

RCMW-FSP

October 2016



IN THIS ISSUE

Five Full Size Plans & Articles
1935-1942 Aeromodeller Collection
What's Your Favorite Model?
Download Air Trails Issue

Cover Art From June 1973 Air Trails

RCMW-FSP --- INDEX

October 2016

- 3 - Editorial
- 4 - Of General Interest
- 5 - Rubber Scale Messerschmitt ME-109 from Aeromodeller
- 9 - 003805 Messerschmitt ME-109 - **full-size-plan**
- 10 - Digital Collection of Aeromodeller 1935 thru 1942 now available
- 11 - Rubber powered endurance model by Casano - COLUSSUS II
- 13 - 003806 COLUSSUS II - **full-size-plan**
- 14 - What's Your Favorite Model - Let us Know -
- 15 - WITTMAN TAILWIND RC Scale model by Cal Smith
- 21 - 000584 WITTMAN TAILWIND - **full-size-plan**
- 23 - TWELVE - An easy to build and rugged UC Stunt Ship - by
- 24 - 000274 - TWELVE - **full-size-plan**
- 25 - HAWKER HURRICANE - UC Scale by Walt Musciano
- 29 - 003816 - HAWKER HURRICANE - **full-size-plan**
- 30 - Download the complete issue of Air Trails from June 1973
- 31 - Back Issue Model Magazines on USB flash drives

ON THE COVER

**The photo on the cover of this issue is of
The BLACK DRAGON 65 built by John Nuovo.
It appeared on the cover of the
June 1973 issue of Air Trails.**

Subscribe to RCMW

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.

If you like to build models you will appreciate the ability to see again antiques, old classics, reproductions of kits, as well as new designs made for the reliable, lightweight Micro RC equipment currently available.

If you are one of the "Buy-&Fly" fraternity and would like to learn how to build and repair models, RCMW is also the magazine to read.

Each issue is full of useful information rather than just a seemingly unending series of advertising for expensive models and equipment.

Subscriptions are \$24 for a full year of 12 issues and you can also download the previous 11 issues on a rotating basis if you wish.

To Subscribe, send \$24 via PayPal to cardinal.eng@grics.net

Don't use PayPal ? - Send \$24 US - (check, money order (or cash at your own risk) to ---

Roland Friestad
1640 N Kellogg Street
Galesburg, IL 61401
USA

For the Model Bulder and Flyer - October 2016 Issue



Full
Size
Plans



Time for another batch of those classic plans and construction projects that we find in our archives. In November we will have a new Micro RC design by Bob Aberle but this month we take select designs from the 1940's through the 1960's for your consideration. We also have news about our ongoing digital magazine collections.

From the pages of the February, 1940 Aeromodeller, the British magazine, comes a nice scale rubber powered version of the Messerschmitt ME-109. I imagine it was used not only for modelers but also as an educational tool to help in recognizing enemy aircraft since WWII had started and was in full swing in Europe and England even though the USA hadn't yet been attacked at Pearl Harbor.

Tahn Stowe, son of well known Australian modeler, the late Ivor F, has generously allowed us access to his father's collection of Aeromodeller magazines. All of the rare issues starting with the very first, dated November 1935 through December 1942, have been computerized and are available on a USB Flash Drive. Details are on page 10.

Al Casano's Colossus II rubber powered endurance model celebrates the end of the war and the availability again of good rubber for use in models. It was one of the plans featured in the September 1947 issue of Air Trails.

We want to know about your favorite model from the past. Our archives run to over 10,000 plans and we invite your suggestions on what to include in upcoming issues. Take a trip down memory lane and let us know.

Cal Smith was a well known model designer, builder and artist. Many of his designs and paintings appeared in Air Trails, Mechanix Illustrated and other publications. Here's his RC Scale version of the homebuilt Wittman Tailwind. Should be pretty nice with the new miniature RC gear. From the 1964 Air Trails Annual.

Twelve is the name given to this twelfth iteration of Jack Ritner's UC Stunt ship that is easy to build, and like Timex can take a beating. That's important when you are practicing the Stunt Pattern. It's from the November 1954 issue of Model Airplane News.

Another prolific and well known model designer, Walt Musciano, specialized in UC Scale models. Here from the same Air Trails 1964 Annual that contained Cal Smith's Wittman Tailwind is Walt Musciano's Hawker Hurricane model of one of the key aircraft of the Battle of Britain.

And, last but not least is our complete issue of a model magazine that you can download this month - It is the June 1973 issue of American Aircraft Modeler (Air Trails). I'm sure you will enjoy the magazine, particularly the prices in some of the ads for engines and kits. Although back then the cost of radio control equipment was pretty high. If you would like to have a complete digital collection of the magazine, take a look at page 32 of this issue for details.

Keep 'em Flying,
Roland Friestad, Editor

SOME VIDEOS OF INTEREST

Websites like Youtube and similar sources have a huge number of video clips and films available, possibly millions. Included in are a lot of them about aviation and model aviation.

It's a great way to learn but also can be a huge "Time Sink" that can take away all of your building and flying time if you get addicted to it like some of the younger folks seem to be.

With that said we will include occasional links to videos that we feel are worth watching. However, we accept no responsibility in the event that you spend too much time watching internet videos and don't get as much time to build model airplanes.

The links are active so if you just pause your cursor over the link and click it will take you to the video. To return to this RCMW issue just click on the "back" arrow.

How about sending us your favorite video links. There are also a lot of How-To-Do-It videos out there that our readers would like to see. Send them to me and we'll pick the best ones.

Send to - cardinal.eng@grics.net

Right - 2014 CAMERON AIR SHOW
Lots of neat stuff going on here
[CLICK HERE](#)



FIRST FLYING LESSON

This is really an ad from the Netherlands but it is well worth watching

[CLICK HERE](#)



SHORT LANDING

You won't believe how short this Dornier DO-24 flying boat can land

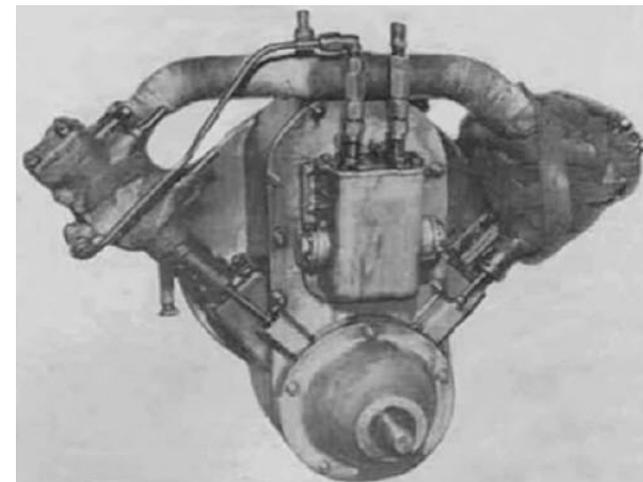
[CLICK HERE](#)



THE BESSLER STEAM POWERED AIRPLANE

The first successful steam powered airplane was a converted Travel Air 2000 and was remarkably quiet so that the pilot could talk to those on the ground while flying. He could also reverse the engine and taxi in forward and reverse.

[CLICK HERE](#)



MESSERSCHMITT

ME-109

Rubber Scale

by C.A.H. Pollitt

As many RCMW regular readers know, we have been engaged in digitizing the very early issues of the British Aeromodeller magazine. This rubber powered scale model of the Messerschmitt ME-109 appeared in the February 1940 issue of that magazine.

Design was by C.A.H. Pollitt who had many designs published and was listed as the Aeromodeller Staff Draftsman.

ABOVE all else a successful single-seat fighter should be as maneuverable as it is fast. Until quite recently the German Messerschmitt M.E. (or B.F.) 109, was generally regarded as a classic example of the type.

Rather smaller than our own "Spitfire" or "Hurricane," it combines an outstandingly good all-round performance with a not too clean aerodynamic form.

The speed is favourably comparable with that of contemporary British fighters, in fact, not very long ago, a specially prepared racing version of the Messerschmitt attained a speed of over 400



m.p.h., an achievement which must have contributed in no small way to the reputation of the less speedy production version.

In the light of recent experience it is safe to say that the Messerschmitt is outclassed by our own fighters, and there can be little doubt that the root of the trouble is the result of sacrificing other qualities, certainly maneuverability amongst them, for speed.

Current reports are as conflicting as they are illuminating. One school of opinion firmly maintains that the Messerschmitt fighter is a difficult machine to fly, and that it is possessed of certain vicious tendencies. On the other hand, it is considered by many to be a very fine aeroplane, with few or no vices. All of which, so far as we ourselves are concerned, is by the way.

It is an obviously difficult matter to try and establish the relative merits of foreign military aircraft. The sources of information are, at times such as the present, not too reliable, and a certain amount of the information we do receive is mainly hearsay.

Of one thing, at least, we may be certain. The Messerschmitt M.E.109 does represent the latest German conception of the single engined

fighter, and, as a model, is in striking contrast to our previous model of the "Spitfire."

With the Messerschmitt I have resorted to a larger scale, resulting in an improved performance and, if anything, a slight gain in constructional simplicity.

Basically, the general construction is pretty much the same as that of the "Spitfire." The wing trailing edge fillet has been eliminated, and the trailing edge itself carried straight into the centre of the model, picking up with the bottom keel piece.

Also, the main side members of the fuselage have given place to two 1/16" square stringers, which in itself is all to the good, and will at least help to keep down the weight a little, though personally I feel it is a rather more exacting job, and perhaps not so simple a method.

The fuselage formers are best dealt with first, and unless carefully handled they will be found to split along the grain very easily. I have, in consequence, made provision for the entire fuselage to be made by either of two alternative methods.

The first method involves cutting out the fuselage formers exactly as they are shown in the drawing, that is, all in one piece. The procedure then is to add the main top and bottom fuselage members and, after inserting the elastic motor, add the 1/16" square stringers to the fuselage, starting with the two already shown in position on the drawing.

It is hardly to be expected that the fuselage formers will remain perfectly flat after having been cemented to the main top and bottom

fuselage members. On the contrary, they will, in the majority of cases, be found to warp a little in reacting to the cement, and the object of attaching the two stringers in question at this stage is for the purpose of re-aligning any distorted formers. This should be carefully born in mind.

The second method of dealing with the fuselage is to build it in two separate halves, by first marking out the formers, as drawn, and then cutting them in halves from top to bottom, the grain of wood to run in the same direction.

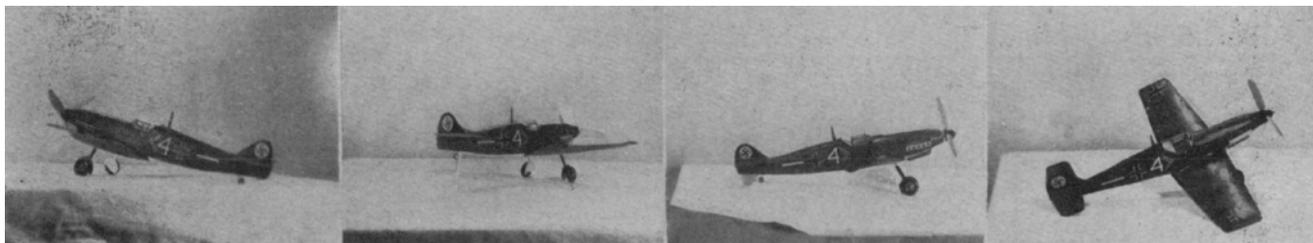
This obviates all possibility of the wood splitting along the grain, and facilitates an easier, and possibly more accurate, assembly of the fuselage, since it is possible to stand the formers, during assembly, on the edge along which they have been cut in half.

For those of my readers who choose to adopt this method, I would advise them to tightly pin the drawing to a drawing board, or any other suitably flat surface, and to assemble the fuselage on top of the drawing. The formers can be located with drawing pins, or even ordinary household pins.

It should be remembered that what we require is one port and one starboard fuselage half, and not two port and no starboard halves! Or even vice-versa! This does sound elementary, I agree, but it really is surprising how easily this sort of thing happens.

After having completed the two halves of the fuselage, they should be carefully and firmly cemented together.

The elevator may next be dealt with, and will be found to be quite a straightforward job. A point to watch is to see that, in attaching those



elevator ribs which are side by side of the centre of the elevator, they should be no less than a sixteenth of an inch apart, since in between them must fit the main top rear member of the fuselage, which actually picks up with the elevator spar.

The elevator must be fitted before the rudder is built up, otherwise it will not be possible to fit the elevator once the rudder is in position.

The rudder is the simplest possible, yet it is very rigid. The major component is the rudder post itself, which, it will be noticed, embodies a cut-away on either side. To avoid any possible misunderstanding I feel I should make it clear that these cut-aways are purely to facilitate assembly, and that they are not intended to pick up, or connect with, any adjacent parts of the structure.

The pilot's cockpit is not quite as simple as was that of the "Spitfire," although it looks "busier," there is actually not a great deal to it.

From the drawing it will be seen that two shaped pieces of 1/16" flat balsa are incorporated, one fitting behind the pilot's head, as it were, and the other being so positioned as to approximate to the pilot's dash panel.

In addition, there are two bamboo hoops, and a short length of 1/16" in. square balsa, which runs along the top of the cockpit and connects with No. 5 fuselage former. This length of square balsa is in two pieces.

The entire cockpit cover is carried on two A- in. square stringers, specially intended for this purpose, and which only run between No. 4 and No. 5 fuselage formers.

As explained on the drawing, the air intake, which on the full size "Messerschmitt" is for the radiators, is carried by and attached to two stringers which I have designated "Stringers A and B."

This air intake can be used for adding, and carrying, any necessary ballast in the form of small blocks of wood, should any ballast be found necessary. In the case of the model shown in the photographs, no ballast was required, and this model was built exactly to the design given in this issue.

The construction of the wings is simple. This particular wing form is hardly the best arrangement, since the "square" wing tip gives a correspondingly sharp taper to the wing shape in front elevation, which from an aerodynamic standpoint is not too good.

Both the leading and trailing edges of the wing are each shaped to their conventional form.

The question of covering the model, and in particular the method of camouflaging, are points which I am sure are likely to arouse a certain amount of controversy.

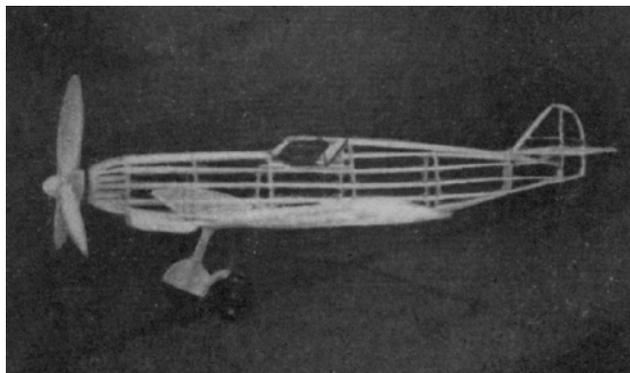
In common with the majority of my readers, I have not had an opportunity of inspecting a "Messerschmitt" at close range, and I accordingly cannot vouch at first hand for the method of camouflaging adopted.

Nevertheless, I am informed from a very reliable source that all the upper surfaces of the "Messerschmitt" are black and the lower surfaces white. This is the procedure I have adopted for the model, and which I think will be generally agreed, gives a very smart appearance. It has at least the advantage of eliminating any elaborate camouflage scheme.

When dealing with aircraft, any attempts at camouflaging can, at the most, only be successful so long as the machine is on the ground, or if it is viewed when in flight, from another aircraft flying above it. Under these circumstances there is, no doubt, a great deal to be said for "shadow shading."

This is a fact which would appear to have been disregarded by the German authorities, for certain of their aircraft of the "Heinkel" type, I believe are reported as having a pastel blue finish, which under certain isolated circumstances, may be satisfactory. No matter what colour an aircraft may be, it will always present itself, when in the air, as a dark silhouette.

I mention these different schemes in order that those of my readers who would prefer an alternative to the black and white scheme I have adopted may have some form of basis to work on.



The various squadron markings lend a distinctive appearance to the finished model, and they can all be made from plain white paper, not tissue, but a thin paper with a clean, smooth surface. Please do take care in marking out and preparing these insignia, for their appearance will either make or mar that of the model.

I find myself that the secret of the entire business of "dressing" a scale model lies in the accuracy of marking out the various numbers and symbols which are to adorn it. If they are drawn out carefully on the drawing board, and to their correct proportions, there can then be no danger of inaccurately cutting them out.

On the rudder of the model is mounted the present German National Emblem, on a white circular ground, the swastika itself being contained within the four sides of a square, stood on one corner. The drawing explains this more clearly than I can myself.

On the fuselage, and just forward of the elevators, is a marking which comprises nothing more than a strip of plain white paper. Forward again of this is the cross, which is cut from a similar piece of white paper, covered with Indian ink, with only a narrow white edging on eight of its sides.

The figure four is again cut from the white paper and should be quite straightforward. The two "V" stripes adjacent to the figure 4 are best cut from one piece of paper of a triangular shape, and then inked-in so as to leave only the two stripes showing white. The crosses on the top and bottom surfaces of the wing are similar to those on the fuselage side.

The only "etceteras" now to be added are the two air-intakes under the fuselage, the radio mast, and aerial, and finally the exhaust manifold.

With particular regard to military aircraft, the exhaust manifold is a really very important part of the machine, and has a direct bearing on the actual performance of the machine.

That incorporated in this model is a faithful reproduction of the one fitted to not only the "Messerschmitt" but also certain other German military aircraft, the "Heinkel" included.

After the model has been given one coat of "tightening" dope, a small piece of the tissue should be cut away at the tail end of the fuselage, and the edges of the cut-away reinforced with a small "frame" of tissue, so as to form an edge of double thickness.

Over the cut-away should then be attached a piece of celluloid of suitable size, which will now form an "inspection" window, particularly useful when installing, or removing, the elastic motor. The removal of the motor is facilitated by the detachable nose-piece, to accommodate which the No. 1 fuselage former has a rectangular cut-out, shown on the drawing.

The usual initial gliding tests should be carried out before flying the model, and any minor corrections to the general trim carried out.

After thoroughly running-in the model, flights of sixty seconds and over may be expected. The motor comprises six strands of it in. flat rubber.

LIST OF MATERIALS

Fuselage

2 sheets of 1/16"x 3" x 3 ft. balsa, for fuselage formers, rudder, elevator, wings, air intakes, etc.

10 lengths of 1/16" x 1/16" x 3 ft. balsa, for stringers, etc.

Small piece of block balsa, for prop. spinner.
1 sheet of 1/32" balsa, about 3" square, for wheel covers.

Several pieces of Tonkin bamboo 3/32" dia. for under carriage.

Several inches of 18 S.W.G. piano wire for motor-hooks.

One pair of 1-1/2" dia. celluloid wheels.

One 1/2" dia. celluloid tail wheel.

One 7-1/2" dia. three bladed Paulownia or Howood prop.

Cup washers and small hardwood nose-plug.

One small piece of thin 3-ply, for detachable nose-piece.

One piece of in. balsa, 1 in. x 1 in. (approximately), for detachable nose-piece.

Wings

Ribs cut from 1/16" sheet balsa used for fuselage former

Leading and trailing edges 1/8" x 3/16" sheet balsa.

Tail-plane and Rudder

See Fuselage.

Sundries

Tube of cement.

One sheet of white tissue.

One sheet of black tissue.

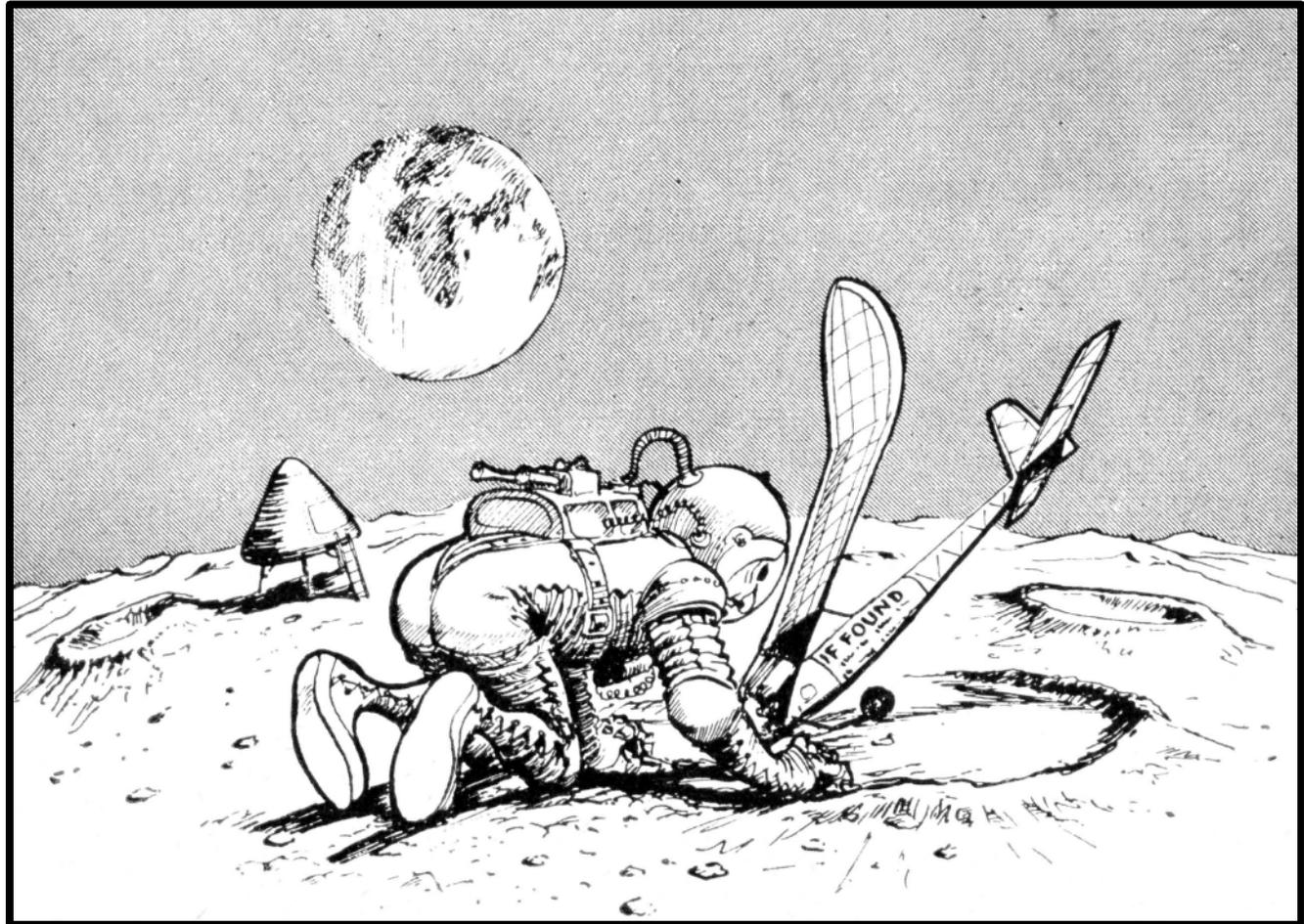
One bottle of clear shrinking dope.

Cellophane for cabin and tail inspection window.

6 strands of 1/8" flat rubber, 3 inches longer than the fuselage.

One sheet of clear thin white paper for insignia.

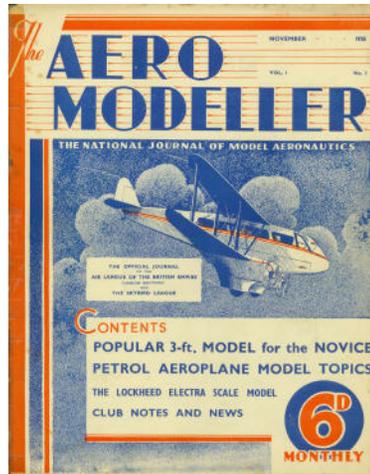
One small tin of black drab for ditto.



Cartoon from January 1968 Aeromodeller

Now Available!!
The early issues of
AEROMODELLER

Computerized in High Resolution
On Custom USB Flash Drives

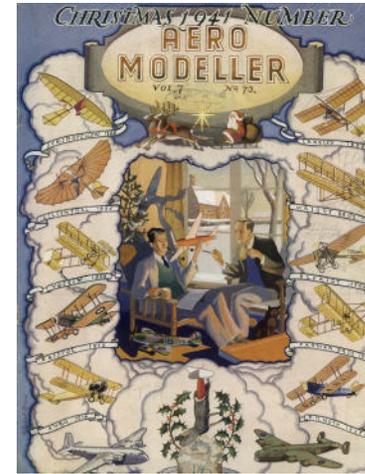
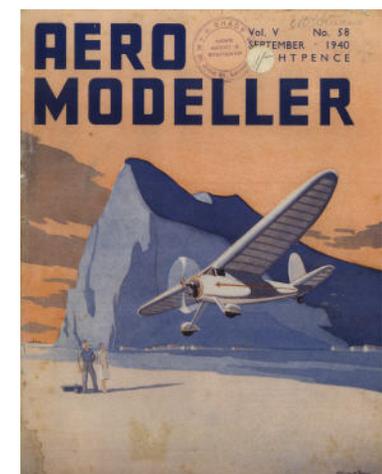
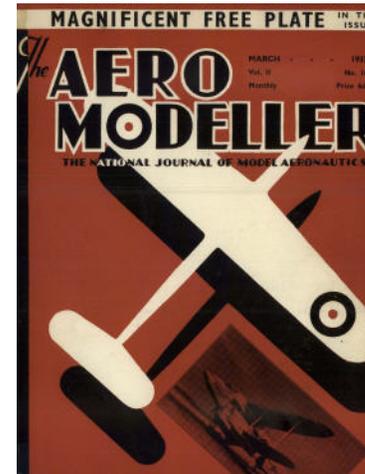
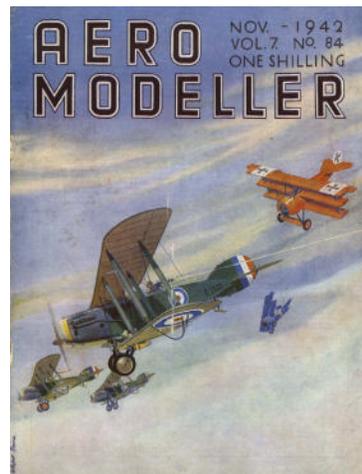
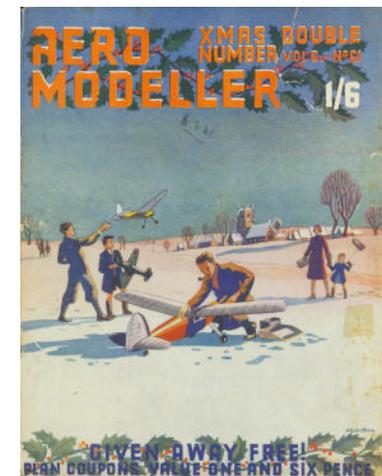
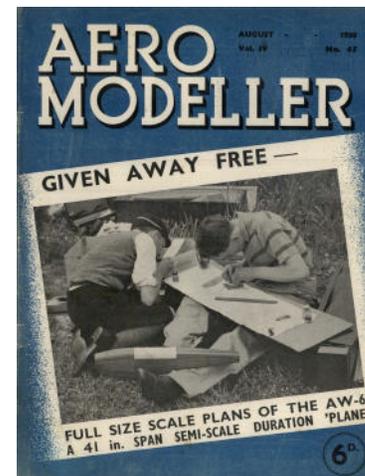


Now, after several months and hundreds of hours of work, we have available high-resolution digital copies of the British Aeromodeller magazine starting with the very first issue dated November 1935, shown above, and through the December 1942 issue. These issues are extremely rare and hard to find. These early issues are from the late Ivor F collection in Australia, with thanks to his son Tahn Stowe.

Furnished on our custom made USB Flash Drives this collection is priced at only \$60 US, postpaid world-wide. PayPal, Money Order or check drawn on a USA bank. Catalog number - D001047 - 85 issues - Postage paid

Roland Friestad
1640 N Kellogg Street
Galesburg, Illinois, 61401
USA

P.S. - Don't forget to include your name and address - (It happens !!)



COLOSSUS II

by AL. CASANO

Al Casano designed this rubber powered endurance model to make use of the post war availability of good rubber for use in model airplanes. One of several of his designs over the years. From September 1947 Air Trails

THAT whirring sound you hear is the rubber-power model builder winding up his crate after a lapse of too many years. Yep, T-56 rubber is back, in carloads, so let's try a rubber job.

Colossus I was designed, built, and flown early in 1946, when rubber was both scarce and poor in quality. Its performance was slightly spectacular, and since the return of good rubber, even more so.

Let's start with the fuselage. One eighth square is used entirely. The use of cross braces to form triangles in the two sides adds tremendously to the strength, and will prevent folding of longerons under impact or heavy winding.

The weight increase is negligible and in fact, with this or any other job, it is better to build the required weight into the ship, in the form of structural bracing, than to add it in the form of clay, lead shot, or other dead weight.

The nose section and rear dowel section are planked with one sixteenth balsa, or pine, if obtainable, and the side body former, at the landing gear station, is made up of one eighth sheet. Plank brace for wing hook with one eighth by one quarter.

When the two sides are thoroughly dry, sand well on both sides, using a very fine sandpaper. This will take off superfluous cement and give an even base for papering later. Do not use a coarse sandpaper, for although it does a faster job, it rips out many of the needed wood fibers, greatly weakening the structure of the wood.

The fuselage structure is completed by adding the crosspieces at top and bottom. Four one-eighth sheet formers are used at top of fuselage at the wing location, to match dihedral of center of wing. Top and bottom of nose section are planked the same as sides, with one-sixteenth.

The curved step behind landing gear station can be planked with one-eighth soft balsa, and sanded well for a clean job. Install landing gear. Put on one-and-three-quarter-inch diameter wheels.

Again sand the entire fuselage, and round the corners well. The front wing hook is next installed. It is a good idea to fit and finish the nose block now, as the finish sanding can be done right on the plane, without rubbing off paper. Be sure the fuselage lines up and is perfectly square in cross section.

The fuselage is now ready for papering. Use a bright, easy-to-see color. Avoid white or light blue, as the plane is lost to sight too easily.

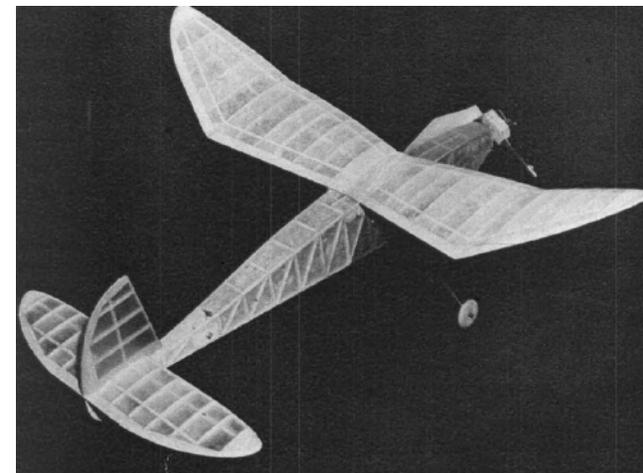
Use either Silkspan, or double cover with Jap tissue, crossgrained. Spray with water, and, after drying, apply one coat of clear dope. Allow to dry one hour, sand lightly with superfine wet-dry paper, and apply another coat of clear dope.

Use a fairly thin dope, with sufficient plasticiser (castor oil is OK) to give a glossy, bluish-free finish. More than two coats of dope will cause the paper to become too brittle, resulting in cracking on impact, such as in tough landing, etc. Now install back wing hook.

Since the bottom or under rudder is an integral part of the fuselage, it is best to make it and cement it on. It is made of medium hard one-eighth balsa, sanded to a nice, streamlined edge, and doped. The fuselage is now completed, with the addition of the back wing hook.

Drill out the nose block with an .070 drill, making the hole to give one degree downthrust, and two degrees right thrust. Insert one eyelet in front and one at back of block. Bend hook, and be sure to use a Jasco Bearing between prop and nose block. This adds many r.p.m.'s to the prop, by helping to overcome friction.

Use the conventional tensioner and positioner. If care is taken to install this simple mechanism correctly, no elastic band is ever needed to hold nose block in.



Many a contest has been lost because a sloppy job on nose block and tensioner has allowed the prop, nose block, and half the motor to pop out after the power run. This usually results in a grade A spiral dive and crack-up.

Use a single-bladed folding prop, swinging a fifteen-inch-diameter circle. Twenty strands of one-eighth-inch rubber, with six inches of slack will do the trick nicely. Lube motor with equal parts of green soap and glycerine. Beware of colored castor oil lube. It's murder on the rubber. The motor is held in at the rear of fuselage by a quarter-inch-diameter dowel.

Pre-wind all rubber motors before using in ship. Stretch well, and pre-wind by stages from three hundred turns to eight hundred. Always store motors in a cool, absolutely dark place. Light ruins the thin rubber.

The wing is a polyhedral butterfly, with a deep undercamber. This undercamber results in a slow forward speed on power and glide, but a fast climb and slow sinking speed. The low power in relation to the one-hundred-and-sixty-five square inches of wing area is proof of the efficiency of this rib design.

The leading edge is one-eighth square, as is the front bottom spar. The remaining bottom spar and two top spars are one-eighth by one-sixteenth laid on the flat. The trailing edge is one-eighth by one-half. Tips are one-eighth sheet, as are the gussets.

The ribs are all one-sixteenth sheet, and are plotted from rib number eight, which is the - longest. Since even little Joe Blow, age six and seven-eighths can plot ribs, let's not bore each other with that detail.

After putting in dihedral, one inch and a quarter at the first break, and three and a half inches at the tips, sand wing thoroughly, cover with single thickness of Jap tissue, and dope two coats of clear same as fuselage.

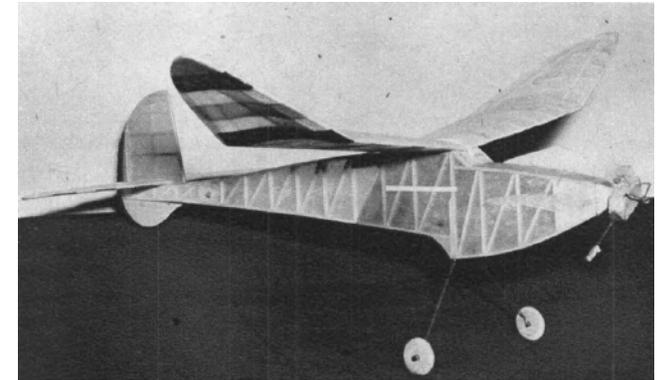
The rudder is built up of one-eighthsquare leading edge, and the rest of the outline is of one-eighth sheet. The three horizontal cross members of one sixteenth by one eighth are cemented in, then the one vertical member. Next, three more horizontal members are cemented over this, to give an airfoil section, resulting in a natural right hand turn.

Hinge rudder at rear with milk bottle cap wire, (another item known only to genuine Old-Timers) and single cover rudder and dope same as fuselage.

Stab is made with lifting section, as shown in rudder detail. The stab is identical in construction with wing.

Cover stab, dope per fuselage, and cement to fuselage as shown on plan. Cement rudder to stab and everything is all-set.

Now for flying. Fasten wing to fuselage and test-glide. Do not throw ship into a stall, instead push ship from you, aiming at a spot on the ground twenty feet in front of you.

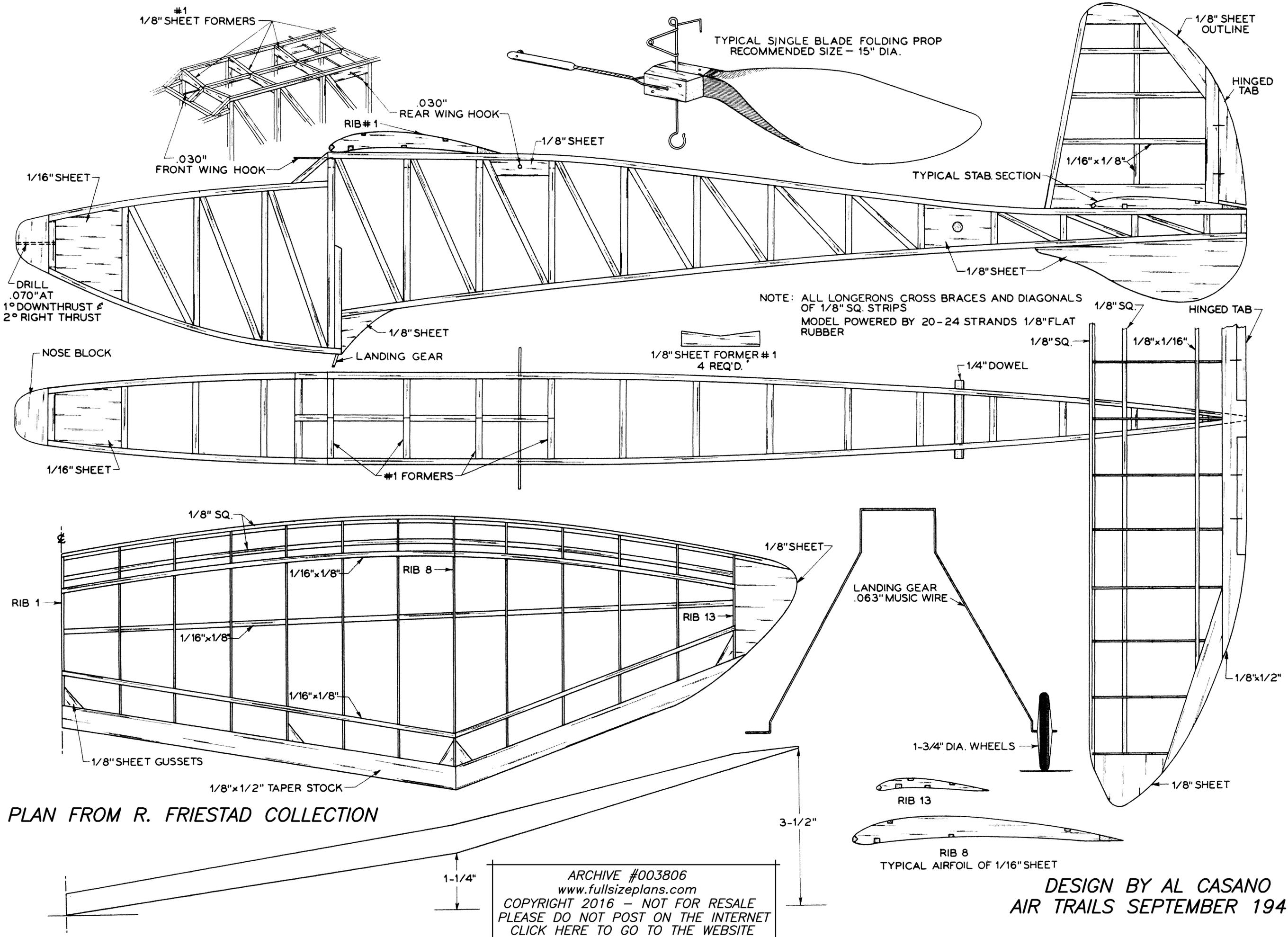


The design is such that Colossus is balanced very nicely, and only slight adjustment on stab trimming tab, plus proper right turn, will give a long, flat glide to the right.

Now put in two hundred turns and hand-launch. Power flight should be to the right in approximately hundred-foot circles. Any stall must be killed off by increasing the down-thrust. Add one hundred turns on each succeeding flight, until a maximum of seven to eight hundred turns are packed in.

This ship will climb fast, with a slow forward speed, and a tail-high attitude.

We've told you how to build and fly the Colossus, but now that it's going out of sight, it seems we forgot something! Oh yes, we didn't caution you to put your name and address on the plane!



NOTE: ALL LONGERONS CROSS BRACES AND DIAGONALS OF 1/8" SQ. STRIPS
 MODEL POWERED BY 20-24 STRANDS 1/8" FLAT RUBBER

PLAN FROM R. FRIESTAD COLLECTION

ARCHIVE #003806
 www.fullsizeplans.com
 COPYRIGHT 2016 - NOT FOR RESALE
 PLEASE DO NOT POST ON THE INTERNET
 CLICK HERE TO GO TO THE WEBSITE

DESIGN BY AL CASANO
 AIR TRAILS SEPTEMBER 1947

What's Your Favorite Model?

Like many builders, I have a few models that I am particularly fond of, perhaps because they were the ones I built in my long lost youth, or perhaps because they figured in a contest win or some other event of my memory.

Most modelers have a few of those special designs that they would like to see again or maybe even build again if you could only find the plans. If you are in that category why not tell us about it and we will see if the plans can be located. If we have them or can find them we will reprint them here as full size PDF files in an upcoming issue of RCMW.

And you may even still have the plans for that special model. Why not send them to us along with a few notes and we will publish them here for the benefit other of model builders out there, giving you credit for supplying the plans.

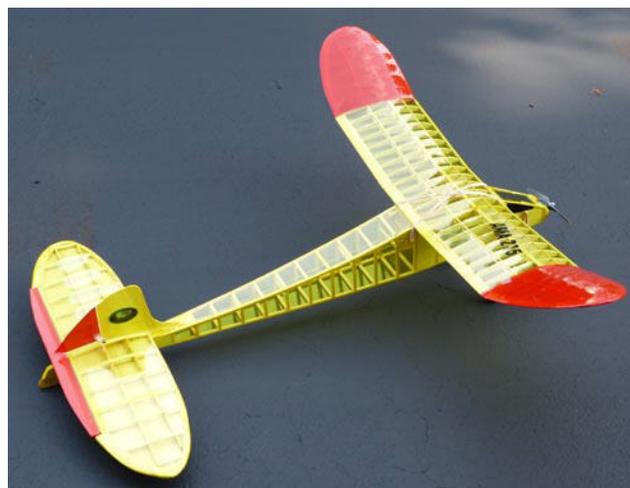
I know in my case a few favorites were the Veco DAKOTA biplane, Ted Strader's NOMAD, the Jasco PHOENIX FLASH, and, of course the ever popular Sterling RINGMASTER.

Let us know your favorites and we'll reprint them here for everyone's benefit. Send me an email at the following address ---

cardinal.eng@grics.net

Coming Up - Two New Micro RC Models From Bob Aberle

For our November issue, here is Bob with his RC version of the CIVY HEARSE, originally a PAA Load model by Paul Gilliam published in the May 1950 issue of Model Airplane News.



And in our December issue, Bob will present his RC adaptation of the Veco COMANCHE Free Flight kit. The original design was by Joe Wagner who also designed the classic DAKOTA Half-A biplane



**S. Calhoun Smith builds
Radio Control
miniature of**

WITTMAN'S "TAILWIND"

**RC Scale by Cal Smith as it
appeared in the 1964 Air Trails Annual**

One of the world's best-performing home-built planes scaled down by one of the world's best designers. Result: a radio controlled model that performs almost like the real aircraft! We give you Cal Smith's version of Steve Wittman's famous W-9L.

Not only did Smitty do the model engineering, he's responsible for this "how-to" article, the plans and photographs. By far the year's best R/C scaler, this is remarkably easy to duplicate. Strong? She thrives on rough treatment!

For rudder-only use 15-size mill; multi takes a 19 for real "he-man" performance.

Steve Wittman's accomplishments in air racing and sport aviation make for a long and impressive record. His racers have been consistent winners and his sport aircraft which have always provided very rapid transportation are able to out-perform similar size and power factory-produced types.

Wittman Fan Club members will happily recall his "Chief Oshkosh" and his Curtiss Conquerer powered D-12 "Bonzo" of the late '30's. Champions of the Goodyear Race era were "Buster" and "Bonzo." In the sport department the modern "Tailwind" had its ancestry in Steve's speedy "Buttercup," a two-place cabin design built in the late '30's.

Credit must also be given for several design innovations developed by Wittman—the Scimitar propeller, spring-leaf landing gear (now standard on Cessna aircraft) and the tapered spring steel tube gear featured on the Tailwind, first used on Buttercup.

Simplicity and high performance keynote the Tailwind design. That broad box-like fuselage may not be as handsome as some, but the smooth line from windshield to body top combine into an airfoil shape to gain lift from the fuselage.

The 170-mph top speed is aided by a thin 9% wing section (NACA 4309 mod.) and single strut bracing. The single tube landing gear produces a minimum of drag.

The Tailwind design offered to homebuilders by S.W. is his W-8. Fuselage is welded steel tubing as are the tail surfaces. Wings have wood spars and ribs and plywood covering. With the exception of the cowling and aluminum covered forward cabin section, the airplane is fabric-covered including the plywood wings.

The W-8 specifications are: Span, 20-ft 11-in; length 19-ft 3-in; wing area 83.5-sq ft; and gross wt. 1,250 lbs. Various engines can be utilized including the 85 or 95-hp Continental and 108 or 115-hp Lycoming.

Performance varies with the different power plants . . . averages are: Maximum speed 170-mph, cruising speed 150-mph, landing speed 55-mph.

Our model is based on the most recent Tailwind, the W-9L, built by Wittman for test purposes. It is basically the "W-8 design with modifications. Wing span is shortened to 20-ft with area reduced to 80-sq ft. Wing tips utilize an aerodynamic shape designed to control tip vortices and spanwise flow which further aid performance and stability. Length is 19-ft 8-in.

Most notable feature of the W-9L is its tricycle landing gear with castering nose wheel tube mounted with main gear. This gear design really absorbs the bumps while the aircraft literally floats along while taxiing. Engine in the W-9L is 160-hp Lycoming with Hartzell Constant Speed 70-in dia. prop. Performance is upped with maximum speed at 200-mph, cruising 175-mph at 75% power, landing speed 60-mph.

THE MODEL TAILWIND

Few models we have built have turned in such smooth flying performance as has this one. This is because many of the big plane's good characteristics show up in the model. An unexpected bonus resulted from the airfoil fuselage shape. Exhaust oil is carried well up and over the top, leaving the model clean. We found the only concentration of oil on the fin top. The model is very stable, turns smoothly, recovers to level flight quickly; climb is flat and glide is fast.



With modest .15 power and rudder-only radio control it is an excellent up, around and down sport flyer. It is not a contest busting screamer. Nor is it a super-detailed Nats' winning scale job. Some compromises were necessary in favor of flying performance.

Our miniature retains all the outward appearance of the big Tailwind but it is constructed with the idea that it is to do a lot of flying.

Concessions include a one-piece wing. Dihedral is 4° instead of zero as on the prototype. Airfoil thickness was increased to 12% (scale is 9%) to gain depth for spar strength. Wing is also partially openwork with fabric-covering, rather than being completely planked. Fuselage structure

is openwork, fabric-covered with members close to scale locations. Cabin area and nose are planked to simulate metal covering of original.

Windshield and cabin windows are doped on over planking rather than utilizing open scale-like structure which in this area would be too flimsy in miniature. Horizontal tail area is increased over scale size. Vertical tail is scale size and full scale rudder is used.

One added feature found necessary for ease of handling: finger slots built into the fuselage bottom for no-sweat hand-launching! With the fuselage 6% in wide, it can be quite an awkward handful otherwise. The receiver switch can also be conveniently hidden inside one of these belly slots.

Our original miniature exhibited some ground-loving tendencies during its first flights. About 4° downthrust had been built in. This was removed and she now flies fine with 0° thrust line. Some right thrust is needed, however. Slightly more than a usual amount of negative stab incidence was needed to hold proper fore and aft trim.

Model is scaled at 2-1/4 inch to the foot, giving a wing span of 45-in, length 44-in and wing area of 397-sq in. Power on our original is an old K&B .15 Torpedo swinging a 9D-4P prop.

With five pen cells or a medium battery load, a single channel receiver and an S-N escapement all-up weight is close to 3-lb.

This weight and area is about right for a sport flyer, but if snappier performance is desired, you could go to a .19 engine. However, more controls will be needed to handle such power. There is ample room in the fuselage for additional R/C gear, but don't go overboard. Remember that wing area is under-400-sq in.

As is, this model Tailwind looks like a real airplane. And we ain't just whistlin' Dixie when we say her flight performance is a joy to behold.

FUSELAGE CONSTRUCTION

Begin by building complete side frames over the fuselage side view. Note marks above and below longerons showing upright positions when frame is built flat. Assemble one side frame and let dry thoroughly, then build second side directly over the first to insure identical sides.

To prevent cementing the two together during building put patches of thin tracing paper (not waxed paper) over joints of first side before pinning down second side parts.

Next, assemble the fuselage formers over section drawings. Build formers 5, 7, 8, 9, 10 and 11. Note slight outward slant of side members.

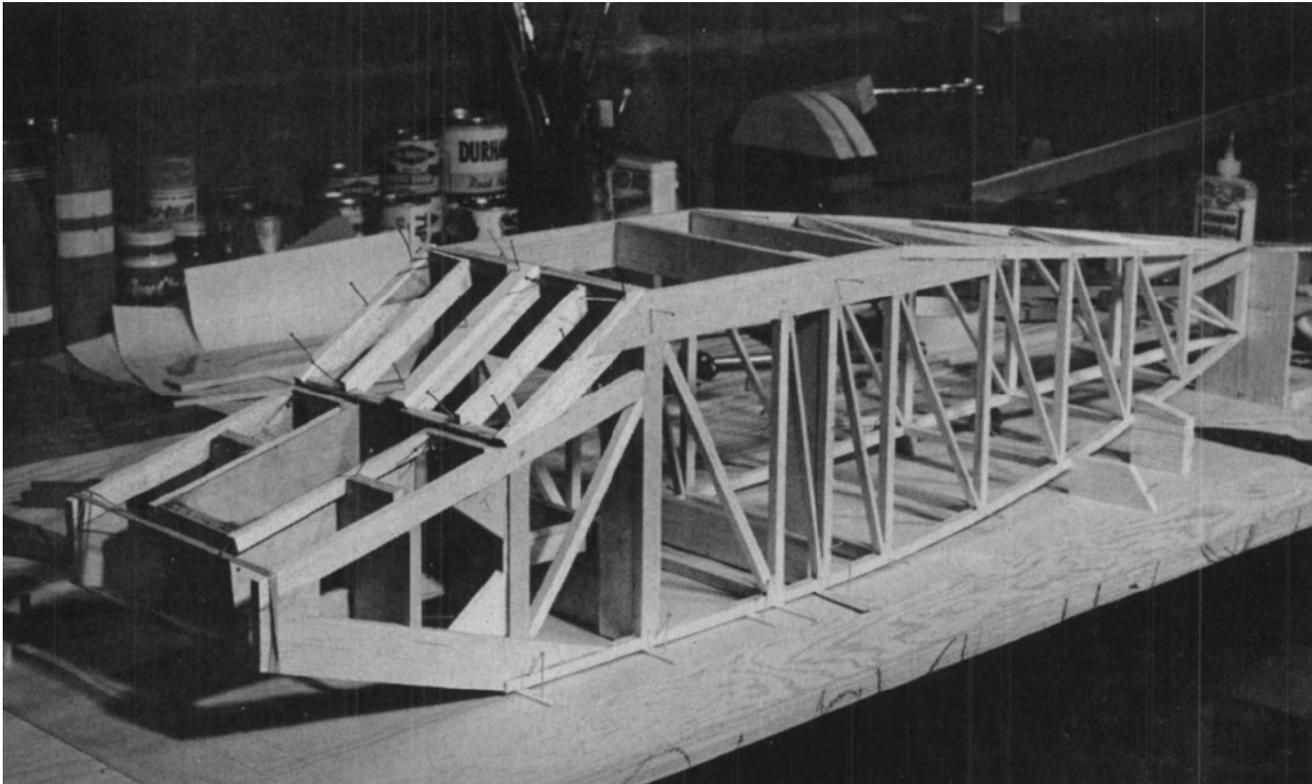
That engine-landing gear mount should be built as a separate assembly now. This is a plywood box structure with pine or bass corner braces. Use white glue or Weldwood for this unit. Small brads will aid assembly. Cut out plywood bulkhead for Sta. 4 and glue the engine-mount box to this—align carefully.

Fuselage sides can now be assembled to formers over a smooth flat work surface. Note horizontal reference line on plan side view. This corresponds to work surface. Fuselage is level on bottom from Sta. 4 to 6, so these edges should lay flat on work surface. Install Formers 5 and 7 first and let dry. Fuselage sides are parallel in this area.

Add Formers 8, 9, 10 and 11 in that order, working from cabin to tail. Block up tail to proper height from horizontal reference square and align carefully. Put Sta. 4 bulkhead with engine mount attached in place between sides and cement, drawing sides together to fit bulkhead.

Further draw nose section of side frames together and cement to Firewall A, also add bulkhead halves a Sta. 3. While fuselage basic structure is still down on work surface, add diagonal braces in fuselage top rear section. Also add 1/4 x 1/2" doublers inside cabin top edge, cross pieces behind Sta. 4 and windshield supports between Sta. 4 and top of 5.

When dry, fuselage structure can be taken up from work surface. Add diagonal braces in lower fuselage rear and add 14 x 1" crosspiece at Sta. 6 bottom.



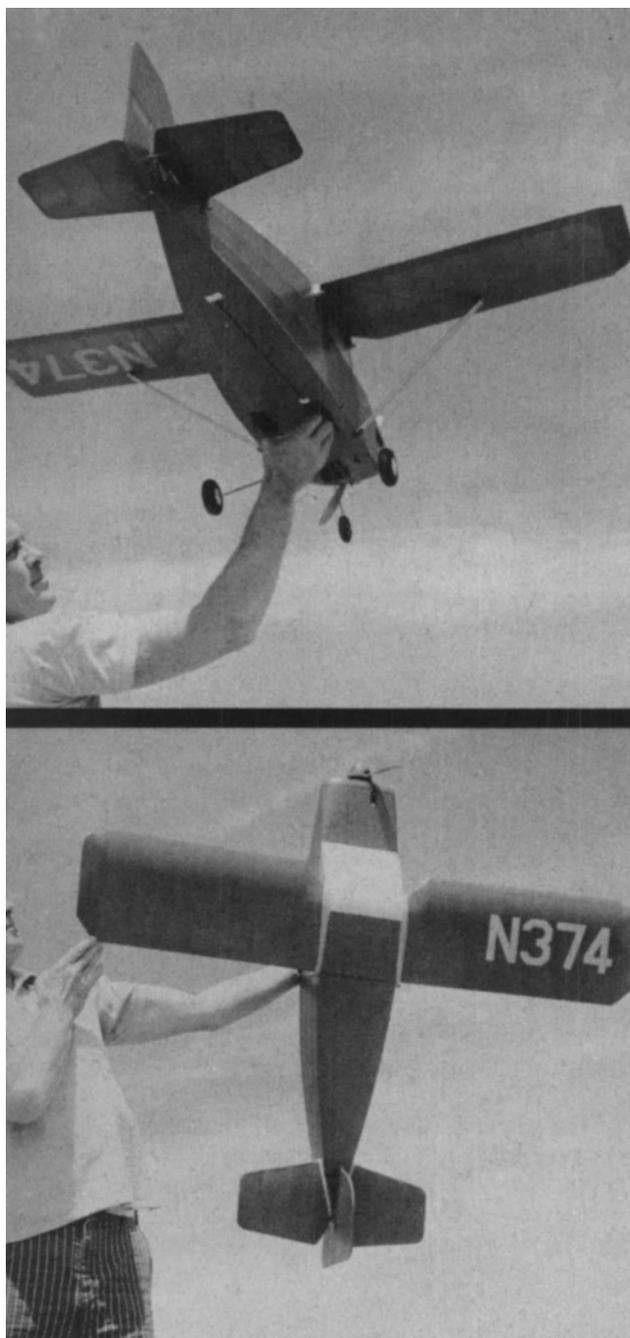
This would be a good time to plan your cabin interior and R/C installation. In the original model we bridged the 1/4 x 1" bottom crosspieces from Sta. 4 to 7 with 1/2" sheet, having grain running fore and aft. We also planked the insides of the side frames in this area.

This forms a strong box for battery packs and your foam-wrapped receiver. Inside planking is not absolutely necessary, but the floor is useful or can be raised about 1" or 2" for R/C unit mounting.

If floor is not desired, hardwood rails can extend fore and aft bridging, additional 1/4 x 1" crosspieces at Sta. 5, 6 and 7. In original model we simply bolted a 2" wide piece of 1/8" plywood across Former 7 to serve as an escapement mount plate. The plans show a typical servo mounting in phantom line utilizing 1/4 x 1" crosspieces and 3/8" square pine bearers between Formers 7 and 8.

Precise R/C installation details are not detailed since equipment varies so much and R/C choice is up to the individual builder anyhow. Locate the parts where indicated on plans, however. CG location can be shifted by moving batteries ahead of or behind Sta. 4 bulkhead. There is ample room for any battery and R/C combination desired. And we do mean "any".

Outside of fuselage is finished next. Add 1/16" x 1/4" strips over aft longeron sides, then cap top and bottom of longerons, see detail at Sta. 10 on plan side view. Add 1/16" sheet planking to forward fuselage sides from Sta. 1 back to Sta. 7. Trim flush with longerons at cowling and windshield. Plank windshield area with grain running cross-ships. Add 1/4" sheet bottom



between 4 and 5. Side and top bottom stringers should be added now. Note that they taper in width toward tail. Use a modeler's plane to reduce taper after pieces are cemented in place.

Landing gear plywood mount E should be shaped and fitted now. Bend gear wire to shape, attach with "J" bolts then glue mount in place. Put No. 2 x 1/2" wood screws through mount into engine mount beams and bulkhead 4 to strengthen joints.

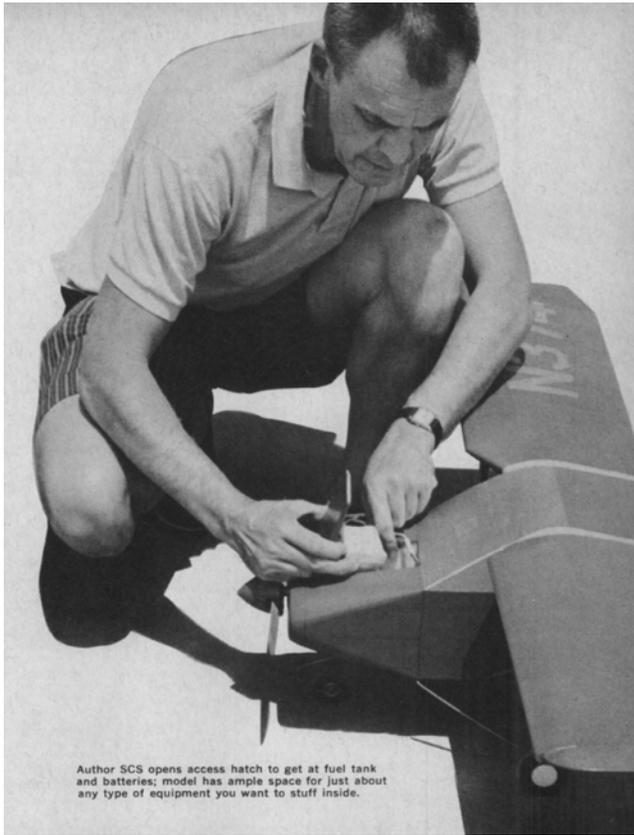
Cement upper and lower cowl blocks in place and carve to shape. Note removable section in top center for tank and battery access.

Finish tail section of fuselage by adding 1/16" plywood strips to sides for fin post mounting. Plans show vertical tail mounted with bolts and wood screws. This was done on original model in case modifications were needed or horizontal tail required extensive incidence changes.

The removal tail mounting proved unnecessary so this feature can be omitted if desired. Once the stab trim is established after test flights, tails can be cemented permanently in place. Wing and tail hold-down dowels are added after fuselage is covered.

TAILS

These surfaces are simple flat structures. Fin and rudder can be assembled flat over the plan outlines. Round off leading edge and tip and taper trailing edge. Add rudder hinge before covering. Horizontal tail is also built flat over plan as with fin and rudder. Cap rib pieces top and bottom with 3/16" sq. strips, then carve or plane down to form an airfoil section as shown on typical section and tip profile.



Author SCS opens access hatch to get at fuel tank and batteries; model has ample space for just about any type of equipment you want to stuff inside.

Structure here is conventional with over-and-under spar, planked leading edge and rib capstrips. The wing is not scale-like except for the rib spacing. Steve's big Tailwind has a two spar wing, but for the model a single spar was used for strength near maximum thickness point.

Build the wing in three parts—right and left panels and center section. Only fussy part is the leading edge cut-out at the fuselage side junction. Cut the required number of ribs; all are 3/32" sheet. Note that centersection ribs W1 and W2, W3 are reduced in height for 1/16" sheet top and bottom planking.

Build an outer wing panel directly over the plan. Lay trailing edge and lower 1/4"-sq spar flat on plan while blocking up leading edge 5/32". Cement ribs in place, then add upper 1/4" sq spar. Add 1/16" sheet planking to leading edge and rib capstrips before taking up panel from work surface. Assemble other outer panel in same manner.

Build flat centersection over plan as with outer panels. Note 1/2" sq at leading edge and plywood spar joiners extend beyond centersection sides. Block up centersection ribs with 1/16" thick scraps to allow for bottom planking. Do not cover centersection with sheet until after it is joined to outer panels.

Join outer panels to center section by cementing at 1/2" sq plywood joiners and trailing edge. Let dry thoroughly, then take up from board and complete leading edge at cut out. Add 1/2" sheet at centersection leading edge to form upper windshield wedge.

Add planking to top and bottom of centersection and carve or plane leading and trailing edges to shape. Carve tip blocks before attaching to wings. Study photos and plan details correctly. Since the tip is somewhat difficult to form, work carefully.

Cement in place when completed. Add such details as strut end mounts and 1/16" dia. wire to trailing edge to complete wing. Sand all exposed wood smooth, apply two coats of clear butyrate dope before covering.

Treat rest of model in same manner. Cover with Nylon. Apply at least four coats of clear dope, sand lightly between each. Four coats of colored dope will give an ample finish. Color scheme is all red, with light gray numerals, wing struts and gear legs.

Cabin windows can be finished silver. Door and cowling lines are drawn on with black ball-point pen.

These final details remain: Wing struts, strictly decoration, need not be used for flying. But if they are, lower end attachment is flexible enough so wing can shift in a hard landing. Lower strut end should have a patch of inner tube rubber attached with Pliobond or Contact Cement. Pierce rubber with knife point so it will slip over wood screw in lower fuselage longeron. Under load the rubber can twist off screw head, but will hold during flight.

The scale-like landing gear should work well for R.O.G. take-offs from a smooth runway. We haven't had the opportunity to find out since our local flying site is rough ground with stubble.

The nose gear does tend to deform and trip up our model when landing in this mess, so if your flying site is rough we recommend an additional brace from mount plywood to gear leg. The two-wheel gear and a liberally fiberglassed lower cowling should take the rough landings better.

We buried the engine in the ample cowling by side mounting to preserve the scale appearance in the original model. If this is done it will be necessary to cut through firewall, and box in a cooling air duct back to Former 3 to an opening in fuselage side.

The glow plug is conveniently hidden with this mounting so a small alligator clip with short wire is left on glow plug, wire extends out cooling duct. Boosters are clipped to this wire and needle valve extensions for starting.

Fuel tank is a standard wedge type mounted with wedge downward. Tubing is moved to new tank top. Feed tube extends full depth to point of wedge in center. Filler is capped with closed end length of plastic tubing.

Vent has plastic tubing connected to it and led downward through mount floor to below cowling. Overflow goes overboard when filling, filler is capped so no fuel sloshes into model structure.

If built according to the plans, and with reasonably well aligned structure, your Tailwind model should turn in a fine sport flying performance.

Balance where indicated on plans, use tail incidence shown with .15 engines and rudder-only R/C. If you go to a .19 and additional controls, down-thrust and less tail incidence will probably be needed.

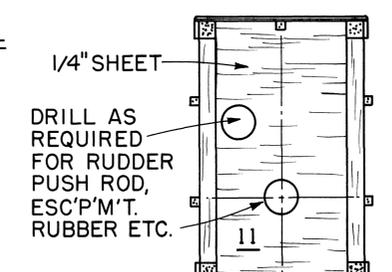
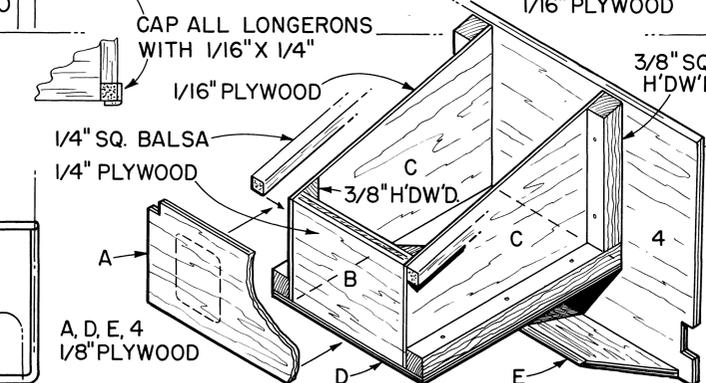
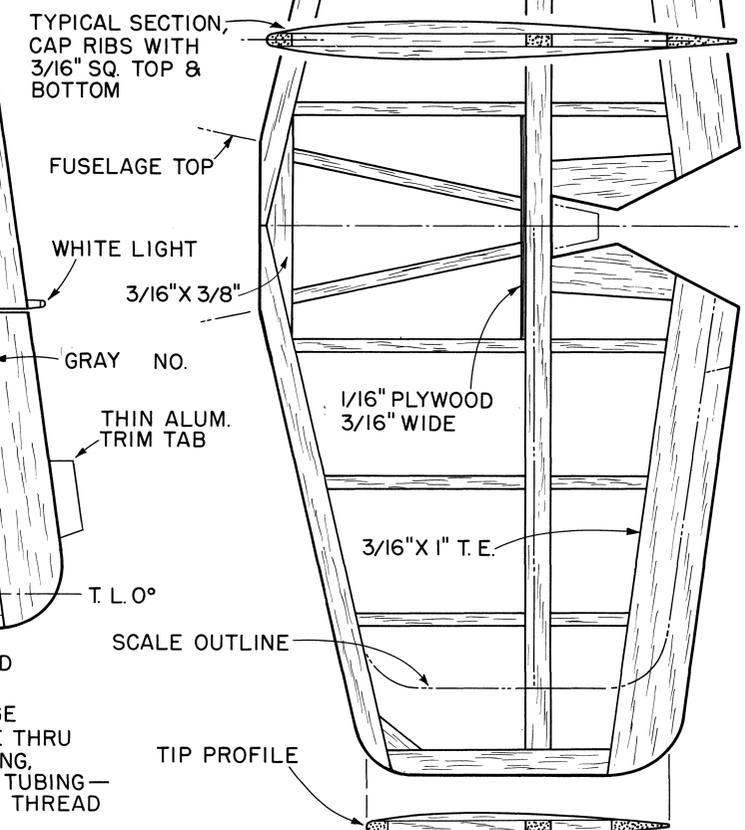
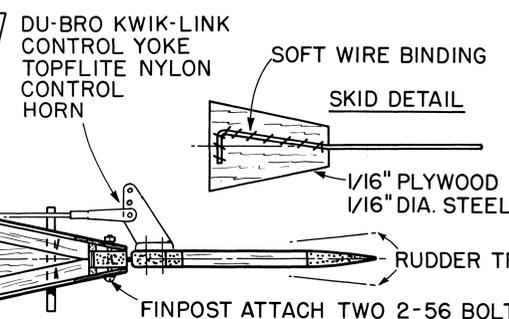
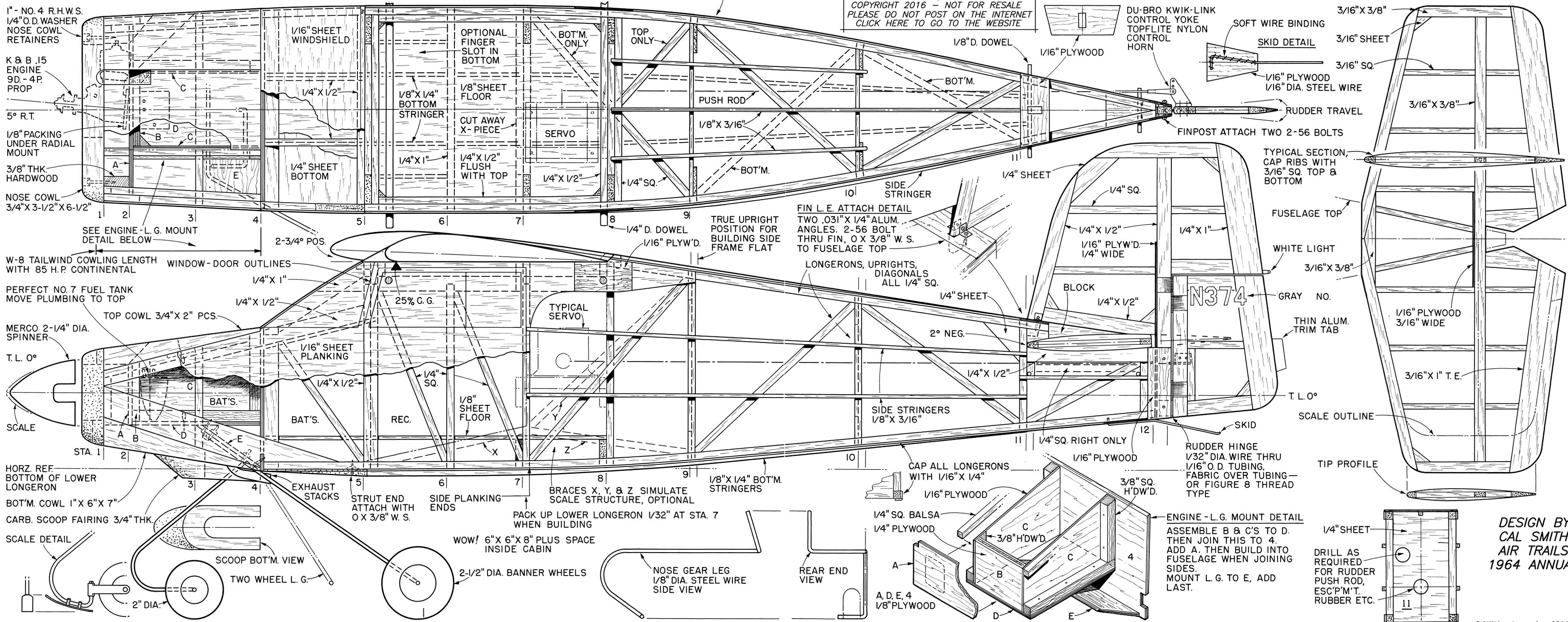
She looks a little boxy but don't let that fool you, it's a mighty clean efficient box, with NO bad habits.



BILL OF MATERIALS

Balsa unless otherwise specified

- 8 - 1/16 x 1/4 x 36": longeron, rib capstrips
- 4 - 1/8 x 1/4 x 36": fuselage stringers
- 1 - 3/16 x 3/16 x 36": stab ribs
- 3 - 3/16 x 3/8 x 36": stab L.E., spar, wing L.E.
- 1 - 3/16 x 1 x 18": stab T.E.
- 12 - 1/4 x 1/4 x 36": spars, fin, fuselage
- 6 - 1/4 x 1/2 x 36": fin, fuselage
- 5 - 1/4 x 1 x 36": fuselage, formers
- 2 - 1/8 x 1 x 36": fuselage, formers
- 2 - 1/2 x 1/2 x 36": wing L.E., spar
- 5 - 1/16 x 3 x 36": fuselage, wing planking
- 3 - 3/32 x 3 x 36": wing ribs
- 1 - 1/8 x 3 x 36": floor
- 1 - 3/8 x 3 x 36": wing T.E.
- 1 - 3/4 x 4 x 20": top cowl blocks
- 1 - 1 x 4 x 12": bottom cowl blocks
- 1 - 1 x 2 x 18": tip blocks
- 1 - 6 x 12 x 1/16": plywood
- 2 - 6 x 12 x 1/8": plywood
- 1 - 3/8 sq. hardwood x 18"
- 1 - 1/4" dia. dowel x 18"
- 1 - 1/8" dia. dowel x 6"
- 2 - 1/8" dia. x 36" steel wire
- 1 - 1/16 dia. x 36": steel wire
- Misc. Hardware:
 - Eight "J" bolts;
 - 2-56 nuts; bolts;
 - No. 2 x 1/2" woodscrews;
 - pr. 2-1/2" dia. Banner wheels;
 - one 2" dia. Wheel;
 - 2-1/4" dia. Merco spinner;
 - Fuel Tank Perfect No. 7;
 - two sq. yds. Nylon;
 - Cement;
 - Glue;
 - clear and colored dope.
 - R/C gear and fittings as desired.



DESIGN BY
CAL SMITH
AIR TRAILS
1964 ANNUAL

THE TWELVE

by JACK RITNER

A quick to build and capable stunter that's easy to fly and tough enough to take a beating. From the November 1954 issue of Model Airplane News. The plan was featured in an old issue of FSP but this time we included the construction article.



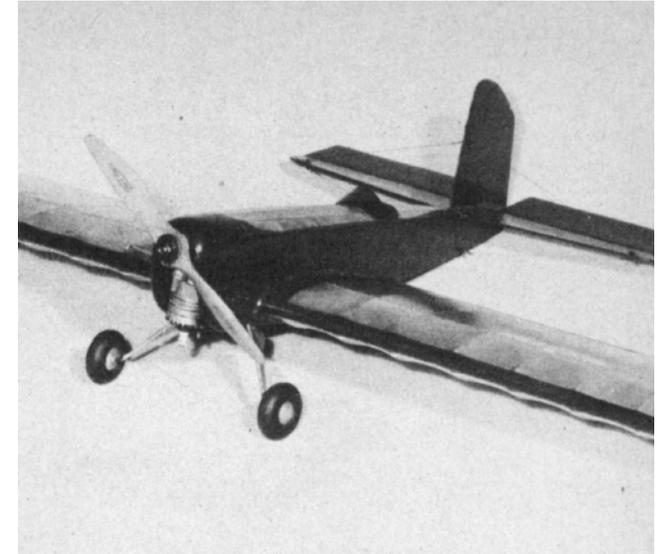
This is the twelfth model in a series of stunt and combat models. It is especially suited for Fox, Torpedo and Veco engines of .29 to .35 cu. in. displacement. Although this model is extremely maneuverable, it is so easy to fly that many fellows in San Francisco have learned to fly the entire AMA stunt pattern with a Twelve.

This airplane is capable of doing large and round, or small, square-cornered maneuvers, with ease. It has been completely debugged during the two years of its life, and is capable of winning contests.

Twelve's contest-winning ability is well displayed by my success with the design during the 1953 contest season, wherein my Twelve won or placed second in every contest entered under Western Associated Modelers' sanction. This record resulted in a place for me on the 1953 Northern California Plymouth Team.

In building, use a good grade of lacquer cement on all parts or you will end up with a silk bag of loose parts after a few flights, as Twelve flies 90 mph on 60-ft., .012 lines with Fox .29 and 9 x 7 prop. Cement motor mounts to fuselage sides; let dry; cement firewall to motor mounts and sides; install gas tank.

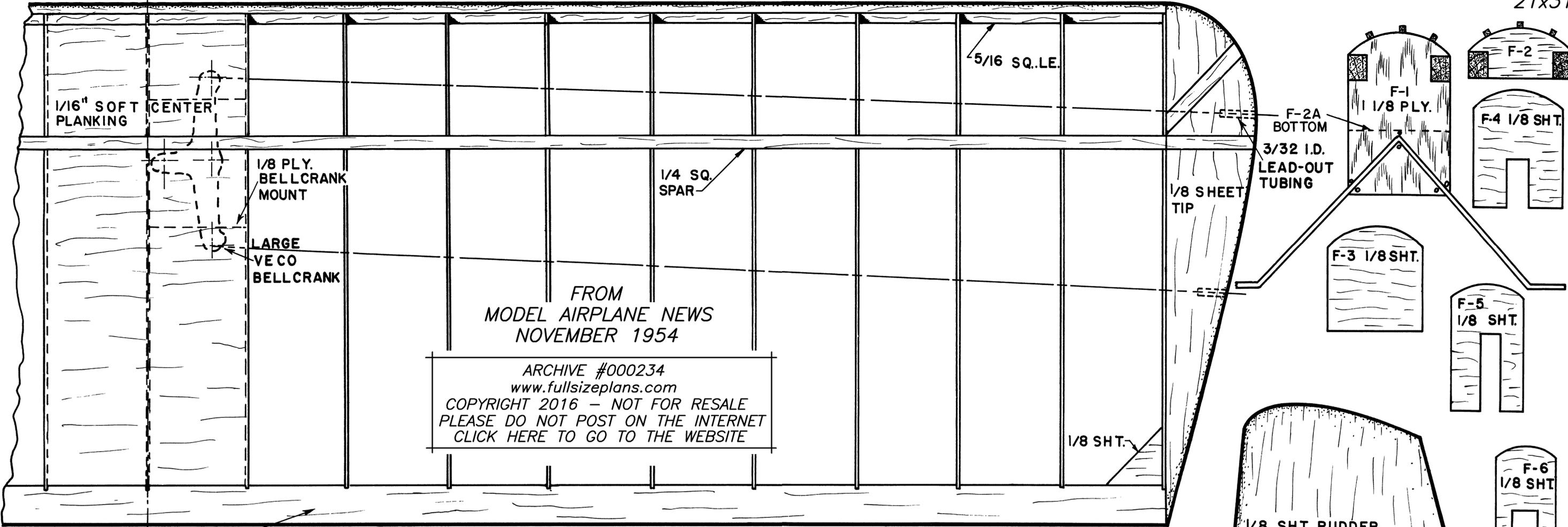
Build wing in normal manner: the three center ribs are shown dotted. Plank center bottom, install bellcrank and push-rod, plank top center. Cement fuselage sides to leading edge, pull tail end together and cement, add tails (use hardest 1/8 sheet for stabilizer you can find), and add fuselage formers and the three 1/8 square stringers. Install landing gear, bottom sheeting, bolt engine in and install top nose block.



Sandpaper the entire structure, double cement every joint, and cover the entire model with silk. Apply three coats of clear nitrate dope, two coats of clear butyrate, and two thin coats of colored butyrate trim. The finished model should weigh between 18 and 24 oz.

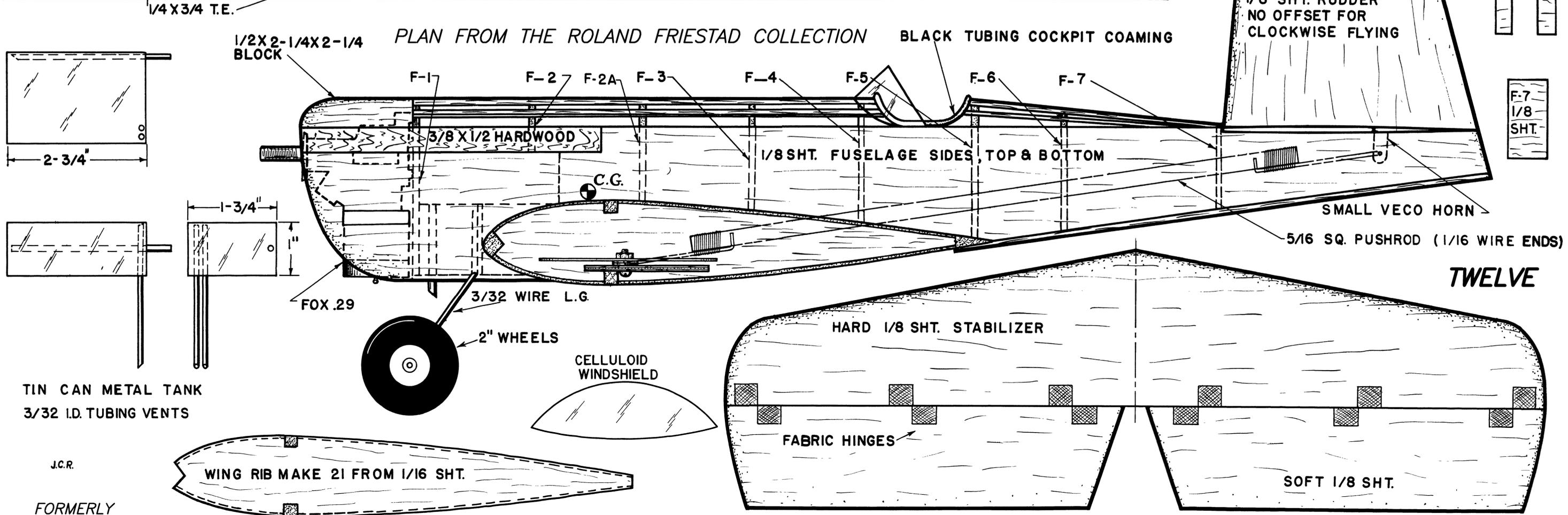
Your Twelve, if properly built, will reward you with many hours of trouble-free operation, for it is not easily ruined. Practice is the keynote to winning stunt contests, so try to wear out your Twelve. I have a Twelve with at least 11 gallons of fuel run through it which is working on its third engine and still going strong.

Fill the fuel tank through either vent. When fuel runs out the other vent with the model in a normal position, the tank is full. For best results, plug the vent on the outside of the circle, after filling, with a wood screw and a piece of neoprene tubing. This tank will run exactly as you set it on the ground.



FROM
MODEL AIRPLANE NEWS
NOVEMBER 1954

ARCHIVE #000234
www.fullsizeplans.com
COPYRIGHT 2016 - NOT FOR RESALE
PLEASE DO NOT POST ON THE INTERNET
CLICK HERE TO GO TO THE WEBSITE



TWELVE

TIN CAN METAL TANK
3/32 I.D. TUBING VENTS

J.C.R.
FORMERLY
FSP 021 SHEET 5B

**Build a control line copy of
the plane on the cover . . .**

**DOUGLAS BADER'S
World War Two Fighter**

Hawker Hurricane

This is Walt Musciano's replica of the HURRICANE flown by Douglas Bader, famous Royal Air Force fighter ace. A featured story on Bader appeared in the December 1963/January 1964 *Air Progress*. This model is from the *Air Trails 1964 Annual*.

The Royal Air Force's first monoplane fighter and its first to exceed 300-mph was designer Sidney Camm's Hawker "Hurricane." The prototype first took to the air on November 6, 1935.

Initial tests proved so successful that Hawker Aircraft ordered material for one thousand machines and began tooling for mass production of the new design before any official quantity order had been placed!

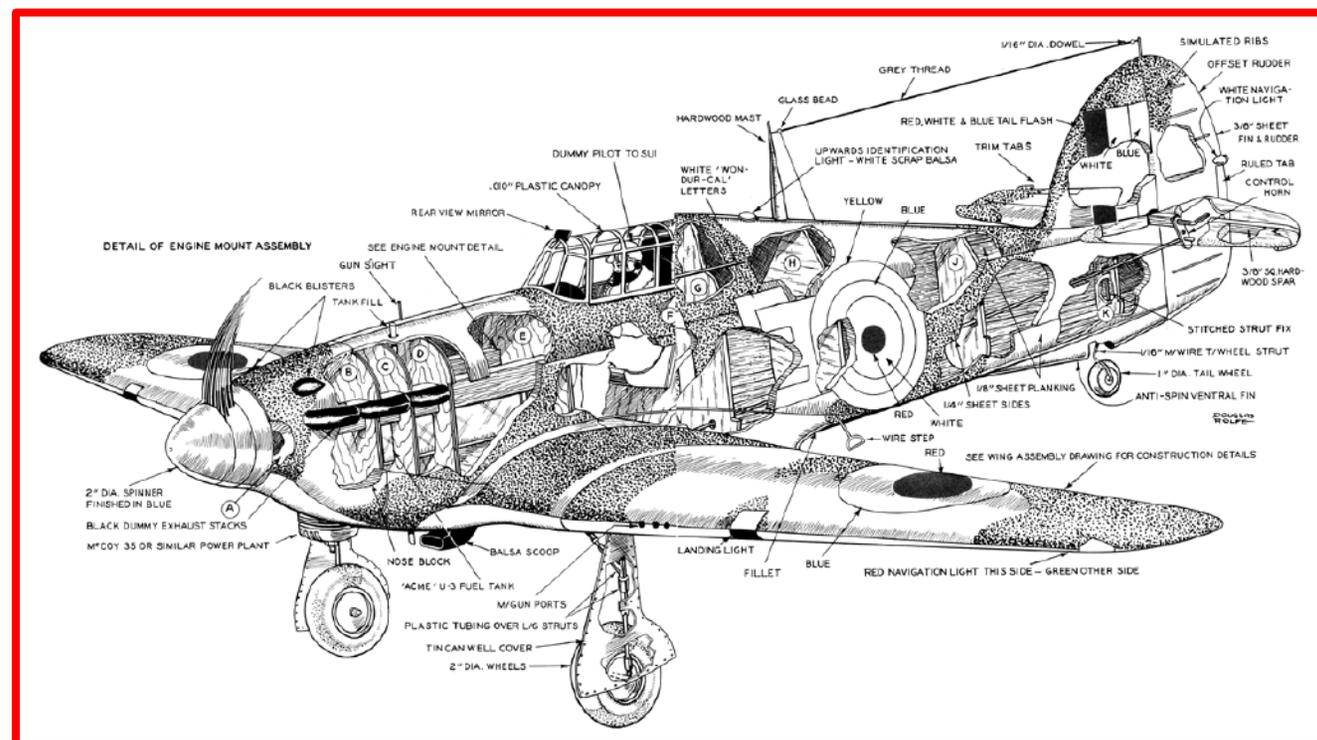
But the company's faith in the design was well-founded and shortly the Air Ministry began placing orders for the plane that was to bear the brunt of the fighting during the forthcoming "Battle of Britain." In fact, orders for the new fighter were so brisk that Gloster Aircraft and Canadian Car and Foundry Company received contracts to produce the craft.

Early Hurricane models were fitted with two bladed, fixed-pitch propellers and fabric-covered wings. Soon this changed and three-bladed controllable-pitch metal propellers and stressed skin metal-covered wings became standard equipment.

By September 3, 1939, the date of the beginning of WW-II, almost five hundred Hawker Hurricane Mark I fighters were in service with eighteen RAF squadrons. When the Battle of Britain started in July, 1940, thirty squadrons of Hurricanes were ready as compared with only nineteen squadrons of Spitfires.

Maximum speed of the Mark I was 325-mph at 17,500 feet altitude. With a gross weight of 7,127-lb it could climb to 20,000 feet in nine minutes and had a service ceiling of 36,000 feet.

Armament consisted of eight .303 caliber machine guns buried in the wing. A twelve cylinder, "V" type, liquid-cooled, 1,025-hp Rolls-Royce Merlin engine propelled the trim fighter.



Despite the fact that the Hurricane performance was, in general, inferior to that of the MesserschmittMe-109, its superior maneuverability, good forward visibility and ability to absorb considerable punishment enabled pilots such as Bader, Tuck and Kain to rack up impressive scores flying the old "Hurry-box".

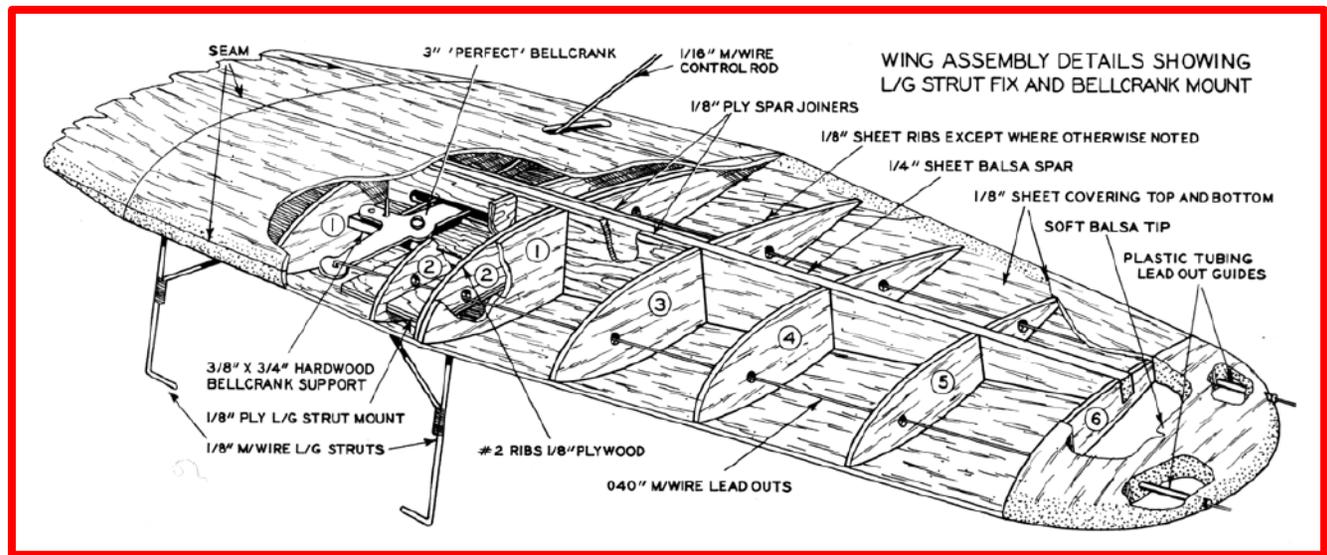
The last of more than 14,000 Hurricanes were delivered during September, 1944. These had served as fighters, bombers, ground attack, catapult planes, shipboard fighters and night fighters, and deserve an honored place among the outstanding combat aircraft of all time.

Our model Hurricane is patterned after the plane flown by Douglas Bader when he was a Squadron Leader during the Battle of Britain. Built to a scale of one inch to the foot, it can accommodate any glow plug engine from .29 to .60 cubic inch displacement. The ideal size is between .35 and .40 c.i.d.

While the plans show all-balsa structure for durability, the meticulous enthusiast can simulate fabric covering on the wings by cementing plastic fish line leader to the model as shown then applying numerous coats of balsa sealer to fair these into the wing surface.

Construction begins with the wing. Cut spars from 1/4" sheet balsa and joiners from 1/8" thick plywood. Cement spar pieces between joiners and set aside to dry. Slip ribs into spar notches and cement well.

Cement plywood landing gear mount into wing rib slots, then bend landing gear. If a large, heavy engine is to be installed make the auxiliary landing gear struts from 1/8" wire, otherwise use 3/32" wire. Bind the joint with fine copper wire and solder well.



Attach assembled landing gear to its plywood support with "J" bolts, when tightened, smear with cement. Cut and install hardwood bellcrank mount, drill oblique hole for bellcrank bolt.

Butt join three-inch wide sheet balsa wing covering and cover underside of wing. Cover center section first, then the outer panels. Use plenty of slow drying cement and take special care when fitting covering around landing gear installation. Hold in place with straight pins until dry.

Securely fasten lead-out wires to bellcrank. Pass these through rib holes then temporarily bolt bellcrank in place. Bend control rod to shape and slip one end through bellcrank hole. Solder a washer on its end to hold the control rod in place.

Bevel lower covering edges, then cement upper covering to spar, ribs and beveled portion of lower covering. Cut slot for control rod. Add wing tips and set aside to dry.

The 1/4" balsa fuselage sides are carefully cut to shape; be sure wing and stabilizer spaces are cut with accuracy.

Cut bulk-heads from balsa or plywood as specified and cement these between two fuselage sides in locations shown. Pull fuselage sides together at the rear and apply plenty of cement.

Forward bulkheads are cut to receive fuel tank and engine mounts. Install hardwood mounts, then the fuel tank. Add plastic tube tank extensions and tape their ends closed to keep tank clean.

Sandpaper wing thoroughly and with care; then cement fuselage sides to wing, passing control rod through bulkhead holes and fuselage slot.

Cut tail surfaces to outline, then carve and sand them to correct cross section. Add hardwood elevator spar and control horn to elevator halves, hinge this assembly to stabilizer. Cement stabilizer to fuselage.. sides, connecting control rod to horn. Solder washer to end of control rod. Add tailwheel.

The fuselage top and bottom are covered with balsa planking strips. Use plenty of cement and glue strips to each other as well as to bulkheads. When dry, fill any small cracks or slits with Plastic Balsa by pressing it into the fissures with the fingers.

Cement two balsa blocks together along the horizontal centerline for the cowl. When dry, roughly carve block to shape and hollow only to clear engine mounts. Lightly cement cowl block to bulkhead.

When thoroughly dry, sandpaper entire fuselage and cowl. Check constantly to be certain your cowl fits into the commercial spinner that you have selected. Add fin and rudder.

The Hurricane wing fillet, quite large, is built up of many layers of Plastic Balsa on a 1/8" balsa platform. It is suggested that the fillet be molded oversized, then sandpapered to its proper contours. The radiator is carved and added along with the tailwheel fairings.

Carefully remove cowl to temporarily install the engine. Hollow cowl to clear engine and cut holes for cylinder, exhaust, needle valve, etc. Then remove engine and apply several coats of sealer to engine mounts, bulkhead and cowl interior.

Cement cowl firmly in place then give entire model a final light sanding. Begin the application of sanding sealer. Brush liberal quantities of sealer over entire model then sand lightly with very fine sandpaper after each coat has dried. Continue in this manner until surface of model is smooth as glass. A minimum of fifteen coats should be applied for a really good finish.

The plans illustrate the basic color scheme used on Bader's Hurrybox. You apply the light colors first. A fine spray gun or artist's air brush is ideal for duplicating the "sand-and-spinach" color scheme.

Interior cockpit detail, canopy, decals, wheels, wheel covers, radio mast, lights, exhaust stacks, scoop and other miscellaneous touches are added at this time.

Engine is bolted in place and propeller and spinner installed. Then the model should be balanced and any deviation from the point shown on the plans is remedied via lead weight in extreme nose or tail.

Flight lines of at least .012" diameter stainless steel should be used; these can be from forty to seventy feet long. Use the shorter lines for the test flights and fly from a smooth surface to protect your handiwork.

HURRICANE List of Materials **All medium balsa except as noted**

Two 1/4" x 3" x 36" for fuselage sides and wing spars;

1/8" x 6" x 18" plywood for fuselage bulkheads, wing spar joiners, landing gear supports;

(8) 1/8" x 1/4" x 36" for fuselage planking;

(6) 1/8" x 3" x 36" for wing ribs, wing covering, fuselage bulkheads;

3/8" x 3" x 36" very soft balsa for tail surfaces;

3" x 4" x 18" for cowl block, radiator;

3/8" x 3/8" x 12" hardwood for elevator spar;

3/8" x 3/4" x 18" hardwood for engine mounts and bellcrank mount;

1/8"-dia x 36" music wire for landing gear;

1/16"-dia x 36" music wire for control rod, tail wheel strut;

one sheet each of red, white, blue, yellow, and black Wondur-Cal;

Acme U-3 fuel tank;

large Perfect bellcrank;

large tube Ambroid cement;

tube Aero-Gloss "Plastic Balsa";

one pint Butyrate Sanding Sealer;
2-oz Butyrate True Blue Dope;

8-oz Butyrate White Dope; 2-oz Butyrate Orange Yellow Dope;

2-oz Butyrate Black Dope;

9-oz Butyrate Medium Green Dope;

3-oz Butyrate Insignia Red Dope

COLOR MIXING INSTRUCTIONS

(1) Use the straight white to paint the fuselage band.

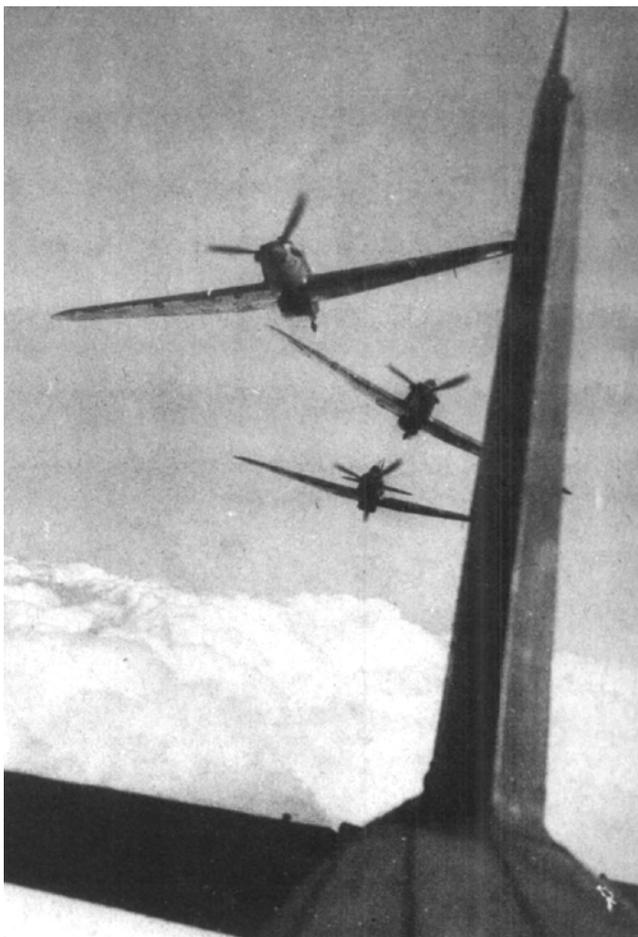
(2) Pour out a little blue in a clean bottle and add a few drops of black to darken; use this for the spinner.

(3) Mix the blue with the white and a very light sky-blue should result. Paint the entire underside of the model with this color.

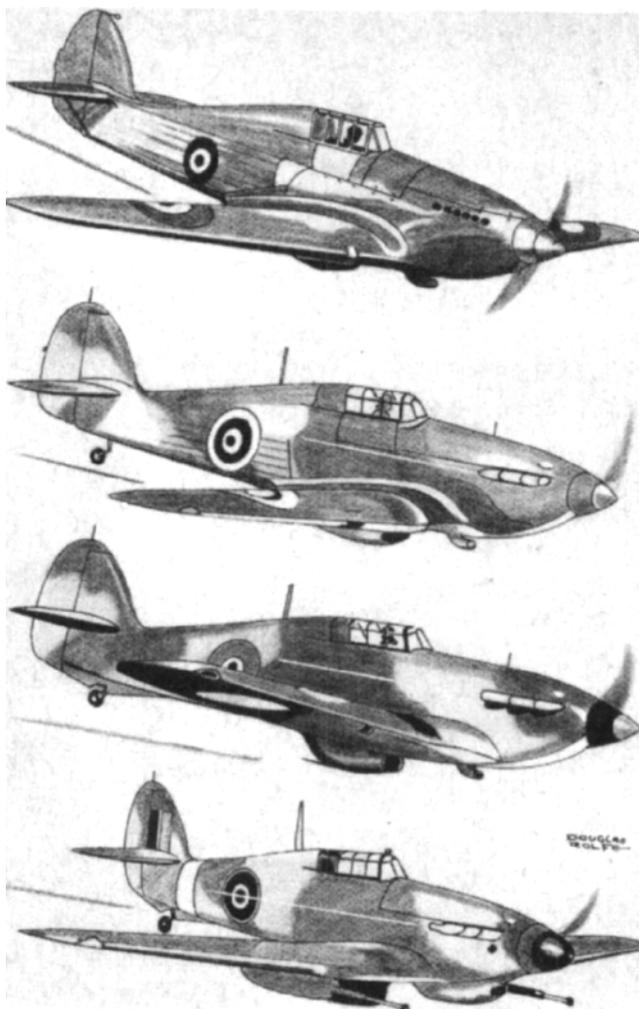
(4) Mix equal parts of red and green, 6-oz of dirty dark-brown is the result . . . save the remaining 6-oz of green . . . add a little at a time of the dirty-brown to the nice green to "dirty" it up . . . not more than two ounces, though . . . now you have the "spinach".

(5) Add the yellow to the dirty-brown to mellow and lighten it a bit and this is the "sand".

(6) Black is used for painting exhaust stacks, wheel struts, propeller, scoop and radiator inlets.



What three HURRICANES looked like on your tail



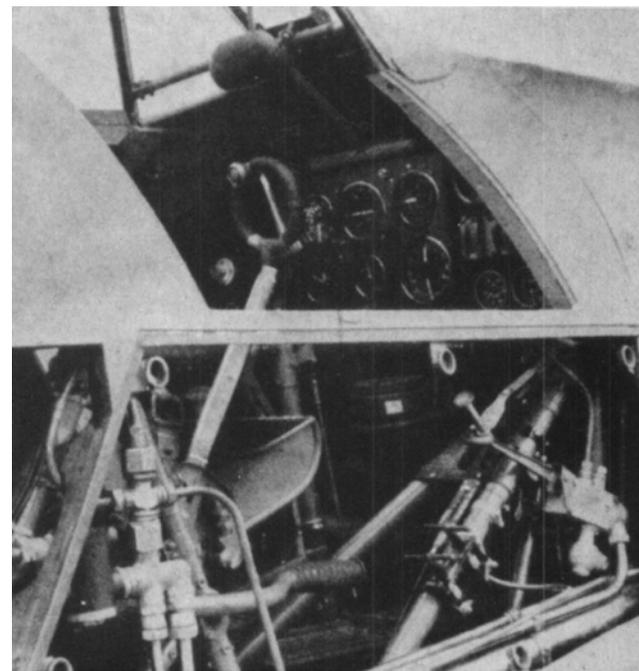
DEVELOPMENT OF THE HURRICANE

The three Hurricanes which preceded the subject of our cutaway were the Mk. 1 and the Mk. 2 which appeared in 1943 and are shown here.

In order, from top to bottom, they are the prototype model which first flew in November 1935 (note mass balanced rudder, retracting tail wheel and individual exhaust ports); the first production model with balanced rudders; the modified production model with anti-spin ventral fin and, finally, with modified nose cowling and armed with two 40mm cannons.

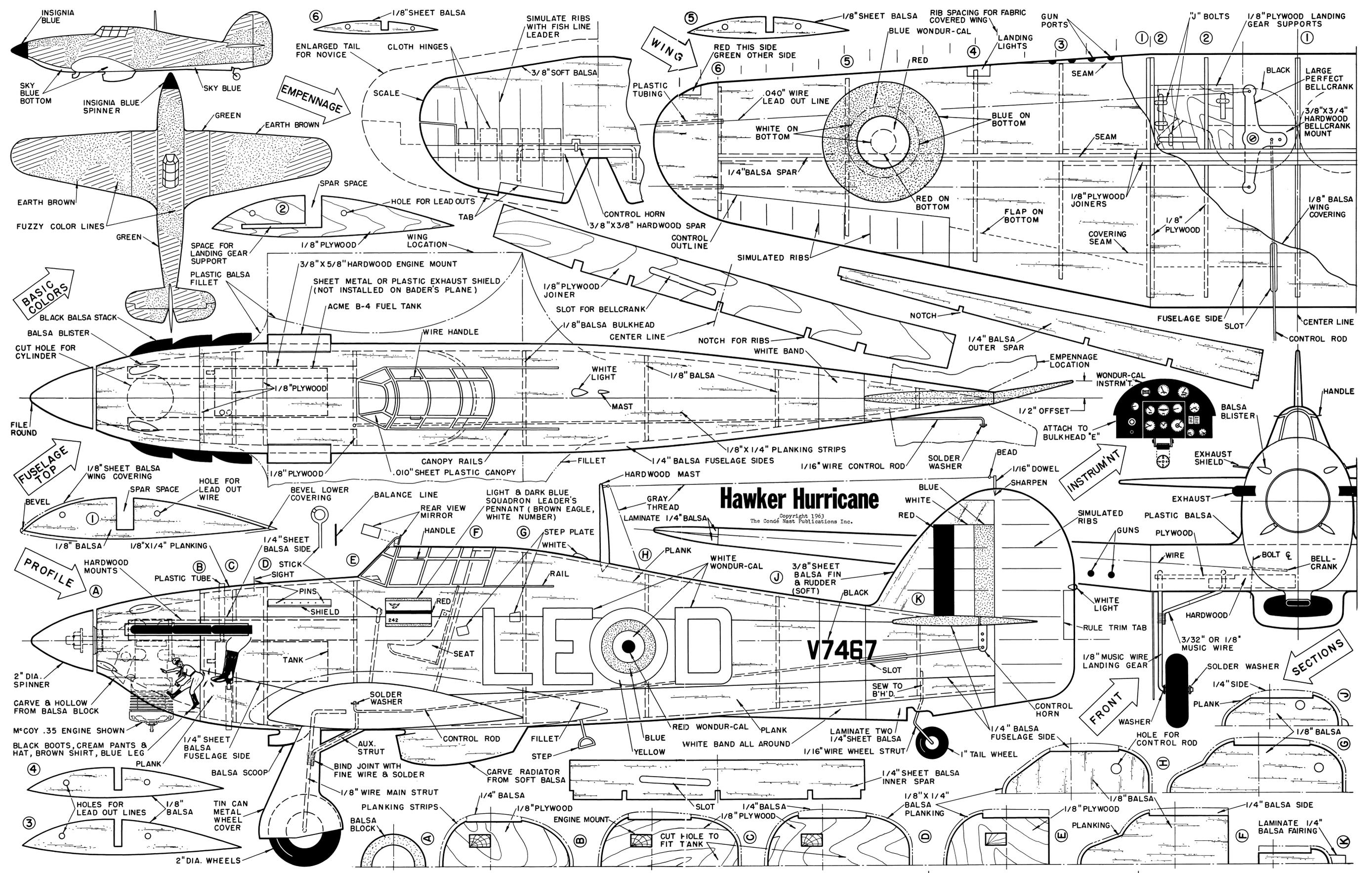


Douglas Bader with his HURRICANE - His story appeared in Air Progress magazine



A photo of the HURRICANE cockpit and instrument panel

PLAN FROM THE ROLAND FRIESTAD COLLECTION



Hawker Hurricane
 Copyright 1963
 The Condé Nast Publications Inc.

LEOD
V7467

MODEL DESIGN BY WALT MUSCIANO - AIR TRAILS 1964 ANNUAL

ARCHIVE #003816
 www.fullsizeplans.com
 COPYRIGHT 2016 - NOT FOR RESALE
 PLEASE DO NOT POST ON THE INTERNET
 CLICK HERE TO GO TO THE WEBSITE

Back Issue
MAGAZINE ARCHIVES
from the Digitek Books Collection

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 June 1973 issue of *American Modeler (Air Trails)*.

This issue has the construction articles for UPPER CRUST, a FF by Gene Post, PRAIRIE DUSTER, an RC Pattern ship by Mark & Weldon Smith and 3-Views and history of the Curtiss R3C by Don Berliner & Bjorn Karlstrom.

There is also a full page how-to-do-it on built-up fuselage construction by Bill Dean, well known British designer.

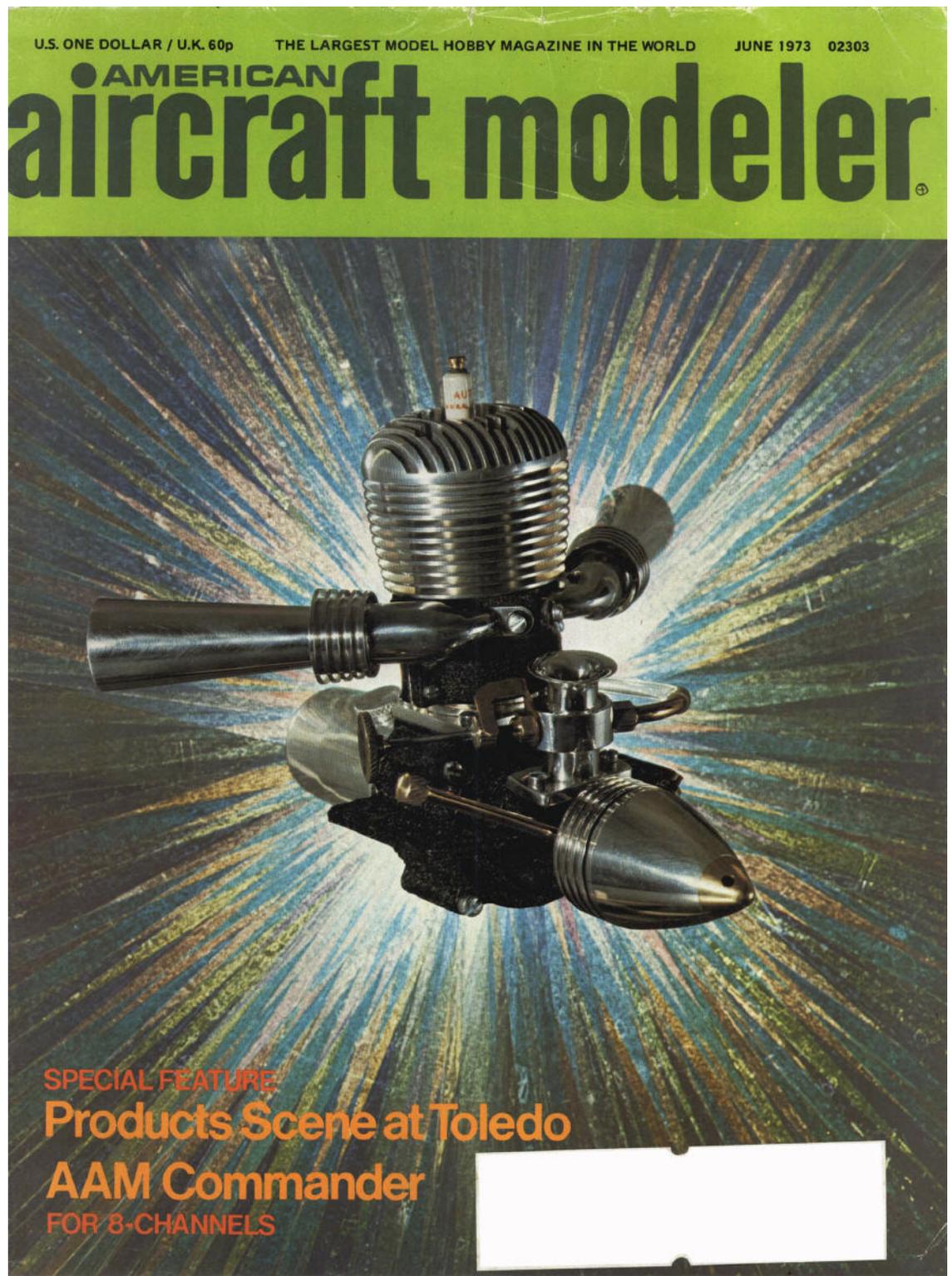
To get your copy, just go to the following link and click on the download button that after a short time will appear in the upper right corner of your browser screen. The issue will be downloaded as a PDF file and you can read or print out any or all of the pages as you choose.

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

This download link will be expire on January 1, 2017, 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. This issue is nearly 120 megabytes because it contains about 120 pages.

See pages 31 & 32 if you want all 435 issues on a single USB Flash Drive.



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.

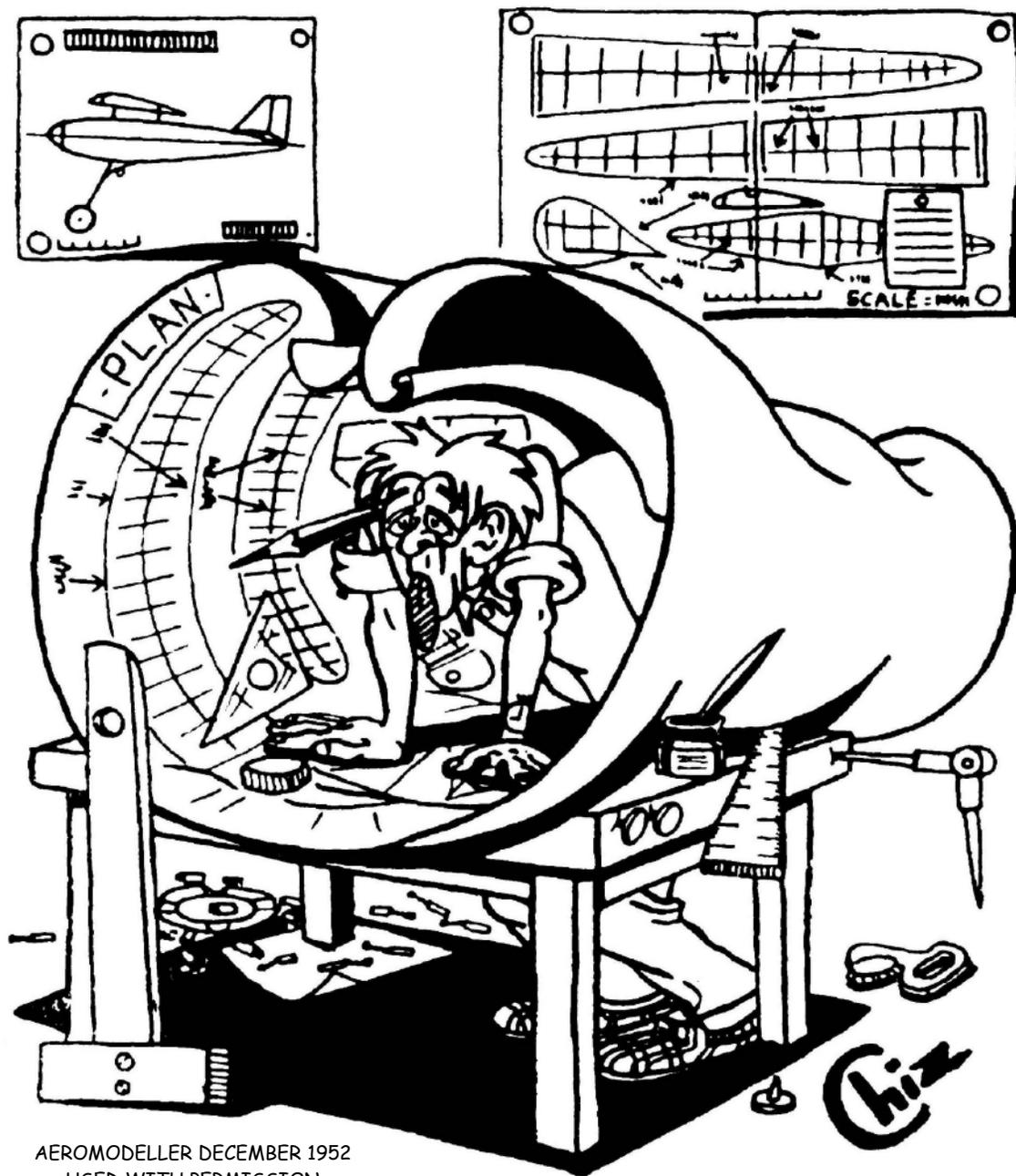
That's NOT the way it was in the past, when you had to build a model before you could fly it. If you're an old-timer, as I am, you have fond memories of Air Trails, Flying Models, Model Airplane News, Aeromodeller and many of the several other magazines available "way back when".

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?"

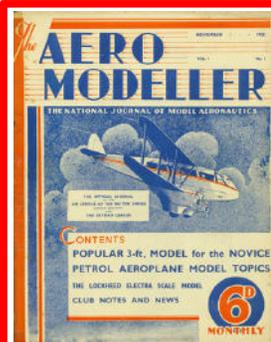
I admit to being a bit of a "nut case" but have been collecting these magazine for over 50 years and now I am trying to digitize them to preserve them for other modelers. They are now available as digital PDF files. See the details on the next page.

Keep 'em Flying - Roland Friestad



AEROMODELLER DECEMBER 1952
USED WITH PERMISSION

All Collections Furnished On Our Custom USB Flash Drive Cards



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

Catalog # D001033 - \$75 - Postage Paid

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 being published. 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

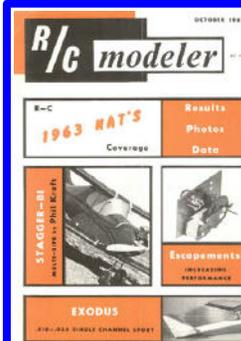
MODEL BUILDER - This magazine ran from the first issue of September~October 1971 through the final issue dated October, 1996 -

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 no longer published. We have the following collection 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



RC MODELER - Now available is the digital collection of the early issues of this magazine. The collection includes all issues from Vol 1, No 1 (October 1963) through December 1972. 109 issues all on a single USB Flash Drive.

D001017 - \$50 - Postage paid

All prices include postage paid 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

Prices Effective April 1, 2016 - Subject to change without notice