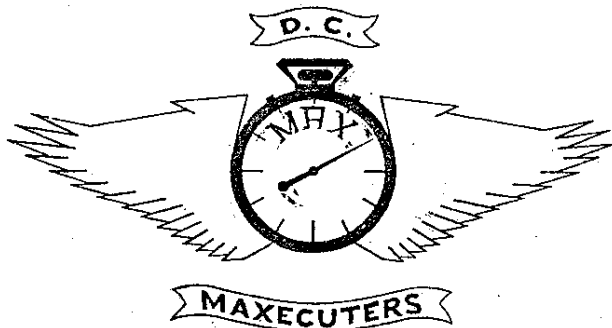


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"MEETING AT COLLEGE PARK AIRPORT--THE OLDEST AIRPORT IN THE U.S.A"

"MAX FACTS"

APRIL 1977 NEWSLETTER

NEXT MEETING OF THE D.C. MAXCUTTERS WILL BE ON WEDNESDAY, APRIL 6, 1977 AT 7:30 PM AT THE COLLEGE PARK AIRPORT---PLEASE COME AND HAVE SOME FUN.

UPCOMING EVENTS:

- March 25-- Indoor No-Cal (profile) scale contest at Kennedy High 7-10 PM. Rules: Balsa or foam construction, plastic prop, no condenser paper, must R.O.G.
- April 1 -- HMFIC April Fool Event--see last month's Max Facts for rules-Kennedy High. Allan Schanzle (the HMFIC) will direct this fiasco!
- April 17-- Glastonbury Conn. Indoor Scale Contest. See Model Aviation for rules on this event.
- April 21-- Outdoor Hand Launch Glider and Catapult Glider Season Starts. These will be monthly on the 3rd Thurs. of the month through September. Held at COMSAT flying site. Bill Clarke (OHLG) and Ray Rakow (CAT) will direct.
- May 28 -- D.C.MAXCUTTER THOMPSON-GREVE TROPHY EVENT and EMBRYO ENDURANCE events will be held at the COMSAT field. These will start a 10:00 AM and go until finished. Rules are those of the F.A.C.--see March Max Facts for condensed version of rules. RAIN DATES May 29, May 30.
- June 5 -- F.A.C. OUTDOOR SPRING MEET. LOCATION--Durham Conn. (6-7 hours driving time) Events: P-Nut Scale, F.A.C. Scale, No-Cal, Embryo, Greve and Thompson Trophy Events. Make this one cause it will be fantastic--several of us are going up--let Pat Daily know if your interested.
- July 16 -- M.A.S.S. and D.C.Maxcutters will hold a RC schoolyard scale event at the COMSAT site. See info in this issue of Max Facts.
- August--date Aug 27 --WORLD WAR I and II Rubber Scale Combat Events. --at COMSAT rules similar to Thompson Event.

CLUB HAPPENINGS -- by Pat Daily

The last two Kennedy sessions have been a mob scene--at least 55 people last time--This calls for an appeal to EVERYONE to please keep your eyes open and clear the center of the floor when not actually launching an airplane. Too many models are being damaged by careless flyers--BE ALERT GUYS!!! ---but also have FUN

This issue of Max Facts is rather large due to the inclusion of rules and ideas about school yard scale by Don Srull. See the recent issue of Scale RC Modeler for more about school yard scale. Also in this issue are some original plans by yours truly and a piece about EMBRYO planes by ALLAN (HMFIC) SCHANZLE - watch out cause he already has an embryo that is going to be hard to beat.

Speaking of Embryo Endurance--that meet scheduled for Feb 27 was rescheduled to May 8 due to the twenty knot winds and rain that cancelled the Feb 27 event. So start building one of these little monsters--OFFICIAL NOTICE --GHQ has decreed that 70 sq in wing areas are allowed on EMBRYO BIPLANES as long as one wing is no larger than 45 sq. in.

Pat

SOME THOUGHTS ON EMBRYO ENDURANCE

Some guys are never satisfied, even when it comes down to their hobby. If AMA would create 42 different scale events, these guys still couldn't (or wouldn't) win due to a phenomenon called talent. I know, cause I'm one of those guys. Two of my favorite trophies are for "Lowest Men's Bowling Average, 1971," and "Most Double Faults" in a 1975 tennis tournament. But a real measure of my past success is inscribed on a trophy awarded in a 1965 golf match, and reads, "Least Number of Shanks Into Snake Creek," - I had only 7.

So be it - if you fall into this category of Gods ungifted, then you understand why so many new events are created for model aircraft. We who create these new events hope that nobody else will be interested enough to build a stupid model, thus guaranteeing the first place trophy for ourselves.

So now we have another event - "Embryo Endurance." Sorta sounds like it was "conceived" by a frustrated, model building, gynecologist. But alas, this is not a new event, and several of these planes are already winging their way into the trees of COMSAT, so obviously, there is no reason to get involved, right??? - WRONG!!! Once again we come to your rescue with all types of pertinent poop from days gone by, namely the gospel according to Charles Hampton Grant.

I've always wanted to apply his theories to some practical situation, but was never motivated until 'ole E.E. came around. Consequently, I used this old (1945) book to design my (???) contribution to E.E. I've decided to call it "PRE-FETUS," which is kinda clever if your hip with medical lingo. Otherwise, Webster will be glad to explain it to you.

C.H. Grant's book is beautiful, as he gives examples so that even a neophyte can succeed. (Cripes!!! - the dust hasn't settled from getting Webster off the shelf the first time, and now he pulls neophyte outa his center hip pocket.) One thing for sure - this dude is so stable that a 30 mph gust of wind won't even blow it off a card table. But that is part of C.H.G.'s design philosophy, and I 'taint gonna knock it before I give it a fair shake.

Why not consider one of these little jobbies for yourself. They are relatively quick to build, and the whole design process, including the drawings, took only 2 1/2 hours. If interested, let me know and I'll get you a copy of the CHG recipe.

Schanz

Building for Schoolyard Scale R/C

With our second annual Schoolyard Scale contest scheduled for this coming July 17, I was asked to jot down some thoughts on suitable airplane kits, radios, building tips, and other miscellaneous trivia. The general idea is to get more of you dedicated free-flyers to start thinking and building for the July shoot-out.

The availability of extremely light-weight and reliable radio systems now means that the possibilities are almost limitless for compact, light-weight scale models. These small models can be powered by anything from .01 to .049 glow engines, and even electric and CO₂ are now feasible. The total airborne weights of some of the more common and applicable radios are-

Single Channel (pulse)

Ace	Baby System-----	2.1 oz.
	Baby Twin*-----	2.3
	Standard -----	3.1
Mattel (cheapo at \$30)	-----	4.5

Multi Channel (digital)

Cannon	Mini (1973) 2 channel -----	5.1 oz.
	Super Mini 1 " -----	2.6
	2* " -----	3.2
	3* " -----	4.1
	4 " -----	5.0

Cox Sanwa

2 channel (cheapo at \$65 - 80)-----	6.8 oz.
---	---------

The asterisks indicate my personal recommendations for radios suitable for general sport flying or Schoolyard Scale competition. I am sure there are many other fine radios, but I am personally familiar with these and all things considered, they would be hard to beat.

One of the most important parameters that determines how well a model flies (whether free-flight or R/C) is its wing loading; that is, the total weight of the model divided by its wing area. The modeler has control over this parameter in three ways: the size of the model he selects (in terms of wing area), the weight of the payload he puts in it (that's where the light radios help), and how light he can build and cover the airframe. You have often heard the claim that any extra weight in a model can be simply overcome by using a larger, more powerful motor. Don't you believe it! All other things being equal, the higher the wing loading, the more difficult and tricky a model becomes to fly. For example, increased take-off and landing speeds, less maneuverability, lower top speed, higher stall speed and a greater tendency to stall all accompany higher wing loading. Obviously, this isn't what you want to build into your

beautiful new Schoolyard Scale winner. In my view, however, the worst effect of an overweight scale model is that it looks rotten while flying. How many times have you seen a museum quality model on the ground that looked like a turkey in the air? Too often I'm afraid. A Jenny flying at 250 mph scale speed, a Mach 2 P-51, or a B-17 doing snap rolls turns me off. Flying scale to me means flying scale-like. Anyhow, too high a wing loading is invariably the culprit. If you do want to achieve scale-like flight you will find that in most cases it is very difficult, if not impossible, to achieve truly scale speed (would you believe a 36 inch span model of a PT-1 should fly at about 8 mph for scale top speed and land at less than 4 mph!) So the message is build as light as you can--- that's one of the reasons that free-flight modelers who are used to building rubber scale with light and efficient structures have a real advantage over the usual R/C (brick) builders.

Lighter weight models can also be flown with safety in smaller fields than their heavyweight counterparts. It isn't necessary that the lighter model be more fragile either, if it is carefully designed and constructed. In fact, poor landings and minor crashes more likely will result in major damage to the heavy model rather than the light one. So that's my case to keep all models as light as you can, and that includes Schoolyard Scale R/C.

But how light is light, and what's acceptable? After measuring lots of model's wing loadings, and noticing how they seem to behave in the air, here are some general rules of thumb (rule of thumbs?) I have evolved that might be of some help. For an easy flying model that can be flown from small and restricted areas, try to keep the wing loading below 10 ounces per square foot of wing area; 6 to 8 ounces per sq. ft. would be great. For generally good sport flying characteristics, safe for moderately large areas 10 to 14 oz. per sq. ft. is all right. Of course if you have some flying experience, and are flying from a large, clear field, wing loadings up in the region of 16 to 24 oz. per sq. ft. are not unusual. However, for a 36 to 40 inch model at these wing loadings you would be flying at scale speeds of about 500 to 1000 mph. So if it's a Heinkel He 100 V-8 you are flying O.K., but please not a Comper Swift. For the Comper or for something like a Fokker D-8 the wing loading should be down in the vicinity of 8 or 10 oz. per sq. ft. to get anywhere near scale speed. Down nearer 6 would be ideal.

For the way I build I find that a ^{model with} area between 100 and 200 sq. inches, if built reasonably light, will usually result in loadings between 8 and 10 oz. per sq. ft. with a payload of 3 ounces. For areas of 200 to 400 sq. inches, I can easily get these same wing loadings in models powered with an .049 and carrying 5 or 6 oz. of radio. For example, my 50 inch span Megow Taylor Cub (originally designed for rubber) has 360 sq. inches of area and weighs just about 1 pound, for a 7 oz. per sq. ft. loading. It flies at realistic speeds on a sick .049 and with two channels of old Cannon radio.

Here are some of the commercial kits I have found to be easily adapted to either pulse rudder or small two channel radio. I have included a few non-scale sport types that might be good first models to get the feel of radio flying .

SPORT/TRAINER

<u>Kit</u>	<u>Channels</u>	<u>Engine</u>	<u>Span</u>	<u>Wing Area</u>	<u>Target Weight</u>
Cox Q-Tee	1-2	.049	36"	252 in. ²	12-18 oz.
Ace Dick's Dream	1	.02	34	165-190	10-12
Top Flight					
Schoolboy	1	.02	27½	155	9-10
Roaring 20	1	.01	20	100	6-8
Goldberg					
Ranger 42	1-2	.049	42	240	20-24
Jr. Falcon	1-2	.049	37	250	18-22
Sterling Mini-Mambo	1-2	.049	36	216	12-18

SCALE

Guillow

SE-5	1	.02	24	190	10-12
Stuka	1-2	.02-.049	34	184	10-14
Spitfire	1-2	.02	27	150	9-12
P-40	1	.02	28	135	9-11
Sig Fairchild 24	1-2	.02	36	190	10-14
Flyline					
Aristocrat	1-2	.02-.049	36	204	9-12
Bellanca	1	.02	34	163	6-10
Robin	1-2	.049	41	240	10-14

Jetco

Rearwin Speedster & Piper Supercruiser	1-2	.049	38-40	200-215	14-18
Comet Taylorcraft & Aronca	1-2	.049	54	350-390	16-24

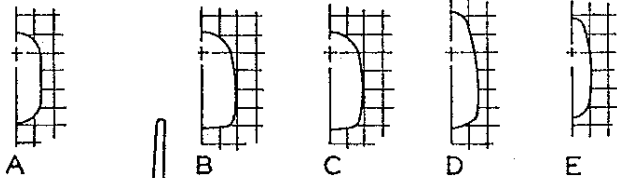
There is also a tremendous number of magazine articles and plans that are well suited for Schoolyard Scale. Most of these were designed as large rubber models or gas powered free-flight scale, rather than R/C designs. The Aeromodeller series of plans , for example, has at least 50 outstanding scale plans available which would be directly adaptable to Schoolyard Scale use with pulse rudder or two channel radio. Several Earl Stahl designs that appeared in old Air Trails and Model Airplane News are also good subjects. His rather large , early model of the P-51 would make a dandy pulse rudder job. I have built his 36 inch span Boulton Paul Defiant and it flies beautifully on a TD.02 with a Cannon two channel radio.

So what are you waiting for? Start building----light and pretty.

Don Srull

Feb. 1977

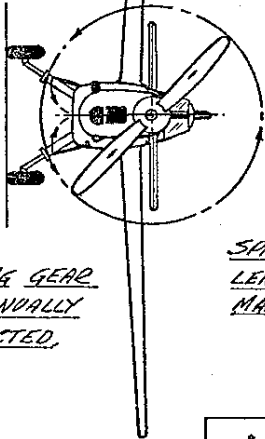




WING AND STABILIZER CONSTRUCTION:
SPRUCE RIBS AND SPACS COVERED
WITH PLYWOOD AND DOPED FABRIC.

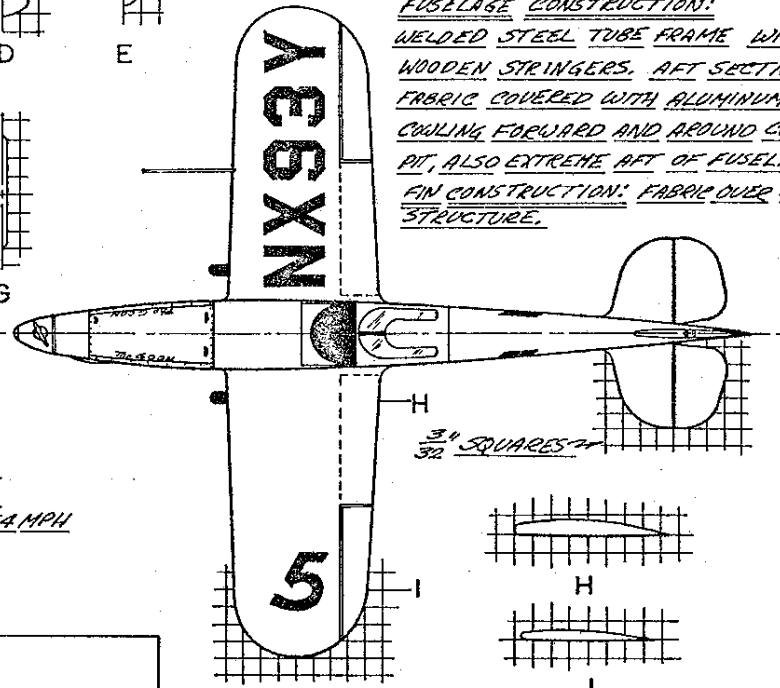
FUSELAGE CONSTRUCTION:
WELDED STEEL TUBE FRAME WITH
WOODEN STRINGERS. AFT SECTION
FABRIC COVERED WITH ALUMINUM,
COILING FORWARD AND AROUND COCK
PIT, ALSO EXTREME AFT OF FUSELAGE
FIN CONSTRUCTION: FABRIC OVER WOOD
STRUCTURE.

SCALE $\frac{3}{16}'' = 1'$

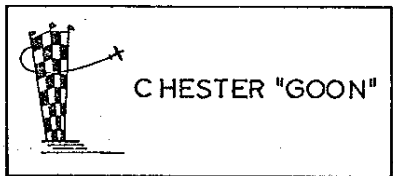


LANDING GEAR
WAS MANUALLY
RETRACTED.

SPAN - 18' 6"
 LENGTH - 20' 6"
 MAX SPEED - 264 MPH



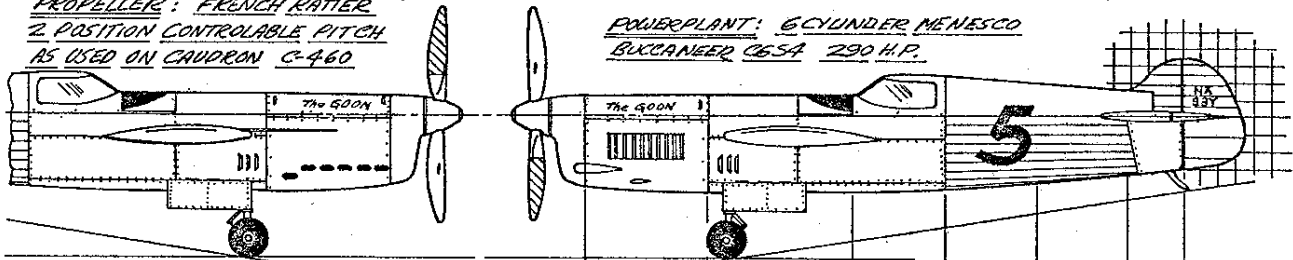
$\frac{3}{32}$ SQUARES



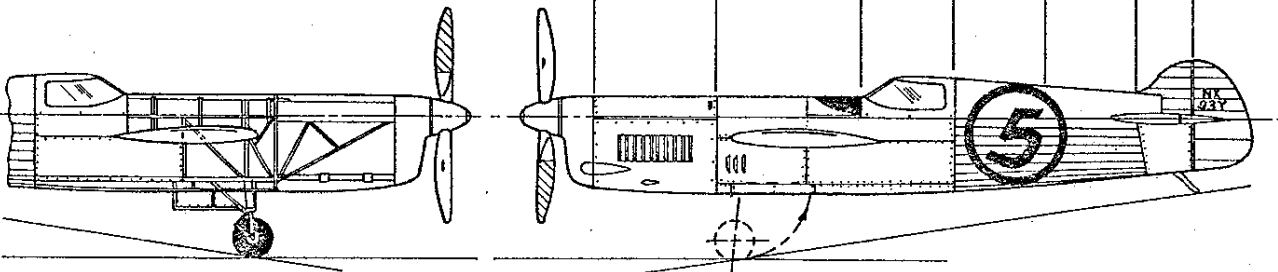
COLOR SCHEME: LIGHT CREAM WITH
BLACK LETTERS AND TRIM. CIRCLED "FIVE"
WAS FOR MOVIE MAKING PURPOSES ONLY.

PROPELLER: FRENCH RATER
2 POSITION CONTROLABLE PITCH
AS USED ON CAUDRON C-460

POWERPLANT: 6 CYLINDER MENESCO
BUCANEER C654 290 H.P.

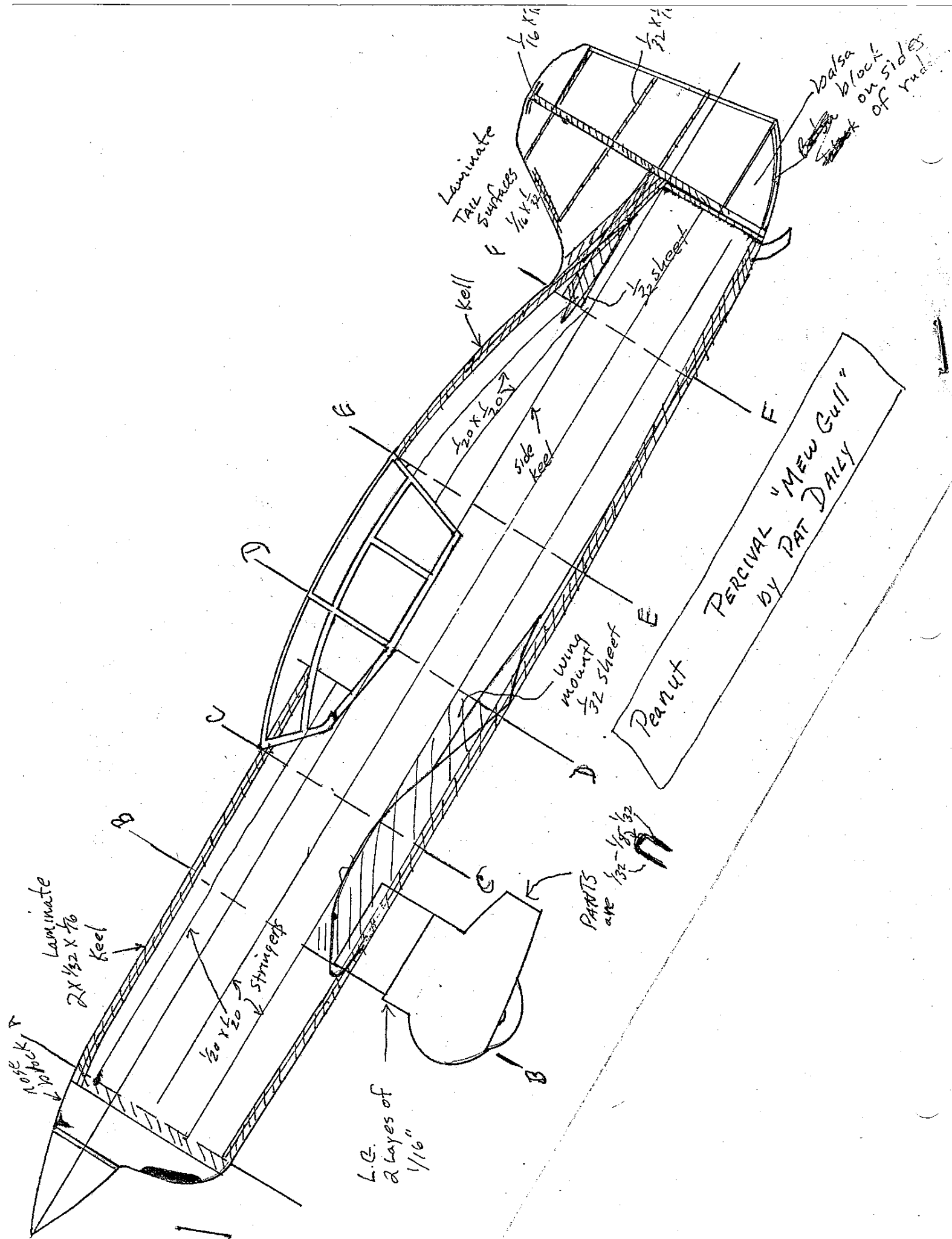


LANDING GEAR DOORS WERE AUTOMATICALLY
CLOSED BY RETRACTION OF GEAR LEAVING
FUSELAGE BOTTOM SMOOTH.



ABOVE VIEW SHOWS ENGINE MOUNTING,
FUEL TANK BETWEEN COCKPIT AND
FIREWALL AND VIEW OF RETRACTABLE
LANDING GEAR OLEO SHOCK STRUT.

INTRODUCED AT THE 1938 NATIONAL AIR RACES BY ART CHESTER
THE GOON WON 2ND PLACE IN THE GREVE TROPHY RACE AT 250.42 MPH
IN THE '38 THOMPSON CHESTER WAS FORCED OUT WITH PROPELLER PROBLEM.
IN 1939 CHESTER WON GREVE RACE AT 263.39 MPH BUT AGAIN HAD
TO WITHDRAW FROM THOMPSON WITH ENGINE TROUBLES.



PERCIVAL "MEW GULL"
BY PAT DAILY

L.C.
2 Layers of
1/16"

PARTS
are 1/32 - 1/8 - 1/2

Balsa block
on sides
of rudder

Laminated
Tail
Surfaces
1/16 x 1/32

Laminated
keel
2x 1/32 x 1/16

nose block
1/16 x 1/32

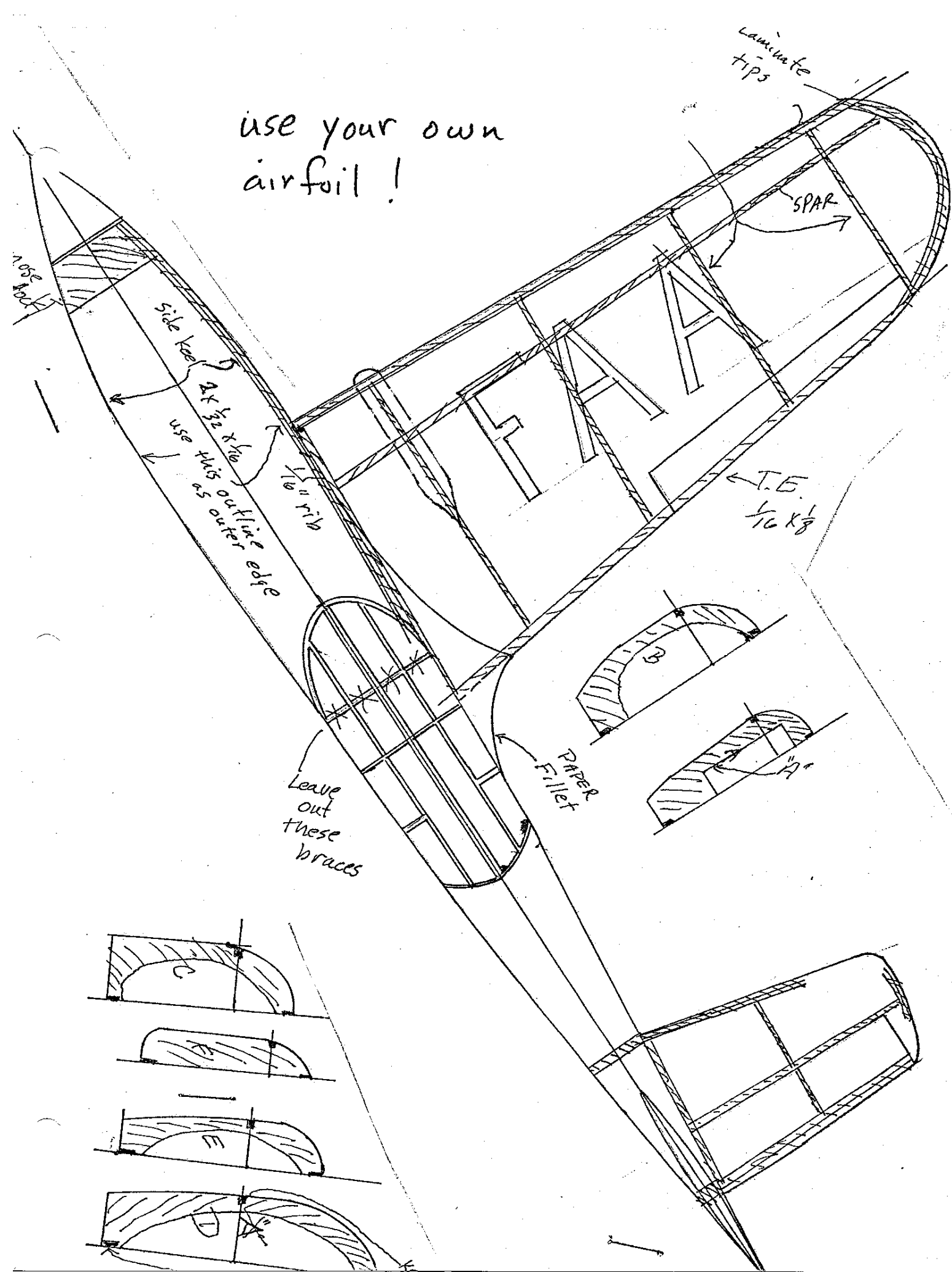
Stringers
1/8 x 1/2

wing
mount
1/32 sheet

side
keel

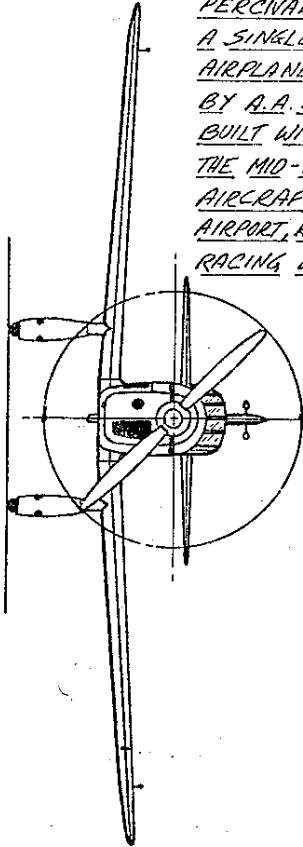
Peanut

use your own
airfoil!



THE "MEW GULL" IS ACTUALLY A SECOND ATTEMPT BY EDGAR PERCIVAL TO DESIGN AND BUILD A SINGLE SEAT COMPETITION AIRPLANE. CRAFT WAS DESIGNED BY A.A. BAGE AND FIVE WERE BUILT WITH VARIOUS ENGINES DURING THE MID-THIRTIES BY PERCIVAL AIRCRAFT LTD. @ GRAVESEND AIRPORT, KENT. CRAFT WON MANY RACING EVENTS IN U.K.

FUSELAGE CONSTRUCTION: ALL WOOD FORMERS, LONGERONS, STRINGERS, WITH PLYWOOD COVERING. ALUMINUM ENGINE COWLING. WING CONSTRUCTION: ALL WOOD SPARS & RIBS. PLYWOOD COVERING. FABRIC COVERED AUERONS. TAIL CONSTRUCTION: WOOD FRAMES. PLYWOOD COVERED FIN & STABILIZER. FABRIC COVERED ELEVATOR & RUDDER.

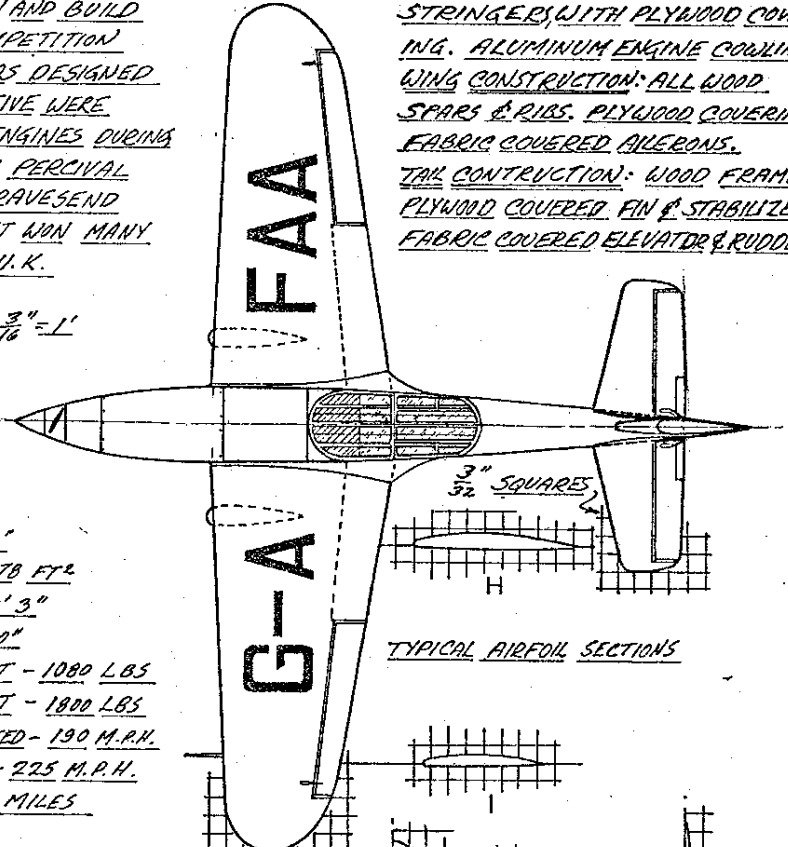
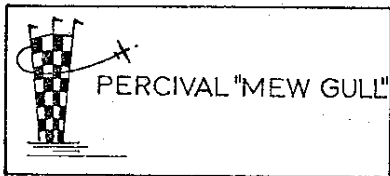


SCALE: $\frac{3}{16}'' = 1'$

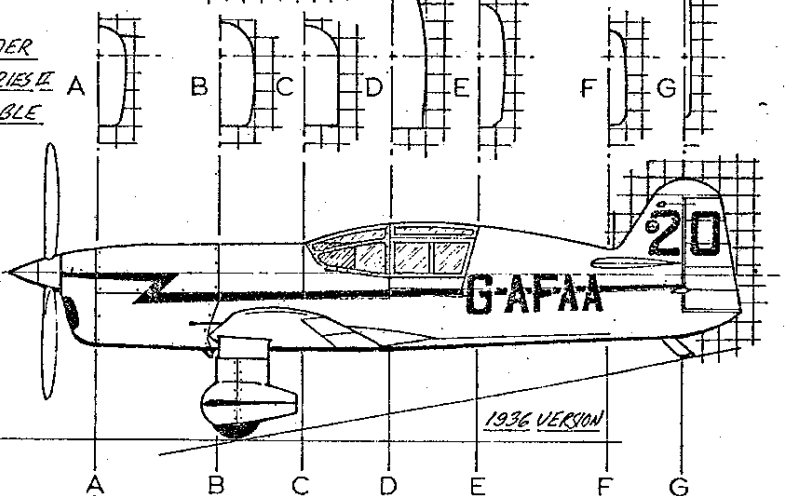
SPAN - 24' 0"
WING AREA - 78 FT²
LENGTH - 20' 3"
HEIGHT - 6' 10"
EMPTY WEIGHT - 1080 LBS
GROSS WEIGHT - 1800 LBS
CRUISING SPEED - 190 M.P.H.
MAX. SPEED - 225 M.P.H.
RANGE - 575 MILES

POWERPLANT: ONE LIQUID COOLED 6 CYLINDER 205 HORSEPOWER DE HAVILLAND GIPSEY SIX SERIES II A
PROPELLER: DE HAVILLAND ALL METAL VARIABLE PITCH AIRSCREW.

NOTE: WHEEL PANTS WERE DURAL.



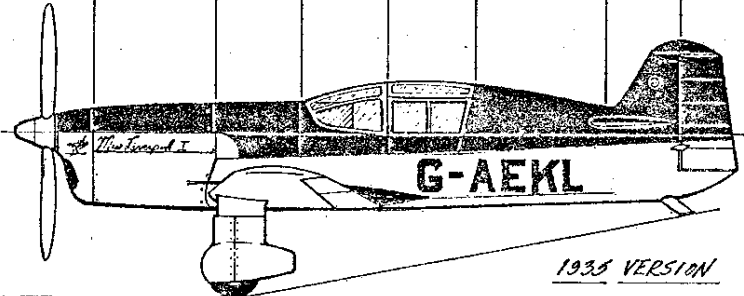
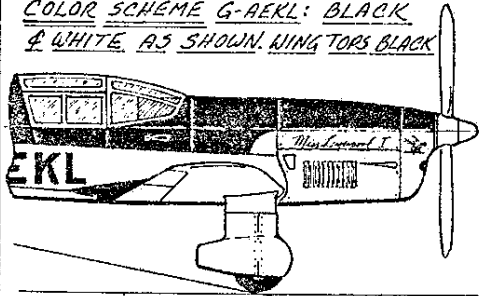
TYPICAL AIRFOIL SECTIONS



1936 VERSION

COLOR SCHEME G-AFAA: ALL WHITE WITH BLACK MARKINGS.

COLOR SCHEME G-AEKL: BLACK & WHITE AS SHOWN. WING TIPS BLACK



1935 VERSION

CH

The M.A.S.S. + The D.C. MAKECUTERS
are announcing a

Schoolyard

SCALE

R/C CONTEST

DATE: JULY 17, 1977 (SUNDAY) rain date July 24

LOCATION: COMSAT FLYING FIELD (on 270 north of Gaithersburg, MD)

TIME: JUDGING STARTS AT 8:30 AM
FLYING STARTS AT 9:00 AM and goes until dark!!

RULES: Max engine size .051, any scale aircraft eligible as long as it is R/C and engine is less than .051 --any size electric engines allowed. See attached rules for events etc.

EVENTS: SINGLE CHANNEL (only Pulse systems or escapement)
MULTI-CHANNEL (two or more channels)

FOR JUNIORS UNDER 16 A NONSCALE EVENT WILL BE HELD ALSO

PRIZES: FLYLINE MODELS WILL PROVIDE KITS TO WINNERS!!!!

COME ON OUT AND HAVE SOME FUN WITH US!!!!

Don Guill
6-76

PROVISIONAL RULES FOR SCHOOLYARD SCALE R/C COMPETITION

A new sport scale R/C event is proposed. It is called Schoolyard Scale and includes two separate events for models powered with engines up to .049 in size; one event for rudder-only aircraft and another event for two channel aircraft. As the name implies, Schoolyard Scale is designed to be a fun, low-pressure event for the sport flier. The compact and inexpensive one and two channel radios and models are not beyond the means or capabilities of the average modeler. Best of all, the average schoolyard baseball field or playground is adequate to fly these miniature aircraft. So, for all of you who have had an urge to jump into some kind of scale activity, but do not like the hassel of giant, noisy models and complicated competition, Schoolyard Scale is here to the rescue!

General

A scale model shall be a replica of a heavier-than-air, man-carrying aircraft. Only prototype aircraft that actually made flights can be selected. Both the scale and flight judging are designed to encourage a wide variety of scale entries - all types have an equal chance. Only one model per event may be entered by each contestant.

Proof of Scale: In order to get static scale points, each contestant must have at least a three view drawing of the aircraft from a reliable source such as a model magazine, scale kit plans, manufacturer drawings, etc. To assist in judging his model, the contestant may also submit photos, color information, construction information, etc.

Static Judging: One or more judges will evaluate each entry in terms of fidelity to scale, difficulty of the subject to model, and general workmanship/appearance. Each of these three categories will receive equal weight. The "difficulty" criteria will help to encourage novel and off-beat subjects. Here is where a Piper Cub or a Lacey will suffer compared to a Ford Trimotor or a ducted fan model of a Hawker Hunter. On this basis, the "Mooney System" of ranking all entries is used (the best model is number 1, the second best is number 2, etc.).

Flight Scoring: One or more judges will rate a set of mandatory maneuvers and optional maneuvers on a ten-point scale. The rating will be based primarily on scale-like performance and secondly on precision of the maneuver. 10 points will be awarded a scale-like, precisely executed maneuver. 0 points to an unrecognizeable disaster, or an omitted maneuver. The point sum of all maneuvers will be the flight score for a given round. If time allows, the contest director will allow 2 or 3 rounds to be flown by each contestant. The highest round score will be the contestant's flight score. All contestants will be ranked by flight score; that is, highest flight score is number 1, second highest flight score is number 2, etc. In case of ties for any static or flight ranking, each contestant will receive that ranking (For example, if two contestants have equal flight scores for third place, each of them will be ranked number 3; the next best score will receive number 4, etc.)

Total Scoring

The static rank and the flying rank will be added for each contestant. The lowest point total wins. In case of ties, the static scale scores will predominate.

Flight Maneuvers

Single Channel

The single channel class consists of any scale model powered by an .049 or smaller engine. No size limit is imposed. The radio system can only be a "pulse" or escapement system operating rudder or ailerons. Digital servos are not allowed. A time limit of 5 minutes from the time the engine is started is allowed to complete the following 7 maneuvers: Each maneuver will receive from 0 to 5 points.

1. Hand launch and climb-out.
2. Straight flight out, to a spot 100 to 200 feet from the launch point.
3. Procedure turn, involving a 90° left and 270° right turn.
4. Straight return flight over the transmitter.
5. Figure eight.

6. Optional "hot-dog" maneuvers until engine quits.
7. Landing approach perfection, which begins when the engine stops and ends when the model touches down. It is judged by smoothness and realism of the approach and how close it comes to a landing area 20 feet in diameter designated by the CD. The actual touch-down and roll out are not judged (ie; a nose over does not lose points).

For every minute over 5 minutes the model is airborne, 5 flight points will be deducted from the flight score.

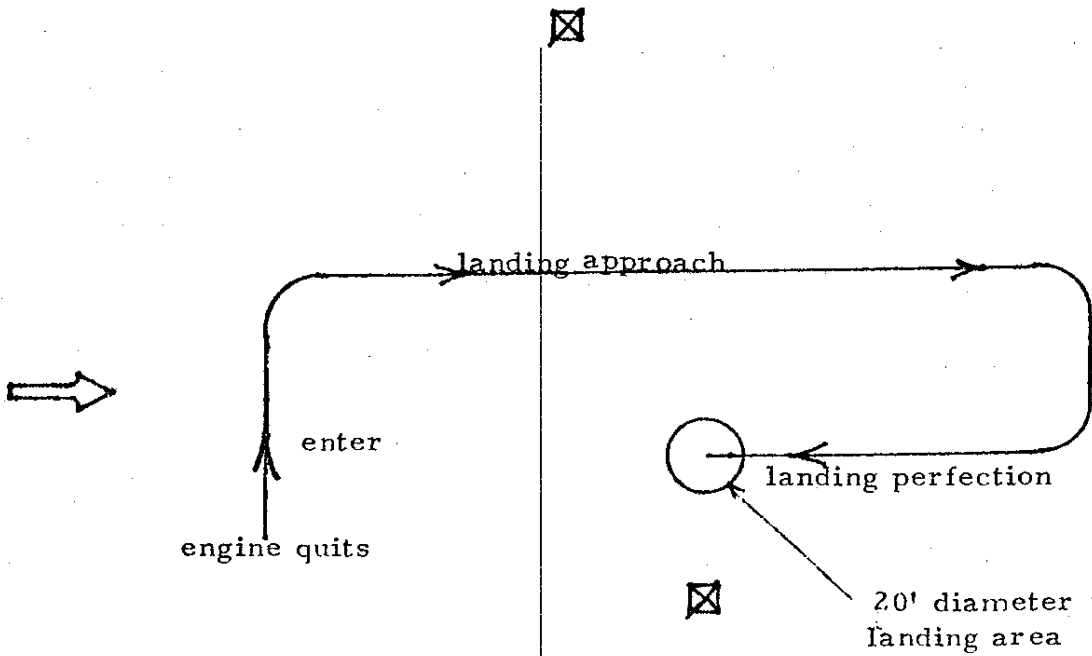
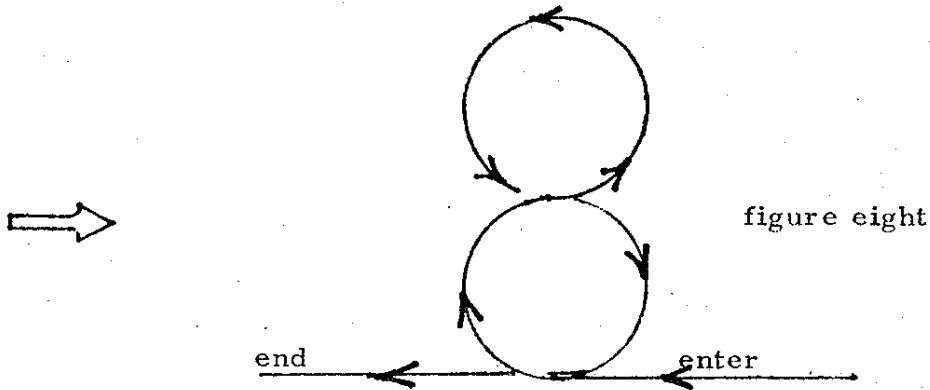
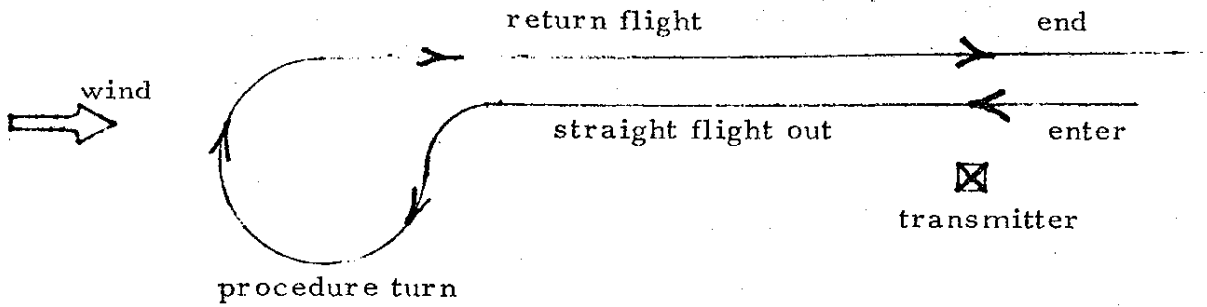
Two Channel

The two channel event is for aircraft powered by up to .049 engines (lcc for diesels). Any radio system operating any two functions is acceptable. No size limit is imposed. A time limit of 7 minutes following the engine start is allowed for the following 10 maneuvers. From 0 to 5 points is awarded each maneuver.

1. Unassisted ROG (or hand launch at CD option).
2. Straight flight out.
3. Procedure turn.
4. Straight return.
5. Figure 8.
6. Optional maneuver, listed by the contestant before the flight, which the real aircraft could perform. (wing-over, loop, barrel roll, immelman, one-turn spin, inverted flight, low altitude fly-by, etc.)
7. Optional.
8. Landing Pattern approach (following engine shut-off).
9. Landing Perfection, including touch-down but not roll-out (ie; a nose over after a smooth touch down loses no points)
10. Spot landing. The same number of points given in maneuver 9 are awarded maneuver 10 if the model touches down in a designated landing circle of 20 foot diameter.

For every minute over 7 minutes the model is airborne, 5 flight points will be deducted from the flight score.

SCHOOLYARD SCALE R/C MANEUVERS



CONTACT PAT DAILY
960-1298 for more details

John Sites
1802 McAuliffe Dr.
Rockville, MD. 20851

