

By WALT MOONEY

VERVILLE AIR COACH

• In the January 1979 issue of **Model Builder**, Colonel Hurst Bower had a three-view of the Verville Air Coach published. Because Mr. Alfred Verville was a friend of mine in his later years (we became acquainted during the building of a couple of replicas of the Curtiss A-1 for the celebration of 50 years of naval aviation), this three-view of the Air Coach was put aside to be converted into a model. In early 1980, a drawing was completed for a twice Peanut-size rubber powered scale model of the Air Coach.

Three years later the model structure was completed. About the same time, I met Pete Glor at work at Convair and mentioned the project. A few weeks later, he was sent on a business trip to Washington, D.C. and set himself up to get a short time at the research library in the Aero-Space Museum. While there, he got the project in a little trouble by getting copies of data on the Air Coach. There was good news and bad news. As Bill Hannan would say, "Don't trust photographs either." Nevertheless, Colonel Bower's three-view was proved to be reasonably accurate, but the side-view did not represent the Detroit diesel engine version, but one with another engine. The small three-view reproduced on the drawing is Colonel Bower's modified to more nearly match the photos of the diesel powered version.

Even the articles obtained by Pete, one of which was the original sales brochure, are a little questionable. For instance, it says that the color scheme was black and vermilion with aluminum painted struts. The top of the wing, the fuselage, and the vertical tail are black, the bottom of the wing is vermilion. The photos clearly show that the top of the wing and horizontal tail are lighter than

black. My suspicion is that the wings and horizontal tail were red, and the body and vertical tail were black. The sponsons are black and the struts are aluminum. The Verville logo is blue and white.

The model is pretty much constructed in the standard fashion for an airplane of this vintage. Laminated wing tips and surface outlines are used because they are strong and lightweight. Except for the root ribs, all the ribs are of sliced construction.

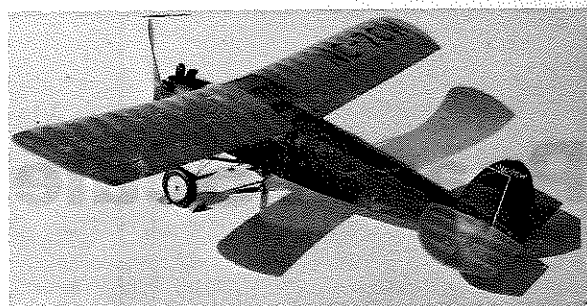
Balsawood wheels obtained from Old Timer models are also used. The engine cylinders are primarily Williams Brothers plastic pieces. The exhaust stack is a bendable plastic soda straw. The instrument panel reproduction of the actual diesel engine Air Coach panel, and was copied directly from the sales brochure as was the vertical tail logo. By the way, that logo was also used on the wheel hubs which stick out on the outside of the wheels just like the soldered washers holding the wheels on the model.

The fuselage is started by making two fuselage side frames directly over the plan. Use hard, one-sixteenth square balsa sticks for the longerons. This is pretty important because this fuselage is relatively large for this size structure.

While the sides are drying, start the wing structure. Strip several 3/32 width sticks from 1/32 sheet. (Select hard balsa for these sticks.) Build the wing bottom directly over the plan. Pin the leading and trailing edge sticks down over the plan and cut the bottom of the ribs to length and cement them in place between the leading and trailing edges. Slice the forward and rear spars from 1/16th sheet. Note that the top of the spar sticks should be beveled to match the top of the ribs. Cement the spars in place.

By this time, the fuselage side frames will be dry, even if you use Ambroid as I do. Remove them from the plan and with a thin, sharp blade, separate them from each other. Now, assemble the two side frames into the basic fuselage box frame by adding the cross-pieces between the longerons at each of the uprights. Note that the aft end of the fuselage structure is as wide as the rudder fairing. The top formers are triangular in shape with a notch for the centerline stringer. The two other top stringers are simply cemented to the formers. There are two stringers on each side. One is at the bottom of the windows and the other about half way to the

Walt Mooney has done it again with another gorgeous F/F scale model of the Verville Air Coach. This one is the 26-inch rubber powered version. It is a terrific flier! You could say that the Air Coach just begs to be built as a lightweight F/F model.



bottom longeron. Add the block balsa nose pieces at the forward end of the fuselage box.

Make a pattern to the shape of the top of the wing ribs. Use it to cut out two root ribs and to slice from hard 1/32 sheet all the rib tops. Notch the root ribs from the bottom and cement them in place. Then, install all the rib tops. Also install the wing tips, blocking them up to the position shown in the front-view.

Build the horizontal and vertical tail from sticks directly over the plan. These structures will be 3/32 thick and flat without an airfoil section that will have to be added by cementing soft 1/16 square sticks from the leading edges to the trailing edges of the tail surfaces on both sides. When dry, the surfaces are carefully sanded to the desired airfoil, and temporarily set aside.

Cut the wing just outboard of the root ribs, raise each tip 9 inches, and cement it back together for the correct dihedral angle. Allow glue to harden.

Make a nose block for the very front of the fuselage. It consists of a forward part which creates the outside contour, and an inner plug which fits snugly into the forward end of the fuselage box. Now, carve and sand the nose of the fuselage to the desired contours. I note that my drawing shows the forward, top, and side contour blocks as being hollowed out. I did not do this, and do not really think it is necessary... unless you want a really lightweight model. It doesn't make sense if you are going to have to add ballast to the nose to fix a tail-heavy model. The model in the photos balances 3/4 of an inch behind the front strut.

Shape the wing's leading and trailing edges to the airfoil contour. Now, fit the wing onto the top of the fuselage. The top fuselage stringers should be trimmed to just contact the cross-piece that fits

between the root ribs about an inch behind the top of the windshield. A small former will be needed just on top of the rear spar to support the stringers. Do not cement the wing in place at this time, it should be covered first.

Cement a piece of 1/16 balsa sheet between the bottom stringers at the aft end of the fuselage to support the tail wheel.

Add balsa fill-ins on the fuselage to: (A) bring out the structure to the covering surface between the stringers at the rubber motor rear peg support; (B) between the bottom side stringers and the bottom longeron at the landing gear sponsons to make a solid structure for the shock absorbers and the front struts; and (C) between the top side stringer and the top longerons at all the window uprights to preserve the contour of the fuselage. Sand these balsa fill-ins to the correct contour (see the front-view).

Bend the landing gear axle wire to match the front-view. This has the two shock absorber movable struts soldered to it. The assembly is then cemented into the fuselage with the support of a 3/8 by 3/32 cross-piece between the sponson fill-ins.

All the strutting for the model is carved to a streamlined cross-section from medium to hard balsa. The upper part of the landing gear shock struts contain a piece of aluminum tubing which must be a free-sliding fit over the wire.

Carve the sponsons from balsa blocks. Put all the surfaces in place on the model using pins and masking tape to hold all the structure in position. Fit all the struts and the sponsons into place as accurately as possible lightly cementing them in place when you are satisfied. Then, carefully disassemble the struts and major components for final sanding and covering.

Carefully locate where each cylinder of the engine is located and make a hole to accommodate the bottom of the Williams Brothers cylinders. A sharpened piece of brass tubing works better than a twist drill for making holes in balsa blocks. The cylinder blanks required are the ones that are approximately seven-tenths of an inch long and have about a three-tenths base diameter. They need to be shortened by having their top three cooling fins removed. Also, now is the time for making a hole to accommodate the exhaust stack.

Cover all the model components separately except the center section of the wing and the top of the fuselage over the wing. This part must be covered after the wing is finally installed on the body.

Note that there are soft balsa fairing blocks on the bottom of the rudder to finish off the aft body shape.

Tissue shrinking and final doping follow standard practice. The numbers shown are correct for one of the two diesel powered Air Coaches that were built.

Use a commercially available plastic propeller, or carve one of your own. The one in the photos is a molded plywood propeller that came with a Jim Walker ceiling walker years ago. (I guess that dates me), and I would not except too many people to have them available.

The Verville Packard diesel powered Air Coach was the latest state-of-the-art design when it was built. It had a luxurious interior and safety glass all around. Its sales brochure claims that it could fly from Chicago to New York on four dollars worth of fuel.

Well, a rubber powered model of the Air Coach won't fly from Chicago to New York, but it will fly well enough to provide a lot of pleasure. Enjoy a model of Alfred Verville's design genius... I cherish the memory of a real gentleman and a great airplane designer. ●