

RCMW-FSP

JANUARY 2015

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For the Model Builder and Flyer - January 2015 Issue



Cloud 9

RC Micro World

**Full
Size
Plans**



Lots of good stuff in this issue including 7 full size plans in PDF format. Long time subscribers know that every issue includes full size plans that can be printed at a local copy shop or on your own printer..

We've tried to give a wide selection of model building interests in line with our intention to take over where Flying Models and other magazines leave off, namely, projects for a wide variety of model building interests.

We have a new RC Micro design as well as several reprints including two old classics in Rubber Scale, an Old Timer Free Flight, an RC Pattern ship, a U-Control Scale model and a U-Control Stunt ship.

Also see the page titled "HELP WANTED". If we are going to make this a success we need to hear from subscribers and authors who will contribute their knowledge and designs to our magazine.

We have had some reports that when using the free Adobe Acrobat Reader 11 to print plans using the "Tiling" mode. In the next issue we will have step-by-step instructions for those who want to print their own full size plans rather than using a copy shop..

Roland Friestad, Editor

TUNDRA

by Chad Carpenter



www.tundracomics.com

FLYING FOOL

35

By Bob Aberle

RC MICRO WORLD
CONSTRUCTION ARTICLE

John Stockbridge's "FLYING FOOL-35"

An all balsa sport rubber model from 1947
Modified for RC and electric power

Wing Area - 35 square inches
Weight - 1.1 ounces

BACKGROUND

The inspiration for this particular design came from a very close to home source. Namely the September 2104 issue of RC MICRO WORLD.

In that issue and as a tribute to FLYING MODELS magazine, which recently stopped publication, Roland reprinted a construction article, which turned out to be the very first published in the then new FLYING MODELS magazine.

The exact issue was June 1947. The design was called the "FLYING FOOL" and its designer was John Stockbridge. The plane was rubber powered and was made up totally from balsa sheet stock.

Since this was originally a very small model, I chose to enlarge the original design to an 18 inch wing span and 35 square inches of wing area.

THE CURRENT FLYING FOOL

The result, slightly larger than the original FLYING FOOL, ended up as a totally "cute" aircraft. Here are two photos of the resulting model which not only "looks right", but flies right as well.



To give you an idea as to the relative size, the photo that follows shows me holding the little plane prior to an indoor flight.



The next photo shows the FLYING FOOL at the right in comparison with the E-Flite UMX SPACEWALKER, that will be reviewed in the next issue of RCMW. In the middle is the operating transmitter, the Spektrum DX-7.



The same all balsa sheet construction was employed here, just like the original from 67 years ago. The plane is so simple it can be constructed in less than a day of work. The materials cost practically nothing.

CONSTRUCTION NOTES

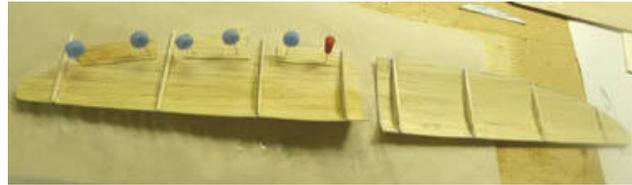
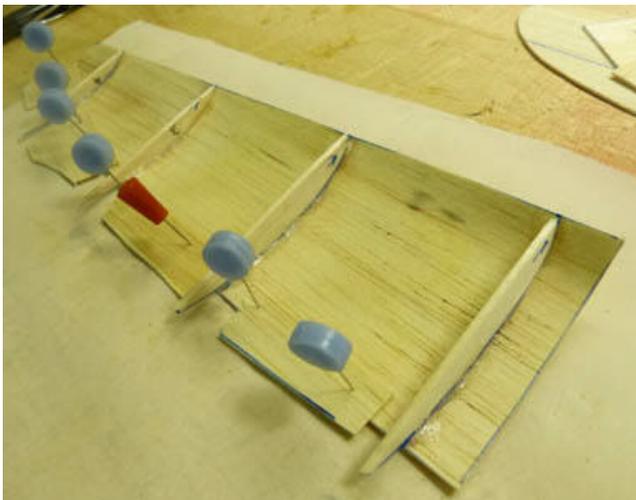
To start this the next photo shows all the parts prior to assembly. Except for the top and bottom fuselage sheeting, everything is 1/16 inch balsa sheet.



Initially I made my wing panels from 1/32 inch sheet balsa. It proved too thin and too soft, yielding a warped wing that was of little use. I substituted 1/16 inch medium balsa which only added a couple of grams to the total weight.

Note that the airfoil is not a Jedelski section. It has a continuous flowing airfoil that employs four ribs on each of the two wing panels. The placement of the two innermost ribs are set to fit the top of the fuselage perfectly.

As you can see in the following photos, the wing is constructed upside down with the trailing edge pinned to the building board. The ribs are installed next. Then the wing panels are lifted up to obtain the final airfoil shape.



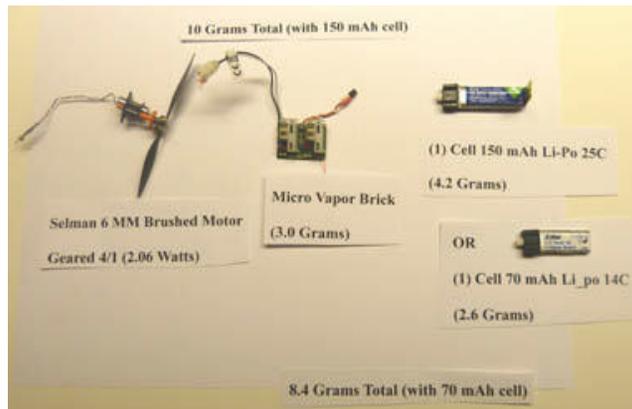
The wing panels are then joined with 1 1/4 inch dihedral under each tip. No dihedral braces are employed.



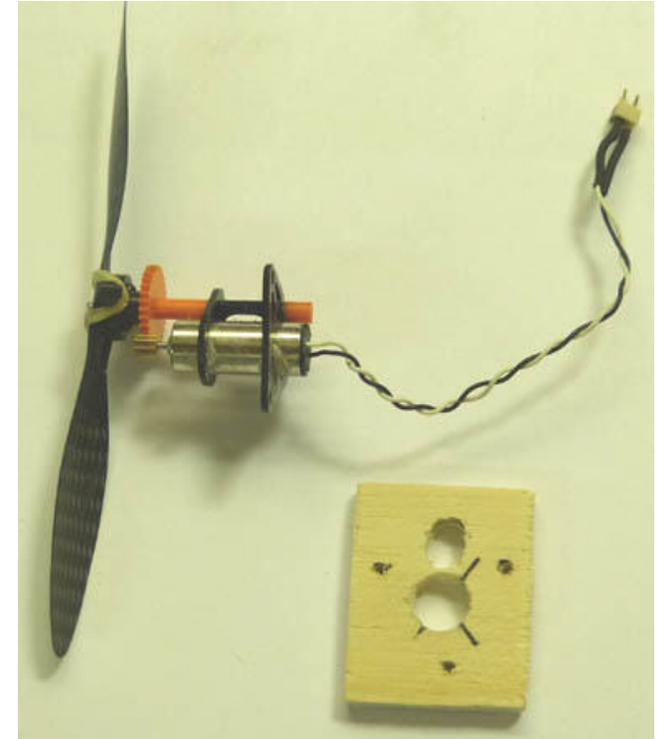
The bottom of the finished wing prior to attaching to the fuselage.

RC & POWER SYSTEMS

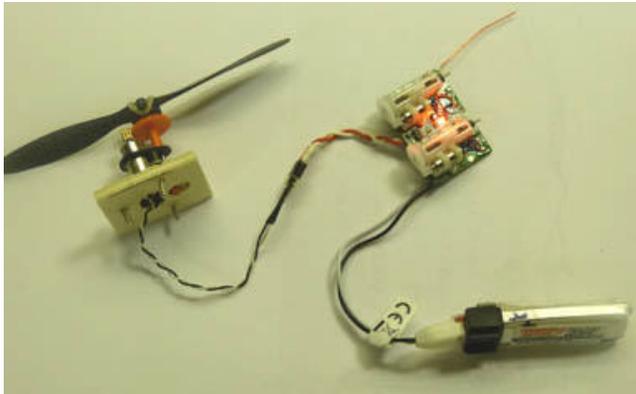
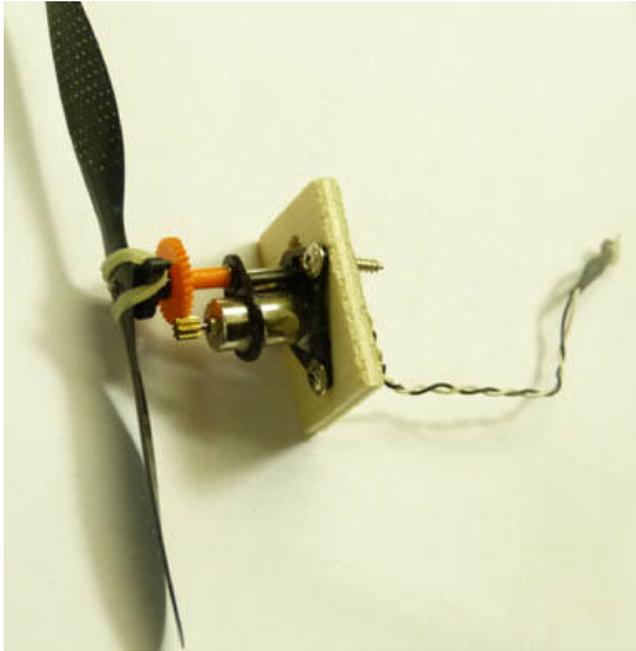
In the next photo you will see the entire power and RC system, which weighs 10 grams with a single 150 mAh Li-Poly battery cell.



I chose the 6 MM geared motor offered by Bob Selman of BSD Micro RC. The motor is a ParkZone CUB J3 brushed 6 MM variety with Bob's 4/1 gear drive. As noted you could save weight by going to a lower capacity 70 mAh Li-Poly battery cell.

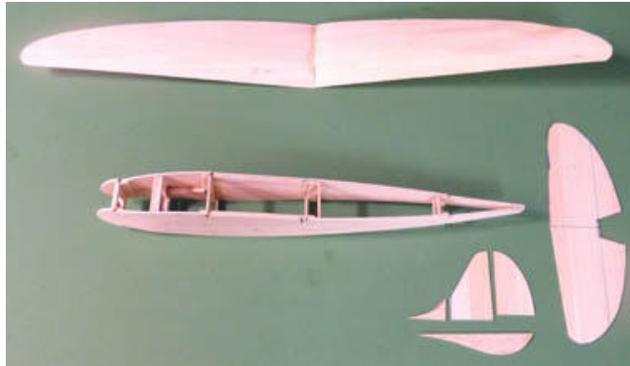
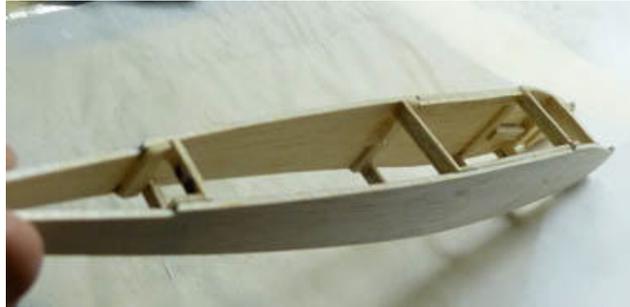


This is the 6 MM brushed motor with the Bob Selman 4/1 gear train. Note the cut outs on the 1/8 ply firewall. One hole clears the motor, and next the protruding gear box shaft along with the two wire motor cable that mates up to the connector exiting from the Mini-Vapor brick.

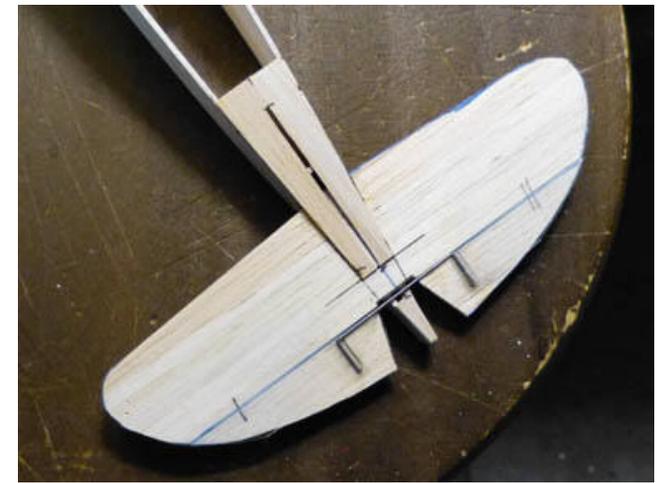
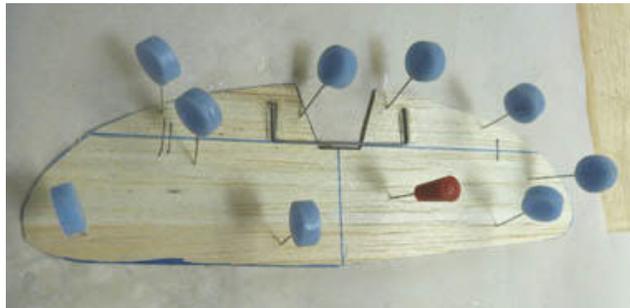


Here is the complete motor/RC system ready for installation.

The fuselage sides are cut from 1/16 inch balsa sheet. Stiffeners and cross pieces are used instead of actual formers, but I did use a couple of temporary formers to hold the shape during assembly.

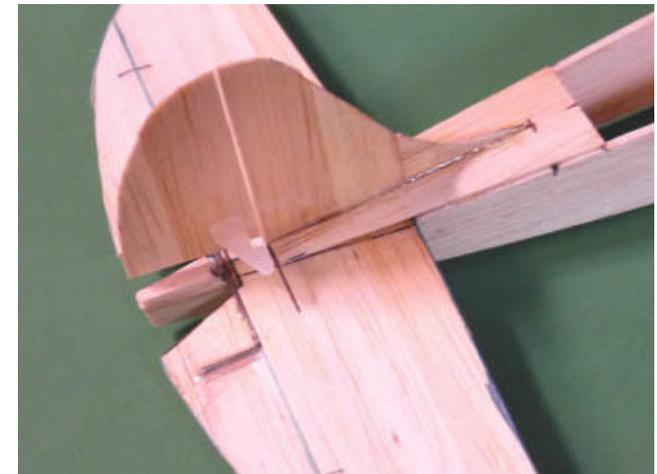


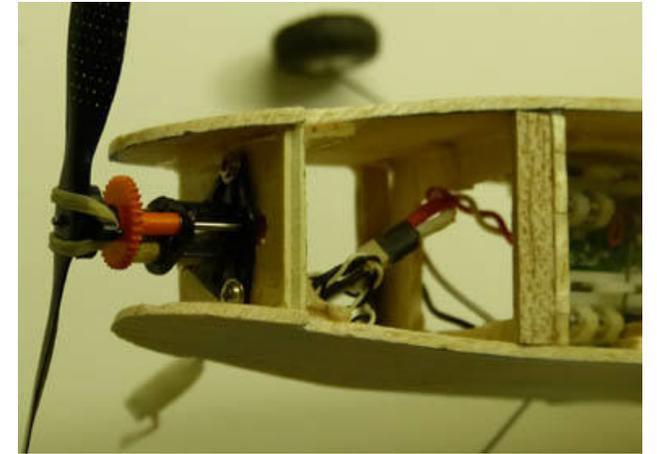
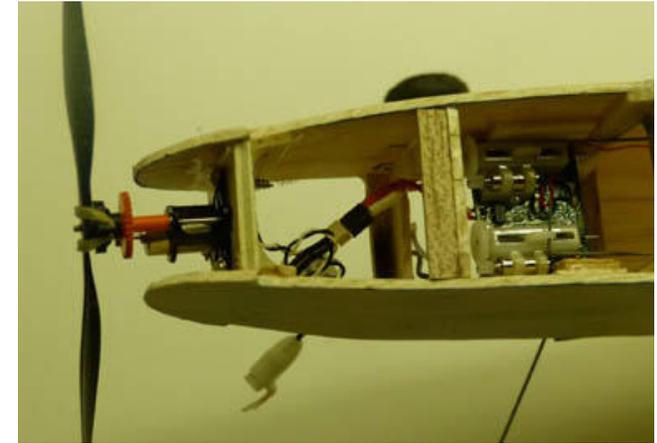
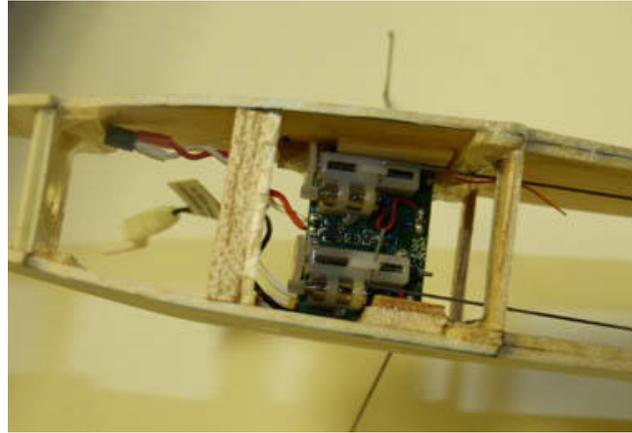
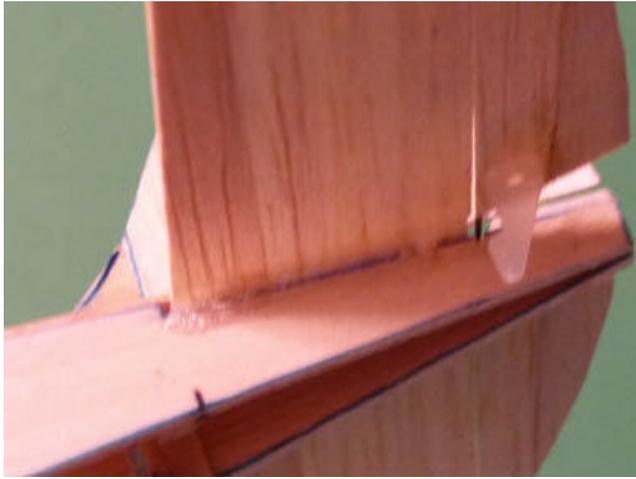
Getting ready for final assembly. The tail pieces are made from 1/16 inch medium sheet balsa. The elevators are two pieces and must be joined with .032 inch diameter wire.



This shows the stab mounted to the fuselage using 5 minute epoxy cement.

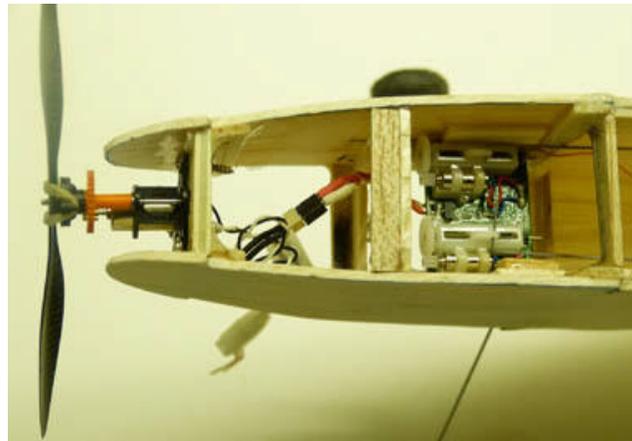
The rudder and elevators are connected to the control rods using DuBro micro control horns. Control rods were made from .020 inch diameter wire. A right angle bend is used at the servo output arms. At the tail, a second piece of .020 wire is added with a "Z" bend. That end goes into the control horn. After zeroing out the control surface, a dab of cement holds the two wires together.





Starting to take final shape.

The next series of photos shows the installation of the motor and the RC brick. Note that the brick is mounted forward of the wing leading edge. A top access hatch can be employed to allow access to the brick. I didn't bother doing that and never had a problem. The single battery cell is attached to the fuselage bottom, just behind the motor. I used Velcro tape to attach the battery.



Check out the controls and the motor, then affix the wing permanently to the fuselage using 5-minute epoxy cement. I added some color using a Krylon Spray called "Short Cuts". In this case it was "Glow Orange". Then I applied an over spray coat of Krylon Crystal Clear Acrylic coating No. 1303. This is especially helpful when applying the hinge tape on the control surfaces. It helps the tape adhere to the raw balsa sheet surfaces.



FINAL CG COMMENTS

The final CG position ended up at 5/8 inch back from the wing leading edge. You don't want it any further back than that. Control throw was rudder 1/4 inch either side of the neutral position and elevator 3/16 inch either side.

I did add in 30% expo rate on the rudder and elevator channels. It was not really essential, but it did make flying a little easier.

FLYING

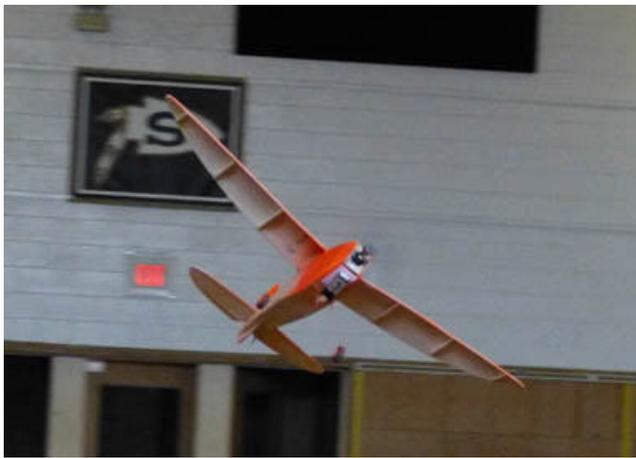
Initial flying took place in my local Samoset Middle School Gymnasium in Ronkonkoma, NY. My SEFLI club rents this double size gym once a month from October till March each year.

The first flights were made with SEFLI President Tom Hunt on the controls and myself on the camera. Here are two flight shots.



Here are some underside shots showing the landing gear and the single cell battery attached to the underside of the fuselage.





I had some difficulties with my Panasonic Lumix FZ-150 camera and as a result got very few action shots.

Take offs from the gym floor went well. Outdoors you must consider strictly hand launching, unless you have a paved surface. The expo rate should help a little. It is possible to tip stall this plane because of the elliptical wing planform.

If that happens put the nose down (down elevator and throttle back a little). But still in all it is a pleasure to fly and costs practically nothing to construct.

SUMMARY

First of all the power system employed can easily handle a plane weight of up to 35 grams (a little over an ounce). As I have said so often, this power system can easily fly planes like the Dumas Products 17 inch span rubber scale models as well as those from Dare Designs and Stevens Aero-models.

Also keep in mind that Hobby King is now offering after market micro RC bricks (for both brush and brushless operation), geared brushed motors, micro brushless motors, separate micro

linear output servos and a variety of micro Li-Poly single cell batteries. Check out the prices!

I hope to pursue new designs using this equipment in the near future. Please write in with your suggestions.

Bob Aberle

baberle@optonline.net

SPECIFICATIONS

Model: "FLYING FOOL-35 "

Designed originally by John Stockbridge in 1947 as a sport rubber model

Updated and converted to RC and electric power by Bob Aberle 2015

Type: A micro Indoor/Outdoor Electric Powered RC sport design

Wingspan: 18 inches

Wing Area: 35 square inches

Length: 12 inches

Weight: 1.1 ounces (31 grams)

Wing Loading 4.5 oz/sq.ft.

RC GEAR USED:

Horizon/Spektrum DX-7 transmitter 2.4 GHz spread spectrum, Spektrum Mini-Vapor brick which includes two servos (rudder and elevator), plus a brushed motor ESC

POWER SYSTEM USED:

Bob Selman Micro RC - 6 mm brushed motor geared 4/1), 3.2 inch diameter prop and a single cell 150 mAh Li-Poly battery pack.

POWER SYSTEM PARAMETERS:

Prop: 3.2 inch diameter

Motor current: 640 mA (0.64amps)

Voltage: 3.22 volts (under load)

Power Input: 2.06 watts

Battery Loading: 4.3C

Power Loading: 30 watts/pound

Flight Time: 10 minutes

SOURCE REFERENCES:

Bob Selman Micro RC - 6 mm brushed motor with 4/1 gearing, suitable prop and a single 150 mAh Li-Poly battery cell.

www.bsdmicrorc.com

BP Hobbies (CA cement, 5 minute epoxy cement and CA accelerator)

www.bphobbies.com

DuBro --- (micro control horns, mini EZ connectors and electric flyer hinge tape)

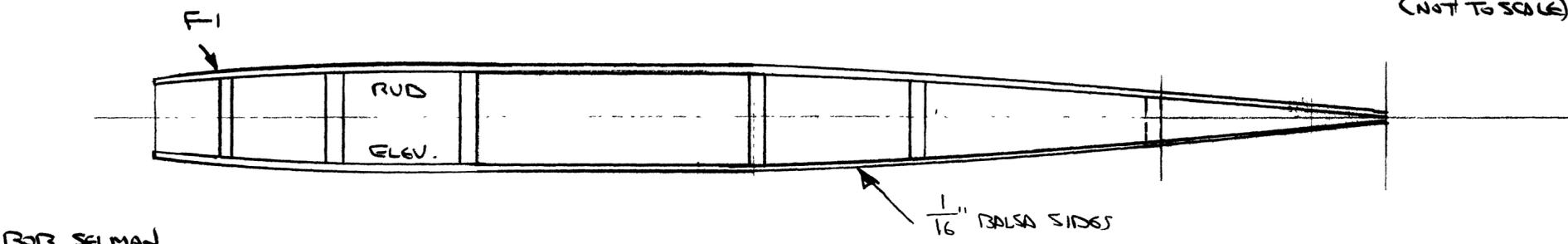
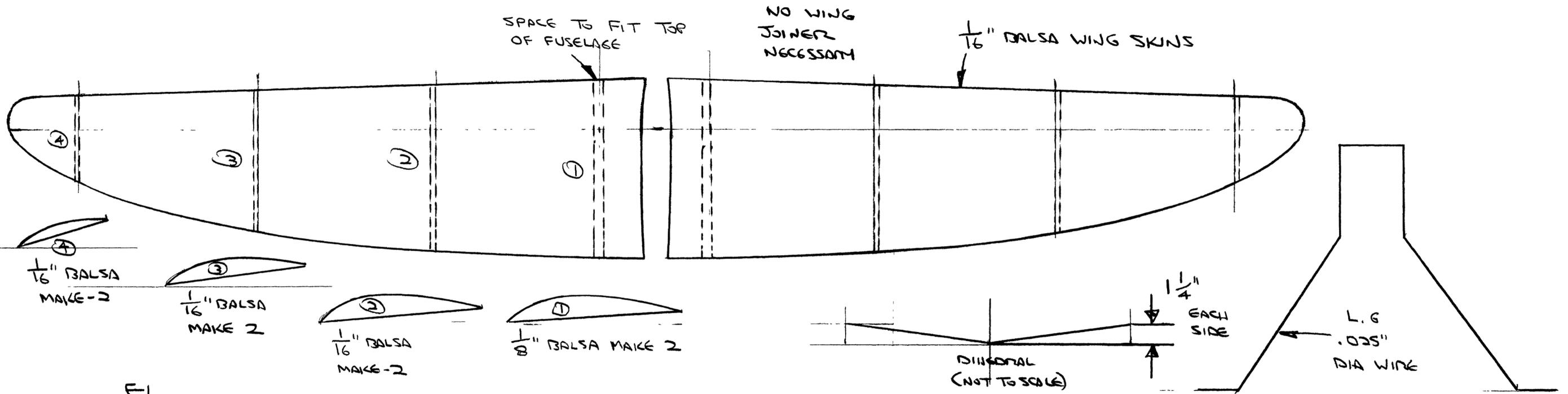
www.dubro.com

Horizon Hobby (Spektrum DX7 transmitter and a Mini-Vapor brick.

www.horizonhobby.com

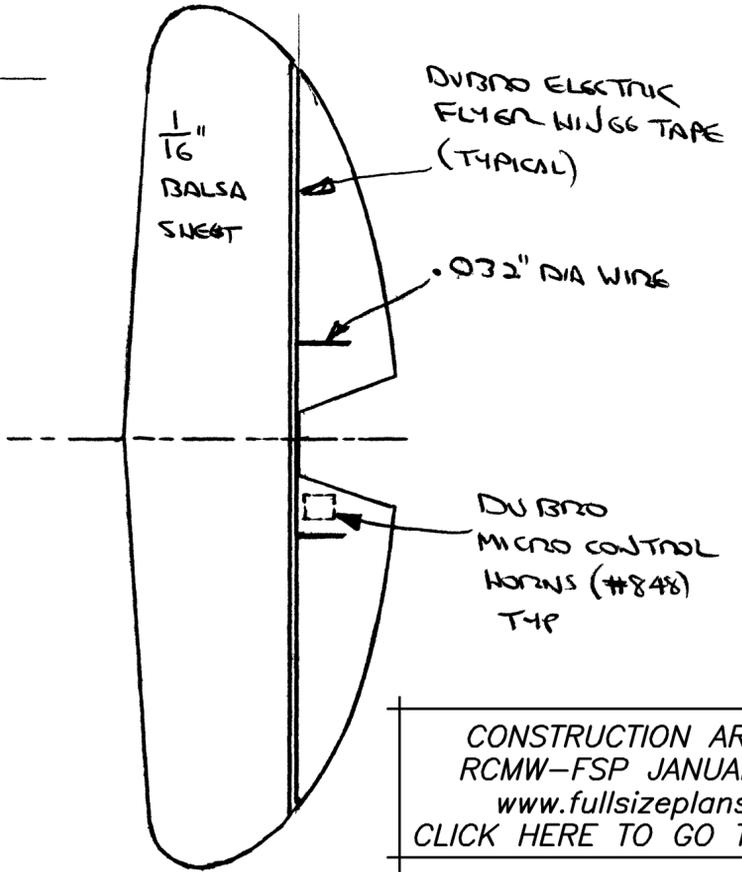
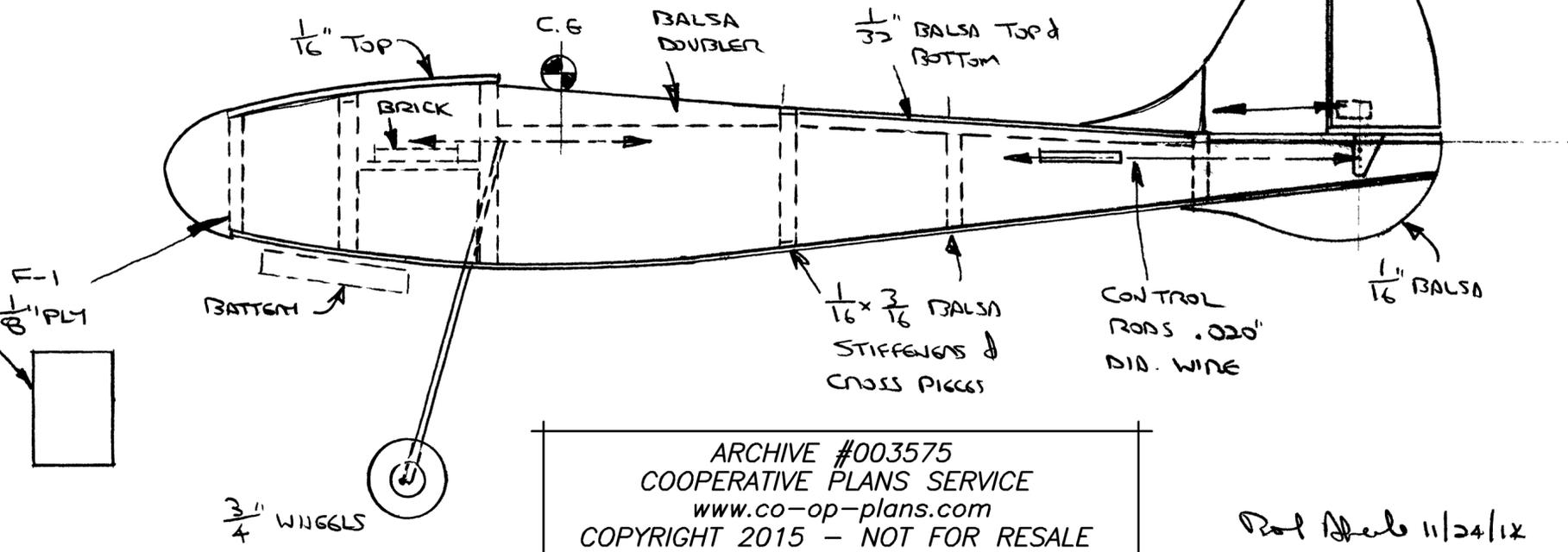
Krylon Products Group Inc.(Crystal Clear Acrylic Coating #1303 and Short Cuts Spray paint - (Glow Orange)

www.krylon.com



BOB SELMAN
6 MM BRUSHED
MOTOR - GEARED
4/1
3.2" DIA PROP

WING IS CEMENTED
TO TOP OF FUSELAGE



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RCMW-FSP JANUARY 2015
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Bob Selman 11/24/14

FLYING FOOL	
BOB ABERLE NOV. 2014	1.1 OZ
18 INCH SPAN	35 SQ IN. WING AREA
0	1 2 3 4 5 6

HELP WANTED !!

If you're reading this you are either a subscriber to our magazine or you requested a free sample copy. On the other hand, you may have printed out this page in order to put something in the bottom of the canary's cage.

Regular subscribers know that one of our goals is to fill the void left by Flying Models magazine which recently stopped publication. It was the last of the remaining model airplane magazines that attempted to provide articles and content for model builders.

With that in mind, we're sending out this call for articles, photos, how-to-do-it hints, and anything else that you think would be helpful or of interest to those who still enjoy building and flying model airplanes.

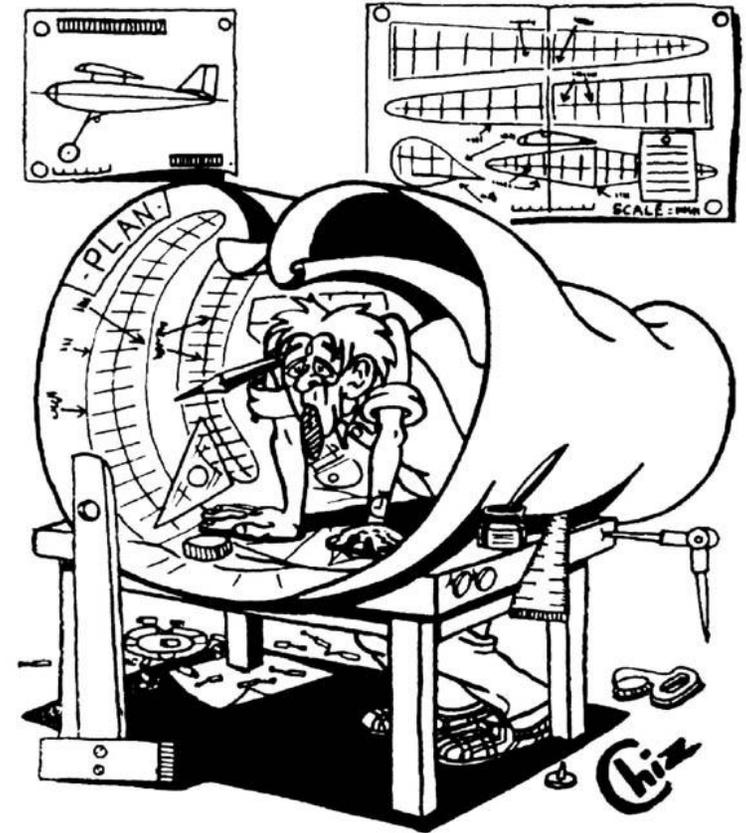
This online magazine is a combination of two earlier projects, RC Micro World (RCMW) started by the late John Worth, and Full Size Plans (FSP), started by me. Both began about 5 years ago and were combined after the passing of John.

John specialized in very small RC models and provided full size plans for those who still wanted to build models themselves. We still do that but want to enlarge the range of our projects to include larger Free Flight, U-Control, Scale, Gliders, Radio Control or any other forms of sport modeling.

So, that's where the "HELP WANTED !!" part comes in. If you design your own scratch built models send us photos and information. We want to publish your designs and make you famous. If you have a great idea for a way to build better models we want to hear about that too. If you have news about what your club is doing or upcoming contests we want to tell other model builders and flyers about it. If you have discovered a great new source for building supplies or services such as laser cutting or some other hard-to-find service, don't keep it a secret, let us tell modelers everywhere about it.

For an author's guide to what is needed and what works best when submitting your designs, articles and news items to us, just E-Mail us a request and we will send you full information on requirements for publication and hints on how to make it easy to do. You don't have to be a professional, because we can help with editing and preparing your notes and plans to present them in the best way.

Click [HERE](#) to request our Authors Guide



the LONE EAGLE

By
BOB OSLAN

Originally published in the September/October 1974 issue of Model Builder magazine, the prototype went O.O.S. on a 20 minute flight at a contest. You may want to install a dethermalizer!

The Lone Eagle was designed and built in 1927 by the Ryan Mechanics Monoplane Company of San Bernardino, California. The Company expanded in 1928 and incorporated into the Federal Aircraft Corporation; the Lone Eagle then became the CM-1 "Lone Eagle."

I have no idea what CM-1 stood for, but the "Lone Eagle" was in honor of Charles Lindbergh. The three principals of the company had worked on the Spirit of St. Louis and possibly hoped to capitalize on the Ryan name and fame, hence the name Ryan Mechanics. Their success can be measured by the fact that the Lone Eagle

did not become one of the classics of the period despite creditable performance.

It was powered by a 230hp Wright Whirlwind JB-4 and had a maximum speed of 125 mph with a 105 mph cruise. It carried a pilot and four passengers for 700 miles at cruising speed and landed at 40 mph. The wing span was 37'-6" and the overall length was 29'-3".

An article in the March 1928 issue of Aero Digest describes the interior as follows: "The chairs are of reed and fibre construction and the backs are padded and finished with tapestry to harmonize with the upholstery. Each chair is provided with a separate cushion built up of 36 separate coil springs and covered with tapestry." The interior of the cabin is finished with heavy red Fabrikoid and the floor is covered with carpet." Pretty classy ... those were the days.



The Lone Eagle is well suited to model work, with its reasonably long nose and tail moments. The tail surfaces were enlarged for stability and the landing gear was lengthened slightly to allow for a large enough prop to insure good performance. These are customary scale compromises and do not detract from the model's appearance.

Construction is conventional throughout and building goes surprisingly fast.

FUSELAGE

The basic framework is made of hard 3/32 sq. longerons with medium uprights and crossmembers. Note that all the uprights are one piece and the horizontal sticks that form the cabin windows fit between the uprights. This is important, because the strength of the fuselage depends to a great extent on one piece uprights.

Stringers, or fairing strips, are 1/16 sq. medium hard unless otherwise noted. The noseblock and spinner should be made from the heaviest stock that you can cut with reasonable ease, as weight in the nose is needed and it may as well give you some structural advantage.

Dummy engine cylinders should be made from heavy stock and they should be countersunk into the noseblock to eliminate the annoyance of being knocked off from handling on the flying field. The amount of detail put into the engine is up to the individual. The original model had almost as many hours put into the engine as did the entire airframe and frankly, you wouldn't know to look at it. So ... suit yourself.

Build the fuselage sides one atop the other to assure identical size and shape. When completely dry, join the sides together, being careful to keep the framework cross section square and the curves symmetrical.

Attach the formers and stringers to the top of the fuselage, noting the stringer sizes on the plan ... this minimizes the chances of stringer sag after covering. Attach Formers 1 t, 2, 1 b, and 2b. Plank the top formers with 3/16 sheet as shown on the plan. Note that the finished shape changes from angular at Former 2 to circular at Former 1 t.

Plank the sides of the nose with 1/4 sheet and cover the bottom of the nose between 1b and 2b (rear) with 1/16 sheet or planking, which ever is easiest for you. Add the side fairing strips and cabin molding strips ... see cabin detail on plan.

Bend the landing gear, using the front and side views for your guide. Secure the two wire cross members to the bottom fuselage cross members with thread. Then bind the lower parts of the gear with copper wire and solder. Now apply two or three coats of glue to the thread holding the gear to the fuselage.

Add the bottom fairing strips. You can now install the windshield framework of 1/16 x 1/8. The curved top cabin strips are added after the wing is attached to the fuselage.

The front view shows a wire (straight pin) going from the axle area up to the "shock absorber" strut. This pin goes through and is glued to the landing gear struts (1/16 x 1/8) and extends up and into a piece of aluminum tubing that is imbedded in the "shock absorber" strut. This makes for a nicely simulated and fully shock absorbing land-



ing gear. The shock absorber strut is added after final assembly and doping. Wheels are built up from medium balsa, unless you are lucky enough to have ready made wheels on hand that are light and the correct size.

WINGS

The wing is made from light stock and is surprisingly rugged. This is due to multi-spars and severe thickness taper. If my experience is any indication, wing warps will have to be intentional, and even then it won't be easy. The real aircraft had a flat upper wing surface and the small amount of dihedral in the model does very little, if anything, to detract from the effect.

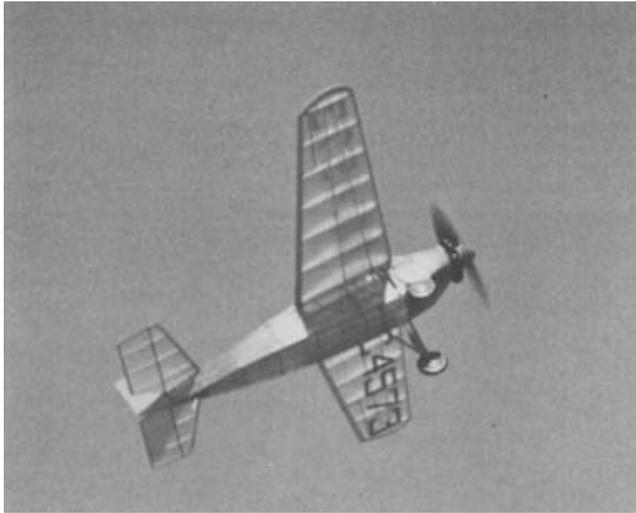
When building, pin the trailing edge and bottom spars flat on the board. Do not stick pins through the spars. Block up the leading edge 1/16 above the board. Glue on the ribs, being sure to tilt the root ribs so that they will be vertical when the wing halves are joined at the prescribed dihedral

angle (check wing front view for details). Glue in top spars before removing the wing from the board.

Build in the dihedral right on the plan to assure correct alignment. Pin the center section trailing edge on the board and block up the center section leading edge 1/16 above the board. With the leading and trailing edges cut to the correct length and pinned in place, glue each wing half to them and block up the tips to proper height. Pin the halves to the board at their roots and add the top center section spars. When dry, remove from the board and add the bottom center section spars. You now have a wing, that when covered, is the P-47 of the stick-and-tissue crowd.

EMPENNAGE

The vertical and horizontal stabilizers are perfectly straightforward. In each case, block the leading edge, trailing and tips 1/16 off the board. They are constructed entirely of 1/16 x 3/16 me-



dium balsa except for the stab spar, which is medium hard.

COVERING

Cover with Japanese tissue, ... do not water shrink the tissue until all parts are assembled. When the covering is tight ... no wrinkles ... apply three coats of thinned dope (60/40) with plasticizer added. Control outlines and license numbers are cut from black tissue. (See Fernando's column, "FIT Scale," for more detail on covering with tissue. wcn)

PROP

The prop is carved from medium hard balsa and is covered with Japanese tissue for added toughness and as an aid to a good finish. Utilize a free wheeling device of your choice. Although the winding eye is more practical if located outside of the spinner, it really makes a neat job if the spinner can be kept clean. This

necessitates winding the rubber motor directly or with an "S" hook instead of through the prop shaft, but a clean spinner sure looks nifty.

TRIMMING AND FLYING

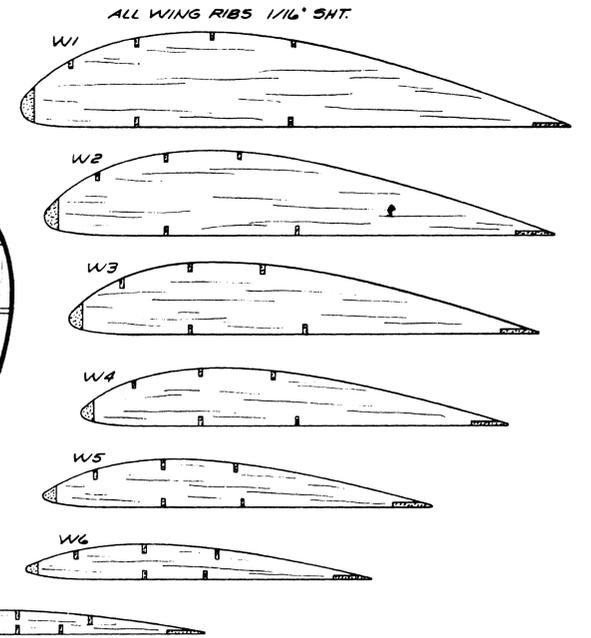
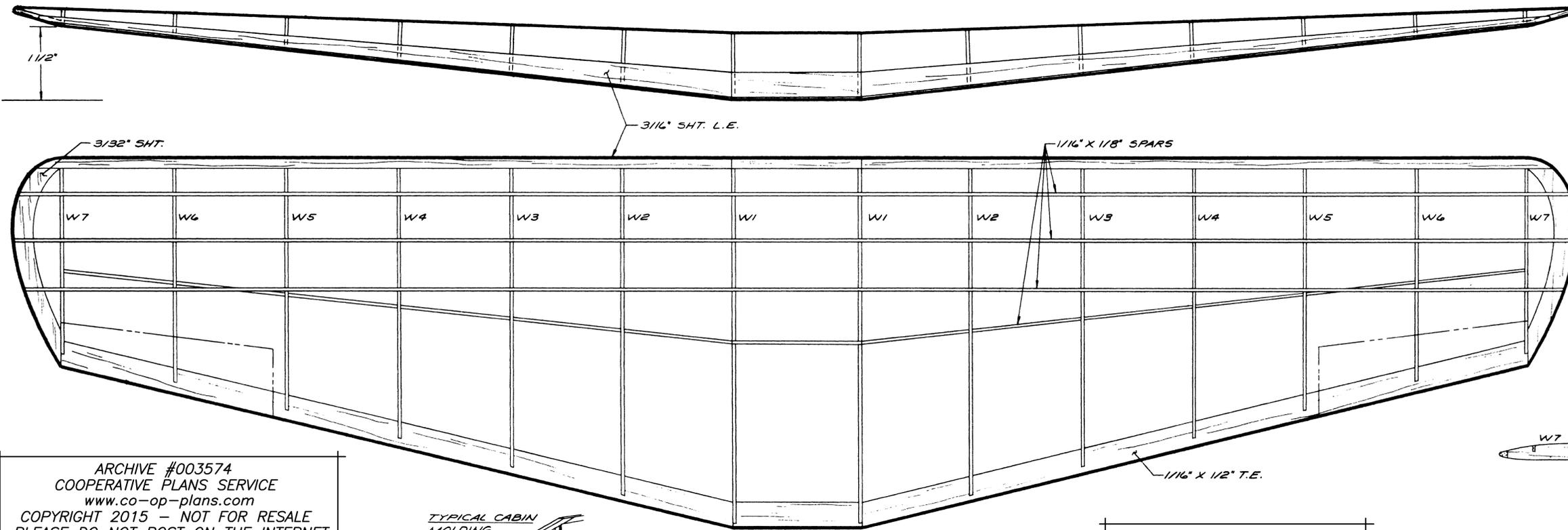
The original model required 1/4 down-thrust and a touch of left thrust, which was inserted before each flight so that the plane wouldn't look like a 1927 SST droop-snoot when not flying. It climbs left, glides right and is competitive for most flying scale contests. Do your initial testing over tall grass, if any is available, as the best of them take a few banks until fully trimmed.

The ship should balance about 40 percent back from the leading edge and some nose weight may be required. A hand glide with the nose pointed down slightly should produce a smooth straight glide and gentle landing before trying a powered flight.

Start powered flights with 100 turns in the motor and work your way up, paying careful attention to flight characteristics. Power stalls should be corrected with down thrust and stalls in the glide should be corrected with nose weight.

Try to avoid warps, as they can change from one flying session to another and make each session a new series of test flights. A well trimmed Lone Eagle, fully wound, should produce flights in ex-

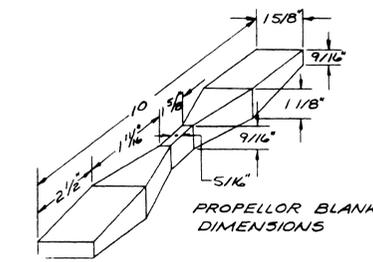
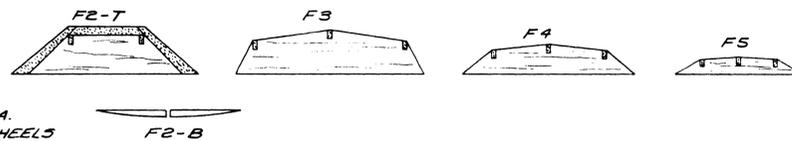
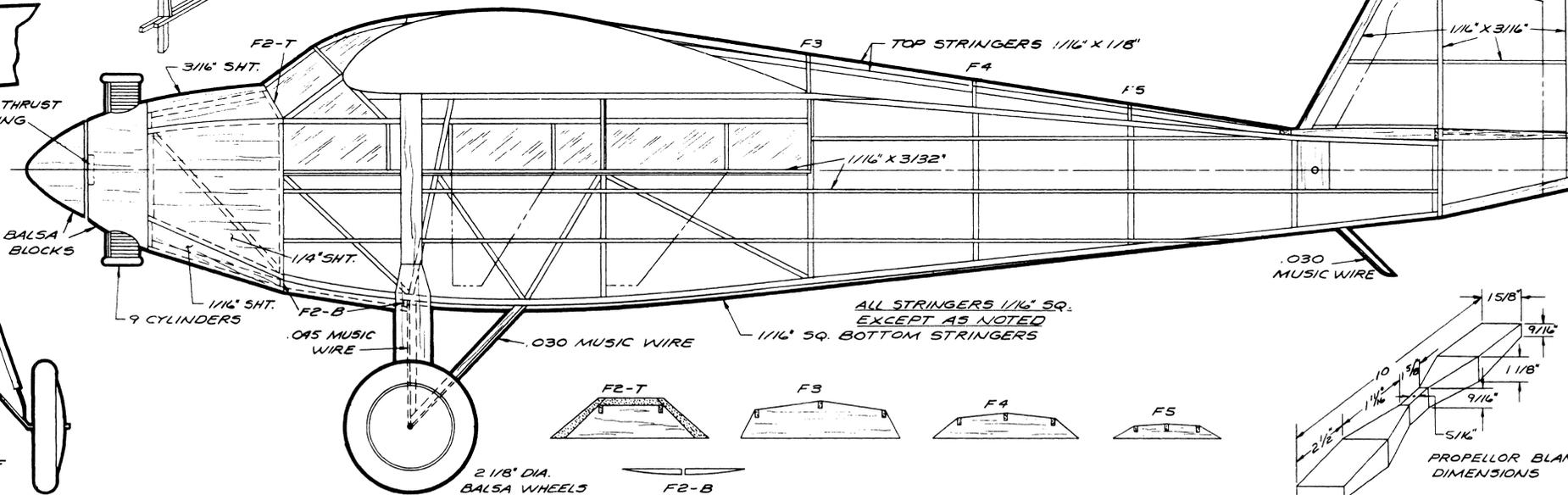
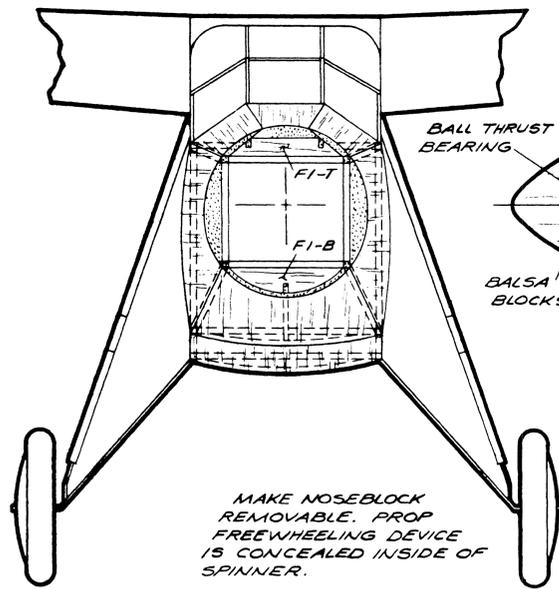
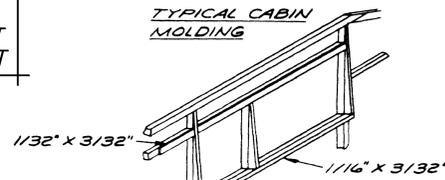




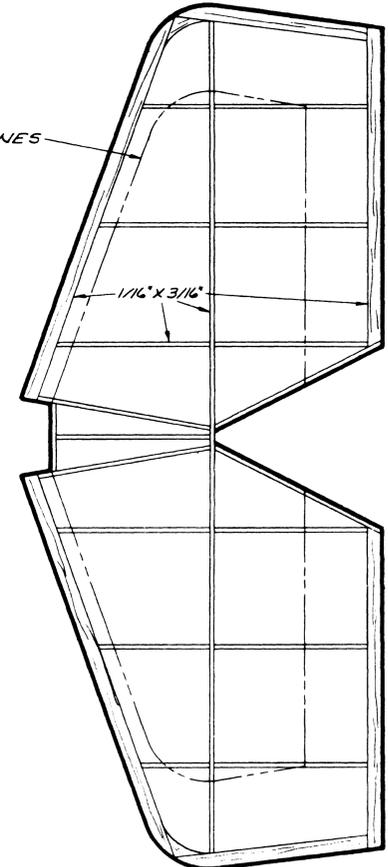
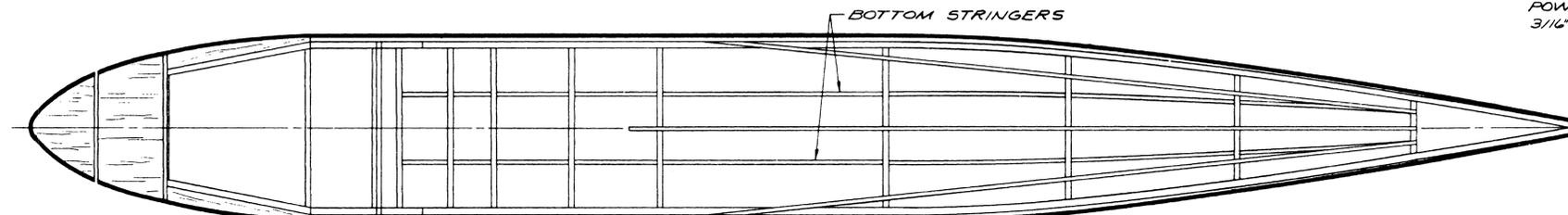
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TYPICAL CABIN
 MOLDING



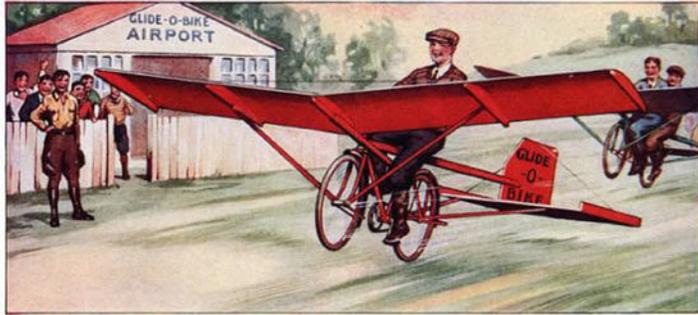
POWER: 12 STRANDS
 3/16\"/>



ORIGINALLY PUBLISHED IN SEP/OCT 1974 ISSUE OF MODEL BUILDER

1928 LONE EAGLE
 BUILT BY RYAN MECHANICS MONOPLANE CO.
 MODEL DESIGNED & DRAWN BY R.N. OSLAN
 TRACED BY PHIL BERNHARDT

Now— only 25¢ will start you **FLYING!**



GLIDE-O-BIKE Gives Every Boy Chance to Learn Flying Principles by Actual Practice

HERE'S a wonderful chance for every boy to get into flying. Here's the chance you've been waiting for. Don't miss it. Read every word of this advertisement—and then get ready to enjoy some real flying thrills. You want to fly, of course. Every red-blooded boy does. Now you can! Just send us 25c and get our easy plans for making a genuine Glide-O-Bike. Any boy can build it in a jiffy. And every boy can enjoy one. You don't need a bike of your own. If you know a fellow who has a bike, send your 25c for these plans right now and when you get them you can go "partners" with the fellow who owns the bike. You can build the Glide-O-Bike together and you can both get a real line on some fancy flying. Look at the picture above. Note how the Glide-O-Bike's front wheel is taking off the ground. She goes gliding along. Fellows, and that's not all. You can bank, ground-loop, stall and side-slip. Absolutely nothing like this for fun and thrills. **Make Money, Too** You can make money with a Glide-O-Bike, too. Other fellows will be glad to pay you 10c to

25c a ride. Operate your own airport. With every set of plans, we send you free instructions for starting and operating a Glide-O-Bike airport like the one in the picture. **What Other Boys Say** Read what other boys say about this wonderful offer. See what great fun you can have! "I sent for the Glide-O-Bike and air terms and received them July 4. Boy, they sure are swell!" J. G. Zion, Illinois. "Your Glide-O-Bike is the dandiest thing I ever owned. It sure gives you all the flying thrills you want!" T. Wendell, Springfield, Mass. "I've already begun to give other fellows rides and make money on my airport. That's besides the fun I have myself. I never spent a quarter better I can tell you."

The Glide-O-Bike is so good I can't tell you how much I like it." Robert Holt, Los Angeles, Calif. "Send me another set of plans and air terms. My pal wants one for himself after seeing mine go." Stanley Carolan, St. Paul, Minn. Here's our special offer to you: Send us 25c in cash, check or money order for these wonderful Glide-O-Bike plans and besides that we'll send you *absolutely free of charge* instructions on how to build and run your own airport and a long list of air terms that you'll want to know. Only 25c. That's the sweetest offer any boy ever had a chance to accept. Grab it now. Send the coupon today. Don't wait!

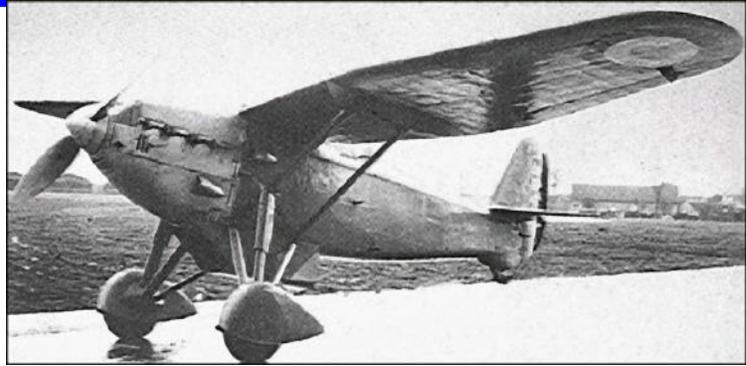


SEND COUPON

Glide-O-Bike Company, Lock Box 266, Dallas, Texas.

Friends! Here's my list. Please rush my Glide-O-Bike plans along with air terms and airport instructions.

Name _____
 Street _____
 Town _____ State _____
 Send cash, money order or check only. No stamps.



1934 Mureaux C1 Pursuit

Interview with Ben Shereshaw By Charlie Reich

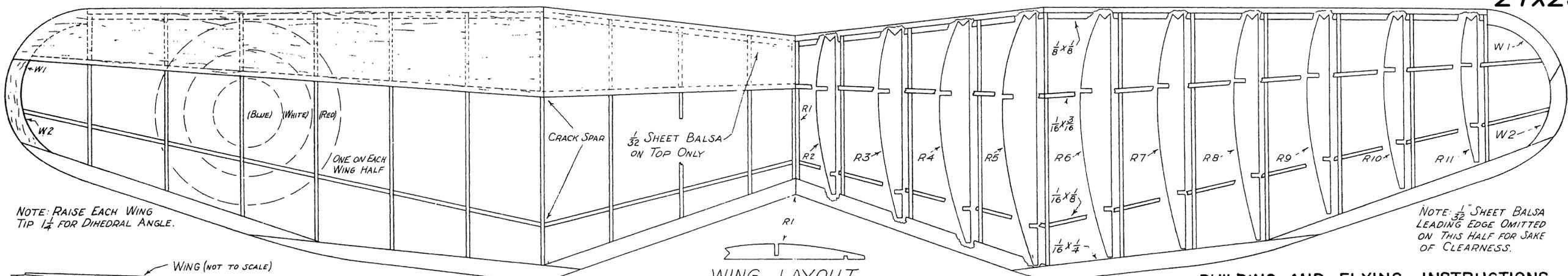
I talked at length with Ben Shereshaw in the year 2000 while interviewing him for his bio that I was preparing for the AMA. During our discussions he advised that he did a lot of winter indoor flying at contests held in school gyms etc. He told me he had drawn a scale 1934 MUREAUZ C1 PURSUIT rubber plan in 1937 and it was one of his favorite models, a fantastic flyer.

This was so much so, in fact, he advised he had won every indoor contest he ever entered this plane in, well over 100 events. He also laughed and advised that the other contestants shuddered and groaned when they saw him come into an event and enter this model.

He sold the plan to Berkeley late in 1937 and the kit was introduced by them in 1938, but Ben was never recognized for it on the plan, so I added his name to the plan on the next page.

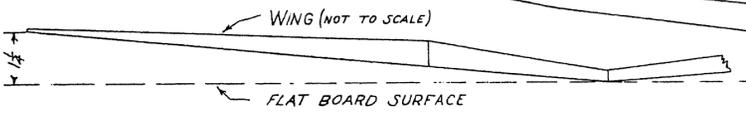
Jim Moseley found this ad for the Glide-O-Bike on the internet How about a scale model of this one?





NOTE: RAISE EACH WING TIP 1/4" FOR DIHEDRAL ANGLE.

NOTE: 1/32" SHEET BALSAM LEADING EDGE OMITTED ON THIS HALF FOR SAKE OF CLEARNESS.



WING LAYOUT
BUILD WING IN TWO HALVES. JOIN CENTER RIBS (R1) TOGETHER TO FORM UNIT. COVER WING BEFORE ASSEMBLY (COLOR IS RED)

BUILDING AND FLYING INSTRUCTIONS

This model is simple in structure and design, and should offer no difficulties in construction, even to the beginner. Before beginning the construction of the airplane, look over the plans and pictures carefully to obtain a general idea of the construction. If any difficulties appear, try to construct the model as far as possible. Most of the construction will become simple as the work progresses. In all cases, take your time, making sure that all parts are accurately cut and aligned.

Select a flat board, table top, or workbench for layout work. It is best to have a model knife, pliers, and sandpaper handy.

THE FUSELAGE
Cover the side view of the fuselage with wax paper. Lay the 3/32" sq. longerons along the bold black lines. It will be necessary to check the lower longeron at B-3. Insert all the necessary cross members. To make the second side exactly the same, build directly over the first side. When the cement has dried, separate the two sides and proceed to put the horizontal cross members in place. Insert the center cross members first and work towards the rear of the fuselage. The nose cross members are cemented in position last.

Cut out the fuselage bulkheads from the printed sheet but do not notch them. It is best to cement the cut out parts in their correct places as you cut them out in order to avoid losing them. The landing gear wire should be formed at this time and cemented to the cross members at B-3 and B-4. Bind to the longerons with light thread.

The rear bulkhead is formed and inserted in a piece of two-ply 1/16" x 3/16" Balsa and firmly cemented to the rear of the fuselage. Attach all stringers. Line up the stringers to form a smooth curve. If necessary, do not follow the printed meshwork exactly. The nose of the fuselage is planked with 1/8" x 1/4" Balsa strips for additional strength. This planking should be fitted as close as possible.

TAIL SURFACES
The tail surfaces (Rudder and stabilizer) are flat and are laid out directly on the drawings. The tail surfaces are covered on both sides.

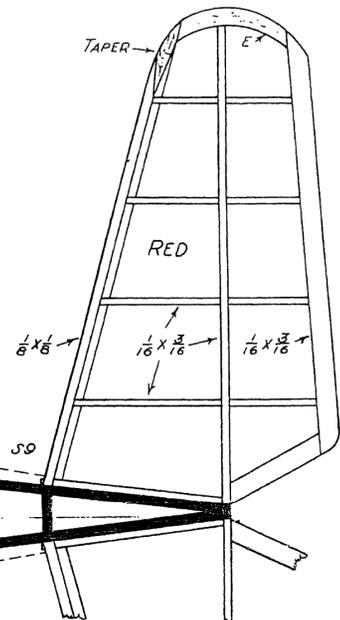
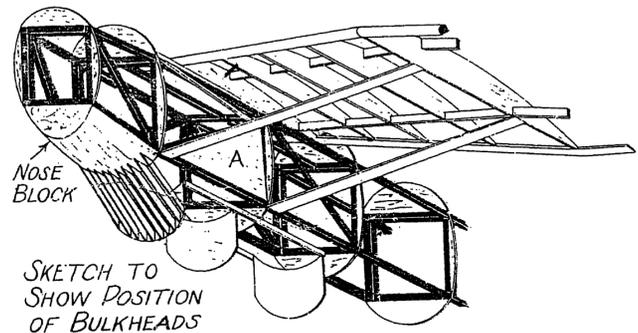
WING
Both halves of the wing are shown on the plan. The wings are built directly on the drawings and are self-explanatory. Build both halves separately and cement together after adding the proper dihedral angle. The wing is assembled to the fuselage as shown on the plans. Sand all the wing struts to a streamline shape. Wing should be covered before the final assembly.

COVERING AND DECORATING
It is best to follow these hints when covering your model:
A. Sand the wood smooth before beginning to attach paper.
B. Always have the grain of the paper running lengthwise on the model. By holding the paper in front of a light, the grain can be easily detected.
C. Apply the tissue to the framework with Clear Dope, a small portion at a time.
D. Cut tissue in small strips when covering curved parts of the fuselage, wing tips, etc.
E. Cover tissue over all wooden parts and dope well. (Paints, Prop Spinner, Struts, etc.)
F. Never cement any of the struts to the tissue. Always cut away the tissue and cement wood to wood.
G. After the entire ship has been assembled, spray or brush lightly with water and allow to dry slowly. Watch the tail surfaces when drying and, if necessary, twist gently to avoid warping.

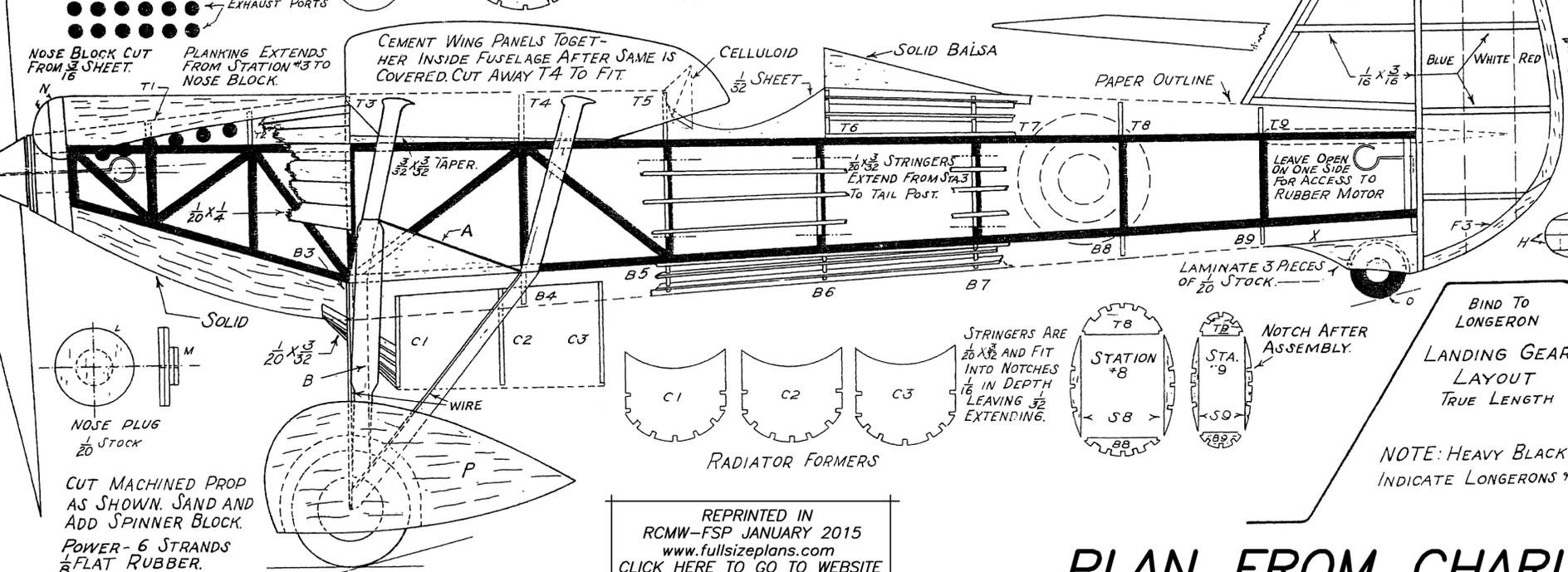
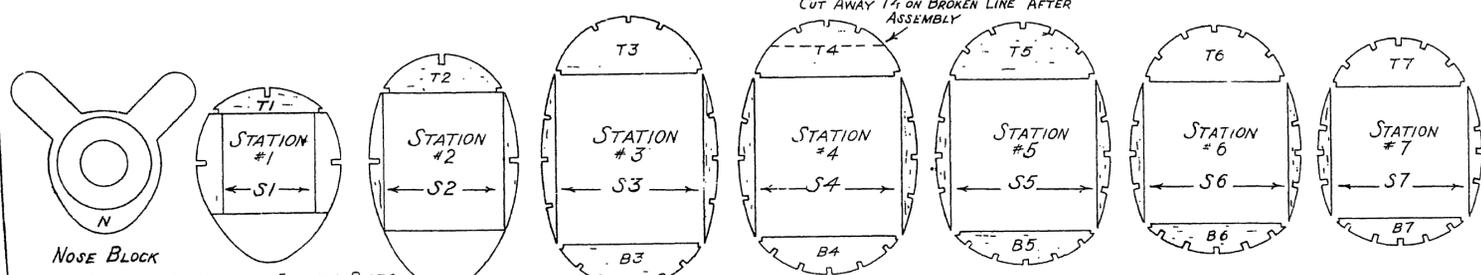
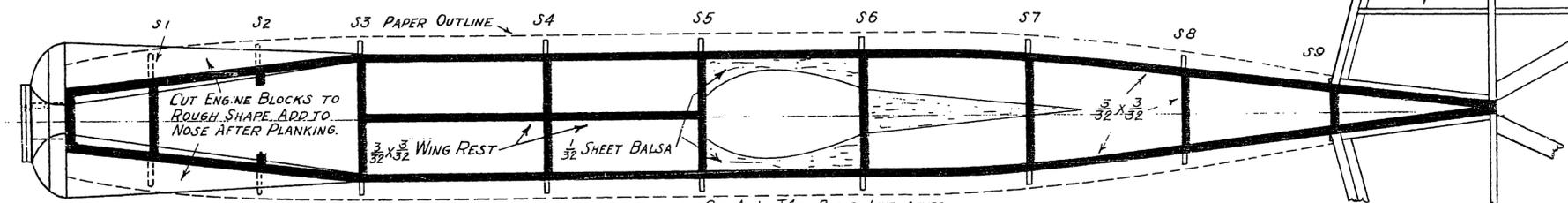
The color scheme is as follows:
Fuselage, Landing Gear, Struts - Blue
Wing and Tail Surfaces - Red
Propeller Blades - Silver.

FLYING
The best results can be obtained by using 6 strands of rubber. If possible, obtain a hand drill for winding the rubber. By stretching and winding slowly, duration can be tripled. The model should balance exactly when finished. Test flights should be made from a take off position until the model is properly adjusted. Never fly it on windy days, or where there are too many obstructions such as trees, buildings, etc. Balancing should be done with B-B shot.

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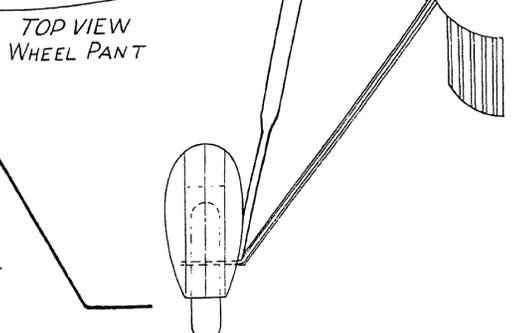
TYPICAL RUDDER CROSS SECTION



MUREAUX C-1 PURSUIT
COPYRIGHT 1939 - REPRODUCTION IN WHOLE OR PART IS FORBIDDEN
BERKELEY MODEL SUPPLIES
BROOKLYN NEW YORK U.S.A.

Kit appeared in 1938 Berkeley Catalog
Designed in 1937 by Ben Shereshaw

BIND TO LONGERON
LANDING GEAR LAYOUT TRUE LENGTH
NOTE: HEAVY BLACK LINES INDICATE LONGERONS & BRACES.



REPRINTED IN RCMW-FSP JANUARY 2015
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SWAYBACK

by CHESTER LANZO

HONEST, fellas, the fuselage on this class "B" gas jobbie is not shaped that way because of, a hard bash. It was designed? that way for a purpose.

The undercambered airfoil in the body helps generate lift in the climb and glide, without adding any drag to speak of. This produces a hot climb and a slow soaring glide. The whole combination of high wing, lifting tail, and lifting body produces a very stable and efficient plane.

Let us get on to the building of the model. The box type of fuselage cross section is extremely simple and makes for a no-crunch type of construction. Begin by placing the two 3/16" square longerons on a full-size drawing of the body. Glue the 3/16" square uprights in place, adding the 3/16" nose sheeting after waiting for the sides to dry.

Repeat the same procedure to make two identical body sides. Remove the sides from the plans and cut them apart so as to have two complete sides. Place the cross braces in the nose section for about six- stations and let dry. Cement the fuselage rear tail post together and then add all the rest of the braces.

Construct the pylon from 1/8" sheeting and 1/16" plywood as shown on the drawing. Before gluing to the body, sand to streamline shape.

All the ignition units are glued solidly in place and no parts are removable. The landing gear is bolted into place on the 1/8" plywood fire wall with small clamps of aluminum.

The tail surfaces are of simple design and easily constructed. To begin the stabilizer cut out 13 ribs to the shape shown on the drawing from 1/16" sheet. From 1/8" hard balsa sheet, cut the trailing edge and tips of the stabilizer. After having formed the leading edge over a steaming tea kettle to the curvature shown on the drawing, pin each component in place over the drawing.

After cutting each rib to its proper length slip into place and glue. After drying, the whole assembly is removed from the plans and the 1/8" square spars are glued into their proper places. Sand all ribs and tips to a streamlined contour, using plenty of elbow grease.

The rudder is of simple construction. Cut out the trailing edge and tip from 1/8" sheet and glue the 1/4" square leading edge to the parts already cut out. Next put in place the 1/8" square spar.



Cut the three streamlined ribs to proper length, notching them to receive the 1/8" square spar. Slip the ribs onto the spar and glue into place. Cut two pieces of 1/16" sheet to the shape shown at the base of the rudder.

Glue these to the trailing edge and to the center spar, placing a piece of 1/16" sheet on each side of the 1/8" square spar to make it conform to the rest of the ribs. Bend the two pieces to meet the leading edge and glue them in place. This completes the rudder except for sanding. After the rudder is completed and covered it may be glued in place on top of the elevator.

The Wing

In making the wing, cut out the tips from 1/4" sheet, then glue them together. The wing plan is then placed on a flat surface and the tips are pinned onto the plans. Pin the 1/4" x 1" tapered trailing edge into place and then the 3/8" square leading edge.



All the ribs are then glued into their proper places. Place the 1/8" square spars into their slots on top of the wing ribs. Remove the wing from the drawings and put in the necessary dihedral angles. After drying, the 1/8" x 5/8" and 1/8" x 1/2" main spars may be glued into place. They have to be tapered to fit at the wing tips.

Next streamline the wing with a vigorous application of sandpaper. Be sure to plank with 1/8" sheet at all dihedral joints so your wing won't collapse in a 9G pullout.

After completely constructing this model you still have a major part of the work ahead of you. This consists of balancing and adjusting the plane to get the most out of it.

Balance the model first at about one half of the wing chord. Shift the heavy parts of the model, such as the coil and batteries, until the model balances on an even keel. Do not glue these parts in place until you have gone through this balancing procedure.

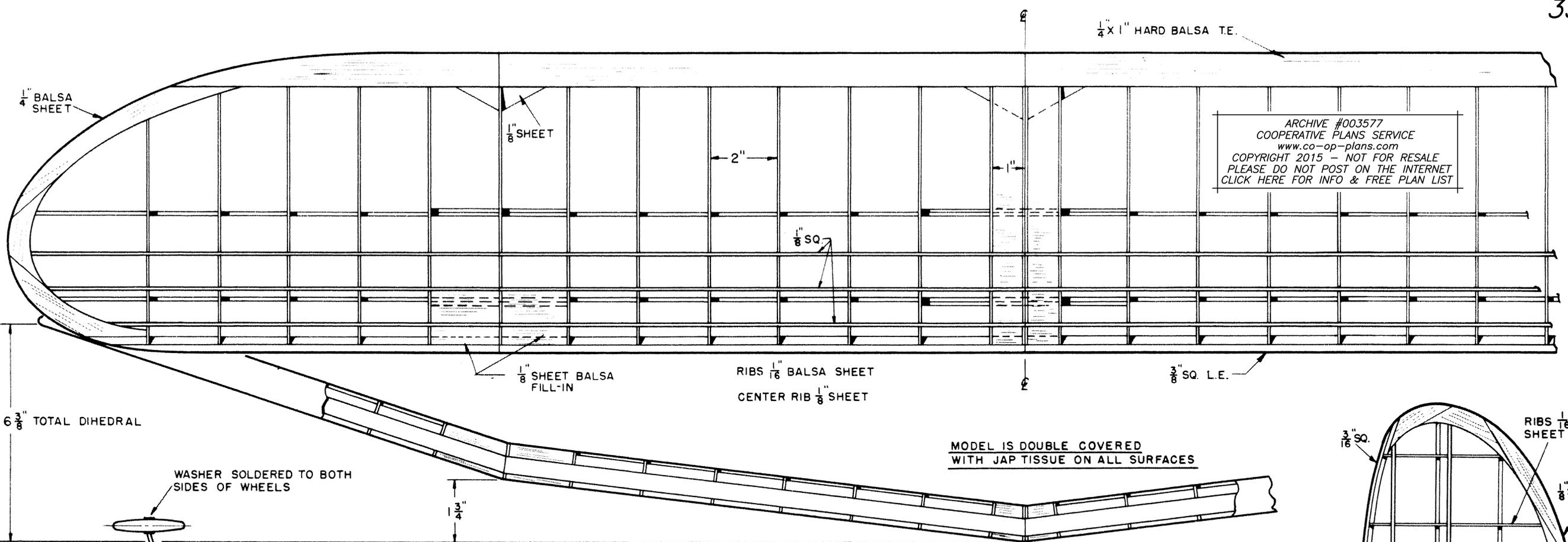
Now that the ship is properly balanced we are in a position to make some test flights.

Select a field with tall grass and pick out a day when there is very little wind. Your first test glides will indicate whether or not you have the proper incidence in the model. If your model dives, put small pieces of wood under the rear of the elevator. Stalls can be cured by placing small pieces of wood under the leading edge of the stab.

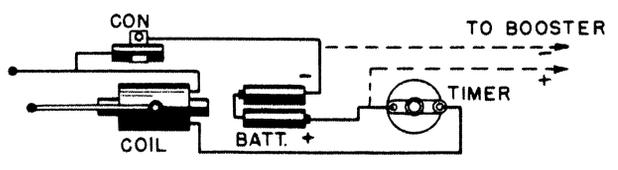
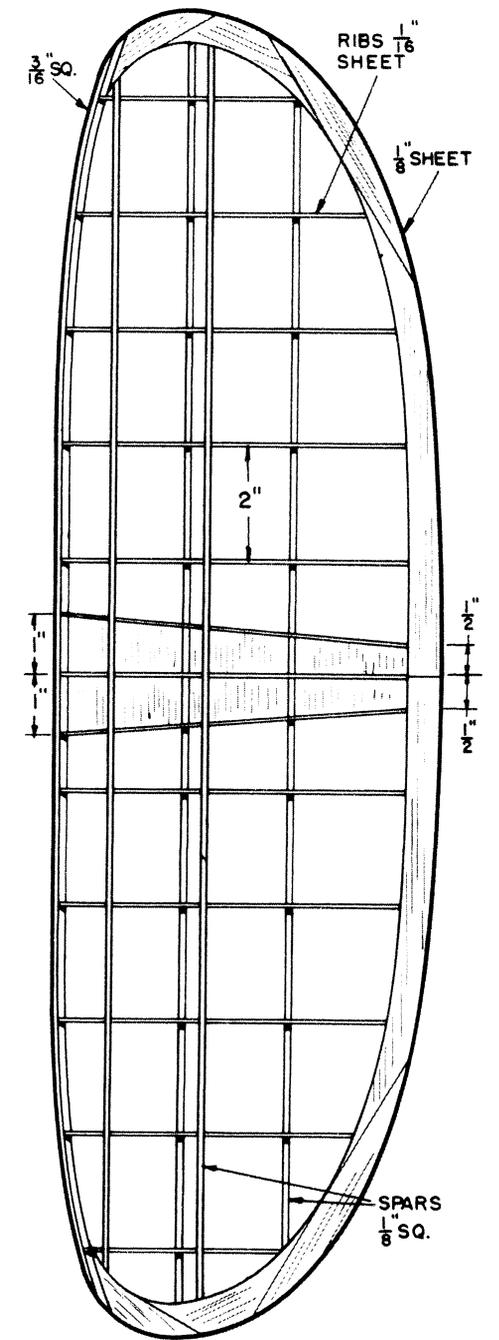
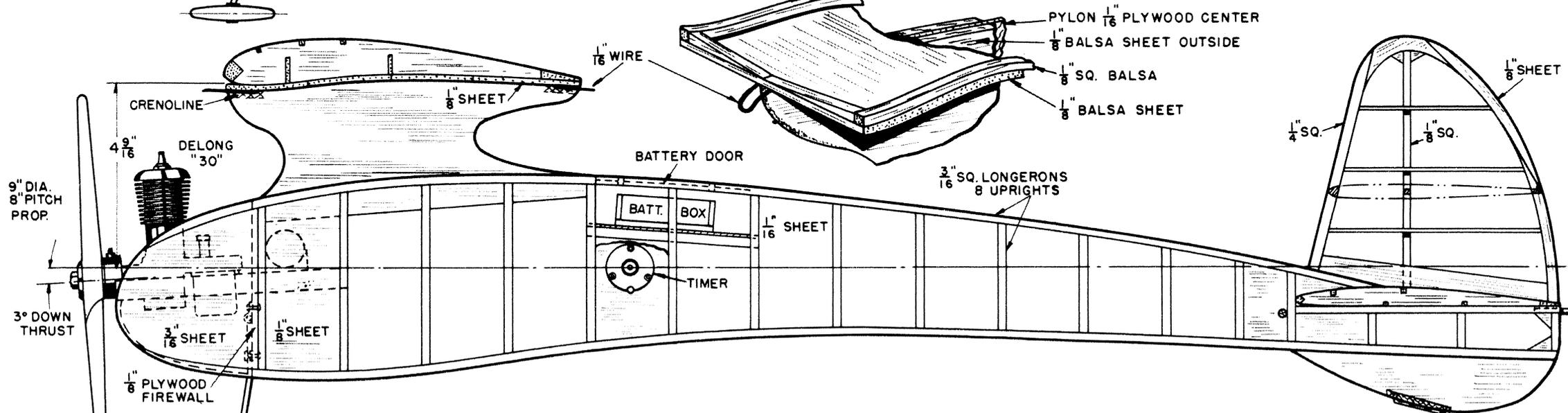
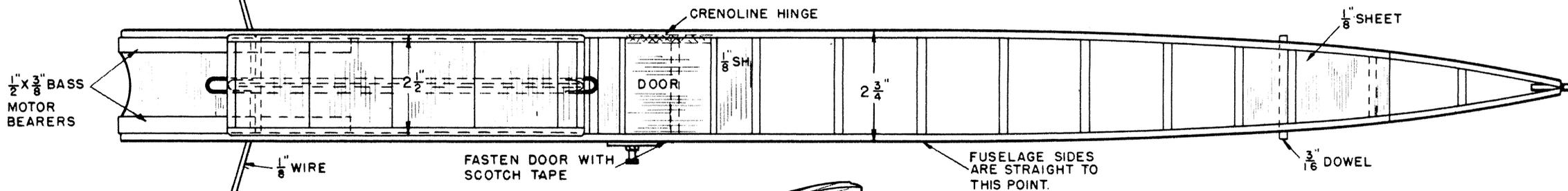
This is the pylon type of model with a high wing. The nosing-up tendency under power has to be offset by the lift of the stabilizer and body and by varying the down thrust angle.

Next a power flight. Keep the motor throttled down and set the timer for a run of five seconds duration. Then hand-launch the model with a steady shove into the wind. Check the wing for alignment. A slight amount of lift in the left wing panel is desirable.

Keep test flying until you get all you can out of it in the way of climb and



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MAKE 3 BRACKETS FROM SHEET ALUMINUM USE FOR ATTACHING LANDING GEAR TO FIRE WALL.

ORIGINALLY PUBLISHED IN
 MAY 1947 AIR TRAILS

SWAYBACK
 BY
 CHESTER LANZO

CONSTRUCTION ARTICLE IN
 RCMW-FSP JANUARY 2015
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PLAN FROM ROLAND FRIESTAD

SUN FLI 4

By JOE BRIDI

Here's one of Joe Bridi's pattern designs reprinted from the July 1969 issue of RC Modeler magazine - Full Size PDF Plan included that can be printed at your local copy shop

THIS LATEST IN A SERIES OF DESIGNS BY ONE OF THE NATION'S TOP COMPETITION FLIERS, IS 1969'S HOTTEST PATTERN SHIP.

As the rules for pattern flying change, so do the designs of our models in conforming to these new rules and maneuvers. We are always searching for the ultimate in design. In so doing, we try various airfoils, tail moments, tank heights, engine thrust, etc.

Sometimes it is necessary to compromise in order to obtain the final design we feel will perform the maneuvers as we would like them performed. The Sun Fli 4 is, I believe, such a model. Easy to construct with a minimum of parts, it is a good performer in any class.

The Sun Fli 4 is similar to its predecessor, the Sun Fli 3, previously published in RCM, but a few changes have been made. These include a slightly shorter wing, shorter tail moment and a larger rudder area, to name a few. We used 3/16" full-length balsa fuselage sides with no doublers. 1/2" balsa top blocks were used, as well as a solid vertical fin to decrease construction time.

By taking some of these short cuts we were able to cut down our construction time and be out at the field flying instead of building something so complex that it required weeks to construct.

The wing spars were grooved at each rib, illustrated on the plans by the dotted lines, at each rib station. I use a radial saw, and if you have one I would suggest the same procedure, making it much easier to assemble the wing. The fuselage sides were also cut in this fashion, but the bulkheads can be cut smaller if they are not indexed into the fuselage sides.

The Sun Fli 4 was designed for the A.M.A. and F.A.I. pattern maneuvers. For a full pattern ship, it is quite easy to handle. As we go through the list of parts, we will suggest the method we feel best for assembly.

STABILIZER

Edge glue the sheeting together. Lay one sheet on the building board, glue the trailing edge spar, tips, leading edge spars and center fillers in place on the sheet.

The ribs are all one length. Glue them in place starting at the trailing edge outer corner. The two center ribs will have to be trimmed to length. Glue the top sheet in place and sand the stab to shape.

Glue the pine control horn insert in one elevator and sand both elevators to shape. Now glue the tie bar in the notch in the elevators with the round side towards the stab. Sand the tie bar round between the elevators.

FIN AND RUDDER

Glue the pine stiffener on the bottom of the rudder and sand to the shape indicated on the plan. The fin should be inserted into the slot in the top block when the fuselage is assembled. Add the dorsal fin when the fin is glued into place.



WING

The RCM wing jig is highly recommended when assembling the wing. (Refer to the August 1967 issue of R/C Modeler Magazine). Using 1/4 inch steel rods in the holes in the ribs, this jig can give you a true wing in much less time and work than usual construction methods.

To build the wing on a building board (FLAT BOARD PLEASE) other than the RCM jig, pin blocks B, C and D to positions shown on plan. Spar at A touches board and no block is needed. (See plan for block sizes.)

Pin the spar with rib index notches up at A, B and C positions. Glue the ribs to the spar with the landing gear notch in ribs No. 2 and No. 3 DOWN. Now glue the top spar into position. Glue the notched trailing edge to the ribs and pin to blocks D. Glue the leading edge to the ribs with equal spacing on each side. Allow the glue to dry before proceeding.

Glue the front and rear sheeting in place, as well as all the cap strips. When all glue is thoroughly dry, turn the wing over and glue on the front and rear sheeting.

Glue the plywood landing gear doublers to the ribs and install the landing gear parts as shown on the plan.

Now glue the center sheeting in place on both sides of the wing.

To install the wing tip blocks, cut off overhang of sheeting, spars, etc., flush with the tip rib, and sand flat with large sanding block. If you wish to hollow the tip block glue at two small spots and sand to the shape shown on the plan. Now break loose and hollow inside, then glue permanently into position.

To build the other wing panel, repeat this process being sure to keep the landing gear notches up so you will have a right and left wing panel.

JOINING WING PANELS

Trim the overhang flush with the root rib. Refer to the sketches on the plan and make a sanding block as shown. Place the TOP of the wing DOWN on a flat building board and block and pin securely so the centerline of the rib is parallel with the building board. With your sanding block, sand square across the wing until the rib is 90 degrees to the building board.

When both panels are sanded check for proper fit. The top of the wing should be flat at the spar. The trailing edge will have dihedral and should be straight the entire length of the wing with no sweepback. Refer to the note on the plans for joining instructions.

When the wing is joined, glue the plywood wing bolt plate in place with 3/16 inch overhang at the trailing edge.

FUSELAGE

The fuselage sides are indexed to receive bulkheads No. 2 and No. 3. Bulkhead No. 2 is also indexed to receive the motor mounts. Glue bulkheads No. 2 and 3 to the fuselage sides, keeping the top of bulkheads even with the top of the fuselage sides.

Glue the motor mounts and bulkhead No. 1 in place (Epoxy recommended) using small C type clamps to pull the sides into place. Keep bulkhead No. 1 even with the fuselage top since this determines the proper downthrust.

Glue all bulkhead doublers and plywood wing dowel plates in place, being sure the narrow edge from holes is toward the bottom. Glue the plywood wing nut plates into position on the fuselage sides.

Drill the wing dowel holes through bulkhead No. 2 using the holes in the plywood plate as a guide. Place the wing into position making sure the fuselage is square and drill 1/4 inch holes through the wing leading edge by inserting the drill through holes from the tank compartment side.

Remove the wing and glue the wing dowels in place. Drill holes through the wing at the rear wing plate on a 90 degree angle to the wing plate. Mount the blind nuts in the blocks. Insert bolts through the wing, and screw the blocks on until the bolts extend through about 3/8 inch.

Put the wing in place on the fuselage and mark the block position on the ply plates from the top of the fuselage. Remove the wing and glue the blocks in position.

Glue on the top block, making sure the front of the top block and the front of bulkhead No. 2 are flush and the fuselage is square.

Glue 1/16 inch balsa planking on rear bottom of fuselage. Glue the bottom doubler in front of bulkhead No. 3. Place the 1/16 inch plywood tank compartment bottom in position and mark the sides. Remove and cut to shape, then glue in place and allow to dry.

Cut triangular glue blocks from stock and epoxy in place as shown on the plans. A light coat of epoxy is recommended in the entire tank compartment.

Glue on the hatch hold-down pins which extend 1/4 inch past the hatch. When dry, place the hatch in position and mark the bottom at the front of bulkhead No. 1. Remove, and glue the plywood hold down forward of this Mark.

Glue the wing fillets together at the beveled joint, then sand to shape and glue to the fuselage sides. Sand the entire fuselage, then glue the stabilizer and the fin in place.

PREFLIGHT

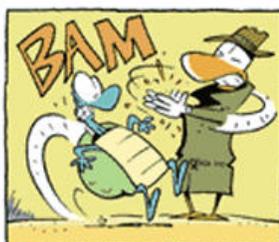
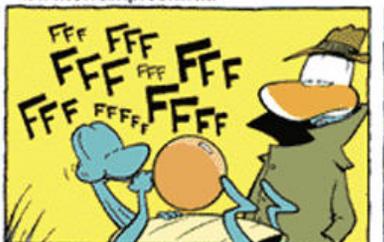
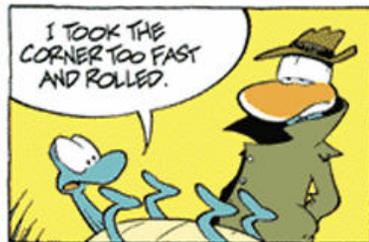
Check all controls for proper direction as well as binding. Check the C.G. for proper position. The C.G. shown on the plan is approximate and you can move the power pack, etc., to suit the flight characteristics that you desire.

We have tried, in the Sun Fli 4 to bring you the very latest techniques in model building, easy index construction, and a pleasure to fly when it is completed. **HAPPY FLYING!**



SWAMP

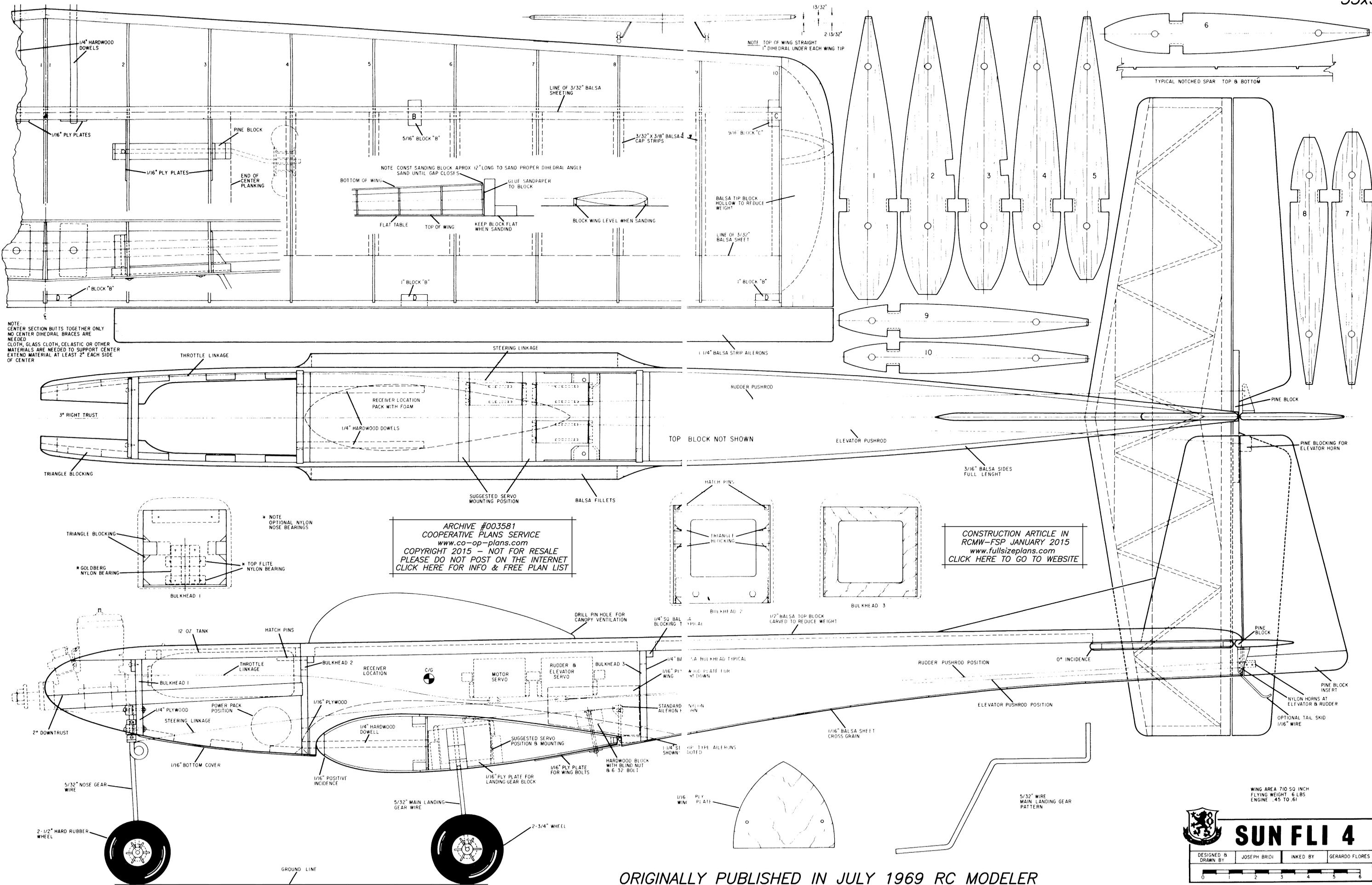
by Gary Clark



Tune in next issue for an article by Beppe Fascione, the historian for the Vintage RC Society (VRCS) with some history and memories about the SUN FLI 4 model and data about engines of the day suitable for this class of RC Pattern ships -

If you would like to know more about the Vintage RC Society just click [HERE](#) to go to their website -

Click on "EVENTS" on their website for a listing of a half-dozen contests and fly-ins coming up in 2015 -



NOTE: CENTER SECTION BUTTS TOGETHER ONLY NO CENTER DIHEDRAL BRACES ARE NEEDED CLOTH, GLASS CLOTH, CELASTIC OR OTHER MATERIALS ARE NEEDED TO SUPPORT CENTER EXTEND MATERIAL AT LEAST 2" EACH SIDE OF CENTER

NOTE: CONST SANDING BLOCK APPROX 12" LONG TO SAND PROPER DIHEDRAL ANGLE SAND UNTIL GAP CLOSES

NOTE: TOP OF WING STRAIGHT 1" DIHEDRAL UNDER EACH WING TIP

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CONSTRUCTION ARTICLE IN
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WING AREA 710 SQ INCH
 FLYING WEIGHT 6 LBS
 ENGINE .45 TO .61

SUN FLY 4

DESIGNED & DRAWN BY JOSEPH BRIDI INKED BY GERARDO FLORES

0 1 2 3 4 5 6

ORIGINALLY PUBLISHED IN JULY 1969 RC MODELER

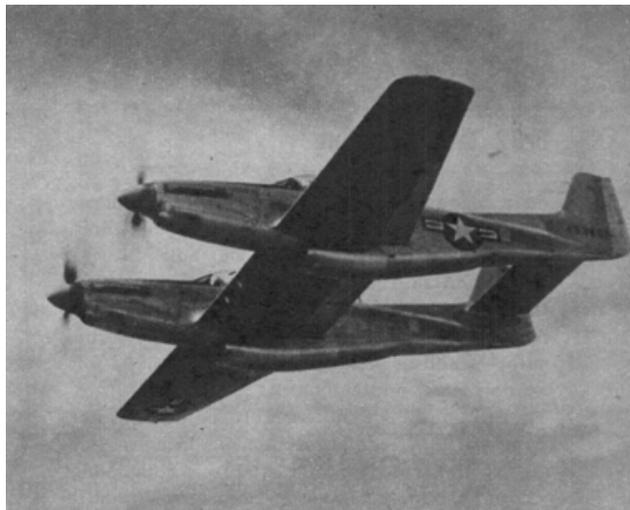
TWIN MUSTANG F-82

by S. Calhoun Smith

Cal Smith was an artist and model builder whose cover illustrations and model designs appeared in *Air Trails* and other magazines for many years. This TWIN MUSTANG scale U-Control model was published in the 1951 *Air Trails Model Annual*.

Air war demands for a long range fighter dictated the design of the North American F-82. Serving in the interim Air Force as an effective all-weather fighter, the Twin Mustang has more recently shown its versatility as a fighter-bomber in the Korean war.

Long-range escort work was the primary task of the F-82 since it has a maximum range of about 3,000 miles. The ship holds the distinction of the longest non-stop flight on record for its type. Early in 1947 an F-82 was fitted with auxiliary tanks totaling 1,540 gallons. This enabled the now



famous "Betty Jo" to fly 5,000 miles non-stop from Hawaii to New York. The flight took 14 hours and 33 minutes.

Various combinations of armament and auxiliary fuel tanks have been fitted on the F-82 making possible its employment as an all-weather fighter, fighter-bomber and escort fighter. Six .50 cal. guns are carried in the center section as standard armament. An eight-gun pod may be at-

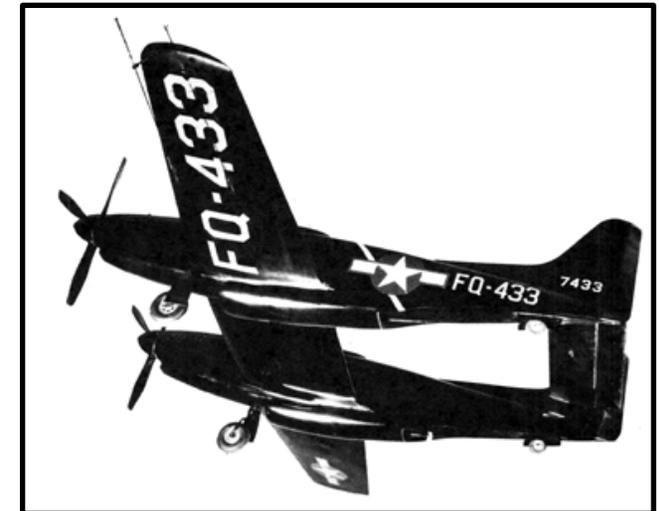
tached under the center section with rocket clusters and bombs carried under outer wing panels.

Another combination can utilize rocket clusters alone totaling 25 5-inch HVAR's, making it a formidable ground attack weapon. This combination can be varied with 1,000-lb. bombs in place of rocket clusters.

The all-weather fighter version utilizes a large radome pod hung under the center section with standard gun installation. Its ceiling is 45,000 ft., span 51 ft. 3 in., length 38 ft. 3 in. The twin fuselages are almost identical except for the cockpits.

Power was two glow-plugged O&R 23's swinging 9/6 Top Flite props (the 8-1/2 inch props on the cutaway is for exhibition scale).

O&R 29's or K&B 29's or 32's can be used with minor modifications on the nose section. Fuel cut-offs can be rigged similar to type used in team racing, but a good positive action is a Must.



The original ship had a slightly larger tank for the left engine and the right engine was started first to insure its stopping first. Excellent control resulted with only the left engine running. This method can be used, or two helpers can fill both tanks after both engines are running to get proper fuel quantity.

The long nose moment arm makes for fairly nose-heavy trim if larger engines are installed. So it may be necessary to add weight to the tail. Balance as shown.

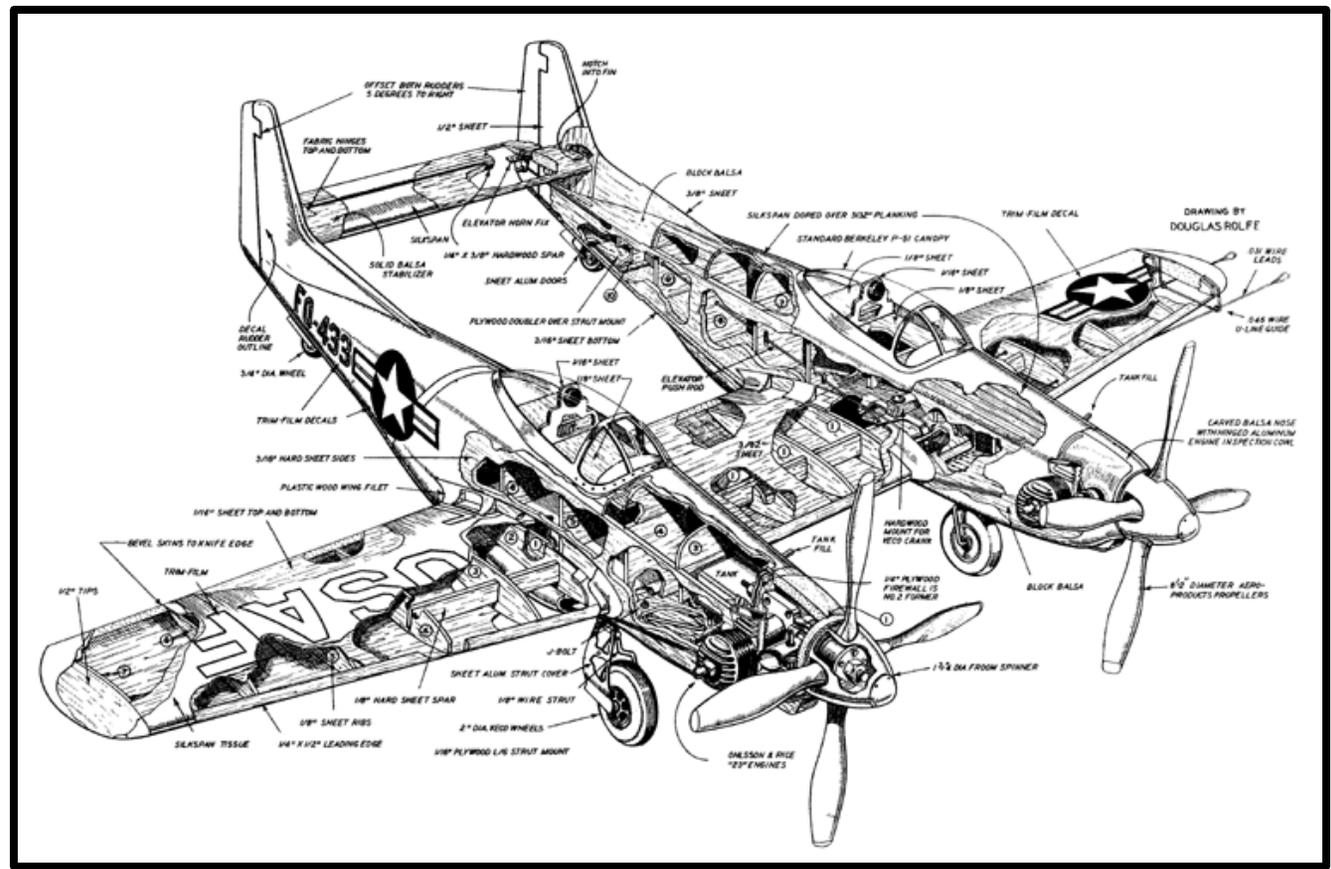
Construction starts with the wing. Note that the center section skin is 3/32" sheet and the outer wing panels use 1/16" sheet covering. Use 6" wide sheets if available; if not, build up to necessary widths from 3" wide sheets.

Cut out the required number of ribs and the 1/8" sheet hard spar. Punch holes for line leads in ribs for the left outer panel. Begin by building the center section. Slide the ribs into place on the spar—do not cement now.

Cement the ribs to the lower skin, one at a time, aligning carefully. Pin through skin into ribs. Cement rib-spar joint last.

Check leading edges of ribs and skin, smooth with sandpaper, then cement 1/4" x 1/2" leading edge in place. Bevel trailing edge of the lower skin when the assembly is thoroughly dry.

Prepare the upper skin by beveling trailing and leading edges so that good fit is made. Check before cementing permanently in place. When dry, complete wing by rounding off leading edge and sanding the whole structure.



The outer panels are built in a similar manner. Prepare lower wing skin and cement ribs in place, starting with the tip rib and working toward the inboard end.

Omit rib No. 2 until structure is joined to the center section. Add leading edge next. Do not add top skin yet. Prepare to join outer panel to center section rib and slide outer panel down tight so that snug joint results.

Slide rib No. 2 onto spar stub. Slide outer panel ribs onto spar stub and work almost into position. Cement rib No. 2 to skin and center section rib and slide outer panel down tight. Check alignment by sighting spanwise and then cement spar stub to ribs. Use plenty of glue here.

If you have built left outer wing panel first, now run line leads through. Cut holes in center section skin at fuselage center line so that line leads can join bellcrank ends when the wing is joined to the fuselage. Now complete this outer panel by adding top skin. Round off leading edge, add tip block.

Repeat the process for building and assembly of other outer wing panel to center section. Add wire line guide to left wing tip after sanding is completed.

The horizontal tail can be built now so that it will be ready for assembly when the fuselages are completed. The plans are self-explanatory.



simply cut to outline shown and carve airfoil section. Add spar hinges and horn on the left underside.

The fuselages are tackled next. The two can be built together; while one dries, the other one can be worked on, changing off as the construction progresses.

Begin by cutting out the sheet sides, formers and hardwood plywood firewalls. The sides can be placed upside down directly over the plan top view.

Let the front section overhang the workboard edge a bit so that the firewall can be installed easily. Glue the firewall and triangular gussets in place with hard glue (Weldwood). Add formers starting from the front and work toward the rear.

Jig up the sides so that they are square, check alignment as work progresses. The rear sheet bottom can be added now. Install the tailwheel wire and mount as this is being done.

When this assembly is dry it can be removed from the workboard to permit the top structure being added. The air scoop and landing gear

are added later after the wing is joined to the fuselage.

Install the bellcrank and the pushrod in the left fuselage next. Punch holes in the formers to allow passage of the pushrod. The pushrod passes through the fuselage side at former 10 to join the elevator horn outside the tail structure. Length can be determined when the tail is joined to fuselage during final assembly. Simply make sure that the pushrod and bellcrank work freely inside the fuselage.



Top structure can be added. Cement top rounded portion of formers into place and add 3/32" x 1/4" planking strips. The dorsal fin, fin and rudder are carved to shape and cemented in place. Offset rudders about 5 degrees to the right.

Note block balsa extending from former aft along the dorsal fin. The fuselage bulge along here flairs gently into the fin, becoming flat at about the center of the fin. Use Plastic Wood or some wood filler to get a smooth fillet job here.

No attempt was made to duplicate the interior. A 1/4" sheet platform was added level with

the lower edge of the canopy, extending completely across the fuselage top.

The nose section is formed from block balsa. It should be tack-glued in place and the exterior carved to shape. Remove and hollow to about 1/4" thickness, notch for the engine cylinder.

The firewall can be drilled for radial engine mounting and engine can be temporarily installed to check fit with cowling. Use O&R 60 crankcase bolts cut down to 1-3/4" or 1-1/4" long to allow room for nuts on the rear of the firewall.

Use standard nuts topped with Elastic Stop Nuts on each mounting bolt. This will prevent loosening from vibration. Fuel tank can be installed now. Be sure fuel line has no kinks between tank and carburetor; drill firewall as necessary.

When engine installation is checked and cowling fitted, the cowling blocks can be glued permanently in place. Use hard glue such as Weldwood.



Some builders may wish to make engine installation permanent at this time. If so, simply cover exhaust and carburetor openings with Scotch Tape to prevent dust and dirt from getting into the engine, covering fuel tank vents as well.

If desired the top cowling may be made removable for overhaul and cleaning later. Make this top from block extending from the front back to former 3 along the top edge of the fuselage side. Use your favorite method of cowl hold-down.

The original model had engines installed with heads facing each other, so remember to make provision for this when drilling firewalls and carving cowlings unless you follow the set-up shown in the cutaway.

While the fuselages are still unattached, so to speak, it is desirable to complete sanding and to apply part of the filling and priming. The original model had two coats of clear dope, two coats of filler and a layer of lightweight paper applied before final finish was put on. This also can be applied to the wing and horizontal tail at this time.

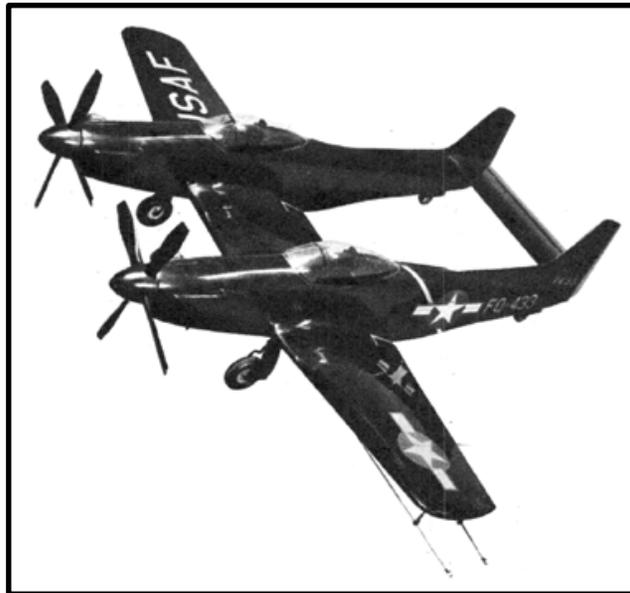
Final assembly can be undertaken next. Naturally a snug fit at fuselage-wing junction is important. Check fit of left fuselage first. Connect line leads from wing to bellcrank. Cut top wing skin as needed to allow bellcrank to swing freely when wing and fuselage are together.

The inside surface of the fin is routed a bit to receive the end of the stabilizer. Pin the stab in place and check the length of the pushrod with the elevator in neutral. Make bend for this rear connection with bellcrank in neutral. Check the whole system for proper freedom. When everything is O.K. in the control department, assembly is started.

Clamp the wing down on the work-board, block up center section leading and trailing edges so that wing is in level attitude. Cement the left fuselage in place, block tail end up.

Check alignment with wing center section by holding a triangle or square against fuselage side and sighting over other edge along center section leading edge.

The right fuselage and the horizontal tail are added. Block fuselage rear up to the same height as the left fuselage. Check heights of tails, ends of stab and prop shafts from the work board surface.



Sight spanwise over both fuselages; check for right angle between fuselage and center section. Be sure everything is lined up properly so that there is no difference in thrust lines or stabilizer incidence.

When the whole assembly is thoroughly dry, it can be taken up from the workboard and work on the fuselage bottoms completed.

The landing gear legs should be bent to shape and attached to the plywood mounts. Make one right and one left. The gear legs extend downward at the outboard sides of both fuselages. The plywood mount is cemented directly to the bottom edges of the sheet sides. Notch the leading edge of the wing to make a snug fit.

The bottom blocks can be added and carved. Note carefully the cross-sections at 4, 5 and 6. The air scoop has a rather tricky shape above the front opening.

Add the block over the bottom wing surface, leave uncarved aft of former 5. Carve the block for the scoop, from 5 to 7, fit temporarily and carve first block to join the scoop block. Then remove scoop block and hollow for lightness.

Scoop block aft of former 7 can now be added, carved and hollowed. Note inset area at rear, which simulates the exhaust door.

With all bottom carving and sanding completed, a Plastic Wood fillet can be built up around wing fuselage junction. This has a radius of about 1/4" on the outboard fuselage side and about 1/8" on the inboard side.

Fill and prime fuselage bottom area as already described for other surfaces. Dummy pilot and co-pilot can be placed in the cockpits now and bubbles added. You may prefer to do this after final finish is applied.

The original model had two coats of automobile primer applied and rubbed down with wet garnet paper. Black dope was sprayed on and rubbed down between coats. About 1 1/4 pints, were used.

Seal Sure fuel proofer was applied after all trim and details were added. Don't forget the inside area around engines.

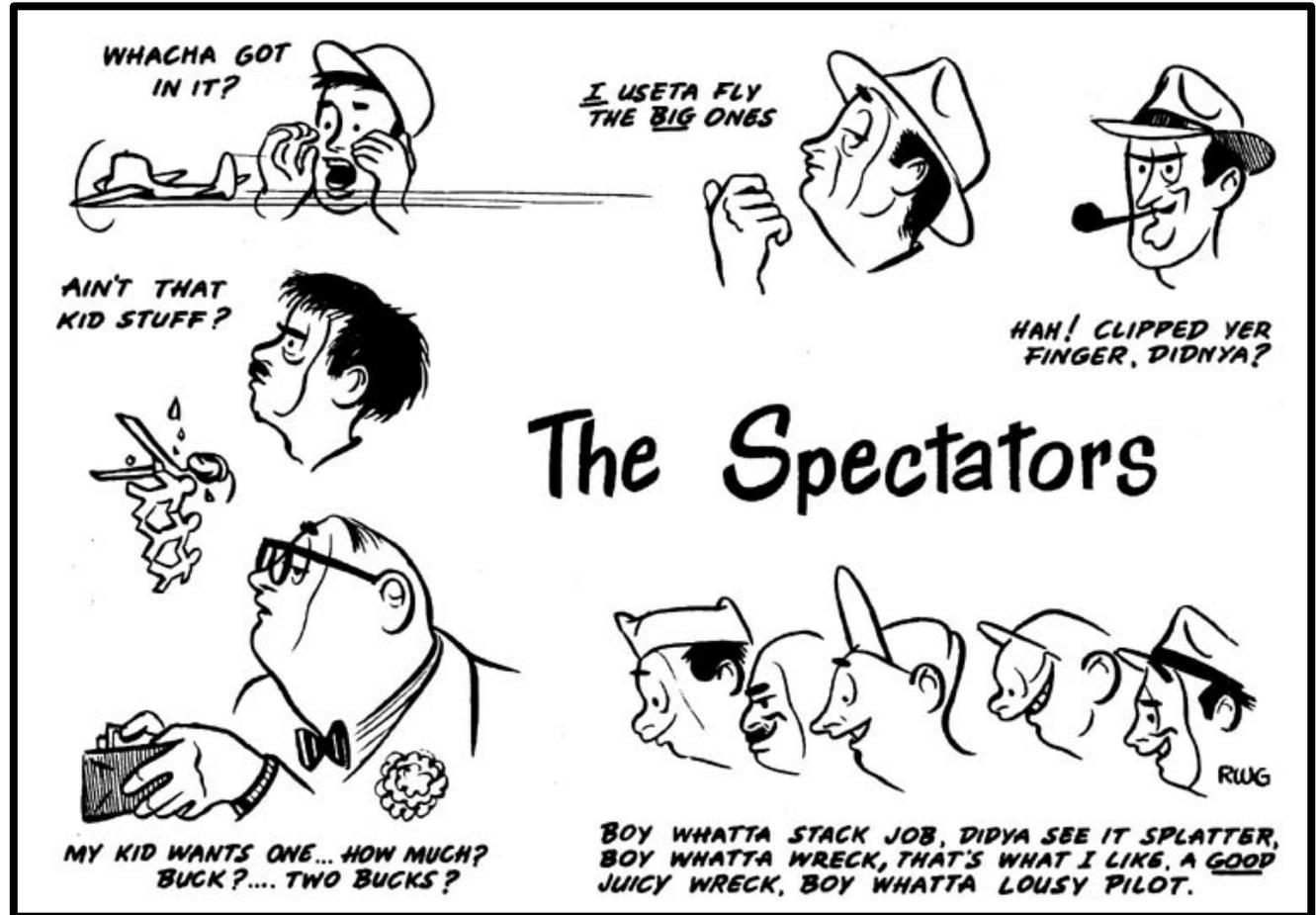
Details such as exhaust stacks and strut cover doors can be added now. Trim-Film was employed for all insignia and numerals. The designations are typical of aircraft used by the 52nd Fighter Wing. The radome was omitted to save weight and because no accurate details were available as to its size. The outlines shown have been guesstimated from photographs.

If installed, it is recommended that the radome be carved from soft balsa with a plywood keel extending up into the center section. The radome would make a good skid to prevent nose-over landings on rough ground, if you don't mind a little patching and repainting.

Bomb racks and rocket cluster rack details have been included. Information on these items is scanty also, and though drawing accuracy is not guaranteed, it is close, so you can be fairly accurate.

Some fighter-bomber versions of the Twin Mustang have natural metal finish with dark green anti-glare panel on nose and black lettering with standard insignia. These aircraft do not carry the radome, but are equipped with bombs and rocket clusters as described in the first part of the article.

Scale four-bladed Aeroproducts propellers are all black with yellow tips on both fighter bomber and all-weather versions.



Cartoon is from the 1951 Air Trails Annual

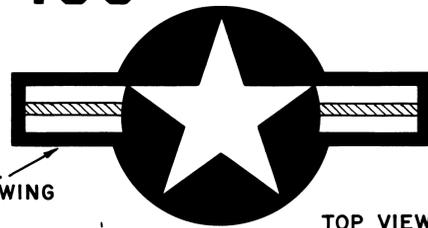
FQ-433

FUSELAGE SIDE NUMERALS - RED

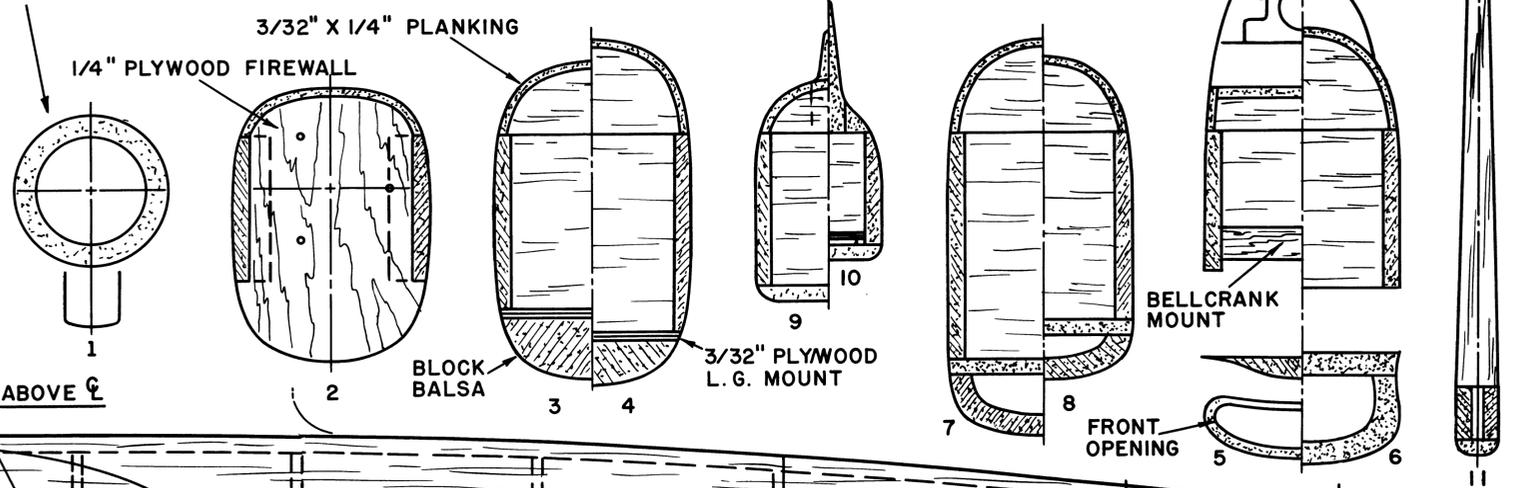
U. S. AIR FORCE

7433

FIN NUMERALS - RED



FUSELAGE CROSS SECTIONS
ALL FORMERS 1/8" SHEET EXCEPT WHERE NOTED

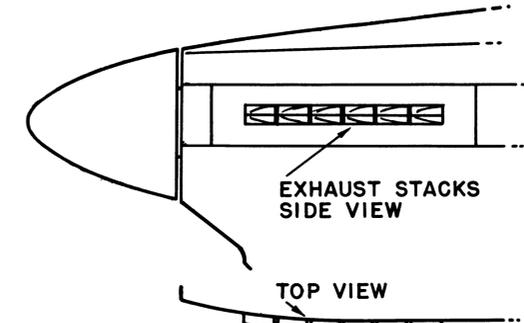


PILOT ARMOR 1/16" SHEET

BELLCRANK MOUNT

FRONT OPENING

OFFSET RUDDER 5° TO RIGHT



EXHAUST STACKS
SIDE VIEW

TOP VIEW

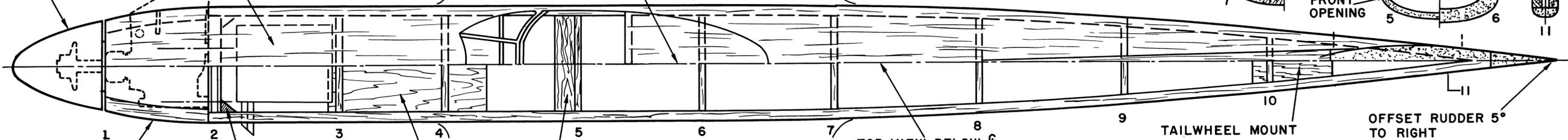
O & R 23 OR 29
ENGINE

1-3/4" DIA.
SPINNER

U. S. INSIGNIA.
FUSELAGE & WING

FUEL TANK

TOP VIEW ABOVE CL



BLOCK Balsa NOSE

"EYE" OR "J" BOLT

1/4" Δ HARDWOOD
GUSSET

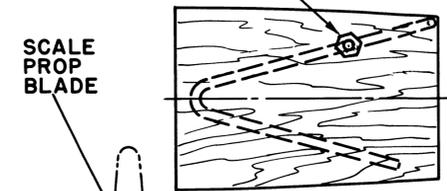
L. G. MOUNT

3/8" X 1/2" HARDWOOD BELLCRANK
MOUNT - LEFT FUSELAGE ONLY

TOP VIEW BELOW CL
CUT AWAY AT THRUST LINE

TAILWHEEL MOUNT

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SCALE
PROP
BLADE

FRONT VIEW
RIGHT LANDING
GEAR - 1/8" DIA.
STEEL WIRE
MAKE 1 RIGHT,
1 LEFT

TOP VIEW L. G. MOUNT
3/32" PLYWOOD

BLOCK Balsa COWL - SECTION OVER
ENGINE AND TANK CAN BE MADE
REMOVABLE

1/8" SHEET

SCALE PILOT OUTLINE

BERKELEY P-51
BUBBLE CANOPY

3/32" X 1/4" PLANKING

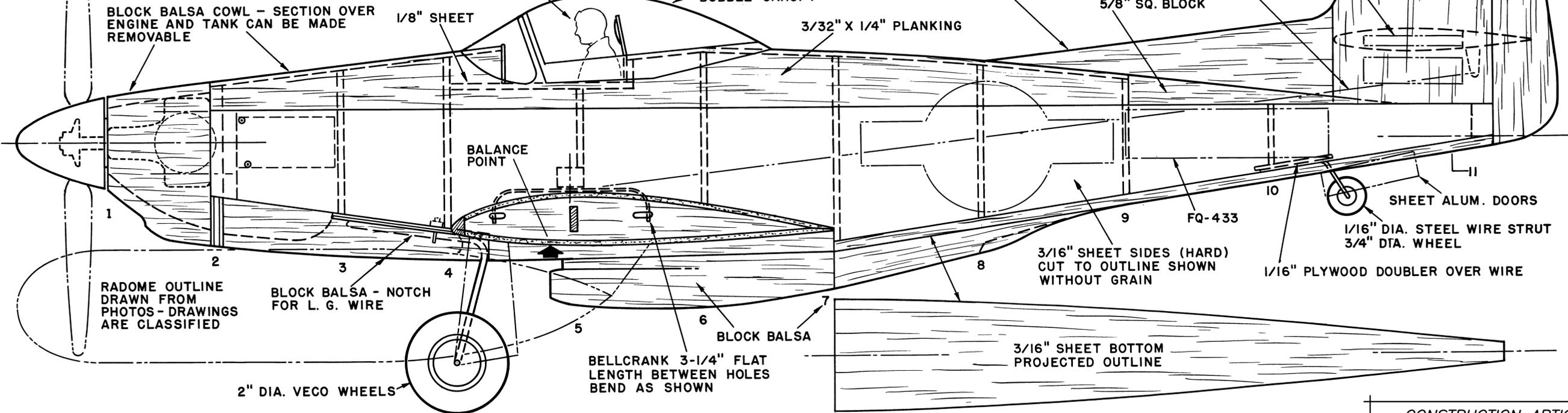
DORSAL FIN
3/8" SHEET

5/8" SQ. BLOCK

FIN AND RUDDER 1/2" SHEET

U. S. AIR FORCE
7433

1/16" DIA. STEEL WIRE
PUSH ROD



BALANCE
POINT

RADOME OUTLINE
DRAWN FROM
PHOTOS - DRAWINGS
ARE CLASSIFIED

BLOCK Balsa - NOTCH
FOR L. G. WIRE

BLOCK Balsa

BELLCRANK 3-1/4" FLAT
LENGTH BETWEEN HOLES
BEND AS SHOWN

3/16" SHEET SIDES (HARD)
CUT TO OUTLINE SHOWN
WITHOUT GRAIN

SHEET ALUM. DOORS

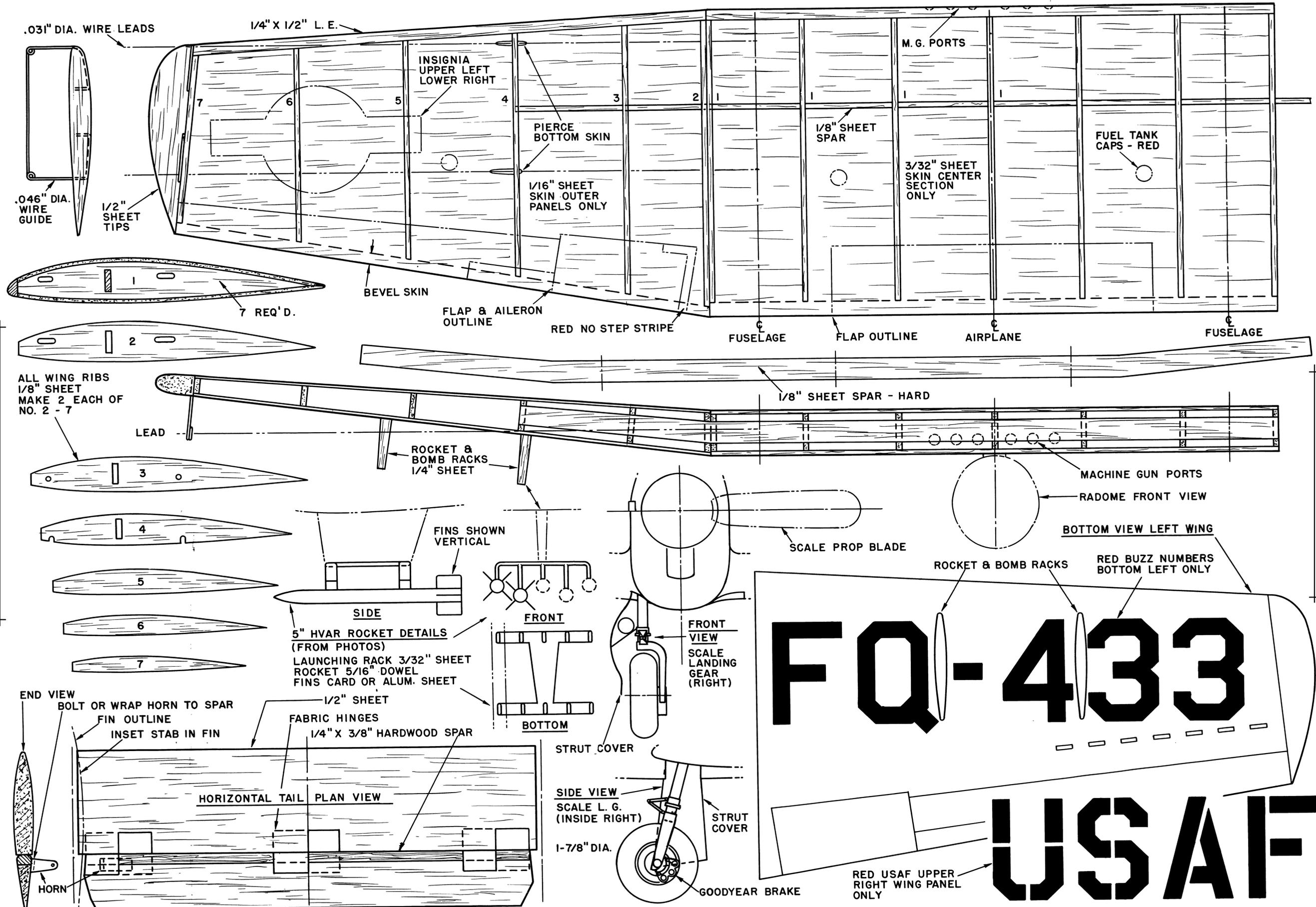
1/16" DIA. STEEL WIRE STRUT
3/4" DIA. WHEEL

1/16" PLYWOOD DOUBLER OVER WIRE

3/16" SHEET BOTTOM
PROJECTED OUTLINE

2" DIA. VECO WHEELS

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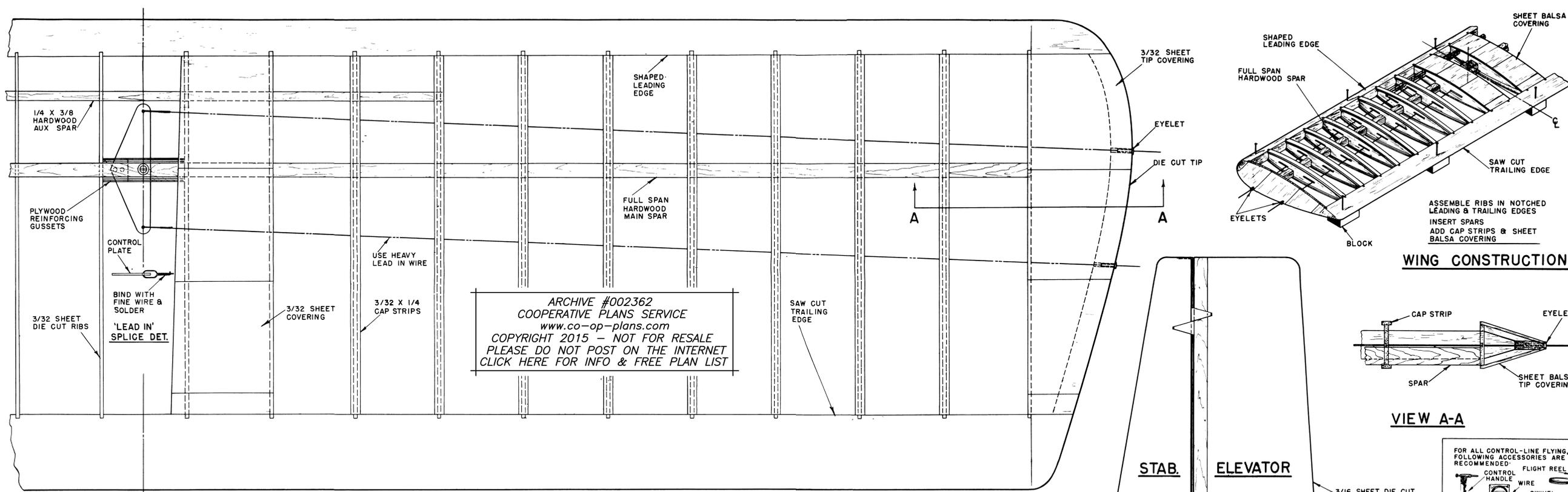
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FQ-433

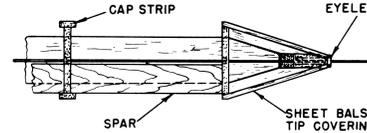
USAF

RED USAF UPPER
 RIGHT WING PANEL
 ONLY



WING LAYOUT (BOTTOM VIEW OF LEFT WING SHOWN)

WING CONSTRUCTION

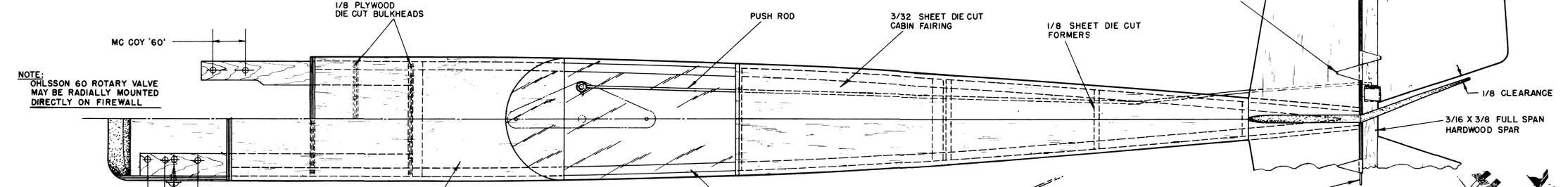


VIEW A-A

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ORIGINAL PLAN LOANED BY OLAN ATHERTON

FOR ALL CONTROL-LINE FLYING, THE FOLLOWING ACCESSORIES ARE RECOMMENDED:
 CONTROL HANDLE, FLIGHT REEL, WIRE SWIVEL (2 REQ), SEE BERKELEY CATALOG FOR PRICES AND FURTHER DETAILS AVAILABLE AT YOUR HOBBY SHOP



TOP VIEW

STUNT FLYING

- I TAKE OFF MODEL DOWN WIND AT ALL TIMES, TO AVOID BLACK LINES
- II CLIMB MODEL DOWN WIND AND DIVE MODEL INTO THE WIND FOR THE BEST CONTROL
- III LOOP MODEL WITH WIND AT YOUR BACK
- IV FOR INVERTED FLYING, PREFORM HALF A LOOP, THEN NEUTRALIZE CONTROLS WHEN THE MODEL IS ON IT'S BACK
- V FOR ALL INVERTED FLIGHT MANEUVERS REVERSE FROM NORMAL FLIGHT
- VI AFTER THE MOTOR HAS CUT, BLUE HOOPS ABOVE GROUND, THEN GENTLY EASE BACK ON THE CONTROLS

INSTRUCTIONS FOR BUILDING AND FLYING

NOTE: EITHER GLOW PLUG OR IGNITION TYPE ENGINES 49 TO 65 CU. IN. MAY BE USED

NOTE: OHLSSON 60 ROTARY VALVE MAY BE RADIALLY MOUNTED DIRECTLY ON FIREWALL

NOTE: CLIMB MODEL DOWN WIND AND DIVE MODEL INTO THE WIND FOR THE BEST CONTROL

NOTE: FOR ALL INVERTED FLIGHT MANEUVERS REVERSE FROM NORMAL FLIGHT

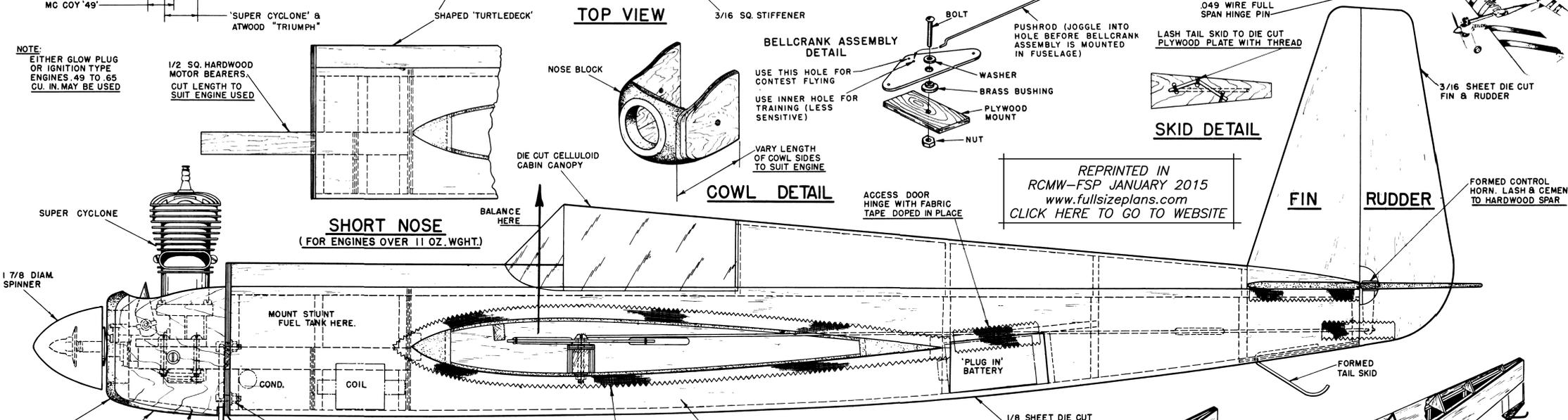
NOTE: AFTER THE MOTOR HAS CUT, BLUE HOOPS ABOVE GROUND, THEN GENTLY EASE BACK ON THE CONTROLS

NOTE: CLIMB MODEL DOWN WIND AND DIVE MODEL INTO THE WIND FOR THE BEST CONTROL

NOTE: FOR INVERTED FLYING, PREFORM HALF A LOOP, THEN NEUTRALIZE CONTROLS WHEN THE MODEL IS ON IT'S BACK

NOTE: FOR ALL INVERTED FLIGHT MANEUVERS REVERSE FROM NORMAL FLIGHT

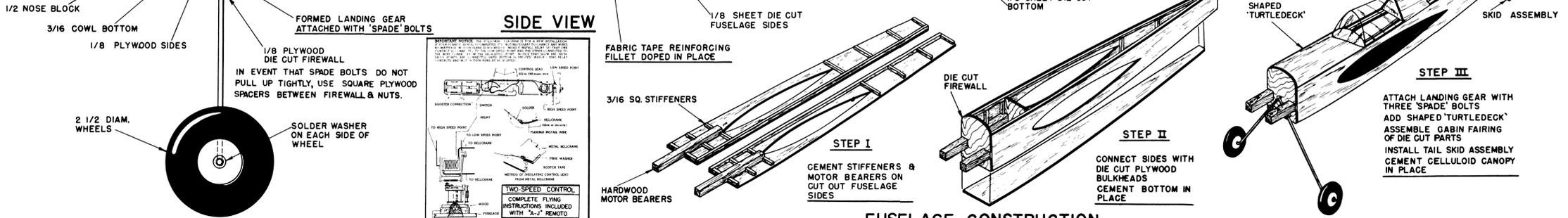
NOTE: AFTER THE MOTOR HAS CUT, BLUE HOOPS ABOVE GROUND, THEN GENTLY EASE BACK ON THE CONTROLS



SIDE VIEW

SKID DETAIL

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FUSELAGE CONSTRUCTION

SPECIFICATIONS
 WEIGHT 32-45 OZ. WING AREA 625 SQ. IN.
 JIM SAFTIG'S
SUPER DUPER ZILCH
 CLASS 'C' & 'D' STUNT GAS MODEL
 DESIGNED BY JAMES G. SAFTIG
 KIT ENGINEERED BY BILL EFFINGER
 DRAWN BY HENRY STRUCK
 COPYRIGHT 1949 REPRODUCTION FOR RESALE FORBIDDEN
BERKELEY MODELS, Inc.
 140 GREENPOINT AVE. • BROOKLYN 22, N.Y.

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FOR RCMW-FSP SUBSCRIBERS - BUY- SELL - SWAP**

**Your Ad Could Be Here
Give It A Shot - The Price Is Right !!
Contact the Editor - cardinal.eng@grics.net**

For the last few issues we have not had any free classified ads in the magazine - We have received some questions asking if this service has been discontinued -
The answer is NO !, the ads are still available free to subscribers on a non-commercial basis
If you want to clean house or are looking for something special, or just want to swap, here's the place to go -
No messing around with eBay and its hard to understand rules and regulations -
Advertise here - Simple & Inexpensive

Old 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.

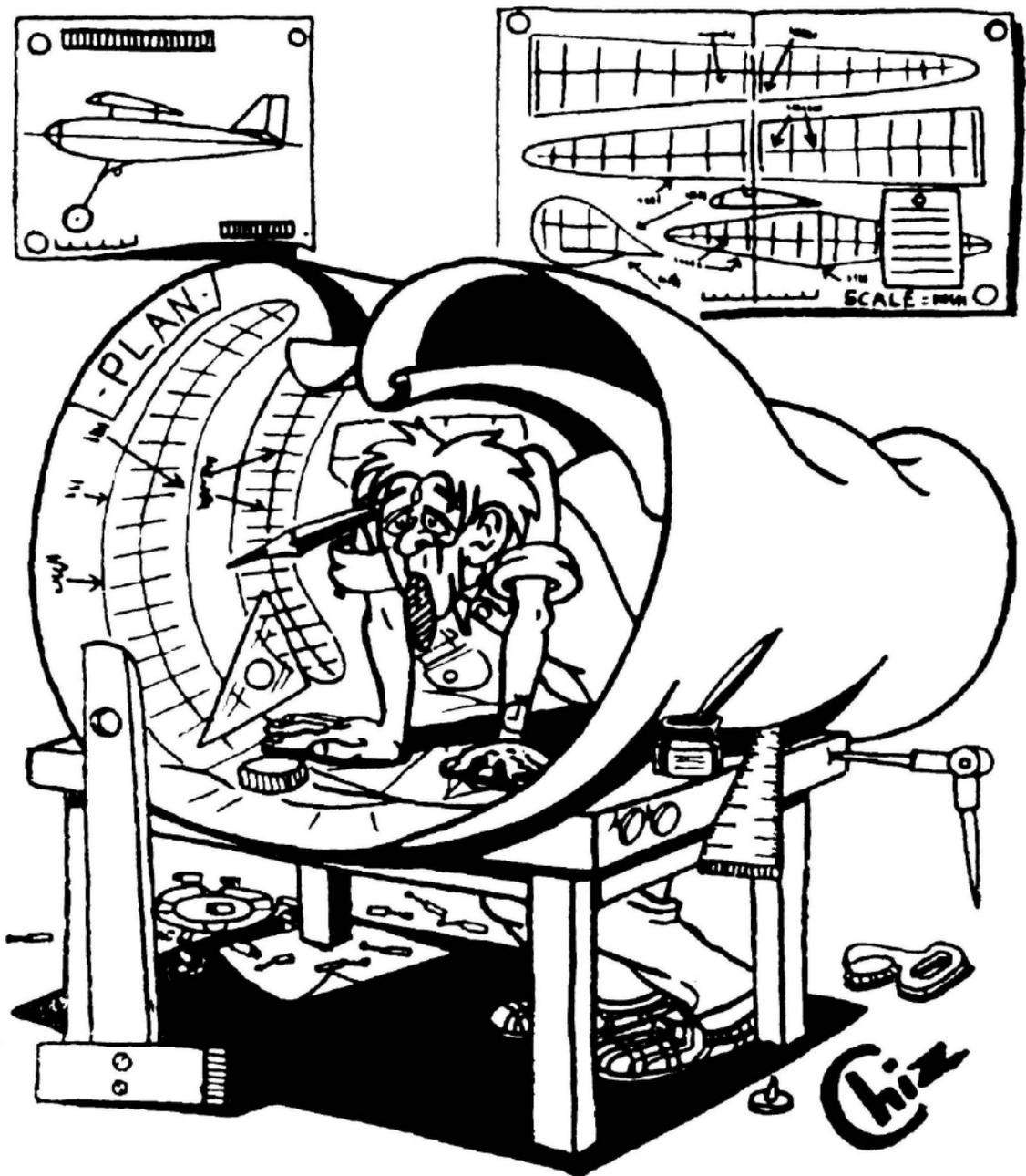
That's NOT the way it was in the past, when you had to build a model before you could fly it. If you're an old-timer, as I am, you have fond memories of *Air Trails*, *Flying Models*, *Model Airplane News*, *Aeromodeller* and many of the several other magazines available "way back when".

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

Magazines are scanned at the same or at higher resolution than was used in their original publication and all pages can be printed out if desired.

It is easy to page through each issue and, unlike the old paper originals, they won't be damaged by handling.

Prices shown include postage worldwide. USB drives are burned to order and posted weekly.

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.

All prices include postage worldwide

Send payment using Paypal to
cardinal.eng@grics.net

Or check or money order to
Roland Friestad
1640 N Kellogg Street
Galesburg, Illinois 61401
USA

**Makes a Great Gift for Modelers
Circle your interests and give this
sheet to someone who has a hard time
finding you a gift**

November 30, 2014 - Prices & Specifications subject to change without notice