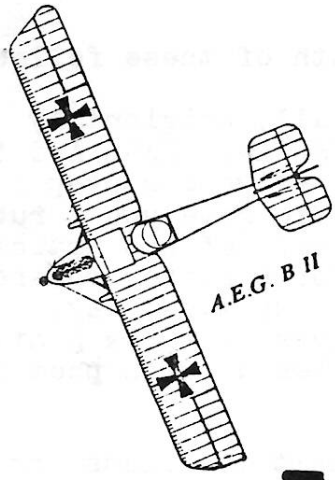
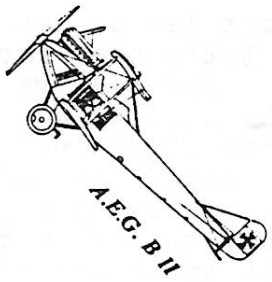




MAX-FAX

THE NEWSLETTER OF THE D.C. MAXECUTERS

JULY/AUG 1981

MEMBERSHIP

Dues for membership in the D.C. Maxecuters is $9.00 per year for residents of the U.S.A. Your mailing label indicates the year and month of the last issue of MAX-FAX for your current membership. A red mark in the box below is a reminder that your current membership is nearing its end. Send a check, payable to D.C. Maxecuters, to the Treasurer.

DUES REMINDER ☐

MEETINGS

The D.C. Maxecuters hold meetings on the first Wednesday of every month at the College Park Airport, the oldest continuously operating airport in the world.

PRESIDENT

DUDLEY PRISEL
5118 Alfred Dr.
Waldorf, MD
20601

SECRETARY

JOHN SITES
1802 McAuliffe
Rockville, MD
20851

TREASURER

ALLAN SCHANZLE
8311 Exodus Dr.
Gaithersburg, MD
20760

UPCOMING EVENTS

EVERY FRIDAY NIGHT that the weather permits, the MAXECUTERS will be found at the COMSAT flying field . Come join us, 6:00 PM 'til dark.

AUG 16 1981, Durham Conn. FAC Scale, Peanut, Embryo, No Cal, and the Races.

SEPT 12 1981 . The MAXECUTER summer fun fly at COMSAT. Rain date is Sept. 13. See Flyer in this issue and notes below for updates.

CLUB NEWS

ALLAN SCHANZLE

THIS ISSUE is being put together by Allan Schanzle, but its value would be next to nil if it wasn't for the contributers. Let's start with our current president, Dudley Prisel, who offers a very interesting and readable opinion on low speed aerodynamics. His purpose is not to blow your brains out with technical know-how, but to offer some ideas that are understandable to all. He concludes with his opinion of the best airfoils for our type of flying; i.e., rubber scale. And Frank Renaut, up Baltimore way, has some ideas of his own on airfoils, which he has contributed. Surely there must be at

least ten of you out there who disagree with either or both of these fellows, so let's hear from you.

Our feature plan for this issue is a RYAN FR-1 Fireball, origionally published by Joe Wherry in the Feb 1946 issue of MODEL AIRPLANE NEWS. And for those of you who would like something a little different, we've dug deep into the bowels of our back issues of FLYING MODELS (Aug 1951) to give you a rubb helicopter by Roy Clough. We've also included a complete copy of his article, since this is a rather unusual building project. Anyone for a rubber powered helicopter event at the 1982 Indoor Contest? Mark Fineman, up Mass. way, has sent us plans for a cute little canard pusher, and gives us a few hints on how he makes Vac-U-Form molds. Tom Schmitt again supplies us with photos, and some three-views top it off.

IT HAS been called to our attention by Stew Meyers that the plans for the Nieuport 17 C listed in the last issue is his design, and not by Pat Daily. Our humble apologies! Anyone else find any other boo-boos?

YOU MAY recall we've said some pretty nasty and sarcastic things about AMA in past issues, particularly about having your names printed on the AMA election ballots. Now check page 75 of the July 1981 issue of MODEL AVATION.

> 1. AMA ELECTIONS. It was unanimously approved that future ballots would have the AMA number imprinted for verification, but not the AMA member's name and address.

It's my opinion that this is a good move, but I still question the use of the AMA number "for verification". Verification of what? That someone doesn't stuff the computer system? I know from 25 years of computer experience that you can use sneaky little techniques to catch someone who would try such a thing. And really, I find it hard to conceive of anyone taking the time to duplicate ballots, not to mention absorbing the cost of such a boondoggle. I guess I'm old fashioned about the concept of the secret ballot.

BUT LET'S not be unfair. Also check item 14 in the AMA agenda list, which deals with an AMA sponsored proposal to have Homeowners insurance cover model aviation accidents. Now that's a good move, particularily if us rubber powered addicts can be freed from paying a portion of the insurance for those who fly the much more hazardous models.

A NEW POLICY will be invoked regarding your "dreaded red X" in the dues reminder box. In the past, we have been marking the last two issues for your current membership. But since practically everyone pays when the dues are due, we will now begin to mark only the last issue.

WE WANT TO THANK all of you out there who send us complimentary notes along with your checks for membership renewal. They are greatly appreciated and help to motivate us to continue in this endeavour. And if anyone has suggestions for plans, articles, or whatever, please let us know. We'll do the best we can to accomodate you.

RECENTLY, local member Stew Meyers sent off an order for plans from Tom Thumb Sky Tracings (11333 N. Lake Shore Dr., Mequon WI 53093) and received, in addition to the plans, a rather unique note. In part it said, "As for the D.C.MAXECUTERS, I've been reading about you guys for years. I feel awed to be providing plans to such an august group." Now that's nice to hear, but the next sentence brought pains from laughter. I'm sure we've all heard of people who "have it all together", but here's a new twist to this colloquial expression- "Don Srull truly has his sh-- in one sock. I do like what he designs". Now here, guys, is someone who made my day. To "have it all in one sock" tickled the funny bone for days. Now Don, are you right footed or left footed. I want to keep on your "best" side.

FINALLY, a note regarding our Summer Contest. The GOLDEN AGE mass launch event, as defined by the MAXECUTERS, is currently restricted to aircraft designed between 1920 and 1935. The 1935 date was selected to exclude early WW-II aircraft, but unfortunately, this also excludes, among others, the Piper J3, Cessna C-37, and Stinson Taperwings, which are truly Golden Age. So, as of now, Golden Age is redefined as any aircraft designed between 1920 and 1935 as well as any aircraft designed between 1935 and 1940 that was not specifically created for military use.

AND ONE MORE thing that we overlooked on the flyer for our Summer contest in the last issue. The tank that comes with the new Brown CO_2 peanut engine is a little smaller than the standard 3 cc tank we've seen on the other engines. I think the peanut tank is 2 cc, but whatever it is, you are limited to integer multiples of this size. That is , a twin peanut is limited to 4 cc, trimotor to 6 cc, etc. Yea, I know they don't make a 4 cc tank, so you'll just have to use a 3 cc one or two 2 cc goodies. That may not seem fair, but we're open to suggestions, for next year.

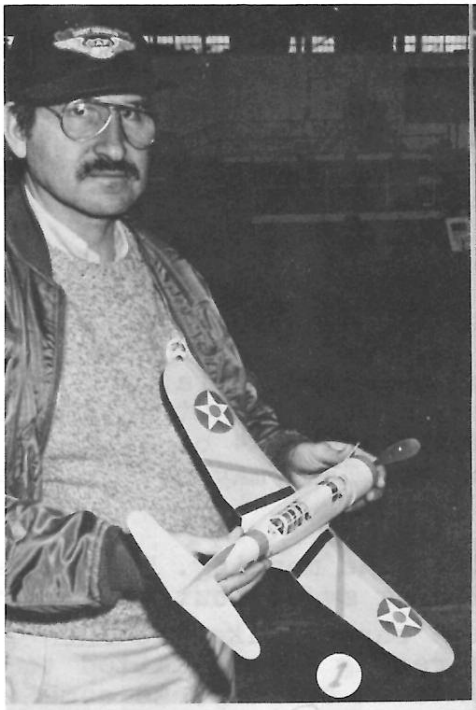
AND A LAST minute update due to a voting at the June meeting. The contest will have an additional two events- Embryo and a Racing event, but this latter event will be a single launch for Thompson and Greve racers like the FAC AEROL. Last one down is the winner. Trophy for the racing event limited to first place only. This makes a total of twelve events in one day, so come with things well trimmed out, or pick your events carefully.

AND NOW, the final "FINALLY". We will have a BYO picnic after the contest Instead of BYO, perhaps we could prevail upon someone to head down to the local choke 'n puke to purchase some barf-burgers.

PHOTO PAGE

by Tom Schmitt at the SOTS April contest

1. Stew Meyers and his colorful SB2U. Cocked glasses and broad smile indicate one of Stew's happier monents at the contest.
2. Scott Paisley contemplates his Earl Stahl Skua. "Oh shoot, that little warp in the right wing won't hurt anything."
3. Fred Ewing and his Gadfly. Stew Meyers joins in the prayer meeting.
4. Golden Age in the Hindenburg Hilton. Rolf Gregory with Bellanca and young Woody Eggert.
5. Ed Escalante holds Walt Eggert's Pietenpol. Rumor has it that this model won the AMA NATS several years ago.
6. George Meyers and his Vickers pusher. "Now, if I cross control the thrust line and rudder, then shorten the motor stick 3/4", and increase the angular difference just a tweek, it oughta fly like a rock."
7. Mike Escalante clones another Santos Dumont. The designer inspects.
8. Allan Schanzle with Earl Stahl Seagull and the Gregorys taking a break. Rolf is camera shy.
9. That ubiquitous Santos Dumont. 15 year old Mike Escalante, took 2nd in Scale.
10. Another winner- Don Srull winds his Heinkel 112.
11. Hurst Bowers gets ready for Golden Age with his Morane. How come those props taste so good, fellows? Ray Rakow holds.
12. Allan Schanzle attempts to reach the ceiling at 185 feet. Just missed.
13. Sixteen year old Scott Paisley and Dad get ready for WW-II. Took 3rd.
14. Scott launches his Skua-another great flying Earl Stahl design.
15. Walt Eggert winds a Nakajima Hayate. From the looks of those knots, that pilot (and holder) are praying for fresh elastic. If it breaks, that Jap is really gonna get his bells rung.
16. Hurst Bowers with his pretty Page Racer for the Thompson event. Those three grins open a multitude of possible captions, none of which are printable, unfortunately. Use your imaginations.

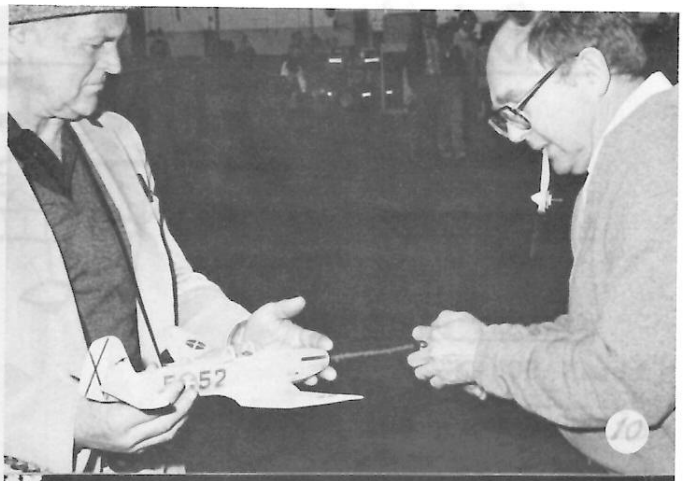



G-A
AEY


292Y


4.


9


10


11


12


13


14


15


16

D.C. MAXECUTER'S '81 SUMMER FUN FLY

Sept 12

9⁰⁰ to 6⁰⁰

AMA SANCTION
#404

CONTEST DIRECTOR

ALLAN SCHANZLE
8311 Exodus Dr.
Gaithersburg MD. 20760

301 840-9883

EVENTS

FAC SCALE:
Judging starts at 11:00. Qualifying flight must be made by this time.

FAC JUMBO SCALE:
36" minimum span for monoplanes, 30" for multiwings. Same restrictions on time as for FAC SCALE.

FAC CO_2 SCALE
An FAC scale event for CO_2 power only. Limit of 3 cc tank per engine (6 cc for two engines, which can be incorporated as as two 3 cc tanks or one 6 cc tank. 10 cc limit for three engines). Note: 2 cc tank for Brown peanut engine. Time as above.

MASS LAUNCH:

THE RACES 1:30 PM. Single launch for Thompson and Greve planes.
WW-I 2:00 PM, Biplanes only.
WW-II 3:00 PM, Maxecuter rules.
GOLDEN AGE 4:00 PM, See new rules noted in this issue, pg 3.

TRANS-COMSAT SPEED AND NAVIGATION RACE: 5:00 PM
This is our attempt, for this year, to introduce an event for rubber powered models that is <u>not</u> an endurance contest. The event will be open to any rubber scale model (not necessarily entered in any other event) that meets the 40 point minimum rule. We will create two parallel lines about 300 to 400 feet apart. Everyone will launch simultaneously from behind one of the lines. The winner of the speed event will be the individual who first <u>lands</u> on the other side of the second parallel line. The winner of the navigation event will be the individual who lands closest to a designated area beyond the second line. THIS IS A SINGLE MASS LAUNCH FOR BOTH EVENTS !!!!!

COMSAT ALTITUDE RACE 5:30 PM
A single mass launch for <u>any</u> rubber powered model. Some unsuspecting sole will be selected from the crowd to serve as judge and his decision will be final as to which plane achieved the highest altitude.

H.L. GLIDER:
As per AMA.

CATAPULT GLIDER:
Must use MAXECUTER launching pole. AMA H.L. scoring.

EMBRYO: As per FAC.

<u>NOTE: THE 40 POINT MINIMUM WILL BE RIGOROUSLY ENFORCED BY THE CD FOR THE MASS LAUNCH AND TRANS-COMSAT EVENTS. BRING DOCUMENTATION!!</u>

SCALE MODEL AERODYNAMICS

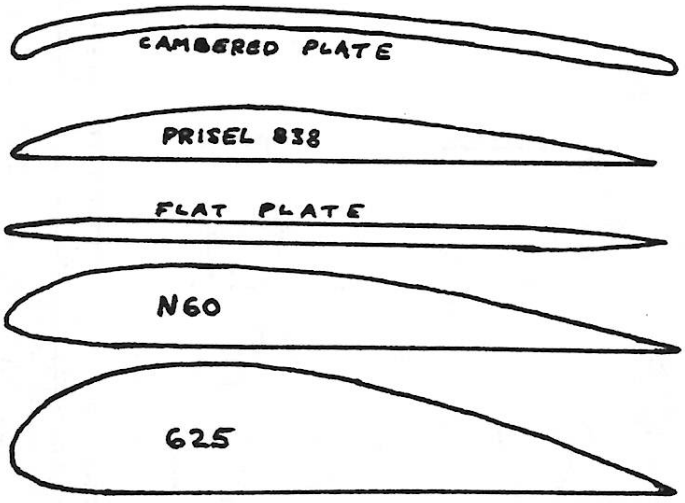
Dudley Prisel

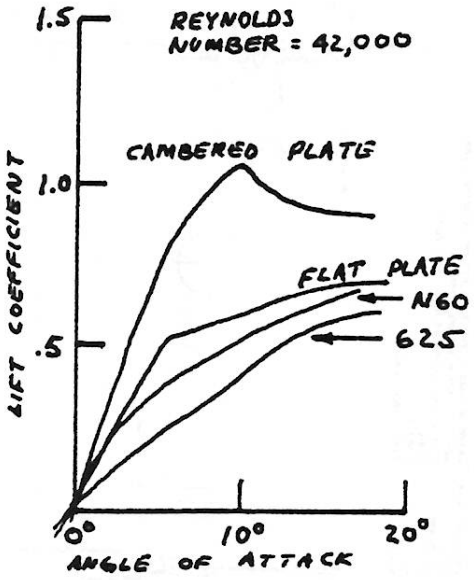
Model airplanes do not fly like full scale airplanes. The smaller our models are, the poorer is their lift/drag ratio. Peanuts are rarely seen in slow, floating cruise for this reason, compared to the slow soaring flight of, say, Don Srulls 36" Schlepp Tug. The forces produced by our models surfaces acting on the air (lift especially) decrease with small model size much more than the forces due to the airs' viscosity that the model must overcome. Thus a poor lift/drag ratio.

In order to make comparisons of different sized aircraft at different flight speeeds we use the Reynolds Number, which expresses the ratio of forces produced by the moving model surfaces to those resulting from the air's viscosity. Here are some representative Reynolds Numbers:

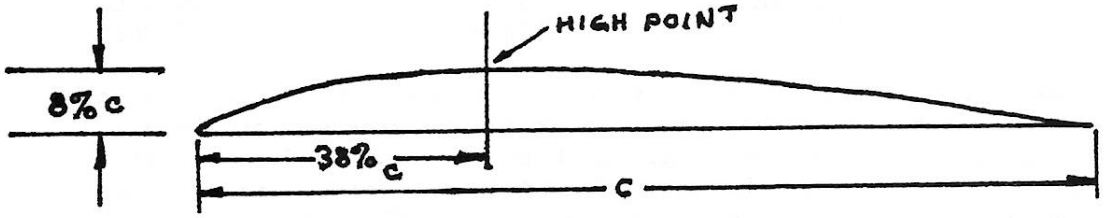
AIRCRAFT	WING CHORD	FLIGHT SPEED	REYNOLDS NO.
Butterfly, Gliding	1.9 in	3.0 ft/sec	2,800
Scale Models { Peanut	2.4 in	9.3 ft/sec	12,600
Scale Models { Medium	3.9 in	15.0 ft/sec	33,900
Scale Models { Jumbo	5.9 in	18.6 ft/sec	63,000
Bird, Gull	5.5 in	31.0 ft/sec	100,000
Cessna 172	54.0 in	176.0 ft/sec	5,000,000

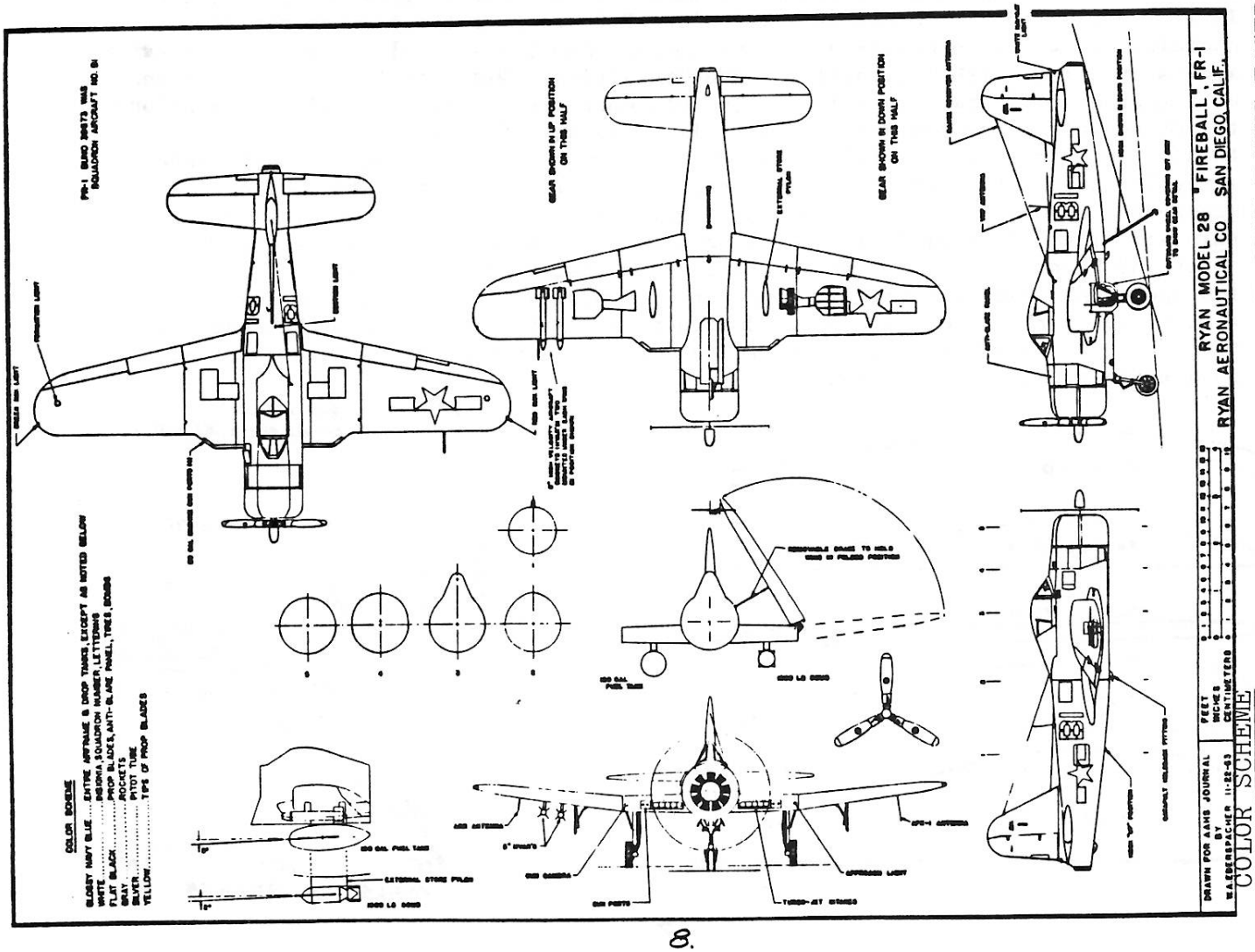
Generally, at low Reynolds Numbers the air's viscosity forces dominate the flying characteristics whereas at higher numbers the forces due to wing motion prevail. The Boundary Layer (B.L.) is the region of air next to the wing surface and it is in this layer that interesting things happen. Two kinds of airflow are observed in the B.L.; laminar and turbulent. Laminar is very smooth flow while turbulent is self explanatory. We desire a turbulent B.L. because the flow energy it contains allows us to maintain lift producing conditions at slow speeds and greater angles of attack with insignificant drag penalties. Wings that we build operate at either of these two conditions. To influence conditions (i.e. flight duration) to our advantage, we can use <u>thin</u> airfoil sections. Now the important point is this: the <u>thinner</u> the airfoil, the lower the Reynolds Number at which the undesireable laminar flow transitions to the desireable turblent. Which effectively means that to obtain good lift at our model's size and flying speeds, we need <u>thin</u> airfoils. Most airfoils that I've seen on plans and in kits are much too thick and blunt, especially most of the older designs of the 30's and 40's. The low speed NACA data obtained in those days is misleading because of excessive wind tunnel turbulence. The model designers of that era used data that was not then known to be erroneous. However, here is a graph that shows data obtained in a known turbulence <u>free</u> tunnel:





The graph shows different airfoil lift characteristics near the Reynolds Number at which we fly and indicates that the cambered plate far exceeds the others at our flight speeds. This is true at even lower speeds and explains in part why Pennyplanes and Manhattans perform so remarkably well. The graph also indicates that the 625 airfoil (20% thick and blunt nosed) produces half as much lift (and 3 to 4 times the drag) of the cambered plate. Notice that even the flat plate operates more desireably than the 625 at our flight speeds. The N60 (12% thick) is far better than the 625 but still not as good as the cambered plate. The cambered plate would be great for us except that it is not at all scale-like in appearance for most models (it is scale-like for Santos-Dumonts!). If we put a flat bottom on it, then we have a nice appearing, very efficient airfoil. I submit then, that a thin, flat-bottomed, sharp-nosed airfoil is an excellent compromise between the cambered plate and scale-like appearance. My recommendation is for an airfoil that is 8% thick and sharp-nosed. The upper surface is determined by fitting a drafting curve to the nose radius, high point, and trailing tip. I call it the Prisel 838 and it works fine. It's thin enough for excellent aerodynamics at our flight speeds, is scale-like in appearance, and allows sufficiently sized structural members.





AIRFOILS FOR THE LAYMAN WITHOUT ALGEBRA OR COMPUTER

FRANK RENAUT

Some thoughts to add to those I unloaded on you at the last meeting.

When you choose an aerofoil/airfoil section for your wings, is it best to use the one with the highest lift/drag ratio? Only if your aircraft is nothing but a wing, usually.

I think I dimly remember that when I was 16, my friends and I were devotees of Eiffel 400, a graceful section reputed to have a lift/drag ratio of 21 at zero degrees angle of attack. Now, 21 - 1 would be a lovely gliding angle and beautiful to watch. However and unfortunately, there are considerations other than the wing, but before we get to them, the wing has its own troubles.
First, that section was hard to make. It had undercamber and a very thin trailing edge, prone to warpage.
Second, if you covered it with tissue, as most of us are wont to do. that tissue would sink between the ribs, then what happened to your wonderful 21/1 section? And it you used Japanese tissue and put the grain along instead of across the wing, it sank twice as much. So what if you put multitudes of spars along the wing to hold it out? Now you had bumps in it, and the graceful curves were gone.

So, suppose you think you have overcome all the preceeding difficulties, and made yourself a really neat 21 to 1 wing. It is impossible to fly it at its best(0 degrees) angle to the airflow. As soon as you let go of the model its nose goes up and you no longer have the slightest idea what the angle of attack is. And if you use downthrust to keep the nose from going too high, you increase the angle of attack even more. By now your wonderful 21 to 1 section may be lucky enough to be operating at 16! And that's only the wing. If you take into account the drag on the rest of the machine, the net lift/drag ratio may be 7 or 8! And when it goes into the glide, this may improve or get worse, according to whether it settles into an even greater angle of attack or a lesser one.

Now, consider two aircraft which are identical in every way except for their wing sections.
"A" has a thin airfoil with a very high lift-drag ratio, while
"B" has a thick ugly one with a much poorer one.
Naturally, the one with the thin airfoil will glide faster. The result of this - the drag on the fuselage and other appendages - which increases in proportion to the SQUARE of the extra speed - will reduce the L/D ratio of the whole model to possibly - even probably - less than that of the slower moving model with the thick wing.

The result of the result is-

The one with the less efficient wing will glide flatter! And since we have already stated that it is gliding slower as well, it will certainly take longer to get to the ground, and for a fringe benefit, not hit it so hard when it gets there!

Which brings me to Wheels. I believe in them. They should be large enough, free to rotate, and cambered and toed in so that when they are brought into contact with the ground and the wire leg bends, they assume as near as possible a properly aligned-to-roll attitude.

And washout on the outside wing- that makes sense, too. But not if taken to the point where that tip is actually exerting a down push. Any more than it makes sense to trim a nose heavy model by up elevator to the point where that elevator is actually pushing downwards. There are other ways. We have enough trouble with Gravity without adding other downward forces.

Onward and ever upward should be our creed!

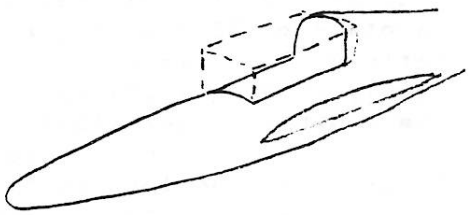
CANOPY MOLDS

MARK FINEMAN

1. Start by cutting out a block of ordinary styrofoam, even a hunk of the stuff used to package appliances will do the job. Cutting is best done with a fine saw. A Dremel is excellent, as is a # 11 blade or razor blade. The block should just fit the spot to be occupied.

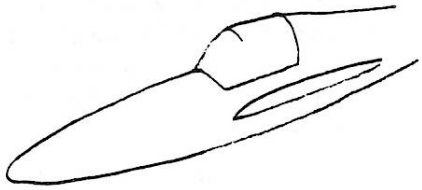
2. Using the plan as a guide, rough cut the block to approximately correct contours. Then sand smooth with an emery board .

STEP # 1



3. Remove the styrofoam block and smooth a thin layer of spackling compound over the entire surface. Wetting your finger will make the compound spread evenly.

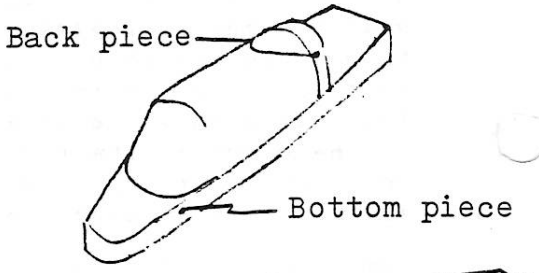
STEP # 2



4. Using 320 to 400 grit sandpaper, smooth out the dried spackle. Repeat steps 3. and 4. and check for fit periodically. Usually two, sometimes three, layers are sufficient. The finished mold should look like polished stone or plaster.

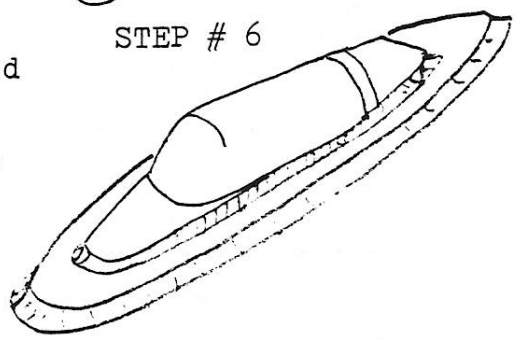
5. Add a 1/8" bottom piece (balsa)- glue with Elmer's or Titebond, since anything else will melt the styrofoam. The extra edge afforded by the backing balsa will be useful for attachment to the model after the plastic has been formed.

STEP # 5



6. I also usually add another, oversized, 1/4" thick hunk of balsa on the bottom which I flare out so the plastic will drape properly during forming.

STEP # 6



I use the vacuum forming rig that was printed in MODEL BUILDER (April 1976). Once the plastic is placed in the frame (I modified mine with strips of course sandpaper in place of the little nails they called for- it grips the plastic just fine), I heat it in the oven. The frame is held with an oven mit and moved gently over the heating element until it sags and smokes visibly. Then I quickly place it on the vacuum former and immediately hit the vacuum cleaner switch to draw a vacuum. If it doesn't mold properly the first time, I just reheat all of the plastic (it has a "memory" and will return to a flat sheet.

As a general rule, the most successful person in scale modeling is the man who has the best documentation.

One of the greatest sources of energy is pride in what you are building.

You can't turn back the clock, but you can wind it up again. Try to find something that will motivate you to start a new model.

The cure for boredom is curiosity, but there is no cure for curiosity. So try something new on that next building adventure.

Try a HELICOPTER!

BY ROY L. CLOUGH, JR.

Challenging the Imagination With Its Realistic Precision Performance, This Ship Is Easy to Build From the Full-Size Plans!

● Unlike the whirling dervish type of stick model which churns madly into the sky like a madly flailing egg-beater, this little helicopter looks and flies like the real thing. It will float up sedately from any table-top "airport" and then, when the power is spent, settle down lightly in true helicopter fashion. Adjust the trim slightly and it will rise into the air, tuck its nose down and scoot away in realistic forward flight.

One of the remarkable features of the model is the precision with which it can be flown. By counting the turns, it is possible to fly the ship from one table-top to another with the wheels touching down within an inch of the same spot each time.

In calm indoor air, the model always goes the same distance and attains the same altitude for any given number of turns. This makes it possible to perform a large number of seemingly impossible maneuvers. For example, it will fly up and leap over a yardstick supported on a couple of chairs—and not miss it by more than an inch or two—and the trick can be repeated as often as desired. It will fly between doorways or other obstructions with great precision.

To those who are accustomed to the more or less variable performance of fixed-wing craft, the complete consistency of the flight pattern exhibited by this helicopter is very surprising. It will even fly inverted! Simply wind the rotor backwards and hand-launch upside down. The model will sail away on even keel, wheels in the air, with complete stability. The landing may be a bit rough on the rotors, but it certainly demonstrates the point.

FUSELAGE: Construction follows the familiar rubber-model pattern with a few differences. Use a good grade of medium-hard 1/16" strip stock. One side is built right over the plan all the way back, the other is built back only as far as the draw-in, then the ends of the strips are beveled and joined to the other side for the tail boom. Put in the sheet balsa reinforcements on the underside. Cover the window areas with cellophane and the rest of the fuselage with light tissue. The boom portion is covered on one side only. Water-shrink the covering, don't dope.

LANDING GEAR & STABILIZERS: The main landing gear is a strip of ⅛" x ¼". This is cemented to the rear edge of the lower motor tube reinforcing plate. The two stabilizers, also single covered, are cemented to this strut and held in alignment with a spot of cement on the side of the fuselage. These stabilizers should be accurately lined up with the fuselage upright, otherwise the helicopter may show a tendency to rotate slightly as it descends.

The wire strut for the front wheel is bent as shown, to provide good anchorage, and is cemented liberally. The wheels are 1" hard wood.

POWER UNIT: This is extremely simple. Study the plan until it is well understood, then go ahead. The tube can be sheet balsa about 1/20" thick, or even light bristol board. The important thing is to see that the parts line up well, so the unit will operate evenly and smoothly. Good balance will result in maximum performance.

The lower tube shaft is bent from wire and cemented to a disk of 1/16" hard balsa. Allow plenty of drying time, then cement the disk into the tube. The outside upper shaft is a length of thin-wall ⅛" O.D. brass tubing. Split the tubing and flatten it out, slip a disk over the end and cement the arms of the "tee" to the disk.

In this and some of the other building operations, note that cement is relied upon to hold metal to wood, or thread. This can be done very successfully if you always wash the metal thoroughly with dope thinner to remove any grease or dirt and use a good brand of cement.

The rotor hubs are lengths of hard ¼" square balsa. The lower hub is drilled to a snug fit over the tube, put in place, a liberal amount of cement applied, and thread wound tightly around the tube. When the cement dries, it will shrink the thread very tightly to the tube. The balsa hub is cemented to the thread. This is one of those constructions which does not look, on paper, as if it would hold—but experience with dozens of model helicopters has shown that it invariably does.

The rotor blades are all the same. Make them from a good springy variety of 1/16" sheet. The section is symmetrical and the reverse blades are simply turned over. Note that the upper blades have less pitch than the lower.

Check this whole assembly for balance before installing the rubber motor. The motor isn't difficult to get in if a short length of soft copper wire is used to fish it through. It is held at the lower end with a bit of dowel. Since the tube will be rotating, it is a good idea to cement the ends of the dowel lightly to the tube. Just how much power will be used depends on how the weight comes out, but a good place to start is with about eight strands of ⅛" flat. Poke the motor tube into the fuselage bearing, bend over the lower wire shaft to hold it in place, and tack-cement the upper plate at the corners.

FLYING: The ideal power arrangement is to balance the upward flight against the descent. That is, the motor should just be running out as the model returns to earth. This maintains "control" throughout the flight.

Trim is slightly ahead of the rotor axis for vertical flight. Adding a bit of weight to the front wheel will make the helicopter fly forward. The rear stabilizer is used to correct any tendency of the model to rotate (this will be slight in any event), or to cause it to rotate if desired. Simply moisten the stabilizer boom and twist it slightly at an angle to the motor tube.

For very accurate spot landings at the end of across-the-room flights, the wheels can be jammed with a spot of cement. This will prevent forward roll.

If a trifurcated tow is used, the model is capable of picking up small objects and carrying them across the room. Clubs meeting in small quarters can arrange very interesting after-the-meeting impromptu contests. Scoring is most accurately based on steadiness in flight and adherence to announced flight maneuvers. In case of ties, a run-off will show which contestant is really master of his machine. There is very little "luck" in helicopter flying.

It is unfortunate that there are practically no rotary-wing models being flown in the country today. Possibly this is because little attention has been directed to the subject. Flying model helicopters is a lot of fun. Try one and see!

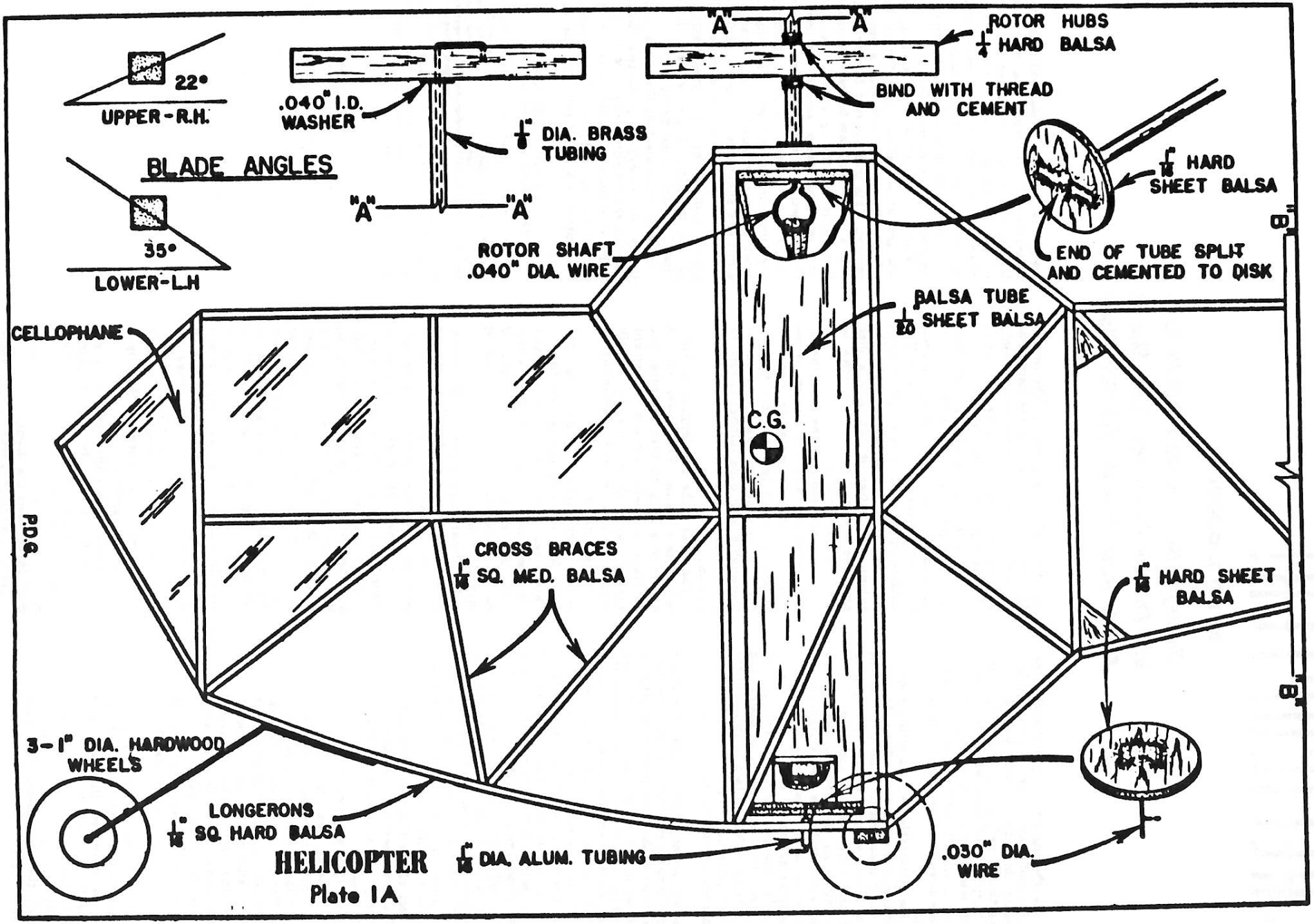
BILL OF MATERIALS
(Balsa unless otherwise specified)

1—1/16" x 3" x 24" (medium) ..... Rotor blades, sheet fill-in
1—1/16" x 3" x 8" (soft) ..... Motor tube
1—¼" x ¼" x 6" (hard) ..... Rotor hubs
18—1/16" x 1/16" x 36" (medium-hard) Longerons, uprights, diagonals

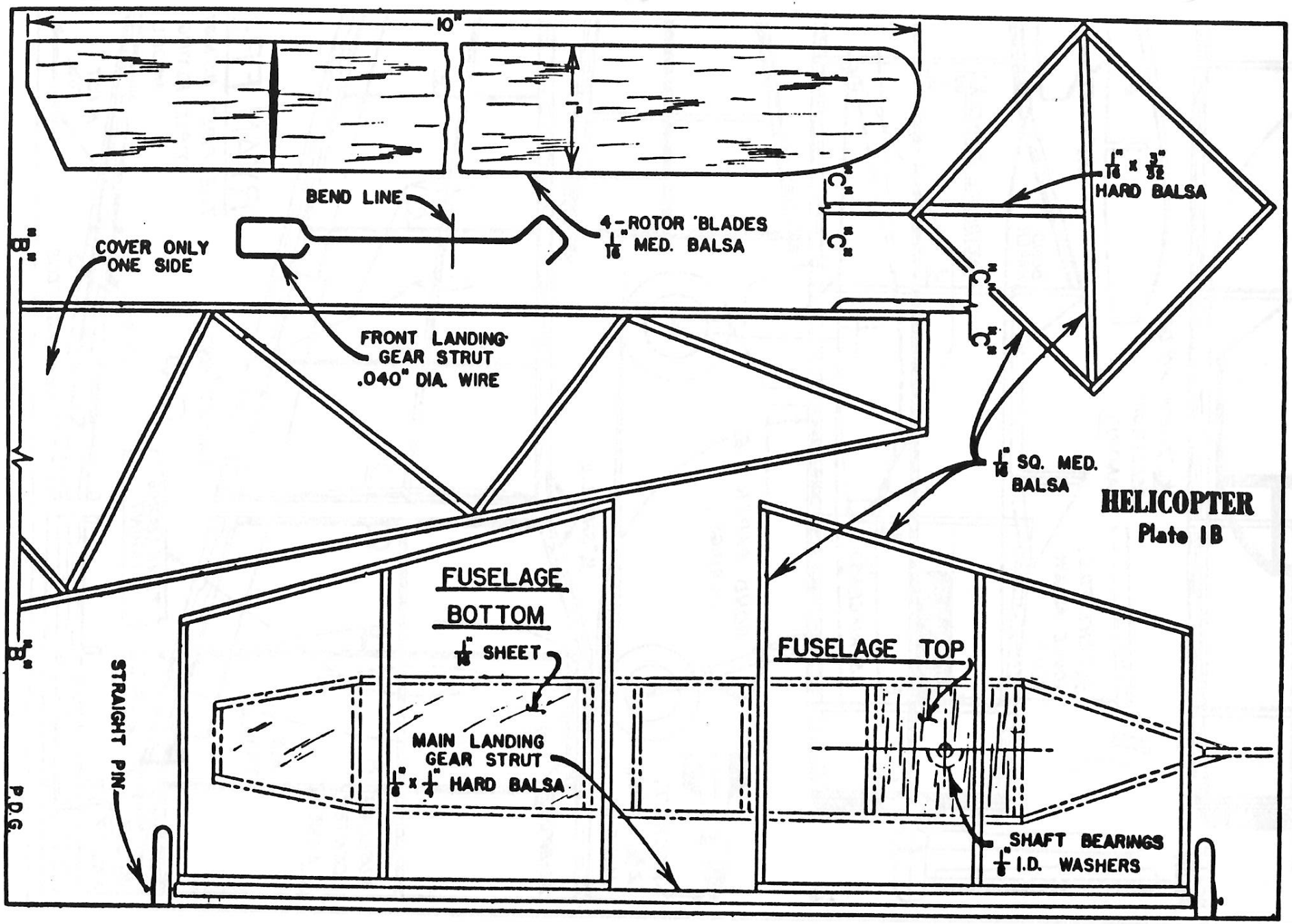
Three 1" diameter wooden wheels; 1 sheet Jap tissue; 7" length .035" wire; 3½" length thin wall brass or aluminum tubing; Scrap ⅛" balsa; Thread; Pins; Cellophane; Thrust washer; Cement; four feet ⅛" flat rubber for motor.

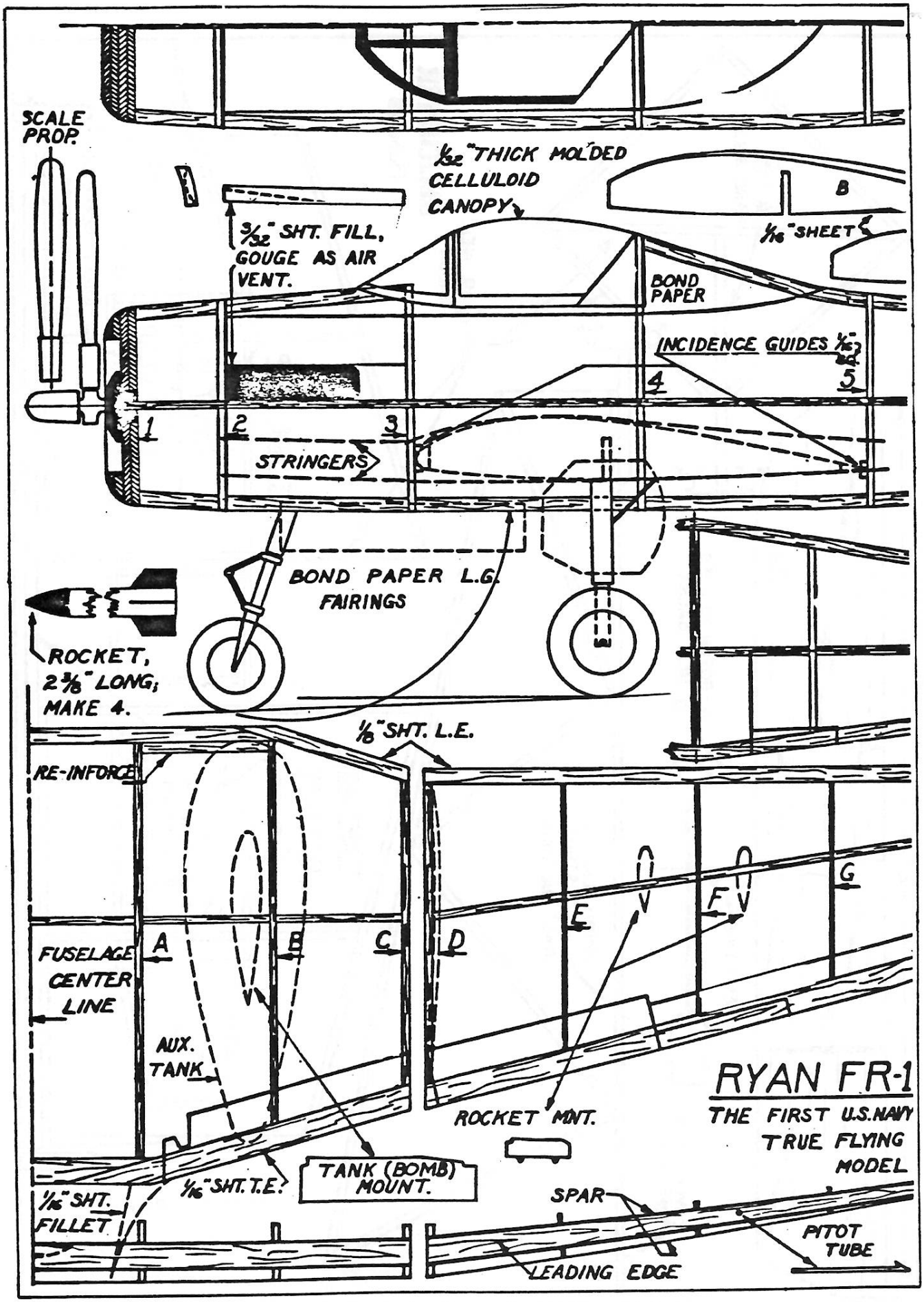
CONGRATULATIONS

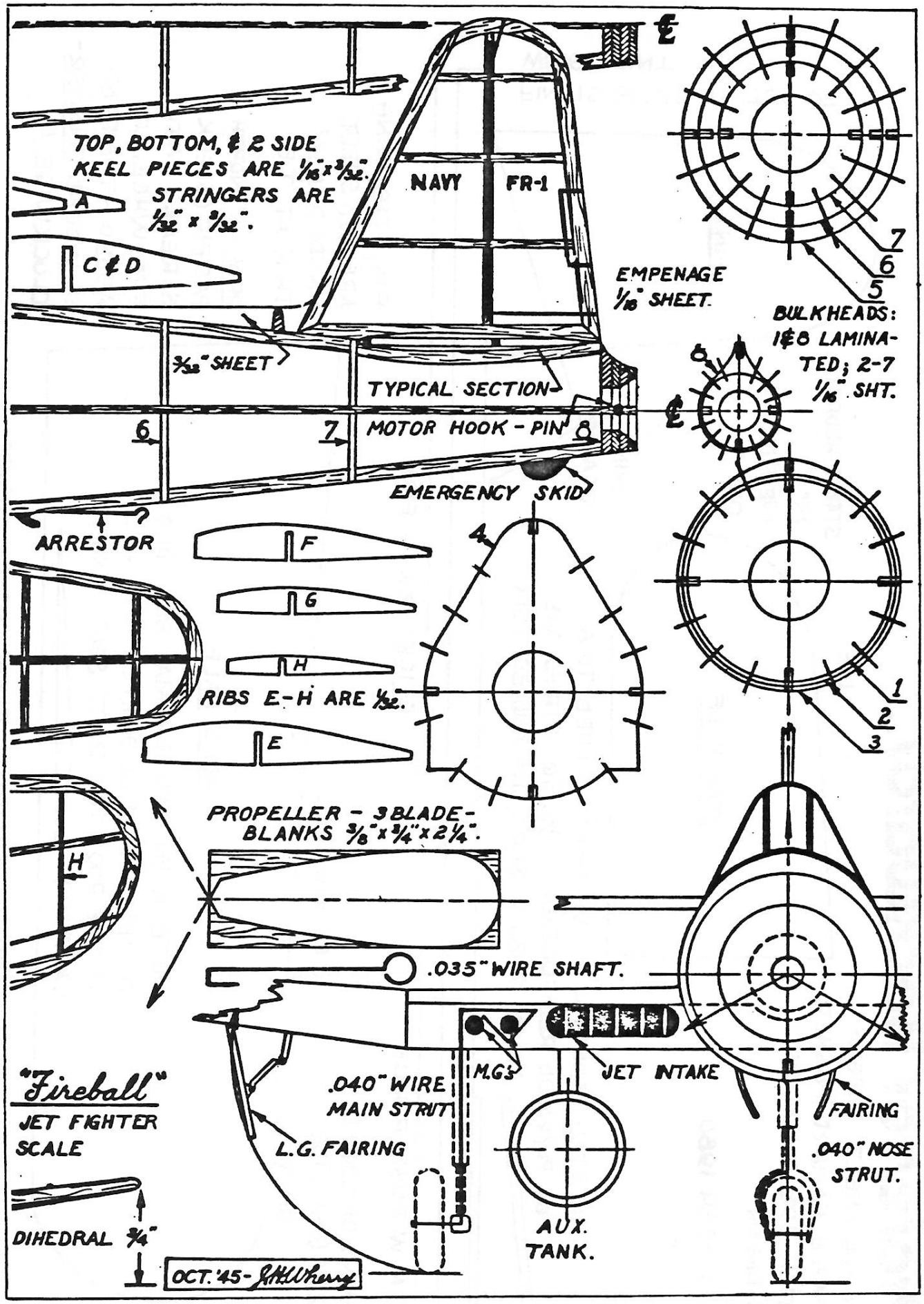
To local MAXECUTER Jim Wray for recently getting his pilot's license. An instructor's license is next on the list. Good show, Jim.



HELICOPTER
Plate 1A


10"
BEND LINE
4 - ROTOR BLADES
1/16" MED. BALSA
1/16" x 3/32"
HARD BALSA
COVER ONLY
ONE SIDE
FRONT LANDING
GEAR STRUT
.040" DIA. WIRE
1/16" SQ. MED.
BALSA
HELICOPTER
Plate 1B
FUSELAGE
BOTTOM
1/16" SHEET
FUSELAGE TOP
MAIN LANDING
GEAR STRUT
1/8" x 1/4" HARD BALSA
STRAIGHT PIN
SHAFT BEARINGS
1/8" I.D. WASHERS
P.D.G.

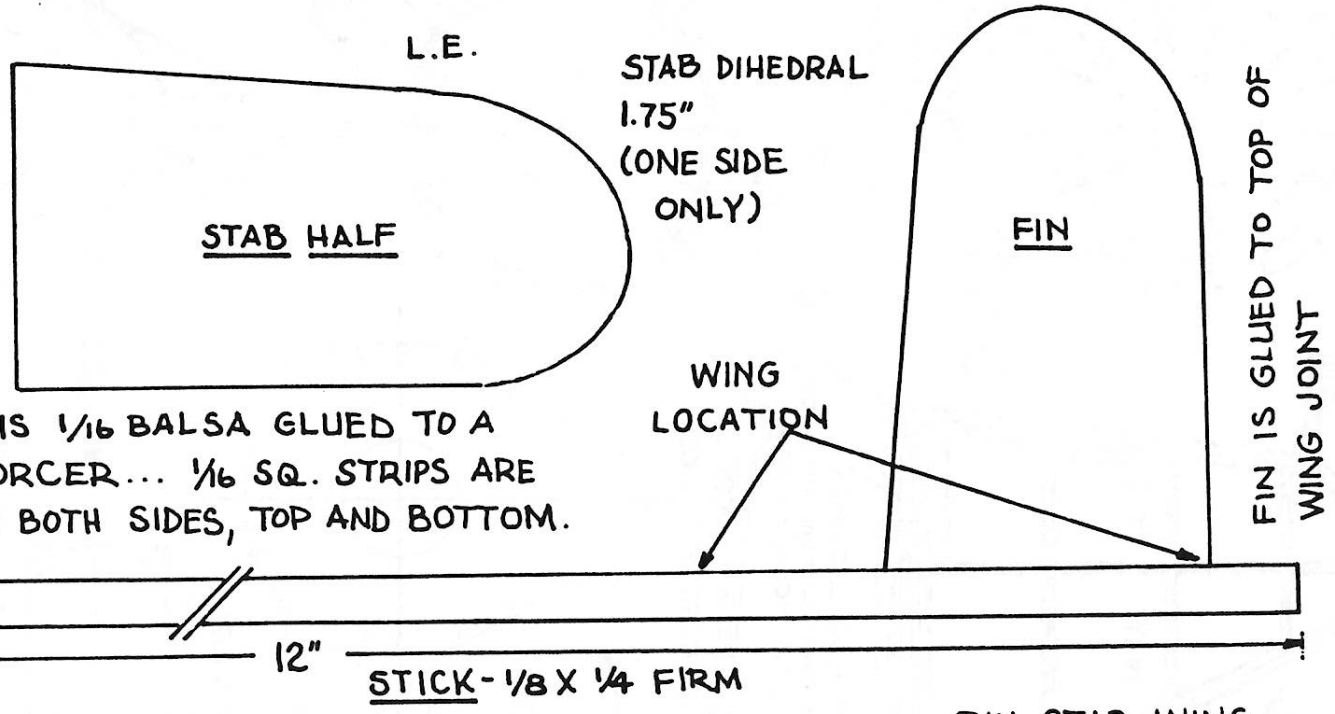

SCALE PROP.
1/32" THICK MOLDED CELLULOID CANOPY
B
3/32" SHT. FILL, GOUGE AS AIR VENT.
1/16" SHEET
BOND PAPER
INCIDENCE GUIDES 1/16" SQ.
4
5
1
2
3
STRINGERS
BOND PAPER L.G. FAIRINGS
ROCKET, 2 3/8" LONG; MAKE 4.
1/8" SHT. L.E.
RE-INFORCE
A
B
C
D
E
F
G
FUSELAGE CENTER LINE
AUX. TANK
ROCKET MNT.
TANK (BOMB) MOUNT.
1/16" SHT. T.E.
1/16" SHT. FILLET
SPAR
PITOT TUBE
LEADING EDGE
RYAN FR-1
THE FIRST U.S. NAVY TRUE FLYING MODEL


TOP, BOTTOM, & 2 SIDE KEEL PIECES ARE 1/16" x 3/32".
STRINGERS ARE 1/32" x 3/32".
A
C & D
NAVY FR-1
3/32" SHEET
TYPICAL SECTION
6
7
MOTOR HOOK - PIN
8
EMERGENCY SKID
ARRESTOR
EMPENAGE 1/16" SHEET.
BULKHEADS: 1 & 8 LAMINATED; 2-7 1/16" SHT.
F
G
H
RIBS E-H ARE 1/32".
E
PROPELLER - 3 BLADE - BLANKS 3/8" x 3/4" x 2 1/4".
.035" WIRE SHAFT.
M.G.'s
JET INTAKE
.040" WIRE MAIN STRUT
L.G. FAIRING
FAIRING
.040" NOSE STRUT.
AUX. TANK.
"Fireball" JET FIGHTER SCALE
DIHEDRAL 3/4"
OCT. '45 - Stahlhorn

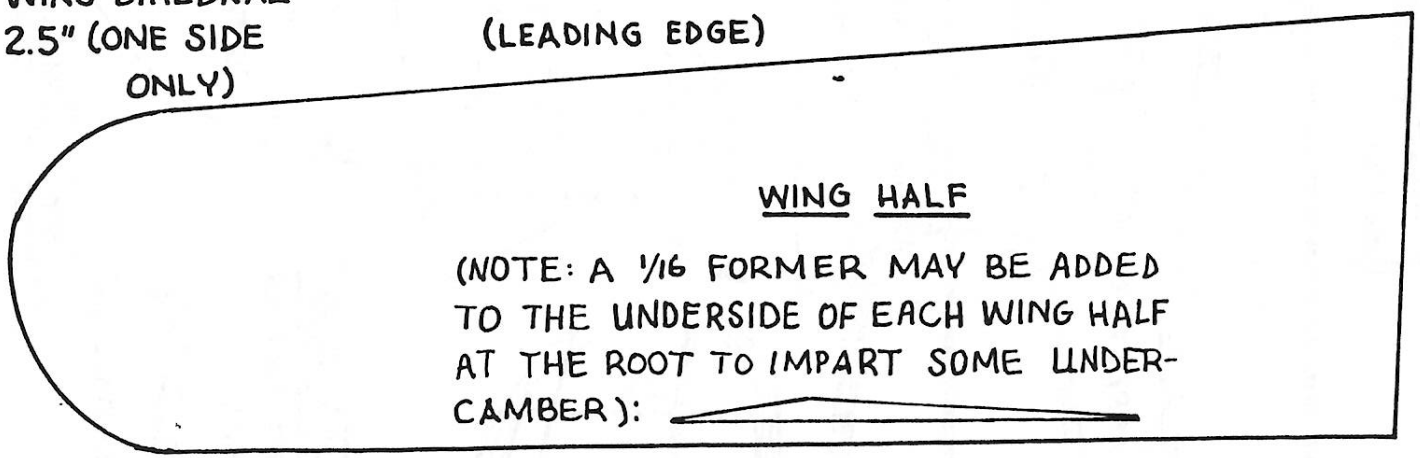
Professor Backwards...

AN ALL-SHEET, SUPER-SIMPLE, CANARD-PUSHER STICK JOB BY MARK FINEMAN.

DECEMBER 1980



WING DIHEDRAL 2.5" (ONE SIDE ONLY)



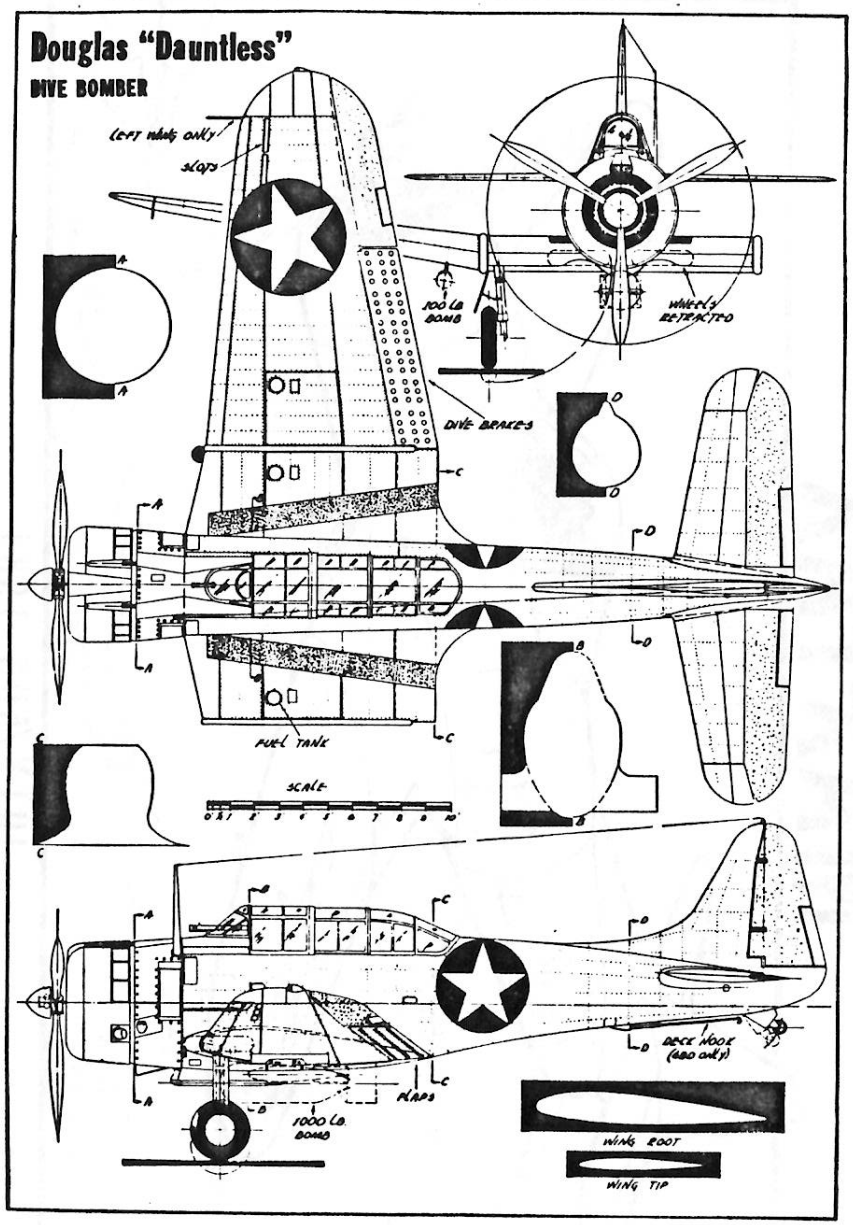
FIN, STAB, WING ARE 1/20 SHEET, SANDED VERY THIN AT T.E.

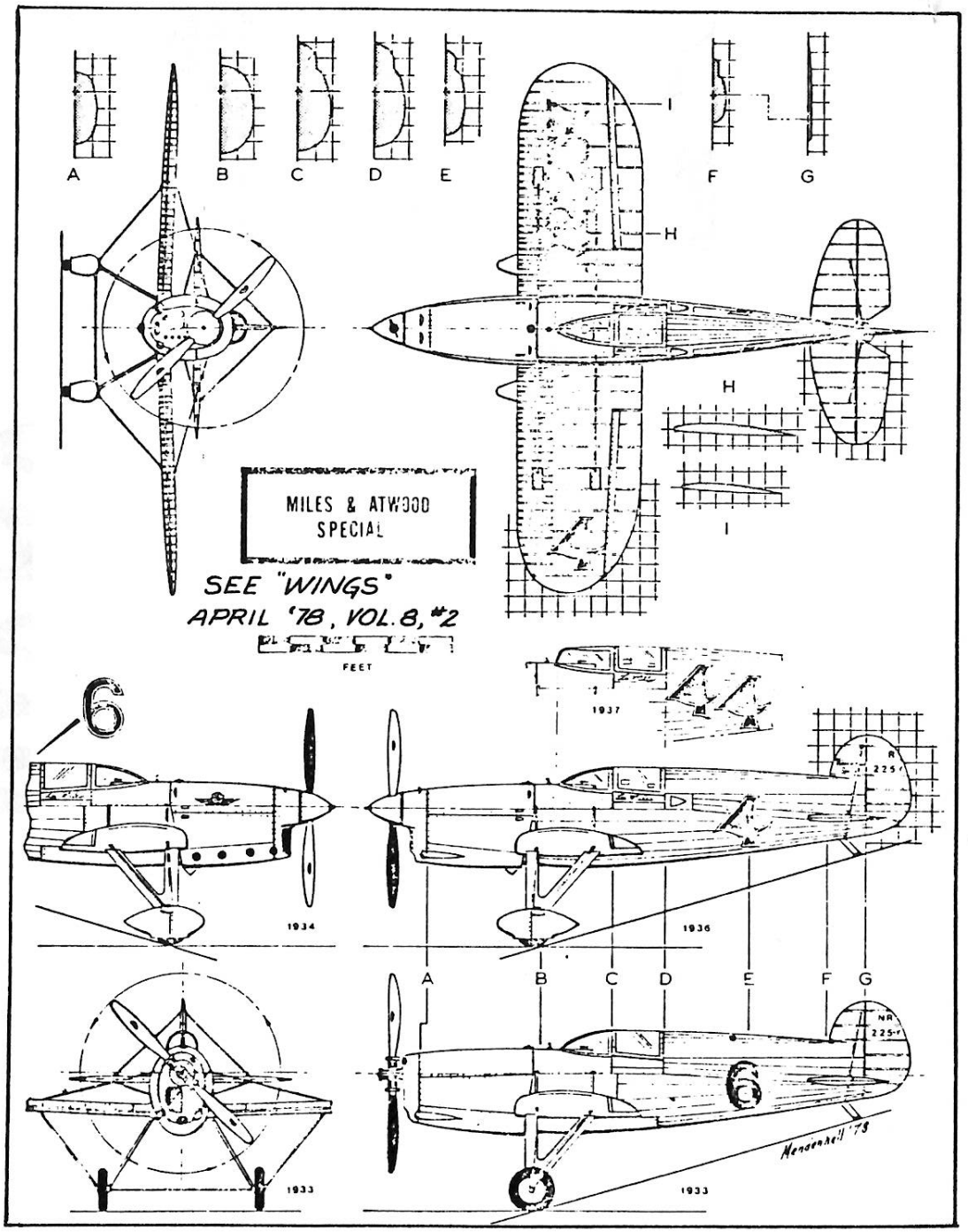
PROP: 6" NORTH PACIFIC (SLEEK STREAK) WITH FREEWHEELER ADDED - THE PROP IS WOUND COUNTER-CLOCKWISE!

THE ORIGINAL 'PROFESSOR BACKWARDS' FLEW OUT-OF-SIGHT AFTER MORE THAN TWO MINUTES. IT REQUIRES SMALL NOSEWEIGHT, FLIES LEFT, OR RIGHT UNDER POWER. POWER - 1 LOOP '8 FAI.

Douglas "Dauntless"

DIVE BOMBER

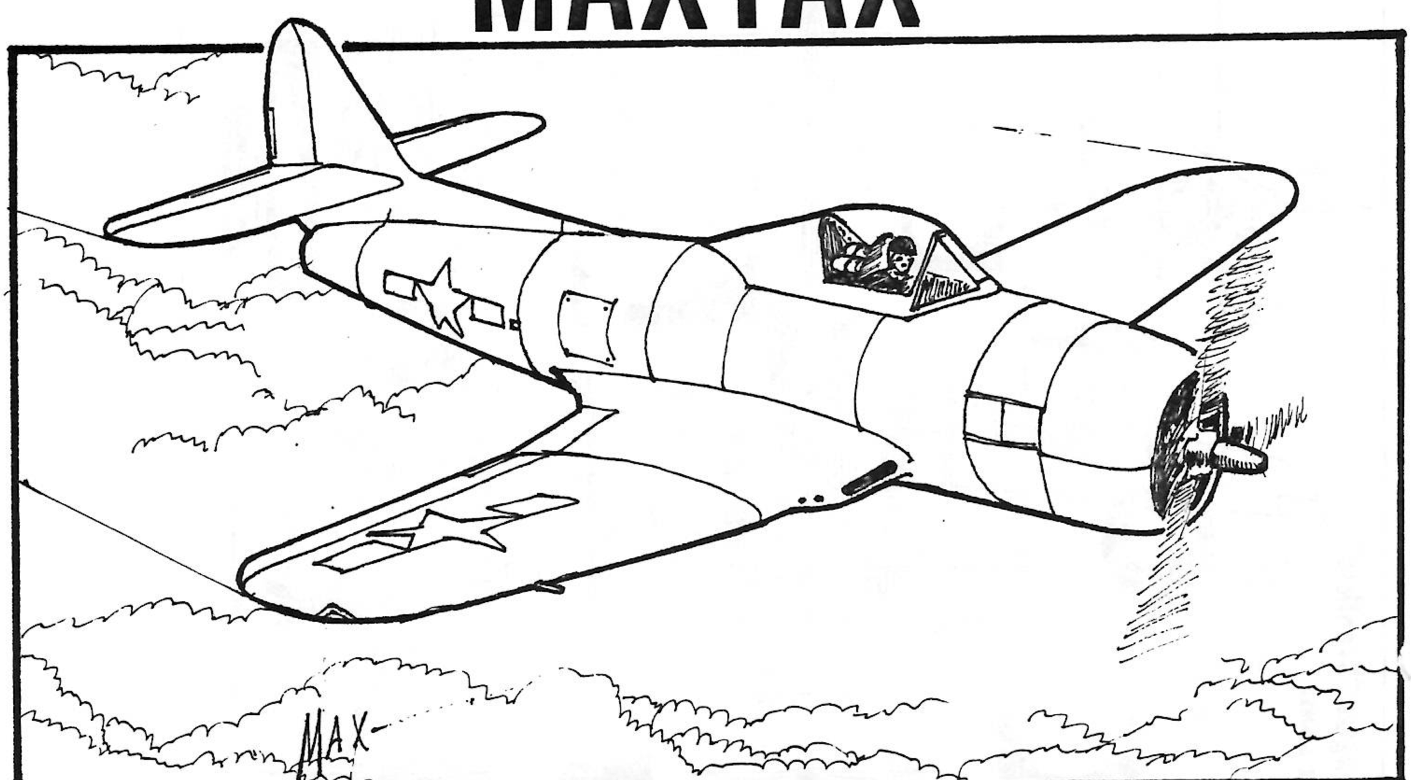




1st Class

MAX-FAX
8311 Exodus Dr.
Gaithersburg Md. 20760

MAX-FAX



JULY/AUG 1981