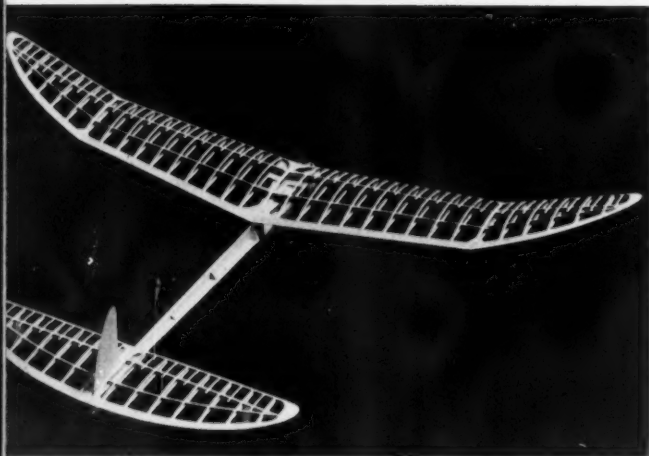
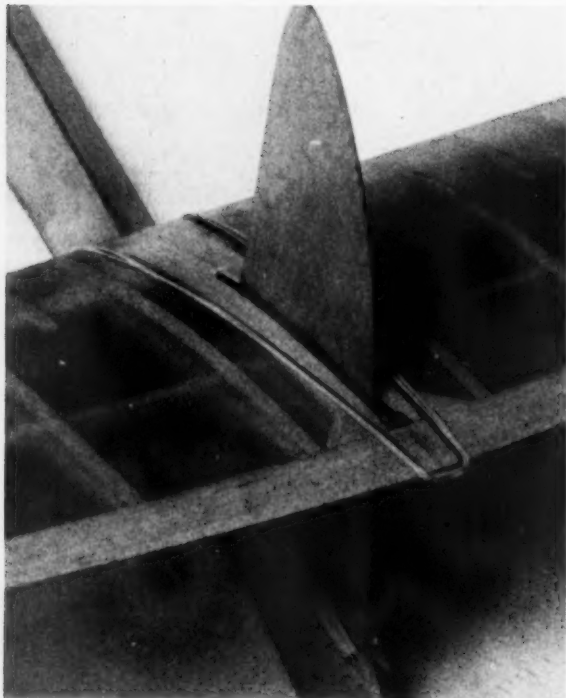


Counter-weighted wheel swings up into fuselage cut-out after take-off. Simple, double-keeled frame is easiest way to make streamlined fuselage.



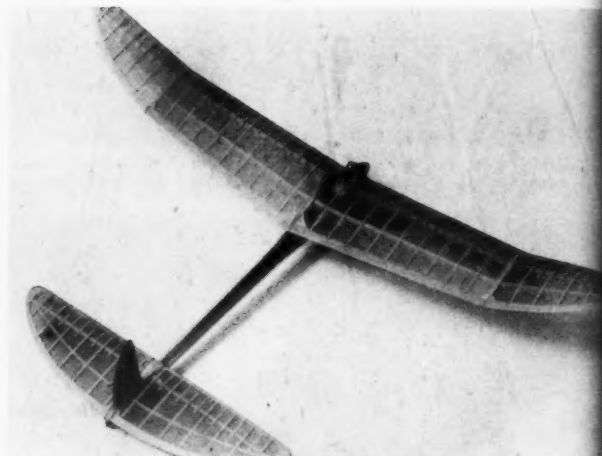
Tapered wings and elliptical stabilizer and tip planforms are easily duplicated due to the method of making and fitting the cut-out rib pieces.



Unique pop-up tail design provides an accurate keying, sturdy foundation at the same time eliminating chance of vertical tail misadjustment.

FAISON

by W. S. Blanchard, Jr.



When covered, FAISON makes one of the prettiest free flight jobs seen this year. Ship gets high enough for thermals. Without thermals? Oh, boy!

Designed around the Cub 14, this ship is the first American free flight job designed for both F.A.I. and A.M.A. rules.

► Considerable interest has been shown of late in International competition in the free flight gas category. The requirements, established by the Federation Aeronautique Internationale (FAI), are as follows: maximum displacement, 2.5 cc (0.153 cubic inches); minimum power loading, 200 grams/cc (115.6 ounces/cubic inch); minimum wing loading, 12 grams/square decimeter (2.74 ounces/100 square inches), based on the sum of the projected wing and horizontal tail areas; minimum fuselage cross-section, sum of the projected wing and horizontal tail areas divided by 80.

FAISON has been designed to meet FAI requirements. The Cub 14 is near the top limit (2.44 cc). With an eye to the predominantly non-thermal European flying, the model has been designed accordingly. By our American standards, the model is about Class B size (467 square inches of wing area). However, with the required FAI weight of 17-1/4 ounces, wing loading is 3.7 ounces/100 square inches, which is close to what the author considers optimum for non-thermal flying. However, don't underestimate the ability of the Cub 14 to haul an airplane of this size; at 14.9 ounces, the ship gets plenty high to ride our good old U. S. thermals, and on a non-thermal day will outfly our typical contest-type models.

The frame is light and strong, and goes together fast in spite of the rather intricate appearance of the structure. Let's begin with the fuselage.

The fuselage is built on a vertical keel, cut to outline shape, of 1/8" sheet. Next, add

(Continued on page 48)

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the first two places in Paris, and in Zurich, the second and fourth places with the same type of model, which is really an accomplishment!

The reappearance of German model fliers was hailed with a certain pleasure. They ranked second in the classification by nations. Their models, very well built, were characterized by the regularity of their flight.

I leave it to my readers to interpret the results given below, showing the classification for each run, and the general classification. I would, however, like to give the following details; they are interesting and could lead to fruitful reflections. On the first round, the German Lange was 22nd (151.5 seconds), the Swiss Maret being first with 300 seconds (maximum), and Wheeler fifth with 209.4 seconds. On the second round, Maret broke his model after a flight of 17.2 seconds, thus losing all his chances, while Lange took the second place with a maximum flight of 300 seconds, Wheeler already being first with a flight of 298.2 seconds. The Englishman then totalled 507.6 seconds as against 451.5 for the German. The struggle was going to be a hot one between these two contestants when, against all odds, the German, not using the thermals as the ten first contestants had done, went back to the seventh place, leaving an easy first place to the Englishman.

In conclusion let us hope that American model fans will send a team over to England in 1953—it is in this country that the contest will be organized—and that they will in this way manifest their interest for this international contest, which certainly deserves world participation. I am sure it will be possible to find in the U. S. five model fliers who would be delighted to cross the Atlantic; or am I wrong in this?

Falson

(Continued from page 18)

horizontal keel (1/8" sheet), then formers, gussets and firewall. Next, landing gear is bent of 3/32 wire, and mounted in a piece of 3/32" I.D. brass tubing at fuselage end, and a washer is soldered on the gear to hold tubing in place. The tubing is then bound to a block of balsa with heavy thread, and the block is heavily cemented to rear face of firewall. A rubber band is used to tension the gear, and is attached to the gear with a loop of thin music wire. The other end of the band is secured to fuselage. A wheel of about 1-1/2" diameter completes landing gear. The author has found that "custom fitting" gear to ship is better than bending to prefixed dimensions and angles. Just keep in mind the facts that you want about five inches from thrust-line to ground in three-point attitude, and that in retracted position, the gear should serve as a landing skid. Now, mount the engine, and plank the nose from rear frame forward with 1/8" balsa. Use plenty of cement; the planking carries the stresses around the wheel-well. Build cowlings of sheets and blocks, and fair to shape around a spinner of about 1-1/2" diameter. Slot needle valve for operation with a screw driver. Next, cut away just enough planking to allow landing gear to retract completely, and sand complete fuselage thoroughly. After sanding is completed cut intake and exhaust openings as shown in photos, and mount wing and tail platforms and rudder. Next, carefully cut out a piece of planking large enough to allow installation of a tank and your favorite fuel shut-off system, then replace the removed planking and sand lightly. The author favors flying smaller engines on visual fuel allotment (clear tank), because of frequent malfunctions of mechanical fuel shut-offs when used with small engines. At any rate, if you use a shut-off, use a tank small enough to limit your maximum engine run to about 30 or 40 seconds in case of a malfunction.

The "built up" ribs employed in the wing,

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believe it or not, allow faster and easier construction than conventional sheet-balsa type, particularly with a tapered wing. Strength is much better, too, since the mass of ribs is concentrated in the outer fibers. You simply make one wing-rib template, and using it as a guide, slice all upper ribs "indoor style" from medium 3/16" sheet balsa. Slide the guide down 1/8" after each slice, and you end up with a rib of 3/16" x 1/8" cross-section. Build wing as follows: pin down leading and trailing edges, and cement in lower ribs (medium 1/8" x 1/4" balsa laid flat). Next, cement spars to lower ribs. Then, come in and fit upper ribs by cutting them off at trailing edge. Cement upper ribs to leading edge, both spars, and trailing edge. The false ribs are cut, using forward end of rib-template as a guide, and are cemented to leading edge and front spar. Note that the trailing edge of the tip panel is laminated of soft 3/16" x 3/16" balsa, moistened to allow curvature. You will find that building one wing half on the other, bottom to bottom, is better than reversing plan. When panels are dry, assemble the wing with 1-1/2" dihedral at both outboard breaks, and seven inches at both tips. Add all butt-plates and gussets, check all cement joints, sand.

The stabilizer is built in same manner as wing, using one stabilizer-rib template for all ribs. Note that the slot at the root of the stabilizer extends from front spar to trailing edge. Sand slot until it clears sides of rudder. Using a fixed rudder with a "pop-up" stab assures rudder alignment every time the model is assembled, and the rudder provides a positive stop for the stab in the dethermalized position. The sub-rudders are faired to a streamlined section, and thoroughly cemented to both spars and a rib of the stabilizer.

The fuselage should be covered with *Silkspan* (or *Skysail*). Cover all planking and cowling with wet *Silkspan*. Covering the planking is very important from a strength standpoint, as well as for durability of finish. Give complete fuselage one coat of dope, then cover the portion from planking aft with Jap tissue; this double-covering prevents rips, and adds to the torsional rigidity of the structure. Cover wing, stab and rudders with Jap tissue.

Apply six coats of clear dope to entire ship, sanding lightly between coats. Trim model with colored dope, then apply one coat of fuel proofer or one coat of Buterate Dope, to fuel proof entire ship. The author's model is red with silver trim. Select colors good for visibility. Cement plastic canopy to center section of wing (this is necessary to meet FAI cross-section requirement), install an 8-6 or a 9-4 prop and the ship is complete. Assemble model and check center-of-gravity location. Make corrections with clay. Bring model up to weight (again using clay, either inside the spinner or inside nose planking), and you're ready for test flying.

Raise left tip of stabilizer 1/2" (looking from the rear). If you have no warps, the model should glide very flat in a medium-sized left-hand circle. Make any incidence adjustments necessary at the tail. If circle is more than 150 feet in diameter, tilt stab more. If circle is less than 100 feet in diameter, warp rudder to right.

First powered flights should be made with engine as rich as possible. The model should climb in a very large left-hand circle, or even straight ahead, and should show no tendency toward looping, because of the generous down-thrust. If ship tends to drop the left tip too much under power, try using a little modelling clay in right hand wingtip. By varying amounts of rudder offset and stab tilt, any combination of climb and glide can be obtained. Rudder offset has more effect under power, and stab tilt has more effect on glide—keep these facts in mind. Under full power, the ship should break ground in about 20 feet, and climb fast at about a 30 degree angle. END

Celebrating Bill Atwood's

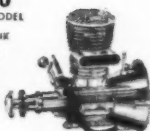


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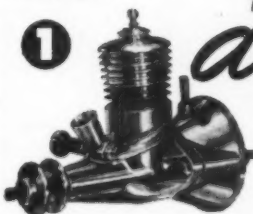
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