Aeronca C-3

By Charles Hollinger.

She was known as the “Flying Bathtub” in the old days. Yet today there are still a few putt-putting around the country after more than fifteen years’ service.

The original C-3’s were built in 1933 and our model is a faithful replica even to the dummy cylinder, exhaust manifold and all the flying wires.

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When comparing flying performances, however, the real ship isn't in the same class because the model executes consecutive outside loops and vertical eights as smoothly as any stunt ship. Inverted flight is a snap regardless of the high wing and dihedral.

Some of the free-flight boys say it's a crime to put lines on such a natural free-flight scale model.

They have a point, for one could search a long while for a better-proportioned scale job capable of stable flight without lines.

For those wishing to make a free-flight of the Aeronca I would recommend substituting a .19" displ. motor, building up the tail surfaces and changing the wing section shown to a Clark Y.

The construction is standard throughout most of the ship making for an easily-built model.

Cut formers 2, 3, 4 & 5 from 1/8" sheet and assemble on to the 1/8" x 1/4" longerons, making sure they are slanted correctly according to the side view.

Now cement the 3/32" sheet sides to these formers. Cut former #1 from a piece of 1/8" plywood. The motor mounts are glued solidly to this former and allowed to dry. Notch the hardwood top fuselage stringer so the wing spars and trailing edge can seat properly cement in place.

The next step is to get a rag and soak it in hot water. Partially wring it out and rub onto the outside of the fuselage sides from former #2 forward. This makes for much easier bending when gluing former #1 to the sides. The bottom of the fuselage is covered with sheet with the grain running crosswise. Don't forget the two 1/8" dowels between formers #1 and #2. The landing gear is bent and mounted to the fuselage. Form the wing fuselage brace from 1/16" dia. wire and mount securely to former #1.

Cut the tail surfaces from 1/8" soft quarter-grained stock. The shaped elevators are joined together with the 1/8" x 1/4" hardwood strip. Cover the tail surfaces with white tissue or Silkspan and set these surfaces under magazines over night so they won't warp. Use fairly heavy brass sheet for the elevator horn solder the small reinforcement to it. Cloth hinges may be used if desired, though the metal ones are stronger and look neater. The stabilizer is now cemented to the fuselage.

Bend cabane strut from 1/16" dia. wire and mount to former #2. The bellcrank is bolted to the top fuselage stringer and the push rod is connected to the elevator horn.

The cowl is next and requires some large balsa blocks. If possible, bandsaw these to outline shape then fit the two top ones to the motor mounts and temporarily cement in place. Do the same to the bottom block. Now completely shape the cowl using a knife and finishing with sandpaper. Separate the blocks and hollow out the lower one only. When mounting the motor use lock washers because you won't be able to get at the bolts to tighten them once the cowl is in place. Be sure that the tank is perfectly level with the needle valve so the motor will run well inverted. Fit the two upper cowl sections around the motor and tank, and glue securely.

Build the wing in two separate sections using hard spar stock. All the wing ribs are of 1/16" sheet preferably hard for the four center ones. Slip the tips in place and sand to shape. The two completed sections are joined together by the plywood gussets using 1 1/8" dihedral under each tip. Add the aluminum tubing lengths through which the flying wires will pass. Be sure to add the three quarter ounce weight in the outboard wing tip to balance the weight of the flying wires. Dope the center section of the wing which will be visible, and cover with celluloid.

Apply double layers of Silkspan to the fuselage and a single layer over the cowl. Cover the wing with a single layer and cl car-dope the complete ship. Our model was colored dark red and cream with black separation stripes making a very classy color scheme. To make the dark red, mix about a fifty-fifty mixture of maroon and vermilion. After the model has been completely colored and the license numbers painted, spray on a coat of Aero Gloss clear or acetate-butyrate dope to fuel-proof your finish. These finishes

will not stop the regular glow fuels containing nitromethane but most motors will put out a reasonably good amount of power on straight alcohol, amyl acetate and castor mixes so use them.

Now that the ship is doped it is time to assemble the wing to the fuselage. Open the cabane strut at the front slightly and slip the wing in place. Wrap and solder the cabane strut to the wing-fuselage brace. Take some regular .015" cable and solder one end to the brass tubing which connects with the landing gear at the nose. Then run it through the aluminum tubing at the wing leading edge and from there up to the brass tube in the cabane strut where it is soldered, then through the other wing and back to where it started pull tight and solder. Proceed with the wiring by checking with the drawings and photos. 'Warning: Do not substitute the regular single strand steel flying wire for the cable because it will crystallize and break from vibration while flying.

Before taking your new ship out to fly for the first time check for the location of the center of gravity. The model will fly nicely with the balance point within half an inch either way of the point shown on the plans. Of course the further forward or aft the c.g. is, the trickier she will be to fly.