Bellanca Scout

By Larry Kruse

A stick and tissue rendition of an enduring lightplane favorite. For Rubber Scale events.

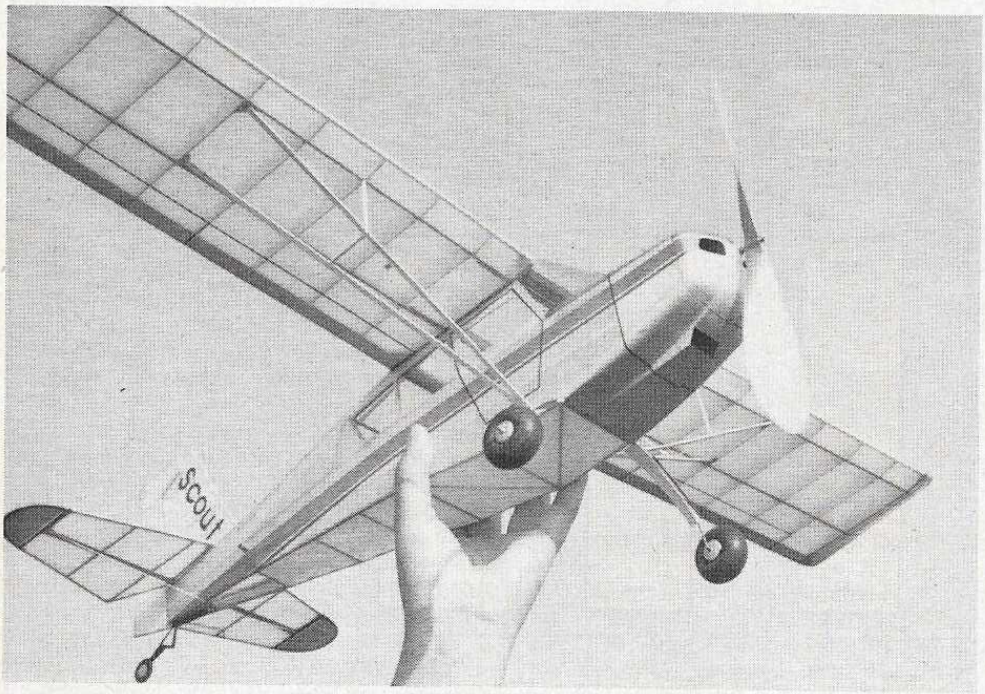
PHOTOGRAPHY: LARRY KRUSE

If you think the Bellanca Scout presented here looks a bit like a "Citabria" in agricultural clothing, you are right - there is a relationship. With specific modifications to suit various purposes, this multi-faceted design can also show up as the Bellanca Champion, or even the Decathlon, flagship of the Bellanca line of high wing aircraft. In fact, the "Scout" can trace its heritage back to the beloved Airknocker of the '40's as a testament to its longevity and versatility.

The Scout first caught my eye through a full page ad in an issue of *Flying* magazine, which appeared a year or so ago. Noting the attractive proportions for rubber scale, I wrote to the home office in Alexandria, Minnesota, and asked for any material they might have on the ship. I have a notion that a modeler must have answered my request, because within a week I received a 3-view, a 4-color rendering of the Scout, an interior cockpit view, a 5×7 glossy, and a color slide. Holy mackeral! Instant documentation! Such material is not often that easy to obtain. I immediately telephoned my thanks, narrowly missing slobbering into some secretary's ear in my excitement.

However, "Tempus fugit" they say, and sure enough - it did. After my initial excitement abated, I filed the material away with the rest of my documentation stuff and nearly forgot about it. To be absolutely truthful with you, I did forget about it until about three weeks before the 80 Nats. While I was frantically trying to throw something together to take the place of the half-finished Fletcher that still resided on my workbench, I rediscovered the Scout.

I used an opaque projector to blow the thing up and drew the plans in one evening. I began building the next. My aim was to sacrifice a few scale points to the time schedule which had somehow eluded me, and to quickly come up with a good flying aircraft. How well that aim was satisfied was answered in the 1980 Nats. The Scout placed second, barely edging out Don Srull's beautiful Gannet. Its forte is flying, which we'll deal with a little later.



Beauty of stick and tissue construction evident as Scout is held aloft (**above**). Original used Trexler wheels for added realism. The Scout has generous wing area and flies well. Note motor peg tubing.

Construction Notes

All wood sizes are standard, but you'll hasten the building process considerably by preforming the wing and stabilizer tips. Cut several strips of 1/32" basswood to 1/8" width and soak them in hot water laced with about three tablespoons of ammonia. When the strips are suitably pliable, wrap them around scrap balsa forms covered with Saran wrap or a similar kitchen wrap. Use a white glue as the bonding agent and keep the strips pinned to the building board at least 48 hours. I used to pull them off the board after 12 hours or so, but then found that warping tended to occur sometime later, due to inadequate drying time. While the wing and stabilizer tips are drying, your time can be well spent on the fuselage.

Wood for the fuselage longerons should be selected carefully to avoid the pulls and sags that can occur from the use of too soft stock. Since the plane is fairly large, yet uses 1/16" sq. for fuselage construction, make sure the longerons are medium hard A grain. The vertical pieces and crosspieces should be cut from medium hard C grain. The stringers may be of lighter weight A grain.

Lay out the fuselage sides one on top of the other, separated by a layer of Saran wrap. Gussets should be installed as the sides are

built, except for those at the juncture in back of the wing. Save those until after the fuselage box is formed and the tailposts glued together. As the fuselage box is constructed, note that it is narrower at the bottom than the top.

After the nose area is sheeted, the bottom cowl block and the noseblock can be rough carved to shape. The easiest way to deal with the airscoops is to carefully slice ¼" off the front of the noseblock, sand or file out the two scoop areas, and then glue the block back together. The small scoop on the bottom cowl block can be constructed of 1/32" sheet and attached as indicated on the plan. The landing gear is of music wire sandwiched between the gear mount blocks and glued in place. The LG fairings can be cut from card stock, scored along their center lines and folded to conform to the curve of the gear wire. Fold them carefully to avoid making unwanted, unsightly creases.

The rudder and stabilizer are both built flat on the plans. The gussets shown are necessary and should not be omitted. Hinge both rudder and stab surfaces to provide for easy flight trimming adjustments. Either a soft copper wire or the wire found in the twist ties of plastic sandwich bags can be used.

Wing ribs can be stack-sawed from C grain and finish-sanded prior to installation. Pin down the bottom spars and TE of both panels and glue all ribs in place. Add the LE, but omit the top turbulator spars until after the wing panels are joined to the center section. The laminated tip pieces can now be glued in place, along with the gussets and tip supports.

All structural parts should be sanded carefully and rounded to appropriate shape. Give everything at least three coats of unthinned nitrate dope and then cover each piece with white Japanese tissue. As you lay each piece of tissue over each part, brush thinner freely through the tissue over the outside framework, rubbing it in with a forefinger. The thinner will soften the dope previously applied to the framework, and the pressure of your forefinger will cause the tissue to adhere.

Shrink the tissue on the fuselage and wing with a light spray of water. The rudder and stabilizer covering should be shrunk with rubbing alcohol for better warp control. Brush four or five coats of thinned (50/50) nitrate dope over the wings and fuselage. Two or three coats will be sufficient for the rudder and stabilizer.

Detailing of the Scout is simple, composed primarily of tissue color strips in blue and red as per photos with chart tape outlining the flaps, ailerons, and the single door on the right side of the fuselage. The windshield and side windows are cut of light celluloid and carefully Hot Stuffed in place. The struts are of airfoiled basswood painted white with Floquil paint.

Flying Tips

My purpose in designing the Scout was to arrive at a ship that could be built quickly and would fly well. I do not hesitate to recommend the plane on both of these counts. The first flight of the prototype was the morning of the Nats Rubber Scale competition, with a shortened motor 18" in length. The plane flew 47 seconds. I knew I had a winner. Moving to a braided motor 36" in length, the next flight was 107 seconds, and I decided to put up my official flights. The plane did not disappoint me. It is capable of a 90 second max on almost every flight, assuming you don't stick it in a real downer. Using that longer motor length, it's a very good flying airplane. I make that comment discarding all pretext of modesty and with no small degree of pride.

Ballast the ship to the required CG by adding clay to the inside of the bottom cowl block. Begin flight testing (rubber installed) by hand gliding the plane over as soft a surface as you can find. It should have a floating, stable glide with a slight left turn. Adjust the stab and rudder until such a glide is achieved. The Trexler wheels provide plenty of shock ab-

Three quarter front view of Scout (**top**) shows off its classic lines. Scout rests on tarmac, ready for another flight (**above**). Note wing strut and landing gear construction. Panel lines on cowl add nice touch.

sorption, so don't be afraid of tossing it again and again until the glide is correct.

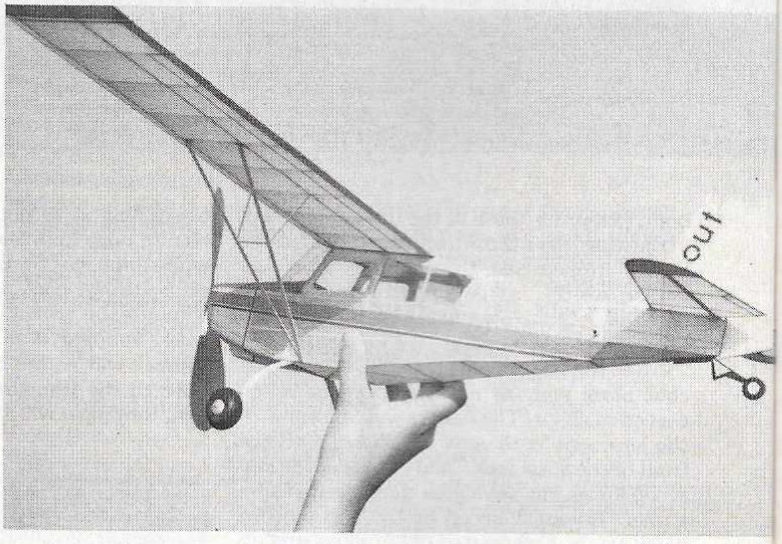
Start power flights with approximately 300 hand wound turns and launch the Scout with the nose essentially level. The plane should climb just slightly, settle into a wide left turn, and flair into a landing attitude. The rudder is quite sensitive to even small adjustments, so make them carefully. Too much left rudder on the prototype caused it to fly in a tight left circle without climbing, much like a C/L ship on wires. Open the turn up enough so the plane does climb, but does not run straight down wind. It gains altitude best when it can keep its nose into the wind for prolonged periods of time during each power pattern.

As you build up confidence and turns, use a winder and a winding tube. The prototype flew on 1200 - 1400 turns, cranked into a 36" braided loop of ¼" FAI rubber.

If you have some small experience in building and want to become part of the resurgent interest in rubber scale, by all means try the Scout. Whether its for scale competition or backyard evening flying, I think the design will please you.

Liz Sanford, daughter of modeler Curt Sanford, adds even more charm to the Scout. Model has the right wing and tail areas for Free Flight Scale. Combination of ease of construction and flyability make it a winner.

Scale details on the Scout help to pile up points in static judging (**above**). Door outline, stripes along side of fuse add to realism. Rudder and elevator are hinged with fine wire (**below**). Note tail wheel detail. Nice.



Boxy fuselage makes construction simple (**above**). Cross bracing of fuselage adds to model's durability without adding much weight. Close up of landing gear and scoop (**below**). Lightweight LG fairings add nice touch.