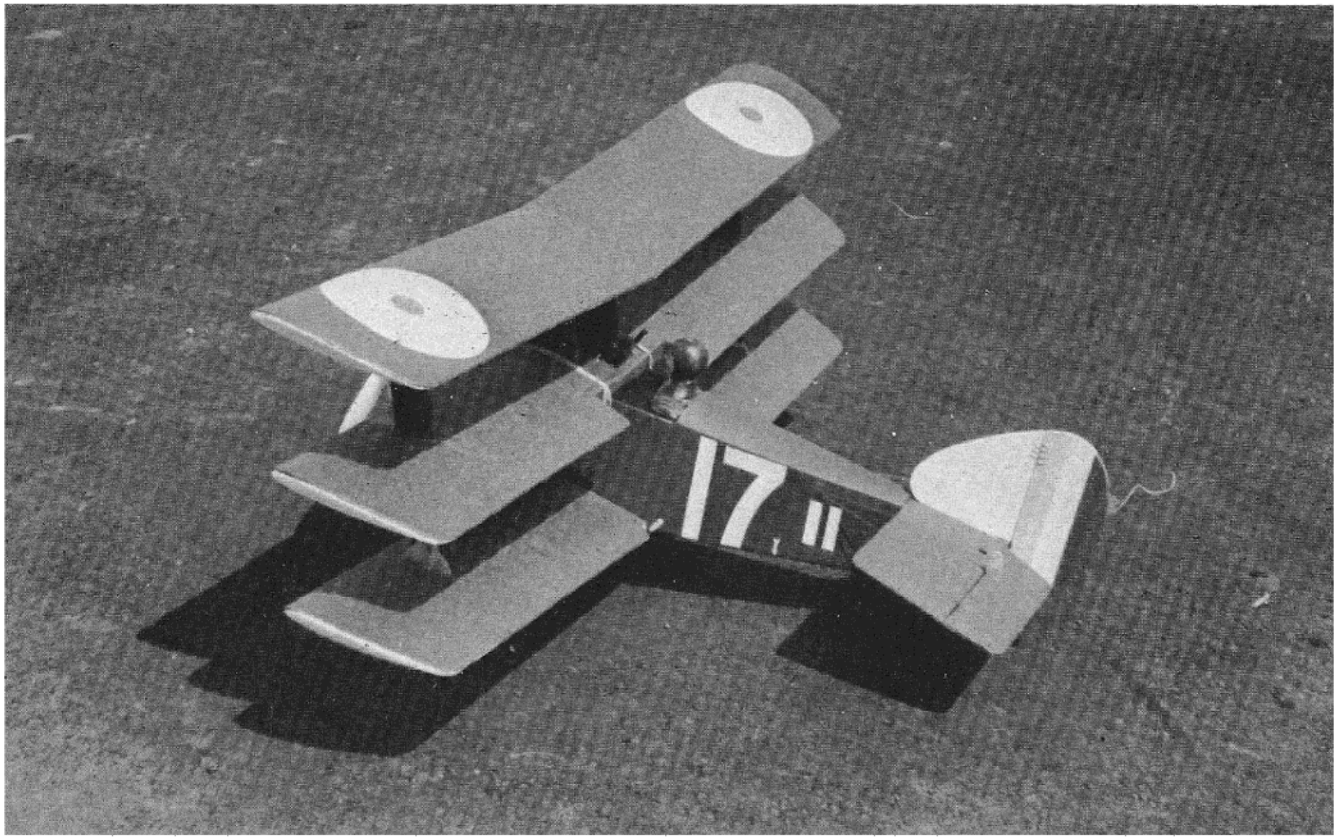


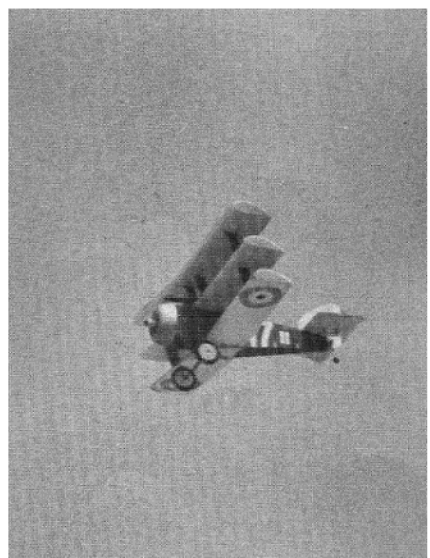
The author's .15 powered Sopwith tripe looks almost like a caricature of the famous WW I aircraft. In the air, it's one of the finest sport models we've ever had the pleasure of flying.

SOPWITH TRIPLANE

A SEMI-SCALE .15 POWERED MODEL THAT IS AS DOCILE AS A TRAINER AT LOW THROTTLE, YET FULLY AEROBATIC AT FULL POWER. BY FRED REESE.

I have wanted to build a Sopwith Triplane for a long time but the thought of building three wings for only one airplane had put me off. Then Ace RC came to the rescue with their constant chord, 35 inch foam wings. What could be easier? I have been flying foam winged Rumplestadts for about a year now with excellent results. They can really take a beating and they repair easily. With all this experience, scale three-views, and three foam wings I began to draw the plans.

What I ended up with is not scale. It is a caricature that resembles the



Sopwith Triplane. It is still very attractive and a real crowd pleaser with very scale-like performance. The airplane literally flies itself and is extremely stable. It will return to level flight with hands off the controls from practically any attitude. At low throttle it is as docile as any trainer, yet with full power it is very aerobatic.

I spent a very sleepless night before the first flight worrying about the short nose and just about everything else but I needn't have. Except for the addition of some down trim, everything was perfect. It lifted off easily in about twenty feet, and climbed stead-

ily, so I began to try out the responses. Rudder response was good. The elevator was a bit sensitive but I found myself using it very little. I would recommend that newer modelers use the inside hole on the elevator servo output wheel. The stall proved to be just a gentle mush – the nose dropped a little and the airplane continued on its way. Slow flight was fantastic! The airplane would hover at zero ground speed when headed into the wind with no tendency to fall off on a wing or snap roll.

The gentle stall characteristic is because of the different angles of attack of each of the three wings. The top wing, which is the most foreward, has the most positive incidence and stalls first. The center wing stalls next and lastly the bottom wing. I must add that you have to try very hard to make all three wings stall because as the top wing stalls the airplane becomes nose heavy in relationship to the wings still flying so the nose drops naturally and flying speed increases until the top wing is no longer in a stalled condition.

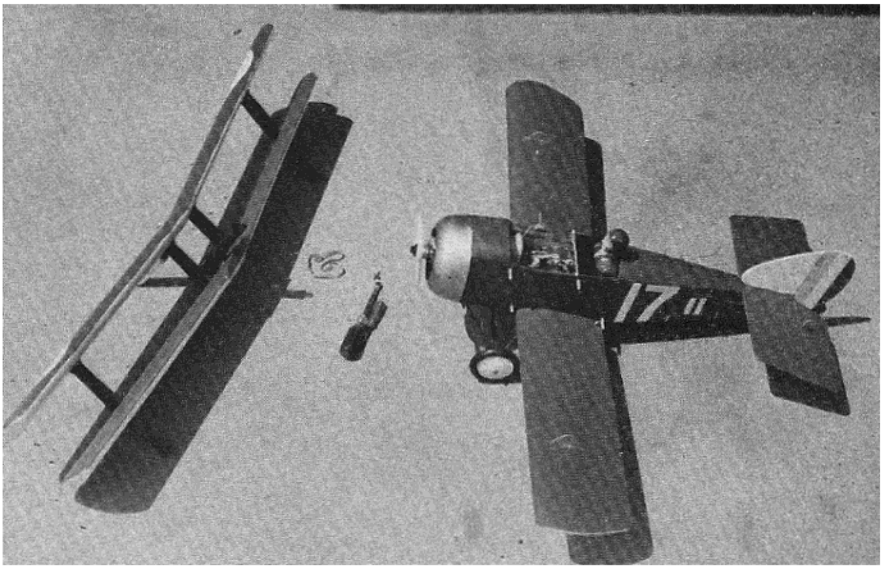
I have flown the triplane many times since that first flight and it continues to be a pleasant escape from those roaring .60's. Low, slow passes with the wings gently rocking prove that it is not necessary to go fast to have fun.

Ideally, the triplane should have a three channel radio and a throttled .15 engine for power. However, the little triplane flies very well with rudder control only. So if you have a single channel or one of the new two channel radios you can join the fun with something a bit different from the usual high wing monoplane.

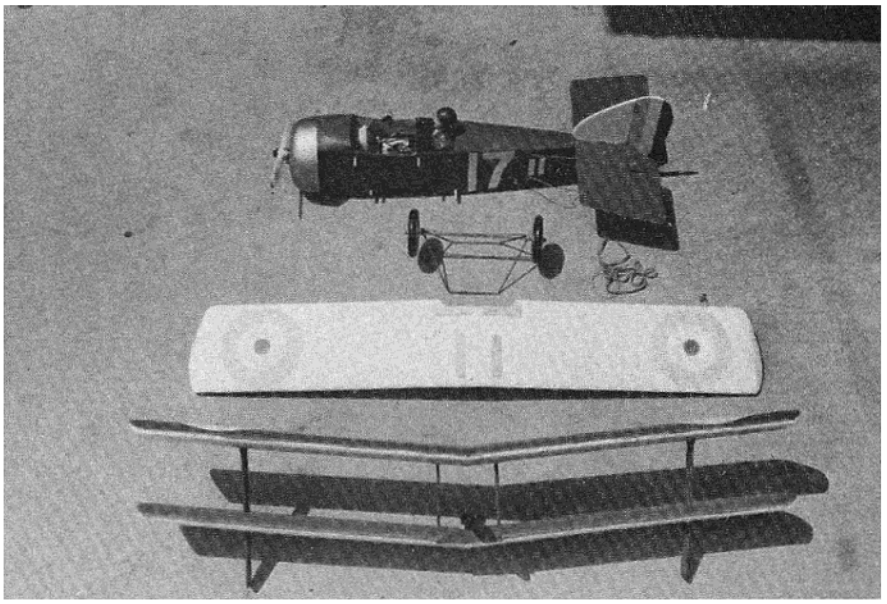
If you have read this far, build it! Right now order the full size plans from RCM and three sets of the Ace constant chord wings. While you are waiting, gather up all of the balsa, plywood and dowels, paint, wheels, etc., that you will need. Paint the pilot and assemble the Williams Bros. 2" scale Vickers gun.

CONSTRUCTION

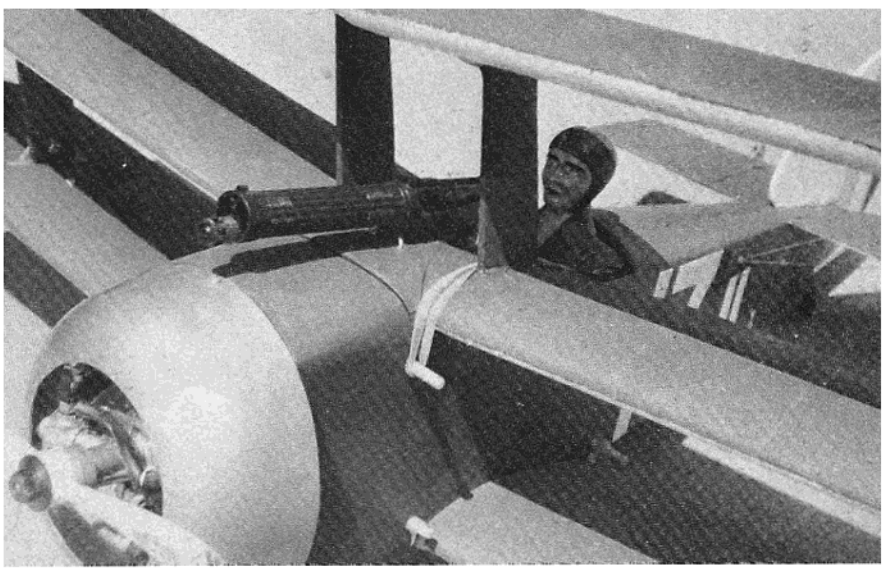
1) Cut out the fuselage sides and the doublers.
2) Glue down the 1/8" sq. balsa framing to the fuselage sides.
3) Using liquid contact cement (not spray) glue down the doublers. Be sure to have the grain vertical (opposite to the sides). Then glue down the tripler with the grain opposite to the doubler.



Top two foam wings detach as one integral unit. Use of Ace Foam wings simplify construction immensely. BELOW: Field assembly of Sopwith consists of top wing unit, lower wing, and landing gear assembly, all ruber-banded in place.

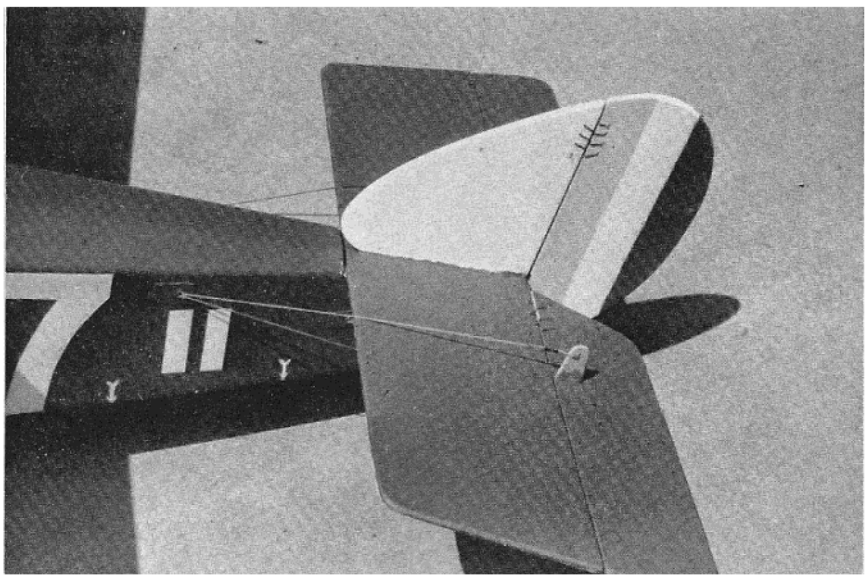


BELOW: Close-up of top wing struts which are epoxied permanently in place. Williams Bros. pilot and machine gun kit add to overall appearance. Fibreglass cowl uses large Cool Whip container as mold. O.S. max .15 engine provides plenty of power.

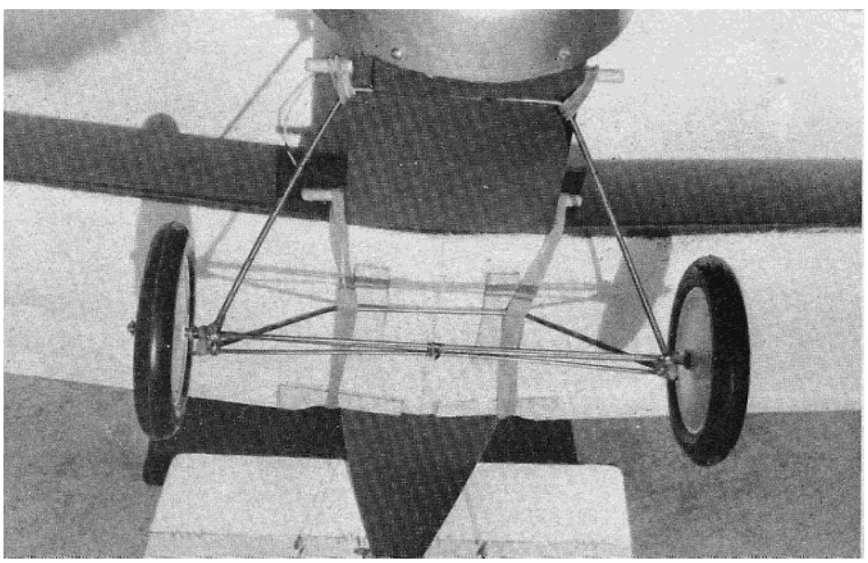




ABOVE: Detail view of outer wing struts. Plywood units are epoxied into top wings and bolted to lower foam wing panels. BELOW: 'Seuenstrand' fishing leader cable and ply horns add to realism but standard pushrods can be used.



BELOW: Shock absorbing main landing gear is simple to duplicate and is rubber banded into position. Note plywood strips on Ace foam wing to absorb landing impacts and prevent crushing of foam cores. Wheels are standard Williams Bros. 3-1/8" vintage units.



4) Cut out the 1/8" plywood firewall, the 3/16" x 3/8" balsa (crosspiece behind the bottom wing) and the top bulkhead behind the cockpit. Also, prepare two pieces of 4" x 1/2" triangle or 1/2" square or 3/8" square balsa.
5) Epoxy the firewall to the fuselage sides and add the 4" triangle stock reinforcement. Unless specified differently, I use Devcon 5-Minute Epoxy or Hobbypoxy Formula 4 epoxy.
6) Locate and glue into place the bulkhead behind the cockpit and the crosspiece behind the bottom wing.
7) Add the 1/16" sheet balsa cockpit floor and the top-front block, and the 1/16" plywood foreward fuselage bottom.
8) Pull the fuselage sides together at the tail and glue, making sure that the fuselage is straight.
9) Add the 1/8" square balsa cross-braces top and bottom and the 1/16" sheet balsa bottom sheeting.
10) Cut a sheet of 1/16" balsa for the top turtledeck. Use Titebond or other slow drying cement and masking tape to glue into place.
11) Cut out the 3/16" sheet balsa rudder and stabilizer and glue into place with epoxy or Titebond.
12) Make a cardboard template of the wing cross-section. Draw a line on the wing centerline using the molding flash on the leading and trailing edge to locate the center line. You will use this template to position all three wings.
13) Sand the dihedral angle on all of the wing halves in preparation to joining. Follow the instructions that come with the Ace foam wings for this job.
14) Carefully block up the three wings when you epoxy the halves together so that they all have the same amount of dihedral.
15) Make the cutouts in the center of the middle and lower wings to fit the fuselage openings and line these cutouts with scrap 1/8" sheet balsa so that the rubber bands holding the wings in place do not cut into the foam. Use only epoxy or Titebond or other white glue on the foam wings. Do not use any other model airplane cement as it will dissolve the foam, leaving a large hole wherever the glue touched. If in doubt test your glue on some of the

scrap foam pieces.

16) Shape the wing tips. They are all the same. Use rough sandpaper to shape and then finish with very fine sandpaper. Also, at this time, and with the fine sandpaper, remove all of the flash along the leading and trailing edge and any other bumps on the wings surfaces.
17) Carefully cut out the 1/8" plywood wing struts. Lay them, one at a time, on the plans and use the wing template you made to mark the proper wing alignment on the struts.
18) Mark the strut locations on the top and center wing. The inboard struts are three inches apart or 1½ inches from the center. The outboard struts are 11½ inches from the center or twenty-three inches apart. Cut out the slots in the wings so that the struts fit snugly. If these holes are too large it is difficult to obtain proper alignment of the wings. Please note that because of the dihedral these slots will be angled slightly through the wings. Make the slots in the top wing only as deep as the struts go. Do not cut completely through the wing.
19) Temporarily assemble the upper wings and struts to make sure everything lines up and the struts are vertical. When you are satisfied that everything is right, you may proceed. If you make a mistake you can plug up a hole with some of the scrap foam pieces and some white glue.
20) Epoxy the two inboard struts into the center wing one at a time. Make doubly sure that the foreward angle of the struts is the same as the plans. **This is the most critical step and will determine how well your airplane will fly.**
21) Epoxy into place the two outboard struts through the center wing. Be sure they are in line with the two inboard struts and the holes in the top wing.
22) When the struts are all firmly epoxied into the center wing, trial fit the top wing again to be sure all of the holes still line up. Use Hobbypoxy Formula II or other slower drying epoxy to glue on the top wing. Do not use 5-minute epoxy unless you are prepared to buy two more wings and start over. It can be done, but it is not worth the trouble if you don't get everything aligned before the stuff sets up.
23) Epoxy into the bottom wing the 1/16" plywood tabs which will bolt to the outboard wing struts.

The airplane is now ready for paint and gear installation.

FINISH

Give all of the wood at least two coats of clear dope to seal the grain. Sand lightly with 360 wet or dry paper between coats. I used water based, artists acrylic polymer to paint my triplane and I highly recommend it. It is available at artists supply shops under the brand name of Liquitex or Hyplar. This paint covers well, will not attack foam, is fuel proof and dries quickly. Any color can be mixed from a wide variety of colors and it goes a long way. Another feature, for future reference, is that dope may be applied over the acrylic on foam wings. Use two coats of the acrylic to completely seal all of the pores of the foam before spraying on the dope.

To mix the WW I olive drab color, add one part of *Cadmium Red Medium* to four parts of *Chrome Oxide Green* and one or two parts of water to thin. The paint will still be thick but it brushes easily.

Give the fuselage and top sides of the wings and stabilizer two coats of the olive drab. I left the undersides of the wings unpainted and painted the rudder and undersides of the stabilizer white. The rudder is then painted red, white and blue. *Cerulean Blue* with some white added is just right for the rudder and the wing roundels. The wing roundels were painted on by hand with the help of a compass. Refer to Dave Platt's article "Scale in Hand" in the September, 1971 issue of RCM for the correct proportions of the roundels. The white fuselage markings can be painted or white contact paper or MonoKote trim can be used.

The cowl turned out to be an easy 10 minute job. After a great deal of worrying and searching for the right sized plastic container. The large size 'Cool Whip' container located in the freezer section of the market proved to be perfect for the job. This container can be trimmed and used as is or it can be used as a mold to make a fiberglass cowl. Polyester resin will not stick to this plastic so no parting agent is needed. Cut several pieces of glass cloth so that they will lay in place inside the bowl without wrinkling. One or two layers of cloth is adequate. Pour in some resin and rotate the bowl until all of the cloth is saturated and then pour out the excess resin and allow to cure. Carefully free the cowl from the bowl and trim. Sand lightly and fill any pinholes with putty and paint. I used AeroGloss Silvaire Aluminum.

Conventional pushrods to the rudder and elevator would be easier to maintain than the cables and I would recommend them except to the more experienced modeler. If you choose to use cables, build the bellcrank system. Hooking the cables directly to the servo output arms will work, but if the servos should shift, or pop out of their grommets from a hard landing or crash, the rudder and stabilizer will be ripped off by the cables. I found this out the hard way!

Plastic coated stranded steel cable and crimp fasteners are available from fishing tackle shops. The brand I used was "Sevenstrand" and was rated at thirty pounds test. The plastic coating will melt with heat and will fuse to itself for non-slip attachment with the crimp fasteners to the bellcranks and control horns.

Bend the landing gear from 3/32" music wire and bind the joints with fine copper wire before soldering. The rear of the landing gear is free to slide against the plywood strips on the underside of the bottom wing. The wing rubber bands keep the landing gear in place. This system works very well and is very forgiving for rough landings.

Get the Profile Publications' profile on the Sopwith Triplane for more information and details of this historic airplane.

FLYING

Pick a calm day for that first flight and an experienced RC'er to fly it if you are not an experienced pilot yourself. I have seen too many new airplanes needlessly crashed because they were out of trim when a more experienced pilot could have flown them safely and then made the necessary adjustments to the model.

Release the airplane directly into the wind with full power and allow the airplane to lift off the ground by itself. Some right rudder correction will be necessary during takeoff, but apply gently. After the plane is airborne, keep it headed straight ahead until some altitude is reached before starting the first turn. Altitude is a new airplane's best friend! Generally, you should fly at least two mistakes high!

From RCModeler Jan. 1 1972