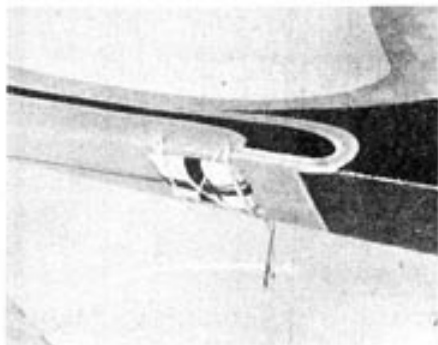


FLEDGLING

Build this beautiful Class 1/2 A free-flight job and go after those trophies! Full-Size Plans!

by Claude McCullough

● As a dyed-in-the-wool enthusiast for king-sized gassies, I wasn't too enthusiastic about the prospect of a new A.M.A. event for "dinkies." Cute as the new Cub, Spitfire and Infant engines are, it took the official pronouncement that 1/2A was henceforth a separate free-flight event to drag me away from my 65's and onto the



A close-up of the dethermalizer. The fuse burns through the rubber, and the chute, anchored to the sub-rudder, falls clear and acts as a brake.

miniscule newcomers. Now, after flying several, I'll have to admit that they will get up and go with the best of the big jobs and have other advantages of convenience, ease of building and "crackability" that can't be beat.

Fledgling was developed from a slightly larger 1/2A original design of 160 square inches. With only 135 square inches of wing, performance is really contest-climb type. Weighing in at exactly 5 ounces, as required by the .049 displacement of the powerful little O.K. Cub, the gliding qualities are excellent and 3-minute flights on short test runs are not unusual.

Sparless construction was used

in the wing and stabilizer. This cut building time considerably, yet the parts turned out to be extremely rugged, with just enough flex to absorb shocks of landing. Better yet, there was no tendency for the wing to warp while being covered. A simple yet rakish fuselage layout added to the appearance of the plane, without extra weight and work.

Two evenings' building will put a Fledgling in your stable of contest jobs . . . and without denting your bankroll nearly as hard as a big ship would. The Bill of Materials lists the sizes of wood and other items needed and the plans and parts are shown full size.

The wing and stabilizer are of similar construction. Cut and notch the leading and trailing edges and pin them in place on the plan. Cut the ribs from 1/16" balsa sheet and slide them into place.

The wing ribs taper—easily accomplished by cutting off the back of the basic wing rib as each is fitted into place. This will leave a slight bump toward the tip, requiring that each rib be trimmed flush with the trailing edge. Wrap a piece of sandpaper around a block and sand the ribs down where necessary to airfoil shape. This simplified wing contour gives just as good perform-

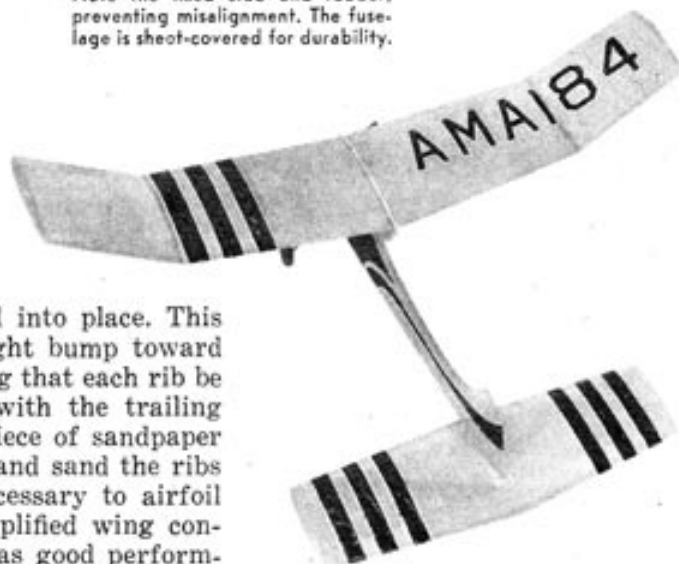
ance in 1/2A sizes as does an elaborate under-cambered section.

Dihedral gussets are used to strengthen wing breaks and a plywood brace further protects the center joint. Soft balsa blocks are cemented to the tips of the wing and stabilizer and sanded to a streamline, rounded shape. Use a whittling knife to carve the leading and trailing edges to rough shape, then bring them to final size with a sanding block.

The fuselage is built up on a bottom crutch of 1/8" square balsa. Erect the pylon center, fuselage backbone and rudder keel on the crutch by first cementing formers A, E and L in place, to serve as guides. When the outline parts have been trued up and cemented in place, the other formers may be added.

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Note the fixed stab and rudder, preventing misalignment. The fuselage is sheet-covered for durability.



THE FLEDGLING

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The landing gear is bent from 1/16" wire and cemented in a recess cut into former A. Use light plastic wheels to form a serviceable landing gear that will be able to take advantage of the new A.M.A. ruling giving 5 seconds additional motor run for R.O.G. launching. We don't recommend a fancy but hard-to-manage one-wheel or retracting landing gear.

The 1/16" plywood firewall is drilled to receive whatever engine you select and the taps for the mounting bolts are cemented permanently in place on the back. Cement the firewall in place with the motor mounted, and let it dry thoroughly before unbolting the motor to complete construction.

The dethermalizer used is the chute type, not only because it is very dependable but because, sooner or later, the light tail attachment required for the pop-up tail devices causes an adjustment change at a crucial moment. The rigid tail mounting of the Fledgling eliminates this bug-a-boo.

The installation of the chute is in what might be called a chute "pocket," rather than the usual box or compartment. The theory behind this is that the pocket is so shallow and small (just large enough for the tightly folded and wrapped chute) that, when the fuse burns through the rubber band which holds the chute in, the chute pops out by its own expansion. No trouble has been encountered with the chute catching or sticking, as sometimes happens when a compartment is used—the pocket is so shallow, there is not room for it to do so.

The chute is a piece of silk or heavy tissue about 6 inches square. Shroud lines and the extending line are heavy thread. Make the extending line fairly long, so that the chute is several feet behind the plane when open. This brings the plane down more definitely than when the chute is close to the plane.

Care should be taken when wrap-

ping the lines around the chute so that they do not become tangled when unwinding. Wrap several turns in one direction around the packet, then several in the other direction, and test your wrap for easy opening characteristics.

The fuse used was ordinary dime store twine, called carpenters' chalk line. It burned very dependably at about 3 minutes per inch and required no chemical treatment. Tie a knot in the end and secure it in place with a small rubber band on the extension hook on the fuselage side. Then loop the rubber over the four hooks on the sides of the parachute pocket, in an hour-glass pattern.

Install the roof of the chute pocket and the wire hooks before planking the fuselage. The fuselage bottom is covered with 1/16" sheet balsa and the sides are planked with 1/32" sheet. The side pieces should first be cut carefully to fit and then wet so that they may be warped into place to follow the contours of the fuselage. Pin securely until dry.

Sand to shape with a sandpaper block, taking care not to sand too deeply on the planking near the edges. To make certain you have sufficient sanding room, take care in cementing the planking, to insure flush-joining with the backbone and keel.

The planking on the bottom of the first section should be cut away to provide easy access to the "tank." This consists of a piece of transparent tubing about 8" to 9" long, depending on its exact inside diameter and the fuel you are using. Clock your engine at top speed to determine the exact length required for the desired run. Coil the tubing in the compartment, with the lower end protruding. An auxiliary tank is plugged onto this end for starting and warm-up.

When ready to launch, pull out the external tank and the engine will run on the fuel in the coil—an extremely light and dependable cut-off arrangement. Tack the planking back on with several drops of cement, so that it easily may be removed to adjust the length of the tubing.

The entire plane, planked as well as unplanked portions, is covered with jap tissue or silkspan. The original ship was doped with butyrate dope, a hot-fuel-proofing idea provided by Denny Davis, California's free-flight flash. The dope was used full strength and no warps developed.

Should you have any aversion to such fate-tempting, add a little castor oil to the dope to cut down the possibility of warp. Another trick that helps avoid twists is to dope the wing and stab in alternate bands of several widths. After this has dried, dope the spaces in between. This takes a little patience but avoids the overall pulls that make pretzels out of light wings and tails.

Our decorations were hand-painted with commercial fuel-proof dope. If you're not handy with a brush, the new decal product, Trim-Film, may be the answer to the problem of giving your ship a bit of final polish.

Flying the Fledgling is easy—if you take it easy. Start with very short motor runs of about 4 seconds, with the motor running at least three-quarters speed. On the first flight, use just a little left rudder and about 2° of right thrust. The plane should climb to the right and very likely will stall slightly in glide circles to the left.

To bring the Fledgling to final adjustment, gradually bring the rudder around to the left until the glide circles are flat and of a fairly small diameter (unless they already are small enough from the first rudder adjustment). At the same time, balance the increased left rudder with more right thrust, if necessary, to keep the airplane circling to the right under power.

Although the balance point should be correct, there might be some chance of the tail being light, which may cause nose heaviness instead of a stall in the glide on the first flight. If your ship is not stalling on straight or large diameter glide circling, add a little weight in the tail to produce the slight stalls necessary to dampen down the plane into a thermal-catching, small-diameter circle glide. Under power, the circle to the right need only be enough to prevent the ship from looping in the climb—about 1½ to 2 full turns in 20 seconds.

Keep the dethermalizer fuse short—your Fledgling can disappear into the blue in a disconcertingly short time, even in a light breeze!

BILL OF MATERIALS

(Balsa unless otherwise indicated)

- 1—1/16" x 3" x 36" (medium) ... Wing and stab ribs, fuselage formers and keel, rudder sections, fuselage bottom planking
- 1—1/32" x 3" x 36" (medium) ... Fuselage sheeting
- 2—1/4" x 1/4" x 36" (hard) ... Fuselage crutch
- 1—3/16" x 1/2" x 18" (medium) ... Stab leading edge
- 1—1/4" x 3/8" x 36" (medium) ... Wing leading edge
- 1—1/4" x 2" x 36" (medium) ... Wing trailing edge, stab trailing edge, pylon sections, forward fuselage sections

Several small soft blocks for filleting—in front of pylon and for wing and stab tips; 1/16" plywood for firewall and dihedral gusset; 3/32" plywood wing platform; 1/16" wire wing pegs; 1/32" wire for dethermalizer hooks; Transparent tubing for fuel tank; Red silkspan or jap tissue for covering; Pair of light plastic wheels; 1/16" wire for landing gear; Silk for dethermalizer chute; Butyrate dope; Cement; OK Cub .049 or similar size engine.

FLYING MODELS