RCMW-FSP

September 2017

Cover Painting by Cal Smith - March 1958 Air Trails

RCMW - INDEX
September 2017

ON THE COVER

The cover is from the March 1958 issue of Air Trails magazine and was painted by Cal Smith

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Galesburg, IL 61401
USA

For the Model Builder and Flyer - September 2017 Issue

RC Micro World & Full Size Plans

September already ! I guess that means that winter and building season is approaching again. We have a good selection of classic model projects for you to consider if you are not fortunate enough to live in an area where you can fly all year around.

First up is a nice scale U-Control model of the Dave Long Midget Mustang by Cal Smith. A pretty airplane and a pretty model. Dave Long was chief engineer at Piper Aircraft and a fighter pilot during WWII. The airplane was scheduled for production until his untimely death.

Douglas Rolfe, a consummate aviation artist had a series of drawings in many issue of Air Trails. This historical look at the Stinson series of aircraft is from the September 1949 issue of Air Trails.

The well named K.C. Cutie by Bob Miller comes from the January 1952 issue of Air Trails. Rubber powered models have that extra "charm" and rubber powered biplanes have even more. Build one, you'll like it.

Bob Bienenstein designed this winner that appeared in the July 1950 issue of Air Trails. Not too many models can boast three consecutive years of first places at the Nationals.

Since we were looking through the July 1950 Air Trails for Bienenstein's CHALLENGER we came across this cute little Stutz Bearcat model car by Alan Walters. Sure, it's not a model airplane but it sure would make up into a nice display model.

Since we're apparently stuck on Air Trails offerings this month, we might as well use the October 1950 issue as our complete monthly download of a back issue - The download link is on page 20 and we hope you enjoy it.

And now a departure from Air Trails and a switch to RC Modeler for another of Ken Willard's series of amphibians. The Pondhopper is intended for engines in the .35 to .40 range. I've always had a soft spot for amphibians and seaplanes and this looks like a good one.

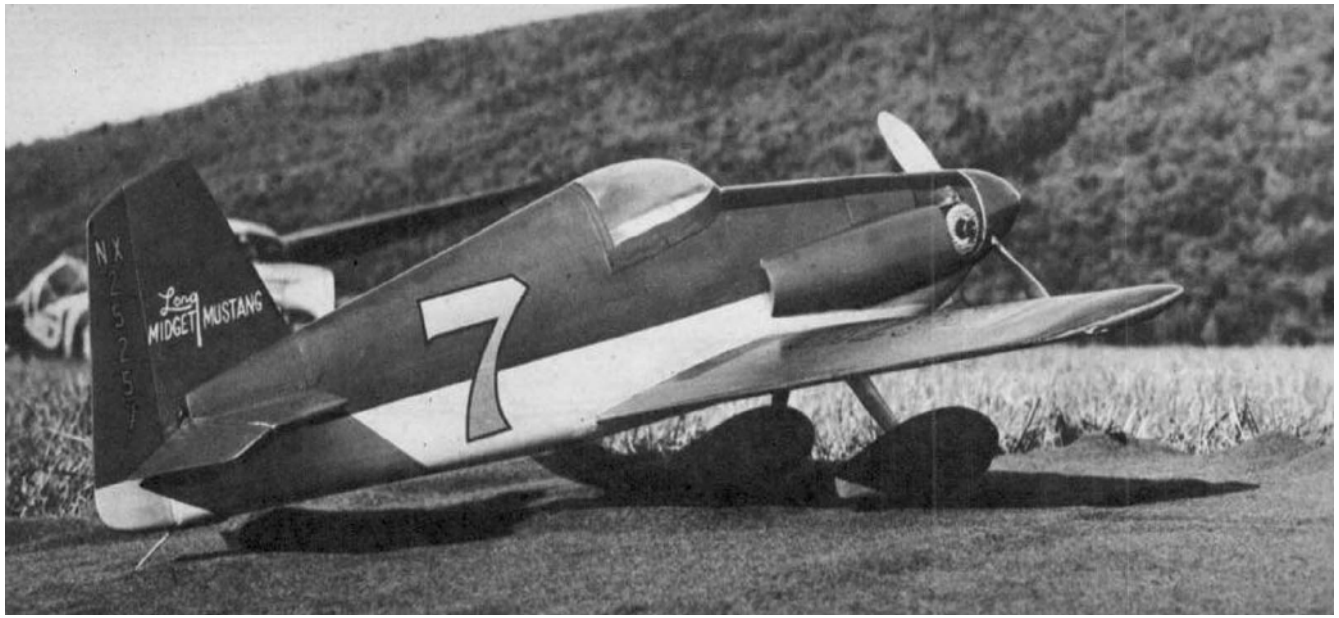
Every old time modeler knows about Walt Musciano and his long line of U-Control scale models published in several different magazines. But not everyone knows about the rubber powered Bellanca Pacemaker that is reputed to be Musciano's first design published by Scientific..

And now for something completely different. A flying wing rubber powered model from Megow. Mike Walker loaned us the kit and it was digitized back in 1997 according to my notes. Time sure slides by, hard to believe that was 20 years ago. I've been doing this for a long time.

And to close out this issue, my monthly reminder that starting on page 30 is the list of currently available digital back issue collections - Take a look - Christmas will be coming sooner than you think and a hint to someone who would like to get you a gift but doesn't know what to choose might come in handy, particularly if you mentioned that digital magazine take up almost no room and don't have that musty paper smell.

Roland Friestad, editor

We Build the Long Midget



Add this Goodyear racer to your collection of U-control flying scale models that fit into the Team Racing event
By S. CALHOUN SMITH
Originally Published in
Air Trails September 1949

IF you don't happen to have $5,000 handy to buy the full scale Long Midget dig out the balsa and the cement. You can model this sweetheart and fly it to your heart's content.

The Long lovely is a natural control-liner. The clean design lends itself to simple construction and good flight performance. We'd like to pound our private drum for Dave Long, designer of the full scale prototype. In addition to smart engineering resulting in excellent performance of the prototype, Dave must have kept a soft spot in his heart for the modeler, because his design has really fulfilled our wishes for a good honest model.

The model is scaled at 1-3/4" to 1', directly from the factory three-views, and if our drawing hand isn't getting too shaky, they are mighty accurate (solid scale fans take note).

This odd scale was picked for a number of reasons, an important one being the combination of wing area and power that was desired. Also, the spinner size comes within a gnat's whisker of being exactly the size available from Mr. Froom.

Scale wheels and canopy are also very close to those sizes procurable at your hobby dealer's. Naturally some of the curves and wiggles of these parts don't fit exactly, but outlines are included for those builders who are interested in absolute scale.

The page plan is 1/4 scale; 1/4" equals 1" on AT's full size plan and the finished model. Outlines are included for both the present racer version and the projected production version. The changes include: altered engine fairing shape, wider landing gear (mounted in wing), and square tips on all tail surfaces. The real Long Midget uses NACA 641A212 laminar flow airfoil. We have retained the thickness but used a symmetrical form for stunting.

The 32" -span model weighs in at 22 ounces with a n O&R 29 in the nose. Total wing area is 211 sq. in., giving the light wing loading necessary for good stunt performance.

Speed is between 65 and 70 mph, and if higher speeds are desired, engines up to 40 cu. in. dislplacement can be used. But don't carry this too far , because too large an engine in the long nose will move the C.G. too far forward.

Construction can be started with the fuselage. The bottom portion consists of a hollowed block and the top is built up of formers with 3/ 32" sheet planking. If available a 3" x 4" x 22" block can be carved for the bottom; otherwise, a block 3" x 3-1/2" should be glued up of widths that are available.

Transfer the fuselage top and side view outlines to the block and cut to shape. Notch the bottom for the wing and be sure that the front face is perfectly flat for the firewall mounting.

The area over the wing can be hollowed out with a coping saw; cut the side thickness to the dimension shown. Carve and sand the outside contours to shape, checking with the templates at the cross-sections given. Complete the hollowing out with a wood gouge, retaining the wall thickness indicated.

With the lower portion of the fuselage completed, the firewall and numbered formers can be cut out and added. Glue the firewall in place with Weldwood or other hard glue. Spot in place with a couple of small wood screws, then drill as shown for four hardwood dowels.

Cut 2" lengths of 3/ 16" dia. dowel and taper one end to about one half the diameter. Fill the holes in the balsa with glue and drive the dowels in place leaving about 1/8" projecting ahead of the firewall. Spread glue over these ends. This firewall mounting may seem rather beefy, but it will stand up under engine vibration and hard landings.

Next glue in the 3/8"-sq. Hardwood bellcrank mount. Two wood screws through the fuselage sides into the ends of the mount will keep it in place for the life of the model.

At this point it is a good idea to carve the stabilizer and elevator and install the control system because the innards will be closed up once the top planking is on.

The horizontal tail is carved from 3/8" sheet. The hardwood spar is cemented to the elevators and the control horn added. Bind the horn to the spar with heavy thread and cover with cement.

Flightex hinges were used on the original model but any hinge system you prefer can be used. Install bellcrank, bend push rod to size and assemble to control horn. Solder retaining washers on push rod ends at bellcrank and horn, then cement elevator in place permanently. Be sure to notch out the top of fuselage rear so that the stabilizer has 0 degrees incidence.

Check control linkage for good free movement. The elevators should drop of their own weight when raise'd to up position and have 30 degrees travel up and down.

A 3/4" wide strip of hard l/8" sheet should be cemented across the fuselage block at former 6 to act as a fairlead for the push rod. Notch the strip for the push rod. When the top former is added over this strip, the lead hole will be all enclosed. Line leads can be added now to complete control system.

Model man Smith and Dave Long, designer of Long Midget, compare ships. First called Midget Mustang, plane now is Long Midget.

The top formers can now be added and the planking cemented on. Select medium soft quarter-grained 3/32" sheet for planking. If the outside surface is dampened slightly with water, a full 2"-wide sheet can be bent over the formers and almost the whole curve covered. Strips of 3/32" x 1/4" planking will have to be used over the sharp top curve aft of the cockpit.

The nose section of the fuselage can be completed next. Cut two blocks for the engine fairing "apple-cheeks" and rough-carve to outside shape. The insides are hollowed to about 3/ 16" wall thickness all around. If the production version fairings are used, cut a slot in the rear for cooling air exit on the engine side. If the racer version is built, simply hollow the whole length so air can pass out the rear end.

Blocks for upper and lower cowling should be cut to rough shape and spot cemented in place. The upper -removable cowling should be hollowed roughly inside to clear the top of the firewall. Now spot-cement the engine fairings on the sides and complete carving and sanding the nose section to final shape. All the pieces can then be removed, hollowed out and cemented permanently in place.

Coat the inside of the right engine fairing and adjacent fuselage side with fuel proofer so that when the fairing is finally in place the hidden wood will be protected.

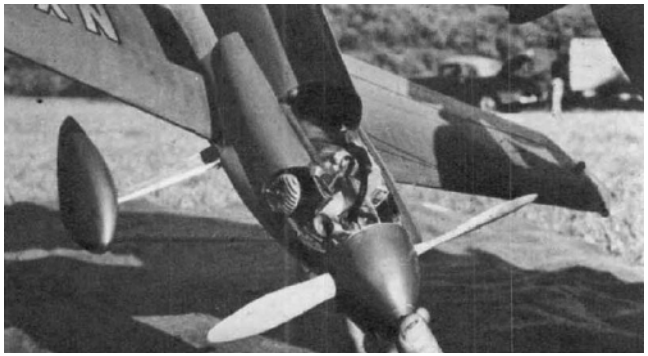
Space for the engine cylinder can now be cut into the right fairing and the engine bolted into place temporarily on the firewall. We substituted O&R 60 front crankcase bolts for the bolts on the 29 so that there would be plenty of room on the rear of the firewall for threading on double nuts.

The cowl hold-down fitting should be made and installed on the top edge of the firewall. This consists of a 1/2" wide strip of 1/32" brass or steel bent at right angles with the vertical portion bolted to the firewall. An Elastic Stopnut should be soldered to the horizontal portion for the hold-down screw. Heat from the soldering iron will melt the rubber in the nut, so when solder cools, mash the rubber end of the nut with pliers so that the rubber will grip the screw.

A 1/2" square of 1/16" plywood should be inlaid into the top of the cowling over this fitting so that the hold-down bolt will bear against a hard surface. To spot the bolt hole in the cowling accurately, thread the bolt up through the underside of the fitting and press the cowling down into place. The bolt will mark the balsa-simply drill here.

Scrap 1/2" sneet is carved to shape to form the air scoop on the underside of the nose.

The fin and rudder can be carved from 3/8" sheet and cemented in place next. The fin portion extends from the rear of former 8 and is flat along top of stabilizer. Add scrap blocks on each side above the stabilizer and carve to complete the rear portion of the fuselage top.



Power department of model Long Midget. Ohlsson 29 was used on author's model, but motors up to .40 cu. in. displ. are possible.

The tail skid is bent to shape from 1/16" dia. music wire and cemented in place. A small patch of Flightex fabric cemented over the underside will strengthen the area.

A small tail wheel and steering yoke can be added if desired. This is a Scott tail wheel of the type common on most lightplanes.

A commercial canopy about 8" long is cut down to required length and cemented in place. For a really neat job, shave the balsa planking to the canopy thickness where the canopy extends over the wood. This overhang should be about 1/4" wide at former 5.

The edges of the canopy will then fair neatly into the wood and any cracks between can be covered with filler. This completes construction of the fuselage; sand to final smoothness and apply one coat of clear dope or dope filler. We like the old glider standby of dope and pure talc. This will protect the wood until the final finish is on.

Wing construction is borrowed straight from Jim Walker's Fireball, this type being strong and yet light in weight.

Cut out the wing ribs and stub spars. Cement up 1/ 16" sheets to the width required for each top and bottom wing covering half. These wing sheets are then cut to outside shape and should be sanded smooth on their outside surfaces before any construction is started. Then when the wing is completed only a light sanding will be necessary. This will prevent the covering from sagging between ribs. The lower halves are built separately and joined later.

Begin by cementing rib 7 in place first and adding succeeding ribs, working toward the root. Hold the sheet to the ribs with pins pushed in diagonally through the sheet into the rib. Do not cement rib 1 in place until later.

If the production version is being built, the landing gear legs are bent to shape and assembled to the stub bars. Bind the horizontal portion of each gear leg to the center spar with heavy thread and cover with several thin coats of cement.

Next cut notches in rib 2 to receive the spars, cut a hole in the sheet covering for passage of the leg and cement the spar assembly to one wing half. The front spar will have to be beveled to the contour of the wing surface so that the covering will be smooth.

The other wing half can now be assembled to the spars. The root seam should be trimmed for a good snug fit. Now rib 1 can be notched for the

spars and cemented in place. Use cement liberally at this junction.

Bevel the leading and trailing edges before adding the top wing covering sheets. A length of hard 5/8" sheet can be cemented to the front face of the front spar across the center section as shown, to help stiffen the wing landing gear joint.

With everything nailed down tight inside the wing structure, the top covering can be added. This operation is a bit tricky because the work must be done quickly before the cement sets. Run a bead of cement along the top of each rib extending to within an inch of both leading and trailing edges.

Lay the top sheet in place and start pinning down to each rib. Place pins at the high camber point of each rib and then work outward toward the leading and trailing edges of each rib. Pin down to ribs 1 and 7 first,to minimize warps. As the sheet is pinned down check constantly to prevent any warps by sighting along the span from the wing tip. This is important because once the top sheet is firmly cemented into place warps or twists cannot be taken out.

To join the leading and trailing edges, lift up the top sheet and force cement onto each rib and along the edge seam. Clamp with spring clothes pins or Scotch tape until cement is thoroughly dry. It is suggested that all pins and clamps be left on the wing structure overnight to insure that cement dries thoroughly inside the wing structure.

This assembly process is repeated for the other wing half top covering. Add 1/2" thick block to wing tips and carve to shape when dry.

The wing is next cemented into the fuselage notch. Shave fuselage block where necessary for a good snug fit and 0 degrees incidence. Use cement liberally. Fillets can be carved from soft block to triangular shape, bent and cemented into place. Final contours can be achieved with any commercial filler.

If the racer version is being made the landing gear is not built into the wing so that the front spar is not necessary. Make the center spar of 1/8" sheet balsa and use as a dihedral joiner. Notch ribs and spars half way through for a good Joint.

The landing gear can be bent to the shape shown and a 1/8" plywood bulkhead (2A) made. The inside front face of the notch in the fuselage for the wing should be cut across perfectly flat. Take off an extra 1/8" to allow for the plywood bulkhead.

Notch the inside surface of the fuselage sides vertically to form a 1/8" slot on each side for the bulkhead. The landing gear can be fastened to the bulkhead with "I" or "J" bolts. Slide plywood bulkhead up into place and set in hard glue. The leading edge of the wing should fit snugly against the back of the bulkhead when the wing is cemented in place in the fuselage.

Add scrap block over the wing bottom at the leading and trailing edges to complete the lower fuselage contours.

Final finish can be started now. If a good finish is desired several coats of filler and dope will be needed. We didn't lean over backwards in the finish department because we didn't want to add too much weight. Two coats of filler and two coats of dope did the job for us.

The original Midget. was finished in natural metal color with metallic blue trim and numerals. Blue trim covered spinner and front of top cowling back to canopy rear edge. A blue airfoil shape runs along the engine fairings. Wing tips are blue. pants are blue with airfoil shape along center line left natural metal.

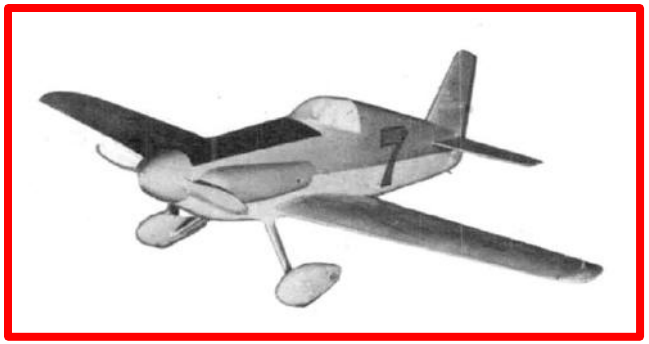
If you build the production version a trim job of your own choice seems in order. Large racing numerals on wings and fuselage and your AMA license number on wings and fin make a good decoration. Final details such as pants and strut fairing are shown in detail on the plans.

Radial mounting of the engine presents no problems if care is used. Place large washers over the long bolts ahead of the firewall (place an extra one on the bottom bolt for slight right thrust) .

Place large flat washers and lock washers on bolts at rear of firewall and use double nuts on each bolt. When this is tightened down thoroughly, the engine is guaranteed to stay put. A coat of cement over the nuts adds a final "safety."

The horizontal engine mounting works well in all flight altitudes, and it is a pleasure to see the model in the air without that jug sticking up like a sore thumb. We used Jim Walker's balloon tank idea in the original, but a wedge tank can be fitted, if desired.

If a balloon tank is used, install a floor of 1/8" sheet across the inside of the fuselage behind the firewall 5/8" below the thrust line. The underside of the removable top cowling should

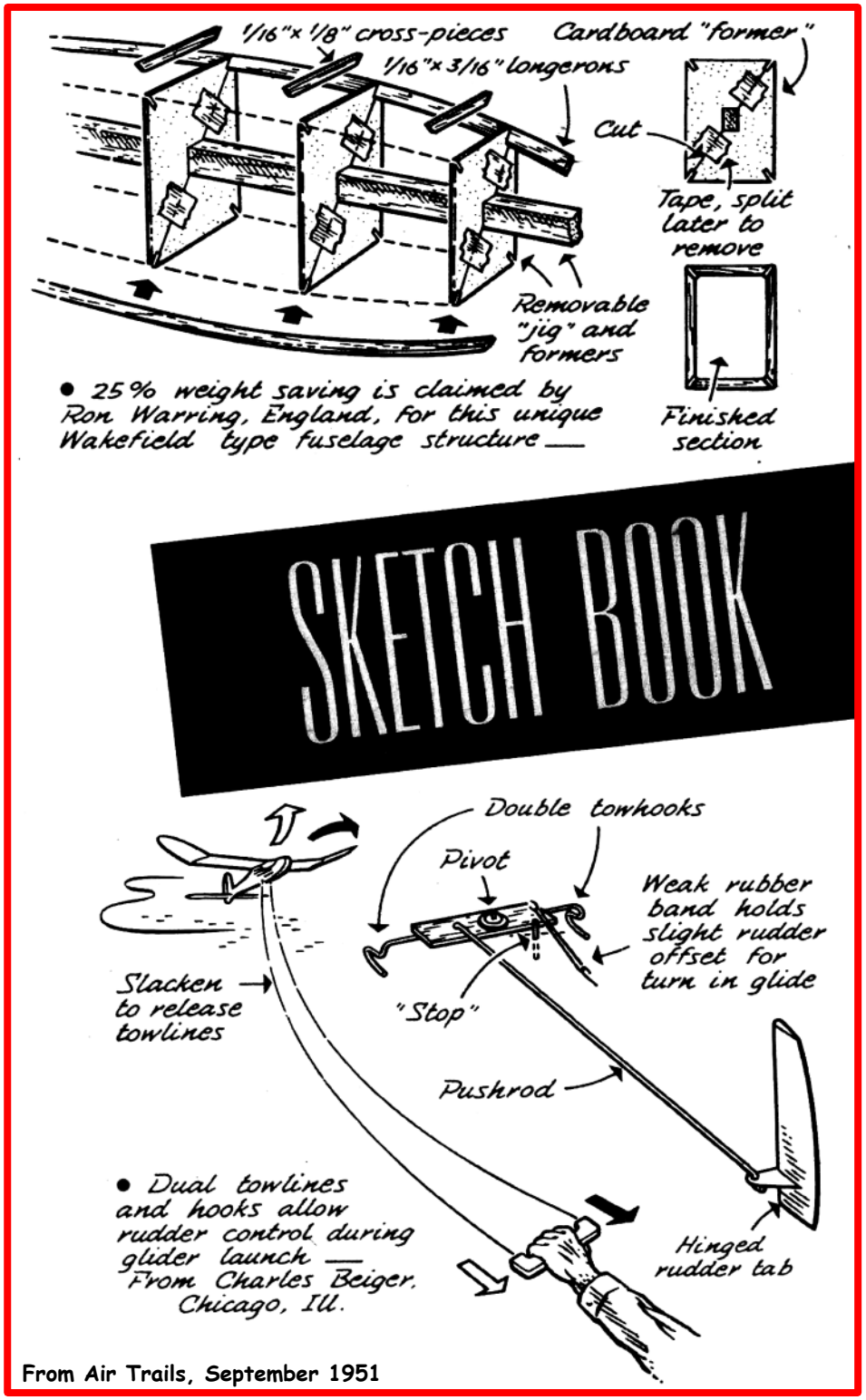


have 1/8" sheet cemented across it at the same location. This floor and roof forms a box with equal space above and below the needle valve level for the balloon tank. This insures equal fuel level in normal or inverted flight.

A Top"Flite 9"-dia. 6"-pitch prop was used, and turned in good performance for us, but you should use the fan most suitable for your engine for maximum speed and power. If heavier engines are used, small lead weights will have to be added in the tail to maintain C.G.

Test flights of the model were made at Lock Haven's Cub Haven Airport, and the model did all the tricks in the book first crack. Using the U-Reely control handle flights on 50 to 90-ft. lines have been made with good performance. We personally like the long line flying because sweeping, graceful, maneuvers are possible that can't be achieved on short lines.

Flying the model with wheel pants is only troublesome in high grass and we were pleased to find them still intact after one of those ground wiping loops that bent the gear back into the wing.



From Air Trails, September 1951

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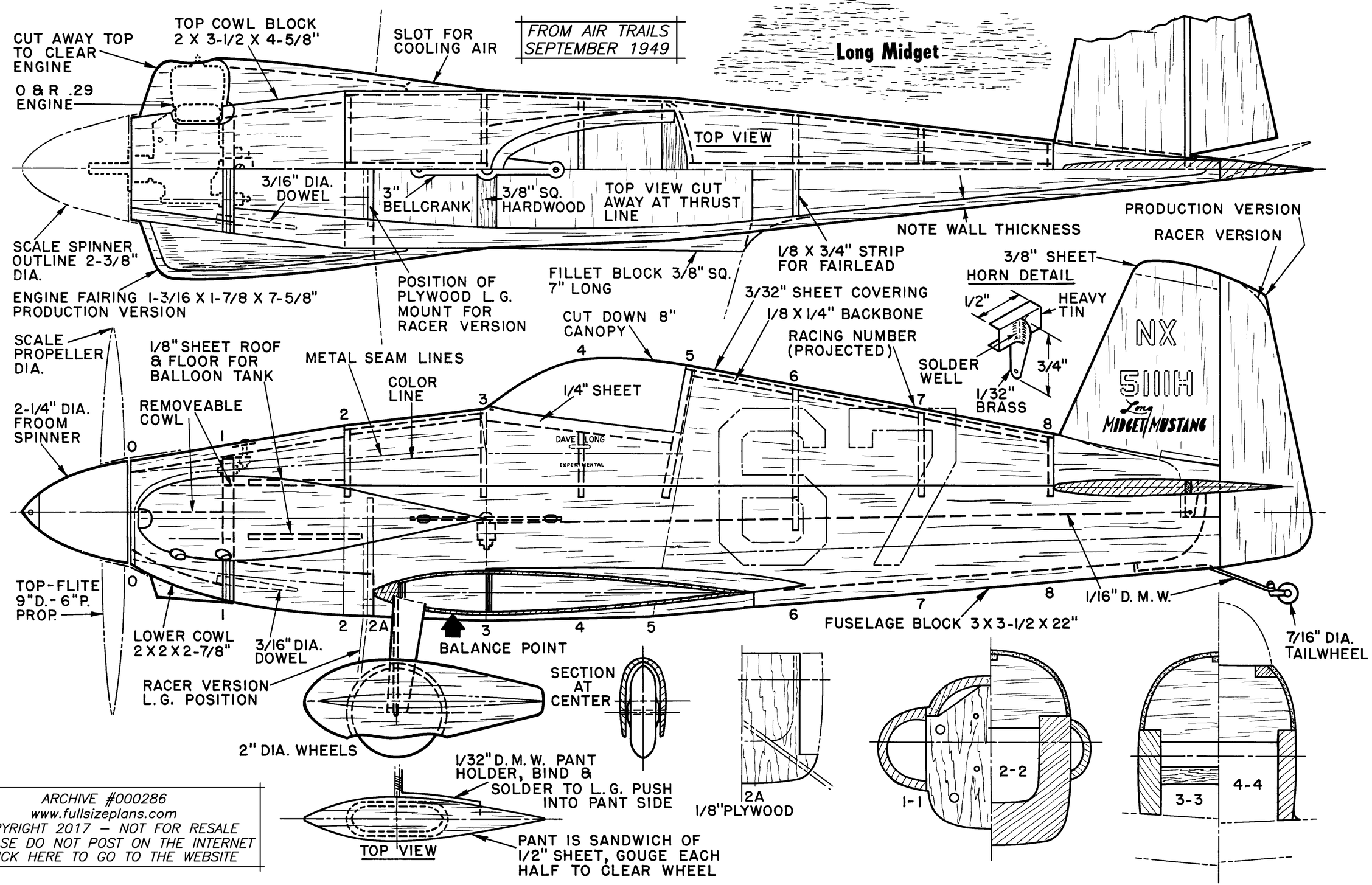

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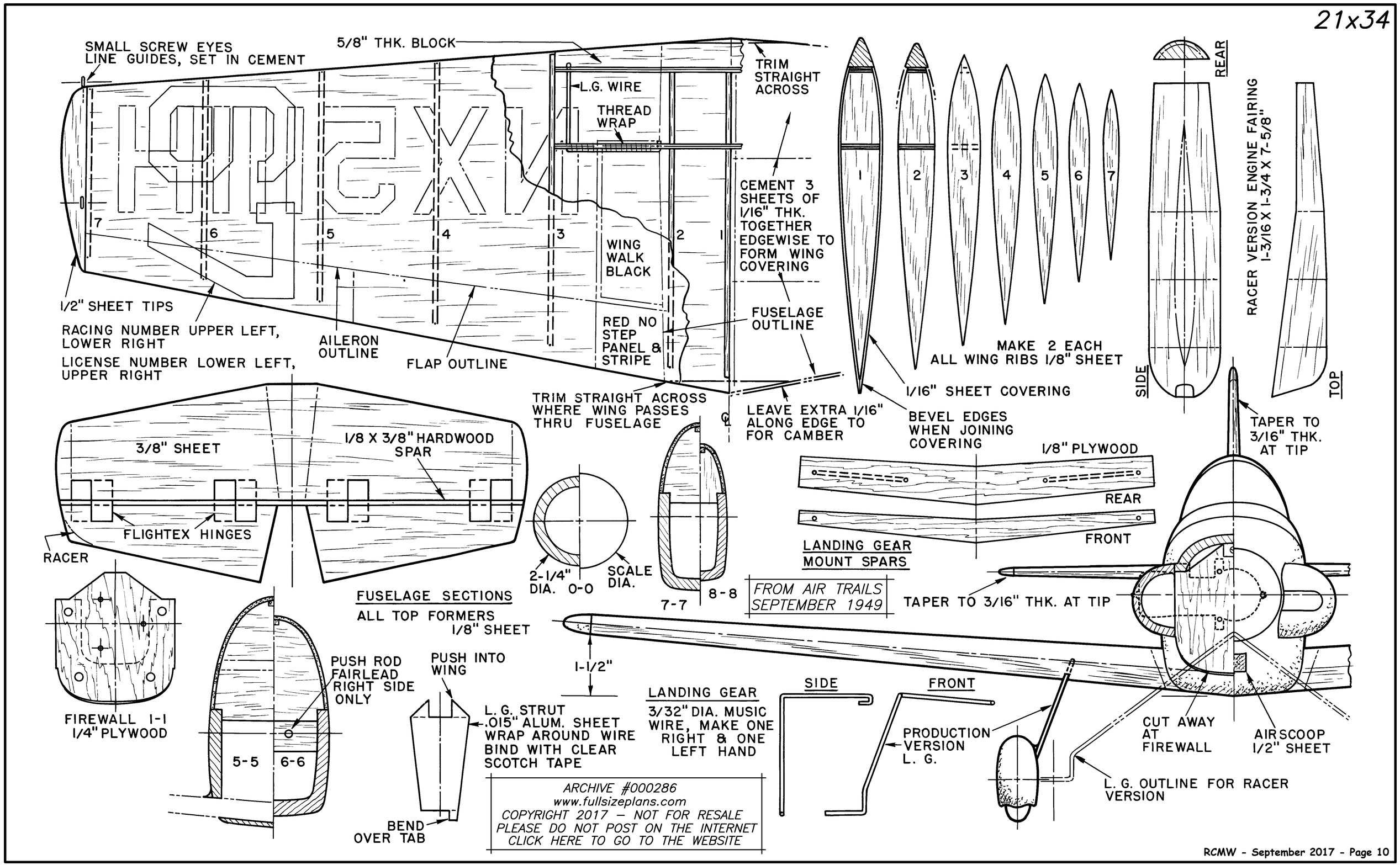
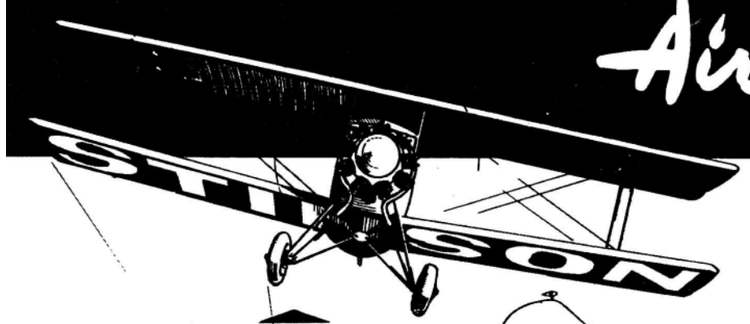


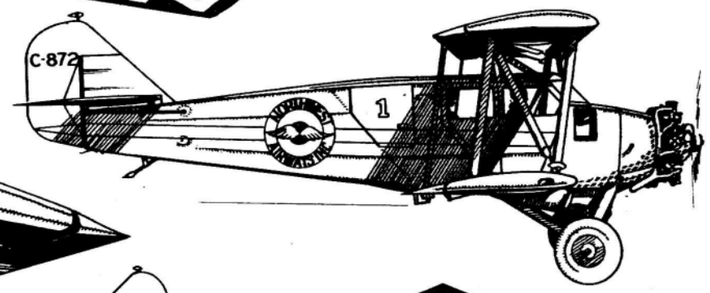
Air Progress

The STINSON Story

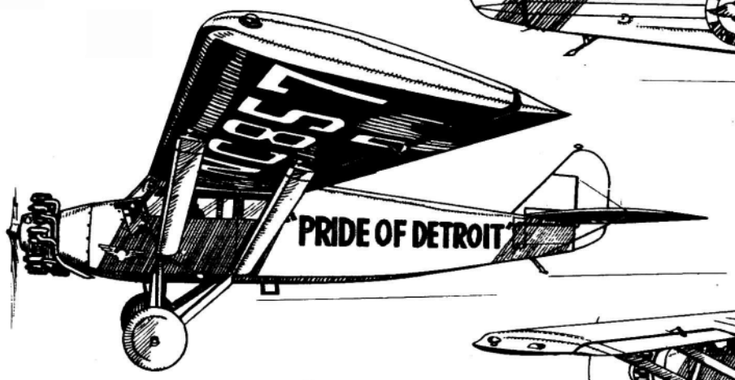
By DOUGLAS ROLFE



1926 STINSON CABIN BIPLANE
STINSON'S FIRST DESIGN — 200-H.P. J-5 WRIGHT RADIAL. CRUISING SPEED 90 M.P.H.

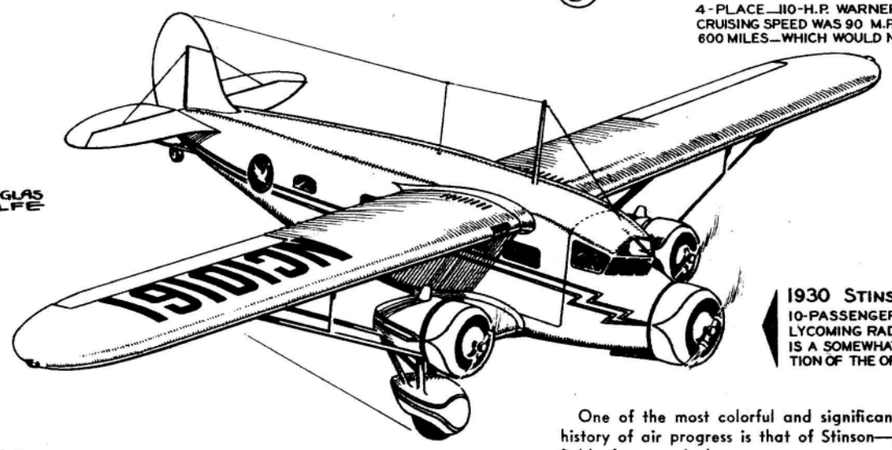


1927 STINSON DETROITER
4-PLACE PASSENGER MAILPLANE. 220-H.P. WRIGHT J5-CA RADIAL.

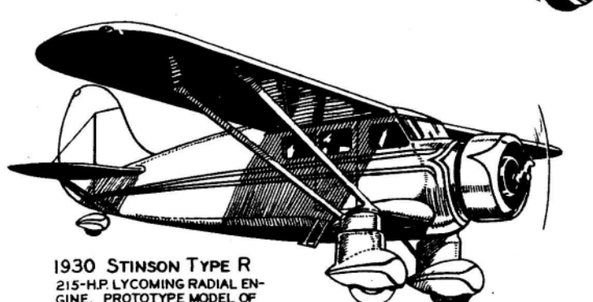


1927 STINSON SM-1
6-PLACE- 220-H.P. WRIGHT J5-CA RADIAL — CRUISING SPEED 103 M.P.H.

1928 STINSON JUNIOR SM-2
4-PLACE—110-H.P. WARNER SCARAB ENGINE CRUISING SPEED WAS 90 M.P.H. RANGE ABOUT 600 MILES—WHICH WOULD NOT BE BAD TODAY!

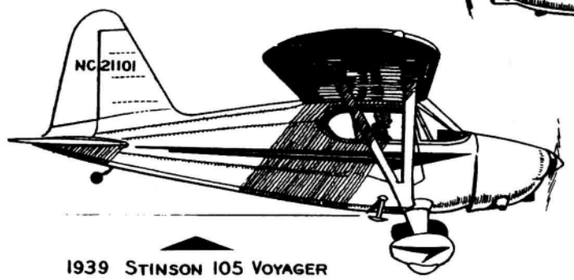


1930 STINSON TRI-MOTOR
10-PASSENGER. THREE 240-H.P. LYCOMING RADIAL ENGINES. THIS IS A SOMEWHAT LATER MODIFICATION OF THE ORIGINAL 1930 MODEL

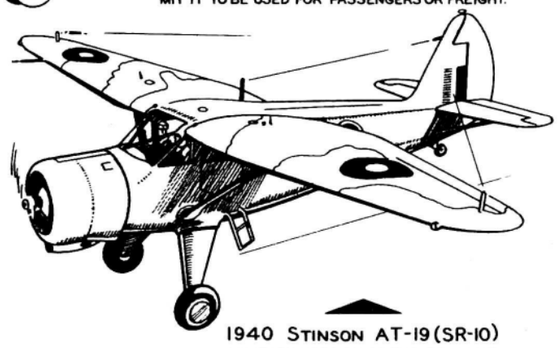


1930 STINSON TYPE R
215-H.P. LYCOMING RADIAL ENGINE. PROTOTYPE MODEL OF THE FAMED RELIANT SERIES

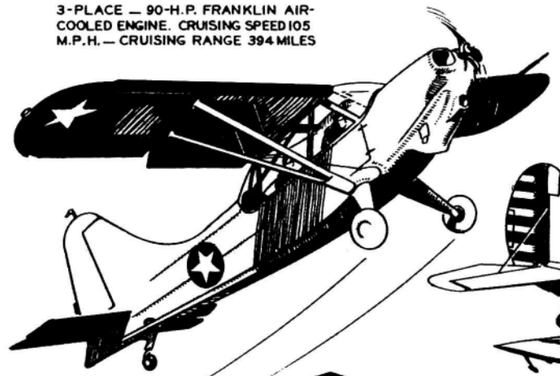
1948 STINSON 150 VOYAGER
4-PLACE. 165-H.P. FRANKLIN ENGINE. CRUISING SPEED 130 M.P.H. - CONVERTIBLE FEATURES PERMIT IT TO BE USED FOR PASSENGERS OR FREIGHT.



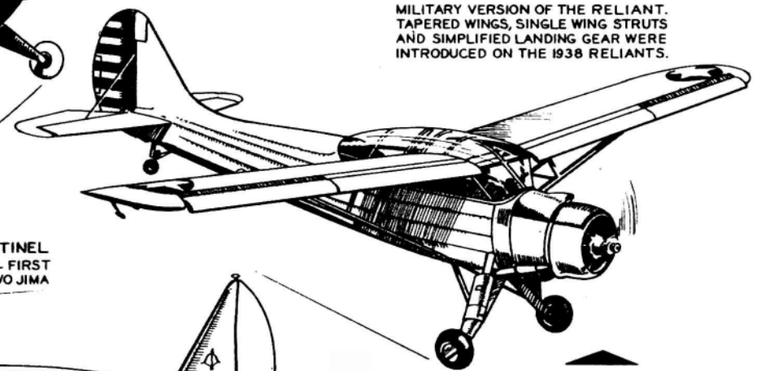
1939 STINSON 105 VOYAGER
3-PLACE — 90-H.P. FRANKLIN AIR-COOLED ENGINE. CRUISING SPEED 105 M.P.H. — CRUISING RANGE 394 MILES



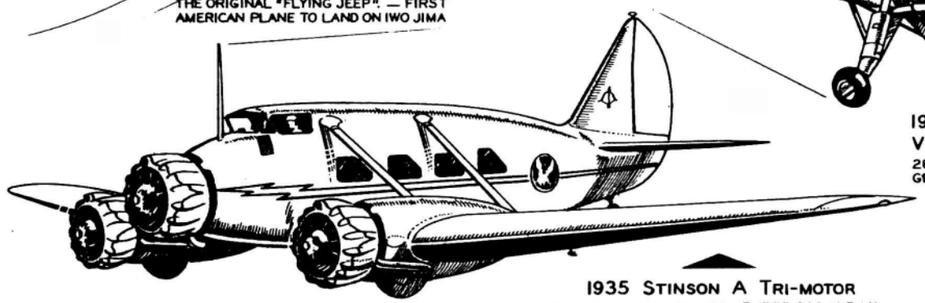
1940 STINSON AT-19 (SR-10)
MILITARY VERSION OF THE RELIANT. TAPERED WINGS, SINGLE WING STRUTS AND SIMPLIFIED LANDING GEAR WERE INTRODUCED ON THE 1938 RELIANTS.



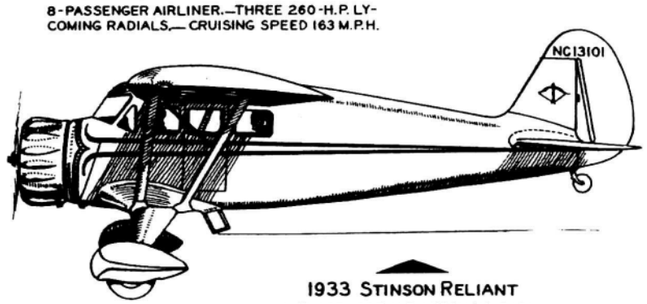
1942 STINSON L-5 SENTINEL
THE ORIGINAL "FLYING JEEP". — FIRST AMERICAN PLANE TO LAND ON IWO JIMA



1940 STINSON L-1 VIGILANT - (O-49)
280-H.P. LYCOMING ENGINE. MIN. SPEED 31 M.P.H.



1935 STINSON A TRI-MOTOR
8-PASSENGER AIRLINER.—THREE 260-H.P. LYCOMING RADIALS,— CRUISING SPEED 163 M.P.H.



1933 STINSON RELIANT
4-PLACE. 225-H.P. LYCOMING RADIAL ENGINE.— CRUISING SPEED 120 M.P.H.

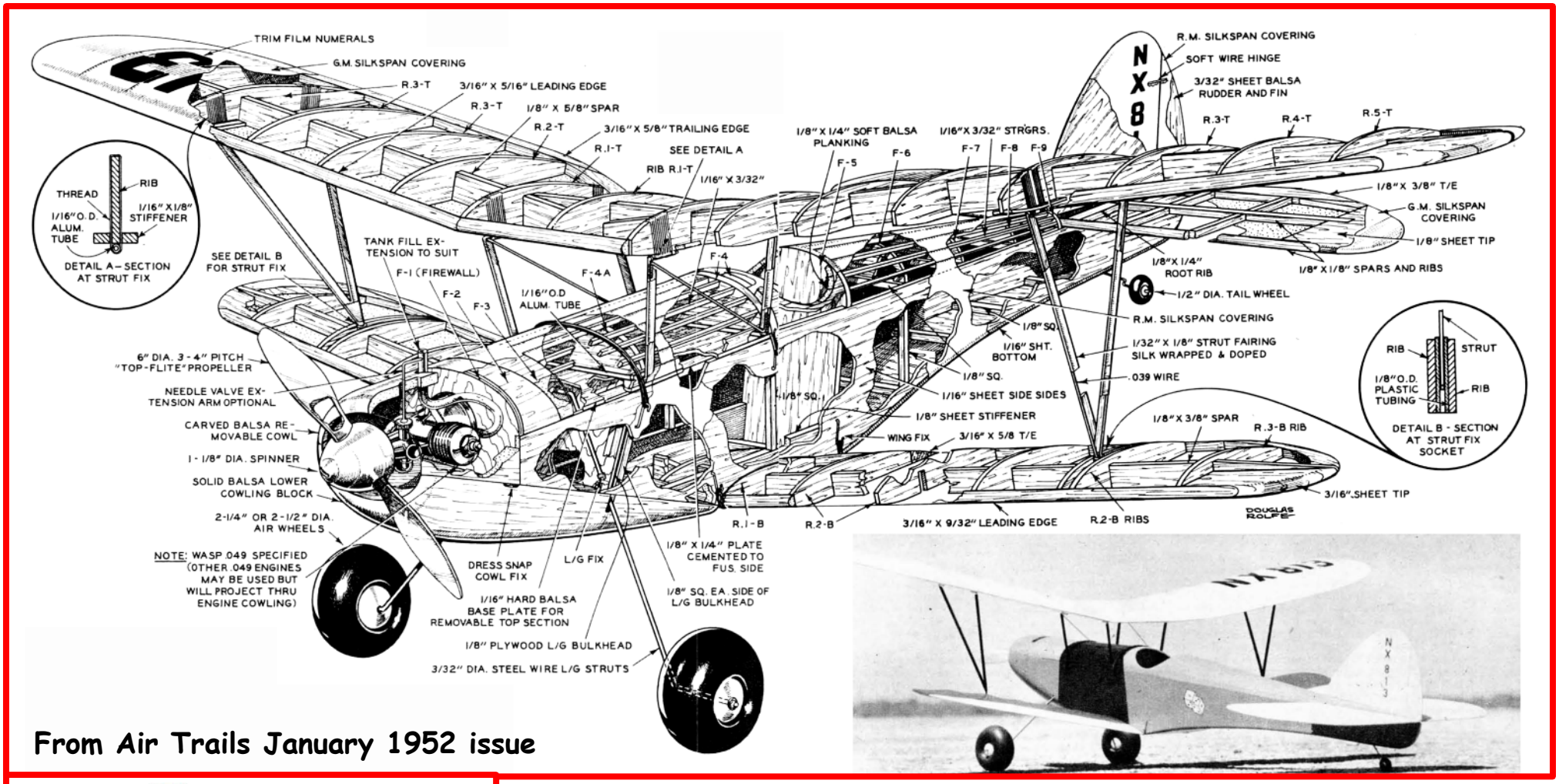
One of the most colorful and significant names in the history of air progress is that of Stinson—pioneers in the field of personal planes.

When Eddie Stinson founded the company in 1925 he was already famous as one of the world's outstanding pioneer pilots, with a sensational record as both stunt flyer and flying instructor. During World War I he served as chief instructor at Kelly Field. After the war he proceeded to hang up several notable records including the first Chicago-New York night flight and the then (1928) World's Endurance Record (53½ hours).

Meanwhile, in 1925, he supervised the construction of the first Stinson airplane, a cabin biplane which was the first American plane to employ wheel brakes and a self-starting mechanism. This successful design was followed by the original Stinson Detroiter, another cabin biplane which was immediately ordered by the infant Northwest Airways to haul passengers and mail on its St. Paul-Minneapolis-Chicago run. In 1927 the first Stinson cabin monoplane made its appearance and soon made history with the famed Detroit-Tokyo flight. Designated also Detroiter, this excellent plane, the SM-1, was followed by a smaller model, the SM-2 or Stinson Junior. This ship was the direct ancestor of the later Reliant series.

Shortly before Stinson's untimely death in 1932, the company merged with Vultee. Later it became the Stinson Division of Consolidated-Vultee, and remained so until recently, when it was acquired by Piper Aircraft Corporation—thus passing into the hands of another great pioneer in the field of personal aircraft.

From September 1949 Air Trails



From Air Trails January 1952 issue

K.C. Cutie

BOB MILLER'S K.C. Cutie

About the Author: Robert W. Miller of Richmond Heights, Mo., calls this job "Little Joe" (note the dice painted on the fuselage), but the editorial staff of Air Trails says the bipe's such a beauty it must be a"she"- hence "K.C. Cutie."

Like many other model builders, I have always had a fond love for biplanes. Yet most of us put them aside for the conventional monoplane because of their complexity and the extra wing required.

Cutie is the result of some questions asked of me by a young builder, and in this model I have tried to combine realism and good sport performance.

The total wing area is about 350 square inches and the finished weight, including a paint job, is 14 ounces. The climb is good and on a 20 second motor run the model can cover considerable distance if a breeze is blowing. Incidentally. Cutie flies equally well in a wind and will roll out on the top of a stall if improperly launched.

The fuselage sides are cut from medium hard 1/16" sheet balsa: be careful to maintain the correct nose angle and lower wing cut -out.

Cement bulkheads F-l and F-5 in position on one side, and when dry cement on the other side. Draw

the fuselage ends together and cement. Add the remaining formers to the back and attach the 1/16"x3/32" hard balsa stringers. The cockpit between F-4 and F-5 is filled in with soft 1/8"xl/4" balsa: sand smooth and then cut out.

Attach the landing gear to the 1/8" plywood bulkhead and cement in place.

Carve to shape and add the soft balsa bottom nose block which runs from the lower wing cut-out to the tip of the nose. Cover the bottom with medium 1/1 6" sheet balsa running the grain across the fuse1age.

The balsa block behind F-l is made in two pieces which are slanted 45 degrees to allow the fuselage top to slide off without binding. Cement F-2 to the back of F-I; F-3 is part of the fuse lage top. The top is made from 1/16" hard sheet balsa which is cut to fit between F-3 and F-4.

When a good fit is had, cement F-3 and F - 4 to the 1/ 16" sheet balsa bottom. Add F-4a and then the 1/ 16" O.D. aluminum tubes and finally the 1/16"x3/ 32" stringers.

Build the elevator in the usual manner and cement it on the fuselage. Next add the rudder and fill in blocks on each side of it.

Wings offer no problem as they are conventional in construction.
The wing strut fittings on the bottom of the top wing are cut from 1/ 16" O.D. aluminum tubing and are bound in place with thread and well coated with cement. Add a piece of 1/16"x1/8" balsa on each side of these ribs after the tubing is in place.

The lower wing strut socket is a piece of plastic soda straw, large enough to al1ow the strut freedom to slip out in a rough landing which can happen.

Bend the wing struts to shape.assemble the model and check the rig of the top wing for incidence angle at this time. If correct. add the 1/ 32"x1/8" fairings to the struts by wrapping doped silk around them and the wire.

Air wheels were used on our model. Since one ounce of lead had to be added to the nose, sponge wheels can be used to help trim the model and reduce the amount of lead required for balance.

Any fuel tank can be chosen, but our model employs the coiled length of tubing method and external starting tank. A 12" length of 3/32" bore tubing will give a 20 to 30 second run depending on the p rop used.

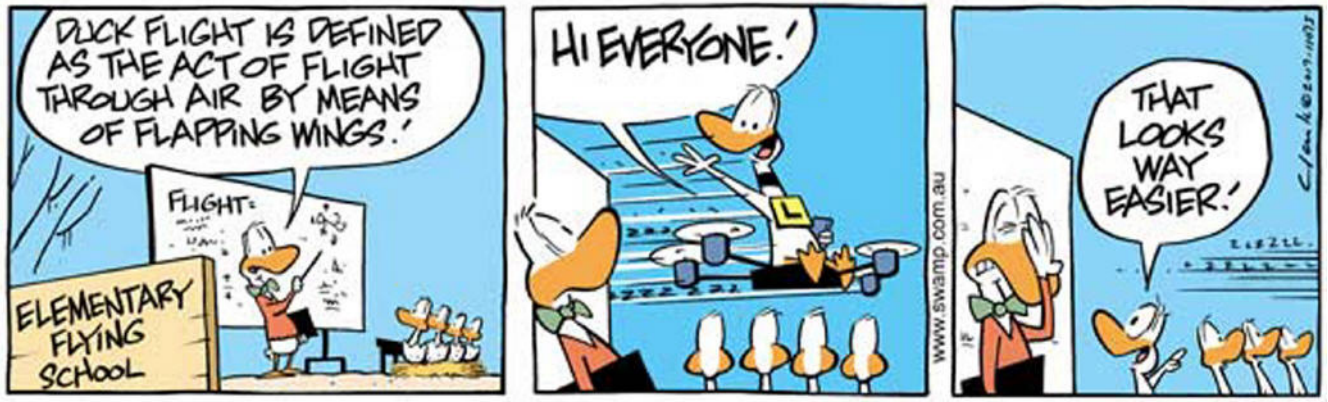
Cover the wings and elevator with GM Silkspan for greater strength. Rubber model Silkspan is doped on the fuselage sides and rudder to add strength to the wood and also to cover the grain.

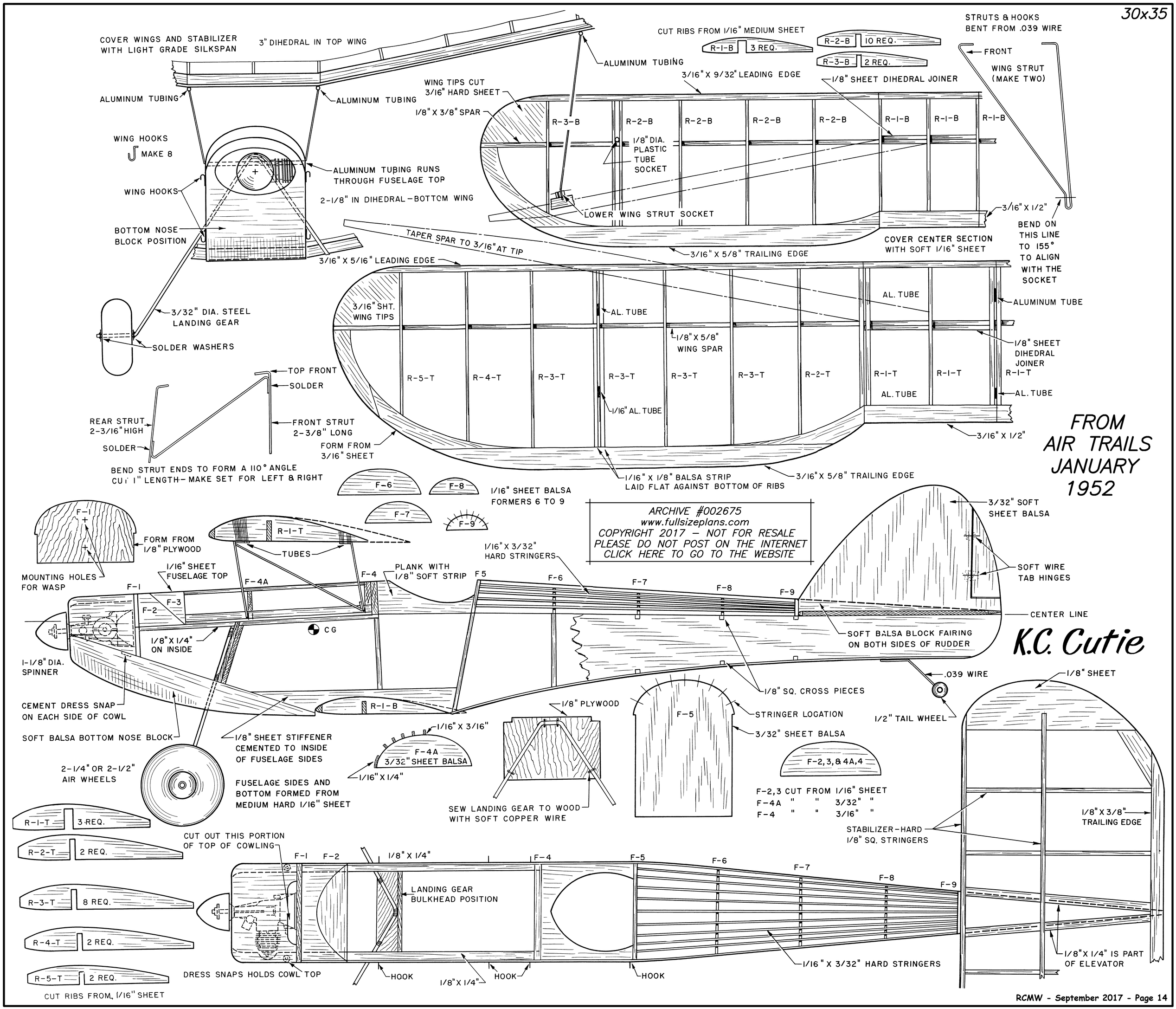
Apply two coats of clear dope and one of color. The weight of one coat of colored dope is negligible, is far betlcr looking than colored tissue and does not fade: The color scheme of Cutie is: yellow wings and tail, bright green fuselage, yellow dice and black struts. The dice are cut from yellow Trim Film with the dots and edges inked in with black India ink, The model is now fuel proofed all over unless a fuel proof finish was used from the beginning of the job.

The finished model should balance 1-1/4" behind the top wing spar as shown on plan. If it does not balance at this point, add weight to the nose or tail as required. Try gliding the model untll a fairly fast glide results with no tendency to mush or stall. The ship is very sensitive to rudder setting, so be careful.

On first power flight, try 6" dia or 4 inch pitch prop and give it about 1'8" right rudder.
To reduce thrust, the prop can be put on backwards and the model will just fly. but the torque will be about the same. This will indicate the degree of power turn without the danger of high-speed flight.

When model is finally trimmed, turn the prop around and watch Cutie climb.




COVER WINGS AND STABILIZER WITH LIGHT GRADE SILKSPAN
3" DIHEDRAL IN TOP WING
ALUMINUM TUBING
ALUMINUM TUBING
WING HOOKS
MAKE 8
WING HOOKS
ALUMINUM TUBING RUNS THROUGH FUSELAGE TOP
2-1/8" IN DIHEDRAL-BOTTOM WING
BOTTOM NOSE BLOCK POSITION
3/32" DIA. STEEL LANDING GEAR
SOLDER WASHERS
CUT RIBS FROM 1/16" MEDIUM SHEET
R-1-B 3 REQ.
R-2-B 10 REQ.
R-3-B 2 REQ.
STRUTS & HOOKS BENT FROM .039 WIRE
FRONT
WING STRUT (MAKE TWO)
ALUMINUM TUBING
3/16" X 9/32" LEADING EDGE
1/8" SHEET DIHEDRAL JOINER
WING TIPS CUT 3/16" HARD SHEET
1/8" X 3/8" SPAR
R-3-B
R-2-B
R-2-B
R-2-B
R-2-B
R-1-B
R-1-B
R-1-B
1/8" DIA. PLASTIC TUBE SOCKET
LOWER WING STRUT SOCKET
3/16" X 1/2"
BEND ON THIS LINE TO 155° TO ALIGN WITH THE SOCKET
TAPER SPAR TO 3/16" AT TIP
3/16" X 5/8" TRAILING EDGE
COVER CENTER SECTION WITH SOFT 1/16" SHEET
3/16" X 5/16" LEADING EDGE
AL. TUBE
ALUMINUM TUBE
3/16" SHT. WING TIPS
AL. TUBE
1/8" X 5/8" WING SPAR
1/8" SHEET DIHEDRAL JOINER
R-1-T
R-5-T
R-4-T
R-3-T
R-3-T
R-3-T
R-3-T
R-2-T
R-1-T
R-1-T
AL. TUBE
AL. TUBE
1/16" AL. TUBE
3/16" X 1/2"
TOP FRONT
SOLDER
REAR STRUT 2-3/16" HIGH
FRONT STRUT 2-3/8" LONG
SOLDER
FORM FROM 3/16" SHEET
BEND STRUT ENDS TO FORM A 110° ANGLE
CUT 1" LENGTH-MAKE SET FOR LEFT & RIGHT
1/16" X 1/8" BALSA STRIP LAID FLAT AGAINST BOTTOM OF RIBS
3/16" X 5/8" TRAILING EDGE
FROM AIR TRAILS JANUARY 1952
F-6
F-8
F-7
F-9
1/16" SHEET BALSA FORMERS 6 TO 9
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CLICK HERE TO GO TO THE WEBSITE
3/32" SOFT SHEET BALSA
F-1
FORM FROM 1/8" PLYWOOD
MOUNTING HOLES FOR WASP
R-1-T
TUBES
1/16" X 3/32" HARD STRINGERS
SOFT WIRE TAB HINGES
1/16" SHEET FUSELAGE TOP
F-4A
F-4
PLANK WITH 1/8" SOFT STRIP
F5
F-6
F-7
F-8
F-9
F-1
F-3
F-2
CENTER LINE
CG
1/8" X 1/4" ON INSIDE
SOFT BALSA BLOCK FAIRING ON BOTH SIDES OF RUDDER
K.C. Cutie
1-1/8" DIA. SPINNER
.039 WIRE
1/8" SHEET
1/8" SQ. CROSS PIECES
CEMENT DRESS SNAP ON EACH SIDE OF COWL
R-1-B
1/8" PLYWOOD
F-5
STRINGER LOCATION
1/2" TAIL WHEEL
SOFT BALSA BOTTOM NOSE BLOCK
1/8" SHEET STIFFENER CEMENTED TO INSIDE OF FUSELAGE SIDES
1/16" X 3/16"
F-4A 3/32" SHEET BALSA
1/16" X 1/4"
3/32" SHEET BALSA
F-2,3,& 4A,4
2-1/4" OR 2-1/2" AIR WHEELS
FUSELAGE SIDES AND BOTTOM FORMED FROM MEDIUM HARD 1/16" SHEET
SEW LANDING GEAR TO WOOD WITH SOFT COPPER WIRE
F-2,3 CUT FROM 1/16" SHEET
F-4A " " 3/32" "
F-4 " " 3/16" "
STABILIZER-HARD 1/8" SQ. STRINGERS
1/8" X 3/8" TRAILING EDGE
R-1-T 3 REQ.
R-2-T 2 REQ.
CUT OUT THIS PORTION OF TOP OF COWLING
F-1
F-2
1/8" X 1/4"
F-4
F-5
F-6
F-7
F-8
F-9
R-3-T 8 REQ.
LANDING GEAR BULKHEAD POSITION
R-4-T 2 REQ.
1/16" X 3/32" HARD STRINGERS
1/8" X 1/4" IS PART OF ELEVATOR
R-5-T 2 REQ.
DRESS SNAPS HOLDS COWL TOP
HOOK
1/8" X 1/4"
HOOK
HOOK
CUT RIBS FROM, 1/16" SHEET

The Challenger

From the July 1950 issue of Air Trails magazine comes this winner by Bob Bienenstein. His model won the Stout indoor Trophy in 1947 and the Mulvihill trophy twice.

THIS stick job was designed with one thought in mind: the need for a consistent contest model that would fly in all kinds of weather and hold up with the best of them. The ship has been thoroughly proven and has lived up to all the requirements. Its contest record is proof enough of its ability to snare top hardware at any meet. Most impressive wins were the taking of first place for three consecutive years at the Nationals, plus capturing the famed Mulvihill trophy twice, which is a record in itself.

There have been two changes made since the original model took to the air. A sheet leading edge on the wing was omitted since it proved unnecessary. We also incorporated a tail pop-up which was found to be more effective. It is also simple and fool-proof. (We can thank Dick Korda for that one.)

With a little care and patience, you too can have a hardware collection. Let's go, and don't spare the glue.

Lay the drawing on a smooth soft board. Clear white pine, preferably. Make certain the board is perfectly straight, as this will assure you of warp-free surfaces.

The fuselage longerons should be straight-grained and medium hard 5/32" square balsa. Place them in their exact position on the drawing. Next, add the cross braces, placing the uprights in position first. When the first side has been completed, build the next side directly on top of the first. This will assure you of similar straight sides. When dry, separate with a razor.

Now join the sides together, starting at the center and working toward the front and back. Then fill in the nose and tail sections. The nose block face of the fuselage is covered with 1/ 32" plywood to prevent it from splitting, as it takes quite a beating. The fuselage is now ready for sanding and covering.

The best way to start the wing is to make a metal template of the wing sections, using this template to cut out the ribs. These are made from medium 1/20" quarter grain sheet balsa. A good selection of wood will give you a strong and light wing.

Next, taper the trailing edge and notch for ribs. Pin this to the plans. The spar should be straight and hard 1/8"x1/2". Mark off the rib location and then slide the ribs over the spar to their proper places. Put glue on all the notches and push the ribs down, making everything line up. Then add the tips, which are cut from 5/32" sheet. Glue on the leading edge. After this is done, glue all the ribs to the spar. When the wing is thoroughly dry remove it from the plans. Put the correct dihedral in, starting with the tips first. When this is complete, put in all the gussets .

The stabilizer is constructed the same as the wing. Make the rudder outline first. Then place the ribs and spar in proper location. After cutting the propeller block to proper outline, carve in undercamber; get a smooth job. Finish this completely before working on the front side of the blade. When the prop blade is finished, sand and give two coats of clear dope.

The spinner is made from layers of 1/4" hard sheet balsa glued to the prop center. It is best to clamp this until dry. Then carve to shape. When the prop and spinner are complete, cover the hinge and spinner with gauze. Give this several coats of glue. The whole prop is then covered with tissue. This will greatly increase the life of the prop, and give it a satin smooth finish.

The tail pop-up dethermalizer is quite simple. Start by gluing the holddown wire on the leading edge of the stab. This is one piece. By changing the angle of the wire, you will also change the angle at which the stab will pop up.

There is no limit-string necessary with this arrangement. To align the stab, glue a piece of 1/8" square balsa under each side of the stab. This will prevent it from shifting and losing adjustments.

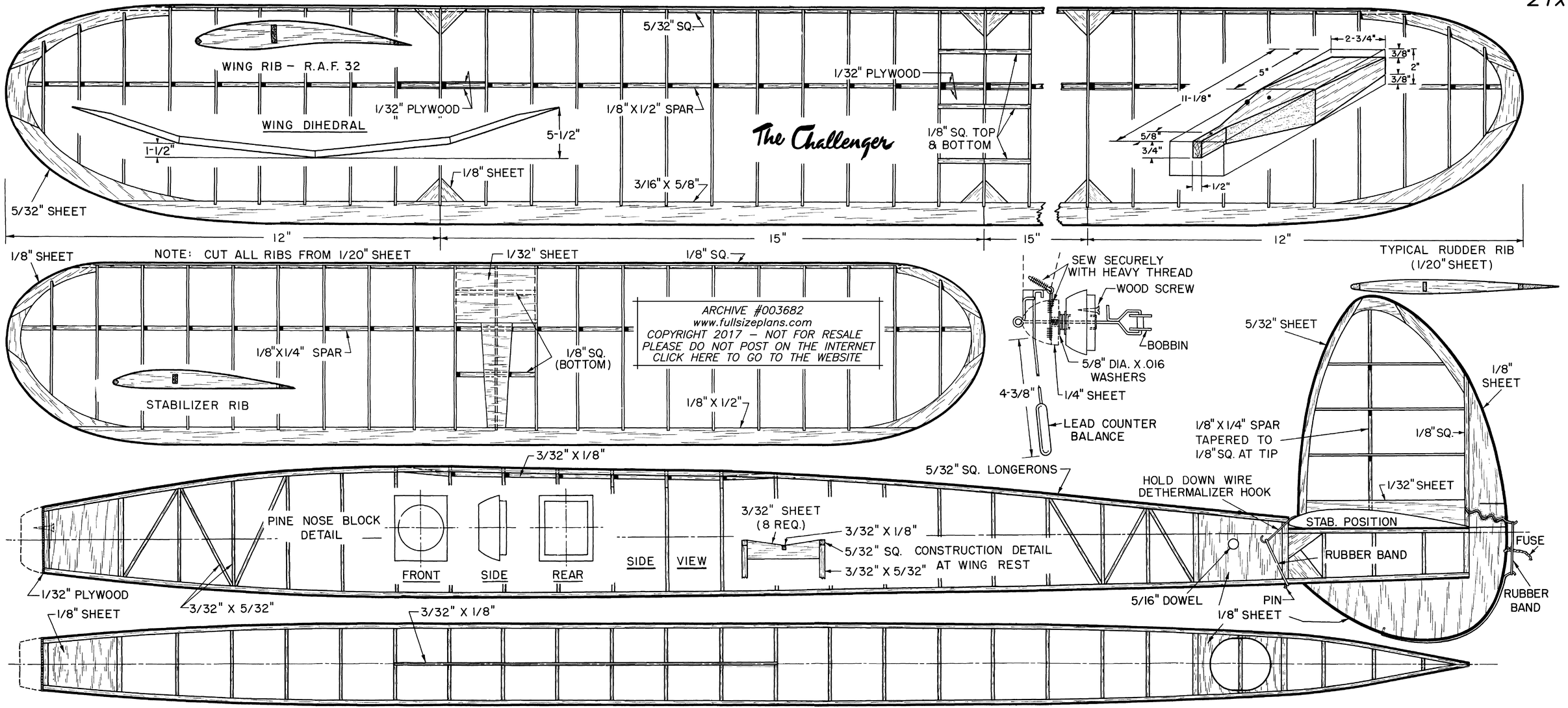
Power is supplied by 16 strands of 1/4" T-56 50" long. This may vary with conditions, Ship is adjusted to turn to right. Power for climb and glide should be about the same, approximately a 300-foot circle. When the correct thrust adjustments are found, you can carve away or add to the nose block.

Calculate all your adjustments carefully, and with thought, for your ship will fly no better than it has been adjusted.

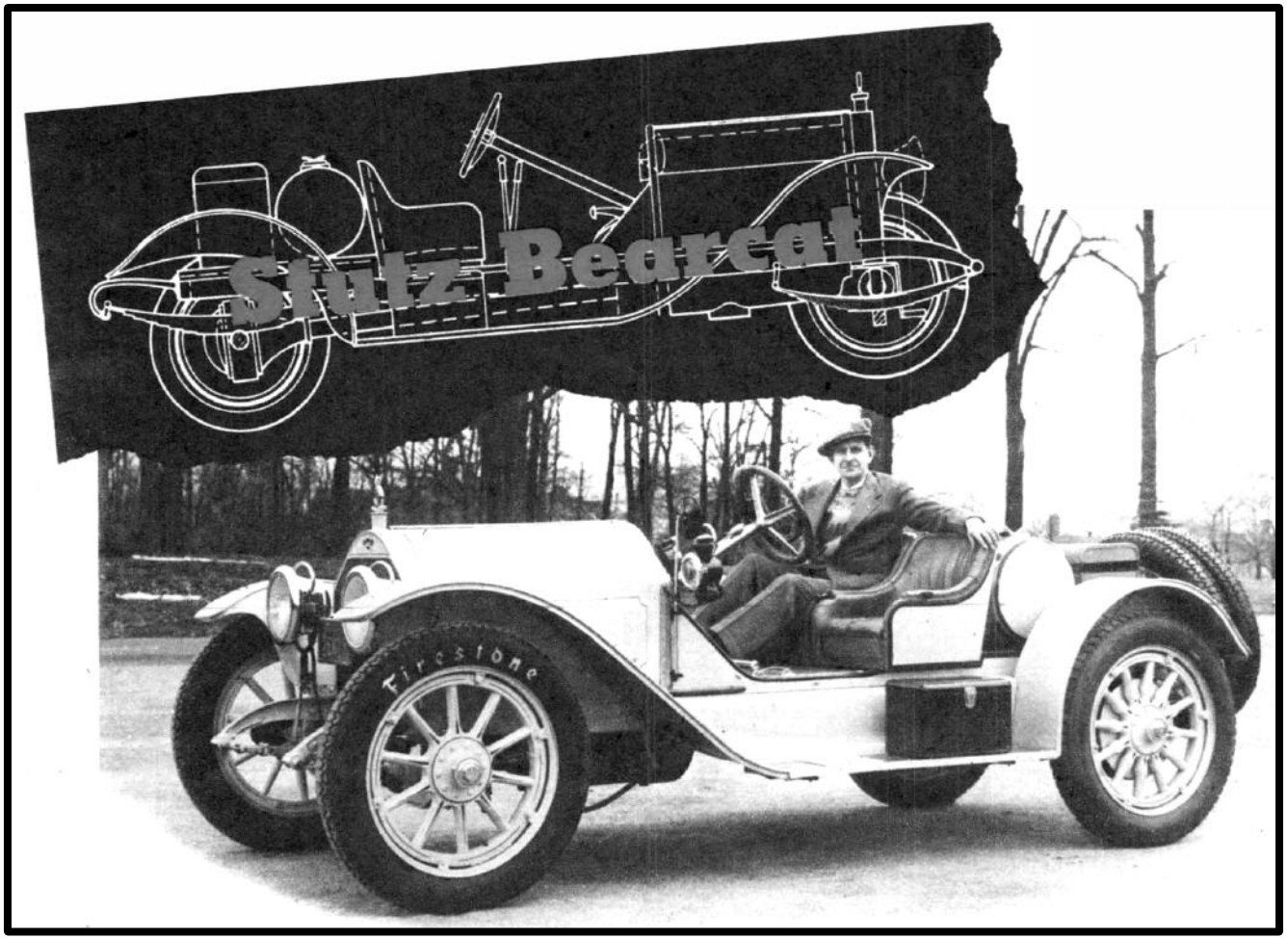
Wind her up and let 'er go. Lots of luck.

P.S. Don't forget to light the fuse.

21x45



PLAN FROM DAVE SHIPTON PUBLISHED IN JULY 1950 AIR TRAILS DESIGN BY BOB BIENENSTEIN



While not exactly a model airplane, this construction article by Alan Walters was in the same July 1950 Air Trails issue as Bob Bienenstien's CHALLENGER design reprinted in this issue of RCMW and it looked like it would be a nice project to work on while the glue or dope is drying on a flying model.

THE Stutz Bearcat, "the car that made good in aday," achieved its fame as both a fast two-seater for the open road and as a race car with no special attachments, motor work or souping-up.

Perhaps the best description of the famous Bearcat can be gleaned from a 1911 ad of the Ideal Motor Car Company of Indianapolis, manufacturers of the Stutz line. Headlined "500 .Miles in 422 Minutes", the full-page advertisement from the July 12 issue of "The Horseless Age" details "the amazing record of a model car:

"A signal triumph for an American designer was the wonderful showing made by the first Stutz car ever built and entered in the 500-mile International Sweepstakes on the Indianapolis Speedway May 30th, 1911.

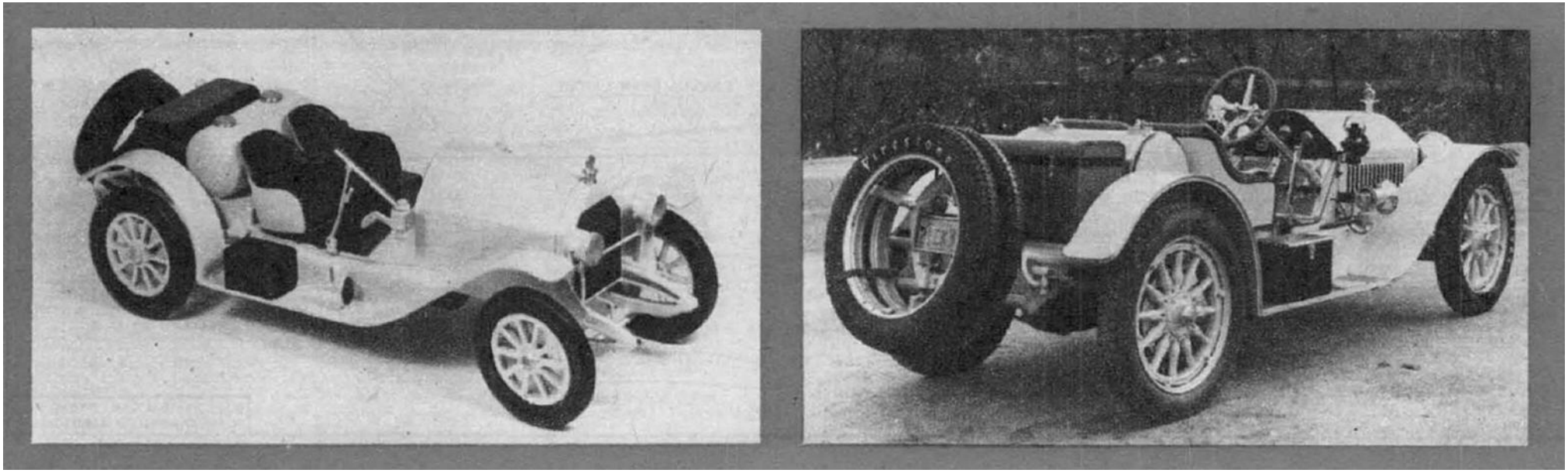
"The first Stutz car ever built, but by no means the first car ever built by Harry C. Stutz, was matched against the skill of the best engineers of two continents, many of whom have been working on a single design of car for years, and he definitely made good.

"The Stutz car went through the race without a mechanical adjustment, without a relief driver, and averaged 68-1/4 miles per hour for the entire distance of 500 miles, including 13 stops for tires and fuel, surely a marvelous performance.

"500 MILES IN 442 MINUTES without the least sign of trouble, and after the race, when the car was taken down, part by part, to find out if any weakness whatever had developed in the mechanical construction, we found absolutely nothing we could do to make the car any better.

"Surely this was the most grueling test ever given a model car. Mr. Stutz built the car from the ground up in five short weeks, entered it in the greatest race ever run in the history of motordom, and staked his reputation that it would make good. The result more than justified his judgment, and well maya buyer of a motor car repose confidence in the product of such a designer and engineer.

"The Stutz car entered in the 500-mile race was absolutely a stock car, and not a special racer. We are building duplicates of the car entered in this race, in every part of which we use the best material known to man for the work it is to



perform. Our claim is that it is not possible for anyone, no matter what price he asks for his car, to build a better motor car than the Stutz.

"A comparison of our specifications with those of other cars will convince the most skeptical that the time has come when an automobile buyer can purchase a car constructed throughout of the very finest material and workmanship at a moderate price.

"Duplicates of the car that went 500 miles in 442 minutes without a single mechanical adjustment can be bought for $6,000.

"We are making the Stutz car in three types: roadster, four-passenger and five-passenger. The finish and equipment of these bodies is the best that money and skilled workmanship can produce.

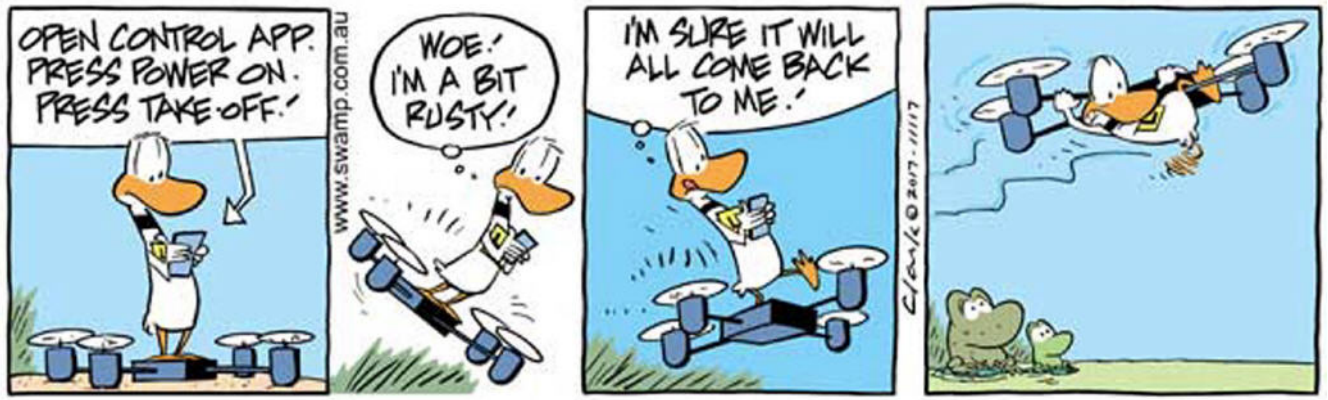
"We will have some excellent territory open for live dealers."

Floyd Clymer, the well-known West Coast automotive authority, says that "of all the sports cars built in the U. S., none was held in higher regard than the famous Stutz Bearcat."

For the authentic material and exact dimensions of our model Stutz roadster, we are indehted to A. J. "Tony" Koveleski and Carmen A. Castellano of Hudson Miniatures. Mr. Koveleski, who is active in many old-time auto associations, owns one of the few remaining Bearcats that are in good operating condition. His Stutz, which showed at three recent old-car meets, took as many first-prize blue ribbons. In the famous Glidden Tour last year Tony's beauty rolled away with a 1st prize silver cup.

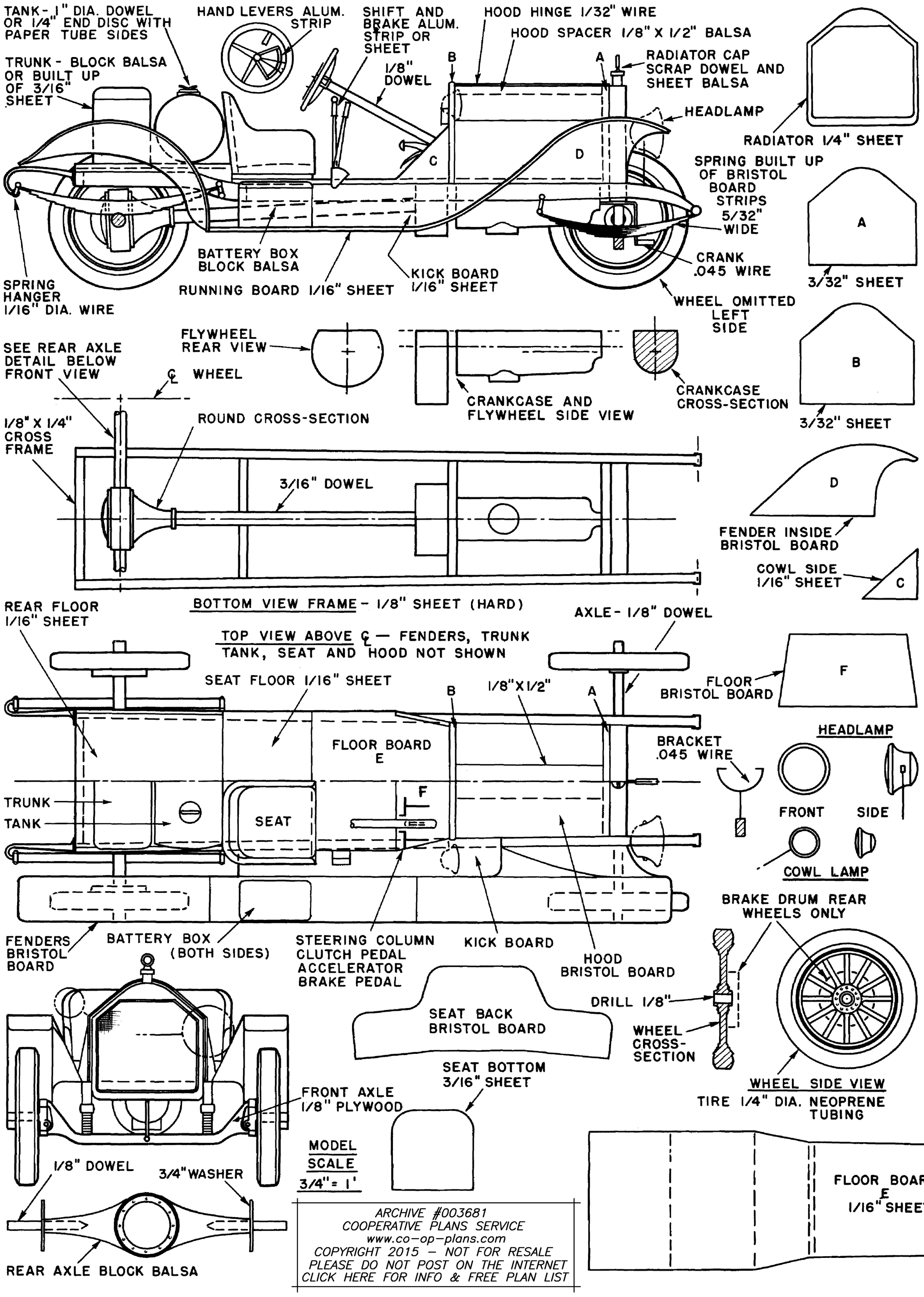
Construction plans are self-explanatory for the 3/4 inch to the foot model.

Additional details can be found on the photos.



PLAN FROM DAVE SHIPTON – JULY 1950 AIR TRAILS

16x21



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 October 1950 issue of ***Air Trails.*** We have a complete high resolution digital collection of Air Trails beginning with the first issue of that continuing through the several name changes over the years. We also have all of the Air Trails Annuals. So if you are looking for a particular issue, article or plan you might want to take a look at the available digital collections listed starting on page 31 of this issue of RCMW.

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PONDHOPPER

Here's another of Ken Willard's series of amphibious models, this from the February 1976 issue of RC Modeler magazine

The Pond hopper is an amphibious sport plane specifically designed in response to the many requests for such an R/C model that could use engines in the .35 to .40 range. An earlier design, the Puddlejumper, was intended for .09 to . 15 engines, and the Wavemaster is a six foot job for .60 power.

The Pondhopper fills the "power gap" for all you enthusiasts who have a .35 or .40 and want to have the choice of runway or water take-offs.

It 's not really a new design. Those of you who built the Puddlejumper will immediately spot the basic design similarity. The reason is simple; the Puddlejumper had excellent water handling characteristics, as well as good sport flying ability.

Also , the rectangular cross-section of the fuselage, makes it easy and fast to build. And, by using a slightly modified Goldberg Falcon 56 wing kit, the wing construction is very easy to accomplish.

In contrast to this simplicity, the Wavemaster, if you were to build it from balsa, has sweeping double curvature surfaces that would be very time consuming, but which, in a plastic kit, are easy to mold.

So, for the scratch-builder, straight lines and single curvature surfaces are the way to go. You'll find that the Pondhopper goes together like any old box fuselage, yet the finished product has very pleasing lines.

And the performance with a K & B .40 is WOW! It takes off easily from the water at half throttle, and almost jumps off if you give it full power. In the air, it will do all the recognized maneuvers (well, maybe not a Lumcavek - or whatever you call it), although I don't recommend it for pattern contests, since it is not all that precise. For pure sport flying, either at the lake or the club field, it's pretty hard to beat.

Construction is quite conventional. There are just one or two details that might need some explanation.

Fuselage (or Hull, if you prefer):

Straight box construction, with the top rounded off at the comers as shown. This gives the impression of double curved surfaces aft of the wing - a pleasing effect. Keep the comers on the bottom sharp; they act as spray rails.

Wing:

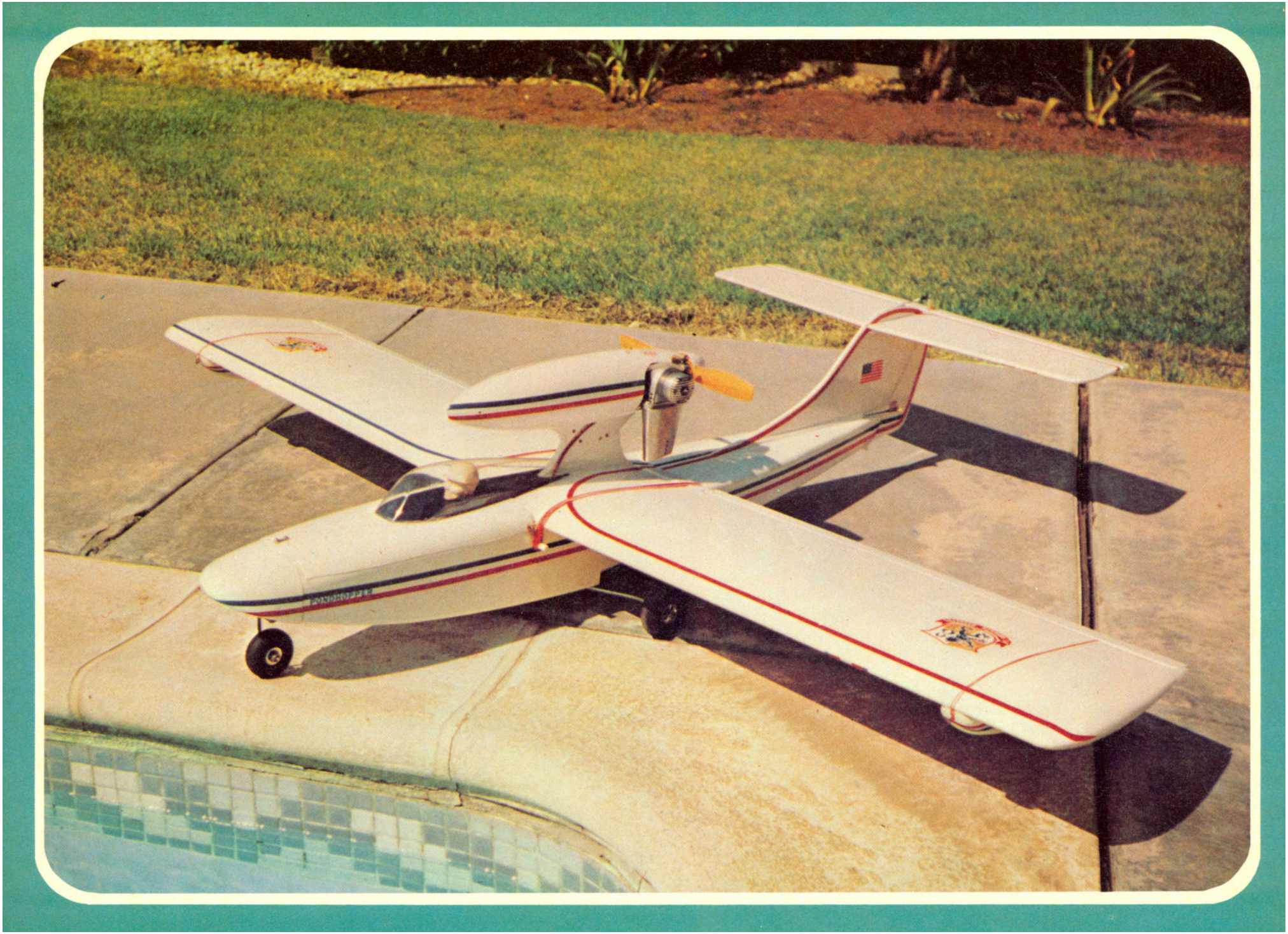
The wing is a Goldberg Falcon 56 wing, with the dihedral reduced. Actually , with ailerons, no dihedral is necessary, but with one half inch at each tip, it keeps the wing from having that "droopy" look. If you get one of the kits, you can discard the joiners; make new ones from 1/8" plywood, with the proper dihedral angle as shown on the plans.

Note that the center ribs are separated by 3/8" so the bottom of the engine pylon can be inserted and epoxied in place. Also, for added strength, 1 mixed up some micro-balloons with epoxy resin and filled in the rest of the gap after inserting the pylon.

Then, at the leading edge, carve some scrap balsa to fair the wing into the line of the aft end of the hatch. And at the trailing edge, add a piece of 1/16" ply, about one inch wide, to take the strain of the wing rubber bands. For those modelers who think wing dowels and rubber bands are old fashioned, wing bolts can be used, but they're more work, and take more time, and won't keep the hull sealed any better, so I didn't use them.

Tail Surfaces:

The fin, rudder, and elevator are all cut from medium grade 1/4" balsa, with the rudder and elevator shaped to a taper. You can use one inch trailing edge stock for the elevator. In fact, if you don't feel like building up the stab, it can be cut from 1/4" balsa sheet. It will be a bit heavier, requiring a little more balance weight in the nose, but if you have a K & B .40 for power, the added weight won't even be noticed.



Ailerons:

These are made from one inch trailing edge stock, and installed by trimming the regular trailing edge of the wing to approximately 5/16" wide, rounding, and attaching the ailerons with three hinges on each one.

Forward Hatch:

Carve from a medium soft balsa block.

Nose Block:

Carve from a medium hard balsa block. It will have to be partially hollowed out to accommodate the Goldberg nose gear fixtures and steering arm. Attach it to the hull with tape.

Engine Pylon:

Because of the limitation of my shop equipment, I cut out three 1/8" plywood pylons to the shape shown on the plans, then epoxied them together to get the 3/8" thickness shown. Before you make your pylon, if you're not using a K & B .40, make the necessary changes to fit the mounting holes of your engine.

And don't worry about the fact that, with the pylon center mounted, the engine thrust line will actually be 3/16" off center. You'll never notice it either on the water or in the air.

The tank cradle consists of two coffee stir sticks epoxied to the sides of the pylon so they extend back as shown, then fill in the gap between them with scrap balsa. Shape it to fit the bottom of the tank, and hold the tank in place with rubber bands. Incidentally, the ten ounce tank shown will give you about twenty minutes of flight time at cruising speed.

Tank And Engine Pod:

Construction of this unit is optional. On the prototype, I used a couple of Wavemaster half shells and cut them to fit. But, unless you want to buy the whole kit, they are not available separately, since they are molded on the same sheets with other parts, so you'll have to go a different route.

There are several. One of the easiest is to carve a block of styrofoam to shape, then cover it with a couple of layers of 6 ounce fiberglass which is solidified with epoxy resin. When dry, cut it down the middle, pour dope thinner or acetone on the foam and dissolve it, leaving the fiberglass shell.

This is then cut out as required to fit your engine and muffler combination and attached to the pylon with wood screws. A balsa block at the forward end, shaped to fit the inside of the shell, can be epoxied in place and the shell screwed to the block to hold the two sides together.

Other possible methods are to use a round cardboard box with the ends cut off and shaped balsa added, then the whole unit epoxied together. Or you can carve a balsa block to shape and hollow it out. One thing to avoid - metal, such as a can. It might be easy to shape, but when screwed to the pylon, if it should work loose, the metal-to-metal contact of the can to the screws could, under vibration, affect the radio.

Wing Tip Floats:

These are carved from balsa blocks. They are held in place on the wing with a rubber band stretched over the top of the wing and looped over the T-pin in the front and the wood screw at the back. Note the notch at the back to keep the rubber band from sliding off. Also, the rubber band is inserted through the slot between the trailing edge of the wing and the leading edge of the aileron.

If you have a close fit, make a slight indentation on the trailing edge of the wing. The floats are attached between the second and third ribs in from the tip (counting the tip rib as one).

Landing Gear:

The main gear is a length of 5/32" wire, bent to the shape shown, and attached to the bottom of the hull with three" J" bolts. The nose gear is a standard Goldberg unit, cut to the proper length. Since it is short, there is quite a torsion load on the axle, so be sure to file a flat spot on the strut so the retaining screw won't slip out of line in rough landings.

For water flying, the main gear is simply disconnected and the holes for the J bolts covered over with waterproof tape or MonoKote Trim Strip. The nose gear housing is left in place and the strut removed together with the steering arm. Also disconnect the clevis on the control rod or remove the entire rod. Then plug the hole with tape or Trim Strip.

Radio Installation:

Since it is difficult to put the servos in waterproof housings, they should be up and off the bottom in case water does get in the hull. I used the simple method for the elevator and rudder servos - taped them to the sides of the hull with servo mounting tape. Now some flyers don't trust that system, but I've never had a failure.

If you prefer, servo rails can be epoxied in place, but the servos must be separated so the NyRods going back to the control surfaces will

clear the aileron and motor servos which are mounted in the wing.

The aileron servo is mounted to the wing on rails which are epoxied to the bottom of the wing. A cut-out in the wing sheeting between the leading edge and the forward spar permits the servo to be partially buried in the wing. Another cut-out on the other side of the center gap accommodates the motor servo, which is inserted at an angle so the end of the flexible shaft to the motor control horn comes through the wing and is parallel to the top of the servo. The servo is held in place with servo tape on the side holding it to the side of the center rib.

The receiver and battery pack are wrapped in foam, and then put in plastic bags with the tops twisted around the lead-out wires and taped, or rubber banded, tightly closed to keep out water.

There's plenty of room in the hull to put them wherever the balance dictates. With the light stab, my plane balanced out with the receiver and battery pack both in the compartment just ahead of the wing .

Note how the NyRods are routed from the servos back to the tail. The elevator NyRod serves as a leading edge for the fin, and the rudder NyRod goes alongside the fin back to the rudder. To hold the NyRods in place, I used Zap.

Waterproofing:

Every exposed piece of wood must be waterproofed. If you finish your model with Hobbypoxy or one of the resin finishes, that takes care of it. I finished the main surfaces of my model by covering them with MonoKote, overlapping the seams at least 1/4" to make a good seal. Then, where MonoKote wasn't practical, or easy to use, such as on the tip floats, I painted the surfaces with Hobbypoxy.

PONDHOPPER

Designed By: Ken Willard

TYPE AIRCRAFT
Amphibian, General Sport
WINGSPAN
56 Inches
WING CHORD
10¼ Inches
TOTAL WING AREA
570 Square Inches
WING LOCATION
Shoulder Wing
AIRFOIL
Semi-Symmetrical
WING PLANFORM
Constant Chord
DIHEDRAL, Each Tip
½ Inch
O.A. FUSELAGE LENGTH
44¾ Inches
RADIO COMPARTMENT AREA
(L) 10½'' X (W) 5'' X (H) 3''
STABILIZER SPAN
24 Inches
STABILIZER CHORD (incl. elev.)
6 Inches (Avg.)
STABILIZER AREA
144 Square Inches
STAB AIRFOIL SECTION
Flat
STABILIZER LOCATION
T-Tail
VERTICAL FIN HEIGHT
5¾ Inches
VERTICAL FIN WIDTH (incl. rudder)
8 Inches (Avg.)
REC. ENGINE SIZE
.35-.40 cu. in.
FUEL TANK SIZE
10 ounce
LANDING GEAR
Tricycle or Water
REC. NO. OF CHANNELS
Four
CONTROL FUNCTIONS
Rudder, Elevator, Ailerons, Throttle
BASIC MATERIALS USED IN CONSTRUCTION

Fuselage	Balsa and Ply
Wing	Balsa and Ply
Empennage	Balsa
Weight Ready-To-Fly	96 Ozs. (with wheels)
Wing Loading	24.3 Oz./Sq. Ft.

The inside of the hull forward of the bulkhead at the trailing edge of the wing, should also be waterproofed, since the wing, or the hatch, might be dislocated in some way during a rough landing, letting water inside.

Both the wing and the hatch sit on mounting tape which is attached to the top of the sides of the hull. In addition, cross pieces at the forward end of the hatch, the rear end of the hatch, and under the leading and trailing edges of the wing, are epoxied to the hull and have tape on the top. Thus, when you cinch down the wing with rubber bands, the tape seals the opening.

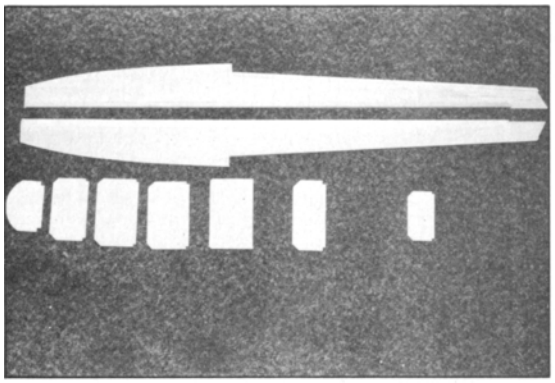
The same is true for the hatch. In the latter case, I used a metal fitting which can be turned through 90° to press down the forward end of the hatch, then epoxied a couple of T-pins in place on either side of the hatch just forward of the wing, and ran rubber bands over them and down around the wing dowels. It's very effective in keeping the compartments dry.

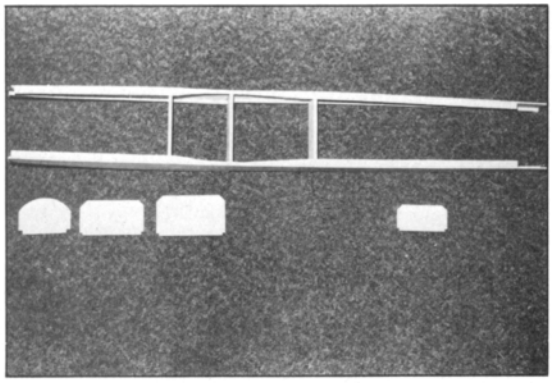
Canopy:

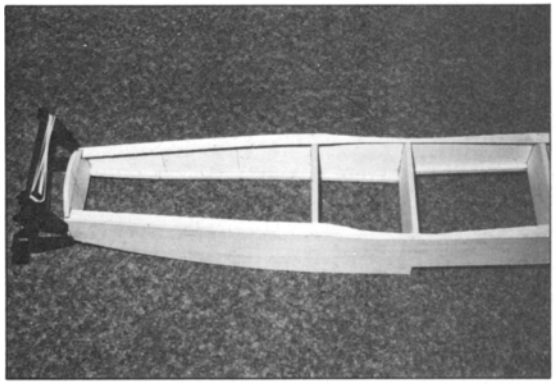
This is just for appearances, but it does add a touch of scale realism. It can be mounted permanently, or held in place using the thin servo mounting tape. The rear end is cut out to fit around the front edge of the engine pylon, and lifts off easily without having to be removed from the hatch.

Flying:

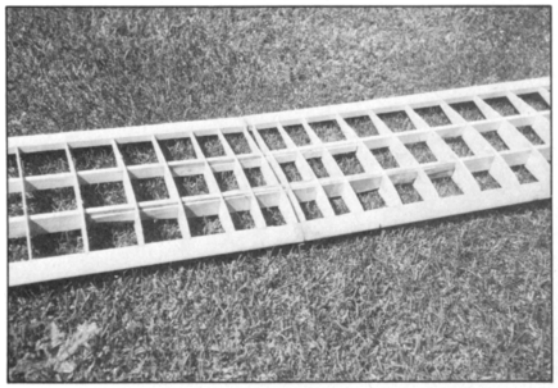
When flying as a land plane, the Pondhopper is just like any other sport plane. If all your surfaces are true, and the C.G. is properly located, it is a stable and easy flying plane with handling characteristics which you can set up to your own taste. Lots of control surface travel will give you all the violent maneuvers you want. Personally, I prefer moderate movement and gentle maneuvers. One thing I'd suggest: Leave the tip floats off so they don't get scuffed up if you drop a wing on landing.

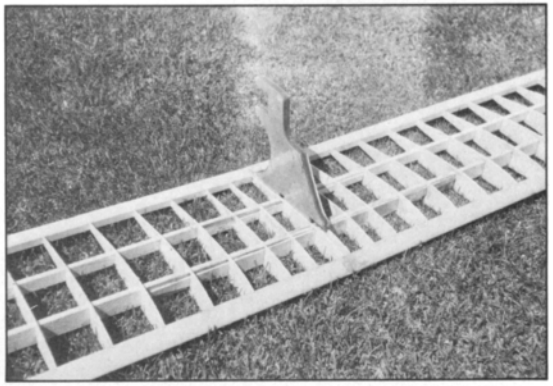


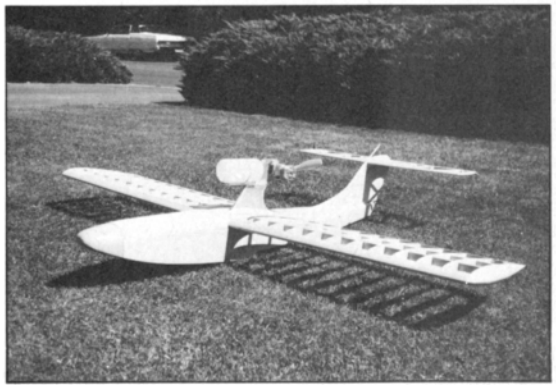


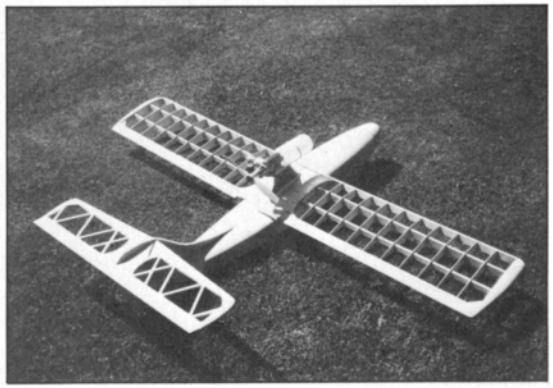


1ST ROW, LEFT: Basic fuselage sides marked for former positions. Formers cut out, ready for installation. RIGHT: Three main formers used to join fuselage sides together. 2ND ROW, LEFT: Clamps used to hold nose former in place. Check fuselage side curvature for proper alignment. 3RD ROW, LEFT: The modified Falcon 56 wing used on the Pondhopper. Note center section slot for tank and engine pylon. RIGHT: Engine mount pylon in place in center section slot. 4TH ROW, LEFT: The Pondhopper, ready for covering. RIGHT: Top three quarter view of the Pondhopper. Simple construction and top performance.









RCM's Chief Sunday Flier and a Pondhopper prototype. Equally at home on land or in the water, the performance of Ken Willard's new design leaves little to be desired. Any .35 to .40 engine suitable for power.

As a flying boat, the Pondhopper is about as well behaved as you can ask for. With the engine idling it taxies around and is easily steered by the rudder, since the bottom extends down into the water when the model is in displacement mode.

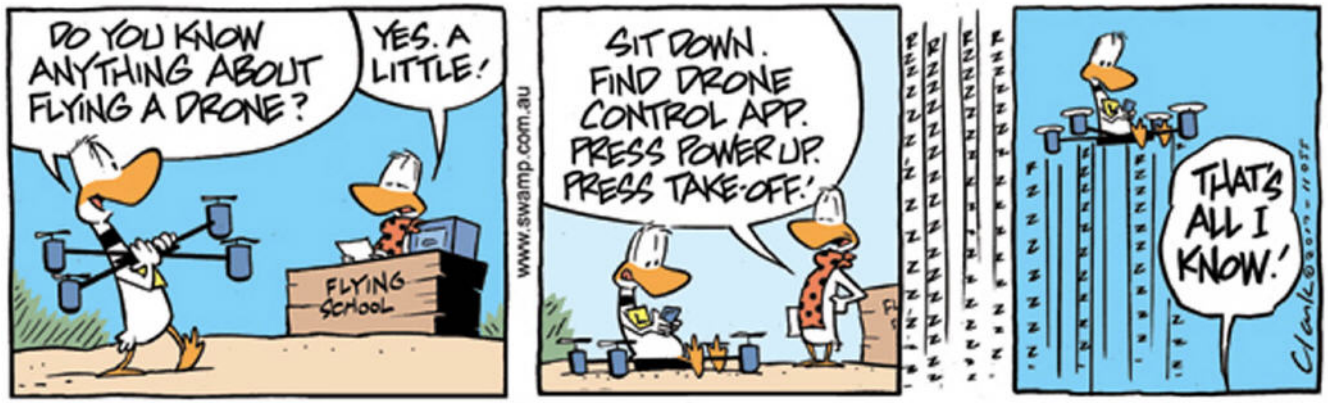
To take off, just add throttle; the model will pick up speed and come up on the step without having to rock it with elevator. If you go to full throttle it almost jumps up on the step. Keep the wings level with the ailerons - easy if you are headed right into the wind - and then, with just the slightest touch of elevator, it lifts off and heads up for whatever flight maneuvers turn you on.

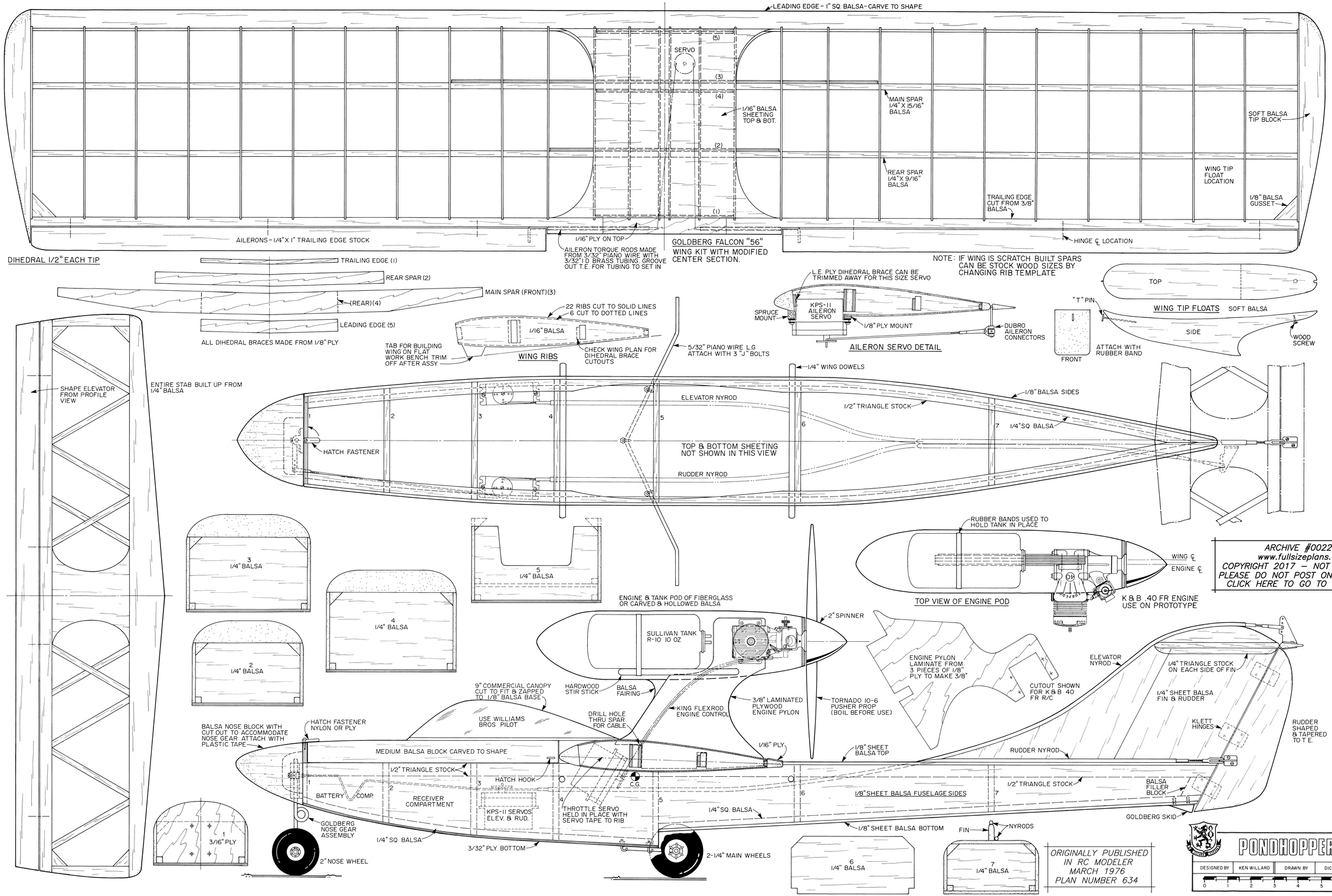
For landing, just throttle back (you'll need a pretty low idle, otherwise it won't come down) and hold the nose up in level attitude. The model will sink slowly, drop gently on the water, slow down and sink into displacement mode, and you're ready to taxi in, or make a touch-and-go if you prefer.

So far, I have put about fifteen flights on my Pondhopper off the water, and about ten off the runway. There have been no problems. After each flight off the water I have removed the wing and the hatch to check for water in the hull, and each time I've found about three drops. Where they get in I'll never know, but that isn't enough to worry about anyway. But I suggest you do the same thing. It's better to be dry, and safe, than have some water get in and possibly affect your servos.

If you have a .35 or a .40 engine and like the flexibility of flying off water or land, you'll like the Pondhopper.

Tell me about yours.





20x27

NC1479

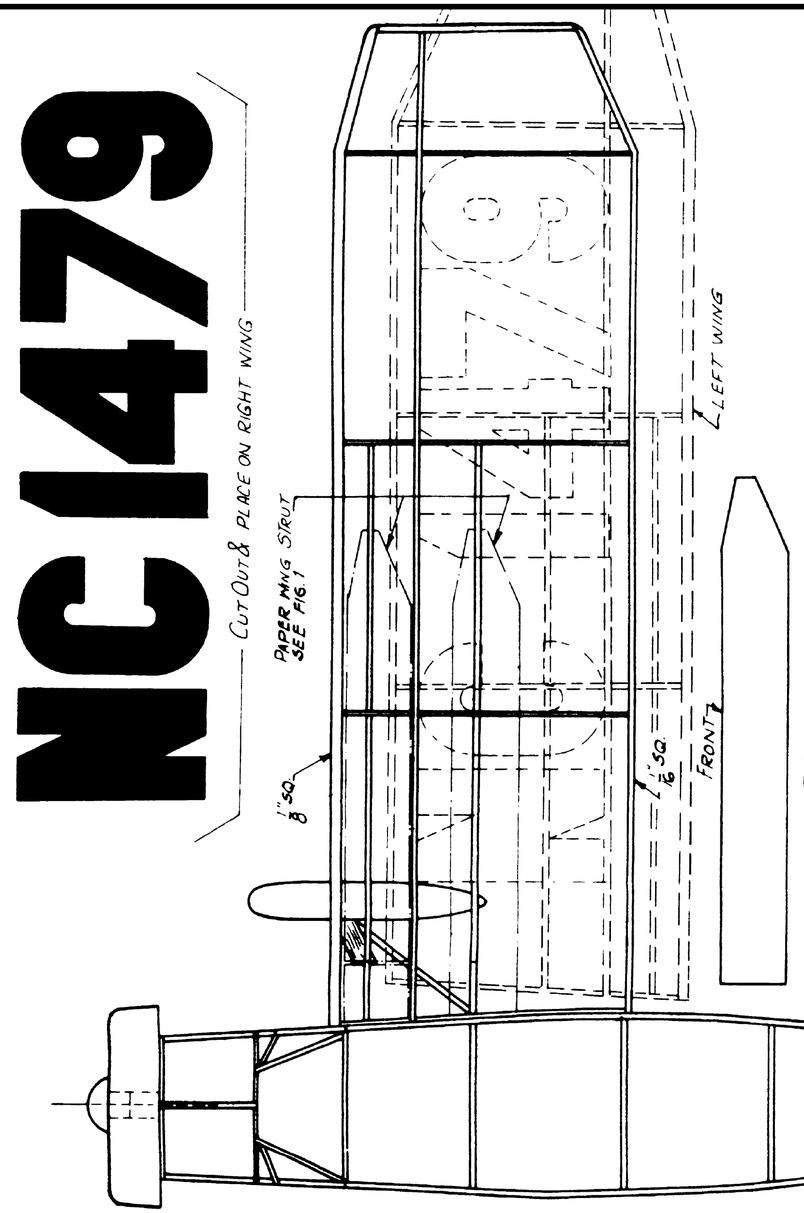
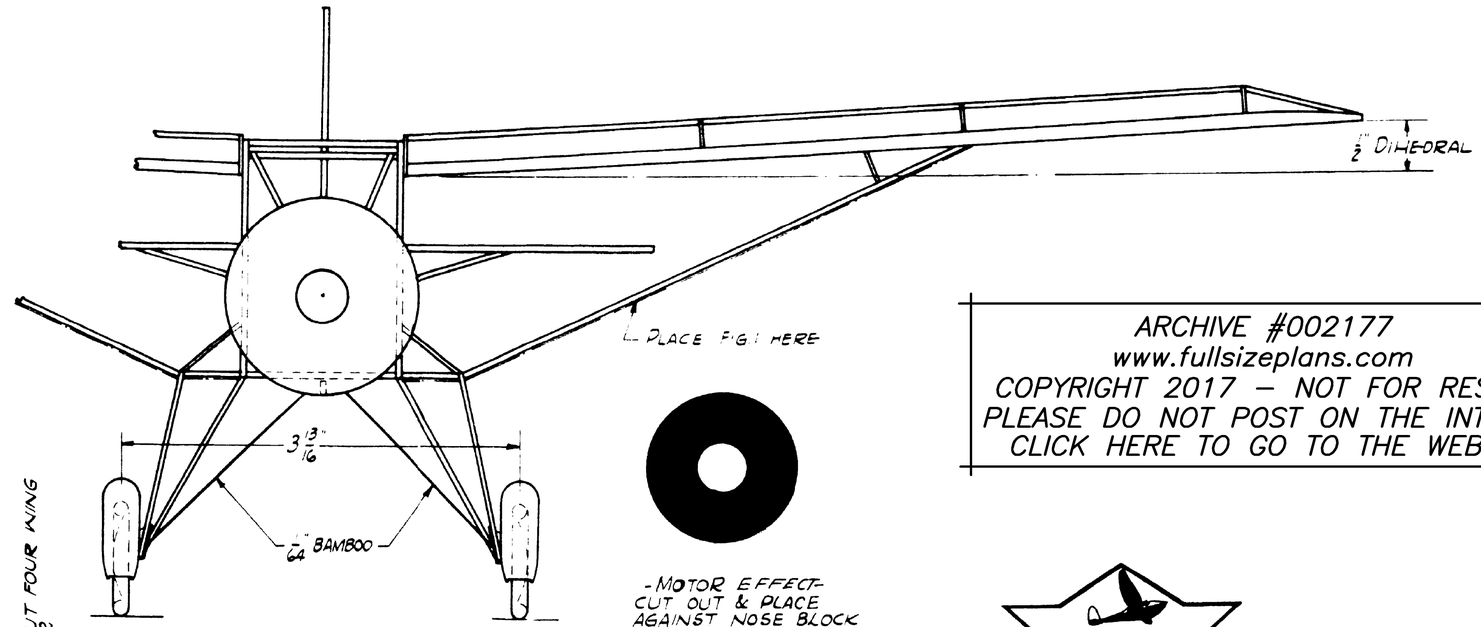
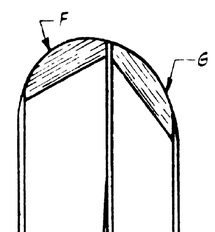


FIG. 1



-MOTOR EFFECT- CUT OUT & PLACE AGAINST NOSE BLOCK

SCIENTIFIC MODEL AIRPLANE CO.
"One of America's Greatest Supply Houses"
277 HALSEY STREET NEWARK, N. J.



BELLANCA "PACEMAKER"

Study carefully all details and observe all notations on plans before starting to work.

Fuselage: Build sides of body on drawing (on solid black lines) to insure similarity. Hold the longerons to proper positions with pins. When dry, glue in top and bottom formers. Block body to get correct alignment. Build in front cockpit and glue in tail hook. Cover body with green tissue using banana oil as adhesive. Carve out cowling and glue in place.

Wings & Tail Surfaces: Build tail surfaces on plans to insure correct shape. Build wings on flat surface. Glue all joints securely. Cover wings with yellow tissue, and rudder half yellow and half green.

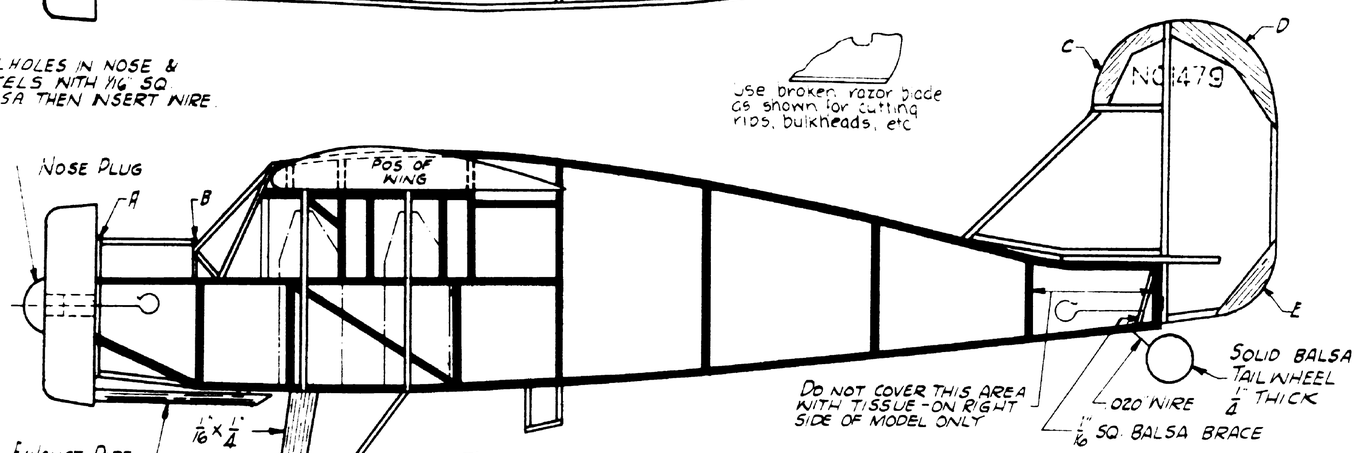
Propeller: The ready-made propeller supplied in kit is very efficient and durable. Sandpaper propeller smooth. Insert propeller shaft in nose plug and washers, then propeller, and bend to U shape. Apply a little glue and then pull back into propeller.

Assembly: Glue on tail surfaces. Put in wings as shown allowing proper dihedral angle (1/2") in each wing. Glue in wing struts. Make wheel pants as shown in plans. Glue on landing gear struts, wheels, and pants. Insert propeller and rubber.

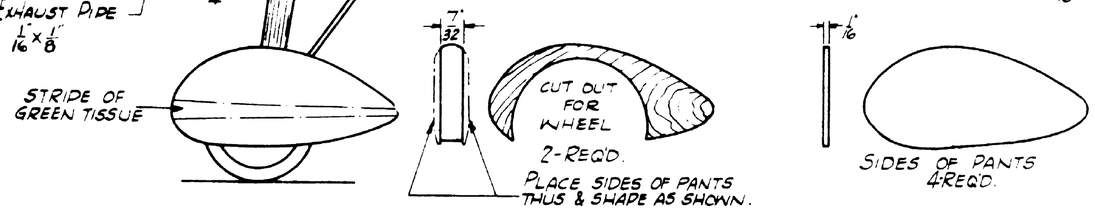
Flying: Tie ends of rubber strand together using 3 loops. Hold ship by center of wing-tips. In this position the model should balance as in a normal glide. If the ship does not balance, add weight to front or rear, where necessary. Before winding propeller 50 times for trial, glide ship from hand. If it nose dives warp tail upward by breathing on it. If it lands tail first warp tail down. By adjusting tail the plane will fly perfectly.

FILL HOLES IN NOSE & WHEELS WITH 1/16" SQ. BALSA THEN INSERT WIRE.

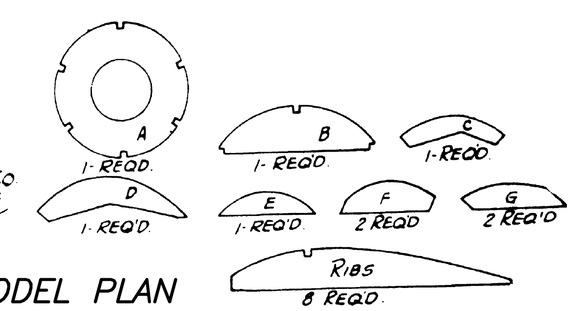
USE BROKEN RAZOR BLADE AS SHOWN FOR CUTTING RIBS, BULKHEADS, ETC



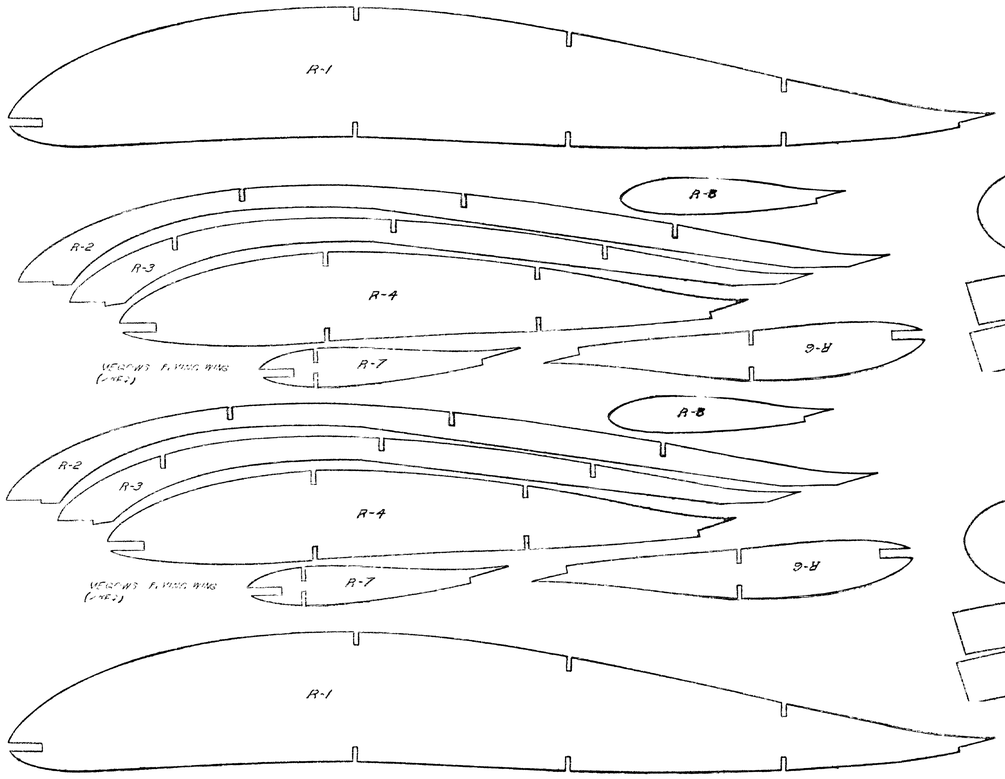
SPRAY OR PAINT ENTIRE MODEL (EXCEPT TAIL SURFACES) WITH WATER, THIS WILL SHRINK AND TIGHTEN TISSUE.

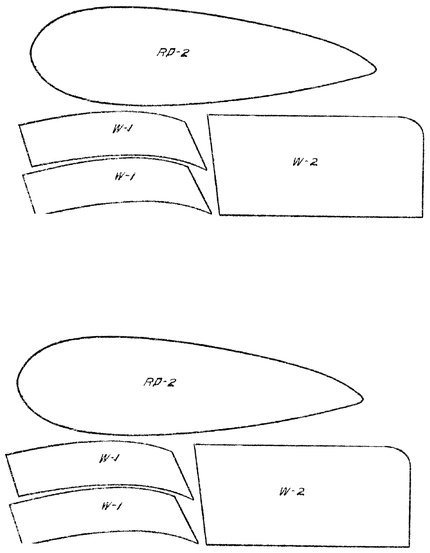


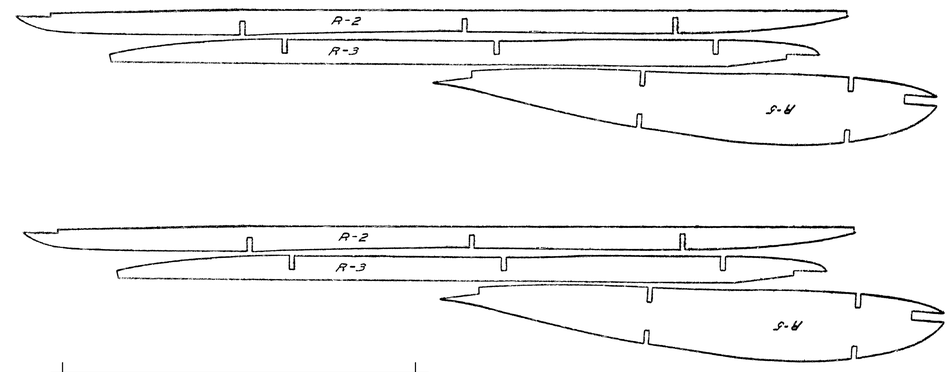
BELLANCA "PACEMAKER"
20" WINGSPAN



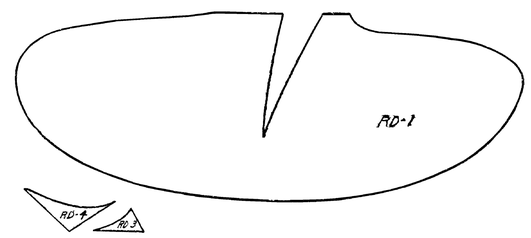
THIS IS REPORTED TO BE THE FIRST MODEL PLAN DESIGNED FOR SCIENTIFIC BY WALT MUSCIANO







ALL PRINTWOOD WAS 1/16 TO 3/32 THICK BALSA
SHEET THICKNESS WAS VARIABLE



X-109

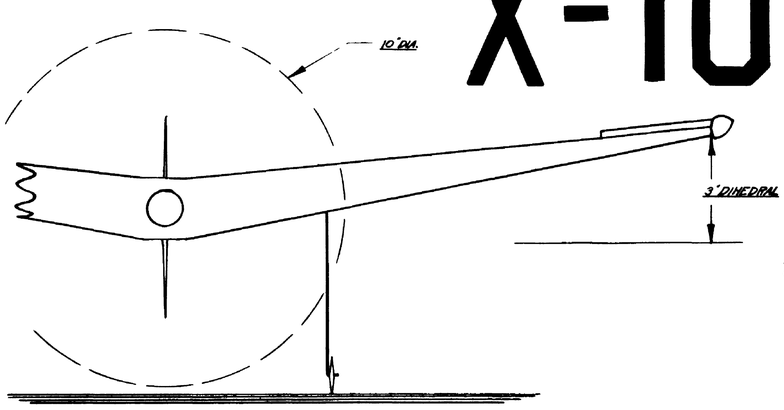
MEGOWS

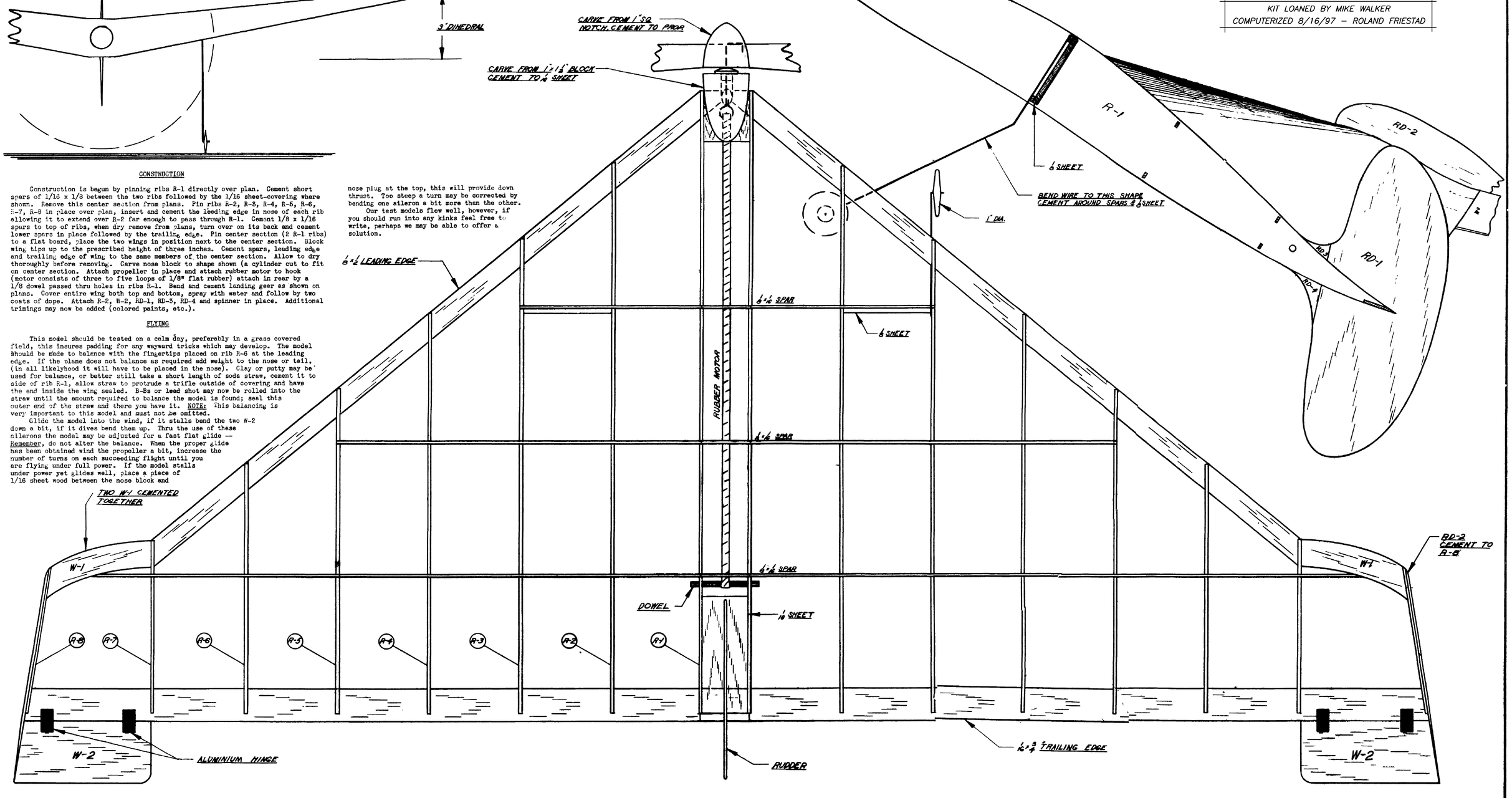
FLYING WING

WING SPAN — 31"
WING AREA — 255 SQ. IN.

DESIGNED & DRAWN BY WALT W. WILSON
KIT #SX-1

KIT LOANED BY MIKE WALKER
COMPUTERIZED 8/16/97 – ROLAND FRIESTAD





CONSTRUCTION

Construction is begun by pinning ribs R-1 directly over plan. Cement short spars of 1/16 x 1/8 between the two ribs followed by the 1/16 sheet-covering where shown. Remove this center section from plans. Pin ribs R-2, R-3, R-4, R-5, R-6, R-7, R-8 in place over plan, insert and cement the leading edge in nose of each rib allowing it to extend over R-2 far enough to pass through R-1. Cement 1/8 x 1/16 spars to top of ribs, when dry remove from plans, turn over on its back and cement lower spars in place followed by the trailing edge. Pin center section (2 R-1 ribs) to a flat board, place the two wings in position next to the center section. Block wing tips up to the prescribed height of three inches. Cement spars, leading edge and trailing edge of wing to the same members of the center section. Allow to dry thoroughly before removing. Carve nose block to shape shown (a cylinder cut to fit on center section. Attach propeller in place and attach rubber motor to hook (motor consists of three to five loops of 1/8" flat rubber) attach in rear by a 1/8 dowel passed thru holes in ribs R-1. Bend and cement landing gear as shown on plans. Cover entire wing both top and bottom, spray with water and follow by two coats of dope. Attach R-2, W-2, RD-1, RD-3, RD-4 and spinner in place. Additional trimings may now be added (colored paints, etc.).

FLYING

This model should be tested on a calm day, preferably in a grass covered field, this insures padding for any wayward tricks which may develop. The model should be made to balance with the fingertips placed on rib R-6 at the leading edge. If the plane does not balance as required add weight to the nose or tail, (in all likelyhood it will have to be placed in the nose). Clay or putty may be used for balance, or better still take a short length of soda straw, cement it to side of rib R-1, allow straw to protrude a trifle outside of covering and have the end inside the wing sealed. B-Bs or lead shot may now be rolled into the straw until the amount required to balance the model is found; seal this outer end of the straw and there you have it. NOTE: This balancing is very important to this model and must not be omitted.

Glide the model into the wind, if it stalls bend the two W-2 down a bit, if it dives bend them up. Thru the use of these ailerons the model may be adjusted for a fast flat glide — Remember, do not alter the balance. When the proper glide has been obtained wind the propeller a bit, increase the number of turns on each succeeding flight until you are flying under full power. If the model stalls under power yet glides well, place a piece of 1/16 sheet wood between the nose block and nose plug at the top, this will provide down thrust. Too steep a turn may be corrected by bending one aileron a bit more than the other.

Our test models flew well, however, if you should run into any kinks feel free to write, perhaps we may be able to offer a solution.

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.

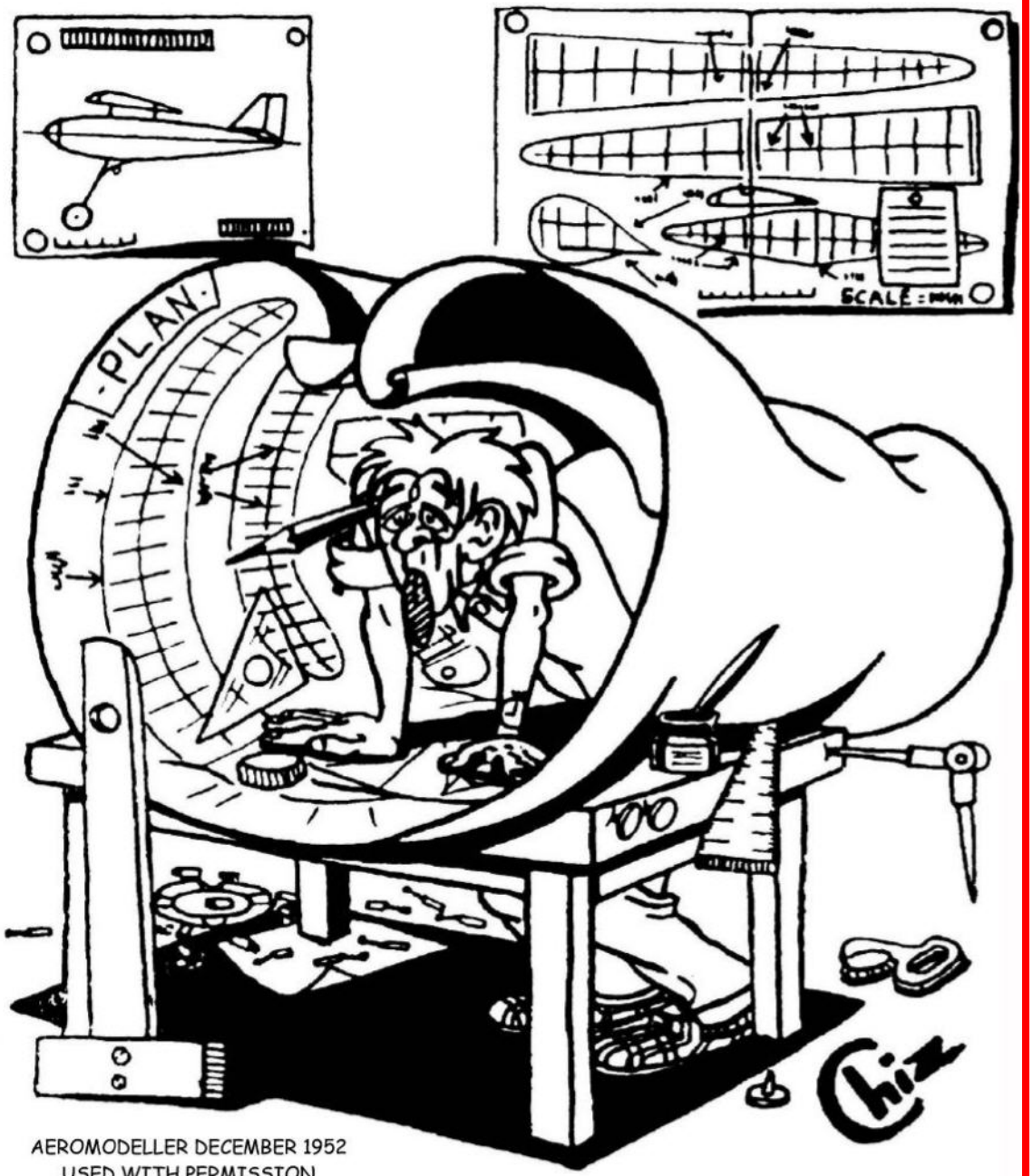
That's NOT the way it was in the past, when you had to build a model before you could fly it. If you're an old-timer, as I am, you have fond memories of Air Trails, Flying Models, Model Airplane News, Aeromodeller and many of the several other magazines available "way back when".

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

Prices Effective April 2016 - Subject to Change Without Notice

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

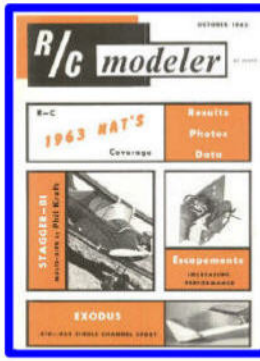
MODEL BUILDER - This magazine ran from the first issue of September~October 1971 through the final issue dated October, 1996 -

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

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

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

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

Prices Effective April 2016 - Subject to Change Without Notice

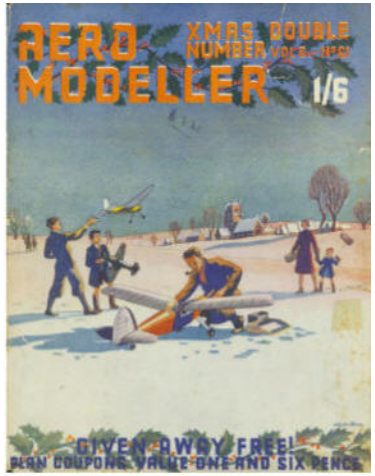
Now Available!!
The early issues of
AEROMODELLER
Computerized in High Resolution
On Custom USB Flash Drives

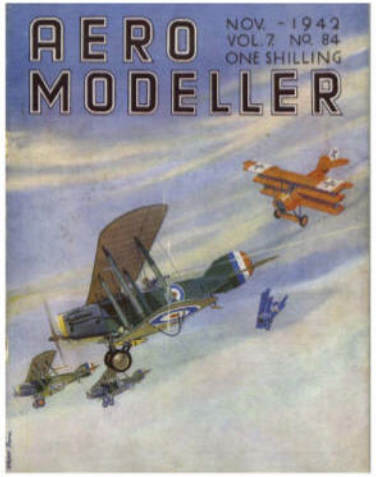
Now, after several months and hundreds of hours of work, we have available high-resolution digital copies of the British Aeromodeller magazine starting with the very first issue dated November 1935, shown above, and through the December 1942 issue. These issues are extremely rare and hard to find. These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

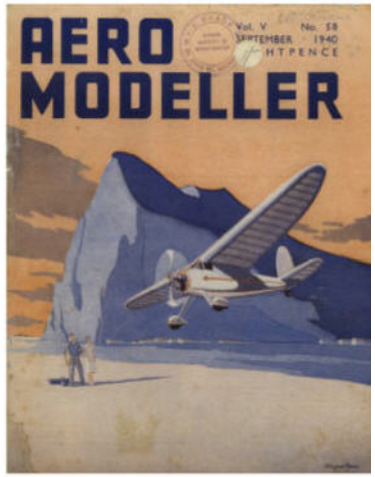
Furnished on our custom made USB Flash Drives this collection is priced at only $60 US, postpaid world-wide. PayPal, Money Order or check drawn on a USA bank. Catalog number - D001047 - 85 issues -

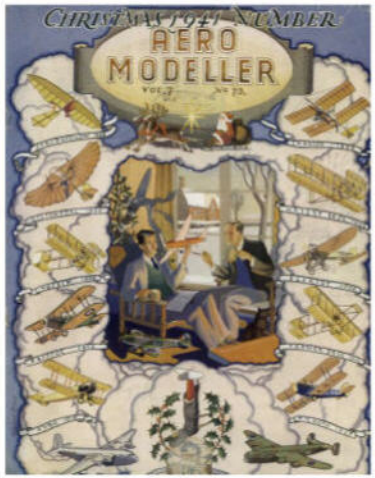
Roland Friestad
1640 N Kellogg Street
Galesburg, Illinois, 61401
USA
cardinal.eng@grics.net

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









Prices Effective April 2016 - Subject to Change Without Notice