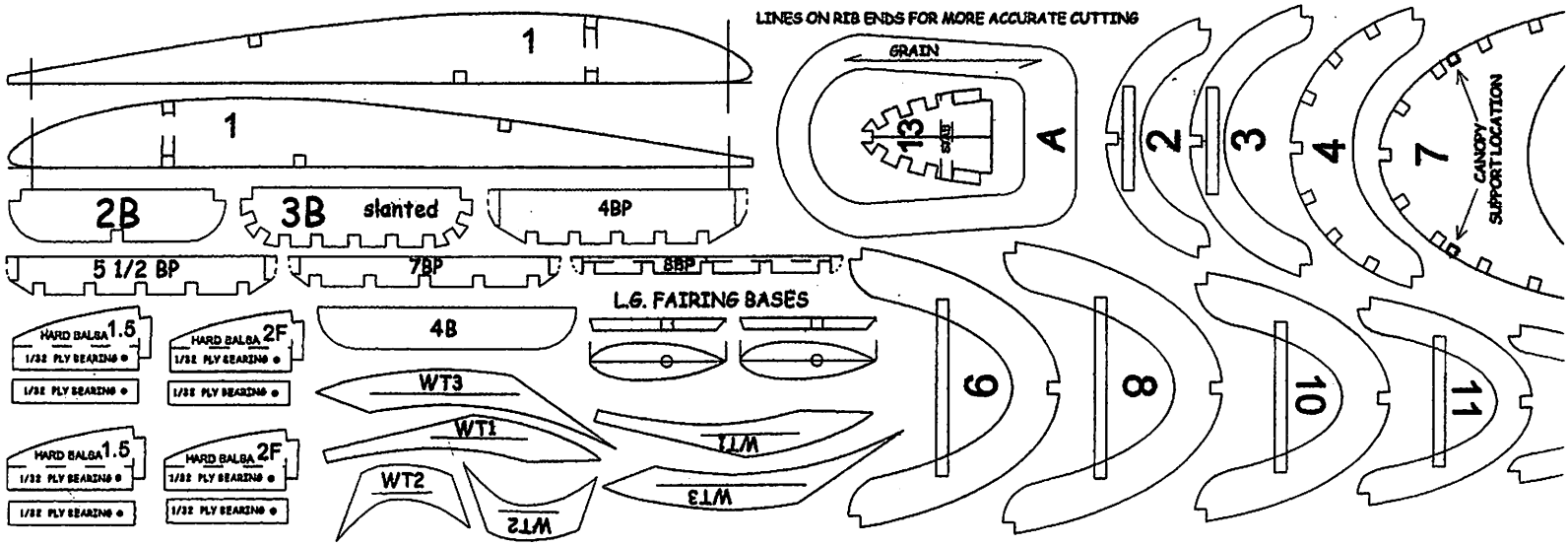
The scant documentation on this aircraft gives rise to several educated guesses. The lower rudder and tail wheel are nearly arbitrary interpretations of pictures with obscured detail in that area. Also the fuselage width in the nose appears much wider in the pictures of the 1938 version than in the 1935 three view. So I made it look as much like the pictures as possible. It makes the rubber run better in the nose too. One of the best pictures is a profile view from about 25 feet away. Much information on fuselage and canopy shapes came from this one. It shows one more puzzling detail. There is white trim on the wing tip but its shape is hard to determine from the low angle, so it was left off of the model. However there is another piece of information on the wing tip trim on the internet in the form of a painting. It depicts a Mew Gull in flight in the fore ground with some other planes on the ground (and very small). One of these is the T.K.2 and it shows a fuzzy image of the artists take on what the wing tip trim looks like. With the information in this painting the wing tip trim can finally be put on the prototype. Add per 1947 trim on Page 12 Photo by A. J. Jackson, R.B.

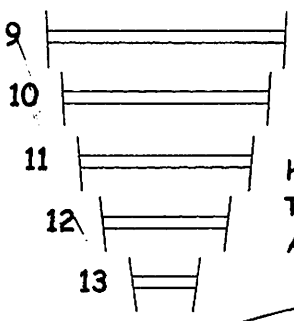
I hope you enjoy looking at the plans and if this plane fires you up like it does me, I hope the heat boils over into a build!

Dave Rice



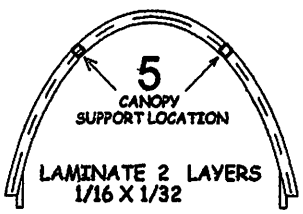


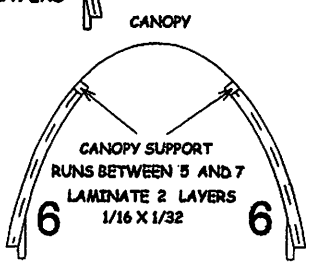


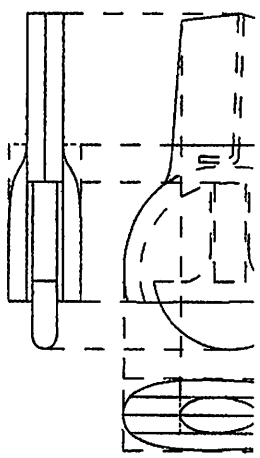


THE FUSELAGE IS NARROWER AT THE BOTTOM THAN AT THE TOP

HERE IS A CUTTING GUIDE FOR THE BOTTOM CROSS MEMBERS AFT OF THE WING







THE KING'S CUP RACE OF 1936

The Eve of the Race

THURSDAY was an uneventful sort of day at Hatfield, although the eve of the Race is generally reasonably exciting. Probably the all-pervading wetness had a generally dampening effect, except on the eagle eyes of Messrs. Dancy and Rowarth, who spent the afternoon going over every competitor's machine with a tape measure, to make sure that the machines were exactly as entered.

One or two people got found out. Two pilots had removed such speed-reducing bumps as door-knobs, fuel gauges, and vent pipes. Last year a machine cleaned up in this simple fashion proved to be the fastest in its class. On the other hand this may have been due to the way it was flown, or a super performance on the part of the motor. Anyway as removal of the aforementioned excrescences had not been declared, they all had to be put back.

Another pilot arrived with stub exhaust-pipes and racing windscreen. Which changes he had omitted to declare. He had, therefore, to replace these by a standard windscreen and a standard exhaust manifold. Such replacements sound easy enough, if annoying to the pilot, but when the machine was last seen a certain amount of confusion was caused because nobody knew where the missing windscreen and exhaust pipes were to be found.

This particular pilot had been thoroughly unlucky, or unduly pressed for time, all the way through. Just before coming up for the Race he stood the machine on its nose and bent its metal airscrew, which meant that the makers of the airscrew had to work all night straightening out the bend.

He also had difficulty with the C. of A., and discovered that this had to be endorsed before he could take part in the Race. The machine actually arrived with a neat little strip of paper across the dash stating that the machine must not be flown with fuel in the front tank until it, the aeroplane, had been certified as airworthy. An extra tank had been put in the front cockpit to increase the range.

With the exception of the two B.A. Double Eagles there was no type outstandingly new among the 24 other entrants. The Double Eagle has already been illustrated in detail in this paper. Inspection at Hatfield showed that the second version with the two Gipsy Six motors, is much cleaner than the prototype.

The side bracing struts do not come up to the wing in the right-angle corner between each motor nacelle and the lower surface of the wing, but much lower down the former. The shape of the nose has been altered a little, rather for the worse we fancy, as there is now an ugly corner on each side. On the other hand the motor nacelles are of a better shape and are faired more carefully into the wing.

Some enthusiastic mechanic had devoted a great deal of time to burnishing up the cowlings with the old time whorls and spirals, which nobody seems to have time to do nowadays.

On the Gipsy Six Double Eagle the oil tanks form the actual ends or sterns of the nacelles. This scheme provides a form of skin cooling, which is proving most effective in practice. If it were not for the extraordinarily large number of turns in the final this machine ought to do very well.

The Percival Vega Gull is also taking part in the Race for the first time, but is scarcely a new machine to readers of THE AEROPLANE, for whom it was described at length at the beginning of the year. The only other new type is the De Havilland Dragonfly which has also been described at length.

The entry of the Dragonfly seems extraordinarily sporting of the De Havilland father and son. According to the rules of the Race only half the number of machines in each class will be let through into the final. There are only three in the twin-motored class. Two of them are Double Eagles, both of which ought to be faster than the Dragonfly. As they all have Gipsy motors, which should all be equally reliable there seems to be very little chance of the Dragonfly getting into the final.

T.K.2, which has been designed and built by the students of the De Havilland Technical School, has been largely modified since it did so well last year. Raising the motor, changing the coupé top and fairing in the legs of the undercart have improved its looks enormously. Its Titanine dark green Satin Finish was in a high state of gloss by the time the students, determined to get the last .001 of a mile per hour, had finished polishing it down.

Interesting modifications to this machine are the lipping of the cooling air scoop, and the arranging of the air intake, also with a lip, behind the airscrew. This is reckoned to provide a certain amount of boost at top speed. At any rate, the jet sizes had to be increased to cope with the extra amount of air going through. Many people came to the conclusion that this machine was a reasonable bet for a place.

Entrants automatically divided themselves into two classes, —those sure of getting into the final and those who knew that they would have to fight for a place. In Class A, single-motor machines up to 150 h.p., six machines have got to go out. Obviously T.K.2 and the Miles Sparrowhawks have nothing much to worry about, but the outlook is pretty grim for the Comper Swifts with their small tankage, and the Standard Miles Hawks, and the Leopard Moth.

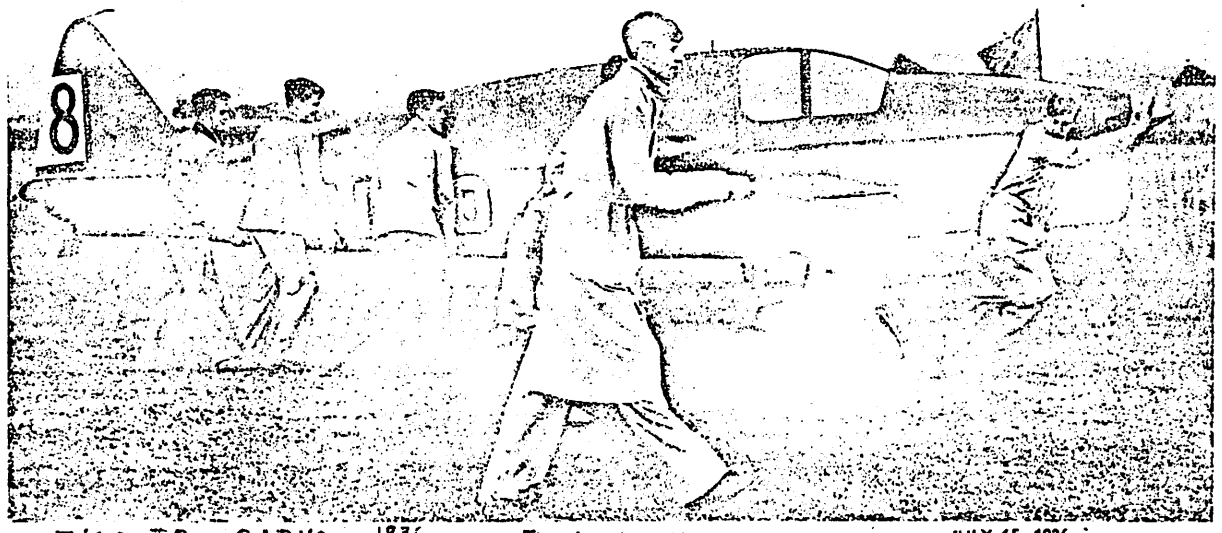
In an effort to save time Hawks No. 23, G-ADLA, of Mrs. Battye, No. 26, G-ACYO, No. 27, G-AEFB, all had extra tanks to cut down the refuelling. No. 25, G-ACRG, B.A. Eagle had slices cut off the top decking, and modifications made to the windscreen to speed it up.

Competition was equally intense in Class B, single motors of more than 150 h.p. The Mew Gull, the Miles Speed Hawks, and Miles Falcon Six, have probably not got much to worry about, but all the Percival Gulls and Vega Gulls are carrying extra tanks so that they should be able to fly right round the course from Hatfield to Hatfield without refuelling.

No. 1, G-AEKL, Mr. Percival's Mew Gull, is a modification of the one he flew last year. The fuselage is longer by 9 ins. and the span is also larger. The fuselage looks a little deeper and chubbier too. The Titanine finish of this machine is remarkably good. A small crack was discovered in the cowling where the cooling air enters. So the airscrew and the cowling had to be taken off that evening.

Actually there was so much work going on in the big hangar, whither the machines were transferred after scrutiny, that it sounded like a busy factory. A new issue of so-called "blue" valve-springs had come out and many people were putting these stiffer springs on their motors.

Competitors were pretty cheerful about prospects for the morrow as the weather report sounded hopeful with "showers" as its worst. Next day these "showers" turned out to be continuous and up to tropical standards. T.J.

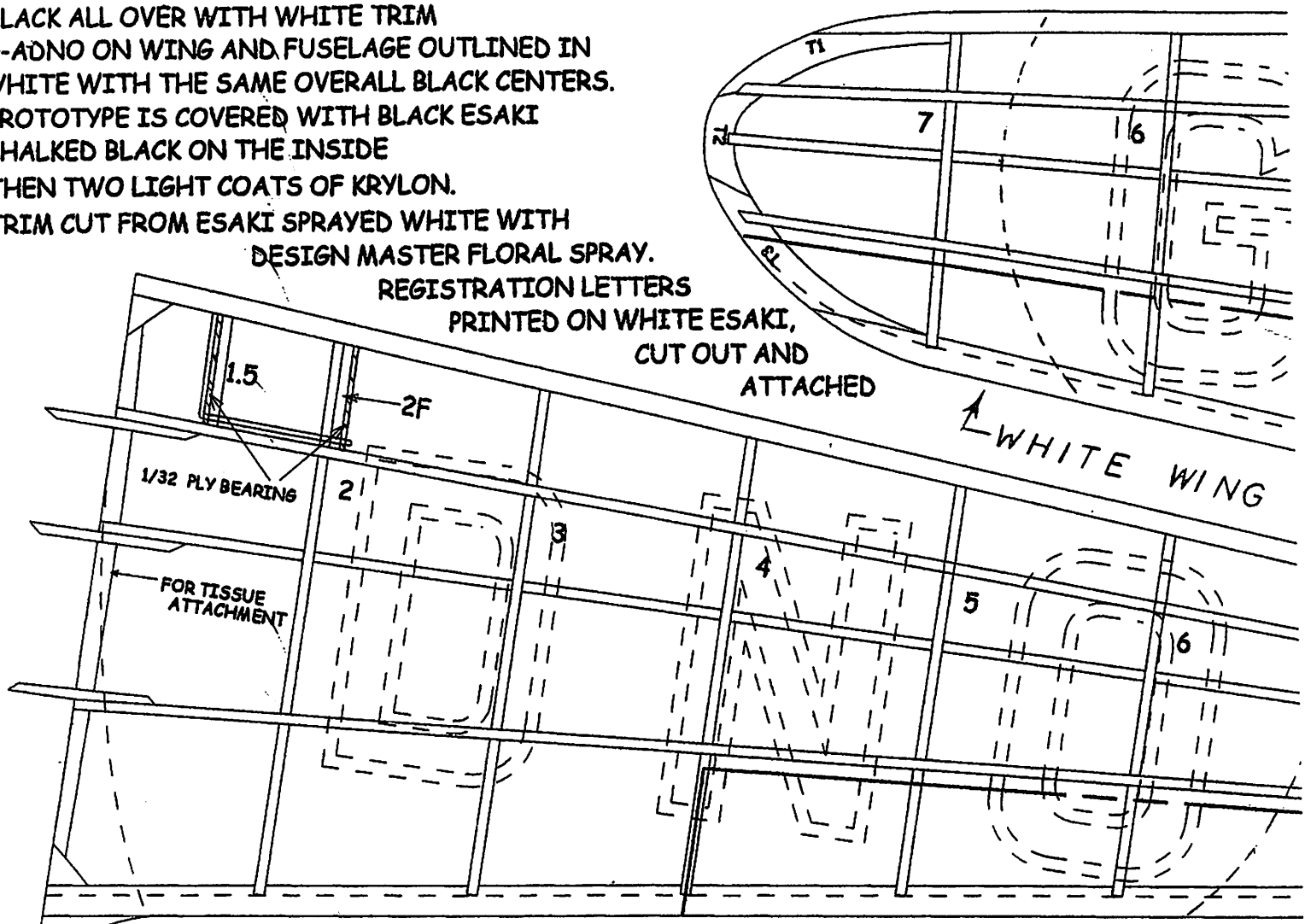


T.K.2 #8 G-ADNO 1936

COLORS

BLACK ALL OVER WITH WHITE TRIM
G-ADNO ON WING AND FUSELAGE OUTLINED IN
WHITE WITH THE SAME OVERALL BLACK CENTERS.
PROTOTYPE IS COVERED WITH BLACK ESAKI
CHALKED BLACK ON THE INSIDE
THEN TWO LIGHT COATS OF KRYLON.
TRIM CUT FROM ESAKI SPRAYED WHITE WITH
DESIGN MASTER FLORAL SPRAY.

REGISTRATION LETTERS
PRINTED ON WHITE ESAKI,
CUT OUT AND
ATTACHED



T.E. 1/16 X 3/16 MEDIUM BALSA BEVEL BEGINS AT THE DOTTED LINE

DIHEDRA
1/16

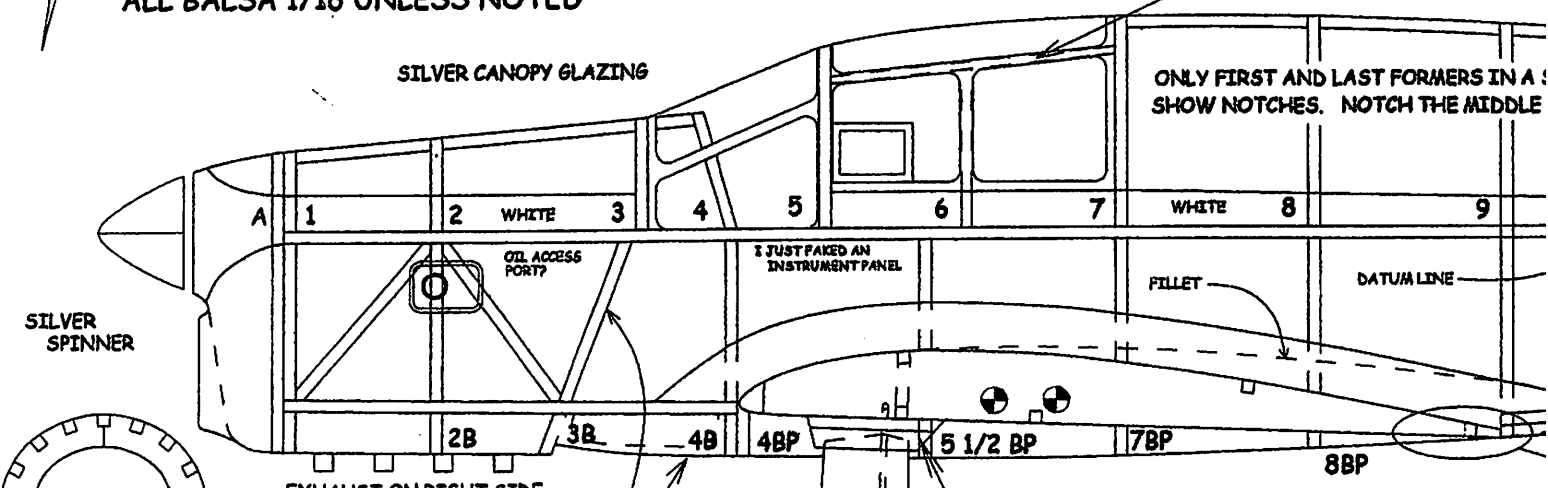
ALL BALSA 1/16 UNLESS NOTED

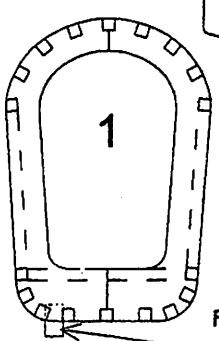
PLUNGE FORM CANOPY TOP ONLY BETWEEN 5 AND 7
OTHER PANELS FROM .003 ACETATE

CANOPY SUPPORT BETWEEN 5 AND

SILVER CANOPY GLAZING

ONLY FIRST AND LAST FORMERS IN A
SHOW NOTCHES. NOTCH THE MIDDLE





EXHAUST ON RIGHT SIDE

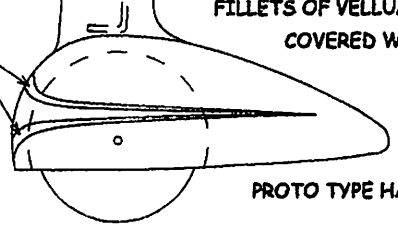
WING AT 2 DEGREES POS. INCIDENCE

PANEL LINE REAR EDGE

FILLETS OF VELLUM OR TRACING PAPER
COVERED WITH BLACK TISSUE CHALKED BLACK.
OPEN AT THE REAR

HOLLOWED BALSA BLOCK

WHITE

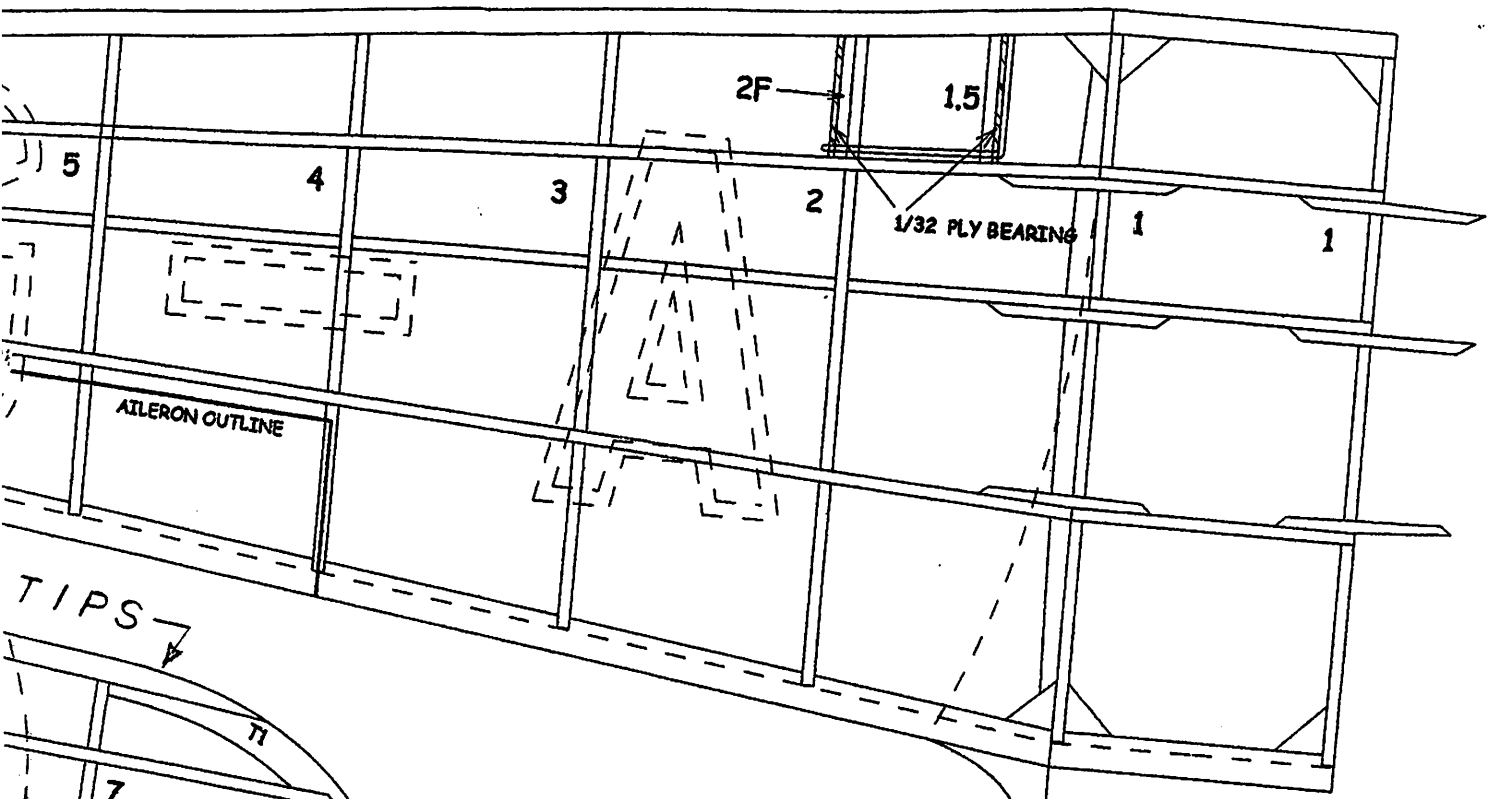


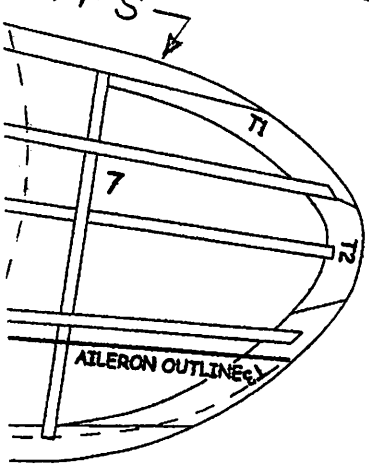
FILL IN BETWEEN THESE TWO STRINGERS
DRILL AND FIT 3/32 ALUM. TUBE EXHAUST

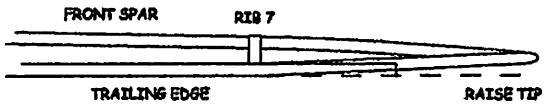
PROTO TYPE HAS NON TURNING WHEELS

1/8 X 3/16 MEDIUM BALSA

TORSION BAR LANDING GEAR







IF YOU PREFER A VERTICAL STABILIZER WITH NO TRIM TAB USE THE LAYOUT ON THE OTHER SHEET

RUDDER HINGE LINE

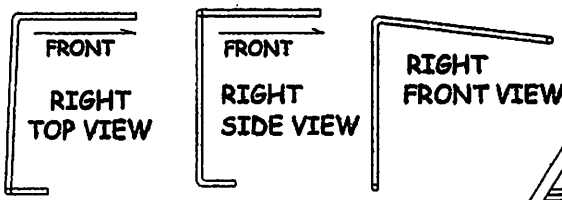
SOLID BLACK NO. 1

SOFT WIRE HINGES

WHITE

IL 1 1/16 AT RIB 7
WASHOUT IN EACH PANEL
7 .050 x .050

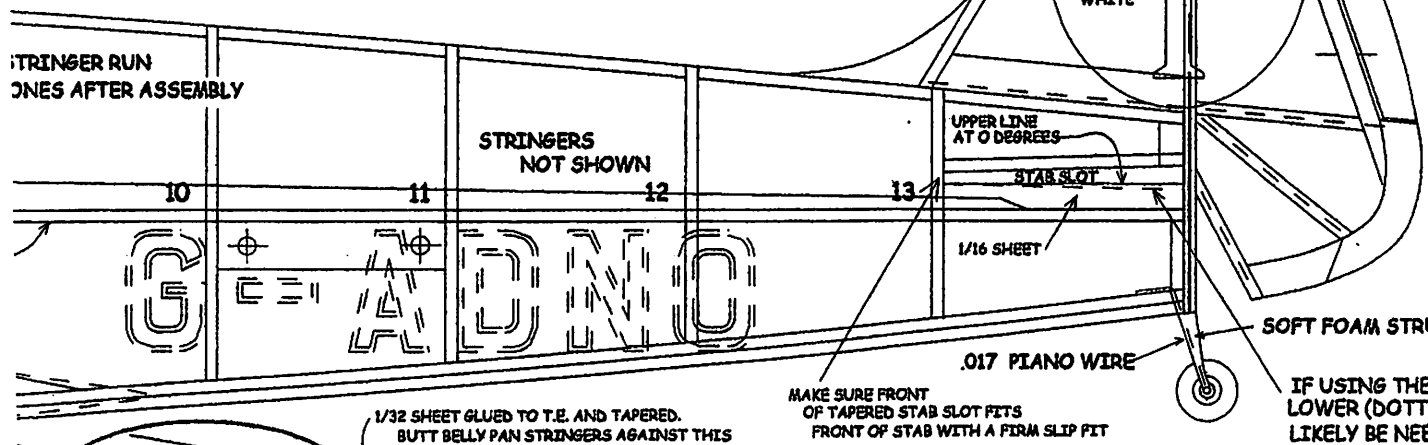
LANDING GEAR LAYOUTS



1/32 PIANO WIRE

STRINGER RUN
ONES AFTER ASSEMBLY

STRINGERS NOT SHOWN



MAKE SURE FRONT OF TAPERED STAB SLOT FITS FRONT OF STAB WITH A FIRM SLIP FIT

IF USING THE AFT C.G. LOWER (DOTTED) LINE WILL LIKELY BE NEEDED

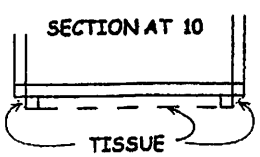


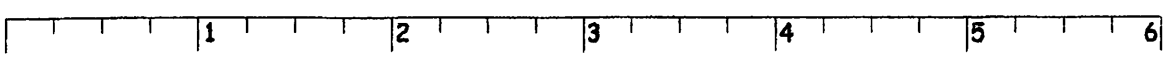
DE HAVILLAND T.K. 2 1937-38

SHEET 1 OF 2

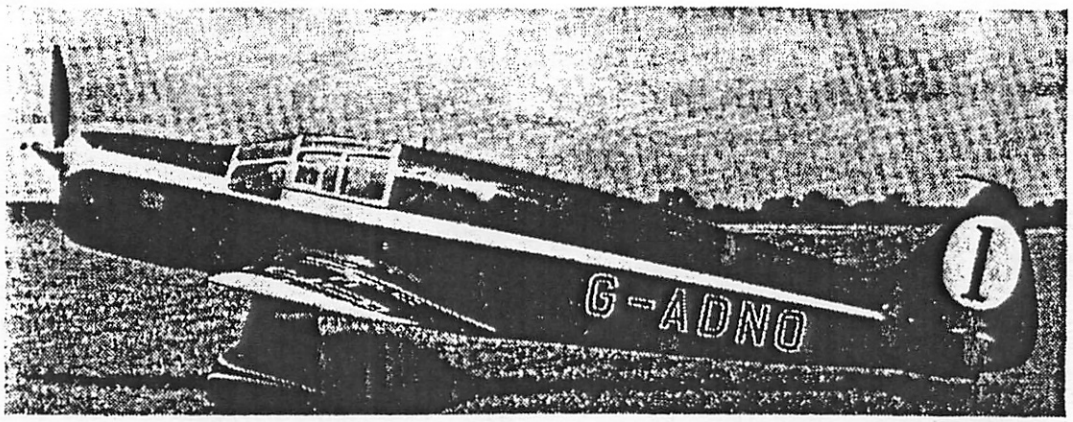
WING SPAN 20"

DAVE RICE 2012





10



Longest-lived of the de Havilland Technical School's racers, the elegant black and white T.K.2 G-ADNO, seen in its second modified form in 1938. (*Hawker Siddeley.*)

28 ft, w.s.

The British National Distance record for gliders was broken again on 30 April, 1938, in the Minimoa flown by P. A. Wills, who left Heston and landed 209 miles away at St Austell, Cornwall.

Philip Wills used the Minimoa again in June, 1938, to set a new British National Gain of Height gliding record of 10,180 ft. at Dunstable.

On 4 June, 1938, the London-to-Isle of Man Air Race was run with 16 starters from Hatfield. The winner at Ronaldsway was the 130 hp Gipsy Major Swift G-ABWW at 159·5 mph flown by S. T. Lowe; the machine competed without its customary strut fairings and spats. Alex Henshaw came second in the white Mew Gull G-AEXF at 247·5 mph, and the T.K.2 G-ADNO, flown by G. R. de Havilland, was third at 192 mph. During the previous winter G-ADNO had been modified at Hatfield to appear for the 1938 racing season with a reduction in cabin height, a new canopy with glazing which extended forward to the rear of the revised engine cowling, a gentler curve to the upper profile of the fuselage back to the tail unit, a reduction of wing span by 4 ft to 28 ft, and the installation of a 137 hp Gipsy Major II driving a fixed-pitch Fairey-Reed propeller. The aircraft was given a high-gloss all-black finish with white lettering and trim. In fifth place was Giles Guthrie piloting the Mew Gull G-AEKL, now maroon with gold trim. On 6 June, S. T. Lowe came first in the Tynwald Air Race, for aircraft with a maximum power of 120 hp, with the Swift G-ABWW at 147·75 mph. The Manx Air Derby was run on the same day, the winner at 117 mph being the Tomtit flown by J. Rush.

Hatfield was used on 2 July, 1938, for the annual King's Cup Race, run over a total distance of 1012·14 miles made up of 20 laps of a 50·607 mile circuit from Hatfield to Buntingford, thence to Barton and back to Hatfield.

The original list of 21 entrants consisted of:

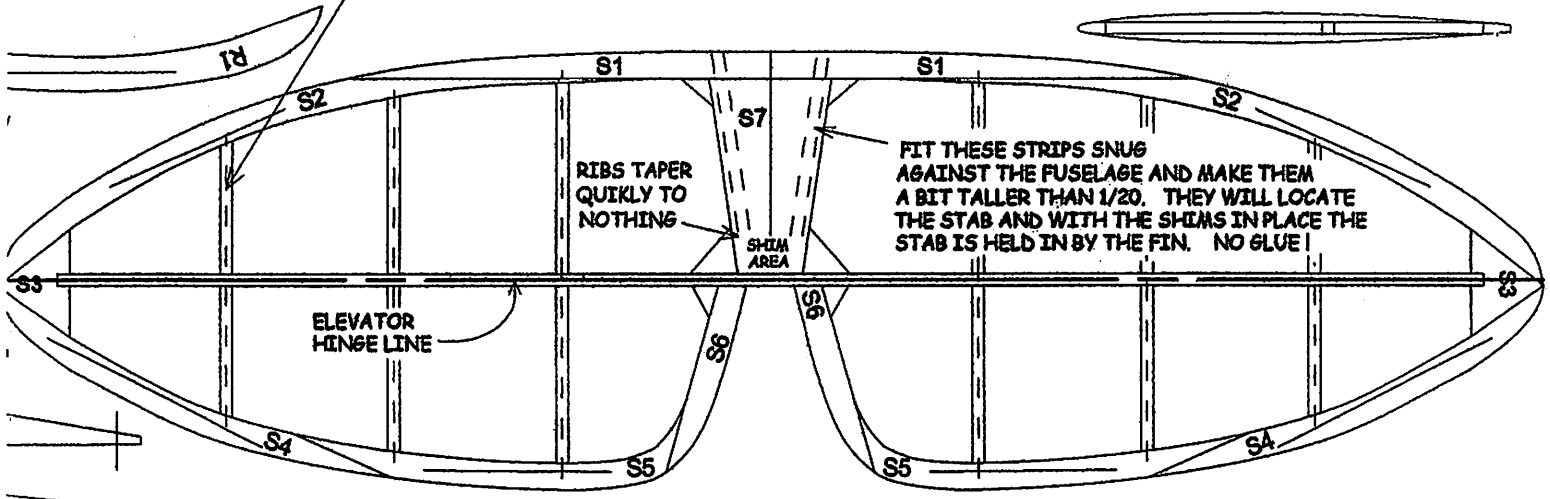
Aircraft	Registration	Pilot
M.14 Hawk Trainer Mk.III	G-AEZR *	J. M. Barwick
M.2H Hawk Major	G-ACYX	L. H. T. Cliff
G.A. Cygnet	G-AEMA	C. F. Hughesdon
B.A. Eagle 2	G-AFIC	Flg Off A. E. Clouston
M.17 Monarch	G-AFCR	Wg Cdr F. W. Stent †

* Painted red. † Withdrew.

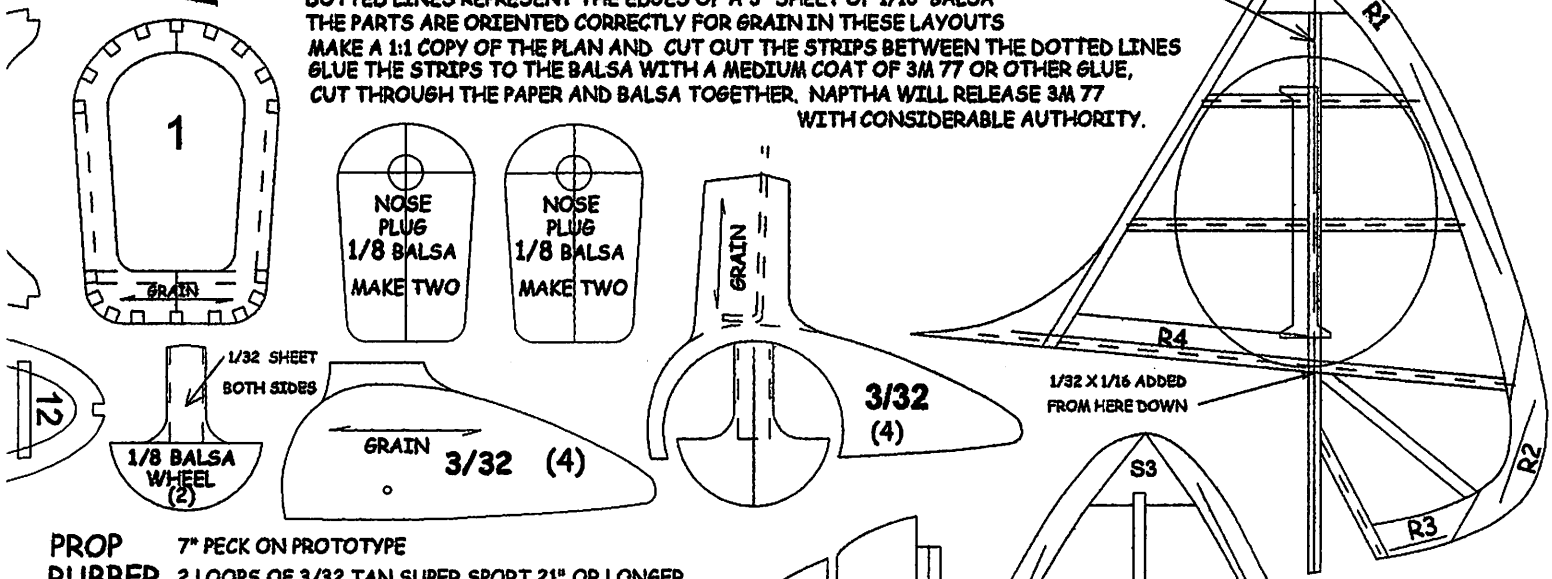
SANS SOUCI EMBRYO

This is the model I flew in September at LCCC. It did very well, was stable and reliable, so I think it might be a good alternative to the Debut and is a little simpler to construct. The much reduced dihedral works well with the tip plates on wing and stab and they stiffen the tips without adding a lot of weight. The wing plan is dead simple because of them too! Steve

DOTTED LINES ON RIBS INDICATE 1/16 X 1/20 BALSA STRIPS GLUED ON AND SANDED TO AIRFOIL SHAPE



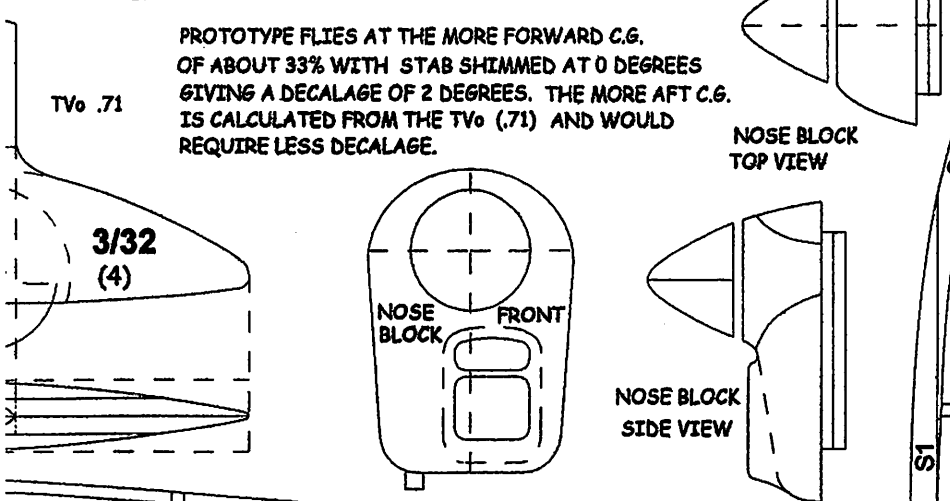
DOTTED LINES REPRESENT THE EDGES OF A 3" SHEET OF 1/16 BALSA
THE PARTS ARE ORIENTED CORRECTLY FOR GRAIN IN THESE LAYOUTS
MAKE A 1:1 COPY OF THE PLAN AND CUT OUT THE STRIPS BETWEEN THE DOTTED LINES
GLUE THE STRIPS TO THE BALSA WITH A MEDIUM COAT OF 3M 77 OR OTHER GLUE,
CUT THROUGH THE PAPER AND BALSA TOGETHER. NAPTHA WILL RELEASE 3M 77
WITH CONSIDERABLE AUTHORITY.

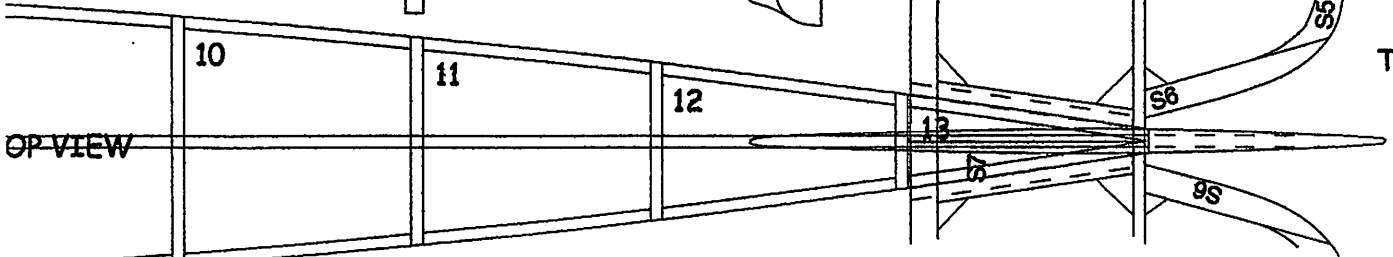


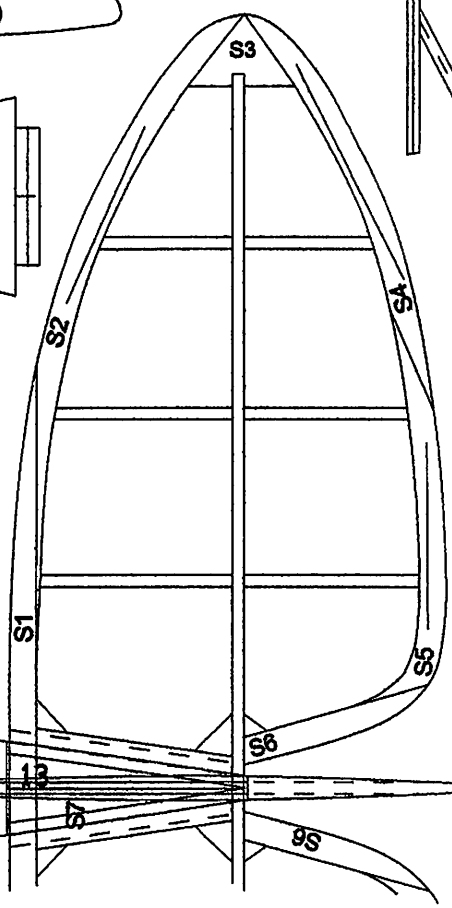
PROP RUBBER 7" PECK ON PROTOTYPE
2 LOOPS OF 3/32 TAN SUPER SPORT 21" OR LONGER

PROTOTYPE FLIES AT THE MORE FORWARD C.G.
OF ABOUT 33% WITH STAB SHIMMED AT 0 DEGREES
GIVING A DECALAGE OF 2 DEGREES. THE MORE AFT C.G.
IS CALCULATED FROM THE TVo (.71) AND WOULD
REQUIRE LESS DECALAGE.

TVo .71







WEIGHT
26 g. EMPTY

WING AREA
58 SQ. IN.

STAB. AREA
14 SQ. IN.

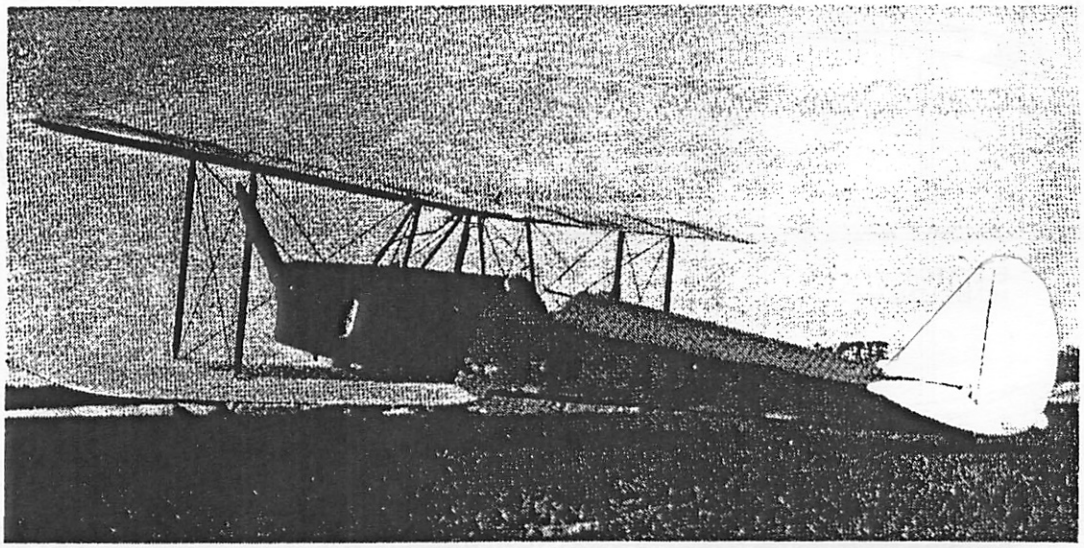
TAIL VOLUME
.71

SHEET 2 OF 2

DE HAVILLAND T.K. 2 1937-38

12

T.K.1



(*R. P. Howard.*)

T.K.2

A single seat, long range racer *G-ADNO*, c/n 1998, completed at Hatfield 1935 and powered by one 147 h.p. de Havilland Gipsy Major h.c. First flown August 16, 1935 as *E-3*, won the 1937 Heston–Cardiff race at 161·4 m.p.h. piloted by Geoffrey de Havilland Jnr. Modified and test flown as *E-5* in 1938 with span reduced to 28 ft. 0 in. and 140 h.p. de Havilland Gipsy Major II. Won the 1938 Heston–Cardiff race at 187·5 m.p.h. with the same pilot. Flown on the firm's wartime communications as *E-0235*. With Gipsy Major 10, broke the 100 km. closed circuit class record at 178·3 m.p.h. piloted by W. P. I. Fillingham August 31, 1947. Scrapped 12.47. Original span 32 ft. 0 in. Length 22 ft. 5 in. Wing area 125 sq. ft. Tare wt. 1,049 lb. A.U.W. 1,600 lb. Max speed 182 m.p.h. Initial climb 1,150 ft./min. (With 28 ft. 0 in. span) Wing area 119 sq. ft. Tare wt. 1,140 lb. A.U.W. 1,650 lb.

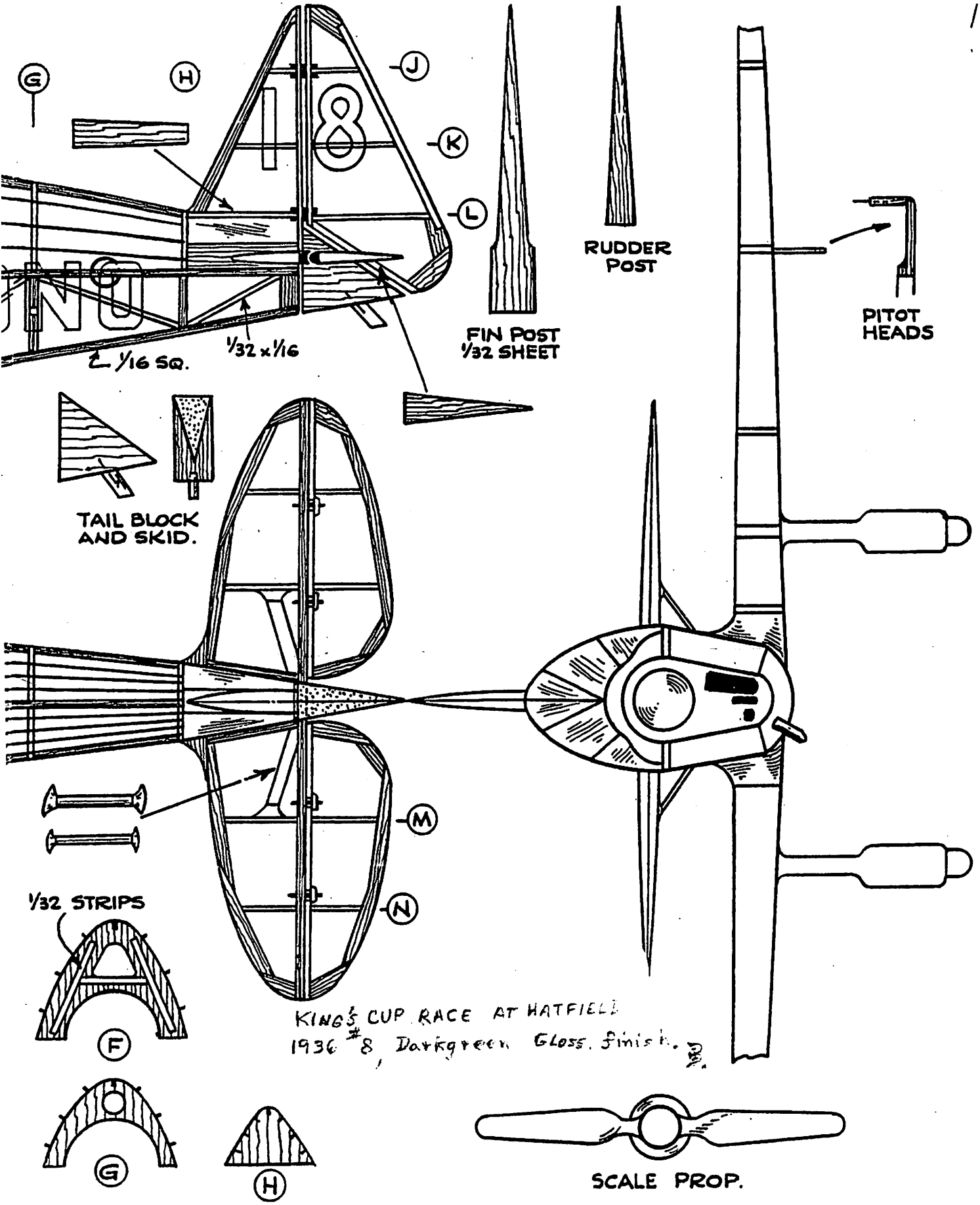
Postwar Chipmunk



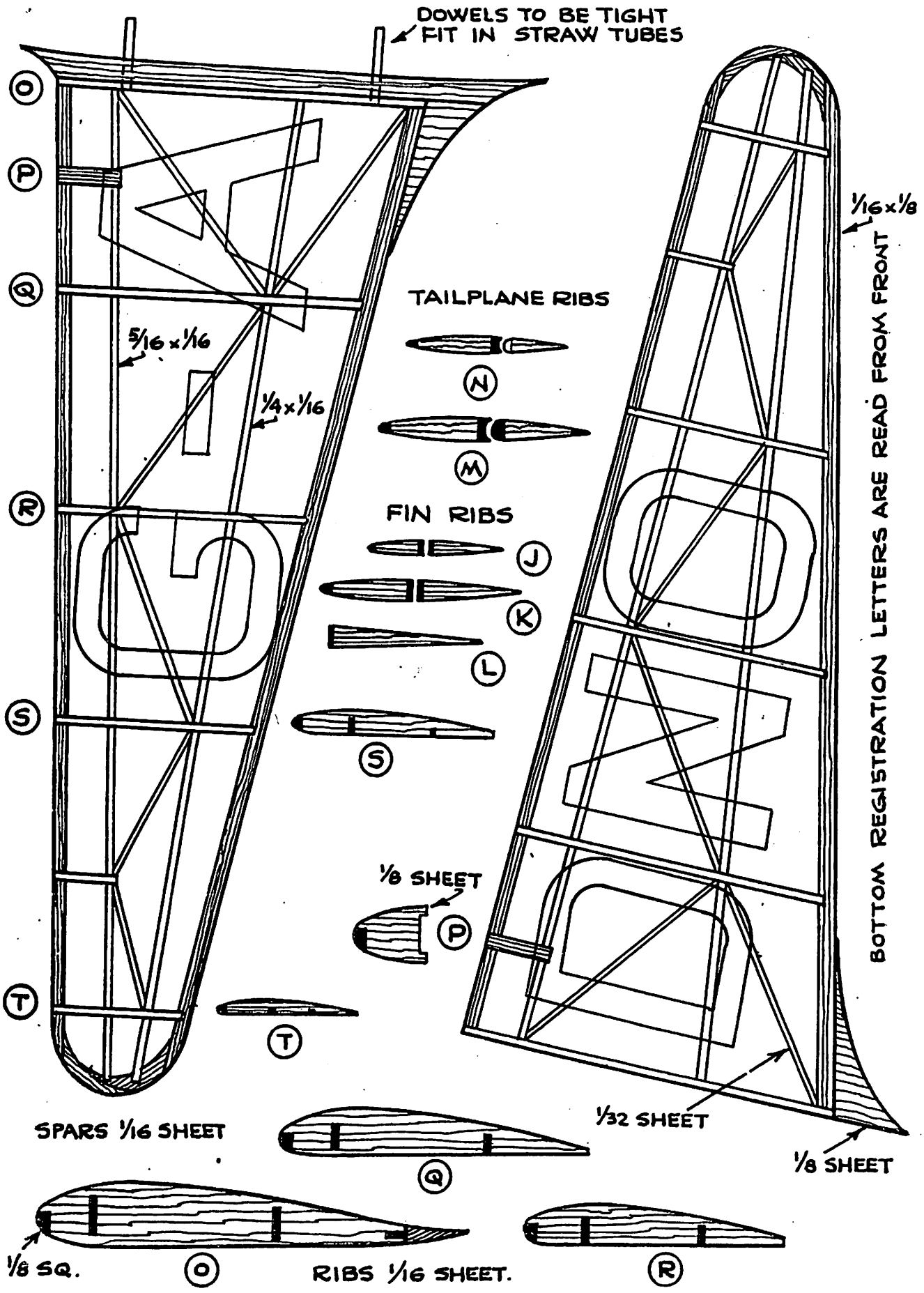
1947 SILVER & ?? + BLK? long spats

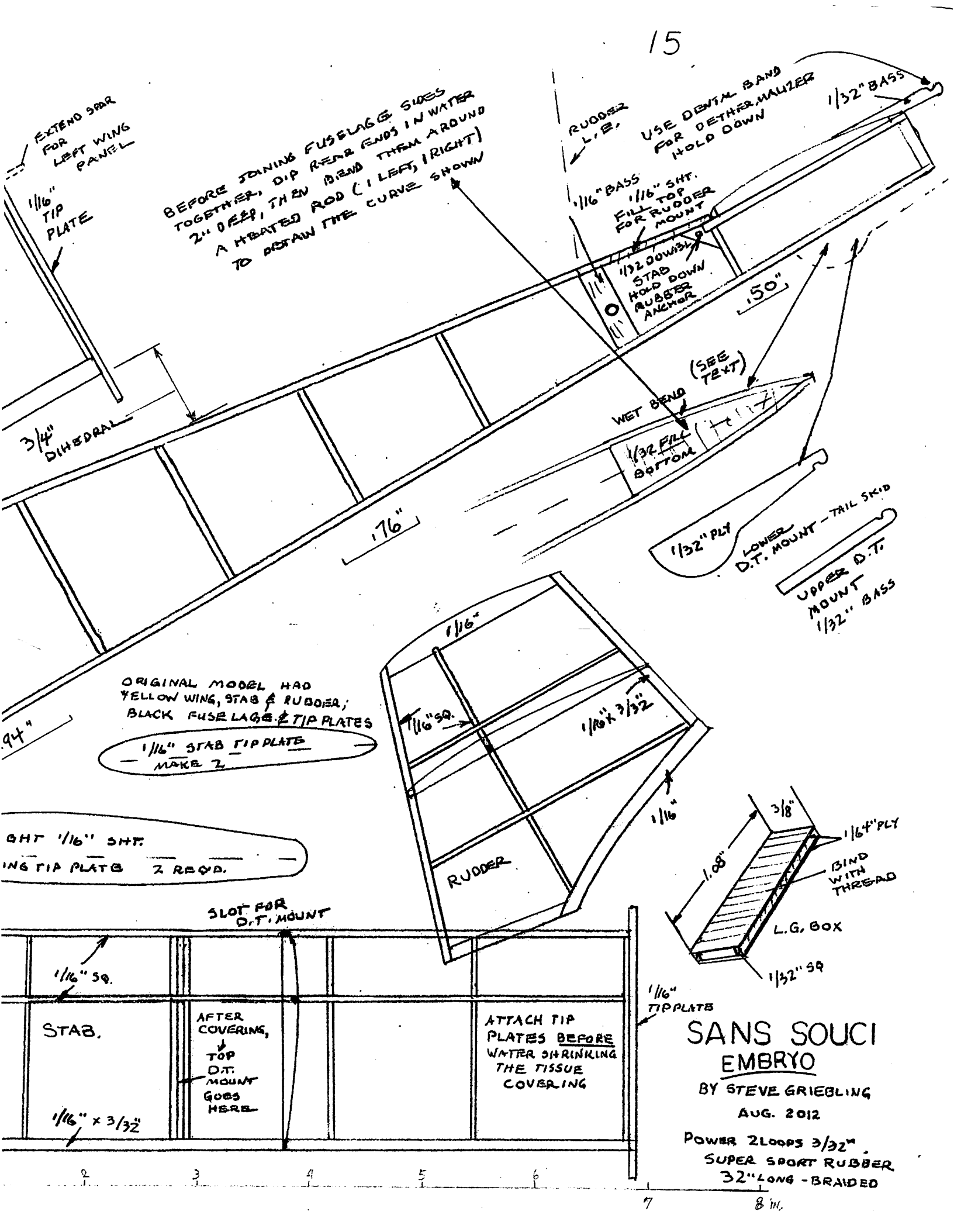
(*A. J. Jackson Photo.*)

De Havilland Aircraft since 1909
A. J. Jackson


G
H
J
K
L
18
NC
1/16 SQ.
1/32 x 1/16
FIN POST
1/32 SHEET
RUDDER
POST
PITOT
HEADS
TAIL BLOCK
AND SKID.
M
N
1/32 STRIPS
F
G
H
KING'S CUP RACE AT HATFIELD
1936 #8, Dark green Gloss. finish.
SCALE PROP.

THE DE HAVILLAND "T.K.2" 1935 32 Ft. W.S.





SANS SOUCI
EMBRYO

BY STEVE GRIEBLING

AUG. 2012

POWER 2 LOOPS 3/32" SUPER SPORT RUBBER 32" LONG - BRAIDED

16

2013 CFFS Contest Events at Lorain County Community College Field

Located on Rt.301/Abbe Rd. - I-90 Exit to Rt.301 S

Flight line accessible from main campus entrance or Hoag Rd., whichever is upwind

10:00 am to 5:00 pm

A. May 19 July 28 Sept 15

1. FAC Peanut Scale, Full points
2. FAC High Wing Cabin Peanut
3. FAC Dime Scale – 2012 rules
4. FAC Rubber Scale
5. FAC Embryo Endurance
6. FAC Two Bit O.T. Rubber
7. FAC Half Wakefiled
8. FAC Golden Age Combined
9. Earl Stahl Scale *
11. FAC Simplified Scale
12. AMA Hand Launched Glider
13. 13. 6" Stick Catapult Glider
14. FAC Jet Cat Glider
18. FAC Goodyear F1 Race Mass Launch 11:30
15. FAC Greve Race M.L. 12:30
16. FAC Thompson M.L. 1:30
19. FAC WW I Peanut Combat M.L. 2:30
20. FAC WW I Combat M.L. 3:30

B. June 2 August 18 October 6

1. FAC Peanut Scale, Full points
2. FAC High Wing Cabin Peanut
3. *FAC Dime Scale – 2012 rules*
4. FAC Rubber Scale
5. FAC Embryo Endurance
6. FAC Two Bit O.T. Rubber
7. FAC Half Wakefiled
8. FAC Golden Age Combined
9. Earl Stahl Scale*
11. FAC Simplified Scale
12. AMA Hand Launched Glider
13. 6" Stick Catapult Glider
14. FAC Jet Cat Glider
18. FAC Goodyear F1 Race M.L. 11:30
15. FAC Greve Race M.L. 12:30
16. FAC Thompson Race M.L. 12:30
21. FAC WW II Peanut Combat M.L. 2:30
22. FAC WW II Combat M.L. 3:30

* Earl Stahl Scale - any Earl Stahl scale design, any size. Bring your plan. 3 flight total.

FAC rules apply, with inspection of O.T., Simplified Scale, Embryo, and Dime Scale models prior to first flight. Bring your plan. FAC Pilot's checklist will be used in all non judged (total of three flight & mass launch) events. No size change for 26" max per O.T. plan. Flier must pre-select event for multiple option models. **Mass Launch events will start at posted clock times! Be ready!**

CFFS Special Events

Three events have been designated as "special" to encourage some model building out there. Flier's names will go into a hat for a drawing at the end of the season. Winner gets a $25 gift certificate for hobby supplies. You don't have to win the event to be eligible! Your name goes into the drawing every time you *enter* one of these events as long as you put up an official flight. The more you enter, the better your chances. This year's events are: **Earl Stahl Scale, Half Wakefield,** and **Jet Catapult Scale Glider.** If you're wondering which model to build next, I hope we've provided some inspiration. So turn off the TV and head to the bench!



Crosswinds readers with the **Dreaded Red X** at issue renewal code #144. or lower can avoid bitter disappointment by sending $20 to the address below for another year of Free Flight joy.

Russ Brown, 4909 N. Sedgewick , Lyndhurst, OH 44124