AERONCA LB

Excellent for AMA or Sport Scale, the LB flies as good as it looks. / story and photos by Bill Bertrand.

I first thought about building the Aeronca LB for RC Scale in May, 1969. At that time Paul Matt three-views and an article on the Model L appeared in the AAM. When I saw Paul's drawings, I knew that I had to build this ship. It had such pleasing lines and good moments. I had always liked this ship and I had even built rubber models of it from 10c Comet kits, back in the late Thirties. I was in the middle of constructing my Fokker D VII and had the Handley Page V 1500 on the drawing board, so the Aeronca would have to follow that.

The Aeronca has many things that make it an excellent subject for AMA or Stand-Off Scale. It has a semi-symmetrical airfoil for aerobatics; it's all fabric covered for lightness and has a radial engine with a speed ring in which a model engine can easily be hidden. The cabin is easy to see into, so that the interior detailing doesn't get passed over, like it might on a high-wing design.

As most of my friends know, I like to build my scale ships large and for good reasons. Large models usually draw a lot of attention just by their size, and a large *scale* ship does so even more . . . we all like the other fellows to scrutinize our models. The big ships also fly so much more realistically than the smaller models. The big ships fly easier, too—everything seems to happen much more slowly, giving the pilot more time to think.

I have been flying large models for many years now. I have had people walk up and tell me that they had come to a NATS primarily to see my big Fokker (1/4 size) fly again.

This ship is presented here as an AMA Scale effort, and it is drawn to exact scale. However, I could suggest no design changes that would improve it for Stand-Off Scale.

I make my living as a draftsman so, when I draw up a ship, I usually spend about a year of lunch hours doing it rather than drawing at home. While I started drawing the Aeronca LB in 1971, the actual construction wasn't started until the fall of 1972. At this time, I had not found a full-size LB to copy. By January, 1973, I had the structure all built and got serious about finding an LB. I found an LC in California, but didn't like the cowl—the LB has a much cleaner looking cowl.

Then I found a 1936 LB in Indiana, which had been disassembled and in storage for about ten years. The owner, Mr. R. Frost, was very cooperative in helping me get pictures of all the parts and he came up with a couple of pictures of the ship before it was dismantled. After taking pictures of the ship, I found several minor discrepancies in the AAM drawings, i.e., the diagonal ribs in the ailerons.

I am showing the drawings for a model that is scale, but not the fine details needed for AMA competition. If one wants to make a full AMA scale model of this ship, he will have to find all his support information and pictures to detail his ship accordingly.* A ship this old will have had some modifications through the years, plus they changed somewhat from time to time in the factory.

I took my LB to the '73 NATS before it was completely finished (it still isn't) and with some things rushed to the point that I wasn't at all happy with them. My landing gear was one of these things and, in my haste, it was installed an inch too far forward, making my ground handling very bad. This, along with very strong winds (90° to the runway), cost me most of the points for my take off, landing, taxi and touch-and-go on every flight. In spite of the poor ground handling, I still ended up in 9th place.

I since have moved the gear back and added 2° toe-in to each wheel; now the LB handles like any good two-wheeler should. I didn't get to the NATS this year, but I went to the Canadian Nats instead (100 miles versus 1000 miles) and ended up in second place in FAI Scale. The model also had the distinction of taking third in static Scale judging at the 1974 Toledo Conference.

To start construction, begin by cutting out all the fuselage formers (F1 through F10). Trace all the formers and ribs onto tracing paper so as not to destroy your plans (or buy two plan sets). Be sure to use plywood and spruce in each place where specified—this is important. *All spars and stringers are spruce.* Take each former and tack glue the frame to it (as shown on the plans) and be sure to mark the center line on each frame.

Next, laminate the leading edge of the fin as well as the trailing edge of the rudder. These both can be done at the same time, then separated after they are dry. Use either 4 1/16 x 1/4" or 3 3/32 x 1/4" for these laminations. I find this easy if the 1/16 x 1/4" spruce strips are

soaked in the bathtub for several hours before starting. Wipe excess water off with a towel, run a bead of Titebond the length of one side on three of the four pieces and then pin to the plans, using Saran wrap to protect the plans.

The frames can now be pinned in their places on the plan view, or better yet, use a piece of straight, flat wood (with a center line and the former locations marked) and glue the frames in place—this makes a good building fixture.

If you add the top stringer first, you can watch this when adding the sides to help keep everything straight. It would be best to soak the 1/4 x 1/4" before adding to the fuselage. When installing the stringers, start at one end and add opposite sides to each progressing former, one former at a time to help keep everything true.

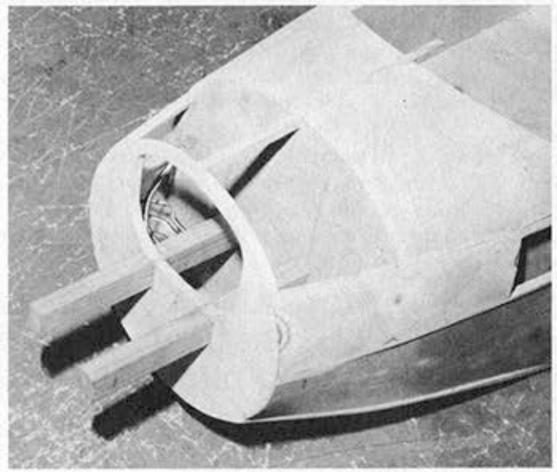
After all stringers are on, add the 1/2 x 3/4" maple motor mounts and the spruce vertical post for the fin, then add the fin leading edge, splicing it to the top stringer between formers F9 and F10. Next, add 1/16" plywood F11 to the sides and nose, and glue F12 to them. Then sheet the top between F2 and F4 and the bottom between F1 and F4 with 1/32" plywood. Add F14 and F15 for the stab and this should about finish the fuselage structure.

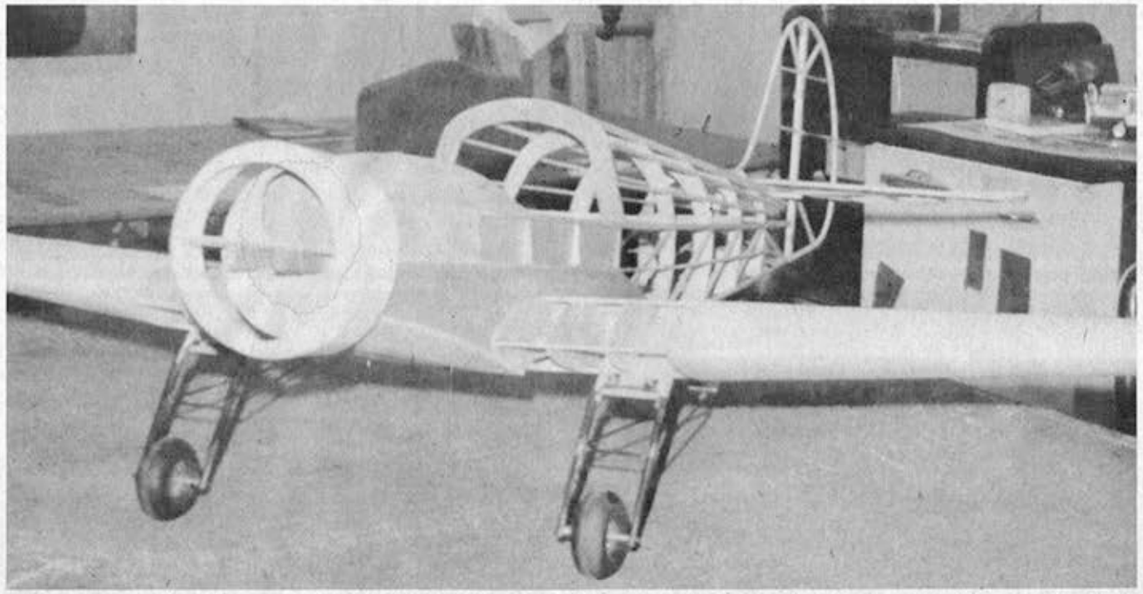
The rudder, stabilizer and elevators are all spruce. Build them flat on the plan, laminating the outlines.

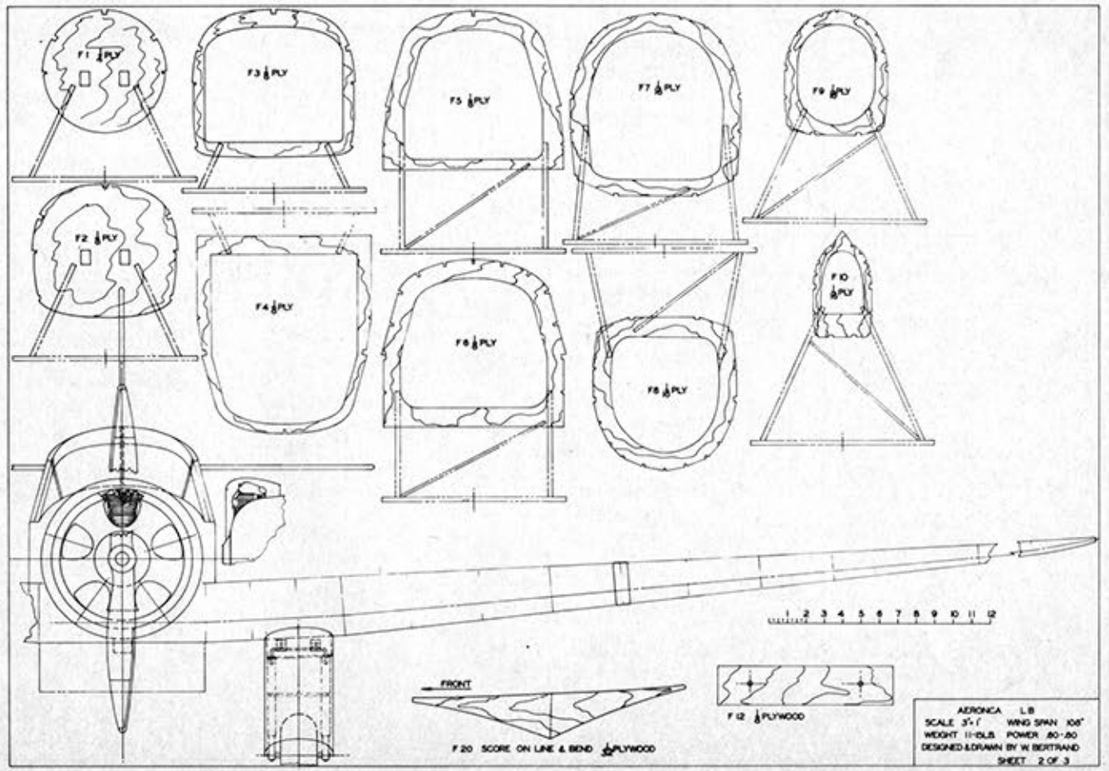
The wing is built in three pieces—the center and two tapered sections. First, build the tips in the same manner as the tail outlines and set aside until needed. Build the two tapered sections first by standing ribs W5 through W15 on the plan and sliding the spars in from the W5 end. Next, the leading and trailing edges are added, then the preshaped tips and 3/16 x 3/16" material where the leading-edge sheet ends. Cut all spars flush with W5.

The ailerons are next. Add a 1/8" x 1/8" to the top-rear edge of the top-rear spar and to the bottom rear of the bottom-rear spar. The ribs will have to be notched to receive these. Next add the 3/16" sq. to top and bottom front edges of the aileron, being sure to leave a 1/16" gap at the top and about a 1/2" gap at the bottom. Do not cut the aileron loose at this time. The aileron diagonals are 3/32 x 3/16" spruce, added at the top and bottom. The ribs are left uncapped, so that only the diagonals show when covered.

Next build the wing center section. Start by pinning down the ribs and sliding in the spars from the ends, then add the leading and trailing edges (the trailing edge should break at W1 and the leading edge ends at W2). The center spar doublers are pieces of 1/2 x 1/4 x 6" spruce, tapered to fit the angle of the spars and are glued to the top of spars. At this point, add 1/4 x 1/2 x 5" spruce doublers to the end of the center-







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section spars. Taper bottom doublers only so as to fit the angle of the bottom spar on the outer panels—the top spar does not require tapering.

Remove the center section from the plans and turn upside down. Cut down to the spars front and rear and remove that portion of each rib (save the pieces) between the rear of the back spar and the front of the front spar. Add 1/16" plywood to the bottom of the spars from W5 on one side to W5 on the other side, then trim and replace the bottom pieces of the ribs. Return the center section to plan (upright) and add the outer panels.

If a straight piece of 1/4 x 1/4 x 18" is glued across the

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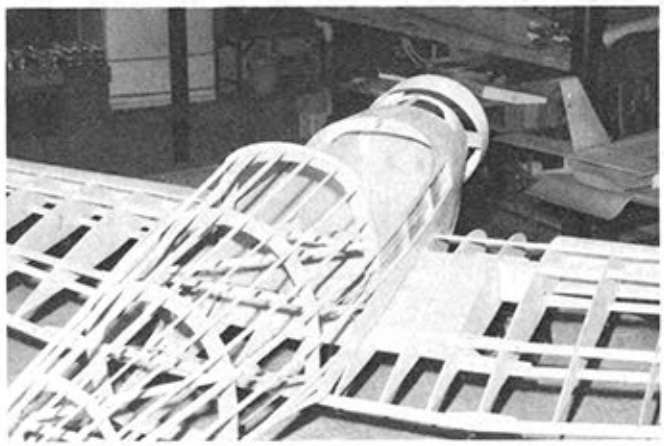

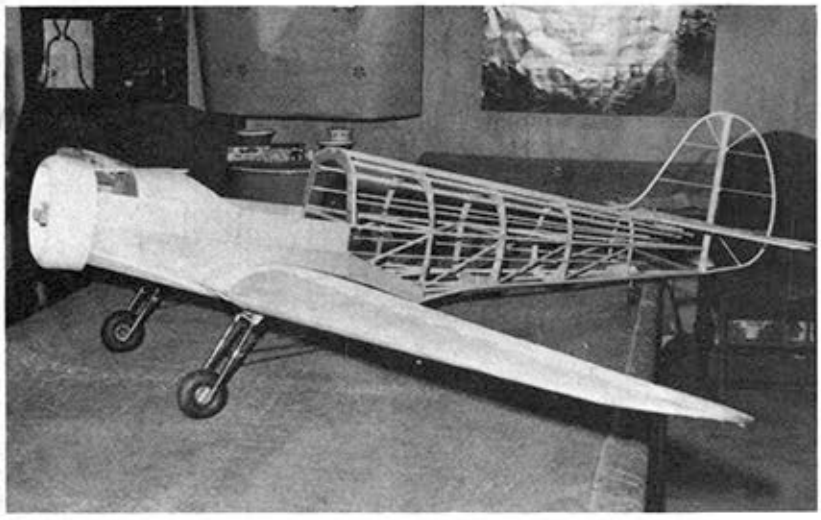

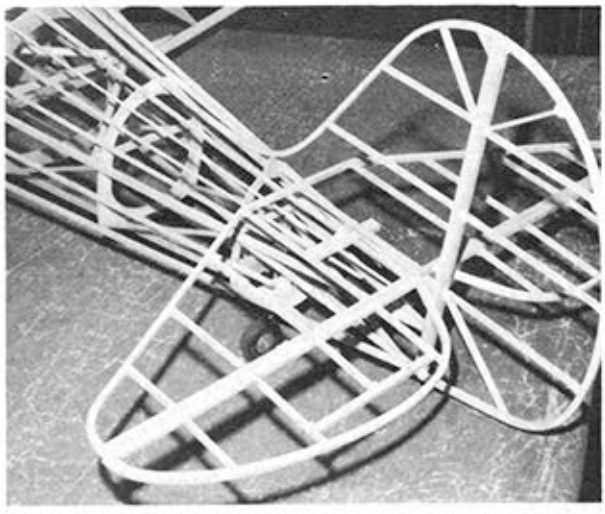

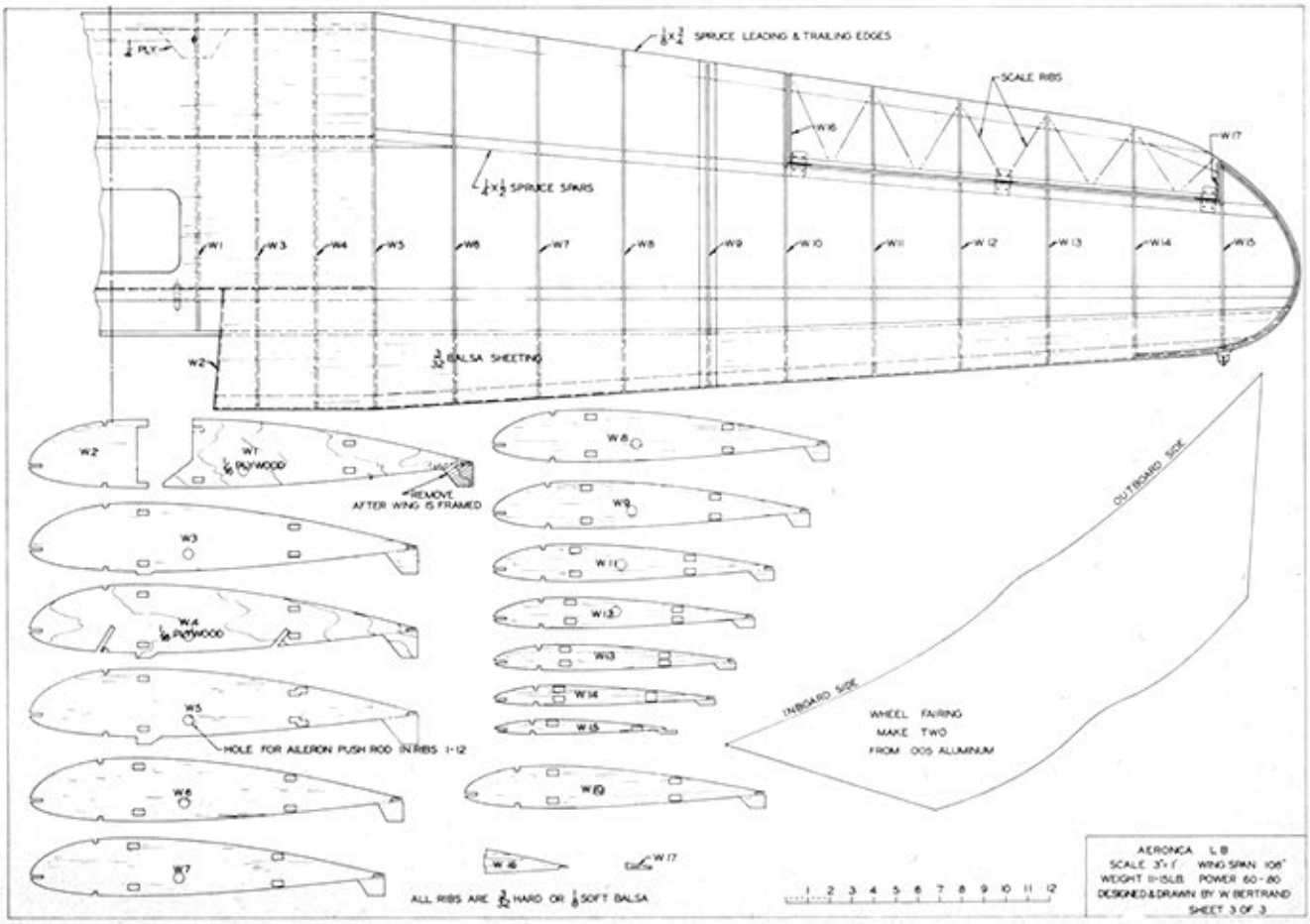

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bottom of each W12 so that the stick extends beyond the trailing edge, it will help in keeping the wing true. You can sight down these sticks from one end and correct any warp as you are building. Next add 1/16" plywood doublers to the back face of the front spar and to the front of the rear spars between W5 and W15—these are short pieces added between each rib.

Once the wing is all trued up and dry, add a 1/16" plywood doubler to the top of the center-section spars in the same manner as the bottom. Make sure, at this point that everything is true . . . once the glue is dry, the center section will no longer twist.

Next add the landing-gear mounts W18 and W19. Cut the ailerons loose from the wing. Now the leading edge sheeting and cap strips may be added. All caps are 3/32 x 3/16" spruce and the leading edges are 3/32" balsa sheet. The center should be sheeted out to W5 on top and bottom. This completes the wing.

The wing fillet is made by gluing a piece of 1/32" plywood to the fuselage wing saddle (F20). With the wing in place, fit and cement another piece of 1/32" ply to the top of F20, curving up to the side of the fuselage to complete the fillet. A piece of Saran wrap on top of the wing will keep the fillet from being glued to the wing.

The plans show the pieces for a laminated balsa cowl. Another option is a wood mold, from which a fiberglass cowl can be made.

The wheel fairings are made of thin aluminum or plastic sheet and are wrapped around the landing gear to form an airfoil shape. The landing gear is made of steel tubing (for the sleeves) and 1/8" music wire. These assemblies are silver soldered together. The wheels are 4½" and are available through Sig.

My ship is done with silk and Sig low-shrink dope. I still find this hard to beat for all-around workability and finish. If done in MonoKote, a fair amount of weight could be saved—this would be worthwhile for a Sunday flyer. The ship flies like a real plane as do most large models, it responds well and everything seems to happen much slower than with a smaller model.

I'm using the World Expert radio with five servos (one for flaps). Power is a Webra .60 swinging a 14-6 Top Flite prop. Because of all the extra scale items, like seats and interior, my ship weighs 14½ lbs. but even at this weight it flies very nicely and has no bad habits. The LB will do much of the AMA Stunt Pattern and it has raised a few eyebrows in doing so. I find these big ships so much fun to fly that I would rather play around just making touch-and-goes with one, than fly any high-powered stunt ship.

So, if you ever had a hankering to build a really big model, the Aeronca or any other, give it a try and I think you will be pleasantly surprised at how much fun the big birds are.

RCS