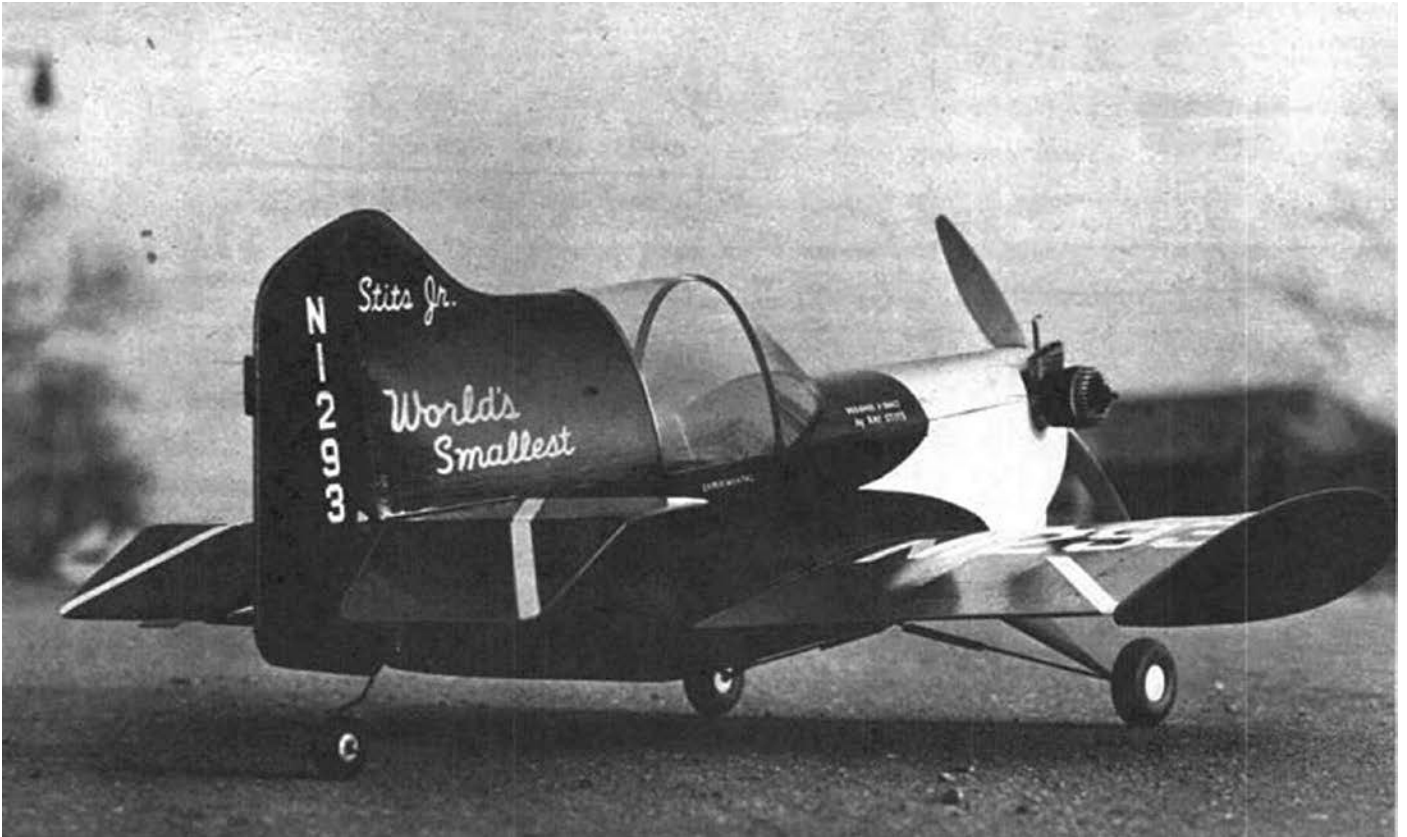


Stits Junior



A real "George" airplane wingtip plates were first used by modelers then picked up by full scale designers. They increase efficiency 15%. World's Smallest Airplane by Aubrey Kochman.

Building a model at two inches to the foot scale usually results in a large size craft even if a small plane is used as the prototype. In the case of the Stits Jr., however, we find the opposite to be true because this ship holds claim to "World's Smallest."

The configuration of the Stits Jr. lends itself very well to control line flying with its short tail moment and large tail surfaces. It is not recommended for advanced stunting, however, due to its short span and high wing loading.

Before starting construction bear in mind the all-important weight factor. Following the grade of wood indicated on the plans and depending on the engine used, the finished model should weigh no more than 18 ounces. The model also had a tendency towards nose heaviness, but this was corrected by using a 1/8" plywood rudder.

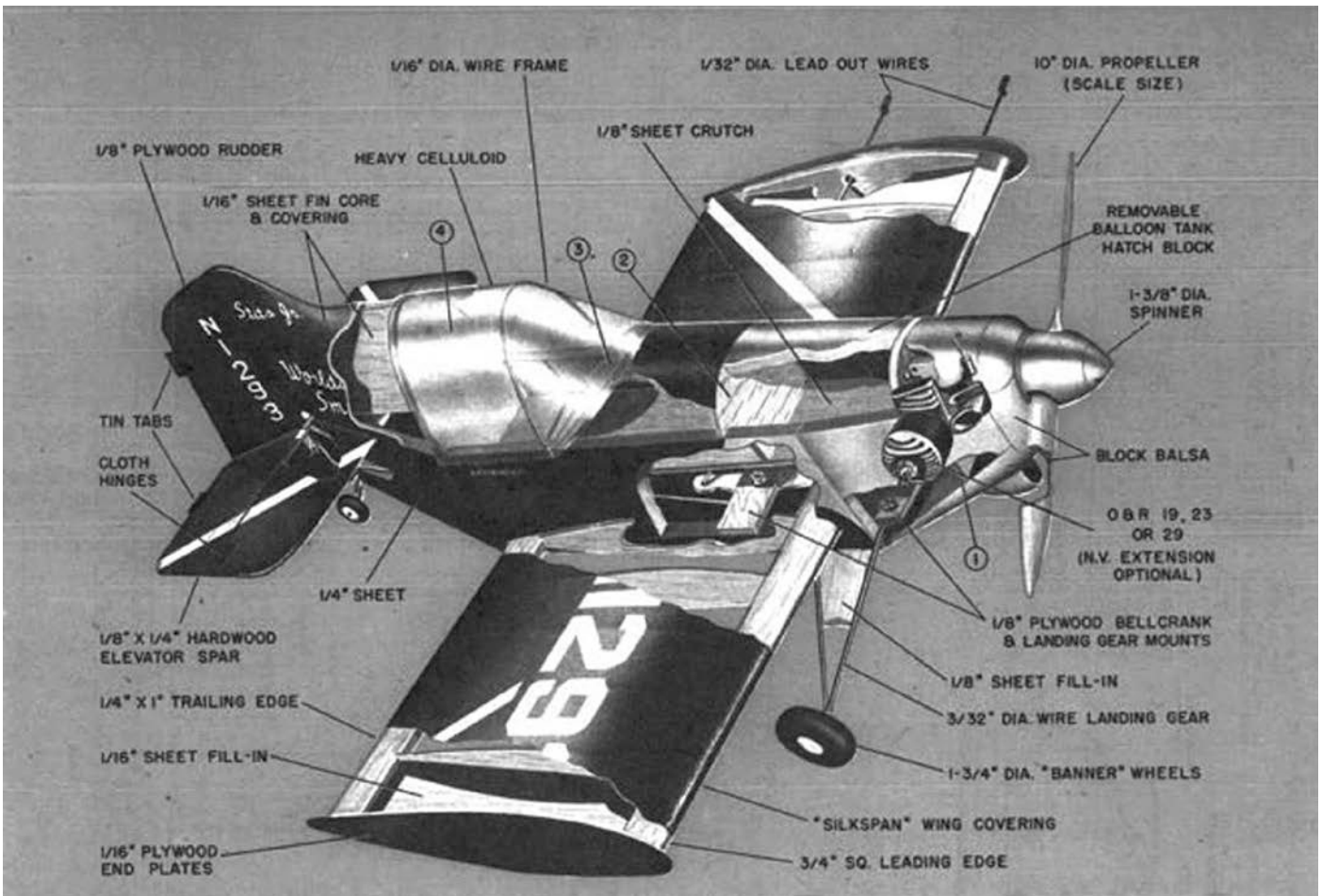
Build the wing in one piece, crack the leading and trailing edges at the center for the proper dihedral angle and cement the 1/16" plywood gussets in place at the breaks. Add the bell crank and the lead out wires but not the end plates. These go on after the wing is covered but before water shrinking the paper.

The fuselage is built directly onto the wing. Using soft 1/4" sheet cut two identical pieces 8-5/8" long by 3" wide. Cut 5/8" off the bottom edge. These pieces are then cut out to fit the leading and trailing edges, the bell crank mount and the clearance holes for the lead out wires. Draw a line on the inside of each side at the crutch line and cement these pieces to the inside of the center ribs and perfectly square with each other. Use plenty of cement at all joints.

Cut out the crutch from 1/8" hard sheet as shown on the top and side views and cement in place on the pencil lines previously drawn. Recheck for squareness and alignment. Add the front and rear side pieces working upside down, using the work table to insure a straight top edge. The stabilizer and elevators when completed are cemented to the fuselage so that the stabilizer is flush with the top edge of the sides.

Air Trails Magazine June 1951 by Hlsat

Stits Junior



Fuel tank for the craft is a 10 toy balloon, first popularized by Jim Walker. Model will take variety of power plants in the .19 to .29 range.

Cut out all formers with the grain running as indicated and cement in place. The fin core is 1/16" hard sheet joined with grain. Cut to outline shape and cement to the stabilizer and former 4. To cover this section, join two pieces of 3" soft sheet and cut to the fin outline shape, allowing a good half inch extra height, it is not necessary to pre-bend this covering. Just run a bead of cement along the top edge of the fuselage sides and the edge of the fin to which the rudder is joined. Pin the sheeting in place and allow to dry thoroughly.

Now run a bead of cement along the edge of former 4, the fin core and coat the side of the core with cement for about an inch down from the top edge. Work as quickly as possible and pin the sheeting in place starting at the fin-rudder edge and working forward to former 4. Check to make sure that the core remains square with the stabilizer. Follow the same procedure in covering the other side. Trim away excess wood to proper fin outline and smooth any imperfections with filler.

Sheet cover the section between formers 2 and 3, pre-bending the 1/16" sheet by the water and cement method. Install the pushrod, landing gear and tail wheel. Note that the plywood landing gear mount is installed at a slight angle and is cemented to the wing leading edge as well as the fuselage sides. Cover the bottom of the fuselage with 1/8" sheet with the grain running across. It will be necessary to gouge out the sheet slightly to clear the rear landing gear "J bolts.

Stits Junior

Cement the bottom cowl block in place and carve to shape, checking the front view for cross section. Temporarily mount the engine in place and add the lower portion of the nose block, hollowing out where necessary to allow for engine clearance and engine removal.

The top portion on the original is removable for easy access to the power-plant; small dress snaps may be utilized. Another method is to hold the top cowl to former 1 by means of a 2:56 nut and bolt with the nut cemented to a plywood half former inside the cowl and the bolt passing through former 1. This last method works very well because the cowl section between formers 1 and 2 is also removable, this facilitating easy access to the bolt and the balloon tank used because of its fool proof operation and light weight. This tank hatch should be carved from very soft balsa and be hollowed out slightly.

With the engine removed but with the removable blocks in place, go over the entire model with Arte sandpaper. Cover the wine with heavy paper and add the 1/16" plywood and plates. Water-shrink the paper and apply several coats of clear dope. All exposed wood surface* including inside the cowl and the cockpit should be given a few coats of wood filler and sanded smooth. Add the windshield frame. Apply white dope forward of the color line as indicated on the side view, and blue to the rest of the model with the exception of former 3 which is the instrument panel, and former 4. These two formers are light brown. Add the windshield and cockpit enclosure before applying the last coat of colored dope. License numbers and the Striping were done with white Trim-Film. All lettering was made with striping white been use of its one coat covering qualities.

The shock absorber detail is added last, and the entire model given a coat of fuel proofer. Install the engine and then hook up the 10c size toy balloon used as a tank as follows attach a length of fuel line to the needle valve body, bringing it through former 1 and the crutch. This piece of the fuel line is then joined to the balloon tubing by a short length of metal tubing. To fill the tank disconnect it at the tuning joint which should be inside the hatch, instead of at the needle valve as is customary.

Bill of Materials

(Because sheet balsa is usually cut in 3' lengths, wood sizes and quantities are listed accordingly.)

1 pc. ¼" x 1" hard, trailing edge. 1 pc. ¾" sq. med., leading edge. 2 1/16" sheets hard, ribs, wing tip fill-in pcs., fin core and formers 2 and 4. 1 1/16" sheet soft, sheet covering. 1 ¼" sheet hard, fuselage crutch and elevators. 2 ½" sheets med., stabilizer, former 3 and bottom fuselage covering. 1 ¼" sheet soft, fuselage sides. 1/16" plywood, end plates and tail wheel mount. ¼" plywood, landing gear and bellcrank mounts and rudder. 3/16" plywood, former 1.

1 pc. 1½" x 3" x 5", tank hatch and engine cowl. 1 pc. ¾" x 3" x 4½", lower cowl block. 1 pc. ¾" x 1" x 2½", oil scoop block. 1 pc. ½" x 2" x 2¾", front nose block. 1 pc. 3/32" dia. wire, landing gear. 1 pc. 1/16" dia. wire, push rod, windshield frame and tail wheel strut. 1 pc. 1/32" dia. wire, lead-outs. 1 pc. ⅛" x ¼" x 9¼" hardwood, elevator spar. 1 pr. 1¾" dia. Banner wheels. 1 ¾" dia. tail wheel. 1 1¾" dia. spinner. 1 3½" bellcrank. 1 large size control horn.

Heavy celluloid, "J" bolts, wood filler, clear dope cement, colored dope, Trim-Film, fuel proofer, toy balloon, cloth hinges, 12" of 1/16" dia. black elastic thread, masking tape, etc.