

# MAX FAX

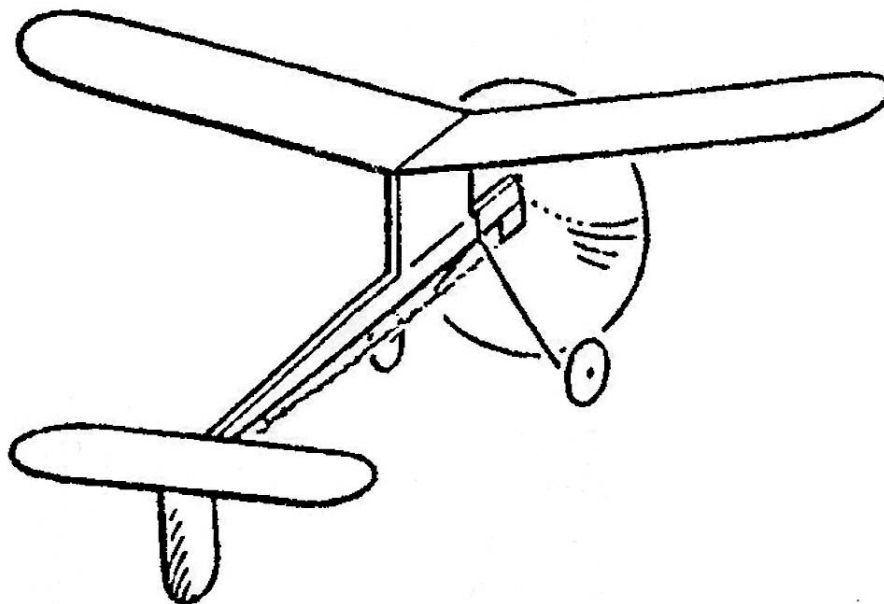


**Journal of the D. C. Maxecuters**

*... home of the dreaded POTOMAC PURSUIT SQUADRON of the Flying Aces*

**Editor: Stew Meyers**

**2013-1**



## **S I M P L E   S H E E T   F L Y E R S**

### **COMING ATTRACTIONS**

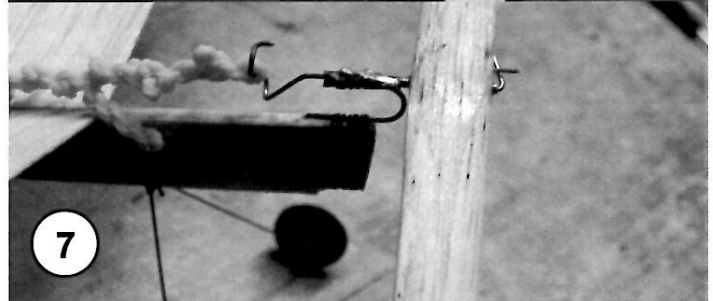
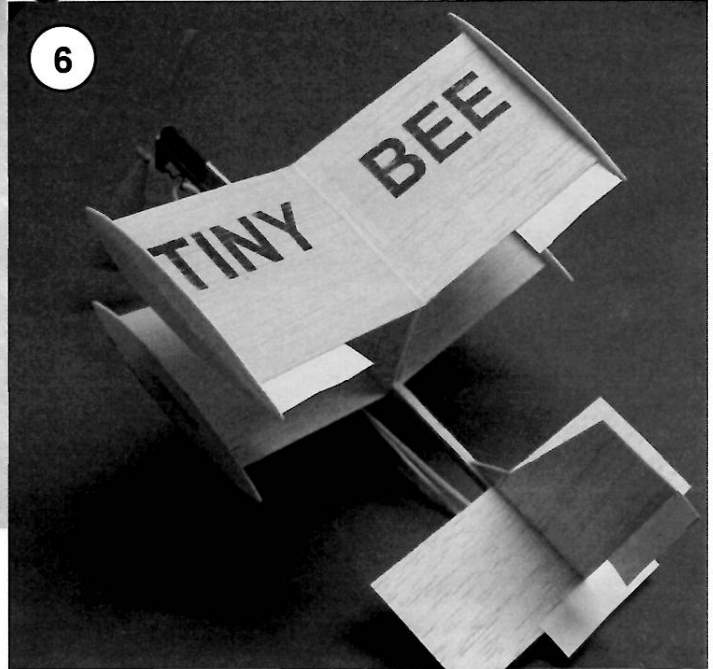
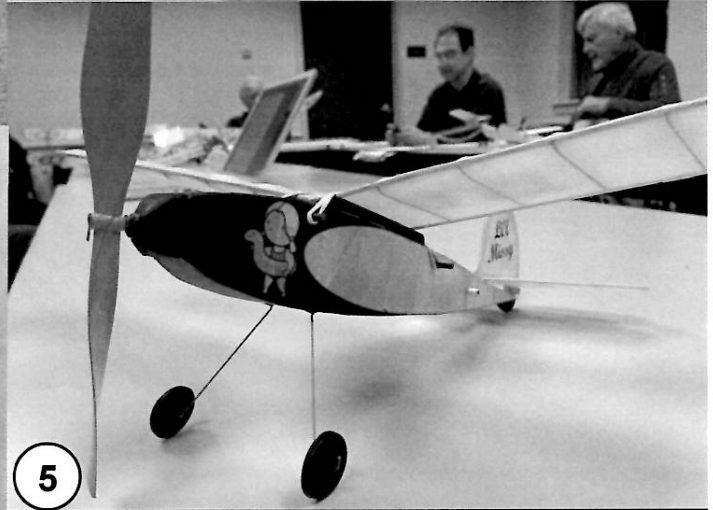
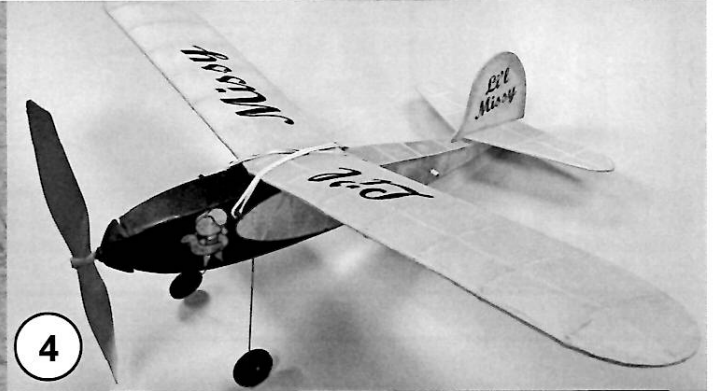
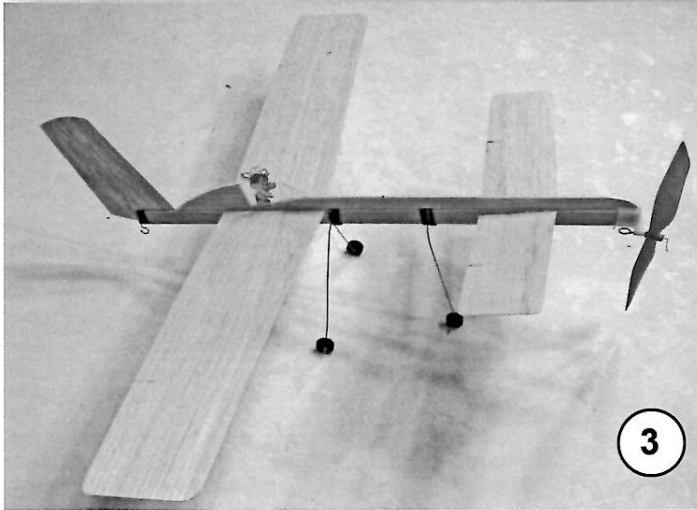
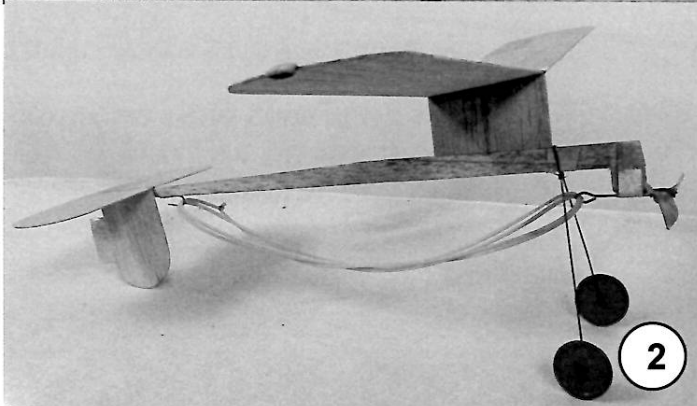
Sunday April 7, 2013 National Building Museum Flying Fun  
10:30 am to 4 pm Indoor Micro R/C and Free flight  
See flyer in this issue.

Saturday May 25 & Sunday May 26 2013 Flying Aces Contest  
Barron Field Waywayanda, NY  
See flyer in this issue.

Saturday June 8 & Sunday June 9, 2013 Kudzu Classic  
See flyer in this issue.

Wendsday July 17 to Saturday July 20 2013 FAC Non-Nats  
Geneseo NY

Thursday Sept 5 & Friday Sept 6 2013  
Flying Aces Club OUTDOOR CHAMPIONSHIPS  
Muncie IN



1. Stew's Two in One Stunter.
2. Rays's Hi-Climber.
3. Stew's Canair.
4. Bruce Clarke built the Jr. Miss to the half scale plans in the 2012-4 issue.
5. It's a real little cutie that he named Little Missy.
6. Ray Malstroms Tiny Bee by Stew. Lots of tabs here and they are needed.
7. Details of the prop hanger on the 2 in 1 Stunter. Brass rod or a paper clip is just the right stiffness to allow for easy adjustment but retain the setting.

# MaxFax 2013- 1 (JAN-FEB 2013)

Stew Meyers Editor  
SIMPLE SHEET FF Issue

This issue finally get us caught up with a Feb-Feb issue mailed in Feb. With the change of printers and increasing postage costs, it is necessary to raise the membership rates. **Starting in 2013 rates are now \$25 for USA, Canada, and Mexico and \$35 for all other countries.** This is for renewals and new members as of this issue.

After our overdose of scale jobs in the last issue this issue features simple non-scale free flight flyers. These are all stick fuselage jobs that build quickly. Ray Rakow has been promoting simple sheet balsa flyers. He gave me plans for a *Hi-Climber* by Stu Richmond that appeared in the December 1968 issue of *American Aircraft Modeler*. I showed the plans to Don Srull at lunch and he recalled building these with his sons and neighborhood kids. Everyone agreed they were great fliers. Ray had his skimming the rafters at the Bauer Gym for 45 seconds on two loops of unlubed 3/32 last week with partial winds.

I was perusing the Model Airplane News DVD's announced in the last issue of MaxFax. A simple flyer from the Feb 1937 issue caught my eye. It called for a prop from a machined carved blank. Since I had never been able to shape one these properly, I considered it a challenge. I have a jar of old dime scale kit prop blanks that I had substituted plastic props for. I sanded one to a reasonable shape in less than an hour and then built the model in another hour or so plus glue drying time. The next day I took it to Bauer and tried it. It flew great no-- trimming required. I just need to keep the winds down to keep it out of the rafters. More satisfying than boring holes in the air with a R/C job and less frustrating than trimming a tail heavy rubber powered WWI biplane.

Joe Horton regularly shows up with quickie built rubber powered jobs, usually with flat plate airfoils and often built from foam. He had a profile P-51 based on Paul Bradleys No-Cal plans. It was a bit heavy being built from 3mm Depron and too much thick foam safe CA. None the less, he got it flying and making nice circles in the gym. It would be great out side. He also made a Depron profile Waco based on Dave Mitchell's NeoDimer we published last year. It also flew better than I would have believed due to it's weight. Either of these could be built from foam a lot lighter than these 25 gram examples. I have been building electric power foamies for years using construction techniques that would be applicable to build a lighter model. I present these techniques applied to a Hamp profile.

Ray also gave me a nifty Ray Malmstrom design, the *Tiny Bee* from the February 1997 *Aeromodeller*. Well it's really not so simple. We also have another sheet job by him, the *CANAIR*. from a July 1977 *Aeromodeller*. I have thrown in a half size plan of my *Foamie Flatie*, a foam variation of a sheet balsa job.

MEMBERSHIP - Dues for membership in the DC MAXECUTERS are **\$25** per year for residents of the USA, Canada, and Mexico, and **\$35** for all other countries. You may now use PayPal at the website: [www.dcmmaxecuter.org](http://www.dcmmaxecuter.org)

Your mailing label indicates the year and month of the last issue of your current membership. A red "X" in the box below is a reminder that your dues are due. Send a check, payable to the "D.C. MAXECUTERS", to the treasurer, Stew Meyers.

PUBLISHING DATES - Six issues of MaxFax are sent each year as close to the nominal dates as possible, but since this is a volunteer publication nothing is guaranteed except that six issues will be sent to all members.

CONTACTS - Material for the newsletter and membership questions should be addressed to Stew Meyers phone 301-365-1749. Email gets immediate attention. [stew.meyers@verizon.net](mailto:stew.meyers@verizon.net)

As part of our AMA recertification, we have new club bylaws presented here. And finally flyers for NBM, WAWA, and Kudzu.

About those Tern Aero plans. Bob Higgins came through with a nice copy of the Aerobug #110. Jake Larsen provided the Nighthawk #106. Ray gave me the Curtiss Robin #111. I have uploaded these to the Hip Pocket Builder's Plans Gallery. Now they are all there as are the Rees plans. [www.hippocketaeronautics.com](http://www.hippocketaeronautics.com).

Bob Marchese and I have finally updated the web site [www.dcmmaxecuter.org](http://www.dcmmaxecuter.org). Check it out. We will attempt to keep it up to date. We now have a plans page. Plans for models to be flown at the NBM are here.

How do you get paper plans to build from? If you have a local blue print shop, Staples, or Kinko's, you can get your digital plan printed from a memory stick. I have a wide format ink jet printer that I use for 'B' size drawings. I take a memory stick to the print shop for larger drawings. I also print out sections of drawings on my laser printer to create printwood. My HP P10006's toner is soluble in Nitrate thinner. I can transfer the drawing to balsa by burnishing the inverted plan over the balsa with a thinner dampened Q-tip.

If you don't have a local print shop, the driving force behind Hip Pocket, Dave Rattenbury (Ratz) will print and mail you a plan that you have sent him a digital copy for. PDF originals preferred, but he will work from CAD, JPG or TIF as well. [daveratz@thefinalimage.ca](mailto:daveratz@thefinalimage.ca) He charges \$1.25 (\$US) per sq ft (plus actual postage) + \$1.00 for packaging & the trip to the post office. This is a reasonable fee and any thing over expenses supports Hip Pocket.

Now I realize there are those individuals who are uncomfortable with computers or the internet. We are trying to find a way to get paper plans to them. I reformat some of the smaller plans like these Tern Aeros that I think may be of interest to fit MaxFax. Unfortunately the Dave Rees plans don't fall into this category.

## National Building Museum April 7, 2013 FUN FLY

There is one Kanone event for FAC NoCal Scale flown following the FAC rules with the additional restriction that the model must weigh 6 grams without rubber. This event is flown for time anytime during the day.

Note that some of the events and how they will be run have changed since last year. We are expecting some newcomers to join us in flying so give them a hand in getting their airplanes trimmed. The Phantom Flash and Z-15 events are flown late in the day to allow time for newcomers to get these airplanes trimmed. Note that some of the events have minimum weight limits, so please prepare your models accordingly.

### Mass Launch Events:

11:30 Bostonian – 14g. Minimum Weight without rubber – ROG  
12:15 Parlor Fly  
1:00 WW-II No-Cal – 6 g. minimum weight without rubber  
1:45 Peanut Scale  
2:30 Dime Scale  
3:15 Phantom Flash – FAC rules – plastic prop – ROG  
3:45 Z-15 (a tissue covered model - see Flying Models 10/11 for Plans)

### Timed Events (to be flown throughout the day 11:00 to 4:30):

FAC NoCal Scale – 6 g. minimum weight without rubber  
Limited Pennyplane  
A-6  
Helicopter

There will be two trophies awarded in Phantom Flash. One for the overall winner and one for highest score by someone who has never won the event at the NBM before (if different).

Airplanes that have won twice before at the National Building Museum cannot further compete and must be retired to exhibition and fun flying only.

Certificates will be awarded to those who have exceeded one minute in flight or have risen above the 4th floor catwalk and safely returned to the floor.

Grand Champion calculation: The points awarded to a flyer will equal the number of flyers that finish behind the winner in any given event. For example if there are 10 contestants in Parlor Fly, then 1st gets 9 pts., 2nd gets 8, 3rd gets 7, etc. This applies to the preliminary rounds also. So if there were three rounds, the flyers eliminated in round 1 all get 0 pts. – they didn't beat anybody. The flyers eliminated in round 2 get points for making it to that round based on the number eliminated in the first round. We tried this scoring in January and it made for a close race for Grand Champion. The system rewarded being in the top tier of many events.

At the RC atrium there will be four events:

1. Tortoise and Hare Event for the slowest flying model to complete a figure eight.
2. Tortoise and Hare Drag Race event (for the slowest flying model)
3. Most Unique/Creative RC model to complete a figure eight
4. Most Beautifully Crafted RC Model to complete a figure eight.

Send me a note if there is confusion about these events. Paul Stamison will run the Radio Controlled events.

Send me a note before 4/2/13 if you desire early entry to the museum. Your note should include all names in your party and have names as they appear on your driver's license.

Glen Simperts  
DC Maxecuters  
grfreeflight@hotmail.com  
301-843-2896

## Foam Construction Techniques

Stew Meyers

Depron is actually polystyrene (EPS/XPS) plastic -- the (EPS) means expanded while (XPS) means extruded. For our purposes, we're only interested in the stronger, denser XPS Depron which also happens to be closed-cell foam. Open or Closed cell refers to its structure and because open cell (sponge type) foam soaks up all fluids (water & glue) it's just not as suitable for a model plane. The superior closed cell foam takes much less glue and is easier to waterproof. Its sealed surface adds considerable strength as well as making it very easy to apply non-solvent deptron friendly paint or ink finishes. Depron is very common medium for use in the food industry. Food trays are quite useful if you can find large unused ones to make light weight model parts from. You can get Depron from [www.rcfoam.com](http://www.rcfoam.com).

Of course you can't use solvent based glues on foam. Odorless Cyano is foam friendly, but watch the use of accelerator as the heat of a fast reaction can melt the foam. White glue like Titebond works well and canopy glue like R/C -56 works even better. Finally UHU Por or Beacon Foam-Tac will allow a joint to be released with napha (Ronsonol) similar to the way acetone releases Ambroid.

Tissue can be attached to deptron with Duro Spray Adhesive (WalMart) or others provided the coating is light enough that the solvent evaporates before it can attack the foam. You want a light coat anyway to keep the weight down. Thinned white glue also works. So does UHU glue stick, but it's not as water resistant. If you use a Epson printer, the ink is water resistant enough so that you can use alcohol to loosen the glue stick adhesive to reposition the tissue and remove wrinkles. It's advisable to seal the edges with white glue if you used glue stick for an outdoor model. You can lift the edges with alcohol and reglue with white glue.

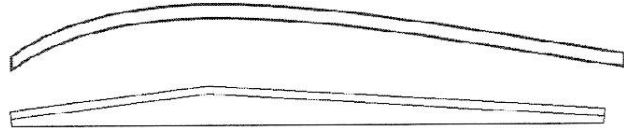
You might think foam would have a uniform density, but this is not quite true. The skins often are of higher density which make comparison to balsa not quite straight forward. This is because the sheets are often heated in an oven to form a curve or remove one. One or two mm foam may have a slight curve. If you place a piece of this foam in an oven between two flat plates of some weight and heat it to 200 degrees F for 20 minutes or so and allow it to cool while still restrained, the curvature will be removed but the outer surfaces will be slightly compacted. This results in a slightly thinner sheet with denser outer skins. Something like this also occurs during the manufacture of the sheet. I like to use these straightened sheets for tail surfaces. It's really quite a bit stiffer since the outer fibers are more dense. A bit of a sandwich really with the less dense innards.

The main problem I have run into in using foam to replace balsa is bending stiffness, which is dependent on the modulus of elasticity of the material and the moment of inertia (MOI). The MOI that resists bending is the integral of the area of a section times the square of its distance from the neutral axis.

Depron has a density of about ~1-2 lb/cuft. Quite a bit lighter than balsa, but the modulus of elasticity is also quite a bit less. Don't hold me to exact numbers here.

Since we can't alter the modulus of elasticity, the approach is to increase the MOI. For a rectangular shape, the MOI is a linear function of the width and a **cubic** function of the thickness. For a given plan form width is fixed and is only a linear function, so we need to consider thickness. Increasing the thickness adds stiffness in a hurry, but also adds weight and drag.

If the sheet is slightly curved, the MOI is increased by quite a bit since the curvature places material further from the neutral axis and the MOI is dependent on the square of this distance.



A Jedelsky airfoil has a similar increased MOI.

The problem is under high loads the relatively flexible sheet tends to deform losing its curvature and stiffness. Ribs will stabilize it. For these simple sheet jobs we are more interested in the structural than aero properties that results from the curvature. Another approach is to add carbon fiber stiffeners, but for simplicities sake, I would like to avoid that

I decided to apply these techniques to building a profile model from Paul Bradley's web site. <http://www.parmodels.com>. I chose the A6M3-32 Zero (This is the version with squared off wing tips called a Hamp ) since it has a simple "V" dihedral and Joe had built one from 3mm foam with bond paper coverings that weighed 26 grams. I made the fuselage to 2mm Depron and the wings from 1mm Depron and the tail from compressed 1mm foam which weighs the same as 2mm Depron. The skins were printed on jap tissue rather than bond paper. My wing forming jig was sized for small pipes and could only handle a 3.5 inch cord, and the Hamp has a 4 inch chord. Thus I just used the ribs to form the curvature. This results in a slight scalloping of the leading edge. This effect could have been prevented by gluing a piece of 1/16th square balsa to the LE. The harder balsa also is more resistant to nicks. If the sheet curvature had been developed by heating on a form this scalloping would not be present.

The resulting foamie No-Cal Hamp weighs 15 grams without rubber. My typical built up balsa No-Cal weighs 7-8 grams for comparison. However the Foamie is a lot sturdier and can be flown in a breeze that would fold the wings on an indoor style model. It also is a lot more water proof. Of course it's not FAC legal, but a kinda neat fun flyer.

Joe Horton has whomped up a new profile Hellcat from one mm black foam insulation from Home Depot with rib curved wings. This one weighs 15 grams and flies very nicely. No Photo unfortunately.

# GLASTONBURY MODELERS & THE PINKHAM FIELD IRREGULARS FOUNDING FATHERS MEMORIAL MEET



# FLYING ACES CONTEST



At Barron Field, Waywayanda NY Saturday May 25 & Sunday May 26, 2013

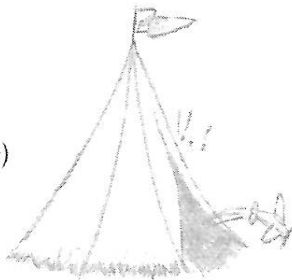
CD: Fast Eddie Pelatowski 5 Belleview Ter, Ansonia, CT 06401

Tel. 203-735-9494, epelatowski@gmail.com

Entry Fee: \$15.00 Certificates, Plans & Special Awards

Saturday May 25 9:00am - 5:00pm **EVENTS** Sunday May 26 9:00am - 4:00pm

1. FAC Scale
2. Jumbo/Giant Scale
3. GHQ P-nut
4. Embryo Endurance
5. Dime Scale
6. W.W.I (Multi-wing Planes only)
7. Baby Glider
- \*Dave Stott Commemorative Event
8. Air Devil Model Co.



1. FAC Scale
2. Jumbo/Giant Scale
3. GHQ P-nut
9. W.W.II (15% Motors)
10. Thompson/Greve (15% Motors)
11. Golden Age (OT Plan/Kit scale eligible)
12. No-Cal Scale
- \* Dave Stott Commemorative Event
13. Hung-Aereon Challenge Mass Launch

*FAC Scale, Jumbo/Giant Scale, and GHQ P-nut can be flown both days!*

FAC Scale & Jumbo/Giant will be scored as a 3 flight average. With a three flight average even a low bonus, good flying plane has a chance to place well

GHQ P-nut The original P-nut event. It's the one with the multiplier

Baby Glider is new this year! It is a catapult glider mass launch flown in rounds. The first pilot to be last down four times is the winner! Gliders are limited to a ten inch wing span measured tip to tip flat on the plan. Rubber is limited to a nine inch loop of Super Sport with a cross section of no more than a quarter inch.

*Talking Smack between rounds is highly encouraged!*

Hung-Aereon: Originally an embryo by guess who, Dave Stott. This event is now a mass launch cause they look so darn good up in the ozone together. They are easy to build, and fly right right off the board.

Air Devil plans and Hung-Aereon Plan available through Paul Stott: 175 Thoreau Drive, Shelton, CT 06484  
Home: 203-929-5139 Cell: 203-258-3962

*And as always, bring all of your documentation so not to get caught without a chute if you need it!*

And finally in the words of Dave and Bob, "Looks like a busy couple of days ahead for any stringer bendin' modeler of the good old stick and tissue cloud cuddlers so popular in the years of the big fuss in the 1940's. You will find flying with the FAC a blend of fun, adventure, and nostalgia. See you there at the "Field Of Honor" bright and early to await Hung's favor!!!"



**KUDZU CLASSIC JUNE 8-9, 2013**  
**RAEFORD, NC**  
**FAC / AMA DURATION**

**SATURDAY, JUNE 8**

**SUNDAY, JUNE 9**

**MASS LAUNCH EVENTS**

**WWI #25**  
**Navy Scale #50**  
**Combined Modern Military/Civil #8**

**WWII #26**  
**Combined Racers #22**  
**Golden Age Combined #7**  
**Flying Hoard\* #51**

**JUDGED / TIMED EVENTS**

**Embryo #19**  
**FAC Jet Catapult #20**  
**Dime Scale #16**  
**FAC Power Scale #5**  
**Combined FAC Peanut /Rubber Scale #1**

**Simplified Scale #15**  
**Two-Bit +1 OTR Fuselage #17**  
**No-Cal #17**  
**½ Wakefield #29**  
**Combined FAC Peanut / Rubber Scale #1**  
**Earl Stahl Endurance\*\* #52**

**AMA EVENTS**

**Classic Towline Glider**  
**Hand Held Catapult Glider**  
**Hand Launch Glider**

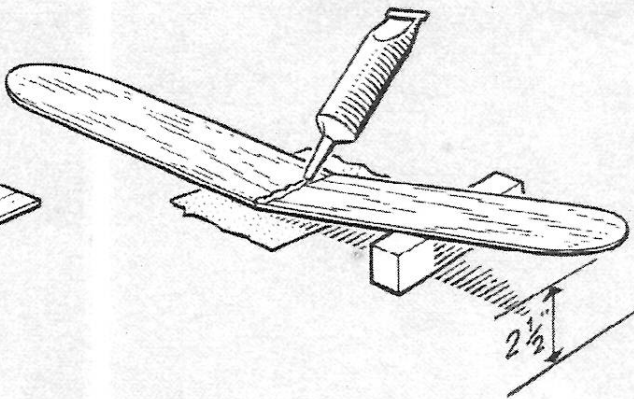
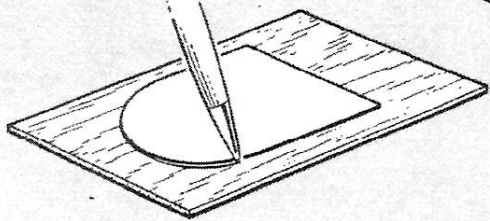
**P-30**  
**E-36 Electric**

\* Any scale model that has not won an event.

\*\*ANY Earl Stahl design, scale or non scale. Total of Three Flights, 2 minute max. This is a non-kanone, "just for the Earl of it" event. Rubber power, no folding props. Let's see how the High Climber stacks up against the Magister!

CD /CONTACTS:            FAC Events: Stew Meyers [stew.meyers@verizon.net](mailto:stew.meyers@verizon.net)  
    Dave Mitchell [davedge@me.com](mailto:davedge@me.com)  
    AMA Events: John Diebolt [jdiebolt@mindspring.com](mailto:jdiebolt@mindspring.com)    919-467-1025  
 For more information: [www.carolinafreeflight.org](http://www.carolinafreeflight.org)            [www.dcmexcuter.org](http://www.dcmexcuter.org)  
 Google Map to field:        <http://goo.gl/maps/vc3R>

Take US-401 / Raeford Rd. WEST out of Fayetteville. After the Food Lion shopping center on your left, US-401 divides; bear LEFT (south) on to US-401 Bus. Go 2.6 miles, turn LEFT at Oakdale Gin Rd. Go .4 miles, turn LEFT at Ratley St. Ratley makes a 90 degree bend to the left; at this point the field and dirt access road is on your right.



1. Trace paper patterns with carbon paper. Trace around patterns onto balsa sheet using ballpoint pen. Lines are easily seen.

2. Prop one wing half up so tip is elevated  $2\frac{1}{2}$ " for dihedral. Cement halves together, using wax paper to prevent sticking to work board. When picked up, be sure bottom is dry.

**Step 1:** Make patterns of all balsa parts by putting tracing paper over the plans, or carbon paper and a sheet of white paper under the plans. Trace the outlines and cut out the patterns.

**Step 2:** With a ballpoint pen, trace around the patterns lightly onto the balsa wood.

**Step 3:** Cut out the balsa parts using a ruler where needed to cut straight edges.

**Step 4:** Sand all parts smooth and round except where parts join together.

**Step 5:** Bend all wire parts to shape as shown on plans. Get help if needed. Put on wheels.

**Step 6:** Glue wings together by putting one wing flat on the work bench and raising the other tip up  $2\frac{1}{2}$  inches. Use wax paper under wing joint to prevent wing from being glued to bench. This forms the proper dihedral angle and makes the Hi-Climber stable in the air. Let this glued joint dry overnight, or at least until thoroughly dry.

**Step 7:** Use a pin to make the hole for rear hook to fit bottom of fuselage. Push rear hook into fuselage and wrap joint with thread. Coat joint lightly with glue.

**Step 8:** Cut  $\frac{1}{2}$ " length of metal tubing and glue it and spacer block to bottom front of fuselage. Wrap with thread and coat heavily with glue. If available, use epoxy glue on the nose rather than white glue (such as Elmer's).

**Step 9:** Glue pylon onto fuselage and allow to dry. Make sure high side is forward toward propeller.

**Step 10:** Put landing gear in fuselage, wrap with thread and coat with glue.

**Step 11:** Glue stabilizer on top rear of fuselage. Use pins to hold temporarily if needed.

**Step 12:** Glue rudder on either side of fuselage and against bottom side of stabilizer.

**Step 13:** Glue wing on top of pylon. Use pins temporarily to hold in place if needed. Make sure all parts line-up when viewed from top, front and rear, and let the Hi-Climber dry thoroughly.

**Step 14:** Put propeller shaft through metal tubing, put on two or three thrust washers, put on propeller and bend end of wire to keep propeller on the shaft. Put one drop of oil on the washers only.

**Step 15:** Lubricate the motor lightly with liquid hair shampoo or with rubber lubricant and hook in position. (Or melt a little margarine — not butter — in palm of hand.) Don't use oil on the rubber. Measure  $3\frac{1}{2}$ " of  $\frac{1}{8}$ " rubber, tie the ends together and double the loop to make 4 strands.

**Step 16:** Wind about 50 turns into the motor (don't wind backward; turn prop to right as you face front) and launch with a gentle push into the wind with the nose pointed slightly up. If the model turns too

tightly to the right, moisten and turn the rear of the rudder to the left (as viewed from the rear).

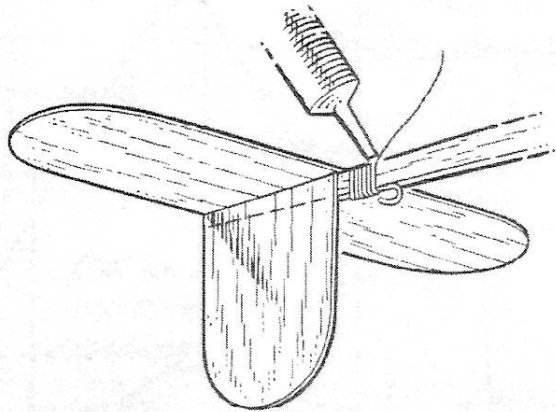
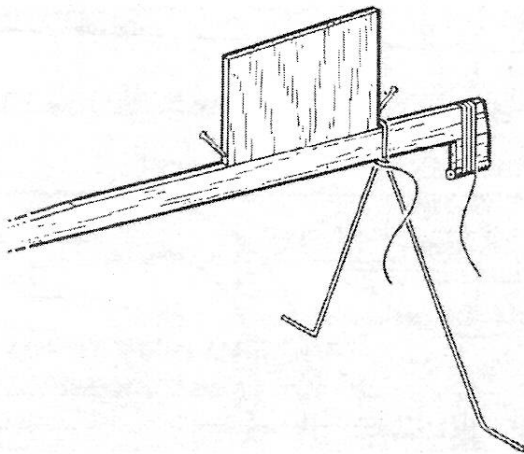
**Step 17:** The model should circle to the right and climb high under power. In the glide it should turn to the left or possibly glide straight.

**Step 18:** Maximum winds are put in by following the picture which shows the model held upside down by the propeller while another person stretches the motor three times its normal length and begins winding while slowly advancing forward until normal motor length is reached. With practice, 250 winds of the motor are possible every time. This may only be 40 to 60 turns of your winder. See how many winds each turn of the handle twists into the rubber motor.

**Step 19:** Fly the Hi-Climber away from trees and houses. It really goes! Your schoolyard makes a fine flying field. Use the ballpoint pen to put your name, address, and telephone number on the bottom of the wing for safety.

**Step 20:** You may wish to make a larger Hi-Climber by using wood twice as thick and making all parts half again larger than these plans. Be sure to keep the angle between the top and bottom of the pylon the same, as this is the only critical part.

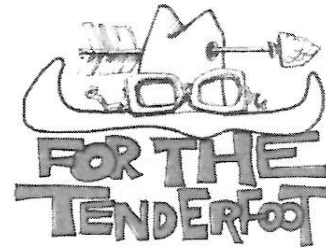
**Step 21:** Happy flying on calm days. Be patient if wind is blowing.



3. Cement wing pylon to motorstick, pinning it while cement hardens. Bind with thread and cement landing gear, spacer and thrust tube in place. It does not pay to hurry your work.

4. Bind and cement rear hook in position. Cement fin to side of motorstick. Make sure it is on straight as cement dries.





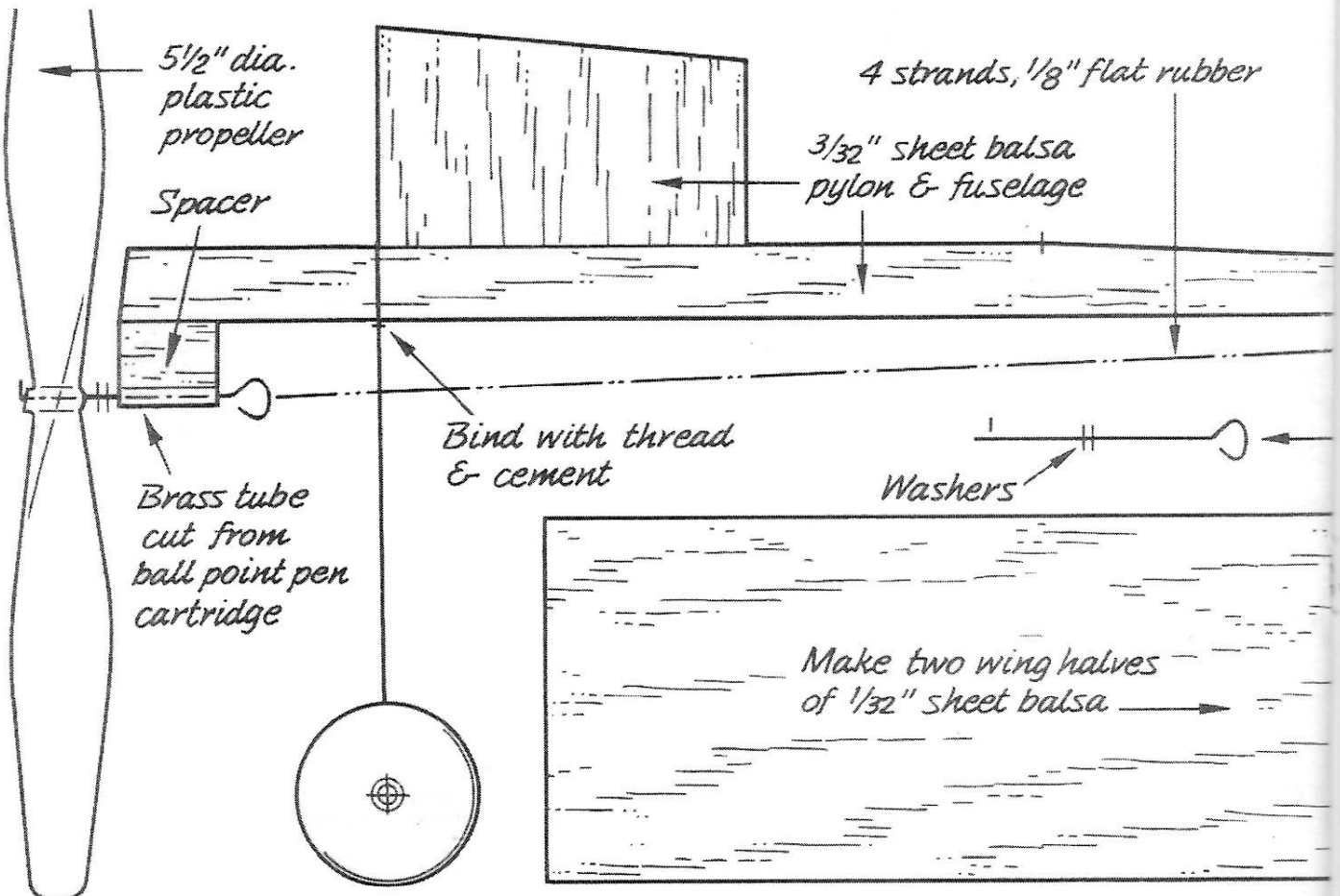
# HI-CLIMBER

STU RICHMOND

HERE'S a little cutie that really flies! It builds quickly and has almost no critical dimensions. It's designed like a contest model. And it flies like one! Plans are full size as they appear in this magazine. A few suggestions will help you get best

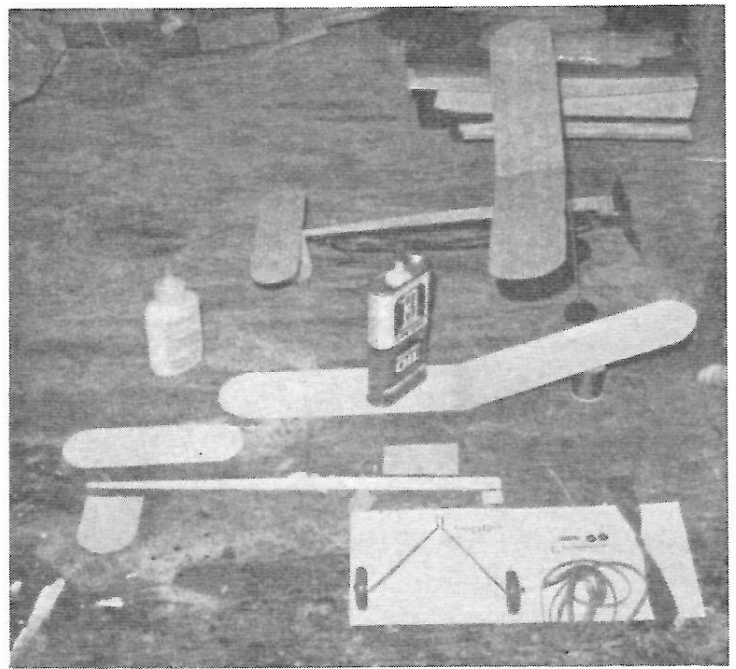
results. Make sure you use stiff, warp-free wood for the wings and tail parts. The propeller and wheels, along with wire parts may be had from the local hobby shop, or from some ready-to-fly models costing about 25c. Any plastic prop near 5/2 inches

in diameter will do. They are easy to find. Study the pictures, tool list and materials list carefully before you start. Putting maximum winds to the motor by stretch winding will take some help from a friend, but flights will be about twice as long if





Everything you need, both in materials and tools. Razor saw is a help, but is not essential. Use of winder described in article.



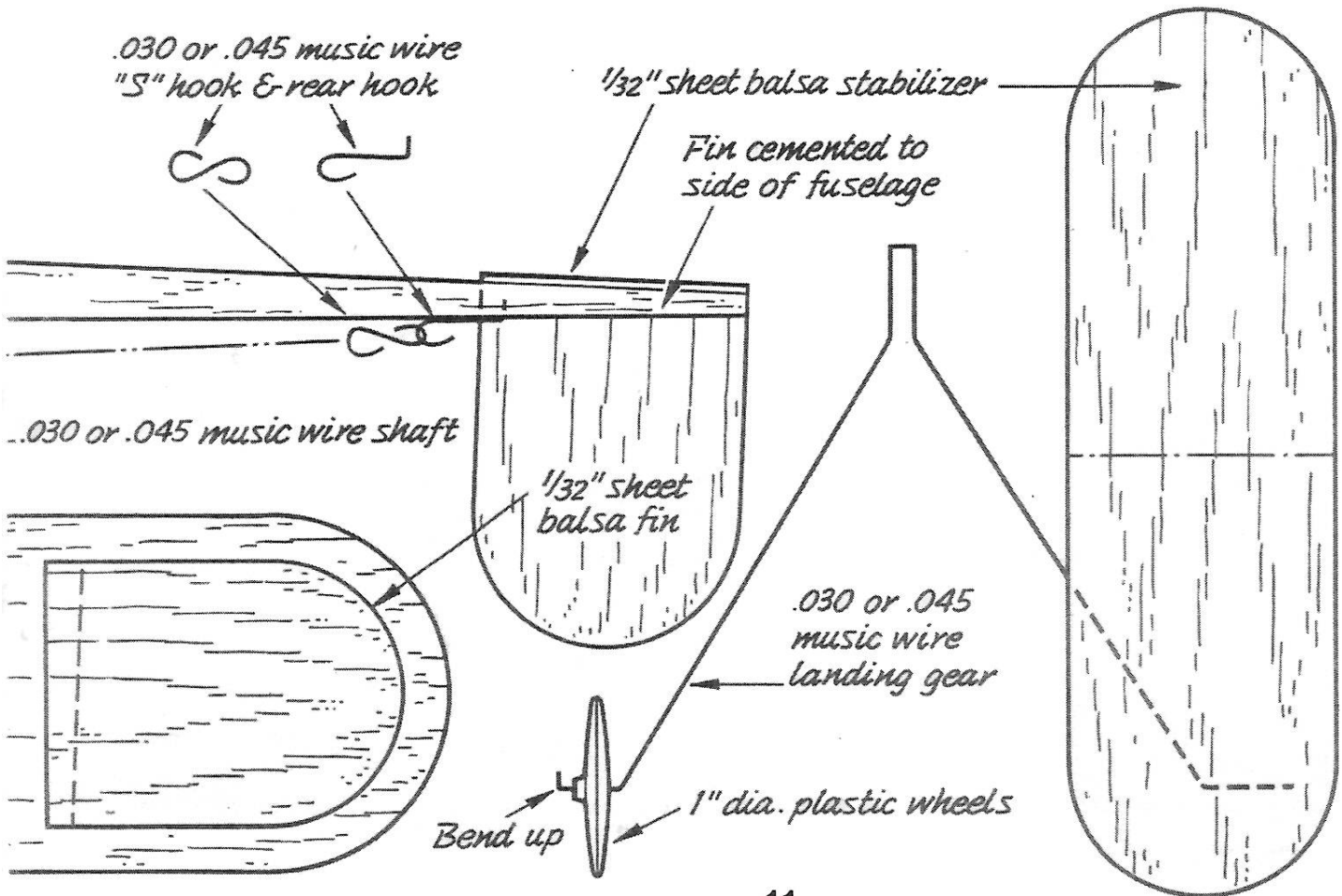
Parts have been cut out, landing gear bent to shape. Important to note is simple method for putting the dihedral in the wing.

you use a mechanical winder, or a hand drill with a hook in it. If you use a hand drill, put a slight bend in the hook where it fits inside the drill and get it tightened well so it won't pull out and cause an accident to your helper or the Hi-Climber.

You can add clay or chewing gum under a wingtip to control turns, as well as to the nose (if model stalls) or tail (if model dives) as necessary. All models built and shown in the pictures have required no such weight additions. You can experiment

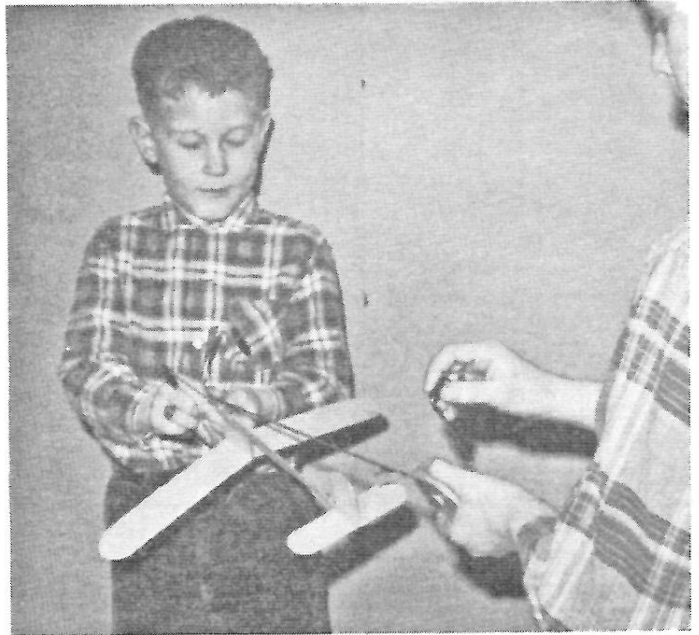
by moistening lightly the rear of the rudder and bending it to either side to control the turns.

If you wish to experiment further after building your Hi-Climber, follow step #20 and build one-half again bigger.





An important part of building a flying model is checking out the alignment of flying surfaces. Should not be crooked — no warps!



The secret of long, long flights. Use an escapement winder, or a drill with hook. Stretch rubber, wind and slowly walk it in.

#### TOOLS

Modeling knife or single-edge razor blade for cutting.  
 Ruler (a metal one would be best).  
 Very smooth sandpaper (#500 or #400 if possible).  
 Needle-nose pliers (for wire bending).  
 Small hacksaw (to cut tubing).  
 Pencil or ballpoint pen and carbon paper for tracing outline of balsa parts onto balsa wood.  
 A few straight, steel pins.  
 A sheet of tracing paper or carbon paper.

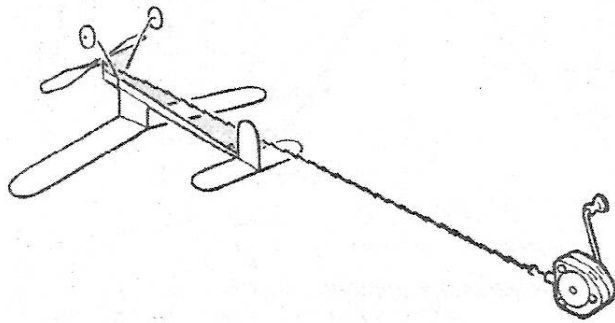
#### MATERIALS

One sheet  $\frac{1}{32} \times 2 \times 36''$  balsa. Must be stiff and flat. If not available, use soft, flat  $\frac{1}{16} \times 2 \times 36''$ .  
 One sheet  $\frac{3}{32} \times 2 \times 36''$  very hard balsa for fuselage;  $\frac{1}{8}''$  thick wood may be substituted.  
 One piece .030 or .045 piano wire for landing gear and hooks.  
 Two plastic wheels — about 1" in diameter.

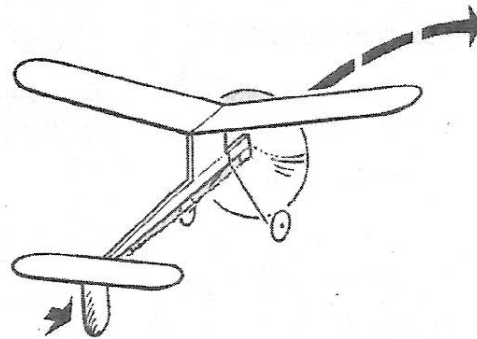
One plastic propeller  $5\frac{1}{2}''$  diameter. 5" may be substituted or a 6" propeller may be cut to  $5\frac{1}{2}''$ .  
 One 2 or 3 washers — piece of  $\frac{1}{4}''$  flat rubber 36" long for 4-strand rubber motor.  
 One piece of  $\frac{1}{2}''$  long metal tubing big enough for the .030 or .045 wire to fit through — can be cut from inside a ballpoint pen.

#### MISCELLANEOUS

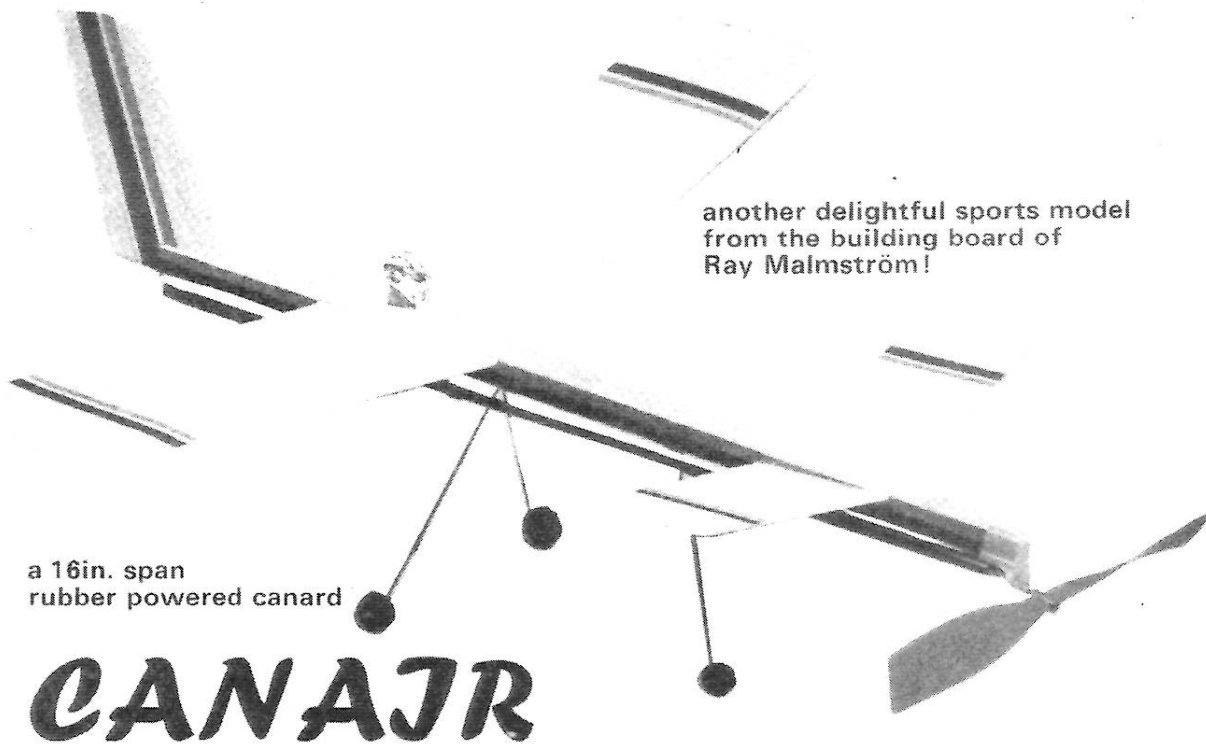
Small amount of liquid hair shampoo for lubricating rubber motor if model-type rubber lubricant isn't available.  
 A winder for the motor. Use a small hand drill with a hook in the chuck, or use an R/C escapement winder.  
 Bottle of white glue.  
 Spool of thread.  
 Some help in bending the small wire parts if you aren't strong enough.  
 Drop of oil for the 2 or 3 thrust washers.  
 Small piece of wax paper.



5. Stretch four-strand motor three times its length to wind maximum of 250 turns with winder. "Walk" it in as you wind.



6. Bend trailing edge of fin in direction you desire model to turn. Breath on wood, and bend gently while doing so.



another delightful sports model from the building board of Ray Malmström!

a 16in. span  
rubber powered canard

# CANAIR

FORGIVE us for asking a personal question, but are you feeling like building a little job that is easy and quick to construct, is rather nice to look at, and flies well? If you are, may we present *Canair* – and add (may heaven help us!) you ‘canardly’ do better!

As with all small rubber powered models, the key to a good flight

edge (*Sketch 5*). Carefully sand main plane panels to section shown. Cement the panels together, raising one tip up and pinning to the main plane dihedral jig C. Reinforce the centre-section with a strip of tissue – keep main plane pinned to building board until set (*Sketch 6*). Make two cuts on trailing edge as indicated. Repeat the procedure for the front elevator,

and VAT that can't be bad! Install a 280mm loop of well lubricated 3mm flat strip rubber between the propeller and rear motor hooks. Push a pin into the upper fuselage piece F where shown on the plan. Tie a length of thread to the pin and suspend your model. It should hang level. Our own model did not need the addition of any weight either front

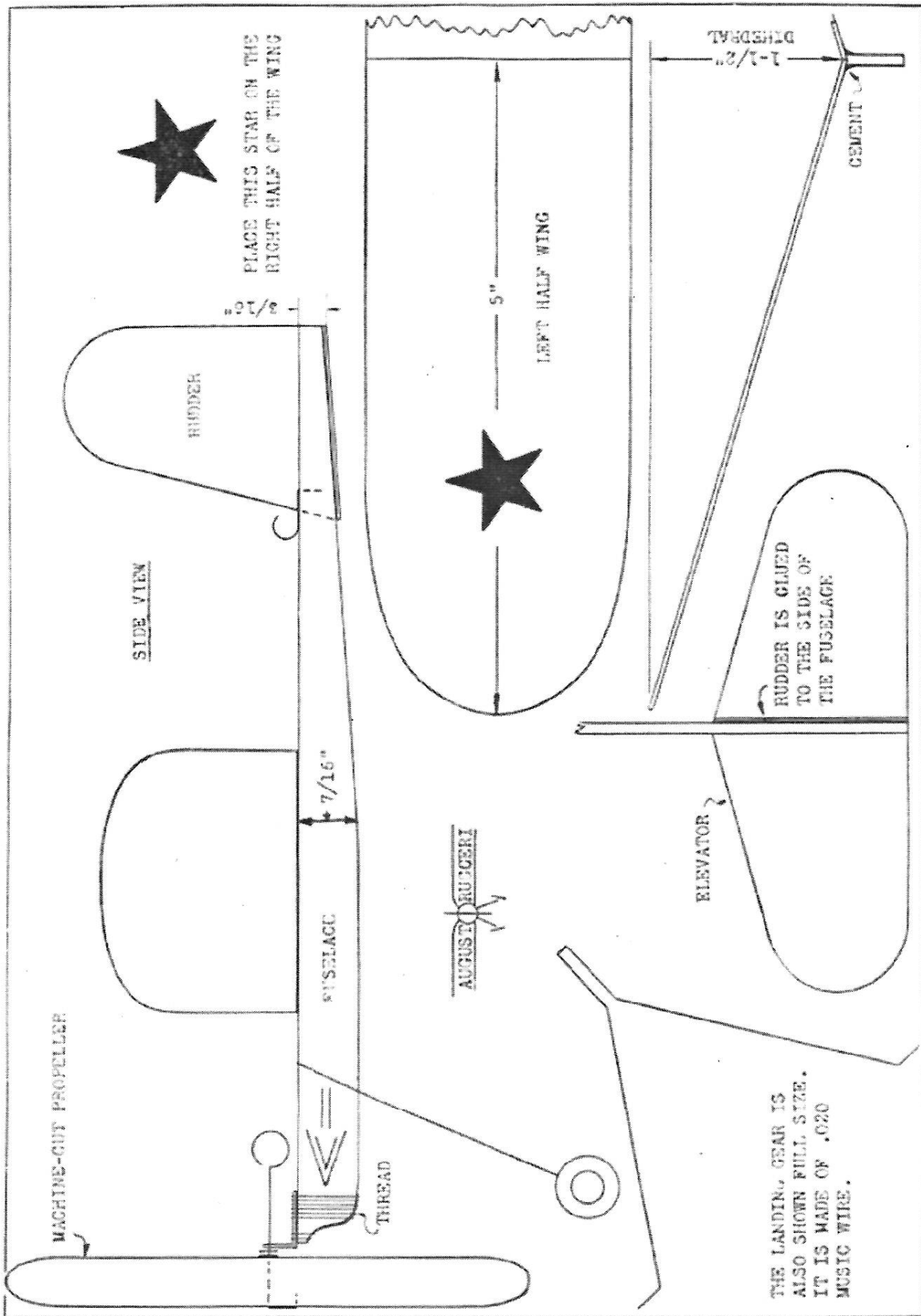
## FULL SIZE PLANS OVERLEAF

performance is – light weight. Choose medium grade balsa and very lightly sand all parts before assembly. Cut the lower fuselage (A) from 3mm sheet, noting the cut-outs for front elevator, main plane and ‘V’ cut at the rear end for the motor hook (see *Sketches 1 and 2*). Form the front and main undercarriage legs and rear motor hook from 22 swg piano wire then bind in their respective positions with fine nylon thread. Apply cement over the binding. Cut the wheels from 6mm sheet, sand to section and retain on axles with tight fitting electrical tubing (*Sketch 3*). Cut a strip of coloured tissue, and dope onto either side of the lower fuselage. Add another contrasting coloured tissue strip over the first. This tissue serves two purposes. It decorates *Canair* and adds strength to the fuselage (*Sketch 4*). Cut the mainplane panels from 1mm sheet, sand lightly and add reinforcing pieces B to the leading

using the front elevator dihedral jig D. Make shallow ‘V’ cuts on the front elevator and main plane cut-outs. Assemble front elevator and main plane to lower fuselage. Add small piece E above elevator (*Sketch 7*). Cut out upper fuselage piece F from 1.5mm sheet – sand to section. Assemble to fuselage (*Sketch 8*). Cut fin G from 1mm sheet, noting grain direction, sand very lightly, make a cut in the trailing edge and assemble to rear of fuselage. Cut windscreen from this cellophane and cement into slot in piece F. Joe, ‘the driver’, can be traced onto thin notepaper, drawn in pen and ink and coloured with felt-tip pens. Joe, of course, is optional! *Canair* uses the propeller assembly from North Pacific’s foam wing ready-to-fly *Sky Flyer* (35p from any aeromodelling shop). By using this propeller unit, you do, of course, get two models, almost for the price of one. In these days of inflation

or rear. Yours *may* need a minute quantity of weight, but if you have built as lightly as possible, and according to the plan, this is unlikely (*Sketch 9*).

Before attempting any test glides, carefully warp UP the elevators on the mainplane by approximately 2.5mm. This trim is important. Test glide over long or soft grass on a really calm day – *Canair* only weighs a quarter of an ounce, so she cannot fight a battle with half-a-gale! Obtain as straight a glide path as possible. A turn in either direction can be corrected by a tiny adjustment to the fin trailing edge. Commence power-on flights with about 150 turns. Correct any tendency to turn sharply (probably to the right) by bending the trailing edge of the fin. Increase turns with each successful flight by 25, to a maximum, with a well run-in motor of 450. Happy building – and good flying.



# Tiny Bee

**Build and fly the smallest biplane around, designed and described by Ray Malmström**

**O** It has never been easy to get into the Guinness Book of Records - however Robert Starr of Arizona, U.S.A., a World War II pilot, has done it! He has designed, built and flown a midget aircraft of 5' 6" span! We have nothing but admiration for Mr Starr's skill and courage.

Inspired by Mr Starr we have designed for your delight, a really tiny model aircraft of 5.3/4" span, named 'Tiny Bee'. Mr Starr has called his 'Bumblebee II' 'Bumblebees, according to the legendary aerodynamicist, cannot fly. They do so, however, because no one has told them they can't! Or something like that, anyway!

Certainly 'Tiny Bee' knows all about how to fly. So if you would like to own the smallest flying biplane around, get out your building board, wood, balsa cement and knife and go for it! We will be with you every step of the way. No sweat! We have tried to give you all the info you need on the plan, but perhaps we can underline a few important facts, to speed things up here and now.

## BUILD LIGHT!

With most model aircraft, especially small rubber powered models, lightness is the key factor. None more so than with a tiny job like this, so select the lightest 1/32 sheet you have. We treated ourselves to some American Super 8 Pak sheet from SAMS. It is not cheap but it is good.

The double headed arrows show grain direction. This is particularly important with the cabin pieces where the grain runs from top to bottom. Please be sure you fit the trim tabs. They are not there for decoration. They play an important part in controlling the flight path, especially when flying indoors.

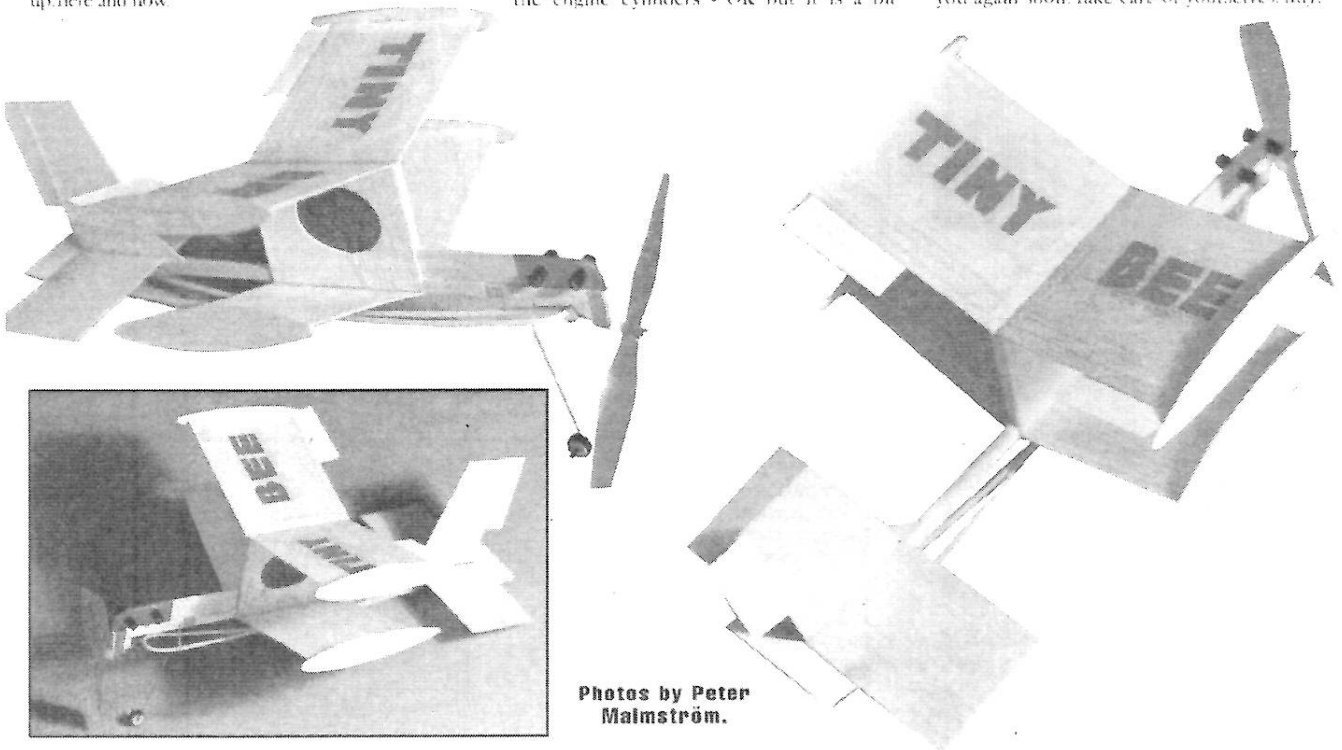
Take care in balancing your 'Tiny Bee'. The balance point is shown on the plan. When suspended from this point 'Tiny Bee', should hang level. Slightly nose-down is OK - nose up is NOT! Our original model needed a tiny amount of nose weight. We concealed slivers of lead in the engine cylinders - OK but it is a bit

fimicky. You can, of course, bang a small piece of Plastiline on the nose. It does the job fine, but isn't very pretty!

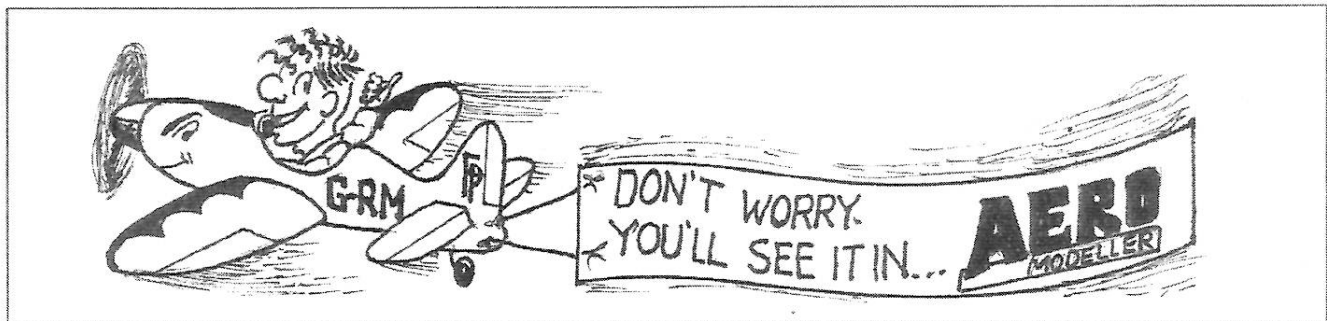
## AIRBORNE!

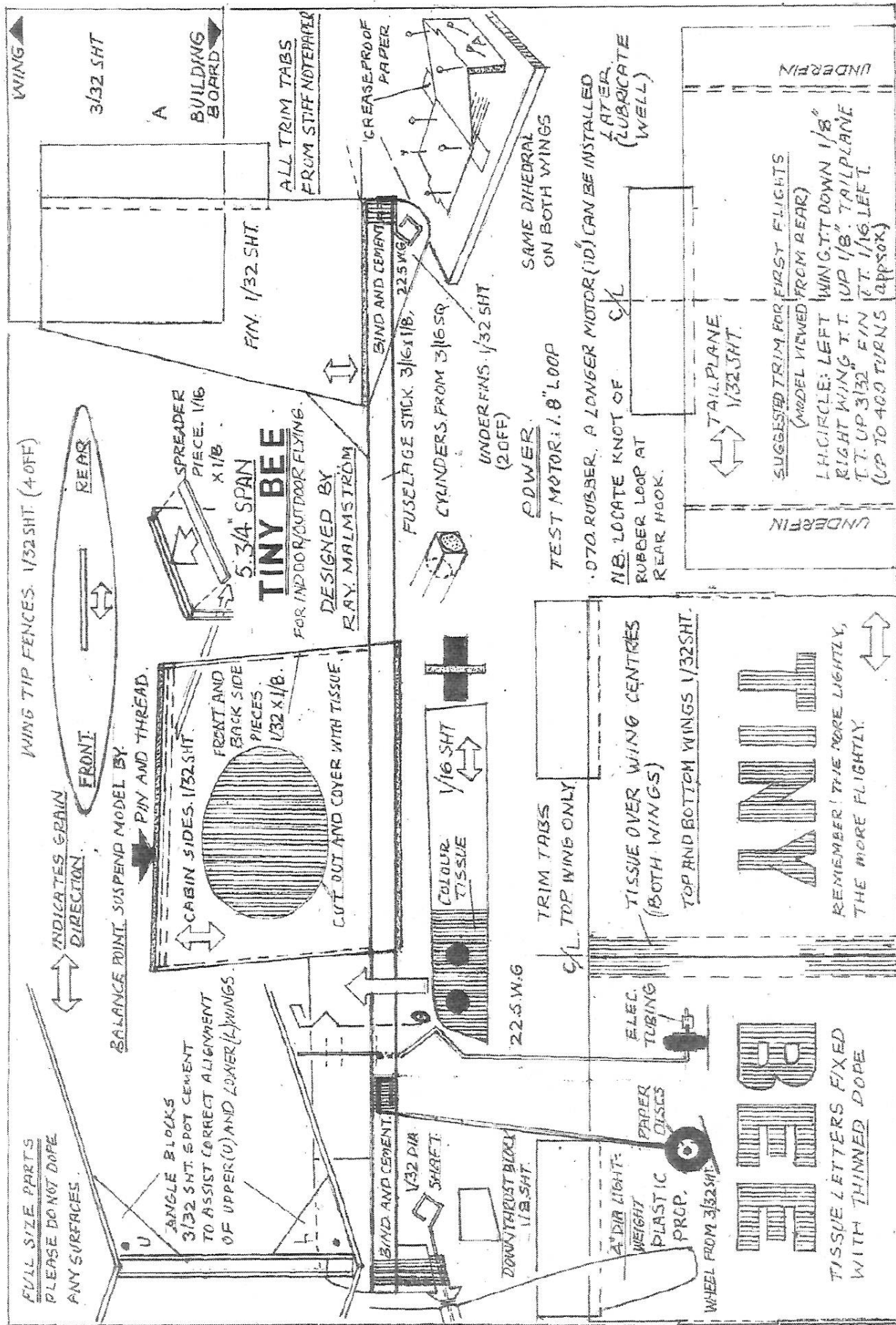
Primarily designed for indoor flying, 'Tiny Bee' will also fly outdoors, but only in very calm weather. We have included some trimming notes, for those 'nerve tingling' (!) first flights. Viewed from the rear bend the left hand wing trim tab *down* 1/8". The right hand wing trim tab *up* 1/8". Tailplane trim tab *up* 3/32". Fin trim tab 1/16" to the left. Test motor easily takes 400 turns. These suggestions should make sure you do not suffer cardiac arrest on that first launch!

Well, dear friends, that's about it. You will be wanting to dash off to the school hall, gym or leisure centre and fly your 'Tiny Bee'. Handle this tiny job carefully, and you will soon be in the 'Flying for Fun' business. Hope to be with you again soon. Take care of yourselves. Ray.



Photos by Peter Malmström.





FULL SIZE PARTS  
PLEASE DO NOT DOPE  
ANY SURFACES

INDICATES GRAIN  
DIRECTION

BALANCE POINT SUSPEND MODEL BY  
PIN AND THREAD

ANGLE BLOCKS  
3/32 SHT. SPOT CEMENT  
TO ASSIST CORRECT ALIGNMENT  
OF UPPER (U) AND LOWER (L) WINGS

CABIN SIDES 1/32 SHT  
FRONT AND BACK SIDE  
PIECES 1/32 X 1/8  
CUT OUT AND COVER WITH TISSUE

5 3/4" SPAN  
**TINY BEE**  
FOR INDOOR/OUTDOOR FLYING.  
DESIGNED BY  
RAY. MALMSTRÖM

SPREADER  
PIECE 1/16  
X 1/8

BIND AND CEMENT  
1/32 DIA  
SHAFT

DOWNTHROST BLOCK  
1/8 SHT.

COLOR  
TISSUE  
1/16 SHT

22.5 W.G

TRIM TABS  
TOP WING ONLY

TISSUE OVER WING CENTRES  
(BOTH WINGS)  
TOP AND BOTTOM WINGS 1/32 SHT.

ELEC.  
TUBING

AIR LIGHT  
WEIGHT  
PAPER  
PLASTIC  
DISCS  
PROP.  
WHEEL FROM 3/32 SHT.

**BE**  
TISSUE LETTERS FIXED  
WITH THINNED DOPE

**ANT**  
REMEMBER! THE MORE LIGHTLY,  
THE MORE FLIGHTLY.

TEST MOTOR: 1.8" LOOP  
070 RUBBER. A LONGER MOTOR (10) CAN BE INSTALLED  
LATER.  
(LUBRICATE  
WELL)

NB. LOCATE KNOT OF  
RUBBER LOOP AT  
REAR HOOK.

TAILPLANE  
1/32 SHT.

UNDERFIN

SUGGESTED TRIM FOR FIRST FLIGHTS  
(MODEL VIEWED FROM REAR)  
L. H. CIRCLE: LEFT WING CUT DOWN 1/8"  
RIGHT WING CUT UP 1/8" TAILPLANE  
TT. UP 3/32" FIN TT. 1/16" LEFT  
(UP TO 400 TURNS  
APPROX)

UNDERFIN

SAME DIHEDRAL  
ON BOTH WINGS

UNDERFINS 1/32 SHT  
(2 OFF)

FUSELAGE STICK 3/16 x 1/8, 22.5 W.G.  
CYLINDERS FROM 3/16 SQ

BIND AND CEMENT

GREASE PROOF  
PAPER

ALL TRIM TABS  
FROM STIFF NOTE PAPER

FIN 1/32 SHT

BUILDING  
BOARD

3/32 SHT

WING

# CONSTITUTION of the D.C. MAXECUTERS

(Revised Feb. 2013)

The members of the "D.C. Maxecuters" have agreed to establish and abide by this constitution:

## A. PREAMBLE

The club shall be dedicated to sport flying, good sportsmanship, mutual aid, and novice modeler development for all types of free-flight modeling.

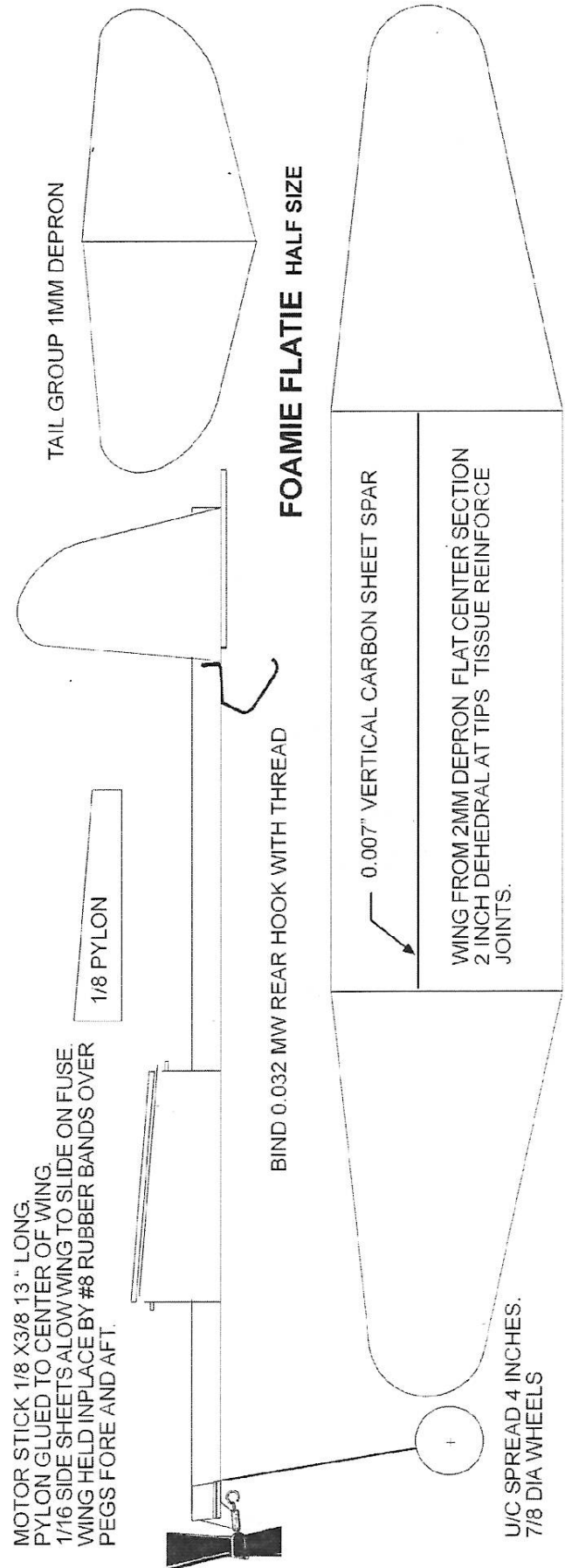
## B. BY-LAWS

1. AMA membership is required of all members.
2. The club shall be governed by a Board of Directors, assisted by the membership. The Board shall consist of the President, Vice President, Secretary, Treasurer, and Safety Officer, and shall serve from January 1 to December 31.
3. Members of the Board shall be elected and approved by general consensus of the active membership.
4. The Board shall meet at least monthly to conduct club business.
5. Members in good standing may attend any Board meeting and shall have voting privileges therein.
6. Approval of any significant club action will require a majority vote of the members of the board.
7. The club fiscal year shall be January 1 to December 31. Dues are payable January 1 and shall be \$25 per year.
8. Any member may be expelled by a majority vote of the Board.
9. Amendments to this constitution shall require a majority vote of the Board.

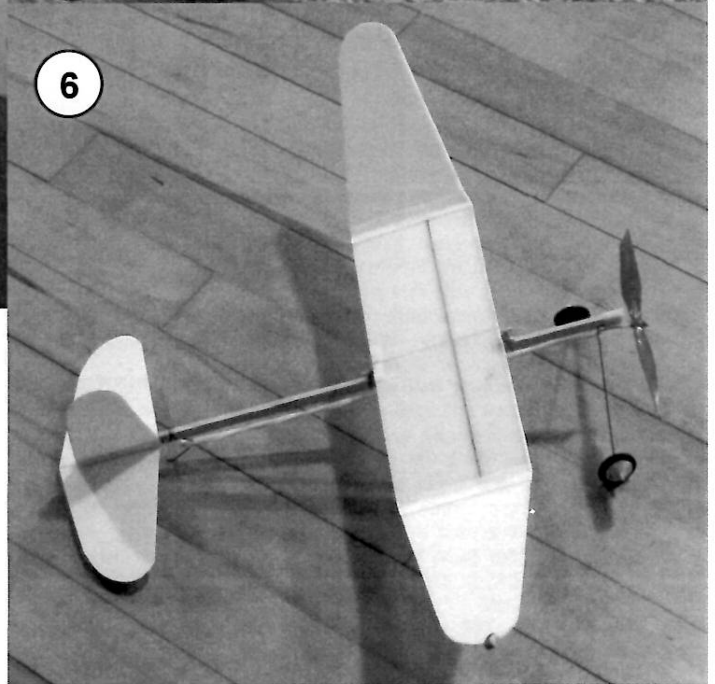
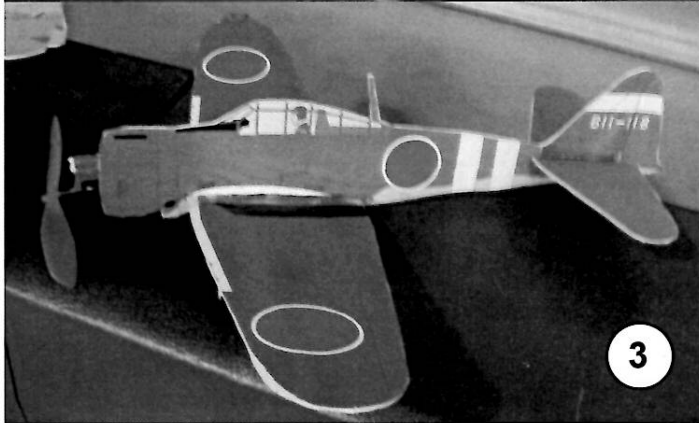
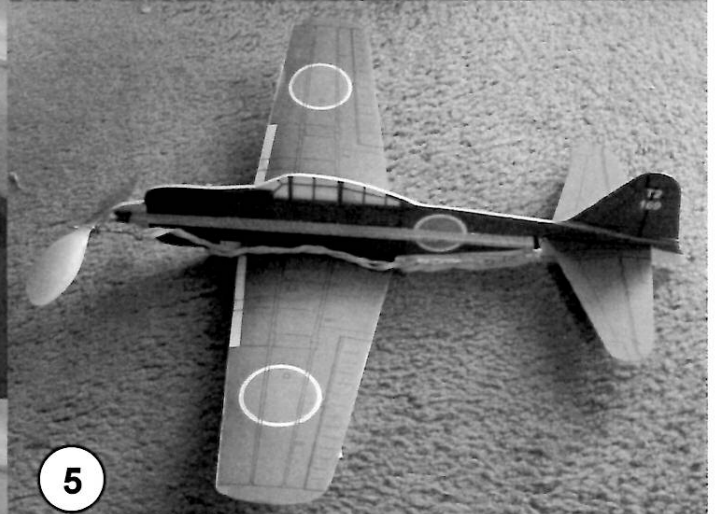
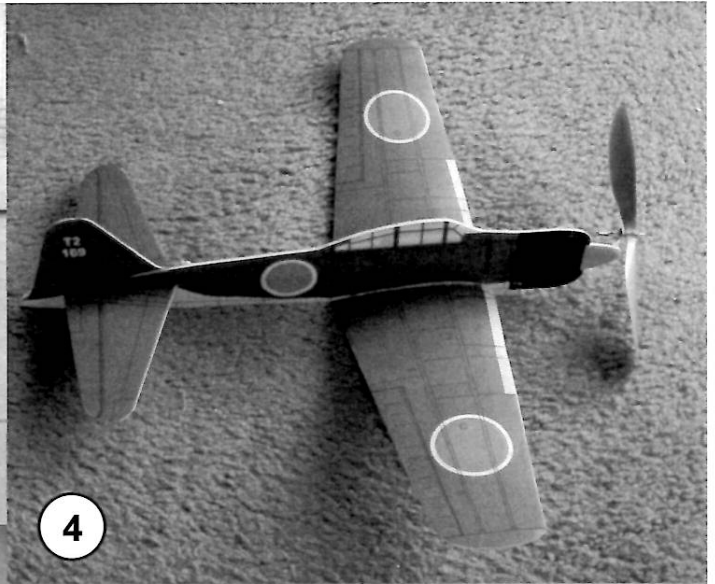
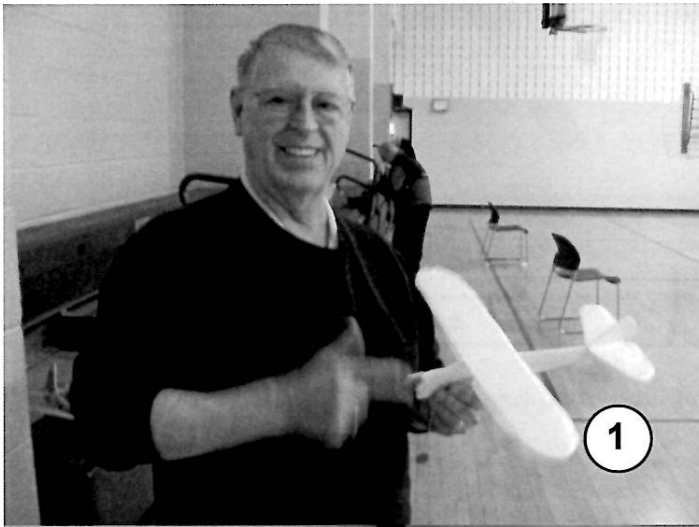
## FOAMIE FLATIE

NOT ENOUGH ROOM IN THIS ISSUE FOR FULL SIZE PLANS OF THIS FOAMIE FLATIE. IT'S LOOSELY BASED ON A RAMBLER. I HAD MADE THE WINGS UP A FEW YEAR AGO FOR A PROFILE ELECTRIC RAMBLER. THE SCALE RUDDER WAS TO SAMLL FOR R/C CONTORL. THIS MODEL HAS AN ENLARGED FIN. IT REALLY FLIES WELL ON A 10 INCH LOOP OF 3/32. ANYTHING OVER 300 TURNS PUTS IT IN THE RAFTERS. I CAN'T WAIT UNTIL THE CONDITIONS ARE RIGHT TO TRY IT OUTSIDE. IT WEIGHS 11 GRAMS WITHOUT THE RUBBER. IT USES A NORTH PACIFIC 5-1/2 INCH PROP AND HANGER FROM A SLEEK STREAK.

THE CARBON SHEET STIFFENING SPAR WAS GLUED TO THE EDGE OF A DEPRON SHEET WITH THICK FOAM FRIENDLY CA. (FOAM-TAC COULD HAVE BEEN USED.) THEN THE OTHER PIECE OF THE WING WAS GLUED TO THE CARBON STRIP. THE STRIP WAS BIT WIDER THAN 2 MM SO THE EXCESS BIT WAS SANDED OFF. KEEN EYES MAY DETECT THERE IS A 1/16 BASLA LEADING EDGE TO RESIST NICKS.







**This all foam sheet page shows:**

1. Joe Horton with his no-cal rendition of a Waco dimer.
2. Joe's Hellcat.    3. Joe's Zero.
4. & 5. Stew's Hamp. Note the motor stick is on the left side in an effort to get it fly to the right.
6. Stew's Foamy Flatty with a 2mm flat sheet wing re-enforced with vertical web of 0.007 inch carbon strip to increase bending stiffne

# MaxFax 2013-1



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FOAM SHEET CONSTRUCTION  
FOAMIE FLATIE  
NBM CONTEST FLYER  
WAWA CONTEST FLYER  
KUDZU CONTEST FLYER

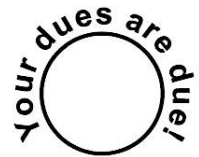


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# How to Build a Two-in-One Stunter

Here Is a Real Performer, Easily Made in a Few Minutes

By AUGUST RUGGERI

HERE is a new idea for a two-in-one combination model. A model that is an R.O.G. speedy stunt plane when flown with the propeller and a stunt glider when flown without the propeller and rubber. Another unusual feature is the fact that it can be built in a few minutes. You will find it simple to build and an unusual performer.

As an R.O.G., it will rise off the ground under its own power, climb fast and high and make several loops. It can be made to fly either straight or in circles.

As a stunt glider, it will make inside and upside down loops, it will spiral up and down, and if thrown at an angle, it will circle and come back to you. Here is a little ship you can build and fly successfully if you have never built one before.

The materials needed are few in number. For tools all you need is a razor having one cutting edge, a pair of pliers and a piece of sandpaper.

The wing is cut from medium balsa slightly thicker than 1/32 inch. Cut two pieces 2" wide and 5" long. Leave one end of each piece flat and round off the other into the shape shown in the plans. When this is done, you simply sandpaper each piece so that an airfoil section as shown in

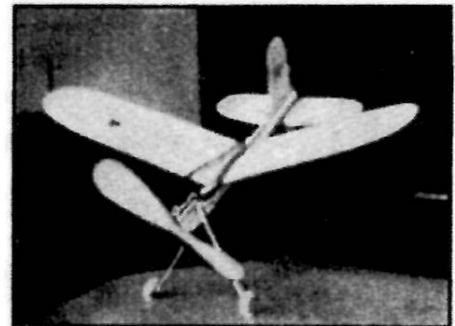


The author ready to launch the plane as a glider

the diagram is formed.

They are then cemented in the center, being sure to make a perfect joint and to make the dihedral at least 1 1/2 inches on each side. See the drawings. The dihedral assures stability and prevents the model from diving when thrown at an angle to make it come back to you. This is true only if there isn't something else wrong.

Next cut out the tail surfaces (made of 1/32 soft balsa) and fuselage (made of 3/32 medium) into the shapes shown in the plans. Then cement the tail surfaces to the fuselage. (Note: The rudder is glued to the side of the fuselage instead of to



Equipped with power, ready to go through its paces

the center. The joint is thus made stronger).

While these are drying, bend all the wire parts; namely, the landing gear, shaft and rear hook. The shaft *must* be made perfectly straight. The rest is "pie."

Just sandpaper the machine-cut propeller till it is 3/32" thick at the center and 3/64" at the tips, cement the wing to the fuselage (the leading edge of the wing is placed 1 3/4" from the nose), cement the thrust bearing, landing gear and rear hook to the fuselage and cement the shaft to the "prop." Thread is used to hold the bearing firmly.

Tie the rubber into a loop and the model is ready for flight. And are you going to have fun with it!

When you tire of flying it as an R.O.G. take off the rubber and propeller and further enjoy flying it as a stunt glider.

### List of Materials

1 piece	medium balsa	2" x 12" x 1/32" plus
1 piece	soft balsa	2" x 8" x 1/32"
1 piece	medium balsa	1" x 8" x 3/32"
2 wheels	hard wood	1/2" diameter
1 piece	music wire	.020" diameter x 9"
1 small	thrust bearing	.025" hole
1 foot	rubber	1/2" flat
2 polished	washers	1/2" diameter
1 dram	cement	colorless
Sewing machine thread		



**FOR THE  
TENDERFOOT**

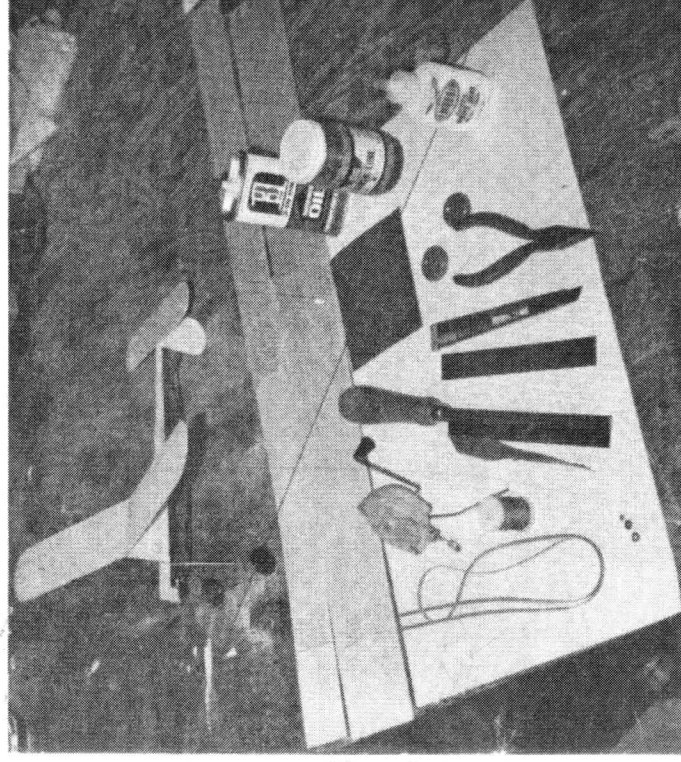
# HI-Climber

STU RICHMOND

HERE'S a little cutie that really flies! It builds quickly and has almost no critical dimensions. It's designed like a contest model. And it flies like one! Plans are full size as they appear in this magazine. A few suggestions will help you get best

results. Make sure you use stiff, warp-free wood for the wings and tail parts. The propeller and wheels, along with wire parts may be had from the local hobby shop, or from some ready-to-fly models costing about 25c. Any plastic prop near 5 1/2 inches

in diameter will do. They are easy to find. Study the pictures, tool list and materials list carefully before you start. Putting maximum winds to the motor by stretch winding will take some help from a friend, but flights will be about twice as long if



Everything you need, both in materials and tools. Razor saw is a help, but is not essential. Use of winder described in article.

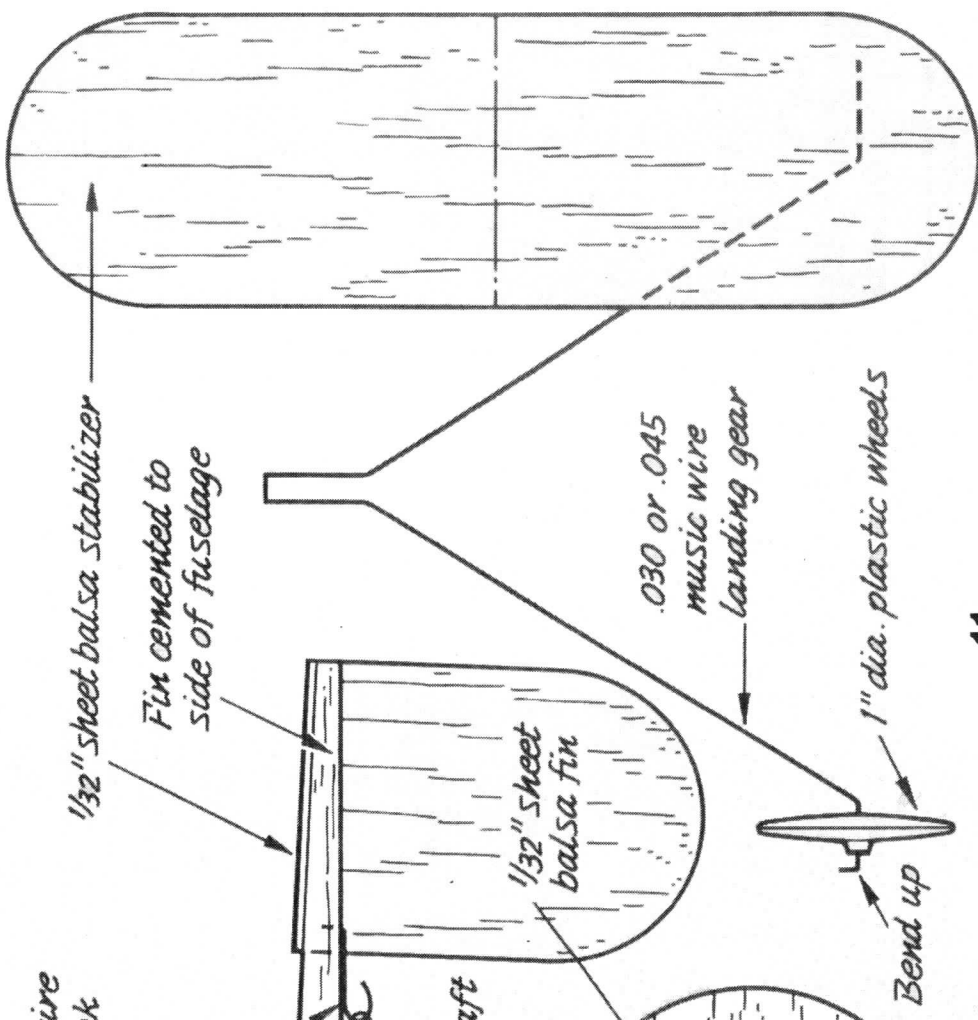
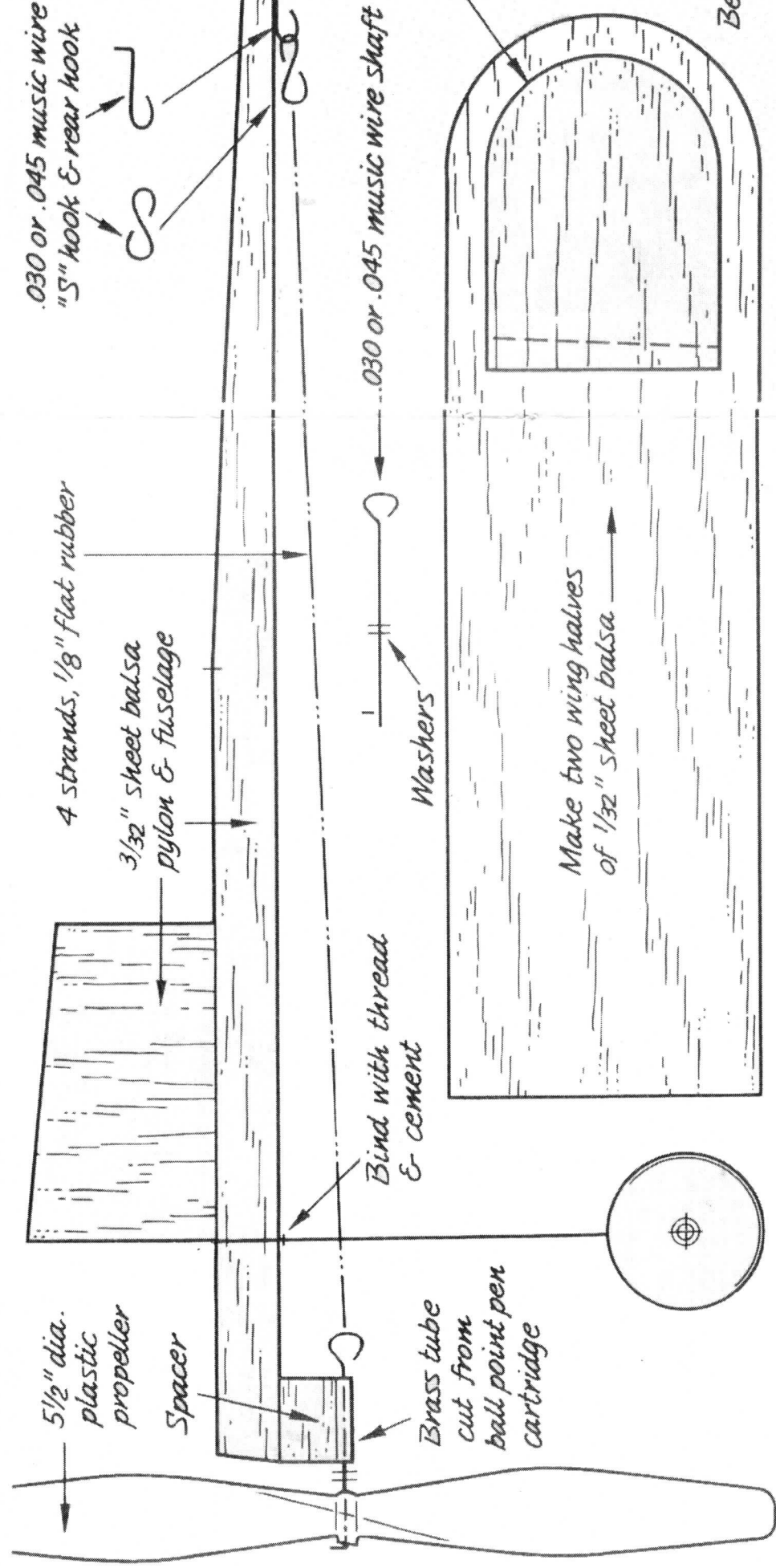


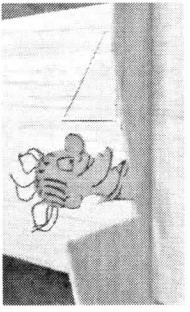
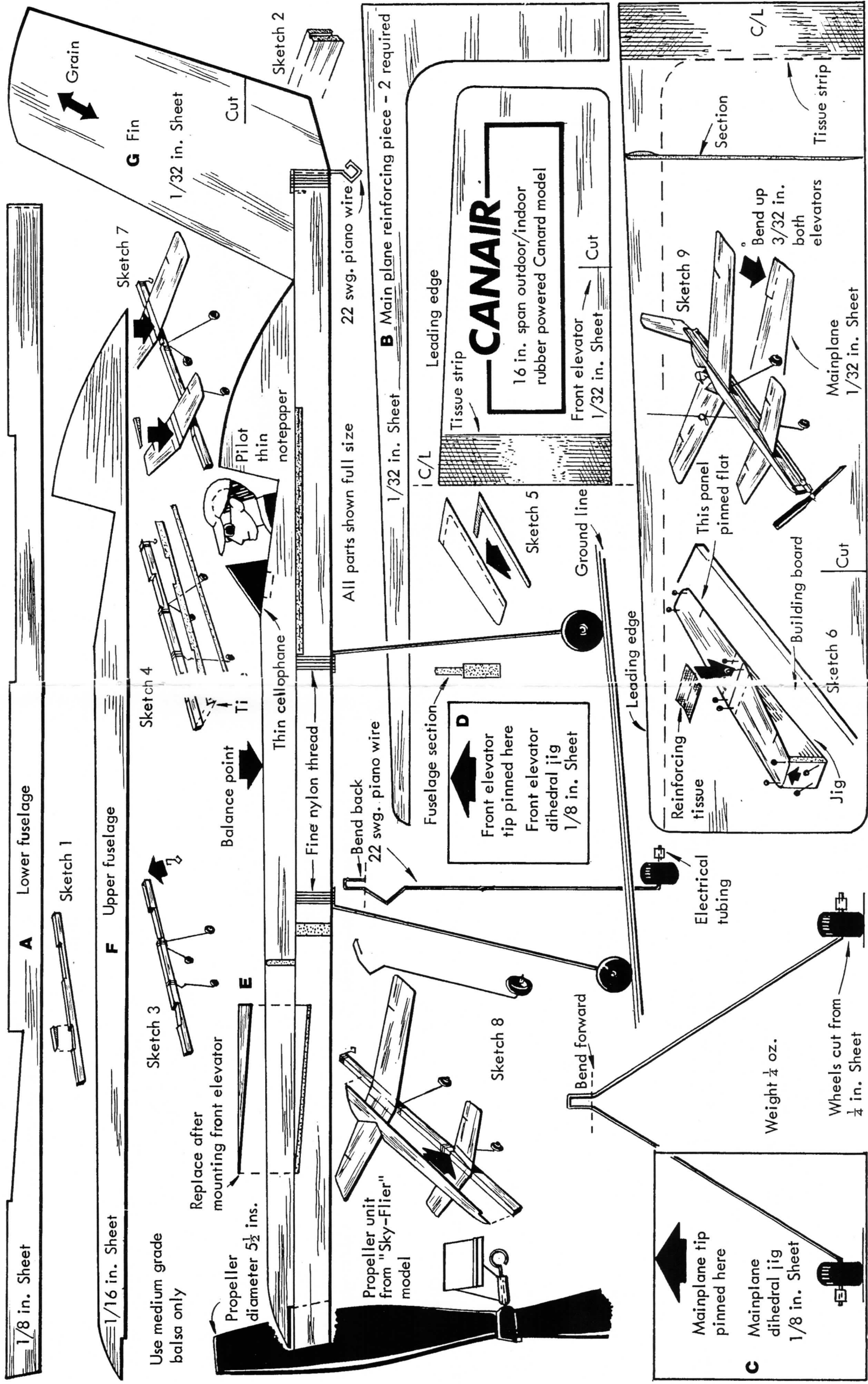
Parts have been cut out, landing gear bent to shape. Important to note is simple method for putting the dihedral in the wing.

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You can add clay or chewing gum under a wingtip to control turns, as well as to the nose (if model stalls) or tail (if model dives) as necessary. All models built and shown in the pictures have required no such weight additions. You can experiment

by moistening lightly the rear of the rudder and bending it to either side to control the turns. If you wish to experiment further after building your Hi-Climber, follow step #20 and build one-half again bigger.





Why not put Flier Phil, Ray Malsrom's alter ego, in the cockpit?

FROM JULY 1977 AEROMODELLER