

RCMW-FSP

July 2018



Cover by Cal Smith - Air Trails November 1952 - Stits SKY BABY

RCMW-FSP - Index - June 2018

We have made a revision to the way the RCMW Index Page works. It will make it much easier to browse each issue of the magazine.

We are assuming you are using the Adobe Acrobat Reader or a browser that works like the Acrobat Reader.

We can provide the FREE Reader software if you wish, Just Click on this link [CLICK HERE FOR ADOBE READER](#)

On the left side of the issue you will see several icons. Click on the Bookmark icon as shown below.



A list of Bookmarks will appear on the left edge of the screen as shown in the column. If you click on a given bookmark you will be taken directly to that area of the issue. This makes it a lot easier to navigate around the pages.

More About Our Archives & Catalog

We have another website www.digitekbooks.com that serves as a repository of our archives of books and brochures on all things aviation and machine shop related. The back pages of RCMW contained a list of digital model magazine collections available that is now on the digitekbooks website - See page 34 of this issue.

About This Month's Cover

The late S. Calhoun (Cal) Smith was a gifted artist and designer of model airplanes. His cover paintings and model designs appeared on many issues of different model magazines and he also edited several model building books which are available on the DigitekBooks website. Take a look, we're sure you will like it.

Why Subscribe ??

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.

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 - July 2018 Issue



Full
Size
Plans



Well summer is here in Western Illinois in full force with temperatures in the 95 degree Centigrade area. I was talking to another modeler from Arizona and he said that was nothing, that it was 110C there as we spoke and they expected 115C later on. Don't you just hate those guys who steal your story about the weather. If I was back in Northern Minnesota I could call him in January and tell him about 30 or 40C below zero and 3 or four feet of snow. And even though his temperatures are higher one can always resort to that old reliable "It's not the heat, it's the humidity" Sure am glad my garage workshop is heated and air conditioned.

Lots of neat stuff this month. Remember the 9 foot Taylorcraft kit from Miniature that was advertised for about \$20 including 4-1/2x air wheels. Well the full size plans are here this month. If you build it we definitely want to see photos.

Also a nice much smaller rubber scale plan for a Spitfire. You could build it with the scrap balsa left over from the T-Craft.

Triumphant is a UC stunter built to show off the Triumph engine. Plans are here.

One of those Douglas Rolfe collections of airplane drawings from Air Trails is included this month. This time he covers the early beginnings of the lightplane.

How about a shot at Navy Carrier UC? - Full size plans for a Cameron 19 powered scale Skyraider. Pretty sure that's the aircraft that my kid brother was flying when he was shot down.

The SAM Champs (Society of Antique Modelers) and the FAC (Flying Aces Club) are combining efforts in Muncie for the week of September 23. Should be a lot of great flying. Check it out with both groups and the AMA schedule. There will be special glider competition too. I wonder if the Crossbow Launch featured in this issue of RCMW would be legal?

More plans in this issue too, Jasco Thermic C, Midwest Tri-Squire and the Baby Boomer FF for the K&B Infant engine.

Three downloads this issue too! A rare 1933 model supply catalog donated by Jeff McCammant, a Radioplane brochure loaned by Al Lidberg, and the December 1971 issue of RC Modeler.

Take a look on page 10 for some more video clips including the new Honda Jet. Probably won't replace the Piper Cub but is a nice looking airplane. Also a clip about the Boeing observation plan that was nosed out by the Cessna Bird Dog in an Army competition.

On page 14 is a link to the website ENDLESS LIFT which has a lot of ideas for working with simple models with kids.

Keep 'em Flying,
Roland Friestad, Editor

About RCMW

by Roland Friestad

RCMW started about 2004 about the time I finally got tired of a few of the model magazines that were mainly catalogs full of ads and no longer published plans and construction articles except on rare occasions.

Remember those full, or even multiple page layouts of projects, instead of the little postcard sized partial copies that are about all you see now?

Well, one of the main reasons I had subscriptions to the three main magazines, Air Trails, Flying Models, and Model Airplane News was for the plans and construction articles.

Most of them were never built but it was always a pleasure to go over a new issue, or even old back issues and see the plans and how certain designers approached the construction of their designs. Lots of interesting ideas were always included in the articles.

I started a plan service known as FULL-SIZE-PLANS to print selected classic plans, using the facilities of my local newspaper presses. Full size printed plans were mailed out to subscribers, about a half dozen plans in each bi-monthly mailing.

All subscriptions were based mostly on word-of-mouth advertising and there were a lot of people who subscribed but not enough to make it a paying proposition. And the cost of postage ended up as the straw that broke the camel's back after several years of not quite breaking even.

During the same period I had also been working with John Worth and making drawings for his online magazines *Cloud 9* and *RC Micro World*. After John became too ill to continue he asked if I would try to carry on with RC Micro World and I agreed but said it would probably need to combine with my own FULL-SIZE-PLANS in order to have a chance to continue. So that's what we did and it was called *RC Micro World & FULL SIZE PLANS*.

You can still see the names in the header at the top of the editorial page. It was a bit awkward and long as a name to we started calling it *RCMW* as a bit handier and a memorial to John Worth. Anyhow, that's a bit of the history.

Now, what do we do? Since the main things missing from current model magazines and which made up the best part of earlier publications were the plans and construction articles, RCMW is dedicated to reprinting all the old projects and plans from earlier days. We also seek new project and plans from current authors. **We pay for articles and plans.**

One nice thing about the reliable, interference free, inexpensive and very small radio control and electric power equipment now available is that thousands of model designs that were published in the early years, can now be readily made into radio-controlled and electric powered versions very easily.

We reprint these old designs and construction articles in every issue of RCMW. So you see why we say at the top of the editorial page **"For the Model Builder and Flyer."**

Now that large format printer/plotters are common in office supply stores, many print shops, and offices of architects and civil engineers, it has become easy to have digital files printed locally rather than paying postage for printed files. All of the plans included in every issue of RCMW are full size PDF files that any of the sources shown above can usually print for you at reasonable prices ranging from 65 cents to \$1.00 per square foot of paper.

We also include in every issue of RCMW one or more back issues (sometimes very rare issues) of model magazines and books. These are FREE downloads for our subscribers and are selected from the library of our sister publication DigitTekBooks. You can take a look at the library at www.digitekbooks.com

So that's what we do and why we do it. I've been a modeler since late 1949 and plan to continue with RCMW for many more years. There are so many good books, model designs and projects out there in "Back Issue Land" that we will probably never run out of stuff to reprint.

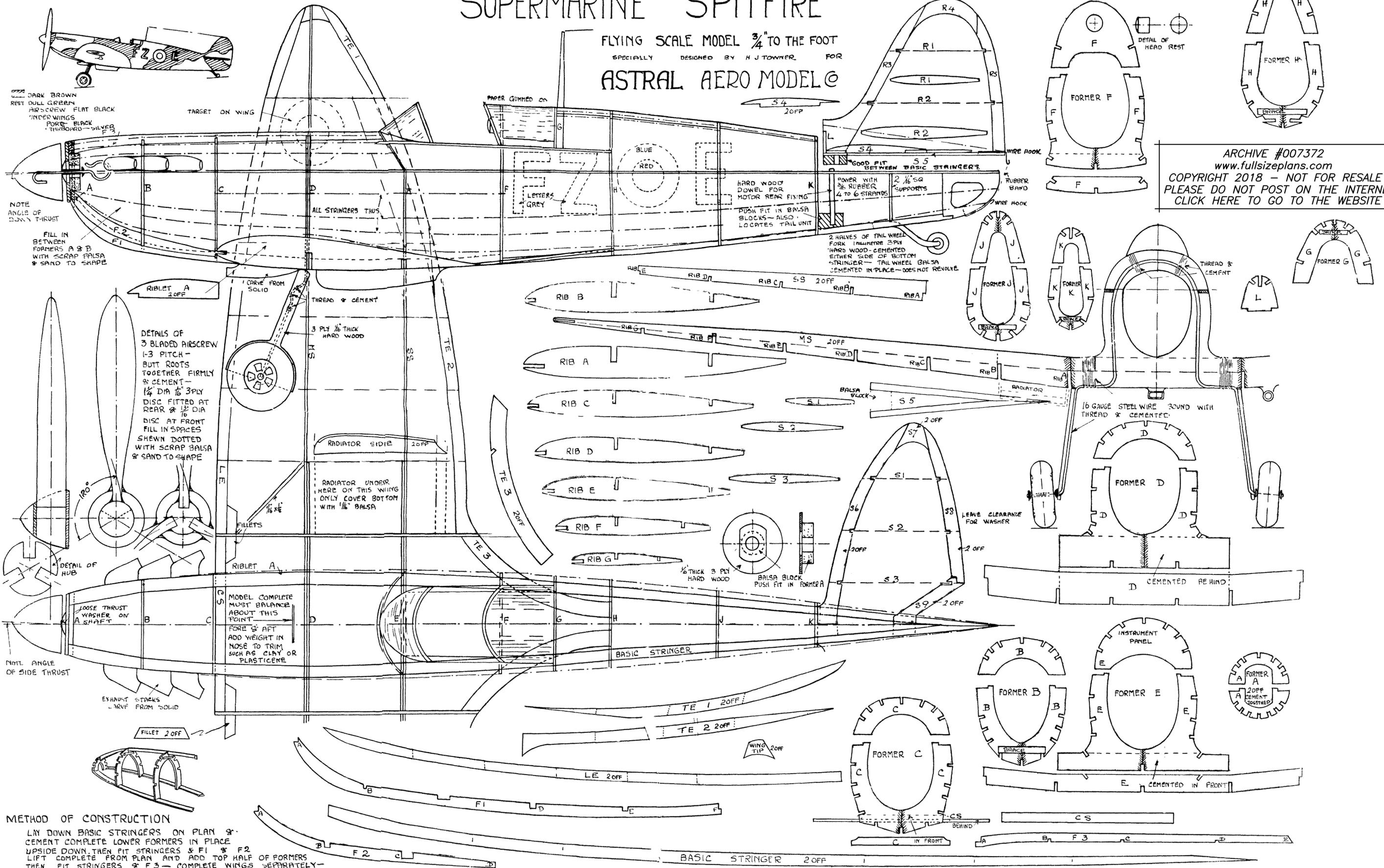
At only \$24 for a one year (12 issue) subscription it's pretty hard to find a better deal.

We also welcome suggestions about what old models you remember from years ago that you would like to see us reprint for you. Just send me an email and tell us that favorite model you would like to see again and maybe build this time.

Roland Friestad, editor
cardinal.eng@grics.net

SUPERMARINE SPITFIRE

FLYING SCALE MODEL $\frac{3}{4}$ " TO THE FOOT
SPECIALLY DESIGNED BY H J TOWNER FOR
ASTRAL AERO MODEL CO



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DARK BROWN
 REST DULL GREEN
 AIRSCREW FLAT BLACK
 UNDER WINGS
 PORK BLACK
 THROAT SILVER

NOTE
 ANGLE OF
 DOWN THRUST

DETAILS OF
 3 BLADED AIRSCREW
 1-3 PITCH -
 BUT ROOTS
 TOGETHER FIRMLY
 CEMENT -
 1/4 DIA 1/8 3PLY
 DISC FITTED AT
 REAR 1/2 DIA
 DISC AT FRONT
 FILL IN SPACES
 SHOWN DOTTED
 WITH SCRAP Balsa
 & SAND TO SHAPE

MODEL COMPLETE
 MUST BALANCE
 ABOUT THIS
 POINT
 FORE & AFT
 ADD WEIGHT IN
 NOSE TO TRIM
 SUCH AS CLAY OR
 PLASTICENE

NOTE ANGLE
 OF SIDE THRUST

METHOD OF CONSTRUCTION
 LAY DOWN BASIC STRINGERS ON PLAN &
 CEMENT COMPLETE LOWER FORMERS IN PLACE
 UPSIDE DOWN THEN FIT STRINGERS & F1 & F2
 LIFT COMPLETE FROM PLAN AND ADD TOP HALF OF FORMERS
 THEN FIT STRINGERS & F3 - COMPLETE WINGS SEPARATELY -

Miniature TCRAFT

9' TAYLOR CRAFT GAS MODEL



9 foot Span. Can use Radio control. Set has 36 ready cut wing ribs, cut plywood body formers, 16" carved prop, tall wheel unit, 2 full size plans, printed balsa, silkspan, etc. Uses "C" type motor, single, twin, or 4 cyl. motor. Set without \$17.50 motor or wheels, postpaid.....
Extra pair of 4 1/2" airwheels, \$3.00

It was around 1953 and I had been building models since about 1947. Up to then they were mostly rubber powered or gliders but I had recently acquired my first engine, an OK Cub .049 and was mostly building free flight models. I'd been devouring Air Trails since seeing the first copy in around 1948. My funding included a 25 cent weekly allowance plus what I could get by mowing lawns, shoveling snow, passing papers, picking strawberries and working in the local tobacco fields.

I lusted after that nine foot Taylor Craft gas model like you wouldn't believe, particularly since I hadn't yet discovered girls. Since my average income from the above items was about 25 cents per hour that \$17.50 price, plus the \$3.00 wheels, represented around 82 hours of work.

It wasn't really the 82 hours that kept me from getting that kit, but the demands of glue, dope and other supplies somehow made it impossible to ever have the total amount in hand.

The "C" type motor described in the ad was only a dream until I won a McCoy .29 engine at a contest, but still the total available funds never

added up as required. Then around 1955 I discovered girls (a girl) and all was lost, even with a steady 35 cents per hour job as a "go-fer" at the local DeSoto, Chrysler, Plymouth dealership in the summertime and after hours and Saturdays during the school year.

Well, we just celebrated our 56th anniversary so I guess I can't complain too much after all. But looking at the plans for that TCRAFT model re-created on the next two pages and what seems to be a pretty lightweight structure makes me wonder if anyone had ever completed and flown that particular model. I don't remember ever seeing a photo of a completed one in the model magazines.

Roland Friestad

Authors Wanted

We need authors !! While there are literally thousands of model designs and related articles in the back issues of magazines, many of those models can be updated with electric power and the new miniature RC systems available.

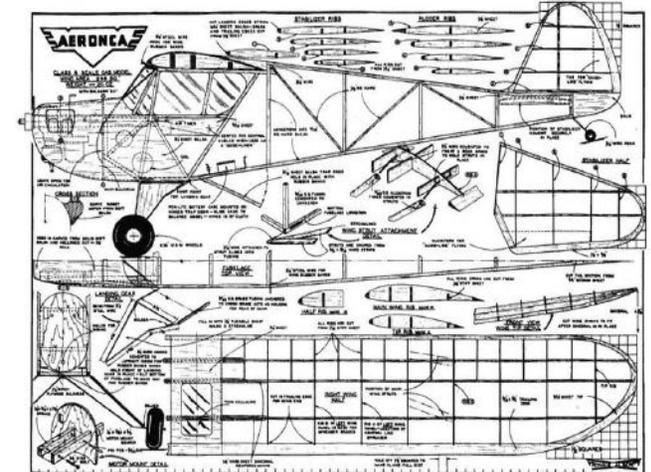
Why not try your hand at converting some of the designs that appear in issues of RCMW, or even start with a blank sheet of paper.

We pay generously for complete articles with well drawn plans, construction articles and photographs. Contact the editor (That's Me) and let me know what you have in mind and we can talk (or email) about it.

Roland Friestad, editor
cardinal.eng@grics.net

One Way To Do It

Andy Burston, a subscriber in Australia sent in this example of a project. Andy says - "*The attached model is made from foam board, paper removed, purely as an exercise. It has a small electric outrunner and a 500mAh lipo battery. It must have been very much of a free flight handful with a sparky Ohlsson 23.*"



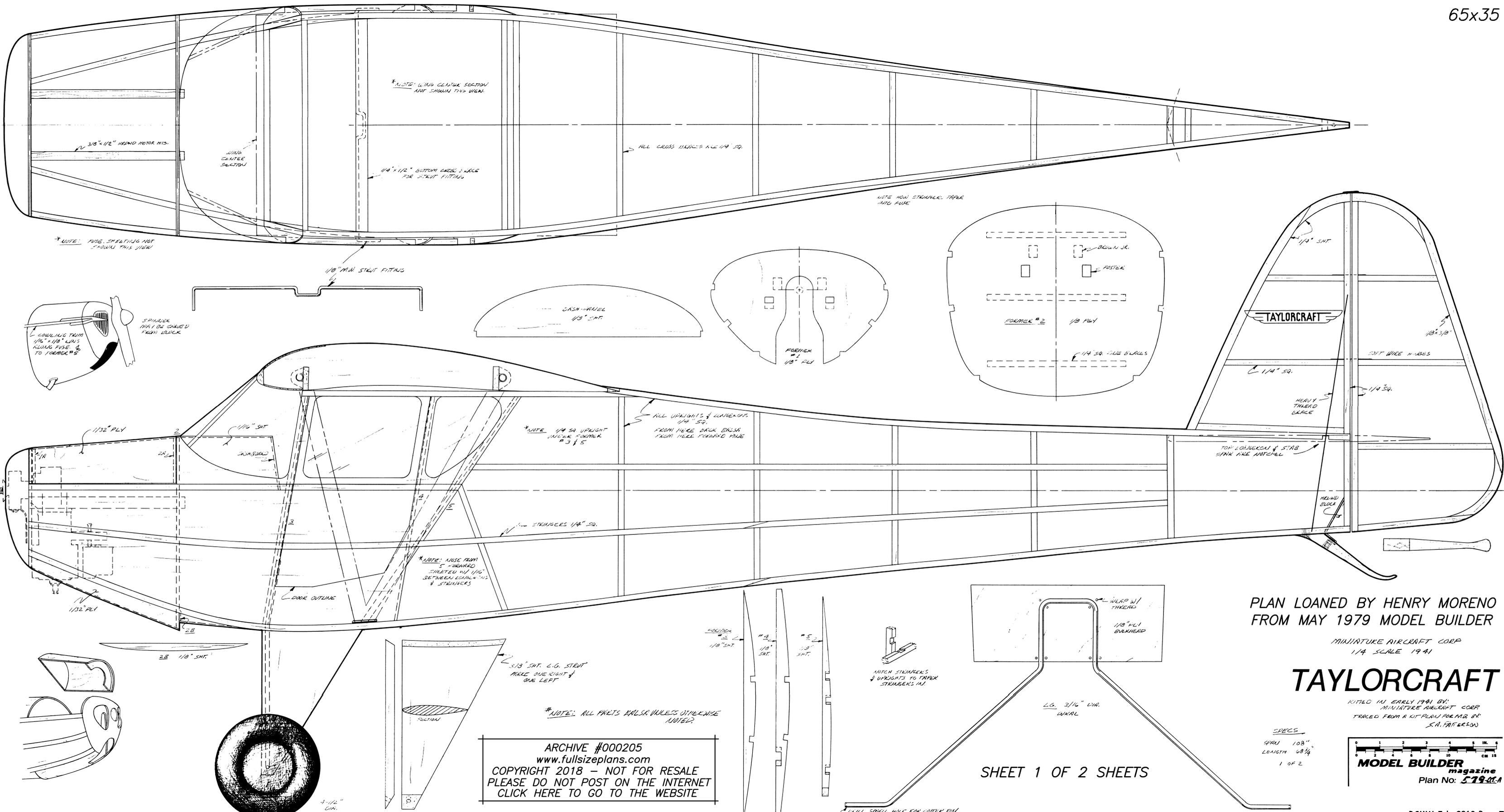
Plan from Air Trails February 1942



Mock-up of model



AERONCA Mk III



PLAN LOANED BY HENRY MORENO
FROM MAY 1979 MODEL BUILDER

MINIATURE AIRCRAFT CORP
1/4 SCALE 1941

TAYLORCRAFT

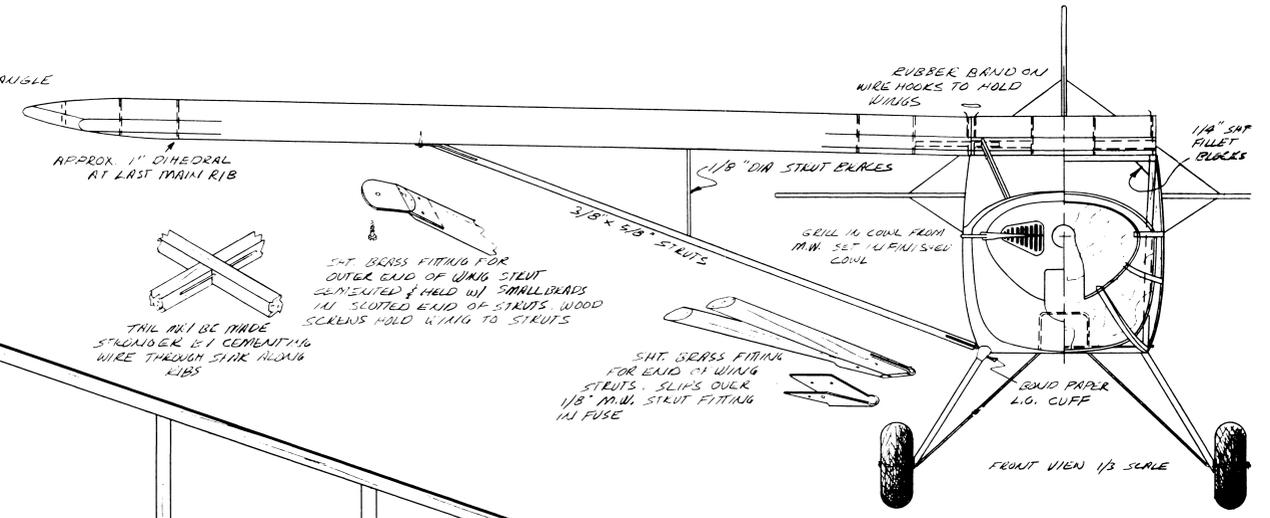
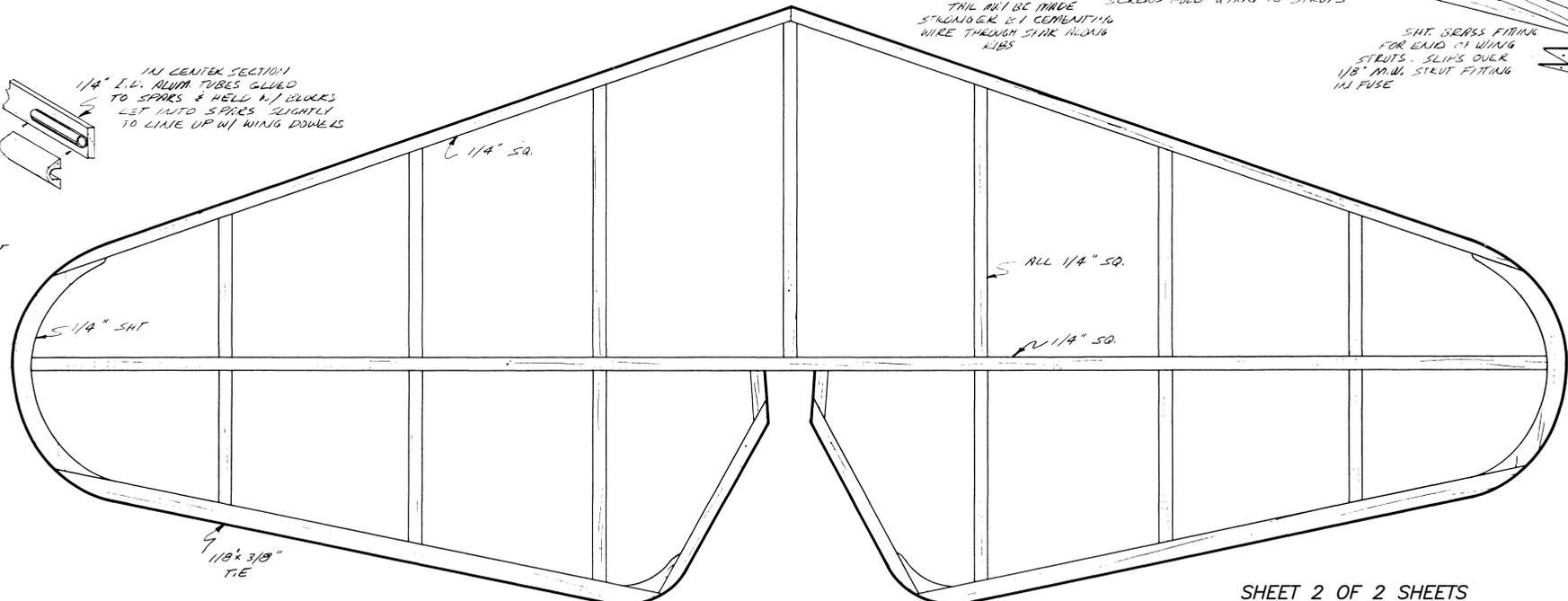
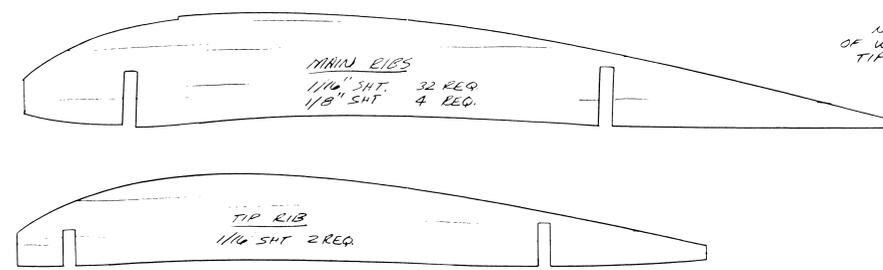
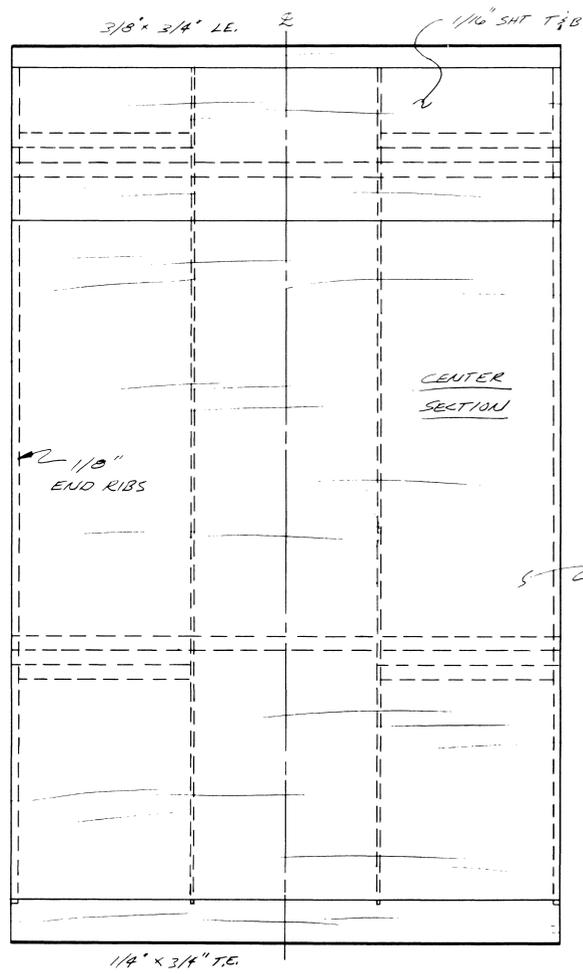
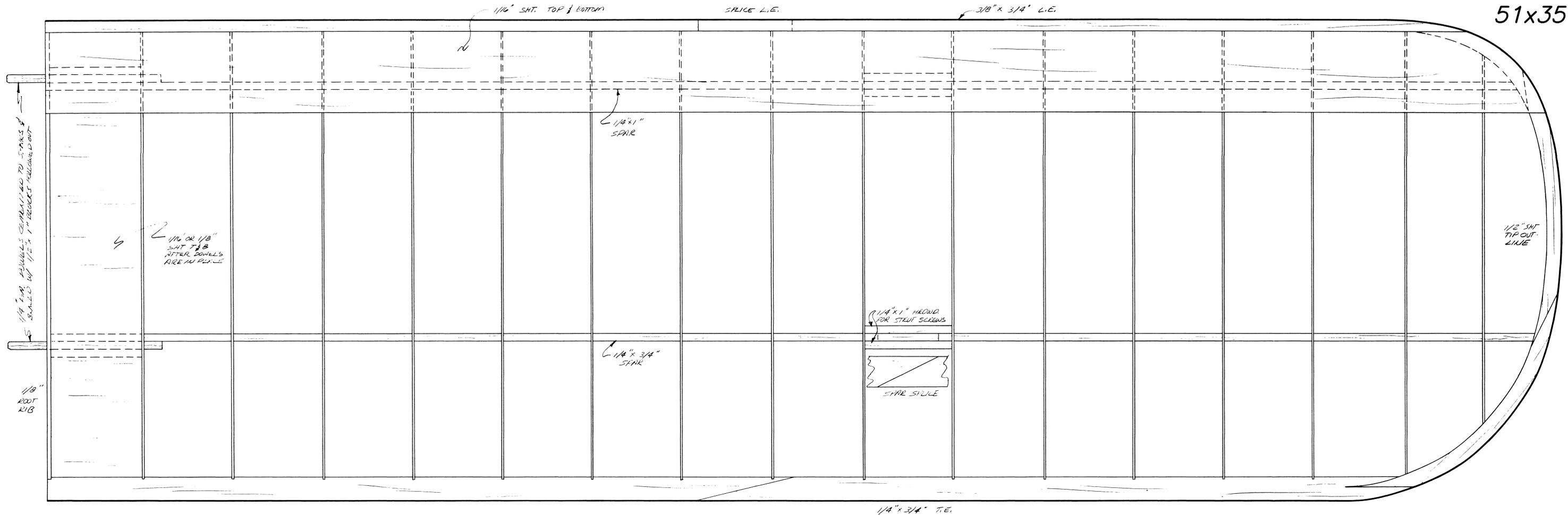
KITTED IN EARLY 1941 BY
MINIATURE AIRCRAFT CORP
TRACED FROM A KIT PLAN FOR MID. BY
S.A. PATTERSON

SPECS
SPAN 108"
LENGTH 68 1/2"
1 OF 2



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SHEET 1 OF 2 SHEETS



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PLAN LOANED BY HENRY MORENO
 FROM MAY 1979 MODEL BUILDER

1/4 SCALE 1941

TAYLORCRAFT

MODEL BUILDER
 magazine

Plan No: 579-01-B

Here's the another in our series of downloads from the DigitekBooks archives. This catalog was donated by Jeff McCammant.

Some of these early model aviation catalogs are quite rare and this 20 page catalog of model supplies dates from 1933. Since for all practical purposes, model engines were either non-existent or not available in quantity at reasonable prices, nearly everything is based on rubber powered free flight models.

However there is quite a bit on information on compressed air motors and the three cylinder motor details look very much like those designed and built by Bert Pond. I have three of those early Bert Pond motors in my personal collection.

To download this interesting piece of history, click on the link below ---

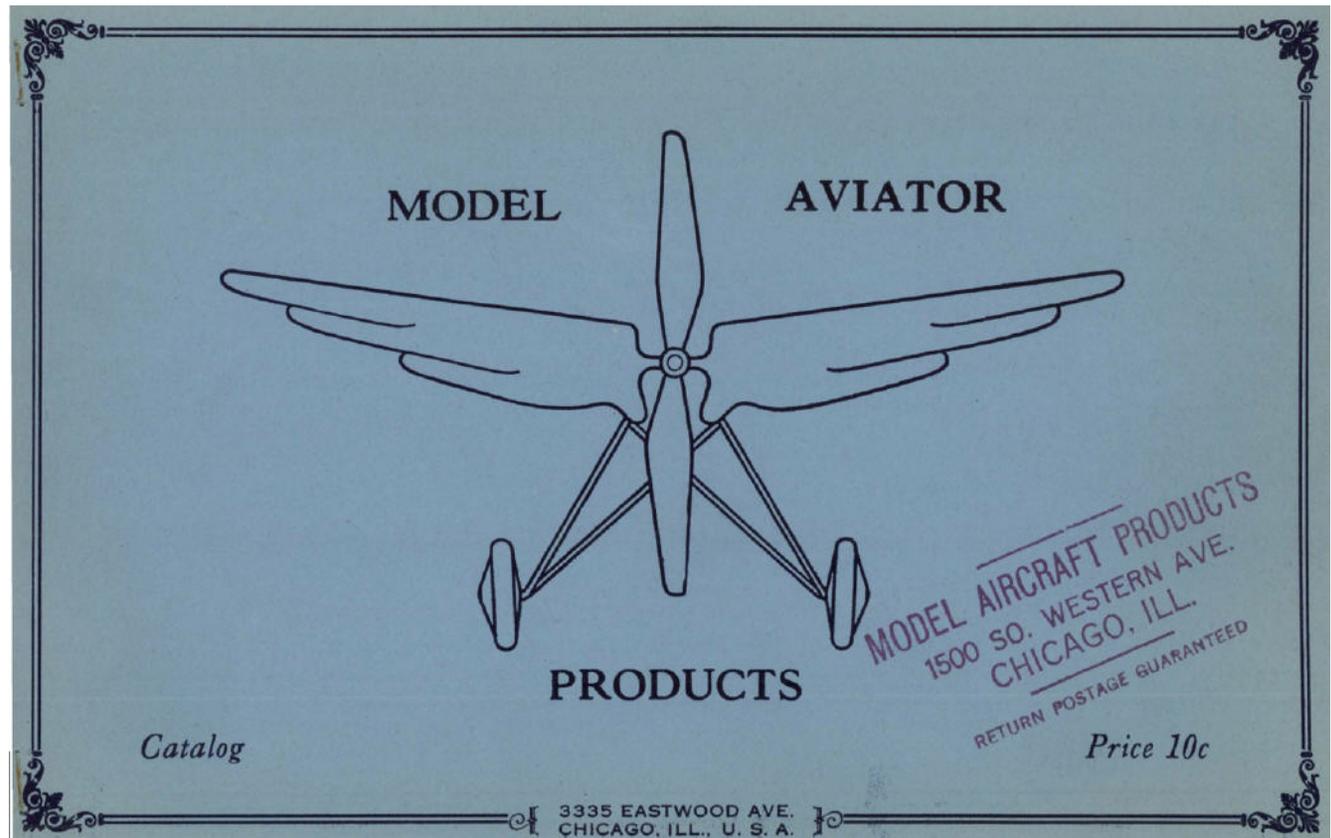
[-- CLICK ON THIS LINK PLEASE --](#)

This download link will expire on September 1, 2018, so if you'd like this rare catalog for your own collection, better do it now.

A selection of digital books and magazine collections are available. They include AIR TRAILS - MODEL AIRPLANE NEWS - FLYING MODELS - MODEL BUILDER - RC MODELER - AEROMODELLER and many others - Just click on the link below

www.digitekbooks.com

FROM THE ARCHIVES of the Digitek Books Collection



Some Interesting Video Clips

Some of these clips start out with advertising. After about 4 seconds (seems like longer) you can usually click on a "SKIP AD" box.



More aviation history. The only remaining Boeing XL-15 RANGER observation plane. Lost out in trials to what became the Cessna BIRD DOG

[--Click Here For Video--](#)



And now, the new Honda Jet. Quite a departure from motorcycles and the Civic auto. Buy one to replace that aging Piper Cub.

[--Click Here For Video--](#)



Well, this isn't actually related to aviation or models, but with all the kerfuffel about the World's Cup, here's a bit of humour called The Philosopher's World Cup,

[--Click Here For Video--](#)



KLM airlines has a really great lost-and-found department. A beagle that sniffs out the owner and returns lost items.

[--Click Here For Video--](#)



Stephan Hawking, the renowned physicist who recently died proposed some ground breaking theories about the nature of the universe. Here's a three minute animated clip that explains them in a simple, but not simplistic way.

[--Click Here For Video--](#)

Good stunting performance requires a clean model. Here's one for Cl. D and big C engines.



This model, designed around the engine of a similar name, comes from the December 1949 issue of Air Trails.

THE Triumphant was designed and built specially for stunt work. If you want a really hot ship, try it. It is simple to construct and yet is not a "box." When finished it's a good looking and good flying model, with what it takes to win contests. It is also very easy to fly, even for beginners in stunt. To build the Triumphant, start with the wing, because the whole ship is built around it.

Carefully cut out and sand all wing ribs. Take the 1/4" by 3/4" trailing edge, taper it, then sand it carefully. Pin down the 1/8" by 1/4" bottom spar with 1/16" shims under it. Glue all ribs in place. The top spar and the trailing edge are added and glued well, after which the gussets are cut out and cemented in position. Glue the leading edge in place.

When the wing is dry, the controls are put in place. Cut out the maple bellcrank support and drill the hole for the bellcrank. Glue this in place and when dry, bolt the 3" VECO bellcrank onto it. Put the .029" lead-in wires through the wing, and bind and solder them next to the bellcrank.

Add the 1/16" wire push rod, bending the end at a right angle about 3/16" from the end. Put it through the bellcrank and solder a washer in place to hold it on.

The wing is now sheeted with 1/16" sheeting. After the sheeting is well cemented, the tips are made. These are carved from very soft blocks. The outside, or right wing tip, is partially hollowed and about 1-1/2 ounces of clay or putty is put inside. This tip is then glued in place.

The inside, or left wing tip, is hollowed and drilled for the 1/8" brass tubing which is cemented in. After this wing tip is glued on, and the cement has dried, the whole wing is well sanded.

The fuselage is built right on the wing. First cut out the 1/8" plywood side brace pieces. Cut out the maple motor bearers and cement them to the side pieces with a good grade of hardwood glue. I use Weldwood glue for this purpose.

Put in 4-40 bolts-cutting off their ends and soldering the nuts on. Bolt the motor in place with 4-40 bolts and glue the nuts on with airplane glue. Make sure the motor is in straight.

Mark the wing where the sides of the fuselage will come. The whole motor mount assembly with the motor in place is now slid onto the wing and glued in position. Make sure that the mount is straight because this lines up the whole fuselage.

Cut out the fuselage side from 1/16" sheet balsa; trace from the plans. Slide them onto the wing, one from each end, and cement them to the sides of the plywood mounts and to the wing. Glue all formers in place and allow to dry.

The elevator and stabilizer should be made next. Cut them from 1/8" sheet balsa, sand well, and hinge with cloth. When the hinges are dry, put the stabilizer into the slot of the fuselage and glue well after it has been carefully lined up.

Cut the control horn from 1/16" brass or steel and bolt to the elevator. Bend the back of the push rod so that there is an equal amount of up and down movement. Solder a washer in place to hold the push rod on. Bend and solder the lead-in wires.

Cement in place the block for the top of the cockpit. This block is of very soft balsa. When the glue is dry, carve the block and sand it well. Cut out the rudder and glue it on the top of this block. When the rudder is sanded it should almost fair into the fuselage.

Cut the bottom block for the fuselage to rough shape, and glue it in place very lightly so that it may be removed later. When the glue is dry, carve it to approximately a half round shape and sand. Remove it from the rest of the fuselage and hollow it out to about 1/8" or 1/4" thickness.

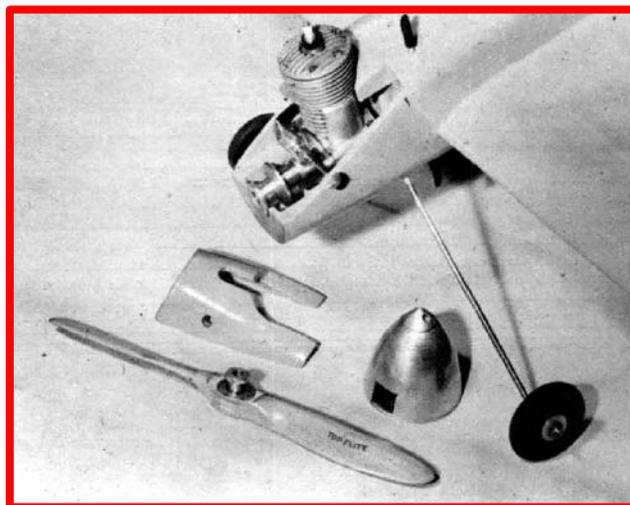
The firewall should be cut out of 1/8" plywood and the landing gear bent from 1/8" wire. After the landing gear is attached to the firewall with "J" bolts, the firewall should be cemented in place. To do this, remove the motor, insert the firewall from the bottom, and twist into place. Glue this well.

The bottom block should be slotted for the landing gear and then glued in place. The slots left may be filled in with Plastic Wood. The 1/8" plywood former A should now be glued on.

Make the fuel tank according to the specifications shown on the plans. Any good commercial stunt tank may be used as long as the fuel line is aligned with the needle valve of the engine. To get the tank in place, cut a slot into the top of the firewall for the fuel line and then cement in the tank.

The top block for the fuselage should now be lightly glued in place. When dry, carve the block to shape and sand. Remove and hollow the block to about 1/8" or 1/4" thickness, then glue it in place.

Make the small cowling and lightly glue it in position with the plywood former in front of it. Carve the cowling so that it fairs in with the plywood former and former C. Cut this block away from the fuselage and hollow it to about 1/4" thickness. With the motor installed, you should be able to slide the cowl on from the front.



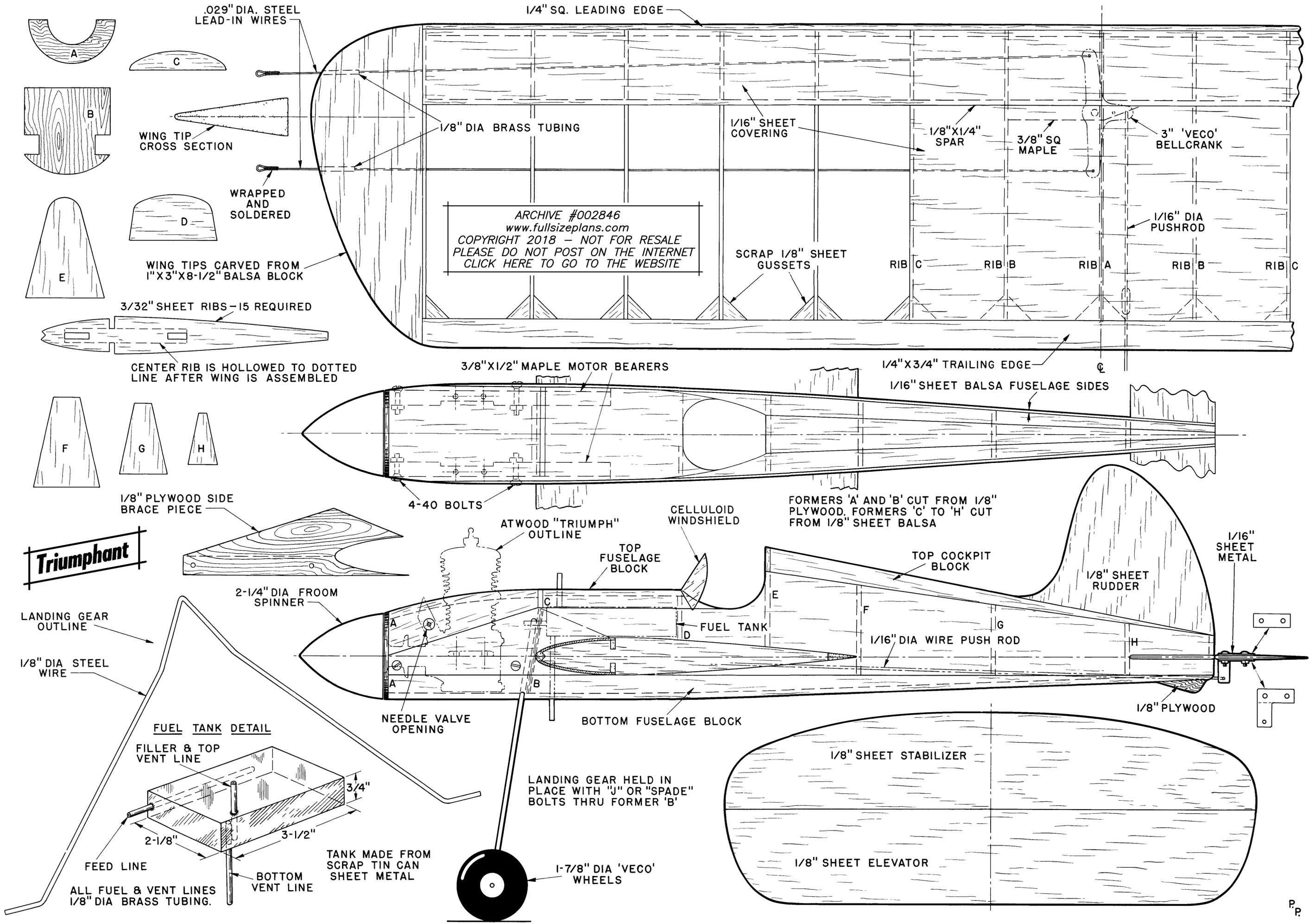
Carve a small block to fit behind the engine and fair it with the cowling and fuselage. I found that it is easier to get this block to fit and also to put the bolts in for the engine if the exhaust of the engine, is sawed off next to the cylinder.

Paper the wing with Silkspan that has first been shrunk with water. Put on about three coats of clear dope. Paint the fuselage and tail with three coats of Testor's Sanding Sealer and sand well between coats, after which the colored dope can be put on.

The original color was aircraft gray with orange outlines. Three coats of gray are applied, and when thoroughly dry, the orange trim is masked on. Add two coats of Comet's Hot Fuel Proofer. Cut the windshield from celluloid and cement in place.

For best results fly the plane on 70 foot lines. A 10" diameter 8" pitch Top Flite prop is best for my all-around stunt flying. I have found that my Triumph runs best with Power Mist High Thrust glow fuel and with a Champion glow plug.

Test fly on a calm day, and if there is a breeze, take off down-wind. If you are an experienced stunt flyer you will have little trouble handling the Triumphant. If you are a beginner, take your time and try the maneuvers one at a time, starting with wing-overs and working up to loops and inverted flying.

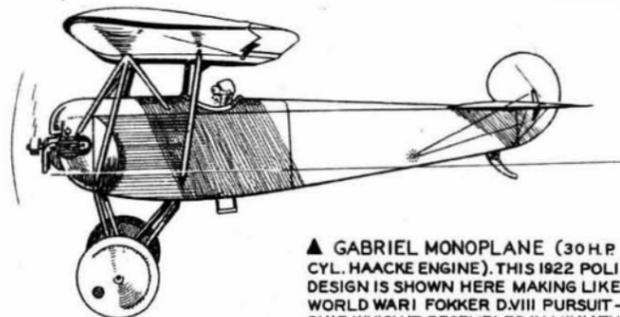


Triumphant

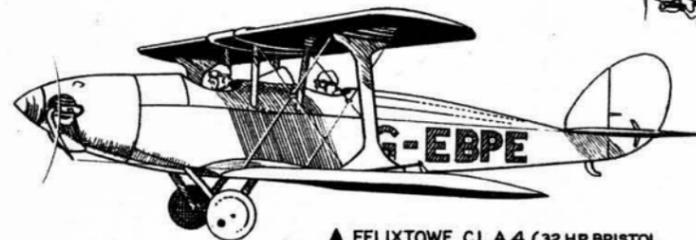
FROM AIR TRAILS DECEMBER 1949

AIR PROGRESS

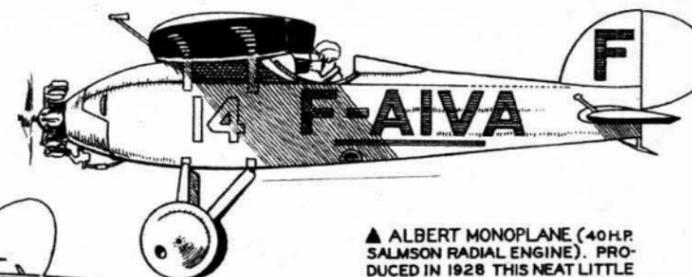
By DOUGLAS ROLFE



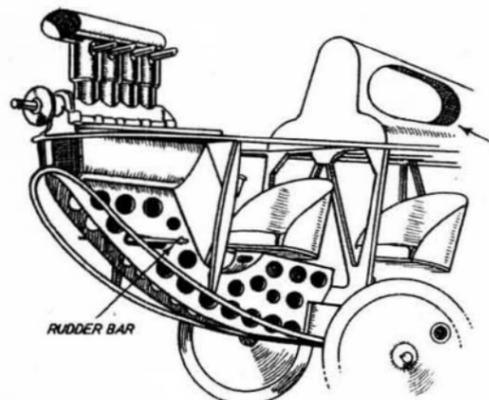
▲ GABRIEL MONOPLANE (30 H.P. 2-CYL. HAACKE ENGINE). THIS 1922 POLISH DESIGN IS SHOWN HERE MAKING LIKE A WORLD WAR I FOKKER D.VIII PURSUIT — A SHIP WHICH IT RESEMBLED IN MINIATURE



▲ FELIXTOWE C.L.A.4 (32 H.P. BRISTOL CHERUB ENGINE) BUILT BY THE MEMBERS OF AN ENGLISH LIGHTPLANE CLUB IN 1928 THIS LITTLE BIPLANE COMPARED FAVORABLY BOTH IN APPEARANCE AND PERFORMANCE WITH THE BEST TAILOR-MADE LIGHTPLANES OF THE PERIOD.



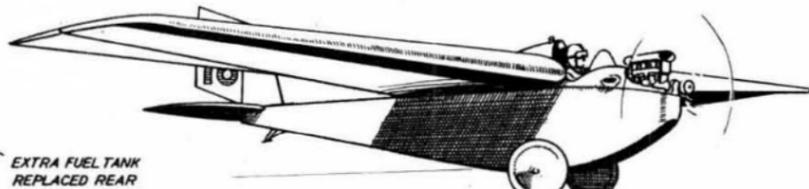
▲ ALBERT MONOPLANE (40 H.P. SALMON RADIAL ENGINE). PRODUCED IN 1928 THIS NEAT LITTLE SINGLE-SEATER WAS ONE OF THE BEST OF MANY FRENCH DESIGNS



EXTRA FUEL TANK REPLACED REAR COCKPIT CANOPY WHEN ARRANGED AS SINGLE-SEATER

RUDDER BAR

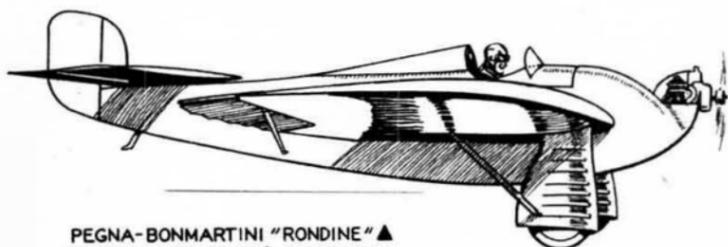
▲ INSTALLATION OF THE 17 H.P. SERGANT ENGINE ON THE PONCELET "VIVETTE" REVEALS SOME OF THE NOVEL STRUCTURAL FEATURES OF THIS DESIGN. THE EXTREME FORWARD POSITION OF PILOT IS WORTHY OF NOTE AS IS THE CANTILEVER ENGINE MOUNT



▲ PONCELET "VIVETTE" (17 H.P. SERGANT ENGINE). A 1923 BELGIAN DESIGN OF CONSIDERABLE INTEREST.—IT COULD BE OPERATED EITHER AS ONE OR 2-SEATER

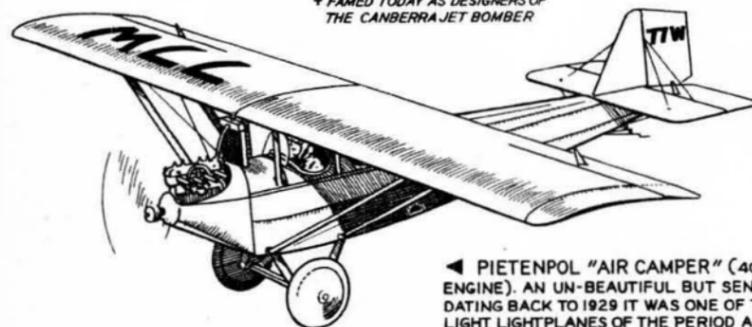


▲ PARNALL "PIXIE III" (VARIOUSLY POWERED UP TO 32 H.P.) WAS A CONVERTIBLE MONO-BIPLANE WITH SEMI-CANTILEVER LOWER WINGS AND UNBRACED REMOVABLE UPPER WING.—IT PLACED 6TH IN THE 1924 ENGLISH LIGHTPLANE TRIALS

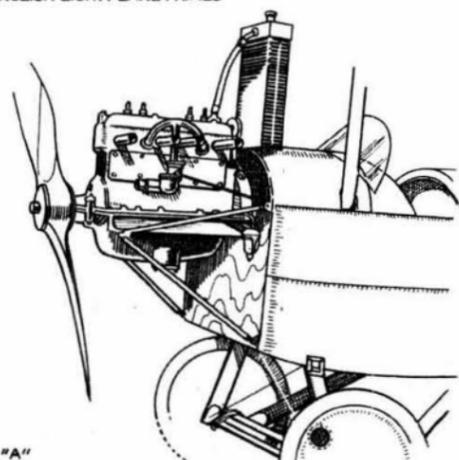


PEGNA-BONMARTINI "RONDINE" ▲ (2-3/4 H.P. A.B.C. ENGINE). AN ITALIAN VENTURE IN THE ULTRA-LOW POWERED FIELD AND ONLY OTHER PLANE BESIDES THE ENGLISH ELECTRIC CO'S 1923 WREN TO FLY SUCCESSFULLY WITH THIS MOTOR

★ FAMED TODAY AS DESIGNERS OF THE CANBERRA JET BOMBER



▲ PIETENPOL "AIR CAMPER" (40 H.P. FORD "A" ENGINE). AN UN-BEAUTIFUL BUT SENSIBLE DESIGN DATING BACK TO 1929 IT WAS ONE OF THE BEST U.S. LIGHT LIGHTPLANES OF THE PERIOD AND EASY TO FLY



▲ DETAIL OF THE FORD MODEL "A" PIETENPOL CONVERSION INSTALLATION



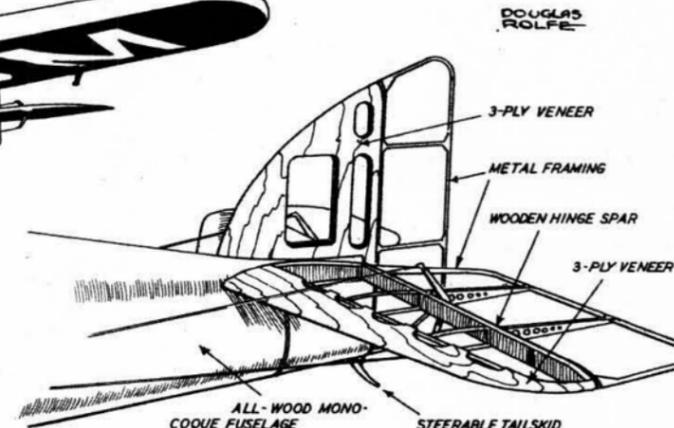
HEATH PARASOL (20 H.P. HEATH-HEN- ▲ DERSON MOTORCYCLE ENGINE). PROBABLY THE MOST WIDELY FLOWN U.S. LIGHTPLANE DURING THE TWENTIES IT COULD BE PURCHASED IN FLYAWAY OR KNOCK-DOWN FORM



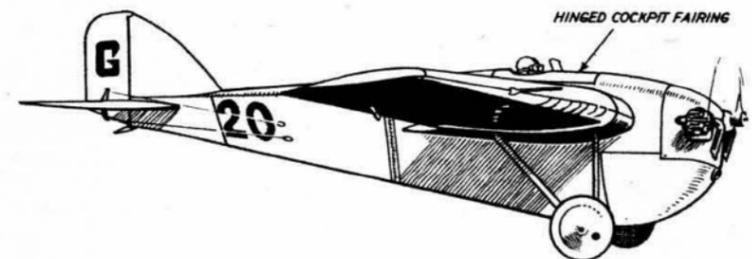
▲ PARNALL "IMP" (60 H.P. ARMSTRONG-SIDDELEY GENET ENGINE). ALSO A 1928 DESIGN THE "IMP" WAS LARGER, MORE POWERFUL, THAN THE "PIXIES"



PANDER MONOPLANE (25 H.P. ANZANI ▲ ENGINE). HAILED FROM HOLLAND AND WAS NOTABLE FOR ITS EXCELLENT ENGINEERING, CLEAN LINES AND LACK OF THE VICES USUALLY FOUND IN SHIPS OF THIS SIZE



▲ DETAIL OF THE PANDER TAIL ASSEMBLY SHOWS SIMPLE WORK-MANLIKE CONSTRUCTION WHICH CHARACTERIZED THIS 1925 DESIGN.



▲ R.A.E. "HURRICANE" (32 H.P. BRISTOL CHERUB ENGINE). A COMPLETELY AMATEUR PRODUCTION, IT WAS ONE OF THE WINNING DESIGNS IN THE 1925 LIGHTPLANE TRIALS HELD AT LYMPNE, ENGLAND

HEYDAY OF THE LIGHTPLANE (1922-29)

This is the third or fourth time that the pages of Air Progress have been devoted to the absorbing subject of very light airplanes. This time a variety of designs has been selected from a number of different countries and all dating from 1922 to 1929.

As has been pointed out in the previous series, most early airplanes were in fact lightplanes, but what came to be known as the "lightplane movement" originated in England about 1922 when quite a few leading manufacturers as well as enthusiastic amateur builders entered various designs in the Lympne Lightplane Trials. Most of these early lightplanes suffered from inefficient

powerplants, though flew surprisingly well if engines were functioning properly.

Judging from the different countries represented in this modest selection, the movement spread and some very neat home-made jobs appeared both here and abroad. What killed the purely amateur design was the introduction of government regulations

which involved expensive stress analyses. The Pietenpol and the Heath parasols survived for a while because both were commercially produced—although the Pietenpol was actually an amateur design and garage built. This was also one of the few lightplanes to fly successfully with a converted car engine and had a satisfactory performance with two passengers, although a bit on the slow side.

SKYRAIDER

by J. Kelly Abbott-AMC, USN

From March 1956 Model Airplane News



Many Skyraider models have been built and flown in the past two or three years, but, in most instances, they were designed for the Class C and D engines. Having built several models of the large variety previously, the writer decided to try one employing a Cameron .19 engine for power.

An Enya .19-powered model performed equally well, having the same flight characteristics, although the Enya was much heavier.

This model was scaled from authentic drawings of the full sized aircraft with very few changes. For instance, the airfoil section at the wing root was flattened out from the main spar aft to the TE to aid in setting up construction on a flat surface.

The built-in variable incidence in the wing was retained for stability at slow speeds used in the Carrier event. Other deviations were the elimination of engine downthrust and addition of about 1/8 in. to the TE of the elevators for more positive control.

This model was designed with the following points in mind: simplicity of construction, ruggedness, and conservation of weight. It has a wingspan of 33 in., a flying weight of approximately 1 lb. 10 oz. and a top speed of 38 mph on 50 ft. Lines.

The model retains many of the flight characteristics of the actual airplane, the most noticeable one being that it flies with a tail-high attitude in full-powered level flight. For smooth take-off the control is held in neutral.

It handles well in low-powered conditions and will glide to a smooth landing with no power by holding the nose down slightly. In general this model is of conventional construction and should not prove too complicated for the average modeler.

The wing is built with two parallel spars and the two halves of the wing are connected by spar joiners which extend from rib No. 4 on one side to rib No. 4 on the opposite side. The spars are full depth and notched to receive each rib.

The forward spar is cut from 1/4 in. and the rear spar from 3/32 in. medium or hard balsa as are the corresponding spar joiners. The ribs are of 3/32 in. Medium balsa and the wing covering (skin) is 1/16 in. sheet balsa, installed in three sections, top and bottom.

The spar halves are attached to the plan view of the wing on a flat working surface. Block up the tip ends 3/32 in. to clear the lower curve of the outboard ribs. Cement two No. 1 ribs together and insert into No. 1 slots in spars with flat lower edge against the working surface.

Progressing outboard, install remaining ribs, carefully aligning the lower edge of each rib with the lower edge of both spars. This should be easily accomplished if notches have been carefully cut. Note that the forward portions of rib No.'s 2 and 3 are installed at an angle and are left out until after 1/8 in. balsa LE strip is in place. After all ribs have been cemented into place, cut LE strip and install along flat nose of ribs and insert forward portions of rib No.'s 2 and 3.

The next step is to cover the upper surface of the wing from the TE to the center line of the forward spar while the assembly is still attached to the working surface, to maintain alinement. This portion of the covering is done in two sections, one from the TE to the rear spar and the other from the rear to the forward spar. Leave the forward portion uncovered until the landing gear platforms have been installed.

When cement has dried, remove wing halves from working surface and join together by slipping spar joiners into place from the bottom. Check for proper dihedral by measuring 1-13/16 in. from flat surface at tip rib on each wing tip.

After the two halves of the wing have been joined, the lower wing surface is covered from the TE to the forward spar in the same manner as the upper surface.

The landing gear platform is built in next. It is cut from 3/32 in. Plywood and has a nut plate either screwed or riveted to the upper surface. This plate is one of two types depending upon which type of landing gear strut is being installed.

Plain flat nuts, soldered to a piece of brass or tin, may be substituted for the aviation-type anchor nut shown on the plans. The plywood platforms are then installed between the converging rib No.'s 2 and 3 and blocked in with strips of 3/32 in. balsa cemented into place on all sides on top and bottom of platform.

It should be noted at this time that the forward spar joiner is notched at the bottom between rib No.'s 2 and 3 to form a socket for mounting landing gear anti-drag struts. Wire part

of anti-drag strut is cemented to 3/32 in. dowel or swab stick and wrapped with thread. Then it is cemented into aforementioned slot using plenty of cement.

Tubular sections of anti-drag struts are then soldered to main strut at lower ends and wire fitting, just installed, at upper ends after main strut has been screwed into wing fitting. This method of landing gear construction may seem rather complicated but is actually easier to make and install than other types because it is rugged, removable for repair or replacement, and localizes damage. It affords better scale appearance.

When landing mounting platform has been installed, finish covering the forward portions of each wing and sand flush with 1/8 in. LE strip. Both wings are then capped off with a tapering 1/4 in. thick balsa LE cap strip. The LE is then sanded to shape using rib templates to check for proper contour.

Bellcrank platform is then installed in the center section blocking it in on both sides, top and bottom. Next, install bell crank and lead-out wires. Details, such as landing gear strut fairings, wheel well doors, bomb and rocket racks and flap



Only the exposed head of the inverted engine differs from true scale. Landing gear, for example, is most realistic, but is durable in use.

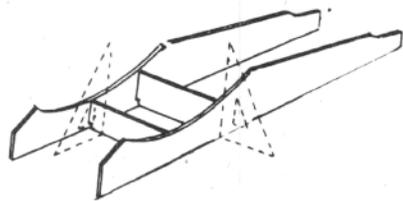
hinges should be added after finish has been applied to wing. They should be finished separately and then attached to wing and landing gear assembly.

The landing gear strut fairings for the original models were formed from 1/16 in. plastic sheet and attached by means of tin strips soldered to the strut and squeeze riveted with a pair of pliers using 1/16 in. dia. soft aluminum wire to the tin strips. However, they may be carved from balsa and cemented to the struts if more convenient. The other details were carved from balsa and cemented to the wing, being reinforced by steel straight pins with the heads removed, to fix them into position.

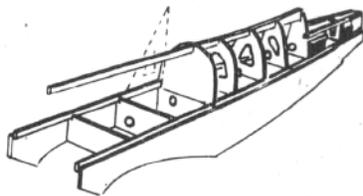
The fuselage is started by cutting the two lower side panels from 1/8 in. Medium sheet balsa and attaching them, in an inverted position, over the top view of the fuselage plan on the flat working surface.

Next, cement the lower halves of former No.'s 4 and 5 into place and allow to dry sufficiently. When they are dry, continue working aft, cementing lower halves of former No.'s 6 through 11, checking for proper alinement as you progress. All formers are of 3/32 in. sheet balsa with the exception of No.'s 1, 2, 4-A and 12.

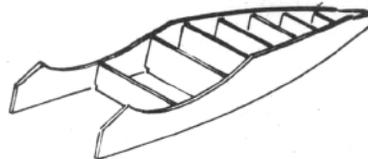
Former No.'s 1 and 12 are 1/8 in. balsa and No.'s 2 and 4-A are 3/32 in. plywood. The two plywood formers are slotted for installation of engine bearers; however, these formers cannot be installed until after the inverted assembly has been removed from the working surface. This is the next step.



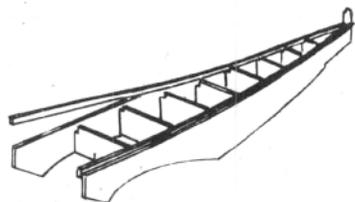
1. Invert lower side panels on top view fuselage plan; cement formers 4 & 5 in place. Check for alignment with drafting triangle, etc., shown.



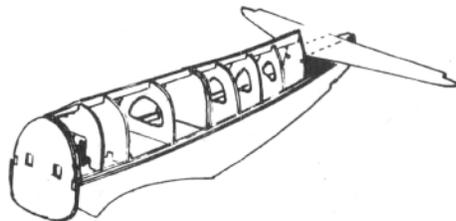
2. Assembly is continued by cementing the lower halves of formers 6 through 12 in place. Again check alignment with plans for accuracy.



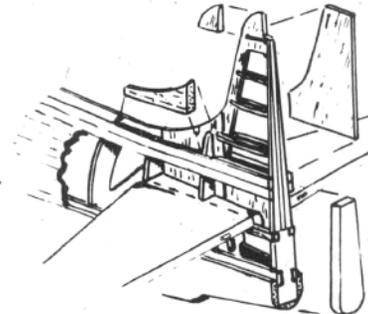
3. Remove assembly from board, cement doubler strip shown in place. Finally, cement tail former No. 12 position. Note notches.



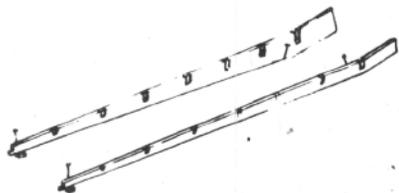
4. Follow with top halves of formers 6 through 11, beginning with 6 & 10. Place upper keels on, then install horizontal stabilizer supports.



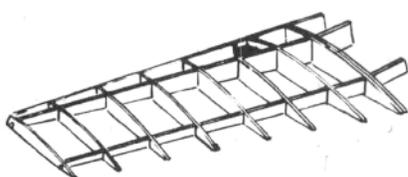
5. Firewall, then upper halves 2A through 6A, positioned. Wax paper between 2 & 2A; 6 & 6A, facilitates hatch removal. Pushrod, flippers.



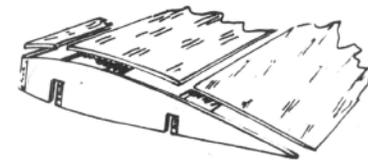
6. Two butt-jointed fin center pieces installed, then vertical spar pieces; ribs, sanded; then various blocks, etc., and finish skin pieces.



7. Wing assembly begun by fastening spars over wing plan, blocking up ribs 1/16 in. as shown. Note rib notches that are cut in spars.



8. Cement ribs 1 & 8 in place. When dry, add the remaining ribs and finally install the leading edge cap strip shown. Wing light, strong.



9. Before removing wing panel from plan, install three top balsa skin pieces, using spars for dividing lines. Add spar joiners, sheet bottom.

When the assembly has dried, remove it from the working surface and install firewall No. 2 and former No.'s 4-A and 12. Next, cement upper halves of former No.'s 6 through 11 into place and insert backbone piece, which extends from No. 2-A to No. 10, into slots at the top of each former. Former No.'s 2-A and 6-A are installed next, inserting waxed paper between No.'s 2 and 2-A and No.'s 6 and 6-A.

Also insert waxed paper along lower edge on each side where joint of removable section of fuselage will be, making this section easier to remove when necessary.

Now install remaining upper halves of former No.'s 3, 4 and 5. Note that the lower half of former No. 3 has been left out until fuel tank has been installed.

Moving back to the tail of the fuselage, we now cement into place the 1/8 in. sq. balsa mounting strips for the horizontal stabilizer. These strips extend between No.'s 10 and 12 as shown on plan.

The horizontal stabilizer and elevators are cut from 1/4 in. medium sheet balsa and are sanded into shape. It is suggested that the center

portion of the stab be left unshaped and flat for easier mounting.

Assemble stabilizer, elevators, horn and pushrod before mounting on fuselage. When this assembly is completed, it is then slipped into place, cemented, aligned, and allowed to dry. It may be noted that the upper edge of the lower side panels are on the thrust line and may be used in checking the incidence angles of the wing and horizontal tail surfaces.

The vertical fin is built up around a 1/8 in. sheet balsa frame or core. Cut out as shown on the plan side view and cement along center line of horizontal stab and back side of former No. 10.

Next, cement tapering pieces of J~ in. sheet balsa to each side of rear edge of fin to form fin spar as shown in cross-section No. 12. Finish frame structure by adding to each side rectangular pieces of 1/16 in. sheet balsa of sufficient size to permit sanding ribs to shape. Sand leading edge of core at the same time.

Note that lowest rib is double thickness where 1/16 in. fin covering meets 3/32 in. side planking. Portion of former No. 11 that is above the horizontal stab is also installed at this time.

When the vertical fin structure has been completed, planking of the upper half of the fuselage may be started. Using 1/4 x 3/32 in. strips of medium or soft balsa, lay on planking from the thrust line up to the reference line shown at the tail of the plan side view.

The remaining planking up to the backbone extends to former No. 9 only. Area from No. 9 to No. 11 is filled with soft balsa blocks on

each side of the backbone. The remainder of the vertical fin is then covered with 1/16 in. sheet balsa.

This covering may be held firmly into place while drying by using strips of masking or adhesive tape to strap around the LE and TE. Tip of fin is capped with 1/8 in. balsa on each side.

The rudder is 3/8 in. thick at the heaviest point and may be made from balsa sheet when the heavier engines are used or laminated, as shown, when the Cameron .19 is used. For the laminated type use 1/4 in. sheet balsa and cut out center as shown. Sand rudder to a thin TE. Then the two 1/8 sheet balsa laminations are cut out and cemented to each side of this hollow core.

When cement has dried, sand rudder assembly to final shape and cement into place on vertical fin after balsa tail block has been installed.

Construction of the cowling sections are next: the engine cowling and the accessory cowling. After the engine bearers have been installed, laminations of thicknesses shown on plan are cut to the shape of former No. 2 with engine bearer slots cut out the same as former No. 2. These are stacked on the engine bearers and tack cemented together. The last lamination forward is of 1/8 in. balsa and is perfectly round as shown in cross-section No. 1.

The reason for this construction is to allow ample balsa thickness for carving exhaust troughs and air scoop details. While this may be accomplished by using a solid balsa block, the writer found the hollowing out process much

easier by employing this lamination method. Also, the sheet balsa is easier to obtain than the block material.

To continue with this type of construction, carve and sand to shape and finish out the details. Now remove the externally finished accessory section by sliding forward from engine bearers. Pop tack cemented laminations apart, with the exception of lamination No. 1; cut out the center of each, leaving approximately 3/8 in. wall thickness.

Leave No.1 solid except for engine bearer slots. When reassembled, this will automatically align cowl section. Alinement at the rear of this cowl section is maintained by a 1/8 in. balsa ring cemented to former No. 2 which fits snugly into the inside contour of the cowl at this point.

However, since this section is rarely removed, it may be cemented into place for much easier installation. Next, cement alinement ring for engine cowling section to the forward face of former No. 1.

Start engine cowling by spotting holes for mounting of engine. Then make the two engine cowl mounting brackets from tin, using the template shown on the plans. Slip these brackets over the forward ends of engine bearers and spot holes in the engine mounting holes. Secure them in place with machine screws and nuts.

Next, cut the 3/32 in. plywood cowl mounting ring and the balsa rings required to build up the speed ring. Sand speed ring to shape and mount to brackets previously installed on forward ends of engine bearers by means of two screws as shown.

Provisions should be made to safety-lock these to prevent them from loosening and letting cowl fall into propeller. The writer chose drilled fillister head screws such as used in radios, with a semi-circular piano wire safety clip to fit in and between the heads of the two screws.

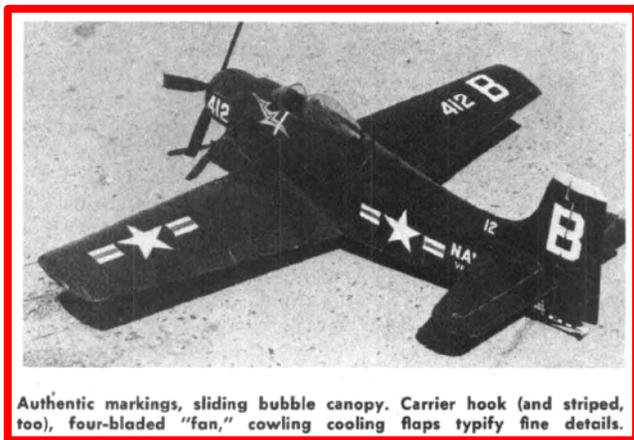
Between the speed ring and the front face of the accessory cowl, fill in 1/4 in. balsa strips. These will have to be beveled a little as they are installed around the circumference of the cowl.

When these strips are installed, they are cut to length for snug fit, resting against the alinement ring on No. 1 and cemented firmly on the forward end only.

Leave the front end of each strip about 1/16 in. high to allow for sanding. To insure proper alinement, install a strip at top, bottom and one on each side; then fill in between. Complete by sanding to shape and cutting openings for engine cylinder, exhaust stack and needle valve.

The next step is to manufacture and install the fuel tank. The rigid feed tube should be long enough to extend through the accessory cowl section for ease in replacing plastic feed tubing. After tank has been installed, cement wing assembly and lower half of former No. 3 into place.

Bottom of fuselage is finished by planking between station No. 2 and the forward wing spar with 1/4 x 3/32 in. strips and the rest with 3/32 in. sheet balsa, installing tail wheel and hook assembly before covering bottom from station No.'s 6 to 11. From No.'s 11 to 12 on bottom, fill with 1/4 in. sheet balsa to allow for sanding of curved contour.



Authentic markings, sliding bubble canopy. Carrier hook (and striped, too), four-bladed "fan," cowling cooling flaps typify fine details.

The tail wheel and hook assembly is built up on a piece of formed 1/16 in. piano wire and attached to a 3/32 in. plywood platform. The wire assembly is attached to the plywood by means of screws or by stitching with soft copper wire. Refer to plan for making wire assembly.

When assembly is completed it is installed between former No.'s 10 and 11 and locked into place by using 1/8 in. sq. balsa in the corners as shown. A tail wheel well opening is cut into the 3/32 balsa sheet bottom, allowing it to be slipped into place around the tail wheel assembly.

The tail hook release and engine speed control are not shown since most modelers have their own preferred mechanisms. However, on the original models the tail hook is spring loaded to hang down at about a 60° angle and is locked in the up position by a piece of .020 in. piano wire which extends forward to the bellcrank.

A 90° arm, soldered to the elevator control push rod, pulls the hook release wire forward as elevators are controlled for down. The release is adjusted to drop the hook on the last 1/8 in. of downward travel of the elevators.

To drop the hook in flight, the control handle is snapped full down and back to neutral, releasing the hook before the plane has had time to respond to the down control. A return spring on the release wire makes it easy to recock the hook in the up position.

The finish on the original models was Corsair blue Aero Gloss, using red, white and yellow Aero Gloss to stencil the markings. Most of the job was done in the conventional manner: sealing, sanding, then painting with several coats of colored dope, wet-sanding and rubbing with compound between coats.

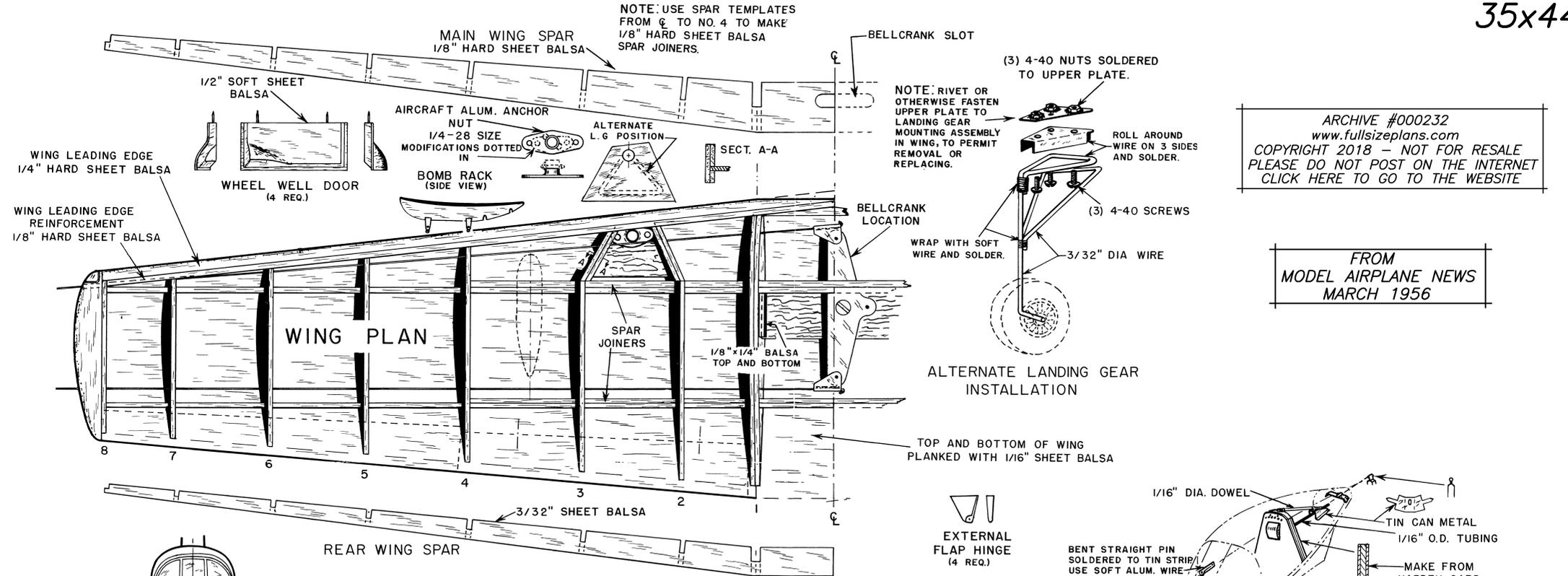
Talcum powder was mixed with some of the blue Aero Gloss for sanding sealer since the prepared sanding sealer was not available at the localities in which they were built. One was built in Alaska and the other aboard ship in the Pacific.



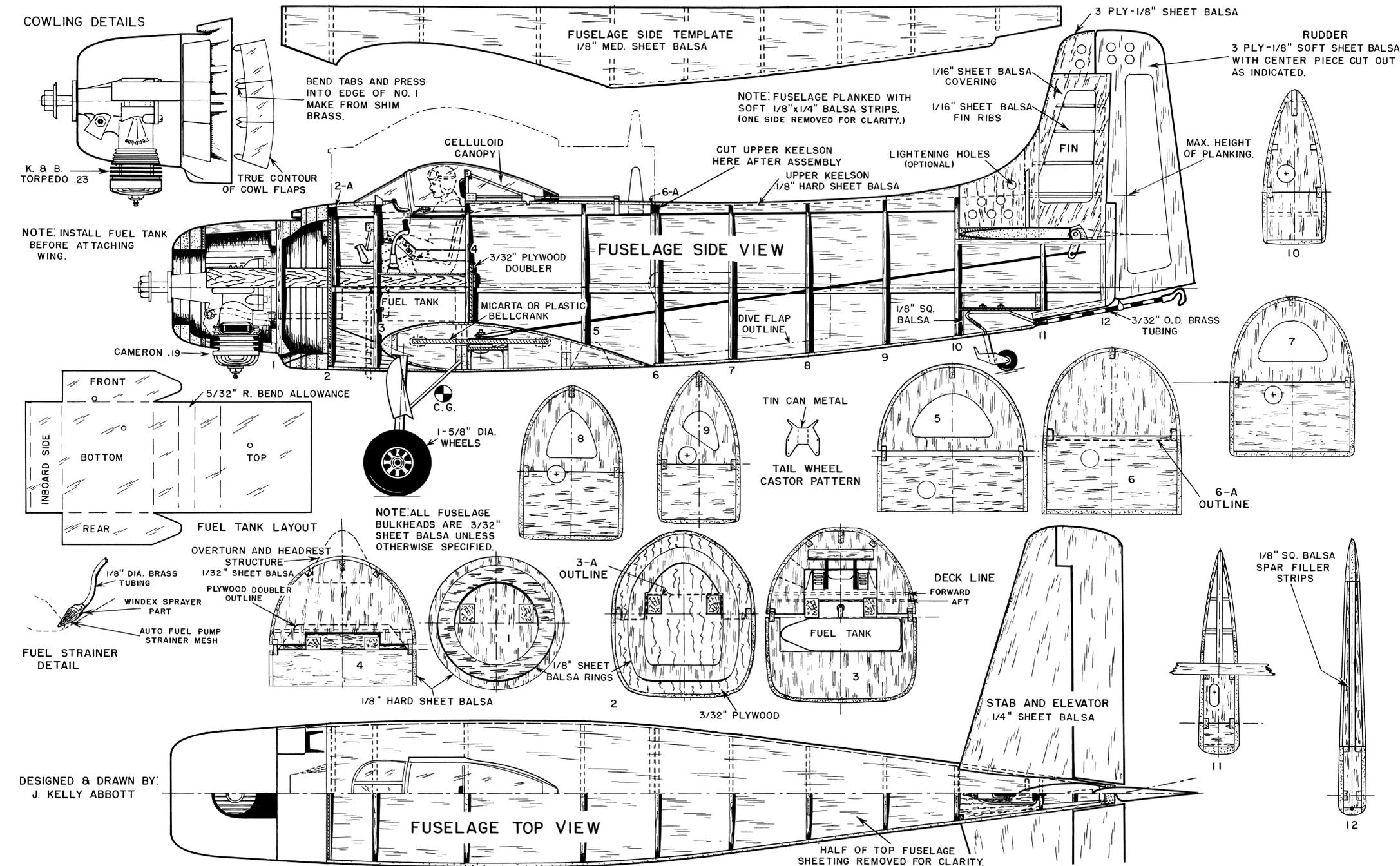
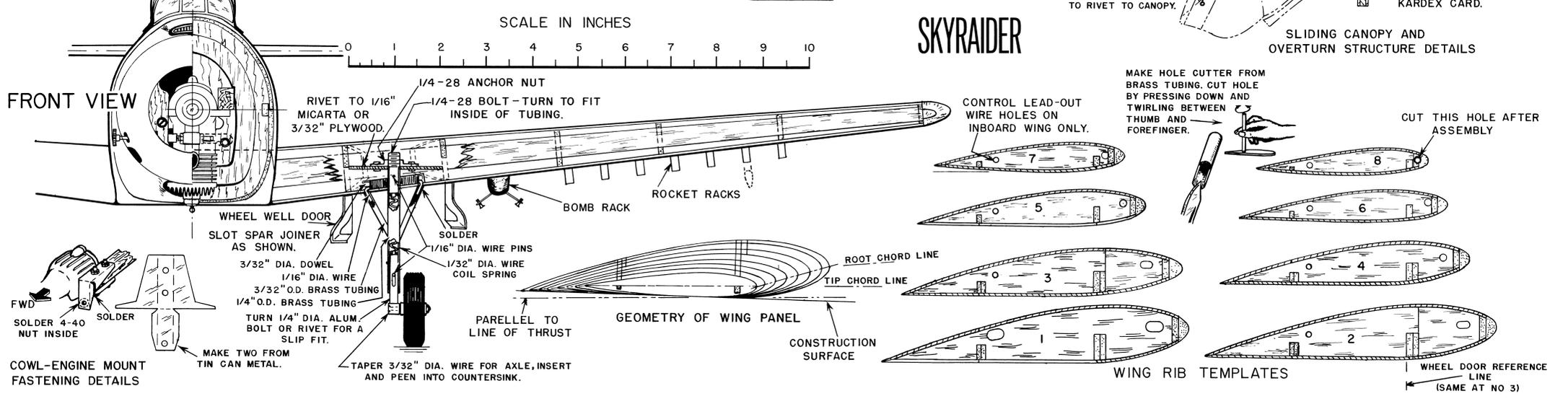
FROM MODEL AIRPLANE NEWS, MARCH 1956

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FROM
MODEL AIRPLANE NEWS
MARCH 1956



SKYRAIDER



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 choice is the December 1971 issue of RC Playboy (OOPS, I mean RC Modeler). The scale model is a Travel Aire 2000 designed and built by my friend the late Dick Tichenor.

Included in this issue are articles and plans for RC scale models of the Douglas Dolphin twin engined amphibian and the Waterman Aerobile, an early attempt at a roadable airplane.

This issue of RC Modeler comes from the time when construction articles and plans were still a mainstay of model airplane magazines

To download the this issue of RC MODELER, click on the link below ---

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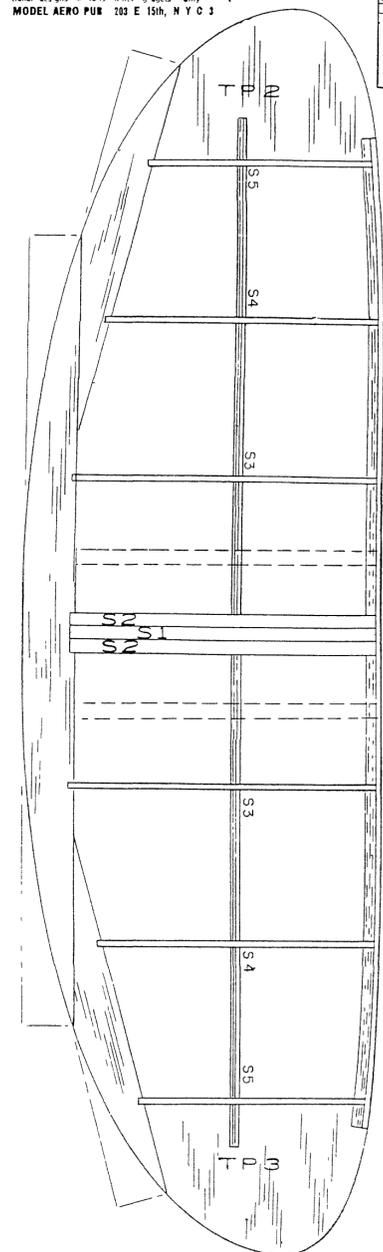
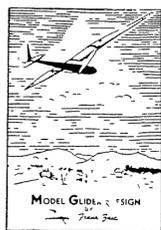
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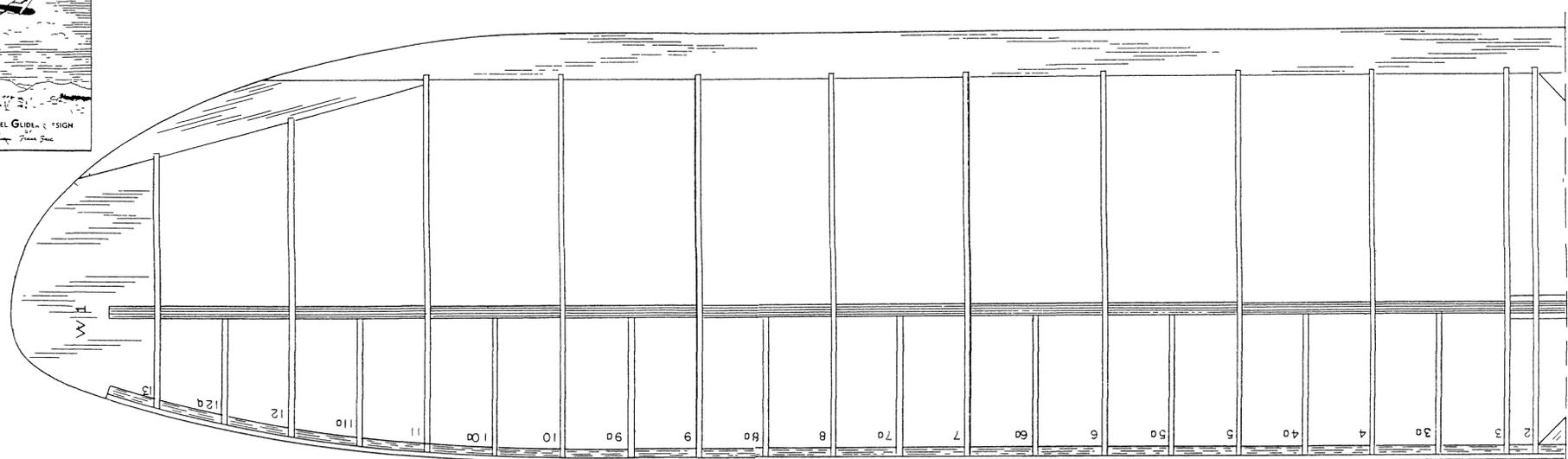


Frank Zacc's New, Timely Book!
Model Glider Design

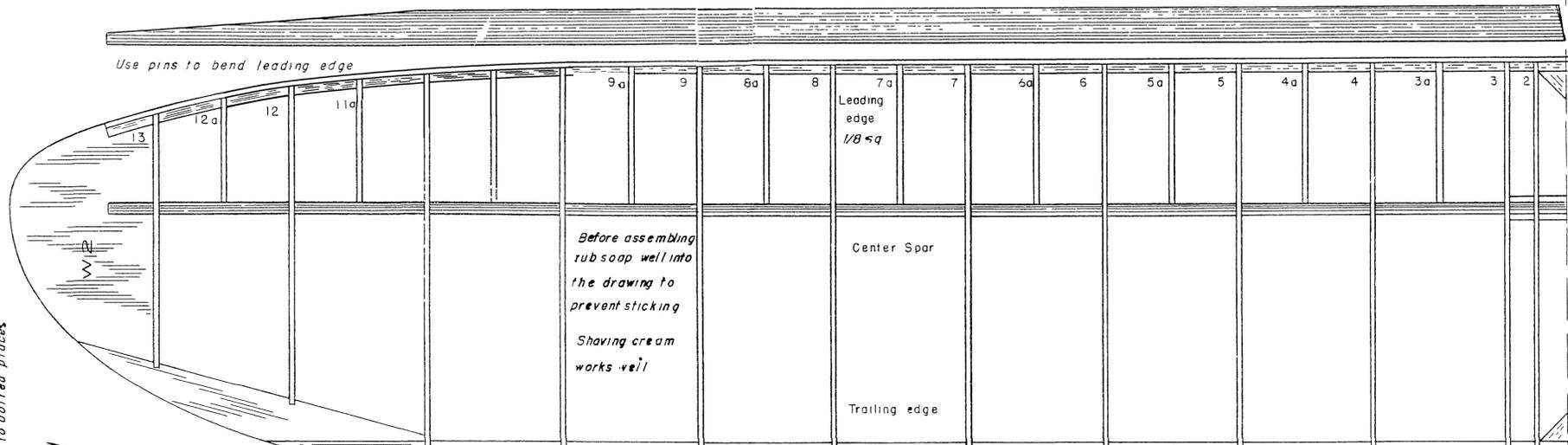
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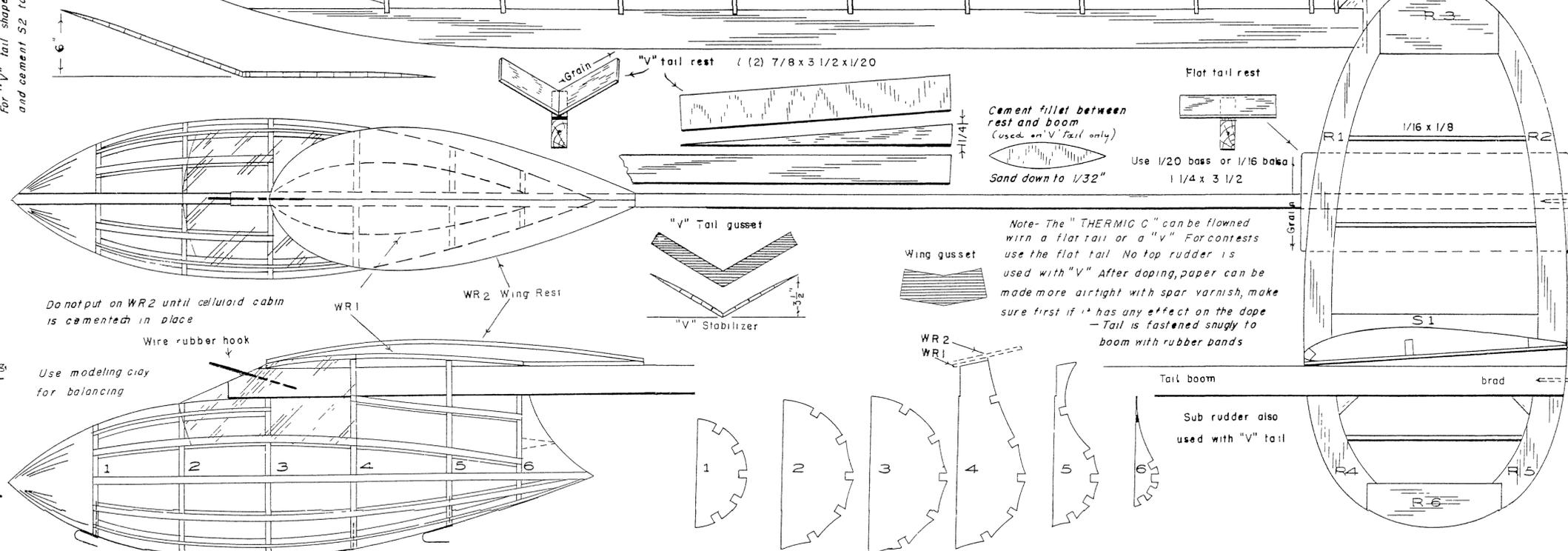
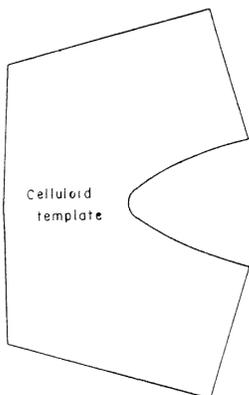
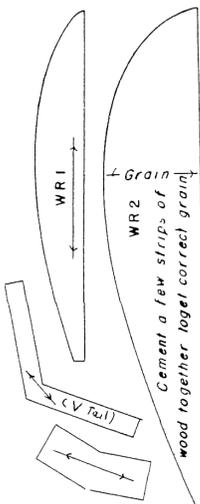
For "V" tail shape S1 like S2,
 and cement S2 to dotted places



Use pins to bend leading edge



Cut out and paste on 1/20 bass or 1/16 balsa
 Make two of each follow grain indicated



SUGGESTIONS.
 It is advisable to cover the wing and tail first, then attach the wing to the fuselage with a rubber band. Fishermans leads weights which come in all different sizes are very good for prebalancing the model. Nuts and blots or something similar can also be used. Weight is added to the front of the fuselage until the model balances about the center spar of the wing. The weights are then cemented to the fuselage. Care must be taken to see that they are securely fastened down. The fuselage is then covered with paper. Modeling clay can be used for the final balancing of the model.

For those who prefer tight circles in gliding, it is suggested to add at station (4) two extra hooks on the left of the center hook and another two on the right of it, making a total of five hooks. The hooks being offset in different ratio will allow the model to be towed straight up regardless of turn put in.

Towline launching will be simplified if a few feet of rubber is used with the thread. It will act as a shock absorber and not much running will be necessary. Try it.

One more suggestion. The wing is fastened to the fuselage with a rubber band looped between the boom and the wire rubber hook. However, do not loop the bare rubber over the wire hook but rather bend a small hook about 3/16" in diameter and fasten it to the rubber permanently. Use it to connect the rubber to the wire rubber hook. This little device will make the wing almost crashproof.

Do not put on WR2 until celluloid cabin is cemented in place

Use modeling clay for balancing

Use three layers of papers on bottom of fuselage

Cement hooks on with narrow pieces of gauze

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JUNIOR AERONAUTICAL
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THERMIC "C"

THERMIC "C" is a class C contest model
 Wing Area approx 149 sq in
 Wt 45 oz

Here's the another in our series of downloads from the DigitekBooks archives. This brochure was loaned by Al Lidberg.

Reginald Denny, popular movie actor of the 1930's, was a model builder and strong supporter of the modeling world. He had a hobby shop and had model kits, and an engine produced that bore his name.

He also supported the development of what would become the first unmanned aerial targets for the Army. After testing in 1935 and receiving a contract for production it grew into a manufacturing company, Radioplane.

While these first three airplanes were probably not the very first radio controlled models, it was certainly the most successful of the very early attempts.

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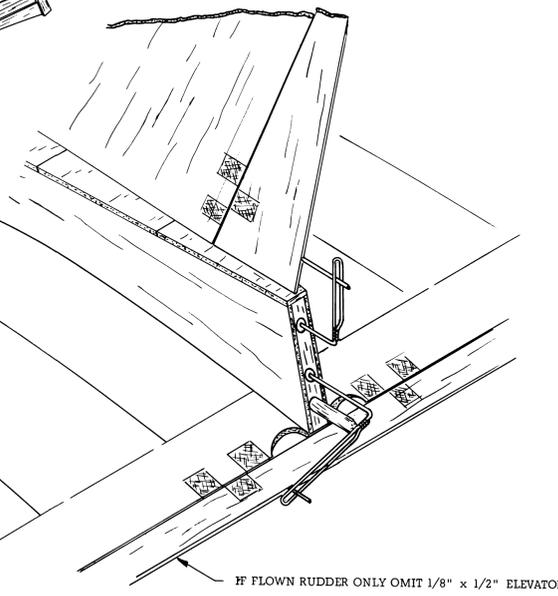
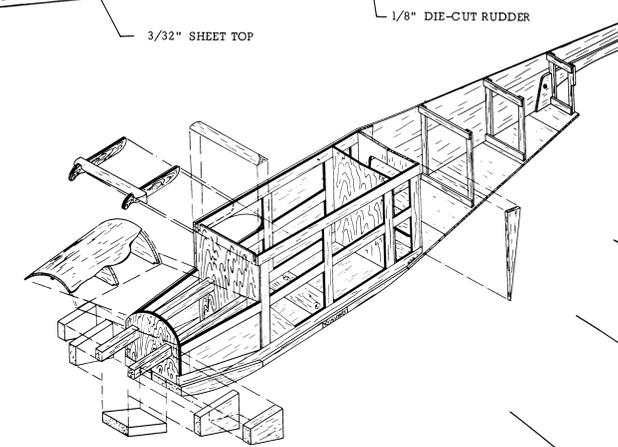
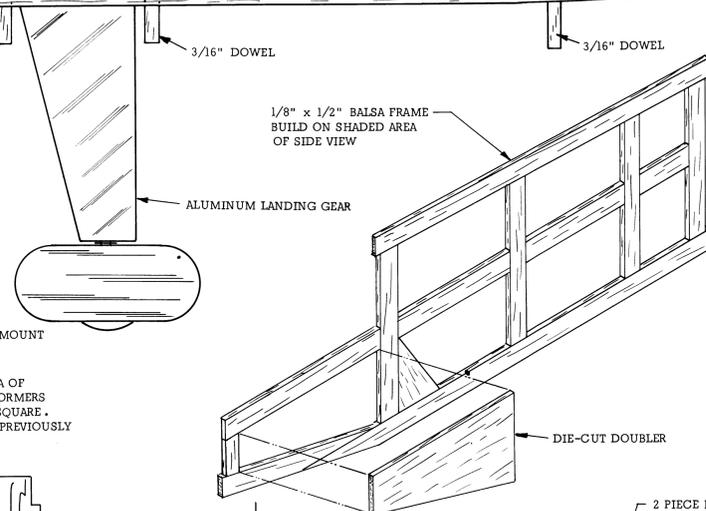
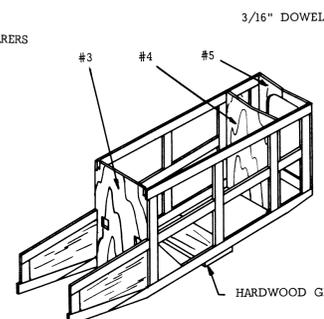
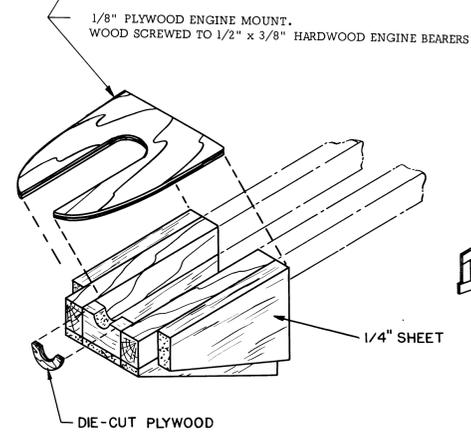
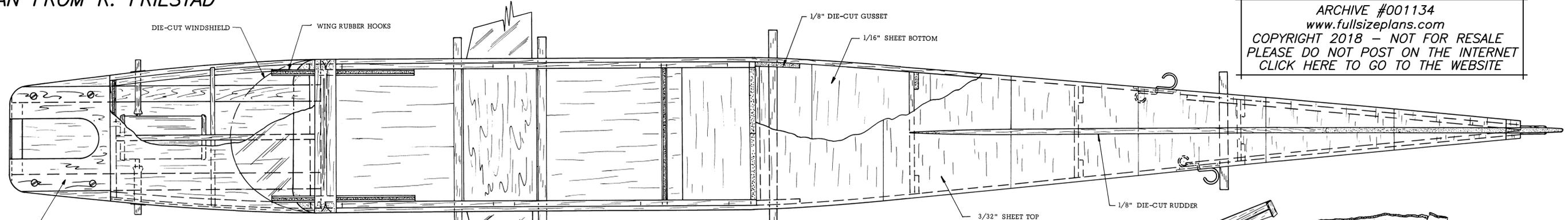
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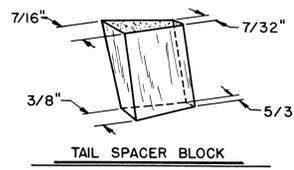
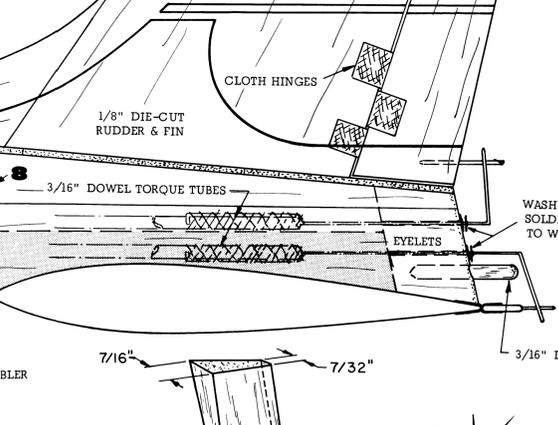
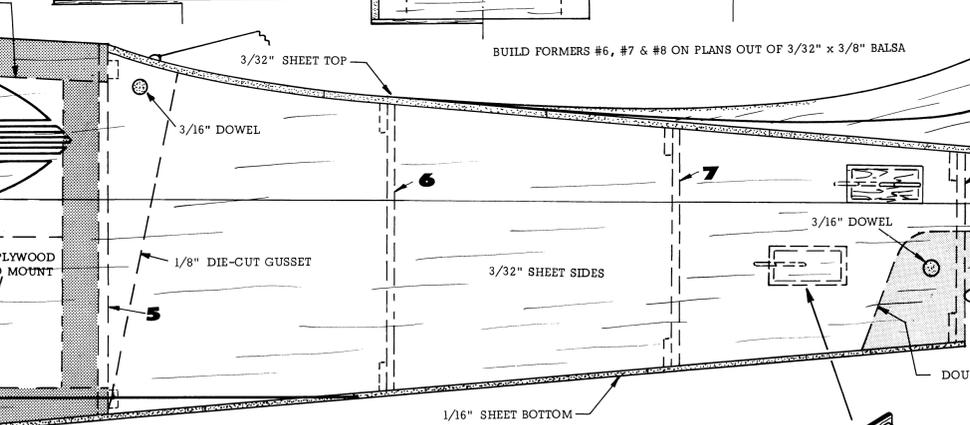
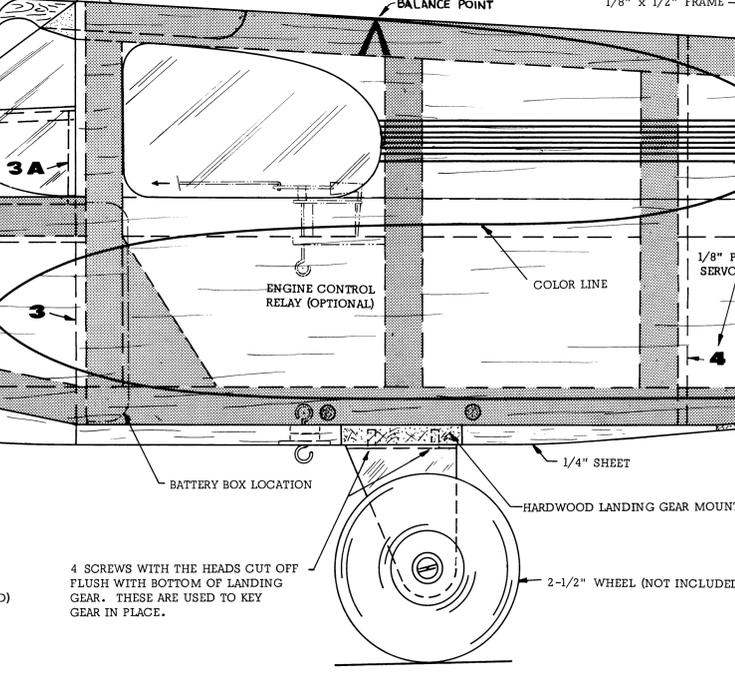
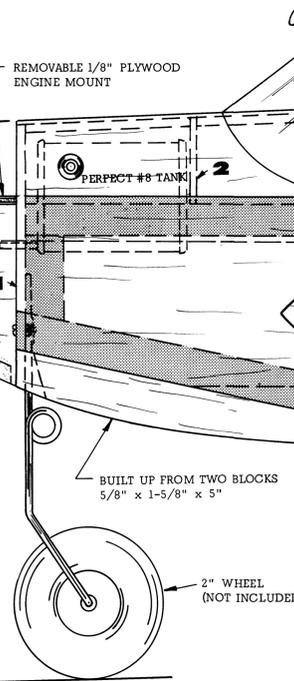
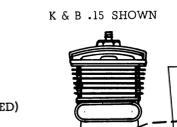
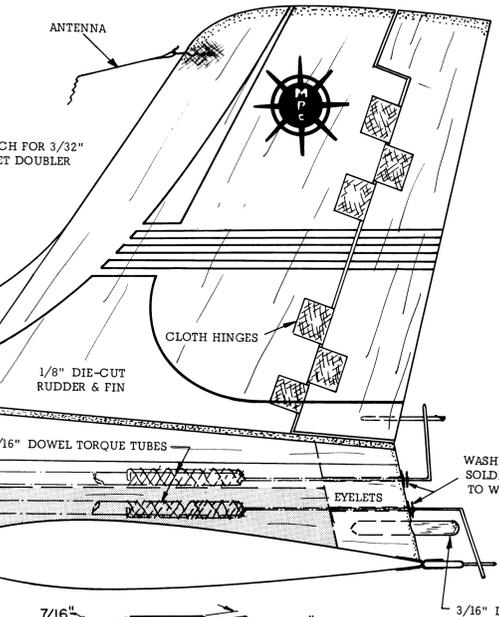
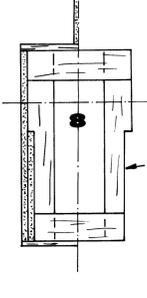
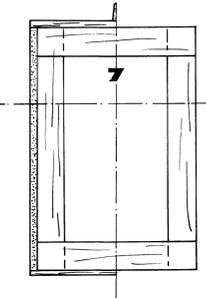
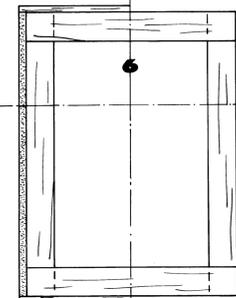
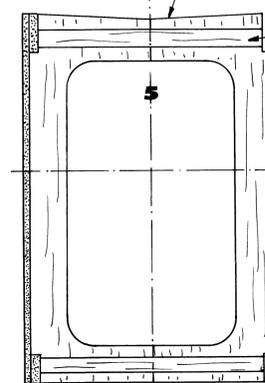
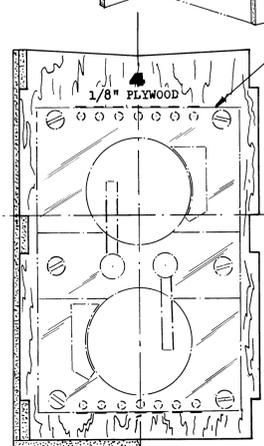
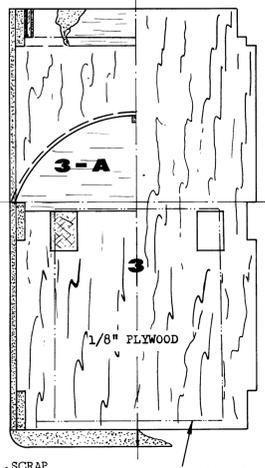
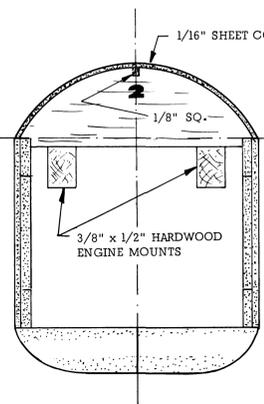
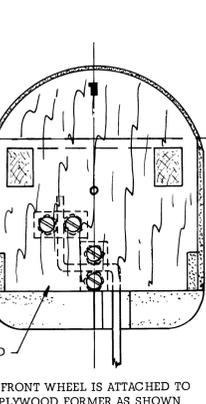
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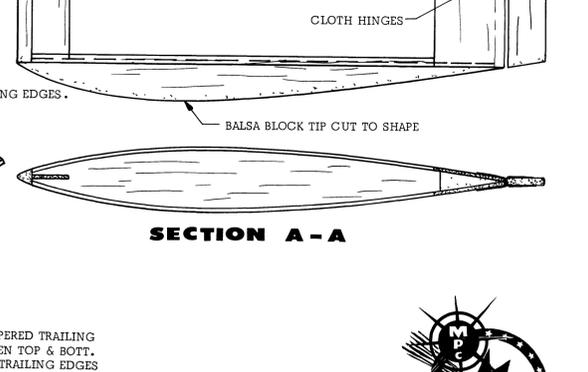
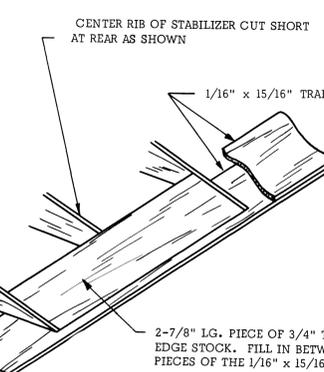
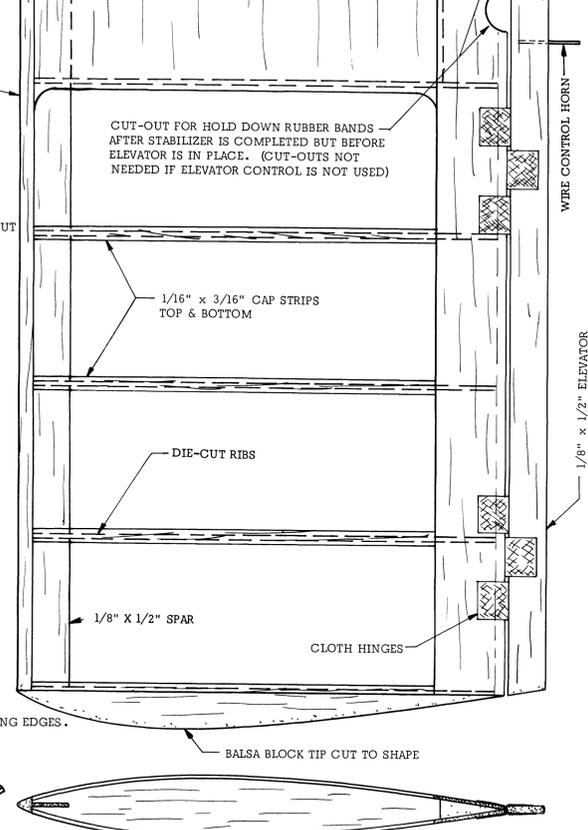
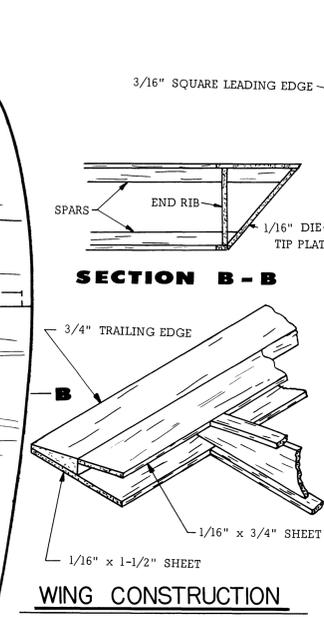
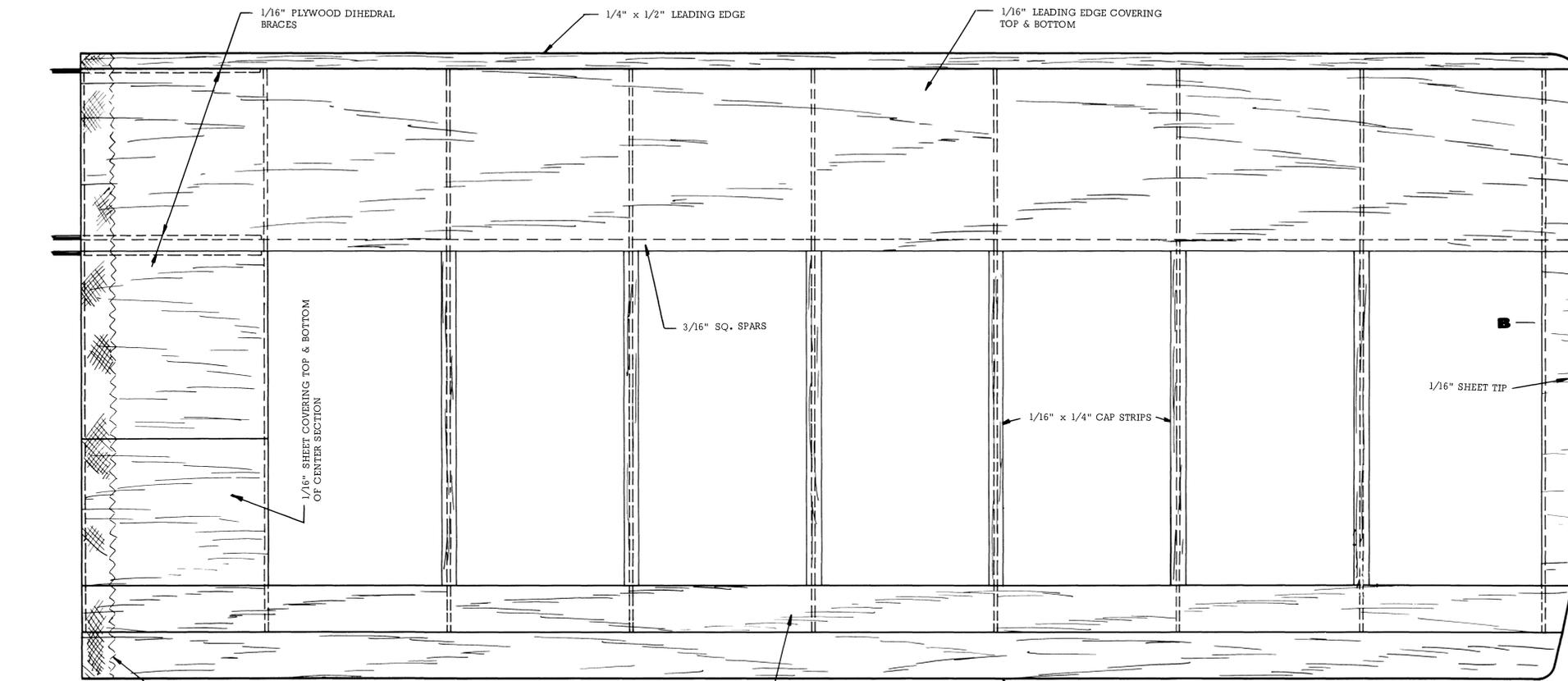
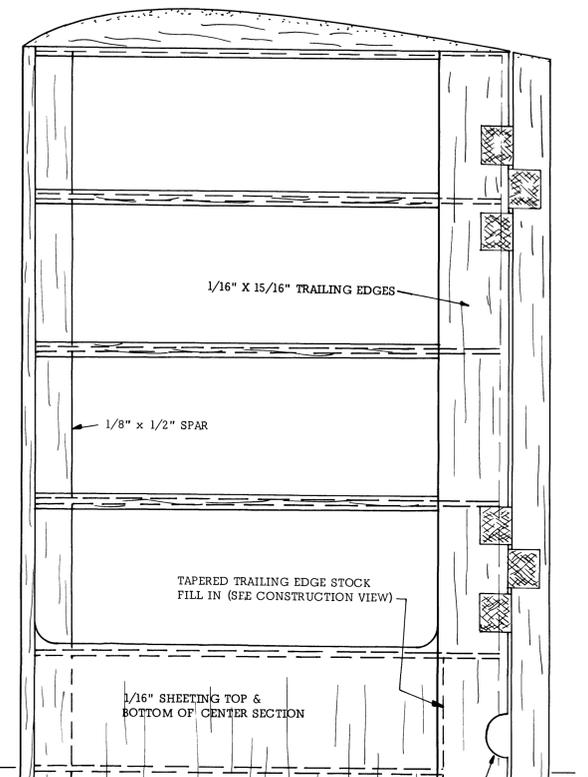
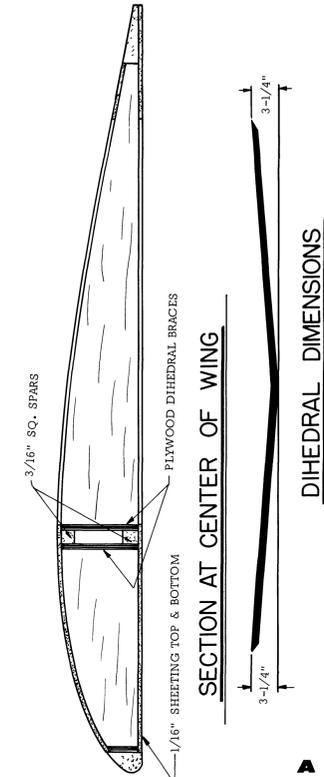
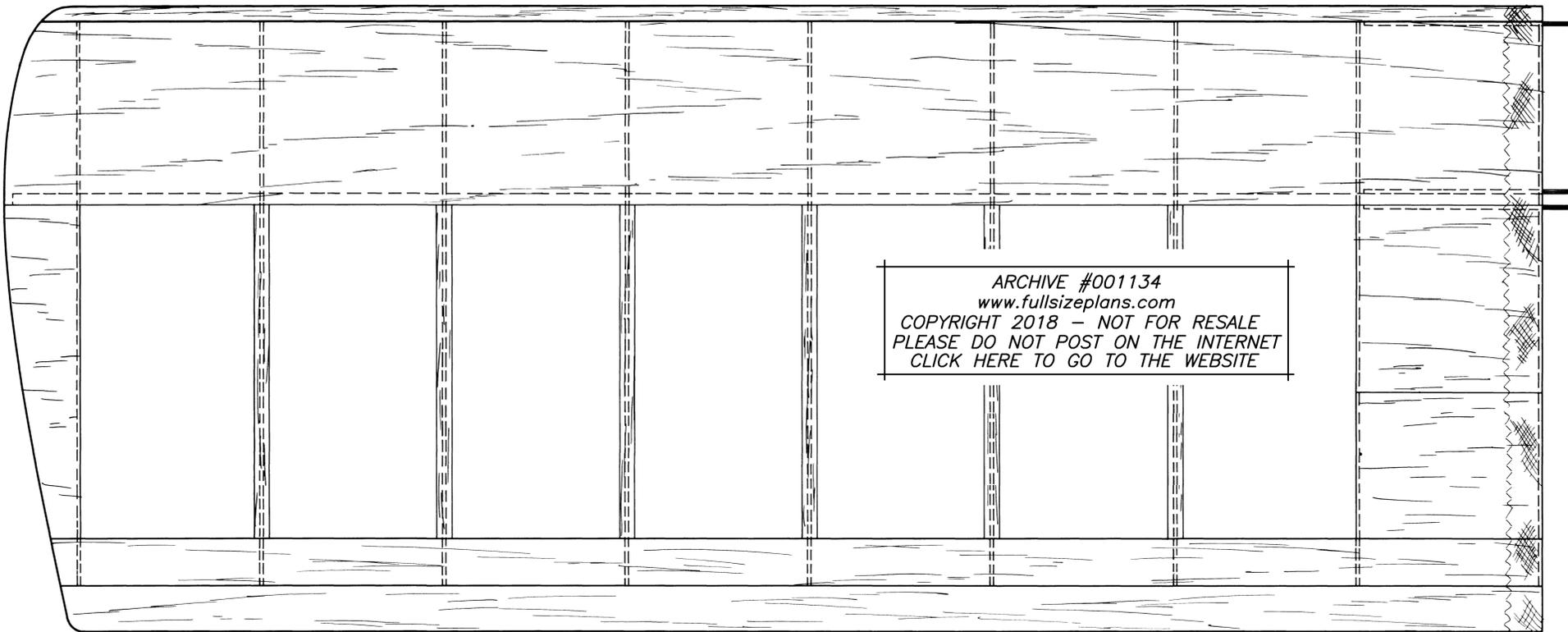
BUILD TWO FRAMES ON SHADED AREA OF SIDE VIEW & THEN ASSEMBLE WITH FORMERS AS SHOWN MAKING SURE ASSEM. IS SQUARE. THEN ATTACH FUSELAGE 3/32" SIDES PREVIOUSLY TRIMMED TO SHAPE OF SIDE VIEW



USE THIS TEMPLATE TO CUT OUT FUSELAGE SIDES FOR STABILIZER



TRI-SQUIRE
DESIGNED VINCENT MICCHIA RADIO CONTROL MODEL
DRAWN DON HARDY & J.C. SMITH
APPROVED J.S. MIDWEST PRODUCTS COMPANY HOBART, INDIANA



INSTRUCTIONS

- FUSELAGE**
- Build two frames from 1/8" x 1/2" balsa on shaded area of side view. Add 1/8" doubler at front of frames leaving space between back of doubler and frame for former No. 3.
 - Build former No. 5 out of two die-cut halves strengthening it with 1/8" x 1/4" strips running crosswise on back of former (Top and Bottom).
 - Assemble formers 3, 4 and 5 and hardwood gear mount between frames as shown on fuselage plan. Check to make sure assembly is lined up and square. Set aside to dry.
 - Build fuselage sides by gluing two sheets of 3/32" balsa together and trimming to shape of plan side view. BE SURE TO USE TEMPLATE (BELOW SIDE VIEW) FOR STABILIZER CUT-OUT. Glue rear doublers (shaded area @ rear of side view) in place as shown.
 - Glue sides to frame assembly joining at the rear with spacer block between them. Build formers 6, 7 & 8 on plans and assemble in place. Add 1/8" die-cut gussets on inside in back of former 5.
 - Add hardwood mounts, plywood firewall, fuel tank, nose wheel, formers 2, 3A and 1/16" top nose sheeting. Bottom between firewall and former 3 is built up from two blocks 5/8" x 1-5/8" x 5" and trimmed to smooth shape. 1/4" sheet bottom is added front and back of hardwood landing gear mount as shown on side view. Add 1/16" sheet bottom.
 - Mount escapement to 1/8" plywood former No. 4. Install torque rod without yokes. (Yokes are soldered to torque rod after assembly is complete). Add eyelets, yokes and solder washers in place as shown on side view.
 - After this has been completed and escapement winders have been installed, (if needed) cover top of fuselage with 3/32" sheet. Add rudder and fin.
 - Shape 1/8" plywood front wing rubber hooks and cement in place. Add scrap wing stop on top engine mount and glue cowling blocks in place and shape as shown.
 - Add all dowel rods, landing gear, wheels, side windows and windshield.
- STABILIZER**
- Pin down bottom strip of trailing edge (1/16" x 15/16" x 19") on plans. Add ribs (center rib is cut short at rear) front spar & leading edge. Glue short piece of trailing edge stock in place between center section ribs & add top 1/16" x 15/16" x 19" piece. Add elevator with cloth hinges.
- WING**
- Pin 1/4" x 1/2" leading edge to plans. Glue 1/16" x 3" bottom covering to leading edge. Pin down 1/16" x 1-1/2" trailing edge sheet. Glue in 1/16" x 1/4" bottom cap strips. Glue into position 3/16" square bottom spar. 3/4" tapered trailing edge is now cemented in place on 1/16" x 1-1/2" trailing edge sheet. Cement all ribs in position except center rib. Glue top spar in place. When both wing sections are thoroughly dry add wing tip assembly. Pin one wing panel

to bench. Block up 6-1/2" dihedral in other panel and cement together with dihedral braces. Glue in 1/16" x 3" leading edge covering and 1/16" x 3/4" trailing edge top sheet. Fit and cement 1/16" x 1/4" cap strips also top and bottom center sheeting.

COVERING AND FINISHING

Sand model with fine sand paper making sure all surfaces are smooth. Cover with tissue provided and apply three coats of Midwest clear dope. Apply two coats of Midwest color dope. (Spray if possible.) Brush on one coat of Midwest Green Label Fuel Proofer to make model fuel resistant and give it that added gloss.

***FLYING THE TRI-SQUIRE**

Check your model for warps making sure all warps are removed. Locate the C/G of your Tri-Squire. It should fall within 1/2" of the C/G on plans. Add ballast to correct if necessary. Check out radio receiver carefully following manufacturers recom-

mended check out procedure. Recheck with engine running. Pre flight receiver checks are vitally important - don't "golf". Select calm weather for first flight. Test glide over tall grass. Tri-Squire should glide straight in a flat glide. Make slight rudder adjustment by binding yoke if necessary. If model stalls or dives in test glide add shim to stabilizer to correct. Plug venturi of engine for steady running in all flight altitudes. A 10-3 Tornado prop gave excellent results on K&B 15. Now you are ready to fly. Start engine and adjust needle valve for steady slightly rich running. Turn on receiver and transmitter and check rudder & elevator action. If action is positive you are ready to launch. If not, stop engine and recheck receiver. If everything is OK launch (don't heave) Tri-Squire from a run. Let Tri-Squire gain altitude before attempting turns. Make turns gradually by pulsing transmitter. Observe flight tendency on neutral rudder carefully and correct if necessary by readjusting engine thrust. Keep ship upwind when flying. After engine cuts, circle model downwind to make landing pattern.

STABILIZER TRAILING EDGE STOCK
 FILL IN CONSTRUCTION VIEW

TRI - SQUIRE

RADIO CONTROL MODEL

MIDWEST PRODUCTS COMPANY, HOBART, INDIANA



THE CROSSBOW LAUNCH

BY FRANK EHLING

**THIS IS WHAT WE
CALL FUN.
THE VERY LATEST
WRINKLE IN CATAPULTS
From Air Trails January 1942**

WHILE the crossbow is as old as the eighteenth century, this is the first time to our knowledge that it was ever used to launch gliders.

Not having the arm to launch a standard-size glider as high as I would like (and who has?), I resorted to the building of small gliders, as these can be thrown to a greater height, and that spells greater duration.

Catapulting gliders is not an easy task, as the glider is liable to be broken while leaving the catapult, whereas in using the crossbow this cannot happen, since there is nothing to cut off the stabilizer. The height obtained with this type of launch is worth the little time that is required to make the simple instrument.

To start with, you will need any soft wood such as white pine or bass for the gun. Enlarge the drawing to the required size and cut out the shape from the board. The gun is then sanded to a smooth finish, the corners being sanded round except on top, where the glider rests.

Above—This is how your crossbow should look. Aim it like a gun, pull string, zowie!

Here two strips are cemented on top where shown, far enough apart to allow the body to fit in. The fit must not be too tight and yet not loose, as the guides hold the glider in place while the bow is under tension. Cut the notches in the strips that hold the string while you get ready to launch your glider.

Finish off the gun with a good grade of black dope or paint, which keeps the wood in shape. The bow is an important part, for this is where the power of the launch is produced.

Since this is constantly under strain while flying, it must be made of a good grade of ash or other wood of the same bending quality. Cut the bow to shape as shown on the plan and then proceed to carve the cross section.

When this is nearly done it can be finished off with sandpaper till as smooth as possible. Next it is given several coats of clear dope, sanding in between each coat, till the bow is as smooth as glass. The extra strength gained from dope will pay you for the time that it takes to do the job well.

Notches can now be cut in at the ends to accommodate the string. These should be coated several times to save the string when the bow is stretched to the limit.

The bow can now be cemented in place at the end of the gun. Tie a string at one end of the bow and run it to the end of the gun and back to the end of the bow on the other side. Tie it so there is no slack in the string.



This string can serve as a guide in lining up the bow as well as holding it in place while the cement is drying. As this cement joint must be strong, use plenty of cement but do not put one coat over another till the previous one is thoroughly dry. About five coats should give a good job.

A few words while the bow is drying. Many types of gliders were tried on this crossbow, the only requirements needed being that the stabilizer is on top of the body as this allows the body to lie down in the groove, and a notch placed in the body to accommodate the bow string. This notch should be cut in at the bottom of the body one third from the leading edge of the wing.

This point is an important one, as many locations were tried to get the most out of the launch. By this time the bow should be dry. String up the bow so there is a bend in it of about four inches. Place the string in the notches on the top rails and slide the glider in the groove ahead of the string, pulling it back till the glider is ahead of the string and the string is in the groove.

All that is needed to release the glider into the air is to raise the thumb of the left hand.

A few words on test flying. Use the same care that you would when hand launching your glider, that is, gradually increase the power of the launch till you have the ship taking all that you can give it.

When using the crossbow, that is done by bringing the string back more each time till you have the glider really getting up where you can see just what the ship can do when it is on its own.

The easiest way to get the ship to turn is to warp the trailing edge of the stabilizer down on the left side, looking from the front of the glider.

This will give the ship a nice turn and will not allow the glider to loop, but let it climb till all the power is lost, and at the end of the climb the nose will drop but the tail will rise, since by warping the stabilizer down it acts the same as a lifting tail. This allows the tail to be smaller in size as well as improves the glide.

By the way, you can use the crossbow to do some balloon busting. All you need to make it interesting is to get a few fellows and see how well you can bring down the gas bubbles. A pin in the nose with one in each wing tip will give you a good chance to bust the balloon.

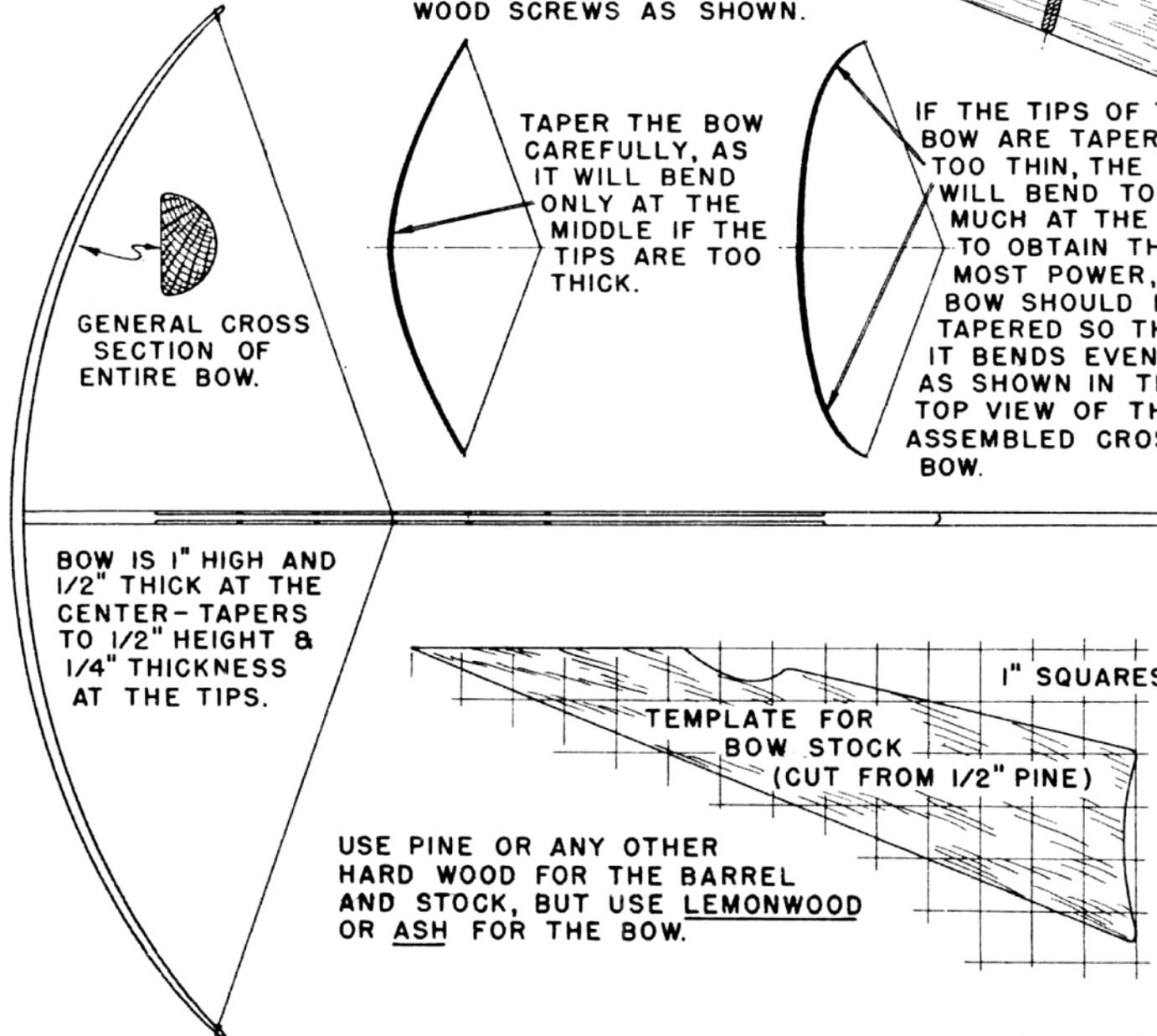
EDITOR'S NOTE - Looks like an interesting idea. Somewhere tucked away is an old fibreglass bow that my kids played with many years ago. I'd bet that would make a good foundation for building the crossbow. I can see it now, a contest for gliders using the crossbow launch for those old folks like myself who would throw out their arms trying to launch the old fashioned way. If you build one of these, be sure and send photos and let us know how it worked



RAILS - 26" LONG 1/8" X 1/4" PINE - NOTCHED EVERY 3"

BARREL - 1/2" X 1-1/2" X 36"
PINE

CEMENT BARREL & STOCK
TOGETHER AND USE TWO 1"
WOOD SCREWS AS SHOWN.



GENERAL CROSS
SECTION OF
ENTIRE BOW.

TAPER THE BOW
CAREFULLY, AS
IT WILL BEND
ONLY AT THE
MIDDLE IF THE
TIPS ARE TOO
THICK.

IF THE TIPS OF THE
BOW ARE TAPERED
TOO THIN, THE BOW
WILL BEND TOO
MUCH AT THE TIPS.
TO OBTAIN THE
MOST POWER, THE
BOW SHOULD BE
TAPERED SO THAT
IT BENDS EVENLY,
AS SHOWN IN THE
TOP VIEW OF THE
ASSEMBLED CROSS
BOW.

BOW IS 1" HIGH AND
1/2" THICK AT THE
CENTER - TAPERS
TO 1/2" HEIGHT &
1/4" THICKNESS
AT THE TIPS.

1" SQUARES
TEMPLATE FOR
BOW STOCK
(CUT FROM 1/2" PINE)

USE PINE OR ANY OTHER
HARD WOOD FOR THE BARREL
AND STOCK, BUT USE LEMONWOOD
OR ASH FOR THE BOW.

Baby Boomer

By **AUBREY KOCHMAN**

This little free flight model comes from the August 1949 issue of Air Trails

If you want a ship to put behind the new Herkimer Cub or K&B Infant engine that will give contest performance and is not the usual run-of-the-mill pylon job, try the Baby Boomer. Its fast, tight, spiraling climb and flat glide put it in the winners' circle whenever it is flown.

If you look closely you may note the resemblance to the Baby Bowlus sailplane, for it was from this design that the original Boomer was built back in 1938. Since that time at least ten Boomers have been built and all had the same general characteristics: easy to build, easy to adjust, and (we regret to say) easy to, lose.

When flying the Baby Boomer take weather conditions into consideration and limit the engine run accordingly. The Infant will run about eight seconds on the fuel in the fuel line from the

tank end just before launching. If you use an average size eye dropper to fill the tank, you will find that one dropperful of fuel will give a run of about 25 seconds.

In selecting your wood for construction of the Boomer, bear in mind that the flying weight, with an Infant, should not exceed two and one half ounces. For powering with a Cub we recommend 1/20" sheet balsa for the wing instead of 1/32", and a solid boom of the hardest balsa available. If you can secure some light tubing, that might well be substituted for the balsa on the boom.

With the exception of the boom, the construction is about the simplest, and a warp-free structure should result. Actually the Infant boom shouldn't present any problem if care is taken in selecting a sheet of 1/20" soft straight-grained balsa and a straight 1/4" dowel.

Cut the sheet to the size indicated on the plan and soak it in hot water for at least five minutes. Then lay the dowel in the center of the sheet and gradually bend the balsa around it. Strips of tissue wrapped around the balsa will hold it in shape until dry.

If done correctly, the seam should run perfectly straight throughout the length of the tube. When dry, remove the tissue and cement the tube together, constantly checking to make certain that the seam remains straight. Next, sand the seam smooth, then remove the dowel.

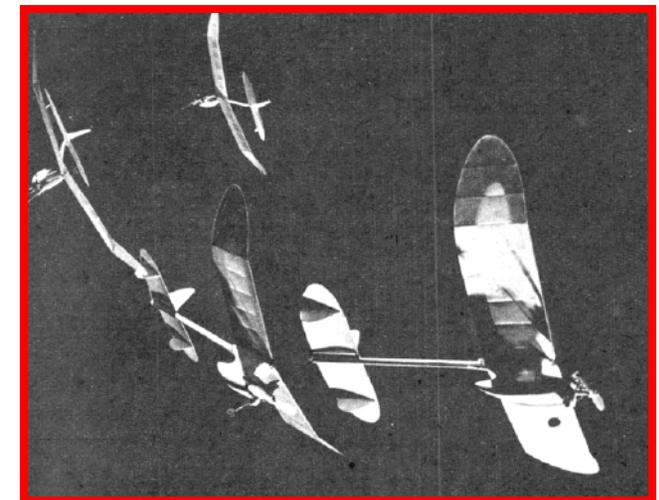
Cut a strip of 1/16" medium hard balsa sheet to fit snugly inside the entire length of the tube to act as a stiffener. Use plenty of cement on this strip and then insert it into the tube.

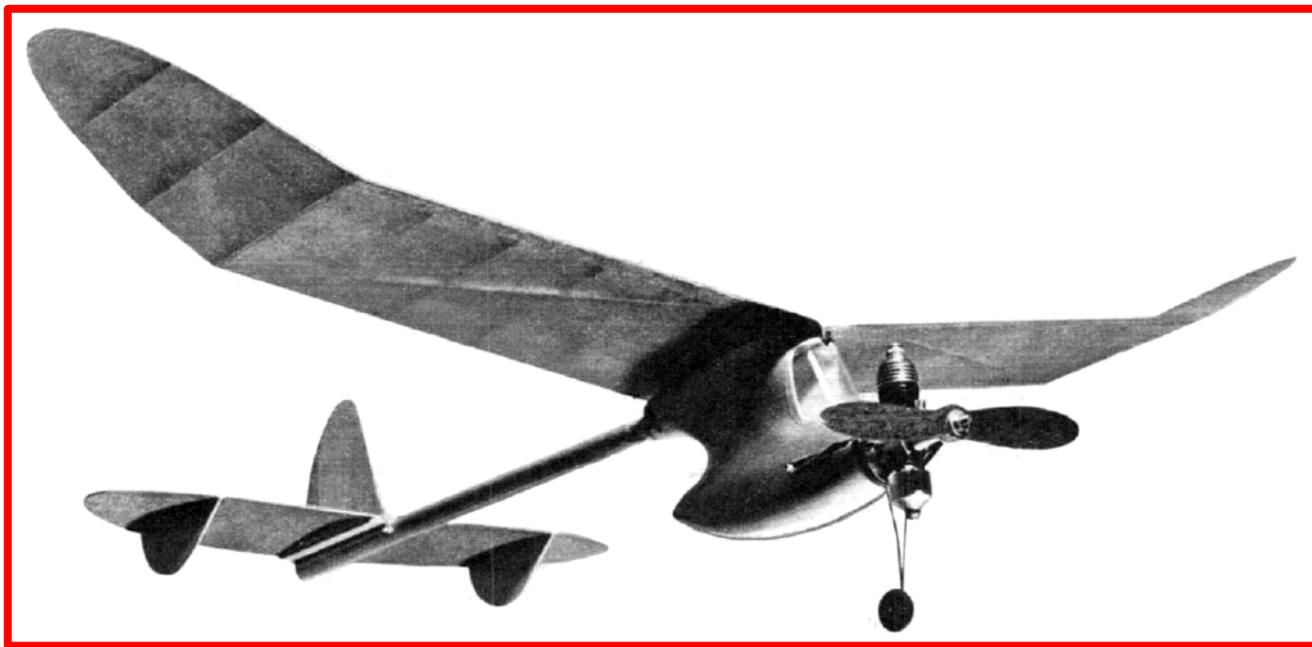
A short length of aluminum tube or dowel is cemented to the stiffener at one end of the tube and another passes through the tube three inches from the end. A 1/16" sheet balsa cap finishes off this end of the boom. A solid balsa plug is fitted to the other end of the boom as shown on the plan.

The pod is carved from the softest balsa you can find. Lightly cement the two blocks together and carve the outside shape. Next split the blocks apart and hollow out the insides as shown.

Cut a groove in each half where the boom enters the pod, using the cut-and-try method until the boom fits perfectly and is centered in the pod. Use plenty of cement when putting the pod and boom together. Check to make sure that they line up on the top and side view.

The rudder, stabilizer and sub rudders are cut from a sheet of 1/16" quarter-grained balsa. The two stabilizer ribs are cemented to the under-surface of the stabilizer one inch apart and then covered with 1/32" sheet. The rudder and sub rudders are next cemented in place as shown.





To build the wing, select two 2" sheets of 1/32" quarter-grained balsa and cement them together to form a 4" sheet. Now cut the sheet to the outline shape of half the wing and cut out the center of the panel as shown. Using this half as a template, cut out the other half of the wing.

Cement the ribs in place using pins to keep the sheet from springing away from the ribs. Add the 1/8" square spar and the 1/32" strip leading edge. Complete the other half of the wing in the same manner and cement the halves together at the proper dihedral angle.

Sheet between the first two ribs in each panel where the wing rests on the pod. Cut through the tips and then re-cement at their proper dihedral angle.

Cap strip the ribs with 1/32" x 1/8" balsa on the upper surface only, and then cover the entire wing with rubber model Silkspan or light tissue.

Add two drops of castor oil to an ounce of clear dope and apply two coats to the wing. The addition of the castor oil will prevent the wing from warping and will keep the tissue more flexible.

Check to see that the wing rests on the pod without wobbling. If it does wobble, add pieces of soft balsa to the edge of the pod until the wing seats correctly. Rubber-band the wing into the pod and, using the wing as a guide, cement the stabilizer platform to the boom. Check to make certain that it is horizontal.

The firewall is cut from 1/16" plywood. Before mounting the engine, bend two small hooks from 1/32" music wire and slip these onto the bolts before they pass through the engine.

Now mount the engine to the plywood with two 3-48 bolts, leaving about one half inch protruding through the rear of the plywood to act as keys. Two bushings are cemented into the pod as shown on the plan to receive these two bolts.

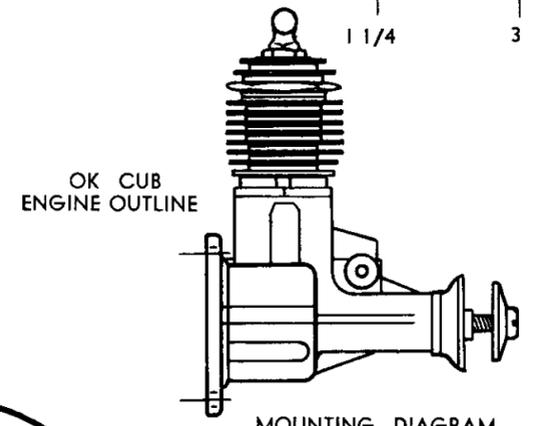
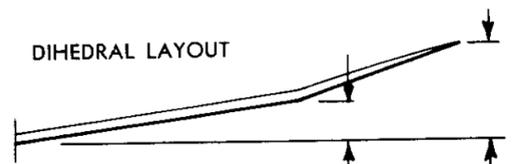
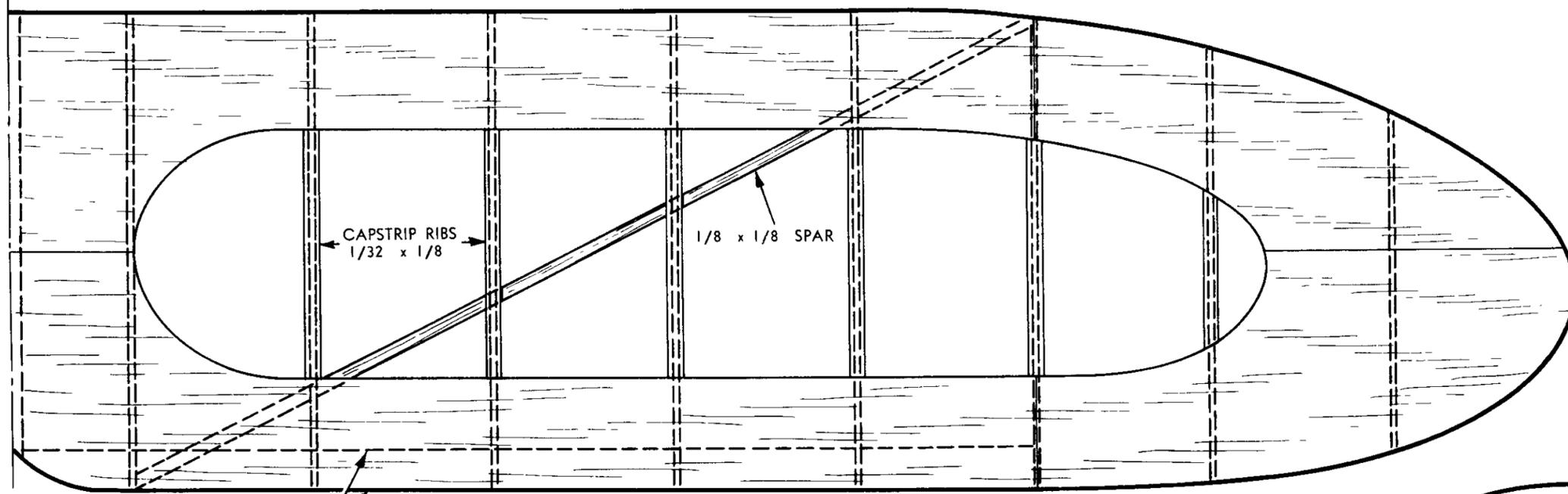
The landing gear is bent from 1/32" music wire and is attached to the engine only, by using the tank nut. The other end of the gear is simply wedged between the pod and the plywood firewall when the engine unit is rubber-banded to the pod.

This mounting arrangement proved itself foolproof on hard landings, as it allowed the gear to give without damaging anything.

Cover the tail surfaces, pod, and boom with lightweight Silkspan or colored tissue, apply two coats of dope, then give the pod and boom one coat of hot fuel proofer.

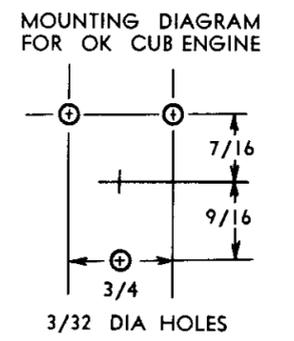
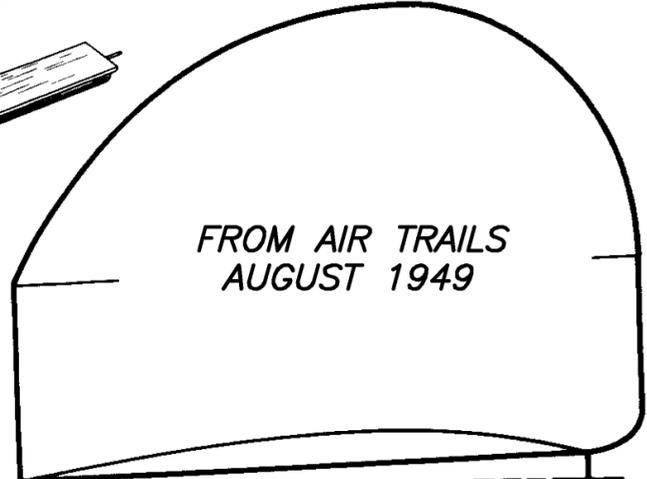
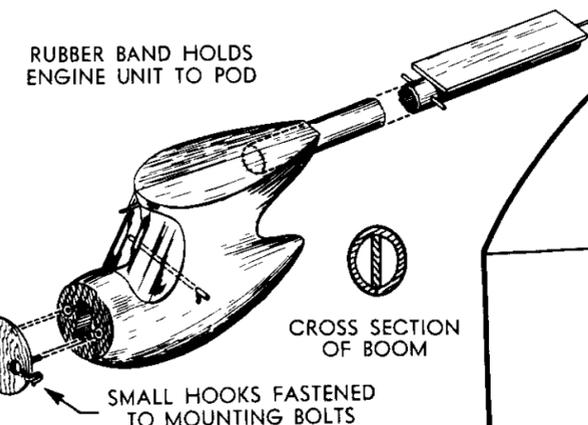
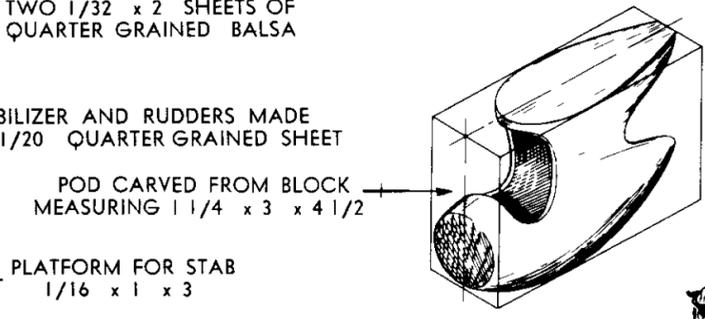
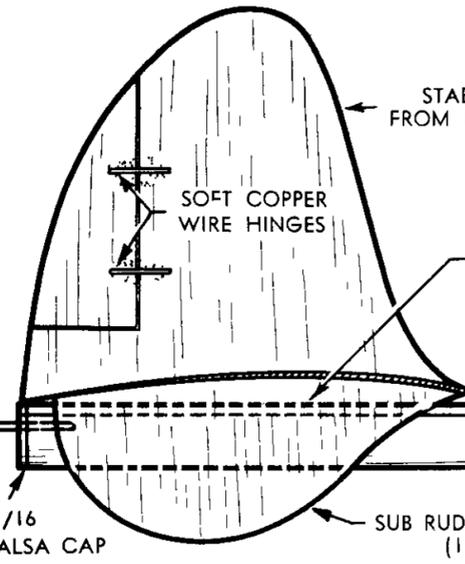
After trying several different props, the one that worked out the best was carved from a piece of mahogany 3/16" x 5/8" x 5-1/4" much in the manner suggested by the engine manufacturer except that the block is not tapered at the tips as seen on the side view.

The original model flies to the right under power and to the left in the glide. For your model to fly the same way, no other adjustments except a little left rudder will be necessary if you have built a model free from warps.



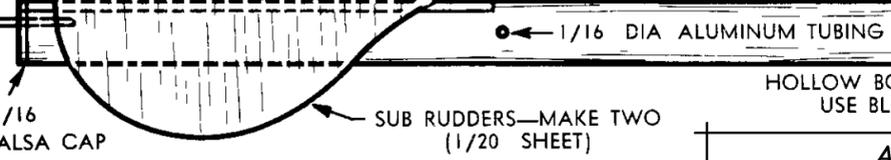
LEADING EDGE 1/32 x 3/8 x 8 1/2

WING OUTLINE CUT FROM TWO 1/32 x 2 SHEETS OF QUARTER GRAINED Balsa



PLATFORM FOR STAB 1/16 x 1 x 3

1/16 HARD SHEET Balsa STIFFENER RUNS THROUGH ENTIRE LENGTH OF TUBE

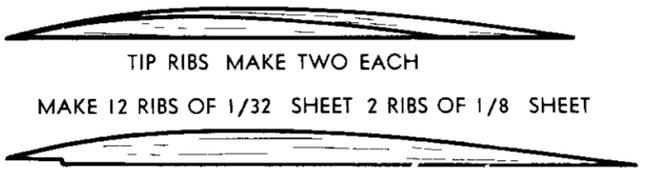


HOLLOW BOOM IS BENT AROUND 1/4 DIAMETER DOWEL USE BLANK MEASURING 1/20 x 1 1/8 x 11 3/4

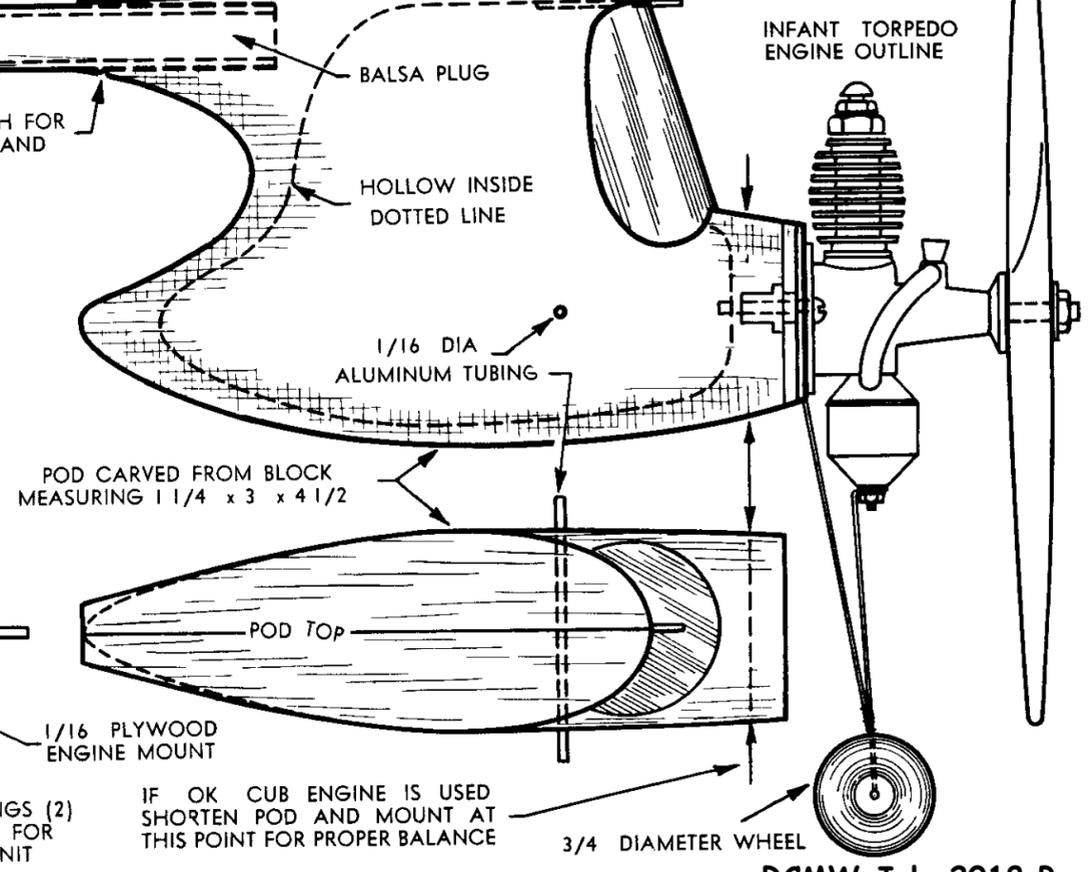
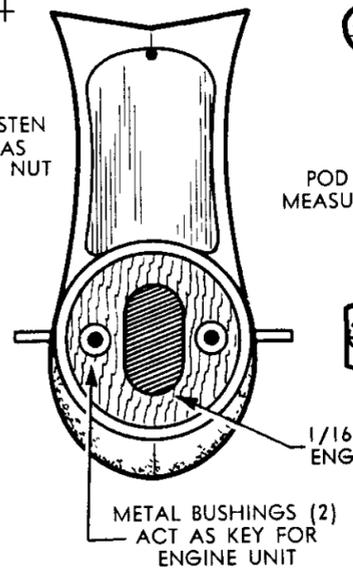
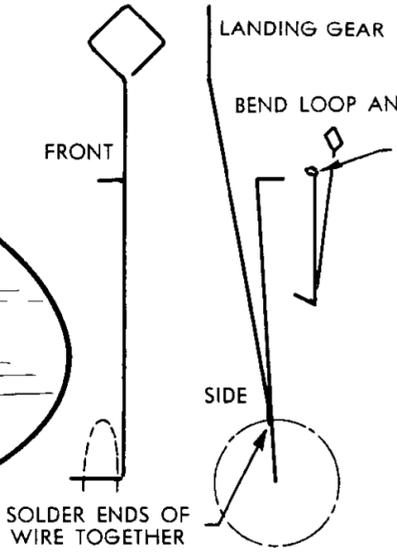
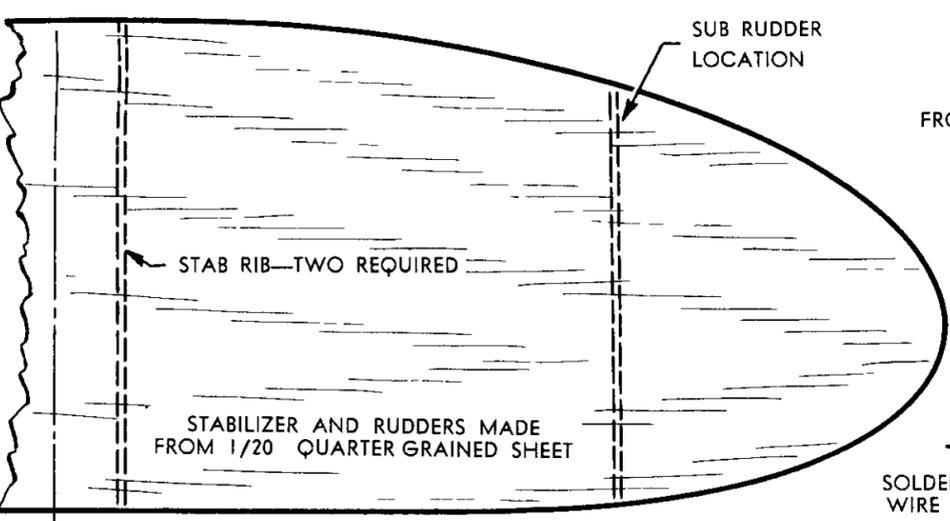
FROM AIR TRAILS AUGUST 1949

INCREASE WING INCIDENCE 1/8 FOR OK CUB

INFANT TORPEDO ENGINE OUTLINE



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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.

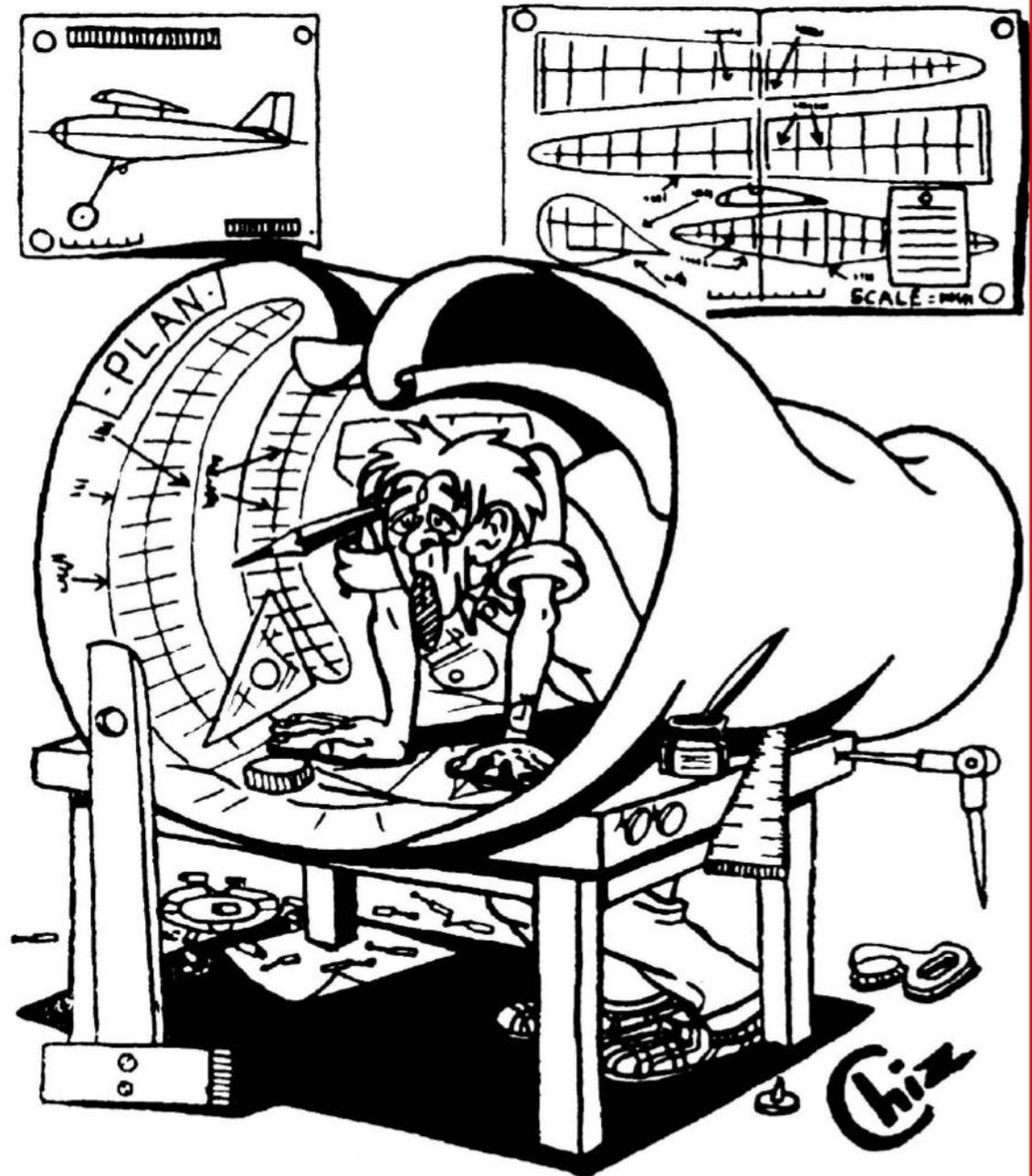
That's NOT the way it was in the past, when you had to build a model before you could fly it. If you're an old-timer, as I am, you have fond memories of Air Trails, Flying Models, Model Airplane News, Aeromodeller and many of the several other magazines available "way back when".

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



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What the heck is DigitekBooks? Well, just read on and find out. It will be worth your while.

We're making some big changes in our digital collections of model magazines!

For quite a while we have had an ad in this area, the last pages of each issue of RCMW, but no longer.

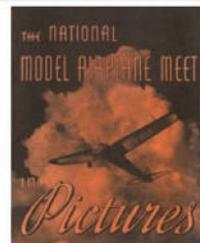
We have another website, DigitekBooks which contained the same magazine collections that were listed on the back pages of RCMW.

But now DigitekBooks contains a LOT more and is growing weekly with the addition of more magazine collections, books and even movies. And not just model airplane publications, Digitek also includes a growing collection of aircraft engineering, homebuilt airplane, machine shop, foundry, tool & die making and a wide variety of technical books.

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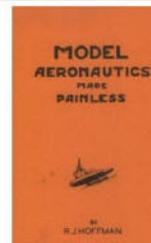
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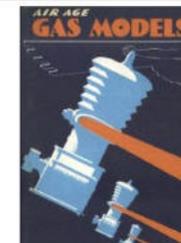
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