

# RCMW-FSP

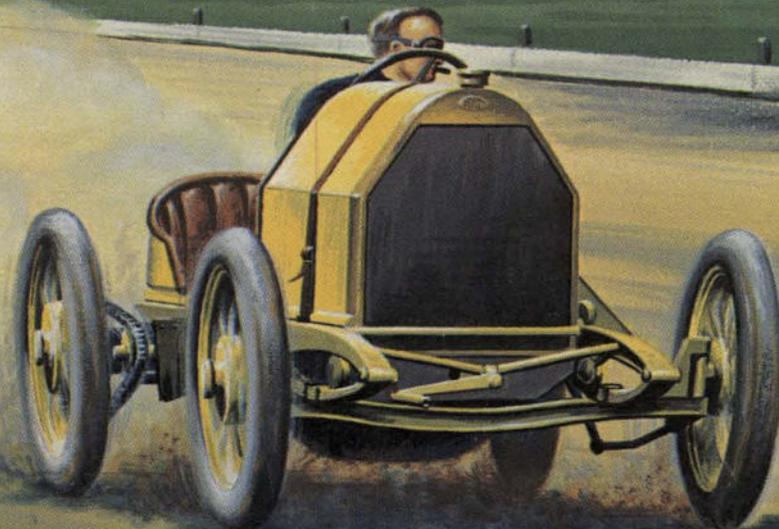
July 2016

## IN THIS ISSUE

BALSAURUS - Novelty HLG  
LITTLE SPORT - O.T. FF  
SEAWEED 250 - RC on Floats  
SPITFIRE - UC Stunt Scale  
MONOCOUCPE - Rubber Scale  
SHOESTRING - UC Scale  
ARNHEM - O.T. TLG

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American Modeler



*Lincoln Beachey vs. Barney Oldfield:  
Curtiss Pusher races chain-drive Fiat*

# **RCMW - INDEX**

## **July 2016**

- 3 - Editorial**
- 4 - BALSARUS - Novelty HLG by Earl Cayton**
- 5 - 003773 BALSARUS Plan**
- 6 - LITTLE SPORT - O.T. Free Flight by Robert Miller**
- 9 - 000323 LITTLE SPORT Plan**
- 10 - SEAWEEED 250 - Micro RC Floatplane by Bob Aberle**
- 21 - 003782 SEAWEEED 250 Plan**
- 22 - SPITFIRE UC Stunt Scale - by Charles Mackey**
- 25 - 003784 SPITFIRE Plan**
- 26 - 001601 MONOCOUCPE - Rubber Scale Free Flight - Flyline Kit Plan**
- 27 - SHOESTRING - UC Scale by Cal Smith**
- 32 - 003786 SHOESTRING Plan**
- 33 - 004144 ARNHEM - O.T. TLG by Aeromodeller Research Department**
- 34 - This Months Magazine Download - September 1952 Air Trails**
- 35 - Digitek - Back Issues of Model Magazines on USB Flash Drives**

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RCMW is the only model airplane magazine that provides all plans as full size PDF files in every issue. All pages of the monthly online magazine can be printed out, including the full size PDF files, using your own computer printer.

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Roland Friestad  
1640 N Kellogg Street  
Galesburg, IL 61401  
USA

# For the Model Builder and Flyer - July 2016 Issue



Full  
Size  
Plans



We have a bit of everything this issue, ranging from a novelty Hand Launched Glider from several million years ago, a real Old Time model, to a brand new design by our regular contributor, Bob Aberle.

I got a note from the AMA about the release of the new regulations from the FAA regarding drones and everything else that flies apparently. I wonder what they plan to do about mosquitos and sparrows). This tome is reputed to be over 600 pages long and is still being modified as this page is being written.

Also as this is the contest season check with the AMA to see what is happening. This year the indoor Nats is being held in Rantoul, Illinois at the former Air Force base. Should be a good location. And the other contests are going strong at Muncie. Check it out.

Now for a few comments about this months offerings. Of course our new design by Bob Aberle is featured, a reduced size version of his SEA-WEED design adapted for modern RC equipment and electric power. Should be fun at the beach or swimming hole.

The BALSARUS is a HLG by Earl Cayton that he appears to have discovered while digging through some VERY old model records since it may have been used when the dinosaurs were still around. Build one for your kids, grandkids, or the local grade school kids who hang around your model building bench.

LITTLE SPORT is one of those O.T. Free Flights from the time when glo plugs were starting to replace spark ignition so notes are included for those who might want to build it either way.

Charles Mackey's UC Semi-Scale Stunter, SPITFIRE is an attractive and good performing way to fly a WWII fighter that really performs.

Flyline put out a series of rubber and gas powered scale kits. This one, the MONOCOUPÉ, like their others could easily be converted to Micro RC with electric power.

Cal Smith, artist and model designer created the SHOESTRING, an accurate UC Scale model of the full size homebuilt that was tearing up the Goodyear racing circuit in the 1940's and on up to the 1970's and even more recently.

Speaking of Cal Smith, the cover of our downloadable magazine for this month, Air Trails, September 1952, is also some of his work - Also the Cover of this months RCMW. He was a great model builder and aviation artist and his work is seen a lot in the older publications.

Finally, our last offering is from the British magazine Aeromodeller and is a TLG called ARNHEM designed by the magazine research staff.

Keep 'em Flying,  
Roland Friestad, Editor

# BALSOURUS



**Modern man patterns his planes like modern birds.  
Would ancient man have used reptiles for a pattern?**

As every modeler knows, "Balsaurus" was a rare prehistoric flying reptile with an uncanny skill of sniffing out even the weakest thermal and riding it for hours at a time at its heart's content. It made its nest in the ancient Balsa tree and pacified its ravenous appetite by feasting upon the swarms of Balsa beetles that infested the Balsa trees of its day.

Presented here is a profile version of this old but interesting bird. Proportions and performance are commensurate with contest types. Plans are full size so what are you waiting for? Let's get started.

## CONSTRUCTION

The wing is cut to shape from a sheet of 18" x 4" x 316" fairly soft sheet balsa. Carve to the airfoil shown. Cut the wing apart at the polyhedral joints and cement it into position with the polyhedral shown on the plans.

The tail group is simply cut from quarter grain 1/16" sheet balsa. The fuselage is carved from 1/4" rock hard sheet balsa. Sand down smooth with progressively smoother sandpaper and then assemble, using plenty of cement.

All surfaces are attached at zero degrees. The left side of the stab is 1" higher than the right for a left turn in the glide.

The model is finished with two coats of clear dope all over and then two coats of black dope on the fuselage. The face of the bird is easily sketched in with silver and red dope. The wing and tail are trimmed in black dope or black tissue strips.

## FLYING

Half of test flying is performed before taking the model to the flying field. First double check all the flying surfaces and make sure that they are in neutral position. The center of gravity should be in the position shown.

Now we are ready to fly. The glide circle is to the left and minor turn adjustments are made by bending the rudder trim tab. Add bits of clay fore and aft for longitudinal trim. Bank the wings for turn in the climb.

Grip with the index finger at the junction of the wing and fuselage for extra altitude. The original "Balsaurus" climbed to the right and then performed a figure "S" into a left glide. Turn adjustments are reversed for a southpaw. Best of luck with your "Balsaurus."

## BILL OF MATERIALS

Balsa

1- 3/6" x 4" x 18" (medium soft) Wing

1- 1/4" x 1-1/2" x 20" (hard) Fuselage

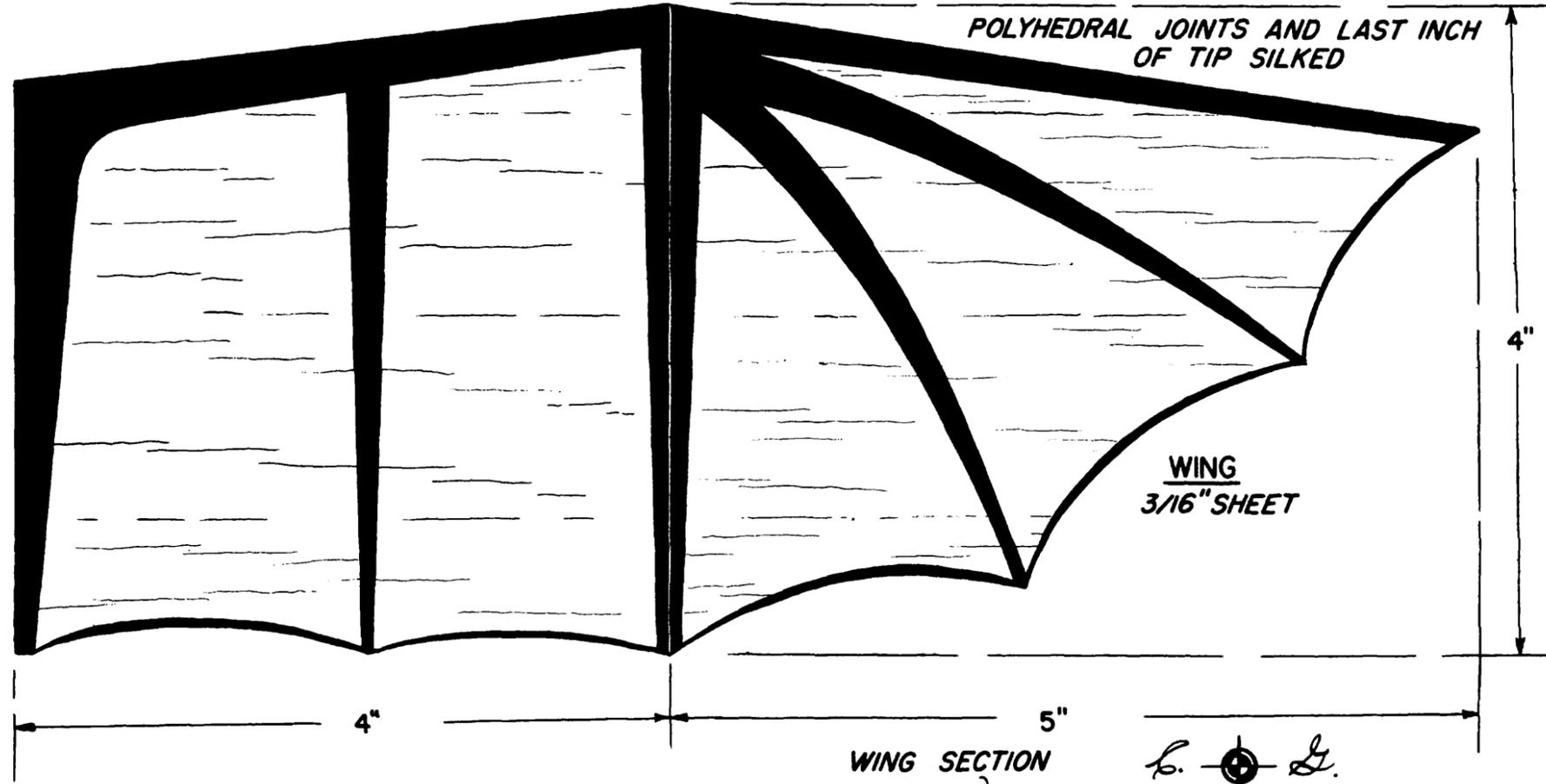
1- 1/16" x 3" x 18" Stabilizer & rudder

1 oz. clear dope; several assorted sandpaper; 1 oz. assorted colored dopes for trim; tube of cement.

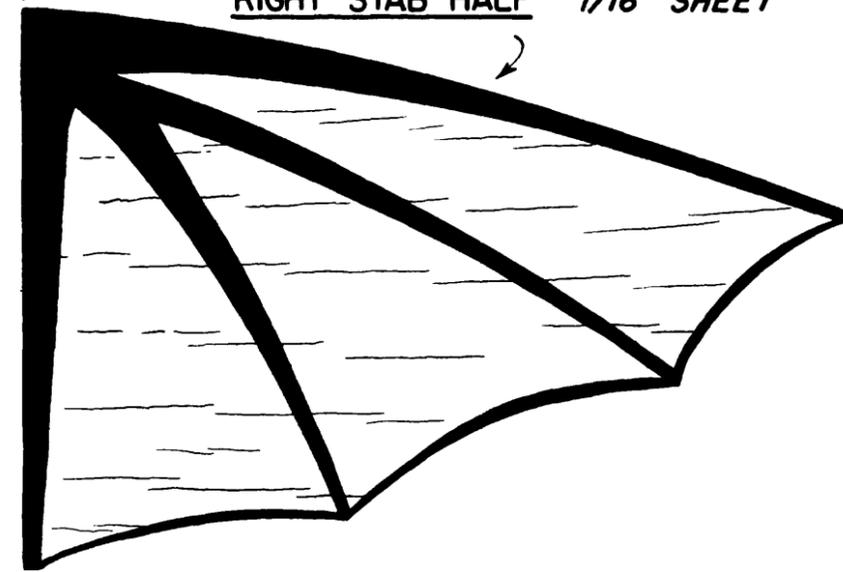
# BALSAURUS

8x21

POLYHEDRAL JOINTS AND LAST INCH OF TIP SILKED

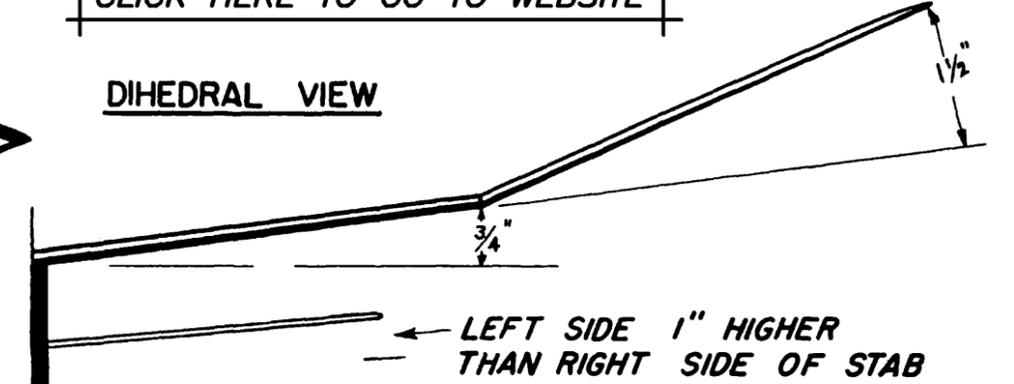


RIGHT STAB HALF 1/16" SHEET



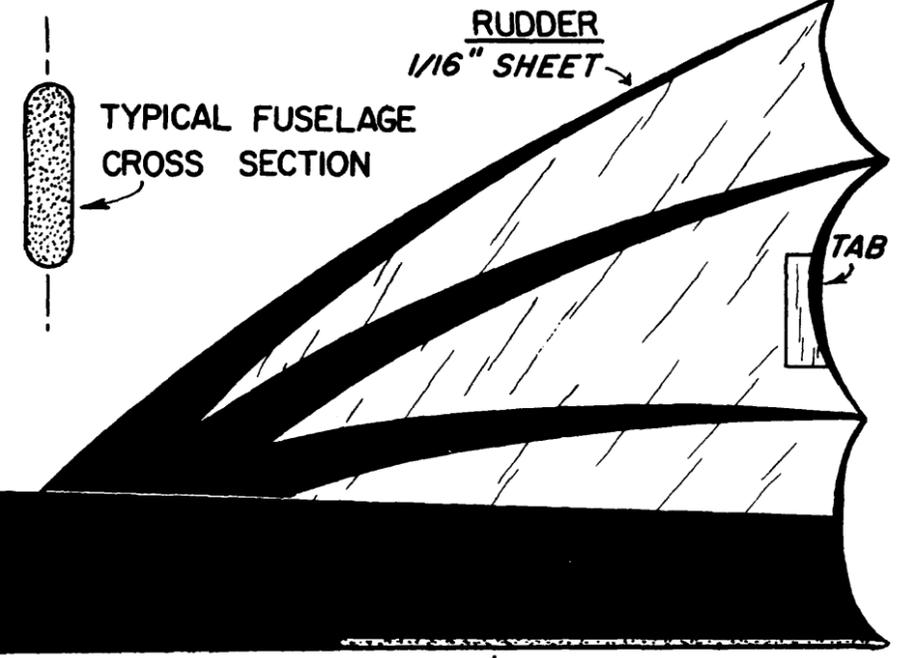
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DIHEDRAL VIEW



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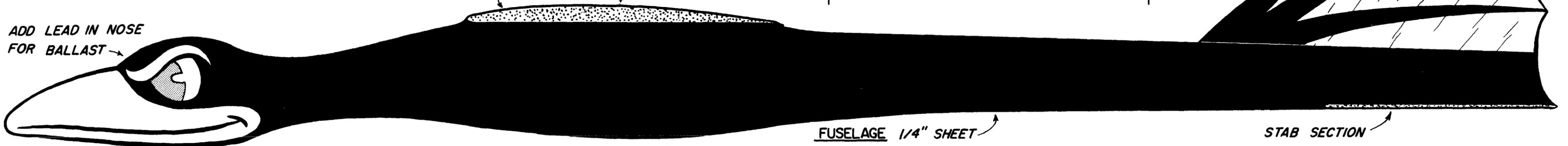
RUDDER 1/16" SHEET



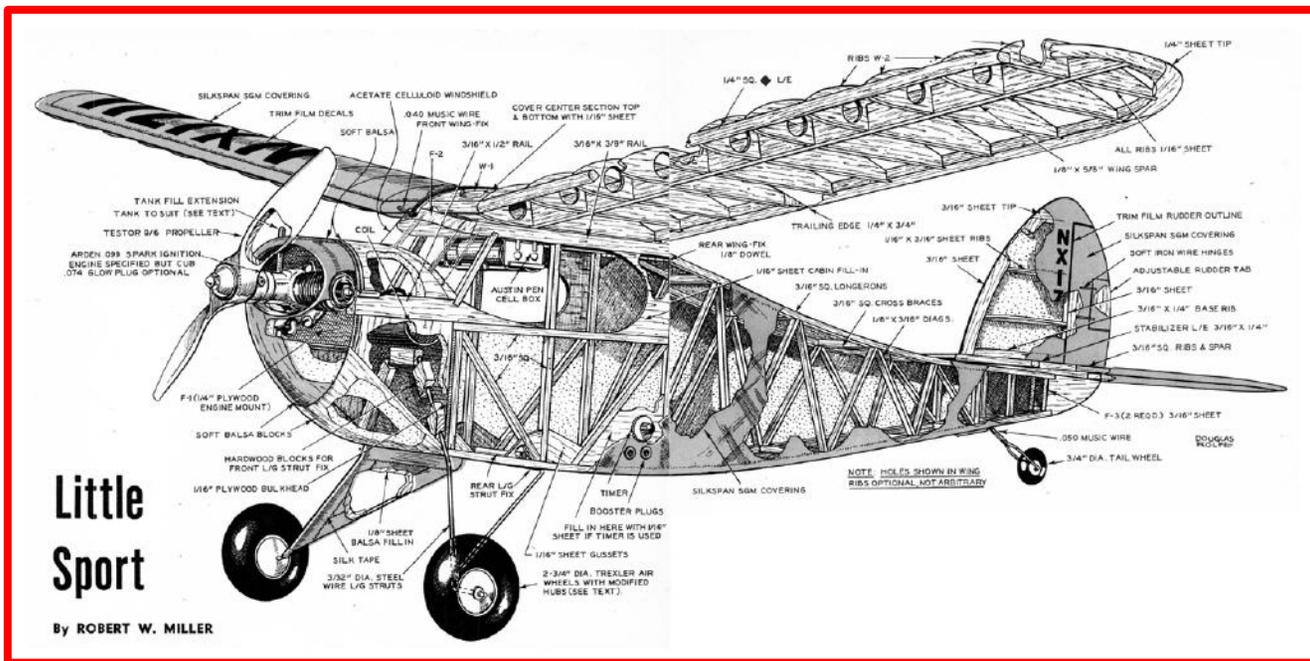
TYPICAL FUSELAGE CROSS SECTION



ADD LEAD IN NOSE FOR BALLAST



DESIGN BY EARL CAYTON - ORIGINALLY PUBLISHED IN APRIL 1958 ISSUE OF FLYING MODELS



them to the window outline and notch them before they are cemented in place.

After the sides are dry, sand them lightly and then jig them upside down on the bench, using a square and some weights to hold in position. Insert the four 3/16" sq. x 3-3/8" spacers at the points marked "A." After the cement is dry, add the gussets on the bottom sides of the fuselage and put in a 3/8" x 1/8" cross brace, on edge, where the rear landing gear strut will cross.

Bulkhead F-1 should be jigsaw-cut and the bottom edge beveled as shown in the side view of the plan. Drill the motor mounting holes and also holes for the wires if the model is ignition operated. Apply a good coating of cement to the notches and mount F-1 on the 1/2" x 3/16" rails, being careful to keep it square with the fuselage.

**This sport Free Flight model by Robert Miller comes from the September 1952 issue of Air Trails. The cutaway drawing is by Douglas Rolfe who for many years provided his great drawings of full size aircraft. This design was from the time when spark ignition engines were still quite common but glow-plug engines were rapidly taking over as model powerplants.**

A rugged frame was the next thing in order and by using hard balsa in practically every point of construction, plus a covering of Silkspan SGM, a model of unusual strength evolves. With a combination of this sort you will have a sport job second to none and one which you never need leave at home because it's too windy to fly.

A spark ignition Arden .099 was used as the test powerplant in this model with fine results, but for those who would want to glow plug it, merely watch the balance of the ship and keep the tail construction light while beefing up the nose with hard balsa cowling blocks, etc. A Cub .074 glow plug engine is an excellent size for ignitionless operation.

The fuselage sides are built in the usual manner, one on top of the other. The 1/2" x 3/16" balsa runners at the front of the fuselage are cemented to the 3/16" sq. fuselage side pieces during their construction, and it is advisable to cut

Shave the inside faces of F-3 so that they are about 3/16" wide when the ends of the fuselage are drawn together. Apply cement at this point and clamp the two ends together till dry. Add the necessary 3/16" x 1/8" spacers on the top and bottom of the fuselage. Cut and cement in the 1/16 plywood bulkhead as shown on the side view of the plan.

Form the front landing gear strut and attach it to the plywood bulkhead with grooved pieces of hardwood such as bass. Use one on each strut leg and one across the top. Use plenty of cement. Bend the rear landing gear strut and bind it with thread to the 3/8 x 1/8 bottom spacer and paint it with cement. Join the front and rear landing gear struts by wrapping them with fine copper wire and sweat with solder. Form the tail wheel fork and attach it to a wedge of 3/16 sheet balsa cut to fit the bottom of the fuselage.

Here is a Class A model for .099 size engines which should please the heart of any model builder. Our first thought was of size, a large enough model to take the bite out of the average engine in this smaller class and give us a ship which would be a pleasure to fly.

Cement the balsa nose block to the bottom of the fuselage and beveled edge of F-1. Add the cowling block next. If the model is glow plugged leave this block solid as you will need the weight in the nose. If the model is ignition operated hollow out this block to allow room for the coil.

Our model has a hatch across the top directly behind F-1. This allows access to the condenser and motor bolts and removes the ignition equipment from engine oil and gas.

Carve the bottom nose block to shape and fill in the sides of the nose with soft 3/16 sheet balsa. Use one or as many pieces as necessary to conform with the nose shape. While this is drying add the window outlines.

Cement a piece of 1/8 x 1/4 x 3-3/8" hard balsa flat side down on each side of 3/8 x 1/8 bottom spacer. These will prevent the rear strut from tearing out in the event of a rough landing.

Sand the filled in sides of the nose till they conform with the carved bottom block. The fuselage is almost finished except for the landing gear fill-in and F-2. We have not forgotten F-2, which is not added until after the wing is finished and set on top of the cabin. Only in this way can you get a good fit between the two.

Some builders are reluctant to fill in between landing gear struts because they fear it will cause damage if the model dives. Rest assured our model lost its wing and fell about fifty feet to the hard ground with only a bent axle to show for it. Aside from making the model look better it also (don't laugh boys) helps to lower the center of lateral area.

Fill in the gear with very hard 1/8" sheet balsa running the grain vertically. It is kept in place by cementing a tape of silk or Nylon from one side around to the other allowing the cloth to lap over the wood at least 1/4".

The wing is built in the usual manner. The spar and trailing edge should be extra hard quarter grain balsa and the ribs can be cut from medium stock. The 1/4" sq leading edge is set on edge and the nose rounded off after the wing is complete.

The dihedral Joiner is cut from 1/16" plywood and should be clamped to the spar roots with spring type clothespins while the cement dries to insure a strong joint. Cover the top of the center section with 1/16" sheet balsa and fill in the bottom between ribs W-1 also with 1/16" sheet balsa.

The elevator and rudder offer no problem as they are flat surfaces. Use hard balsa throughout with plenty of cement. When both units are finished cement the rudder on the center line of the elevator. The rudder tab can be cut from the rudder and re-cemented to it with soft wire hinges, or a tab of aluminum can be used in its place.

Now we can go back to F-2. Set the wing on top of the cabin in its position Slip F-2 in position under the front of the wing and between the two 3/8" x 3/16" top cabin members. F-2 should be on a slight upward slant with the top of the beveled edge right below the wing's leading edge. If it fits well remove it and pre cement the open grain ends and let it dry. Recoat the ends and insert it as before. After it is lined up properly the wing can be removed.

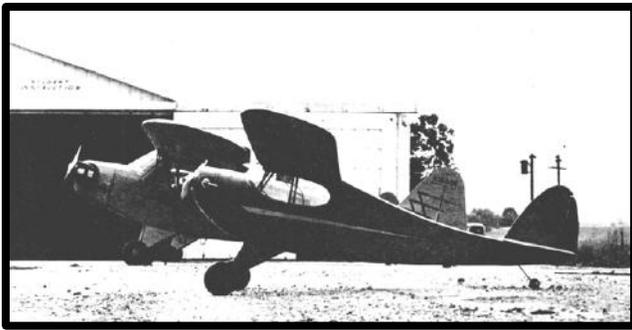
Bend the 'U' hook and imbed the ends in the top of F-2, as shown on the side view of the fuselage. To make certain it will not pull out, drill a couple of holes through F-2 on each side, sew it on with thread and coat well with cement. Cement a 1/8" birch dowel behind the cabin, extending the ends 1/4" past the cabin sides.

If the model is ignition operated, install the components at this time. An Elmic or similar timer should be mounted in the side of the cabin to break the circuit. For glow plug a Spitfire Timer Valve will fit nicely in the side of the nose section.

Sand the entire model to remove any surface irregularities and dope the entire frame wherever the paper will come in contact with the wood. After a light sanding the frame is ready to be covered. Again let me stress the use of SGM paper. The frame is strong enough to resist warping and the added strength of this paper will give you a rugged ship. In place of this paper silk could be used.

After covering the model, water spray the paper and let it dry. Brush on two coats of slightly thinned clear dope with light sanding between coats. For a finish spray on two coats of color dope and trim to your choice. If the model is glow plugged use one clear dope, two colored and finally fuel proofer.

This may sound like a lot of weight but if the ship is built to these instructions it will weigh between 15 and 20 ounces and this is still light.



To finish the model add the windshield and windows. Acetate celluloid (Safety Base) will hold up best under glow fuels—and under no circumstances should nitrate celluloid be used.

The gas tank is left to the choice of the builder, but I might mention that pill-can lids or tops can be made into fine tanks when soldered to a flat piece of tin.

The cowling can be hollowed out thick or thin depending upon the weight desired. The holes in the cowling for the cylinder head, needle valve and timer arm can only be found by cut and try depending upon the engine used. Good size

dress snaps will secure the cowling to the front of the ship and keep it there. Our ship has never been flown without it, and has taken many beatings.

A word about the airwheels. Trexler SG 2-3/4 inch were used on this ship. As they come they are extremely wide and don't look very good. By cutting 3/8" out of the hubs (they require bushing anyway) you can get a skimmed-down good looking wheel. Merely saw off the flange on one side then saw off 3/8" of the spool, replace the flange, insert a piece of aluminum or brass tubing and flare the ends.

You are now in business so take your model to that deep grassy meadow they always tell you about and do some test gliding. The model should balance Just slightly nose heavy when held at the wingtips on the spar.

Try gliding the model from a low position and note any stalling or diving tendencies. If it dives shim up the wing under the spar with 1/32

sheet balsa until you get a good glide. If it requires more than three pieces under the wing, check for balance and if too nose heavy add weight to the tail.

If the model stalls do not lessen the angular setting between the wing and elevator, but add some weight to the nose until it glides properly. Once satisfied with the glide you can try powered flight. We obtained good results with a Testors 9/6 prop so try this one as a starter.

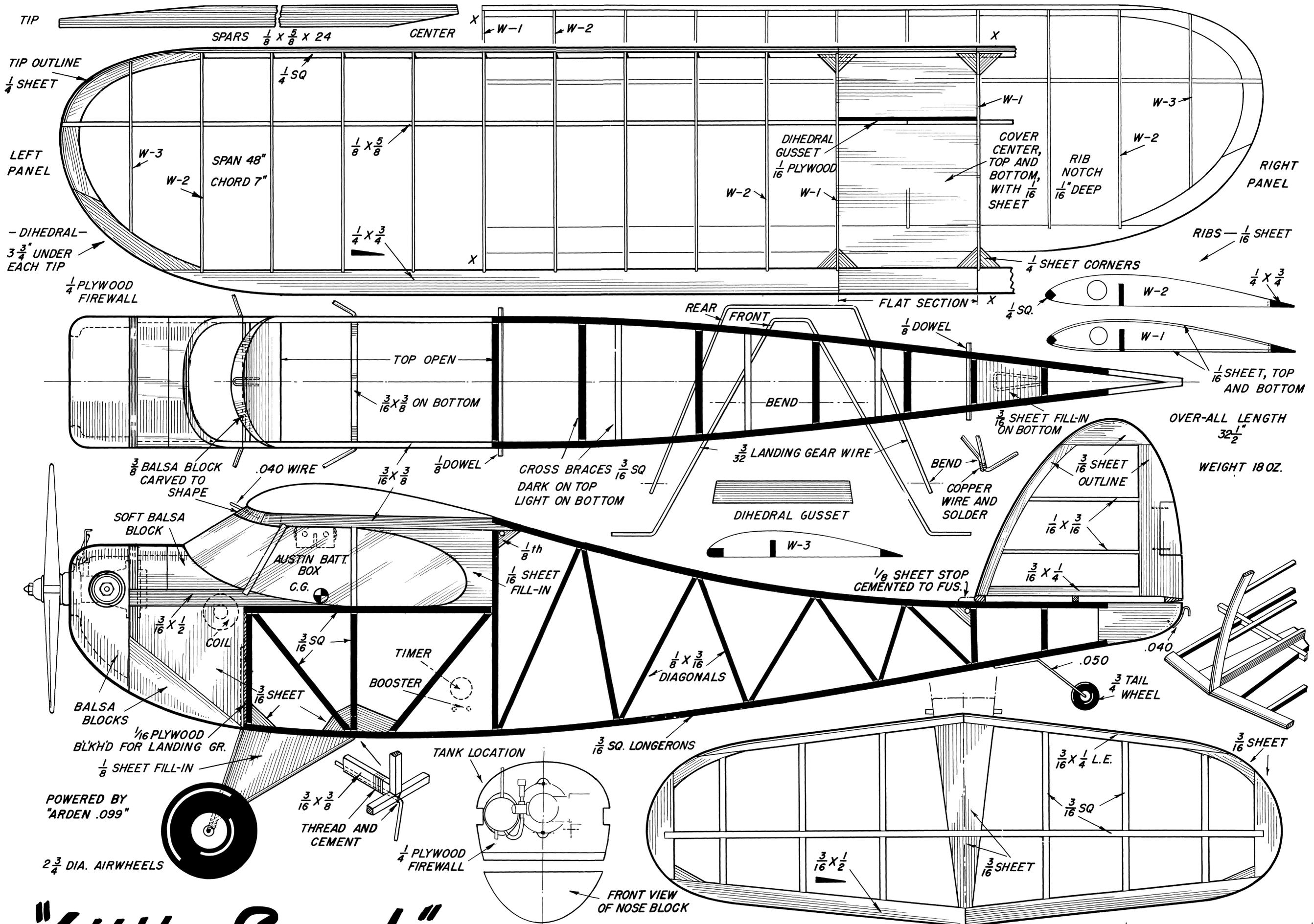
The first power flight should be made at a reduced spark setting and note any turning tendencies before using full power.

With neutral rudder our first power flight took the model straight out of the field and we have found that the ship can be made to fly straight or in circles. The glow plug model will be several ounces lighter than the ignition job so keep the motor run short because the climb, although not straight up, will surprise you.

## PENNY



Cartoon from Model Airplane News, January 1951



# "Little Sport"

DESIGN BY ROBERT MILLER - AIR TRAILS SEPTEMBER 1952

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# SEAWEED 250

by Bob Aberle

A reduced size version of my SEAWEED float plane design from 1975. 250 sq.in., weight 20.5 ounces.

## BACKGROUND

I started my hobby writing career back in 1973. My good friend, Nick Zirolu, SR., was a club member of mine. He had seen several of my original designs and encouraged me to start submitting articles.

Nick introduced me to then FLYING MODELS editor, Don McGovern, who lived only a few miles from my location. My first article, the "Long Islander" RC sailplane appeared in the December 1973 issue of FLYING MODELS.

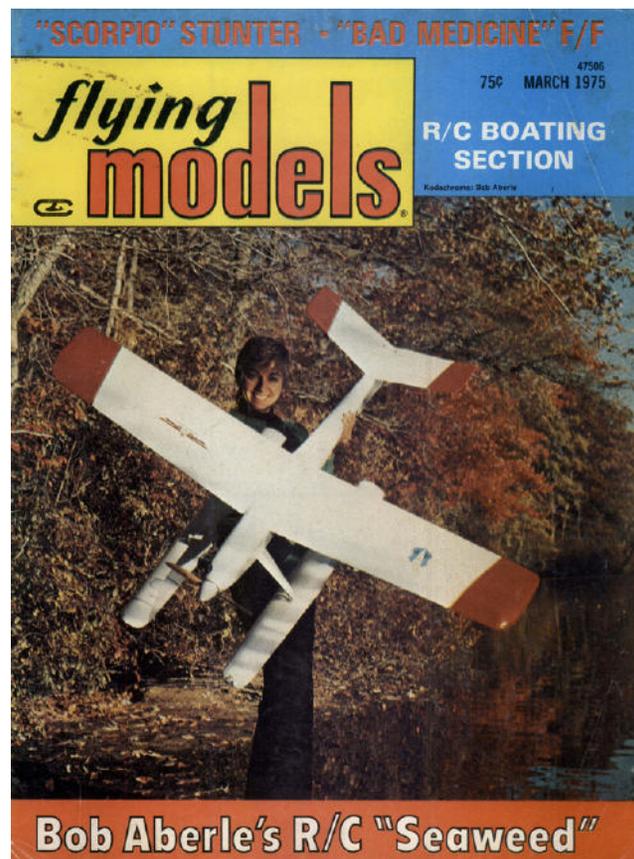
After that designs came pouring out of my basement shop at a fast rate. As a point of interest, to date, I've published 128 original designs, 67 of which were expressly for RC MICRO WORLD. This article makes it 68!

Early in 1975 I came up with a kind of new concept for a large float plane. This plane featured an inverted vertical fin and rudder. The idea was to have an inch or so of the lower rudder actually stick in the water. With this concept you can steer the plane while it is in the water and then again when it is in the air.

Don Mc Govern loved this plane and for the fun of it named it the "SEAWEED". It was 700 square inches, with a 65 inch span. It probably weighed around 7 pounds and was powered by an Enya .60 glow engine.

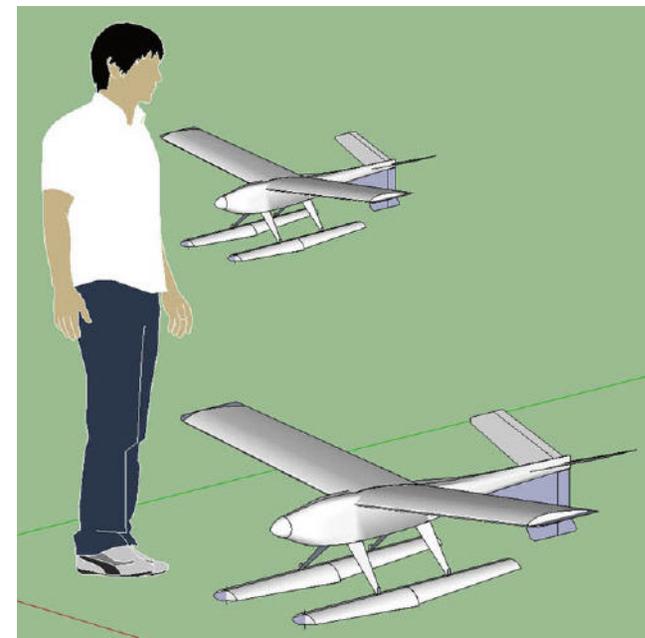
The plane turned out to be a great success. Loads of plans were sold at the time. Nick Zirolu, Sr. made the maiden flight off our local Lake Ronkonkoma, here on Long Island. That was 41 years ago.

Don McGovern felt that my SEAWEED should get the proper attention and asked my late wife, Irene, to hold it for the cover photo of the March 1975 FLYING MODELS. The photo that follows is a copy of that cover.



Now we get to the present time. Several months ago a reader, by the name of Jeff Schlimmer, from Washington state, e-mailed me and indicated that he was thinking of building a reduced size version of the SEAWEED employing electric power. He had all kinds of questions and

I answered all of them. Jeff's intention is to make his SEAWEED exclusively with foam material. He sent me this artist concept sketch of the SEAWEED, with the inverted fin/rudder quite visible.



Thanks to Jeff, the seed was planted and I quickly drew up a set of plans for a parking lot size aircraft of 250 square inches of wing area and a span of 39 inches. This plane ended up weighing 20.5 ounces and employed an electric motor running at approx. 100 watts input power. The next photo shows me holding the finished SEAWEED on my rear patio. This will give you an idea of the overall size.



Following are two views of the completed SEAWEED.



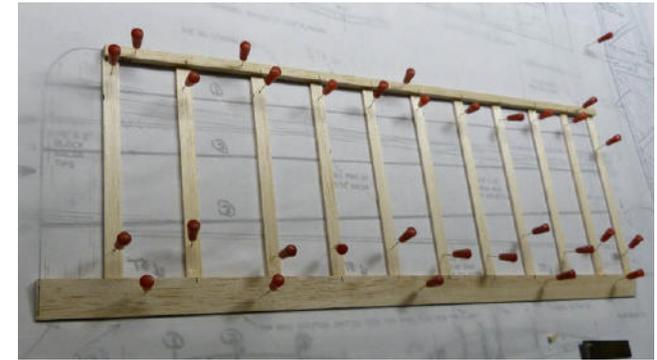
To prove that it didn't sink on its 18 inch long floats ---- here is proof. Mark Smith of Seaplane Supply Co., twin foam floats proved perfect.

### DESIGN CONSIDERATIONS

Instead of wing ribs I decided to use cap strip that are bent over the spars to create the airfoil shape. This technique first appeared on a free-flight design back in the early fifties called the Half Wild Goose (anyone remember?). Not having to cut out ribs can really speed up the building process.

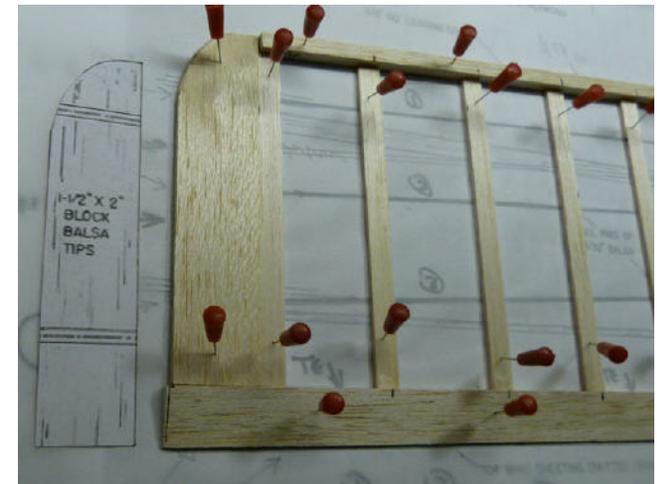
The original SEAWEED employed a semi-symmetrical NACA 2412 airfoil. On small models it is easier to just use a flat bottom airfoil. It proved to work well! I didn't have ailerons on the original. I did the same for this 250 square inch version, but see my comments at the end of this article. I Stayed with the dihedral in stab, mainly for appearance sake.

The nose was slightly extended which worked out perfect for the CG location. No added ballast was necessary. I used dowels and screws to hold the wing down. At your option you could just use rubber bands. The wing is big enough that you would want it removable for easier transport.



### CONSTRUCTION NOTES

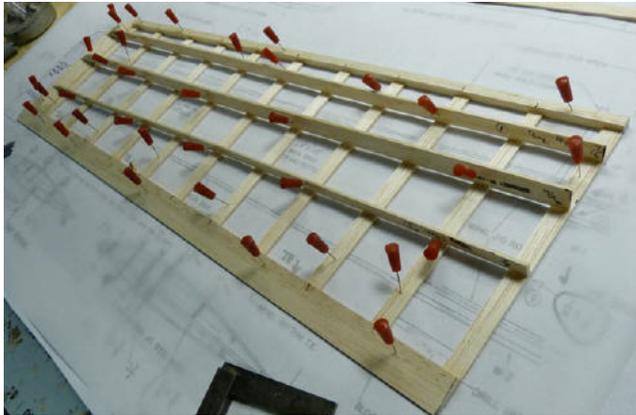
I suggest as a starting point that you try the wing. Keep in mind that no wing ribs are used. The technique involves the use of 1/16 X 3/8 wide strip, or you might call them cap strips. Pin down the 1/4 square leading edge and the 3/16 X 3/4 trailing edge stock to your building board. Then install the lower cap strips between the leading and trailing edges. Keep in mind that this concept only works with a flat bottom airfoil.



The wing tips are made from 1/8 inch balsa, that is flush with the lower surface of the wing.

The next step is extremely important. The height of the three wing spars must be exact, to obtain the proper airfoil shape when the upper cap strips are applied. Each of the spars will get thinner at the wing tips.

The spars are cut from hard 1/16 inch balsa. The front spar at the center is 7/16 inch high. Then out at the tip it tapers down to 3/8 of an inch. The middle spar is 9/16 inch at the center, tapering down to 7/16 of an inch at the tips. Finally, the rear spar starts at 3/8 inch tapering down to 1/4 at the tips

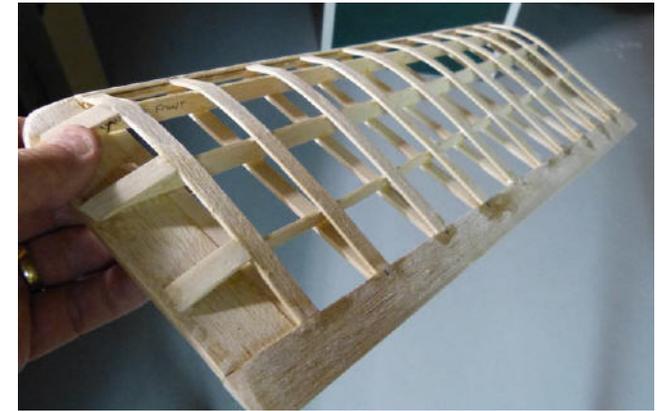
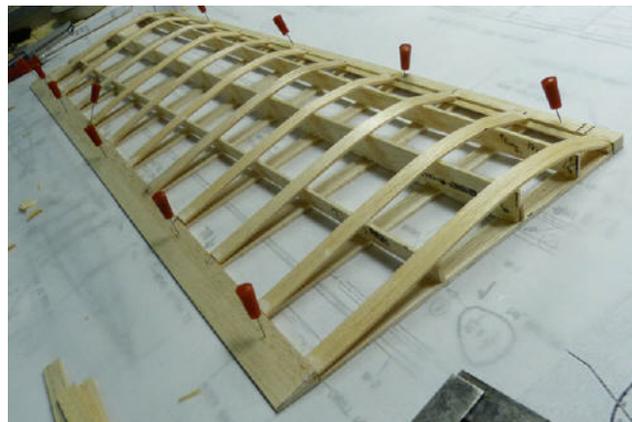
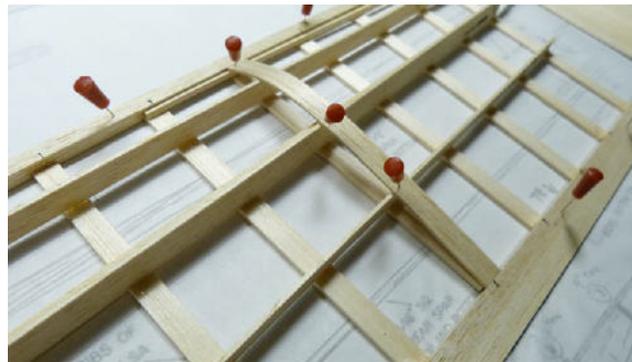


These three spars, on each wing panel, are stood up vertically, on top of the lower cap strips and cemented in place with CA glue.

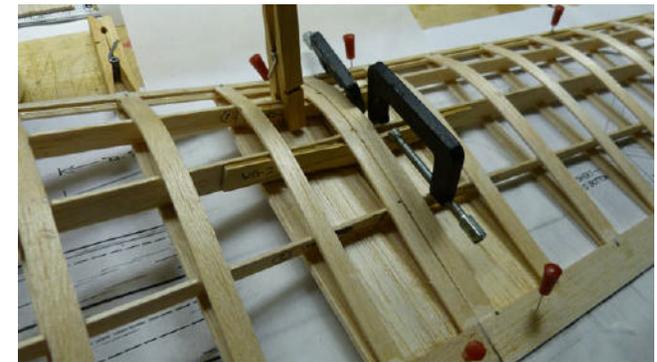
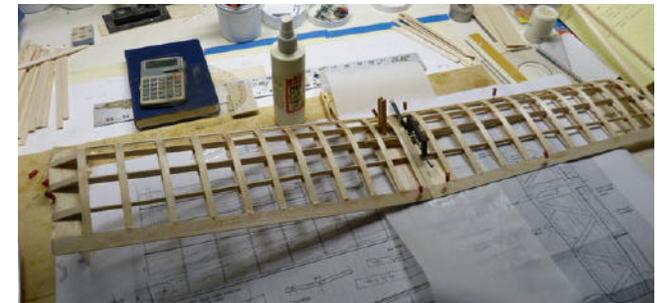
The upper cap strips are bent over the spars providing the proper airfoil shape. I used medium 1/16 X 3/8 inch balsa for these upper caps. I found it helpful to soak the caps in a tray of water. In the next photo the caps are held submerged in the water with the help of a kitchen knife.



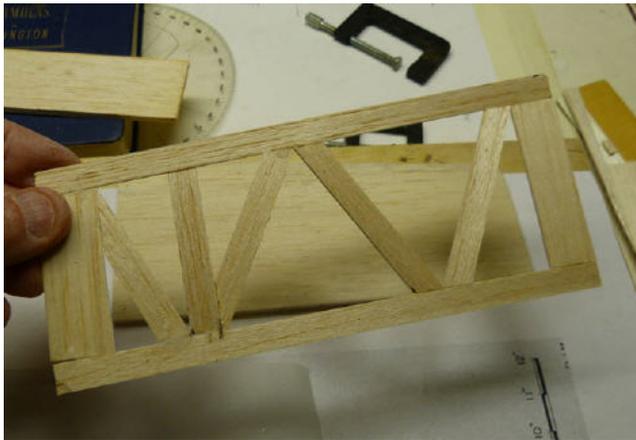
After soaking for about 5 minutes in the water, remove the caps and blot off the excess water. Install all the upper caps, on top of the three spars.



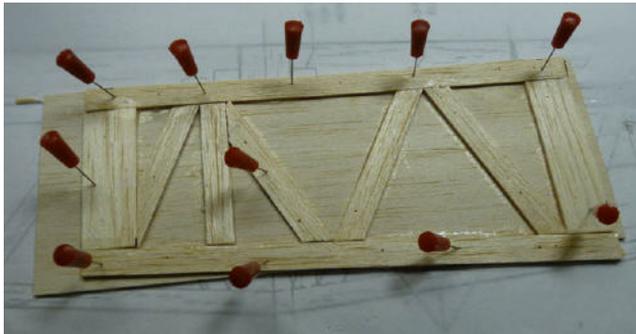
This is what the wing tips look like. I just used some scrap balsa sticks.



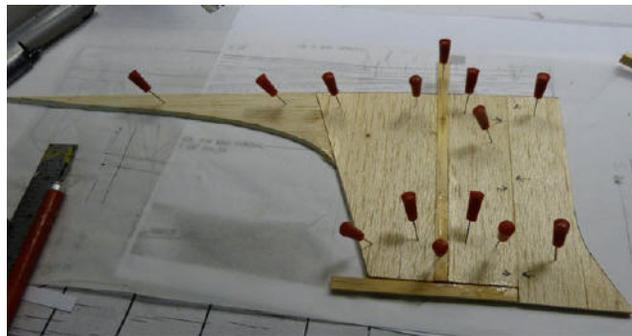
Final step, join the two wing panels, with the proper dihedral. I used two 1/16 plywood wing braces. One on the front and the other on the middle spar.



Now lets move on to the stab. You will note that the stab has dihedral making it look like a "V" tail of sorts. This was just done for appearance sake. The stab is constructed entirely if 1/16 inch medium balsa. You first build an inner core with balsa sticks. Then the 1/16 inch sheet skins are applied to the top and bottom.



The vertical fin and rudder comes next. It is constructed from 1/8 inch medium balsa. Note that I employed a 1/8 X 1/4 inch spruce spar in the vertical fin for added strength. Likewise the same spruce went along the bottom of the fin, acting much like a tail skid.



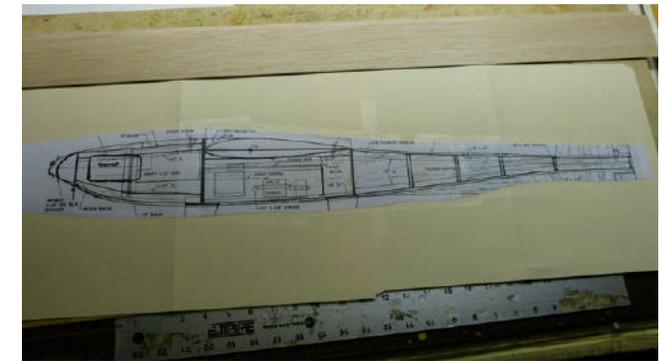
The next is a progress photo, just before the start of the fuselage. I should point that the two elevators are made from 1/8 inch balsa and are attached flush with the top surface of the stab.



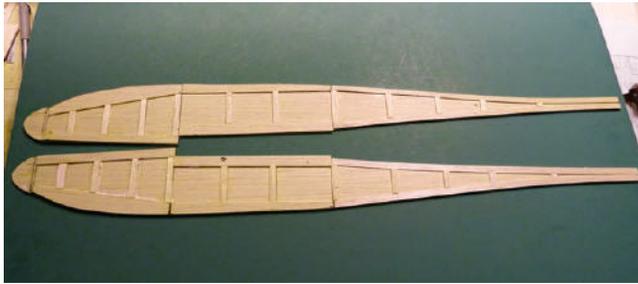
The stab can be joined at this time with the proper dihedral angle.



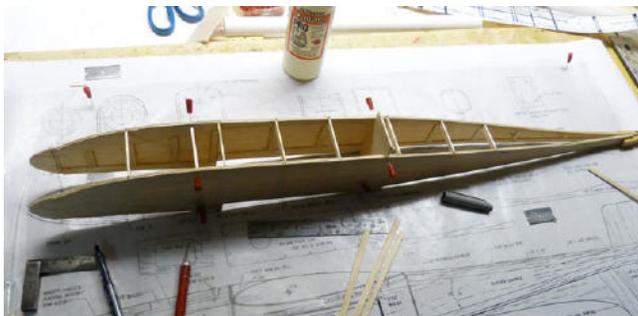
Lets take a pause so I can show you the components of the RC and power systems. Total weight is 5.8 ounces. A listing of these components and their sources are at the end of this article.



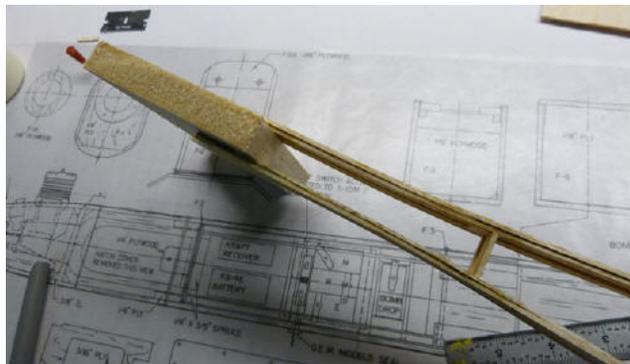
Now we get to the fuselage, which is very basic and easy to assemble. The sides are cut from medium 1/16 balsa sheet. I usually make a copy of my plans and then attach that copy to a manilla file folder using rubber cement. After drying cut to the fuselage outline and you have a template. Just transfer the outline to the balsa with a fine felt tipped pen.



The stiffeners and stringers are all cut from 1/16 balsa. Most of them are 1/16 X 1/4 medium balsa. Use CA cement. Obviously make one left and one right side.



I join the two sides, placing them upside down and gradually adding all the 1/16 X 1/4 cross pieces, top and bottom.

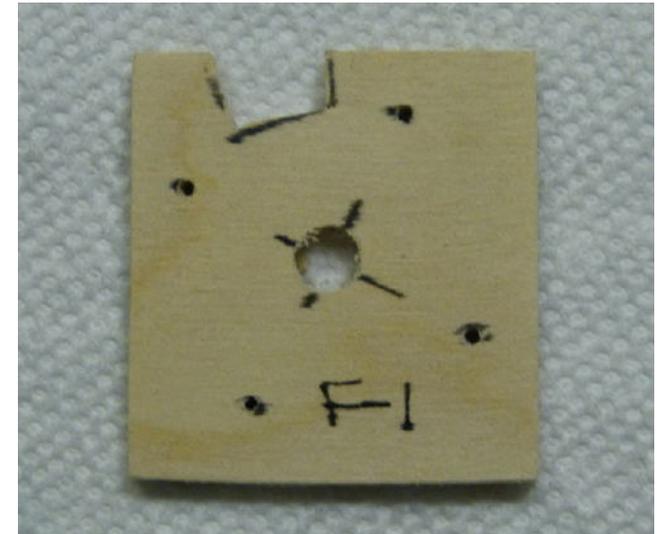


I made a temporary spacer at the rear to space the sides so that they are parallel with one another, rather than coming to a point. This makes mounting the stab a lot easier.

Let me pass on something I learned with this project. The Cobra small motors come with three exiting wires, but no connector pins are attached. The female pins that come with the Cobra ESC do have pins. I couldn't find the correct male pins, but somehow managed.



But as I learned, soldering those pins can be difficult. When finished my motor would only oscillate back and forth. But it would not run. Lucien Miller of Innov8tive Design, suggested that I eliminate the connector pins entirely and simply solder the wires together, once the correct rotation was established. Now the motor runs perfectly.



This is the 1/8 plywood firewall. Note the notch for the motor wire passage. Also the center hole to provide clearance for the protruding motor shaft.



Install the two 3/16 inch dowels underneath the wing leading edge to provide for the front wing hold down. Use 5 minute epoxy on this.

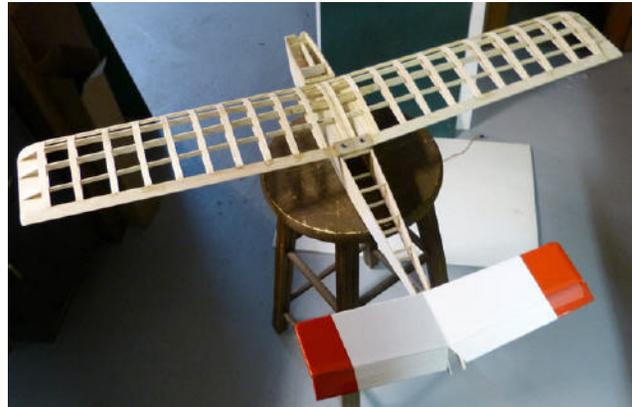
The rear wing hold down consists of two 4-40 by 3/4 inch long hex head screws along with "T" nuts. If you don't favor this approach, the simpler way is to use dowels and rubber bands.



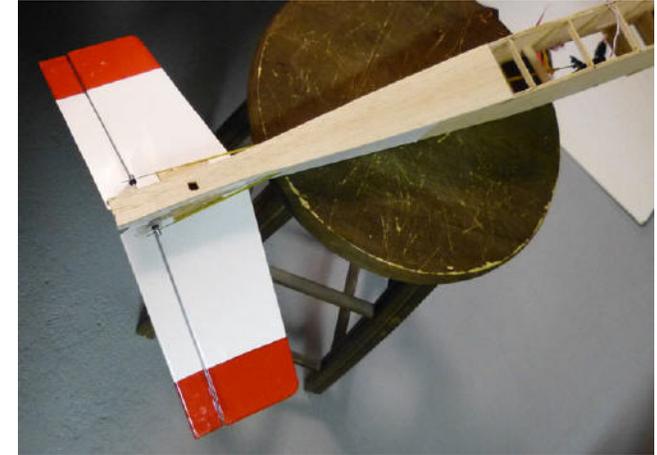
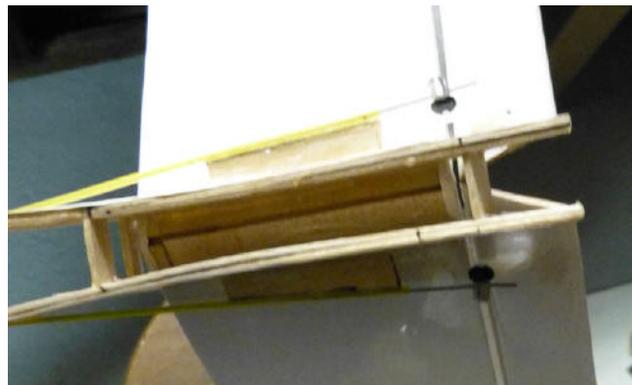
The battery box is constructed from 1/8 balsa. The battery is inserted from the top. The ESC goes right next to the battery.

At this point you can cover the stab and attach the elevators using DuBro electric flyer hinge tape (# 916). Covering material used was regular Ultracote from Horizon (white and red).

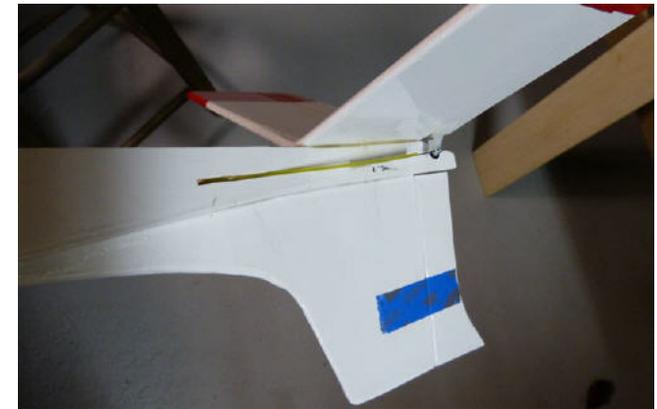
Also at this point cover the rear fuselage sides to a point several inches in front of the stab.



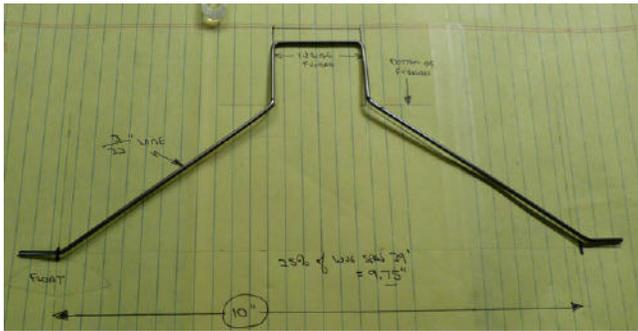
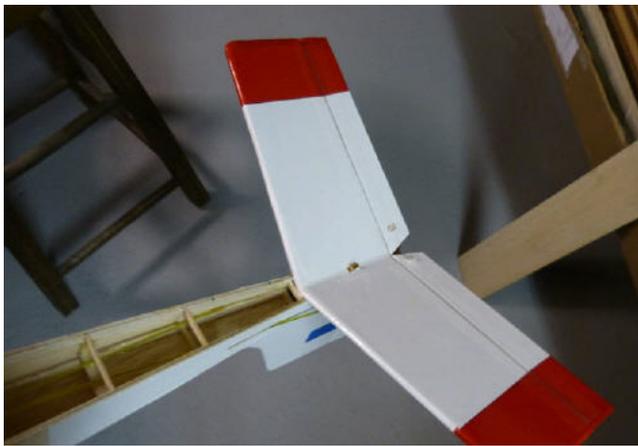
Attach the wing and use it as a reference to align the stab, with respect to the wing. Use 5 minute epoxy cement.



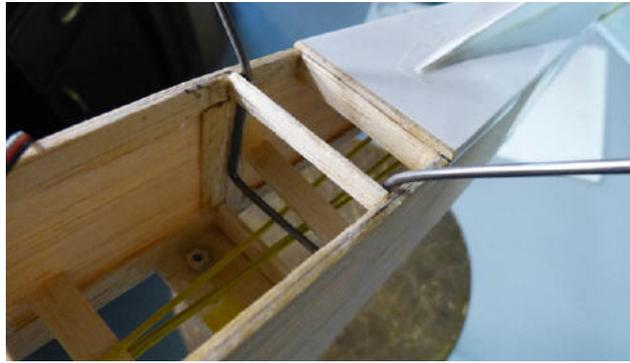
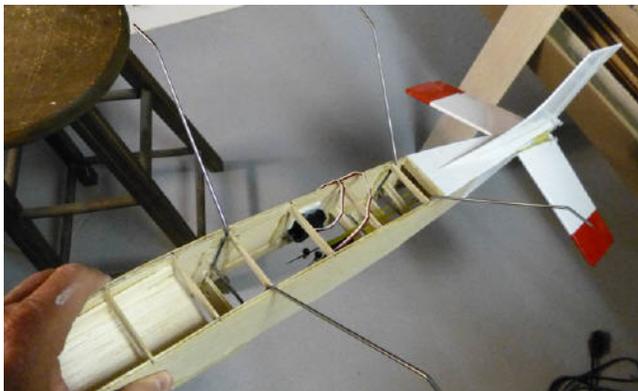
Two separate control rods were used to operate the two elevators. I used Stevens Aero .073 ID yellow Teflon tubing with .025 inch diameter wire inside the tube. Both wires were inserted into the elevator servo arm up forward. There are probably several ways you could do this.



Next install the inverted fin and rudder, which was pre-covered before installation. Again use 5 minute epoxy. The rudder control rod can be installed once the epoxy cures.



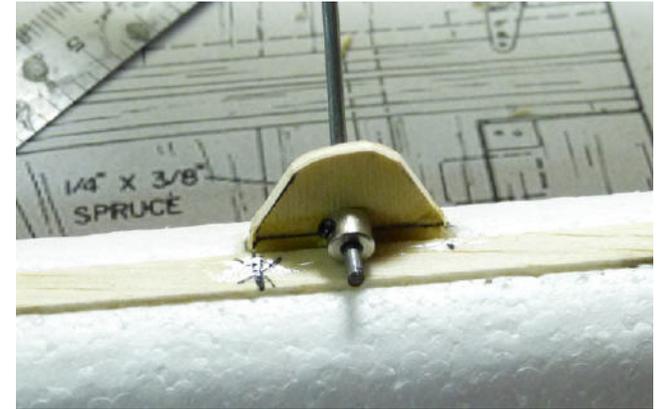
Now we get to the all important twin floats. 3/32 inch diameter wire struts hold the twin floats in place. Two struts are required. They are both of the same size. They fit inside the fuselage and are held in place with 5 minute epoxy cement.



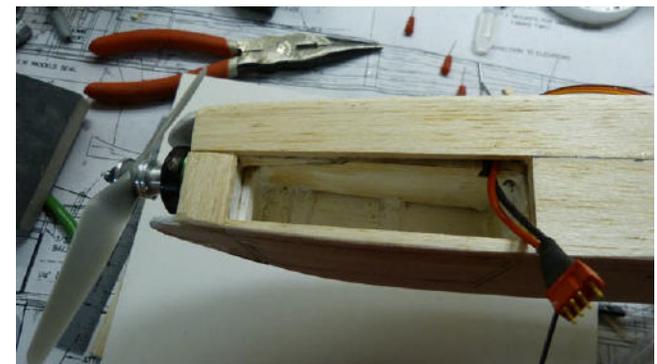
The twin 18 inch floats came from Mark Smith of Seaplane Supply.com. They come with a hard balsa reinforcement spar that you epoxy into a groove cut into the top of the float. Each float gets two plywood “brackets” that you epoxy into the top of the float. Make sure you follow the plans exactly when it comes to float location on the model. If you screw this up the SEAWEED will never get off the water.

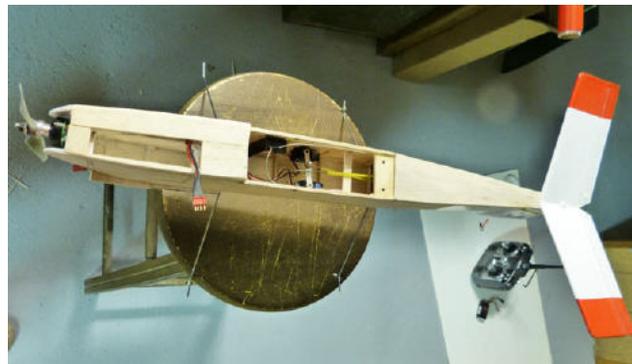


I gave each float a brushed coat of Benjamin Moore Regal Select Exterior latex paint. This seals up the foam so that it does not absorb water. The floats are attached to the wire struts using DuBro 3/32 inch diameter wheel collars.



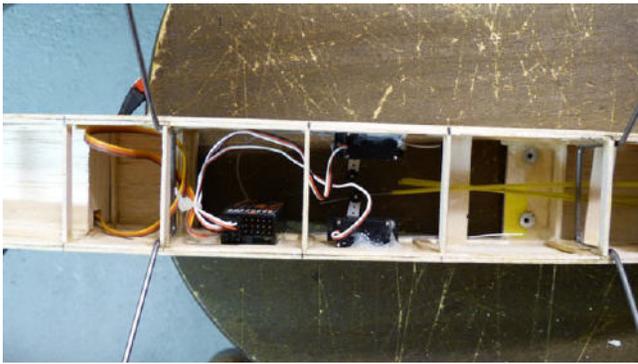
This is the forward battery compartment area. I use two small wire hooks and several rubber bands to hold the battery in place. The hooks are added after the fuselage is completely covered.



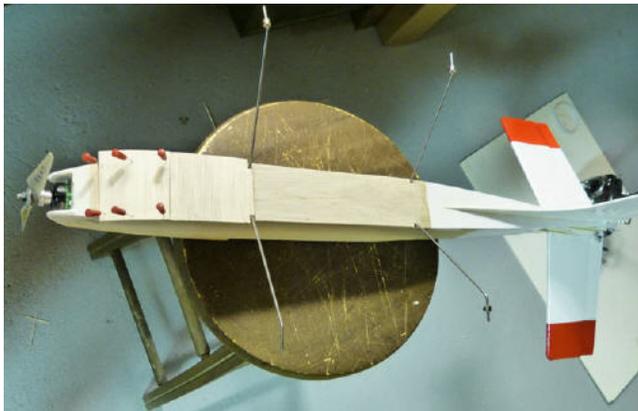


The top and bottom 1/16 inch balsa sheeting is added prior to completing the fuselage covering.

Construction is now completed. Final weight ended up at 20.5 ounces. The specification section at the end of this article provides all the details. We try to do what most magazines fail to do.



The receiver is mounted just behind the wing leading edge. The two servos are more towards the wing trailing edge. There is plenty of room for equipment.



Just to make sure I did a “float test” at the lake. Believe me, it did not sink!

### FINAL CG and CONTROL THROWS

The CG marked on my plans is the position that worked for me. If you employ the same power and RC system that I did, you should obtain roughly the same CG position. This is important because once the CG is established, the step of the floats should be 1/2 inch back from the CG position. Again my plans are marked accordingly.

As for control throw, my rudder moved 1 inch either side of the neutral position, while the elevators moved 3/8 inch. To date I have not employed any expo rate control.

## FLYING

Since this is an aircraft designed to take off from water, my flying partner, Tom Hunt, and I were most anxious to take the SEAWEED to our local lake. Unfortunately this lake suffered from a bacteria outbreak and was closed to the public.

Still being anxious we took the SEAWEED out to our SEFLI club flying field in Calverton, on the east end of Long Island. As you will see in the next photos, Tom was able to successfully hand launch the SEAWEED and put in a very acceptable flight.



The next two flight shots were taken right after the hand launch. Tom landed the plane on wet grass which worked out quite well and caused no damage to the twin float.



Finally we were once again allowed the use of our big local Lake Ronkonkoma, in central Long Island. We found the little SEAWEED flew much like its big brother. The rudder protrudes into the water just enough to provide good taxiing control. I'd say from a dead stop to lifting off the water takes only about 20 feet. In the air the SEAWEED can easily fly at half throttle. So there is plenty of power when needed. I can't wait on his next visit to Long Island to have, Nick Zirola Sr, fly the SEAWEED-250. It will bring back a lot of memories from 41 years ago, when its "big brother" was flown off the very same lake.

The water flight shots follow:





### **SUMMARY**

I can't thank Jeff Schlimmer enough for bringing my SEAWEED design back to my attention. Water flying with electric power makes it so much easier. Unless you really dunk it, you can always turn the motor back on to retrieve the plane by the shore. You can't do that with fueled power. The twin floats from Seaplane Supply Co. worked perfectly. Mark Smith makes these floats available from 10 inch (length) all the way up to 114 inches (if you can believe).

Again you might consider employing ailerons as well as rudder. I know Tom likes to do maneuvers that require roll control. Still in all, the SEAWEED-250 is an excellent flying model, with just rudder and elevator control. If you build one, please send in your photos.

Bob Aberle  
bablerle@optonline.net

### **SPECIFICATIONS**

Model: "SEAWEED-250"

Designed Originally by Bob Aberle and published in the March 1975 FLYING MODELS

Reduced in Size to 250 square inches with electric power.

Type: A parking lot size RC electric powered float plane

Wingspan: 39 inches

Wing Area: 250 square inches

Length: 29 inches

Weight: 20.5 ounces

Wing Loading 11.8 oz/sq.ft.

### **RC GEAR USED**

Spektrum DX-7 transmitter operating on 2.4 GHz spread spectrum, Hyperion HP6RX DSM-2 receiver and two Hobby King Turnigy 10 gram micro servos operating the rudder and elevator

### **POWER SYSTEM USED**

Innov8tive Designs brushless outrunner motor (Cobra C-2204/40), APC 6 X 5.5E prop, Cobra 22 amp brushless ESC and a BP Hobbies Cheetah 3 cell 1300 mAh 35C Li-Poly battery

### **POWER SYSTEM PARAMETERS**

Motor current: 8.8 amps

Voltage: 11.1 volts (under load)

Power Input: 98 watts

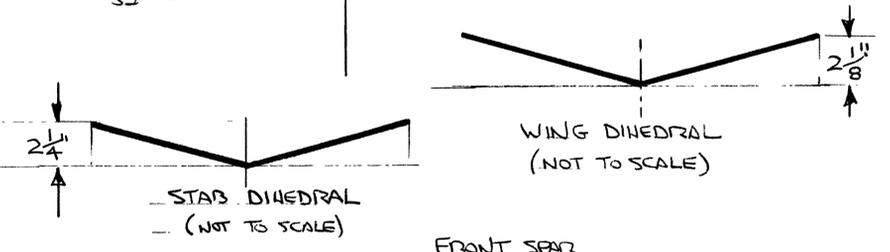
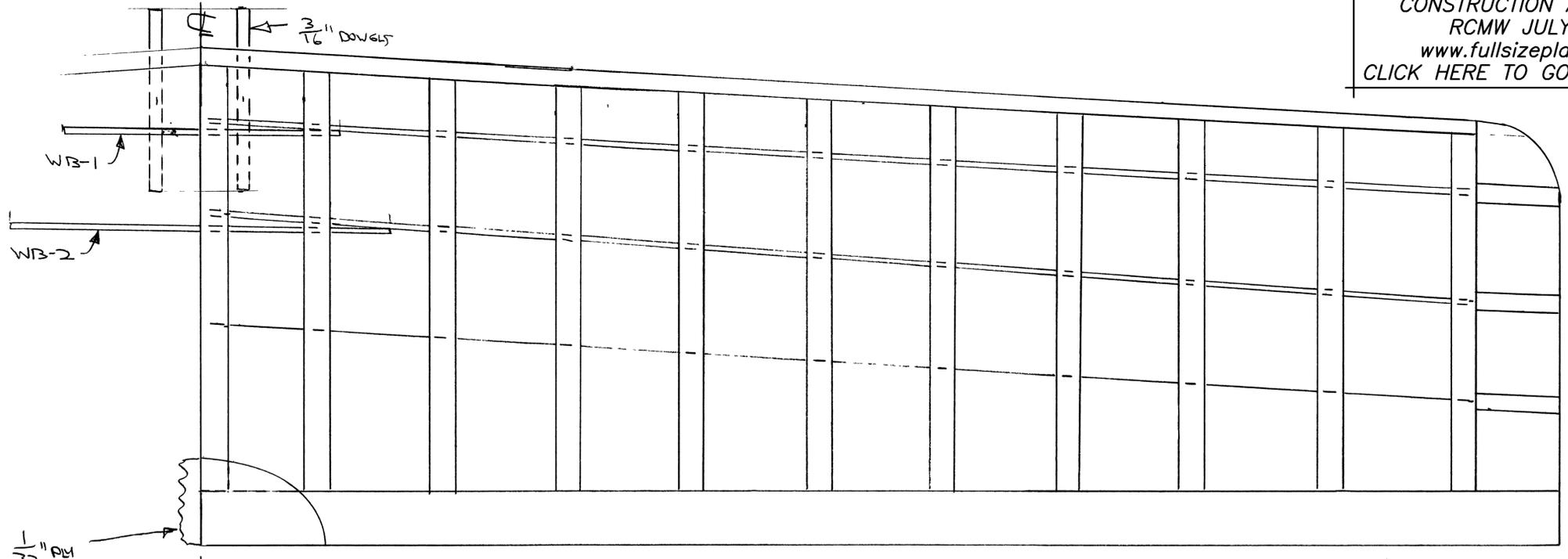
Battery Loading: 6.7C

Power Loading: 76.6 watts/pound

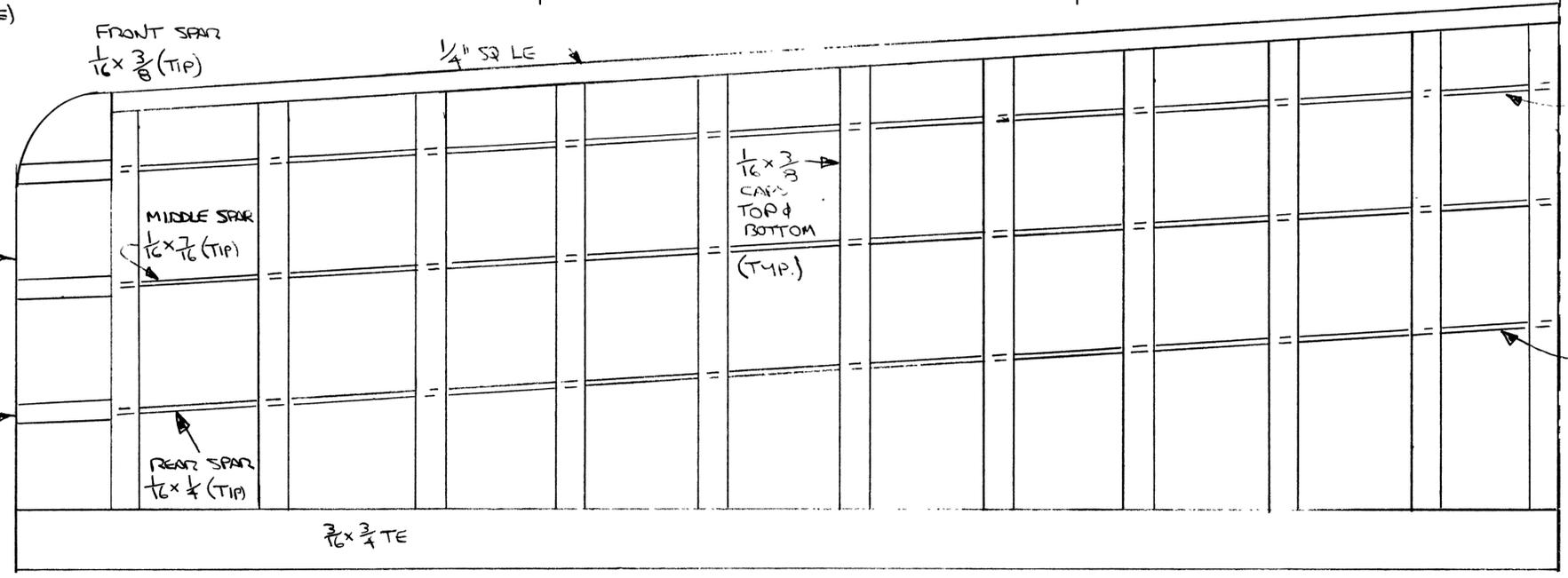
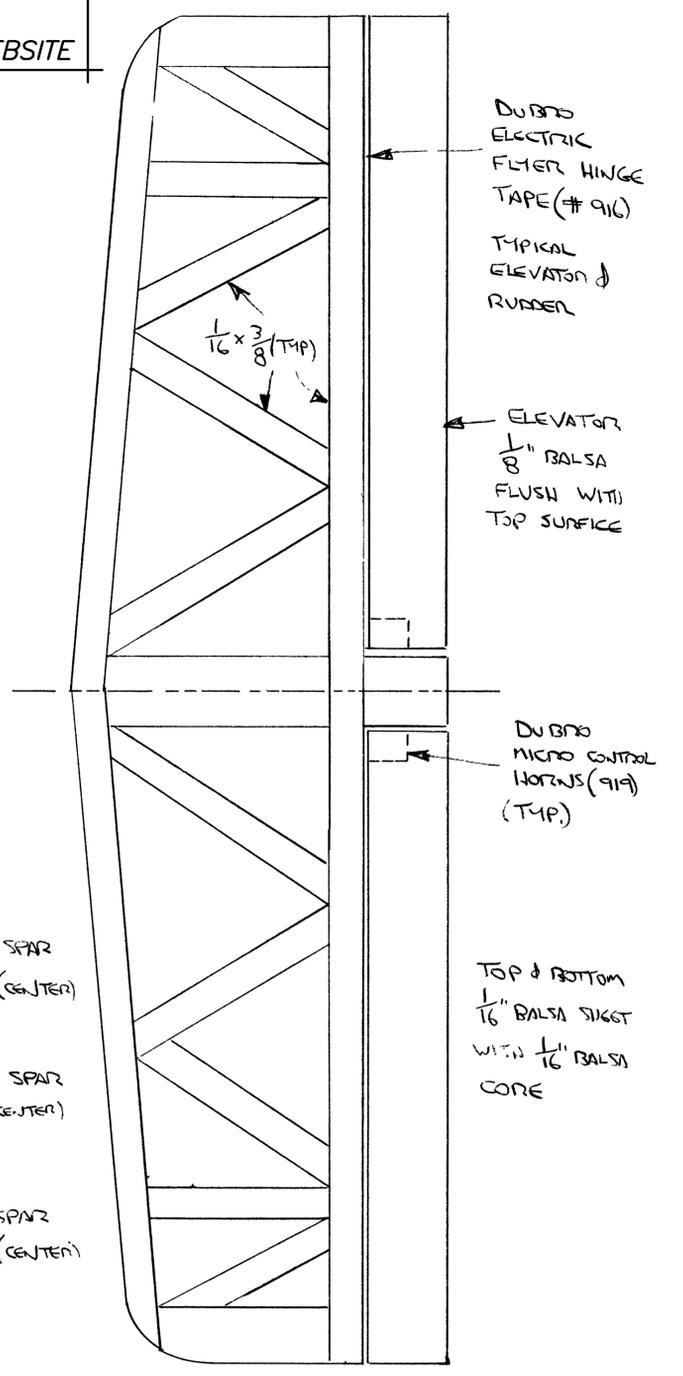
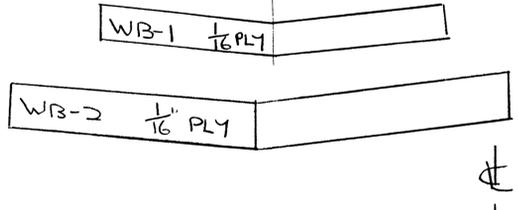
Flight Time: 9 minutes with the 3 cell 850 mAh battery



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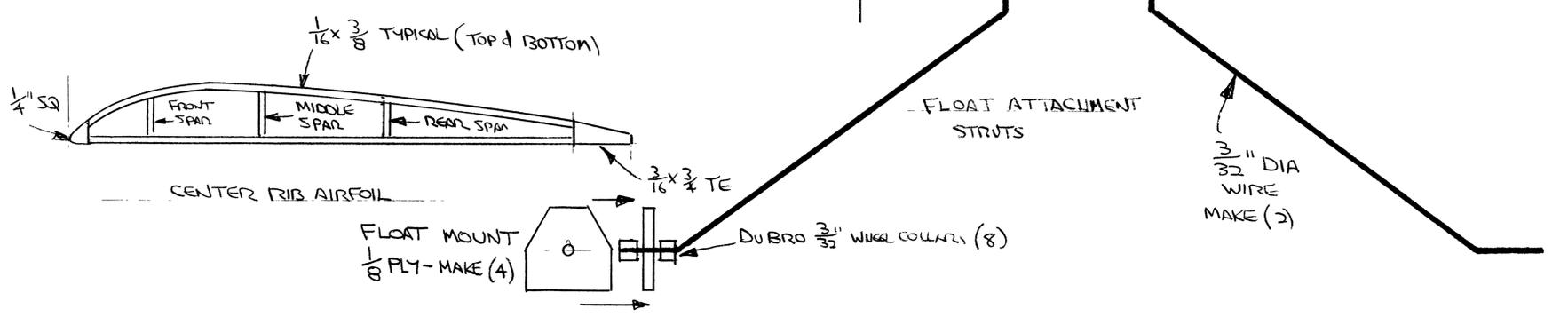


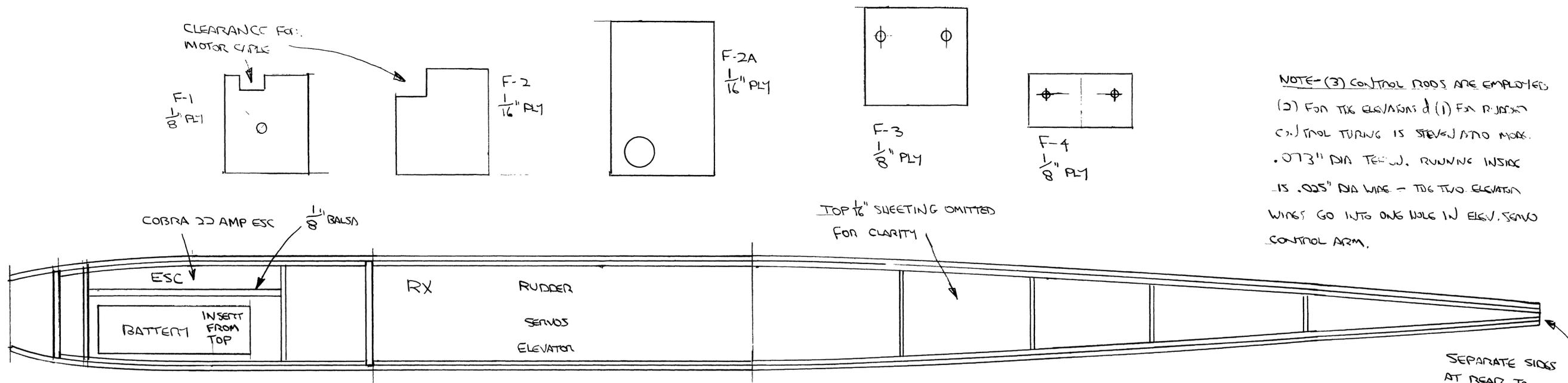
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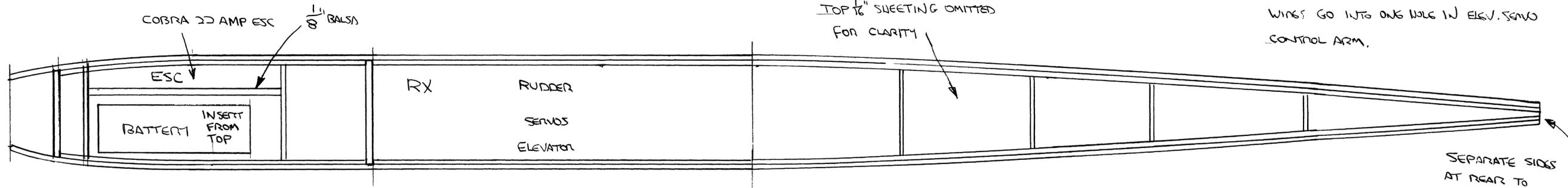
FRONT SPAR  $\frac{1}{16} \times \frac{7}{16}$ " (CENTER)  
MIDDLE SPAR  $\frac{1}{16} \times \frac{9}{16}$ " (CENTER)  
REAR SPAR  $\frac{1}{16} \times \frac{3}{8}$ " (CENTER)

SEAWEED-250	
SHEET 1 OF 2	
WING SPAN-39 INCHES	WING AREA-250 SQ. IN
WEIGHT-20.5 OUNCES	WING LOADING-11.8 OZ/SQ FT
LENTH-29 INCHES PWR INPUT 98 WATTS	
0 1 2 3 4 5 6	



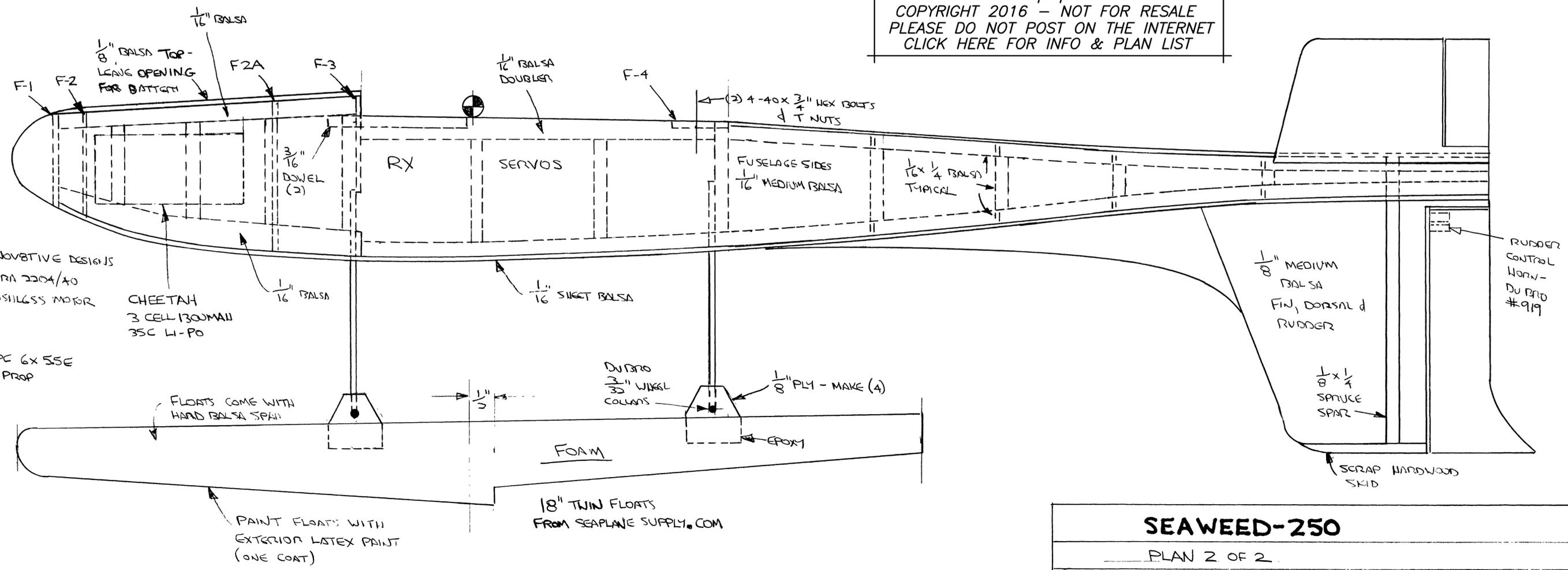


NOTE-(3) CONTROL RODS ARE EMPLOYED  
 (2) FOR THE ELEVATORS & (1) FOR RUDDER  
 CONTROL TURNING IS STEVED AND MORE  
 .073" DIA TIE W. RUNNING INSIDE  
 IS .025" DIA WIRE - THE TWO ELEVATOR  
 WINGS GO INTO ONE HOLE IN ELEV. SERVO  
 CONTROL ARM.



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 AT REAR TO  
 HELP ALIGN  
 STAB



INNOVATIVE DESIGNS  
 COBRA 2204/40  
 BRUSHLESS MOTOR

CHEETAH  
 3 CELL 1300MAH  
 3SC LI-PO

APC 6x55E  
 PROP

FLOATS COME WITH  
 HARD Balsa SPAN

PAINT FLOATS WITH  
 EXTERIOR LATEX PAINT  
 (ONE COAT)

18" TWIN FLOATS  
 FROM SEAPLANE SUPPLY.COM

1/8" MEDIUM  
 Balsa  
 FIN, DORSAL &  
 RUDDER

1/8 x 1/4  
 SPRUCE  
 SPAR

SCRAP HARDWOOD  
 SKID

RUDDER  
 CONTROL  
 HORN -  
 DU PONT  
 #919

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Rev 06/16/16

<b>SEAWEED-250</b>						
PLAN 2 OF 2						
ORIGINAL DESIGN BY BOB ABERLE PUBLISHED MARCH 1975 FLYING MODEL						
REDUCED IN SIZE & CONVERTED TO ELECTRIC POWER BY						
BOB ABERLE 2016 WT-2015 OR AREA 250 SQ IN						
0	1	2	3	4	5	6

# SPITFIRE UC STUNTER

by Charles Mackey

**Charles Mackey had several good looking and good performing UC Stunt ships published in the model magazines.**

**This SPITFIRE appeared in the February 1960 issue of American Modeler**

No matter how pleasing to the eye a control line stunt plane may be, it is not worth its weight in corncocks unless it is a good flier. This model was designed to be a stuntship first and a Spitfire second.

We've considered this design for several years but never had time to work out all the problems as the Spitfire appearance at first did not fit itself to conventional stunt dimensions. Then some of our latest XP designs had proven to us that the extra long tail moment is a definite improvement. With the longer dimensions with which to work, the Spitfire worked out to a very scale-like appearance.

We also threw in a few other ideas that have proven themselves on previous designs thus hoping to eliminate any bounce or wobble on the 5 ft. radii which the AMA pattern specifies. We are satisfied that our efforts were not in vain. Ronnie Peterson describes it as the best stuntship he has ever flown and says it flies as though you had hold of the wingtip drawing out the maneuvers.

The extra long tail makes it necessary to use lighter construction and softer wood on everything behind the CG. And then we still had to add 3/4 ounce weight to the nose for proper balance.

Check the plans carefully and note that the inside wing is 2 inches longer. This is achieved by omitting rib #1 from the outside wing. The spars will not match up in the center.

Cut ribs from soft 1/16" sheet balsa. Glue 1/8" sq. trailing edge to bottom 1/16" sheet T.E. Cut 1/4" sq. leading edges to length. Turn on end and pin to plan—exaggerating the curve of the leading edge slightly. Pin the right side directly in front and run a bead of glue down the inside edges to help hold the curve and avoid wing from warping later.

Cut the 3/16" sq. spars to length and mark wing rib position with pencil. Pin bottom half of T.E. to ribs, insert 3/16" sq. spars and pin into position. You might use masking or cellophane tape to pull the spars together at the tips.

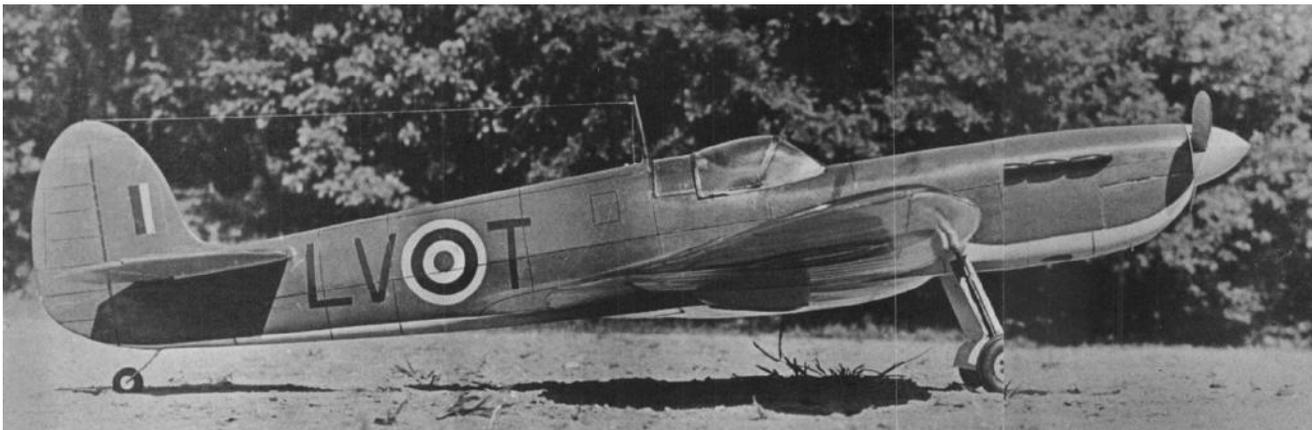
Glue the bottom half of the T.E. then add top half of T.E. Cut two 1/16" sheet wingtips and four 1/16" sheet curved T.E. pieces. Align and glue.

When dry, pin the T.E. to flat surface or turn end ways and pin to table. Put 1/4" sq. L.E. into position. You may find it necessary to use tape again. Glue 3/16" sq. spars and L.E. and allow to dry.

Bend landing gear from 1/8" dia. wire. Note that the wheels are toed in slightly on the Spitfire. Cut the wheel mounts from hard 1/8" ply. Note the notched positions vary because the left side fits against wing rib #3 and the right side fits against wing rib #4. Mount the landing gear on firmly with "J" bolts and glue into position.

Cut out center ribs for bellcrank and bellcrank platform. Cut and install the bellcrank platform. Be especially sure to add bellcrank platform braces as plans show. Add 1/16" vertical sheeting in front and behind 3/16" sq. spars as plans show. Notch out the center wing ribs for 1/8" sheet brace that fits the top and bottom of wing center section.

Install 3" bellcrank, 2 pushrods and the leadouts. Be sure to slip on 1/8" dia. tubing before bending leadouts. The leadouts are very close together at the wingtip.



To avoid binding, we stagger the leadouts by first pulling full up control and bending the front control (or "down" line) as close to the wing as possible. Hook on the flying clip that you use and pull full down control and bend the clip on the "up" line to clear the flying clips and line connectors. (This is important.) Don't use cable because it tends to twist, may rust at solder joints and can wear out in one full season of flying.

Add 1/16" planking to L.E. and center section of top side of the wing. Glue on the top 1/2" sheet wingtips and add cap strips. When this is all dry, turn over the wing, block up and check to see that wing is free from warps. Then add 1/16" sheet L.E. planking, center section of top side of the wing. tips and cap strips. Add 2 oz. weight to outside tip.

The flaps are cut from 1/4" soft sheet balsa. Note that the inboard flap is only 1" longer than the outboard. Install flap horn. We recommend you use full length nylon hinges. The remaining portion of the T.E. is made from soft 3/8" sheet balsa.

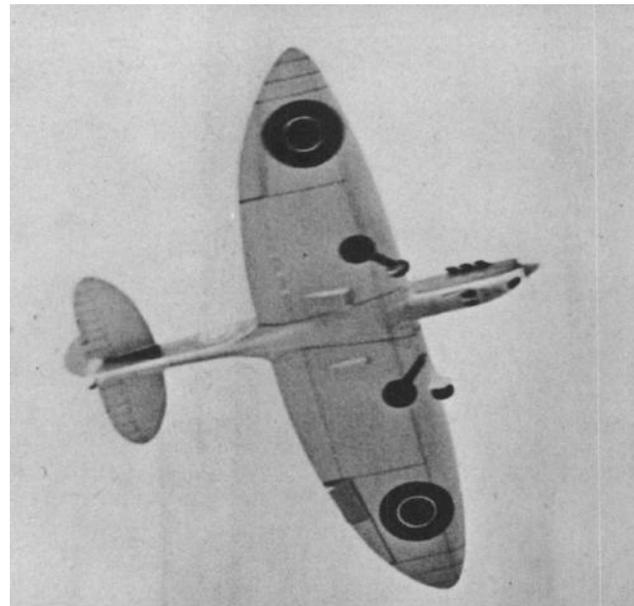
Cut fuselage sides from 1/8" sheet medium soft balsa. Cut 1/16" ply doublers to shape and glue to fuselage sides. Cut F1, F2 and F3 from 1/8" ply. Glue in motor mounts and formers F2 and F3 to fuselage sides. Mark the body for the position of the remaining formers.

At this stage we glue the fuselage to the leading edge of the wing. When it is dry, connect flap and pushrod, then slide formers over pushrod and glue into place.

Begin the decking with the 1/8" sheet pieces that run from the canopy to the rear of the model. These pieces are beveled on the end to fit the formers and fuselage edge. Cut the pieces wide enough to reach the first corner on the formers. Glue and pin into position. You must be extra careful to avoid warps at this stage. While this is drying, you may cut two pieces to fit the bottom in exactly the same manner.

Mount the motor with 3° out-thrust. Attach the 3/4" Forster Extension Shaft and a 2" spinner to the motor. Add two scrap blocks in front of the motor mounts. Then we glue in F1 to run parallel with the spinner backplate to allow about 1/8" clearance. Next we apply 2 side pieces of the decking to the nose section in the same manner that we used on the back and bottom of the fuselage.

The stab and elevator is made from a 36" x 3" x 1/4" sheet soft balsa. Cut the piece in half and glue together edgeways to make 6" width. Cut to outline, sand, then cut elevator off as plans show. Sand the edge and add horn.



We recommend that you use brass bushings on all pushrod connections. Connect the horns to the pushrod with a keeper or by soldering.

Trim the 1/8" sheet planking to fit elevator. be extra sure the elevator is properly aligned, then cement. Check controls before glue dries.

Install tail wheel. By this time, the planking should be dry. Draw a line on the outside of the planking that would pass through the corners of all the formers. Then cut along line to remove excess wood. Bevel the edges of the planking to match the angle of the formers. A large sanding block is your best tool here.

After this has been done, add the bottom of the fuselage planking and the top two pieces that fit behind the cockpit.

The nose section planking is finished by beveling the two pieces to fit at top. Leave enough wood to overlap pieces that are already on, then glue. Add the top of the 1/8" sheeting behind the cockpit. While this is drying, you can install 1/16" sheet balsa doublers inside the cockpit.

Cover openings on motor and build the cowling around it. Start by pinning on the bottom block, next fit the inside pieces around motor. Glue and allow to dry then carve to shape. Remove from fuselage and glue in wedge to allow enough stock for air exhaust. Then hollow as shown.

Use a piece of 1/16" ply to keep the bicycle spoke from pulling through the balsa. Cut the fillets and install. Finish shaping with Plastic Balsa. Sand model to shape. Next add the rudder.

Go over the ship carefully, filling all cracks. Sand with fine paper, then add 2 coats clear dope. Sand off. Next cover the ship with a coat of talcum powder and clear dope mixture. Sand well.

Cover entire ship with Silkspan or silk. Apply 3 coats of clear dope and sand with #180 wet sandpaper. Be very careful or you might go through wing covering. Two more coats of clear and a good sanding with #360 wet sandpaper should get the ship ready for color. Mix light blue by using 1 part Curtiss Blue and 6 parts white. Spray bottom until it is covered well.

Mix 1 part Stearman Red to 2 parts Stinson Green to make brown and then add yellow to make a chocolate color. Spray top until it is covered well. Mask off camouflage shape and spray on Stinson Green.

The markings are drawn on with a compass. Put a piece of masking tape in center so point of compass doesn't go through covering. After these are drawn, mask around the outside ring. Always use clear dope over edges of tape.

Paint color shown. When dry, follow same procedure on next color. The 2" difference in wing length is divided and the insignias spaced accordingly.

The letters and wheel position are painted on and we also painted on some of the major construction lines by masking off approximately 1/32" widths and painting black. We again split the difference of these lines to make the wing look equal.



After the color doping is finished, wet sand the rough edges with #600 paper. Don't go too far.

For cockpit detail, see 1954/1955 Air Progress.

The canopy is cut roughly to shape. Sight on plans and mark the angle of canopy break. Cut along this line up both sides leaving about 1/2" uncut at the top. Bend the front section back to the angle shown on plans and tape into position. Mark the overlap with a sharp edge cut off the excess from front section.

Tape the canopy in position on outside and glue lightly along inside joints. When dry, glue canopy into position. The braces are duplicated with Mystic Tape that is cut to the desired width on clean plate glass and applied to canopy. Elastic tape is not recommended!

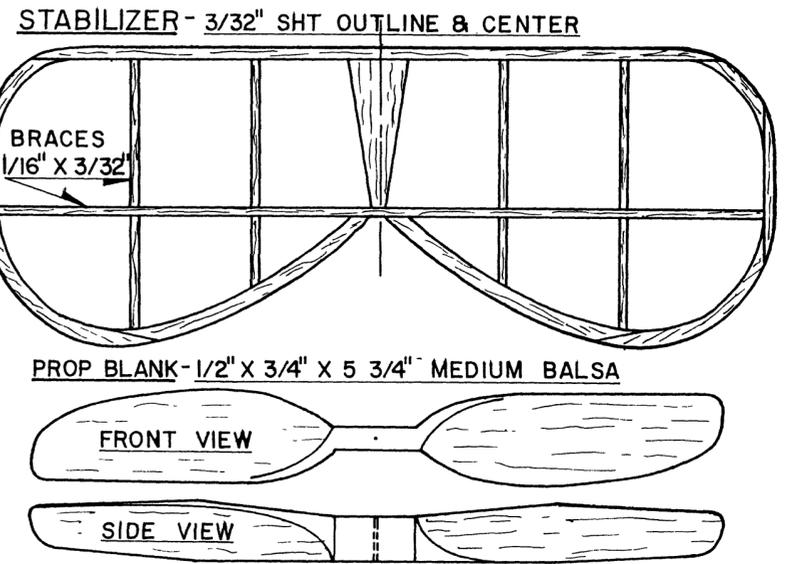
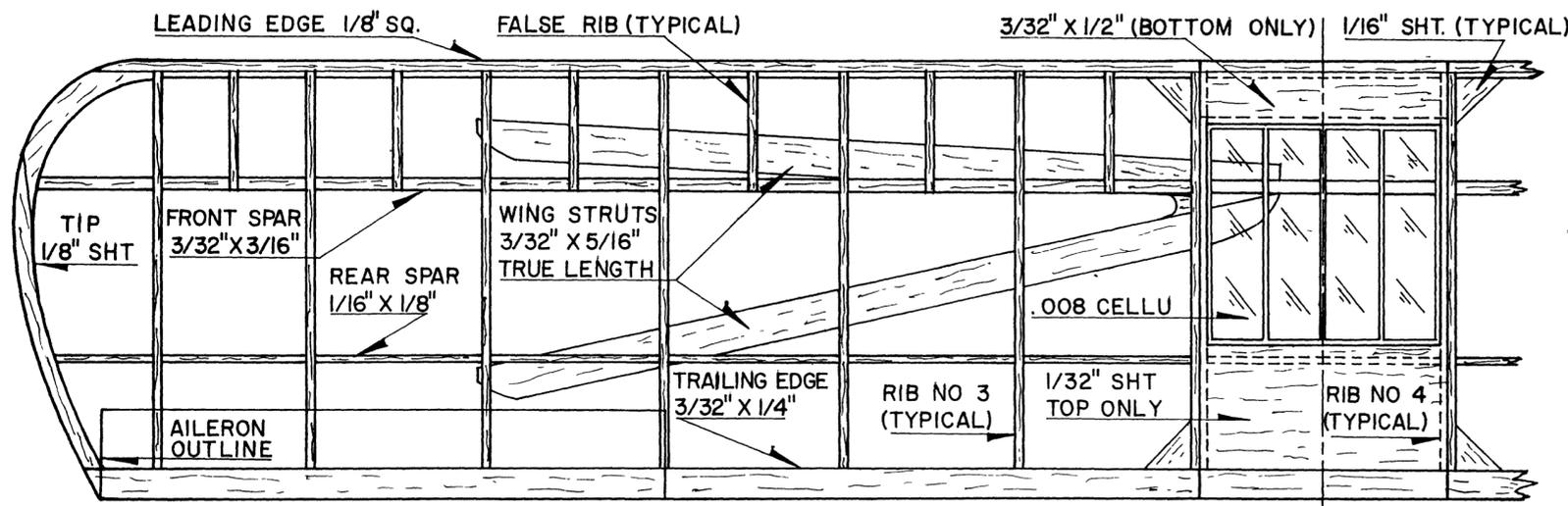
The remaining detail such as air scoops and exhaust are made, painted and added to ship. The entire model is given 2 coats clear dope (canopy too), wet sanded with #360 paper and rubbed out with Simonize Cleaner.

Check the balance point before you fly. We recommend you use a Darwin handle set in the second set of holes. On our test flight we found the lines slackened on inside loops and tightened on outside loops. A tab on the bottom of the inside wing corrected the warp. You'll find the Spitfire easy to land and wheel landings are a cinch. Ronnie flies on 65' lines with a rich setting and does an excellent job. I prefer a little faster run for a snappy pattern. Either way, you'll like it.

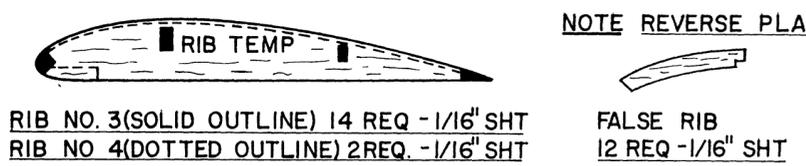
#### **SPITFIRE BILL OF MATERIAL**

Four 3/16" sq. x 36" balsa; two 1/8" sq. x 36" balsa; eleven 1/16" x 3" x 36" balsa; two 1/4" x 3" x 36" balsa; four 1/8" x 3" x 36" balsa; 1/16" plywood; 1/8" plywood; 1/2" x 3/8" hardwood motor mounts; cowl blocks; five 1/16" x 1/4" x 36"; two 3/64" dia. leadout wire; 3/32" dia. pushrod wire; 1/8" dia. landing gear wire; 1/16" dia. tail wheel wire; pushrod keepers or solder; tank—Froom 21C or similar; one 2" Veco spinner; 1/8" dia. tubing; 2" wheels; 3/4" tail wheel; silk or Silkspan; dope and talcum powder; glue; 2 large Veco horns; 3" bellcrank; Veco P-51 Canopy; mounting bolts; bicycle spoke; nylon hinges; black Mystic Tape; masking tape; elastic thread (paint black); 3/4" Forster Extension Shaft.



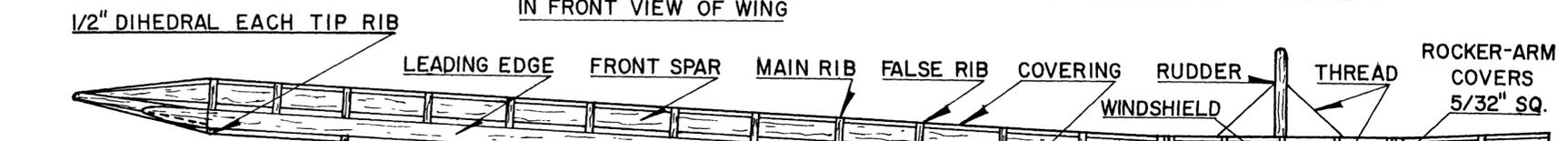
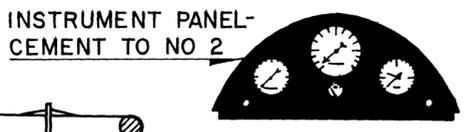


SCALE - 3/4 IN. = 1 FT

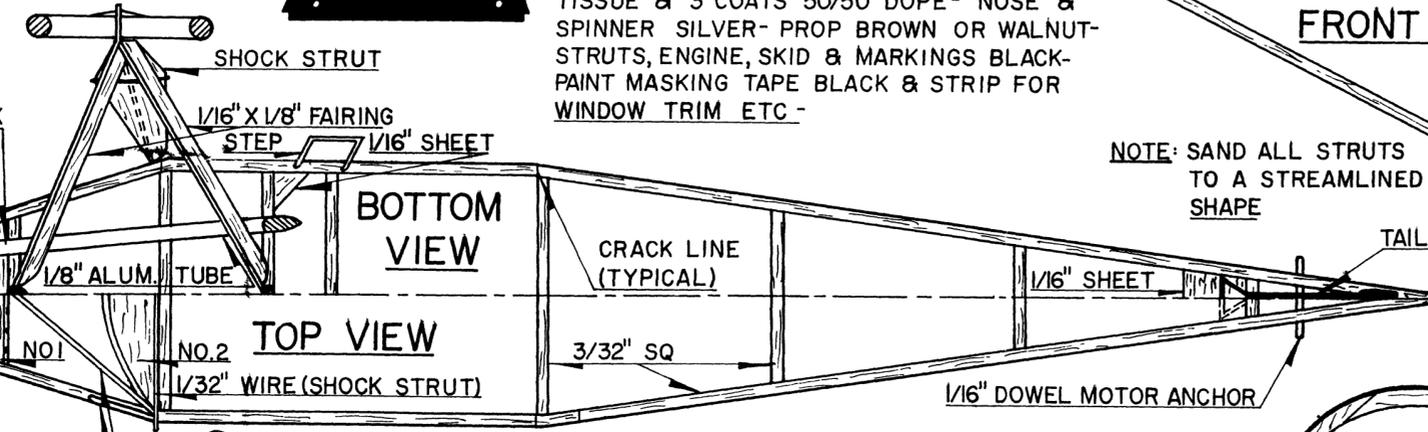
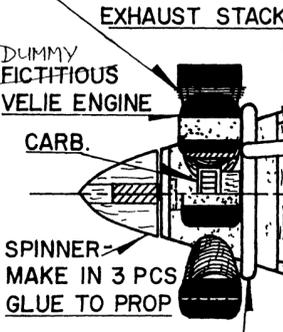


WING LAYOUT

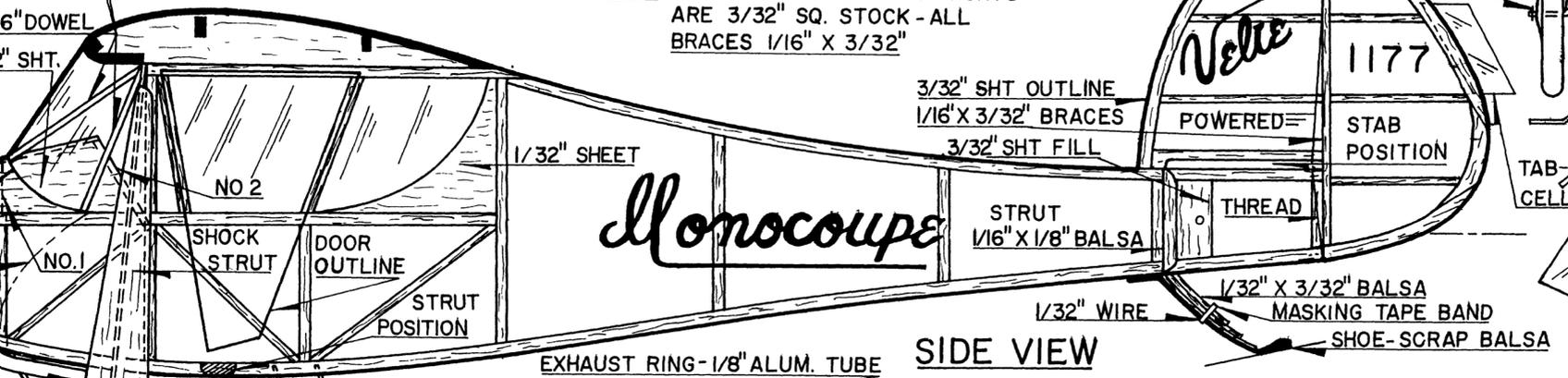
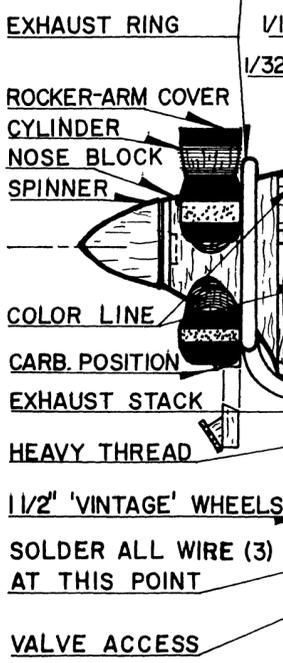
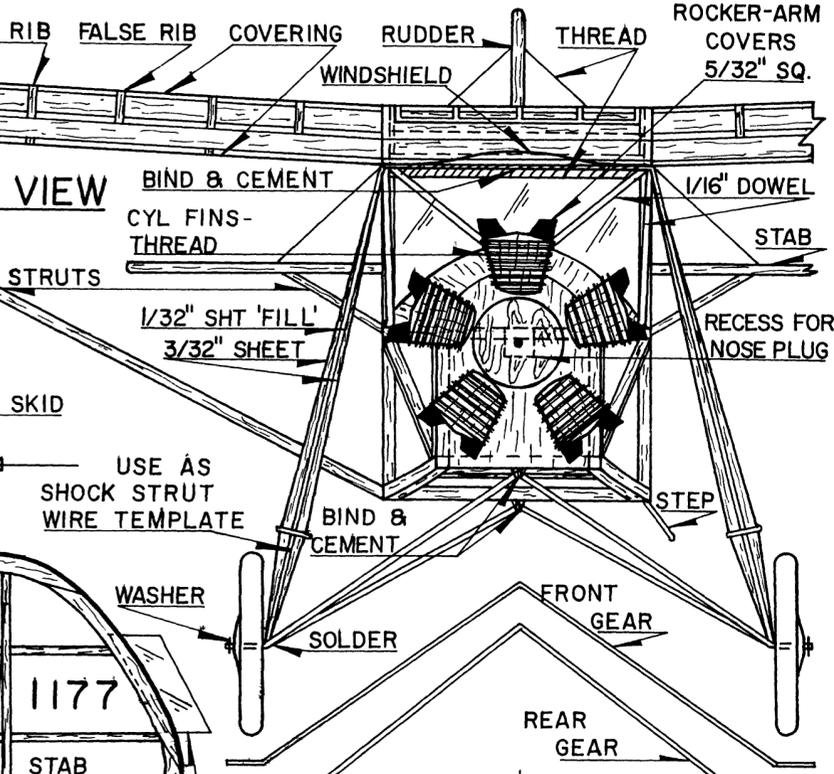
CYLINDERS - 1/2" ROUND & 1/2" LONG Balsa TAPER TO 3/8" BASE - TRIM TO FIT NOSE



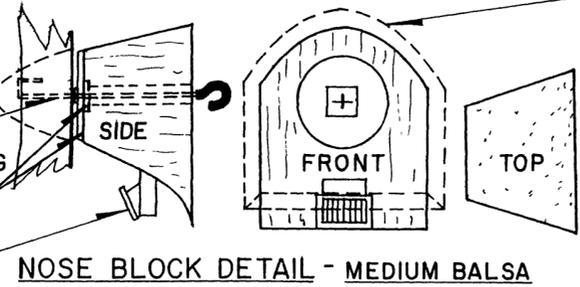
COLOR SCHEME - ENTIRE SHIP ORANGE JAP TISSUE & 3 COATS 50/50 DOPE - NOSE & SPINNER SILVER - PROP BROWN OR WALNUT - STRUTS, ENGINE, SKID & MARKINGS BLACK - PAINT MASKING TAPE BLACK & STRIP FOR WINDOW TRIM ETC -



NOTE ALL LONGERONS AND UPRIGHTS ARE 3/32" SQ. STOCK - ALL BRACES 1/16" X 3/32"



Monocoupe



THIS AIRCRAFT IS POWERED WITH ONE LOOP OF 1/4" RUBBER DUE TO IT'S INTENDED LIFE AS A SPORT 'BACK-YARD' FLYER - HEAVY DUTY CONSTRUCTION - WEIGHS IN AT 2 OZS USE 2° DOWNTHRUST - AVERAGE 8 TO 12 SECOND FLIGHTS - ADD WEIGHT TO OBTAIN PROPER C.G. LOCATION

The 1929 *Velie Monocoupe* POWERED

A 3/4" SCALE CLASSIC AIRCRAFT DESIGNED & DRAWN BY HERB CLUKEY

22" span

FLYLINE MODELS 10643 ASHBY PLACE FAIRFAX, VIRGINIA 22030

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# "Shoestring"

by Cal Smith

This UC scale model of the successful Goodyear Racer appeared in the September 1952 issue of *Air Trails*. The article includes some interesting history about the full scale aircraft.

Since the inauguration of the Midget racing class in 1947 under Goodyear sponsorship, the basement-built pylon polishers have shown remarkable progress in design and performance.

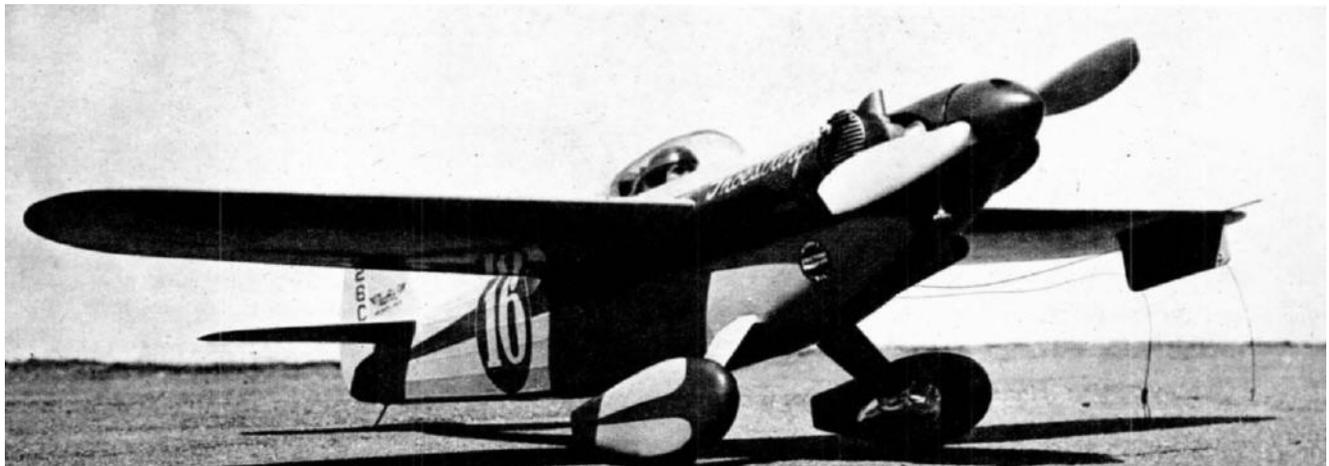
Race speeds have jumped from 165 mph (1947) to 200 mph, and the airplanes themselves have demonstrated the high degree of craftsmanship and ingenuity of the individual builders in gaining so much performance from the 85 hp Continental engine.

Now sponsored by Continental Motors, the midget races held in Detroit in September 1951 saw Shoestring a second-time winner of the big prize. Pilot John Paul Jones, from Van Nuys, Calif., turned in the highest qualifying speed of 197.2 mph, and flew the race to win at an average speed of 199.778 mph, which meant that some of the laps flown were well over 200 mph.

Equal credit must be given to both pilot and airplane designer. Jones flew the course like clockwork, emphasizing the value of precision flying as a race-winning factor.



Top - The Real Thing -- Bottom - The Scale Model



Rodney Kreimendahl, designer of Shoestring, turned out a beautiful design with much attention given to the other race-winning factor—cleanness.

The ship is a high mid-wing with engine fairing following through into the wing fillet—the most desirable arrangement. All flying surfaces are filleted well into the fuselage. The flat-plate Cessna-type landing gear has a generous fairing, and the wheel pants are relatively large, making for good streamlining of the chubby wheels.

The bottom of the oil tank is shaped to lie flush with the lower cowling line, and external fins are welded directly to the tank to aid in oil cooling.

A reworked Macauley metal racing prop is used and engine exhaust stacks are pointed rearward for the small advantage gained by jet action of exhaust gases.

The overall impression of the airplane can only be described as "solid." Proportions, moment arms, and aspect ratios are all sensible, straightforward and honest. Span is 19 ft., length is 17 ft. 9 in.

The little speedster has welded steel tube fuselage, stringered and fabric covered, with all-wood plywood covered wing and tail surfaces. Engine fairings, cowl, struts and pants are aluminum.

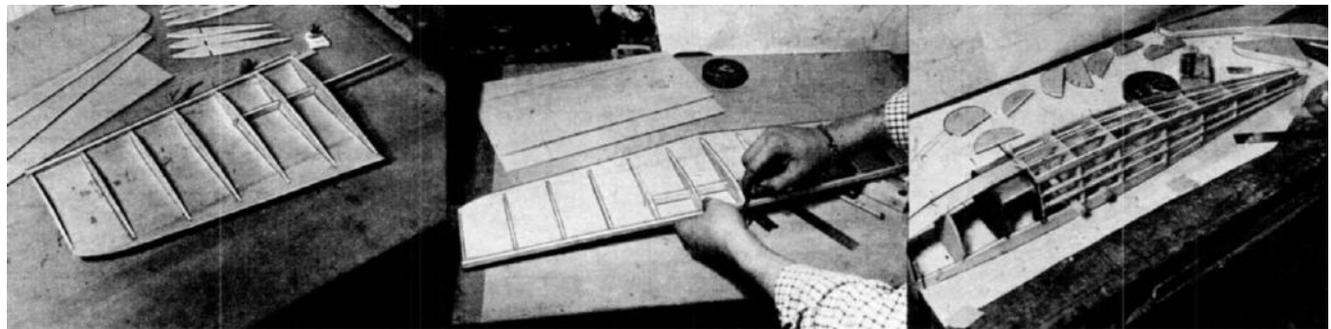
The most outstanding feature of the airplane is the finish. The color scheme is a bright chartreuse and fire-engine red, rubbed down and waxed to the highest gloss seen at the races. You can barely stand to look at the ship in the sunlight!

Modeling Shoestring is a natural for flying scale. The plans presented are scaled directly from accurate three-view drawings supplied by the designer. The odd scale of  $13/4" = 1'$  was chosen so the ship would have a reasonable size and wing loading. Every effort was made to keep the construction light so good flight performance would result.

Span of the model is 33" and length 31". Wing area is 200 sq. in. and weight 28 oz., giving a wing loading of 14 oz./100 sq. in. With the K&B .32 engine the ship really moves and the symmetrical airfoil permits some stunting, although the ship is not light enough to compete as a pure stunt model. The symmetrical wing is the main departure from scale on the model.

Construction is fairly complex so we do not recommend this model for the beginner.

The structure follows the big ship exactly with block or planked areas used to simulate metal or plywood skin. Stringer portion of the fuselage is silk covered.



Begin construction with the wing since this is added to the fuselage before the latter can be completed. The wing is the Fireball type with  $1/4'$  sq. leading edge and a short  $1/8"$  spar for joining the halves.

Begin by cutting out the required ribs and making up the wing skins. Use 6" wide sheets if available or cement 3" wide sheets together to the desired width. Mark rib and spar positions on the inside of the top skin and cement ribs down, holding with pins. The spar is added along with the three center ribs and acts as a dihedral joiner making the top wing surface flat from tip to tip.

Next add the  $1/4"$  leading edge one side being beveled to match the slant of the skin as it projects ahead of the rib ends.

When this assembly is dry the other wing half can be added. The center rib is double, so cement second rib to the face of rib already in place. Cement skin to this center rib and spar and add other ribs out to the tip.

Now add leading edge and carve down so that rib edges and leading edges are flush. Bevel skin at trailing edge to a bit less than  $1/32"$  thick. Lower wing skins can be added now. Put cement on all ribs and hold skin in position with pins. Pin from thickest camber point outward on all ribs checking

as work progresses so that skins do not slide causing warps. Sight from tip spanwise to check alignment.

Now separate trailing edge and run ribbon of cement between skins. Squeeze together and hold with clothespins or strips of Scotch Tape. Repeat process for leading edge and pin skin down to leading edge stock. Follow same procedure for other wing half.

Remember to check alignment constantly while pinning to prevent warps. If this is done a strong light wing can be built in the hand with no complicated jigs or pinning to work board. Lay wing structure aside to dry thoroughly at least four hours preferably overnight.

The fuselage utilizes the crutch and former type of construction so it is built upside down over the top view on the plan. Begin by preparing the crutch. Note that a  $1/4"$  wide strip increases the depth from former 3 to 8.

Cement these strips to the crutch pieces, pinning flat on a board. When dry the crutch pieces can be laid down over the top view lines. Let the front of crutch project over the workboard for the firewall.

Cut out all lower formers and cement in place. Use Weldwood glue on the firewall and the plywood formers 4 and 5. Add 1/8" plywood gear platform between these formers. Use Weldwood glue and 1/4" triangular gussets. Add 1/4" ply bellcrank mount and then proceed with stringers.

Add two 1/4" sq corner stringers first to hold formers upright. Put 3/4" wide strip of 3/32" planking over formers 2 to 5 to hold nose in alignment. Bottom and side stringers can be added now. Let whole assembly dry thoroughly before taking up from the board.

Meanwhile make the landing gear of 1/16" thick 24ST aluminum. Bend angles with about 1/8" radius bend block. Drill for mount bolts and slide into position on plywood. spot holes on plywood and drill. The gear can be bolted on permanently now or later before sides are planked.

Take the fuselage assembly up from the workboard so that work can proceed on the top part. Add the stabilizer platform of 1/8" sheet above the crutch formers 8 to 11 and the tail skid block.

Install the bellcrank, Pylon brand flexible wire line leads, and pushrod now. Leave pushrod long at rear end for fitting to elevator horn later. The push-rod passes below the crutch from the bellcrank back to former 8, then an upward offset carries it above the crutch at former 9. It then goes back parallel with the crutch to the horn. See that these parts of the control system work freely before cementing the wing down.

Carve the top edges of the crutch down to match the wing shape. Check alignment from top and nose then cement wing onto crutch permanently. Now add the formers on top of the wing and add stringers on top portion of the fuselage. Cement 1/2" sheet block to wingtips.

Carve the horizontal tail surfaces from 3/8" sheet. Fabric hinges and a Veco horn were used on original model but you can substitute your favorite system here. Check alignment of stab on fuselage tail. Bend pushrod end to match elevator horn and cement stabilizer permanently in place. Be sure to check clearance of horn and rod end inside tail. Some carving may be needed for good clearance and freedom of action.

Continue work on nose portion. Add 1/8" x 1/2" strip above the crutch from firewall back to former 5A. This forms a backing behind engine fairing blocks and rest for removable top cowl. Fill in space below crutch in a similar manner so that backing extends about 1/8" below fairings block.

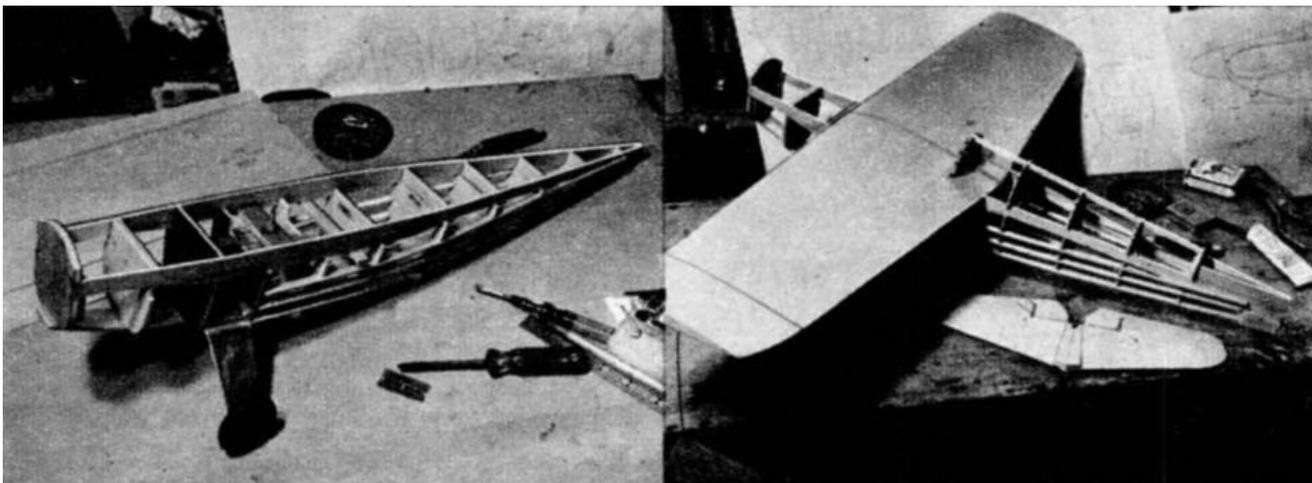
Add floor from formers 2 to 4 for tank space about 1" below thrust line. Rough carve engine fairing blocks and hollow to about 1/4" wall thickness. Coat inside of right fairing and fuselage side with hot fuel proofer before cementing in place. This section will carry off air from behind engine cylinder so it should be protected.

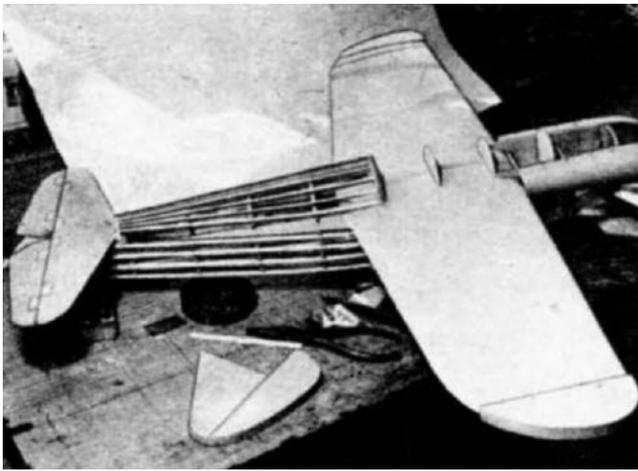
Carve a 1/4" wide slot 3/4" long through bottom edge of fairing at wing leading edge to allow air exit. Now add lower nose block ahead of the firewall. Hollow and drill for needle valve.

Top planking can be added between former 3A and 7 using 3/32" sheet. Cover in two pieces from wing skin up to center line on both sides. Wet wood and bend to shape before cementing down.

The engine fairings continue back along wing to form fillets on top and bottom. These are a bit tricky to carve so use soft balsa and work carefully. Extend bottom fillet block down to topmost side stringer and smooth sides flush for good covering.

Fill in sides under stabilizer with 1/8" sheet and carve to fair flush with stringers. Add fin and build up fillet on stab top with Plastic Wood. Complete planking of lower nose section with 3/32" sheet.





Carve removable nose cowl and hollow to about 1/4" wall thickness. Groove to clear engine lugs and fuel line. Carve other block pieces, headrest, rudder carb, air scoop, and wheel pants.

Now prepare all wood surfaces for covering. Sand everything smooth working down to 3/0 and 4/0 sandpaper. Check stringers particularly so that they fill out contours properly. Sight along stringers fore and aft and sand out any high spots.

All wood areas are given two light coats of clear dope and covered with lightweight Silkspan. The stringered portion of the fuselage is silk covered. Use fuel proof dopes from the wood out for a good finish. The original model is finished with Aero-Gloss.

When covering is completed the wood, paper, and silk must be well filled and primed. Put at least six coats of clear dope on the silk. Duco auto primer-surfacer was used on the original model and although bonding between AeroGloss finish and primer was not perfect all over the model the primer built up a very smooth subsurface and was easy to work down. Five coats of primer were brushed on and sanded down.

Cement headrest and carb air scoop in place before final doping. If possible spray on at least six coats of Aero-Gloss for a contest winning finish. Sand lightly between coats and rub down final coat with Duco Rubbing Compound and polish with Duco No 7 polish or Simoniz Kleener

The chartreuse color is made by mixing six parts of Aero-Gloss Cub Yellow with one part Cessna Green. The regular Fokker Red was used for red trim. The areas are masked with transparent Scotch Tape and the red sprayed or brushed on.

The bubble canopy is made by carving a male mold and heating 1/16" Lucite so that it will be soft enough to form. Cut out a piece of 1/4" plywood with 1/16" clearance around the canopy top outline. Nail scrap lumber under edges of plywood to raise plywood at least 1-3/4" Nail block under male mold to form a handle

Take panel of 1/16" Lucite or Pyralin and fasten to plywood with nailing strips along outer edges. Heat plastic in oven for about 2 or 3 minutes at 250 deg. Take out and press male mold down into plastic through hole in the plywood. Hold down for a few minutes until plastic cools well.

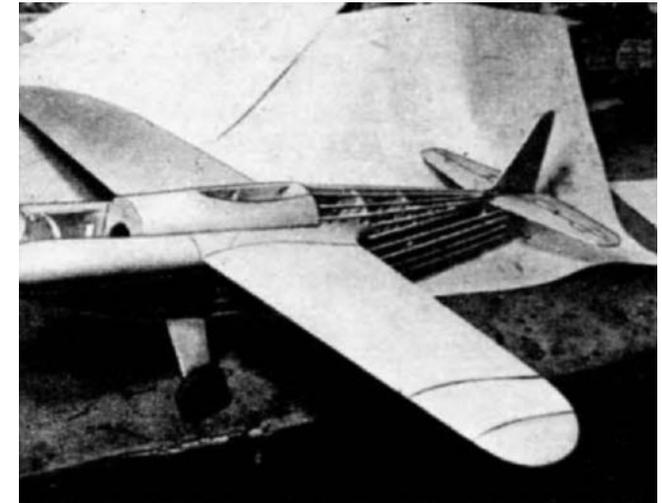
Trim edges with shears to fit cockpit outline. Polish inside of canopy before cementing down use rubbing compound and Duco polish.

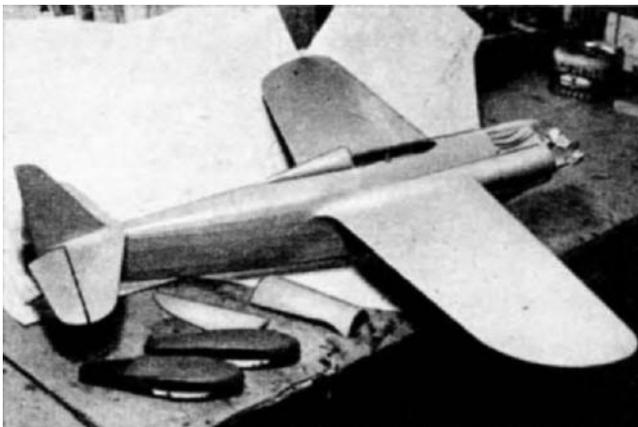
Complete final details now. Turnover structure in cockpit is 3/32" dowel. Oil tank fins are 1/32" aluminum cemented into slots in cowl bottom. Axles are 4-40 bolts. Cowl hold-down is nut plate bolted to rear of firewall. Spinner is 1-3/4" Froom or can be turned of hardwood to scale shape.

Line guide on left. wing is 1/16" plywood cemented in place after all rubbing down is completed. Numerals are Trim-Film Decal sheets. Use O&R 23 crankcase bolts on the K&B engine radial mounting. Put Elastic Stop Nuts or double regular nuts behind the firewall to prevent loosening from vibration. A balloon fuel tank was used on the original, but a metal or Jim Walker pressure tank could be used.

Wheel pants are mounted to the strut with a strip of aluminum bolted to the strut. Wheel axle has been lowered 1/8" for better ground clearance. Pant and strut are in scale however. See detail of pant mounting on cutaway.

Be sure that model balances at Point indicated. This required about 1/2 ounce of lead in tail because of long nose. Without the lead the balance will be nose-heavy, not enough to bother the flying qualities, but it will place the C G over the wheels and cause nose over tendencies during landings.





So rub her down and wax her up. Here's a sure prize winner and a real beauty for the end of your lines.

### Bill of Materials

(Balsa unless otherwise specified )

- 2 pcs 1/16" x 6" x 36" wing skins
- 1 pc 1/16" x 3" x 18" wing skins
- 2 pcs 1/8" x 3" x 36" wing ribs & fuselage formers
- 10 pcs 3/32" x 1/4" x 36" fuselage stringers
- 1 pc 1/4" sq x 36" fuselage stringers
- 1 pc 3/8" x 3" x 36" tail
- 3 pc 1/8" x 1/4" x 36" crutch wing spar
- 1 pc 1-1/2" x 3" x 24" eng. fairings & canopy mold
- 1 pc 3/32" x 3" x 36" front cowling planking
- 1 pc 1/2" x 3" x 36" pants & wing tips
- 1/4" plywood, 1/16" plywood, 1/8" plywood—

fire wall and formers

2" wheels

Veco elevator horn, 3" bellcrank

1-3/4" x 8-1/4" of 1/16" 24ST aluminum

24 inches of 1/16 dia steel wire pushrod

Six 4-40 hilts for landing gear

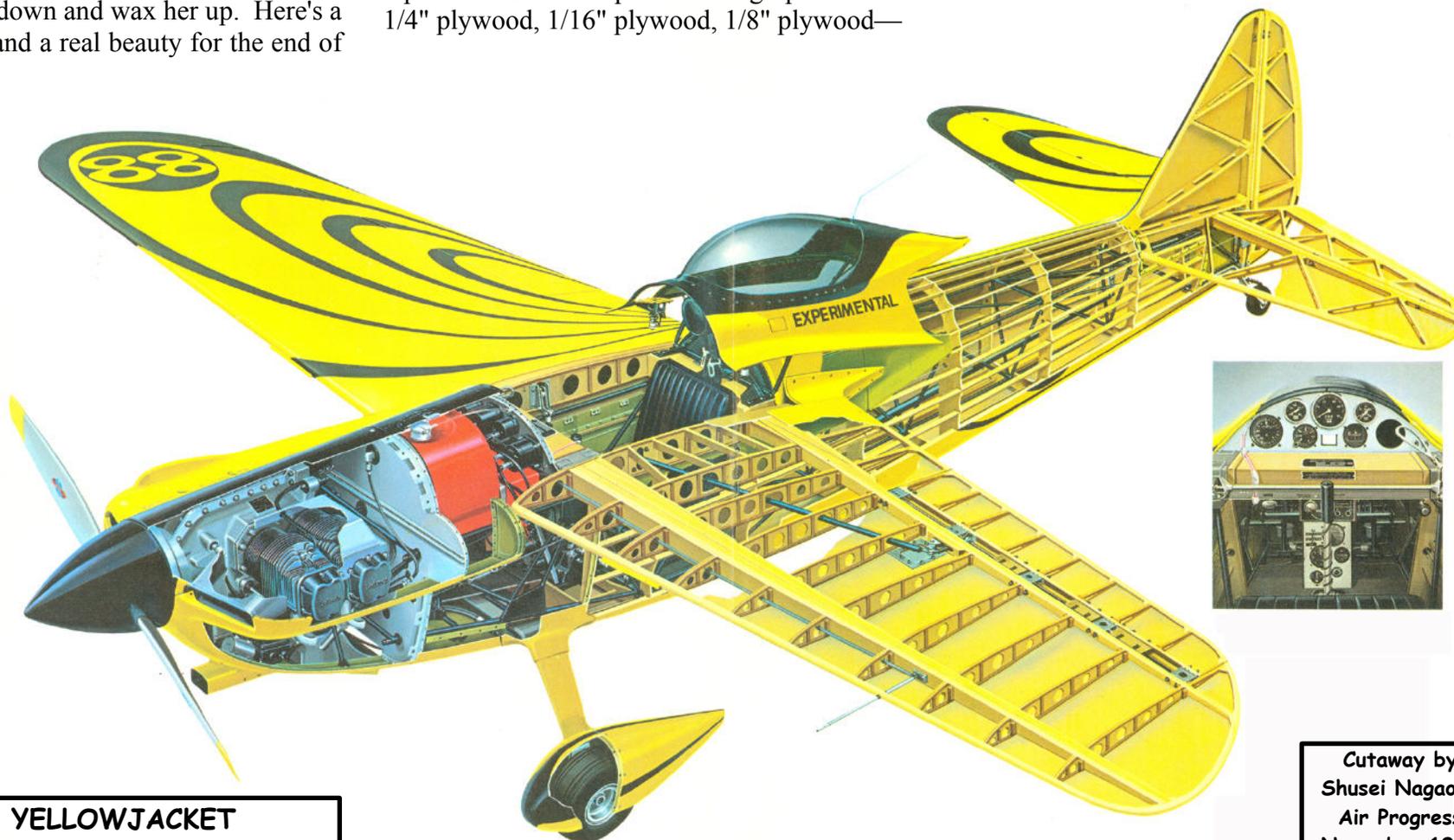
light weight Silkspan

fuel proof clear primer

colored dope

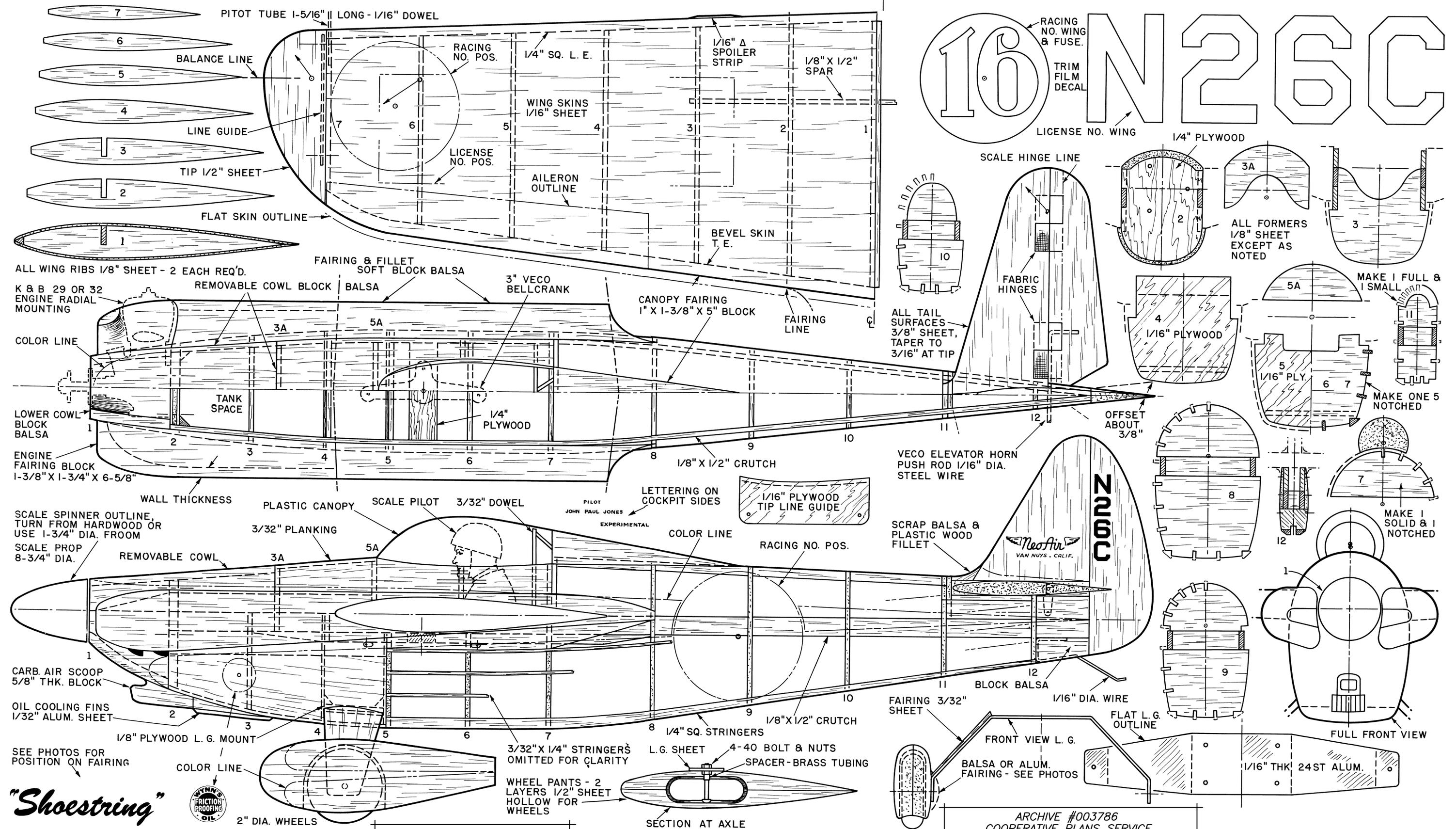
red Trim-Film

1-3/4" dia Froom spinner



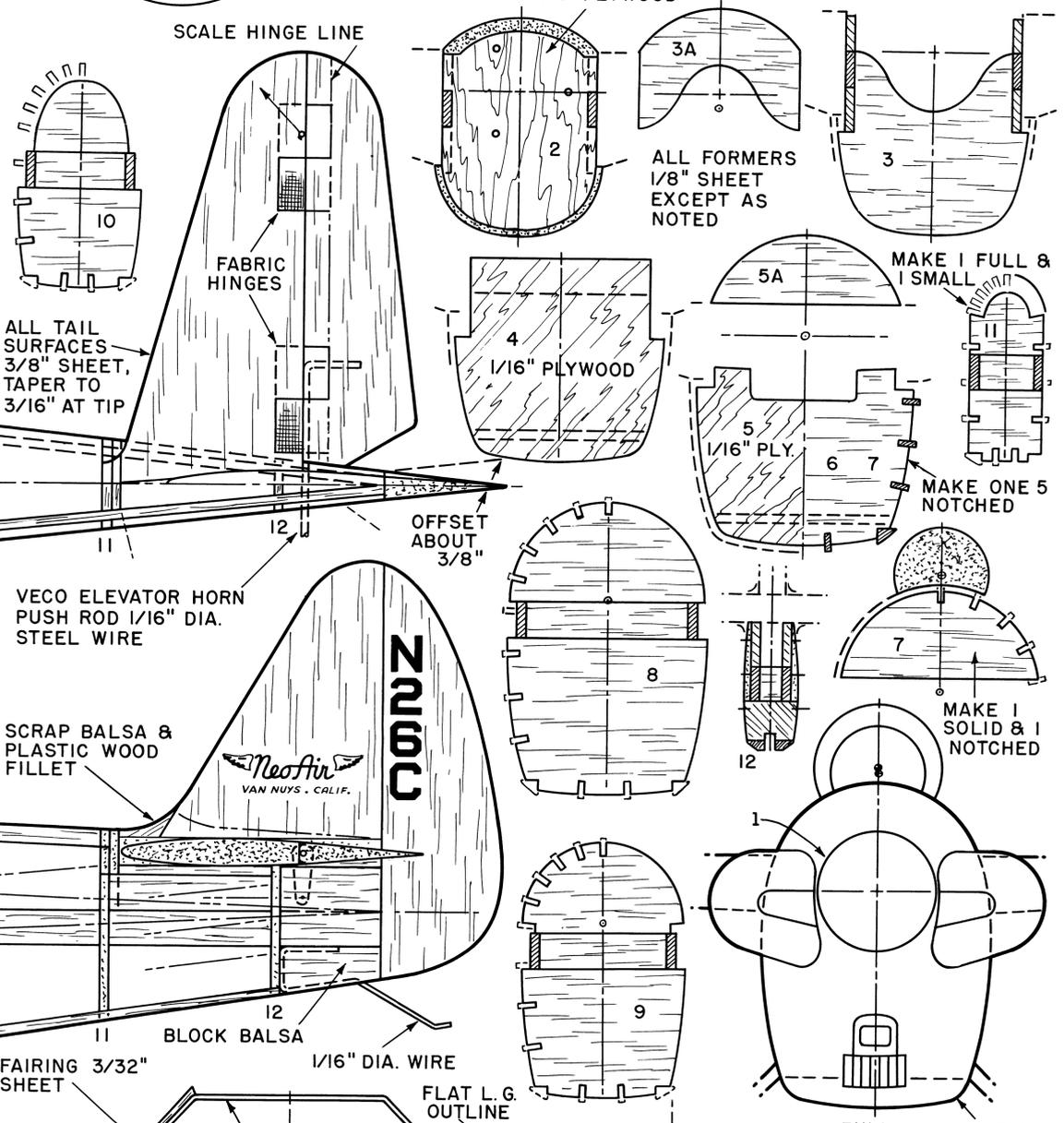
**YELLOWJACKET**  
First copy of SHOESTRING  
built from Landis Ketner plans

Cutaway by  
Shusei Nagaoka  
Air Progress  
November 1971



16 N26C

RACING NO. WING & FUSE.  
TRIM FILM DECAL  
LICENSE NO. WING



**"Shoestring"**

DESIGN BY CAL SMITH  
FROM AIR TRAILS, SEPTEMBER 1952

CONSTRUCTION ARTICLE IN  
RCMW JULY 2016  
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A 30" WINGSPAN PRIMARY GLIDER.

# THE ARNHEM GLIDER



DESIGNED BY  
AEROMODELLER  
RESEARCH DEPT.  
COPYRIGHT OF



THE AEROMODELLER PLANS SERVICE.  
ALLEN HOUSE NEWARKE STREET LEICESTER.

ALL WOODS UNLESS OTHERWISE STATED ARE Balsa.  
WEIGHT WITH BALLAST 2 1/4 - 2 1/2 OZS.

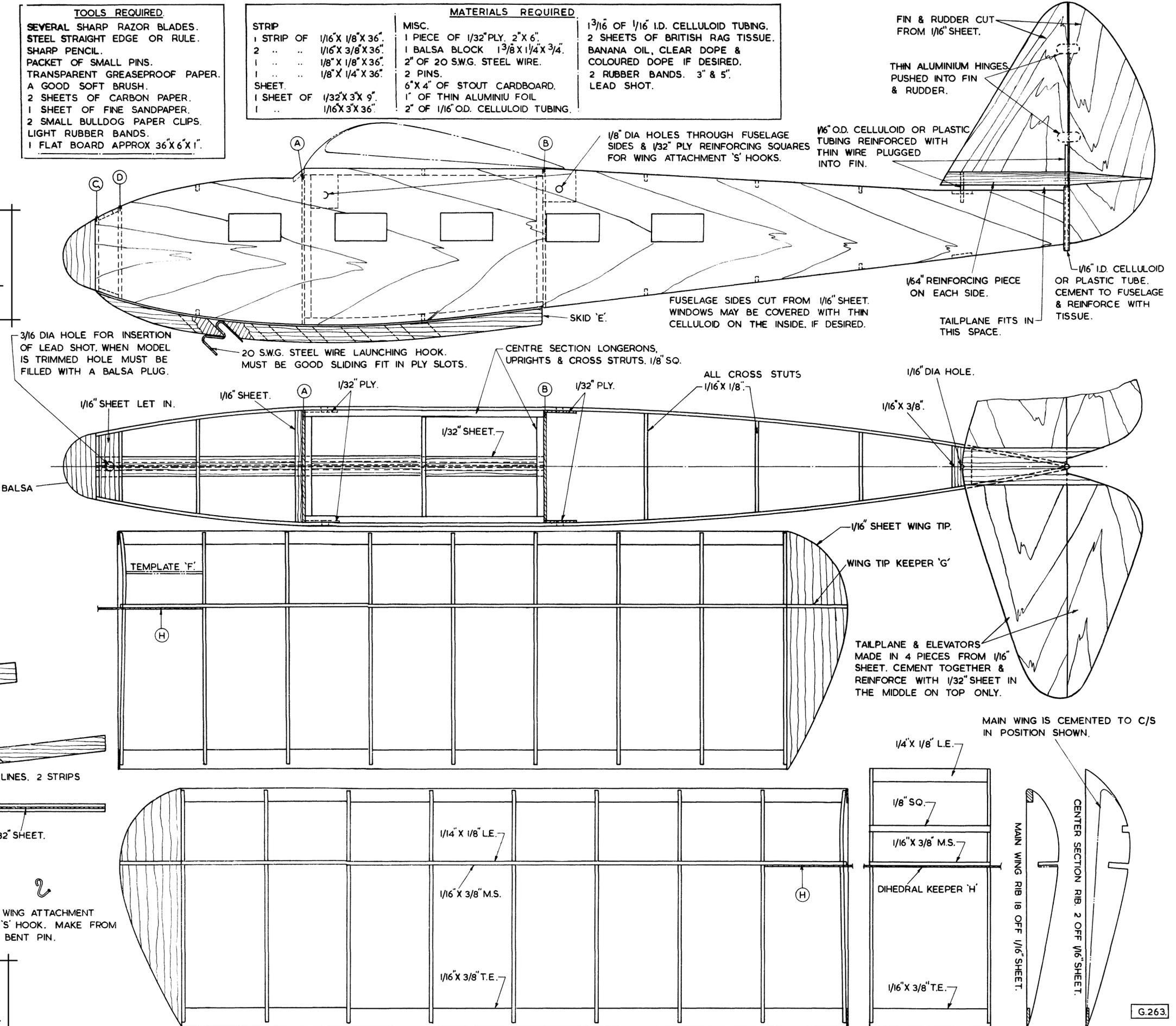
### TOOLS REQUIRED

SEVERAL SHARP RAZOR BLADES.  
STEEL STRAIGHT EDGE OR RULE.  
SHARP PENCIL.  
PACKET OF SMALL PINS.  
TRANSPARENT GREASEPROOF PAPER.  
A GOOD SOFT BRUSH.  
2 SHEETS OF CARBON PAPER.  
1 SHEET OF FINE SANDPAPER.  
2 SMALL BULLDOG PAPER CLIPS.  
LIGHT RUBBER BANDS.  
1 FLAT BOARD APPROX 36" X 6" X 1".

### MATERIALS REQUIRED

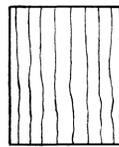
STRIP	MISC.	
1 STRIP OF 1/16" X 1/8" X 36"	1 PIECE OF 1/32" PLY. 2" X 6"	1 3/16" OF 1/16" I.D. CELLULOID TUBING.
2 .. .. 1/16" X 3/8" X 36"	1 Balsa BLOCK 1 3/8" X 1 1/4" X 3/4"	2 SHEETS OF BRITISH RAG TISSUE.
1 .. .. 1/8" X 1/8" X 36"	2" OF 20 S.W.G. STEEL WIRE.	BANANA OIL, CLEAR DOPE & COLOURED DOPE IF DESIRED.
1 .. .. 1/8" X 1/4" X 36"	2 PINS.	2 RUBBER BANDS. 3" & 5".
SHEET.	6" X 4" OF STOUT CARDBOARD.	LEAD SHOT.
1 SHEET OF 1/32" X 3" X 9"	1" OF THIN ALUMINIUM FOIL	
1 .. .. 1/16" X 3" X 36"	2" OF 1/16" O.D. CELLULOID TUBING.	

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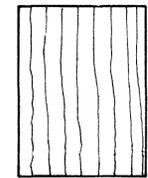


FALSE FORMER 'A' FROM STOUT CARDBOARD. TO BE REMOVED ON COMPLETION OF FUSELAGE.

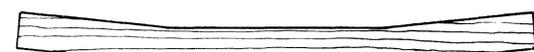
FALSE FORMER 'B'. SAME AS FOR FORMER 'A'.



NOSE FORMER 'C'. 1/16" SHEET.



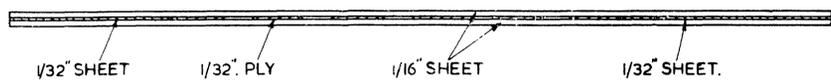
BULKHEAD 'D'. 1/16" SHEET.



DIHEDRAL KEEPER 'H' 1/32" PLY.



SKID 'E' MAT: 6 PIECES 1/32" PLY AS SHOWN BY DOTTED LINES. 2 STRIPS OF 1/32" SHEET. 2 STRIPS OF 1/16" SHEET.



1/32" SHEET 1/32" PLY 1/16" SHEET 1/32" SHEET.



TEMPLATE 'F'. 1/32" PLY.



WING TIP KEEPER. 1/16" SHEET.



WING ATTACHMENT 'S' HOOK. MAKE FROM BENT PIN.

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# Back Issue MAGAZINE ARCHIVES By Roland Friestad

Here's the next in our series of monthly back issues of model airplane magazines available for download to subscribers. This month's selection is the September 1952 issue of Air Trails.

This issue not only has the SHOESTRING design by Cal Smith, the cover was painted by Smith as well. Also included is an article by Roy Clough on free flight helicopters, a small indoor HLG plan, information on UC Stunt Pattern flying and Speed model hints and methods. Plus the usual Air Trails general interest articles of interest about models and full size aviation. For you younger whipper-snappers out there Air Trails later changed its name to American Modeler. Actually the magazine had several names over the years from about 1936 until it ceased publication in 1975. But I've always called it Air Trails.

To get your copy, just go to the following link and click on the download button that after a short time will appear in the upper right corner of your browser screen. The issue will be downloaded as a PDF file and you can read or print out any or all of the pages as you choose.

**[-- CLICK ON THIS LINK PLEASE --](#)**

This download link will be expire on October 1, 2016, so if you'd like this issue for your own collection, better do it now.

As a note of interest, this issue is stored in the "cloud" that you see mentioned as one of the latest of the buzzwords used by the computer folks. I use a service called Mediafire which can easily handle very large files that would otherwise cause problems with downloading.



# Back Issues of 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.

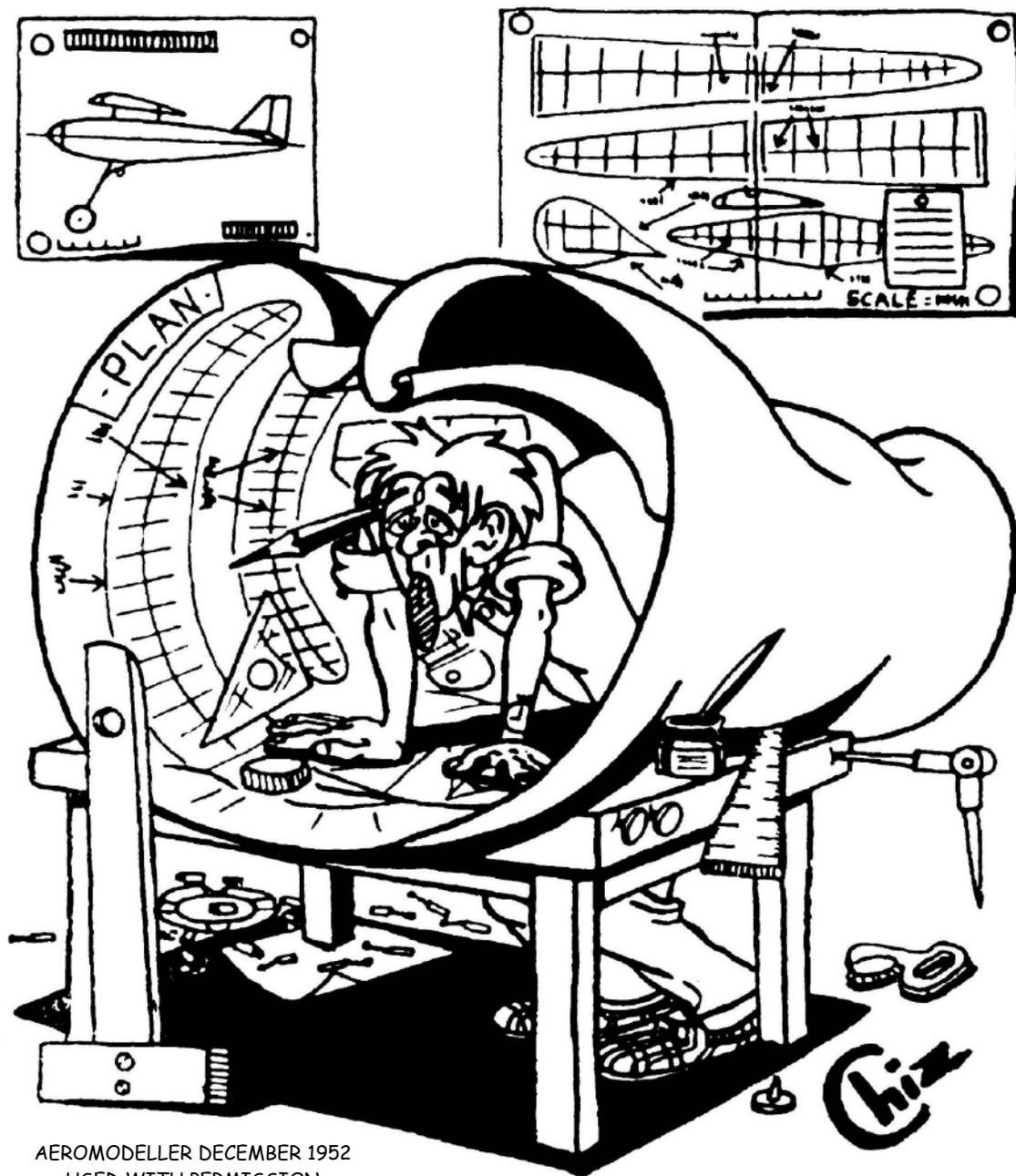
That's NOT the way it was in the past, when you had to build a model before you could fly it. If you're an old-timer, as I am, you have fond memories of Air Trails, Flying Models, Model Airplane News, Aeromodeller and many of the several other magazines available "way back when".

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  
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**AEROMODELLER**, the premier British model airplane magazine is being digitized. **Ready now are all 240 issues from 1950 and 1960** including the full size plans that were sometimes included in each issue. On the left is a reproduction of the November 1935 cover of Vol 1, No 1. All of the earlier issues will also be available later in 2016

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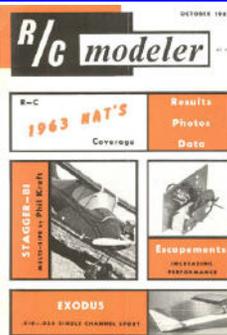
**MODEL BUILDER** - This magazine ran from the first issue of September~October 1971 through the final issue dated October, 1996 -

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RCMW July 2016 - Page 36