RCMW-FSP
November 2015

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Aeromodeller October 1960

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Roland Friestad
1640 N Kellogg Street
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USA

For the Model Bulder and Flyer - November 2015 Issue

Cloud 9
RC Micro World

Full Size Plans

Last time I observed that Fall was coming. It has arrived with a vengeance along with frosty mornings, colorful trees and lots of leaves to rake up and dispose of. How come when it's windy the leaves always blow into my yard and never into the neighbors ? - Sounds like another topic requiring a few million dollars of government funded research projects to me. Must be time to crank up the snow thrower and make sure it runs instead of waiting until the last minute.

An RC model is now in the Smithsonian collection. It's the 1952 deBolt Live Wire Trainer with 1952 vintage RC gear including a GYRO ground based transmitter donated by your editor. Model by Guiseppe Fascione. See page 4 for details and photos.

We have quite a few models for you this time, including PINEY, a Free Flight model made of Pine from the pages of the June 1943 Air Trails. Dick Everett's answer to the wartime shortage of Balsa for building models.

PYLON BUSTER is a Mechanix Illustrated plan for a 78" Free Flight model intended to be a worthy competitor against the pylon free flight designs that were starting do dominate competition.

Dick Korda, a well known designer and competitor created this OPEN ROAD SPECIAL rubber powered endurance model for the September 1940 issue of Open Road for Boys magazine.

The SKY SKOOTER by Lloyd Hunt is a cute little sport Free Flight model from the September 1952 pages of Model Airplane News and was intended for either Rubber or CO2 power.

And Paul Plecan cooked up this pretty rubber model that he called PARAGON for the June 1940 issue of Flying Aces magazine.

Other items of interest are links you can use to view three short videos including one of 92 year old Joy Lofthouse getting another flight in a Spitfire. She was one of the women in the British ATA (Air Transport Authority) who ferried warplanes to the front line squadrons. Another video you might want to watch is the first time a B52 landed at the Oshkosh flyin this year. 6000 feet of lights had to be removed to allow room for the outrigger landing gear on the wingtips. And finally, at the Geneseo Non-Nats this year a simultaneous launch of three 54" Jumbo rubber powered scale models with their stately flights rounds out the showtime for this issue.

Gurney flaps added to an ARF foam B17 model allows it to become docile enough for flying in fairly small indoor venues. You might try it on some other models and tame them down a bit. Sounds good to a non-expert RC pilot like me.

Need plans Printed ? - See page 25 for several sources

Do you know someone who tells you that you are so hard to buy a Christmas, Valentines Day, Birthday or other gift for because all you are interested in is model airplanes ? Take a look at our digital back issue model airplane magazine collections on page 35 and 36. Better yet, print out the pages and circle items that catch your fancy.

Roland Friestad, Editor - E-Mail - cardinal.eng@grics.net

deBolt LIVE WIRE TRAINER in the Smithsonian

I'm very glad to announce that on October 8th, my Live Wire Trainer, the plane deBolt designed and kitted in 1952, was officially accepted by the Aero Space Museum in Washington, DC.

I proposed the donation some time ago, but the Museum made it clear that they were interested only if the plane could show systems from the same era (around 1952).

The configuration you saw at the Vintage RC Society reunions a few years ago (see picture) was "too modern" for the plane, so I spent some time looking for the engine called for on the drawing and a tube receiver that looked like the one on the drawing.

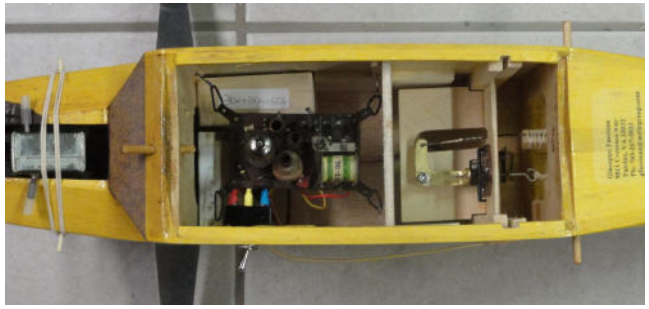
Finding a suitable transmitter was another difficult chore, but luckily enough James Fuller and Roland Friestad came to rescue! In the end, the Museum preferred the Land Based GYRO transmitter kindly provided by Roland.

I installed a Bonner rubber escapement that, via a bellcrank, operates a push-rod as per deBolt's suggestion. In the end, I also installed a micro-switch and a jack in the bottom of the model, in order to be able to activate the escapement and show people how the rudder moved, once to the Right, once to the Left, always hoping for the best...

In this configuration the Trainer was accepted by the Museum and the model was delivered.

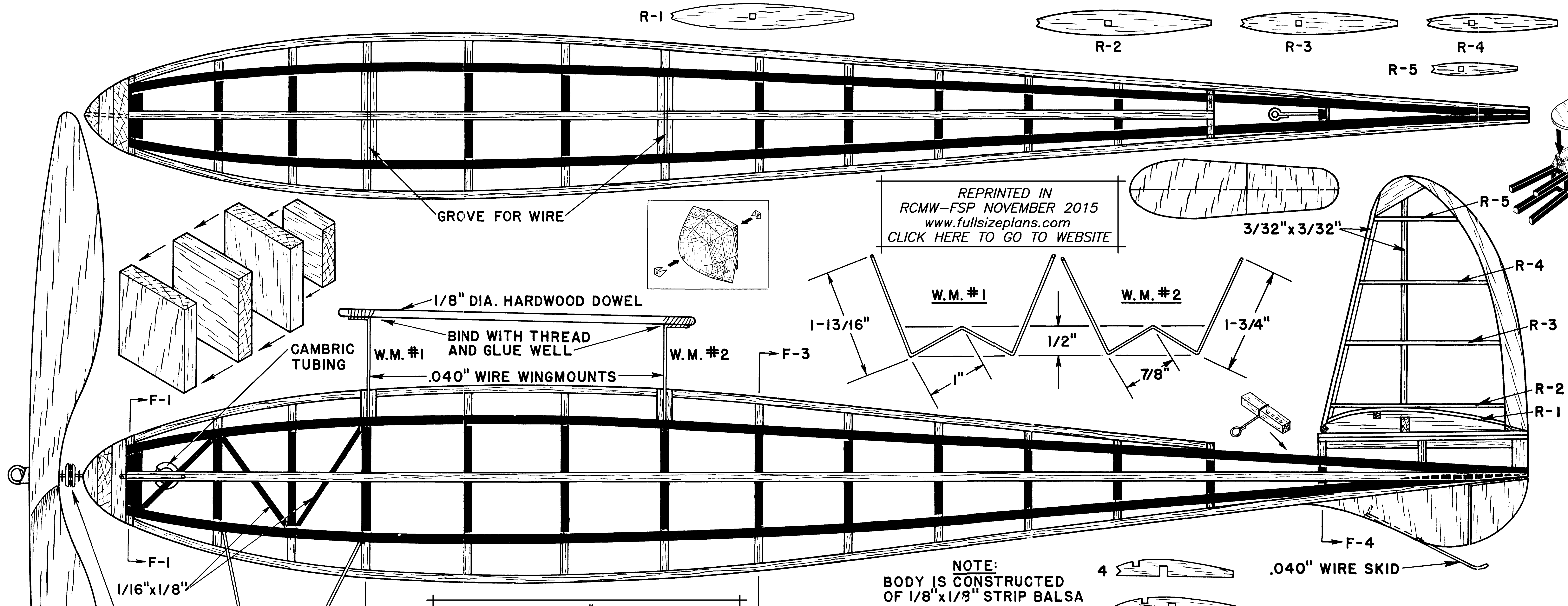
The ceremony was very simple, but the official Aero Space Museum photographer took a lot of pictures and I didn't miss the opportunity to talk about VR/CS.

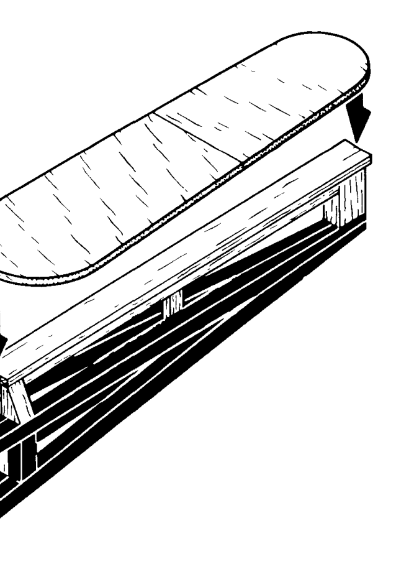
Indeed, a very pleasant day!
Beppe Fascione

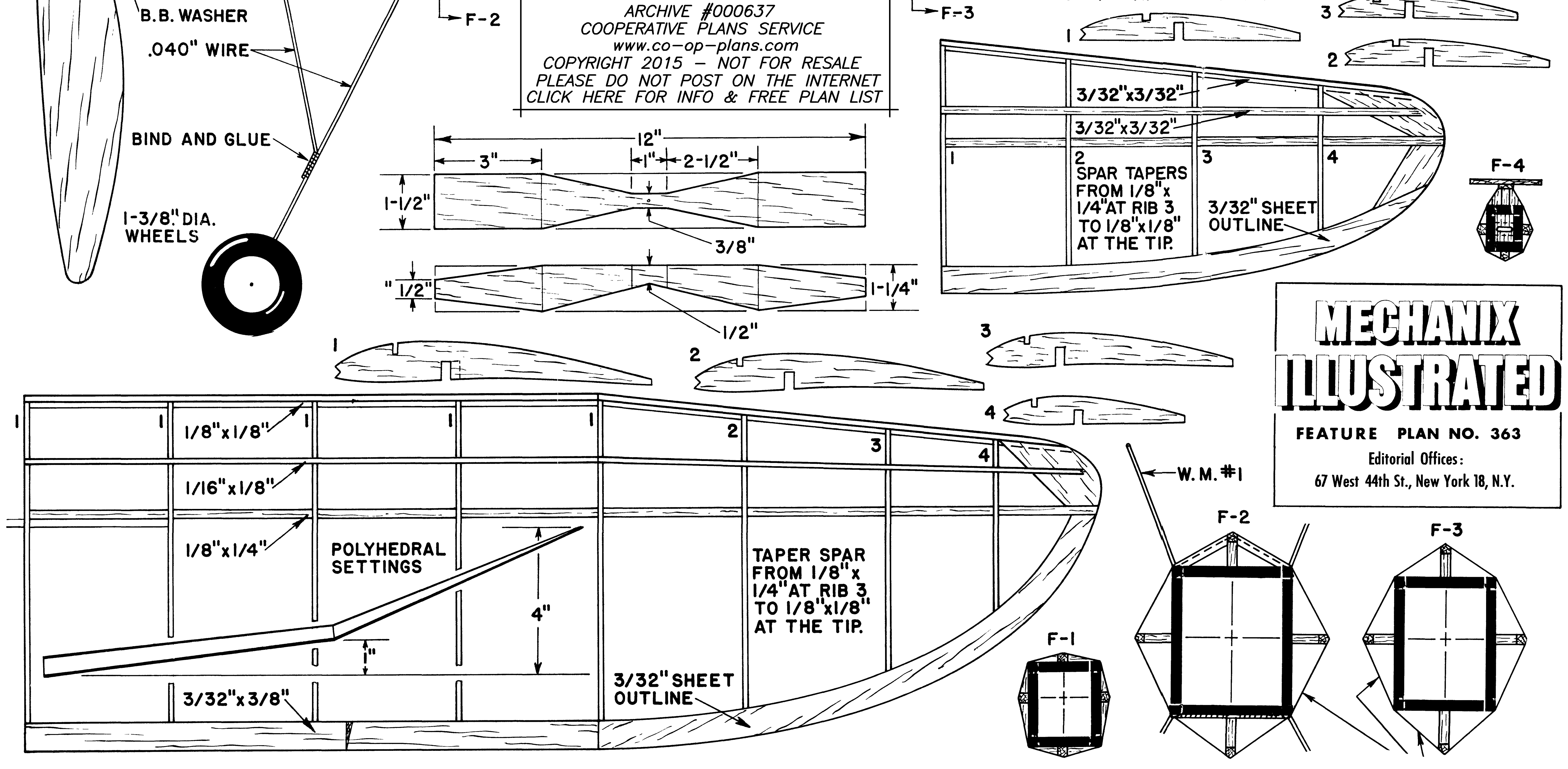


Editor's Note - I bought that GYRO transmitter from Bob Edelstein when I worked at Piper Aircraft in Lock Haven in the early 1960's. I knew there was a reason I lugged it around for the past 50 years - Now to go to the Smithsonian to see it.
Roland Friestad

23x35







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SKY HOPPER

PLAN FROM R. FRIESTAD COLLECTION

NAMING this contest performing rubber powered model SKY HOPPER was quite appropriate, for the original design, of which the model pictured above is the latest development, has been hopping all over the New York sky for the past five years Although this latest model has, to date, never entered any contests, its consistent dead-air performance makes it a strong contest contender and, what's more, a super all-around pleasure flyer With well over 500 flights to its credit, the job is still zooming up into the wild blue yonder—and turning in an average time of better than 2½ minutes per try In recent tests conducted by MI editors, the SKY HOPPER'S average time for five flights was 2 minutes 46 seconds R O G , the best time being 3 15 and the lowest 2 26 With but 150 hand turns the time aloft always topped 35 seconds!

SKY HOPPER can be built by anyone knowing the difference between a wing and a tail Perhaps the fuselage, with its octagon cross-section, is a bit more complex to build than that of the conventional "box" type, but with a little care no difficulty should be encountered The cross-section shape is one of the reasons why the SKY HOPPER S climb closely imitates that of a rocket

The fuselage is built up from hard strips of ⅛ in square balsa The heavy lines on the plans indicate the basic fuselage framework, on to which the longerons are placed First form one side of the fuselage by pinning the ⅛ in square longerons over the heavy lines, and then cement the uprights in place. Once the cement is dry, remove the pins and proceed to lay the second side directly on top of the finished side When adding the uprights don't worry about cementing the fuselage sides together; when the frames are removed from the plan it is a simple matter to cut them apart.

After the sides are removed and separated, with the aid of the top view drawing proceed to form the basic rectangular framework Once this framework is completed, add the outside stringers which form the octagon cross-section The best method of attaching the stringers is to first cement the short uprights to stations F-2 and F-3 and then pin on the stringers Hard flexible balsa should be used Once the curve is formed, fill in the remaining uprights, add the ⅛ in thick bulkhead sections to the nose, cement the ¼ x ⅛ in wing mount rests in place and then carefully sandpaper the entire body

Next form the landing gear from 040 wire and anchor it to the indicated cross brace For added strength, wrap thread around the wire and the cross brace on to which the wire is cemented Form the rear hook from the same diameter wire and attach it securely to piece of hard balsa 3/16 in square x ½ in. long. Bend the end opposite the rubber hook as shown on the plan and then bind the entire unit with silk thread Cement the hook assembly to the rear of the uprights at station F-4, reinforcing the joint with plenty of cement A weak rear hook has ruined many a model—especially at contests where that "extra" turn is most always attempted.

Build up the tail mount as shown on the plans and then form the nose block The block may be either laminated from three pieces of hard ¼ in sheet or else carved from a solid block The block fits snugly into the fuselage nose and is held in place with rubber bands. Drill a 1/16 in hole in the center of the block and, to the front and rear, cement a U-shaped piece of aluminum to act as a bearing Before the cement is dry on the rear bearing piece, force it to the left about 1/16 in to offset the thrust line about 2 degrees This will help counteract the initial torque

Covering the fuselage requires extra care for a perfect job Cut eight rectangular pieces of Silkspan slightly longer than the fuselage and about 1½ in wide Using a 50-50 mixture of cement and clear dope as an adhesive, cover each section of the fuselage separately, trimming the tissue after it is secure to each stringer and longeron Once the two top portions are covered, groove the wing mount rests and cement the wire mounts in place After the entire fuselage is covered spray lightly with water When dry apply four coats of dope

The wing is made in two separate halves and joined together. Cut from the designated wood, the ribs, spars and edges Pin the main spar and triangular trailing edge directly to the plan and then add the ribs and tip. Now cement the leading edge and top spar in place The center rib is slanted so both center ribs will form a good joint when the wing panels are cemented together After the cement has dried, remove the wing half and crack the spars at the point where the tip dihedral starts. Pin the center panel to a flat board and raise the tip 3¼ in Apply cement to the joint and add the top spar Sandpaper the entire panel and then work on the other wing half The fact that only one wing half is shown on the plan necessitates tracing the other half

Once the second panel is complete cement both panels together to form the 4in polyhedral angle Reinforce the center section with a piece of ¼ x ⅛ in balsa Cover the wing in eight separate sections, one piece of tissue per section side, water and then dope Attach the wing to the mount with rubber bands

Both the stabilizer and rudder are made in much the same manner as the wing The stab is built in two sections and joined together after both halves are complete Cover in the conventional manner and cement to the 1/16 in balsa fuselage tail mount The necessary negative incidence angle is built into the mount, as shown.

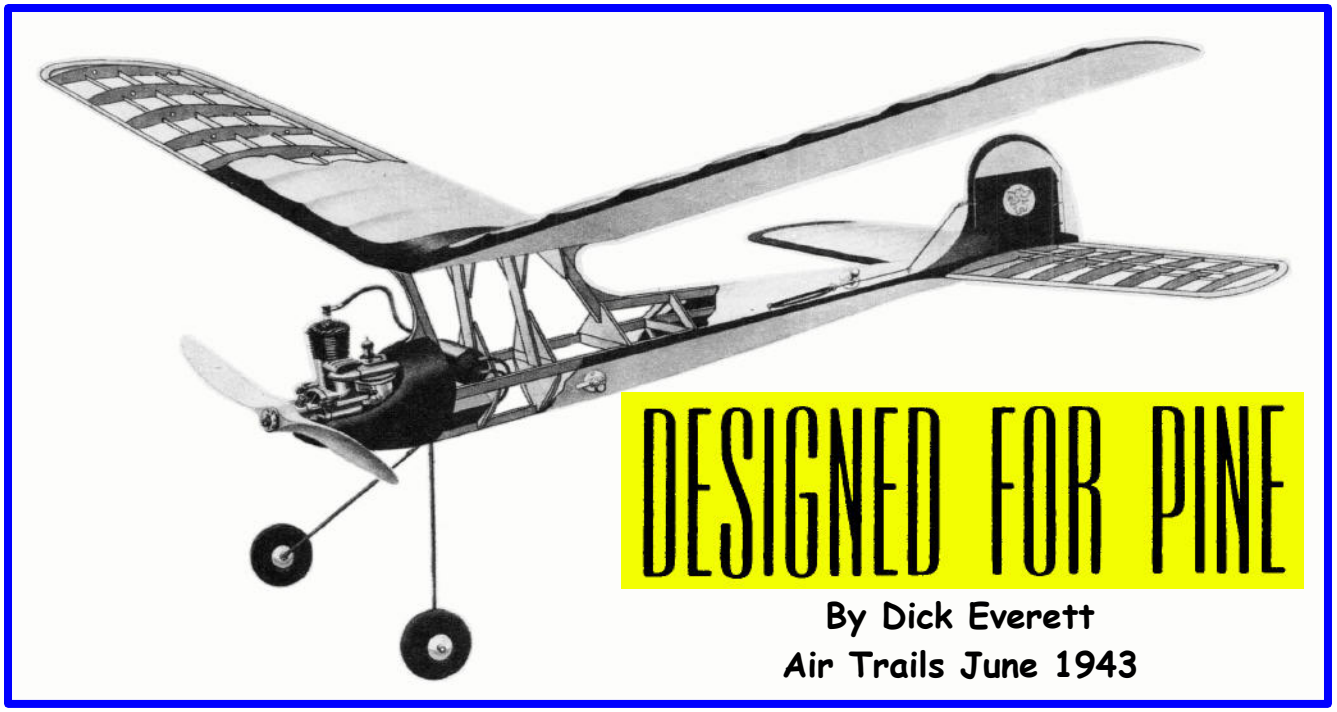
Next carve the propeller Cut the rectangular blank to the shape shown on the fuselage drawing, drill the shaft hole and then start to carve the blade underside Each blade has an undercamber of about ⅛ in and tapers in thickness from ¼ in at the hub to 3/32 in at the tip Round off the tip to the general shape of an ellipse, sandpaper the unit until all bumps or nicks are removed and finally cover both sides with ordinary tissue Add the Jasco free-wheeling device, then the shaft

The original model was powered with 16 strands of ⅛ in. flat brown rubber, with about ⅝ in slack It will probably be necessary to use about 20 strands of the currently available synthetic rubber to obtain the same power the prewar rubber produced Because a lifting tail is used, the model should balance about ⅓ back from the leading edge Test glide and then start the initial powered flight with about 100 turns. The model should turn and glide to the right Under full power, if the tendency is to turn with the torque, shift the thrust line to the right by slipping a small sliver of wood on the left side of the nose block.

BILL OF MATERIALS

FUSELAGE	
12—1/8" x 1/8" x 36"	Longerons, stringers, wing leading edge
1—1/4" x 1-1/2" x 6"	Nose block
WING AND TAIL SURFACES	
1—1/16" x 1/8" x 36"	Wing spar
1—1/8" x 1/4" x 36"	Wing spar
1—3/32" x 3/8" x 16"	Trailing edge
1—1/16" x 2" x 36"	Wing, stabilizer rudder ribs
1—3/32" x 3" x 18"	Wing, stabilizer rudder tips
ACCESSORIES	
1—1-1/4" x 1-1/2" x 12"	Prop block
1—1/8" dia x 12" Hardwood Dowel	Wing mount
1— 040" dia x 36" Music wire	Wing mount, landing gear, prop hook, rear hook, tail skid
1—B B Washer	Prop bearing
1—Free wheeling device (your choice)	
26 ft —1/8" Flat Brown Rubber	

Rubber Model Silkspan, clear dope, scrap aluminum, 1—3/8" dia wheels



DESIGNED FOR PINE

By Dick Everett

Air Trails June 1943

WHAT! Build a gas job with white pine?" Now wait a minute, pine isn't heavy. As a matter of fact, it's a soft wood, while balsa, as probably few of you know, is classed as a hard wood (all trees that shed their leaves in the fall are hard woods).

After some experimentation and the building of one gas job with pine, it was decided that pine was satisfactory; in fact many people prefer it to- balsa.

Construction time was about the same as with balsa, although it was a little more difficult to work with until we learned the different tricks. For instance, on the first attempt we used Weldwood in preference to model airplane cement, thinking the latter would not do.

However, when it dried it was so tough it could not be cut with a razor blade. We then had recourse to casein glue, which while satisfactory in other ways, took too long to dry.

As a last-ditch resort, model airplane cement was tried but it did not work very well until a fillet of cement was added (much the same procedure every model builder uses for square fuselages) . This did the trick; the cement held so well that the wood broke before the cement.

Wood in sizes up to 1/16" can easily be cut with a single-edged razor blade. The ribs were cut around a tin can template in this manner. Curved parts were eliminated wherever possible because pine splits very easily. But wherever they were used, they were glued together in straight sections and then cut to shape.

Two tools that proved priceless in making this model were a Syncro Jr. saw and a variety of sandpaper blocks bearing rough, medium and smooth sandpaper. Remember, the only difference between the beginner and the expert is that the expert uses sandpaper.

As for the weight, pine when properly used will cause the ship to weigh no more than the old type of balsa ship, while possessing the advantage of great strength.

The sizes' were slightly smaller than those usually used. They could not be cut in half even though pine weighs almost twice as much as the hardest balsa-16 pounds to 30 pounds per cubic foot.

Despite the fact that pine was used, with bamboo paper for covering, the ship, complete with dethermalizer, is only half an ounce over the weight specified in the latest A. M. A. contest rules. The cross section was kept to a minimum and no balsa was used except for the cowling.

Wire was used for the landing gear (which was made from ordinary clothesline) and hook up only.

The rudder brake type really works wonderfully, slowing up the glide to a mush. It also acts as a wind vane, keeping the model headed into the wind at all times, thereby bringing the model toward the starting point. At first there was much debate as to the advisability of using this type of dethermalizer, but after witnessing the first flight, all the fellows decided to install them on their own ships. Try it and see whether you don't like it better than the one you are now using.

Such were my experiences in building my first white pine gas model. Sincere thanks must be given to Frank Zaic who very generously gave his time and many valuable suggestions.

FUSELAGE

The crutch is constructed first, and the entire top part of the fuselage, including the wing mount and rudder, is built before removing from the work board. When the cement is dry, the crutch is removed and the bottom half built.

The landing gear is then bent and cemented in place. The inside of the cowling is carved and cemented on and when dry, the outside is shaped. Sand thoroughly with rough and smooth sandpaper. The dowels for the wing and stabilizer are then added and the completed fuselage laid aside.

STABILIZER

To save yourself a lot of work when constructing the horizontal tail, use pre-tapered trailing edge stock. All the ribs are made alike and then cut to the required length. The taper for the ribs is cut from the rear, using the leading edge for a basic point. The ribs are then glued in position and the spars, tips and gussets added.

WING

The wing design was selected because of its simplicity and efficiency. The straight taper is very easy to build and eliminates the necessity of long curves on the tip for a nice-looking wing. The ribs are all cut to the same length and then cut to the proper length for their respective positions.

The following method is used to taper the ribs by means of the tin template. The ribs are tapered by placing the bottom of the template on the lower surface of the airfoil in a line with the leading edge and the trailing edge thickness. The wood projecting below this should be sliced away with a razor blade.

Do not expect to cut this wood with one sweep of the blade. After the second or third try, depending on the pressure used, the wood will part and presto!—a perfectly tapered rib.

The ribs and spars are then added and cemented securely in place. The tips and gussets are now cemented in place and allowed to dry. The leading edge is first shaped with a razor blade and then, along with the rest of the wing, sanded to a smooth shape, both in outline and contour.

MISCELLANEOUS AND COVERING

Add the wiring and shellack well the inside of the cowling. Mount any Class B motor, being sure to drill the mounting holes slightly oversize so that the thrust of the motor can be adjusted to any direction.

The entire model is then sanded to a very smooth finish to avoid ridges under the covering. The original was covered entirely (with the exception of the wing mount) with a light grade of white bamboo paper. White Silk-span or silk may be used, for the wing mount—just be sure to wet the material first so that it may be pulled into a well-faired shape.

The model should be given three thin coats of clear dope and then trimmed with two thin coats of red. The striping tape is then removed and one more coat of clear added. This provides a high gloss as well as making it a tight moisture-proof job.

RIGGING AND FLYING

The effect of the wing's being out of line with the tail or vice versa, is really amazing. The findings were that the model could be made to circle entirely independent of the rudder and thrust by merely inclining the stabilizer out of line.

This is important as it will fly against thrust, torque and rudder if the stabilizer is merely tilted out of line. This makes the rigging job very important.

The motor is set to the right exactly 1/4", using a 12" prop. A stick is fastened to the rudder—mark this with the prop blade horizontal. Swing your prop blade 180 degrees and move the stick to the other side. Loosen the motor and twist until this setting is achieved.

This is essential for it will allow the builder to get the utmost from his ship by allowing it to fly in a nice right circle under power and then roll out on top like a hand-launched glider into a left glide, actually gaining altitude on the pull-out instead of losing it as most ships do. The actual testing is a ritual which should be done in a slow and easy manner.

The ship is tested for the glide by running with it until you feel it start to lift from your hand, whereupon you should give it a slight shove—not up—but at a point about sixty feet from you on the ground.

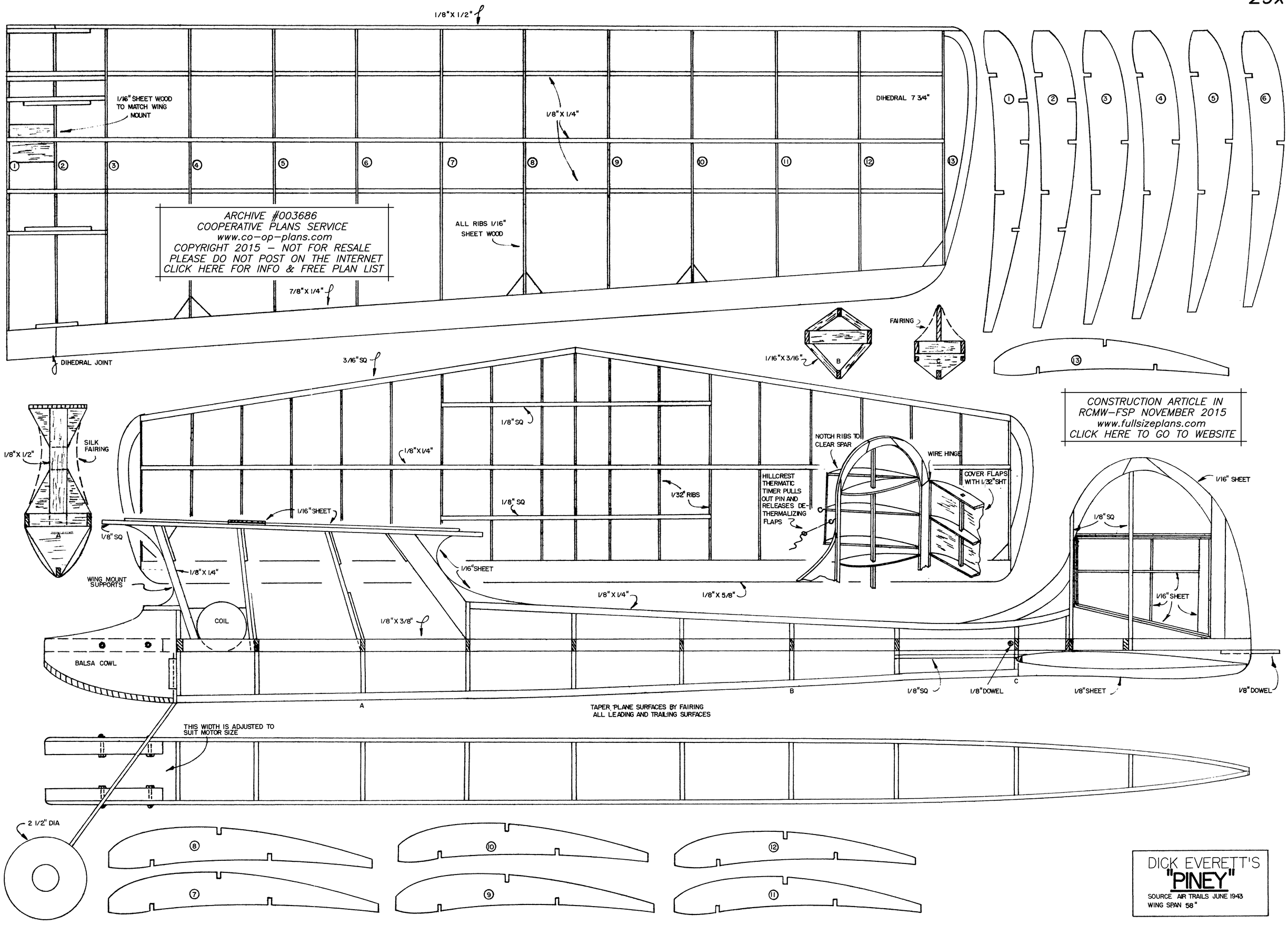
The ship should glide well in a nice left circle about 200 feet in diameter; adjust the tab until you get this circle. If necessary, vary the incidence to obtain a nice long flat glide. When this glide is obtained, the model is ready for her maiden flight.

Start up the motor and when it turns up at about 1/4 throttle, launch her with the same procedure used in gliding. The ship should climb slightly and to the right. This circle should be about 125 to 150 feet in diameter.

If your ship shows a tendency to do this, she is really right, so slowly add power until the maximum is reached, adjusting the rudder tab until the old crate is really ticking.

A Forster 29 and a Comet 85 have both been used for motive power and the ship seems quite capable of handling more power. So far, the highest flights that have been turned in were over three minutes on 14-second motor run. Piney has just won fourth place in the West Virginia State Meet with only two official flights.

29x40



DICK EVERETT'S
"PINEY"
SOURCE AIR TRAILS JUNE 1943
WING SPAN 58"

PLAN FROM ALLEN HEINRICH – RESTORATION BY R. FRIESTAD

39x52

PYLON Buster

A contest winning superstreamlined class C gas model featuring an ingenious glide control mechanism. A real threat for pylon competition.

BY ARMAND VASQUEZ

HERE is a gas model that is a contest threat in every sense of the word. It was designed with just one thought in mind—to prove that "pylons" are not necessary. The consistent and high performance this model turns in is a direct result of the constant improvement and refinement that has gone into several models of the same design during the past three years. And the way Pylon Buster behaves under power is a tribute to the engine manufacturers. With so much power available in the present day engines packed into such a slick job—well, you just can't go wrong.

The secret to Pylon Buster's high rate of climb (straight, not circular!) is its simple but effective "hook" and "stage" fail-safe/proof tail adjustment mechanism—which is linked up to the ignition timer. After the engine cuts, the elevator moves slightly up and the left rudder turns automatically, resulting in a flat circling glide to the right. Actually, the job has two sets of flight adjustments—one for climbing and one for gliding! The original model is powered with an Atwood Champion engine but the Hornet, McCoy, "OK" 60, Ohlsson 60 or any top displacement class C power plant can be used.

Wing construction is of the conventional type but the very thin airfoil (Goldberg G-7) and high aspect ratio makes it imperative to exercise the utmost of care when selecting the wood and during actual construction. The front and rear spars are very hard balsa while the tips, leading edge, ribs and trailing edge are of medium grade stock. The wing is built in two halves and then joined. Cut out the ribs and cement them to the lower main spars, which are pinned directly to the plan. Add the trailing edge and the 1/4 inch sq. hard balsa wing rests. Add the leading edge and trailing edge spacers are not cemented in place and the panel removed. The space between the top and bottom spar is now filled with 3/32 in. sheet stock, the panel severed at W-10 and the 3 in. tip dihedral added.

Next, cover the top portion of the leading edge with flexible 1/16 in. sheet balsa. Add the solid tips and the cap strips to the top of each rib and then sandpaper the entire panel so all joints are absolutely flush. A length of 18 pound fish line is now cemented along the leading edge and the panel set aside until ready to be joined to the left panel, which is made in precisely the same manner as the right after the outline has been traced through the plan or also on a piece of tracing paper. Once both panels are complete, join them as the prescribed dihedral angle exists. After the dihedral reinforcements are in place, cover the center section with 1/16 in. sheet.

Before covering the wing, apply two coats of clear dope to the entire wing to seal in the wood and then cover with wet Silkspan. Silk, if available, is preferable but double-Silkspan (cross-grained) will suffice. Use plenty of water on the Silkspan and when the panel is dry, dope once and add the second layer. Three coats of clear dope or your favorite color will complete the wing.

The stabilizer is built in one piece, making it necessary to pin a full length spar and trailing edge to the half shown on the plan. The ribs, trailing and leading edge are assembled over the left half shown on the plan. When the glue has dried, remove the structure from the plan, trace the outline and finish the right half. As mentioned previously, the flight secret of the Pylon Buster lies in the automatic tail control so make certain the elevator movement is easy. Cover the stabilizer with wet Silkspan and then proceed to carve the vertical surfaces, which are cut from 1/4 in. sheet stock and sanded to a streamlined airfoil. Cement fish line around the edge, covering the span and then cut away the section to be hinged. Cement the fin in place and then construct the complete the control system, as detailed in the drawing.

After the elevator and rudder hems are in place, hold the elevator in neutral and make adjustments on the horn so the rudder is also in the neutral position. Move the elevator 3/32 in. up. The rudder should turn automatically 1/8 in. to the right. This movement gives the required flat circling glide so desired for high performance. Finally, bend to shape the two horns to be cemented to the center of elevator and lay the assembly aside.

The fuselage, with its unorthodox shape, is very clean and is no more difficult to build than the average bulkhead-type structure. It is made in two sections, the nose unit of which is composed of formers F-1 and F-2, with the aluminum motor mounts acting as a backbone. After this structure has taken shape, add the landing gear details and set aside until the main section is ready for joining.

In making the main section, cut the keels from 1/4 in. hard sheet stock and pin over the plans. Cut out two halves of each bulkhead (unless otherwise indicated) and cement the left half to the keel. After the cement is dry, remove the structure and attach the right bulkhead halves. The two side stringers are now attached, exercising special care so the fuselage does not warp. Add the nose section and then insert 1/4 in. square stringers between formers F-2 and F-6 to form the wing mount.

Installing the automatic tail adjustment mechanism is the next chore. Set a piece of .032 wire on the Austin timer arm, wrap well with thread and cement. Adjust the timer for 24 seconds, mount in place and add the peg and "stage." The timer extension wire passes through the three "stops" with the controlling hook clipped between. The "stage" is a piece of .032 wire which, when the rudder and left rudder assume a new setting for gliding, adjust the mechanism via trial and error so the engine cuts one or two seconds after the hook is released. Next, set the stabilizer platform in place and then mount the coil and battery box. Better still, use General, Bright Star or Burgess pack batteries and you'll save yourself ignition troubles. Complete your wiring, as given by your engine manufacturer, and test before planking the fuselage.

The fuselage is planked with soft 1/4 x 3 in. balsa. Start from a point just below the wing mount and work both sides simultaneously. After planking about 2 in. on both sides remove part of the keel between F-2 and F-3 for the wheel. The cowl is made from solid balsa or built-up blocks if necessary. Lay out the side and top views and carve to fit your engine. After the rough form is spot-cemented to the firewall, sand both the cowl and fuselage to a smooth finish, dope three times and then cover with Silkspan. Cut the cowl away and attach to the fuselage with three pegs or large dress snaps. A Fromm spinner adds the final touch to the nose.

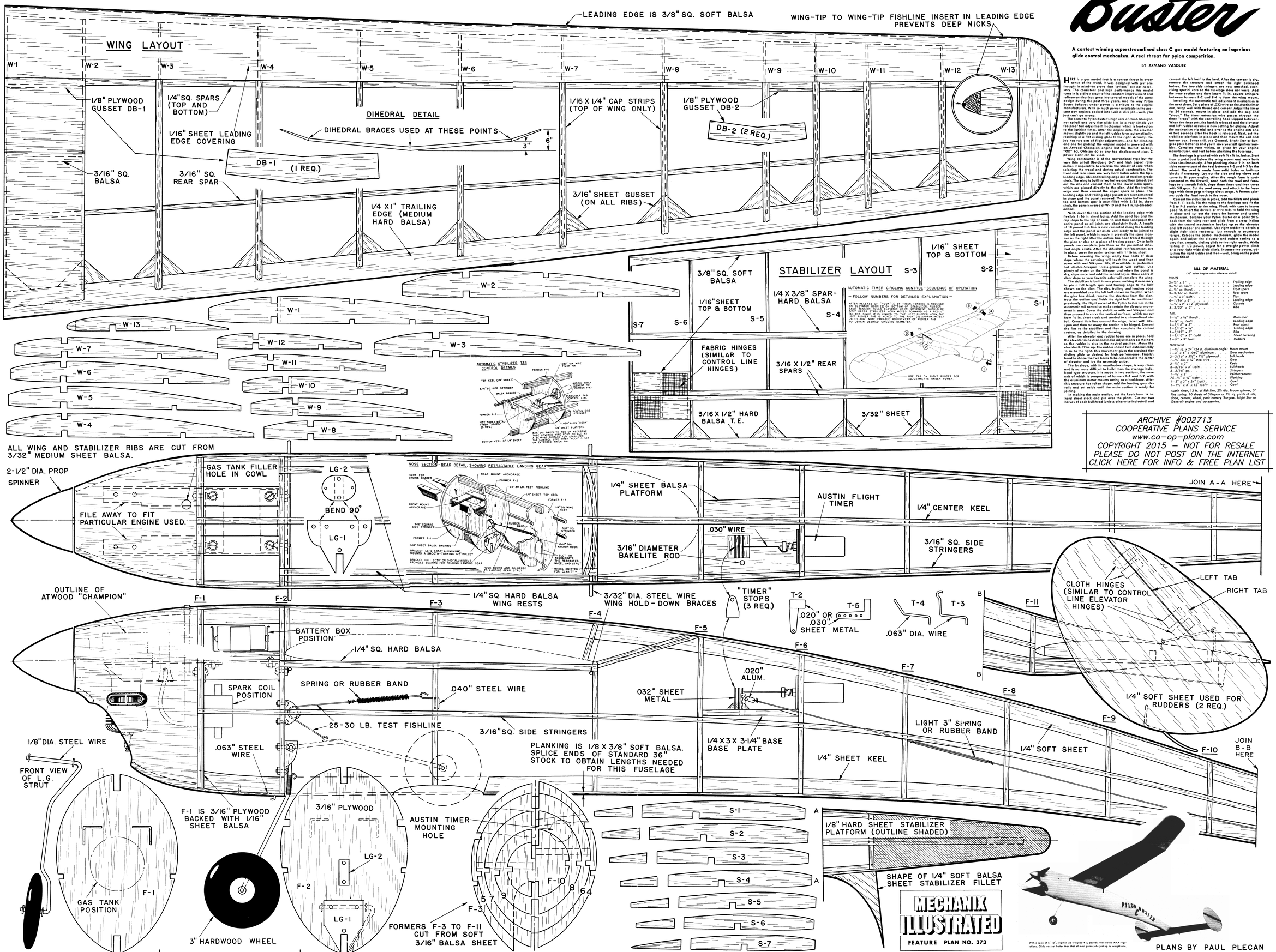
Cement the stabilizer in place, add the fillets and plank the fin with balsa. Fit the wing to the fuselage and fit the fairing in the section ahead of the wing with care to insure good fit. Insert the dowels or wire rods to hold the wing in place and cut out the doors for battery and control mechanism. Balance your Pylon Buster at a point 50% back from the wing root and glide from a steep incline with the control mechanism hooked up so the elevator and left rudder are neutral. Use right rudder to obtain a slight right circle tendency, just enough to counteract torque. Release the control mechanism, glide the model again and adjust the elevator and rudder setting so a very flat, smooth, circling glide to the right results. While testing at 1/2 power, adjust for a straight power climb or a very right wide circle climb. Increase the power, adjusting the right rudder and then—well, bring on the pylon competition!

BILL OF MATERIAL

(36" balsa lengths unless otherwise stated)

WING	
2—1/4" x 1"	Trailing edge
1—3/8" sq. (soft)	Leading edge
6—1/4" sq. (hard)	Front spars
3—3/16" sq. (hard)	Rear spars
1—1/4" x 3" (soft)	Tips
4—1/16" x 3"	Leading edge
1—1/4" x 2" x 12" plywood	Gussets
4—3/32" x 3"	Ribs
TAIL	
1—1/4" x 1/4" (hard)	Main spar
1—1/4" sq. (soft)	Leading edge
1—3/16" x 1/4"	Rear spars
1—3/16" x 1/4"	Trailing edge
1—3/32" x 3"	Ribs
1—1/16" x 3" (soft)	Sheet covering
1—1/4" x 3" (soft)	Rudders
FUSELAGE	
1—1/4" sq. x 24" (24 in. aluminum angle)	Motor mount
1—3" x 6" x .040" aluminum	Gear mechanism
2—3/16" x 3 1/4" x 7 1/4" plywood	Bulkheads
1—1/4" dia. x 12" steel wire	Gear
2—1/4" x 3"	Keels
3—3/16" x 3" (soft)	Bulkheads
3—3/16" sq.	Stringers
2—1/4" x 3"	Reinforcements
25—1/4" x 3/4" (soft)	Planking
1—3" x 3" x 24" (soft)	Cowl
1—1/16" x 3" x 12" (soft)	Cowl

Austin timer, 12 ft. of fish line, 2½ dia. Fromm spinner, 6" fine spring, 10 sheets of Silkspan or 1½ sq. yards of silk, dope, cement, wheel, pack battery/Burgess, Bright Star or General/ engine and accessories.



PLAN FROM RANDY BURROS & BOB PLACIER

Dick Korda's smile of triumph. Dick has had many reasons to smile in his spectacular career, but the completion of this design is his best.

HOW TO BUILD The KO.R.DA Open Road Special

Exclusive and Complete Plans By Dick Korda

This article is from the September 1940 issue of *Open Road for Boys* and is one of the lesser known designs by Dick Korda who was winner of the 1939 Wakefield Cup with a 43 minute flight.

A copy of the magazine came to us from John Walker via Bob Angel. John received it from the estate of a model builder friend.

BECAUSE aviation is the most important, the most interesting, and the most thrilling development of this scientific age; because more boys are interested in aviation than in any other subject under the sun; because model airplanes are the normal and natural way to progress in aviation—for these good and sufficient reasons The Open Road for Boys magazine, on the lookout for whatever will be of interest and benefit to its readers, has prepared a special treat for you.

It has persuaded Dick Korda of Cleveland, whose model plane won the 1939 International Wakefield Cup at Bendix, New Jersey, with a remarkable forty-three minute flight, to design a plane for The Open Road—a model all our own and one which you can make yourself from the plans presented herewith.

Dick is a busy young man, as you can imagine, but he has put his best effort into the designing of this plane, and critics who know their way around in aviation circles have pronounced this model a ten-strike.

It is said that seven million youths in this country are interested in one way or another in aviation. Truly it is a worthwhile hobby, and one that will well repay all the time you are able to devote to it. From familiarity with the manufacture and operation of model airplanes comes a knowledge of and acquaintance with the principles of flight which are vital to progress in this important activity.

The Open Road plane which can be made by a careful following of these plans is designed to perform in an outstanding manner (having flown over an hour in a test flight), and will repay the care and thought necessary to build it.

If you've never done anything like it before, get your older brother or your dad to help you; but by all means, do not fail to grasp this opportunity to produce an Open Road champion plane, at an insignificant cost.

A top-flight design by the top-flight model plane flyer of the world—that's something, isn't it? The KO.R.DA Open Road Model Plane is big news to every boy interested in model flying. Experts call it the best of Korda designs. It is a wonderful job, incorporating the best features of contest models and adding several new ideas.

Best of all perhaps is its simplicity of construction. The flat side fuselage is a distinct advantage over the bulkhead type because its a lot easier to build. The free wheeling device on the propeller is another advantage. The wing mount set into the fuselage makes for especially sturdy construction. You can use a hand drill with a hook as a winder and that detachable nose block is another reason for cheers from the model plane builders.

These points are noteworthy:—

1. Light narrow wheels
2. Simple, high landing gear
3. Big propeller
4. High aspect wing ratio
5. Easy winding method
6. Polyhedral wing
7. Airfoil tail construction
8. Accessible rubber motor
9. Sturdy motor hook installation

Dick Korda has won honor as well as championships with his planes. This latest and newest KO.R.DA Open Road plane, beautiful of design, easy of construction, a marvelous competitive performer, brings him new credit, new fame.

BODY: Cover your full size enlargement with wax paper on a flat board. Lay out the two sides of the body together, by putting pins all along the outside and the inside of the longerons to hold them in place. Fit in the uprights firmly, and cement well.

While the two sides are drying, cement on the two stabilizer rests, being careful to keep the tops parallel with the center line. This is very important.

After the two sides have dried for several hours, remove them from the board and split them apart with half of a safety razor blade. At this point make four of No. 1 C and also four 1/8" sq. crosspieces of the same length.

Lay one side of the body flat on the board and pin down lightly; raise the other side with blocks just high enough to allow the four No. 1 C crosspieces to fit in between. Cement the four No. 1 C and four 1/8" sq. cross pieces in places indicated by heavily shaded squares on uprights No. 6 to 9.

Allow to dry completely, then pull the tail ends together and cement, holding them together with a pin until dry. Next cement the two cross pieces in the nose end of the plane and allow to dry.

After this cut all the cross braces according to the top view on the plans, and cement them in their correct places, being very careful to get bottom cross braces No. 3-4-5 in the places shown on the side view of the plans.

When all the cross braces are in place, fill in the two sides of the nose and also the two sides at the rear of the body where the rear hook is to be located.

Drill a 3/16" hole in the center of these rear filled-in places and cement the 1/32" aluminum rear hook plates on the inside of the body. The 3/16" dowel that runs through these holes should fit firmly.

Now cement in the 1/8" sq. that runs through the center of the four No. 1 C cross braces, also the 1/8" balsa triangles on either side of No. 5 upright. This will make a solid base for the landing gear.

Make the landing gear next by bending a piece of 1/16" piano wire to the shape indicated on the plans.

The wheels may be either bought in a model supply store (1-5/8" balsa wheels), or made of 1/16" plywood. If you make them, also make four 5/8" circles of the same wood for the hubs of the wheels.

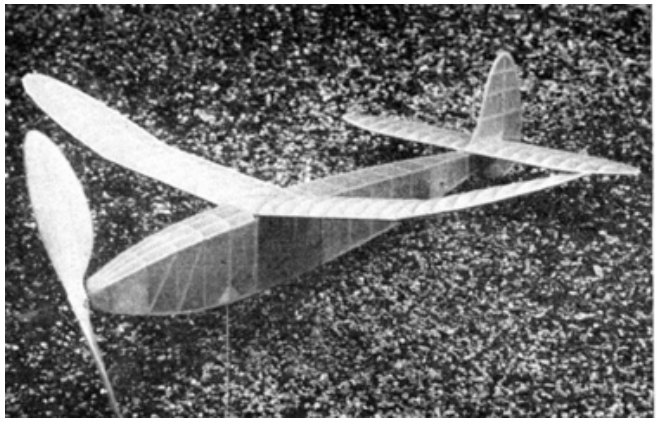
These four pieces should be streamlined on one side; cement one 5/8" piece on each side of the wheels, and finish the wheels by giving them several coats of colored dope and drilling an oversized 1/16" hole through the center for the axle.

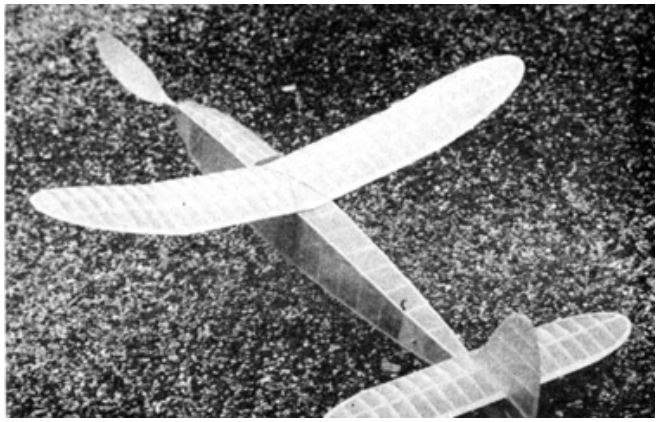
Keep the wheels on the axle by soldering a washer on the end; be sure however, to put several layers of paper between the washers and the wheels to prevent burning them; the paper may be torn off when the solder hardens.

The part of the landing gear that is connected to the body is firmly cemented between two 1/16"x5/8"x2-1/4" sheets of hard balsa; fill in the hollow space with 1/16" balsa.

It is then cemented into the body just ahead of No. 5 cross brace and uprights, bending so the landing gear slants slightly forward.

Following the installation of the landing gear, cut the five false bulkheads that go on top of cross braces No. 2 to 6. Cement the three 1/16"x1/8" stringers in the notches and fill in between the stringers on top of No. 1 cross braces with 1/8" sq. as shown on plans. On the bottom of the body, the center stringer is 1/16"x3/16", while the two outside ones are 1/16"x1/8".





Covering of the body is accomplished by doing the hardest parts first. That is, cover first the top and bottom of the body in the front, where the stringers are located. These parts are covered with narrow strips of paper, holding the paper to all stringers with airplane dope. Next cover the top of the four No. 1 C cross braces.

From top cross brace No. 9 to No. 10 the paper should taper up naturally as indicated by dotted lines on the plans. The remaining sections of the body are all flat and can easily be covered, but care should be taken to get the paper on evenly.

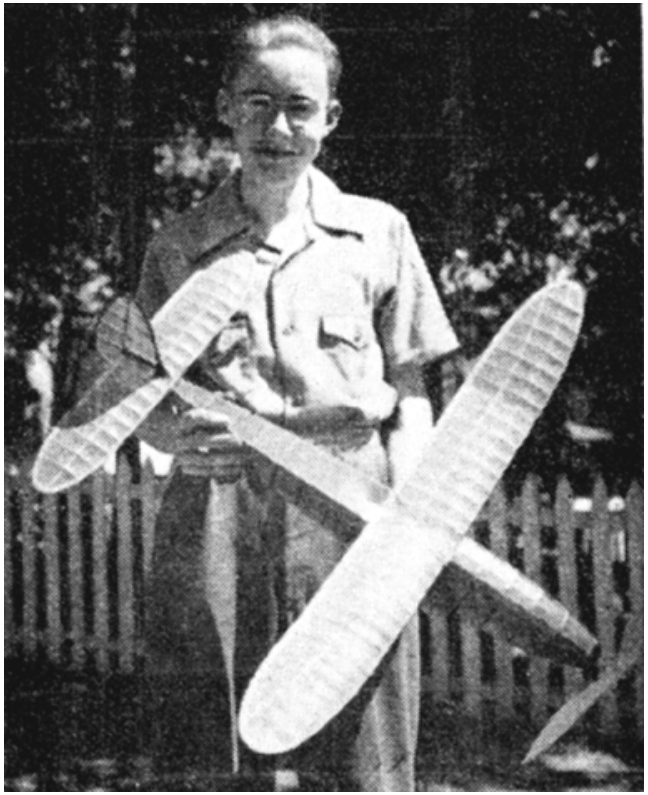
Fasten the paper to all longerons, cross braces, and uprights with dope, also keep the grain of the paper running the length of the body to help strengthen it. The body should be water sprayed and allowed to dry; follow this with four or five coats of thin dope. Leave the section under the rear hook uncovered.

WING:

The first step in constructing the wing is to cut out all the ribs; do this by making an accurate rib pattern of thin white cardboard, which will help keep the ribs uniform.

Make 21 No. 1 ribs and 2 each of ribs from No. 2 to No. 7. Remember to make three of the No. 1 ribs of 1/16" flat to be used at the three dihedral breaks; all the rest of the ribs are of 1/32" sheet balsa. Next step is to make two tips by enlarging the plans on 1/8" sheet balsa, beginning with the tip trailing edges. (Plan is already enlarged - Editor)

Start actual construction of the wing by cutting the two spars for the two center panels, slide on No. 1 ribs, spacing them equally about one inch apart, then place a line of pins to mark the leading edge on a board (always use a sheet of wax paper between the balsa wood and the plans to prevent sticking).



Ralph Brown of Arlington, Mass., who built the KO.R.DA model from these plans

When the pins are in place, lay your 1/8" sq. leading edge against them; next put the v-shaped leading edges of the ribs against the 1/8" sq.; pin the trailing edge against the back of the ribs just tight enough to keep the leading edge in the v of the ribs, but not so tight as to cause the ribs to bend. Wiggle the ribs into their exact place and cement firmly at the leading edge, both spars, and also the trailing edge.

When all the ribs have dried, lift the end of one panel 2-1/2 inches and place a block under it. Cut the spar holes in the 1/16" center rib just large enough to slide the spar gussets through; these gussets should be well cemented to the spars to reinforce the wing, as this is the weakest part of any wing. The 1/8" triangle gussets should also be cemented to the leading and trailing edges at the same time.

Before making the tip sections, bend the leading edge and the spars by holding them in the steam from a teakettle, or by scraping them on the sharp edge of a table. The tip section is made in the same manner as the center sections.

When cementing the tip section to the center panel, lay the center panel flat on the plans and raise the end of the tip section 1-3/4 inches. Be sure to cement on the two spar gussets and also the triangle gussets.

As soon as the finished wing has dried thoroughly, round off the leading edge and tips and bring the trailing edge to a nice edge by sanding with medium sandpaper.

Great care should be taken in covering the wing. Start by doping the paper to the bottom of the center rib and work towards the tip section. The paper should be held to the bottom of each rib with dope; cover the entire bottom of the wing first, then cover the top of the wing by working from the center rib to the tip section. But do not dope the paper to the top of any rib excepting the three ribs at the dihedral joints.

In covering the top of the tip section, use three pieces of paper; the first one running from the dihedral joint to No. 4 rib, then another piece from No. 4 to No. 6 rib and the last piece from No. 6 rib to the tip.

Do not try to cover the wing tight—just get the paper on evenly, then water-spray lightly with a flysprayer and allow to dry. Do not allow the wing to warp while drying. After the wing has dried, give it three separate coats of thin dope allowing each to dry completely.

STABILIZER:

The stabilizer is made in the same way as the wing. Cover the bottom with one piece of paper; on the top, dope the paper on one No. 2 rib and run clear across to the opposite No. 2 rib, then cover the two tips. Spray and dope the stabilizer two coats; be sure to keep it from warping.

RUDDER:

Build the rudder by drawing an enlarged outline on 1/8" sheet balsa, keeping the grain the same way as indicated on the plans to insure a strong rudder. Pin down a 1/8" sq. hard rudder post on the board, also pin down the rudder outline which is cut from the 1/8" sheet and cement together; do not forget the 1/8" balsa angles shown on the plans; these are very necessary.

Allow the rudder to dry, then bend 1/16"x1/8" strips of balsa across the 1/8" sq., running from the inside of each side of the rudder, forming a streamlined section. To prevent these strips from crushing, cement small scraps of balsa in between them as shown on plans. Cover each side of the rudder with one piece of paper, keeping the grain running up and down, water-spray and dope with two thin coats of dope.

ASSEMBLY OF STABILIZER AND RUDDER:

Now cement on the stabilizer. An easy way to get it on square is to put a straight pin in the center of No. 9 top cross brace and run a thread back to one tip at the point where the stabilizer spar ends, and then swing the thread to the other end of the spar, making both equal.

Next cement on the rudder, cementing the rudder post to the end of the body, and the front of the rudder along the center rib of the stabilizer. The tail section is then finished by fitting in the 1/8" sheet in front of the rudder on bottom of the fuselage.

PROP:

The balsa block selected to carve the prop from should be medium wood with the straightest grain available. Lay out the block according to the layout views given; before carving, drill a 3/32" hole through the center for the prop shaft, keeping it as straight as possible to insure a straight, free-running prop.

Follow this by carving away the shaded portions of the block, cutting away on the side view first, then the top view; notice side view shows 1/8" curve in the lines that are carved to gain a smoother curve when the prop is finished.

After the block is carved to size, start cutting the inside of the blade first. Finish both blades on the inside to a rough finish, keeping them as alike as possible; the blades should be hollowed out from 1/8" to 3/16".

Finish the outside of the blade next, tapering the thickness of the blade so that after sanding it is from 5/16" at the hub to 1/16" at the tip. Halfway from the hub to the tip, the thickness of the blades should be about 5/32".

At this stage cut out or copy the blade pattern given and draw its outline on each blade being careful to keep it even on both sides. Carve both blades to shape, then sand to a fairly smooth finish with medium sandpaper.

At this point it is best to keep the prop balanced until it is completely finished. Now give the entire prop a fine finish by using the finest sandpaper obtainable, and then give it three or four coats of clear dope, sanding after every coat of dope except the last one.

The two fittings for the prop are made of 1/32" sheet brass; make the holes just large enough to allow them to spin freely on the prop shaft. Cement the one with the catch on the front of the prop and the u-shaped one on the back.

Cement them on with three coats, allowing each coat of cement to dry completely. Before the first coat is entirely hard, line up the prop by putting a prop shaft through and moving the fittings until the prop runs true.

Bend a prop shaft to the size on the plans, make the catch part first; then run the shaft through the prop and nose block, using three washers in between, and finish by bending the non-slip rubber hook.

The nose block is made of hard balsa; the part that goes in the nose of the ship is made of 1/4" flat stock, cemented on a 3/4" x 1-1/2" x 1-3/4" hard block.

Drill a 1/8" hole through the center of the block. Press in the front and back bearings and cement well. The back bearing should be raised a trifle to give the plane a little down thrust. The nose block should fit tightly into the body.

FLYING THE MODEL:

Beginners, or builders who have not had much experience with models, will find that it is better to use plenty of power to overcome any trouble, such as an overweight or logy flying ship.

For them I suggest an 18-strand motor of 3/16" rubber, 25" long, while more experienced builders can power it more or less as they see fit. Tie the wing on firmly with rubber and give it a few test glides.

It should be easy to get any stall or steep glide out of the ship by moving the wing back or forward a little on the fuselage. However, should the wing come against the bulkhead and the model still have a steep glide, you will have to add 1/32" sheets of incidence under the wing about one inch from the leading edge. Add enough to flatten the glide.

To get the model to circle in the glide, warp the trailing edge of the rudder to the left (looking at the model from the front). Warp it just enough to make the model do circles in the glide about 75 to 100 feet in diameter.

Sometimes the ship will show a tendency to dip sharply while circling, this is usually caused by too much warp in the rudder or insufficient lift on the wing tip that is dipping. To add additional lift to that tip, give it a coat of thinner and warp down the trailing edge slightly, hold in this position until dry.

Be sure to put a label containing your name and address on the plane before you do any test flying. On the first flight, just give ship about 200 turns, adding more later. Extra time spent doing good work and adjusting model means time added to each flight.

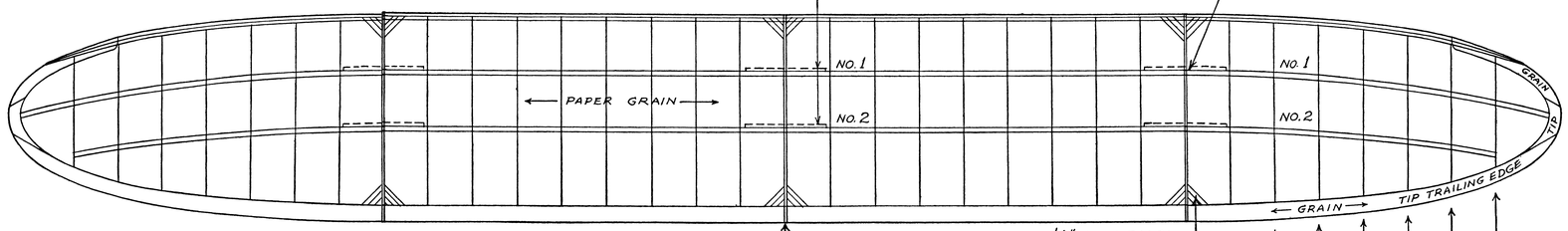
CONSTRUCTION ARTICLE IN
RCMW–FSP NOVEMBER 2015
www.fullsizeplans.com
CLICK HERE TO GO TO WEBSITE

RIBS ARE ALL 1/32" STOCK EXCEPT FOR THE THREE AT THE DIHEDRAL JOINTS WHICH ARE 1/16" STOCK. ALL RIBS ARE MEDIUM SOFT STOCK

1/16" SHEET BALSA GUSSETS CUT TO FIT

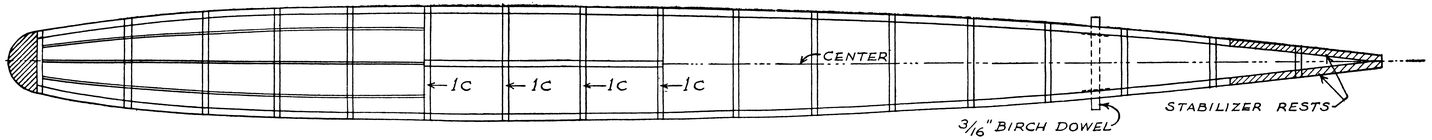
LEADING EDGE 1/8" SQ. MEDIUM WOOD.
FIRST SPAR 1/8" x 3/8" HARD WOOD.
SECOND SPAR 1/8" x 1/4" HARD WOOD.
TRAILING EDGE 1/8" x 3/8" MED. WOOD.
WING TIP IS 1/8" FLAT STOCK BALSA.

NO. 1 SPAR TAPERS FROM 1/8" x 3/8" AT DIHEDRAL JOINT TO 1/8" SQ. AT TIP.
NO. 2 SPAR TAPERS FROM 1/8" x 1/4" TO 1/8" SQUARE AT NO. 7 RIB.

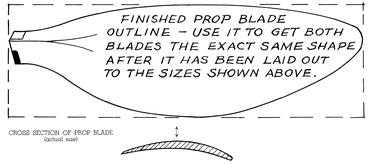


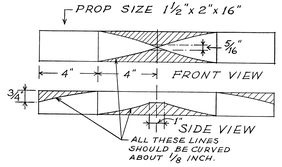
WING

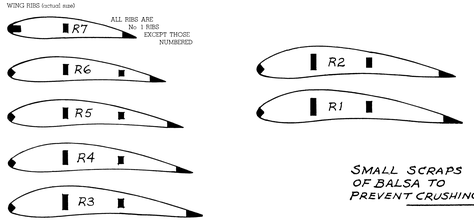
MAKE 2 OF EACH OF THESE RIBS

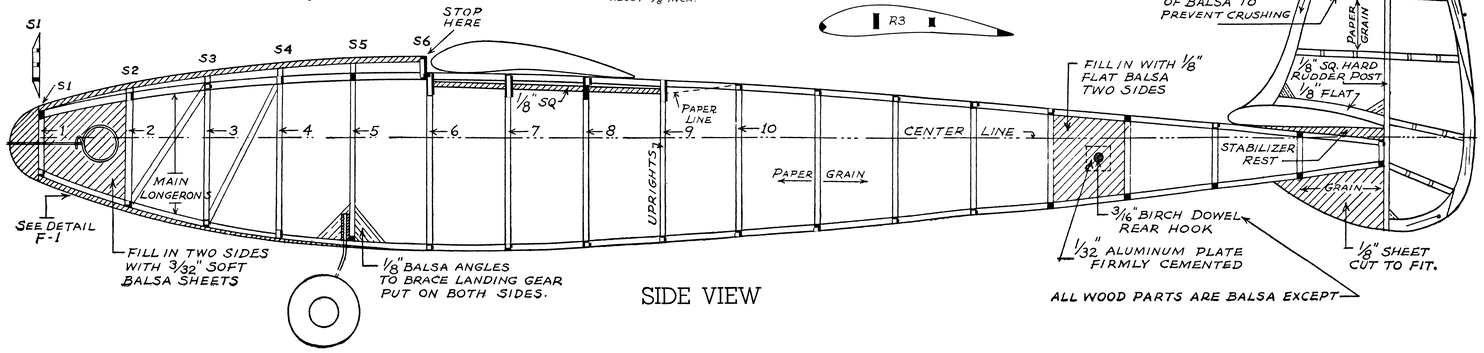


TOP VIEW

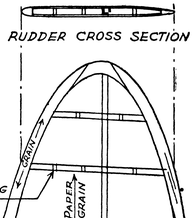


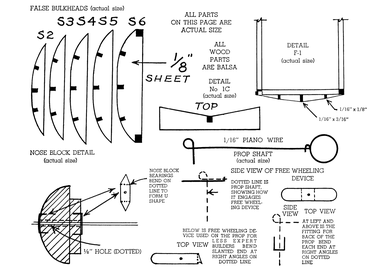


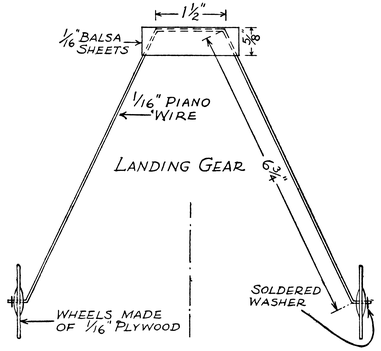


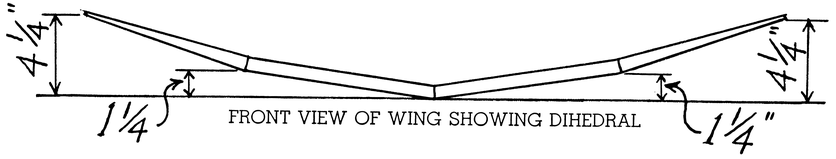


SIDE VIEW

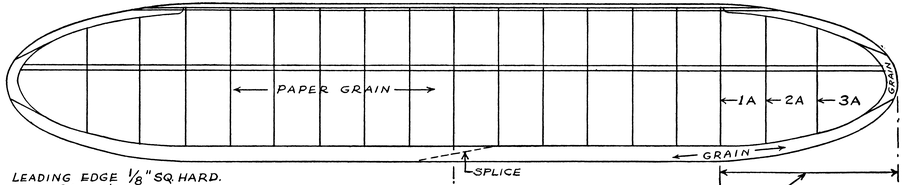








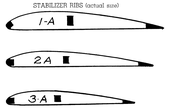
FRONT VIEW OF WING SHOWING DIHEDRAL



LEADING EDGE 1/8" SQ HARD.
SPAR 3/16" x 1/8" HARD.
TRAILING EDGE 1/8" x 3/8" MEDIUM.
TIPS 1/8" FLAT STOCK MEDIUM.
RIBS 1/32" MEDIUM.

STABILIZER

SPAR TAPERS FROM 1/8" x 3/16" AT NO. 1A RIB TO 1/8" SQUARE AT THE TIP.



The Dick Korda OPEN ROAD SPECIAL
Originally Published In The September 1940 Issue Of OPEN ROAD FOR BOYS
Plan Restored by Roland Friestad

VIDEOS

The internet is filled with videos,photos and stories with millions of files. If you spent time poking around the internet there wouldn't be any time left for building models and that would be a shame.

We'll occasionally add a page like this with links to, aviation related items that you may find interesting.

We hope you enjoy these and if you find others that you feel would be of interest, please send them along so that we can all enjoy them.

Here's a video of a simultaneous launch of three 54" span models at the Flying Aces Club Non-Nats in Geneseo this year - The video links in to others so while glue is drying you can watch several -

Click Here

92-year-old Joy Lofthouse flew the Spitfire during World War Two in the Air Transport Auxiliary and she gets to experience what it is like flying the Spitfire again. The pilots of the ATA were used to ferry Royal Air Force and Royal Navy warplanes between factories, maintenance units and front-line squadrons. Click the link for a 3 minute video.

Click Here

CNN had a reporter at the Oshkosh Flyin this year and his story includes a lot of photos and some video clips of what he saw.

One experience was the first time a B52 came to Oshkosh. 6,000 feet of lights had to be removed from each side of the runway to make room for the wingtip gear. Even then there was only a foot of clearance on each side.

The runway is 3,000 feet shorter than B52 pilots are used to landing on so the pilot, Air Force Reserve Major Jeremy Holt, touched down at extremely low speed, 145 mph.

To see the full report and the video --

Click Here

Skyscooter

by LLOYD V. HUNT

This attractive little all balsa sport free flight model comes from the September 1952 issue of Model Airplane News

The Skyscooter was designed to be powered with one of the small CO2, engines or with rubber, the latter being illustrated as follows due to the apparent lack of interest in CO, flying.

Studying the plans you will note that the construction is straight forward throughout and lends itself toward the prefabricated trend of model building.

With a little extra time spent, you may add your own type of construction, such as using 1/16 sq. strips for the fuselage, built up vertical and horizontal stabilizers and for the wing, 1/8 sq. leading edge, 1/8 x 1/4 for the trailing edge and 1/32 sheet balsa for the ribs. The tips could be formed from 1/16 sheet. This would make a model of a more durable type.

The construction shown on the plans will produce a sport model of rugged features. In order to save time, may we suggest that you cut out all parts needed before assembly? Remember the plans are full size. Follow the wood grain symbols on all parts.

For fuselage, cut the two sides from 1/32 sheet and mark the locations for the 1/16 sheet formers which should be cut at this time. Also locate the hard wood dowel center, to later secure the rubber motor.

Next, shape the cowl and hollow out for lightness; allow on each side wood for trimming. Finish by shaping the windshield former shown at the leading edge of the wing on the top and side views.

Complete by bending the landing gear and tail skid. Preform the nose block from balsa, allowing an overlap of wood on all sides to facilitate finishing after assembly.

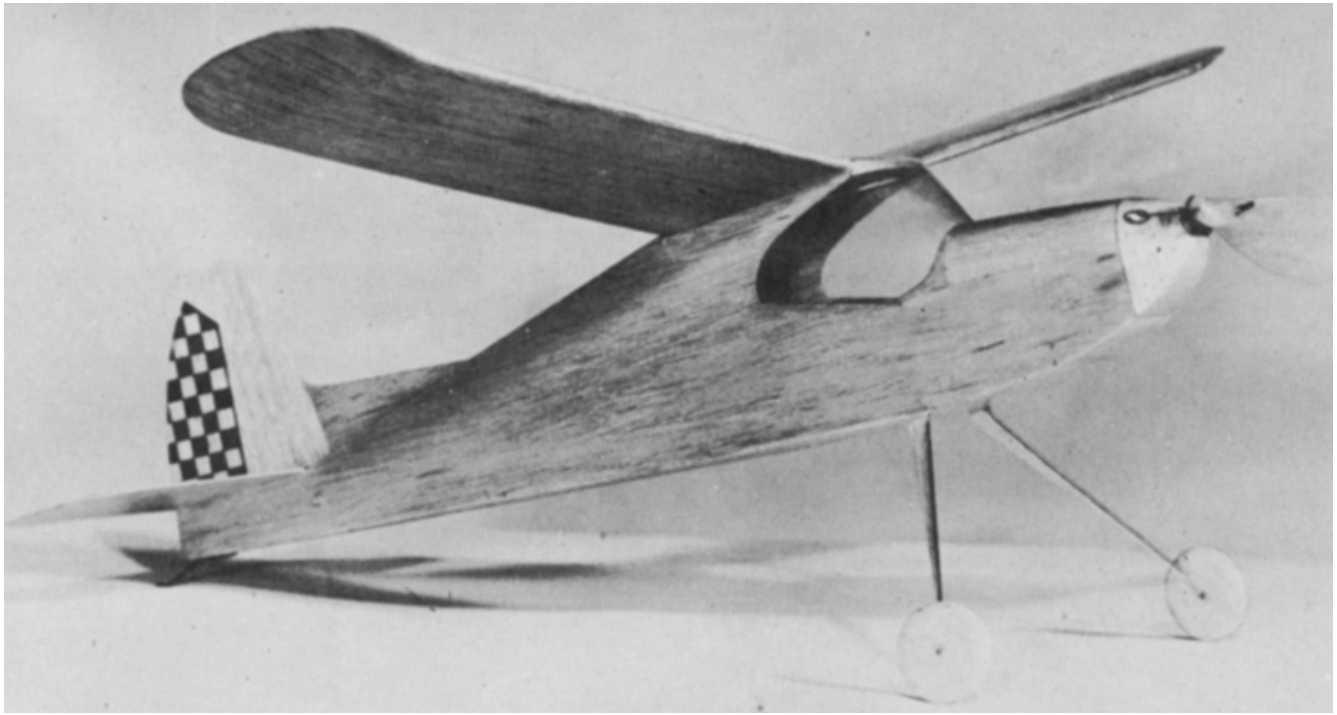
For the wing, cut from 1/32 sheet balsa the required ribs. Mark on sheet balsa the wing outline or, using a template, cut to shape the wing.

Locate the point where the trailing edge is to be beveled. Using a sandpaper block, complete this step.

Vertical and horizontal stabilizers are cut to outline. (Horizontal left hand side shown.)

At this point, all the parts needed for final assembly are now ready for finishing. Start with the fuselage by cementing in place the formers, beginning with the largest former and, working forward to the nose, cementing in place the required formers. Let these parts dry before finishing the basic fuselage construction. Then add the remaining formers aft.

Cement in place the landing gear. Next cover the top and bottom, noting the grain symbols of the 1/32 sheet balsa to be used.



Cement the cowling to the fuselage and while it is drying, add the windshield former and nose block. Let these parts dry before sanding to shape. Finish the fuselage by adding the tail skid and windshield.

The pattern shown may be enlarged to allow for trimming. Due to different types of construction, try a paper one first to check.

The wing should be scored at the dihedral and wingtip angle points. Block up to the shown dimensions and cement, forming a skin over these cracks. The leading edge strip is added next.

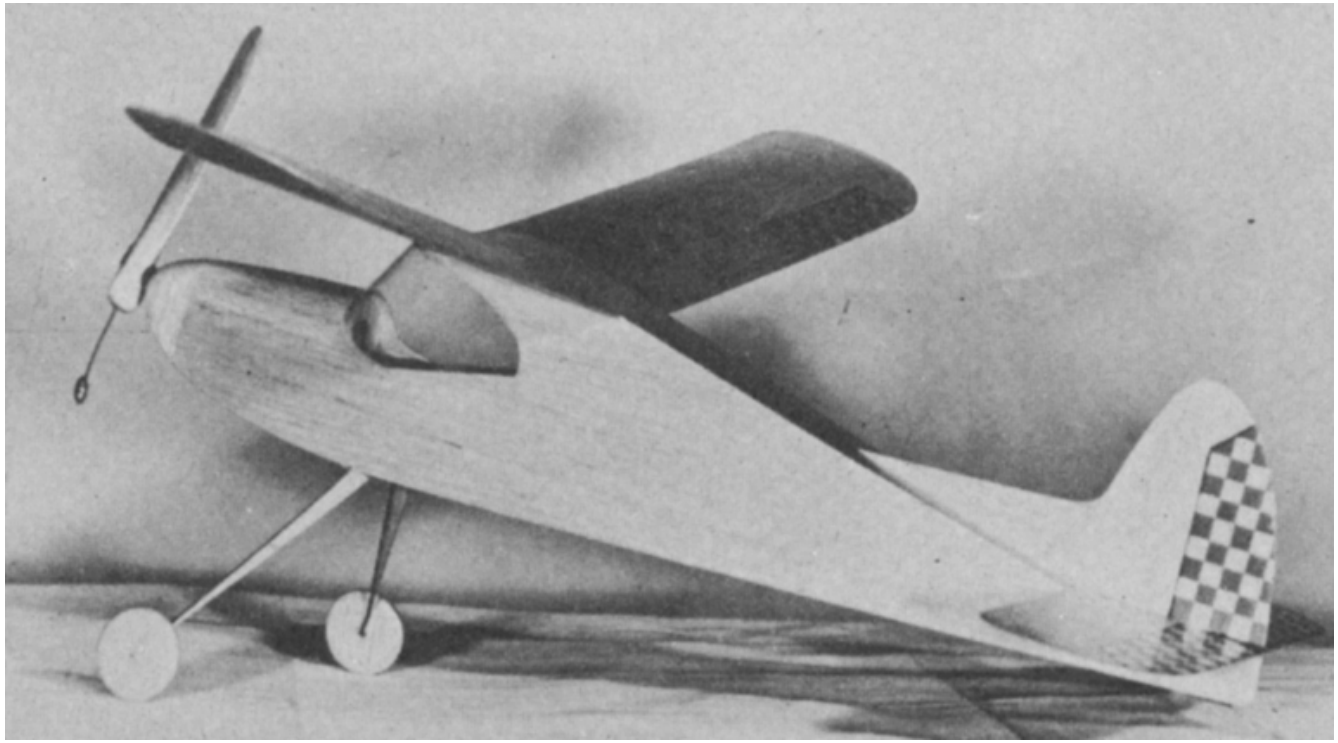
Cement the ribs and the remaining structure to the bottom part of the wing outline. Before covering the top with 1/32 sheet balsa, slightly bevel the leading edge to the contour of the ribs.

Start covering by adding the center section. Maintain a slight surface on both sides of the two ribs to allow for the remaining panels to be cemented. Before cutting the center section and two outer sheet panels, keep in mind that they will need an overlap at the trailing edge.

These parts should be cut from 3" stock; if it is not available, butt join a strip to a 2" sheet. The top covering length will be a good 2-7/8" wide.

Cement the sheets first to the leading edge, then bend back and pin in place the wood to the trailing edge. Cover either the right or left panel next. Following the same method used for the center section, be sure to pin down the panels to the board before completing the covering to help prevent warps. See the sketch for more details.

After the wing has been covered, sand the leading edge to shape and finish by sanding the complete wing. This will not only smooth it, but also cut some of the weight.



Cement the wing to the fuselage, making sure that it lines up. Lastly cement in place the tail surfaces, checking for alignment.

A machine cut balsa or hardwood prop may be used. We used a single bladed prop, but it is not necessary.

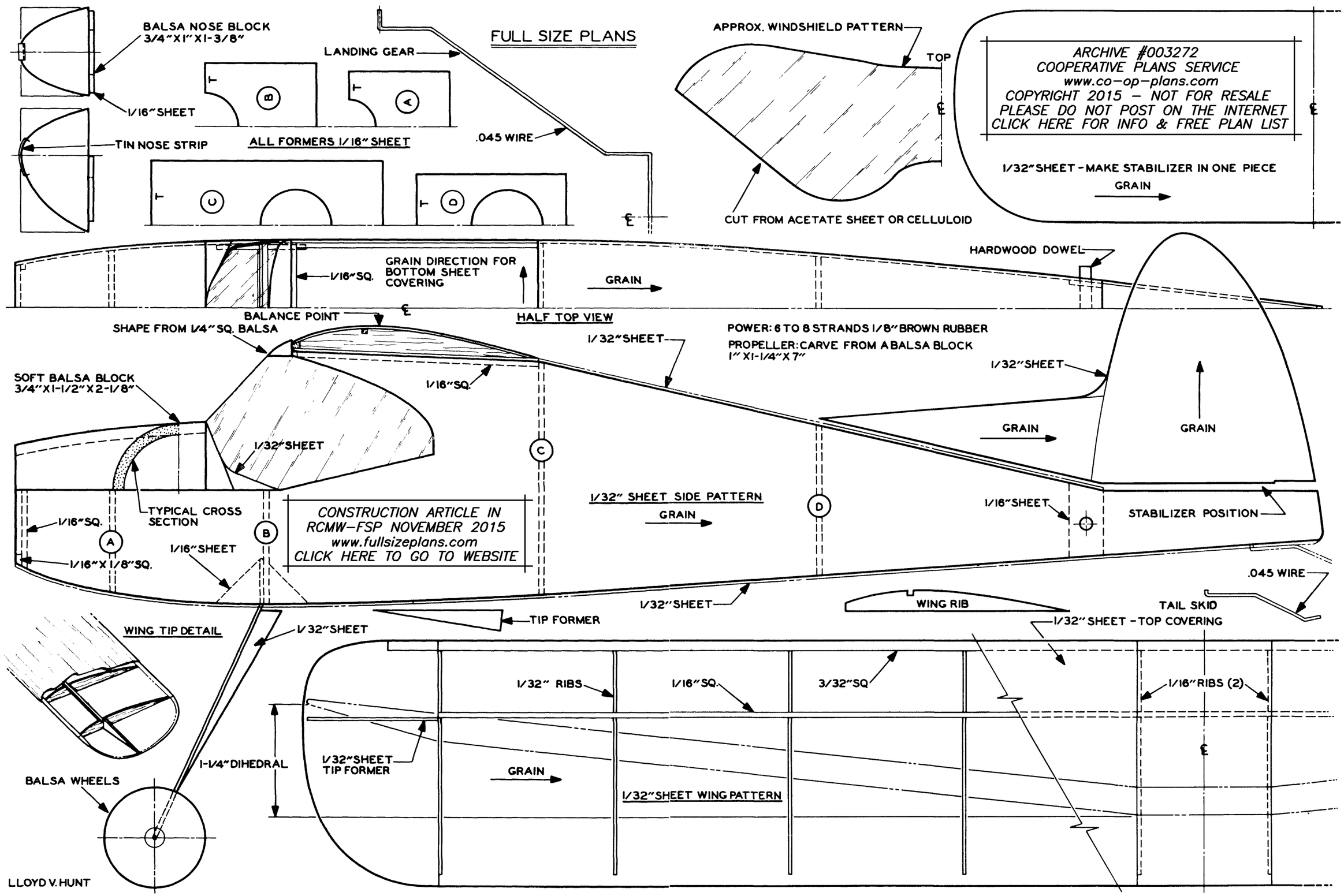
Power is supplied with six strands of 1/8 brown rubber. After the model is adjusted use eight strands for a higher rate of climb.

The wheels can be made from two 1/16 sheet balsa discs, cemented cross grained. Pierce for axle holes before cutting and sanding. Add aluminum inserts to each wheel; two washers to each side of the wheel will also serve the purpose. Use hardwood wheels to help add weight to the nose if needed.

For finishing, use three coats of sanding sealer, sanding after the first and second coats, the third application to be the finishing coat. We would suggest not using any colored dope, because of the weight added. We trimmed our model with Trim Film as shown in the photos.

Make test glides over grass. Add clay to the nose or tail, whichever is needed for a smooth glide. Warp the tail surfaces slightly to govern the actions of the model in flight.

If model requires it, add side-thrust to the nose block behind the sides by shimming with a small sliver of hard wood. For longer flights use a winder, but make provisions on shaft.



ORIGINALLY PUBLISHED IN SEPTEMBER 1952 MODEL AIRPLANE NEWS

DC Maxecuters & CAAMA

The DC MAXECUTERS model airplane club in the Washington, DC area has always been strong in rubber powered free flight since originally being organized in the late 1950's, but members are a widely diverse group with a lot of other interests.

If you want to spend a few hours looking at great photos of model airplanes, just go to their website and click on the menu selection "Photos."

A lot of the MAXECUTERS folks are also SAM members (and vice versa) and the website also hosts the CAAMA, the Capitol Area Antique Modelers Association, SAM Chapter 10.

If you want to see what these modelers are doing, just go enter the following URL into your internet browser and click on the "Photos" selection of the menu. Here are a few pics by Pat Daily from recent flying sessions.

www.dcmaxecuter.org/

1935 YING

SOUTHERNER

Jimmie Allen SKYRAIDER

Bill Barnes SNORTER

PFALZ by Pat Daily

LUSCOMBE 8 by Tom Woodburn

Printing Plans

We get questions about printing out the full size PDF files of the plans included in every issue of RCMW and will try to answer the typical questions here.

First, what do the numbers in the upper right corner of each plan mean ? That's an easy one --- Those numbers represent the dimensions in inches to the OUTSIDE of the border when the plan is printed at 100% scale.

This makes it really easy to check whether the printed plan is the correct size. You do have to allow an approximately plus or minus 1% deviation which is a standard tolerance used by most of the plotter/printer manufacturers. If you are having your local office supply store or copy shop doing the printing, just bring your handy tape measure along with you for checking purposes.

Most of the local office supply stores and copy shops, at least in the USA have large format printer/plotters that can take 36 inch wide rolls of paper and can print any reasonable length, usually up to 100 or 120 inches. So we try to keep all of the plans so that they will fit this common maximum width of paper.

If you take the selected issue of RCMW containing the plan you want printed and ask the copy shop to print whichever page or pages you wish at 100% you will get your plans in a few minutes. But be sure you check that the size is correct and have them correct if not. Normally they can go up or down in 1% increments. You shouldn't be made to pay for prints that are not correctly sized.

Be sure that the supplier knows that you want the dimensions to be as shown in the upper right corner of the plan.

Speaking of payment, costs should range from about 75 cents to a dollar per square foot. If you don't have a source for prints nearby many folks who make large prints can accept files sent over the internet. In that case of an issue of RCMW, you will need to send the entire issue and just send the instructions separately.

Suppliers who accept files over the internet can also mail the completed prints to you. You should expect to pay about $6.00 to $10.00, depending upon location and weight, to have the print sent rolled in one of those long triangular boxes available free at your local post office.

Drawings sent folded in a flat rate Priority Mail Envelope will cost just under $6.00 for delivery anywhere in the USA.

Mailing and printing costs in other countries may vary.

Some suppliers are able to print plans wider than 36 inches but printers that wide are not as common. I've included some names of suppliers here. More names will be added to the list if you send them in to me.

Sources for Printing Plans

Greg Flores - Flores Printers
541 Lincoln Street - Galesburg, IL 61401
Phone 309-341-2477
E-Mail - floresprinters@comcast.net
48 inches wide - any length - $1.00 per sq. ft.

Derick Scott
81 Low Lane
Torrisholme, Morecambe LA4 6PR
ENGLAND
E-Mail - modelplans@talktalk.net
44 inches wide - any length

Allen Heinrich - Aerodyne
4184 S. Roberts Road - Fort Mohave, AZ 8026
Phone - 928-219-4590
E-Mail - AerodyneAl@aol.com
36 inches wide - any length - $1.00 per sq. ft.

STAPLES
2353 National Boulevard - Galesburg, IL 61401
Phone - 309-341-1051
E-Mail - cc0617@staplescopycenter.com
36 inches wide - any length - $0.75 per sq. ft.

STAPLES - Find A Store
Go To - www.staples.com
Click on SEARCH - Enter "store"
Enter your Zip Code

Send us your other sources and we will publish them in these spaces
Send to - cardinal.eng@grics.net
Note - Prices may change
Check on payment methods
Provide full instructions
We have no financial interest in these suppliers

GURNEY FLAPS

Arnaldo Correia

So you want to slow down your "HOT" RC model to fly in a smaller indoor space ! Try a "Gurney" flap. Here is a report from one of our readers in Portugal about this concept, originally used on race cars and adapted for airplanes. Try it, you'll like it !

Hi Roland, it has been a while since I last contacted you. But the B-17 is such an American icon, I cannot let this one pass. Also, the technique described herewith is, if I may, sufficiently interesting in itself to justify being divulged.

Recently we attended an Indoor meeting at a nice pavilion/gym in the Lisbon area. Although the 'arena' itself is only slightly larger than a handball court, if one includes the area above the seats, the venue is much larger than any other we currently have access to.

As you might remember, Paulo 'Chispas', Faustino, our Indoor 'guru,' is always on the lookout for anything that might improve the performance of our models. The latest thing is the Gurney Flap. Wikipedia has more details.

https://en.wikipedia.org/wiki/Gurney_flap

He first tested them on his E-Flite UMX Carbon Cub and was astounded to find they really did work! They can be made out of acetate (photocopy transparency sheet, in his case) which makes them virtually invisible in flight.

Recently, he bought the very nice E-flite UMX B-17G Flying Fortress BNF, with a 66cm (26") wingspan. He chose that one because it is lighter than the one from Hobby King. But he was rather concerned, as all the films he saw on Youtube were taken either outdoors, or inside LARGE halls… with the model doing its best to impersonate the Bell X-1 speed-wise…

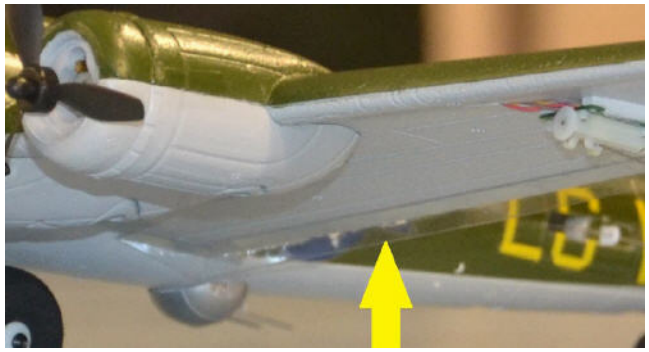
Our halls are not in the same league as those we see in the US videos. So, in typical Paulo's fashion, he started looking for something that would allow that nice 1/48 scale model to be able to fly at a comfortable speed. He found his answer in the Gurney Flaps.

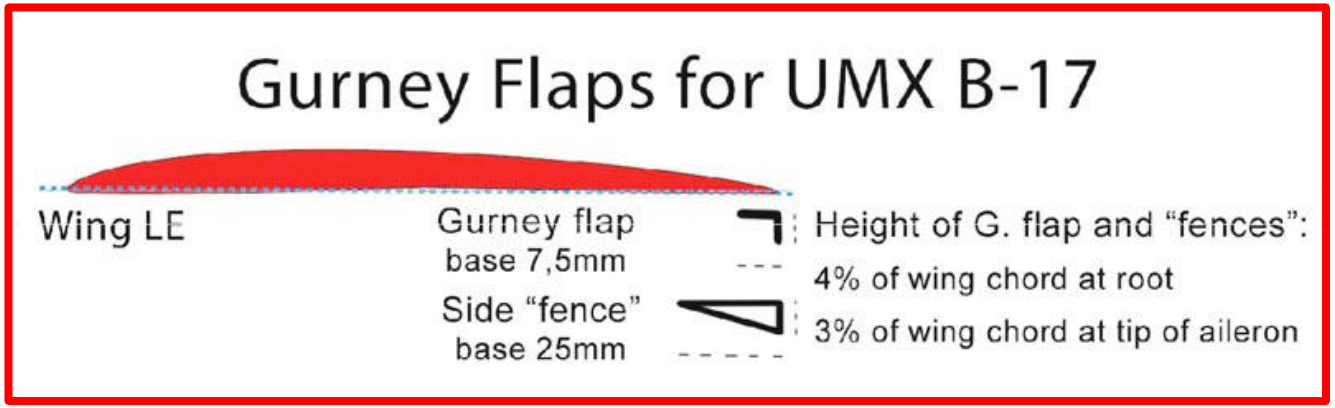
To be on the safe side, and based on comments in various forums, Paulo advanced the CG slightly, adding a 160mAh battery (aprox. 4.5g) to the nose, besides the usual flight one. So his model ended up weighting 82g (2.9oz)… but, due to the Gurney flaps, its speed is quite comfortable.
The usual vital statistics are

Wingspan – 66cm (26")
Wing Area – 5.65 dm2 (87sq.in.)
Wing loading – 14.5g/dm2 (4.8 oz/sq.ft)

Regarding the Gurney flaps, please see the attached drawing. They have a height of 4% of the chord (4.5mm-3/16") at the root, 3% (3mm-1/8") near the aileron; this is somewhat taller than what his research showed, but at low Renyolds Numbers things are different. And it works.

To mount the flaps, Paulo used thin, transparent, double sided tape (from 3M, I believe). With a little care, it works a treat!





Plecan's "Paragon"

The PARAGON, an attractive rubber endurance model designed by Paul Plecan appeared originally in the June 1940 issue of Flying Aces magazine. We're reprinting the original construction article and plans here and a redrawn full size plan on page XXX.

HERE, BOYS, is a CLASS "C" contest model that refuses to stay on the ground. During its ramblings through the ozone, it has had its share of rooftop and treetop landings, yet it's still in one piece! What's more, all repair work that's been necessary has been minor.

The trophy this job won (see photos) was awarded for the highest average time in the cabin event at the first Metropolitan Model Airplane Council contest held last year at Holmes Airport, New York City.

The first two official flights the "Paragon" made were of two minutes duration each. But on the third try, the model was taken in hand by a kind thermal, raising the three-flight average to three minutes, plus. In tests conducted during cool evenings after the contest, the average flight time was two minutes.

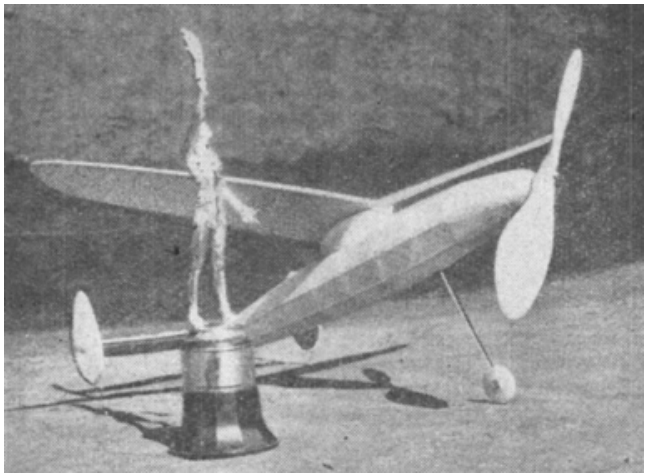
This model is intended for the model builder who has already achieved success with other designs. And if you have successfully built and flown a cabin model like Earl Stahl's now-famous "Hi-Climber," then you can easily construct the "Paragon." Note, incidentally, that all ribs and wing outlines are given full size, relieving you of the time and energy required in scaling-up parts.

FUSELAGE CONSTRUCTION

USE HARD balsa for the longerons. Medium balsa may be used for the cross-braces as these parts are not subjected to the strains that the longerons carry from the rubber tension.

After the fuselage sides have been assembled, they should be lifted from the plan and pried apart with a razor blade. Now, the cross-braces are cemented between these two sides, resulting in a framework as shown in step one on the fuselage plate.

In step two, balsa blocks, approximately 1/2" thick, are glued to each side of fuselage as shown. Use 1/4" thick soft stock on the tail portion. Remember that these blocks are for fairing and need not be strong.



While the framework is drying, cut from I/8" stock four soft stringers and shape as shown above the fuselage side drawing. These four stringers are cemented in place next, care being exercised in centering each one.

All joints in the fuselage should be cemented a second time for extra strength, and the landing gear should be glued in place before the fuselage is covered.

Make sure that the landing gear strut is anchored solidly in the fuselage, and, if necessary, bind the strut with thread wherever it contacts balsa.

The nose and tail blocks should be sanded to a circular cross-section. The fuselage is covered with plain tissue and clear doped three times.

Carve the 1-5/8" wheel from hard balsa, 1/4" thick, and mount a large-faced bushing through the center to keep the axle from wearing the wheel center away. The cross section of the wheel should be an approximate streamline, and the wheel should revolve freely on the axle.

The pylon on which the wing rests is tilted so that the wing has 1/8" incidence in relation to the fuselage centerline. Note the "U" shaped hooks on the front and rear of the pylon. These hooks allow the wing to disengage immediately if the plane strikes anything while in flight. Do not forget to cement the tail incidence blocks in place now.

The tail plug is carved from medium balsa and should be a snug fit. The 1/16" steel wire tail hook is well anchored in the tail plug, as it has to stand a lot of punishment when the motor is stretched and wound.

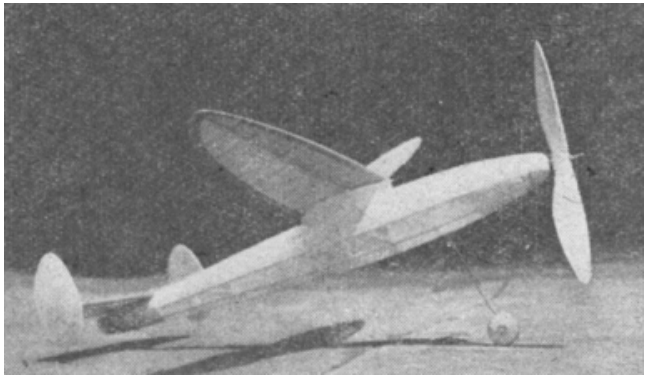
A piece of cambric or rubber tubing slipped over the hook will protect the rubber motor from being ripped under full winds.

NOSE PLUG AND PROP

THE NOSE plug is carved from medium balsa, and when the prop shaft is being formed, it should be so drilled that the prop points down and to the right. This is necessary to overcome stalling under fullpower and to provide a slight right circle. The nose plug should have a bushing or large washer cemented to its front and rear face to keep the rapidly revolving shaft from chewing up the wood and changing the amount of right and down thrust.

Carve the prop from a block the size indicated in the drawing and work in a slight amount of undercamber in each blade. The cross-section, "B-B," gives the approximate airfoil that should be carved into each blade.

The free-wheeling feature is absolutely necessary in a design of this type, but the particular one to use is left to the choice of the builder, since there are so many types to pick from. The type shown, however, is very simple and practically fool-proof. This ingenious jigger is the brainwork of Louis Garami, who needs no introduction to old FLYING ACES readers.



Oh yes, don't forget to use a ball-bearing washer, as the motor exerts a lot of pressure between the prop and plug. The ball-bearing washer will decrease the friction, also, making it easier for the propeller to freewheel.

For best results, the prop should have a smooth finish. Gloss is obtained by six coats of dope with intermediate sanding, permitting the propeller to slide through the air with the greatest of ease.

A motor consisting of 24 strands of 1/8" flat rubber should be used, and it should be well lubricated with a good brand of lubricant, so that plenty of turns can be packed into it to provide ample powerfor long, flat-glide flights.

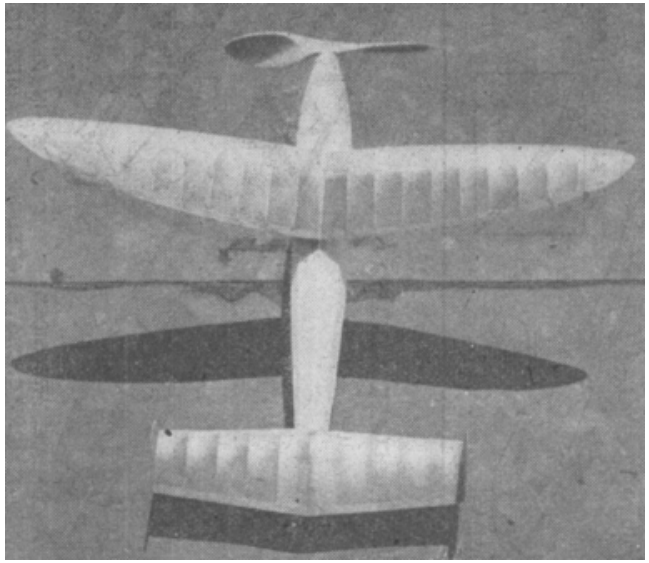
WING AND STABILIZER

THE WING and stabilizer outlines should be drawn to double the size shown on the plans, bringing them up to full size.

Editor's Note - The full size plans are included at the end of this article

The ribs are shown full size, as are the curved wing trailing edges. The spars and leading edges should be tapered before assembly, as per instructions on the drawings. Note that no dimensions are given for the size of the wing leading edges; they are made from 1/8" thick stock tapered to the height indicated on the leading edge of each rib.

The piece indicated by the number 12 is the dihedral joiner, and should be cemented to the rear of the spar of each wing half. When this has been done, each tip should have 31/2" dihedral when the wing is in a level position.

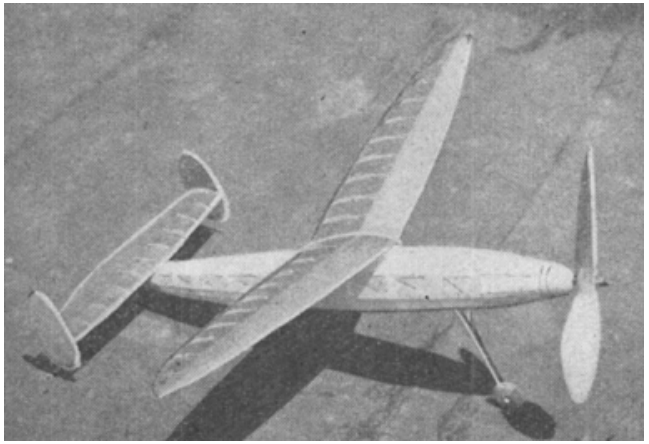


The 1/32" sheet balsa used for the leading edge covering should not be cemented in place until the entire wing has been completed, with dihedral.

In covering the wing and stabilizer, brightly colored tissue should be used in order to offer the best visibility possible when the model is outlined at a high altitude against the sky. Red is an excellent color for this as it can be distinguished more easily against the sky or a green and brown background on the ground after the model has landed.

The stabilizer should be glued directly to the tail incidence strips. Cement the stabilizer on "cock-eyed"—that is, leaning toward one side so that the rudders are offset slightly for a right circle.

Looking from above, the right tip of the stabilizer should be slightly nearer to the nose of the model than the left tip end.



FLYING AND ADJUSTING

AFTER the model is completed, it should be glided to see if it is balanced properly. Any diving tendencies should be counteracted by using small incidence blocks cemented to the leading edge of the wing where it rests on the pylon.

Conversely, stalling tendencies should be nullified by using incidence blocks under the trailing edge. Due to the slight offset in the rudders, the model should glide in right-hand circles, and should climb in circles smaller than those in the glide.

After the model has been flown under 100 hand winds, the wing and stabilizer should both be left alone, further adjusting being made through offsetting the propeller.

As more and more turns are given on successive flights, the craft may tend to bank to the right, starting a spiral dive. Do not do any more flying until the wing has been warped for a left bank. (When viewed from the rear, the right wing should have more incidence than the left.)

Now, under full winds, the "Paragon" should bank to the left when climbing in right hand circles. In any case, do not give the ship full winds immediately after warping the wing or tail surfaces.

Adjustments should always be followed by flights of few turns, gradually increased until full turns are "packed in" with a winder. The reason for this is that you don't know for sure how the model will behave under new adjustments so it is best to work from scratch.

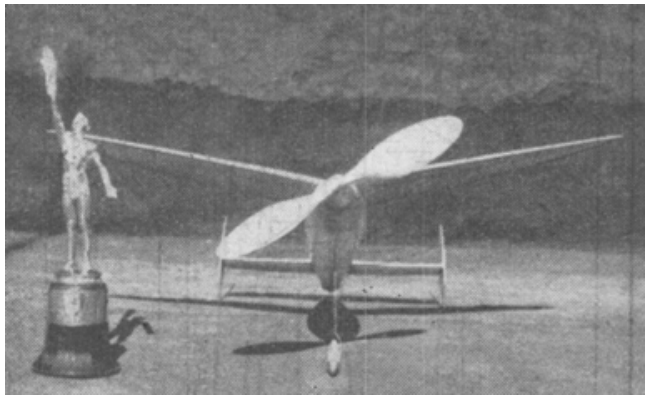
In some cases, the model may tend to stall under power, hanging on its propeller at a high angle and not gaining altitude as it should. This is best remedied by giving the airscrew a little right thrust, tightening up the circle under power, and eliminating the stall.

Under correct adjustments, the "Paragon" should perform as follows ---

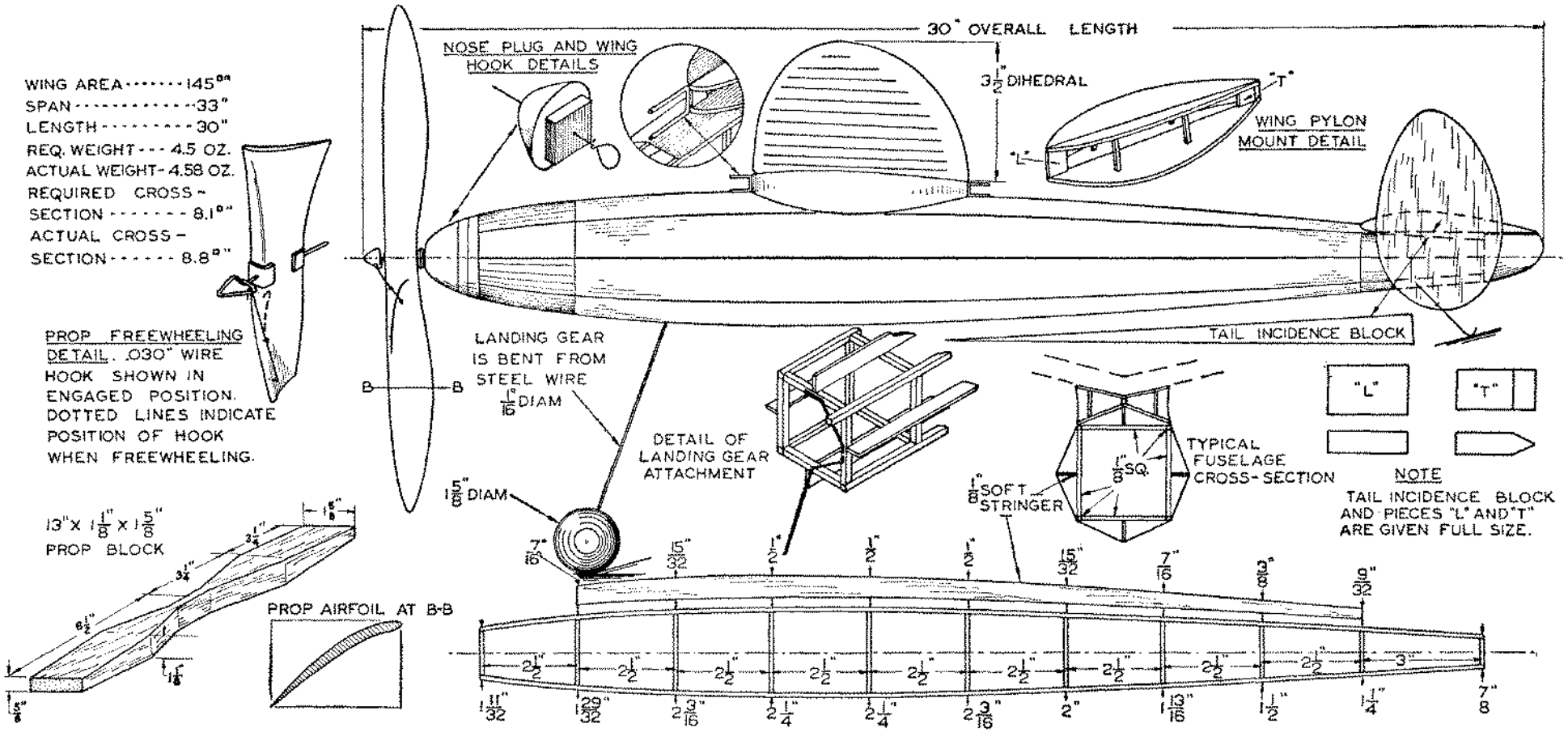
The climb should be fast, in a tight right-hand circle, with the model leaning to the left. As the motor unwinds, the climb should ,decrease until the model starts to cruise with a few turns left in the motor. The craft slows down when the propeller starts to free-wheel, and it should then glide without banking to either side.

The reason for the level attitude is, if the model banks to either side slightly in the glide, it is really in a side-slip that lasts during all the gliding time. As you know, a side-slip is used to lose altitude when a large ship comes in for a landing, so get a long distance away from your model while it is flying and see if it is leaning to either side.

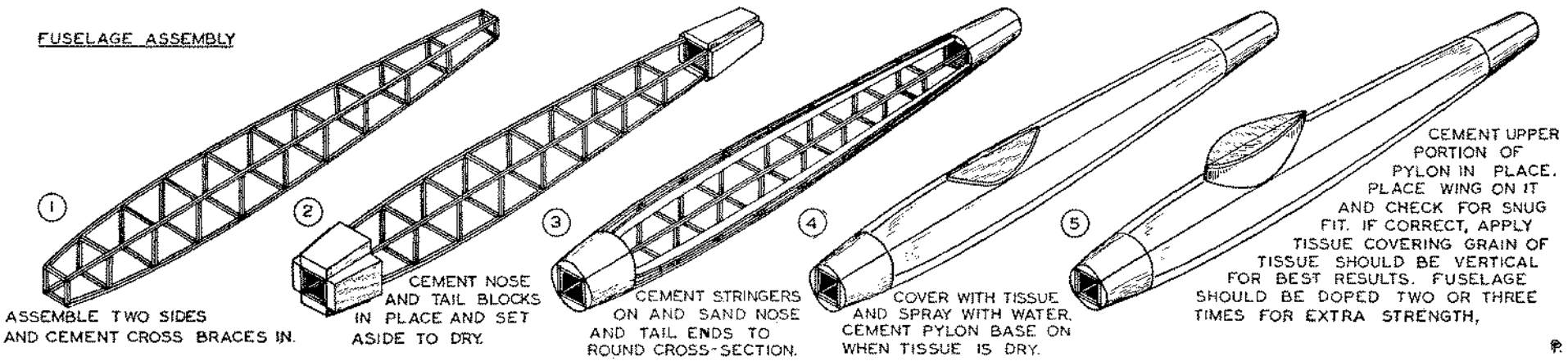
Well, if your "Paragon" gets into an argument with a thermal, you had better hop onto your bike or into your car, and give chase. You know, she won't stay in sight very long if you stand there mouth agape!



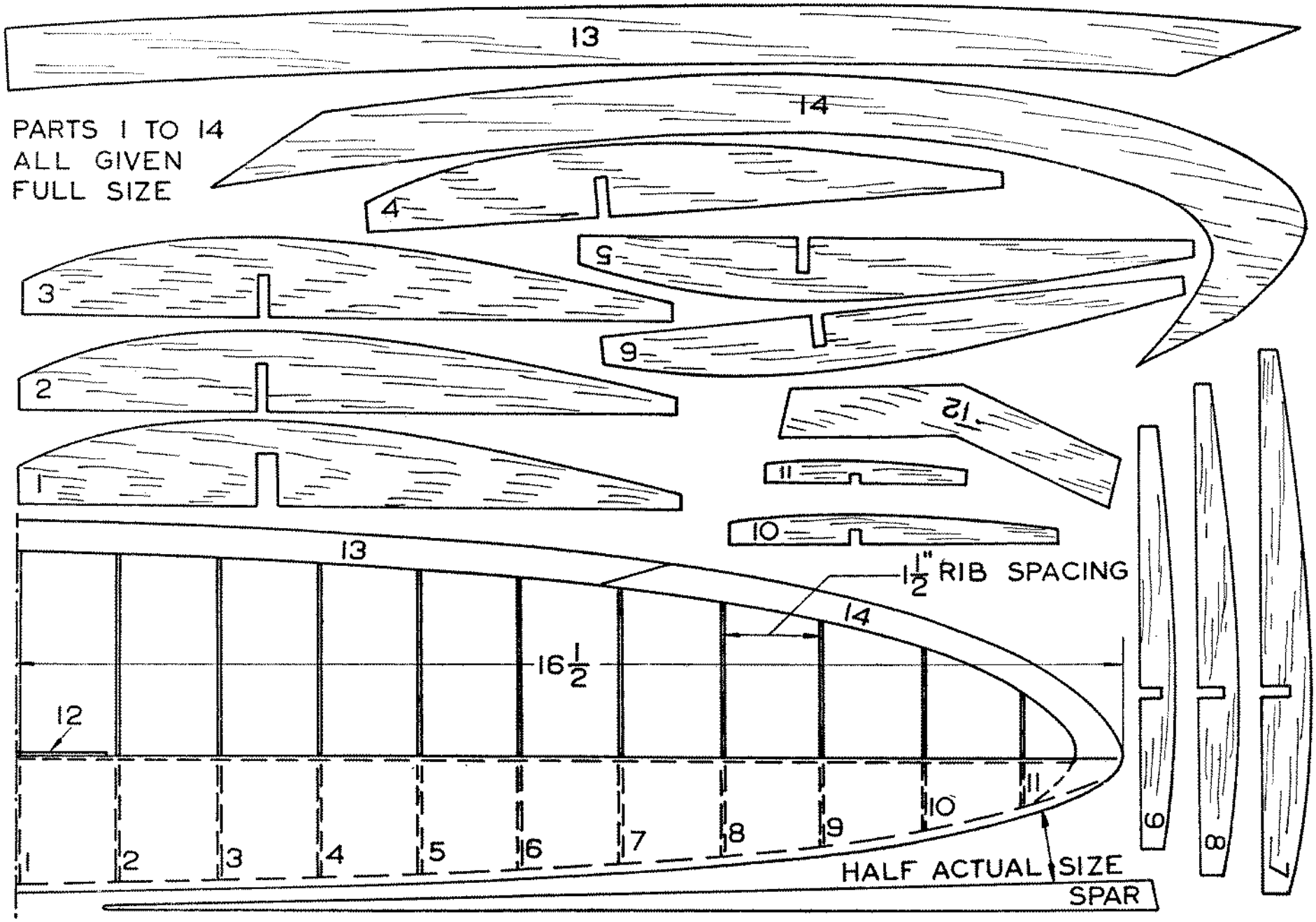
Cartoon - Model Airplane News - June 1951



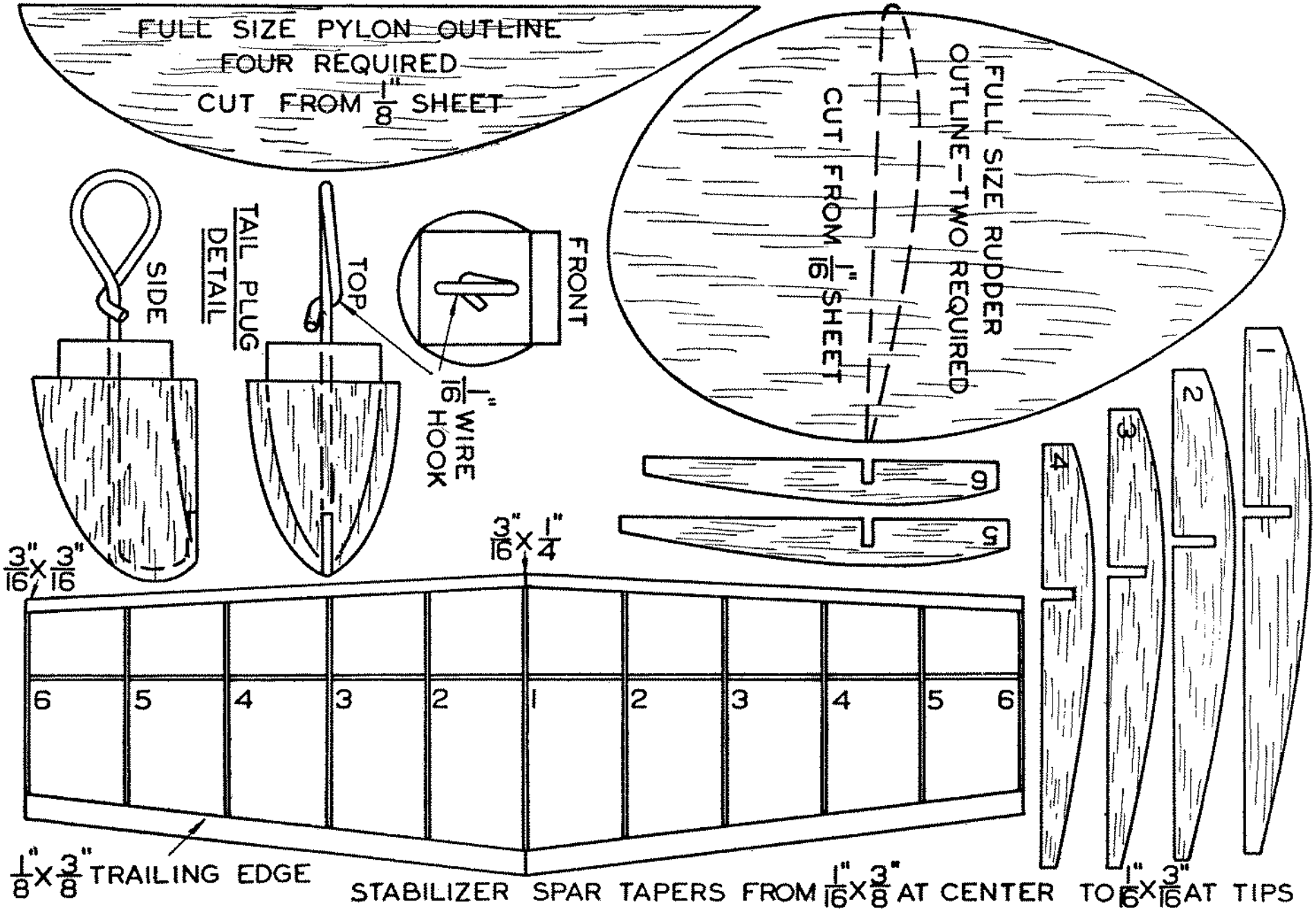
FUSELAGE ASSEMBLY



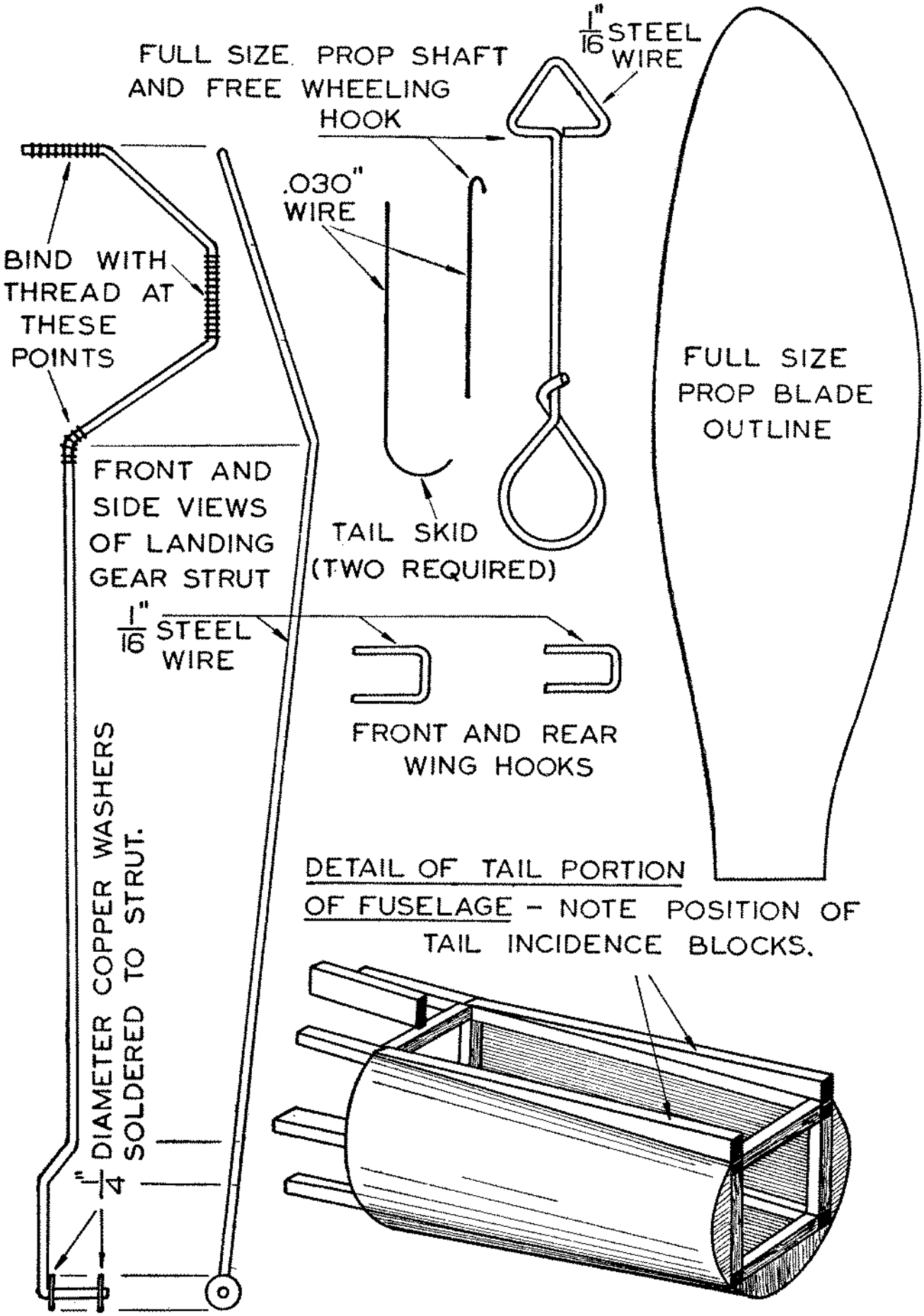
8x10.5


PARTS 1 TO 14
ALL GIVEN
FULL SIZE
13
14
4
5
3
6
2
12
1
11
10
13
14
1½" RIB SPACING
16½
12
1
2
3
4
5
6
7
8
9
10
11
HALF ACTUAL SIZE
SPAR
9
8
7

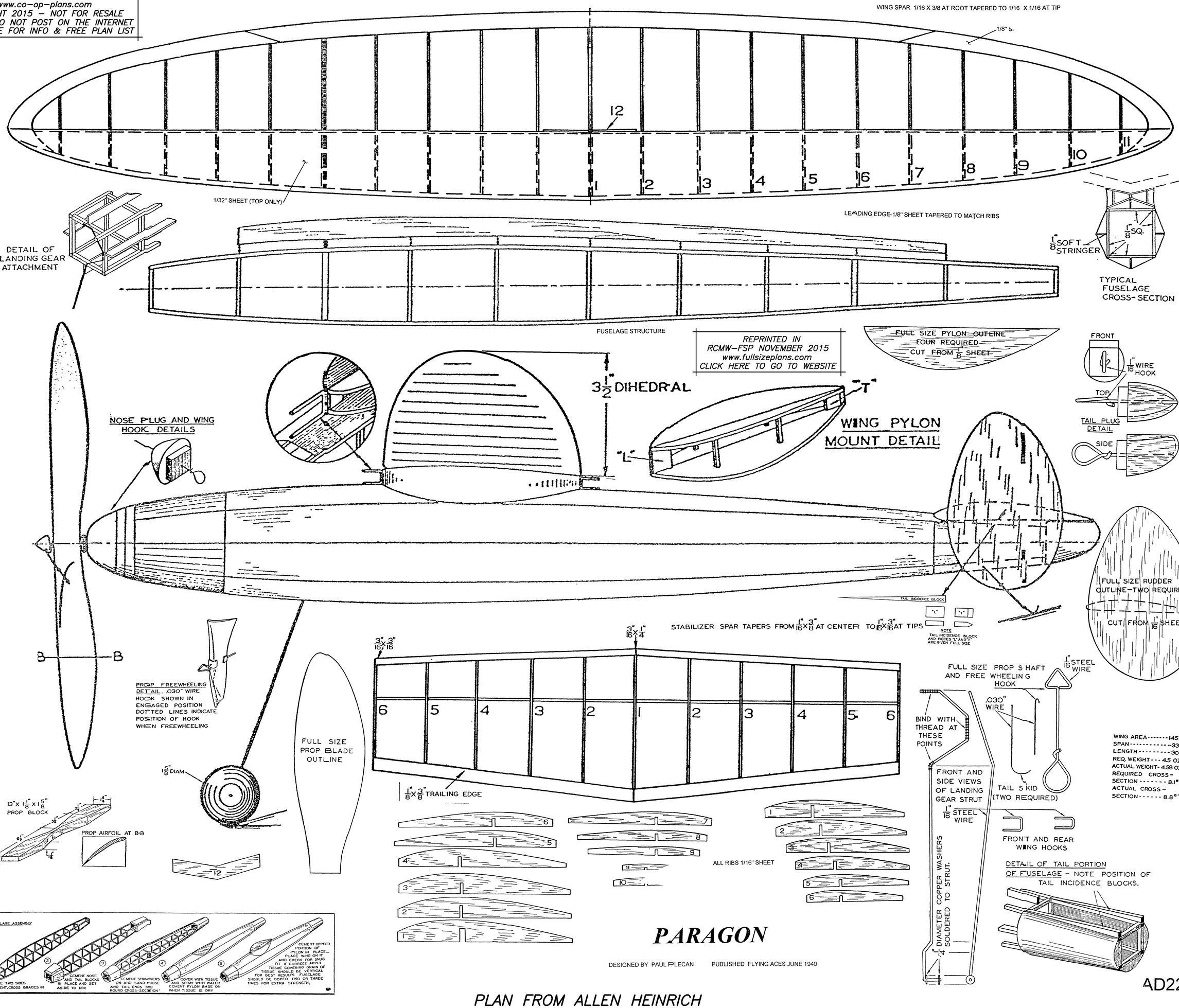
8x10.5


FULL SIZE PYLON OUTLINE
FOUR REQUIRED
CUT FROM 1/8" SHEET
FULL SIZE RUDDER
OUTLINE—TWO REQUIRED
CUT FROM 1/16" SHEET
SIDE
TAIL PLUG
DETAIL
TOP
FRONT
1/16" WIRE
HOOK
3/16" X 3/16"
3/16" X 1/4"
6
5
4
3
2
1
2
3
4
5
6
1/8" X 3/8" TRAILING EDGE
STABILIZER SPAR TAPERS FROM 1/16" X 3/8" AT CENTER TO 1/16" X 3/16" AT TIPS

8x10.5


FULL SIZE PROP SHAFT AND FREE WHEELING HOOK
1/16" STEEL WIRE
.030" WIRE
BIND WITH THREAD AT THESE POINTS
FULL SIZE PROP BLADE OUTLINE
FRONT AND SIDE VIEWS OF LANDING GEAR STRUT
TAIL SKID (TWO REQUIRED)
1/16" STEEL WIRE
FRONT AND REAR WING HOOKS
1/4" DIAMETER COPPER WASHERS SOLDERED TO STRUT.
DETAIL OF TAIL PORTION OF FUSELAGE - NOTE POSITION OF TAIL INCIDENCE BLOCKS.

31x38



PARAGON

DESIGNED BY PAUL PLECAN PUBLISHED FLYING ACES JUNE 1940

AD2266

PLAN FROM ALLEN HEINRICH

Back Issues Model Airplane Magazines

If you're like me, you enjoy paging through model airplane magazines and plans, sometimes to find a project to build, to research a particular aircraft, or to just spend some pleasant time away from the daily grind.

If you like to build models, the magazines of today don't offer much since they are primarily expensive catalogs of ready- to-fly models. There's nothing wrong with RTF or ARF models but they don't offer much to interest model BUILDERS.

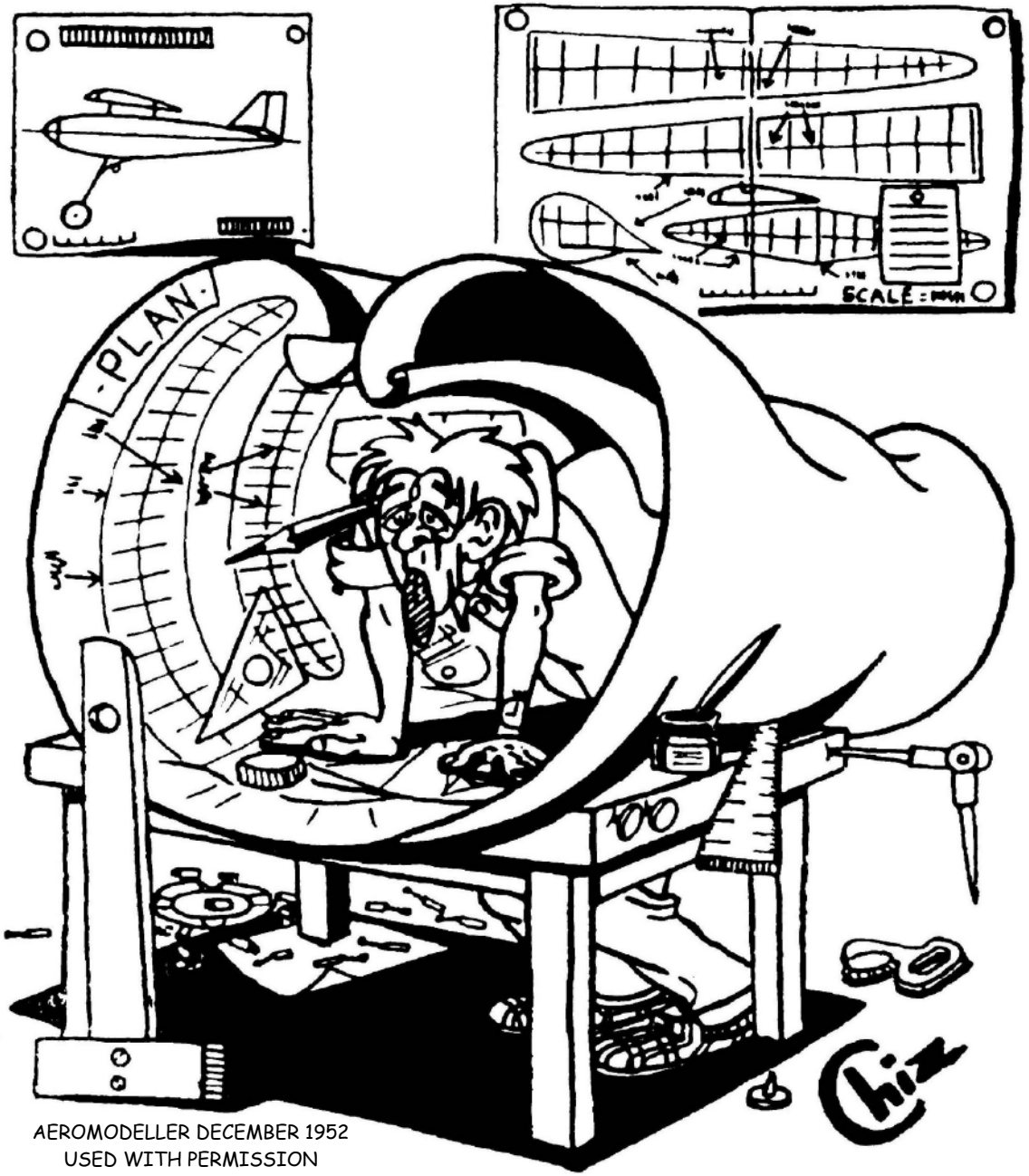
That's NOT the way it was in the past, when you had to build a model before you could fly it. If you're an old-timer, as I am, you have fond memories of Air Trails, Flying Models, Model Airplane News, Aeromodeller and many of the several other magazines available "way back when".

If you're a relative newcomer to modeling and want to learn how to build them, those old magazines can provide a wealth of useful information, plans and how-to-do-it articles.

There are several problems with those old magazines. They are sometimes hard to find, often in bad condition, and in many cases they are so fragile that they can fall apart just by turning the pages. This is because they were often printed on pulp paper, also known as newsprint. Newsprint is inexpensive, but has residual chemicals that cause it to deteriorate when exposed to the air and particularly to sunlight. Your wife or "significant other" might also ask "When are you going to get rid of all those smelly old magazines?"

I admit to being a bit of a "nut case" but have been collecting these magazine for over 50 years and now I am trying to digitize them to preserve them for other modelers. They are now available as digital PDF files. See the details on the next page.

Keep 'em Flying - Roland Friestad



AEROMODELLER DECEMBER 1952
USED WITH PERMISSION

We have switched to USB Memory Cards Much More Reliable

NEW - Now available is a digital collection of the first 10 years of RC Modeler magazine, starting with the first issue published in October of 1963 through the issue of December 1972 - 109 issues in all on a single USB drive card. -

$50 - Postage paid world wide

AIR TRAILS - This magazine went under several names. The final issue was published in March of 1975. There are 435 monthly issues included in the complete set and priced as follows ---

D001010 - January 1937 through December 1943 - 84 issues - $50

D001011 - January 1944 through December 1950 - 84 issues - $50

D001012 - January 1951 through December 1961 - 132 issues - $50

D001013 - January 1962 through December 1971 - 96 issues - $50

D001014 - January 1972 through March 1975 - 39 issues - $25

AIR TRAILS ANNUALS -
D001009 - 1938 through 1969 - All 25 issues - $30

D001015 - SPECIAL - Complete set including the annuals - $200

MODEL AIRPLANE NEWS - The first issue of this magazine was published in July of 1929 and it is still in publication. We have the following collections currently available ---

D001002 - July 1929 through December 1942 - 161 issues - $50

D001004 - January 1943 through December 1952 - 120 issues - $50

MODEL BUILDER - This magazine ran from the first issue of September~October 1971 through the final issue dated October, 1996 -

D001001 - The complete run - 295 issues - $75

FLYING MODELS - The first issue of this magazine to use the name was published in June of 1947 and it is still in publication. We have the following collections currently available ---

D000013 - June 1947 through December 1963 - 123 issues - $50

RC MICRO FLIGHT & RC MICRO WORLD - The complete run of RC Micro Flight, 1999 through 2004 and all issues of RC Micro World, 2005 through 2012 are available - D001016 - $30

Currently being digitized are complete runs of RC MODELER and AEROMODELLER. RC Modeler is coming along and is scheduled to be done by March 2015 - Aeromodeller should be completed by the end of 2015 - Prices have not been set yet -

The digitizing of several other magazines will follow including MODEL CRAFTSMAN, FLYING ACES, POPULAR AVIATION, MODEL AIRCRAFT (British) and others. This is a long term project. Many thousands of hours and dollars are represented in these collections.

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