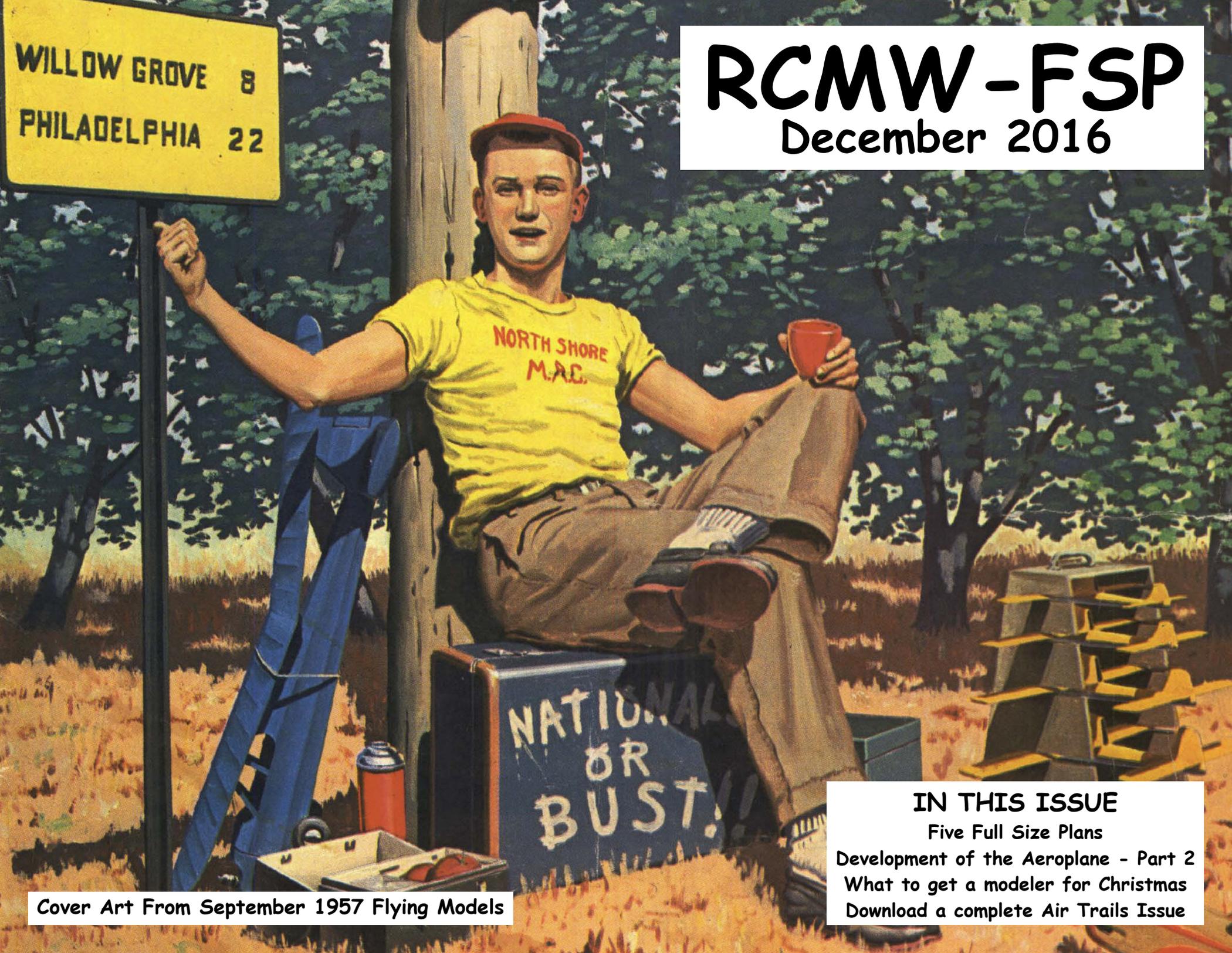


RCMW-FSP

December 2016



Cover Art From September 1957 Flying Models

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Five Full Size Plans
Development of the Aeroplane - Part 2
What to get a modeler for Christmas
Download a complete Air Trails Issue

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ON THE COVER

**The artwork on the cover of this issue comes from
The cover of the September 1957 Flying Models.
A painting by Harold Stevenson, well known artist
and model builder whose designs
and cover paintings appeared on several magazines**

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

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Roland Friestad
1640 N Kellogg Street
Galesburg, IL 61401
USA

For the Model Bulder and Flyer - December 2016 Issue



Full
Size
Plans



We have lots of good stuff for you in this issue, including a new Micro RC design by our regular contributor, Bob Aberle. His take on the RC version of the Free Flight COMANCHE will be of interest.

Part 2 of Douglas Rolfe's DEVELOPMENT OF THE AEROPLANE is here on page 15 - Like Part 1 from the November issue, if printed at 100% of scale on 11 x 17 inch paper it would look well framed in a man cave. Part 3 will be in the next issue.

On page 16 is a Comet STINSON RELIANT rubber powered scale model complete with patterns. I think this one was featured as a recent contest selection by the Flying Aces Club.

Next are two little known models that were never published in any of the regular model airplane magazines. The first is the ASTRO BIPE a nice RC biplane by Fred Dunn. He sold the plans himself and this set was furnished by 'Ol Charlie Reich, a long time modeler who lives in Florida.

The second model is the TILBURY FLASH, a scale rubber powered model by the designer of the full sized aircraft. Only one was ever built and it competed quite successfully as a racer against others in the 1930's although it has been largely forgotten. The aircraft is preserved in a museum in Bloomington, Illinois. The plan was furnished by the late Dave Shipton.

Check out the new VISUAL PLANLIST on page 24. It will be sent free on request to subscribers.

With Christmas approaching you might like to send a greeting to one or more of your flying buddies this year. With that in mind we have created our Shop Rate Poster, a tongue-in-cheek notice that any model builder would be proud to display in his shop. We will enter a name of your choice on the top line and mail a copy to any desired address for only \$6.00. Just send an email to cardinal.eng@grics.net with the desired name and the address to which you want it sent. Payment by PayPal to the email address above or cash or check to the address at the bottom of page 2. Make sure he has a sense of humour !! Better than Hallmark and maybe even less expensive.

The complete back issue for downloading this time is the American Modeler 1969 Annual. It is the last annual published before that magazine went out of business and like most annuals has a lot of good content.

Our final full size plan for this issue is Frank Ehling's REQUEST from the September 1941 issue of Air Trails. Frank Ehling's biography on the AMA website makes for very interesting reading.

The digital collections of back issue model magazines detailed on pages 30, 31 & 32 would make great Christmas gifts for you to receive from someone who doesn't know what to get a model builder. All you need to do is drop a hint in the right place to solve that problem.

I'll send a free set of our LITTLE FREE LIBRARY plans on request.

Keep 'em Flying,
Roland Friestad, Editor

Joe Wagner's COMANCHE-183 by Bob Aberle

An update of the popular free flight design of the fifties, now with electric power and RC assist.

BACKGROUND

Joe Wagner started his modeling career in the late forties. Although attempts at contacting him recently have failed, we believe he is still alive and hopefully well. If you have any current status info on Joe please write to me. I would love to get in contact with him.

The theme of this article is more like a tribute to Joe's model design talents over the years. Probably his most famous design was an all balsa free flight biplane model, called the DAKOTA.

Kits of this plane are still available today thanks to Brian Malin of BMJR Models

<http://www.bmjrmmodels.com/free-flight/sport-free-flight/dakota>

The DAKOTA was my very first model. I built it in 1951 at age 13. I remember it was powered by an Anderson Spitzzy Junior .045 cu.in. glow engine. Over the years I built several more DAKOTAS. One was a profile fuselage version that appeared in the February 2008 issue of RCMW. I also did a profile version of Joe's SIOUX (a monoplane free flight) that appeared in the February 2011 issue of RCMW.



This first photo was taken of Joe Wagner in 2004 at a Dakota Event held during a national contest.

I had never had the opportunity to build one of Joe Wagner's free flight models called the COMANCHE. It had a polyhedral wing and a very large (41%) stab that allowed for a very aft CG location. But as you will soon find out, I finally built a COMANCHE. This is what it looks like.



The inspiration to finally build this particular Wagner design came from the current Model Engine Collectors Association (MECA) president, Bill Mohrbacher. For those interested this is the MECA website:

<http://www.modelenginecollectors.org/>



This photo shows Bill holding his version of the Wagner COMANCHE.

In an e-mail exchange Bill sent me this photo and that's all it took for me to get started building my own COMANCHE.

ABOUT MY VERSION of the COMANCHE

The original COMANCHE showed up as a Veco kit some time in the fifties. Years later a new event was added to the free flight category, called the PAA Load Event. As that event got popular, Joe Wagner decided to update his COMANCHE design to accept the little PAA load dummy, (this was in 1983).

The updated version was still the same 183 square inches of wing area. Joe powered the updated version with a then popular glow engine called the Atwood WASP .049. I just happen to still own one of those engines. It is pictured here resting on top of the plans.



Normally I either reduce or enlarge an existing model design. For this particular project I decided on building my new COMANCHE at the original size.

I did add a little extra vertical fin area and extended the nose ever so slightly. I used the same wing ribs, but substituted stick balsa for the sheet balsa leading and trailing edges used on the original.

Joe had a tendency to employ 3/32 balsa sheet on his entire models. He must have had a big supply of that size. I easily substituted 1/16 balsa and I'm sure that saved a lot of weight.

I also employed the built up stab, rather than use flat sheet balsa (no airfoil shape). In this case I wanted lift and I felt a stab with an airfoil shape was the better choice.

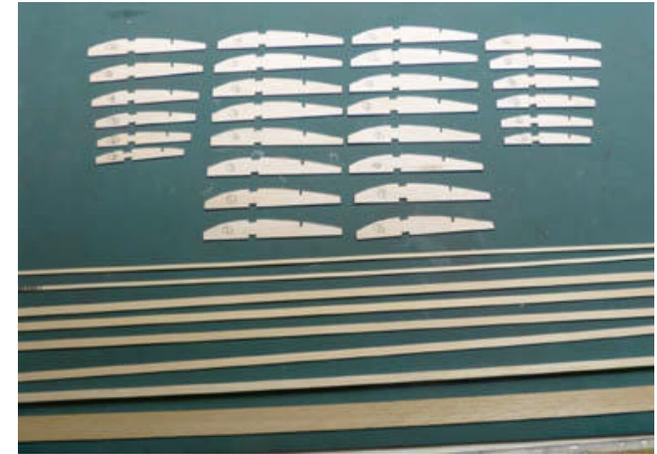
Oh, one more point. The original had a very slight undercamber in the wing. To keep the building simple I made my COMANCHE with a flat bottom airfoil. I don't think that made any difference in the flying performance.

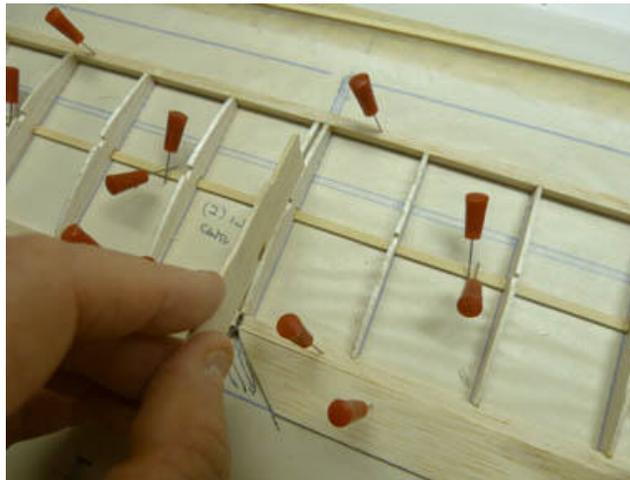
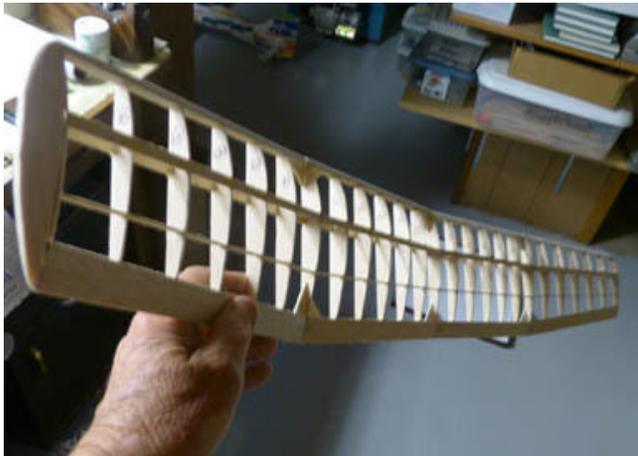
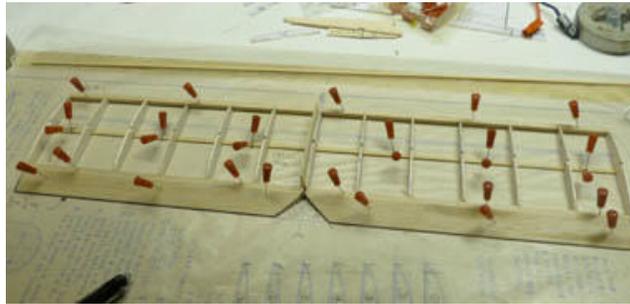
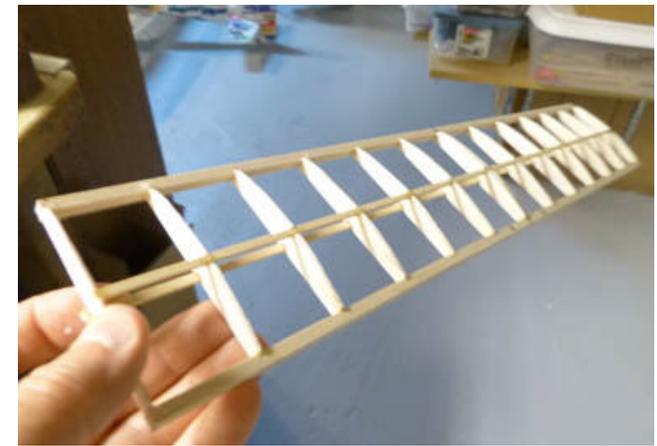
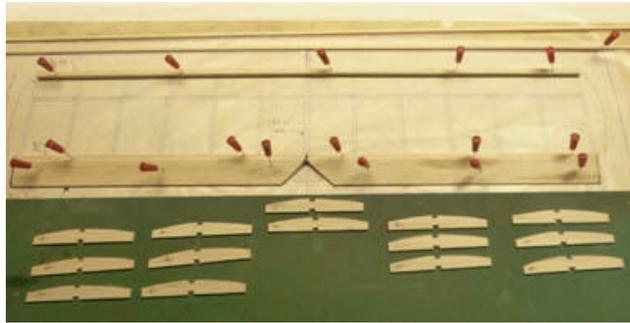
CONSTRUCTION NOTES

I started with the wing as I always do. Look over the plans carefully. Only one center panel is shown, along with the left and right tip panels. **You must BUILD TWO CENTER PANELS.** If you don't you will lose 9 inches of your wing span.

I used 1/4 square hard balsa for the leading edge and 3/16 x 3/4 inch trailing edge stock. I selected basswood for my main and supporting wing spars. I found that national craft stores, like Michael's and A.C. Moore carry a good supply of basswood. The wing tips were carved from soft balsa blocks.

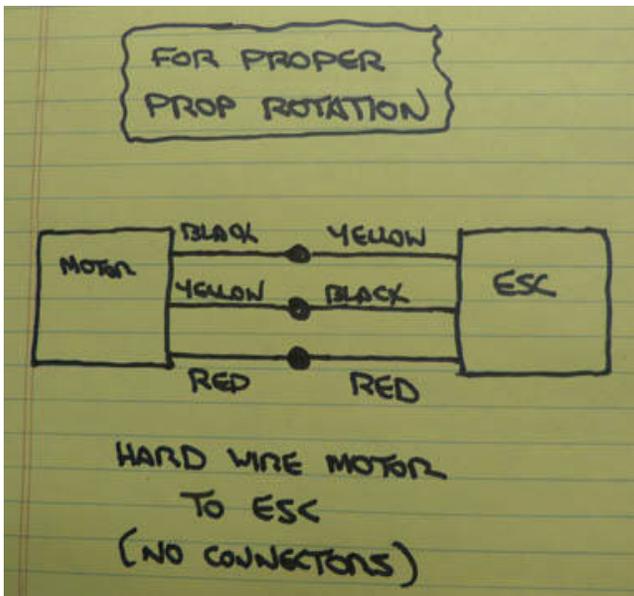
My completed wing, ready for covering weighed only 1.5 ounces. The following 6 photos show the wing construction sequence.



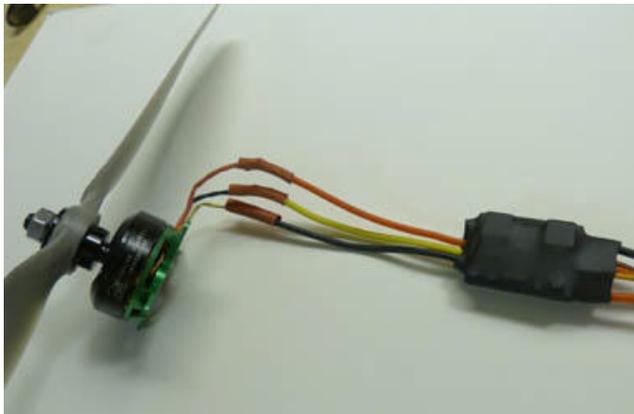


Next came the built up stab. Again I used hardwood for the two main spars which are 1/16 X 1/8 inches.

The vertical fin and rudder were fashioned from 1/16 inch medium balsa.



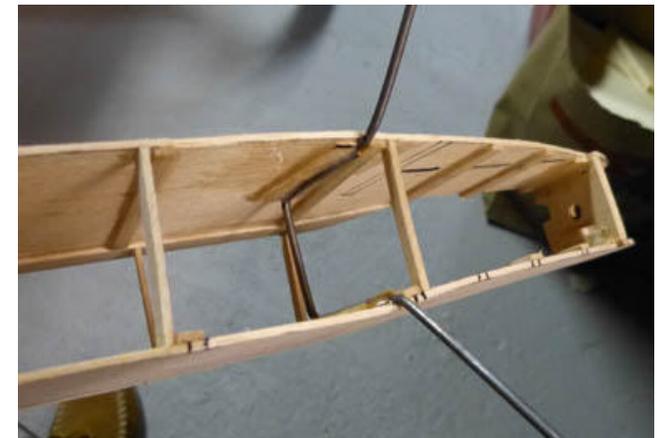
The previous shot shows the motor attached to the 1/8 ply firewall. Note the notch to allow for the passage of the three motor wires.



Now lets continue with the fuselage assembly. Note that the stiffeners and doublers get attached to the two fuselage sides. Make sure you make one left and one right fuselage side.



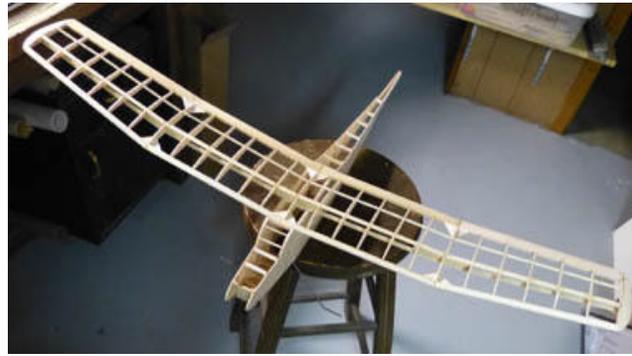
Proceeding along, attach the two sides at the rear. Then install the firewall at the front. All the cross pieces come next both at the upper and lower portion of the fuselage.



Bend up the landing gear from 3/32 inch diameter wire and install on the inside of the fuselage using 5 minute epoxy cement.



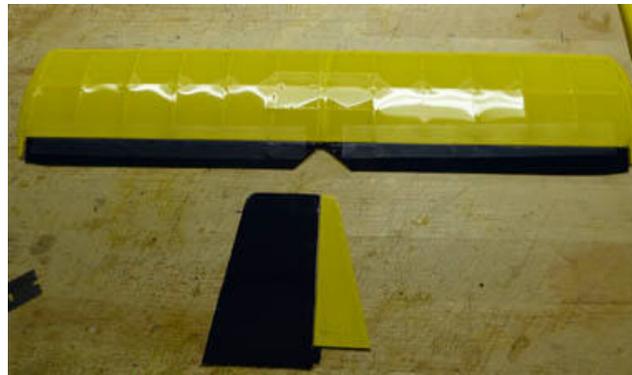
Continue with the various cross pieces.



Try a form and fit at this point.



Now lets get back to the stab. The two elevators are joined with .047 inch diameter wire. Use 5 minute epoxy cement.

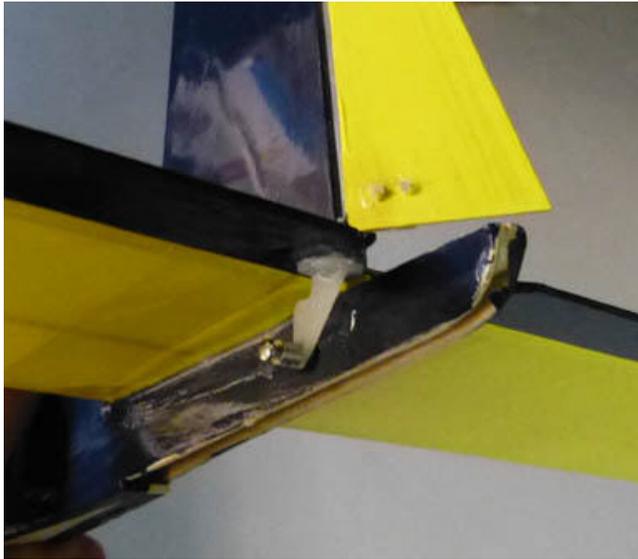


Cover the stab, elevators and the rear portion of the fuselage. Also cover the vertical fin and rudder and insert the fin into the slot in the stab.

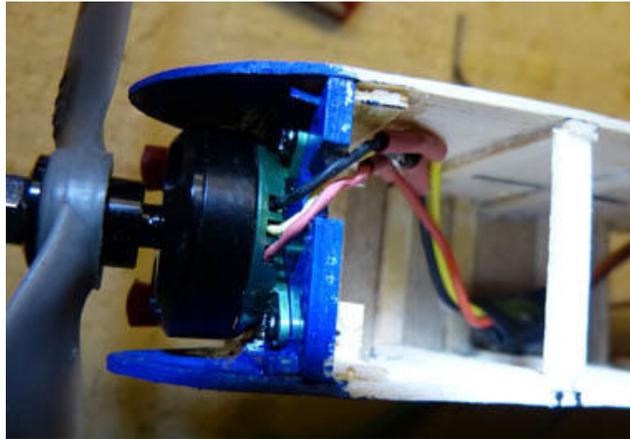
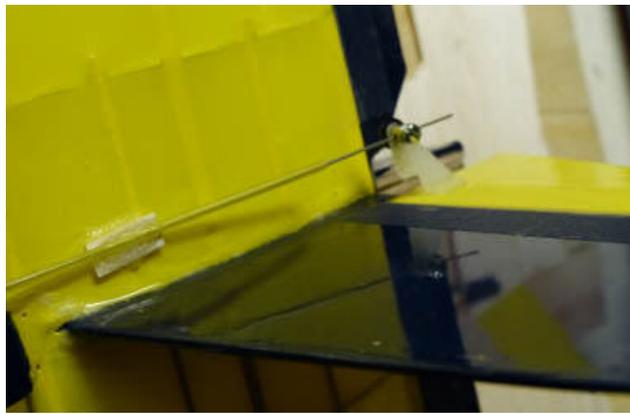


Mount the wing to the fuselage with a few rubberbands. Then install the stab, aligning it with respect to the wing.





For the rudder and elevator hinges I used DuBro Electric flyer Hinge Tape (#916).



The rudder and elevator servos are literally stuck on the same side of the fuselage, one above the other. First double sided tape is used, followed by clear silicone adhesive.

At the servo arm end a simple "Z" bend in the .025 inch diameter is all that is needed. On the control surface end DuBro micro control horns and Mini E-Z connector attach the wire control rods.



Directly behind the firewall is the ESC. It sits on the bottom of the fuselage. Some foam rubber keeps the ESC in its place.



The receiver is more towards the wing leading edge on the inside of the fuselage. Just like the servos it also uses double sided tape and silicone adhesive.



The top, forward 1/16 sheet balsa is added.

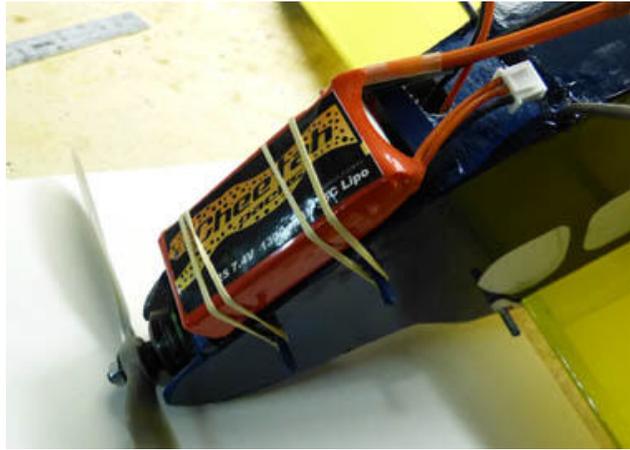


The receiver is mounted on the inside of the fuselage, close to the wing leading edge position. Spread out the dipole antenna both fore and aft. This will give you maximum radio range. Again attach the receiver with double sided tape and silicone adhesive.



The 1-1/2 inch diameter wheels are held in place with DuBro 3/32 inch wheel collars.

I normally place my battery packs inside the fuselage and as far forward as possible. As it turned out the 2 cell 1300 pack originally selected was too heavy and made the plane nose heavy. Being in a hurry to complete this plane, I chose to mount the battery pack externally on the bottom of the fuselage.



Ultimately I had to go to a smaller and lighter weight 2 cell 850 mAh battery pack. It is held to the fuselage with several rubberbands and Velcro tape. If you choose the smaller 850 pack I think it would be an easy job to install it inside the fuselage. This would look better and have less drag. Its your choice.



This is the completed COMANCHE which weighed 9.7 ounces with the 2 cell 850 battery pack. The entire plane was covered with opaque Solite which is available from BP Hobbies.



The underside of the completed COMANCHE.



Yes I did place my FAA registration number on the bottom of the fuselage.



At the last minute I decided to install a DuBro Micro Tail Skid #853.



Here is a shot I took of myself in my basement shop to give you an idea of the true size of this model.

FINAL CG and CONTROL THROWS

I've already indicated that a two cell 1300 battery pack produced a nose heavy situation. So I reduced the battery capacity from 1300 to 850 mAh capacity. That brought the battery weight from 2.5 ounces down to 1.6 ounces.

I could have shortened the nose to allow proper balance with the 1300 pack. But remember, that pack produced almost an ounce more weight. I still would recommend the nose length as on the plans and the 850 mAh battery pack. I feel the CG location on my plans is the way to go.

Control surface travel was as follows:
Rudder 1/2 inch either side of the neutral position.
Elevator movement 1/4 inch either side.

FLYING

At 61 watts input power you have more than enough power. Even using the 850 mAh battery pack you should be able to obtain more than 5 minutes total motor run time. After just a one minute motor run, you might be able to obtain 300 feet or more of altitude.

With the light wing loading, thermals will make it easy to obtain at least five, one minute motor runs, producing over one hour in flying time with a lot of thermal activity. After doing that and if not tired, I would substitute a fully charged battery pack and start over again.

With the larger 1-1/2 inch diameter wheels I was able to take off the ground easily. Winds up to 10 mph were easy to handle. I let many of my club members fly my COMANCHE and none had any problem at all. This is a perfect RC sport/park flyer.





SUMMARY

If you haven't built much or even at all, this might be your plane. I'm hoping that some of my "brave" readers will opt to cut out their own parts. But I also hope that someone, like Brian Malin of BMJR Models Inc., will offer a laser cut parts kit. If you do try scratch building, please send in your photos. We want our modeling friends to be able to say - I built my own model airplane. I've been doing that for 65 years - its been great fun!

Thanks Joe Wagner for being there in the early days with so many of your fine model aircraft designs.

Bob Aberle
baberle@optonline.net

SPECIFICATIONS

Model: "COMANCHE-183"

Designed Originally by noted free-flight modeler, Joe Wagner in the late forties. Plane was kitted by the Veco Manufacturing Co.

Updated with structural changes and the use of RC and electric power by Bob Aberle 2016

Type: Electric Powered Replica of an old free flight model now suitable as an RC Park Flyer.

Wingspan: 37 inches

Wing Area: 183 square inches

Length: 25 inches

Weight: 9.7 ounces (with a 2 cell 850 mAh battery)

Wing Loading 7.6 oz/sq.ft.

RC GEAR USED:

Horizon Spektrum DX-7 transmitter operating on 2.4 GHz spread spectrum, Hyperion After Market receiver and two Altitude Hobbies 4.4 gram micro servos operating the rudder and elevator.

POWER SYSTEM USED:

Innov8tive Designs brushless outrunner motor (Cobra C-2204/40, Kv=1570), 8 X 3.8 prop, Cobra 11 amp brushless ESC and a BP Hobbies Cheetah 2 cell 850 mAh Li-Poly Battery (1.6 ounces).

POWER SYSTEM (parameters)

Prop: APC 8 X 3.8

Motor current: 8.64 amps

Voltage: 7.20 volts (under load)

Power Input: 62 watts

Battery Loading: 10.2C

Power Loading: 101.6 watts/pound

Flight Time: 6 minutes but with some motor throttling expect 8 to 10 minutes.

SOURCE REFERENCES

Air Craft Ltd (Japan) - Hyperion 6 ch DSM2 compatible after market receiver
<http://www.aircraft-world.com/en/p1587770-hp-6rxdsfr>

Altitude Hobbies - SP-4.4 Micro Servos 4.4 gram
<http://www.altitudehobbies.com/index.php?route=product/search&search=SP-4.4%20servo>

BP Hobbies - CA cement, CA accelerator, Solite covering material, 5 minute epoxy cement, APC prop and a Cheetah 2 cell 850 mAh Li-Poly Battery
www.bphobbies.com

Callie Graphics - AMA license number decals
admin@callie-graphics.com

DuBro - 1.50 inch diameter Mini-Lite Wheels (#150MW), Micro control horns, Mini EZ connectors, Electric flyer hinge tape and 3/32 inch wheel collars
www.dubro.com

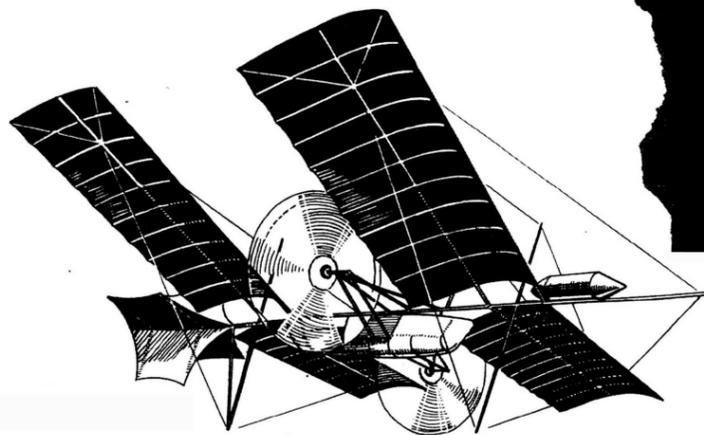
Horizon Hobby - Spektrum DX-7 transmitter
<http://www.horizonhobby.com/>

Innov8tive Designs - Brushless motor and ESC)
<http://innov8tivedesigns.com/c-2204-40>

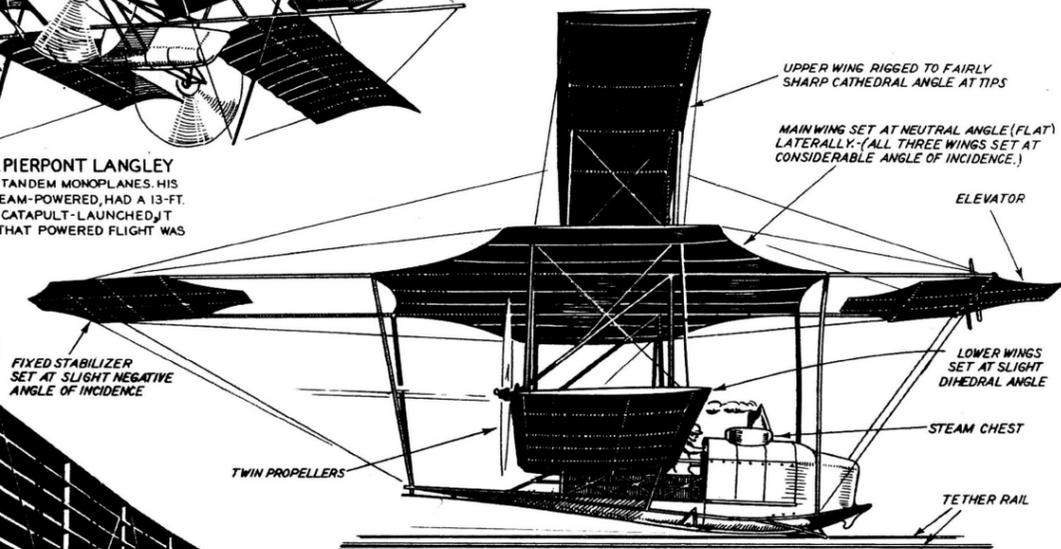
Stevens Aero Models - .073 inch OD Yellow Teflon tubing for the elevator and rudder control rods
http://stevensaero.com/shop/product.php?product_id=16639

Air Progress

DEVELOPMENT OF THE AEROPLANE Part 2 (1890-1903) By DOUGLAS ROLFE

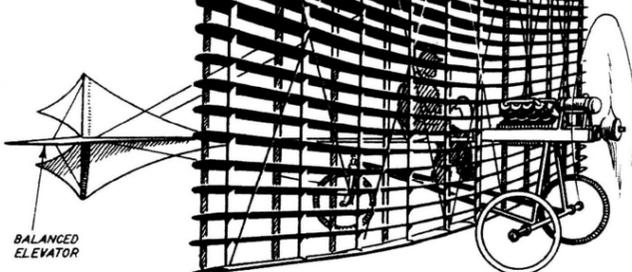


▲ 1890-96 SAMUEL PIERPONT LANGLEY EXPERIMENTED WITH LARGE-SCALE TANDEM MONOPLANES. HIS MODEL NO. 5, SHOWN HERE, WAS STEAM-POWERED, HAD A 13-FT. WING SPAN AND WAS 16 FEET LONG. CATAPULT-LAUNCHED, IT ESTABLISHED BEYOND QUESTION THAT POWERED FLIGHT WAS PRACTICABLE . . .

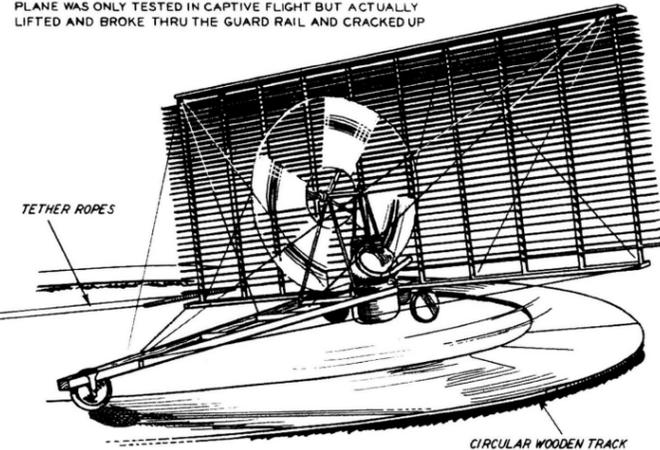


1894 HIRAM MAXIM U.S. BORN ENGLISH INVENTOR ▲ AND SCIENTIST CONDUCTED EXPERIMENTS IN FULL SCALE LIFT WITH THIS CURIOUS DESIGN. POWERED WITH A 350-H.P. STEAM ENGINE THIS LARGE (10 FEET LONG, 3 1/2-TON) MULTI-PLANE WAS ONLY TESTED IN CAPTIVE FLIGHT BUT ACTUALLY LIFTED AND BROKE THRU THE GUARD RAIL AND CRACKED UP

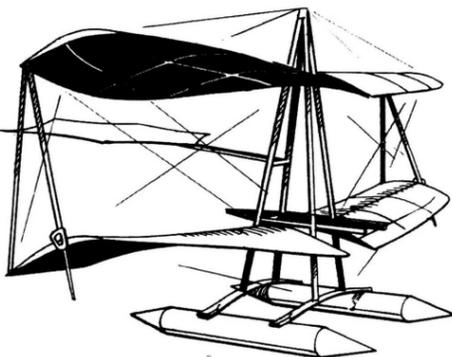
DOUGLAS ROLFE



▲ 1893 HORATIO PHILLIPS IS GENERALLY RECOGNIZED TODAY AS THE FATHER OF THE SCIENCE OF AERODYNAMICS. USING THE STEAM-POWERED FLYING TEST BED SHOWN AT RIGHT HE DEMONSTRATED THE INHERENTLY SUPERIOR LIFTING QUALITIES OF CURVED AIRFOILS. FULL SCALE GAS-POWERED DESIGN ILLUSTRATED ABOVE APPEARED MUCH LATER. PROBABLY DID LITTLE MORE THAN MAKE SHORT HOPS

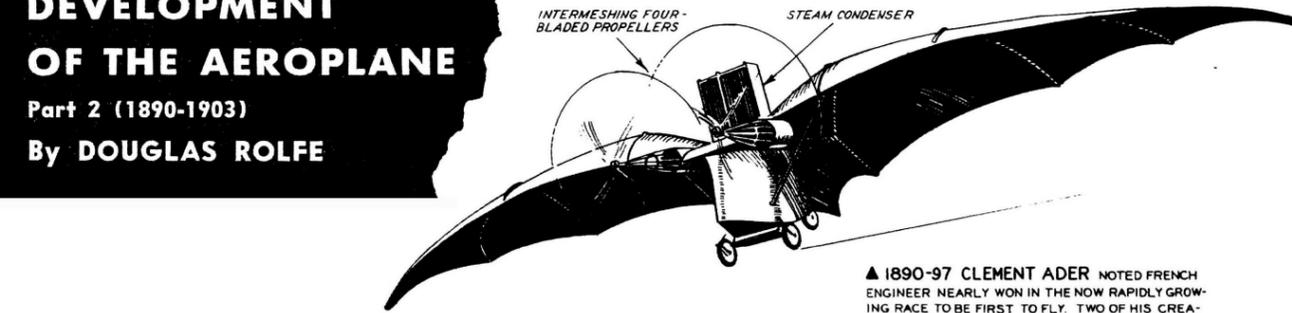


1897 GALLAUDET CONTINUED EXAMINATION OF THE CURVED OR CAMBERED WING ON NUMEROUS MODELS—ONE OF WHICH IS SHOWN HERE. IN 1917 GALLAUDET BUILT AN UNCONVENTIONAL BUT QUITE SUCCESSFUL TWO-PLACE BIPLANE WHICH HAD A CENTRALLY LOCATED PROPELLER THAT ROTATED ABOUT THE FUSELAGE.

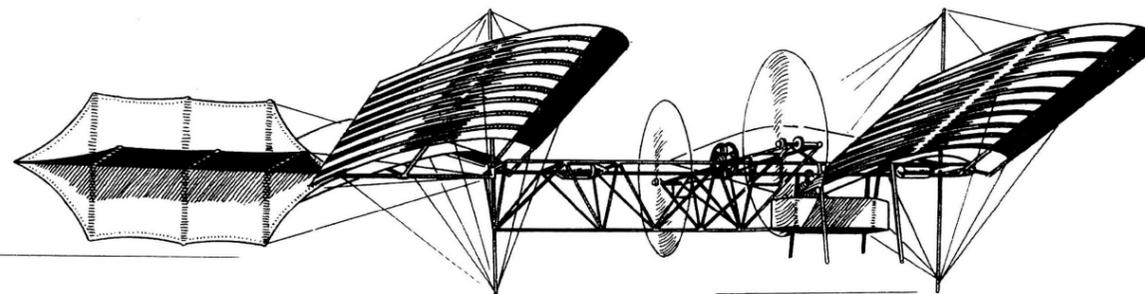
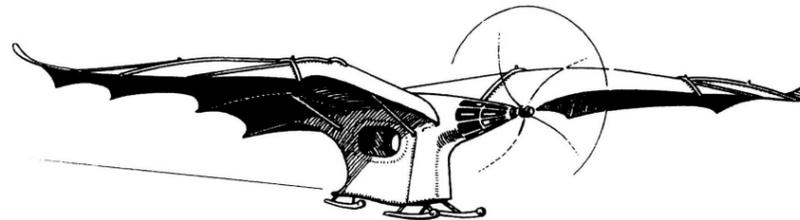


In the last issue the very early and generally futile efforts of man to produce an "aeroplane" capable of actual flight were described. In the pre-flight era now being considered, it is interesting to note that within the space of these short thirteen years more was accomplished than in the entire preceding 400 years. One who helped things along was Chanute, a brilliant and successful structural engineer, who did not turn to the study of aviation till late in life. Although he made definite structural contributions, Chanute never attempted to produce a powered airplane as he felt, quite rightly, that the problems of control should be solved before power was applied.

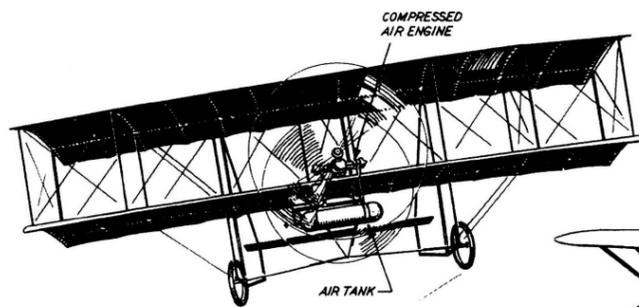
As this period drew to a close there were no less than three separate designs on the verge of successful flight, and the squab-



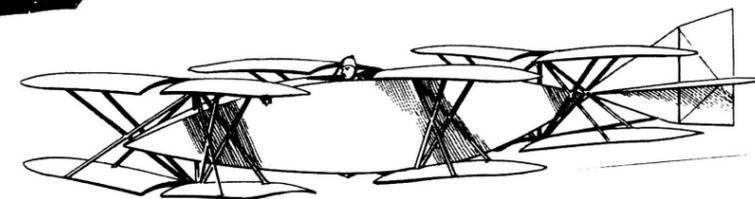
▲ 1890-97 CLEMENT ADER NOTED FRENCH ENGINEER NEARLY WON IN THE NOW RAPIDLY GROWING RACE TO BE FIRST TO FLY. TWO OF HIS CREATIONS ARE SHOWN HERE. THE "EOLE" (AT LEFT) HAD A WING SPAN OF 46 FEET AND WAS POWERED WITH A 40-H.P. STEAM ENGINE. ADER'S LAST DESIGN, THE "AVION" SHOWN ABOVE, WAS WORLD'S FIRST TWIN-ENGINE AIRPLANE.—IT MIGHT WELL HAVE BEEN WORLD'S FIRST PRACTICAL AIRPLANE TOO BUT, LACKING ADEQUATE LATERAL CONTROL, IT CRASHED AS SOON AS IT LEFT THE GROUND ON THE INITIAL TRIALS. ADER LIVED TO SEE THE AIRPLANE IN WIDESPREAD USE AND HIS PREDICTION THAT MASTERY OF THE AIR WOULD EVENTUALLY MEAN MASTERY OF THE WORLD MAKES SENSE TODAY



1903 ANOTHER NEAR FIRST WAS THIS FULL SCALE ▲ LANGLEY "AERODROME" PATTERNED AFTER THE SUCCESSFUL PROTOTYPE MODEL NO. 5 BUILT IN 1896. LAUNCHED BY CATAPULT OVER THE WATERS OF THE POTOMAC IT FOULED THE EXTREME END OF THE LAUNCHING GEAR AND PLUNGED INTO THE RIVER. DESPITE THIS DISASTER THE LANGLEY PLANE RANKS ONLY SECOND TO THE WRIGHTS' FAMED BIPLANE IN ITS PLACE OF IMPORTANCE IN THE AMAZING HISTORY OF AIR PROGRESS



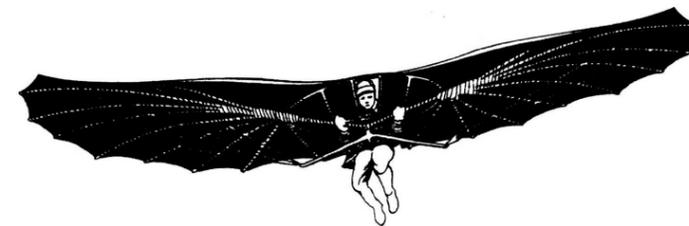
1898 AUGUSTUS HERRING, ONE-TIME ASSOCIATE OF THE GREAT CHANUTE, SPLIT WITH HIM ON THE QUESTION OF THE TIMELINESS OF INTRODUCING POWER AND BUILT THIS FULL SCALE CHANUTE-TYPE BIPLANE POWERED WITH A COMPRESSED AIR ENGINE. IT DID NOT FLY BUT CLEARLY WAS THE INSPIRATION FOR CURTISS AND OTHER LATER AND MORE SUCCESSFUL PIONEERS



▲ 1896 OCTAVE CHANUTE PIONEERED IN STRUCTURAL DESIGN (HE IS LARGELY RESPONSIBLE FOR THE INVENTION OF THE BIPLANE TRUSS) AND ALSO IN MOVABLE CONTROLS. THE DESIGN SHOWN HERE IS NOTEWORTHY BOTH FOR THE INTERESTING FUSELAGE AND THE RIGID "X-TYPE" WING TRUSS INTRODUCED BY THIS PIONEER . . .

ble as to who did make the first flight lasted for years. The Langley full-scale plane patterned after the much earlier and successful flying models and powered with the world's first radial-type gasoline engine (5-cylinder Manley) made several abortive attempts at free flight, all of which ended in disaster. Despite this it was long believed that Langley built the first successful airplane. Another claimant to the throne was the Frenchman, Ader. He produced a number of steam-powered monoplanes, the last one of which actually got off the ground but crashed. Again, for years many people considered Ader the first to fly.

Just before the end of this period the Wrights were engaged in their exhaustive gliding experiments which resulted in a 3-dimensional control system, and the stage was set for true flight.



▲ 1895 OTTO LILIENTHAL WAS TOP EXPONENT OF GLIDING FLIGHT DURING THIS PERIOD AND WAS EXPERIMENTING WITH POWERED FLIGHT BEFORE HIS DEATH IN 1896. MOST OF HIS GLIDERS WERE OF THE TYPE SHOWN HERE WITH NO PROVISION FOR CONTROL BEYOND SHIFTING OPERATOR'S POSITION

Some Notes About Previously Unpublished Plans

Fred Dunn's ASTRO BIPE

The next two plans in this issue were never published in any of the model magazines or books as far as we know so we've included some background notes.

The first example, the ASTRO BIPE, designed by Fred Dunn is a very attractive RC Acrobatic Biplane.

According to the notes on Sheet 1 of the five plan sheets, the design was created in 1959 and the plans drawn in early 1960. Also on Sheet one was a note that all commercial rights were reserved.

Our guess is that Dunn sold plans and possibly partial kits as a "cottage business" but we haven't been able to confirm this. Probably a search through the back issues of Air Trails, Model Airplane News and Flying Models magazines would turn up an article or advertisement that could shed some light on this.

The plans reproduced here were provided by Charles Reich, a long time modeler and former secretary of SAM, the Society of Antique Modelers. He signs his messages as 'Ol Charlie Reich.

We have somewhere around 10,000 or more plans in our archives so can't be completely sure regarding the source of these plans, but our notes show Charlie as the source.

It's a very good looking model with strong Pitts Special influence in evidence. I'm guessing that the VRCS (Vintage RC Society) folks might be interested in it.

Or, reduced to about 30 inch span (about 56% of full scale) it would make a nice small electric RC Park Flyer. Although some serious lightening of the structure would certainly be indicated.

If one of our subscribers would undertake such a job we'd be glad to publish a construction article and plans. Send me an e-mail if you are interested and we will provide details. We PAY for construction articles.

We have more unpublished plans and as they are cleaned and prepared for "Show and Tell" they will be featured in future RCMW issues

Owen Tilbury's FLASH

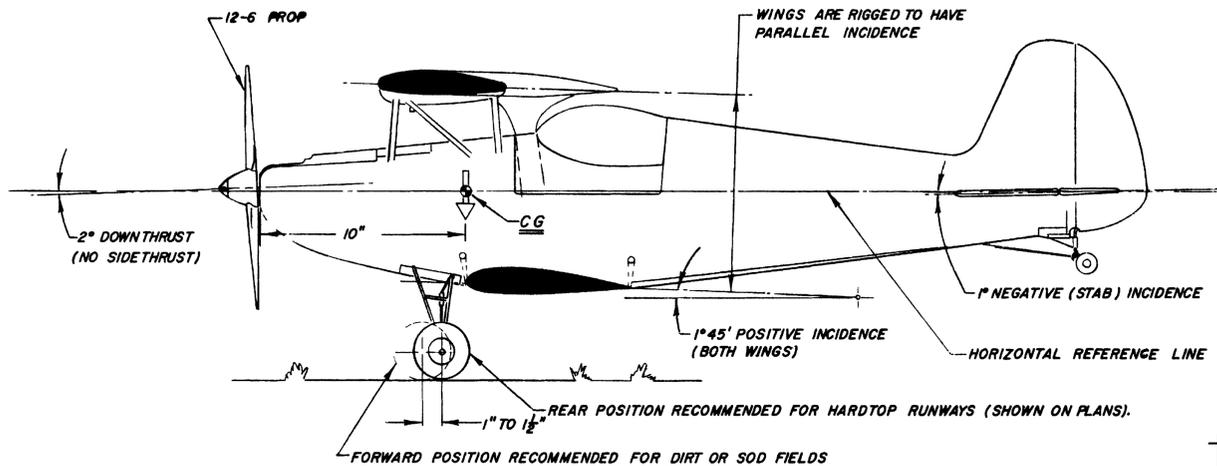
Designed by Owen Tilbury of Bloomington, Illinois in the early 1930's, the TILBURY FLASH competed fairly successfully in a few of the air races of the day. Only a single example was built and it has been preserved in a museum in Bloomington. It might be worth a visit to see an actual remaining example of those 1930's racers.

The model plans, laid out by the designer of the full size aircraft, were provided to us by the late Dave Shipton of Delevan, Illinois. My recollection is that the plans were pencil drawings and may have been the originals.

Billed by Tilbury as the "Smallest Airplane in the World" it probably deserves a place in the history of the times. If my recollection is correct, Cleveland also produced either a plan or kit of the same aircraft, although we have never seen the actual Cleveland plans so can't comment on them.

Shipton apparently saw the original aircraft in the flesh and indicated it wasn't particularly easy to fly, but was fast but had engine problems.

PLAN FROM 'OL CHARLIE REICH



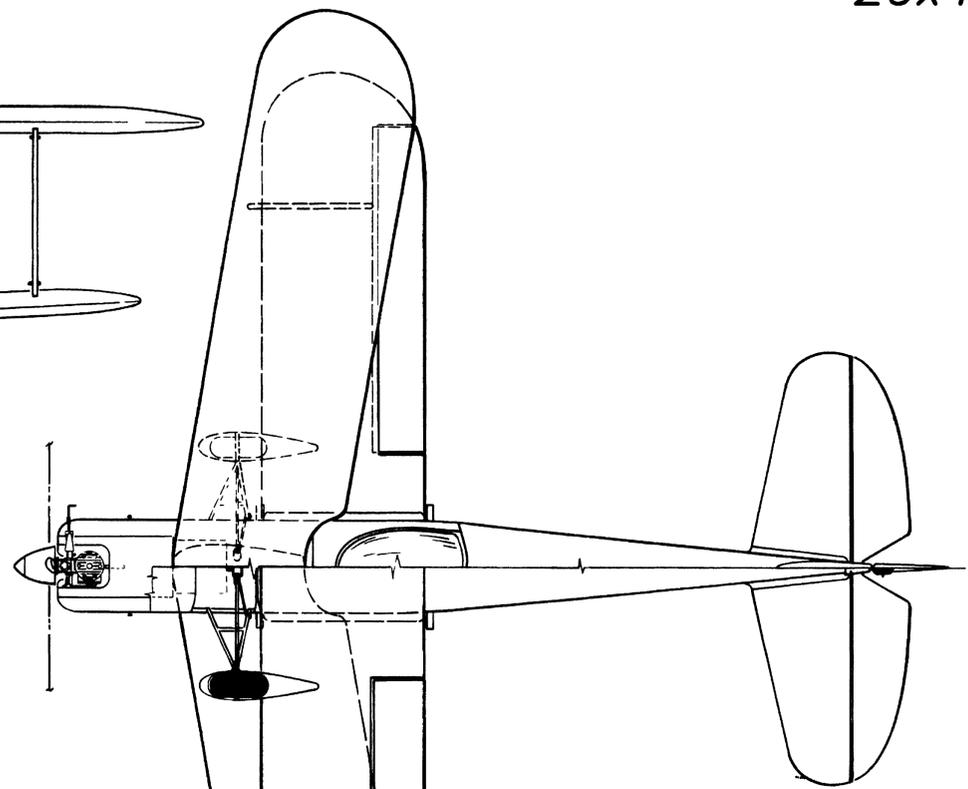
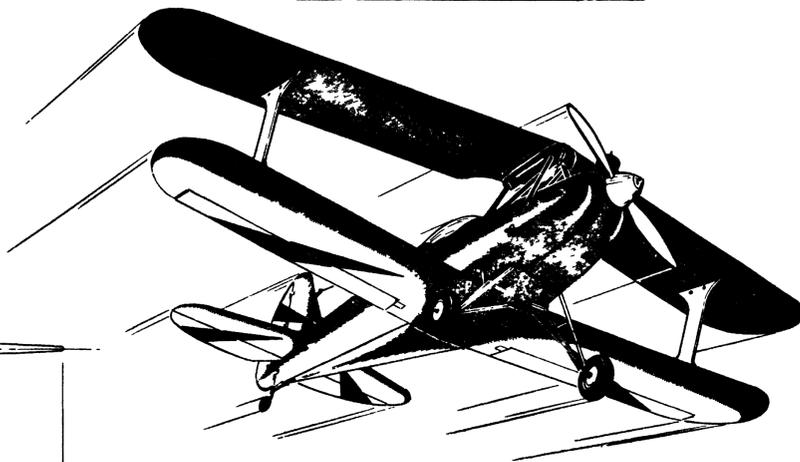
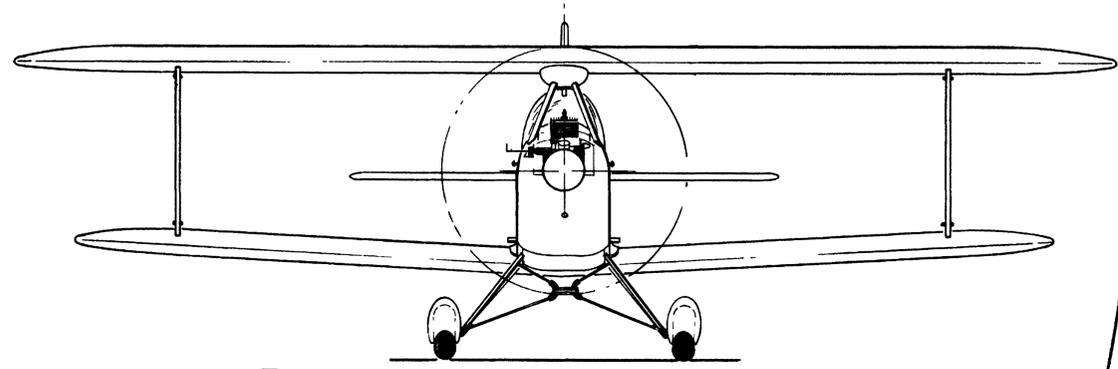
GENERAL SETTINGS AND AERODYNAMIC FORCE ARRANGEMENT

NOTE IF ALL PARTS ARE ACCURATELY REPRODUCED FROM THIS DRAWING, THE DESIRED SETTINGS WILL BE OBTAINED AUTOMATICALLY (ENGINE DOWNTHRUST EXCEPTED)

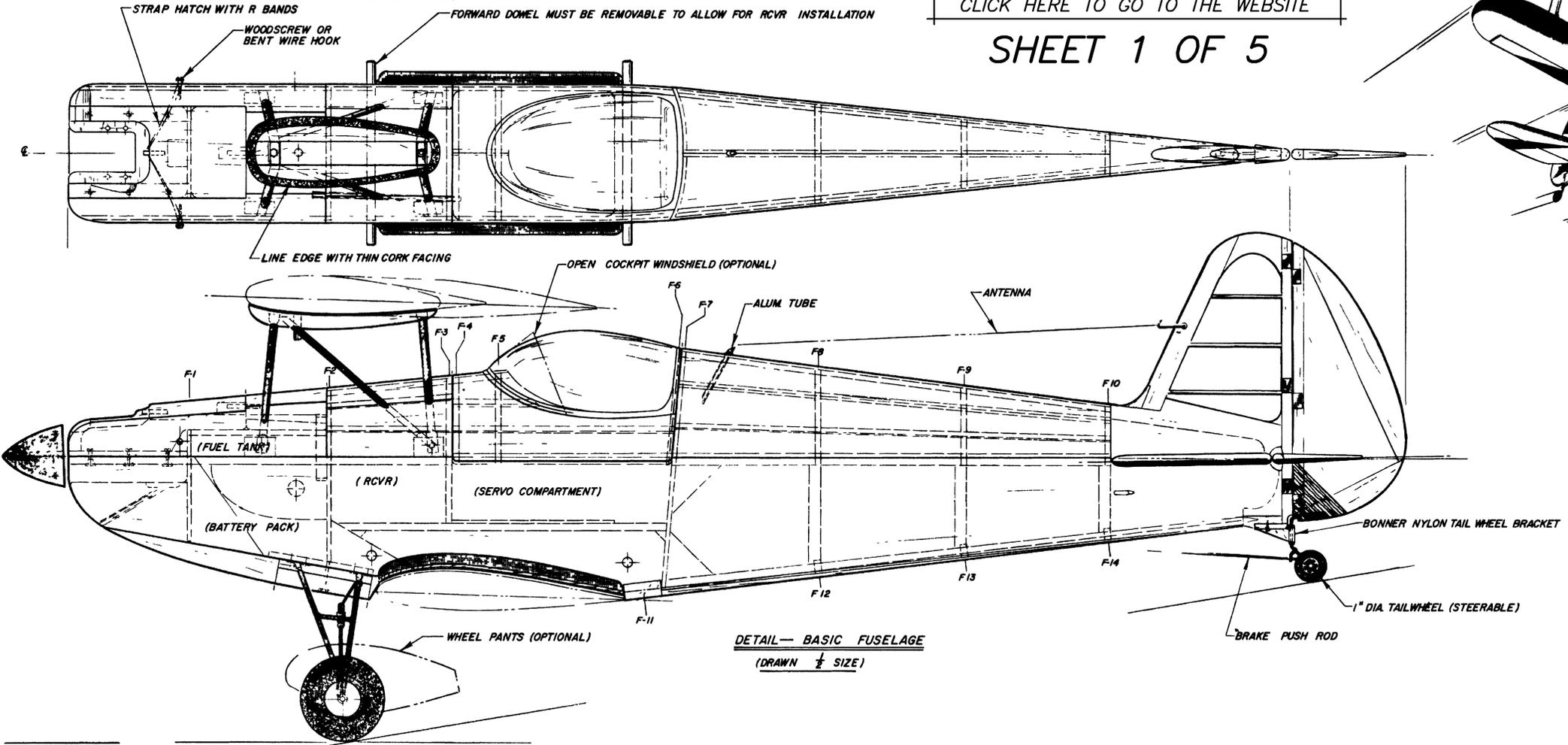
STRAP HATCH WITH R BANDS
 WOODSCREW OR BENT WIRE HOOK
 FORWARD DOWEL MUST BE REMOVABLE TO ALLOW FOR RCVR INSTALLATION

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SHEET 1 OF 5



SCALE THREE VIEW
 (ONE QUARTER)
 (PLAN YOUR COLOR SCHEME HERE)



DETAIL - BASIC FUSELAGE
 (DRAWN 1/2 SIZE)

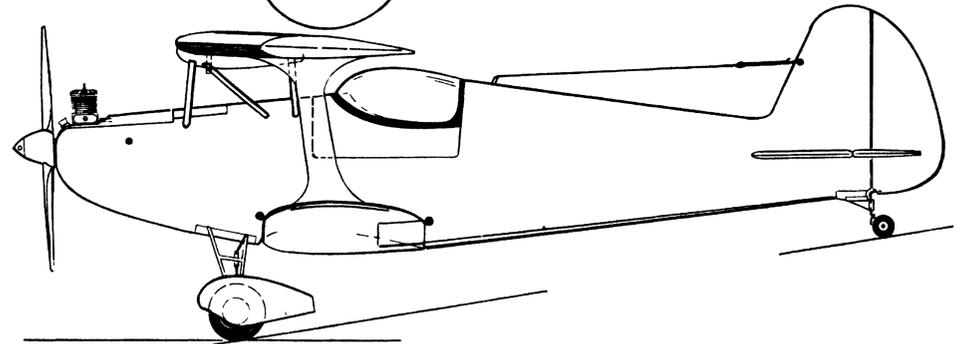
FRED DUNN'S
"ASTRO-BIPE"
 (FULLY AEROBATIC)

WING SPAN - 54 IN (UPPER), - 48 IN (LOWER)
 TOTAL WING AREA - 790.4 SQ. IN OR 5.49 SQ. FT
 WING LOADING - 17.8 OZ PER SQ. FT
 GROSS WEIGHT - 9.8 OZ (8 CHANNEL)
 OVERALL LENGTH - 45.5 IN
 AIRFOIL - ORIGINAL, 15%, 8 IN CHORD
 UPPER WING SWEPT 10° PER HALFSPAN

ENGINE - TORP 45 RC
 SERVOs - BONNER, DURAMITE
 RADIO - ORBIT, 8 CHANNEL

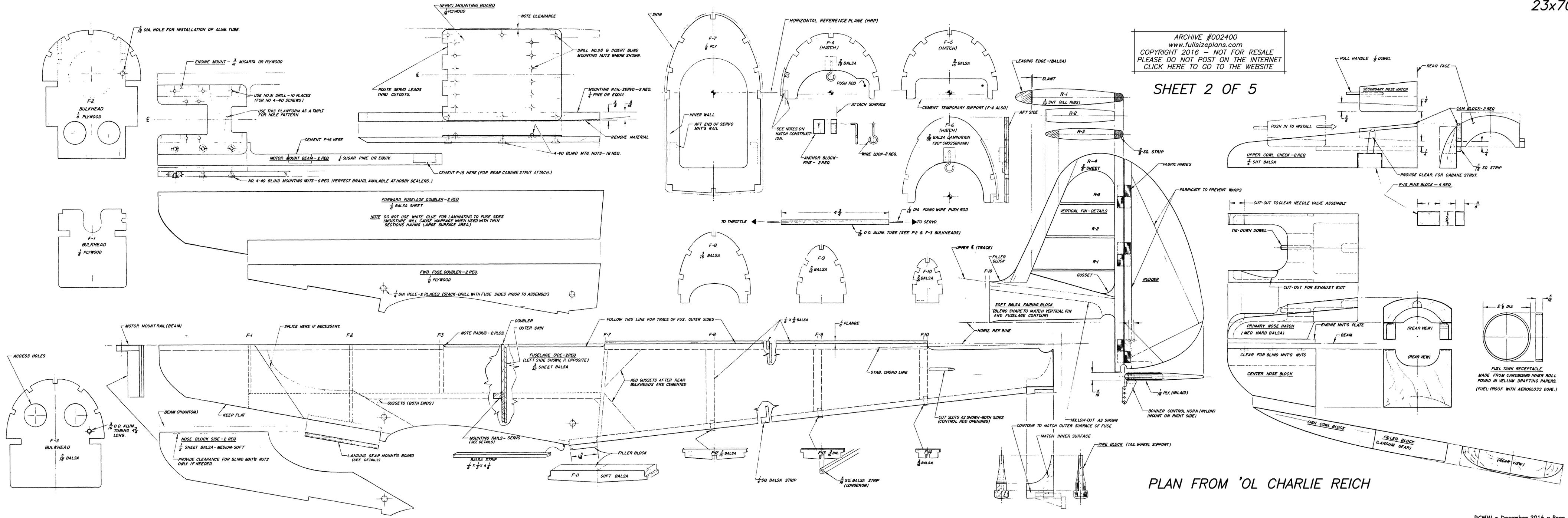
DESIGN BY Fred Dunn 1959
 DRAWINGS BY F. Dunn 3-25-60

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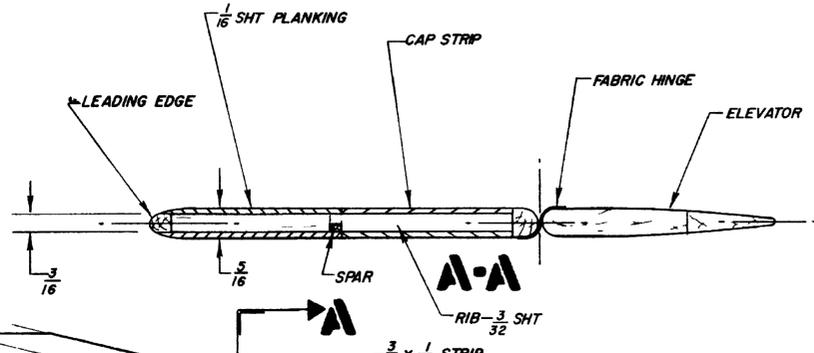
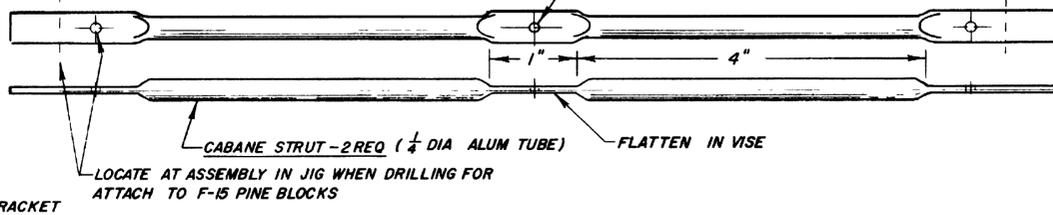
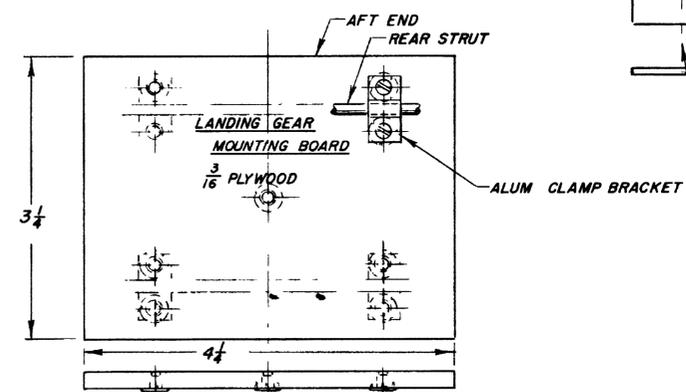
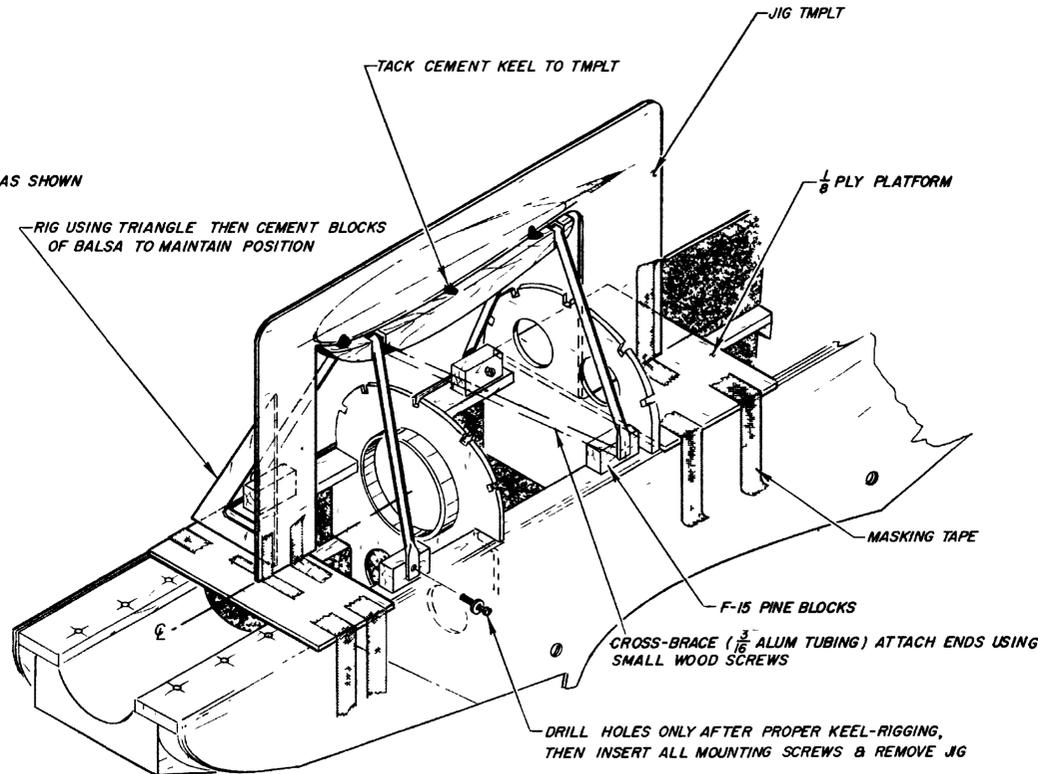
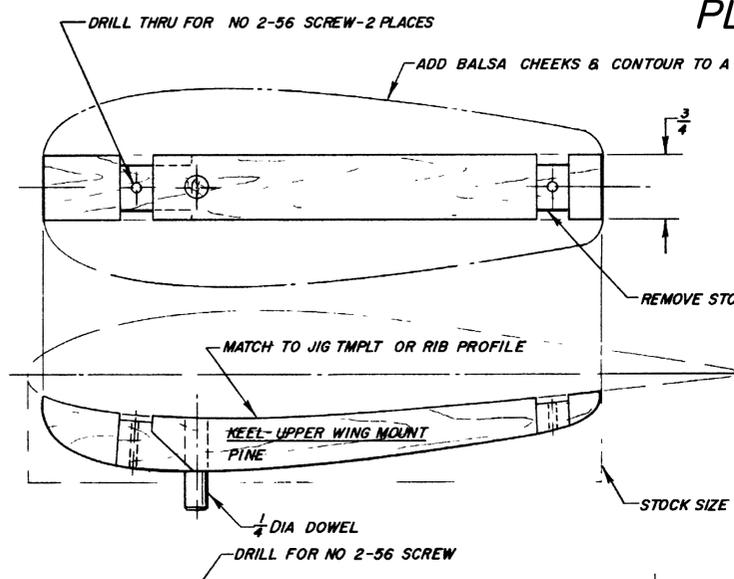
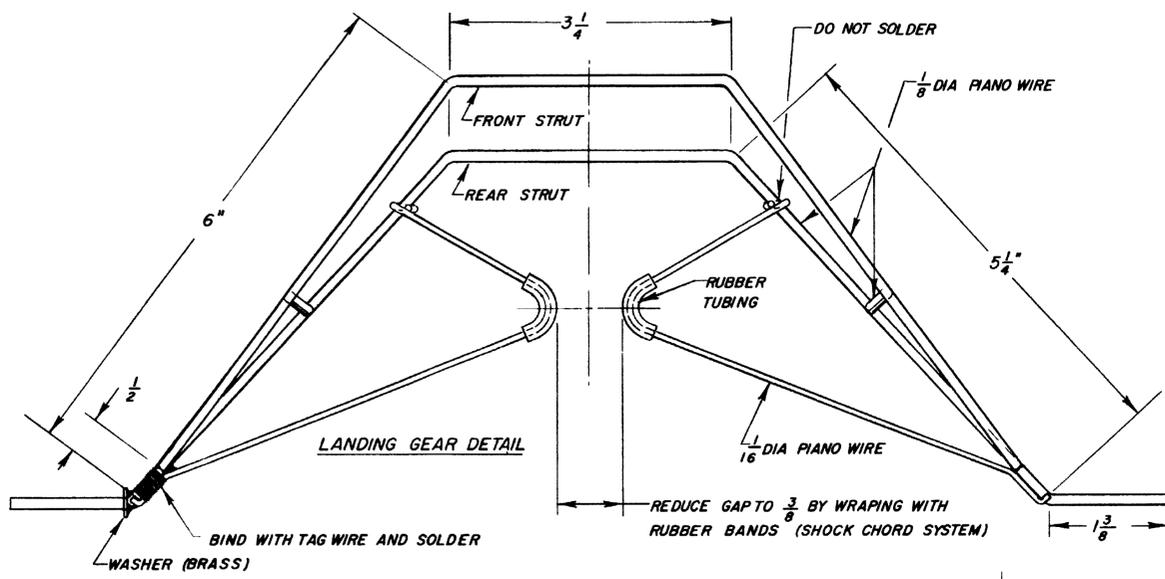
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SHEET 2 OF 5



PLAN FROM 'OL CHARLIE REICH

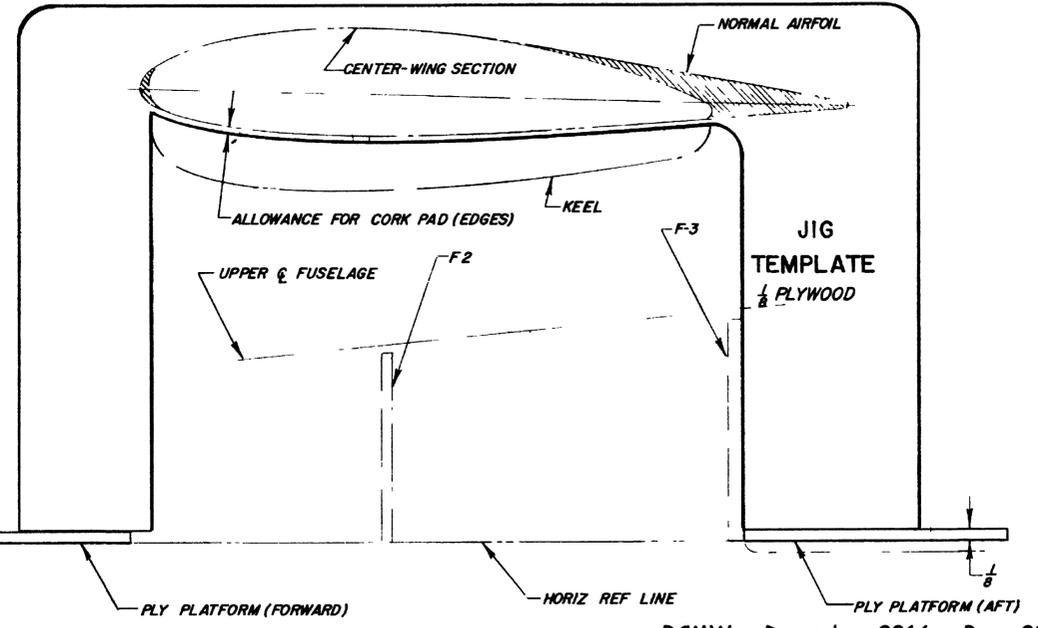
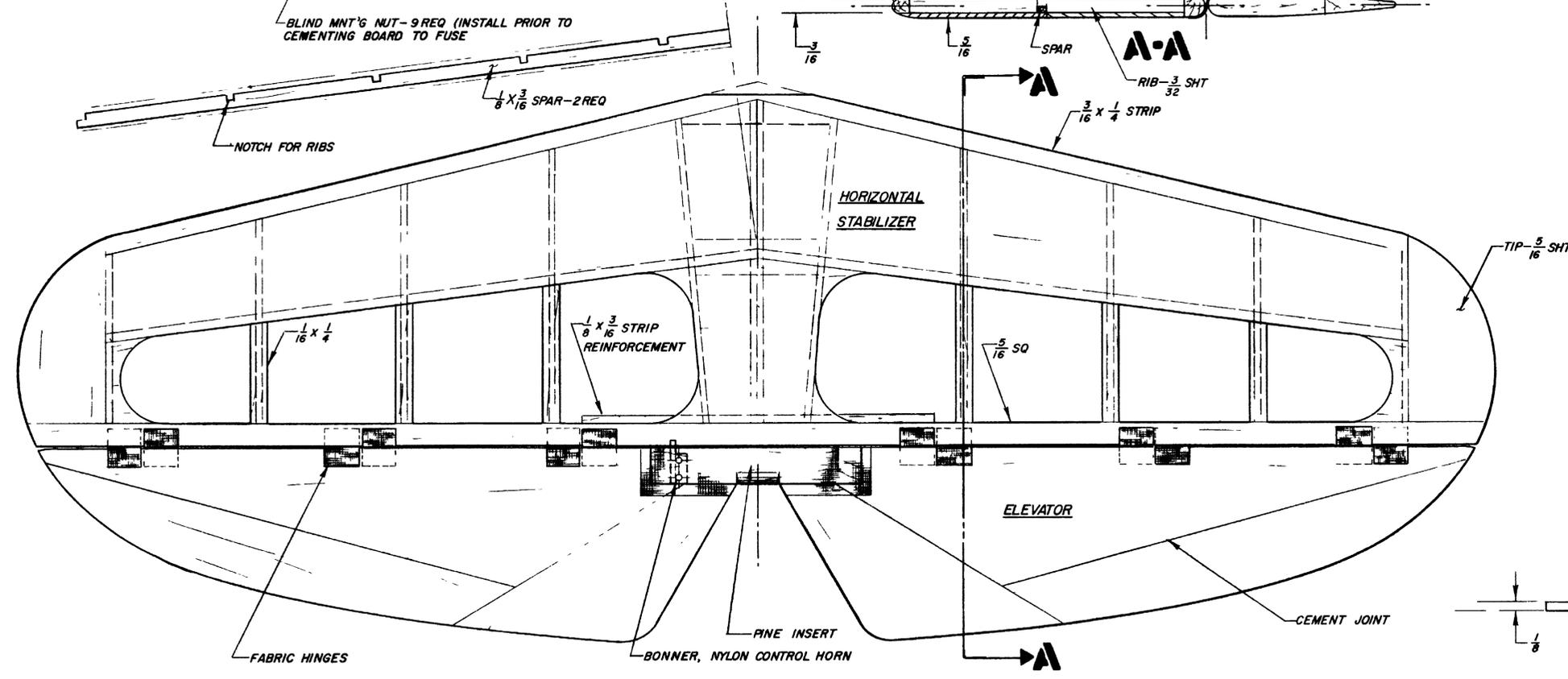
PLAN FROM 'OL CHARLIE REICH



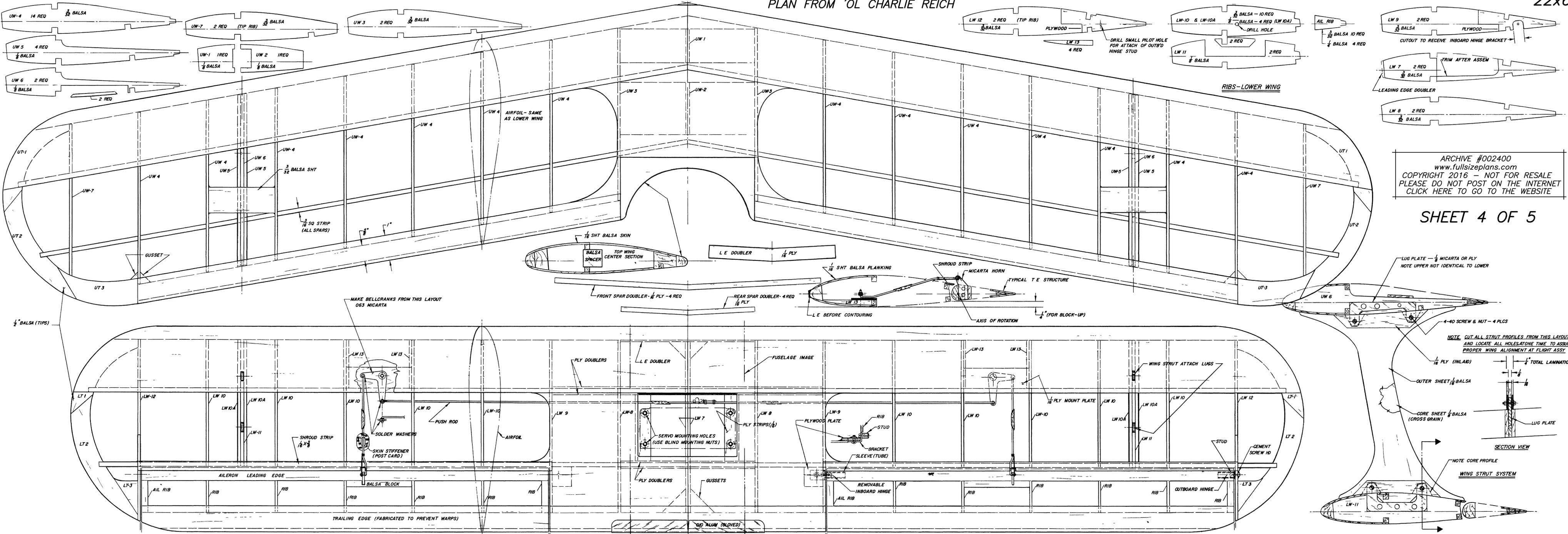
NOTE THE ABOVE OPERATIONS SHOULD BE PERFORMED PRIOR TO CEMENTING F-1 BULKHEAD

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SHEET 3 OF 5



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SHEET 4 OF 5

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SHEET 5 OF 5

ORBIT 8 OR 10 CHANNEL RADIO RCVR
ORBIT ELECTRONICS, 11612 ANABEL ST., GARDEN GROVE, CALIFORNIA - PHONE JEFFERSON 4-0170

- NOTES: 1- RCVR INSTALLS THRU BOTTOM OF FUSELAGE (WING OPENING) AND IS RETAINED IN POSITION BY FWD WING DOWEL (AS ILLUSTRATED)
- 2- ENTIRE RCVR COMPARTMENT IS LINED WITH FOAM PADDING FOR CRASH PROTECTION & FREEDOM FROM INDUCED VIBRATION
- 3- RCVR SHOULD NOT BE PACK TOO FIRMLY - MUST BE ABLE TO SHIFT SLIGHTLY (WITHOUT STRIKING ANY SOLID OBJECT OR SURFACE)
- 4- TUNE RCVR THRU HOLES IN F-3 BULKHEAD AFTER REMOVAL OF COCKPIT HATCH

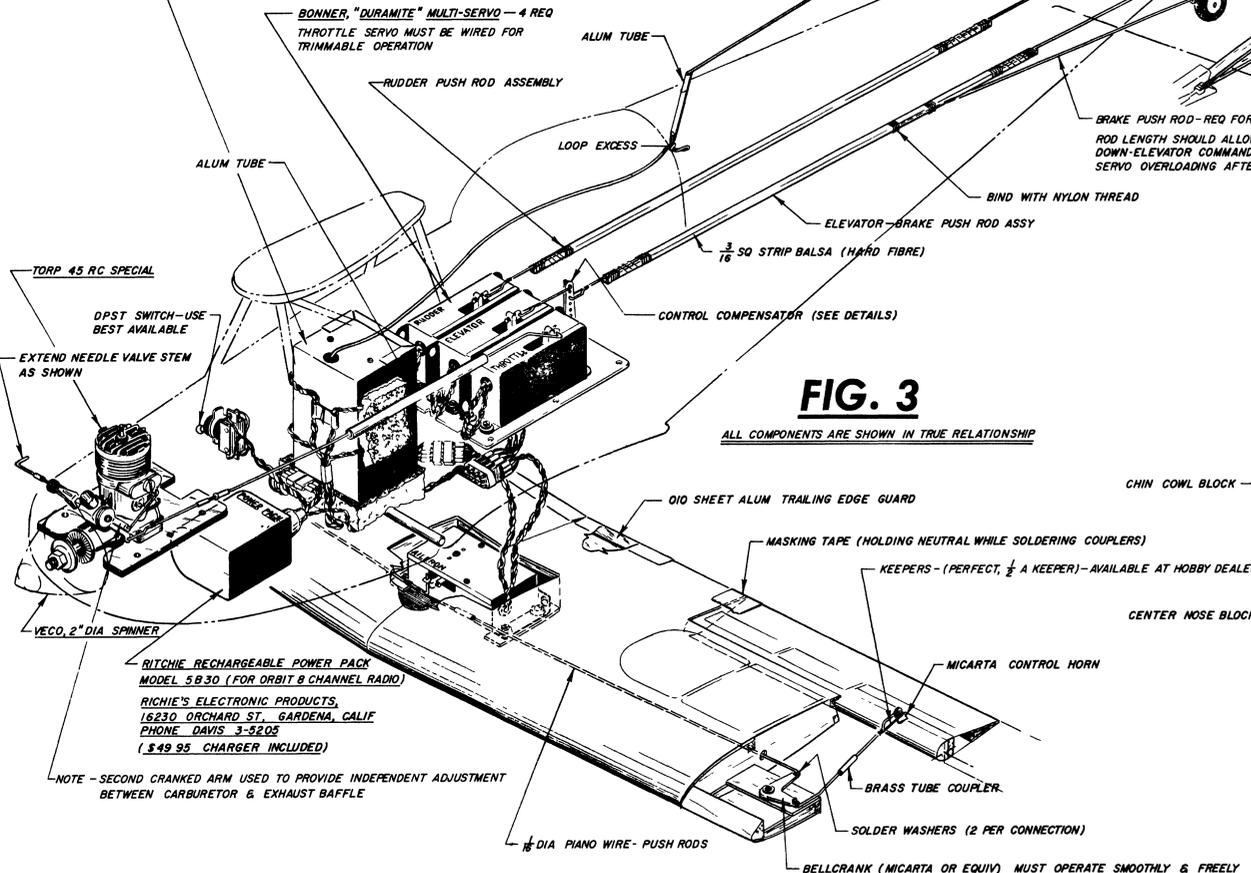


FIG. 3

ALL COMPONENTS ARE SHOWN IN TRUE RELATIONSHIP

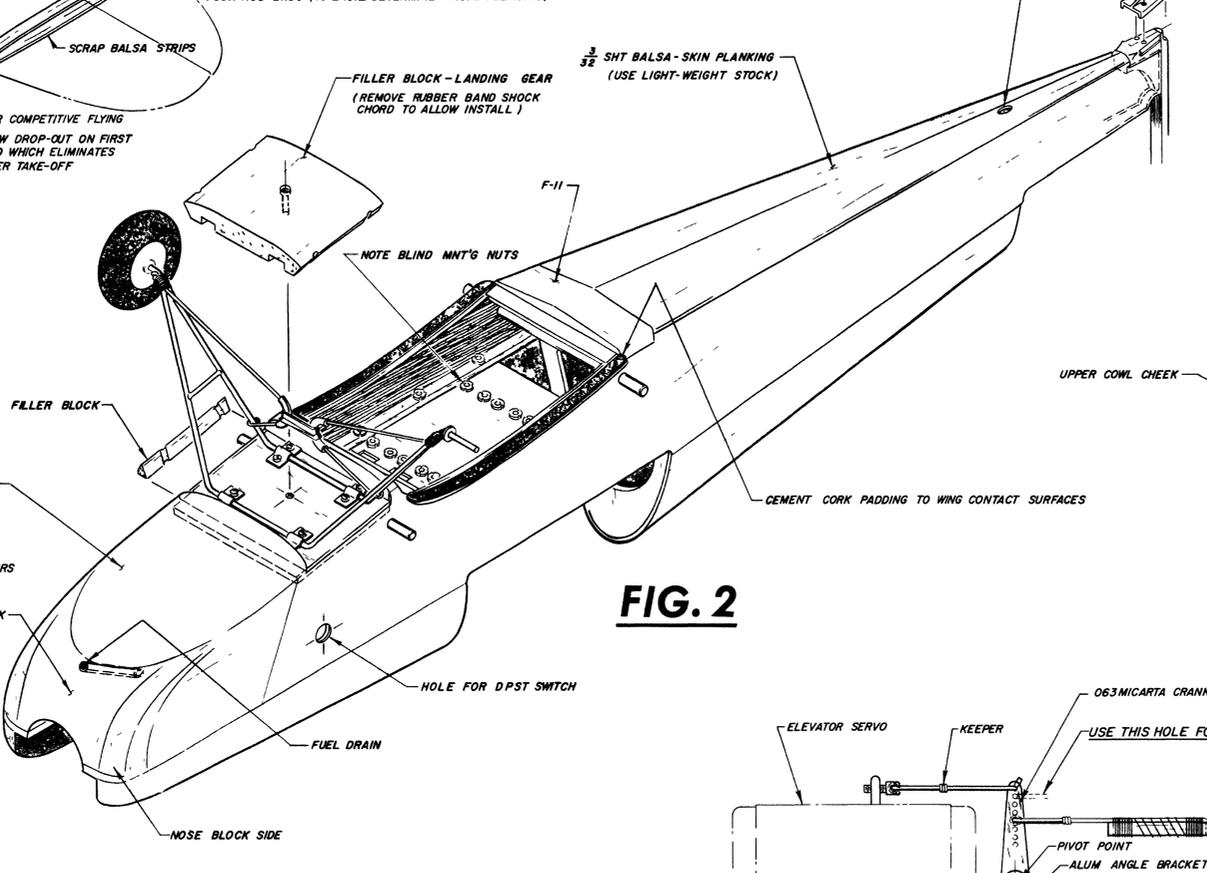
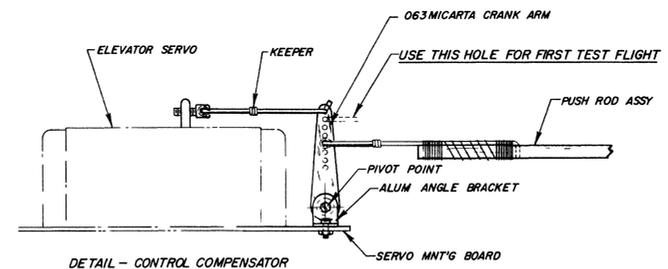


FIG. 2



DETAIL - CONTROL COMPENSATOR

NOTE AFTER FIRST FLIGHT, REDUCE ELEVATOR TRAVEL UNTIL THE DESIRED FLIGHT RESPONSE IS ACHIEVED

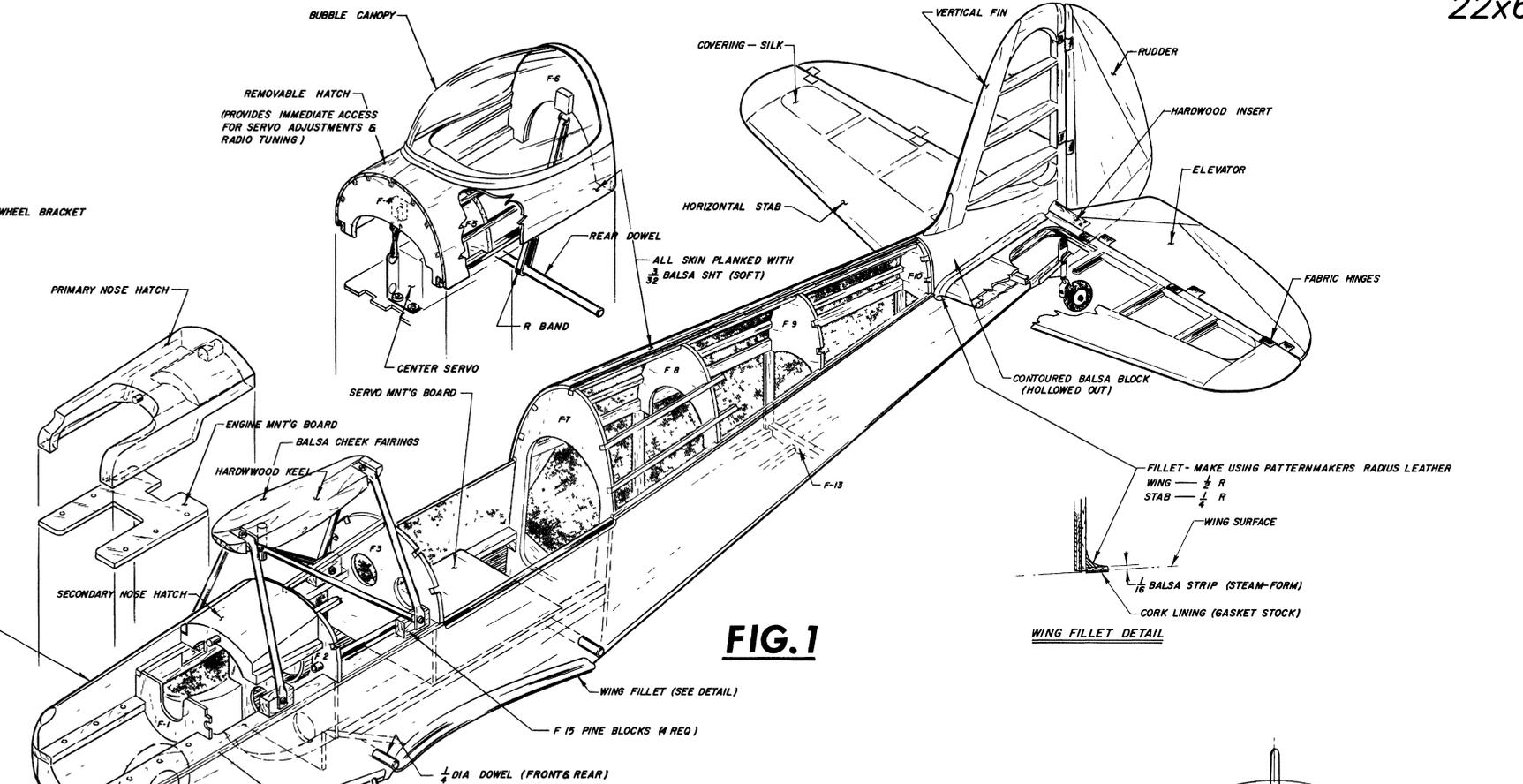
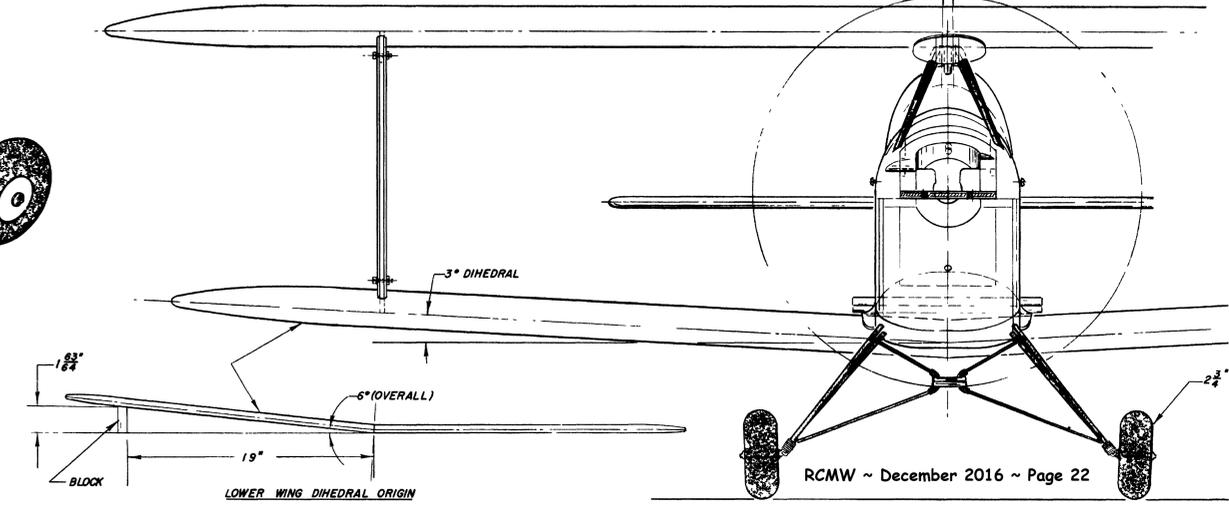


FIG. 1



PLAN FROM 'OL CHARLIE REICH

PLAN FROM THE DAVE SHIPTON COLLECTION

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INSTRUCTIONS

WINGS: Cut ribs as shown. Use razor blade to cut all balsa. Make Leading Edge and Rear Spar as shown in two halves. Cement together at ends as shown. Lay drawing on a board and place L.E. & R.S. on drawing in position, using several pins to hold in place. Glue in Ribs and let dry. Center line of Ribs and Spars should line. There is a 1/16" gap between Ribs 1 and 1. Lower Locating Girder fits between these ribs, and slots engage L.E., R.S. and Trailing Edge. Glue on T.E. Glue in Wing Ribs. Make Ailerons. Use soft wire to make hinges. Hinges are pushed through R.Spar and Aileron Spar as shown, and cemented to ribs and spar, as shown. When dry, remove wing and sand, using fine grade of sand-paper. Then cover with orange paper and dope. See note on Covering and Doping.

FUSELAGE: Cut out Lower Locating Girder and Upper Locating Girder, as shown, marking positions of Bulkheads, as shown by dotted lines. Cut out Bulkheads as shown. Glue halves together and cement to Upper and Lower Girders. Glue in Stern Post. When dry, glue on 1/32" x 1/16" Stringers. DO NOT glue any Stringers lower than Stringer 3-5, the one just above Wing, at this time. Glue in 1/16" x 1/8" Windshield Beam and Instrument Panel, as shown. Glue pin to W.Beam, as shown. Cover this much of Fuselage with orange paper. Cover and dope. Slip Wing which is covered and doped into the slots, as shown, and glue, lining up Fuselage and Wing with your eye. Cut Landing Gear from 3/16" and 2" block to contour, as shown, making one right and one left. Sand to Streamline Form. Make L.G. axle from 1/32" wire. Bend as shown in front view and bend to shape, as shown on Landing Gear Strut. Cut groove 1/32" deep to fit axle and glue axle to strut. Next glue struts to Lower Girder and to front of Bulkhead #4. Glue Bulkhead #5-A to bottom of Rear Spar. Then finish putting in Stringers and cover remainder.

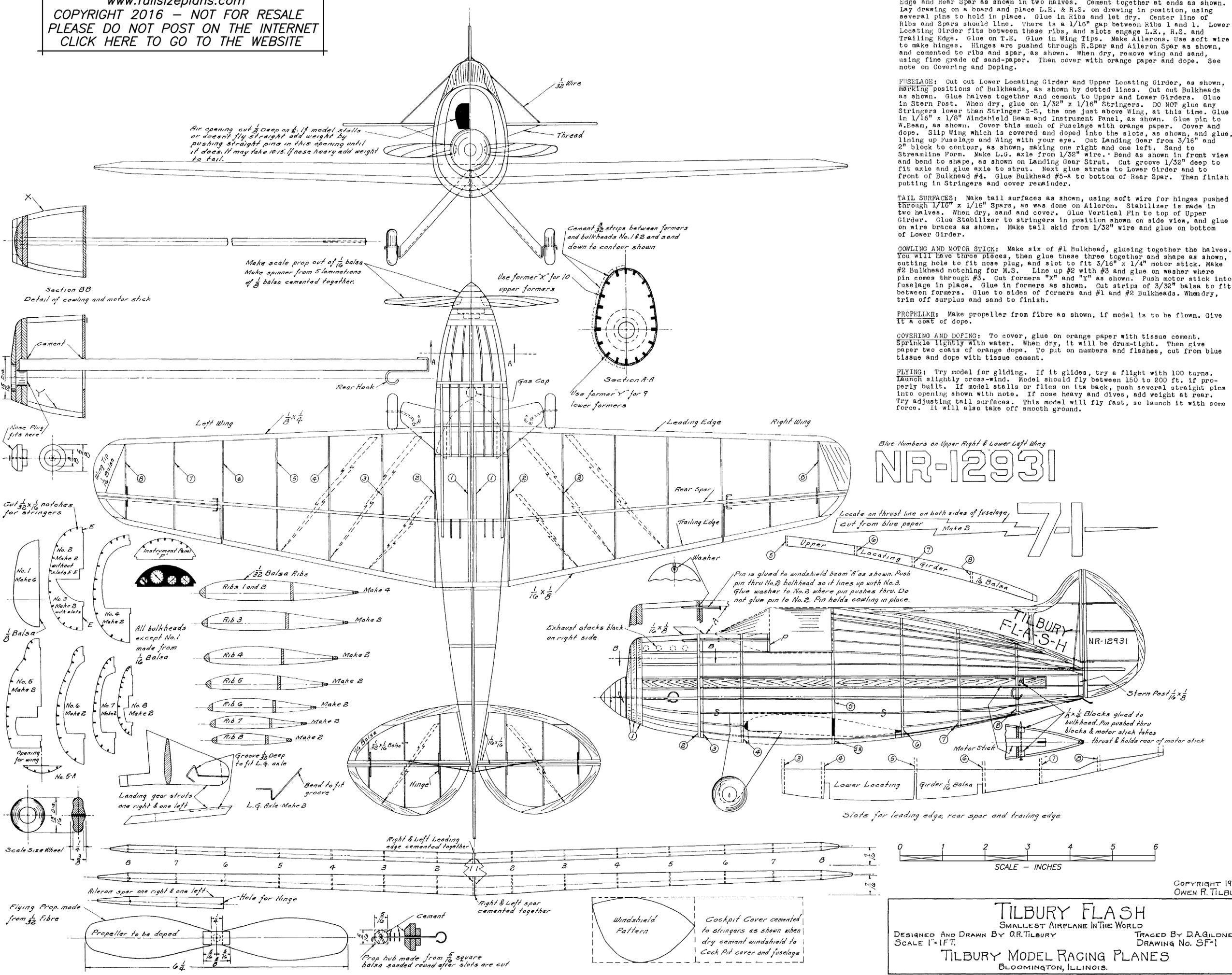
TAIL SURFACES: Make tail surfaces as shown, using soft wire for hinges pushed through 1/16" x 1/16" Spars, as was done on Aileron. Stabilizer is made in two halves. When dry, sand and cover. Glue Vertical Pin to top of Upper Girder. Glue Stabilizer to stringers in position shown on side view, and glue on wire braces as shown. Make tail skid from 1/32" wire and glue on bottom of Lower Girder.

COWLING AND MOTOR STICK: Make six of #1 Bulkhead, gluing together the halves. You will have three pieces, then glue these three together and shape as shown, cutting hole to fit nose plug, and slot to fit 3/16" x 1/4" motor stick. Make #2 Bulkhead notching for M.S. Line up #2 with #3 and glue on washer where pin comes through #3. Cut formers "X" and "Y" as shown. Push motor stick into fuselage in place. Glue in formers as shown. Cut strips of 3/32" balsa to fit between formers. Glue to sides of formers and #1 and #2 Bulkheads. When dry, trim off surplus and sand to finish.

PROPELLER: Make propeller from fibre as shown, if model is to be flown. Give it a coat of dope.

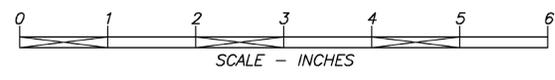
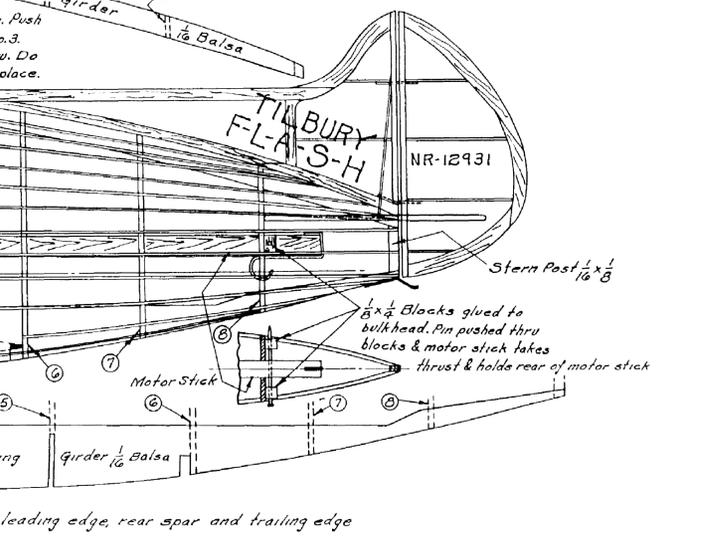
COVERING AND DOPING: To cover, glue on orange paper with tissue cement. Sprinkle lightly with water. When dry, it will be drum-tight. Then give paper two coats of orange dope. To put on numbers and flashes, cut from blue tissue and dope with tissue cement.

FLYING: Try model for gliding. If it glides, try a flight with 100 turns. LAUNCH slightly cross-wind. Model should fly between 150 to 200 ft. if properly built. If model stalls or flies on its back, push several straight pins into opening shown with note. If nose heavy and dives, add weight at rear. Try adjusting tail surfaces. This model will fly fast, so launch it with some force. It will also take off smooth ground.



Blue Numbers on Upper Right & Lower Left Wing
NR-12931

Locate on thrust line on both sides of fuselage, cut from blue paper Make 2



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OWEN R. TILBURY

TILBURY FLASH
SMALLEST AIRPLANE IN THE WORLD
DESIGNED AND DRAWN BY O.R. TILBURY
SCALE 1" = 1 FT.
TRACED BY D.A. GILNER
DRAWING NO. SF-1
TILBURY MODEL RACING PLANES
BLOOMINGTON, ILLINOIS.

A Salute to Bob Hoover

Aviation lost one of the finest pilots that the world has ever known recently with the death of Bob Hoover. I had the privilege of seeing him put on several shows in his yellow P51 Mustang and also in his Aero Commander.

It is hard to select from the many examples of his exceptional flying skills but one that particularly impressed me was a video of him pouring from a pitcher of water into a glass sitting on the instrument panel of the Aero Commander while at the same time doing a complete roll using only one hand on the controls. Watching that water pour out of the pitcher and flow UP into the glass while looking out the windscreen to see that the aircraft was actually upside down will never cease to amaze me. Unfortunately I don't have a link to that video but an internet search will likely turn it up.

His life was recently featured in a DVD titled "Flying the Feathered Edge" and I can recommend it highly. Again an internet search will turn it up.

Visual Plan List

With the assistance of Lubomir Hrn-car, our webmaster, we have been working on a new feature for RCMW, a **VISUAL PLAN LIST**.

This is in the form of a PDF file that **currently includes 468 plans**, all of which can be viewed as previews so you can look through the available plans quickly and easily.

Here are a few samples so you can get the idea of how it works. Just click on the links below and look at your browser.

[CESSNA BIRD DOG](#) - FF Scale

[ZILCH-X](#) - UC Stunt

[AERO COMMANDER](#) - UC Scale

The VISUAL PLAN LIST is sent at no charge on request. Just send me an e-mail requesting it and it will be returned as an attachment to your. The list is updated regularly and is always growing.

And even better, all of the plans on the planlist are FREE to RCMW subscribers and full-size PDF files that can be printed by our local copy shop. Pick out a plan or two that you would like to build and send in the Archive number - The plan will be returned attached to your email request. Don't forget to include the "**File No.**" with your request.

Send requests to Roland Friestad
cardinal.eng@grics.net

LibreOffice

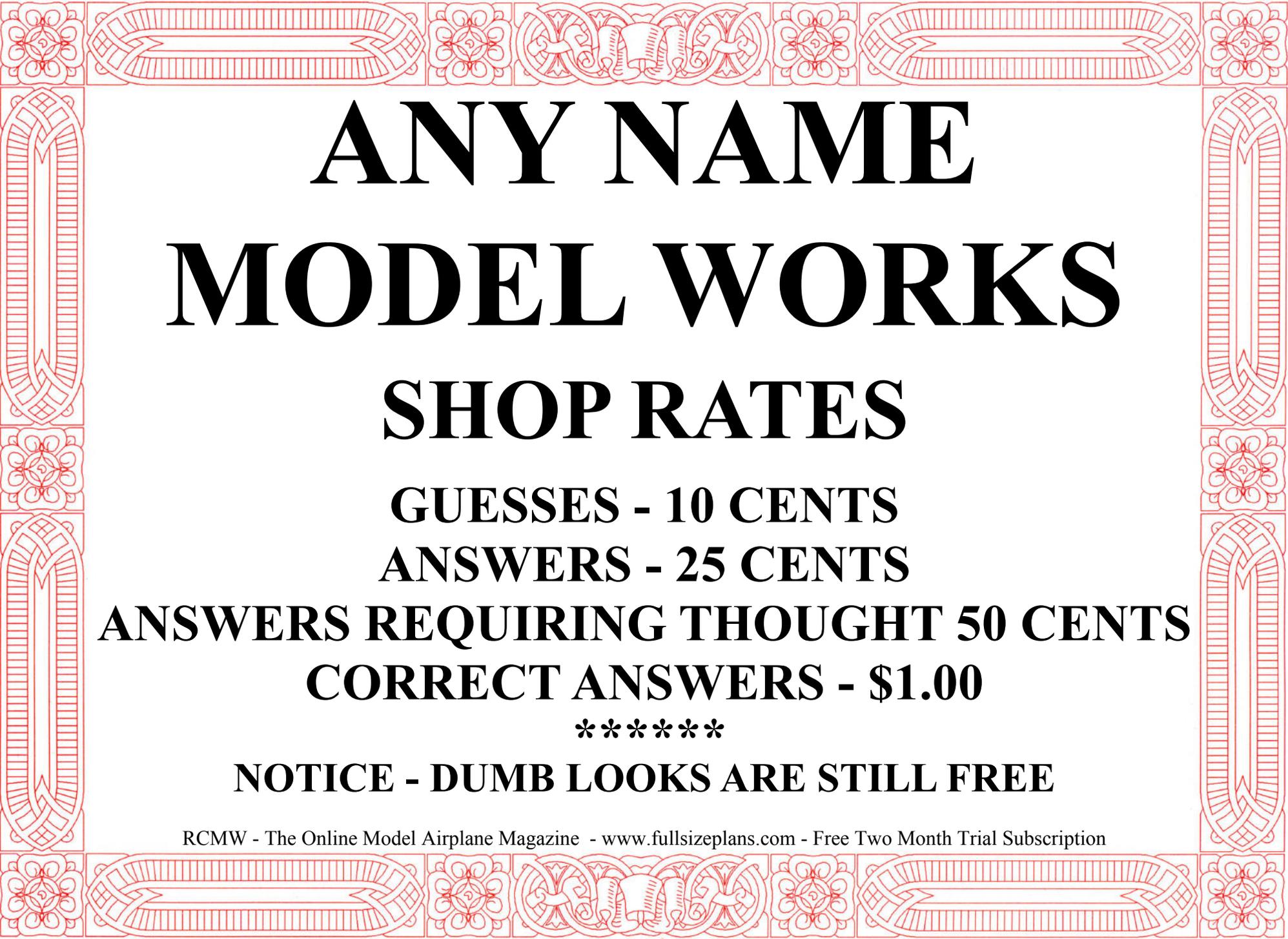
by Editor

If you're at all like me you have probably been frustrated by Microsoft software, especially the Word Processing and Spreadsheet software which is what I use most of the time. Particularly frustrating are the regular updates which change locations of buttons and descriptions of functions, often leaning to what I would call "Nerd Cute." It sort of reminds me of the way Time Magazine used to write their articles. It seemed to be the authors were trying to impress readers with clever use of obscure words and references rather than just presenting useful information. Enough of that rant.

There is a better alternative, free software called LibreOffice, a replacement for Microsoft Office. I tried it a few years ago and wasn't impressed. I tried again recently at the suggestion of Lubo Hrn-car, the RCMW webmaster and was pleased with its capabilities, ease of use, and of course, price.

Granted, there is a certain "learning curve" that you will need to negotiate but The newest version seems easy to learn and use. Just think, no more needing to buy the newest version of Microsoft in order to open files that have been changed. This stuff opens both the older and newest Microsoft file formats and, I think, works better

Checkout LibreOffice at --
<https://www.libreoffice.org>



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SEE PAGE 3 FOR ORDERING INFORMATION

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 **American Aircraft Modeler Annual 1969**. Several of the model airplane magazines published special "Annual" issues and this is the last one published in the Air Trails series. The first was published in 1938 and the digital collection mentioned at the end of this RCMW issue contains every one that was printed.

This annual contains 100 pages with a wide variety of plans, articles and building hints.

One interesting editorial note by Publisher William Winter, another very well known modeler is his recollection of editing the very first Annual in 1938.

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 March 1, 2017, so if you'd like this issue for your own collection, better do it now.

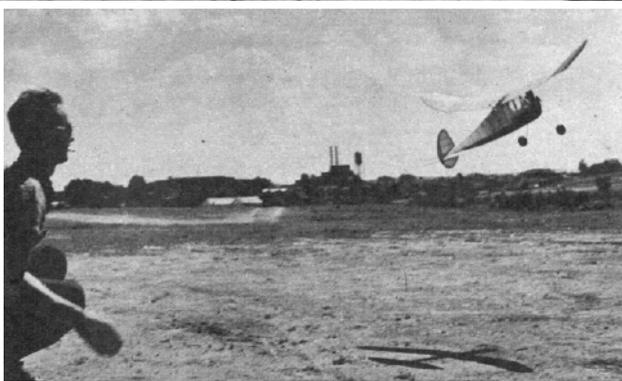
As a note of interest, this issue is stored in the "cloud" that you see mentioned as one of the latest of the buzzwords used by the computer folks. I use a service called Mediafire which can easily handle very large files that would otherwise cause problems with downloading.



THE REQUEST

BY FRANK EHLING

With the experience of hundreds of models, old-timer Frank Ehling created this rugged, flyable, A or B job.



This design by well known modeler and long time AMA Technical Director Frank Ehling originally appeared in the September 1941 issue of Air Trails magazine. The late Frank Ehling was known as a competitor who was sometimes looking for loopholes in the rules to give him an "edge." Read his biography at the AMA website to learn how he won a model contest by using a pigeon as his entry.

The REQUEST was designed to give good flying results. It lived up to our expectations in more ways than one. The ship was first flown as Class A with the new Bantam engine. This combination was considered hot. Later the ship was sold. The new owner used a Hi-Speed engine and the model's glide was improved despite the additional two ounces of engine weight.

The new owner was disappointed. It seems, he wanted the model to perform like a real ship, and the only type of flight it turned in was that of a scientific model constantly pointing its nose to the sky and climbing until the ignition timer stopped the engine.

Flights of this description were common even under low power. Under increased power the model would not fly at a greater angle but would climb at a faster rate of speed.

At a recent contest a stunt event was being run off. The REQUEST was entered and adjusted to loop. Positive incidence was applied to the wing and negative to the tail. During the flights the engine was opened to the limit. The ship climbed with a terrific rate of speed yet showed no signs of looping.

And now a few words in reference to the construction. Streamlining was incorporated in the job if it provided some strength. The large nose block added strength to the ship's nose. The fuselage brought to a triangle (cross-sectional view) at the rear gave strength to that portion.

The round formers and their stringers built on the underside of the fuselage combined with the triangular-shaped top side gave the body a more or less teardrop cross section, which offers less resistance than a square or a rectangle.

Additional streamlining is offered by celluloid windshield.

With regard to the aerodynamical viewpoint. The thrust line is designed just high enough to make possible a fairly short landing gear, thereby cutting down considerable drag.

The polyhedral wing gives the ship a "rolling" flight characteristic while the ship is climbing instead of the tight spirals that sometimes spin a model to destruction.

The stabilizer is placed low in regard to the wing to afford a biplane effect, thus increasing stability. The main wing dihedral and the rudder combination are planned so that the ship can be made to spiral in either direction by simply using the rudder tab.

The fuselage is built in the conventional manner. One side is built upon the other. When dry, remove from the plan and separate the lower longerons and a portion of the top longerons (the short distance up to where the triangle starts).

The cross pieces are cemented in their respective places. The formers are cut out of stock, notched and cemented to the bottom side of the fuselage. The stringers are then added.

The motor mounts are shaped and mounted in the fuselage with plenty of cement. The landing gear is bent to shape, then cemented and bound to the uprights and motor bearers.



The nose block is cemented lightly in position and then carved to shape. After it is removed it is hollowed out until its wall thickness is about 1/4".

The windshield former is cemented in place and the windshield itself is made from a stiff grade of celluloid. The dowel (front fastener for wing) is cemented in position, and the ship is ready to be sanded and covered.

The wing is of the two-spar-type construction. Cut sufficient ribs and wing-tip parts from the correct thicknesses of sheet stock.

Construct wing and put gussets at each break in dihedral.

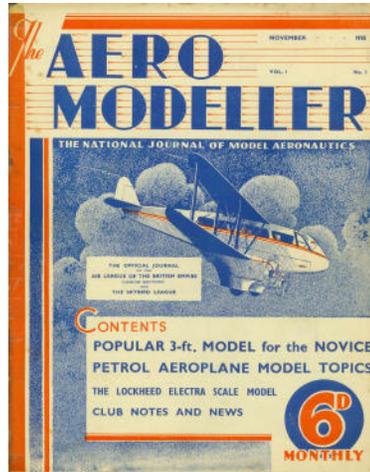
The stabilizer is made of sheet stock. When dry, sand to a streamline section. The rudder is made in a similar fashion.

The coil and batteries are then installed. The easiest way to find their location is to mount motor, wheels and stabilizer and then measure off 30 percent from the leading edge of the wing, placing the weights so that the model balances at that point.



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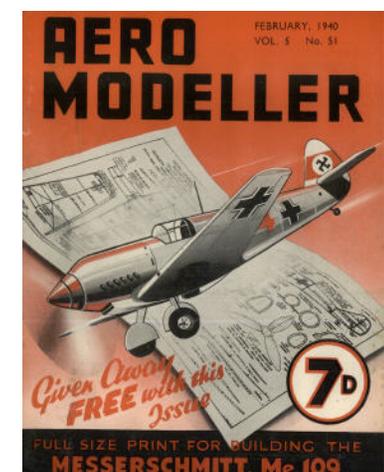
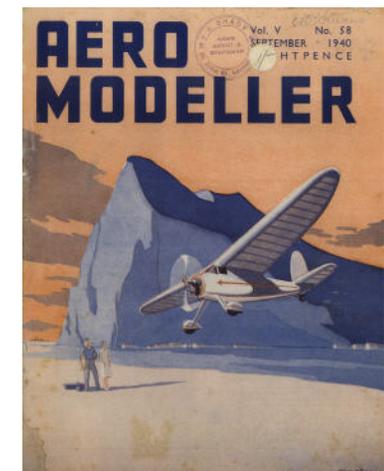
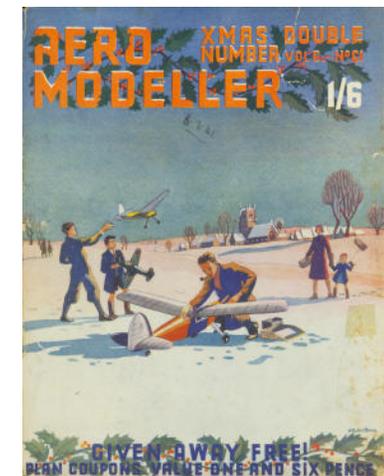
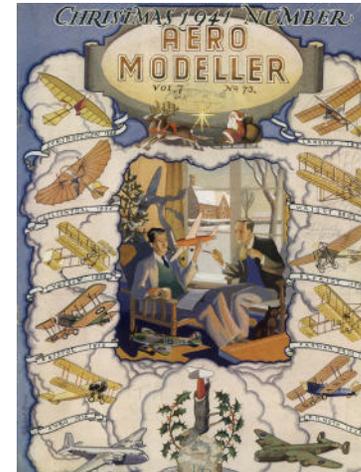
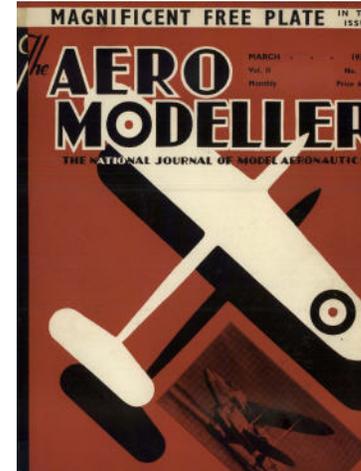
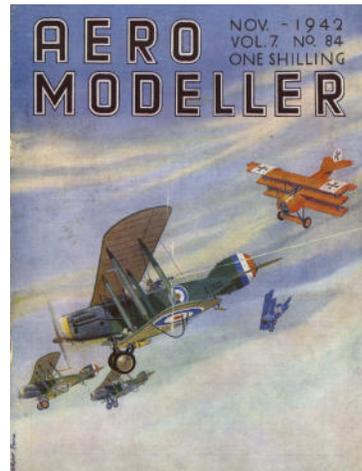
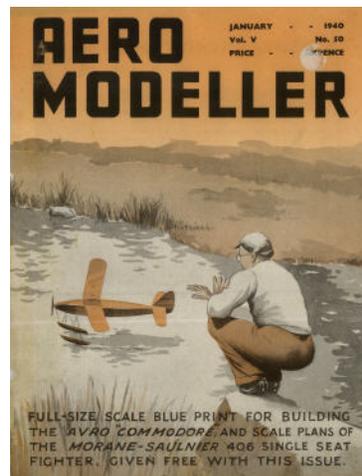


Now, after several months and hundreds of hours of work, we have available high-resolution digital copies of the British Aeromodeller magazine starting with the very first issue dated November 1935, shown above, and through the December 1942 issue. These issues are extremely rare and hard to find. These 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 world-wide

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

P.S. - Don't forget to include your name and address - Sometimes people forget !!



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.

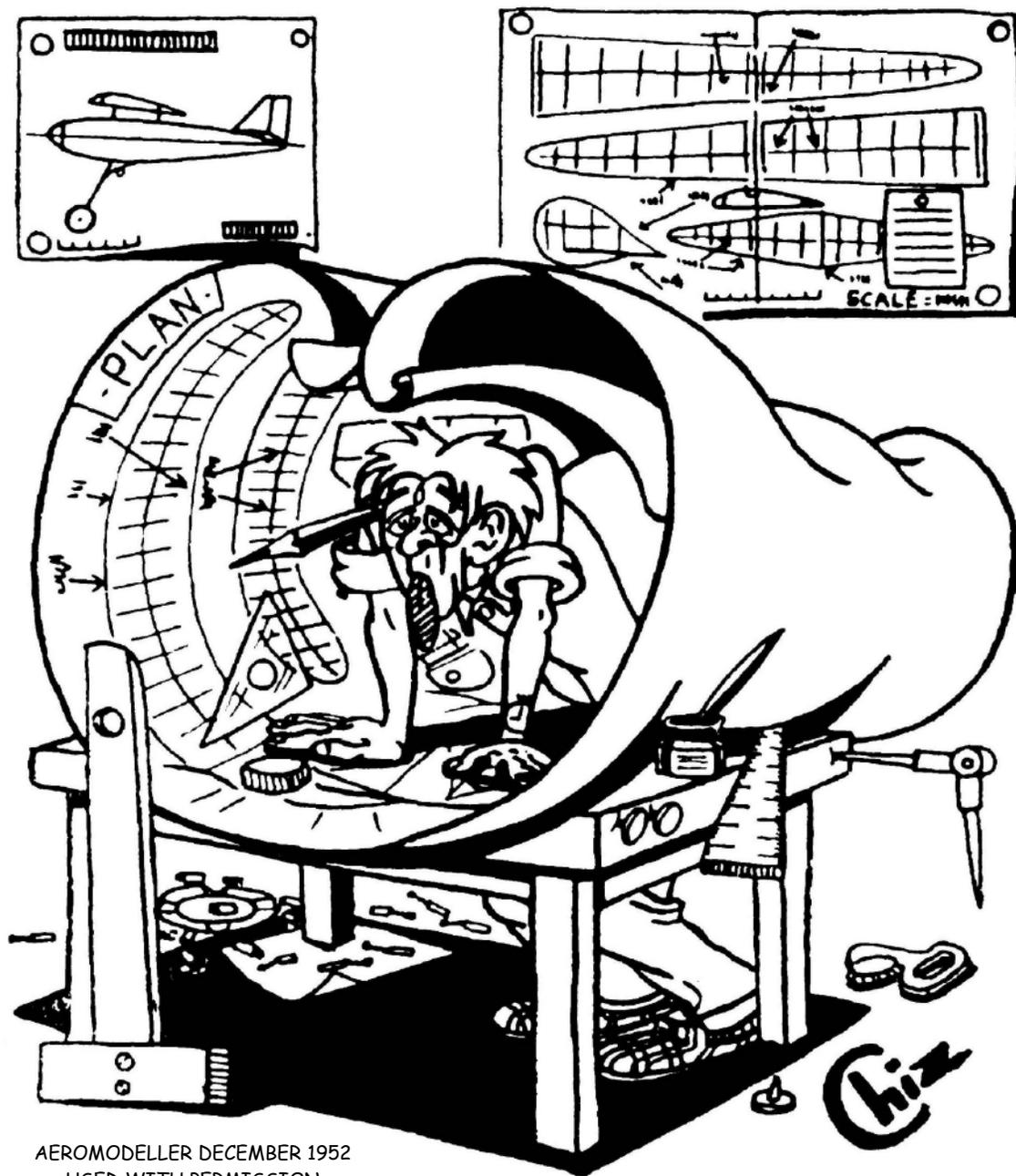
That's NOT the way it was in the past, when you had to build a model before you could fly it. If you're an old-timer, as I am, you have fond memories of Air Trails, Flying Models, Model Airplane News, Aeromodeller and many of the several other magazines available "way back when".

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

Great Gifts for Modelers

Digital Magazines on 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

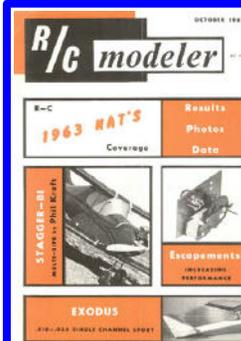
MODEL BUILDER - This magazine ran from the first issue of September~October 1971 through the final issue dated October, 1996 -

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

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